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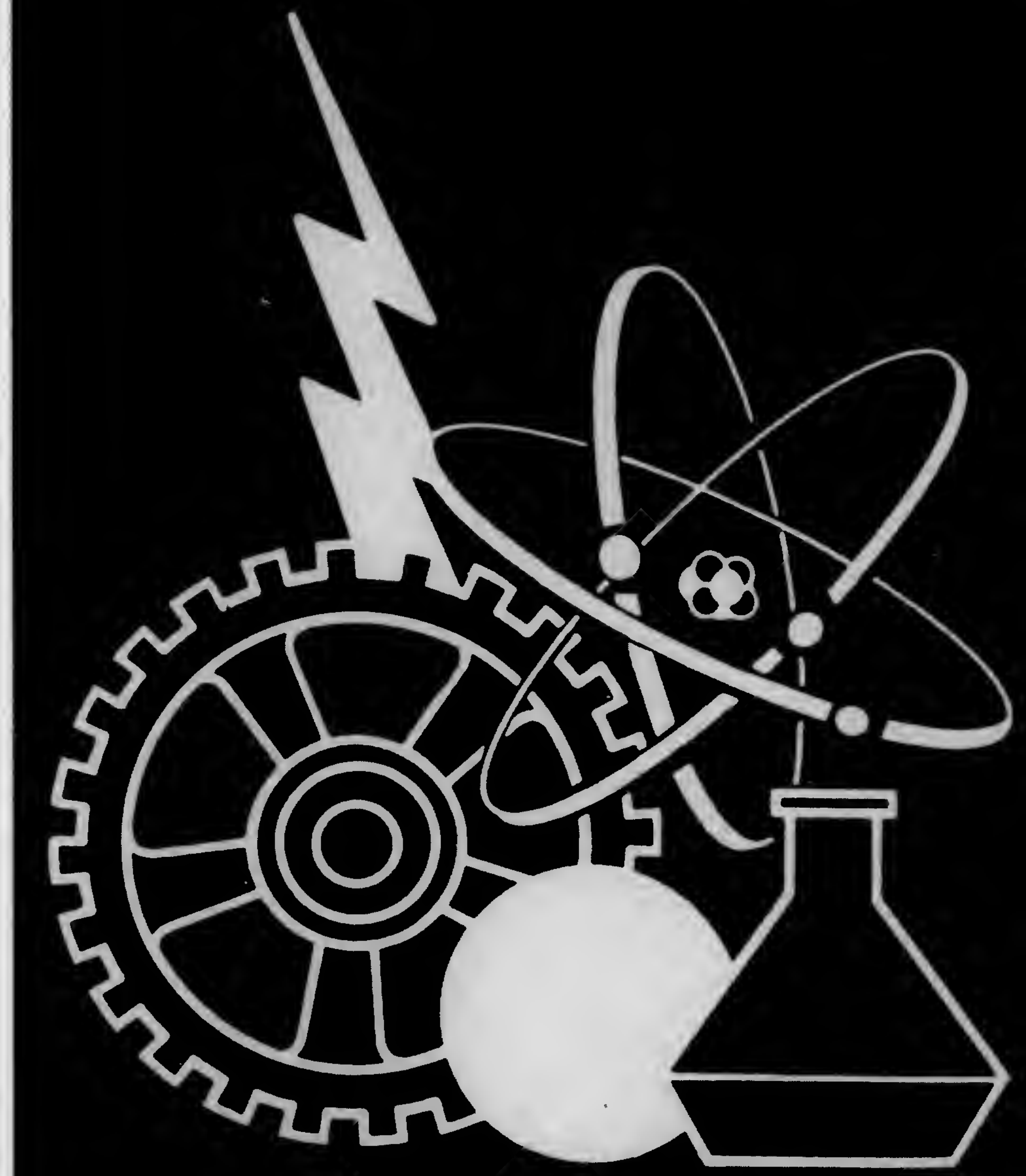
OFFICIAL GAZETTE

of the
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

April 7, 1998



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OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20.	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on April 4, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,402,535 through 5,404,589
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on April 2, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,003,630 through 5,005,213
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on March 31, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,653,119 through 4,654,892
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED January 28, 1998
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,775	06/912,093	11/01/88
(4,567,491)	(06/633,171)	(01/28/86)
4,566,140	06/616,313	01/28/86
4,566,143	06/679,731	01/28/86
4,566,144	06/502,433	01/28/86
4,566,146	06/605,052	01/28/86
4,566,151	06/532,310	01/28/86
4,566,152	06/484,421	01/28/86
4,566,153	06/650,321	01/28/86
4,566,156	06/517,898	01/28/86
4,566,172	06/583,512	01/28/86
4,566,173	06/384,855	01/28/86
4,566,175	06/412,753	01/28/86
4,566,176	06/612,987	01/28/86
4,566,177	06/609,268	01/28/86
4,566,194	06/709,160	01/28/86
4,566,195	06/692,122	01/28/86
4,566,212	06/544,683	01/28/86
4,566,215	06/598,328	01/28/86
4,566,220	06/645,415	01/28/86
4,566,224	06/664,219	01/28/86
4,566,226	06/662,675	01/28/86
4,566,229	06/629,991	01/28/86
4,566,232	06/563,778	01/28/86
4,566,245	06/505,257	01/28/86
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4,566,285	06/574,135	01/28/86
4,566,293	06/677,252	01/28/86
4,566,298	06/605,177	01/28/86
4,566,306	06/587,535	01/28/86
4,566,308	06/667,988	01/28/86
4,566,309	06/511,056	01/28/86
4,566,311	06/649,120	01/28/86
4,566,312	06/606,352	01/28/86
4,566,317	06/575,117	01/28/86
4,566,330	06/657,028	01/28/86
4,566,335	06/641,154	01/28/86
4,566,347	06/631,860	01/28/86
4,566,363	06/583,121	01/28/86
4,566,366	06/648,307	01/28/86
4,566,367	06/559,275	01/28/86
4,566,371	06/444,955	01/28/86
4,566,378	06/730,249	01/28/86
4,566,381	06/612,243	01/28/86
4,566,389	06/678,763	01/28/86
4,566,391	06/576,756	01/28/86
4,566,395	06/667,990	01/28/86
4,566,396	06/655,345	01/28/86
4,566,398	06/637,197	01/28/86
4,566,407	06/661,568	01/28/86
4,566,412	06/555,534	01/28/86
4,566,422	06/672,857	01/28/86
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4,566,498	06/652,418	01/28/86
4,566,506	06/667,223	01/28/86
4,566,507	06/578,494	01/28/86
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4,566,520	06/621,204	01/28/86
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4,567,178	06/689,325	01/28/86
4,567,179	06/659,733	01/28/86
4,567,181	06/596,932	01/28/86
4,567,183	06/560,460	01/28/86
4,567,184	06/530,811	01/28/86
4,567,185	06/537,182	01/28/86
4,567,186	06/697,802	01/28/86

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Patent Number	Serial Number	Issue Date
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4,895,134	07/345,484	01/23/90

Patent Number	Serial Number	Issue Date
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Patent Number	Serial Number	Issue Date
4,895,816	07/296,163	01/23/90
4,895,817	07/207,465	01/23/90
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4,896,150	07/182,920	01/23/90
4,896,152	07/318,097	01/23/90
4,896,154	07/114,300	01/23/90
4,896,156	07/252,484	01/23/90
4,896,158	07/266,813	01/23/90
4,896,180	07/363,556	01/23/90
4,896,184	07/227,541	01/23/90
4,896,216	07/232,230	01/23/90
4,896,229	07/206,950	01/23/90
4,896,237	06/900,884	01/23/90
4,896,245	07/322,015	01/23/90
4,896,251	07/280,505	01/23/90
4,896,256	06/863,060	01/23/90
4,896,259	07/125,725	01/23/90
4,896,268	07/125,114	01/23/90
4,896,269	07/161,513	01/23/90
4,896,271	07/144,829	01/23/90
4,896,273	07/079,062	01/23/90
4,896,274	06/818,650	01/23/90
4,896,276	06/853,959	01/23/90
4,896,284	07/226,636	01/23/90
4,896,289	07/079,794	01/23/90
4,896,292	07/262,031	01/23/90
4,896,294	07/261,866	01/23/90
4,896,308	07/366,454	01/23/90
4,896,314	07/183,719	01/23/90
4,896,317	07/155,139	01/23/90
4,896,323	07/202,283	01/23/90
4,896,329	07/360,082	01/23/90
4,896,331	07/171,768	01/23/90
4,896,333	07/081,409	01/23/90
4,896,338	07/212,355	01/23/90
4,896,339	07/170,396	01/23/90
4,896,347	07/247,770	01/23/90
4,896,348	07/214,476	01/23/90
4,896,349	07/175,669	01/23/90
4,896,364	06/936,247	01/23/90
4,896,367	07/261,748	01/23/90
4,896,368	07/317,910	01/23/90
4,896,370	07/031,004	01/23/90
4,896,374	07/282,083	01/23/90
5,280,653	07/956,258	01/25/94
5,280,654	07/967,422	01/25/94
5,280,656	08/051,558	01/25/94
5,280,658	07/806,043	01/25/94
5,280,659	07/959,156	01/25/94
5,280,663	07/738,243	01/25/94
5,280,664	07/855,992	01/25/94
5,280,668	07/988,761	01/25/94
5,280,679	07/993,106	01/25/94
5,280,683	07/806,370	01/25/94
5,280,686	07/983,614	01/25/94
5,280,689	07/803,312	01/25/94
5,280,690	08/029,576	01/25/94
5,280,699	07/738,600	01/25/94
5,280,702	07/916,443	01/25/94
5,280,709	07/881,284	01/25/94
5,280,710	07/733,476	01/25/94
5,280,719	07/613,553	01/25/94
5,280,726	07/864,886	01/25/94
5,280,730	07/847,573	01/25/94
5,280,735	07/877,081	01/25/94
5,280,737	08/002,643	01/25/94
5,280,743	07/921,464	01/25/94

Patent Number	Serial Number	Issue Date
5,280,753	07/655,386	01/25/94
5,280,758	07/879,751	01/25/94
5,280,762	07/691,047	01/25/94
5,280,765	07/859,579	01/25/94
5,280,773	07/608,307	01/25/94
5,280,780	07/973,674	01/25/94
5,280,790	08/008,731	01/25/94
5,280,791	07/963,057	01/25/94
5,280,796	07/970,269	01/25/94
5,280,797	08/008,484	01/25/94
5,280,798	07/854,348	01/25/94
5,280,800	07/852,788	01/25/94
5,280,802	07/976,540	01/25/94
5,280,808	07/926,536	01/25/94
5,280,816	07/904,942	01/25/94
5,280,821	07/950,788	01/25/94
5,280,834	07/976,576	01/25/94
5,280,836	07/849,959	01/25/94
5,280,837	07/962,687	01/25/94
5,280,841	07/902,930	01/25/94
5,280,851	07/910,884	01/25/94
5,280,856	07/924,761	01/25/94
5,280,857	07/740,941	01/25/94
5,280,862	07/626,267	01/25/94
5,280,866	07/981,726	01/25/94
5,280,867	07/837,942	01/25/94
5,280,870	07/994,583	01/25/94
5,280,871	07/953,215	01/25/94
5,280,879	07/816,154	01/25/94
5,280,886	07/861,737	01/25/94
5,280,888	07/856,700	01/25/94
5,280,891	08/020,550	01/25/94
5,280,892	07/634,565	01/25/94
5,280,894	07/954,449	01/25/94
5,280,896	07/942,970	01/25/94
5,280,902	07/901,410	01/25/94
5,280,904	07/978,928	01/25/94
5,280,905	08/046,603	01/25/94
5,280,907	07/966,554	01/25/94
5,280,908	08/095,189	01/25/94
5,280,911	07/787,925	01/25/94
5,280,912	08/009,023	01/25/94
5,280,918	08/035,265	01/25/94
5,280,919	07/973,778	01/25/94
5,280,920	07/939,121	01/25/94
5,280,927	07/966,716	01/25/94
5,280,932	08/085,454	01/25/94
5,280,934	08/000,420	01/25/94
5,280,936	08/056,471	01/25/94
5,280,939	07/833,622	01/25/94
5,280,940	08/064,320	01/25/94
5,280,944	07/922,883	01/25/94
5,280,950	07/791,190	01/25/94
5,280,952	07/631,144	01/25/94
5,280,953	07/987,965	01/25/94
5,280,954	07/907,528	01/25/94
5,280,957	07/941,812	01/25/94
5,280,958	07/991,398	01/25/94
5,280,961	07/823,519	01/25/94
5,280,968	07/846,981	01/25/94
5,280,973	07/949,915	01/25/94
5,280,974	07/016,645	01/25/94
5,280,976	07/969,335	01/25/94
5,280,977	08/067,187	01/25/94
5,280,982	07/957,768	01/25/94
5,280,986	07/908,120	01/25/94
5,280,989	07/898,572	01/25/94
5,280,993	07/868,219	01/25/94
5,280,996	07/833,969	01/25/94
5,280,999	07/999,351	01/25/94
5,281,003	07/790,200	01/25/94
5,281,004	07/881,175	01/25/94
5,281,005	07/792,325	01/25/94
5,281,008	07/904,311	01/25/94
5,281,015	07/660,794	01/25/94
5,281,018	07/921,927	01/25/94
5,281,030	08/000,096	01/25/94
5,281,040	07/772,380	01/25/94
5,281,041	07/972,512	01/25/94
5,281,042	07/977,468	01/25/94
5,281,044	07/986,919	01/25/94
5,281,047	07/890,641	01/25/94
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5,281,050	07/881,465	01/25/94
5,281,054	07/869,537	01/25/94
5,281,058	08/015,553	01/25/94
5,281,063	07/830,885	01/25/94
5,281,064	08/006,258	01/25/94
5,281,068	07/859,163	01/25/94
5,281,075	07/792,664	01/25/94
5,281,078	07/960,516	01/25/94
5,281,080	07/912,538	01/25/94
5,281,082	07/914,208	01/25/94
5,281,087	07/896,640	01/25/94
5,281,092	07/967,029	01/25/94
5,281,096	07/943,167	01/25/94
5,281,103	07/952,104	01/25/94
5,281,104	07/931,955	01/25/94
5,281,107	07/944,675	01/25/94
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5,281,118	07/825,019	01/25/94
5,281,122	07/874,186	01/25/94
5,281,124	07/833,964	01/25/94
5,281,134	07/794,427	01/25/94
5,281,137	07/963,909	01/25/94
5,281,138	07/928,743	01/25/94
5,281,143	07/880,565	01/25/94
5,281,144	08/020,548	01/25/94
5,281,146	08/044,975	01/25/94
5,281,156	08/019,453	01/25/94
5,281,158	08/002,157	01/25/94
5,281,164	07/916,546	01/25/94
5,281,176	07/917,490	01/25/94
5,281,179	08/048,470	01/25/94
5,281,183	07/973,021	01/25/94
5,281,186	08/009,059	01/25/94
5,281,190	07/928,891	01/25/94
5,281,194	07/883,962	01/25/94
5,281,195	08/046,543	01/25/94
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5,281,198	07/878,384	01/25/94
5,281,212	07/836,227	01/25/94
5,281,214	07/871,767	01/25/94
5,281,217	07/868,031	01/25/94
5,281,224	08/000,618	01/25/94
5,281,226	07/646,636	01/25/94
5,281,230	07/888,706	01/25/94
5,281,231	07/822,704	01/25/94
5,281,235	07/839,510	01/25/94
5,281,249	08/069,745	01/25/94
5,281,272	07/937,292	01/25/94
5,281,274	08/013,386	01/25/94
5,281,280	08/023,616	01/25/94
5,281,286	07/865,540	01/25/94
5,281,292	07/790,091	01/25/94
5,281,293	07/895,119	01/25/94
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5,281,338	07/969,223	01/25/94
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5,281,353	07/690,625	01/25/94
5,281,368	07/860,912	01/25/94
5,281,379	07/503,194	01/25/94
5,281,381	07/971,119	01/25/94
5,281,382	07/939,606	01/25/94
5,281,383	07/779,984	01/25/94
5,281,384	07/898,513	01/25/94
5,281,393	08/015,445	01/25/94
5,281,394	07/384,298	01/25/94
5,281,397	08/078,991	01/25/94
5,281,406	07/874,473	01/25/94
5,281,414	07/387,077	01/25/94
5,281,427	07/485,668	01/25/94

Patent Number	Serial Number	Issue Date
5,281,447	07/783,054	01/25/94
5,281,452	07/959,381	01/25/94
5,281,458	07/069,877	01/25/94
5,281,510	08/064,482	01/25/94
5,281,512	07/574,069	01/25/94
5,281,520	07/581,342	01/25/94
5,281,523	07/851,187	01/25/94
5,281,534	07/885,923	01/25/94
5,281,535	07/906,791	01/25/94
5,281,553	07/658,465	01/25/94
5,281,561	08/015,460	01/25/94
5,281,569	07/841,585	01/25/94
5,281,574	07/968,498	01/25/94
5,281,576	07/982,380	01/25/94
5,281,578	07/885,687	01/25/94
5,281,590	07/939,262	01/25/94
5,281,592	07/948,659	01/25/94
5,281,594	07/987,742	01/25/94
5,281,595	07/852,962	01/25/94
5,281,597	07/794,084	01/25/94
5,281,598	08/044,526	01/25/94
5,281,609	07/950,346	01/25/94
5,281,613	07/904,225	01/25/94
5,281,614	07/970,360	01/25/94
5,281,621	07/982,374	01/25/94
5,281,634	07/883,203	01/25/94
5,281,637	08/004,997	01/25/94
5,281,642	07/792,264	01/25/94
5,281,643	07/706,391	01/25/94
5,281,645	07/917,893	01/25/94
5,281,648	07/923,511	01/25/94
5,281,652	07/632,780	01/25/94
5,281,653	07/797,525	01/25/94
5,281,664	07/915,498	01/25/94
5,281,673	08/011,917	01/25/94
5,281,675	07/832,070	01/25/94
5,281,681	07/781,516	01/25/94
5,281,683	07/989,658	01/25/94
5,281,688	07/989,309	01/25/94
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5,281,694	07/665,792	01/25/94
5,281,705	07/971,297	01/25/94
5,281,711	07/818,653	01/25/94
5,281,720	07/966,204	01/25/94
5,281,730	08/048,084	01/25/94
5,281,732	07/815,700	01/25/94
5,281,735	08/094,665	01/25/94
5,281,743	08/030,759	01/25/94
5,281,746	08/011,579	01/25/94
5,281,763	07/809,502	01/25/94
5,281,784	08/000,016	01/25/94
5,281,795	07/176,676	01/25/94
5,281,802	07/830,665	01/25/94
5,281,815	07/845,084	01/25/94
5,281,819	07/711,521	01/25/94
5,281,845	08/019,985	01/25/94
5,281,849	07/696,498	01/25/94
5,281,856	07/856,032	01/25/94
5,281,857	07/880,273	01/25/94
5,281,858	07/944,616	01/25/94
5,281,877	07/976,323	01/25/94
5,281,880	07/976,653	01/25/94
5,281,887	07/898,414	01/25/94
5,281,892	07/813,762	01/25/94
5,281,894	07/589,752	01/25/94
5,281,899	07/743,069	01/25/94
5,281,907	07/947,903	01/25/94
5,281,909	07/499,315	01/25/94
5,281,917	07/925,725	01/25/94
5,281,931	07/957,853	01/25/94
5,281,937	07/913,307	01/25/94
5,281,944	07/802,633	01/25/94
5,281,952	07/901,101	01/25/94
5,281,953	07/910,581	01/25/94
5,281,968	07/941,253	01/25/94
5,281,983	08/046,424	01/25/94
5,282,015	07/704,985	01/25/94
5,282,017	07/461,285	01/25/94
5,282,029	07/624,603	01/25/94
5,282,037	08/017,815	01/25/94
5,282,038	07/763,195	01/25/94
5,282,062	07/813,764	01/25/94
5,282,073	07/850,284	01/25/94
5,282,076	08/000,408	01/25/94
5,282,078	07/989,801	01/25/94
5,282,082	07/733,663	01/25/94
5,282,096	07/966,564	01/25/94
5,282,105	08/029,284	01/25/94
5,282,106	07/740,316	01/25/94
5,282,114	07/788,044	01/25/94
5,282,126	07/924,277	01/25/94
5,282,129	07/696,133	01/25/94
5,282,131	07/823,313	01/25/94
5,282,136	07/677,337	01/25/94
5,282,149	07/709,721	01/25/94
5,282,150	07/650,951	01/25/94
5,282,183	07/921,133	01/25/94
5,282,187	08/060,476	01/25/94
5,282,199	07/997,795	01/25/94
5,282,208	07/686,781	01/25/94
5,282,209	07/804,158	01/25/94
5,282,212	07/635,037	01/25/94
5,282,221	07/985,612	01/25/94
5,282,246	07/789,264	01/25/94
5,282,248	07/763,141	01/25/94
5,282,251	07/923,829	01/25/94
5,282,253	07/660,815	01/25/94
5,282,274	07/528,634	01/25/94

Patents Reinstated Due to the Acceptance of a Late Maintenance Fee From 01/23/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,508,124	06/525,976	08/24/83	04/02/85	01/23/98
4,534,364	06/533,365	09/19/83	08/13/85	01/29/98
4,716,795	06/845,930	12/22/86	01/05/88	01/29/98
4,716,796	06/845,931	03/28/86	01/05/88	01/29/98
4,827,935	06/855,321	04/24/86	05/09/89	01/28/98
4,838,549	07/192,913	05/12/88	06/13/89	01/29/98
4,844,752	06/915,777	10/06/86	07/04/89	01/23/98
4,850,313	07/155,823	02/16/88	07/25/89	01/28/98
4,871,986	07/268,829	11/04/88	10/03/89	01/28/98
4,872,765	06/487,560	04/20/83	10/10/89	01/26/98
4,873,772	06/880,176	06/30/86	10/17/89	01/23/98
5,042,439	07/494,993	03/15/90	08/27/91	01/29/98
5,115,026	07/243,830	09/13/88	05/19/92	01/28/98
5,173,346	07/540,576	06/18/90	12/22/92	01/26/98
5,178,566	07/537,060	06/12/90	01/12/93	01/26/98
5,225,924	07/500,971	03/29/90	07/06/93	01/29/98
5,228,363	07/773,859	10/17/91	07/20/93	01/29/98
5,238,697	07/886,862	05/22/92	08/24/93	01/26/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

4,940,390, Re. S.N. 09/013,470, Jan. 26, 1998, Ci. 416/214.00R, TURBINE SYSTEM HAVING MORE FAILURE RESISTANT ROTORS AND REPAIR WELDING OF LOW ALLOY FERROUS TURBINE COMPONENTS BY CONTROLLED WELD BUILD-UP, Robert E. Clark, et. al., Owner of Record: *Westinghouse Electric Corp., Pittsburgh, Pa.*, Attorney or Agent: James W. Edmondson, Ex. Gp.: 3401

5,041,896, Re. S.N. 08/943,326, Oct. 3, 1997, Cl. 257/248, MIXED TECHNOLOGY INTEGRATED DEVICE COMPRISING COMPLEMENTARY LDMOS POWER TRANSISTORS, CMOS AND VERTICAL PNP INTEGRATED STRUCTURES HAVING AN ENHANCED ABILITY TO WITHSTAND A RELATIVELY HIGH SUPPLY VOLTAGE, Claudio Contiero, et. al., Owner of Record: *SGS-Thomson Microelectronics, Carrollton, Tex.*, Attorney or Agent: Lisa K. Jorgenson, Ex. Gp.: 2508

5,276,208, Re. S.N. 08/895,950, Jul. 17, 1997, Cl. 556/053, METALLOCENES CONTAINING LIGANDS OF 2-SUBSTITUTED IDENYL DERIVATIVES, PROCESS FOR THEIR PREPARATION AND THEIR USE AS CATALYSTS, Andreas Winter, et. al., Owner of Record: *Hoechst Aktiengesellschaft, Corp., Frankfurt Am Main, Germany*, Attorney or Agent: Thomas M. Meshbesher, Ex. Gp.: 1505

5,388,452, Re. S.N. 08/801,084, Feb. 14, 1997, Cl. 73/105, DETECTION SYSTEM FOR ATOMIC FORCE MICROSCOPES, Robert S. Harp, et. al., Owner of Record: *Quesant Instrument Corp., Agoura City, Calif.*, Attorney or Agent: Norman E. Brunell, Ex. Gp.: 2212

5,400,727, Re. S.N. 08/826,213, Mar. 27, 1997, Cl. 112/080.450, TUFTING MACHINE WITH SELF-ALIGNING GAUGING MODULES, Marshall Allen Neely, Owner of Record: *Card-Monroe Corp., Chattanooga, Tenn.*, Attorney or Agent: Charles H. Fails, Ex. Gp.: 2407

5,408,120, Re. S.N. 08/844,386, Apr. 18, 1996, Cl. 257/431, LIGHT EMITTING DEVICE OF GALLIUM NITRIDE COMPOUND SEMICONDUCTOR, Katsuhide Manabe, et. al., Owner of Record: *Kabushiki Kaisha Toyota Chuo Kenkyushu, Aichi-ken, Japan*, Attorney or Agent: Peter W. Gowdey, Ex. Gp.: 2503

5,425,294, Re. S.N. 08/879,517, Jun. 20, 1997, Cl. 083/471.3, DESK-TOP CUTTING MACHINE WITH TILTABLE SAW, Shigeharu Ushiwata, et. al., Owner of Record: *Hitachi Koki Haramachi Co., Ltd., Haramachi-City, Japan*, Attorney or Agent: Steven M. Gruskin, Ex. Gp.: 3204

5,457,410, Re. S.N. 09/028,769, Feb. 24, 1998, Cl. 326/041, ARCHITECTURE AND INTERCONNECT SCHEME FOR PROGRAMMABLE LOGIC CIRCUITS, Benjamin S. Ting, Owner of Record: *BTR Inc., Reno, Nevada*, Attorney or Agent: Edward E. Kubasiewicz, Ex. Gp.: 2509

5,482,017, Re. S.N. 09/004,673, Jan. 8, 1998, Cl. 123/299, REDUCTION OF COLD-START EMISSIONS AND CATALYST WARM-UP TIME WITH DIRECT FUEL INJECTION, Diana D. Brehob, Owner of Record: *Ford Motor Co., Dearborn, Mich.*, Attorney or Agent: Neil P. Ferraro, Ex. Gp.: 3402

5,482,721, Re. S.N. 08/831,946, Apr. 2, 1997, Cl. 425, MOLD HAVING VENT PASSAGEWAYS TO OBVIATE TRIMMING OF FLASH, Leslie E. Clark, et. al., Owner of Record: *Woodbridge Foam Co., Mississauga, Canada*, Attorney or Agent: Richard P. Bauer, Ex. Gp.: 1305

5,483,988, Re. S.N. 09/005,890, Jan. 13, 1998, Cl. 137/155, SPOOLABLE COILED TUBING MANDREL AND GAS LIFT VALVES, Ronald E. Pringle, Owner of Record: *Camco International Inc., Houston, Tex.*, Attorney or Agent: Kenneth D. Goodman, Ex. Gp.: 3407

5,488,433, Re. S.N. 09/016,777, Jan. 30, 1998, Cl. 348/722, DUEL COMPRESSION FORMAT DIGITAL VIDEO PRODUCTION SYSTEM, Kinya Washino, et. al., Owner of Record: *Multi-Format, Inc., Dumont, N.J.*, Attorney or Agent: John G. Posa, Ex. Gp.: 2602

5,488,750, Re. S.N. 09/018,661, Feb. 4, 1998, Cl. 015/119.2, SPONGE MOP ATTACHMENT, Peter S. Voshikian, et. al., Owner of Record: *Quickie Manufacturing Corp., Cinnaminson, N.J.*, Attorney or Agent: Stuart M. Goldstein, Ex. Gp.: 3405

5,488,876, Re. S.N. 09/018,651, Feb. 4, 1998, Cl. 073/864, SOIL SAMPLING SYSTEM WITH SAMPLE CONTAINER RIDGIDLY COUPLED TO DRIVE CASING, Michael B. Casey, et. al., Owner of Record: *Mobile Drilling Co., Inc., Indianapolis, Ind.*, Attorney or Agent: John C. Kerins, Ex. Gp.: 2214

5,490,730, Re. S.N. 09/017,319, Feb. 2, 1998, Cl. 384/147, SLIDE BEARING ASSEMBLY, H. Akita, Owner of Record: *Hitachi Contruction Machinery Co. Ltd., Tokyo, Japan*, Attorney or Agent: Thomas E. Beall, Jr., Ex. Gp.: 3503

5,494,036, Re. S.N. 09/027,852, Feb. 23, 1998, Cl. 128/655, PATIENT INFUSION SYSTEM FOR USE WITH MRI, Arthur E. Uber III, et. al., Owner of Record: *Medrad Inc., Indianola, Pa.*, Attorney or Agent: Gregory L. Bradley, Ex. Gp.: 3305

5,526,408, Re. S.N. 09/018,358, Feb. 4, 1998, Cl. 379/090, COMMUNICATION SYSTEM, Barak M. Yekutiely, Owner of Record: *Soundesigns Multimedia Comm. Systems Ltd., Tefen, Israel*, Attorney or Agent: S. Peter Ludwig, Ex. Gp.: 2608

5,555,214, Re. S.N. 09/010,384, Jan. 21, 1998, Cl. 365/221, APPARATUS FOR SERIAL READINGS AND WRITING OF RANDOM ACCESS MEMORY ARRAYS, Chiakang Sung, et. al., Owner of Record: *Altera Corp., San Jose, Calif.*, Attorney or Agent: Jeffrey H. Ingerman, Ex. Gp.: 2511

5,559,136, Re. S.N. 09/025,266, Feb. 18, 1998, Cl. 514/340, TREATMENT OF ALZHEIMER'S DISEASE USING AZACYCLIC COMPOUNDS, Per Sauerberg, et. al., Owner of Record: *Novo Nordisk A/S, Bagsvaerd, Denmark*, Attorney or Agent: Carol E. Rozek, Ex. Gp.: 1205

5,577,103, Re. S.N. 09/021,201, Feb. 10, 1998, Cl. 379/59, METHOD OF PROVIDING SERVICE INFORMATION TO SUBSCRIBERS IN A CELLULAR TELECOMMUNICATIONS NETWORK USING THE SHORT MESSAGE SERVICE (SMS), George Foti, Owner of Record: *Telefonaktiebolaget LM Ericsson, Stockholm, Sweden*, Attorney or Agent: Steven W. Smith, Ex. Gp.: 2608

5,583,473, Re. S.N. 09/014,032, Jan. 27, 1998, Cl. 335/303, MAGNET ROLL AND METHOD OF PRODUCING SAME, Keitaro Yamashita, Owner of Record: *Takaishi & Associates, Tokyo, Japan*, Attorney or Agent: Paul J. Skwierawski, Ex. Gp.: 2112

5,586,942, Re. S.N. 09/026,315, Feb. 19, 1998, Cl. 473/168, TEE DIVIDER FOR GOLF DRIVING RANGE, Robert Wittek Sr., et. al., Owner of Record: *Wittek Golf Supply Co. Inc., Chicago, Ill.*, Attorney or Agent: Patrick D. Ertel, Ex. Gp.: 3304

5,631,224, Re. S.N. 09/025,951, Feb. 19, 1998, Cl. 514/012, PEPTIDE, Suad Efendic, et. al., Owner of Record: *Novo Nordisk A/S, Bagsvaerd, Denmark*, Attorney or Agent: Valeta A. Gregg, Ex. Gp.: 1817

5,642,687, Re. S.N. 09/022,218, Feb. 11, 1998, Cl. 119/52.3, SQUIRREL BAFFLER, Link Nylen and Ron Rainey, Owner of Record: *Woodlink Ltd., Mount Ayr, Iowa*, Attorney or Agent: Daniel J. Cosgrove, Ex. Gp.: 3303

5,644,881, Re. S.N. 09/030,185, Feb. 25, 1998, Cl. 52/455, WINDOW FRAME WITH INTEGRAL CONNECTORS, Albert J. Neilly, Owner of Record: *ODL, Inc., Zeeland, Mich.*, Attorney or Agent: Kelsey L. Milman, Ex. Gp.: 3504

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,557,720, Reexam. No. 90/004,908, Feb. 3, 1998, Cl. 604/001, VAGINAL APPLICATOR, Allegra D. Hemphill, Owner of Record: *Allegra D. Hemphill, Rockville, Md.*, Attorney or Agent: None, Ex. Gp.: 3308, Requester: Owner

5,333,675, Reexam. No. 90/004,909, Jan. 20, 1998, Cl. 165/268, APPARATUS AND METHOD FOR PERFORMING AUTOMATED AMPLIFICATION OF NUCLEIC ACID SEQUENCES AND ASSAYS USING HEATING AND COOLING STEPS, Kary B. Mullis, et. al., Owner of Record: *Perkin-Elmer Corp., Norwalk, Conn.*, Attorney or Agent: William J. Hone, Fish and Richardson, New York, N.Y., Ex. Gp.: 3407, Requester: Terrance L. Siemens, Arlington, Va.

5,360,619, Reexam. No. 90/004,907, Feb. 2, 1998, Cl. 426/242, CEREAL FOOD INGREDIENTS FROM WAXY BARLEY, Donald J. Alexander, Owner of Record: *Alexander-Peterson, Inc., Martin, N. Dak.*, Attorney or Agent: None, Ex. Gp.: 1302, Requester: Byron Agricultural Co. Pty. Ltd., Sydney, Nsw Australia, c/o Scully Scott Murphy and Presser, Garden City, N.Y.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED FEBRUARY 3, 1998 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
116,406	71/100,478	05/01/1917
116,449	71/091,784	05/01/1917
116,471	71/100,361	05/01/1917
345,357	71/358,653	04/27/1937
345,359	71/366,976	04/27/1937
345,361	71/370,011	04/27/1937
345,365	71/372,962	04/27/1937
345,368	71/374,667	04/27/1937
345,380	71/379,918	04/27/1937
345,393	71/381,952	04/27/1937
345,440	71/385,670	04/27/1937
345,441	71/385,671	04/27/1937
345,446	71/385,772	04/27/1937
345,451	71/385,797	04/27/1937
345,475	71/386,318	04/27/1937
345,507	71/386,786	04/27/1937
345,511	71/386,821	04/27/1937
345,525	71/386,967	04/27/1937
644,574	71/689,107	04/30/1957
644,581	72/001,693	04/30/1957
644,582	72/011,968	04/30/1957
644,583	72/011,965	04/30/1957
644,589	72/007,399	04/30/1957
644,590	72/008,455	04/30/1957
644,591	72/009,829	04/30/1957
644,603	72/006,131	04/30/1957
644,607	72/008,086	04/30/1957
644,608	72/012,473	04/30/1957
644,610	72/012,996	04/30/1957
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644,613	72/013,558	04/30/1957
644,616	72/013,811	04/30/1957
644,617	72/013,816	04/30/1957
644,624	72/003,950	04/30/1957
644,628	72/006,579	04/30/1957
644,629	72/008,509	04/30/1957
644,631	72/014,398	04/30/1957
644,642	72/017,629	04/30/1957
644,649	72/011,696	04/30/1957
644,655	72/015,227	04/30/1957
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644,668	72/015,775	04/30/1957
644,672	71/688,410	04/30/1957
644,673	71/688,411	04/30/1957
644,674	71/696,651	04/30/1957
644,682	72/006,956	04/30/1957
644,689	71/694,335	04/30/1957
644,690	71/698,574	04/30/1957
644,695	71/692,055	04/30/1957
644,705	72/005,589	04/30/1957
644,710	72/013,878	04/30/1957
644,711	71/681,484	04/30/1957
644,717	71/685,093	04/30/1957
644,731	72/006,882	04/30/1957
644,733	72/008,487	04/30/1957
644,735	72/008,882	04/30/1957
644,736	72/015,713	04/30/1957
644,737	71/634,870	04/30/1957
644,738	71/677,561	04/30/1957
644,743	72/011,076	04/30/1957
644,744	72/011,235	04/30/1957
644,768	71/687,287	04/30/1957
644,792	72/013,250	04/30/1957
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644,813	72/010,898	04/30/1957
644,818	72/014,727	04/30/1957
644,830	71/692,431	04/30/1957
644,834	72/002,111	04/30/1957
644,836	72/004,364	04/30/1957
644,841	72/011,764	04/30/1957
644,842	72/012,416	04/30/1957
644,844	72/012,681	04/30/1957
644,847	71/687,007	04/30/1957
644,854	71/682,348	04/30/1957
644,860	72/012,493	04/30/1957
644,861	71/668,564	04/30/1957
644,866	72/006,631	04/30/1957
644,868	72/008,959	04/30/1957
644,878	72/003,518	04/30/1957
644,880	71/699,468	04/30/1957
644,883	72/007,457	04/30/1957
644,930	72/006,054	04/30/1957
644,952	72/000,138	04/30/1957
1,064,182	73/000,917	04/26/1977
1,064,185	73/050,730	04/26/1977
1,064,186	73/050,904	04/26/1977
1,064,192	73/076,661	04/26/1977
1,064,197	73/082,097	04/26/1977
1,064,216	73/094,490	04/26/1977
1,064,218	73/067,754	04/26/1977
1,064,219	73/068,558	04/26/1977
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1,064,221	73/074,079	04/26/1977
1,064,222	73/079,708	04/26/1977
1,064,225	73/102,011	04/26/1977
1,064,226	73/030,806	04/26/1977
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1,064,282	73/040,782	04/26/1977
1,064,283	73/043,684	04/26/1977
1,064,299	73/074,216	04/26/1977
1,064,303	73/079,691	04/26/1977
1,064,305	73/085,168	04/26/1977
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1,064,311	73/099,418	04/26/1977
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1,064,337	73/040,680	04/26/1977
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1,064,625	73/088,927	04/26/1977
1,064,628	73/101,312	04/26/1977
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1,064,663	73/101,443	04/26/1977
1,064,664	73/073,043	04/26/1977
1,064,669	73/067,553	04/26/1977
1,064,674	73/086,272	04/26/1977
1,064,678	73/093,698	04/26/1977
1,064,680	73/062,331	04/26/1977
1,064,681	73/066,583	04/26/1977

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Reg. Number	Serial Number	Reg. Date
1,064,682	73/066,854	04/26/1977
1,064,693	73/080,376	04/26/1977
1,064,695	73/086,346	04/26/1977
1,064,696	73/087,696	04/26/1977
1,064,697	73/090,908	04/26/1977
1,064,698	73/091,732	04/26/1977
1,064,699	73/092,029	04/26/1977
1,064,700	73/092,057	04/26/1977
1,064,705	73/098,752	04/26/1977
1,064,706	73/099,043	04/26/1977
1,064,708	73/099,917	04/26/1977
1,064,722	73/086,447	04/26/1977
1,064,723	73/090,343	04/26/1977
1,064,729	73/084,708	04/26/1977
1,064,730	73/067,720	04/26/1977
1,064,731	73/056,656	04/26/1977
1,064,734	73/068,681	04/26/1977
1,064,737	73/065,048	04/26/1977
1,064,740	73/077,117	04/26/1977
1,064,743	73/079,837	04/26/1977
1,064,744	73/093,612	04/26/1977
1,068,438	73/097,582	06/28/1977

Notice Regarding Technical Center Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998

NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Reclassification Alert Report

This report is a summary of classification changes which became effective by issuance of Classification Orders from January through March 1998. Information includes:

- subclasses established or abolished (major changes)
- subclass title, indent, or position change
- changes to existing classes and subclass definitions (minor changes)

This Reclassification Alert Report may appear from time to time in the Official Gazette and is intended to provide an interim notice of classification changes pending publication of the Manual of Classification and revisions thereto.

The general public may purchase copies of Classification Orders or Classification Definitions by contacting the Editorial Division at 703-305-6101 or 703-305-5099. Payment can be made through a Deposit Account, or by check made payable to "Commissioner of Patents and Trademarks" and sent to:

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Washington, D.C. 20231

March 3, 1998

FREDERICK R. SCHMIDT
Administrator for Search and
Information Services

Reclassification Alert Report

JANUARY — MARCH 1998

Class	First Subclass	Last Subclass	Action	Order Number
5	900.5		ABOLISH	1669
5	901		ABOLISH	1669
5	903		ABOLISH	1669
5	911		ABOLISH	1669
5	912		ABOLISH	1669
5	914		ABOLISH	1669
5	916	921	ABOLISH	1669
5	913		TITLE CHANGE	1669
5	913		POSITION CHANGE	1669
24			DEFN. CHANGE	1676
29			DEFN. CHANGE	1671
34			DEFN. CHANGE	1681
40	299		ABOLISH	1676
40	299.01		ESTABLISH	1676
40	671	675	ESTABLISH	1676
40	6		INDENT CHANGE	1676
52			DEFN. CHANGE	1677
52			DEFN. CHANGE	1682
55	209	220	ABOLISH	1682
55	222	256	ABOLISH	1682
55	257.1	257.7	ABOLISH	1682
55	258	280	ABOLISH	1682
55	282.1	282.5	ESTABLISH	1682
55	309.1		ESTABLISH	1682
55	315.1		ESTABLISH	1682
55	315.2		ESTABLISH	1682
55	338.1		ESTABLISH	1682
55	341.11		ESTABLISH	1682
55	342.1		ESTABLISH	1682
55	342.2		ESTABLISH	1682
55	392.1		ESTABLISH	1682
55	410.1		ESTABLISH	1682
55	418.1		ESTABLISH	1682
55	428.1		ESTABLISH	1682
55	434.1	434.4	ESTABLISH	1682
55	467.1		ESTABLISH	1682
55	482.1		ESTABLISH	1682
55	490.1		ESTABLISH	1682
55	490.2		ESTABLISH	1682
62			DEFN. CHANGE	1682
65			DEFN. CHANGE	1675
68			DEFN. CHANGE	1682
73			DEFN. CHANGE	1680
73			DEFN. CHANGE	1682
74	473	477	ABOLISH	1669
74	473.1		ESTABLISH	1669
74	473.11	473.19	ESTABLISH	1669
74	473.2		ESTABLISH	1669
74	473.21	473.29	ESTABLISH	1669
74	473.3		ESTABLISH	1669
74	473.31	473.37	ESTABLISH	1669
74	900		ESTABLISH	1669
75			DEFN. CHANGE	1682
95			DEFN. CHANGE	1682
96	117.5		ESTABLISH	1682
96	221	429	ESTABLISH	1682
105			DEFN. CHANGE	1677
110			DEFN. CHANGE	1682
116			DEFN. CHANGE	1682
119			DEFN. CHANGE	1676
122			DEFN. CHANGE	1682
131			DEFN. CHANGE	1676
131			DEFN. CHANGE	1682
134			DEFN. CHANGE	1682
135			DEFN. CHANGE	1677
149			DEFN. CHANGE	1670
150			DEFN. CHANGE	1677
152			DEFN. CHANGE	1671
156			DEFN. CHANGE	1671
156	89		ABOLISH	1675
156	89.11	89.19	ESTABLISH	1675
156	89.21	89.28	ESTABLISH	1675
164			DEFN. CHANGE	1671
165			DEFN. CHANGE	1682
178	18	20	ABOLISH	1678
178	87		ABOLISH	1678
178	18.01	18.09	ESTABLISH	1678
178	18.11		ESTABLISH	1678
178	19.01	19.07	ESTABLISH	1678
178	20.01	20.04	ESTABLISH	1678
180			DEFN. CHANGE	1677
181			DEFN. CHANGE	1682
190			DEFN. CHANGE	1676
198	341		ABOLISH	1681
198	377		ABOLISH	1681
198	397		ABOLISH	1681
198	457		ABOLISH	1681
198	803.01		ABOLISH	1681
198	341.01	341.09	ESTABLISH	1681
198	377.01	377.09	ESTABLISH	1681
198	377.1		ESTABLISH	1681
198	397.01	397.06	ESTABLISH	1681
198	457.01	457.07	ESTABLISH	1681
198	867.01	867.09	ESTABLISH	1681
198	867.1		ESTABLISH	1681
198	867.11	867.15	ESTABLISH	1681
202			DEFN. CHANGE	1682

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Class	First Subclass	Last Subclass	Action	Order Number
209			DEFN. CHANGE	1682
210			DEFN. CHANGE	1682
219			DEFN. CHANGE	1682
222			DEFN. CHANGE	1669
229			DEFN. CHANGE	1676
235			DEFN. CHANGE	1680
235			DEFN. CHANGE	1683
250			DEFN. CHANGE	1682
260	350		ABOLISH	1674
260	1		TITLE CHANGE	1674
264			DEFN. CHANGE	1670
264	36	38	ABOLISH	1671
264	Dig. 69		ABOLISH	1671
264	36.1		ESTABLISH	1671
264	36.11	36.19	ESTABLISH	1671
264	36.2		ESTABLISH	1671
264	36.21		ESTABLISH	1671
264	36.22		ESTABLISH	1671
264	37.1		ESTABLISH	1671
264	37.11	37.19	ESTABLISH	1671
264	37.2		ESTABLISH	1671
264	37.21	37.29	ESTABLISH	1671
264	37.3		ESTABLISH	1671
264	37.31	37.33	ESTABLISH	1671
264	911	921	ESTABLISH	1671
264			DEFN. CHANGE	1675
273			DEFN. CHANGE	1679
280			DEFN. CHANGE	1677
283			DEFN. CHANGE	1676
296	26		ABOLISH	1677
296	27		ABOLISH	1677
296	65.1		ABOLISH	1677
296	100		ABOLISH	1677
296	107		ABOLISH	1677
296	190		ABOLISH	1677
296	203		ABOLISH	1677
296	216		ABOLISH	1677
296	220		ABOLISH	1677
296	26.01	26.09	ESTABLISH	1677
296	26.1		ESTABLISH	1677
296	26.11	26.15	ESTABLISH	1677
296	65.01	65.09	ESTABLISH	1677
296	65.11	65.18	ESTABLISH	1677
296	100.01	100.09	ESTABLISH	1677
296	100.1		ESTABLISH	1677
296	100.11	100.18	ESTABLISH	1677
296	107.01	107.09	ESTABLISH	1677
296	107.1		ESTABLISH	1677
296	107.11	107.19	ESTABLISH	1677
296	107.2		ESTABLISH	1677
296	190.01	190.09	ESTABLISH	1677
296	190.1		ESTABLISH	1677
296	190.11		ESTABLISH	1677
296	203.01	203.04	ESTABLISH	1677
296	216.01	216.09	ESTABLISH	1677
296	220.01		ESTABLISH	1677
296	225		ESTABLISH	1677
307			DEFN. CHANGE	1683
318			DEFN. CHANGE	1680
324			DEFN. CHANGE	1678
326			DEFN. CHANGE	1683
327			DEFN. CHANGE	1683
335			DEFN. CHANGE	1677
340			DEFN. CHANGE	1683
341			DEFN. CHANGE	1678
341			DEFN. CHANGE	1680
342			DEFN. CHANGE	1678
342			DEFN. CHANGE	1683
343			DEFN. CHANGE	1683
345			DEFN. CHANGE	1678
345			DEFN. CHANGE	1679
346			DEFN. CHANGE	1678
348			DEFN. CHANGE	1683
356			DEFN. CHANGE	1682
358			DEFN. CHANGE	1680
358			DEFN. CHANGE	1683

Class	First Subclass	Last Subclass	Action	Order Number
360			DEFN. CHANGE	1683
361			DEFN. CHANGE	1683
364	410	412	ABOLISH	1679
364	410.1		ESTABLISH	1679
364	411.1		ESTABLISH	1679
364	412.1		ESTABLISH	1679
364	140		ABOLISH	1680
364	148		ABOLISH	1680
364	167.01		ABOLISH	1680
364	140.01	140.09	ESTABLISH	1680
364	140.1		ESTABLISH	1680
364	148.01	148.09	ESTABLISH	1680
364	148.1		ESTABLISH	1680
364	167.02	167.09	ESTABLISH	1680
364	167.1		ESTABLISH	1680
364	167.11		ESTABLISH	1680
364	167.12		ESTABLISH	1680
364			DEFN. CHANGE	1683
365			DEFN. CHANGE	1683
369			DEFN. CHANGE	1671
377			DEFN. CHANGE	1679
379			DEFN. CHANGE	1679
382			DEFN. CHANGE	1678
382			DEFN. CHANGE	1680
382			DEFN. CHANGE	1683
383			DEFN. CHANGE	1676
384			DEFN. CHANGE	1677
395			DEFN. CHANGE	1678
395	1		ABOLISH	1683
395	3		ABOLISH	1683
395	10	27	ABOLISH	1683
395	50	55	ABOLISH	1683
395	60	68	ABOLISH	1683
395	75	77	ABOLISH	1683
395	900		ABOLISH	1683
395	902	934	ABOLISH	1683
417			DEFN. CHANGE	1682
423	437		ABOLISH	1673
423	437.1		ESTABLISH	1673
423	437.2		ESTABLISH	1673
423			DEFN. CHANGE	1682
425			DEFN. CHANGE	1671
426			DEFN. CHANGE	1673
427			DEFN. CHANGE	1670
428			DEFN. CHANGE	1670
428			DEFN. CHANGE	1671
428			DEFN. CHANGE	1682
432			DEFN. CHANGE	1675
445			DEFN. CHANGE	1671
451			DEFN. CHANGE	1682
454			DEFN. CHANGE	1682
463			DEFN. CHANGE	1679
470			DEFN. CHANGE	1681
473			DEFN. CHANGE	1679
482			DEFN. CHANGE	1679
494			DEFN. CHANGE	1682
502	527		ABOLISH	1670
502	527.11	527.24	ESTABLISH	1670
521			DEFN. CHANGE	1671
523			DEFN. CHANGE	1671
524			DEFN. CHANGE	1674
544			DEFN. CHANGE	1674
546			DEFN. CHANGE	1674
548			DEFN. CHANGE	1674
549			DEFN. CHANGE	1674
552			DEFN. CHANGE	1674
556			DEFN. CHANGE	1674
558			DEFN. CHANGE	1674
560			DEFN. CHANGE	1674
562			DEFN. CHANGE	1674
564			DEFN. CHANGE	1674
568			DEFN. CHANGE	1674
701			DEFN. CHANGE	1669
701			DEFN. CHANGE	1680
705			DEFN. CHANGE	1679
706	1	62	ESTABLISH	1683

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Class	First Subclass	Last Subclass	Action	Order Number
706	900		ESTABLISH	1683
706	902	934	ESTABLISH	1683
707			DEFN. CHANGE	1678
902			DEFN. CHANGE	1679
D13	137	143	ABOLISH	1672
D13	137.1	137.4	ESTABLISH	1672
D13	138.1		ESTABLISH	1672
D13	138.2		ESTABLISH	1672
D13	139.1	139.8	ESTABLISH	1672
D13	162.1		ESTABLISH	1672

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37 CFR § 1.47 Notice by Publication

Notice is hereby given of the filing of the following applications with a petition under 37 CFR § 1.47 requesting the acceptance of the application without the signature of all inventors or, if the inventor is deceased, the legal representative of the deceased inventor. The petition in each application has been granted. A notice has been sent to the last known address of the non-signing inventor or legal representative. The inventors or legal representatives whose signatures are missing may join in the application by promptly filing an oath or declaration complying with 37 CFR § 1.63.

Application No.	Filing Date	Non-Signing Inventor(s) or Legal Representative(s)	Title of Invention
08/369,003	Jan. 5, 1995	Manuel Rodriguez	Portable Communication Unit With Discrete Allocable Blocks Of Airtime
08/394,668	Feb. 22, 1995	Daniel H. Scott Robert E. Cummins	Flat Panel Display Inspection System
08/439,578	May 11, 1995	Bryan Brandenburg Monte Young	Computer Game
08/444,416	May 19, 1995	Yao Liu	Retinal Pigment Epithelium Transplantation
08/462,347	June 5, 1995	Michael Idaomi	Transition Sleeve Assembly For Catheters
08/475,575	June 7, 1995	Paul Del Vecchio Jonathan Eddy Ed Morrison	Method and Apparatus For Distributing Work
08/484,630	June 7, 1995	Alexander N. Jourjine	Character Recognition System
08/486,379	June 7, 1995	Roger J. Woessner	Urinary Catheter
08/512,822	Aug. 9, 1995	Mark Zhodzicshsky Victor Veitsel Javad Ashjaee	A Spread Spectrum Receiver Using a Pseudo-Rando Nosie Code For Ranging Applications In A Way That Reduces Errors When A Multipath Signal Is Present
08/586,560	Jan. 16, 1996	Diane E. Plante	Molded Laminated Pouch And Method Of Manufacturing The Same
08/648,640	May 16, 1996	Bernard W. Siczek Michael Assa	Precision Mammographic Biopsy Gun System With Positioner
08/692,935	July 30, 1996	Jan R. Roach	Apparatus And Methods For Transmitting Electrical Signals Indicative Of Optical Interactions Between A Light Beam And A Flowing Suspension Of Particles
08/700,153	Aug. 20, 1996	Steven J. Tyler	Vacuum Flush Waste Disposal System For Railcars

Application No.	Filing Date	Non-Signing Inventor(s) or Legal Representative(s)	Title of Invention
08/707,320	Sept. 3, 1996	Philippe Spiteri	Systems And Methods For Identifying A Molded Container
08/721,183	Sept. 27, 1996	Ming Fai Chan	Thienyl-, Furyl- And Pyrrolyl-Sulfonamides And Derivatives Thereof That Modulate The Activity Of Endothelin
08/721,883	Sept. 27, 1996	Gary W. Watkins	Proxy Player Machine
08/731,762	Oct. 18, 1996	Trest Polina Frank Nishiura Stephen L. Newcomb Tim Reed	Seismic Portal
08/733,240	Oct. 2, 1996	Akihiro Senda	Method Of Automatically Discriminating And Separating Scraps Containing Copper From Iron Scraps
08/741,846	Oct. 31, 1996	Terry C. Laver	Extrusion Of Synthetic Wood Material
08/752,074	Nov. 19, 1996	Johathan P. Ross	Method And System For Displaying Images On A Display Device
08/764,936	Dec. 13, 1996	Jorge Gonzales	Method For Improving Fruit Yields From Banana Plants
08/767,602	Oct. 28, 1996	Kirti C. Shah Dennis Noble	Device For Monitoring A Radiation Source Through A Fluid-Carrying Conduit
08/769,503	Dec. 18, 1996	William N. Turley	Computer Executable Workflow Control Systems
08/775,227	Dec. 31, 1996	Sendeep Kumar Goel	Method And Apparatus For Improved Meniscus Coating
08/779,925	Jan. 6, 1997	John D. Goins	Sunroof Assembly For An Automotive Vehicle
08/785,077	Jan. 17, 1997	Daniel W. Kazmierski	Mechanically Frothed And Chemically Blown Polyurethane Foam
08/787,867	Jan. 23, 1997	Daniel D. Thayer	Method And Means For Purifying Air With A Regenerable Carbon Cloth Sorbent
08/792,290	Jan. 31, 1997	Guenter H. Krauss Bernd Grohmann David S. Spencer Conor P. Dowling Santosh Alexander	Configurable Mediation Devices And Systems
08/801,084	Feb. 14, 1997	David Ray	Detection System For Atomic Force Microscopes
08/801,551	Feb. 18, 1997	Lawrence E. Egle	Fuel Additive Delivery System
08/801,935	Feb. 15, 1997	Blaze S. Hooper	Locking Bicycle Rack For Attachment To A Parking Meter
08/813,767	Mar. 7, 1997	Fan Ho	Method And Apparatus For Checking The Resistance Of Programmable Elements

Application No.	Filing Date	Non-Signing Inventor(s) or Legal Representative(s)	Title of Invention
08/854,288	May 9, 1997	Janet D. Melcher	Apparatus And Methods For Obtaining Increased Sensitivity, Selectivity And Dynamic Range In Property Measurement Using Magnetometers
08/856,519	May 15, 1997	Patricia A. Baumgardner	Release Liners For Molded Product Production
08/857,889	May 23, 1995	Gabor Kardos	Adapter Which Emulates Ball Grid Array Packages
08/864,633	May 28, 1997	Cory C. Burr	Method And Apparatus For Parental Program Lockout For Television
08/868,192	June 3, 1997	Michael R. Berrigan	Oil Absorbent Fibrous Granules And Method Of Making Them
08/869,324	June 5, 1997	Rick L. Lies	Stable, Compatible Glycol And/Or Water-Based Formulations Which Contain Cottonseed Oil For Protecting Against Pests
08/872,052	June 10, 1997	Kiyoshi Kita	Composition For Prophylaxis And/Or Treatment Of Dry Eye Syndrome Comprising Vitamin D
08/895,946	July 17, 1997	Henry N. Wildenberg	Airfoil Web Stabilization And Turning Apparatus And Method
08/909,716	Aug. 12, 1997	William R. Heathe	Double Wave Screw

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37 CFR 1.47 Notice by Publication

Notice is hereby given of the filing of an application with a petition under 37 CFR 1.47 requesting acceptance of the application without the signature of all inventors. The petition has been granted. A notice has been sent to the last known address of the non-signing inventor. The inventor whose signature is missing (Peter Lofts) may join in the application by promptly filing an appropriate oath or Declaration complying with 37 CFR 1.63. The international application number is PCT/GB95/00961 and was filed on 26 April 1995 in the name of Peter Lofts for the invention entitled Coated Fabric. The national stage application number is 08/732,387 and has a 35 U.S.C. 371 date of 11 February 1997.

Notice is hereby given of the filing of an application with a petition under 37 CFR 1.47 requesting acceptance of the application without the signature of all inventors. The petition has been granted. A notice has been sent to the last known addresses of the non-signing inventors. The inventors whose signatures are missing (Francois Rabatel, Jose Morales, and Jean Bonfill) may join in the application by promptly filing an appropriate oath or Declaration complying with 37 CFR 1.63. The international application number is PCT/FR95/00113 and was filed on 01 February 1995 in the names of Yvette Pescher, Jean-Paul Raes, Bernard Castelas, Sylvain Danda, Francois Rabatel, Jose Morales, and Jean Bonfill for the invention entitled PROCESS FOR THE PURIFICATION OF A MEDIUM CONTAINING ORGANIC WASTE. The national stage application member is 08/682,707 and has a 35 U.S.C. 371 date of 14 October 1997.

Notice is hereby given of the filing of an application with a petition under 37 CFR 1.47 requesting acceptance of the application without the signature of all inventors. The petition has been granted. A notice has been sent to the last known address of the non-signing inventor. The inventor whose signature is missing (John Steven Wilkes) may join in the application by promptly filing an appropriate oath or Declaration complying with 37 CFR 1.63. The international application number is PCT/GB95/02500 and was filed on 23 October 1995 in the name of John Steven Wilkes for the invention entitled Improved Membrane. The national stage application number is 08/894,777 and has a 35 U.S.C. 371 date of 26 November 1997.

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Lass Corp., Mobile, Ala., Reg. No. 1,756,930, for the mark "SNIPS N SNAILS AND DESIGN", Canc. No. 26,384.

Bytel Corp., Berkeley, Calif., Reg. No. 1,274,141, for the mark "COGEN", Canc. No. 26,660.

Lawrence Chapnick, Rancho Bernardo, Calif., Reg. No. 1,233,144, for the mark "BRANDED BAGEL" and Design, Canc. No. 26,558.

Andrew Starsmore, Beverly Hills, Calif., Reg. No. 1,354,174, for the mark "FIRE", Canc. No. 26,583.

Remington Arms Co., Inc., Wilmington, Del., Reg. No. 1,243,782, for the mark "PRIME", Canc. No. 26,950.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office who have been given provisional recognition pursuant to 37 CFR 10.9(a) to prepare and prosecute patent applications before the Office until their registration certificates are mailed to them. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before May 22, 1998.

Kilby, H. A., 11713 Amkin Dr., Clifton, Va. 20124

Sluby, Patricia C., 4211-21st Ave., Temple Hills, Md. 20748

March 13, 1998
KAREN L. BOVARD, *Director*
Office of Enrollment and Discipline

DEPARTMENT OF COMMERCE

Patent and Trademark Office

[Docket No. 98-0303053-8053-01]

Notice of Conference on Database Protection and Access Issues

AGENCY: Patent and Trademark Office, Commerce.

ACTION: Notice of meeting.

SUMMARY: The Patent and Trademark Office (PTO) is announcing that it will hold a one-day conference on issues related to protection of and access to compilations of data.

DATES: The conference will be held on Tuesday, April 28, 1998, beginning at 8:30 a.m.

Registration materials must be returned no later than April 20, 1998.

ADDRESSES: The conference will be held on Tuesday, April 28, 1998, beginning at 8:30 a.m. in the Falk Auditorium of the Brookings Institution, 1775 Massachusetts Avenue, NW, Washington, D.C. 20036. Conference sessions will be held in the Falk Auditorium, other conference facilities of the Brookings Institution, and conference facilities at the Carnegie Endowment for International Peace, 1779 Massachusetts Avenue, NW, Washington, D.C. 20036.

Requests for registration materials should be made to Justin Hughes by electronic mail to database.conference@uspto.gov, by facsimile transmission marked to his attention at (703) 305-8885, or by mail marked to his attention and addressed to the Office of Legislative and International Affairs, Patent and Trademark Office, Washington, D.C. 20231. Because of limited seating in the conference facilities, the PTO will accept the first 175 participants on a first-come, first-served basis according to the date and time of each registration request.

There will be a reasonable charge to help defray costs of the lunch and refreshments served at the conference. However, payment is not obligatory to participate in the conference.

Arrangements for conference panelists and moderators will be made separately from conference participant registration.

FOR FURTHER INFORMATION CONTACT: Justin Hughes, by telephone at (703) 305-9300, by facsimile transmission marked to his attention at (703) 305-8885, by electronic mail to database.conference@uspto.gov, or by mail marked to his attention at the Office of Legislative and International Affairs, Patent and Trademark Office, Washington, D.C. 20231.

SUPPLEMENTARY INFORMATION: Issues concerning legal protection for compilations of data gained increased attention following the Supreme Court's 1991 decision *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991), which determined that there is no copyright protection for compilations of data that lack creativity in their selection, arrangement, and presentation. The *Feist* decision, as well as subsequent cases in the lower courts, established that copyright does not protect all compilations of data or of information and that even where copyright exists in such compilations, it provides "thin" protection that does not inhibit unauthorized copying of all or substantial amounts of databases.

Protection of compilations of data has also become an issue abroad. In March 1996, the European Commission adopted a Directive on Databases which creates a sui generis intellectual property system for compilations of data. The Directive requires member states of the European Union (EU) to implement national legislation to provide database owners with a right to control extraction and reutilization of data from a proprietary compilation for a fifteen-year term; the Directive provides that member states may create exceptions to liability for education and research uses of databases.

In response to the *Feist* decision, subsequent cases, and the European initiative, H.R. 3531 was introduced in 1996 by then Congressman Carlos Moorhead. House bill 3531 would have provided a sui generis legal regime for database protection. The bill would have protected database owners for a twenty-five-year term from unauthorized extraction, use, or reuse of any substantial part of a database.

In the 105th Congress, Congressman Howard Coble, Chair of the House Subcommittee on Courts and Intellectual Property, introduced H.R. 2652, the "Collections of Information Antipiracy Act" House bill 2652 would provide a database owner with protection against misappropriation of substantial portions of its database if such misappropriation would harm the owner's actual potential market for the database or products incorporating the database. House bill 2652 provides exceptions from liability for use of data for not-for-profit, educational, scientific, research, or news reporting purposes, although the contours of these exceptions may not correspond precisely to fair use exceptions under copyright law. House bill 2652 has been supported by a wide variety of entities in the information industry and has been endorsed by the Copyright Office as a constructive step to restore protection for "sweat of the brow" compilations that was eliminated in the *Feist* decision.

At the same time, a number of organizations, particularly in the scientific and academic communities, have expressed concerns that H.R. 2652 may impede access to data necessary to scholarly and scientific research. Scientists have stressed that many research efforts rely on uses of entire databases, uses that might be deemed substantial extraction under the bill's provisions and that privately controlled databases might be priced so as to make many research projects impossible.

Opponents of providing additional database protection have argued that the database market is already characterized by single source, niche marketers; that there is no apparent market failure, i.e. undersupply of databases, because of the absence of comprehensive protection; and that existing copyright and contractual law coupled with current technology provide adequate protection to database owners.

Internationally, in 1996, the European Union submitted a draft international database protection treaty, similar in scope to the EU Directive, to the World Intellectual Property Organization (WIPO). In anticipation of a WIPO Diplomatic Conference in December 1996, and because of substantial concerns about provisions in the EU proposal, the United States submitted its own proposal to WIPO. The 1996 Diplomatic Conference ultimately focused on copyright and neighboring rights proposals; it did not resolve any issues related to possible protection of databases. WIPO has established a timetable to resume discussions concerning database protection in 1998.

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The April 28, 1998 database conference is intended to bring together representatives from academia, private industry, and Government for an in-depth, day-long discussion of the fundamental questions related to database protection and access. This conference is intended to help policy makers understand the wide range of issues in this important area by soliciting the advice of individual members of the public.

The conference will consist of morning and afternoon plenary sessions with additional, smaller working groups at midday. Conference topics will explore whether a comprehensive regime of legal protection is needed for compilations of data, what safeguards should exist to ensure robust levels of scientific and academic research, what market failures do exist or are likely to exist in data generation industries, and whether government-generated or government-financed data should be subject to special access rules.

March 11, 1998

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Errata

"All reference to Patent No. D. 392,125 to Shahriar Dardashti, of Calif., for STORAGE AND DISPLAY STAND appearing in the Official Gazette of March 17, 1998 should be deleted since no patent was granted."

"All reference to Patent No. 5,726,665 to Jerry P. Wine, of Hi., for HIGH EFFICIENCY ANTENNA USING PARALLEL CONDUCTORS, SINGLE CONDUCTOR AND SUPPORTING MATERIALS appearing in the Official Gazette of March 10, 1998, should be deleted since no patent was granted."

Certificates of Correction for April 7, 1998

D. 385,100
D. 385,217
D. 387,242
D. 387,624
D. 387,858
D. 388,534
D. 388,752
D. 390,261
Re. 35,171
Re. 35,275
4,984,759
4,990,964
5,216,959
5,290,525
5,297,124
5,301,156
5,325,290
5,329,554
5,366,174
5,389,874
5,418,034
5,419,088
5,424,346
5,430,133
5,436,305
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5,451,343
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5,463,665
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5,512,177
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Public Information Sessions and Workshop Presenting the Revised Requirements for Applications Containing Nucleotide Sequence and/or Amino Acid Disclosures, and New PatentIn version 2.0 Software

The Patent and Trademark Office (PTO) is in the process of amending the rules of practice related to the requirements for applications containing nucleotide sequence and/or amino acid disclosures. A Final Rule entitled "Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Disclosures" (Sequence Disclosure Final Rule) that will have an effective date of July 1, 1998 is expected to be published in the Federal Register and Official Gazette in the near future.

In the morning on April 21, 1998, the PTO will hold a first information session pertaining to changes to the rules of practice in the Sequence Disclosure Final Rule. The purpose of this first information session is to: (1) give an overview of the requirements of the rules of practice as amended by the Sequence Disclosure Final Rule; (2) identify changes from the requirements of the current rules of practice; and (3) answer any questions about implementation of the Sequence Disclosure Final Rule. This first information session will be held in Crystal Park 2, room 200 (2121 Crystal Drive, Arlington, VA 22202) from 9:00 AM to 12:00 NOON. Copies of the Sequence Disclosure Final Rule will be available.

In the afternoon on April 21, 1998, a second information session will be held to introduce the new PatentIn version 2.0 software, which was developed by the Trilateral Offices (USPTO, EPO, JPO) to assist applicants in submitting a Sequence Listing in compliance with the rules of practice as amended by the Sequence Disclosure Final Rule, and also in compliance with the World Intellectual Property Office (WIPO) Standard ST.25, "Standard for the Presentation of Nucleotide and Amino Acid Sequence Listings in Patent Applications." PatentIn version 2.0 requires the use of MS-Windows and has an English, French, German or Spanish interface. This second information session, which includes an overview of PatentIn, will be held in Crystal Park 2, room 200 (2121 Crystal Drive, Arlington, VA 22202) from 1:00 PM - 3:00 PM. The official distribution of PatentIn version 2.0 software and related documentation will be available to download for free from the PTO Web site (http://www.uspto.gov) by June 1998. Copies of the software and documentation will also be available on 3.5 inch diskette for $25.00 each.

If interest warrants, PTO will schedule a PatentIn version 2.0 workshop on April 22, 1998, from 9:00 AM -12:00 NOON for those who wish to obtain hands-on experience with the new software. This workshop would include a PTO instructor, and each attendee would be given access to a computer workstation and provided with training materials to assist in learning the new PatentIn version 2.0 program. Space is limited to twenty-two attendees. Details on the location of this workshop will be provided when a space is reserved. Space for the workshop is limited and reservations will be allotted on a first come, first served basis.

Individuals interested in attending the first or second information session or the PatentIn version 2.0 software workshop, all of which are free of charge, should contact Meredith Beckhardt, by telephone at (703) 306-4119, or by electronic mail at meredith.beckhardt@uspto.gov

Summary of Final Decisions

Issued by the

Trademark Trial and Appeal Board

February 16-20, 1998

Date Issued	Type of Case(1)	Proceeding or App'n No	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
2-17	EX	74/651,845	Valley Dental, Inc.	whether, as evidenced by the specimens of record, the matter sought to be registered is being used as a service mark for the services recited in the application; whether a more definite recitation of services is required	Refusal Reversed		"TOOTH TOTS CLUB" [promoting dental health to children]		No
2-19	EX	74/254,945	Controls Corp. of America	de jure functionality (of a product configuration)	Refusal Affirmed		configuration of applicant's goods [a seat and filter assembly for gas regulators]		Yes
2-20	EX	74/677,107	WoodenBoat Publications, Inc.	2(d)	Refusal Affirmed		"HOPE MAGAZINE" (and design) [magazines of inspirational stories and information]	"HOPE MAGAZINE" [magazines dealing with homelessness]	No
2-20	EX	74/586,109	La Salsa Holding Co.	whether the matter sought to be registered is capable of registration on the Supplemental Register	Refusal Affirmed, in the absence of disclaimer of the words "MEXICAN GRILL" [matter found capable of registration on the Supp. Reg. upon submission of required disclaimer]		"FRESH MEXICAN GRILL" [restaurant services]		No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ FOR RECONSIDERATION, (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Special box designations should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these special boxes. If any documents other than the specified type identified for each special box are addressed to that box, they will be significantly delayed in reaching the appropriate area for which they are intended.

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Assistant Commissioner for Patents
Washington, D.C. 20231

Box Designations	Explanation
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 12	Contributions to the Examiner Education Program.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box Issue Fee	All communications following the receipt of a PTOL–85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box Missing Parts	Response to the Notice to File Missing Parts of Application and associated papers and fees.
Box MPEP	Submissions concerning the Manual of Patent Examining Procedures.
Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box PATENT APPLICATION	New patent applications and associated papers and fees.
Box Patent Ext.	Applications for patent term extension and any communications relating thereto.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Provisional Patent Application	The filing of all provisional patent applications and any communications relating thereto.
Box Reconstruction	Correspondence pertaining to the reconstruction of lost patent files.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return post card or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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FEE (or NO FEE)
Assistant Commissioner for Trademarks
2900 Crystal Drive
Arlington, Virginia 22202-3513

Box Designations	Explanation
Box NEW APP FEE	New trademark applications and fees.
Box ITU FEE	Statements of Use (SOUs) and extension requests.
Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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Box Designations	Explanation
Box 3	Mail for the Office of Personnel from NFC.
Box 4	Mail for the Deputy Assistant Secretary of Commerce and Deputy Commissioner of Patents and Trademarks; Office of Legislative and International Affairs.
Box 6	Mail for the Office of Procurement.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation and disciplinary proceedings*; papers relating to pending litigation in court cases shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Virginia 22215 and papers relating to pending disciplinary proceedings before the Administrative Law Judge or the Commissioner shall be mailed only to the Office of the Solicitor, P.O. Box 16116, Arlington, Virginia 22215.
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

Reference Collections of U.S. Patents and Trademarks Available for Public Use in Patent and Trademark Depository Libraries

The following libraries, designated as Patent and Trademark Depository Libraries (PTDLs), receive patent and trademark information from the U.S. Patent and Trademark Office. Many PTDLs have on file patents issued since 1790, trademarks published since 1872, and select collections of foreign patents. All PTDLs receive both the patent and trademark sections of the *Official Gazette of the U.S. Patent and Trademark Office* and numerical sets of patents in a variety of formats. Patent and trademark search systems in the Cassis CD-ROM series are available at all PTDLs to increase access to that information. It is through the CD-ROM systems and other depository materials that preliminary patent and trademark searches may be conducted through the numerically arranged collections.

Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

All information is available for use by the public free of charge. However, there may be charges associated with the use of on-line systems, photocopying and related services.

Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

Partnership PTDLs provide enhanced and expanded services for which fees are charged. They offer on-line patent text and image searching, on-line trademark searching, and videoconferencing for examiner interviews and workshops. They accept disclosure documents on site, order file wrappers, assignment documents and certified copies for their customers, and host a variety of seminars aimed at specific audiences, including practitioners, paralegals, and independent inventors. Currently, partnerships are located at the Great Lakes Patent and Trademark Center (GLPTC) at the Detroit Public Library in Detroit, Michigan and the Sunnyvale Center for Innovation, Invention and Ideas (SCI^3) in Sunnyvale, California.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(334) 844-1747
	Birmingham Public Library	(205) 226-3620
Alaska	Anchorage: Z.J. Loussac Public Library	(907) 562-7323
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 228-7220
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
Colorado	Denver Public Library	(303) 640-6220
Connecticut	Hartford Public Library	Not Yet Operational
	New Haven Free Public Library	Not Yet Operational
Delaware	Newark: University of Delaware Library	(302) 831-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(954) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 747-4450
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette Siegesmund Engineering Library, Purdue University	(765) 494-2872
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 978-3155
Kentucky	Louisville Free Public Library	(502) 574-1611
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-8875
Maine	Orono: Raymond H. Fogler Library, University of Maine	(207) 581-1678
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Media Union Library, University of Michigan	(313) 647-5735
	Big Rapids: Abigail S. Timme Library, Ferris State University	(616) 592-3602
	Detroit: Great Lakes Patent and Trademark Center	(313) 833-3379
Minnesota	Minneapolis Public Library and Information Center	(612) 630-6120
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada, Reno Library	(702) 784-6500 Ext. 257
New Hampshire	Concord: New Hampshire State Library	(603) 271-2239

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New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 445-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 474-5355
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
	Stony Brook: Engineering Library, State University of New York	Not Yet Operational
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Akron - Summit County Public Library	(330) 643-9075
	Cincinnati and Hamilton County, Public Library of	(513) 369-6971
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Portland: Paul L. Boley Law Library, Lewis & Clark College	(503) 768-6786
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Puerto Rico	Mayaquez General Library, University of Puerto Rico	(787) 832-4040 Ext. 3459
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Clemson University Libraries	(864) 656-3024
South Dakota	Rapid City: Devereaux Library, South Dakota School of Mines and Technology	(605) 394-1275
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8877
	Nashville: Stevenson Science Library, Vanderbilt University	(615) 322-2717
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-3826
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
	Lubbock: Texas Tech University	(806) 742-2282
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Vermont	Burlington: Bailey/Howe Library, University of Vermont	(802) 656-2542
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 828-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510 Ext. 113
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	Milwaukee Public Library	(414) 286-3051
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PATENT EXAMINING CORPS

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LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/04/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	05/21/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	05/20/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	04/21/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	09/14/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	10/13/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	02/16/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	02/16/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	11/23/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	06/24/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	06/07/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	03/15/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	11/16/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	09/17/96
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	01/03/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	01/09/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	10/22/96

*A communication from the examiner should have been received in most applications filed prior to this date

Patents will Expire as Follows
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of March 1, 1998

Law Office	Oldest Date	
	New*	Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308–9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/19/97	12/29/97
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308–9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/22/97	01/05/98
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308–9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/17/97	03/06/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308–9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/09/97	12/15/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308–9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/24/97	12/10/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308–9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/22/97	11/06/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308–9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/09/97	12/09/97
Law Office 108—David Shallant, Managing Attorney, (703) 308–9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions— Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services-Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/16/97	11/14/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308–9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/30/97	01/05/98
**Collective Marks—Class 200 **Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	01/16/98	—0—
Renewals (All Classes)	01/16/98	—0—
Section 12(c) Publications (All Classes)	12/31/97	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

APRIL 7, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 Re. 34,293 (3472nd)

LIGAMENT ATTACHMENT METHOD AND APPARATUS

E. Marlowe Goble, 1414 E. 1220 North, Logan, Utah 84321, and W. Karl Somers, Logan, Utah, assignors to E. Marlowe Goble, Utah

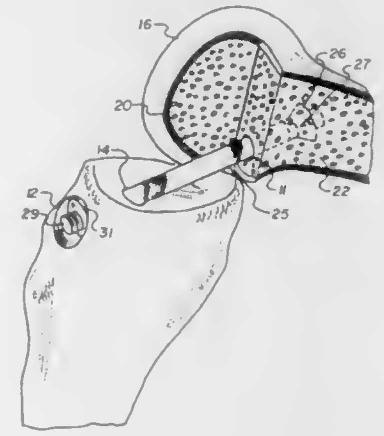
Reexamination Request No. 90/004,506, Jan. 6, 1997.

Reexamination Certificate for Reissue Patent Re. 34,293, issued Jun. 22, 1993, Ser. No. 529,319, May 29, 1990.

Original No. 4,772,286, dated Sep. 20, 1988, Ser. No. 15,432, Feb. 17, 1987.

Int. Cl.⁶ A61F *1/00*

U.S. Cl. 623—13



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **4–27** is confirmed.

Claims **1**, **3**, **28**, **31** and **34** are determined to be patentable as amended.

Claims **2**, **29**, **30**, **32**, **33** and **35**, dependent on an amended claim, are determined to be patentable.

1. A surgical system for implanting a human knee joint ligament, particularly a cruciate ligament comprising, under fluoroscopic control and with the patient's leg bent and maintained appropriately, at single incision to the tibial tuberosity, urging a guidewire through the bone surface and passing through the cruciate ligament junctions to the proximal tibia and distal femur, the guidewire further urged into the femur cortex, which guidewire is to receive and guide therealong successively larger drills to form a ligament tunnel of a diameter to accommodate a selected allograft or prosthetic ligament, and the end of which ligament tunnel within said femur cortex is *closed or is blind and is* further prepared to receive a ligament femur attachment connector fitted and secured therein[ ]; an allograft or prosthetic ligament for implant in said ligament tunnel that includes on one end the femoral attachment connector and is arranged for permanent installation in said femur cortex at said ligament tunnel *closed or blind* end; and [securing] a tibial attachment end of said ligament *is secured* at the open tibia end of said ligament tunnel.

B1 4,554,584 (3473rd)

VIDEO AND AUDIO BLANKING SYSTEM

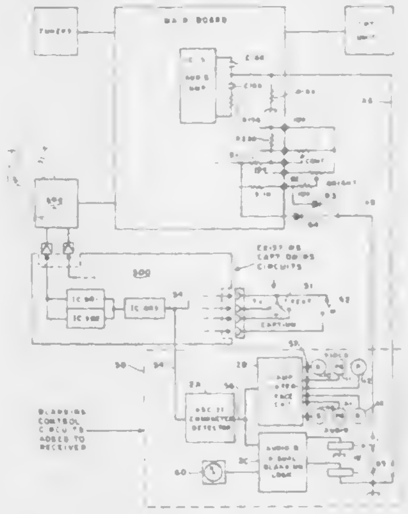
Carl M. Elam, Ft. Washington, Md., and Dale A. Leavy, Edwards AFB, Calif., assignors to H. Lee Browne, Greenwich, Conn.

Reexamination Request No. 90/004,320, Aug. 1, 1996.

Reexamination Certificate for Patent 4,554,584, Issued Nov. 19, 1985, Ser. No. 512,063, Jul. 8, 1983.

Int. Cl.⁶ H04N *3/24, 7/04*

U.S. Cl. 348—634



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–14** is confirmed.

New claims **15–31** are added and determined to be patentable.

1. A television editing system activated by transmitted digital codes for blanking at least part of the output of a receiver, in which the receiver includes at least a portion of a captioning circuit means for detecting digital data if present in the transmitted signal and supplying the data to a data bus,

wherein said editing system comprises an auxiliary circuit which includes a character detector, rating select switch means, and blanking logic means;

the character detector having inputs coupled to said data bus, means for decoding predetermined digital codes of a special set of characters, and output to rating signal lines, there being a separate rating signal line for each character of said special set,

the rating select switch means having settings for different ratings; and

the blanking logic means having logic circuits coupled to the rating signal lines and to the rating select switch means to compare the switch setting to signals on the rating signal lines, and in response to the comparison to generate a logic output signal condition for selectively either blanking or not blanking at least part of the receiver output.

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B1 4,589,815 (3474th)

ELECTRONIC TEST HEAD POSITIONER FOR TEST SYSTEMS

Nathan R. Smith, Vincentown, N.J., assignor to InTest Corporation, Cherry Hill, N.J.

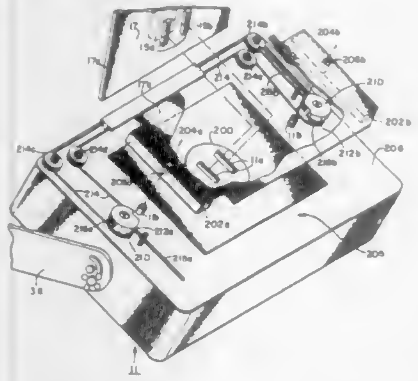
Reexamination Request Nos. 90/004,113, Jan. 23, 1996 and 90/004,311, Jul. 19, 1996.

Reexamination Certificate for Patent 4,589,815, issued May 20, 1986, Ser. No. 522,635, Aug. 11, 1983.

Continuation-in-part of Ser. No. 411,311, Aug. 25, 1982, Pat. No. 4,527,942.

Int. Cl.^{6} B66F *9/18*

U.S. Cl. 324—758



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim **2** is confirmed.

Claims **1** and **3** are determined to be patentable as amended

Claims **4**, **5**, **6**, **7**, **8** and **9**, dependent on an amended claim, are determined to be patentable.

3. A system for docking and undocking an electronic test head with respect to an electronic device handler with the test head and the device handler having respective first and second electrical contact means adapted to mate with each other comprising.

at least first and second alignment pins rigidly secured to the test head on either side of the first contact means,

at least first and second alignment bars *having thickness to define a space therebetween and* having respective first and second guide openings and rigidly secured with respect to the device handler on either side of the second contact means, the first and second guide openings precisely aligned with respect to and for receiving respective first and second alignment pins for accurate mating of the first and second contact means, and

first and second platform means each having an upper surface and secured with respect to the test head on either side of the first contact means and selectively spaced with respect to the first and second alignment pins, the first and second platform means upper surfaces and the first and second alignment pins having a height so that upon engagement with the respective first and second alignment bars [of] *having* thickness there is prevented engagement of said first and second contact means until the first and second alignment pins are received in the respective first and second guide openings for achieving precise alignment thereby to avoid damage to the first and second contact means.

B1 5,052,915 (3475th)

SEQUENTIAL INJECTION MOLDING MACHINE

Robert D. Schad, Toronto, and Paul P. Brown, Orangeville, both of Canada, assignors to Husky Injection Molding Systems Ltd., Bolton, Canada

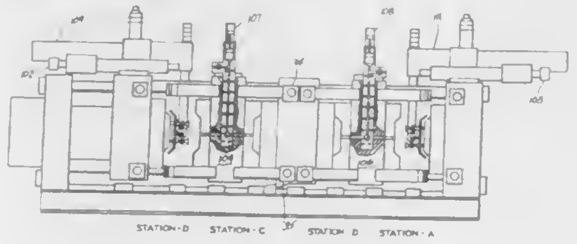
Reexamination Request No. 90/004,556, Feb. 19, 1997.

Reexamination Certificate for Patent 5,052,915, issued Oct. 1, 1991, Ser. No. 568,242, Aug. 15, 1990.

Continuation of Ser. No. 320,581, Mar. 8, 1989, abandoned, which is a division of Ser. No. 150,157, Jan. 29, 1988, Pat. No. 4,867,938.

Int. Cl.^{6} B29C *45/40*

U.S. Cl. 425—556



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2–6** and **13–15** are cancelled.

Claims **1**, **7**, **8**, **11**, **12**, **16** and **20** are determined to be patentable as amended.

Claims **9**, **10** and **17–19** dependent on an amended claim are determined to be patentable.

New claims **21–26** and **27** are added and determined to be patentable.

1. Injection molding apparatus for molding plastic parts, said apparatus operating a molding cycle including injection, hold under pressure, cool and ejection, said apparatus comprising:

[a first molding station and a second molding station] *at least four molding stations aligned along a common axis,*

[at least one first mold located at said first molding station and at least one second mold located at said second molding station] *a mold located at each of said at least four molding stations,* said molds being operative to form molded parts,

primary and secondary clamping means operative to close and clamp said molds, wherein the secondary clamping means is operative to separately clamp said molds,

[a] molten plastic distributor means having individual channels for communicating sequentially and selectively with said molding stations in an overlapping cycle,

primary and secondary injection means both of which being operative to directly inject molten plastic into [both] *all* of said clamped molds, wherein said secondary injection means is operative to stuff at least one of said molds,

means to open [said] at least one [first] mold while [said at least one second mold is] *the remaining molds are* closed, including means to release the clamping force on said [moles] *molds* independently of each other, and

means to remove the plastic parts.

B1 5,310,424 (3476th)

PROCESS FOR REDUCING THE FIBRILLATION TENDENCY OF SOLVENT-SPUN CELLULOSE FIBRE

James M. Taylor, Derby, United Kingdom, assignor to Courtaulds PLC, London, United Kingdom

Reexamination Request No. 90/004,515, Jan. 13, 1997.

Reexamination Certificate for Patent 5,310,424, issued May 10, 1994, Ser. No. 863,008, Apr. 6, 1992.

Claims priority, application United Kingdom, Oct. 21, 1991, 9122318

Int. Cl.^{6} D06M *13/322*

U.S. Cl. 8—190

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT

Claims **1**, **2**, **4**–**7**, **21**, **22**, **26**, **30** and **31** are cancelled

Claims **3**, **8**, **9**, **12**–**20**, **27**, **29**, **32** and **33** are determined to be patentable as amended.

Claims **10**, **11**, **23–25** and **28**, dependent on an amended claim, are determined to be patentable.

New claims **34**–**40** are added and determined to be patentable.

34. A process for reducing fibrillation tendency of solvent-spun cellulose fibre comprising the steps of.

(a) contacting never-dried solvent-spun cellulose fibre under alkaline conditions with an aqueous system comprising a substantially colourless chemical reagent having from two to six functional groups reactive with cellulose;

(b) steaming said contacted fibre to induce a substantial degree of reaction between said fibre and said functional groups, and

(c) drying said steamed fibre,

whereby said fibre is of substantially the same colour both before and after steps (a), (b), and (c), and whereby the fibrillation tendency of said fibre is reduced.

B1 5,315,830 (3477th)

MODULAR THERMOELECTRIC ASSEMBLY

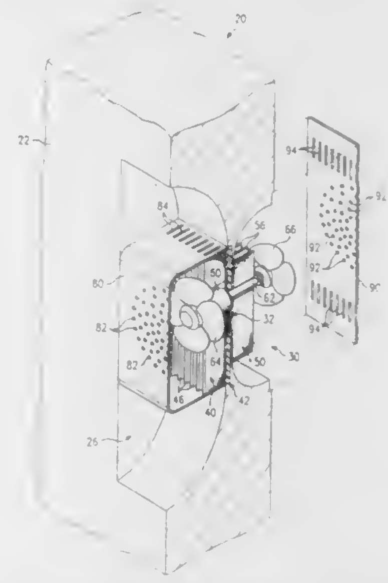
Michael J. Doke, Dallas; Richard A. Howarth, Allen, and Leonard J. Recine, Sr., Plano, all of Tex., assignors to Marlow Industries, Inc., Dallas, Tex.

Reexamination Request No. 90/004,040, Nov. 28, 1995.

Reexamination Certificate for Patent 5,315,830, issued May 31, 1994, Ser. No. 47,695, Apr. 14, 1993.

Int. Cl.^{6} F25B *21/02*

U.S. Cl. 62—3.2



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1** through **15** is confirmed.

Claim **19** is cancelled.

Claims **16** and **18** are determined to be patentable as amended

Claims **17**, **20** and **21** dependent on an amended claim, are determined to be patentable

1. Apparatus for controlling the temperature within an enclosed structure comprising:

a thermoelectric device with a first heat sink disposed on one side of the device and a second heat sink disposed on the other side of the device;

a layer of insulating material disposed between the first heat sink and the second heat sink with the thermoelectric device contained within the insulating material;

an electric motor carried by the first heat sink;

a rotating shaft extending longitudinally through the first heat sink, the electrical motor, the insulating material and the second heat sink, and

a propeller attached to each end of the rotating shaft adjacent to the first heat sink and the second heat sink respectively

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B1 5,324,128 (3478th)

SPILL PREVENTING COSMETIC APPLICATOR

Jean-Louis H. Gueret, Paris, France, assignor to L'Oreal, Paris, France

Reexamination Request No. 90/004,493, Dec. 20, 1996.

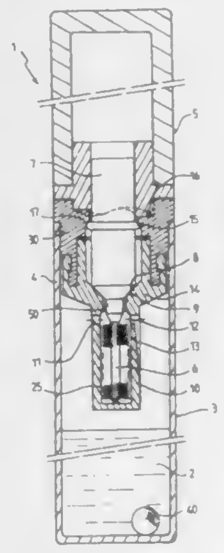
Reexamination Certificate for Patent 5,324,128, issued Jun. 28, 1994, Ser. No. 988,965, Jul. 15, 1992.

PCT No. PCT/FR92/00680, § 371 Date Apr. 13, 1993, § 102(e) Date Apr. 13, 1993, PCT Pub. No. WO93/01734, PCT Pub. Date Feb. 4, 1993

Claims priority, application France, Jul. 19, 1991, 91 09149

Int. Cl.^{6} A45D *34/00;40/20*

U.S. Cl. 401—126



AS A RESULT OF REEXAMINATION IT HAS BEEN DETERMINED THAT:

The patentability of claims **1**–**18** is confirmed

1. An applicator assembly for a cosmetic product, comprising a bottle for the product, said bottle having a neck provided with a removable cap for closing the next of the bottle, said cap having a side carrying a stem, said stem having an end to which an applicator element is fixed in such a manner that, in the closed position of said cap on said neck, said applicator element penetrates into the bottle and is impregnated with the product, a shoulder being provided on the cap and said bottle having an interior seat, said

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shoulder being adapted, in the closed position of the cap, to bear against said seat, said bottle including a case having an inner recess which is shaped of complement the external shape of the applicator element, said case being disposed in such a manner that, in the closed positioo of the cap, the applicator element is housed therein, said shoulder being an annular shoulder formed on said stem, the said seat having a shape corresponding to the shape of said shoulder and comprising a central orifice for the passage of the said applicator element from one side of the seat to the other into said case connected to the said sat, said case comprising a wall having at least one capillary opening allowing the product to impregnate the applicator element, but preventing the flow of the product from the container in which it is situated towards the exterior.

B1 5,466,786 (3479th)

2' MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS

Chris A. Buhr, Daly City, and Mark Matteucci, Burlingame, both of Calif., assignors to Gilead Sciences, Foster City, Calif.

Reexamination Request No. 90/004,412, Oct. 16, 1996.

Reexamination Certificate for Patent 5,466,786, issued Nov. 14, 1995, Ser. No. 240,508, May 10, 1994.

Continuation of Ser. No. 425,857, Oct. 24, 1989, abandoned.

Int. Cl.^{6} C07H *19/00*

U.S. Cl. 536—26.26

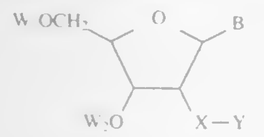
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–7** is confirmed.

Claim **8** is determined to be patentable as amended.

New claims **9–42** are added and determined to be patentable.

8. A monomer having the formula:



(1)

wherein

B is a purine or pyrimidine moiety;

W_1 is H, $(PO_3)m^{-2}$ wherein m is an integer of 1–3[.], a protecting group, or an intermediate moiety in the formation of an internucleotide link which when reacted with the appropriate —OH results in the Z wherein Z is selected from the group consisting of $P(O)O^-$, P(O)S, $P(O)N(R)_2$, P(O)R, P(O)OR', CO, and $CN(R)_2$, wherein R is H or alkyl (1–6 C) and R' is alkyl (1–6 C);

W_2 is H, PO_3^{-2}, a protecting group, or an intermediate moiety in the formation of an intermediate moiety in the formation of an internucleotide link which when reacted with the appropriate —OH results in Z wherein Z is selected from the group consisting of $P(O)O^{-1}$, P(O)S, $P(O)N(R)_2$, P(O)R, P(O)OR', CO, and $CN(R)_2$, wherein R is H or alkyl (1–6 C) and R' is alkyl (1–6 C);

X is O, S, or CR_2 wherein each R is independently H or alkyl (1–6 C),

Y is selected from the group consisting of substituted [or unsubstituted] alkyl (2–20 C), substituted or unsubstituted alkenyl (2–20 C), substituted or unsubstituted aryl (6–20 C), wherein the substituents are selected from the group consisting of a hydroxyl, an amino, a mercaptyl, a carboxy or a keto moiety, $—CH_2COOH$, $—CH_2CO[O]NH_2$, [$—CH_2COOEt$] *$-CH_2COOCH_2CH_3$*, $CH_2CONHCH_2CH_2NH_2$ and SiR''_3 wherein R" is alkyl (2–6 C).

B1 5,476,351 (3480th)

METHOD AND APPARATUS FOR FORMING A HEAD ON A FASTENER AND A FASTENER FORMED THEREFROM

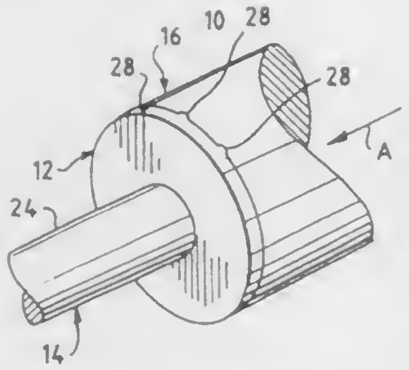
John Binder, Morton Grove; Henry W. Schniedermeier, Niles; Lawrence S. Shelton, Morton Grove; Henry A. Sygnator, Arlington Heights, and William L. Gabriel, Barrington, all of Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.

Reexamination Request No. 90/004,684, Jul. 3, 1997.

Reexamination Certificate for Patent 5,476,351, issued Dec. 19, 1995, Ser. No. 136,647, Oct. 14, 1993.

Int. Cl.^{6} F16B *15/02;15/08*

U.S. Cl. 411—439



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 1 is determined to be patentable as amended.

Claims **2–14** dependent on an amended claim, are determined to be patentable.

1. A fastener, comprising:

a shank *having a longitudinal axis*, and

a head integral with said shank and formed by axial compression *and radially outward expansion* of the material comprising an end portion of said shank, and including a plurality of rib means, *formed upon said head during said axial compression and radially outward expansion of said end portion of said shank so as to be* disposed parallel with respect to each other [, disposed parallel] *and* with respect to a diameter of said head, [and formed upon said head during said axial compression of said end portion of said shank] for controlling the direction of flow of said material comprising said end portion of said shank, and for accommodating said *flowing* material comprising said end portion of said shank, as said material comprising said end portion of said shank is expanded radially outwardly with respect to said shank of said fastener during said axial compression of said end portion of said shank and said formation of said head upon said shank [such that] *whereby* said head has a predetermined configuration and wherein said head is substantially centered with respect to said longitudinal axis of said shank.

B1 5,559,190 (3481st)

DIFUNCTIONAL TELECHELIC LINEAR NON-CROSSLINKED POLYOLEFINS

Philip O. Nubel, and Howard B. Yokelson, both of Naperville, Ill., assignors to Amoco Corporation, Chicago, Ill.

Reexamination Request No. 90/004,648, May 22, 1997.

Reexamination Certificate for Patent 5,559,190, issued Sep. 24, 1996, Ser. No. 459,652, Jun. 2, 1995.

Continuation-in-part of Ser. No. 68,236, May 27, 1993, Pat. No. 5,403,904, and a continuation-in-part of Ser. No. 68,240, May 27, 1993, Pat. No. 5,519,101, and a continuation-in-part of Ser. No. 167,668, Dec. 15, 1993, Pat. No. 5,512,635.

Int. Cl.^{6} C08F *8/14;8/32;* **C08G** *61/12*

U.S. Cl. 525—270

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT

The patentability of claims **1–9** is confirmed.

1. A difunctional telechelic linear non-crosslinked polyolefin without pendant chain-branched groups wherein the functionality number of said polyolefin as determined by NMR is 2.0, the functional groups consisting of ester moieties, alcohol moieties and amine moieties are other than vinyl groups, polydispersity is from 1.3 to 3.0, and polyolefin molecular structure is

$$X—[CH=CH(CH_2)_n]_mCH=CH—X$$

wherein X is selected from the group consisting of —COOR, $—CH_2OC(O)R$, $—(CH_2)_kCOOR$, $—CH_2OH$, $—(CH_2)_kCOO(CH_2)_pOH$, $—COO(CH_2)_pOH$, $—(CH_2)_kC(O)NR'(CH_2)_pNHR'$ and $—C(O)NR'(CH_2)_pNHR'$, wherein p is 2 to 12, wherein R is an alkyl group of from 1 to 8 carbon atoms, R' is hydrogen or an alkyl group of 1 to 8 carbon atoms, n is 1 to 10, and m is a number average value of up to 1000.

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STATUTORY INVENTION REGISTRATIONS

PUBLISHED APRIL 7, 1998

A statutory invention registration is not a patent. It has the defensive attributes of a patent but does not have the enforceable attributes of a patent. No article or advertisement or the like may use the term patent, or any term suggestive of a patent, when referring to a statutory invention registration. For more specific information on the rights associated with a statutory invention registration see 35 U.S.C. 157.

H1715

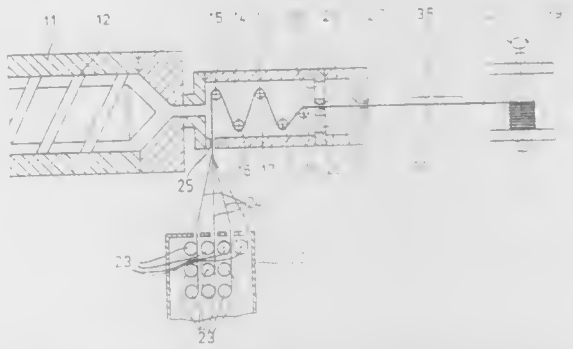
PROCESS AND DEVICE FOR THE MANUFACTURE OF A STRING FOR STRINGING TENNIS RACKETS OR THE LIKE AND STRING RESULTING THEREFROM

Gerard Longeat, Lyons, France, assignor to Babolat VS, Lyons, France

Filed Aug. 13, 1996, Ser. No. 695,965

Int. Cl.⁶ D02G *3/36*

U.S. Cl. 57—7 **25 Claims**



1. A process for the manufacture of a tennis string intended for stringing rackets in which filaments are embedded in a thermoplastic substance, wherein the filaments pass through a chamber filled with the thermoplastic substance under pressure and made viscous by heating in which the filaments run over a number of return members, thus having the effect of embedding the filaments in a matrix consisting of the thermoplastic substance, on leaving the chamber the filaments pass through at least one die with the matrix in which they are embedded, thus forming a pseudo monofilament that is subjected to a twist and is coated with a sheath of wear-resistant thermoplastic substance.

H1716

METHOD FOR PREPARING A CHEMICAL MIXTURE TO ENVIRONMENTAL SPECIFICATIONS

Larry Alan Rapp, 22655 Hidden Hills Rd., Yorba Linda, Calif. 92887, and Shih-Chen Wang, 6041 Avon Ave., San Gabriel, Calif. 91775

Filed Apr. 16, 1997, Ser. No. 843,487

Int. Cl.⁶ C10L *1/04*

U.S. Cl. 208—17 **15 Claims**

1. A method of manufacturing a chemical mixture which conforms to a set of regulations, wherein the mixture comprises a plurality of chemical components and wherein the mixture has a plurality of chemical characteristics, the set of regulations requiring that the manufacturer prepare a master specification which sets control limits on the chemical characteristics of the chemical mixture and requiring that the master specification conform to a set of controlling criteria which are dependent upon such control limits, the method comprising the steps of:

(a) blending quantities of chemical components to create a chemical mixture conforming to the controlling criteria;
(b) analyzing the chemical mixture to determine the chemical characteristics of the chemical mixture;
(c) preparing a test specification which conforms to the chemical characteristics of the chemical mixture;
(d) determining whether the test specification conforms to the controlling criteria;
(e) accepting the test specification as the master specification if the determination in step (d) is positive.

H1717

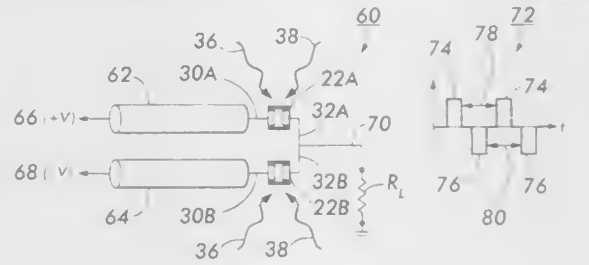
BISTABLE PHOTOCONDUCTIVE SWITCHES PARTICULARLY SUITED FOR FREQUENCY-AGILE, RADIO-FREQUENCY SOURCES

David C. Stoudt, King George, Va., and Michael A. Richardson, Louisville, Colo., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 16, 1995, Ser. No. 558,998

Int. Cl.⁶ H01L *27/14; 31/00*

U.S. Cl. 257—431 **19 Claims**



16. A pulse-switch-out generator comprising

(a) a first photoconductive switching device having on and off high electrical resistance states and comprising a GaAs:Si:Cu material, wherein said Cu has a deep acceptor level Cu_B in said GaAs at an energy level of about 0.44 eV above a valence band of said device and a Fermi level which is above the deep acceptor level Cu_B, said first photoconductive switching device having operatively connected electrical contact gaps at respective opposite ends thereof and an exposed region located between said electrical-contact gaps arranged to receive light, one of said contacts arranged to receive an input signal and the other of said contacts arranged to provide an output signal from said first photoconductive switching device;
(b) a second photoconductive switching device having on and off high electrical resistance states and comprising a GaAs:Si:Cu material, wherein said Cu has a deep acceptor level Cu_B in said GaAs at an energy level of about 0.44 eV above a valence band of said device and a Fermi level which is above the deep acceptor level Cu_B, said second photoconductive switching device having operatively connected electrical contact gaps at respective opposite ends thereof and an exposed region located between said electrical-contact gaps and arranged to receive light, one of said contacts arranged to receive an input signal and the other of said contacts arranged to provide an output signal from said second photoconductive switching device;
(c) first means for connecting said input contact of said first photoconductive switching device to a relatively high positive potential;
(d) second means for connecting said input contact of said second photoconductive switching device to a relatively high negative potential;
(e) third means for connecting together each of said output contacts of both of said first and second photoconductive switching devices; and
(f) means for directing first and second light pulses having different operating wavelengths onto each of said exposed region of each of said first and second photoconductive switching devices so that each of said first and second photoconductive switching devices transitions from its off-on and on-off electrical resistance states respectively in response to said first and second light pulses.

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H1718
METHOD OF PRODUCING HIGH TEMPERATURE SUPERCONDUCTOR WIRES

William A. Ferrando, Arlington; Amarnath P. Divecha, Falls Church, both of Va., and James M. Kerr, Bethesda, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 20, 1992, Ser. No. 915,569
Int. Cl.^{6} C04B *37/00*

U.S. Cl. 264—61 **18 Claims**

1. A method of producing a superconductor wire comprising:
- A. coating the inside surface of a cylindrical steel tube with a layer of silver metal;
- B. packing the steel tube with a high temperature superconducting ceramic powder;
- C. sealing the steel tube;
- D. cold working the steel tube to reduce its inner diameter to the desired diameter of the superconductor wire; and
- E. etching or dissolving away the steel tube with hydrochloric acid to leave a superconductor wire comprising the silver metal coating that was on the inside surface of the steel tube as a thin silver sheath encapsulating the high temperature superconductor ceramic powder

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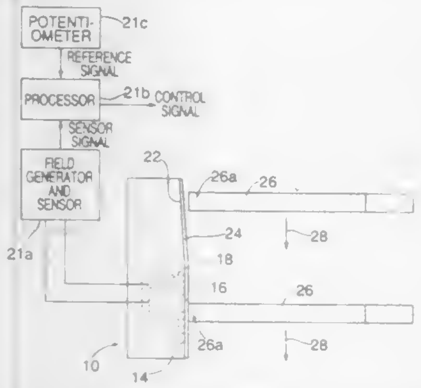
H1719
LOOSE END DETECTOR FOR TOBACCO ARTICLES

Derek P. Noakes, Pleasant Garden, and David R. Smart, Greensboro, both of N.C., assignors to Lorillard Tobacco Company, New York, N.Y.

Filed Jan. 28, 1992, Ser. No. 827,166
Int. Cl.^{6} G01R *27/26*

U.S. Cl. 324—687 **9 Claims**



1. In a device for sensing the density of tobacco comprising a flat sensor surface, means for generating a capacitance field emanating from said sensor surface, means for adjusting said capacitance field, means for moving a desired portion of a tobacco article past said sensor surface in contact therewith so as to move through the electric field, and a protective member covering said sensor surface to protect said sensor surface against wear, the improvement wherein said protective member comprises a thin piece of glass plate adhered to said sensor surface, whereby the wear life is extended indefinitely, the sensitivity of the field is enhanced, and variations in positioning the tobacco article in the field, due to localized wear of the protective member, are virtually eliminated

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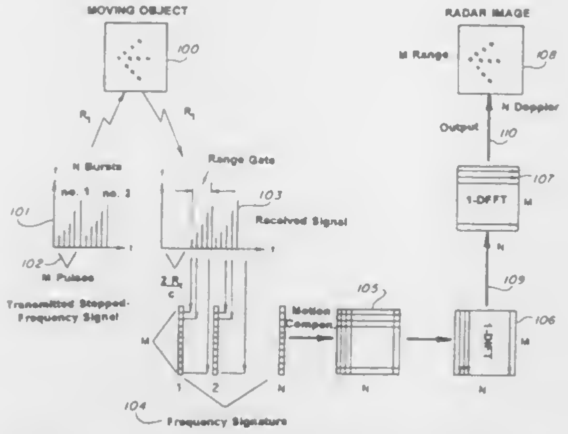
H1720
TIME FREQUENCY PROCESSOR FOR RADAR IMAGING OF MOVING TARGETS

Victor C. Chen, 2706 Shawn Leigh Dr., Vienna, Va. 22181

Filed Mar. 31, 1997, Ser. No. 829,263
Int. Cl.^{6} G01S *13/89*

U.S. Cl. 342—25 **11 Claims**

1. In a radar image signal processing system, an improved method for processing radar target image information comprising:



generating a series of pulses for transmission in a target range,

receiving target image backscatter information generated from said series of pulses transmitted in said target range by reflecting from a target in said target range, and

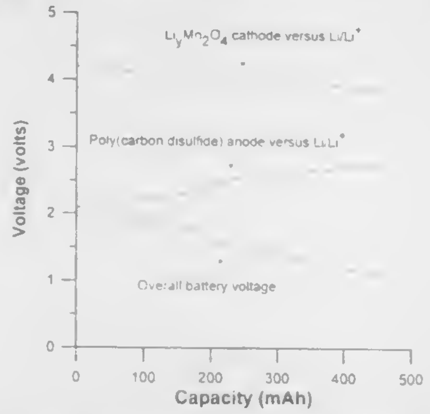
processing said target image backscatter information received in said receiving step into target information using a series of processing steps comprising:
- generating frequency domain signatures from said target image backscatter information,
- range processing said frequency domain signatures and generating first transformed target information,
- receiving said first transformed target information and generating target range profiles therefrom,
- performing a Joint Time-Frequency Transform upon said target range profiles and generating second transformed target information,
- sampling said second transformed target information in the time domain and generating time sampled target information, and
- displaying a target image using time sampled target information.

H1721
AQUEOUS RECHARGEABLE BATTERY

David Stanley Wainwright, Vancouver, Canada, assignor to Moli Energy (1990) Limited, Maple Ridge, Canada

Filed Dec. 23, 1996, Ser. No. 772,464
Claims priority, application Canada, Sep. 20, 1996, 2186099
Int. Cl.^{6} H01M *10/42*

U.S. Cl. 429—49 **7 Claims**



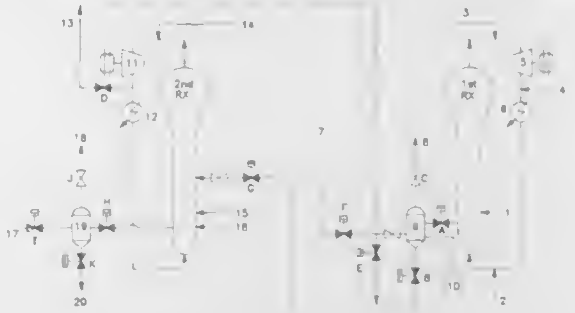
1. An aqueous rechargeable battery having a cathode including a first insertion compound with inserted species A, the amount of inserted A in the cathode increasing on discharge and decreasing on recharge of the battery, wherein A is a member of the group consisting essentially of the alkali metals and alkaline earth metals, an anode including a second insertion compound with inserted species A, the amount of inserted A in the anode decreasing on discharge and increasing on recharge of the battery, and an electrolyte comprising a salt of A dissolved in an aqueous solvent mixture, wherein the improvement comprises using of a polymer for at least one of the insertion compounds.

H1722
PROCESS FOR PRODUCING POLYPROPYLENE IMPACT BLOCK COPOLYMERS

Mark Gregory Goode, 17 Meadowbrook Cir., Hurricane, W. Va. 25526; Kersten Anne Erickson, 872 Roxalana Hills Dr., Dunbar, W. Va. 25064, and James Douglas McCullough, Jr., 754 Last Arrow Dr., Houston, Tex. 77079

Filed May 5, 1995, Ser. No. 436,808
Int. Cl.^{6} C08F *4/649*

U.S. Cl. 525—323 **11 Claims**



1. A process for producing polypropylene, impact, block copolymers, which process comprises the steps of
- 1) polymerizing propylene and optionally less than 3 mol % of a comonomer selected from the group consisting of ethylene, butene-1, pentene-1, and hexene-1, in a first polymerization reactor under polymerization conditions in the presence of a catalyst system of:
  - i) a solid catalyst precursor consisting essentially of magnesium, titanium, halogen, and an inside electron donor,
  - ii) an organoaluminum cocatalyst,
  - iii) an outside electron donor of the formula

$$R^1{}_2Si(OR^2)_2$$

wherein each R^1 is individually a cycloalkyl having 4 to 7 carbon atoms or a substituted or unsubstituted cycloaliphatic group having 4 to 7 carbon atoms and each R^2 is individually a hydrocarbon group having 1 to 20 carbon atoms to produce a first polymer; and
- 2) polymerizing in a second reactor the first polymer obtained in step 1 with propylene and a monomer selected from the group consisting of ethylene, butene-1, pentene-1, and hexene-1 in the absence of an additional catalyst system and in the presence of tetraethoxysilane.

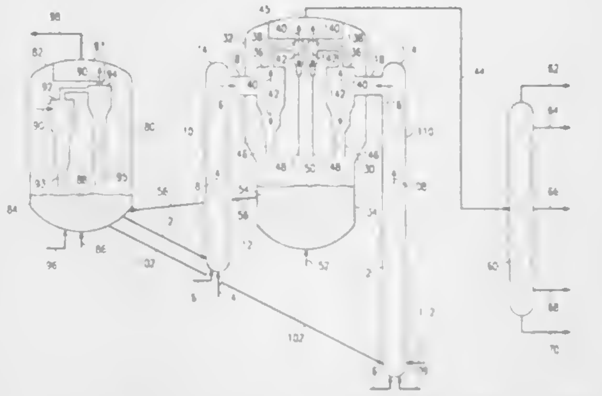
H1723
PROCESS FOR PRODUCING GASOLINE BLENDING COMPONENTS FROM JET RANGE AND HEAVIER AROMATICS

Ernest L. Leuenberger, 14241 Olive Tree Cir., Tustin, Calif. 92680, and John C. Burger, 7319 Marina Pacifica Dr., Key 11, Long Beach, Calif. 90803

Continuation of Ser. No. 146,275, Oct. 28, 1993, abandoned, which is a continuation of Ser. No. 943,962, Sep. 11, 1992, abandoned. This application Jan. 11, 1996, Ser. No. 584,809
Int. Cl.^{6} C07C *5/00*

U.S. Cl. 585—310 **27 Claims**

1. A process for producing gasoline blending components from a hydrocarbon composition comprising jet range alkyl aromatics and which boils in a range of from about 300° F to about 690° F by transalkylation of said jet range alkyl aromatics with benzene, said process comprising:



- a. feeding said hydrocarbon composition comprising said jet range alkyl aromatics and said benzene as feed to a second reaction zone of a cracking unit, said cracking unit separately cracking in a first reaction zone and in the presence of cracking catalyst, a heavy feed comprising hydrocarbons which boil at a temperature greater than about 690° F. to a cracked product which comprises a first alkyl aromatic product;
- b. contacting said hydrocarbon composition comprising said jet range alkyl aromatics and said benzene with a cracking catalyst at catalytic cracking conditions in the second reaction zone to produce transalkylation products, said contact conducted such that the transalkylation products do not contact the cracking catalyst in the presence of said first alkyl aromatic product produced by cracking said heavy feed in the first reaction zone;
- c. separating the cracking catalyst from the cracked product of the first reaction zone;
- d. separating the cracking catalyst from the transalkylation products of the second reaction zone; and
- e. thereafter mixing the cracked product of the first reaction zone and the transalkylation products of the second reaction zone

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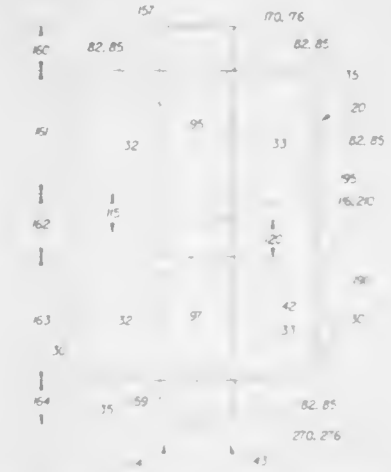
H1724
ABSORBENT ARTICLE HAVING MULTIPLE BACKSHEET MEMBERS

Nicholas Albert Ahr, 3736 Benhill Dr., Cincinnati, Ohio 45247

Filed Dec. 1, 1995, Ser. No. 566,213
Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—385.1 **6 Claims**



1. An absorbent article having a periphery comprising a pair of end edges and a pair of longitudinal edges, a body facing surface and a garment facing surface, said absorbent article comprising
- a liquid pervious topsheet,
- a first liquid impervious backsheet joined to said topsheet, said first backsheet having an aperture therein,
- an absorbent core positioned between said topsheet and said first backsheet,

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a removable liquid impervious second backsheet releasably attached to said first backsheet, said second backsheet partially covering said aperture in said first backsheet, said second backsheet comprising a grasping member; and

a removable liquid impervious third backsheet releasably attached to said first backsheet and said second backsheet, said third backsheet at least partially covering said aperture in said first backsheet.

REISSUES

APRIL 7, 1998

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue

Re. 35,760

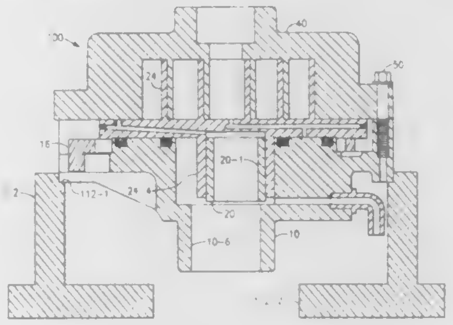
METHOD OF MAKING A SCROLL COMPRESSOR PUMP CARTRIDGE SUBASSEMBLY

Joseph P. Vaccaro, Bismarck, Ark., and Thomas L. Kassouf, Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Original No. 5,379,516, dated Jan. 10, 1995, Ser. No. 43,416, Apr. 6, 1993. Application for reissue Mar. 15, 1995, Ser. No. 404,847

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—888.02 **16 Claims**



1. A method of assembling a pump cartridge *as a subassembly* for insertion *of said subassembly* in a scroll compressor comprising the steps of:

removably locating a crankcase on an assembly fixture;

locating an Oldham coupling in operative engagement with the crankcase;

locating a slider block on the fixture;

locating an orbiting scroll in operative engagement with the slider block and Oldham coupling and supported by the crankcase;

locating a fixed scroll in operative engagement with the orbiting scroll and supported by the crankcase; and

securing the second scroll *directly* to the crankcase to form a pump cartridge assembly.

Re. 35,761

DISPLAY OR STORAGE UNIT

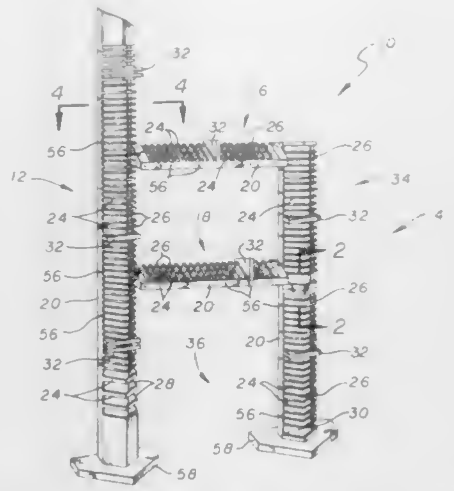
Shahriar Dardashti, 236 S. Oakhurst Dr., Beverly Hills, Calif. 90212

Original No. 5,195,642, dated Mar. 23, 1993, Ser. No. 859,894, Mar. 30, 1992. Application for reissue Mar. 22, 1995, Ser. No. 408,956

Int. Cl.^{6} A47F *7/00*

U.S. Cl. 211—40 **78 Claims**

24. A display or storage unit for selectively holding compact disc cases, tapes and cassettes, comprising a plurality of modular units used to form a desirable multi-unit configuration, and a base unit, said desirable multi-unit configuration being mounted on said base unit, each of said modular units having openings therein adapted to selectively hold said case, tapes and cassettes, and means for removably attaching said modular units to at least one adjacent unit to form said desirable multi-*unit configuration, wherein said base includes means for securing to said base up to three of said modular units.*



Re. 35,762

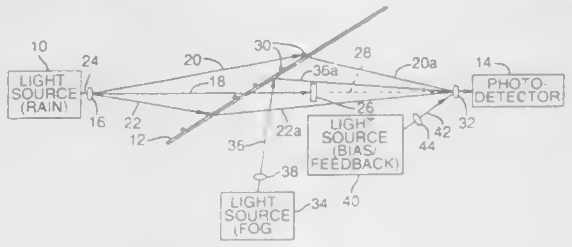
OPTICAL DETECTION OF WATER DROPLETS USING LIGHT REFRACTION WITH A MASK TO PREVENT DETECTION OF UNREFRACTED LIGHT

H. Allen Zimmerman, 6490 SW. 154th Pl., Beaverton, Oreg. 97007

Original No. 5,386,111, dated Jan. 31, 1995, Ser. No. 134,407, Oct. 8, 1993. Application for reissue Nov. 13, 1995, Ser. No. 556,041

Int. Cl.^{6} H01J *5/16*

U.S. Cl. 250—574 **35 Claims**



21. An optical droplet detector apparatus for determining the degree of vision impairment through a window due to an accumulation of water or other precipitation on the window comprising:

a first light source for illuminating water droplets on said window with a first light beam to refract a portion of said first light beam by said droplets;

a photo-detector located inside said window; and

a masking device positioned in front of said photo-detector to effectively block the direct transmission of light rays from said first light source to said photo-detector but allowing said photo-detector to receive light rays from said first source which have been refracted by droplets on said window for the purpose of determining the amount of water on said window so that the output signal of said photo-detector increases with an increase in water droplets on said window.

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Re. 35,763
PERMANENT MAGNET EXCITED ELECTRIC MOTOR

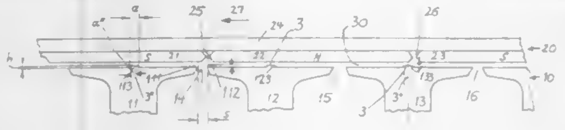
Martin Burgbacher, St. Georgen, Germany, assignor to Papst-Motoren GmbH & Co. KG, Germany

Original No. 5,170,083, dated Dec. 8, 1992, Ser. No. 665,525, Mar. 5, 1991. Continuation of Ser. No. 353,648, Dec. 8, 1994, abandoned, which is a continuation of Ser. No. 218,397, Jul. 13, 1988, Pat. No. 4,998,032, which is a continuation-in-part of Ser. No. 140,976, Jan. 6, 1988, abandoned, which is a continuation of Ser. No. 2,957, Jan. 13, 1987, abandoned. Application for reissue Jul. 23, 1996, Ser. No. 685,271

Claims priority, application Germany, Jan. 13, 1986, 3600737; Jul. 13, 1987, 3723099

Int. Cl.⁶ H02K *5/24*

U.S. Cl. 310—51 14 Claims



8. A brushless dc motor having a cylindrical type air gap, a slotted stator core and permanent magnet excitation, the air gap being defined between circumferentially facing faces of the slotted stator core and an opposing ring of permanent magnets formed to rotate with respect to the core, a pole gap being defined between each adjacent pair of said permanent magnets, the core having a plurality of radially extending winding slots and a corresponding plurality of stator slot orifices, and the motor including at least one winding forming electromagnetic poles defined in the sectors between slots of the stator core wherein a parasitic torque is generated each time that a pole gap interacts with one of said stator slot orifices, the motor further including a plurality of raised portions on each of the electromagnetic pole faces extending radially into and thereby reducing the air gap, the circumferential width of the raised portions being small compared to the circumferential width of the pole pitch, the raised portions on each of the pole faces being*(i) dimensioned and positioned thereon to generate a compensating torque which corresponds to and is generally opposite to one of said parasitic torques and (ii) located such that the distance measured in the direction of rotor rotation from the center of a stator slot defined between any given pair of stator poles to the center of one of said raised portions on the stator face adjacent said given pair of stator poles is equal to n times the rotor pole pitch, n being a non-negative and non-zero whole number.*

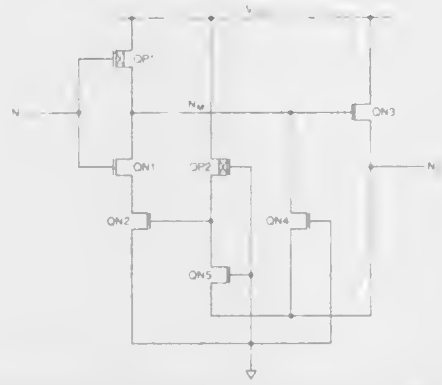
Re. 35,764
INVERTING OUTPUT DRIVER CIRCUIT FOR REDUCING ELECTRON INJECTION INTO THE SUBSTRATE

Stephen L. Casper, and Kevin G. Duesman, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Original No. 5,347,179, dated Sep. 13, 1994, Ser. No. 48,158, Apr. 15, 1993. Application for reissue Sep. 13, 1996, Ser. No. 713,757

Int. Cl.⁶ H03K *19/20*

U.S. Cl. 326—122 30 Claims



24. An output driver circuit comprising

an output node,

a pull-up FET for coupling the output node to a supply voltage

an intermediate node coupled to a gate of the FET,

an input node;

input circuitry for coupling the input node to the intermediate node; and

clamping circuitry for clamping the intermediate node to the output node when a voltage at the output node drops at least a threshold voltage below a reference voltage.

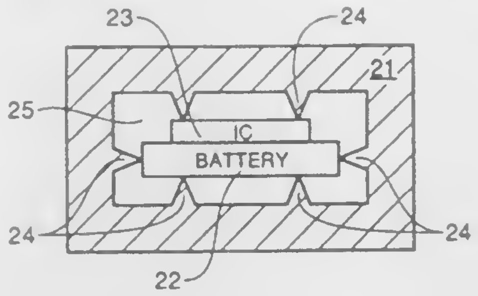
Re. 35,765
METHOD FOR REDUCING CONDUCTIVE AND CONVECTIVE HEAT LOSS FROM THE BATTERY IN AN RFID TAG OR OTHER BATTERY-POWERED DEVICES

John R. Tuttle, Boise, Id., assignor to Micron Communications, Inc., Boise, Id.

Original No. 5,323,150, dated Jun. 21, 1994, Ser. No. 897,224, Jun. 11, 1992. Application for reissue Jun. 21, 1996, Ser. No. 667,415

Int. Cl.⁶ H01L *23/28;23/29*

U.S. Cl. 340—825.54 77 Claims



36. A method of insulating a battery powered unit including an integrated circuit having a plurality of surfaces and a battery having a plurality of surfaces for powering said integrated circuit, said method comprising the steps of:

forming a low thermally conductive material to enclose said battery therein, the low thermally conductive material being formed having a plurality of suspension tips, at least one suspension tip for engaging at least one surface of said plurality of said surfaces of said battery and

suspending said battery within the low thermally conductive material by at least one suspension tip of the plurality suspension tips of the low thermally conductive material contacting at least one surface of said plurality of surfaces of said battery

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Re. 35,766
STABILIZED-FEEDBACK CONTROL DEVICE FOR SEMICONDUCTOR LASERS

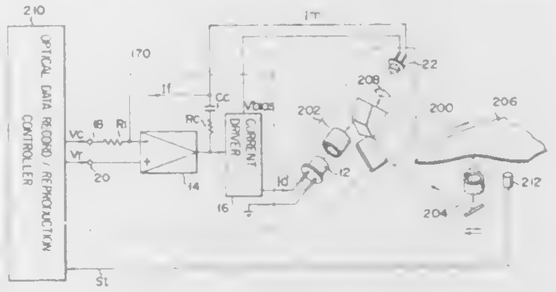
Toyoki Taguchi, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Original No. 5,097,473, dated Mar. 17, 1992, Ser. No. 630,500, Dec. 20, 1990. Application for reissue Nov. 18, 1993, Ser. No. 154,123

Claims priority, application Japan, Dec. 21, 1989, 1-329514

Int. Cl.⁶ H01S *3/10*

U.S. Cl. 372—38 30 Claims



1 A control apparatus for stabilizing and controlling output light of a solid-state light-emitting device, comprising.

driving means for supplying a drive current to said light-emitting device in accordance with an externally supplied control voltage signal representing a desired light emission amount of said light-emitting device;

photodetector means for partly receiving the output light from said light-emitting device and generating a detection current signal electrically representing a detected light amount,

compensating means, connected to said driving means and said photodetector means, for generating an electrical error signal for compensating for a variation, if any, in an output light amount of said light-emitting device in response to the detection current signal, and for supplying the electrical error signal to said driving means, and

a resistive element connected to said compensating means, said compensating means receiving the control voltage signal through said resistive element, detecting a difference between a control current signal flowing through said resistive element and the detection current signal, and generating a voltage signal corresponding to a detected difference as the error signal.

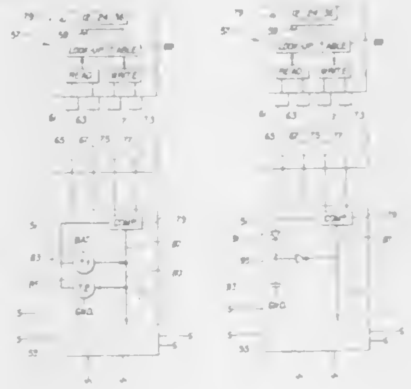
Re. 35,767
METHOD AND APPARATUS FOR PREVENTING UNAUTHORIZED RECYCLING OF SINGLE-USE CAMERA AND PERMITTING AUTHORIZED REUSE OF THE CAMERA

Dennis Roland Zander, Penfield, and Clay Allen Dunsmore, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Original No. 5,517,265, dated May 14, 1996, Ser. No. 370,084, Jan. 9, 1995. Application for reissue Sep. 13, 1996, Ser. No. 713,332

Int. Cl.⁶ G03B *17/36,29/00*

U.S. Cl. 396—6 12 Claims



10. A method of authorizing reuse of a single-use camera that is automatically functionally disabled, when the camera determines that a predetermined event in the camera has occurred, to prevent unauthorized reuse of the camera, said method comprises the step of inputting an electrical, optical or magnetic reset code to the camera to re-enable the function that has been disabled to permit authorized reuse of the camera and is characterized further by the additional steps of

determining whether a reset code that is inputted to the camera is valid or invalid, and

preventing the function that has been disabled permanently from being re-enabled when the reset code is determined to be invalid, to then prevent the input of a valid code from ever re-enabling the function.

PLANT PATENTS

GRANTED APRIL 7, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing

10,314

VARIETY OF APPLE TREE NAMED EXCEL

Jos Morren, Halen, Belgium, assignor to Jomobel NV, Belgium

Filed Jan. 23, 1997, Ser. No. 787,612

Claims priority, application European Pat. Off., Jan. 25, 1996, 199/96

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—34.1 **1 Claim**

1 The new and distinct variety of apple tree named Excel as described and illustrated, and which is particularly characterized over its parent variety by its much better color intensity over 50% or more of the surface of the fruit with a solid bright red colored blush with scarcely visible very fine red stripes in it and a smoother texture of the skin surface; by the ground color of its fruit keeping green longer; by the higher acidity in its fruit and a longer and thinner brown/red stalk; by the earlier ripening and picking dates of its fruit; by the tree's distinctly dormant fruit buds on tips which have a conical shape; and by its dark brown-red wood with clearly more pubescence and fewer but bigger lenticels than its parent variety.

10,315

PEACH TREE 'UFGOLD'

Wayne B. Sherman, 2230 SW. 43 Pl., Gainsville, Fla. 32608

Filed Sep. 10, 1996, Ser. No. 716,930

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—43.1 **1 Claim**

1 A new and distinct variety of peach tree as illustrated and described, characterized by a low- chilling requirement and bearing moderately, early-ripening fruit with firm, yellow, non-melting flesh and high eating quality and an attractive high percentage red overcolor: and, fruit ripens in early May or with Flordaglo at Gainesville.

10,316

SALVIA PLANT NAMED 'ROSE FOUNTAINS'

Carrie Lou Dorman, Temple Terrace, Fla., assignor to Charlie's Plant Farm, Thonotosassa, Fla.

Filed Jun. 28, 1996, Ser. No. 672,714

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—54.1 **1 Claim**

1. A new and distinct cultivar of Salvia plant named 'Rose Fountains', as illustrated and described.

10,317

LONICERA JAPONICA 'HINLON'

Toshiro Shimizu, Yamaguchi, Japan, assignor to Hines Horticulture, Inc., Irvine, Calif.

Filed Dec. 5, 1996, Ser. No. 759,605

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—54.1 **1 Claim**

1. A new and distinct variety of *Lonicera japonica* plant named 'Hinlon' substantially as illustrated and described, particularly characterized by yellow-margined variegated foliage.

10,318

AZALEA PLANT NAMED 'AQUARELL'

Hanno Baetcke, Gartenbau Verheyen-Baetcke GbR Nordring 172-174, 47661 Issum, Germany

Filed Jan. 8, 1997, Ser. No. 780,629

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—55 **1 Claim**

1 A new and distinct Azalea plant named 'Aquarell', as illustrated and described

10,319

CRAPE MYRTLE SHRUB NAMED 'WHIT III'

Carl E. Whitcomb, P.O. Box 2383, Stillwater, Okla. 74076

Filed Nov. 7, 1996, Ser. No. 744,408

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—67.3 **1 Claim**

1. A new and distinct variety of *Lagerstroemia indica*, crape myrtle plant substantially as shown and described and partially characterized by a dense shrub form that may reach eight to ten feet in height, ruby red new leathery foliage that slowly changes to purplish-green then with age to dark green, ruby red flower buds, red-purple flowers, many seeds, yet an exceptionally long bloom period.

10,320

NEW GUINEA IMPATIENS PLANT NAMED 'TARAWA'

Ludwig Kientzler, Gensingen, Germany, assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed Jan. 3, 1997, Ser. No. 775,972

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.6 **1 Claim**

1 A new and distinct cultivar of New Guinea Impatiens plant named 'Tarawa', as illustrated and described

10,321

NEW GUINEA IMPATIENS PLANT NAMED 'NEPTIS'

Ludwig Kientzler, Gensingen, Germany, assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed Jan. 2, 1997, Ser. No. 778,172

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.6 **1 Claim**

1 A new and distinct cultivar of New Guinea Impatiens plant named 'Neptis', as illustrated and described

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NEW GUINEA IMPATIENS PLANT NAMED 'LYCIA'

Ludwig Kientzler, Gensingen, Germany, assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed Jan. 3, 1997, Ser. No. 778,880

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—87.6 **1 Claim**

1. A new and distinct cultivar of New Guinea Impatiens plant named 'Lycia', illustrated and described.

10,323

ANTHURIUM PLANT NAMED 'NORTHSTAR'

Ann E. Lamb, Sebring, and Robert D. Hartman, Lake Placid, both of Fla., assignors to Twyford International, Inc., Santa Paula, Calif.

Filed Apr. 9, 1996, Ser. No. 629,769

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Anthurium plant named 'Northstar' as illustrated and described.

PATENTS

GRANTED April 7, 1998

ERRATA

For CLASS	See PATENT NO.
137–337	5,735,291
492–039	5,735,788
602–043	5,735,812
606–232	5,735,877
424–076	5,736,032
424–076	5,736,032
435–240	5,736,294
528–026	5,736,583
544–211	5,736,628
345–206	5,737,272
588–002	5,737,482
321–874	5,737,636

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PATENTS

GRANTED APRIL 7, 1998

GENERAL AND MECHANICAL

5,734,990

WEARABLE ARTICLE FOR ATHLETE WITH VORTEX GENERATORS TO REDUCE FORM DRAG

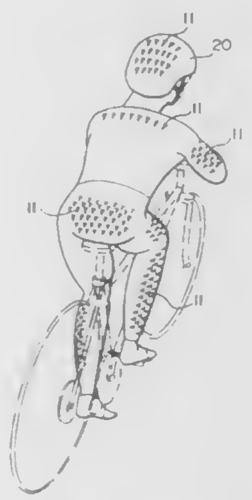
John Waring, 608 Tourelle Drive, Orleans, Ontario, Canada, K4A 3H5

Filed Mar. 11, 1996, Ser. No. 613,515

Claims priority, application Canada, Mar. 10, 1995, 2144350

Int. Cl.^{6} A41D *1/00*

U.S. Cl. 2—69 **16 Claims**



1. A wearable article for use by a person moving rapidly through a fluid medium in a longitudinal direction, said longitudinal direction defining a direction of fluid flow relative to said person, and said article having a drag reduction arrangement comprising an upstream row and at least one additional row of spaced vortex generators secured to said article, at least said upstream row being located on a line at least just upstream of a surface that is curved in said longitudinal direction, each said row of vortex generators being arranged so as to extend in a transverse direction relative to said fluid flow when said article is worn, and said vortex generators being oriented so as to create trailing vortices extending in said longitudinal direction and having a height sufficient to extend about ¼ to ½ the way into a boundary layer formed by the motion of the person through the fluid medium, whereby said vortex generators delay the onset of boundary layer separation and thereby reduce form drag.

5,734,991

WEARING APPAREL WITH BACKGROUND SCENE AND DETACHABLE GAME PIECES

Marilyn Schmid, 52526 Ridgeway Ct., Shelby Township, Mich. 48316

Filed Oct. 28, 1996, Ser. No. 736,140

Int. Cl.^{6} A41D *1/00*

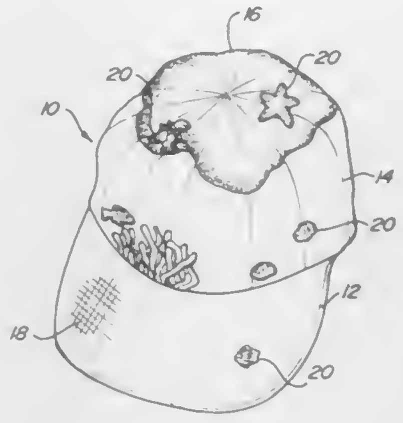
U.S. Cl. 2—69 **20 Claims**

1. An article of wearing apparel comprising:

a fabric surface having a background scene depicted thereon including an attaching portion and a non-attaching portion, said attaching portion being at least partially located outside said background scene;

at least one removably attached article; and

means for removably attaching said at least one removably attached article to said attaching portion of said fabric surface.



5,734,992

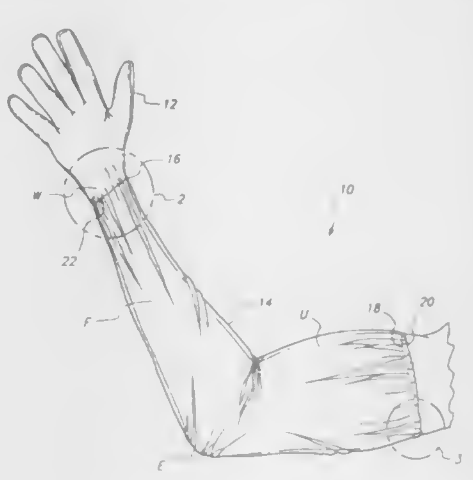
PROTECTIVE HAND AND ARM COVERING ARTICLE

Michael R. Ross, 1415 Marlborough Rd., Hillsborough, Calif. 94010

Filed Jan. 28, 1997, Ser. No. 789,295

Int. Cl.^{6} A41D *13/08*

U.S. Cl. 2—161.7 **12 Claims**



1. An article for protecting the upper limb of a human from exposure to fluid-borne pathogens, the article comprising:

a glove portion, the glove portion having a thickness of between 0.006 and 0.009 inch;

an arm portion;

a cinched area located between the glove portion and the arm portion, the cinched area comprising a fluid impermeable connection between the glove portion and the arm portion, the cinched area capable of moving between a relaxed native circumference and an expanded circumference at least 1.5-times that of the native circumference; and,

means for retaining located at a proximal portion of the arm portion,

wherein the glove portion comprises a first material and the arm portion comprises a second material different than the first material.

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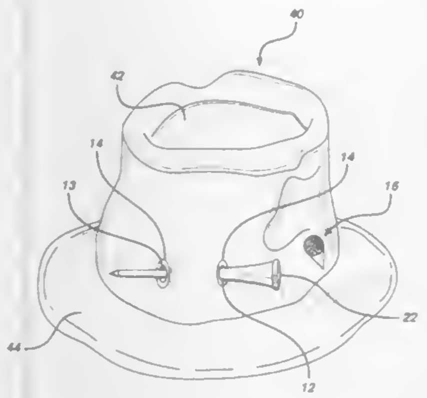
5,734,993

HAT AND HAT PIN WITH SPORTS LOGOS

Gail P. D'Oca, 34 Hillside Ave., Glen Rock, N.J. 07452
Filed Oct. 3, 1996, Ser. No. 724,762
Int. Cl.^{6} A42B *1/24*
U.S. Cl. 2—175.3 12 Claims

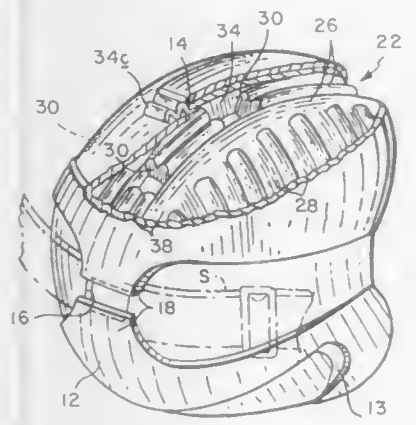


1. A covering for a woman's head, said covering normally being worn out of doors, comprising:
(a) a hat;
(b) said hat having two holes;
(c) said holes being disposed on said hat a spaced distance apart.
(d) a sports pin, said sports pin being configured so as to visually represent an outdoor or sports activity; and
(e) said sports pin and said holes being in a cooperative relationship so that when said hat is in position coveting a woman's head, and when said sports pin is inserted into a first hole of said two holes, and through a portion of the hair on the head of the woman, and then out the second hole of said two holes, said hat is firmly secured on the head of a woman, said hat thereby resisting being blown off of the head by windy weather, and resisting falling off of the head due to physical activity, and
wherein at least one side of said hat has a logo affixed thereto, said logo representing an outdoor or sports activity.

5,734,994

VENTILATED SAFETY HELMET WITH PROGRESSIVELY CRUSHABLE LINER

David C. Rogers, Boston, Mass., assignor to M.P.H. Associates, Inc., Norwood, and De De Design, Inc., Boston, both of Mass.
Filed Feb. 6, 1997, Ser. No. 796,914
Int. Cl.^{6} A42B *3/00*
U.S. Cl. 2—411 25 Claims

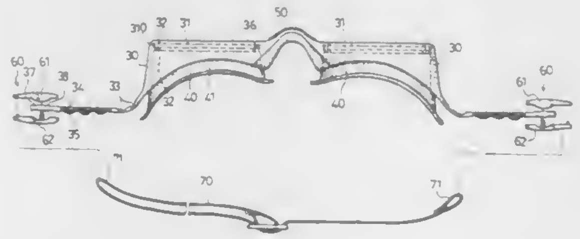


1 A safety helmet comprising
a hard outer shell defining a recessed interior and having front and rear edges;
a bowl-shaped liner having front and rear edges and a peak between said edges, said liner being contoured to fit snugly in the shell so that the front and rear edges of the liner are adjacent to the front and rear edges of the shell, said liner also having an interior surface contoured generally to fit a wearer's head and a corrugated exterior surface, of the liner corrugations having tips which contact the shell along multiple lines of contact and the corrugations in at least a central zone of the liner adjacent to said peak extending fore and aft between the front and rear edges of the liner such that the corrugations define valleys that are spaced from the shell to provide air passages extending between the front and rear edges of the liner, and
a plurality of through-holes in said liner each through-hole communicating between said air passages and said liner interior surface.

5,734,995

SWIMMING GOGGLES

Herman Chiang, 11F-2, No. 634-9, Ching-Ping Rd., Chung-Ho City, Taipei Hsien, Taiwan
Filed Mar. 26, 1996, Ser. No. 621,953
Int. Cl.^{6} A61F *9/02*
U.S. Cl. 2—428 9 Claims



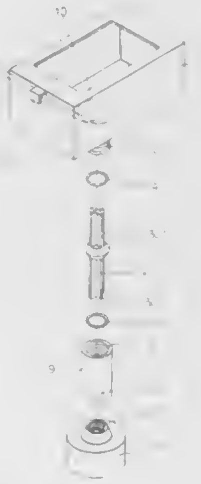
1 A pair of swimming goggles comprising:
two lens frames, each of which has an inner periphery that defines a lens retaining space, an outer periphery that has a bridge connecting portion, and a strap connecting portion opposite said bridge connecting portion, and front and rear parts,
two lens units, each of which is mounted on said front part of a respective one of said lens frames in said lens retaining space of said respective one of said lens frames,
a nose bridge having two terminal end portions, each of which is connected to said bridge connecting portion of a respective one of said lens frames,
two gasket units provided on said rear part of a respective one of said lens frames, and
a head strap having two ends connected respectively to said lens frames,
said lens frames, said nose bridge and said gasket units being formed integrally, wherein
said strap connecting portion of each of said lens frames has an integrally formed elongated extension which is connected to one of said ends of said head strap and which is formed with at least one depression to enhance a stretching capability of said extension, thereby reducing an amount of pulling force that is transmitted to said lens frames by said head strap when said swimming goggles are in use.
said extension has a first section which extends from said strap connecting portion of said lens frame, an intermediate second section which extends from said first section, and a third section which extends from said second section, said at least one depression in said extension including at least one cavity formed in said second section; and wherein
said goggles further comprise two strap connectors, each of which interconnects said third section of said extension on a respective one of said lens frames with a respective one of said ends of said head strap
each of said ends of said head strap is a looped end; and

each of said strap connectors includes first and second connector units, each of which has a clamping portion and a strap engaging portion, said clamping portion of said first and second connector units clamping said third section of said extension therebetween, said strap engaging portion of said first and second connector units engaging one of said ends of said head strap.

5,734,996

DETERGENT DISPENSER FOR TOILETS

Kun-Chang Lee, P.O. Box 82-144, Taipei, Taiwan
Filed May 30, 1995, Ser. No. 453,394
Int. Cl.^{6} E03D *9/02*
U.S. Cl. 4—227.3 2 Claims



1. A detergent dispenser comprising:
a container having a bottom formed with a downwardly depending tubular portion provided with external threads thereon;
a plug having a plurality of longitudinal grooves and an enlarged annular node at an intermediate portion, said plug having an upper end inserted into the tubular portion of said container and an externally threaded lower end:
an upper packing ring mounted on a top of the enlarged annular node of said plug;
a lower packing ring mounted on a bottom of the enlarged annular node of said plug;
an internally threaded sleeve having an upper opening and a lower opening which is smaller than the upper opening and the enlarged annular node of said plug in diameter, said sleeve being put over said plug to engage with the tubular portion of said container with the enlarged annular node of said plug fitted within said sleeve; and
a buoy threadedly engaged with the lower end of said plug.

5,734,997

PORTABLE TOILET SEAT BIDET ASSEMBLY

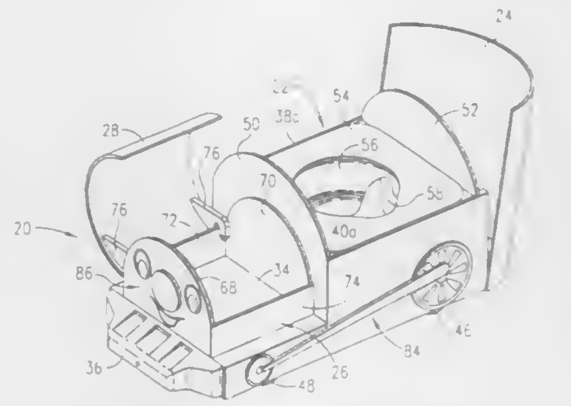
Darlene A. Raff, 425 Bardon St., Wooster, Ohio 44691
Filed Mar. 8, 1996, Ser. No. 612,538
Int. Cl.^{6} A47K *3/22*
U.S. Cl. 4—420.2 17 Claims

1. A toilet seat bidet for use with a toilet bowl comprising:
a. a toilet seat with a central opening which allows the waste to pass from above the toilet seat into the toilet bowl and said central opening having an inner surface the toilet seat having a top portion, a bottom portion and an outer surface having an outer diameter and at the top portion wherein the outer diameter is larger than an outer diameter of the bottom portion such that the outer surface of the toilet seat forms a ridge on the outer surface and said ridge is adapted to sit on the toilet bowl's annular rim and said bottom portion outer diameter is less than the toilet bowl's inner diameter thus the outer surface of the toilet seat extends into the toilet bowl securely holding the toilet seat in place on the toilet bowl and.
b. a channel with a side, with perforations on the side, attached to the inner surface of the central opening such that when the water rims through the channel the water will squirt out the perforations on the side of the channel and clean a person sitting on the toilet seat, and.
c. a means for attaching the channel to a water supply

5,734,998

TOILET TRAINING DEVICE

Teresa Simmons, 354 N. High, Wichita, Kans. 67203
Filed Oct. 31, 1996, Ser. No. 740,331
Int. Cl.^{6} A47K *11/04*
U.S. Cl. 4—476 16 Claims



1 A child's toilet training device comprising:
a toilet training bowl; and
means for supporting and removably covering said bowl, and for allowing selective access thereto by a child to be toilet trained, said supporting and covering means including—
walls defining an upright, open-top housing for removably supporting said bowl therein;
a cover comprising an elongated, arcuate in cross-section member; and
means operably coupling said cover to said housing for selective movement of the cover between an extended position in covering relationship over said bowl and a retracted position allowing a child to sit above the bowl, said coupling means comprising structure for translatory, shifting movement of said cover between said extended and retracted positions thereof, said coupling means comprising structure for pivotal movement of said member about an axis transverse to the longitudinal axis of the member

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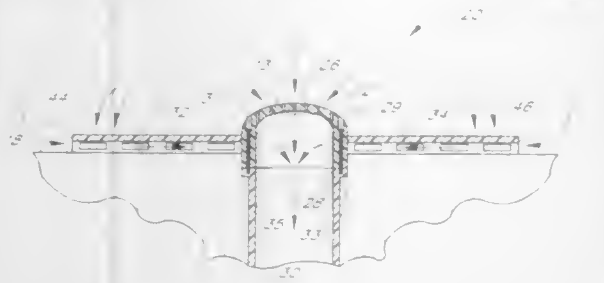
5,734,999
SAFETY DEVICE FOR SWIMMING POOLS

John J. Nicholas, 127 N. Hidden Canyon Dr., Orange, Calif. 92869, assignor to John J. Nicholas, Orange, Calif.

Filed Jan. 24, 1997, Ser. No. 788,649

Int. Cl.^{6} E04H *4/00*

U.S. Cl. 4—507 **11 Claims**



1 A safety device for a drain on a floor of a pool or spa, comprising.

an elongate flow passage structure adapted to overlie said floor drain and extend outwardly from said drain on at least one side of said drain, said flow passage structure having at least two openings spaced from each other by a predetermined distance and comprising an elongate channel portion configured to conduct fluid in a direction toward said drain, said elongate channel portion comprising walls which extend along said direction so as to form an elongate substantially enclosed flow path, said elongate flow passage structure being configured to provide fluid communication between each of said openings and said drain to allow water from said pool or spa to be drawn through each of said openings into said drain by suction, said predetermined distance being at least about a foot and a half to effectively inhibit a human body from blocking all of said openings at the same time, whereby one of said openings has substantially unrestricted fluid communication with said drain.

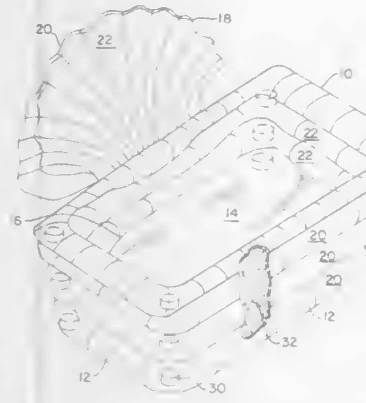
5,735,000
INFANT BATHING APPARATUS WITH FAUCET GUARD

Patricia Pfaeffle, 72 S. Charles St., Hopelawn, N.J. 08861

Filed Jun. 12, 1996, Ser. No. 661,907

Int. Cl.^{6} A47K *3/024*

U.S. Cl. 4—572.1 **19 Claims**



5. A generally trough shaped infant bathing apparatus for use in a sink comprising:

a plurality of generally tubular shaped, water permeable, side walls, each of said side walls having a top and a bottom;

a water permeable floor joined to said bottom of each of said plurality of side walls wherein said floor comprises an outer layer and an inner layer each of said layers having a plurality of edges, said outer layer being joined to said inner layer at said plurality of edges; and,

a hydrophobic material, disposed between said outer layer and said inner layer and disposed within each of said plurality of side walls, said outer layer, inner layer and hydrophobic material forming water permeable cushions,

a faucet guard selectively attachable to said top of one of said plurality of side wherein said faucet guard comprises a water permeable outer layer sealed to a water permeable inner layer, and a hydrophobic material disposed between said outer layer and said inner layer; and,

wherein said faucet guard further comprises a flexible sheet having a plurality of sides and a periphery, said flexible sheet being joined at the periphery on all of said plurality of sides except one, to one of said layers, thus enabling said faucet guard to be selectively fitted over a faucet.

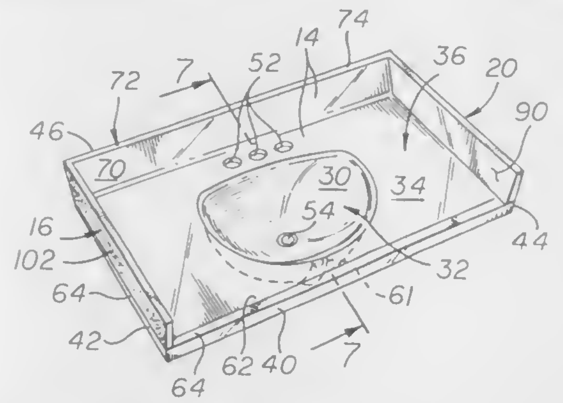
5,735,001
STRUCTURAL BODY FOR WATER-HANDLING FIXTURE ASSEMBLY, VANITY TOP ASSEMBLY AND RELATED METHODS

William L. Bitsche, Hickory, N.C., assignor to Leucadia, Inc., New York, N.Y.

Filed May 1, 1996, Ser. No. 640,652

Int. Cl.^{6} E03C *1/33*

U.S. Cl. 4—631 **26 Claims**



1 A vanity top assembly, comprising:

a basin structure;

a counter structure for the basin structure having a counter surface portion;

a back splash structure positioned near the rear of the assembly and having a front surface at a non-perpendicular angle relative to said counter surface portion; and

a side splash structure positioned in the assembly and having a front edge at a non-perpendicular angle relative to said counter surface portion that is one of either forward or rearward from perpendicular relative to said counter surface portion, and having a back edge at a non-perpendicular angle relative to said counter surface portion that is the other one of either forward or rearward from perpendicular relative to said counter surface portion.

5,735,002
APPARATUS FOR ASSISTING A PERSON MOVING BETWEEN SUPPORT SURFACES

James W. Kistner, 6954 Lois Dr., Cincinnati, Ohio 45239

Filed Oct. 4, 1996, Ser. No. 726,274

Int. Cl.^{6} A61G *7/10;7/053*

U.S. Cl. 5—81.1 HS **17 Claims**

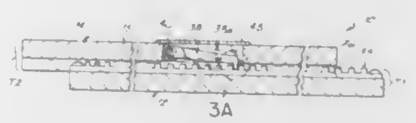
1. A transfer apparatus for assisting a person when moving between support surfaces comprising:

a base structure configured to span between a first surface and a second surface;

a person-supporting platform configured for receiving a person thereon;

a slidable structure coupling the person-supporting platform with the base structure, the platform operable for slidably moving in a first direction with respect to the base structure to move a person on the platform from said first surface to said second surface positioned away from said first surface;

a locking device coupled between the base structure and the platform and operable for allowing the platform to slide freely in said first direction but preventing the platform from moving in a second direction opposite said first direction such that a person on the platform may move from the first surface to the second surface without losing progress made toward the second surface.



5,735,003
SLEEPING BAG ADAPTOR

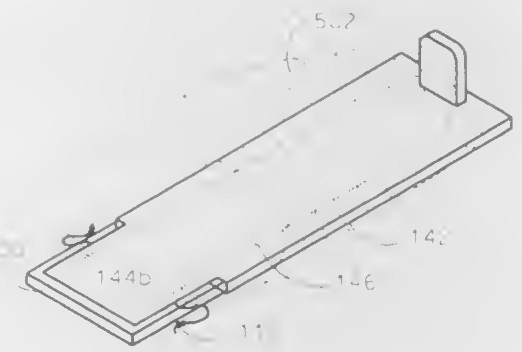
Rob A. Judge, Salmon Arm, Canada, assignor to Robert Judge, Salmon Arm, Canada

Filed Oct. 24, 1994, Ser. No. 328,588

Claims priority, application Canada, Oct. 27, 1993, 2109387

Int. Cl.^{6} A47C *29/00;* A47G *9/06*

U.S. Cl. 5—413 **33 Claims**



1. An adapter for fastening a sleeping bag to a camping pad, said adapter comprising.

(a) an upper casing sheet of flexible material of sufficient size to accommodate one or two sleeping humans, said casing sheet comprising a head end, a foot end, a right edge which runs from said head end to said foot end, a left edge which runs from said head end to said foot end, and a longitudinal axis substantially midway between and substantially parallel to said left and right edges.

(b) a lower casing element positioned substantially along said edges of said upper casing sheet whereby one or more lower chambers is substantially defined beneath said upper casing sheet, said lower chambers able to accommodate one or more camping pads.

(c) elongated fastening means having two matable elements, one element disposed substantially along said right edge and one element disposed substantially along said left edge both running from said head end toward said foot end until a point is reached where said elongated fastening elements begin to substantially taper closer to one another as they approach said foot end whereby the zipper elements of a commercially available sleeping bag may removably attach to said adapter more closely together at said foot end than at said head end thus the feet of a user may be accommodated more comfortably

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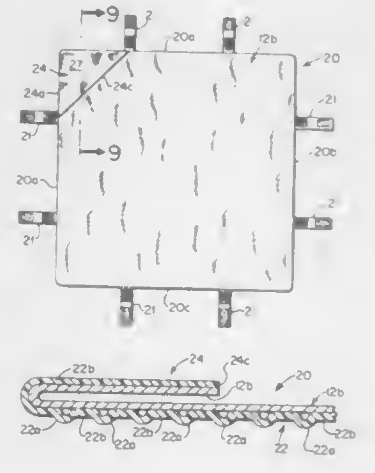
5,735,004
WATER RESISTANT BABY BLANKET ASSEMBLY

Duane A. Wooten, and Teresa L. Wooten, both of 4636 N. Fuller Pl., Baton Rouge, La. 70816-4231

Filed May 13, 1996, Ser. No. 645,427

Int. Cl.^{6} A47G *9/00*

U.S. Cl. 5—502 **19 Claims**



1. A baby blanket assembly for covering and protecting a baby from adverse weather and rain, snow, or water, and for use as a water resistant playmat for a baby, said assembly comprising.

a. a first layer of soft, flexible blanket type material, and

b. a second layer of water resistant material, said second layer being connected to said first layer, said second layer having a plurality of protuberance means thereon for increasing the coefficient of friction of the outside of said second layer, and

c. a plurality of connection means connected to said assembly for connecting said baby blanket assembly to baby carriers or to another of said connection means

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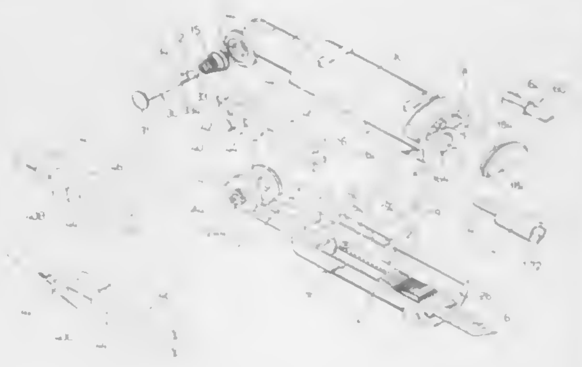
5,735,005
MULTIFUNCTIONAL TOOL ASSEMBLY

Chih-chung Wang, No. 7, Alley 6, Lane 296, Pengyi Rd., Taiping Hsiang, Taichung Hsien, Taiwan

Filed Jul. 19, 1996, Ser. No. 683,955

Int. Cl.^{6} B25B *7/22*

U.S. Cl. 7—127 **12 Claims**



1 A tool assembly comprising

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a primary body having a first end portion and a second end portion, a primary post extending from the first end portion of said primary body, at least one primary ear formed on a free end of said primary post and defining a primary hole therein, an L-shaped primary flange formed on an inner wall of the first end portion of said primary body and located adjacent to said primary post, a primary groove defined in said primary post, partially defined in said primary flange;

a secondary body having a first end portion and a second end portion, a secondary post extending from the first end portion of said secondary body and pivotally engaged with said primary post, at least one secondary ear formed on a free end of said secondary post and juxtaposed to said primary ear, a secondary hole defined in said secondary ear and aligning with said primary hole a lug laterally formed on said secondary ear and received in said primary hole, an L-shaped secondary flange formed on an inner wall of the first end portion of said secondary body and located adjacent to said secondary post, a secondary groove defined in said secondary post and partially defined in said secondary flange.

a retaining member extending through said primary and secondary holes and including a slotted free end projecting outwards of said secondary ear, a bore defined in said slotted free end;

a pivot member pivotally received in said slotted free end and rested on said secondary ear, an elongate slot defined in said pivot member and communicating with said bore;

a pin extending through said bore and said elongate slot; and

a pair of pliers including two plier bodies pivotally engaged with each other and each having a shank received in each of said primary and secondary grooves and stopped by means of an associated said primary and secondary flanges.

5,735,006

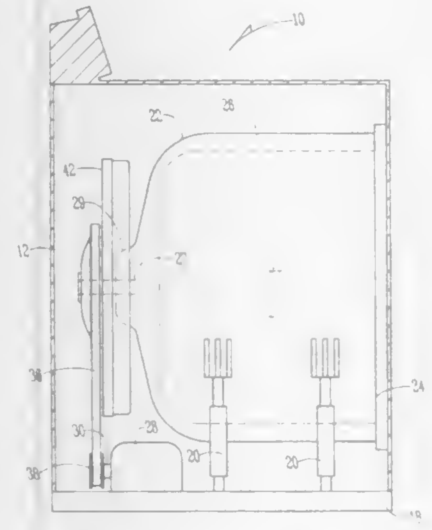
WASHING MACHINE PULLEY AND FLUID RING

Evan R. Vande Haar, Pella, Iowa, assignor to Maytag Corporation, Newton, Iowa

Filed Jun. 5, 1996, Ser. No. 659,170

Int. Cl.^{6} D06F *37/22*

U.S. Cl. 8—158 **15 Claims**



1. A clothes washing machine comprising:

a cabinet;

a tub supported in the cabinet;

a drum rotatably mounted within the tub and adapted to receive clothes to be washed;

a drum shaft extending axially from the drum and defining an axis of rotation for the drum;

a motor within the cabinet with a rotatable drive shaft extending from the motor;

a drive pulley mounted on the drive shaft;

a driven pulley mounted on the drum shaft;

a pulley belt trained about the drive pulley and the driven pulley for imparting rotation to the drum;

a fluid balance ring extending from the pulley.

15 A method of balancing an unbalanced load of clothes in a washing machine. the machine including a rotatable drum for holding the clothes being washed, a motor to rotate the drum, and a pulley to drivingly connect the motor and the drum, the method comprising:

extending a fluid balance ring from the pulley for rotation with the drum, the ring including at least one annular chamber; and

partially filling the chamber with fluid whereby the fluid will counterbalance an unbalanced load during rotation of the drum and ring.

5,735,007

POWER SUPPLY SYSTEM OF A WASHING MACHINE WITH AN AUTOMATIC DOOR OPENING/CLOSING APPARATUS

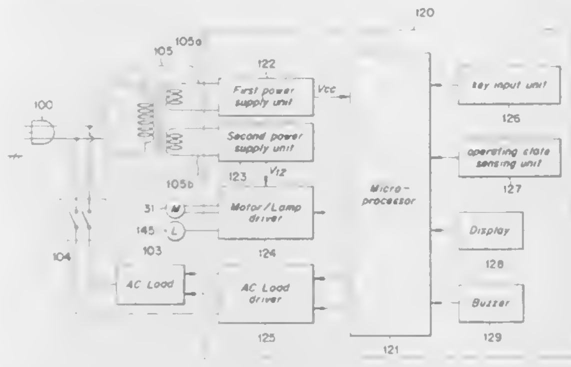
Ssi Chol Choi, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 24, 1996, Ser. No. 740,071

Claims priority, application Rep. of Korea, Nov. 9, 1995, 1995-40476

Int. Cl.^{6} D06F *33/02*

U.S. Cl. 8—159 **8 Claims**



1. A power supply system for a washing machine having an automatic door opening/closing apparatus designed for automatic door opening/closing action, and for a washing machine driving means which drives the washing machine to perform a washing operation, and for a control means for controlling operation of the washing machine driving means, said power supply system comprising.

a step-down transformer which has a primary winding connected to receive line power through a power cord and secondary windings formed of a first secondary winding and a second secondary winding to decrease alternating-current (AC) voltage at a predetermined ratio before being supplied to internal components of the washing machine;

first power supply means connected to the first secondary winding of the step-down transformer for converting a first decreased AC voltage into a first direct-current (DC) voltage. and for supplying the first DC voltage to the control means;

second power supply means connected to the second secondary winding of the step-down transformer for converting a second decreased AC voltage into a second DC voltage, and supplying the second DC voltage to a door/lamp driving means;

said door/lamp driving means having an input terminal connected to said second power supply means and output terminals connected to a door motor and to a lamp, thereby allowing said door motor and said lamp to be activated; and

power switching means connected between the line power and the washing machine driving means.

8 A method of supplying in a washing machine that includes an automatic door, an AC load. an AC load driver, a door driving means for opening and closing said door, and a controller for controlling the door driving means and the AC load driver, the method comprising the steps of:

transforming a commercial AC voltage into a first voltage and a second voltage using a transformer having a single primary winding, a first secondary winding, and a second secondary winding, said first voltage and a second voltage being generated by said first and second secondary windings, respectively,

converting said first voltage to a first DC voltage that is supplied to said controller; and

converting said second voltage to a second DC voltage that is supplied to said door driving unit.

5,735,008

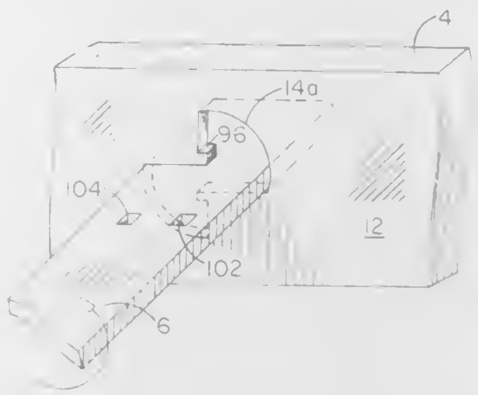
WELD-FREE GRATINGS FOR BRIDGE DECKS WITH IMPROVED PRIMARY AND SECONDARY BARS

Ronald W. Mangone, New Kensington, Pa., assignor to Mangone Enterprises, New Kensington, Pa.

Continuation-in-part of Ser. No. 541,732, Oct. 10, 1995, Pat. No. 5,642,549. This application Jul. 23, 1996, Ser. Nn. 681,531

Int. Cl.^{6} E04C *2/42*

U.S. Cl. 14—73 **30 Claims**



1 A weldless grating comprising:

(a) a plurality of longitudinally extending primary load bearing members having a top. a bottom and a first web located between said top and said bottom. the primary load bearing member having a plurality of spaced-apart openings in said first web, the openings in each of said primary load bearing members being aligned with the openings in adjacent primary load bearing members, the openings having a top portion and a bottom portion. at least one of said top portion and said bottom portion having a protuberance extending from said first web into said opening;

(b) a plurality of secondary load bearing members having an upper edge and a lower edge and a secondary web between the upper edge and lower edge. the secondary load bearing members provided with secondary slots in said secondary web,

the secondary load bearing members positioned in the aligned openings in said web of the primary load bearing members. said secondary slots in said secondary load bearing member forming a locking engagement with said protuberances in said openings in said primary load bearing members.

the secondary load bearing members having secondary downwardly extending slots through said upper edge. secondary downwardly extending slots located between primary load bearing members;

(c) a plurality of tertiary load bearing members positioned in the secondary slots in the secondary load bearing members; and

(d) a rod extending through said tertiary load bearing members and said primary load bearing members locking said tertiary load bearing members in the secondary downwardly extending slots in said secondary load bearing members and locking said secondary load bearing members in engagement with said protuberance in the openings in said primary load bearing members to form said grating

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5,735,009

DEVICE FOR REMOVING A SUBSTANCE DEPOSITED ON A SHEET

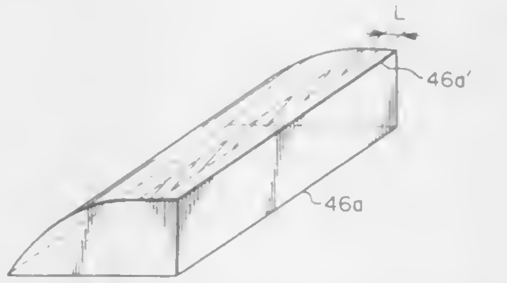
Masatoshi Saito, Tokyo; Tooru Maruyama, Fujisawa, and Hisao Watanabe, Sagamihara, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 13, 1995, Ser. No. 542,905

Claims priority, application Japan, Oct. 14, 1994, 6-275913; Sep. 11, 1995, 7-259280

Int. Cl.^{6} G03G *21/00*

U.S. Cl. 15—3 **4 Claims**



1. A device for removing a substance deposited on a surface of a sheet, comprising:

a separating member for exerting. when brought into contact with the substance on the sheet. an adhering force on said substance, and for separating said substance from said sheet when separated from said sheet;

a back-up member for backing up a rear of said separating member moving with the sheet contacting said separating member; and

a pressing member facing said back-up member. and for pressing the sheet and said separating member.

wherein projections are formed on a surface of said back-up member on which the rear of said separating member slides.

5,735,010

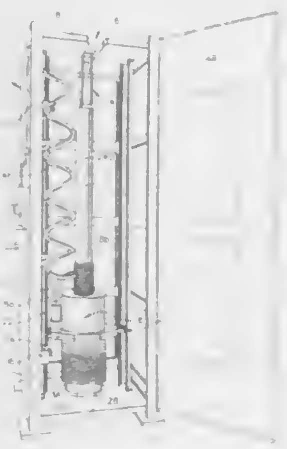
APPARATUS FOR AUTOMATED CLEANING OF REACTOR PRESSURE VESSEL CLOSURE STUDS

James Edgar Burner, Downington; James Cassidy Donohue, Sharon Hill, and Bangalore P. Mallikarjuna, Downington, all of Pa., assignors to General Electric Company, San Jose, Calif.

Filed Mar. 8, 1996, Ser. No. 612,738

Int. Cl.^{6} A47L *15/00*, **B08B** *1/00*

U.S. Cl. 15—88 **18 Claims**



1. An apparatus for cleaning a rod-shaped object, comprising:

a coupling device for coupling to the rod-shaped object.

a support frame for supporting said coupling device so that an axis of the rod-shaped object is vertical;

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an elevator system comprising a housing having an opening through which the rod-shaped object can pass and an elevator drive mechanism for displacing said housing along said vertical axis;
a brush assembly rotatably mounted to said housing for rotation about said vertical axis and having an opening through which the rod-shaped object can pass, said brush assembly comprising a brush having at least a portion which extends in said opening of said brush assembly; and
a brush rotation drive mechanism for rotating said brush assembly about said vertical axis.

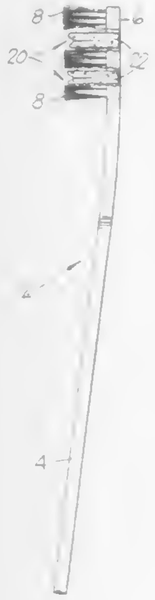
5,735,011
PLAQUE REMOVING TOOTHBRUSH

Randall S. Asher, 8756 S. Aberdeen Cir., Highlands Ranch, Colo. 80126

Filed Nov. 19, 1996, Ser. No. 751,388

Int. Cl.^{6} A46B *9/04*

U.S. Cl. 15—167.1 20 Claims



1. A toothbrush having a plurality of bristles supported on and projecting outwardly from a support portion of a conventional toothbrush handle in a spaced apart relationship which bristles are formed from conventional relatively hard materials comprising:
at least one plaque removing member supported on and projecting outwardly from said support portion;
said at least one plaque removing member surrounded by a plurality of said plurality of bristles;
said at least one plaque removing member being formed from a mixture of relatively soft elastomeric material and particles of an abrasive material.

5,735,012
RESILIENTLY FLEXIBLE TOOTHBRUSH

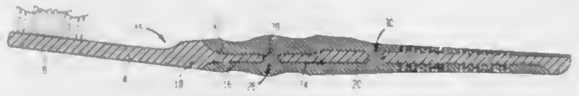
Bert Davis Heinzelman, Tenafly, N.J.; Donald Richard Lamond, Lynbrook, and Diego Fontayne, Montebello, both of N.Y., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Apr. 1, 1997, Ser. No. 831,151

Int. Cl.^{6} A46B *9/04*

U.S. Cl. 15—167.1 12 Claims

1. A toothbrush comprising.
a brushhead with a base and bristle tufts projecting from the base;



a neck with first and second ends, the neck being connected by the first end to the brushhead; and
a handle with front and rear ends, the front end being connected to the second end of the neck and comprising
a flex zone adjacent the front end; and
a tail zone adjacent the flex zone and extending toward the rear end, the neck and tail zone each being more rigid to bending than the flex zone such that a Spring Rate of respective neck and tail zone is each greater than the Spring Rate of the flex zone, the Spring Rate of the flex zone ranging from 0.01 to 1.0 pounds per inch over a test length 1.450 inches, and the brushhead, neck and handle being unitarily formed with a rigid plastic backbone, the flex and tail zones additionally being formed at least partially from a resilient elastomer.

5,735,013
APPARATUS FOR CLEANING OPTICAL FIBER

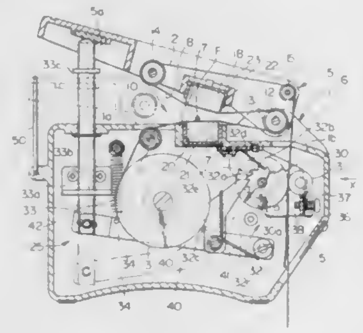
Shonosuke Yaguchi, Chiba; Mikio Yoshinuma, Yachiyo; Akinobu Kubota, Tokyo, and Yoshitake Tomomura, Sagamihara, all of Japan, assignors to Fujikura Ltd., and Tokki Corporation, both of Tokyo, Japan

Filed Apr. 12, 1996, Ser. No. 631,208

Claims priority, application Japan, Apr. 13, 1995, 7-088491

Int. Cl.^{6} A47L *25/00*

U.S. Cl. 15—210.1 7 Claims



1. An apparatus for cleaning an optical fiber, comprising
a cleaning area in which an optical fiber is placed between a first section of a cleaning member and a second section of said cleaning member;
said cleaning area comprising:
a first passing line through which said first section of said cleaning member passes; and
a second passing line, facing said first passing line, through which said second section of said cleaning member passes, wherein
said first and second sections of said cleaning member are serially contained in said cleaning member and pass between said first passing line and said second passing line.

5,735,014
GRILL CLEANING DEVICE

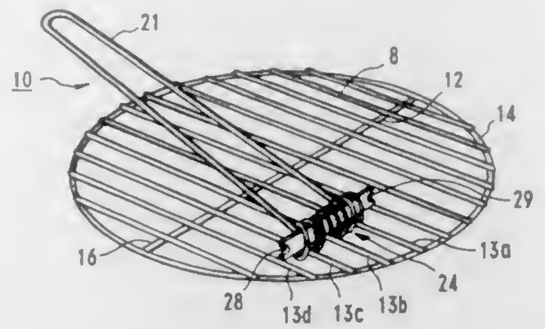
Robert A. Noga, 6404 Nancy Ridge Dr., San Diego, Calif. 92121

Filed Sep. 18, 1996, Ser. No. 716,482

Int. Cl.^{6} A47L *13/08*

U.S. Cl. 15—236.06 5 Claims

1. A grill cleaning device for scraping unwanted residue from the top surfaces and the side surfaces of grill rails, said device comprising.



a handle, said handle including a pair of elongated coplanar legs, each one of said legs having a free end;
an elongated blade for scraping the top surfaces of said rails, said blade having a pair of spaced apart points of attachment wherein a first one of the free ends of said legs is fixed to said blade at a first one of said pair of points of attachment and a second one of the free ends of said legs is fixed to said blade at a second one of said points of attachment; and
coil means for scraping the side surfaces of said rails, said coil means being wrapped around said blade and being disposed between said points of attachment.

5,735,015
WIPER APPARATUS FOR VEHICLES

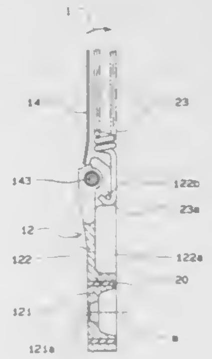
Shuntaro Yoshida, Oobu; Toshiichi Sawada, Kariya; Kazuma Matsui, Toyohashi; Masahiko Suzuki, Hoi-gun, and Masanori Sugiura, Chiryu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 278,231, Jul. 27, 1994, abandoned. This application Jan. 28, 1997, Ser. No. 790,308

Claims priority, application Japan, Jul. 22, 1993, 5-181604; Oct. 14, 1993, 5-257041

Int. Cl.^{6} B60S *1/34:1/16*

U.S. Cl. 15—250.34 13 Claims



1. A wiper apparatus for a vehicle, said apparatus comprising:
a wiper arm enabled to oscillate, said wiper arm having a joint,
a drive mechanism for driving said wiper arm;
a driving lever for conveying driving force from said drive mechanism to said wipper arm;
a wipper blade connected to said wiper arm and enabled to oscillate and slide over a surface of a window;
an inner member connected to said driving lever;
a spring, having first and second ends respectively connected to said wiper arm on opposite sides of said joint, for restricting movement of said wiper blade away from said window and for causing said wiper blade to press against said window; and
an elastic body having a substantially cylindrical shape, said elastic body being disposed coaxially with a rotational center of said wiper arm, being fixed to an outer periphery of said inner member and being disposed between said inner member and said wiper arm, said elastic body having a damping characteristic which enables said elastic body to suppress self-induced vibrations of the entire wiper apparatus resulting from friction between said wiper blade and the surface of the window when said spring causes said wiper blade to press against said window by both conveying said driving force to said wiper arm and by being deformed in a rotational direction of said wiper arm, said elastic body further having a coefficient of elasticity which increases responsive to a force deforming said elastic body to a predetermined degree in said rotational direction of said wider arm.

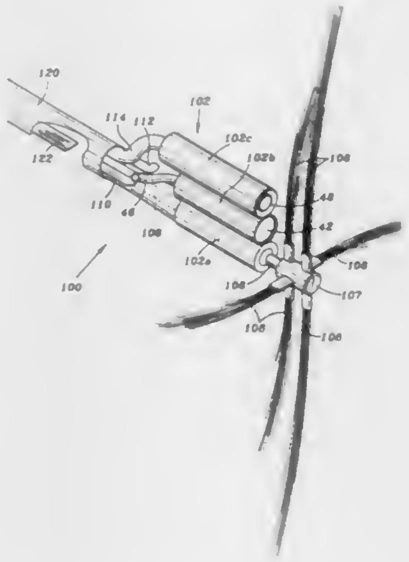
5,735,016
DUCT CLEANING APPARATUS

Bobby L. Allen, and Joseph V. Melendres, both of Fort Worth, Tex., assignors to Clean-Aire International, Inc., Ft. Worth, Tex.

Continuation-in-part of Ser. No. 327,020, Oct. 21, 1994, Pat. No. 5,584,093. This application Dec. 13, 1996, Ser. No. 766,508

Int. Cl.^{6} B08B *9/04;* **A47L** *7/00*

U.S. Cl. 15—304 2 Claims



1. An apparatus for cleaning interior surfaces of an air duct, the air duct having a length, the apparatus comprising:
a housing having a first-aperture and said housing first aperture having a centrally disposed axis in a direction along the length of the air duct;
said housing having a second aperture and said housing second aperture having a centrally disposed axis in a direction along the length of the air duct;
brushes mounted adjacent to and forward of said housing for sweeping engagement with the interior surfaces of the air duct, said brushes being mounted for rotation around said housing first aperture axis;
a video camera disposed within said housing second aperture and along said housing second axis and spaced rearward of said brushes for generating an image of the interior of the air duct along the length of the air duct;
means connected to said video camera for displaying said image generated by said video camera during an air duct cleaning operation, said display means being located remote from said housing;
said brushes mounted to a shaft extending through said housing first aperture, said shaft being rotatable for moving said brushes within the air duct;
a sleeve circumferentially surrounding said shaft; and
means for stiffening said sleeve for enabling said shaft and said housing to move through the air duct.

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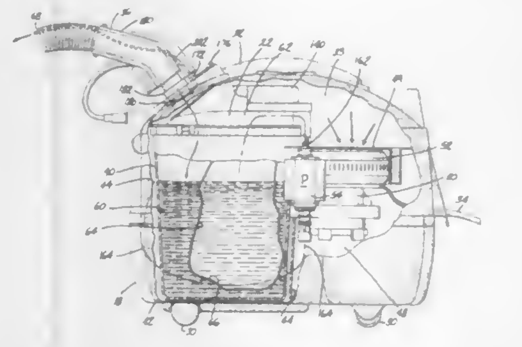
5,735,017
COMPACT WET/DRY VACUUM CLEANER WITH FLEXIBLE BLADDER

James F. Barnes, Anderson; Michael D. Bartlett, Pickens; Martin E. Harbeck, and Marion C. Johnson, both of Anderson, all of S.C., assignors to Bissell Inc., Grand Rapids, Mich.

Filed Mar. 29, 1996, Ser. No. 624,242

Int. Cl.^{6} A47L *9/10*

U.S. Cl. 15—321 **16 Claims**



1 A vacuum cleaner for cleaning a surface, the vacuum cleaner comprising:
- a main housing including a tank chamber;
- a motor-blower assembly and a fluid pump mounted within the main housing;
- a recovery tank assembly mounted in the tank chamber for storing a contaminated liquid, the recovery tank assembly including a recovery tank and a flexible bladder; and
- a hose assembly including a vacuum hose and a fluid dispensing conduit for dispensing cleaning liquid on to a floor surface;
- the fluid pump in fluid communication with one of the flexible bladder and the recovery tank to pump fluid therefrom to the liquid dispensing conduit; and
- the other of the flexible bladder and the recovery tank in fluid communication with the vacuum hose and motor-blower assembly so that the vacuum hose may vacuum liquid from the floor surface and into the other of the flexible bladder and the recovery tank.

5,735,018
BLOWER FOR MOVING DEBRIS

William F. Gallagher, and Mark R. Pfeiffer, both of Southampton, Pa., assignors to Schiller-Pfeiffer, Incorporated, Southampton, Pa.

Filed Oct. 2, 1996, Ser. No. 725,281

Int. Cl.^{6} A47L *5/14*

U.S. Cl. 15—405 **6 Claims**

1 An improved blower for moving debris on a surface, comprising:
- a frame mounted on wheels, a motor mounted to the frame, and a blower housing with an inlet opening and an discharge chute mounted on the frame;
- a fan located in the blower housing and drivingly connected to the motor to generate an air flow having a predetermined volumetric flow;
- an adjustable height, pivotable deflector mounted in the discharge chute to split the air flow into upper and lower portions, the deflector being pivotable from a first, downwardly inclined position, to concentrate the lower portion of the air flow along the surface to create a lifting force for lifting and moving the debris while the upper portion of the air flow moves the debris outwardly, to a second position, in which the pivotable deflector is upwardly inclined to create an expanded air flow profile for moving piles of debris, the height of the deflector being adjustable to adjust the volumetric flow of the upper and lower portions.

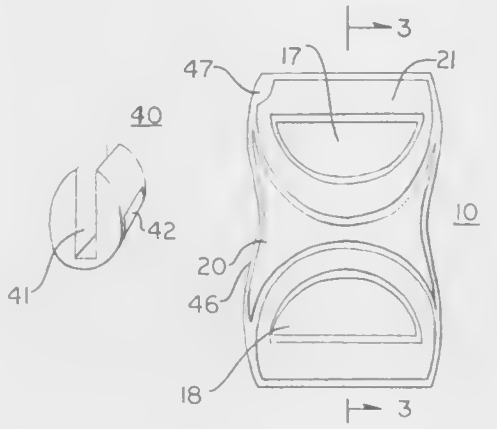
5,735,019
ASSIST HANDLE

Cynthia Kerr, and Harlah Glebe, both of 1643 Haddon Ave., Camden, N.J. 08103

Filed Oct. 1, 1996, Ser. No. 724,324

Int. Cl.^{6} A47B *95/02*

U.S. Cl. 16—125 **5 Claims**



1. An assist handle for attachment to at least one handle of an object to be carried by the hand of a user which comprises.
- a sling of rectangular configuration to extend around and engage said object handle;
- a grip having a slot therein to receive the ends of said sling;
- cut-outs in said sling, to enable the hand of the user to extend therethrough and to engage said grip for carrying,
- said sling is of multi-piece laminated construction and includes
  - a bottom member;
  - cut-outs in said bottom member of half circle configuration;
  - end panels on said sling above said cut-outs;
  - at least two reinforcing inserts on said bottom member on top of said end panels;
  - a layer of dielectrically activated adhesive material on top of said bottom member and said inserts;
  - a top member on said adhesive layer;
  - cut-outs in said top member of half circle configuration, and
  - a perimeter edge around said sling of reduced thickness for removal of said sling ends from said grip.

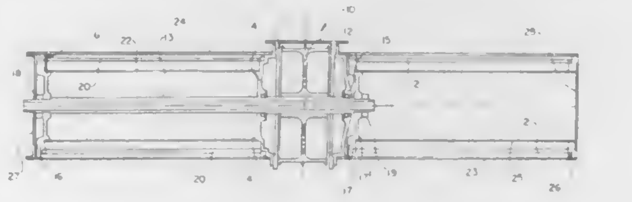
5,735,020
COUNTERBALANCE ASSEMBLY

Dennis L. Wheeler, Magna, Utah, assignor to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 397,696, Mar. 2, 1995, abandoned, which is a continuation of Ser. No. 336,096, Nov. 7, 1994, abandoned, which is a continuation of Ser. No. 238,858, May 6, 1994, abandoned. This application Mar. 5, 1997, Ser. No. 810,894

Int. Cl.^{6} E05F *1/00*

U.S. Cl. 16—198 **43 Claims**



1. An assembly for counterbalancing a door, said assembly comprising:
- a one piece torque shaft having a predeterminate axially extending length, a first end portion and a second end portion;
- an arrangement supporting said torque shaft for rotation relative to said arrangement;
- a first rotatable end member mounted for rotation with said torque shaft at said first end portion of said torque shaft;
- a second rotatable end member mounted for rotation with said torque shaft at a portion of said torque shaft spaced from said first end portion of said torque shaft;
- a cable drum mounted for rotation with said torque shaft;
- a cable being operably connected to said cable drum for being moved by movement of said cable drum, said cable also being operably connected to the door for effecting movement of said door upon movement of said cable drum;
- a first torsion spring having one end affixed to said first rotatable end member for rotation with said first rotatable end member, said first torsion spring surrounding and extending along a predeterminate length of said torque shaft in a direction away from said first rotatable end member and toward said second end portion of said torque shaft, said first torsion spring having a second end affixed against rotation with respect to said first rotatable end member by attachment to said arrangement for supporting said torque shaft for rotation; and
- a second torsion spring having one end affixed to said second rotatable end member for rotation with said second rotatable end member and extending in said axial direction away from said first and second rotatable end members, said second torsion spring having a second end affixed against rotation with respect to said second rotatable end member by attachment to said arrangement for supporting said torque shaft for rotation.

5,735,021
SNAP STUD ASSEMBLY

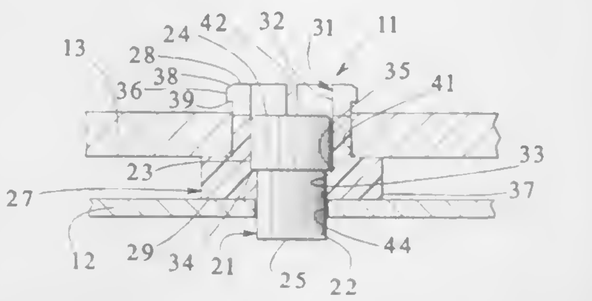
Jeffrey M. Briggs, Mountaintop, Pa., assignor to Allen-Stevens Corp., West Hazleton, Pa.

Filed Feb. 18, 1997, Ser. No. 802,550

Int. Cl.^{6} E05D *15/00*

U.S. Cl. 16—369 **21 Claims**

1. A snap stud assembly pivotally connecting two hardware members together, the snap stud assembly comprising:
- a stud comprising a lower section connected to an upper section, the lower section being narrower than the upper section,
- a tubular sleeve member comprising a top end and a bottom end with a through passageway extending from the top end to the bottom end, the top end comprising an outwardly extending top flange, the bottom end comprising an outwardly extending bottom flange, the through passageway comprising an upper portion and a lower portion, the upper portion for accommodating the upper section of the stud and the lower portion for accommodating the lower section of the stud



5,735,022
PLASTIC CLIP IN TWO PARTS AND DEVICE FOR CLOSING THE SAME

Herbert Niedecker, deceased, late of Königstein 2, Germany, by Marie Luise Niedecker, legal representative, Am Ellerhang 6, D-61462 Königstein 2, DEX

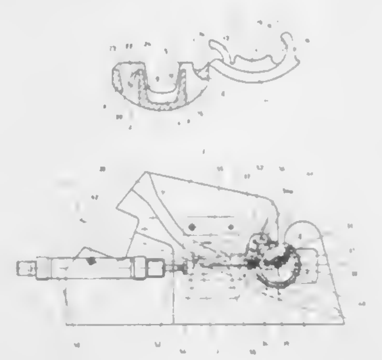
PCT No. PCT/EP94/02367, § 371 Date Feb. 5, 1996, § 102(e) Date Feb. 5, 1996, PCT Pub. No. WO95/05320, PCT Pub. Date Feb. 23, 1995

PCT Filed Jul. 19, 1994, Ser. No. 557,137

Claims priority, application Germany, Aug. 12, 1993, 43 27 064.6; Jan. 17, 1994, 44 01 111.3

Int. Cl.^{6} B65D *77/00*

U.S. Cl. 24—30.5 R **9 Claims**



1. A plastic clip designed for closing sausage casings, bags or the like and consisting of two parts (**1**, **2**), which embrace the casing and gathered to form a tip and can be interlocked with each other, where a first part (**1**) comprises side cheeks (**5**), which extend transversely to the longitudinal direction of the tip and have centrally disposed, aligned U-shaped recesses (**10**), wherein a receiving space (**4**) that is defined by side cheeks (**5**) and cross-flanges (**6**) directly adjoining to the same in a substantially vertical orientation partly embraces the tip and a second part (**2**), which substantially covers the receiving space, is integrally formed with a projection that consists of a rib (**12**), which is parallel to the side cheeks (**5**) and protrudes into the receiving space (**4**), so that the tip will be deflected in the shape of a wave when the clip is closed and interlocked bridges the cross-flanges (**6**) of the first part (**1**), and where at its transverse end the second part (**2**), is hinged to the corresponding transverse end of the first part (**1**) by means of a film hinge (**3**) extending substantially vertical to the side cheeks, has an extension which in the closed condition extends under a portion of the first part and, adjacent to its other transverse end, has a detent element (**16**), which cooperates with a complementary detent element (**20**, **21**) of the first part (**1**), and wherein a cross-bar (**8**) extending parallel, but at a distance from the cross-flange (**6**) close to the hinge connects the side cheeks (**5**) of the first part, and an arm (**13**) at the second part (**2**) adjacent to the film hinge (**3**) at a corresponding distance extends between the cross-flange (**6**) and the cross-bar (**8**) and below the cross-bar in the closed condition.

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5,735,023

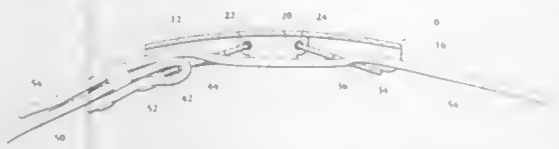
BELT BUCKLE

Warner M. Smith, Rte. 1, Box 359, Bristow, Okla. 74010

Filed Mar. 21, 1997, Ser. No. 822,985

Int. Cl.^{6} A44B *11/00*

U.S. Cl. 24—170 **2 Claims**



1. A clamping buckle for a belt comprising a curved horizontally extending vertical buckle plate having a convex front surface, a concave rear surface, a horizontally extending curved upper edge, a horizontally extending curved lower edge, an upper horizontally extending integral flange extending rearwardly from the buckle plate along the upper curved edge thereof, a lower horizontally extending integral flange extending rearwardly from the buckle plate along the lower curved edge thereof, the flanges having upper and lower surfaces and curved rear edges parallel to the upper and lower curved edges of the buckle plate, respectively, a first horizontal pivot plate attached to the upper surface of the lower flange, a second horizontal pivot plate attached to the lower surface of the upper flange, each pivot plate having a rectangular tab extending rearwardly towards the rear curved end of its associated flange, each tab having a pair of horizontally spaced and rearwardly directed shoulders constituting stops, each pivot plate having a pair of horizontally spaced pivot holes disposed outboard of the shoulders thereof, a first vertical leaf member having an inner vertical edge located adjacent and parallel to the concave rear surface of said buckle plate, means pivotally connecting said inner edge of the first leaf member to a first pair of opposed pivot holes in the upper and lower pivot plates, said first leaf member being formed with a vertical slot, a second vertical leaf member having an inner vertical edge located adjacent and parallel to the concave rear surface of said buckle plate, means pivotally connecting said inner edge of the second leaf member to a second pair of opposed pivot holes in the upper and lower pivot plates, said second leaf member being formed with a vertical slot, said belt being secured at one end to said first leaf member and having its free end threaded rearwardly of the buckle plate through the slot in the second leaf member and then through the slot in the first leaf member between the buckle plate and said one end of the belt whereby to clamp the belt when the leaf members are rotated away from each other and towards said buckle plate, the stops limiting rotation of said leaf members towards each other and preventing such rotation beyond positions wherein the leaf members are at substantial angles to the buckle plate, each pivot plate being provided with a rectangular tab extending rearwardly towards the rear curved end of its associated flange, each tab having a pair of horizontally spaced and rearwardly directed shoulders constituting stops, the stops limiting rotation of said leaf members towards each other and preventing such rotation beyond positions wherein the leaf members are at substantial angles to the buckle plate

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5,735,024

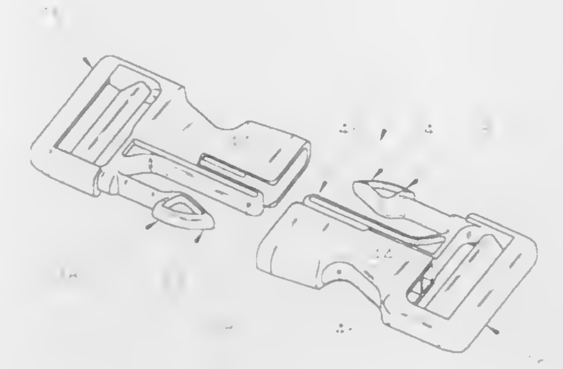
FASTENING MECHANISM FOR CONNECTING ARTICLES AND THE LIKE TOGETHER

Kim A. Ortiz, 1500 W. Thornton Pwy. #292, Denver, Colo. 80221

Filed Sep. 11, 1996, Ser. No. 710,090

Int. Cl.^{6} A44B *11/00; 11/25*

U.S. Cl. 24—575 **8 Claims**



1. A fastening mechanism comprising:

a first connecting element having a first attachment arm portion, a first sleeve portion, a first guide bar, and a first receiving opening, the first guide bar positioned adjacent the first attachment arm portion between the first attachment arm portion and the first sleeve portion, the first receiving opening positioned adjacent the first sleeve portion between the first guide bar and the first sleeve portion, the first guide bar being supported by the first sleeve portion at least partially along its length between the first attachment arm portion and the first sleeve portion;

a first receiving aperture formed in the first sleeve portion;

a second connecting element having second attachment arm portion, a second sleeve portion, a second guide bar, and a second receiving opening, the second guide bar positioned adjacent the second attachment arm portion between the second attachment arm portion and the second sleeve portion, the second receiving opening positioned adjacent the second sleeve portion between the second guide bar and the second sleeve portion, the second guide bar being supported by the second sleeve portion at least partially along its length between the second attachment arm portion and the second receiving portion;

a second receiving aperture formed in the second sleeve portion;

wherein the first attachment arm portion of the first element matingly connects with the second receiving aperture of the second element, the second attachment arm portion of the second element matingly connects with the first receiving portion of the first element and further the first receiving opening receives the second guide bar and the second receiving opening receives the first guide bar

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5,735,025

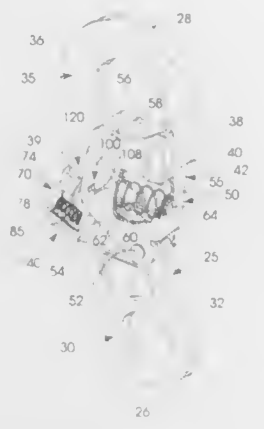
ERGONOMIC RECESSED RELEASE SAFETY HOOK

James T. Bailey, Greenwood, Ark., assignor to United States Forgecraft Corporation, Fort Smith, Ark.

Filed Sep. 25, 1996, Ser. No. 718,768

Int. Cl.^{6} A44B *13/02;* **B66C** *1/36;* **F16B** *45/02*

U.S. Cl. 24—600.1 **17 Claims**



16. A safety snap hook comprising:

a body comprising:

arcuate hook portion comprising a spaced apart tip;

integral means for supporting a load;

a mouth proximate said tip; and.

ergonomic thumb rest means for enhancing user manipulation of said snap hook by increasing the efficiency and speed of deployment;

a latch pivoted to said body for selectively engaging said tip to close said mouth, said latch comprising opposite integral sidewalls that pivotally straddle said body;

a gate for normally locking said latch, said gate slidably straddling said body and protectively nested within said latch;

follower means establishing blocking contact between said latch and said gate when said gate is disposed in said locked position, said follower means comprising a pair of tongues projecting inwardly from said latch sidewalls towards said gate; and,

wherein, during opening of said latch, said latch tongues slidably travel within arcuate clearance slots defined in said gate sidewalls.

5,735,026

METHOD FOR THE MANUFACTURE OF AN ELECTRODISPLACIVE ACTUATOR ARRAY

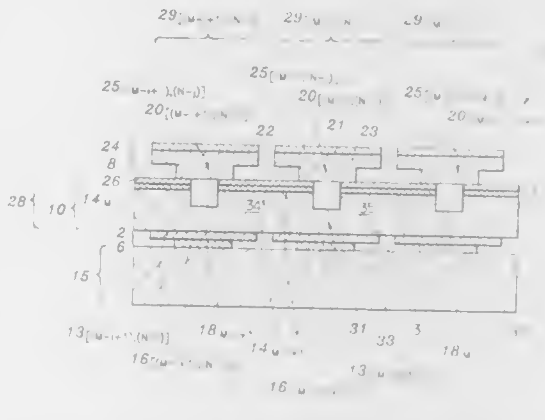
Yong-Ki Min, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 20, 1994, Ser. No. 278,472

Claims priority, application Rep. of Korea, Jul. 21, 1993, 9313843

Int. Cl.^{6} G02B *26/00;* **H01L** *41/22*

U.S. Cl. 29—25.35 **8 Claims**



1. A method for manufacturing an array of M×N electrodisplacive actuated mirrors for use in an optical projection system, wherein M and N are integers, the method comprising the steps of

(a) preparing a ceramic wafer, made of an electrodisplacive material, having a top and a bottom surfaces,

(b) forming an array of M×N regularly spaced, identically sized first electrodes an the bottom surface of said ceramic wafer and an array of M+1 regularly spaced, identically sized second electrodes on the top surface thereof, wherein each of the M+1 second electrodes extends across the top surface and each of the M×N first electrodes overlaps portions of two adjacent second electrodes and the centerline between two adjacent second electrodes coincides with the centerline of the first electrodes overlapping thereof,

(c) mounting said ceramic wafer treated in accordance with said step (b) on an active matrix, including a substrate, an array of M×N transistors and an array of M×N connecting terminals to thereby connect each of the first electrodes with each of the M×N connecting terminals;

(d) covering each of the M+1 second electrodes with an insulating layer;

(e) providing a photoresistive necked segment on top of each of the M+1 insulating layers covering the M+1 second electrodes;

(f) forming a set of M trenches, wherein each of the M trenches is located between two second electrodes and on the centerline of the first electrodes, runs parallel to the second electrodes, and is provided with a set of N−1 grooves, running perpendicular thereto;

(g) removing the photoresistive necked segments;

(h) placing an array of M×N hinges on the top surface of said ceramic wafer treated in accordance with said steps (b), (c), (d), (e), (f) and (g), wherein each of the M×N hinges is provided with a top surface and a bottom surface provided with a protrusion mounted simultaneously on the insulating layers covering two adjacent second electrodes;

(i) providing a water soluble separator on the exposed region on the top surface of said ceramic wafer treated in accordance with said steps (b) to (h), not covered by the M×N hinges,

(j) forming a mirror on the top surface of each of the M×N hinges; and

(k) removing the water soluble separator to thereby form an array of M×N electrodisplacive actuated mirrors.

5,735,027

METHOD OF MANUFACTURING A MULTILAYER CERAMIC ELECTRONIC COMPONENT

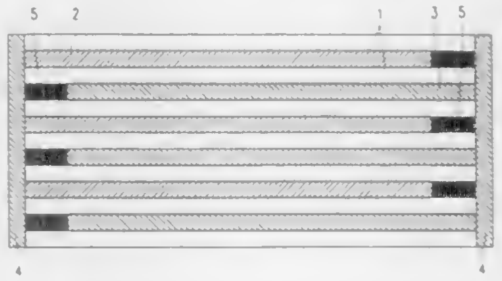
Hans-Jürgen Hageman, Aachen; Hans-Jürgen Lydtin, Stolberg; Arnd Ritz, Heinsberg, all of Germany, and Jacques Warnier, Eijsden, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 13, 1996, Ser. No. 769,896

Claims priority, application Germany, Nov. 14, 1995, 195 42 365.8

Int. Cl.^{6} H01L *41/22*

U.S. Cl. 29—25.35 **13 Claims**



1. A method of manufacturing a multilayer ceramic electronic component which comprises alternately conductive layers and dielectric layers, and in which successive, conductive layers are alternately made from two different electrode materials and extend up to the surfaces of all four side faces of the substrate, characterized in that

an end face of the stack of layers is immersed in an electrolytic solution and the least noble electrode material of the two electrode materials is electrochemically dissolved out,

the resultant cavities are filled with a curable monomer,

the curable monomer is polymerized the noblest one of the two electrode materials is exposed by removing polymerizate formed, thereon and a potential is applied to said noblest electrode material, which is so high as to enable said noblest electrode material at the other end face of the stack to be electrochemically dissolved out,

the resultant cavities at the other end face are filled with a curable monomer, and

outer electrodes are provided on opposite sides of the stack

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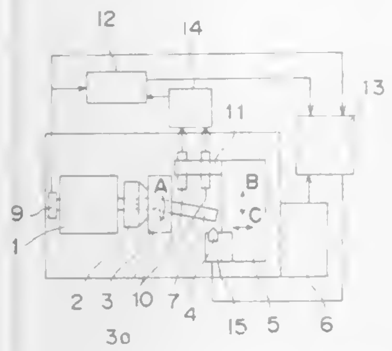
5,735,028
PROCESSING APPARATUS WITH MOVABLE PROCESSING TOOL AND PROCESSING METHOD
Yoshinori Furusawa, Takarazuka; Yoshihiro Ikemoto, Hirakata; Tutomu Hamada, Hirakata, and Hiroyuki Funasho, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation-in-part of Ser. No. 543,918, Oct. 17, 1995, abandoned. This application Jan. 31, 1996, Ser. No. 594,784

Claims priority, application Japan, Oct. 19, 1994, 6-253275; Nov. 17, 1994, 6-283174; Jan. 31, 1995, 7-014115

Int. Cl.^{6} B23B *7/14;* **B24B** *49/00;* **B23C** *3/00;* **G05B** *19/00*

U.S. Cl. 29—27 R **9 Claims**



1. A processing apparatus with a movable processing tool, said apparatus comprising:

a position detecting sensor for detecting a rotary position of a to-be-processed object held by a holding member positioned on a rotary main shaft;

a deflection detecting sensor for detecting an amount of rotational deflection of a processing reference surface of the object;

a waveform shaping device for shaping an output signal from the deflection detecting sensor into a waveform approximating a sine curve;

an operational device for calculating a positional correction amount for a processing tool at a processing point of the object based on an output signal of the waveform shaping device synchronously with rotation of the rotary main shaft;

an output device for outputting the positional correction amount for every rotary position and every processing point based on an output signal from the operational device;

a fine adjustment mechanism for minutely driving the processing tool based on an output signal from the output device; and

an NC table for moving in two dimensions the fine adjustment mechanism in order to process the object by the processing tool,

wherein a rotary speed of the rotary main shaft at which the rotary position of the object and the amount of the deflection of the processing reference surface of the object are respectively detected by the position detecting sensor and the deflection detecting sensor is slower than a rotary speed at which the object is processed by the processing tool.

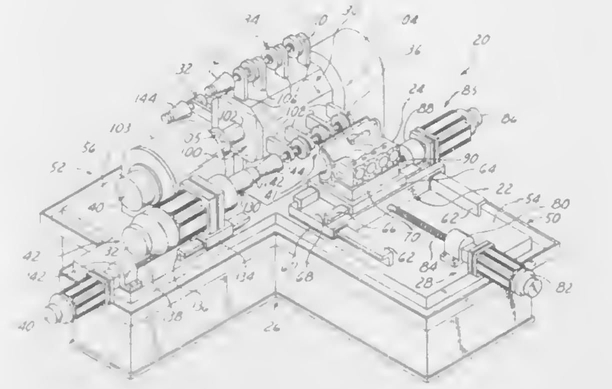
5,735,029
FLEXIBLE ARBOR MILL MACHINE
Michael D. Panetta, Royal Oak, Mich., assignor to Western Atlas, Inc., Hebron, Ky.

Filed Dec. 12, 1996, Ser. No. 764,328

Int. Cl.^{6} B23Q *5/00,* **B23C** *3/00*

U.S. Cl. 29—40 **17 Claims**

1. An arbor mill machine for performing at least two machining operations at one work station on a workpiece comprising, a base, a tool turret carried by said base for releasably carrying, supporting and journalling at least two separate arbor cutting tools, said arbor tools comprising multiple cutters on a common arbor, the tool turret being rotatable on its axis so that any one of the arbor tools thereon can be positioned in a work station for engagement with a workpiece to perform a machining operation on the workpiece while all of the other arbor tools carried by the turret are spaced from the workpiece, a first drive operably connected with the turret for rotating the turret to position any one of the arbor tools carried thereby in the work station for performing a machining operation on a workpiece, a second drive carried by the base and having a releasable coupling for operably connecting the drive with the arbor tool positioned in the work station by the turret for driving such arbor tool for performing a machining operation on a workpiece, a slide carried by the base for releasably carrying a workpiece thereon, and a third drive operably connected with the slide for advancing and retracting the slide relative to the arbor tool in the work station for moving the workpiece carried by the slide into and out of engagement with the arbor tool in the work station for machining the workpiece.

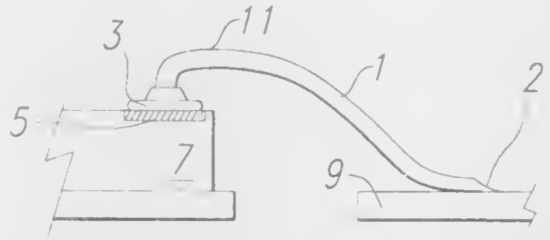


5,735,030
LOW LOOP WIRE BONDING
John W. Orcutt, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 4, 1996, Ser. No. 657,570

Int. Cl.^{6} H01R *43/00*

U.S. Cl. 29—86 **16 Claims**



1. A method of making a wire connection in a microelectronic device comprising the steps of:

(a) providing a microelectronic device having a bond pad thereon;

(b) providing a lead finger spaced from said bond pad;

(c) providing a wire for connection to said lead finger and said bond pad;

(d) then providing a protuberance on said bond pad of a material electrically compatible with the material of said wire;

(e) connecting one end of said wire to said lead finger; and

(f) then connecting the other end of said wire to said protuberance.

5,735,031
UNIVERSAL CLIP REMOVAL TOOL
Bryan T. Johnson, 4310 Hillview La., Vadnais Heights, Minn. 55127

Filed Aug. 28, 1995, Ser. No. 519,792

Int. Cl.^{6} B23P *19/04*

U.S. Cl. 29—235 **17 Claims**

1. A pliers for releasably engaging and removing one-way clips comprising:

a handle;

means operably coupled to the handle for releasably engaging the clip including a pair of cooperating jaws, each jaw formed of a relatively thin, flat member, wherein the pliers includes a closed clip engagement position for releasably engaging, collapsing and removal of the clip, and wherein when the pliers is in the closed clip engagement position, one jaw partially passes over the other jaw;

wherein the members include an outside edge and an inside edge, and wherein the means for releasably engaging the clip includes a contact region located on the inside edge, wherein the contact region is a generally V-shaped or notched region;

wherein each inside edge includes a tip portion and a body portion which meet to form the generally V-shaped or notched region; and

wherein in said closed clip engagement position the portion of the inside edge of one jaw which passes over the portion of said other jaw includes the inside edge tip portion and the body portion

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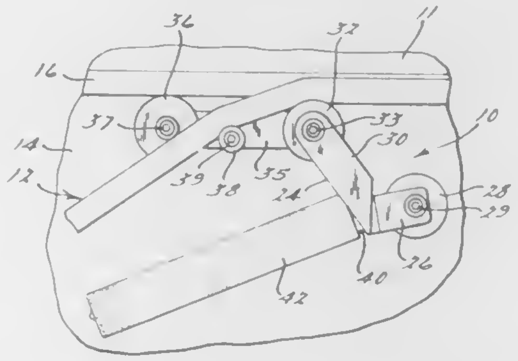
5,735,032
TRIM WELT INSTALLATION TOOL
Charles L. Stone, Metamora, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed May 15, 1996, Ser. No. 647,848

Int. Cl.^{6} B23P *19/02*

U.S. Cl. 29—235 **12 Claims**



1. A trim welt installation tool for installing a trim welt on at least one flange around an opening comprising:

a support frame having at least one roller rotatably connected thereto for engaging a trim welt;

a guide frame pivotally connected to said support frame and extending longitudinally and outwardly and a guide roller rotatably connected to said guide frame for guiding said at least one roller along the trim welt; and

an idler rotatably connected to said guide frame between said guide roller and said at least one roller for allowing the trim welt to be disposed between said guide roller and said idler

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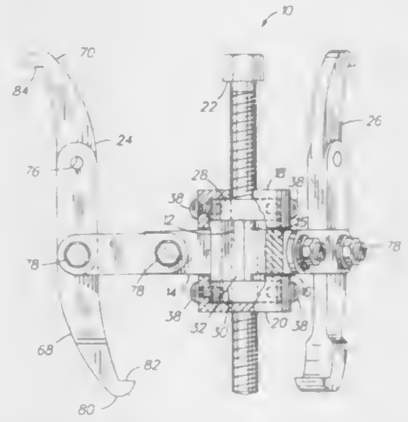
5,735,033
VERSATILE PULLING TOOL
Martin Marugg, 46 Tromley Rd., East Windsor, Conn. 06088

Filed Jun. 7, 1995, Ser. No. 475,962

Int. Cl.^{6} B23P *19/04;19/00*

U.S. Cl. 29—254 **14 Claims**



1. A pulling tool for pulling an article from a device comprising a hub having a circumference;

an actuator attached to said hub for pulling said hub away from the device; and

at least two grippers mounted on said hub so as to allow unrestricted circumferential positioning of each of said grippers independently about the entire circumference of said hub, each of said grippers including an engagement surface for engaging the article to be pulled.

5,735,034
SYSTEM AND METHOD FOR AUTOMATICALLY PROCESSING COIN COLLECTION BOXES
Howard M. Citron, South Salem; David K. Asano, Shenorock; Henry R. Baietto, Northport; Sullivan S. Chen, Huntington, all of N.Y.; Alexis W. De Frondeville, Somerville, Mass.; Jeffrey H. Hahn, Greenwich, Conn.; Thomas J. Probst, Jr., White Plains, N.Y.; John E. Massucci, Bronx, N.Y.; Dinu Costin, Rosolyn Estates, N.Y., and Ralph E. Peragine, Massapequa, N.Y., assignors to NYNEX Science & Technology, Inc., White Plains, N.Y.

Division of Ser. No. 551,217, Oct. 31, 1995. This application Nov. 15, 1995, Ser. No. 559,301

Int. Cl.^{6} B21D *39/03;* **B23Q** *17/00;* **B23P** *21/00*

U.S. Cl. 29—407.09 **23 Claims**

21. A method of resetting a one-way latch on a coin-collection box, said one-way latch including a pivoted actuating bolt to reset said latch, said method comprising:

mounting a latch resetter with compliant movement on a tool frame, said latch resetter including a socket guide capable of capturing said one-way latch, and a shift means for shifting said one way latch from said locking state to said set state;

moving said socket guide into engagement with said one-way latch while said latch resetter makes compliant movements to cause said socket guide to capture said one way latch,

coupling said shift means to said pivoted actuating bolt, and

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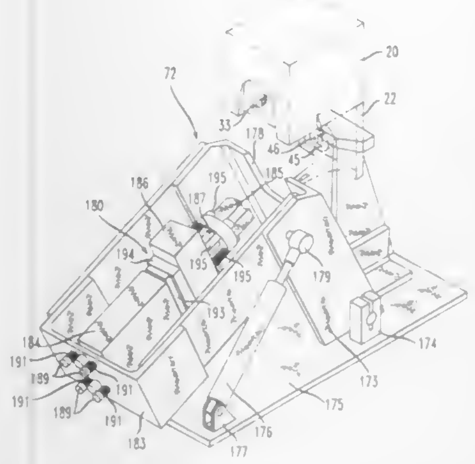


rotating said actuating bolt via said shift means to shift said one-way latch form said locking state to said set state.

5,735,035

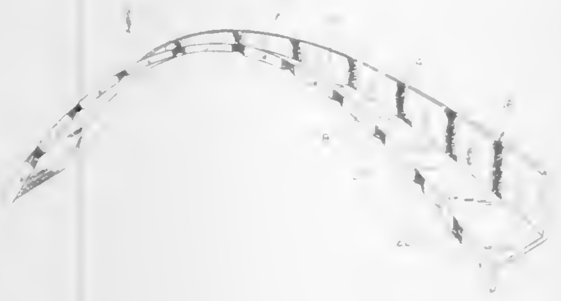
METALLIC DRIP CAP FOR GUARDING WINDOW FRAMES AND METHOD OF MAKING SAME

Stanley J. Holt, 23511 N. Cottage Rd., Lake Zurich, Ill. 60047

Division of Ser. No. 184,496, Jan. 18, 1994, Pat. No. 5,507,123, and a continuation-in-part of Ser. No. 958,659, Oct. 8, 1992, Pat. No. 5,321,921. This application Jan. 29, 1996, Ser. No. 593,214

Int. Cl.^{6} B21B *1/46*

U.S. Cl. 29—527.2 23 Claims



1 A method of manufacture of a radius drip cap for sealing arcuate window frames when installed on an architectural window assembly previously installed on a building wall comprising uncoiling a strip of aluminum, cutting the strip into aluminum pieces, pressing each strip forming the strip with three stepped flanges including a pair of vertically extending upper and lower cap flanges separated by a horizontally extending cap flange linking the pair of vertically extending flanges together, slitting an uppermost of the vertical cap flanges at transverse intervals forming longitudinally spaced upwardly opening slits, applying a water repellent caulking compound to each of the slits on the upper cap flange to render the slits watertight on the uppermost vertical cap flange for precluding water flow through the slits, and bending each of the flanged strips into a curved shape with each of the cap flanges being thusly curved thus completing the formation of the radius drip cap.

5,735,036

LAPPING PROCESS FOR MINIMIZING SHORTS AND ELEMENT RECESSION AT MAGNETIC HEAD AIR BEARING SURFACE

Robert Owen Barr, San Jose; Alain M. Desouches, Santa Cruz; John P. Herber, Watsonville; Robert Glenn Biskeborn, Hollister; Carol Y. Inouye, San Jose; David John Seagle; Albert John Wallash, both of Morgan Hill; Glen Adam Garfunkel, and Sanford Joel Lewis, both of Palo Alto, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 358,124, Dec. 16, 1994, Pat. No. 5,603,156. This application Jun. 7, 1995, Ser. No. 476,787

Int. Cl.^{6} H01F *7/06;* **G11B** *5/42*

U.S. Cl. 29—603.12 15 Claims

1 In a process for batch fabricating magnetic transducers wherein said magnetic transducers are fabricated in rows, said magnetic transducers having a plurality of transducer elements exposed at an air bearing surface thereof, a method for lapping said air bearing surface to provide a desired dimension for said transducer elements, comprising the steps of:

moving said magnetic transducer in an oscillatory path across a lapping surface, said oscillatory path being parallel to a longitudinal axis of said transducer elements exposed at said air bearing surface;

maintaining said air bearing surface of said magnetic transducers in contact with said lapping surface for a first period of time during said oscillatory movement of said magnetic transducer, a lapping pressure being applied during said first period such that a substantial amount of material is abraded from said air bearing surface;

reducing said lapping pressure during a second period such that an insubstantial amount of material is abraded from said air bearing surface as said magnetic transducer moves with respect to said lapping surface;

during said second period, moving said lapping surface on a plane generally parallel with the air bearing surface, and not parallel to the direction of with said oscillatory path of said magnetic transducer; and

reapplying said lapping pressure during a third period such that a substantial amount of material is abraded from said air bearing surface to obtain the desired dimension of said transducer elements.

5,735,037

METHOD OF MAKING A HANDGRIP WITH BUILT-IN HEATER FOR MOTORCYCLE

Toru Ogata, Shizuoka, Japan, assignor to Koito Manufacturing Co., Ltd., Tokyo, Japan

Division of Ser. No. 501,925, Jul. 13, 1995. This application Jun. 17, 1996, Ser. No. 665,347

Claims priority, application Japan, Jul. 15, 1994, 6-163825

Int. Cl.^{6} H05B *3/00*

U.S. Cl. 29—611 5 Claims

1 A method for producing a handgrip with a built-in heater for a motorcycle comprising the steps of:

providing a synthetic resin inner piece of a substantially hollow cylindrical shape and having a through opening formed in a wall portion thereof;

winding a flexible printed circuit heater around said inner piece over a range covering a half circumference or more of said inner piece but less than the full circumference of said inner piece;

placing said inner piece with said flexible printed circuit heater wound thereon in a mold with a circumferential region on said inner piece where said flexible printed circuit heater is not wound facing a parting position of said mold;

molding a cladding rubber layer integrally on said inner piece and said flexible printed circuit heater, said flexible printed circuit heater extending between said inner piece and said cladding rubber layer.

5,735,038

MAGNET ASSEMBLING DEVICE

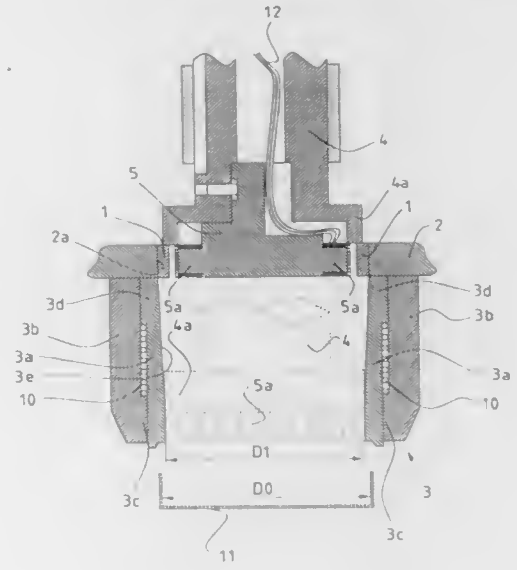
Hiroshi Sakashita, and Masayuki Katagiri, both of Nagano, Japan, assignors to Kabushiki Kaisha Sankyo Seiki Seisakusho, Nagano, Japan

Filed Jun. 27, 1995, Ser. No. 495,105

Claims priority, application Japan, Jun. 27, 1994, 6-168852

Int. Cl.^{6} H02K *15/02*

U.S. Cl. 29—736 2 Claims



1. A magnet assembling device, comprising:

a rounding die into which a rectangular and flexible rubber magnet can be mounted so that said rubber magnet has an annular shape;

a die guide for guiding said rubber magnet mounted in said rounding die into a motor case;

a push punch including a punching portion for inserting said rubber magnet mounted in said rounding die into said die guide and for pushing said rubber magnet out of said die guide into said motor case; and

a magnetizing head including a magnetizing portion for magnetizing an inner peripheral surface of said rubber magnet,

wherein said die guide is formed in a tapered shape such that an insertion portion thereof from which said rubber magnet is inserted is larger in an inside diameter dimension than a discharging portion thereof from which said rubber magnet is discharged, and

wherein said magnetizing head is mounted on said push punch so that said magnetizing portion of said magnetizing head projects toward said rubber magnet beyond said punching portion, and said magnetizing portion can be brought into close contact with said inner peripheral surface of said rubber magnet in a minimum diameter portion of said die guide.

5,735,039

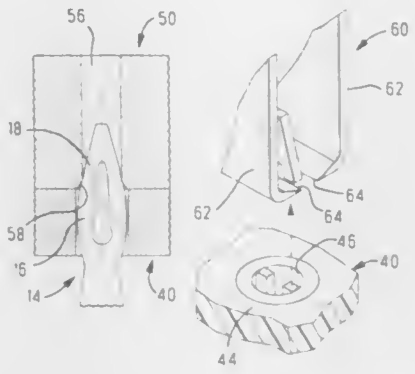
METHOD OF REMOVING ELECTRICAL TERMINALS FROM A CIRCUIT BOARD

Todd Alan Shuey, Camp Hill, and John Douglas Weary, Mechanicsburg, both of Pa., assignors to The Whitaker Corporatinn, Wilmington, Del.

Filed Feb. 29, 1996, Ser. No. 610,098

Int. Cl.^{6} H05K *3/00;* **B23P** *19/00*

U.S. Cl. 29—829 4 Claims



1 A method of removing electrical terminals from a circuit board, each terminal being of the type having a compressible compliant section adjacent an insertion end thereof, said insertion end projecting from a through-hole of the board at the exit thereof and beyond a remote surface of the board when fully inserted, with said compliant section disposed within a circuit board through-hole in an interference fit creating a retention force with a portion of said compliant section extending beyond the remote board surface, said compliant section defined by a pair of legs joined at said insertion end to close a gap therebetween such that the joint assists in resisting compression of said compliant section, the method comprising the steps of:

providing a tool having a work surface including an array of work sites, each associated with one of said terminals,

urging the work surface of said tool against the remote side of said board and performing an alteration step on said insertion end to at least temporarily reduce said retention force; and

pulling at least one said terminal from said through-hole from an insertion side of said board, whereby

the reduced retention force facilitates terminal removal

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5,735,040
METHOD OF MAKING IC CARD

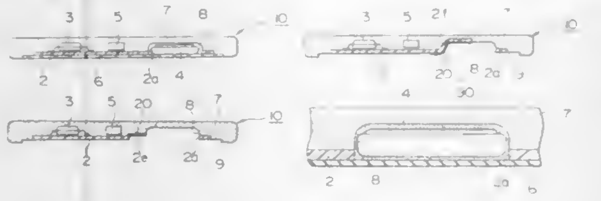
Katsunori Ochi; Seiji Takemura, both of Itami; Syojiro Kodai, and Tuguo Kurisu, both of Sanda, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 994,957, Dec. 22, 1992, Pat. No. 5,677,568. This application Sep. 19, 1996, Ser. No. 716,540

Claims priority, application Japan, Dec. 26, 1991, 3-345327

Int. Cl.^{6} H05K *3/30; 13/04*; **B29C** *45/03*; **B32B** *31/12*

U.S. Cl. 29—841 8 Claims



1. A method of producing a thin IC card having a built-in battery comprising:

forming a through-hole including an edge, in a circuit board, the circuit board having first and second main surfaces, a circuit pattern being present on the first main surface;

mounting a functional part on the first main surface;

forming a card-shaped section including:

inserting the circuit board with the functional part into a mold, the mold including a first protrusion extending through the through-hole in the circuit board; and

injecting a resin into the mold to form the card-shaped section including a battery lodging section at the through hole, the resin covering the first main surface but not the second main surface; and

mounting a battery in the battery lodging section and electrically connecting the circuit pattern to the battery

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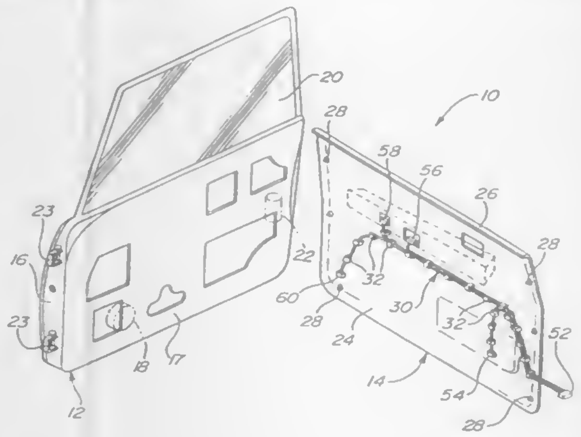
5,735,041
WIRE HARNESS ASSEMBLY ON TRIM PANEL

Alex Zaguskin, Farmington Hills, and Jeffrey A. Branch, Eastpointe, both of Mich., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

Continuation-in-part of Ser. No. 687,133, Jul. 24, 1996. This application Sep. 30, 1996, Ser. No. 722,376

Int. Cl.^{6} H01R *33/00*

U.S. Cl. 29—857 6 Claims



1. A method for assembling an electrical wire covering trim panel comprising the steps of:

forming a trim panel having an outer surface adapted to overlie the inner surface of a vehicle structural member;

positioning at least one electrical device in the trim panel.

forming wire routing elements on the outer surface of the trim panel, at least one of said routing elements having a first end secured to said trim panel and a second end movable relative to said trim panel; and

individually and sequentially securing a plurality of electrical wires along the routing elements to the electrical devices to eliminate the need for a prefabricated wiring harness, the step of securing said wire to said at least one routing elements including snapping the wire under said first end.

5,735,042
METHOD OF FABRICATING CONNECTOR PIN CONTACT

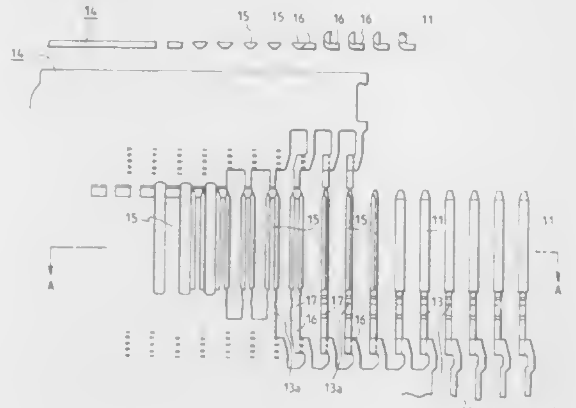
Yasunari Takano; Hidehiro Nakamura; Shin Yoshida; Akito Miura; Koichi Takahashi, and Kazuki Satou, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 602,201, Feb. 16, 1996. This application Oct. 25, 1996, Ser. No. 740,282

Claims priority, application Japan, Mar. 8, 1995, 7-048811; Sep. 6, 1995, 7-229326

Int. Cl.^{6} H01R *43/16*

U.S. Cl. 29—874 4 Claims



1. A method for fabricating a pin contact for a connector, the method comprising the steps of:

punching a flat metal sheet defining a plane to form a narrow piece having opposing side edges and extending straight from an approximately L-shaped connecting part.

bending the narrow piece relative to the connecting part such that the connecting part remains in the plane, and the side edges of the narrow piece are aligned in a direction which is perpendicular to the plane, and

pressing the side edges adjacent a forward end portion of the narrow piece such that the forward end portion is pressed in the direction perpendicular to the plane to thereby form an approximately cylindrical contact section.

5,735,043
METHOD FOR MOUNTING AND FINISHING VALVE SEAT RINGS PRE-MANUFACTURED BY POWDER METALLURGICAL METHOD TECHNIQUES

Holger Schmidt, Wuppertal, and Gerd Krüger, Wetter, both of Germany, assignors to Bleistahl Produktions- GmbH & Co. KG, Wetter/Ruhr, Germany

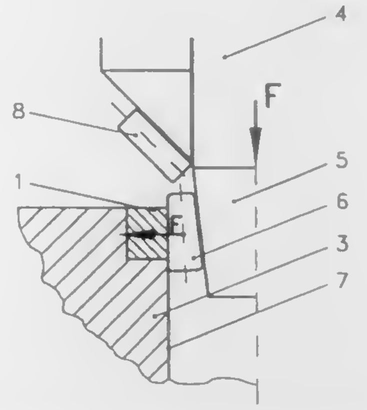
Filed Mar. 28, 1996, Ser. No. 623,488

Claims priority, application European Pat. Off., Mar. 28, 1995, 95 104 535.0

Int. Cl.^{6} B23P *11/00*

U.S. Cl. 29—888.44 8 Claims

1. A method for mounting and finishing a valve seat ring in an operational position of a receiving bore at the entrance of a gas channel of a cylinder head of an internal combustion engine consisting of a light alloy, said method comprising the step of



manufacturing an annular body with a central opening by powder pressing and sintering;

positioning said annular body with said central opening on a head of a roller burnishing tool;

inserting said annular body with the aid of said roller burnishing tool into the receiving bore such that said annular body is positioned with play relative to an inner wall of said receiving bore; and

radially expanding said annular ring by roller burnishing with said roller burnishing tool such that said annular body positive-lockingly engages said inner wall of said receiving bore and is compressed to a selected finish size of ready-to-use density in order to form said valve seat ring.

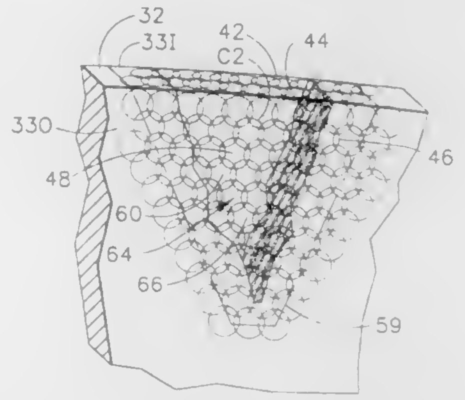
5,735,044
LASER SHOCK PEENING FOR GAS TURBINE ENGINE WELD REPAIR

Stephen J. Ferrigno, Cincinnati; William D. Cowie, Xenia, and Seetharamaiah Mannava, Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 12, 1995, Ser. No. 571,048

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—889.1 10 Claims



1. A method to repair damage in a gas turbine engine metallic component, said method comprising the following steps:

laser shock peening at least one surface area of the component forming a region having deep compressive residual stresses imparted by laser shock peening extending into a substrate beneath a substrate bond surface of the component.

bonding a metallic filler onto the substrate

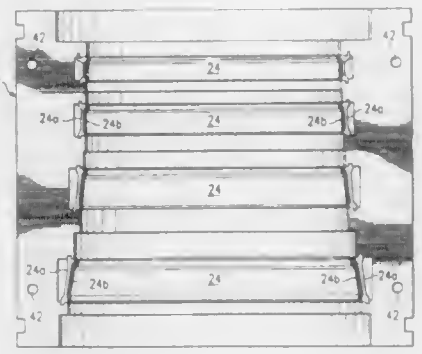
5,735,045
METHOD FOR REFURBISHING A JET ENGINE

Basil Papayoti, Plano, Tex., assignor to GASI Engine Services Corporation, Miami, Fla.

Division of Ser. No. 592,960, Jan. 29, 1996, abandoned. This application Mar. 11, 1997, Ser. No. 815,498

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—889.1 6 Claims



1. A method of restoring rotor path rings disposed on the inner surface of the housing of a jet engine, said method comprising the steps of removing the rings from the inner surface of the compressor housing, then mounting the rings into a hollow cylindrical jig, the inner surface of which replicates the inner surface of the housing, then machining the rings to a predetermined thickness, and then reinstalling the rings into the housing.

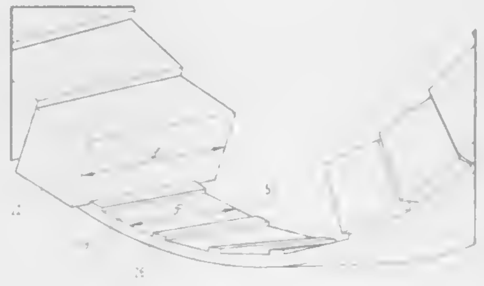
5,735,046
METHOD OF MANUFACTURING A MULTIPROPERTY ROTOR DISK

Christine M. Frasier, 2496 Lake Crossing, Greenwood, Ind. 46143; James C. Muskat, 8447 Hickory Hill Trail, Mooresville, Ind. 46158, and Charles J. Teague, 6843 Balmoral Rd., Indianapolis, Ind. 46241

Division of Ser. No. 568,986, Dec. 7, 1995, Pat. No. 5,609,471. This application Sep. 27, 1996, Ser. No. 722,805

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—889.2 1 Claim



1. A method for bonding single crystal attachment lugs to a rotor disk, comprising

providing a restraining member.

positioning the single crystal attachment lugs along the circumference of the rotor disk.

placing the restraining member around the radial outward surface of the attachment lugs, and

heating the assembly of the prior steps to join the attachment lugs and the rotor disk.

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5,735,047

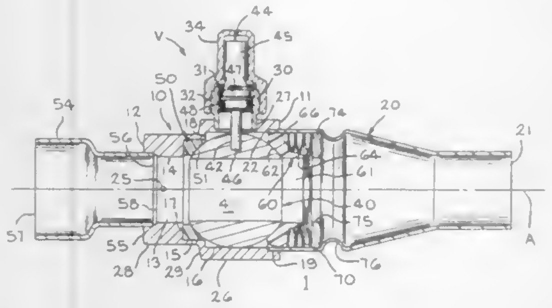
BALL VALVE ASSEMBLY AND METHOD FOR FORMING

Robert J. Evans, Fort Wayne; Mark W. Schuller, Woodburn; Kraig A. Biberstein, New Haven, all of Ind., and Anna K. Rambo, Ashland, Ohio, assignors to Aeroquip Corporation, Maumee, Ohio

Filed Oct. 15, 1996, Ser. No. 730,095

Int. Cl.^{6} B21D *39/04*

U.S. Cl. 29—890.13 13 Claims



1. A method for assembling a rotary valve assembly comprising

(a) providing a housing extending along an axis and having an inlet and an axially aligned outlet, a ball having a passageway extending therethrough, an annular seat engageable with said ball, an annular seal sealingly engageable with said ball, a compression spring and a tubular member;

(b) assembling the parts of step (a) with the ball in said housing and with said annular seal engaging said ball in a position between said ball and said outlet, with said annular seat engaging said ball between said ball and said inlet, with said compression spring positioned to urge said annular seat against said ball and with said tubular member engaged to said housing in a position encircling said compression spring;

(c) applying a non-torsional, axially directed compressive force to said compression spring to urge said annular seat into engagement with said ball and said ball into sealing engagement with said annular seal; and,

(d) while said compressive force is being applied, inwardly deforming a portion of said tubular member to form an abutment to retain said compression spring in said tubular member while said compression spring is urging said annular seat into engagement with said ball.

5,735,048

SPHERICAL BEARING HAVING HIGH MECHANICAL STRENGTH, AND METHOD FOR MANUFACTURE

Henri Peters, Spycker, France, assignor to Societe Internatinnale des Applications et Techniques Mangachoc, Spycker, France

Continuation of Ser. No. 374,070, Jan. 19, 1995, abandoned. This application Apr. 14, 1997, Ser. No. 839,412

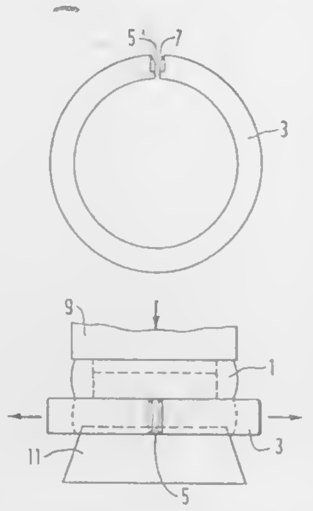
Claims priority, application France, Jan. 25, 1994, 94 00772

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—898.045 13 Claims

1. A method of manufacturing an assembled spherical bearing possessing a high mechanical strength, abrasion resistance, impact strength and crushing strength, said bearing consisting of a spherical articulation element and an annular cage having said spherical articulation element assembled therein, said method comprising the steps of:

(a) machining the spherical articulation element which is constituted of a pretreated high-hardness steel to form a core of a hardness of within about 882 to 1029N/mm^2 and having a surface hardness of at least 55 HRC to a depth of about 1.5 to 3 mm;



(b) forging and machining the cage which is constituted of austenitic manganese steel of Z 120M 12 grade including 12% manganese and 1.2% carbon, said cage having an outer surface and an internal annular surface dimensioned to possess a diameter larger than an external diameter of the spherical articulation element so that the cage has an inner circumference which is greater than outer circumference of said spherical articulation element by a value e of about 1 to 2.5 mm, the internal annular surface of the cage being treated by preworking to a hardness of 38 to 40 HRC to a depth of a few tenths of a millimeter while the material of the remaining thickness of the annular cage remains ductile;

(c) cutting through the annular cage substantially along a radius with a cutting tool having a blade thickness to form a cut thickness which is equal to said value e of 1 to 2.5 mm.

(d) radially expanding the annular cage to facilitate insertion therein of the spherical articulation element to form the assembled spherical bearing;

(e) clamping the assembled spherical bearing in a jig for shaping the spherical bearing to predetermined final and external dimensions thereof; and

(f) welding the radial cut in said cage of said clamped assembled bearing while controlling the temperature of said welding to a level so as not to impair the treated surfaces of said bearing

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5,735,049

MOWING NYLON CUTTER AND MOWING MACHINE

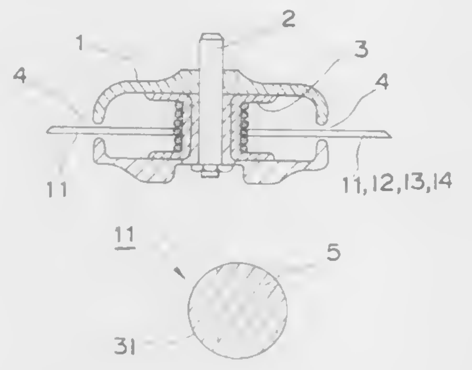
Yoshiaki Ishikawa, Higashiosaka, Japan, assignor to Taiseikozai Co., Ltd., Osaka-fu, Japan

Filed Jan. 24, 1997, Ser. No. 787,317

Claims priority, application Japan, Oct. 7, 1996, 8-302328

Int. Cl.^{6} B26B *7/00*

U.S. Cl. 30—276 8 Claims



1. A mowing machine for mowing weeds comprising a mowing nylon cutter to be rotated at high speed, said nylon cutter comprising a nylon cord, and agricultural chemicals.

5,735,050

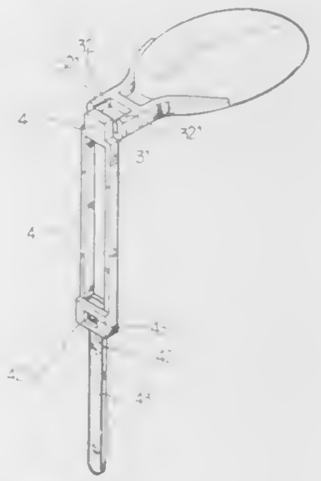
SPOON CONSISTING OF A BOWL AND AN EXTENDABLE HANDLE

Cheng-Yi Hsieh, No. 155,Sec.7,Changlu Rd., Fu Shing Hsiang, Changhua Hsien, Taiwan

Filed Apr. 14, 1997, Ser. No. 837,109

Int. Cl.^{6} A47J *43/28*

U.S. Cl. 30—324 1 Claim



1. A spoon comprising.
a bowl having a neck; and
a handle fastened at one end thereof with said neck of said bowl.
wherein said neck is provided with a slot of a shape and having an open side distal to said bowl;
wherein said handle consists of a primary handle and a secondary handle, said primary handle fastened at a proximal end thereof with said neck by an adhesive tape and provided at said proximal end thereof with a connection portion dimensioned to fit into said slot of said neck, said primary handle further provided therein with a channel extending in the direction of a longitudinal axis of said primary handle such that said channel is provided with an opening located at distal end of said primary handle, said primary handle still further provided at said distal end thereof with a retaining hole, said secondary handle received slidably in said channel of said primary handle such that said secondary handle can be moved along said channel in a direction away from said bowl, said secondary handle provided at a proximal end thereof with a retaining projection engageable with said retaining hole of said primary handle for locating said secondary handle at such time when said secondary handle is fully extended

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5,735,051

KNIFE WITH REPLACEABLE BLADE

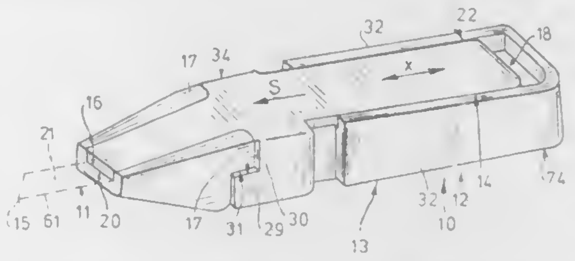
Harald Berns, Wuppertal, Germany, assignor to Michael Schlipkoter, Solingen, Germany

Filed Jan. 8, 1997, Ser. No. 780,376

Claims priority, application Germany, Jan. 9, 1996, 196 00 47.0

Int. Cl.^{6} B26B *3/08*

U.S. Cl. 30—333 20 Claims



1. A utility knife for use with a flat blade having a pair of opposite faces, the knife comprising.

an elongated base part formed with an outwardly directed rear support surface, an outwardly directed front support surface separated longitudinally therefrom, and an inwardly directed intermediate surface between the support surfaces, the blade normally lying on the front support surface and projecting longitudinally forward past the base part;

an elongated cover part having an inwardly directed rear surface normally riding on the base-part rear support surface, an inwardly directed front surface normally pressing the blade inward against the base-part front support surface, and an outwardly directed intermediate surface, the cover part being displaceable longitudinally between one longitudinal end position with the intermediate surfaces confronting each other and another longitudinal end position with the intermediate surfaces out of transverse alignment with each other, and

means including a biasing formation on at least one of the parts for in the one longitudinal end position urging the cover-part intermediate surface transversely outward with a spring force into engagement with the base-part intermediate surface and thereby pressing the front and rear cover-part surfaces toward the respective front and rear base-part surfaces.

5,735,052

UNIVERSAL TAPE MEASURE

Hsiao-Chung Lin, 2F, No. 116, Yang Ming Street, Pan Chiao City, Taipei Hsien, Taiwan

Filed Oct. 23, 1996, Ser. No. 731,991

Claims priority, application Taiwan, Jun. 28, 1996, 85209789

Int. Cl.^{6} B43L *9/04*

U.S. Cl. 33—27.03 4 Claims

1. A universal tape measure comprising a housing having two parallel symmetrical side walls and a rear end, and a tape marked with a linear scale and having a circle center hole, the rear end having a downward extending opening adapted to hold a writing instrument for drafting a circle together with the circle center hole of the tape, the downward extending opening including an upper cylindrical hole with a truncated hollow cone arranged with a base of the truncated hollow cone abutting a lower end of the cylindrical hole, the rear end further including two flat walls extending a length of the rear end and intersecting the downward extending opening, the two flat walls forming a right angle cutout by having upper edges that form a right angle when viewed along an axis of the cylindrical hole, and a portion of the housing surrounding the truncated hollow cone of the downward extending opening having cross lines in alignment with the upper edges of the two flat walls.

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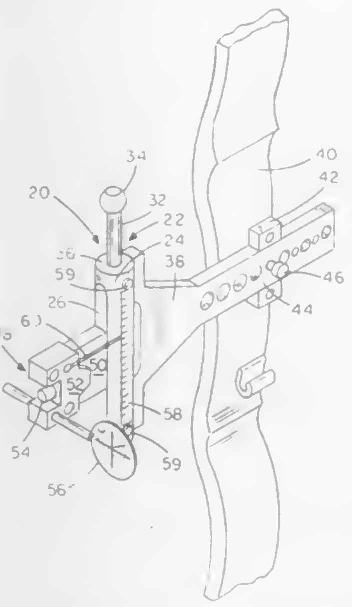
5,735,053
BOW SIGHT ASSEMBLY

Donald E. McGunigal, 2711 Glenhaven La., Winston-Salem, N.C. 27106

Filed Nov. 20, 1995, Ser. No. 560,703

Int. Cl.^{6} F41G *1/467*

U.S. Cl. 33—265 **2 Claims**



1. A bow sight assembly for a bow comprising: a housing including a hollow tubular member having first and second ends; a piston slidably moveable within and with respect to the housing; a rod connected to the piston and partially contained within the housing; means retaining the rod at a preselected slidable position within the housing; rod displacing means connected to the rod outside the housing; housing support means movably and releasably secured to the bow; means selectively engaging the piston to bias the piston in a non-movable position during actuation of the bow; means for selectively displacing the housing support means; sight means including first and second sight supports and a sight secured to the second sight support, the first sight support secured to the piston, and the first and second sight supports movably secured to each other to provide a lateral sight adjustment; and indicating means carried by the housing to provide vertical sight adjustments wherein the piston engaging means is a spring biased screw extending through the tubular member and against the piston.

5,735,054
FIXTURE FOR A TABLE SAW

Jerry W. Cole, 8 Dolge Ct., Charlton, Mass. 01507

Filed Jun. 2, 1995, Ser. No. 459,747

Int. Cl.^{6} B23Q *17/22;* **B27B** *25/10;* **B27G** *23/00*

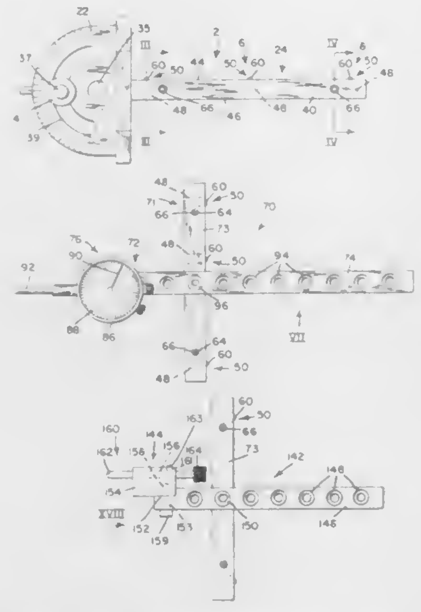
U.S. Cl. 33—471 **19 Claims**

8. A self-adjusting accessory for a table saw which has a cutting blade and a work supporting table which has a guide groove which is parallel with the cutting blade, said guide groove having a bottom surface and a pair of opposed side surfaces, said self-adjusting accessory comprising:

(a) an elongated guide bar for slidable mounting in the guide groove of said work supporting table, said guide bar having a generally rectangular cross section which includes a bottom surface, a first vertical side surface and a second vertical side surface which is opposite said first vertical side surface;

(b) a saw fixture which is connected to said guide bar for sliding on said work supporting table; and

(c) a least two spaced yieldable compensators which protrude from and are outwardly biased from the first vertical side surface for engaging one of the side surfaces of the guide groove in the work supporting table to maintain the second vertical side surface snugly against the other of the side surfaces of the guide groove.



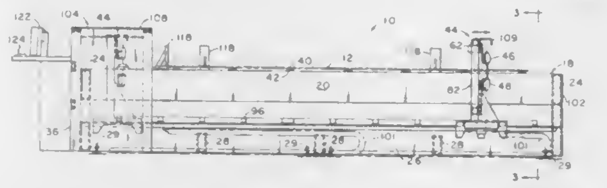
5,735,055
METHOD AND APPARATUS FOR MEASURING THE THICKNESS OF AN ARTICLE AT A PLURALITY OF POINTS

David E. Hochbein, Sarver, Pa., and Craig J. Kerney, Brea, Calif., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Apr. 23, 1996, Ser. No. 636,433

Int. Cl.^{6} G01B *5/06*

U.S. Cl. 33—554 **27 Claims**



1. A method for measuring the thickness of an article having upper and lower surfaces and substantial length and width dimensions, which method comprises:

(a) providing a table which is adapted to support the article, which table is provided with:

(i) a supporting surface upon which the article may be placed; and

(ii) a plurality of thickness references, each having upper and lower surfaces, that are spaced across the width of the table at or near a first end thereof; and

(iii) one or more openings across its length and width for access to the lower surface of the article on the table;

(b) providing a plurality of pairs of opposed sensors that are mounted at spaced intervals on a carriage that extends across the width of the table and is adapted for movement in the longitudinal direction of the table, wherein a first member of each pair of sensors is disposed above the level of the supporting surface of the table opposite a second member that is disposed therebelow;

(c) placing the article on the supporting surface of the table without covering the thickness references;

(d) positioning the carriage at a first location so that each pair of sensors mounted thereon will be in alignment with and accessible to one of said thickness references, with the first member of each such pair of sensors being disposed above one of said thickness references opposite the second member that is disposed therebelow;

(e) activating each pair of sensors to measure the thickness of the thickness reference with which it is aligned;

(f) calibrating each pair of sensors according to the thickness of the thickness reference so measured;

(g) moving the carriage, in stepwise fashion, to one or more subsequent locations along the length of the table that define points of measurement for the sensor pairs, so that at each such location the first member of each pair of sensors mounted on the carriage is disposed above the article on the table opposite the second member that is disposed therebelow and in alignment with one of said openings in the table that provides access to the lower surface of the article;

(h) activating each pair of sensors at each subsequent location to which the carriage is moved to measure the thickness of the article at such points of measurement.

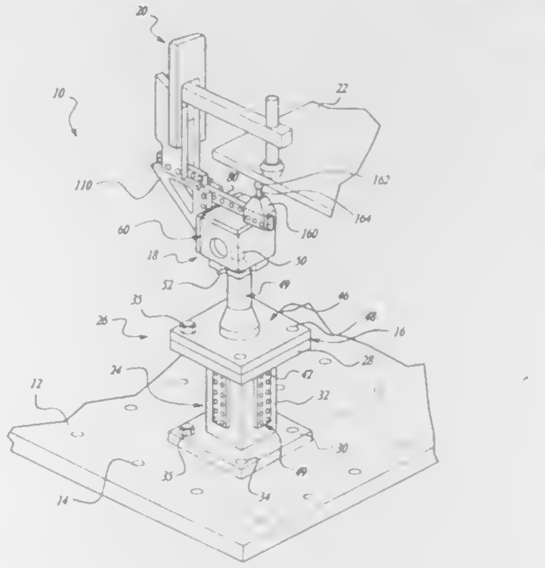
5,735,056
MODULAR TOOLING SYSTEM FOR USE WITH A GAUGING MACHINE

Gary G. Gosine, 831 Redding, Birmingham, Mich. 48009-4820

Filed Oct. 3, 1995, Ser. No. 538,236

Int. Cl.^{6} B23Q *16/00*

U.S. Cl. 33—573 **20 Claims**



1. A modular tooling system for supporting a workpiece, the modular tooling system comprising:

a mounting element including a female flange portion and a male flange portion;

at least one modular component including a male flange portion and a female flange portion;

said female flange portion of said at least one modular component being adapted to selectively receive said male flange portion of said mounting element for releasable mounting thereto; and

whereby said at least one modular component is selectively arrangeable to support the workpiece

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5,735,057
SHINGLE GAUGE

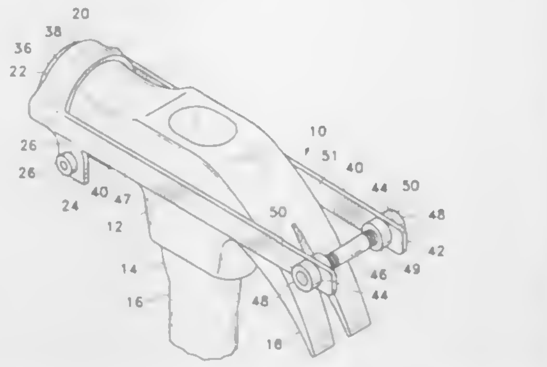
Duane H. Morford, 2716 SE. Michigan St., Topeka, Kans. 66605

Filed Jul. 29, 1996, Ser. No. 687,917

Int. Cl.^{6} G01D *21/00;* **B25F** *1/00*

U.S. Cl. 33—648 **5 Claims**

1. A shingle gauge comprising a circular collar portion adapted for fitting about the perimeter of the sides of the striking surface on a conventional hammerhead, a pair of spaced parallel side rails each having a front end connected to said circular collar portion and extending toward the rear of the hammerhead, with one said side rail lying on a left-hand side of the hammerhead and one said side rail lying on a right-hand side of the hammerhead, each said side rail having distal end, said distal ends of said side rails extending to a point not in contact with said hammerhead, means for determining a fixed distance from said front circular portion and means for securing said circular collar portion to a hammerhead.



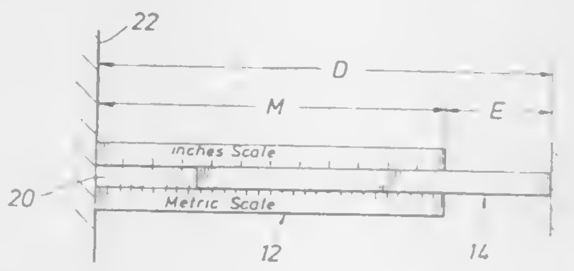
5,735,058
MEASURING RULE

Ruben Jimenez, 1038 Woolworth St., Houston, Tex. 77020

Filed Mar. 7, 1996, Ser. No. 612,249

Int. Cl.^{6} G01B *3/08*

U.S. Cl. 33—809 **8 Claims**



1. A measuring rule comprising:

a. a substantially rigid main body;

b. an extension, slidingly engaged on the main body,

c. a total length scale on the main body, indicating the sum of the length of the main body and the length of the extension protruding beyond an end of the main body and

d. a main body length scale indicating the length of a measurement along the main body

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5,735,059
DRYING CYLINDER POSITIONING FOR DRYER SECTION

Anton Schmit; Georg Kugler, both of Heidenheim, and Markus Oechsle, Bartolomae, all of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Germany

Filed May 23, 1996, Ser. No. 651,464

Claims priority, application Germany, Jun. 9, 1995, 29509461 U

Int. Cl.^{6} F26B *5/04*

U.S. Cl. 34—117 **13 Claims**

1. A dryer section of a paper making machine, the dryer section being comprised of several drying groups, wherein each of the drying groups includes at least one drying cylinder and a drying

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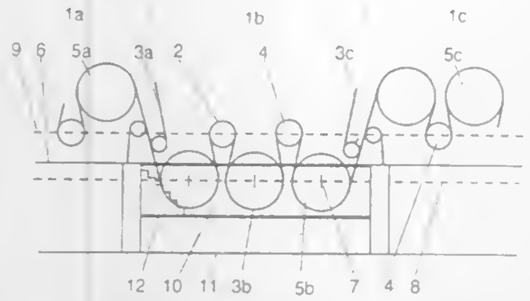


felt associated with the drying cylinder for holding the web to be dried against the drying cylinder;

at least one of the drying groups comprises a plurality of drying cylinders in succession along the path of the web through the one drying group and guide rolls for the dryer felt each located between an adjacent pair of dryers of the one dryer group;

each of the drying cylinders of the one group having a respective shaft about which the dryer rotate;

the paper machine having a main floor; the drying cylinders of the one group being so located that at least the shafts thereof are located below the floor of the paper machine.

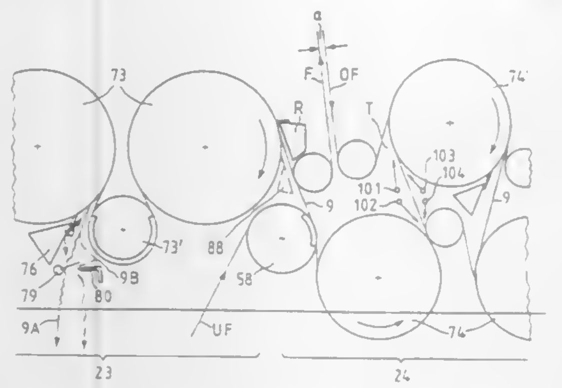
5,735,060
DRYER SECTION INCLUDING A DEVICE AND METHOD FOR TRANSFERRING A STRIP OF PAPER FROM A FIRST TREATMENT STATION TO A SECOND TREATMENT STATION IN A PAPER MACHINE

Erlfried Atzinger, Appleton, Wis.; Hans-Peter Sollinger, Heidenheim, Germany; Gerhard Kotitschke, Steinheim, Germany; Hans Jurgen Wulz; Peter Kahl, both of Heidenheim, Germany, and Wolfgang Mueller, Giengen, Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Germany

Continuation of Ser. No. 102,766, Aug. 6, 1993, abandoned, and Ser. No. 386,007, Feb. 9, 1995, which is a continuation of Ser. No. 151,255, Nov. 12, 1993, Pat. No. 5,600,897. This application Jul. 24, 1996, Ser. No. 685,712

Int. Cl.^{6} F26B *11/02*

U.S. Cl. 34—117 16 Claims



1. A method for drying a paper web in a drying section, comprising the steps of:

a) providing a plurality of successively arranged dryer groups, each group including a plurality of heatable dryer cylinders which come into contact with the paper web;

b) conducting the paper web through a first, initial region of the dryer section, in which at least one of the dryer groups is configured as a single-felt dryer group in which a single endless felt and the paper web travel together meandering alternately over the dryer cylinders and over guide or transfer rolls.

c) thereafter conducting the paper web through a second region, at an end of the dryer section, directly or indirectly downstream of the single-felt dryer group which second region includes at least one double-felt dryer group in which the paper web travels meandering alternately over upper and lower drying cylinders, with an open draw of paper web being formed between the upper and lower cylinders;

d) threading a tail of the paper web through the at least one single-felt dryer group with an automatic ropeless tail guide device; and

e) threading the tail with a further automatic ropeless tail guide device through the at least one double-felt dryer group; and

f) directing first air jets at the paper web at the open draw to transfer the paper web across the open draw, the first air jets having air flow components flowing substantially in a direction opposite to that of the paper web.

5,735,061
AUTOCLAVING PROCESS AND APPARATUS

Peter David Lawrence, Brisbane, Australia, assignor to Electrical Control Systems Pty. Ltd., Thornsland, Australia

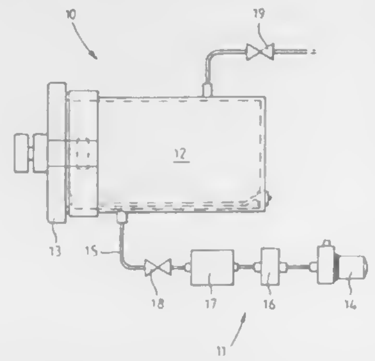
PCT No. PCT/AU94/00727, § 371 Date May 24, 1996, § 102(e) Date May 24, 1996, PCT Pub. No. WO95/14494, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 25, 1994, Ser. No. 648,200

Claims priority, application Australia, Nov. 26, 1993, PM2664

Int. Cl.^{6} F26B *3/00*

U.S. Cl. 34—493 15 Claims



10. A process for sterilizing and drying a product, said process comprising the steps of:

(i) subjecting the product in a closed system to saturated steam under pressure for a sufficient time to sterilize the product,

(ii) venting the system to the atmosphere,

(iii)subjecting the product in the closed system to a substantially dry contaminant-free gas at an elevated pressure for a period of between 10 and 60 seconds,

(iv)rapidly venting the system to the atmosphere until the closed system is substantially depressurized, and

(v) repeating steps (iii) and (iv) in a regulated cyclic sequence until the product has reached an acceptable state of dryness.

5,735,062
METHOD AND MEANS FOR TRANSPORTING, DRYING AND UNLOADING LIGHTWEIGHT PARTICULATE MATERIAL

Eugene G. Sukup, Hampton, Iowa, assignor to Sukup Manufacturing Company, Sheffield, Iowa

Filed Nov. 15, 1996, Ser. No. 751,998

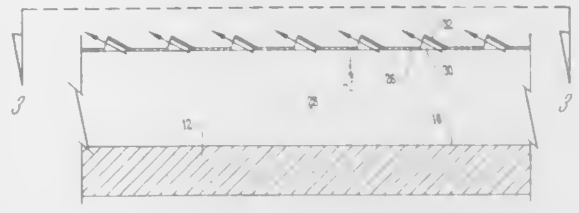
Int. Cl.^{6} F26B *3/00*

U.S. Cl. 34—503 17 Claims

1. A method of drying and conveying filled peanut hulls, comprising,

taking a compartment having forward and rearward ends, a bottom, and opposite sides,

forming a false bottom over said bottom to create an air duct therebetween,



forming air ports in said false bottom which will deflect forced air passing therethrough from said air duct in a direction generally towards said rearward end,

placing a quantity of peanut hulls in said compartment,

forcing warm air into said air duct through said air ports and into said compartment to dry said peanut hulls, and

moving said rearward end of said compartment to permit the air from said air ports to blow the dried hulls from said compartment out of said rearward end.

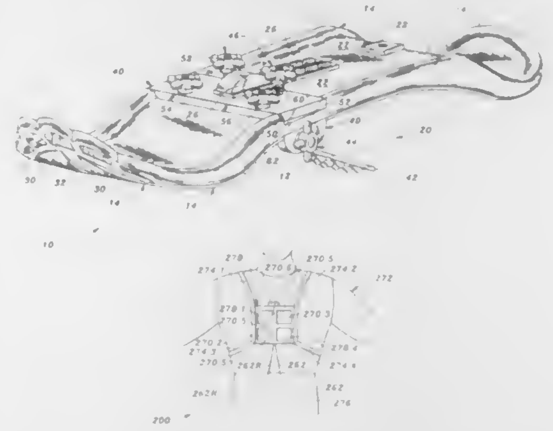
5,735,063
SKISHOES WITH BRAKES AND EXTENSION AND RETRACTION STOPS THEREFOR

John H. Mc Manus, 1758 Indian Way, Oakland, Calif. 94611

Continuation-in-part of Ser. No. 275,640, Jul. 15, 1994, Pat. No. 5,553,403. This application Jun. 14, 1996, Ser. No. 664,419

Int. Cl.^{6} A43B *5/04;* A63C *13/00;5/00*

U.S. Cl. 36—124 10 Claims



1 Skishoe apparatus including a left skishoe, a right skishoe and remote control means:

each of said skishoes comprising:

a body member having an upper face and a lower, snow-contacting face opposed thereto;

snow-engaging brake blade means pivotably mounted for pivoting about a pivot axis which extends transversely of said body member;

resiliently biasing means for pivotally biasing said brake blade means about said pivot axis and thus resiliently biasing the end of said brake blade means remote from said pivot axis downwardly from said body member;

adjustable projection stop means for adjustably limiting the downward projection of said end of said brake blade means from said body member:

adjustable retraction limit stop means for adjustably limiting the retraction of said end of said brake blade means toward said body member;

first motive means for adjusting the position of said projection limit stop means with respect to said body member; and

second motive means for adjusting the position of said retraction limit stop means with respect to said body member:

said remote control means comprising:

energizing means for selectively energizing said motive means; and

manually operable control means for controlling said energizing means.

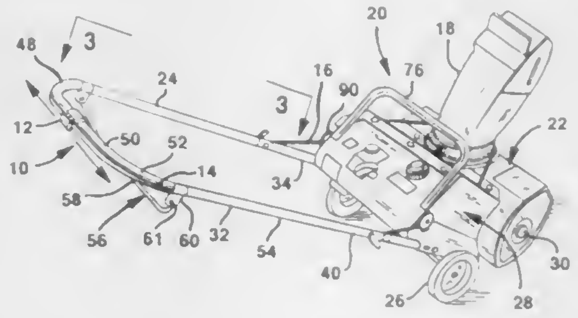
5,735,064
OPERATIONAL CONTROL MECHANISM

Trygve A. Holl, 5509 Highwood Dr., Edina, Minn. 55436

Filed Mar. 31, 1997, Ser. No. 829,092

Int. Cl.^{6} E01H *5/09*

U.S. Cl. 37—260 21 Claims



1. A handle slide control in combination with an implement, with the combination comprising:

a) the implement which comprises a frame, a handle engaged with the frame, a set of wheels engaged with the frame for permitting the implement to ride over the ground, a power unit on the frame, an apparatus on the frame for interacting with matter adjacent the ground and being driven by the power unit, and control components on at least one of the power unit and apparatus for controlling features thereof, with the handle being oriented in a transverse direction to a forwardly direction of travel of the implement; and

b) the handle slide control which comprises a knob slideably engaged on the handle and a flexible cable engaged to and between the knob and one of the control components, with the knob being slideable in the transverse direction such that a cable portion engaged to the knob is moved in the transverse direction to in turn move a cable portion engaged to the control component.

5,735,065
AREA LIMITING EXCAVATION CONTROL SYSTEM FOR CONSTRUCTION MACHINE

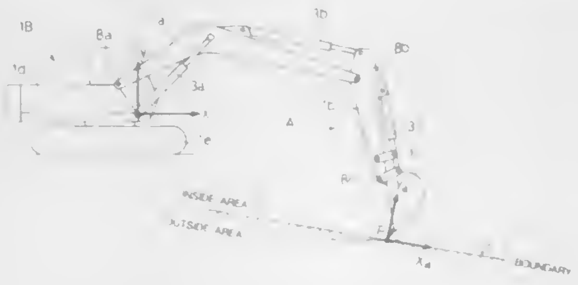
Eiji Yamagata, Tsuchiura; Kazuo Fujishima, Ibaraki-ken; Hiroyuki Adachi, Tsuchiura; Hiroshi Watanabe, Ushiku, and Masakazu Haga, Ibaraki-ken, all of Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

Filed Jun. 5, 1996, Ser. No. 658,545

Claims priority, application Japan, Jun. 9, 1995, 7-142985

Int. Cl.^{6} E02F *5/02*

U.S. Cl. 37—348 24 Claims



1. An area limiting excavation control system for a construction machine comprising:

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- a multi-articulated front device constituted by a plurality of front elements coupled to each other in a relatively rotatable manner;
- a plurality of hydraulic actuators for driving said plurality of front elements;
- a plurality of input means for instructing motions of said plurality of front elements, and
- a plurality of hydraulic control valves driven upon operation of said plurality of input means for controlling respective flow rates of a hydraulic fluid supplied to said plurality of hydraulic actuators, wherein said control system further comprises:
  - area setting means for setting an area to be excavated by said front device;
  - first detecting means for detecting status variables with regard to the position and posture of said front device,
  - first calculating means for calculating the position and posture of said front device based on signals from said first detecting means;
  - second calculating means for calculating the speed of said front device by driving at least a first particular actuator associated with a first particular front element among said plurality of hydraulic actuators;
  - third calculating means for calculating, based on the values calculated by said first and second calculating means, a limit value of the speed of said front device by driving at least a second particular actuator associated with a second particular front element among said plurality of hydraulic actuators so that when said front device is inside said set area to be excavated near the boundary thereof, the moving speed of said front device in the direction toward the boundary of said set area to be excavated is restricted and when said front device is operated to move beyond the boundary of said set area to be excavated, said front device is allowed to move in the direction along the boundary of said set area to be excavated; and
  - signal modifying means for modifying an operation signal from said input means associated with said second particular actuator so that the speed of said front device by driving of said second particular actuator will not exceed said limit value.

5,735,066
WORKING MACHINE CONTROL DEVICE FOR CONSTRUCTION MACHINERY

Mamoru Tochizawa, Takaoka, and Atsushi Nagira, Hiratsuka, both of Japan, assignors to Komatsu Ltd., Japan

PCT No. PCT/JP94/02254, § 371 Date Jun. 19, 1996, § 102(e) Date Jun. 19, 1996, PCT Pub. No. WO95/18272, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 27, 1994, Ser. No. 666,347

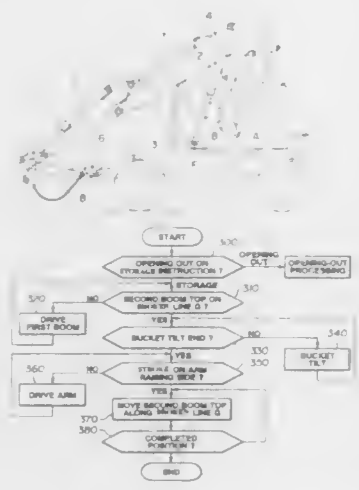
Claims priority, application Japan, Dec. 28, 1993, 5-337462

Int. Cl.⁶ E02F *5/02* G06F *7/70*

U.S. Cl. 37—348 **4 Claims**

1 A working machine control device for construction machinery, the construction machinery having a first boom rotatably mounted on a vehicle frame, a second boom rotatably mounted on the first boom, a first boom cylinder connecting the vehicle frame and the second boom, and a second boom cylinder connecting the second boom and the first boom, characterized in that the working machine control device comprises

- coordinate conversion means which subjects a working machine leading end target value to coordinate conversion to target angles for the first and second booms, and
- drive control means which determines a target cylinder length for the first boom cylinder from the target angles for the first and second booms obtained by the coordinate conversion, and drives the first boom cylinder according to the target cylinder length.



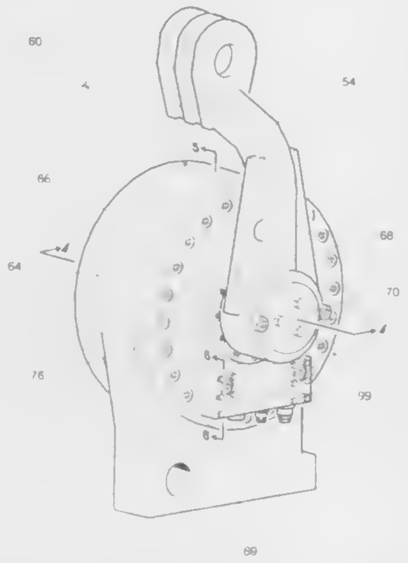
5,735,067
SNUBBER FOR EXCAVATOR BUCKET DOOR

Reggald Emory Isley; Robert Myles Buchan, both of Alberta, and Douglas Calvin Gätter, British Columbia, all of Canada, assignors to Risley Enterprises Ltd., Grand Prairie, Canada

Filed Apr. 26, 1996, Ser. No. 639,219

Int. Cl.⁶ F16F *9/14*

U.S. Cl. 37—444 **17 Claims**



1 A snubber for an excavator bucket door, said snubber comprising:

- (a) a housing enclosing a cavity, said cavity having end walls and an outer wall;
- (b) a shaft pivotally mounted to said housing, passing axially through said cavity, and extending through at least one of said end walls,
- (c) a wiper arm on said shaft in said cavity for rotation with said shaft, said wiper arm having a leading side said wiper arm in slidable and sealing engagement with said end walls and said outer wall;
- (d) a sealing surface on said shaft;
- (e) a dam member extending from said outer wall to said shaft sealing surface between said end walls, said dam and said wiper arm dividing said cavity into first and second sealed volumes, with said leading side of said wiper arm in said first sealed volume;

- (f) a flow restrictor having one end in fluid contact with said first sealed volume and another end in fluid contact with said second sealed volume;
- (g) a one way valve having an inlet in fluid contact with said second sealed volume and an outlet in fluid contact with said first sealed volume
- (h) a fluid in said first and second sealed volumes, wherein rotation of said shaft in a first direction increases pressure in said first sealed volume and causes said fluid to flow through said flow restrictor and rotation of said shaft in a second direction opposite to said first direction increases pressure in said second sealed volume and causes said fluid to flow through said one way valve.

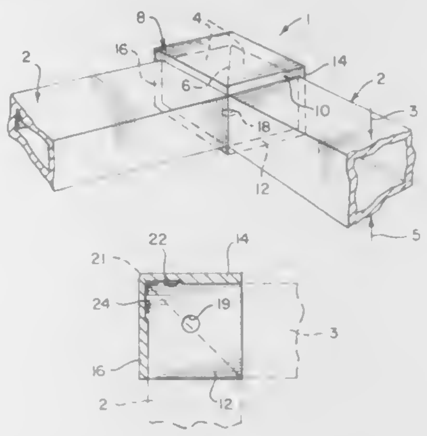
5,735,068
PICTURE FRAMES

Vazgen John Houssian, Union City, N.J., assignor to Esselte Pendaflex Corporation, Paramus, N.J.

Continuation-in-part of Ser. No. 479,116, Jun. 7, 1995, abandoned. This application Apr. 26, 1996, Ser. No. 638,692

Int. Cl.⁶ B44C *5/02*

U.S. Cl. 40—784 **5 Claims**



1. A one piece corner unit for overlaying a mitred joint of a picture frame composed of mitred frame sections, said corner unit comprising opposing front and rear walls connected by two adjacent side walls, said front and rear walls being adapted to overlay said front and rear faces of the frame, respectively, said front wall being shaped to overlay and cover substantially the entire mitre joint and said side walls being adapted to overlay a side face of the frame, said side walls having inner adjacent and adjoining surfaces, each inner surface having a recess with a recess base defined therein, said recesses extending from the junction of the side walls so that a gap exists between said recess bases and said inner surfaces of said side walls in the regions of said recesses, at least said rear wall of said corner unit having means associated therewith for securing said unit to the frame.

5,735,069
FRAME ASSEMBLY

Robert Edwin Gearing, Cape Town, South Africa, assignor to Rob Gearing & Associates (Proprietary) Ltd., Cape Town, South Africa

Filed Aug. 11, 1995, Ser. No. 514,408

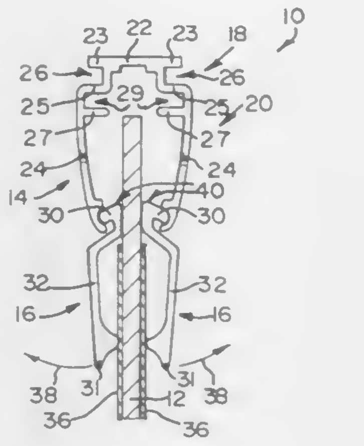
Claims priority, application South Africa, Aug. 12, 1994, 94/6091

Int. Cl.⁶ G09F *1/12*

U.S. Cl. 40—793 **14 Claims**

1. A frame assembly which includes a backing board, and

- a plurality of elongate frame members positioned end-to-end around at least part of the periphery of the backing board each frame member including:



  - an edge member having a pair of limbs positioned on opposite sides of an edge portion of the backing board, and
  - at least two clamp elements which are positioned between the limbs of the associated edge member and opposite sides of the backing board, each clamp element having a first edge portion which is an interference fit between a complementary edge portion of one of the limbs of the edge member and the backing board so that it urges the limbs of the edge member apart to induce a stress in the edge member which in turn urges the clamp element towards the backing board, the first edge portion of the clamp element and the complementary edge portion of the edge member defining complementary retaining formations which serve to retain the first edge portion of the clamp element captive between the complementary edge portion of the edge member and the backing board and which permit displacement of the clamp element between a closed position in which an edge portion of a sheet can be clamped between the clamp element and the backing board, and an open position in which an edge portion of a said sheet can be positioned or removed from between the clamp element and the backing board, at least one clamp element having at least one gripping formation spaced from its first edge portion and configured to facilitate displacement of the clamp element from its closed position towards its open position, the gripping formation being in the form of a lip at that edge of the clamp element remote from the edge member, the lip being clear of the backing board even when the clamp element is in its closed position

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5,735,070
ILLUMINATED GUN SIGHT AND LOW AMMUNITION WARNING ASSEMBLY FOR FIREARMS

Eduardo C. Vasquez, 3710 NW. S. River Dr., Miami, Fla. 33142, and Michael S. Critchley, 354 NE. 126 St., Miami, Fla. 33161

Filed Mar. 21, 1996, Ser. No. 621,733

Int. Cl.⁶ F41A *9/62* F41G *1/34*

U.S. Cl. 42—1.02 **55 Claims**

1 An assembly for use on a weapon of the type adapted to contain and discharge a load of ammunition and having a central longitudinal axis extending from a proximal and zone, including a proximal end, to a distal end zone, and a barrel extending along the central axis between the proximal and zone and distal end zone, said assembly comprising,

- a front sight on said distal end zone,
- a rear sight on said proximal end zone,
- light emitting means an said front and rear sights for radiating light in a direction towards said proximal end in substantially parallel relation to said central longitudinal axis,
- light generating means for providing light to said light emitting means upon application of electric current thereto.

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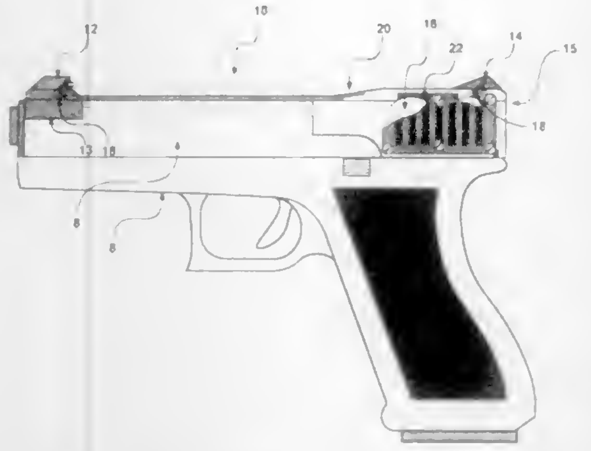

modifying means for producing substantially uniform light intensity throughout the visible light radiating area at said light emitting means,

means for adjusting the position of at least one of said front and rear sights comprising detachable aperture means wherein said aperture is of predetermined size and shape to permit passage from said light emitting means therethrough to produce a distinct luminous reference shape,

light adjusting means responsive to ambient light conditions for adjusting the intensity of light radiating from said light emmiting means, so that the light intensity of visible light radiating from said light emmiting means increases as the intensity of the ambient light condition Increases and, alternatively, so that the light intensity of the visible light radiating from said light emitting means decreases as the intensity of the ambient light condition decreases,

a low ammunition warning system comprising
  tracking means for tracking depletion of ammunition from said load of ammunition,
  detecting means for detecting depletion of ammunition from said load of ammunition, and
  signal means responsive to said tracking means upon ammunition remaining in said load reaching a predetermined low amount for indicating a low ammunition status

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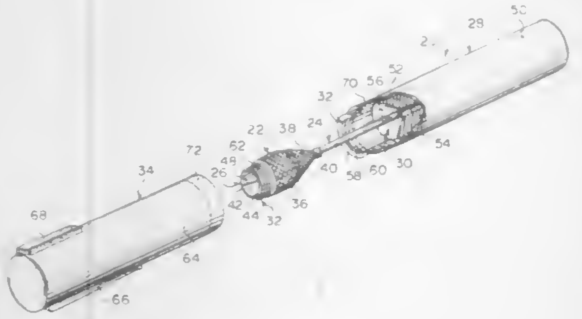
5,735,071
FISHING ACCESSORY

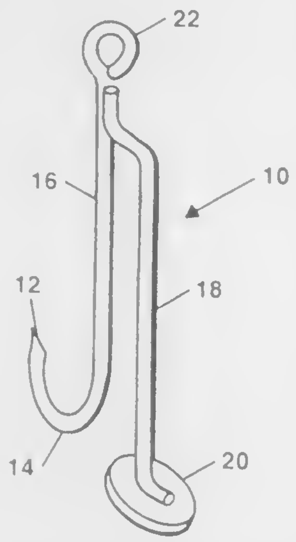
David J. Gouldie, and Deborah Gouldie, both of 124 Crabapple La., Franklin Park, N.J. 08823-1409
Filed Apr. 22, 1996, Ser. No. 635,561
Int. Cl.^{6} A01K *97/00*
U.S. Cl. 43—4 17 Claims



1 A fishing accessory which comprises.
a) a tool assembly having a fishhook baiter on one end and a fishing line cutter on an opposite end;
b) a pen shaped main body.
c) means in said pen shaped main body for receiving said fishhook baiter of said tool assembly, so that said fishing line cutter can be in position for use.
d) means on said pen shaped main body for accepting said fishing line cutter of said tool assembly, so that said fishhook baiter can be in position for use;
e) a protective cap to engage with said pen shaped main body, when said fishing line cutter of said tool assembly is in position for use, so that said tool assembly can be safely carried and stored therein; and
f) a fishhook sharpening stone connected to said protective cap, so that a dull fishhook barb can be sharpened.

5,735,072
FISH HOOK CONSTRUCTION

Russel P. Cook, Wellesley; Robert Brackett, East Sandwich, and Carl B. Malcolm, III, Natick, all of Mass., assignors to Physh, Inc., Wellesley, Mass.
Filed Oct. 3, 1995, Ser. No. 538,749
Int. Cl.^{6} A01K *83/00*
U.S. Cl. 43—43.16 5 Claims

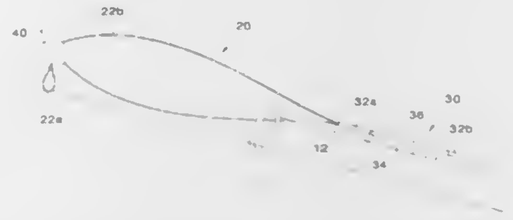


1. A fish hook construction which comprises means for attaching a line to said construction, a first hook shank, a curved hook elbow attached to said first hook shank and extending from said first hook shank in a direction toward said means for attaching, a hook barb positioned at one end of said elbow, a second shank attached to said first shank or to said means for attaching a line, at least one wing having a surface which provides hydrodynamic lift and having a first portion rigidly secured to said second shank positioned between about 5 and about 85 degrees from a line perpendicular to a longitudinal axis of said first shank in a direction toward said means for attaching a line, a first plane of the at least one wing being substantially perpendicular to a second plane defined by the first shank and hook elbow, said first shank being spaced apart from said second shank a distance to permit bait to be positioned on said first shank.

5,735,073
FISH BITE INDICATOR FOR MOUNTING ON FISHING ROD

Donald J. Kuhlman, 15570 Comstock St., Grand Haven, Mich. 49417
Filed Apr. 3, 1996, Ser. No. 627,883
Int. Cl.^{6} A01K *97/12*
U.S. Cl. 43—17 3 Claims

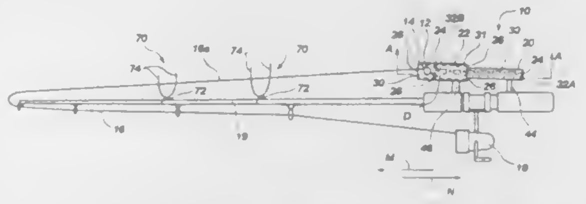
1 A spring bobber for use with a fishing rod comprising: a fish bite sensing member consisting of a wire having an indicator mounted thereon and having a distal end portion forming a loop through which a fishing line passes, a central flexible loop portion lying in a plane perpendicular to the plane of said distal end



portion loop and having a diameter substantially greater than the diameter of said distal end portion loop, and parallel terminal end portions; a clip for securing said sensing member to a fishing rod, said clip comprising a generally U-shaped member having a tab member at each end thereof engaging said parallel terminal end portions and a plurality of serrations intermediate said tab members thereby securing said spring bobber to said fishing rod.

5,735,074
APPARATUS AND METHOD FOR CASTING FLEXIBLE LINE

Russell T. Stauffer, 625 E. Villager La., Midvale, Utah 84047
Filed Nov. 1, 1995, Ser. No. 551,570
Int. Cl.^{6} A01K *91/02*
U.S. Cl. 43—19 24 Claims

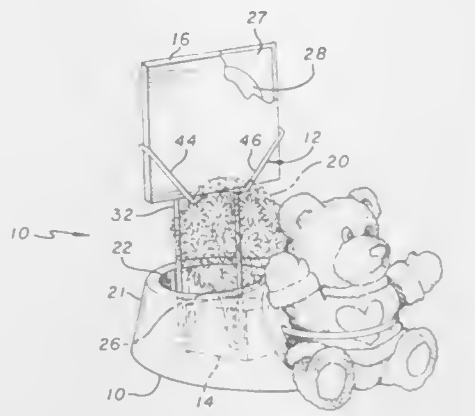


1. A casting apparatus for casting a flexible line, wherein said flexible line is disposed in a line feeding source and includes an end, said apparatus comprising:
  a first, stationary elongate hollow member having an open distal end;
  a second elongate hollow member having an open proximal end telescopically disposed around the open end of the first hollow member such that said hollow ends comprise telescopically overlapping sections and such that said second hollow member is telescopically slidable relative to said first hollow member forwardly and backwardly, respectively;
  an open container disposed on the second hollow member for holding the end of the flexible line therein; and
  spring force means extending through the telescopically overlapping sections of the hollow members for thrusting the second hollow member forwardly and launching the end of the flexible line from the open container;
  wherein said second hollow member circumscribes the first hollow member such that the second hollow member resides externally around said first hollow member and such that the open container resides externally of said first, stationary hollow member for any telescopic position of the second hollow member relative to said first hollow member.

5,735,075
FLORAL ARRANGEMENT WITH GIFT BOX SUPPORT

Bryan Honkawa, Marina del Rey, and Karlin S. Wong, La Habra Heights, both of Calif., assignors to Roll International Corporation, Los Angeles, Calif.
Filed Jul. 19, 1996, Ser. No. 685,450
Int. Cl.^{6} A01G *5/00;* **A47G** *7/06*
U.S. Cl. 47—41.12 14 Claims

1 A florist's gift box support intended to display a generally rectangular gift box in proximity to a floral bouquet mounted in an open mouthed container having floral foam for receiving the stalks of the bouquet. comprising:



a unitary, bent wire cradle having,
  first and second back portions extending laterally in generally opposite directions from a vertical center axis,
  first and second edge portions projecting in a forward direction from each of said back portions,
  a front portion extending between the forward end of said edge portions, at least portions of said front portion being downwardly inclined relative to said central vertical axis to a predetermined position spaced below the bottom of the box,
  a bottom portion positioned to underlie and support the bottom of the box, thereby permitting boxes of varying thickness relative to the forward projection of said cradle to be accommodated; and
at least one vertical leg integral with said cradle extending downwardly to pierce and be supported by the floral foam, thereby supporting the gift box in proximity to the bouquet

13 A method of assembling a floral kit having a rectangular gift box, a support with a unitary bent wire cradle, and a container having an opening for accepting the stalks of a bouquet of flowers therein, the gift box having an interior chamber for enclosing a gift, the method comprising the steps of
  mounting the cradle of the support adjacent to the opening of the container, the cradle including a bottom portion and adjacent side edge portions cooperatively defining a pocket with a rectangular opening of a predetermined size;
  placing the rectangular gift box at least partially within the pocket of the cradle;
  placing the stalks of the bouquet of flowers through the opening of the container; and
  securing the stalks of the bouquet of flowers within the container.

5,735,076
METHOD FOR PRODUCING HIGH QUALITY CROP

Masaaki Masui, Chiba; Arihito Fujiwara, Ibaraki; Takanori Anazawa, and Yasuko Watanabe, both of Chiba, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan
Continuation of Ser. No. 390,315, Feb. 17, 1995, abandoned. This application Oct. 23, 1996, Ser. No. 735,568
Int. Cl.^{6} A01G *25/00*
U.S. Cl. 47—58 20 Claims

1 A method for producing a crop, which comprises irrigating soil in which said crop is grown with oxygen-depleted water having a dissolved oxygen concentration of from 0.01 to 5 ppm for

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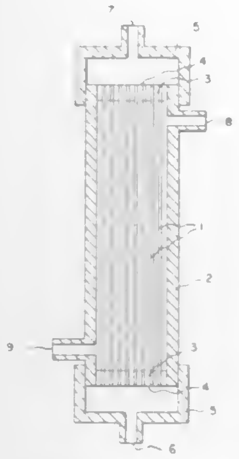


a time sufficient to exterminate pests in said soil, and then interrupting said irrigating step so that the oxygen content in the soil is at least partially restored.

5,735,077
CORN HYBRID EVALUATION

Thomas C. Warfield, Jr., 2276 Valley View Pl., Decatur, Ill. 62522

Filed Dec. 12, 1996, Ser. No. 764,520

Int. Cl.^{6} A01B *79/00;* **A01C** *1/00;* **A01H** *1/04*

U.S. Cl. 47—58 **9 Claims**

1. A method of evaluating a corn hybrid, the method comprising:
(a) obtaining a quantity of kernels of the corn hybrid to be evaluated;
(b) planting the kernels in a plurality of soil pots under conditions that are uniform in terms of soil pot size, soil composition, number and spacing of the kernels in each pot, and depth and orientation of the kernels in the soil;
(c) exposing the kernels to germinating and growing conditions that are uniform and optimal in terms of sunlight, ventilation, temperature, and soil moisture level in an enclosed area for a sufficient period of time to enable the kernels to develop into seedlings;
(d) selecting the largest seedling in each pot and removing the others;
(e) exposing the selected seedlings to growing conditions that are uniform in terms of sunlight, ventilation, temperature, and soil moisture level for a sufficient period of time to enable the seedlings to grow;
(f) measuring a phenotypic trait of the plants; and
(g) comparing the measured phenotypic trait to the corresponding phenotypic trait of other corn hybrids.

5,735,078
METHOD OF PRODUCING INTERGENERIC OR INTERSPECIFIC HYBRIDS BY ION BEAM IRRADIATION

Hiroshi Watanabe; Atsushi Tanaka, both of Gunma-ken; Shigemitsu Tano, Chiba-ken; Masayoshi Inoue, Kyoto; Takao Yamashita, Osaka, and Akio Nakamura, Shiga-ken, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Jan. 27, 1997, Ser. No. 790,733

Claims priority, application Japan, Feb. 19, 1996, 8-030435

Int. Cl.^{6} A01B *79/00;* **A01C** *1/00;* **A01G** *7/04;* **A01H** *1/02*

U.S. Cl. 47—58 **1 Claim**

1. A method of producing an integral interspecific or intergenetic hybrid into which a gene providing resistance to pests and insects has been introduced, said method comprising crossing tobacco cultivar with wild tobacco species after irradiating pollen or anther of the tobacco cultivar with an ion beam in a dose range of between about 1 and 2000 Gy of an ion beam of H, He, C, N, O, Ne, Ar, Kr, or Xe which has an LET of between about 5 and 10,000 Kev/μm.

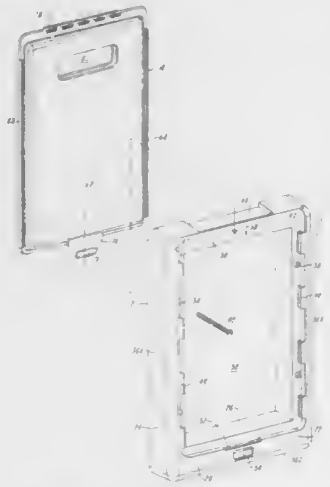
5,735,079
PET DOOR ASSEMBLY

George N. Davlantes, 21457 Iglesia Dr., Woodlawn Hills, Calif. 91364

Continuation-in-part of Ser. No. 595,231, Feb. 1, 1996, and Ser. No. 595,275, Feb. 1, 1996, Pat. No. 5,657,592. This application Apr. 22, 1996, Ser. No. 635,744

Int. Cl.^{6} E05D *15/48;* **E05F** *11/52*

U.S. Cl. 49—169 **16 Claims**



1. A pet door assembly for insertion within a hole formed in a wall of an enclosure, comprising
a pair of exterior frames for mounting to opposite sides of the wall and about the hole, each frame defining an opening for allowing passage of a pet, each said exterior frame including a rear surface having a plurality of fastener sleeves extending outwardly therefrom, at least one of said sleeves having a longitudinally extending slot formed therein, and
a central inner frame located between said pair of exterior frames for insertion within the hole, said inner frame defining an opening generally aligned with said openings in said exterior frames, said central frame having at least one fastener bracket formed along opposed edges of said inner frame, at least one of said brackets including a fastener-receiving aperture having a key portion formed therein, said key portion being configured to seat within said longitudinal slot formed within said fastener sleeve to prevent, when assembled, movement of said inner frame relative to one of said exterior frames.

5,735,080
PERFECTED MOTION DEVICE TO OPEN AND CLOSE A WARDROBE DOOR

Modesto Pratolongo, 11, Via Ravizza, Milano, Italy

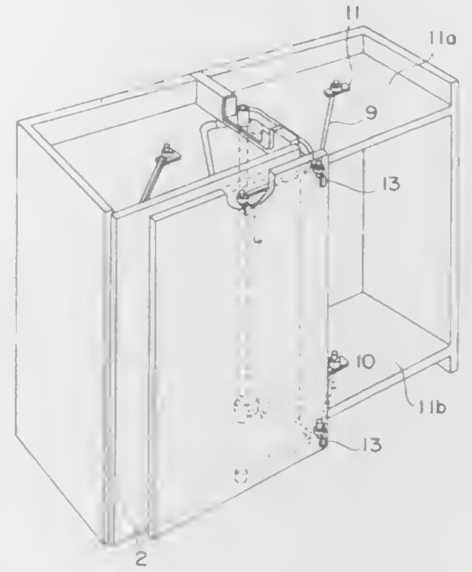
Filed May 6, 1996, Ser. No. 643,588

Claims priority, application Italy, May 9, 1995, MI95A0920

Int. Cl.^{6} E05D *15/10*

U.S. Cl. 49—209 **8 Claims**

1. A wardrobe having outer and inner walls and doors, said wardrobe further having a device for opening and closing said doors, said device comprising:
a rigid bearing staff which is substantially C-shaped, having a central element which is hinged along an axis passing within a thickness of one of said inner and outer walls of the wardrobe, said rigid bearing staff having two arms, each arm having a free end which is rotatingly linked to a pin anchored to an end of the rigid bearing staff,



said device further comprising two levers which are parallel to said arms and which are in a same plane as said arms, said levers having first and second ends, said levers having their first ends rotatingly linked to support pins on one of said wardrobe doors, and having their second ends rotatingly linked to one of said inner walls of the wardrobe,
thereby forming a functional design of two articulated parallelogram hinges which are superimposed and distanced, rigidly and directly linked and invisible inside and on all external sides of said wardrobe.

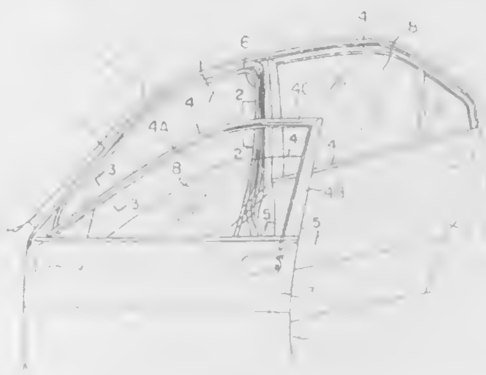
5,735,081
SIDE DOOR FOR AUTOMOBILE

Takashi Yamanaka, No. 1693-11, Kamisaki,Kisai-machi, Kitasaitama-gun, Saitama-ken, and Takuji Shimizu, No. 437-11, Kami, Kamisato-machi, Kodama-gun, Saitama-ken, both of Japan

Division of Ser. No. 435,390, May 5, 1995, abandoned. This application Nov. 13, 1996, Ser. No. 748,276.

Int. Cl.^{6} E06B *3/00*

U.S. Cl. 49—506 **1 Claim**



1. The method of forming a side door for an automobile having a lengthwise and a breadthwise direction, said side door having an upper sash part, made up of a combined, unitary front pillar and roof portion, and a center pillar portion, and a lower, door panel part, said method comprising roll-forming said front pillar and roof portion from a single sheet of metal to a box shape in transverse cross section, tapering said box shape in breadth from a first, lower end toward a second, upper end and, in the same roll-forming operation forming in said single sheet a glass-run holder channel and a weather-strip holder channel, roll-forming said center pillar portion from a single sheet of metal to a box shape in transverse cross-section, tapering said box shape in breadth from a first, lower end toward a second end, shaping the cross section of said center pillar portion second end complementarily to the cross-section of said front pillar and roof portion second end, and in the same roll-forming operation, forming in said single sheet a glass-run holder channel and a weatherstrip holder channel; joining said second ends of said front pillar and roof portion and said center pillar portion, and joining to said lower, door panel part said first end portions of said front pillar and roof portion and of said center pillar portion

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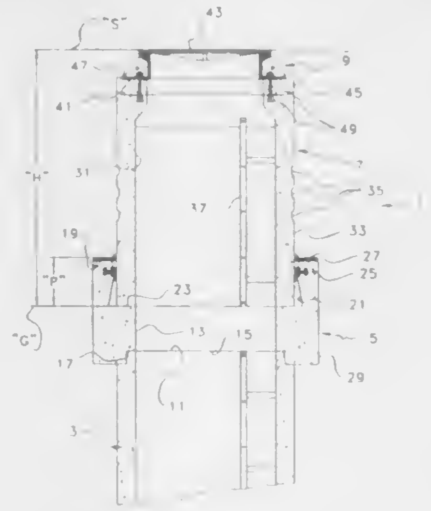
5,735,082
CHIMNEY ACCESS WITH FLOATING HEAD

Maurice Lecuyer, St-Rémi; Réjean Tremblay, Candiac; Pierre Bergeron, Montréal; Antonio Tavares, Candiac; Raymond LeBlanc, Châteauguay, and Robert Tallard, Longueuil, all of Canada, assignors to Léeuyer et fils Ltée, St-Rémi, Canada

Filed Aug. 12, 1996, Ser. No. 689,610

Int. Cl.^{6} E02D *29/14*

U.S. Cl. 52—20 **11 Claims**



1. A chimney access comprising, in combination:
(a) a chimney provided with an upper end of a given shape and size defining an opening;
(b) an adaptor provided with a first through-hole having a vertical axis and with a lower face of a shape and size corresponding to the shape and size of the upper end of the chimney, said lower face lying onto said upper end of said chimney, said adaptor being also provided with an upper face and with a countersink hole of a size larger than the through-hole, said countersink hole extending coaxially with respect to said through-hole at a given depth from the upper face of said adaptor and defining within said adaptor a supporting flange extending above the lower face thereof, said adaptor thus having an upper portion defining a sleeve;
(c) a floating head provided with a second through-hole coaxial with the axis of said adaptor, said floating head having a lower portion provided with an outer lateral surface having a shape and size selected to fit into said countersink hole and to slide within the sleeve defined by said adaptor, said floating head having an upper portion terminating in an upper surface,
(d) a cover-supporting frame and a cover fixed onto the upper surface of the floating head, and
(e) flexible sealing means extending in the upper portion of the adaptor between said upper portion of the adaptor and an adjacent lower portion of the floating head

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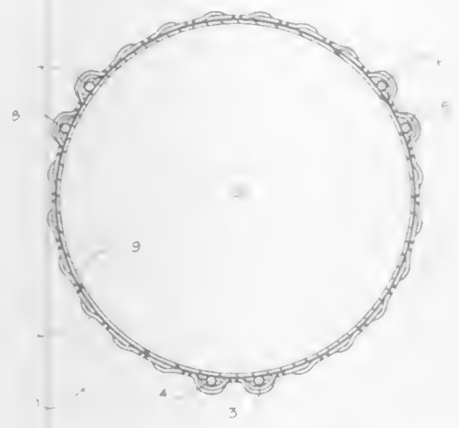
5,735,083
BRAIDED AIRBEAM STRUCTURE

Glen J. Brown, 458 Thayer Rd., Santa Cruz, Calif. 95060, and Garrett C. Sharpless, 9 Wood Rd., Sherborn, Mass. 01770
Filed Apr. 21, 1995, Ser. No. 426,398
Int. Cl.^{6} E04C *3/02;* **B60C** *29/00;* **E04H** *15/20*
U.S. Cl. 52—2.13 **7 Claims**

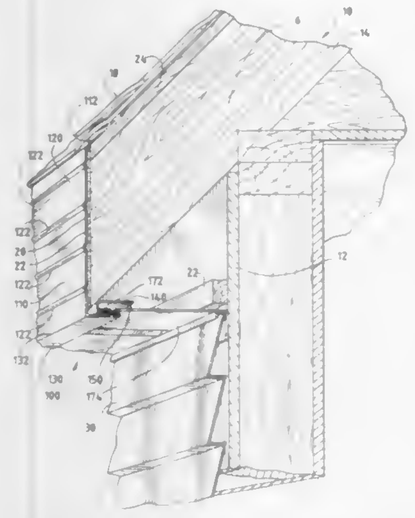


1. An inflated tube, said tube being made up of a tube wall, said tube having an axis, said axis defined by the longitudinal center of said tube, comprising:

braided fibers defining the surface of said tube, said fibers following continuous left and right spiral paths over the length of said tube wall; axial fibers located along said tube wall, said axial fibers following paths parallel to said axis, said axial fibers being distributed at intervals around the circumference of said tube wall; pressurizing gas inflating said tube; and retention means for said gas.

5,735,084
FASCIA-SOFFIT COMBINATION

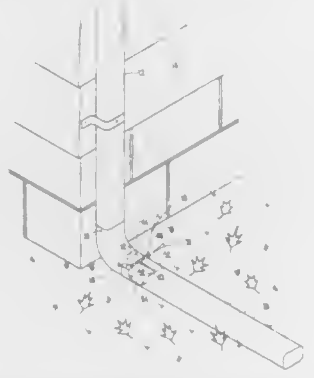
Gregory R. Zaccagni, Aurora, and Richard J. Zaccagni, Downers Grove, both of Ill., assignors to ZMC Inc., Addison, Ill.
Continuation-in-part of Ser. No. 304,277, Sep. 12, 1994, Pat. No. 5,537,785, which is a continuation-in-part of Ser. No. 238,657, May 5, 1994, abandoned. This application Apr. 17, 1996, Ser. No. 633,478
Int. Cl.^{6} E04D *13/064*
U.S. Cl. 52—11 **6 Claims**



1. For trimming a building structure, a combination comprising a fascia member and a soffit member, the fascia member being elongate and having a generally vertical panel and a generally horizontal flange projecting from the generally vertical panel at a lower corner defined by a lower edge of the generally vertical panel and by a proximal edge of the generally horizontal flange, the generally horizontal flange having a distal edge and having a locking lip extending along the distal edge, the soffit member being elongate and having an edge portion having a locking lip engagable with the locking lip extending therealong, the combination further comprising a channel member extending along the generally horizontal flange of the fascia member and confining the side portion of the soffit member within the channel member, when the locking lip of the edge portion of the soffit member is engaged with the locking lip extending therealong, so as to interlock the facia member and the soffit member, wherein the fascia member and the channel member are two separate pieces, wherein the locking lip extending along the generally horizontal flange has a hooked portion, which hooks toward the generally vertical panel of the fascia member and which terminates at an edge and wherein the channel member has a lower wall resting on the generally horizontal flange and having a distal edge portion fittable under the edge terminating the hooked portion of the locking lip extending therealong, an inner wall projecting upwardly from the lower wall of the channel member, and an upper wall projecting from the inner wall of the channel member, away from the generally vertical panel, in a generally horizontal direction.

5,735,085
HINGED DOWNSPOUT

Dennis Denooy, P.O. Box 263, Montezuma, Iowa 50171
Filed Apr. 26, 1996, Ser. No. 638,548
Int. Cl.^{6} E04D *13/08;* **F16L** *27/00*
U.S. Cl. 52—16 **13 Claims**



1. A hinged downspout assembly comprising,

a vertical downspout section having an elbow section at its lower end, said elbow section having inlet and outlet ends, and a horizontal downspout section having an inlet end telescopically receiving the outlet end of said elbow section and pivotally connected to said elbow section, said horizontal downspout section having top and bottom walls and opposite sidewalls, said top wall terminating rearwardly of the inlet end of said horizontal downspout section to form a notched out opening in said top wall,

a hinge pivotally interconnecting said elbow and horizontal downspout sections, said hinge having a pair of half sections pivotally interconnected, each of said half sections including planar top portions, one of said hinge half sections fastened to said elbow and the other hinge half section being fastened to the top wall of said horizontal downspout section,

said horizontal downspout section being pivotal from a horizontal position to an over center vertical position,

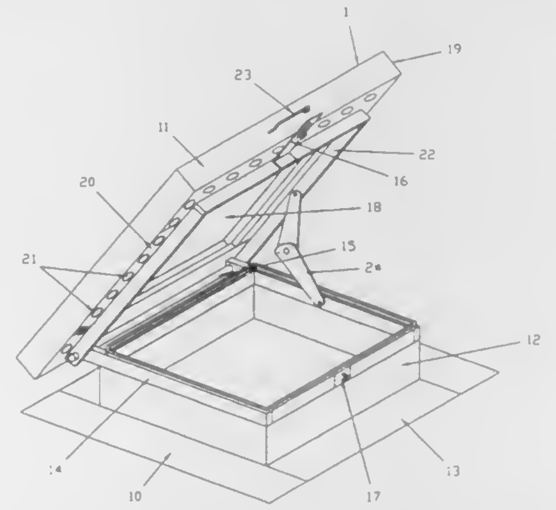
said hinge being positioned over said notched out opening in said top wall when said horizontal spout section is in said horizontal position,

one of said planar top portions including a pair of spaced apart sleeves, the top portion of the other half section including a single sleeve positioned between said pair of sleeves, and a bolt extending through said pair of sleeves and said single sleeve, and

said one planar top portion including inner and outer ends and planar half portions spaced apart at said inner end whereby operation of said bolt allows drawing said spaced planar half portions towards each other and said spaced apart sleeves into frictional engagement with opposite ends of said single sleeve to hold a horizontal downspout section in a desired position.

5,735,086
COMBINATION ROOF LOUVER AND ATTIC ACCESS HATCH

Reuben Monrad Fordahl, Box 84, Parkers Prairie, Minn. 56361
Filed Aug. 14, 1995, Ser. No. 514,962
Int. Cl.^{6} E04B *7/18;* **E04D** *13/03,* **F24F** *7/02*
U.S. Cl. 52—19 **12 Claims**



1. A combination roof louver and attic access hatch apparatus for use on an upper surface of a roof of a building structure, said roof being covered with a roofing material, said apparatus being for use in ventilation of an attic and access for entry of a person into an attic, said apparatus comprising:

a base including a frame defining an aperture for allowing entry of a person into an attic of a building structure from an upper surface of a roof; and

a cover hingedly attached to said frame for providing a pivoting motion to open and close said apparatus, said cover including a lid;

a fascia extending perimetrically around said lid, said fascia being attached to and generally oriented perpendicularly with respect to said lid; and

a soffit extending perimetrically around said fascia, said soffit being attached to and generally oriented perpendicularly with respect to said fascia, and said soffit including a plurality of ventilating apertures for allowing air which has entered said apparatus from an attic to be exhausted to a location outside said attic.

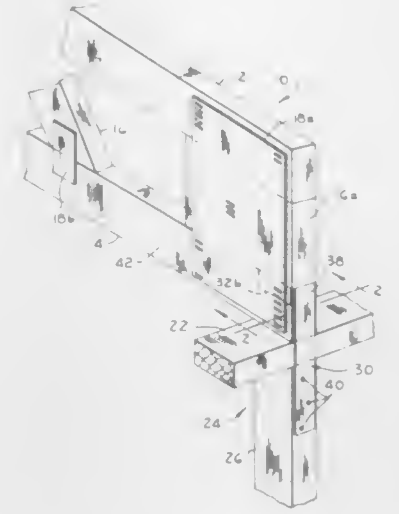
5,735,087
TRUSS WITH INTEGRAL HOLD DOWN STRAP

Marc Olden, Pacific, Mo., assignor to MiTek Holdings, Inc., Wilmington, Del.
Filed Jul. 19, 1996, Ser. No. 684,489
Int. Cl.^{6} E04B *7/04*
U.S. Cl. 52—92.2 **22 Claims**

1. A primary structural component such as a truss for use with other structural components to form a structure, the primary structural component comprising:

a first member including a first surface and a second surface non-coplanar with the first surface;

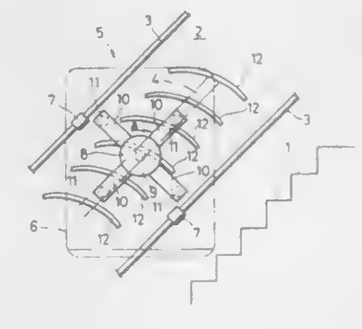
a second member of thin, flat sheet material engaging the first surface of said first member in face-to-face relation;



a nailing plate having teeth penetrating the second surface of said first member and teeth penetrating the second member thereby to secure the second member to the first member.

5,735,088
STAIRCASE HOIST FOR WHEELCHAIR USERS

Satoshi Hashino, Tsuchiura, Japan, assignor to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan
Filed May 6, 1996, Ser. No. 642,899
Int. Cl.^{6} E04F *11/18*
U.S. Cl. 52—184 **10 Claims**



1. A staircase hoist for wheelchair users, comprising.

a hoist carrier plate having a pair of brackets thereon;

two guide rails in slidable engagement with the pair of brackets to maintain the hoist carrier plate in a predetermined attitude, the guide rails being disposed on a wall of a staircase along an angle of flight of the staircase and in parallel to each other;

a drive motor provided on the hoist carrier plate and having a drive shaft rotatably attached to the motor;

a plurality of drive guides disposed on the wall of the staircase between the guide rails at a prescribed distance; and

retaining means retaining thereon a plurality of engagement members that face the wall of the staircase and which are disposed at a prescribed distance on a circumference of a circle with the drive shaft of the drive motor as a center of the circle so that the engagement members are moved on the circumference by the drive shaft rotated by the drive motor and sequentially engage with the drive guides;

said drive shaft of the drive motor serving as contact prevention means for preventing the engagement members that have terminated engagement with one of the drive guides from coming into contact with others of the drive guides while being rotated around into position for a subsequent engagement.

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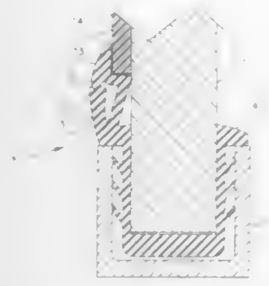
5,735,089
SACRIFICIAL GLAZING FOR A WINDOW ASSEMBLY

Mark Loyd Smith, Niles, Mich., and Michael H. Hurtckant, Goshen, Ind., assignors to Excel Industries Incorporated, Elkhart, Ind.

Filed May 10, 1996, Ser. No. 644,331
Int. Cl.⁶ F06B *3/26*
U.S. Cl. 52—202 **19 Claims**

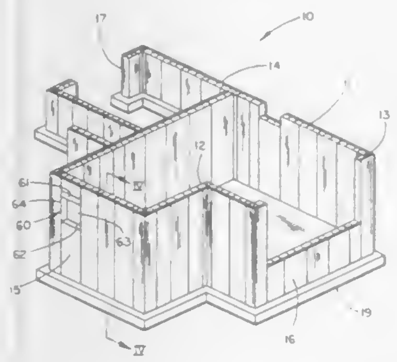


19 A window assembly comprising, in combination;
a frame;
a windowpane sized to fit within the frame;
a removable sacrificial glazing panel having a peripheral edge, substantially covering a surface of the windowpane; and
a self-locking seal assembly having a main body which secures the windowpane in the frame and unitary releasable interlocking arms which urge a surface of the removable sacrificial glazing panel against a surface of the windowpane;
wherein the self-locking seal assembly captivates the windowpane and the sacrificial glazing when the interlocking arms are in a locked position, and captivates the windowpane but does not captivate the sacrificial glazing when the interlocking arms are in an unlocked position.

5,735,090
MODULAR FOUNDATION CONSTRUCTION AND METHOD

William Papke, 2645 Lake Edge La., N.E., Grand Rapids, Mich. 49505

Filed Aug. 8, 1995, Ser. No. 512,444
Int. Cl.⁶ E04B *2/86*
U.S. Cl. 52—220.2 **29 Claims**

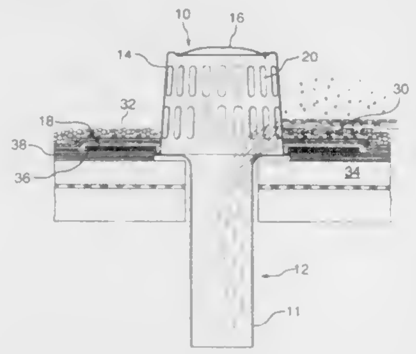


1. An apparatus for forming customized building foundations, comprising:
a plurality of extruded modular forms configured to be selectively arranged and interconnected in the shape of a customized building foundation, said plurality of forms, when in the shape of the customized building foundation, defining a series of interconnected first cavities extending around the shape for receiving poured concrete and further including a series of second cavities extending generally adjacent the first cavities for receiving insulation to form a substantially continuous insulative layer around the shape, said plurality of modular forms include opposing end wall sections having apertures therein configured to allow cross flow of the cement being poured between the first cavities, wherein several of said plurality of modular forms extend vertically and include a first length substantially equal to a height of the customized building foundation and others of said plurality of modular forms have a lesser length, and including an aperture-covering member for covering the apertures to prevent the flow of concrete from the modular forms having the first length into and out of the modular forms having the lesser length.

5,735,091
ROOF DRAIN

Robert Hawkins; James Gordon, both of Mississauga, and Thomas Marshall, Georgetown, all of Canada, assignors to National Roofing Supply, a div. of A.C.T. Marketing Inc., Mississauga, Canada

Filed Mar. 19, 1996, Ser. No. 618,530
Int. Cl.⁶ E04B *1/66*
U.S. Cl. 52—302.7 **8 Claims**

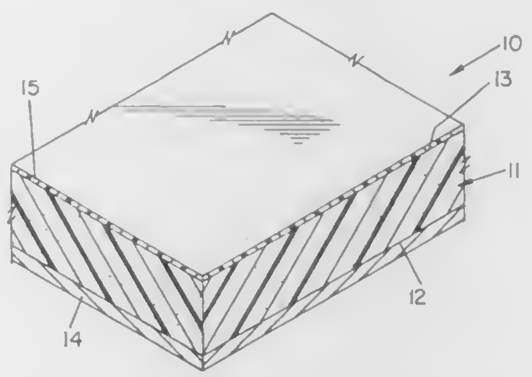


1. A roof drain which comprises:
an integrally formed body having a water collecting section, a first body surface, a second body surface and a connecting surface and at least one self-supporting body attachment, wherein;
  said water collecting section is located within said body, said collecting section including a generally funnel shaped portion with said funnel shaped portion terminating into a vertically oriented cylindrical section, said cylindrical section forming the lowermost portion of said body with said cylindrical section sized and shaped for joining to a cylindrical pipe;
said first body surface being generally horizontally oriented and extending outwardly and completely surrounding said collecting section; said second body surface being generally horizontally oriented and positioned outwardly from said first body surface and completely surrounding said first body surface with said connecting surface joining said second body surface to said first body surface, said second body surface being generally parallel to said first body surface;
said connecting surface being obliquely oriented with respect to said parallel first and second horizontal body surfaces and extending outwardly from said first body surface to said second body surface;
said at least one self-supporting body attachment for mounting on top of and generally in the centre of said body, said attachment being sized and shaped so as to be capable of being located against and mating with said first horizontal body surface and when mated with said first body surface said attachment being positioned inwardly from said second body surface and inwardly from said connecting surface;
and attachment means to secure said at least one body attachment to said body, said attachment means consisting of an annular recess located in said connecting surface into which said at least one attachment is permanently secured.

5,735,092
COMPOSITE ROOFING MEMBERS HAVING IMPROVED DIMENSIONAL STABILITY AND RELATED METHODS

Thomas M. Clayton, and John B. Letts, both of Carmel, Ind., assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Sep. 23, 1996, Ser. No. 700,339
Int. Cl.⁶ E04C *2/26;* **E04B** *7/00*
U.S. Cl. 52—309.9 **15 Claims**

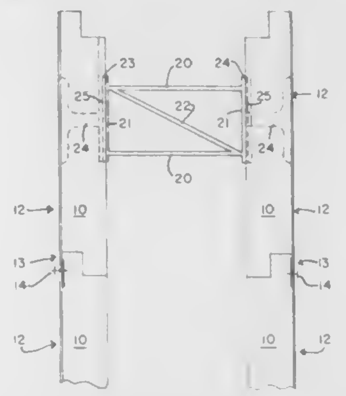


1. A composite recovery board comprising:
a foam core selected from the group consisting of polyisocyanurate and polyurethane materials and mixtures thereof and having opposed major surfaces;
a facer applied to one major surface of said foam core and comprising a sheet selected from the group consisting of reinforced polymer materials and reinforced cellulosic materials, wherein said polymer materials and said cellulosic materials are reinforced with a material selected from the group consisting of glass strands, glass fibers, and mixtures thereof; and
gypsum board, applied to the opposite major surface of said foam core.

5,735,093
CONCRETE FORMWORK WITH BACKING PLATES

George A. Grutsch, 6455 Meadowood La., Missoula, Mont. 59803

Filed Aug. 29, 1996, Ser. No. 705,500
Int. Cl.⁶ E04B *2/40; 1/38*
U.S. Cl. 52—309.11 **18 Claims**

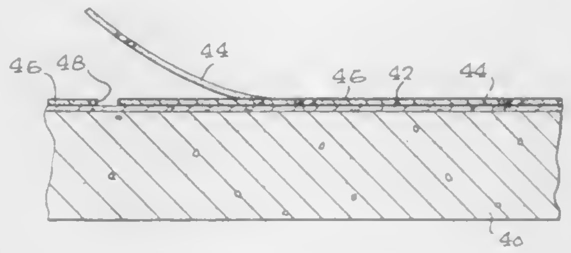


1. A form to hold concrete while it hardens, comprising:
first and second molded panels of insulating material, each panel having an inner and an outer face, said panels being capable of being placed in a spaced apart parallel relationship with said inner faces facing each other,
a first backing plate adjacent the outer face of said first panel,
a second backing plate adjacent the outer face of said second panel,
first connecting means on the inner face of said first panel,
second connecting means on the inner face of said second panel,
first structural means extending from said first backing plate to said first connecting means, for preventing said first backing plate from moving outward relative to said first connecting means,
second structural means extending from said second backing plate to said second connecting means, for preventing said second backing plate from moving outward relative to said second connecting means,
each said first and second structural means being molded into its respective molded panel,
each panel supporting and holding its backing plate, its connecting means and its structural means prior to the pouring of concrete into the form, and
tieing means, which is a piece separate from at least one of said connecting means but which may be attached to it, for preventing the connecting means on one of said panels from moving away from the connecting means on the other of said panels while concrete is poured into the space between said panels.

5,735,094
METHOD FOR PRODUCING AN ORNAMENTAL CONCRETE SURFACE

Louis F. Zember, Fallbrook, Calif., assignor to Ultra-Tex Surfaces, Inc., Fallbrook, Calif.

Continuation-in-part of Ser. No. 176,945, Jan. 3, 1994, Pat. No. 5,502,941. This application Jan. 17, 1996, Ser. No. 587,541
Int. Cl.⁶ E04F *21/04*
U.S. Cl. 52—314 **14 Claims**



1 A process of covering a substrate with a decorative surface comprising:
priming said substrate with a dilute aqueous solution of adhesive resin;
mixing a first batch of cement, sand, and an aqueous solution of adhesive resin to create a liquid mortar;
applying the mortar on the substrate while said priming
solution is wet to form a first layer on the substrate;
allowing the mortar to cure on the substrate; providing a flexible template panel having a pattern of desired grout lines, an adhesive layer and a backing over said adhesive layer;
peeling said backing layer away from said template panel and securing the template to said first layer;
mixing a second batch of cement, sand, color pigment, and an aqueous solution of adhesive resin to create a second batch of liquid mortar contrasting in color with said first batch,
applying said second batch over said first batch to at least approximately the level of the top of said template to form a second layer and allowing said second layer to dry;
removing said template to expose said first layer under said template;
allowing said second batch to finish curing; and
applying a sealer coat of polyacrylic cement covering said first and second layers.

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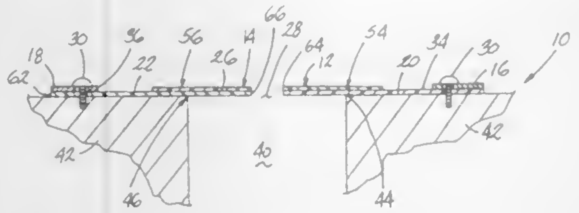
5,735,095
TRACK SEAL

Michael DeGroot, Kentwood, and Lee M. Jorgenson, Grand Rapids, both of Mich., assignors to MOL Belting Company, Grand Rapids, Mich.
Filed Aug. 23, 1996, Ser. No. 701,844
Int. Cl.^{6} E04B *1/62*
U.S. Cl. 52—393 **9 Claims**



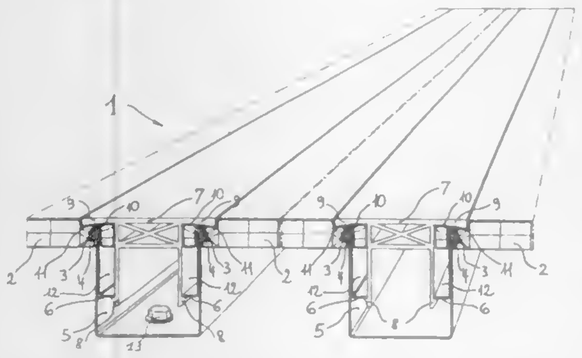
1. In combination a channel disposed in a floor and adapted for guiding a moving object and a flexible seal for covering the channel, the channel having opposing channel edges, the seal comprising:

an elongated strip having first and second longitudinally extending edge portions and comprising a relatively flexible hinge portion along a first longitudinally extending edge mounted adjacent one of the channel edges and a relatively less flexible cover portion extending from the one of the channel edges and over at least a portion of the channel,

whereby the seal provides relatively low resistance to a force in a direction extending outwardly from the channel and a relatively higher resistance to a force in a direction extending inwardly toward the channel.

5,735,096
INFILLING SYSTEM FOR WALLS AND FACINGS IN CONSTRUCTION

Reinaldo Krass, Milan, Italy, assignor to Akraplast S.R.L., Milano, Italy
PCT No. PCT/EP95/00451, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO95/22665, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 8, 1995, Ser. No. 676,296
Claims priority, application Italy, Feb. 17, 1994, MI9400109 U
Int. Cl.^{6} E04C *3/00;* **E04D** *1/36*
U.S. Cl. 52—464 **20 Claims**

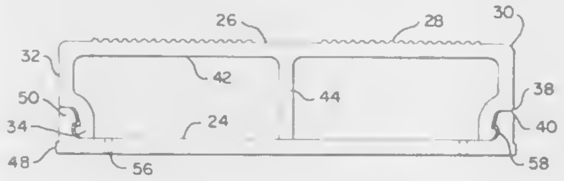


1. Infilling system for walls and linings in construction with end attachment, wherein infilling units (2) on their ends are made such that they have cavities (3) in which upper bulbous ends (4) are fixed by lower linking units (5) which for their part are made such that upper linking units (7) can be attached thereto by snapping, and wherein the upper linking units (7) are provided with hooks (8) which are used for coupling with the lower linking units (5) and wherein the lower linking units (5) are made with reversals (6) which are pointed inwardly, with their mutual distance allowing passage of at least one of screws and rivets (13) which enable attachment of the lower linking unit (5),

and wherein further each infilling unit comprises a shaded portion along each lateral edge thereof, a thickness of the shaped portions being less than a portion of the infilling unit between the shaped portions exposed area being greater than that of the shaped portions, such that the upper linking units fit between adjacent infilling units held together by one of the lower linking units with portions of the upper linking unit thereby overlapping the shaped portions of the infilling units, the overlapping portions having a profile which conforms to the shaped portions of the infilling units such that a forward face of the upper linking unit is essentially even with and abuts a forward face of the portion of the infilling unit between the shaped portions of an adjacent infilling unit.

5,735,097
PLATFORM ASSEMBLY SYSTEM

Donald C. Cheyne, 6410 W. Madison Rd., Alma, Mich. 48801-9511
Filed Dec. 16, 1996, Ser. No. 767,544
Int. Cl.^{6} E04B *5/00;* **B63B** *35/44*
U.S. Cl. 52—489.1 **1 Claim**



1. A platform assembly system to be secured to a substructure having joists comprising a plurality of plank members, each plank member having at least three downwardly projecting legs, with at least one of the downwardly projecting legs further comprising a vertical support member, the downwardly projecting legs further comprising two legs, each of which terminates in an offset barbed fastener;

a plurality of retaining clips, each retaining clip having upwardly projecting legs terminating in offset barb fasteners, which coincide with a downwardly projecting leg having an offset barb fastener;

whereby the plurality of retaining clips are adapted to be secured to the substructure in a number sufficient to create support for the desired finalized platform assembly, and the plank members are adapted to be secured to the retaining clips by interlocking the offset barbed fasteners of the downwardly projecting legs into the upwardly projecting offset barb fasteners of the retaining clips such that the downwardly projecting legs of the plank members align vertically above the upwardly projecting legs of the retaining clips.

5,735,098
FIRE-RESISTANT COMPOSITION, PANEL AND EXTERNAL WALL FOR VARIOUS BUILDINGS

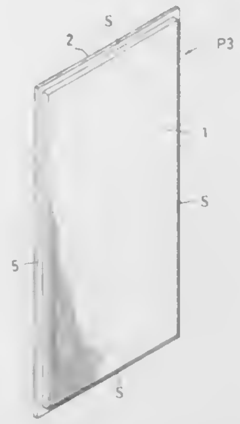
Masami Kanai, and Tadashi Sakai, both of Osakashi, Japan, assignors to Stylite Kogyo Co., Ltd., Osaka, Japan
Division of Ser. No. 506,917, Jul. 26, 1995, Pat. No. 5,624,607. This application Dec. 13, 1996, Ser. No. 766,318
Claims priority, application Japan, Aug. 2, 1994, 6-181549; Aug. 2, 1994, 6-181553
Int. Cl.^{6} E04B *1/38*
U.S. Cl. 52—508 **9 Claims**

1. A panel attachable to a building body so as to form an external wall thereof, the panel comprising:

a base plate;

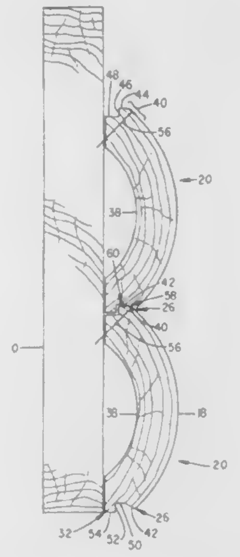
a fire resisting lining formed thereon,

wherein the lining is composed of a fire resistant composition consisting essentially of ettringite, inorganic particulate compounds and titanium oxide, wherein said composition contains 5-500 parts by weight of inorganic particulate compounds and 0.01–50 parts by weight of titanium oxide powder, both said compounds and powder blended with 100 parts by weight of ettringite; with the proviso that said inorganic particulate compounds release noncombustible gases at 100°–1000° C., and are at least one of the group consisting of calcium carbonate, bentonite, sepiolite, sodium bicarbonate and magnesium hydroxide.



5,735,099
LOG SIDING

Ted M. Anderson, Minneapolis, Minn., assignor to Western Log and Lumber, Minneapolis, Minn.
Filed Oct. 23, 1995, Ser. No. 553,796
Int. Cl.^{6} E04F *13/08*
U.S. Cl. 52—539 **31 Claims**



1. An improved log siding system for application on a surface of a building structure to provide a simulated log construction, comprising:

a plurality of horizontally elongated siding members, each of said siding members including an exterior surface having an upper longitudinal edge and a lower longitudinal edge, an interior surface having an upper longitudinal edge and a lower longitudinal edge, an upper interlocking surface extending between said upper longitudinal edge of said exterior surface and said upper longitudinal edge of said interior surface, and a lower interlocking surface extending between said lower longitudinal edge of said exterior surface and said lower longitudinal edge of said interior surface;

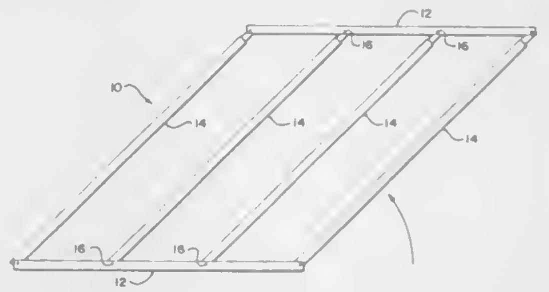
said exterior surface including a substantially non horizontal engagement portion extending generally downwardly from said upper longitudinal edge of said exterior surface, and a generally arcuate viewing portion extending between said engagement portion and said lower longitudinal edge of said exterior surface; and

said lower interlocking surface including a substantially non-horizontal engagement portion extending generally upwardly from said lower longitudinal edge of said exterior surface,

whereby said plurality of siding members are disposed in vertically adjacent fashion on a surface of a building structure such that said engagement portion of said exterior surface and said engagement portion of said lower interlocking surface matingly engage to form a flush and substantially non-horizontal moisture seal junction extending generally upwardly from said viewing portion of said exterior surface, and such that said upper and lower interlocking surfaces cooperate to form a flex gap extending between said moisture seal junction and said interior surface, said moisture seal junction serving to inhibit the ingress of moisture from said viewing portion of said exterior surface toward said flex gap, and said flex gap permitting adjacently disposed siding members to flex in response to fluctuations in heat, moisture, and minute planing irregularities while maintaining said moisture seal junction.

5,735,100
FOLDING TELESCOPIC PREFABRICATED FRAMING UNITS FOR NON-LOAD-BEARING WALLS

Ronald W. Campbell, White Rock, Canada, assignor to 527233 B.C. Ltd., Vancouver, Canada
Filed Oct. 7, 1996, Ser. No. 729,697
Int. Cl.^{6} F04B *1/343,* **E04C** *3/04*
U.S. Cl. 52—645 **11 Claims**



1. A prefabricated framing unit for constructing a non-load-bearing wall or partition comprising

a) a lower horizontal member;

b) an upper horizontal member;

c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon,

wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and a lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.

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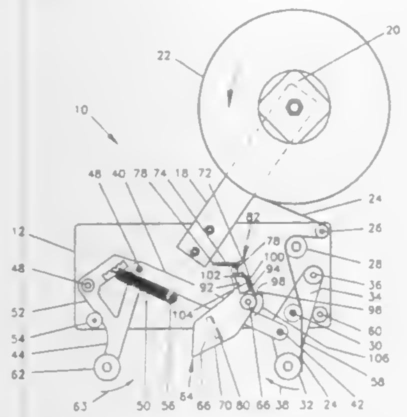
5,735,101
TAPE MANAGEMENT SYSTEM
Joe Augustine Shing-Tak Lam, Richmond, Canada, assignor to Belcor Industries Inc, Canada
Filed Aug. 5, 1996, Ser. No. 695,117
Int. Cl.^{6} B65B *61/00*
U.S. Cl. 53—136.1 **10 Claims**



1. A tape applicator having detector for detecting the operation of a tape in said tape applicator adjacent to a point of application of the tape to an article being taped, said tape applicator having a frame, a front contact roller mounted on said frame for movement relative to said frame between an extended inactive position and a retracted operating position, means to provide tape to said front roller along a tape path, a detector means having a feeler arm, said feeler arm positioned to bear against said tape on said tape path when said detector means and said front roller are relatively moved into a sensing position, means for mounting said detector means, means for activating and deactivating said detector means, said means for activating and deactivating said detector means being constructed for activating said detector means when said front roller is in said retracted position and said detector means in said sensing position relative to said tape path to permit said detector means to detect whether said tape is in said tape path approaching said front roller when tape is being applied to said article by said tape applicator and for deactivating said detector means when said front roller is outside of said retracted position.

5,735,102

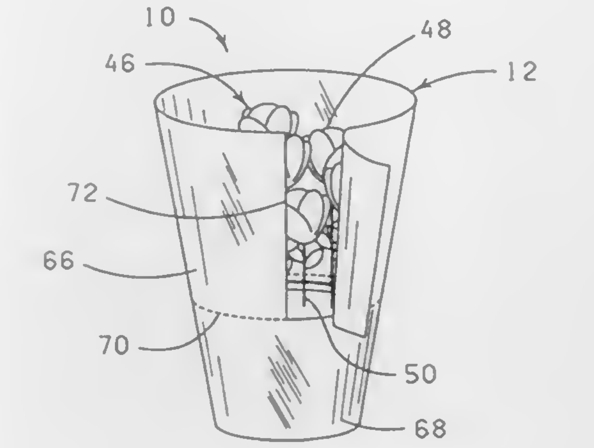
Patent Not Issued For This Number

5,735,103
PLANT PACKAGE HAVING DETACHABLE SLEEVE AND METHODS
Donald E. Weder, Highland, Ill., assignor to Southpac Trust Internatonal, Inc., Oklahoma, Okla., not indivually, but as trustee of the family Trust U/T/A dated Dec. 8, 1995, Charles A. Codding, Authorized Signatory for Southpac Trust International, Inc. trustee.
Continuation of Ser. No. 220,852, Mar. 19, 1994, Pat. No. 5,572,851. This application Aug. 23, 1996, Ser. No. 701,818
Int. Cl.^{6} B65B *11/02:25/02:61/18*
U.S. Cl. 53—399 **26 Claims**

1. A plant packaging method, comprising the steps of:

providing a pot having a shape, the pot containing a floral grouping;

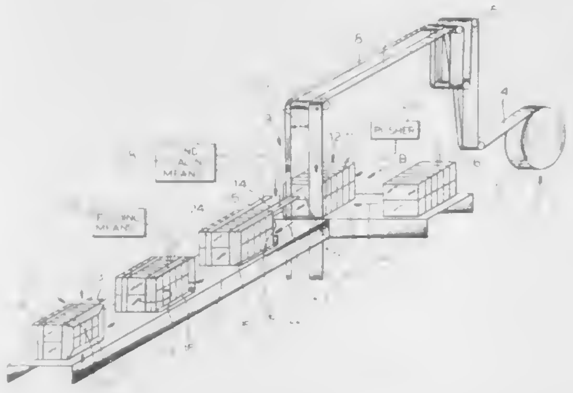
providing a flexible sleeve having perforations at preselected areas, the sleeve further comprising an adhesive or cohesive bonding material, said sleeve being positionable about the pot and a lower portion of the sleeve closely surrounding and encompassing the pot, an upper portion of the sleeve extending upwardly from the pot, said upper portion removable from the lower portion along the perforations;



disposing the pot within the flexible sleeve, wherein the lower portion of the flexible sleeve is positioned adjacent the pot, and bondingly connecting at least a portion of the lower portion of the sleeve to the pot via the adhesive or cohesive bonding material wherein the lower portion of the sleeve closely conforms to the shape of the pot, the upper portion of the sleeve extending upwardly from the pot, said upper portion substantially surrounding and encompassing the floral grouping; and

wherein the lower portion is positioned about the pot such that when the upper portion is detached from the lower portion along the perforations, the lower portion of the sleeve remains disposed about the pot, the lower portion of the sleeve forming a decorative plant cover which substantially surrounds and encompasses the pot.

5,735,104
METHOD OF PACKAGING GROUPS OF ARTICLES
Heinz F. Odenthal, Zülpich, Germany, assignor to Ostma Maschinenbau GmbH, Zulpich, Germany
Continuation of Ser. No. 409,492, Mar. 23, 1995, abandoned. This application Nov. 4, 1996, Ser. No. 743,107
Claims priority, application Germany, Apr. 1, 1994, 44 11 473.7
The portion of the term of this patent subsequent to Sep. 3, 2013, has been disclaimed.
Int. Cl.^{6} B65B *13/02*
U.S. Cl. 53—399 **9 Claims**



1. A method of producing a tray-packaging for a group of articles, the method comprising the steps of:

a) advancing the group of articles in a tight formation on a feed conveyor to a packaging station with the articles lying on their sides and bottoms of the articles oriented generally vertically;

b) drawing a web of a flexible and substantially inextensible packaging material from a coil thereof and splitting said web into a tray-forming strip and a head-encircling strip and supplying both said strips simultaneously to said packaging station;

c) extending said strips in the station in a spaced-apart relationship vertically across a path of said group of articles and with a spacing determined by a height of said group and with free ends hanging down, said tray-forming strip being disposed in a region of the bottoms of the group of articles and said head-encircling strip being disposed in a region of a head portion of said group of articles, said tray-forming strip extending horizontally past the bottoms of said group of articles, both said strips dangling across said path of the group of articles;

d) displacing said group along said path from said feed conveyor onto a discharge conveyor so that a leading side of said group of articles engages the strips dangling across said path, while feeding said strips so that said group of articles draws said strips onto said discharge conveyor under said group of articles and said strips are drawn over said group of articles in generally U-shaped loops around said group of articles, and ends of said strips extend beyond a trailing side of said group of articles on said discharge conveyor;

e) adhesively bonding the ends of said strips together along said trailing side of the group of articles, thereby securing said articles of said group tightly together with a head-encircling band formed by said head-encircling strip and with a bottom band formed by said tray-forming strip on said discharge conveyor, said bottom band having a portion extending beyond said bottom edge;

f) folding said portion of the bottom band against the bottoms of the articles to form a tray with a tray rim and a tray bottom formed by said portion of said bottom band on said discharge conveyor; and

g) imparting a longitudinal fold to said tray-forming strip prior to feeding same to said packaging station, thereby forming a folded region which is applied to the side walls of the group of articles and an unfolded region which projects beyond an edge of the group, said unfolded region being thereupon folded in step f to form said tray.

5,735,105
ENCAPSULATION APPARATUS AND PROCESS
Norman S. Stroud, Safety Harbor; David J. Walker, St. Petersburg, both of Fla.; Kelvin R. Garnett; Arthur J. Burnett, both of Wiltshire, England, and Anthony J. Wood, Woking Surry, England, assignors to R. P. Scherer Corporation, Troy, Mich.
PCT No. PCT/GB93/02566, § 371 Date Oct. 2, 1995, § 102(e) Date Oct. 2, 1995, PCT Pub. No. WO94/13249, PCT Pub. Date Jun. 23, 1994
PCT Filed Dec. 16, 1993, Ser. No. 481,411
Claims priority, application United Kingdom, Dec. 16, 1992, 9226238
Int. Cl.^{6} A61J *3/00;* **B29C** *39/00;* **B65B** *47/00*
U.S. Cl. 53—411 **22 Claims**

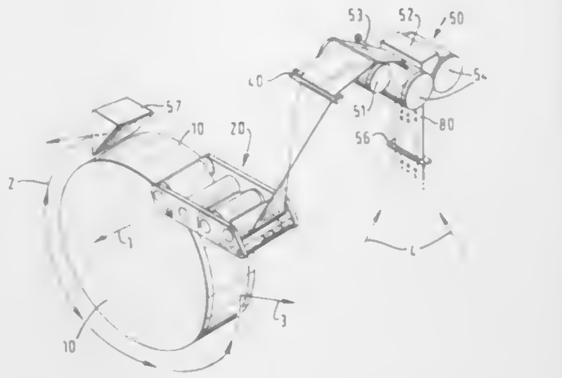
1. A gelatin encapsulation process comprising the steps of:

a. casting a continuous first gelatin ribbon and a continuous second gelatin ribbon;

b. applying food-approved lubricant to a first side of the first gelatin ribbon and to a first side of the second gelatin ribbon,

c. applying food approved lubricant to a second side of the first gelatin ribbon and to a second side of the second gelatin ribbon to give a lubricated first gelatin ribbon and a lubricated second gelatin ribbon;

d. uniting the lubricated first gelatin ribbon and the lubricated second gelatin ribbon to form gel pockets and injecting fill material into the gel pockets to give freshly formed gelatin capsules;

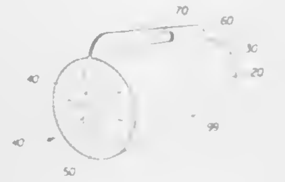


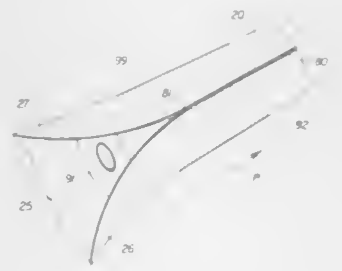
e. cooling the freshly formed gelatin capsules to assist their separation from a net formed by the remainder of the gelatin ribbons;

f. finishing the freshly formed gelatin capsules by drying them to give finished gelatin capsules; and

g. recovering the finished gelatin capsules, wherein the steps of applying food-approved lubricant to the first and second gelatin ribbons comprise controlling the amount of food-approved lubricant applied to the first and second gelatin ribbons so that the finished gelatin capsules do not require a solvent wash step to remove lubricant, whereby the gelatin encapsulation process is a solvent-free process.

5,735,106
CONTINUOUS PROCESS FOR PACKAGING COMPRESSIBLE PRODUCTS
Timothy Paul Burda, Cincinnati, and William Scott Andes, Springfield, both of Ohio, assignors to The Procter & Gamble company, Cincinnati, Ohio
Filed Nov. 26, 1996, Ser. No. 756,753
Int. Cl.^{6} B65B *1/24.13/20:9/06:51/26*
U.S. Cl. 53—413 **20 Claims**





1. A continuous process for packaging products under compression, said process comprising the steps of:

(a) providing a continuous elongated sheet of material having two marginal edges;

(b) providing a compressible product;

(c) forming said sheet of material into a cylindrical sleeve around said product by joining said marginal edges to one another to form a fin seal, said sleeve defining an axial direction parallel to said marginal edges and a circumference measured in a plane passing through said product in a direction normal to said axial direction;

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(d) reducing said circumference of said sleeve to impart compression to said product by forming at least one axially-extending pleat in said sleeve; and
(e) repeating steps (a) through (d) for successive products.

5,735,107
METHOD AND DEVICE FOR PRODUCING SAMPLE BAGS AND SAMPLE BAGS PRODUCED ACCORDING TO THE METHOD

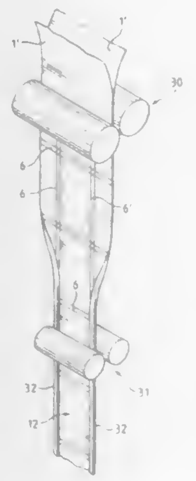
Jürg Vollenweider, Fehraltdorf; Erich Jäger, Frauenfeld, and Werner Heuberger, Bäretswil, all of Switzerland, assignors to Ferag AG, Hinwil, Switzerland

Filed Apr. 24, 1996, Ser. No. 638,996

Claims priority, application Switzerland, Apr. 24, 1995, 01 167/95; Jan. 29, 1996, 00 216/96

Int. Cl.^{6} B65B *09/00*

U.S. Cl. 53—450 **11 Claims**



1. A method of producing filled sample bags comprising the steps of

providing two webs of bag material having longitudinal edges,
joining the longitudinal edges of the webs to form two longitudinal fin seams having a thickness,
joining the webs along longitudinally spaced transverse lines to form transverse fin seams,
introducing bag contents between the transverse fin seams to make filled sample bags each defined by two sequential transverse fin seams, each sample bag having a thickness determined by the nature and quantity of contents introduced between the transverse fin seams, and
increasing the thickness of the longitudinal fin seams to a thickness substantially equal to the thickness of the filled sample bags, whereby the filled sample bags have improved handling characteristics.

5,735,108
SHEET BUNDLING APPARATUS AND A SHEET HANDLING APPARATUS FURNISHED WITH THE SAME

Iwao Tuji, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

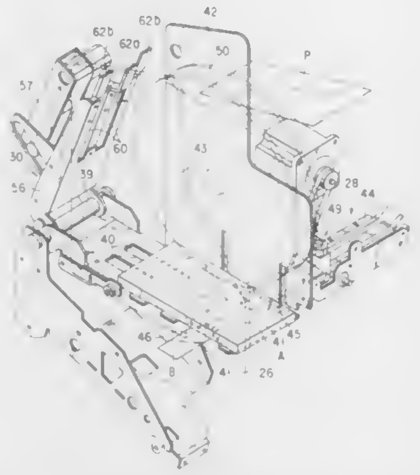
Filed Oct. 22, 1996, Ser. No. 735,548

Claims priority, application Japan, Oct. 23, 1995, 7-274360

Int. Cl.^{6} B65B *35/50;27/08*

U.S. Cl. 53—540 **20 Claims**

1. A sheet bundling apparatus comprising:
a substantially flat stacking plate rotatable between a substantially horizontal stacking position and a bundling position inclined downward with respect to the stacking position,
band supply means for delivering a band onto the stacking plate in the stacking position;



stacking means for stacking a plurality of sheets in layers on the stacking plate in the stacking position while overlapping with the band delivered by the band supply means onto the stacking plate;
moving means having a plate-like sweeper rotatable between an open position, in which the sweeper is separated from the band supply means and the stacking plate, and a hold position, in which the sweeper is opposed substantially parallel to the stacking plate;
the moving means being for pressing the sheets stacked on the stacking plate to hold the sheets between the sweeper and the stacking plate and for rotating the stacking plate from the stacking position to the bundling position, by rotating the sweeper from the open position to the hold position;
curving means for curving the sheets stacked on the stacking plate which is rotated to the bundling position by the moving means; and
bundling means for winding and bundling the curved sheets on the stacking plate rotated to the bundling position with the band.

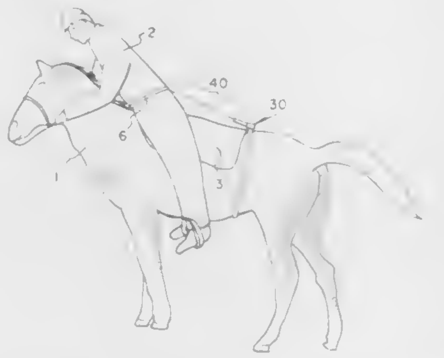
5,735,109
SAFETY DEVICE FOR PREVENTING OVER-THE-SHOULDER FALLS FROM A HORSE

Kimberly Kojima, 2167 Green River Rd., Williamstown, Mass. 01267

Filed Nov. 27, 1996, Ser. No. 757,790

Int. Cl.^{6} B68B *5/00*

U.S. Cl. 54—1 **8 Claims**



1. A safety device for preventing a rider from going over the shoulder of a horse when the horse stops suddenly, said device comprising:
anchor means for disposition toward the rear end of the horse; and
extendible means attachable to said rider and to said anchor means for loosely holding said rider in a normal sitting position and for tightly holding said rider in a stretched position above said shoulder of said horse to prevent said rider from being thrown over said shoulder of said horse when said horse stops suddenly; said extendible means comprising:
a hollow rod having two ends;
a spring held in said rod at one end thereof,
a rope connected to said spring and extending out of another end of said rod, said rope being connectable to a waist of said rider, for loosely holding said rider in said normal sitting position, and for tightly holding said rider with said rope being pulled against said spring resilience to a longer length in said stretched position; and
detachable means connected to said anchor means and to said one end of said hollow rod for detaching said extendible means when said rider falls off the side of said horse.

5,735,110
CORE YARN WITH A CORE OF HIGH STRENGTH POLYESTER MATERIAL, PRODUCTION THEREOF AND USE OF SELECTED POLYESTER MATERIAL FOR PRODUCING CORE YARNS

Erhard Krüger; Aribert Reinsch, both of Bobingen, and Sigmar Hartmann, Bad Hersfeld, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Continuation of Ser. No. 520,716, Aug. 29, 1995, abandoned, which is a continuation of Ser. No. 131,290, Oct. 4, 1993, abandoned. This application Mar. 18, 1997, Ser. No. 819,303

Int. Cl.^{6} D02G *3/02;3/06*

U.S. Cl. 57—224 **14 Claims**

1. A sewing yarn comprising at least one filamentary core made of a polyester material and sheathed with fibers selected from the group consisting of vegetable, regenerated or synthetic origin and mixtures thereof in such a way that the core is virtually completely covered, wherein

a) the polyester material of the core filaments has an average molecular weight corresponding to a relative solution viscosity determined on solutions of 1 g of polyester in 100 ml of dichloroacetic acid at 25° C. of at least 1.9,
b) the core has a specific strength of at least 60 cN/tex, and
c) the core has a breaking extension less than 20% and wherein the sewing yarn has a seam length to rupture of more than 800 cm in a sewing test under aggravated conditions, said sewing test being carried out on four plies of cotton twill of basis weight 350 g/m^2 with 5000 stitches/min, four stitches/cm, a sewing tension of 220 cN and with sewing in the forward direction.

5,735,111

Patent Not Issued For This Number

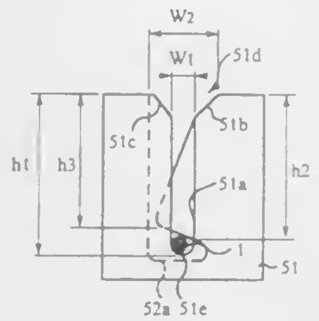
5,735,112
YARN HEATING APPARATUS

Syunzo Naito, Matsuyama, and Setsuo Nakamura, Tokyo, both of Japan, assignors to Teijin Seiki Co., Ltd., Osaka, Japan

Filed Mar. 28, 1997, Ser. No. 827,591

Int. Cl.^{6} D01H *7/46;7/92*

U.S. Cl. 57—290 **3 Claims**



1. A yarn heating apparatus, interposed between a false twist apparatus imparting twist to a synthetic fiber yarn and a yarn feed apparatus feeding said synthetic fiber yarn to said false twist apparatus, for heating said synthetic fiber yarn traveling on a yarn travel path extending from said yarn feed apparatus to said false twist apparatus, said yarn travel path including a twist existence path section through which the twist imparted to said synthetic fiber yarn extends continuously, comprising:

a yarn heat member unit formed with a yarn heat channel defining in part said twist existence path section of said yarn travel path for heating said synthetic fiber yarn passing through said yarn heat channel; and
a plurality of yarn guide members located in said yarn heat channel of said yarn heat member unit in spaced relationship to one another for guiding said synthetic fiber yarn through said yarn heat channel of said yarn heat member unit,
said synthetic fiber yarn in said yarn heat channel being bent by each of said yarn guide members and having a plurality of contact surface portions each brought into contact with each of said yarn guide members, said contact surface portions of said synthetic fiber yarn having lengths, respectively, measured along said yarn travel path, and the lengths of said contact surface portions of said synthetic fiber yarn amounting to a total contact length which is not less than 4 mm and not more than 20 mm.

5,735,113
ANTI-CHOKING SPINDLE WITH CYLINDER HAVING THREAD CUTTING SLOTS

Roy Alton Cadenhead, Sr., Calhoun, Ga., assignor to Modern Fibers, Inc., Calhoun, Ga.

Continuation-in-part of Ser. No. 275,723, Jul. 19, 1994, abandoned. This application Apr. 26, 1996, Ser. No. 638,220

Int. Cl.^{6} D01H *9/00;9/14*

U.S. Cl. 57—306 **42 Claims**

1. A cylinder mountable on a yarn spindle having a rotatable spindle shaft with an axially extending bore therein through which bore yarn passes, said cylinder having a yarn orifice through an outer surface thereof through which orifice the yarn passes, the yarn orifice communicating by means of a radially extending bore in said cylinder with the axially extending bore of the spindle shaft, said cylinder comprising cutting means, radially disposed from the rotatable spindle shaft, for cutting, and thus shortening, any free

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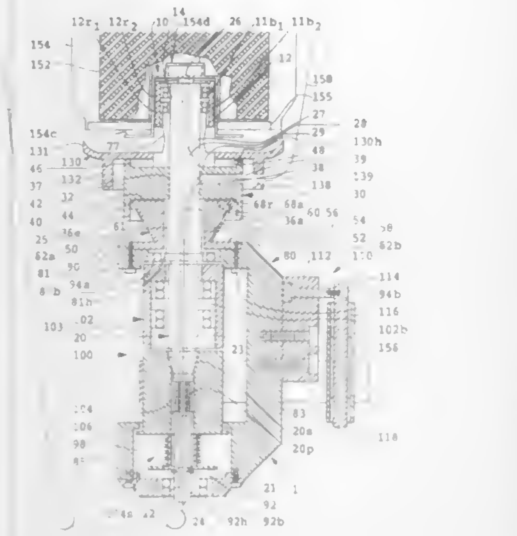

end of yarn extending from the yarn orifice as said cylinder rotates relative to the yarn

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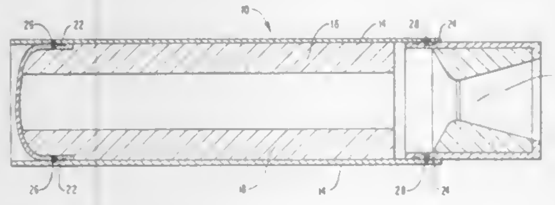
5,735,114
THERMOSTATIC BIMETALLIC RETAINING RING FOR USE IN ROCKET MOTOR ASSEMBLY

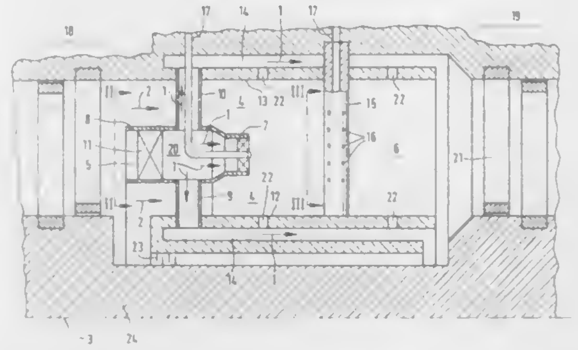
Warren W. Ellingsen, Lewisville, Pa., assignor to Thiokol Corporation, Ogden, Utah
Filed Aug. 15, 1991, Ser. No. 745,531
Int. Cl.^{6} F02K *1/00*
U.S. Cl. 60—39.1 **19 Claims**



1. A rocket motor comprising:
a propellant section;
a forward closure section; and
means for attaching the propellant section to the forward closure section comprising a retaining ring configured such that the retaining ring holds both sections in locking engagement when the rocket motor is at temperatures below a chosen temperature, said retaining ring changing diameter sufficiently at temperatures above said chosen temperature such that it allows said sections to disengage and wherein said retaining ring comprises a bimetallic ring.

5,735,115
GAS TURBINE COMBUSTOR WITH MEANS FOR REMOVING SWIRL

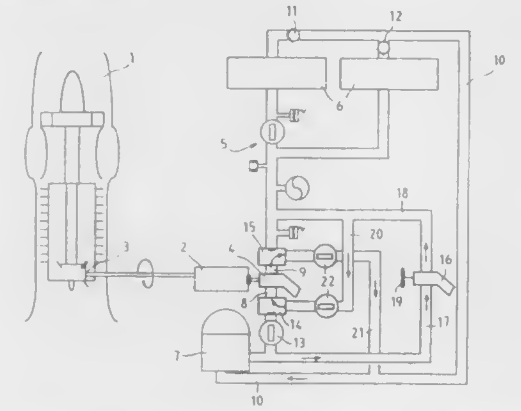
Helmut Maghon, Mülheim/Ruhr, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed Jul. 23, 1996, Ser. No. 682,755
Claims priority, application European Pat. Off., Jan. 24, 1994, 94100988; Jan. 24, 1994, 94100989
Int. Cl.^{6} F23R *3/04*
U.S. Cl. 60—39.36 **14 Claims**



1. A combustion chamber (6) for a gas turbine (6, 18, 19) through which a flow (2) of compressed air is allowed to pass, flowing along an axis (3) from a compressor part (18) to a turbine part (19), said flow (2) having a swirl relative to the axis (3), said chamber comprising: an annular passage (4) at an inlet of the combustion chamber (6) having an inflow part (8) for separating a partial flow (1) from the flow (2), wherein the inflow part (8) comprises means (11) for removing said swirl from the partial flow (1), wherein said means (11) for removing communicates with cooling passages (14) for cooling the combustion chamber (6) and also communicates with pilot burners (7) for stabilizing combustion in the combustion chamber (6).

5,735,116
SYSTEM FOR RESTARTING AN AIRCRAFT ENGINE IN FLIGHT AFTER LOSS OF ENGINE POWER

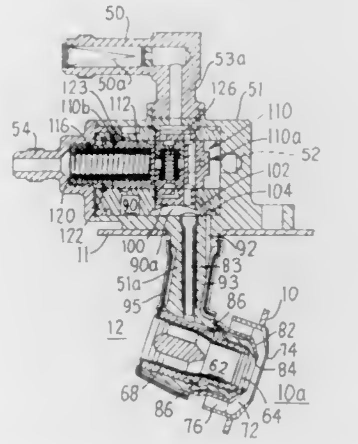
Pierre Mouton, Grigny, France, assignor to Societe Nationale D'Etude et de Construction de Moteurs D'Aviation "Snecma" , Paris, France
Filed Dec. 20, 1996, Ser. No. 771,288
Claims priority, application France, Dec. 20, 1995, 95 15119
Int. Cl.^{6} F02C *7/268*
U.S. Cl. 60—39.091 **3 Claims**



1. A system for assisting the restarting of at least one dead engine of an aircraft in flight using windmilling of said engine, especially in the event of said aircraft suffering a total loss of engine power, said aircraft including:
servocontrols;
a hydraulic circuit for supplying fluid under pressure to said servocontrols, said hydraulic circuit comprising
  a main pump for pressurizing said fluid, said main pump being driven by said engine,
  an emergency pump for pressurizing said fluid in the event of loss of engine power,
  a fluid reservoir,
  feed ducts connecting said reservoir to said pumps,
  delivery ducts connecting said pumps to said servocontrols, and
  a return duct connecting said servocontrols to said reservoir; and
  a dynamic air pressure turbine which is deployed from the fuselage of said aircraft for driving said emergency pump in the event of loss of engine power;
wherein said system comprises a reversible pump as said main pump, and means for enabling said emergency pump to supply hydraulic power to said reversible main pump whereby said reversible main pump operates as a hydraulic motor to increase the windmilling speed of said engine.

5,735,117
STAGED FUEL INJECTION SYSTEM WITH SHUTTLE VALVE AND FUEL INJECTOR THEREFOR

Alvin D. Toelle, Holland, Mich., assignor to Fuel Systems Textron, Inc., Zeeland, Mich.
Filed Aug. 18, 1995, Ser. No. 516,862
Int. Cl.^{6} F02G *3/00*
U.S. Cl. 60—39.094 **15 Claims**



1. A fuel injection system for a gas turbine engine combustion chamber, comprising
at least one pilot fuel injector communicated to said combustion chamber for discharging fuel thereto,
at least one secondary fuel injector having a fuel discharge passage communicated to said combustion chamber for discharging fuel thereto and a fuel purging passage communicated to a purge air source,
fuel flow control means for supplying fuel flow to said pilot fuel injector under all regimes of engine operation and to said secondary fuel injector under regimes of engine operation requiring fuel flow above a selected level, and
a purge valve movable between a first position to provide fuel flow between said fuel control means and said fuel discharge passage of said secondary fuel injector for fuel injection to said combustion chamber and to a second position to terminate said fuel flow and to communicate said fuel discharge passage of said secondary injector and said fuel purging passage to purge fuel from said fuel discharge passage to said combustion chamber, said purge valve being communicated at all times to pilot inlet fuel pressure and biased by spring means in a manner to position said shuttle valve at the second purging position when fuel flow to said secondary injector is controlled below said selected level and being communicated to secondary fuel inlet pressure when fuel flow exceeds said selected level such that said secondary fuel pressure on said shuttle valve overcomes said pilot fuel inlet pressure and said spring means to position said shuttle valve at the first injection position.

12. A fuel injector for a gas turbine engine, comprising:
injector housing means having a fuel discharge passage communicated to a combustion chamber and a fuel purge passage communicated to a source of purge air,
a shuttle valve disposed in said housing means and movable to a first fuel injection position where said fuel discharge passage is communicated to a source of fuel and said purge passage is prevented by said shuttle valve from communicating with said fuel discharge passage, and a second fuel purging position where said fuel discharge passage and said purge passage are communicated by said shuttle valve to purge fuel residing in said fuel discharge passage to said combustion chamber,
spring means for biasing said shuttle valve toward said second purging position, and
fuel port means at which fuel pressure is applied on said shuttle valve counter to said spring means to move said shuttle valve toward said fuel injection position.

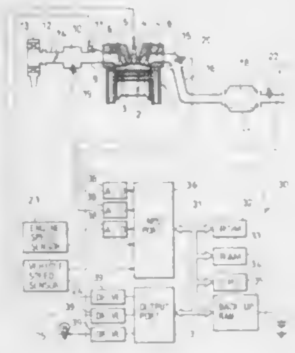
5,735,118
USING METAL COMPLEX COMPOSITIONS AS GAS GENERANTS

Jerald C. Hinshaw, Farr West; Daniel W. Doll, North Ogden; Reed J. Blau, Richmond, all of Utah, and Gary K. Lund, Malad, Id., assignors to Thiokol Corporation, Ogden, Utah
Division of Ser. No. 507,552, Jul. 26, 1995, which is a continuation-in-part of Ser. No. 184,456, Jan. 19, 1994, abandoned. This application Aug. 16, 1996, Ser. No. 698,657
Int. Cl.^{6} C06D *5/00*
U.S. Cl. 60—219 **23 Claims**

1. A method of inflating an inflatable air bag or balloon comprising
generating substantially non-toxic gas by combusting an at least essentially azide-free gas generating, composition containing at least one metal ammine complex having transition metal cation or alkaline earth metal cation and at least one neutral ligand comprised of ammonia, and sufficient oxidizing anion to balance the charge of the metal cation, wherein said composition is formulated with at least one additional ingredient which comprises:
  (i) carbon powder,
  (ii) a binder, or
  (iii) up to about 50% by weight of an inorganic oxidizer, such that when the gas generating formulation combusts, a substantially non-toxic mixture of gases containing nitrogen gas and water vapor is produced; and
inflating said air bag or balloon using said gases.

5,735,119
EXHAUST PURIFICATION DEVICE OF AN ENGINE

Takamitsu Asanuma; Tetsuro Kihara, both of Susono; Kenji Katoh, Shizuoka, and Satoshi Iguchi, Mishima, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan
Filed Mar. 22, 1996, Ser. No. 620,623
Claims priority, application Japan, Mar. 24, 1995, 7-066004
Int. Cl.^{6} F01N *3/20*
U.S. Cl. 60—276 **23 Claims**



1. An exhaust gas purification device of an engine having an exhaust passage, comprising:
an NO_x absorbent arranged in the exhaust passage, said NO_x absorbent absorbing NO_x therein when an air-fuel ratio of exhaust gas flowing into the NO_x absorbent is lean and releasing absorbed NO_x therefrom when the air-fuel ratio of the exhaust gas flowing into the NO_x absorbent becomes rich;
air-fuel ratio control means for controlling the air-fuel ratio of the exhaust gas flowing into the NO_x absorbent to temporarily change the air-fuel ratio of the exhaust gas flowing into the

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NO_x absorbent from lean to rich at certain time intervals to release NO_x from the NO_x absorbent;

deterioration detecting means for detecting a degree of deterioration of the NO_x absorbent; and

NO_x releasing control means for controlling at least one of a period at which the air-fuel ratio of exhaust gas flowing into the NO_x absorbent is changed from lean to rich and a rich time during which the air-fuel ratio of exhaust gas flowing into the NO_x absorbent is made rich to make one of said period and said rich time shorter as the degree of deterioration of the NO_x absorbent becomes higher.

5,735,120
DEVICE FOR JUDGING THE DETERIORATION OF A CATALYST OF AN ENGINE

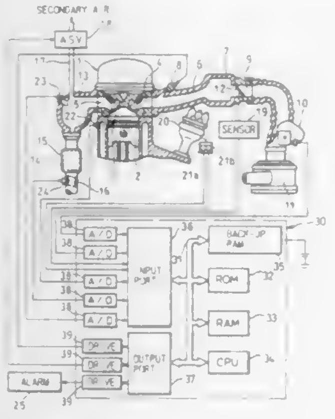
Toshinari Nagai, Suntou-gun, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Oct. 30, 1996, Ser. No. 739,967

Claims priority, application Japan, Nov. 21, 1995, 7-302834

Int. Cl.⁶ F01N *3/20;* F02D *41/14*

U.S. Cl. 60—276 17 Claims



1. A device for judging the deterioration of a catalyst arranged in an exhaust passage of an engine, said device comprising:

air-fuel ratio detecting means arranged in the exhaust passage and producing an output signal which represents an air-fuel ratio;

feedback control means for controlling an air-fuel ratio by a feedback control value, which changes in accordance with a change in the output signal of said air-fuel ratio detecting means, to equalize the air-fuel ratio with a target air-fuel ratio;

first learning value calculating means for calculating a first learning value, which represents a value of the center of fluctuation of said feedback control value when the engine is operating in a predetermined first operating region, to reflect said first learning value in control of the air-fuel ratio when the engine is operating in said first operating region;

judging means for judging whether or not the catalyst has deteriorated when the engine is operating under a predetermined second operating region which is a limited narrower region within said first operating region; and

second learning value calculating means for calculating a second learning value, which represents a value of the center of fluctuation of said feedback control value when the engine is operating in said second operating region, to reflect said second learning value in control of the air-fuel ratio when the engine is operating in said second operating region.

5,735,121
AIR PUMP ABNORMALITY-DETECTING SYSTEM FOR INTERNAL COMBUSTION ENGINES

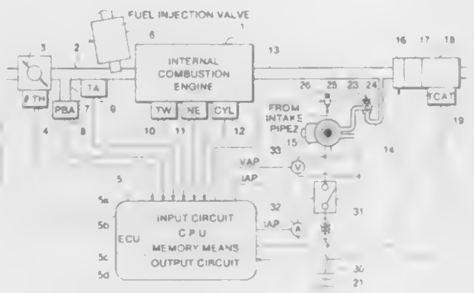
Hiroaki Kato; Yuichi Shimasaki; Takashi Komatsuda; Akihisa Saito, and Tetsu Teshirogi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1996, Ser. No. 748,782

Claims priority, application Japan, Nov. 16, 1995, 7-321232

Int. Cl.⁶ F01N *3/22*

U.S. Cl. 60—277 6 Claims



1. An air pump abnormality-detecting system for an internal combustion engine having an exhaust system, catalyst means arranged in the exhaust system, a passage extending from said exhaust system at a location upstream of said catalyst means, and an electrically driven air pump arranged across said passage, for supplying secondary air into said exhaust system, said air pump abnormality-detecting system comprising:

current-detecting means for detecting electric current flowing through said air pump,

voltage-detecting means for detecting voltage applied to said air pump;

abnormality-detecting means for detecting an abnormality of said air pump by comparing an output from said current-detecting means obtained during operation of said air pump, with predetermined abnormality-detecting reference values; and

abnormality-detecting parameter-correcting means responsive to an output from said voltage-detecting means, for correcting at least one of said output from said current-detecting means or said predetermined abnormality-detecting reference values.

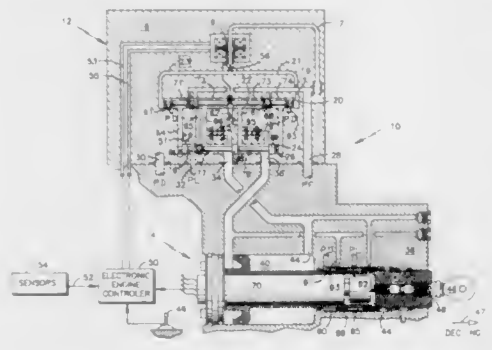
5,735,122
ACTUATOR WITH FAILFIXED ZERO DRIFT

Kevin D. Gibbons, Torrington, Conn., assignor to United Technologies Corporation, Windsor Locks, Conn.

Filed Nov. 29, 1996, Ser. No. 753,800

Int. Cl.⁶ F16D *31/02*

U.S. Cl. 60—406 9 Claims



1. In an actuator for positioning a device having a piston movable in a bore and an electrohydraulic servovalve for controlling a first pressure signal to a first end of the piston and a second pressure signal to a second end of the piston to move the piston in response to an electrical signal, an improved failfixed valve for maintaining the piston in a fixed position upon failure of the electrical signal comprising:

sleeve means disposed in close fitting relation around a portion of the piston, said sleeve means having an aperture means therethrough disposed circumferentially thereabout;

friction pad means adapted to be received in said aperture means, said friction pad means radially movable in said aperture means;

a flexible sleeve means surrounding a portion of said sleeve means, said flexible sleeve means disposed in close fitting relation with said friction pad means; and

valve means in fluid communication with the first and the second end of the piston for receiving the first and the second pressure signals, said valve means operative upon failure of the electrical signal to supply a locking pressure to said flexible sleeve means whereby said flexible sleeve means transmits said locking pressure to said friction pad means to force said friction pad means against the piston such that said friction pad means and said sleeve means move with the piston and such that said valve means controls the first and the second pressure signals in response to movement of said friction pad means and said sleeve means so that the piston is clamped in a fixed position.

5,735,123
ENERGY GENERATING SYSTEM

Dietrich Ehrig, Grasberg, Germany, assignor to Daimler-Benz Aerospace Airbus GmbH, Hamburg, Germany

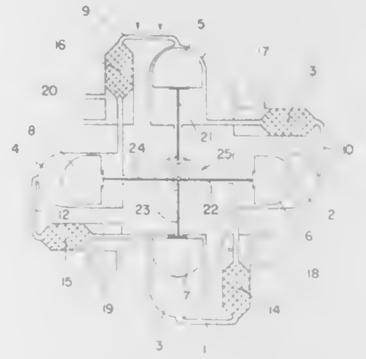
PCT No. PCT/DE94/01252, § 371 Date Apr. 26, 1996, § 102(e) Date Apr. 26, 1996, PCT Pub. No. WO95/12065, PCT Pub. Date May 4, 1995

PCT Filed Oct. 25, 1994, Ser. No. 635,939

Claims priority, application Germany, Oct. 29, 1993, 43 36 975.8

Int. Cl.⁶ F02G *1/04*

U.S. Cl. 60—525 20 Claims



1. An energy generating system comprising a Stirling engine and a radiant heat absorber arrangement coupled to said Stirling engine, wherein said Stirling engine includes a plurality of heaters, wherein said heat absorber arrangement comprises a tubular heat exchanger that is arranged to receive radiant energy and that comprises a plurality of tubes arranged to form a spiral flow pattern, and wherein said plurality of heaters is combined together to form said tubular heat exchanger

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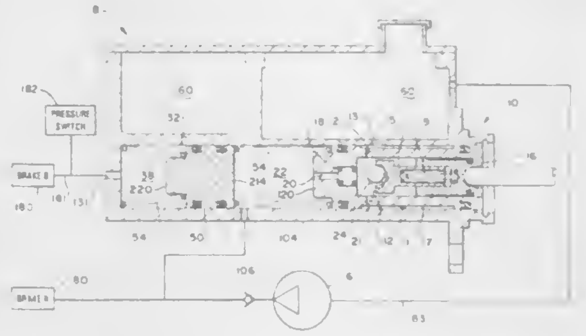
5,735,124
INTERNALLY BOOSTED MASTER CYLINDER

Frederick W. Cords, Le Sueur, and David E. Frye, North Mankato, both of Minn., assignors to Commercial Intertech Corp., Youngstown, Ohio

Continuation-in-part of Ser. No. 568,628, Dec. 7, 1995. This application Jul. 29, 1996, Ser. No. 681,865

Int. Cl.⁶ B60T *13/12*

U.S. Cl. 60—548 19 Claims



6. Apparatus for providing internal boosting within a master cylinder for a land vehicle brake system having two isolated sets of brakes, the apparatus comprising:

- a) a housing having:
  - i) a first and a second hydraulic fluid reservoir, and
  - ii) a bore ending in a wall having a port therethrough;
- b) a first brake actuating piston received in the bore and slidingly sealed thereto and having a head portion connected to a sleeve portion surrounding a recess, the head portion having a bore therethrough and forming a first brake actuating chamber in the bore of the housing when the brake actuating piston is received therein;
- c) a sensing piston received in and slidingly sealed to the recess of the first brake actuating piston and having a first end exposed exteriorly of the housing for receiving motion from an operator driven actuator and having a second end distal of the first end;
- d) a modulating stem received between the sensing piston and the first brake actuating piston and having a valve member facing the bore in the head portion of the first brake actuating piston;
- e) a spring located in and projecting slightly beyond the bore in the head portion of the brake actuating piston for urging the valve member away from the bore;
- f) a hydraulic pump fluidly connected between the first fluid reservoir and a port in fluid communication with the bore of the housing to pressurize the first brake actuating chamber to a relatively high pressure when the pump is energized such that the master cylinder is internally boosted when the pump is energized; and
- g) a second brake actuating piston received in the bore and slidingly sealed thereto and having a first end adjacent the first brake actuating chamber and a second end forming a second brake actuating chamber in the bore of the housing adjacent the wall having a port therethrough when the second brake actuating piston is received therein.

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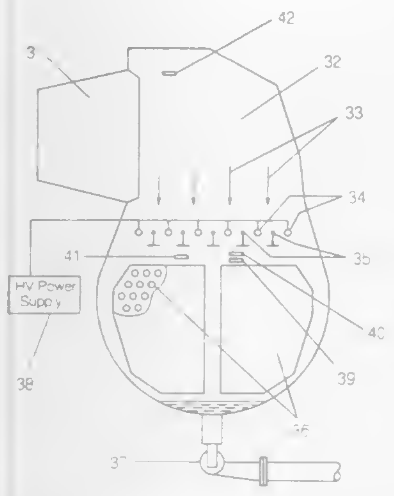
5,735,125
STEAM CONDENSATION IN STEAM TURBINE

Anatoly O. Tarelin, ul. Komandarma Uberovycha 50 - 6, Apt. 114, Kharkiv - 129, Ukraine, 310129; Volodymyr P. Skliarov, ul. Korolenko 4, Yuzhny-2, Kharkiv Oblast, Ukraine, 412118; Yury I. Serhienko, Prospekt Traktorbudivelnykiv 77, Apt. 286, Kharkiv-120, Ukraine, 310120, and Oleh Weres, P.O. Box 116, Vineburg, Calif. 95487

Filed Jan. 22, 1996, Ser. No. 589,420
Int. Cl.^{6} F01B *31/16*
U.S. Cl. 60—685 33 Claims



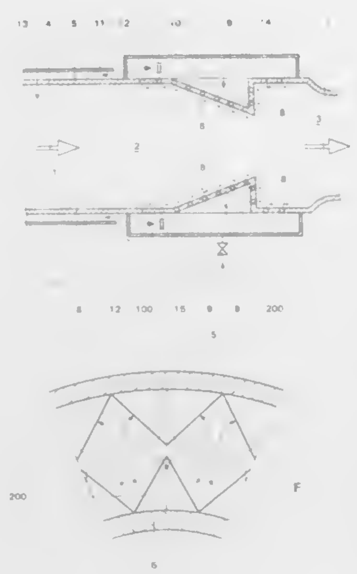
1. A method for reducing turbine backpressure in a steam power generating unit whereby power output of said steam power generating unit is significantly increased therefor, said steam power generating unit having a steam supply and including
- a steam turbine
  - driven by said steam supply and
  - having a turbine exhaust having a flow path and
  - comprising wet steam, and
- a condenser having an electrical ground, and
- a connecting channel defining a section intersecting the flow path of the turbine exhaust which conveys said turbine exhaust from the steam turbine to the condenser,

wherein said method comprises the steps of:
- (i) producing inside of said connecting channel an electric field, wherein
  - said electric field lies in the flow path of said turbine exhaust, and
- (ii) using the produced electric field to provide an average electric field strength within said connecting channel of a predetermined value within a range of values such that
  - said predetermined value is sufficiently large to reduce turbine backpressure and hence increase power output
  - but is small enough to avoid undesirable electrical discharges.

5,735,126
COMBUSTION CHAMBER

Burkhard Schulte-Werning, Basel, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Apr. 1, 1996, Ser. No. 625,190
Claims priority, application Germany, Jun. 2, 1995, 195 20 291.0
Int. Cl.^{6} F02C *1/00*
U.S. Cl. 60—732 17 Claims

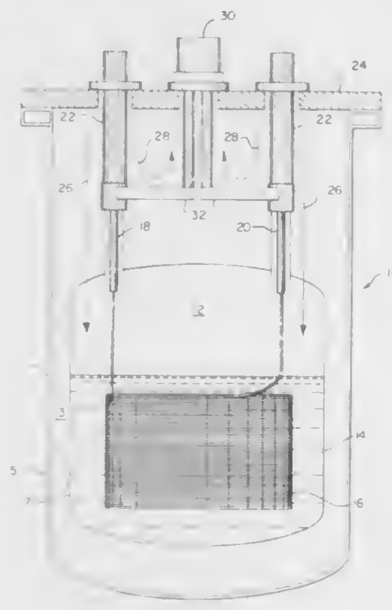


1. A combustion chamber, which comprises a wall enclosing a duct defining a primary combustion zone and a secondary combustion stage arranged downstream in the direction of flow, a mixing section being defined intermediately between the primary combustion zone and the secondary combustion stage and a plurality of vortex generators mounted in the mixing section, and wherein the mixing section and vortex generators have passage openings for injecting mixing air into a main flow.

5,735,127
CRYOGENIC COOLING APPARATUS WITH VOLTAGE ISOLATION

John M. Pfotenhauer, Madison, and Orrin D. Lokken, Fitchburg, both of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 28, 1995, Ser. No. 495,969
Int. Cl.^{6} F25B *9/00*
U.S. Cl. 62—6 50 Claims

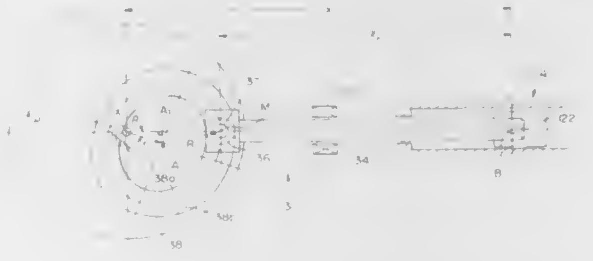


1. A cryogenic cooling apparatus, comprising:
- a cold finger having a cold end structure made of a thermally and electrically conductive material to be placed in metallic contact with an electrically charged structure to be cooled, a warm end structure, and an enclosing wall made of an electrically insulating material connected between the cold end structure and the warm end structure, the cold end structure, warm end structure, and enclosing wall, forming a cold finger chamber for containing a cryogenic working fluid;
- a regenerator in the cold finger chamber, the regenerator having an electrically insulating enclosure forming a regenerator chamber, the regenerator chamber being in fluid communication with the cold finger chamber and containing a porous regenerator material interleaved with a sufficient number of electrically insulating separator screens to divide the regenerator chamber into sub-chambers which permit fluid flow in the regenerator chamber and which create small voltage steps across the working fluid when the cold end structure is attached to the electrically charged structure such that the local electric field inside the cold finder does not exceed the breakdown voltage of the working fluid; and
- means for acting on the cryogenic working fluid in the cold finger chamber in a thermodynamic cycle to cool the cold end structure to a cryogenic temperature level.

5,735,128
CRYOGENIC REFRIGERATOR DRIVE

Yueli Zhang, Medfield; Ronald Norman Morris, North Falmouth, and David Christopher Giusti, Mansfield, all of Mass., assignors to Helix Technology Corporation, Mansfield, Mass.

Filed Oct. 11, 1996, Ser. No. 729,572
Int. Cl.^{6} F25B *9/00*
U.S. Cl. 62—6 29 Claims



1. A drive for driving a first displacer in a cryogenic refrigerator comprising:
- a rotatable cam having a first radially facing noncircular rotatable cam surface, the cam rotating about a pivot point;
- a first cam follower contacting the first cam surface at a single radial location at any instant, rotational motion of the cam being converted into reciprocating motion of the first cam follower in a first direction, said first direction being radially oriented relative to the cam; and
- a first displacer rod coupled between the first cam follower and the first displacer for transferring the reciprocating motion of the first cam follower to the first displacer for driving the first displacer

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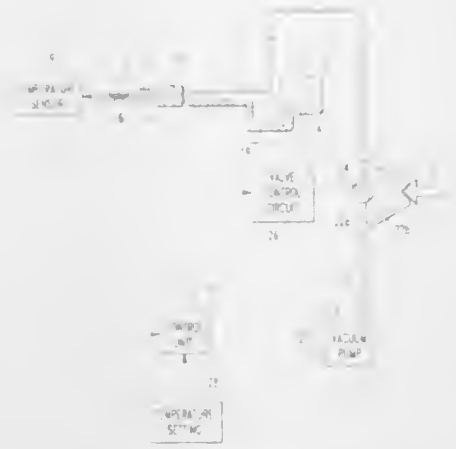
5,735,129
SPECIMEN-COOLING SYSTEM FOR ELECTRON MICROSCOPE OR THE LIKE

Katsuji Ienaga, Tokyo, Japan, assignor to Jeol Ltd., Tokyo, Japan

Filed Oct. 25, 1996, Ser. No. 738,224
Int. Cl.^{6} H01J *37/20;* **F25B** *19/00*
U.S. Cl. 62—51.1 6 Claims



1. A cooling system for use with an electron microscope comprising:
- a refrigerant-holding means for holding a refrigerant;
- a refrigerant introduction passage for introducing said refrigerant from said refrigerant-holding means into a given heat-exchanging position;
- a low temperature transfer means for transmitting low temperature of said refrigerant placed at said heat-exchanging position in said refrigerant introduction passage to a specimen;
- an exhaust passage which is in communication with said refrigerant introduction passage and through which gas produced by evaporation of said refrigerant flows, said exhaust passage including a parallel circuit consisting of first and second conduit lines juxtaposed;
- a flow rate-adjusting means mounted in said exhaust passage and acting to vary the flow rate of said gas, said flow rate-adjusting means comprising a solenoid valve mounted in said first conduit line and a flow rate-adjusting valve mounted in said second conduit line, said solenoid valve setting the flow rate of said gas to said maximum flow rate when said solenoid valve is open, said flow rate-adjusting valve being so set up or adjusted that the flow rate of said gas flowing through said exhaust passage assumes said minimum flow rate; and
- a control unit capable of establishing a plurality of modes of operation including a maximum flow rate mode in which said specimen is cooled rapidly and a minimum flow rate mode adapted for observation with the electron microscope, said control unit controlling said flow rate-adjusting means according to the flow rate of said gas such that said cooling system operates in one of said modes of operation, said control unit controlling said solenoid valve in such a way that it opens said solenoid valve in said maximum flow rate mode and closes said solenoid valve in said minimum flow rate mode

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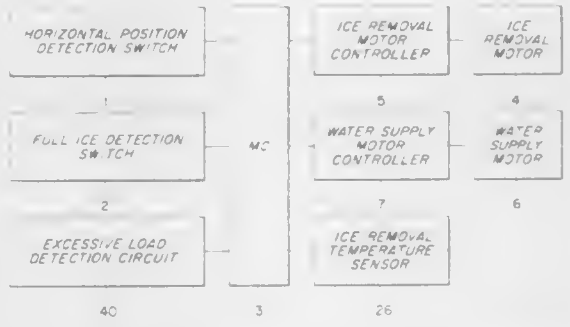
5,735,130
ICE REMOVAL MOTOR CONTROL CIRCUIT AND METHOD FOR AN AUTOMATIC ICE MAKER

Kun Bin Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 26, 1996, Ser. No. 756,823
Claims priority, application Rep. of Korea, Nov. 30, 1995, 95-45707
Int. Cl.^{6} F25C *1/00*
U.S. Cl. 62—71 5 Claims


HORIZONTAL POSITION DETECTION SWITCH
1
FULL ICE DETECTION SWITCH
2
EXCESSIVE LOAD DETECTION CIRCUIT
40
MC
3
ICE REMOVAL MOTOR CONTROLLER
5
ICE REMOVAL MOTOR
4
WATER SUPPLY MOTOR CONTROLLER
7
WATER SUPPLY MOTOR
6
ICE REMOVAL TEMPERATURE SENSOR
26

1. An ice removal motor control circuit for an automatic ice maker having an ice tray, an ice removal motor for rotating the ice tray to thereby remove ice, and an ice removal motor controller for controlling a rotational direction of the ice removal motor, the ice removal motor control circuit comprising

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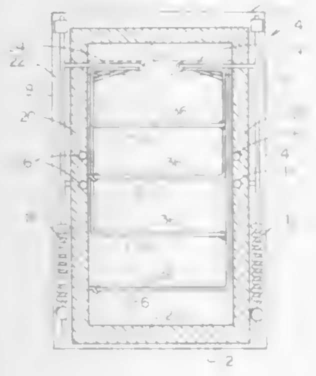
load voltage detection means for detecting a load voltage applied across said ice removal motor;
a comparator for comparing the load voltage with a predetermined reference voltage; and
control means for outputting a control signal to said ice removal motor controller to stop operation of said ice removal motor when the load voltage is larger than the reference voltage.

5,735,131
SUPPLEMENTAL REFRIGERATED ELEMENT

Harley Lambright, Jr., 7265 W. 200 North, and Raymond M. Miller, 275 North, both of Shipshewana, Ind. 46565
Filed Mar. 26, 1996, Ser. No. 621,982
Int. Cl.^{6} F25D *17/02;11/02*
U.S. Cl. 62—99 21 Claims

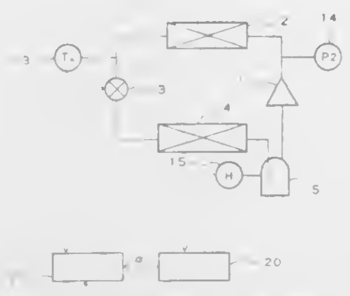


1. A pair of supplemental refrigerated elements for converting a conventional refrigerator into a freezer, each of said elements comprising a refrigerant reservoir, a condenser operatively connected to said reservoir, said condenser having a heat exchanger operatively connected thereto having walls being shaped to be complementary of a portion of the evaporator of a conventional refrigerator to condense refrigerant therein, and an evaporator freezer shelf positioned within said refrigerator and below and operatively connected to said condenser all having refrigerant therein, said refrigerant being liquid at temperatures below about 0° C. in said condenser, said liquid refrigerant being gravity circulated through said evaporator freezer shelf at a rate sufficient to maintain items on said freezer shelf below about 0° C., said refrigerant when vaporized being circulated back to said condenser.

5,735,132
CONTROL-INFORMATION DETECTING APPARATUS FOR A REFRIGERATION AIR-CONDITIONER USING A NON-AZEOTROPE REFRIGERANT

Yoshihiro Sumida; Takashi Okazaki, both of Hyogo; Osamu Morimoto, and Tomohiko Kasai, both of Wakayama, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 500,551, Jul. 11, 1995, Pat. No. 5,626,026. This application Jan. 7, 1997, Ser. No. 779,851
Claims priority, application Japan, Jul. 21, 1994, 6-169570; Aug. 31, 1994, 6-207457
Int. Cl.^{6} F25B *1/00*
U.S. Cl. 62—129 2 Claims

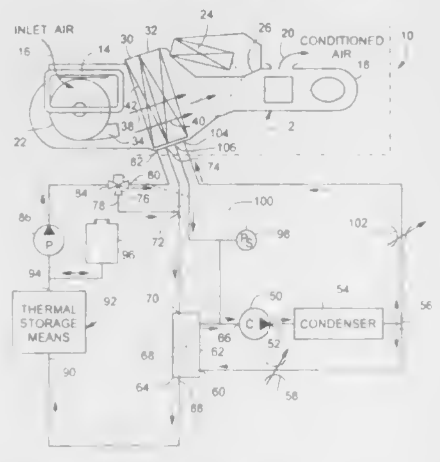
1. A control-information detecting apparatus for a refrigeration air-conditioner using a non-azeotrope refrigerant as a refrigerant thereof; the air-conditioner having a refrigerating cycle composed by connecting a compressor, a condenser, a decompressing device, an evaporator, and an accumulator; said apparatus comprising:
a liquid level detector for detecting a liquid level in said accumulator, and



a composition computing unit for computing a composition of the refrigerant circulating through said refrigerating cycle on a signal detected by said liquid level detector.

5,735,133
VEHICULAR COOLING SYSTEM WITH THERMAL STORAGE

Mark G. Voss, Franksville; Alan P. Meissner, and Joseph R. Stevenson, both of Racine, all of Wis., assignors to Modine Manufacturing Co., Racine, Wis.
Filed Apr. 12, 1996, Ser. No. 631,477
Int. Cl.^{6} F25D *17/02*
U.S. Cl. 62—185 6 Claims

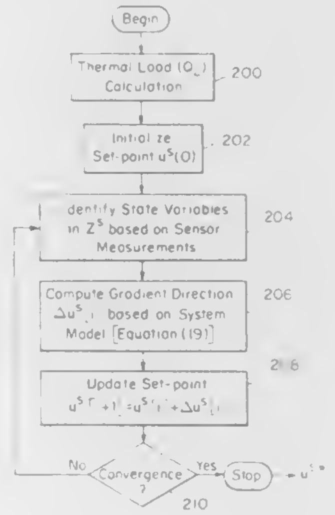


1. A cooling system for a compartment of a vehicle comprising:
a blower having an outlet for directing air into a compartment;
an air/liquid heat exchange having a first heat exchange fluid flow path connected to said outlet and a second heat exchange fluid flow path in heat exchange relation to said first flow path:
a refrigerant compressor;
an expansion device;
a condenser connected between said compressor and said expansion device;
a liquid/refrigerant evaporator connected between said expansion device and said compressor oppositely of said condenser, said evaporator having a refrigerant flow path receiving refrigerant from said expansion device and a liquid flow path in heat exchange relation with said refrigerant flow path:
means connecting said liquid flow path in circuit with said second heat exchange fluid flow path to establish a coolant circuit;
means for circulating a liquid coolant in said coolant circuit; a rechargeable thermal storage device in said coolant circuit, said storage device absorbing heat form said coolant when said coolant is above a predetermined temperature and rejecting heat to said coolant when said coolant is below a predetermined temperature;
an air/refrigerant evaporator having a refrigerant flow path connected to receive refrigerant from said condenser and to

discharge refrigerant to said compressor at an airflow path in heat exchange relation with said refrigerant flow path connected to receive air from said outlet and discharge it into the compartment;
a bypass loop in said coolant circuit for bypassing said air/liquid heat exchanger;
a valve for selectively opening or closing said bypass loop;
a pressure sensor located between said compressor and said evaporators; and a means responsive to said pressure sensor for operating said valve.

5,735,134
SET POINT OPTIMIZATION IN VAPOR COMPRESSION CYCLES

Sheng Liu, San Fransisco, Calif., and Xiang-Dong He, Arlington, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Filed May 30, 1996, Ser. No. 655,533
Int. Cl.^{6} F25B *49/02*
U.S. Cl. 62—230 30 Claims

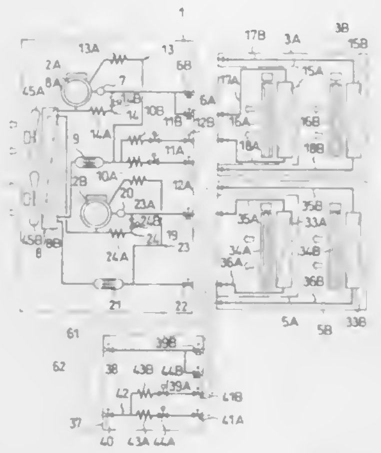

Begin
Thermal Load (Q_L) Calculation
200
Initialize Set-point u^S(O)
202
Identify State Variables in Z^S based on Sensor Measurements
204
Compute Gradient Direction Δu^S(i) based on System Model [Equation (19)]
206
Update Set-point u^S(i+1)=u^S(i)+Δu^S(i)
216
No
Convergence ?
Yes
Stop
u^S*
210

1. A method of controlling a vapor compression cycle in a vapor compression system comprising:
(a) generating a set of parameters which define an operating condition for the vapor compression system;
(b) operating the vapor compression system in accordance with the set of parameters;
(c) while the system operates, receiving a real-time measurement of at least one of the parameters;
(d) using the real-time measurement, calculating the real-time coefficient of performance of the vapor compression system;
(e) adjusting the at least one parameter; and
(f) repetitively performing steps (c) through (e) as required to maximize the real-time coefficient of performance.

5,735,135
AIR CONDITIONER

Hikaru Katsuki, Kiryu; Junichi Goya, Ohizumi-machi; Yasunori Ohama, Ohra-machi; Hideo Maeda: Kiyoshi Kobayashi, both of Ashikaga; Toshimasa Tsukui, Sakai-machi, and Masato Inuzuka, Ohizumi-machi, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Apr. 9, 1997, Ser. No. 826,382
Claims priority, application Japan, Apr. 10, 1996, 8-112168; Apr. 10, 1996, 8-112172
Int. Cl.^{6} F25B *5/00*
U.S. Cl. 62—259.1 19 Claims

1. An air conditioner comprising:



an outdoor unit having at least one compressor, at least one heat exchanger, at least one expansion device, and tube connectors;
at least one room unit having a heat exchanger and tube connectors; and
refrigerant tubes for connecting said room unit with said outdoor unit to form a refrigerant circuit, wherein
  said outdoor unit is adapted to be selectively connected to said at least one room unit via a first connection box having refrigerant tubes for connecting said compressor to said room unit, and
  a casing for accommodating therein said refrigerant tubes, and said at least one room unit via a second connection box having a multiplicity of branching refrigerant tubes having a multiplicity of branches each equipped with a valve and a expansion device, and adapted to branch said refrigerant into said room units connected thereto, and
  a second casing accommodating said branching refrigerant tubes, said first and second connection boxes mountable on an exterior wall of said outdoor unit

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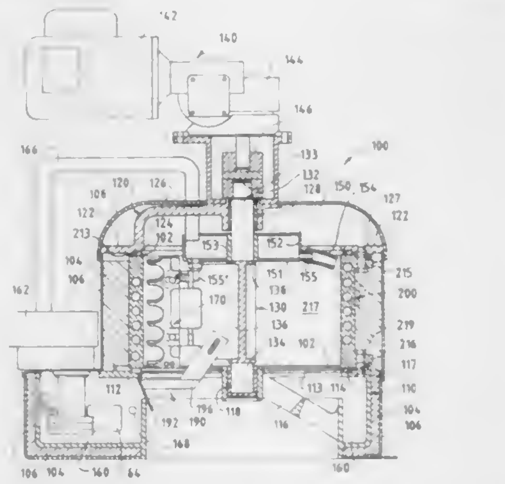
5,735,136
FLAKE FREEZING MACHINE AND SYSTEM USING SAME

Richard W. Howe, Mt. Prospect, and Avinash K. Ahuja, Arlington Heights, both of Ill., assignors to Howe Corporation, Chicago, Ill.
Filed Sep. 11, 1995, Ser. No. 526,291
Int. Cl.^{6} F25C *1/14*
U.S. Cl. 62—354 20 Claims



15. A flake freezing system for producing frozen flakes using a freezable liquid from a liquid source, the flake freezing system comprising:
a flake freezing machine including

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an evaporator including a cylindrical structure having an inner surface and an outer surface such that the inner surface defines an interior chamber, and a tubing assembly located inside the cylindrical structure between the inner surface and the outer surface, the tubing assembly including an inlet for introducing a refrigerating fluid into the tubing assembly and an outlet for discharging the refrigerating fluid from the tubing assembly after the refrigerating fluid has circulated therethrough to cool the inner surface of the cylindrical structure to a temperature sufficient to freeze the liquid,

a rotatable shaft positioned within the interior chamber, the rotatable shaft being aligned with a central axis of the interior chamber,

a drive mechanism for rotating the rotatable shaft,

a nozzle provided on the rotatable shaft and in fluid communication with the liquid source for discharging the liquid toward the inner surface of the cylindrical structure during rotation of the rotatable shaft such that the liquid freezes on the inner surface of the cylindrical structure as a frozen sheet when the refrigerating fluid is being circulated through the tubing assembly, and

a blade member mounted on the rotatable shaft for removing the frozen sheet from the inner surface of the cylindrical structure in the form of frozen flakes;

an accumulator in fluid communication with the outlet of the tubing assembly to accumulate the refrigerating fluid from the tubing assembly after circulating therethrough,

a compressor in fluid communication with the accumulator to pressurize the refrigerating fluid from the accumulator;

a condenser in fluid communication with the compressor to condense the pressurized refrigerating fluid from the compressor; and

a heat exchanger in fluid communication with the condenser and the inlet of the tubing assembly of the evaporator, the heat exchanger further being in fluid communication with the accumulator for pre-cooling the condensed refrigerating fluid from the condenser prior to being introduced into the inlet of the tubing assembly by using the refrigerating fluid from the accumulator

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5,735,137

SUCTION INLET OPENING OR CLOSING APPARATUS FOR AN AIR CONDITIONER

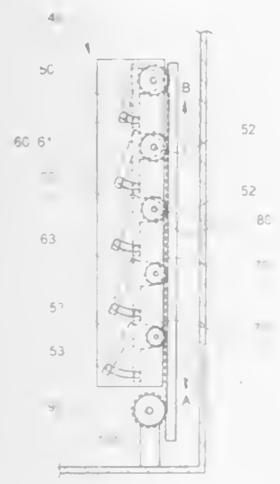
Jong-Lae Kim, Paldal-gu, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jan. 14, 1997, Ser. No. 783,546

Claims priority, application Rep. of Korea, Mar. 21, 1996, 96-7782

Int. Cl.⁶ F25D *17/04*

U.S. Cl. 62—410 **6 Claims**



1 In a room air conditioner comprising an air inlet, an air outlet, a heat exchanger, and a suction source for sucking-in room air through the air inlet and discharging the air through the air outlet after directing the air across the heat exchanger; the improvement comprising:

means for opening and closing the air inlet including

a plurality of vertically adjacent vanes arranged across the air inlet and being rotatable about respective horizontal axes between open and closed positions; and

a drive mechanism operably connected to the vanes for opening the vanes by progressively greater amounts in a direction away from the suction source to expose progressively larger areas of the air inlet in order to achieve a substantially uniform rate of air flow throughout the height of the air inlet, the drive mechanism including pinions connected to respective vanes for rotating the vanes, the pinions having different gear ratios for rotating the vanes through progressively greater angles.

5,735,138

REFRIGERATOR

Suck Haong Park, and Yong Myoung Kim, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

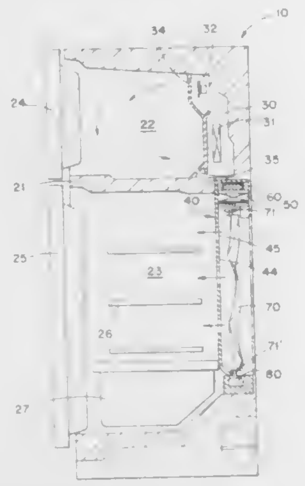
PCT No. PCT/KR95/00082, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO96/02800, PCT Pub. Date Feb. 1, 1996

PCT Filed Jun. 29, 1995, Ser. No. 716,377

Claims priority, application Rep. of Korea, Jul. 19, 1994, 1994/17421; Jul. 19, 1994, 1994/17422; Jul. 19, 1994, 1994/17423; Jul. 19, 1994, 1994/17424; Jul. 19, 1994, 1994/17425; Jul. 19, 1994, 1994/17428; Jul. 19, 1994, 1994/17429; Jul. 19, 1994, 1994/17430; Jul. 20, 1994, 1994/17514; Jul. 20, 1994, 1994/17515; Dec. 10, 1994, 1994/33558

Int. Cl.⁶ F25D *19/00; 17/06*

U.S. Cl. 62—455 **10 Claims**



1 A refrigerator comprising:

freezing and refrigerating compartments which are completely separated from each other by means of an intermediate wall;

a first evaporator for cooling air and a first fan mounted on a rear side of said freezing compartment for circulating the cool air to said freezing compartment; the first evaporator and first fan being isolated from the refrigerating compartment,

a freezing compartment door and a refrigerating compartment door mounted on the front of each compartment for opening/closing said freezing and refrigerating compartments;

and a cool-air circulating apparatus comprising a housing mounted on a rear wall of said refrigerating compartment for circulating cool air to said refrigerating compartment,

said housing comprising an air suction member extending outward horizontally and a cool-air discharge member extending downward from about the middle of said air suction member,

said air suction member including at least one air suction opening formed in a surface thereof, at least one second evaporator mounted in said air suction member for cooling air, a second fan mounted on said air suction member for circulating the air cooled by said second evaporator to said refrigerating compartment, the second evaporator and second fan being isolated from the freezing compartment,

said cool-air discharge member including a grille mounted on a front portion thereof and a blade disposed lengthwise in the interior thereof, said grille having a plurality of cool-air discharge openings formed in an up-and-down direction on a front of said grille, said blade arranged for distributing the cool air cooled by said second evaporator to the respective discharge openings.

5,735,139

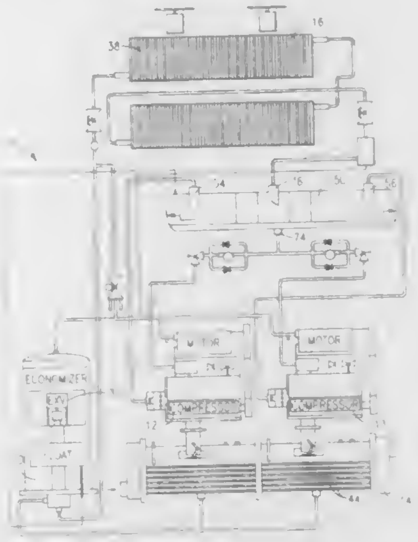
DUAL INLET OIL SEPARATOR FOR A CHILLER

Richard G. Lord, Tullahoma, Tenn., and Kenneth J. Nieva, Baldwinsville, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jun. 28, 1996, Ser. No. 673,375

Int. Cl.⁶ F25B *43/02*

U.S. Cl. 62—470 **7 Claims**



1. An oil separator for separating oil from refrigerant in a chiller, comprising:

a horizontally disposed, elongate housing;

a first inlet into said housing for receiving a first stream of a mixture of oil and refrigerant;

a second inlet into said housing for receiving a second stream of a mixture of oil and refrigerant,

means for separating said oil from said refrigerant in said first and second streams including means for causing said mixture to flow horizontally within said housing while allowing the oil to separate from the refrigerant by gravity;

an oil outlet for removing said oil from said housing; and

a refrigerant outlet for removing said refrigerant from said housing.

5,735,140

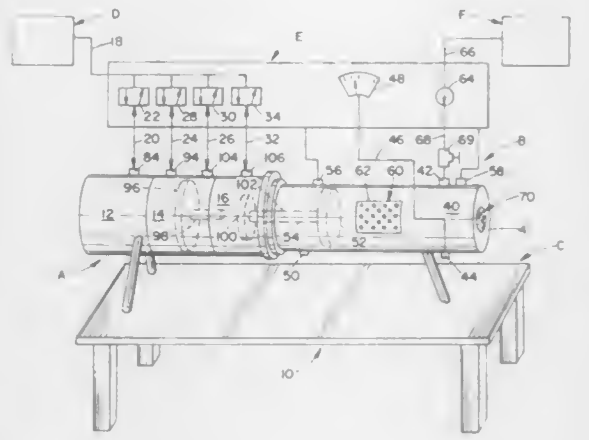
METHOD AND APPARATUS FOR PRODUCING HIGH DENSITY DRY ICE

James R. Becker, North Ridgeville, and Russell Furmanek, Bedford, both of Ohio, assignors to Waste Minimization and Containment, Inc., Cleveland, Ohio

Filed Sep. 13, 1996, Ser. No. 713,985

Int. Cl.⁶ F25J *1/00*

U.S. Cl. 62—605 **15 Claims**



1 A pneumatic CO_2 extrusion apparatus, comprising

an actuator having an output member movable in response to pressurized air applied to said actuator;

a cylinder adapted to receive CO_2, said cylinder having an end wall;

a piston movable in response to motion of said output member of said actuator and disposed within said cylinder, movement of said piston compressing CO_2 received in said cylinder toward said end wall of said cylinder, and

an extrusion die disposed in said end wall of said cylinder for releasing compressed CO_2 from said cylinder as solidified CO_2

5,735,141

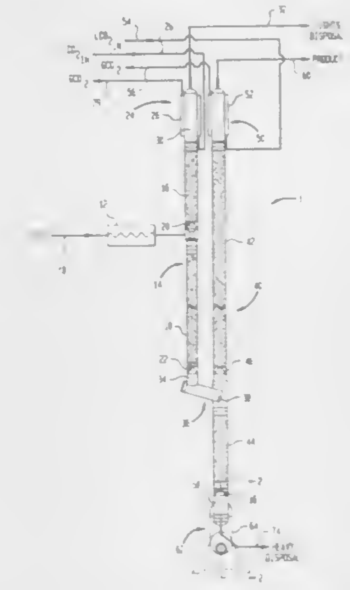
METHOD AND APPARATUS FOR PURIFYING A SUBSTANCE

Walter H. Whitlock, Chapel Hill, N.C., assignor to The BOC Group, Inc., New Providence, N.J.

Continuation-in-part of Ser. No. 660,147, Jun. 7, 1996, abandoned. This application Jan. 10, 1997, Ser. No. 781,463

Int. Cl.⁶ F25J *1/00*

U.S. Cl. 62—620 **15 Claims**



1 A method of purifying a substance having heavy and light impurities comprising.

rectifying said substances in a first distillation column to produce a first column bottoms lean in said light impurities and a first tower overheat concentrated in said light impurities,

introducing a liquid stream of said column bottom into a second distillation column to produce a second column bottoms con

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centrated in said heavy impurities and a second tower overhead lean in both said heavy and light impurities;

boiling said second column bottoms within said second distillation column to provide boil-up within said second column and thereby to initiate formation of an ascending vapor phase within said second distillation column;

withdrawing a vapor stream from said second distillation column, composed of said ascending vapor phase, and introducing said vapor stream into said first distillation column to provide boil-up within said first distillation column; and

withdrawing a product stream from said second distillation column composed of said second tower overhead.

5,735,142

PROCESS AND INSTALLATION FOR PRODUCING HIGH PRESSURE OXYGEN

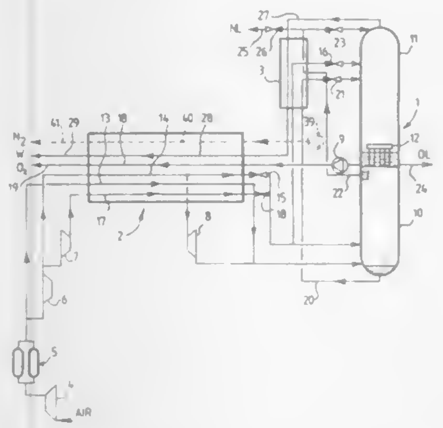
Maurice Grenier, Paris, France, assignor to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris Cedex, France

Filed Jan. 27, 1997, Ser. No. 788,640

Claims priority, application France, Feb. 12, 1996, 96 01698

Int. Cl.^{6} E25J *3/00*

U.S. Cl. 62—646 13 Claims



1. A process for producing a gas with a double distillation column having a low pressure column and a medium pressure column and a heat exchanger, comprising the steps of:

dividing air that is to be distilled into three airflows before directing the air to the heat exchanger, a first airflow at the medium pressure, a second airflow at a high pressure higher than approximately 60 bars, and a third airflow at an intermediate pressure;

cooling the first airflow to near its dew point in the heat exchanger and then introducing the first airflow into the medium pressure column;

cooling and liquefying the second airflow in the heat exchanger and then expanding the second airflow and introducing it into the double column; and

cooling at least a part of the third airflow to an intermediate cooling temperature in the heat exchanger and then expanding the part of the third airflow to the medium pressure in an expansion turbine and introducing it into the medium pressure column, the intermediate cooling temperature being chosen so that the third airflow is near its dew point at its entry into the expansion turbine.

5,735,143

DIET EARRING OF TRAGUS ENGAGEMENT TYPE

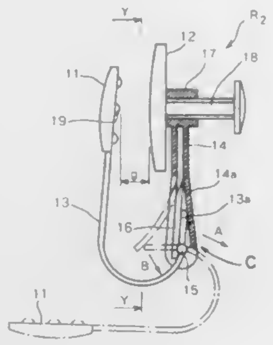
Ryuzo Tanaka, 253-10, Nakamurahara, Odawara-shi, Kanagawa-ken, Japan

Filed Sep. 18, 1996, Ser. No. 710,644

Claims priority, application Japan, Nov. 6, 1995, 7-013148

Int. Cl.^{6} A44C *7/00*

U.S. Cl. 63—14.3 3 Claims



1. A diet earring of tragus engagement type comprising:

a pressing member to be attached to an outer surface of a human tragus;

a retaining member to engage an opposite surface of said tragus;

a connecting member for connecting said pressing member and said retaining member so that said earring is retained to said tragus in the manner that said pressing member together with said retaining member hold said tragus therebetween;

a plurality of projections provided on at least one surface of either one of said pressing member and said retaining member which is opposed to each other, thereby said tragus being stimulated during the state of said tragus being retained between said pressing member and said retaining member; and

wherein each of said projections is substantially circular in cross-sectional shape, said projections being spaced apart from each other by a distance corresponding to the thirst and hunger points on the tragus.

5,735,144

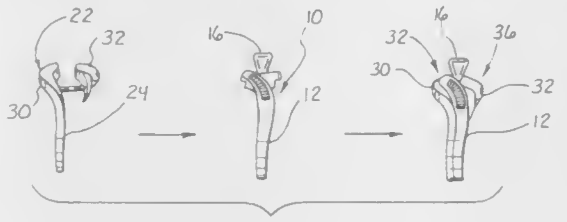
INTERCONNECTABLE RINGS

Elizabeth Man Gabel, Block 5, Site 2 Whampoa Garden 13th Floor, Flat E, Kowloon, Hong Kong

Filed Feb. 16, 1996, Ser. No. 602,585

Int. Cl.^{6} A44C *9/00*

U.S. Cl. 63—15.1 43 Claims



1. A ring member connectable with at least one other ring member having a shank comprising:

(1) a shank;

(2) connector means on said shank, said connector means being engageable with second connector means connected with the shank on said at least one other ring member to connect with the first mentioned connector means thereby connecting said first-mentioned ring member to said at least one other ring member

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5,735,145

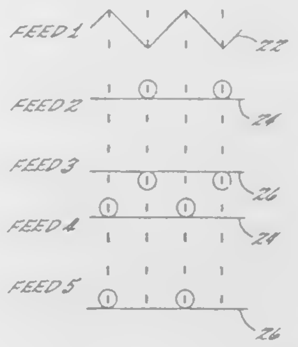
WEFT KNIT WICKING FABRIC AND METHOD OF MAKING SAME

Bruce M. Pernick, Stamford, Conn., assignor to Monarch Knitting Machinery Corporation, Glendale, N.Y.

Filed May 20, 1996, Ser. No. 650,609

Int. Cl.^{6} D04B *1/00*

U.S. Cl. 66—196 31 Claims



1. A method of making a weft knit, wicking fabric on a dual bed knitting machine comprising the steps of:

knitting a first discrete fabric layer from a hydrophobic yarn on a first needle bed of the weft knitting machine,

knitting a second discrete fabric layer from a hydrophilic yarn on a second needle bed of the weft knitting machine, and

knitting a series of courses reciprocating between the first and second needle beds to form a plurality of spacer yarns the spacer yarns securing the first and second fabric layers together in a spaced relationship separated from each other, said series of courses being knit from a moisture transporting yarn for wicking moisture from the first fabric layer to the second fabric layer.

5,735,146

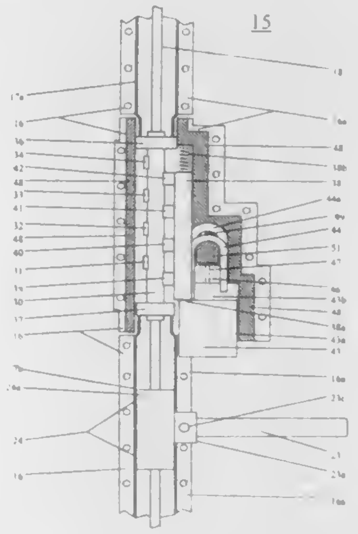
LOCKING DEVICE FOR CAM ROD LOCKS

Gerald N. Taplin, 8801 Ampezo Trail, Austin, Tex. 78749

Filed Jun. 26, 1997, Ser. No. 882,919

Int. Cl.^{6} E05B *63/14*

U.S. Cl. 70—56 14 Claims



1. A cam locking rod device for securing doors on intermodal cargo containers, semi-trailers, utility trailers, trucks, and other similar cargo storage compartments, comprising:

a rotatable cam lock rod, having cam locks on each end, adapted to be mounted on a container door;

a locking cylinder, through which the cam lock rod extends, having at least one locking projection thereon;

a sliding latch having at least one projection thereon for interacting with the at least one projection on the locking cylinder;

a lock having a shoulder adjacent to and in movable contact with the sliding latch;

a spring in contact with the sliding latch biasing the sliding latch in a position in which the at least one projection thereon is in a non-meshed relation to the at least one projection on the locking cylinder;

whereby, when the lock is placed in a locked condition, the lock moves the sliding latch against the bias of said spring, and the projections thereon into a locked position with the projections on the locking cylinder preventing rotation of the cam lock rod.

5,735,147

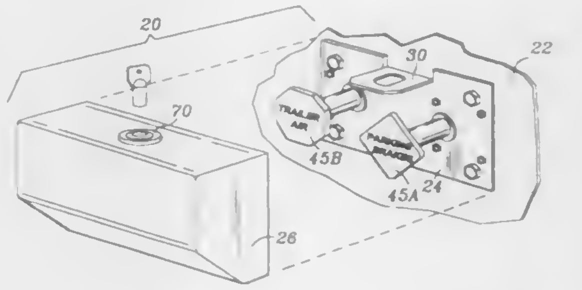
SYSTEM FOR PREVENTING THE MOVEMENT OF VEHICLES HAVING AIR BRAKES

John T. Cattanach, 1238 N. Cedar Ridge Dr., Duncanville, Tex. 75116, and Roy L. Chandler, 1814 Dogwood Dr., Arlington, Tex. 76012

Continuation of Ser. No. 323,364, Oct. 14, 1994, abandoned, which is a continuation-in-part of Ser. No. 47,528, Apr. 15, 1993, abandoned. This application Dec. 23, 1996, Ser. No. 772,976

Int. Cl.^{6} F16K *35/06*

U.S. Cl. 70—164 23 Claims



1. An apparatus adapted to prevent the theft of a wheeled vehicle, comprising:

a) a wheeled vehicle having a cab in which a driver sits to operate the vehicle, and the vehicle having parking brakes that are controlled by pressurized air, and there being a manually actuated valve that the driver uses to control at least one set of the vehicle's brakes, said valve being of the push/pull type that is selectively actuated by linear movement of an exposed knob that is located adjacent a supporting structure in the cab, and the valve having a housing which is mounted behind the supporting structure in a position where it is not normally visible to nor accessible by the driver;

b) a structural base permanently installed in an exposed position in the vehicle's cab where the base will be normally accessible to the driver, and said base being rigidly connected to the valve's housing with a plurality of metal fasteners, and said base being rigid and being configured for installation between the valve's housing and the valve's knob, and said base being configured in such a way that it will not interfere with normal push/pull movement of the valve's knob when the base has been installed, and there being a pair of oppositely directed recesses adjacent the base that are exposed when the structural base has been connected to the valve's housing;

c) a rigid and generally hollow cover adapted to be selectively suspended over and in contact with the structural base after the base has been installed in the vehicle's cab, and the cover being sufficiently deep as to envelop the knob of said manually actuated valve in order to conceal the knob and render it inaccessible when the cover is suspended over the structural base, and the cover being selectively removable from the structural base so as to permit the driver to remove the cover and thereby have access to the knob in order that the valve

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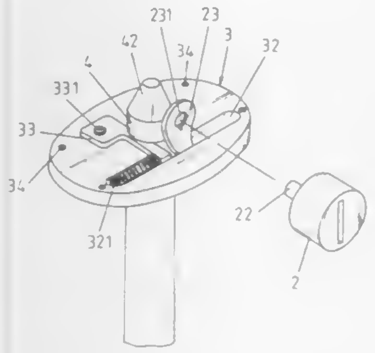
may be actuated with a normal push/pull motion of the knob, and the cover also enveloping any exposed parts of the plurality of metal fasteners when the cover is suspended over the structural base, and the cover having two sides with inwardly directed flanges that are sized and located to engage the pair of oppositely directed recesses that are adjacent the base when the cover is suspended over the base, such that there being structural interference between the cover and the structural base in a direction that is perpendicular to the structural base when the inwardly directed flanges on the cover are engaged with the oppositely directed recesses; and

d) locking means for selectively locking the rigid cover in its suspended position over the structural base, said means including a locking device, and the valve's knob being secured against tampering by unauthorized personnel when the cover has been suspended over the base and locked with the locking device, and the plurality of metal fasteners also being secured against tampering by unauthorized personnel when the cover has been suspended over the base and locked with the locking device.

5,735,148
LOCKING STRUCTURE FOR AN AUTOMOBILE TRANSMISSION SHIFT LEVER

Yung-Chi Hsiao, No.19-1 Alley 27,Lane 245, Hsi Sheng St., Hsin-Chuang City Taipei, Taiwan
Filed Oct. 24, 1994, Ser. No. 328,127
Int. Cl.⁶ B60R *25/06*
U.S. Cl. 70—201 **2 Claims**

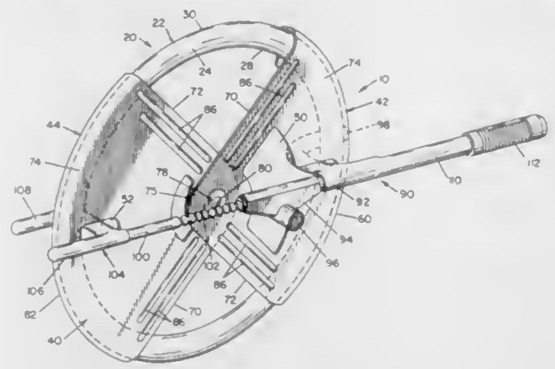


1 A locking structure for locking a transmission shift lever of an automobile, comprising:

- a base member having a central through hole and a concave slot formed therein, mounted to an upper end of the shift lever in a relatively movable manner by having the upper end extending through the central hole of the base member, the upper end of the shift lever that extends through the central hole of the base member comprising a upper truncated-conic portion and a circumferential groove formed thereon below the truncated-conic portion;
- a cover member secured to the base member by fastening means to define therebetween a space, the cover member having a first channel and a second channel formed therein;
- a locking driver received in the first channel of the cover member, having a rotatable driving rod securely connected on the front end of the locking driver, the rotatable driving rod being rotatable by a key through the locking driver;
- a driving member having a through hole connected to the driving rod of the locking driver, the driving member being arranged above the concave slot of the base member so that the driving member may be rotatable by the key via the driving rod;
- a biasing spring positioned on one end of the concave slot of the base member;
- a hook member adapted to lock the shift lever at the circumferential groove or unlock the shift lever, controlled by the driving member; and
- a shift enabling button, in the form of an elongated bar, movably received within the second channel with an outer end thereof exposed outside the second channel of the cover member, the enabling button having a slot adapted to receive therein the upper end of the shift lever, the button slot having formed therein at a lower portion thereof an inclined surface to be in contact and engagement with the truncated-conic portion of the shift lever so that by moving the shift enabling button toward the second channel of the cover member, the engagement forces the shift lever downward to further allow the shift lever to switch to a different position when the driving member is at an unlocked position.

5,735,149
STEERING WHEEL PROTECTION DEVICE

James E. Winner, Jr., Hollywood Beach, Fla., assignor to Winner International Royalty Corporatinn, Sharon, Pa.
Continuation of Ser. No. 541,463, Oct. 10, 1995. This application Jan. 16, 1997, Ser. No. 783,435
Int. Cl.⁶ B60R *25/02*
U.S. Cl. 70—209 **48 Claims**



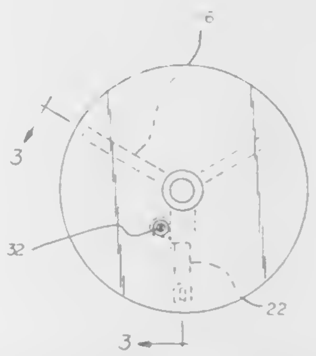
1 A vehicle security device adapted to limit access to a steering wheel which steering wheel includes a rim having a front face, a back face, an inner edge, an inner edge radius, and an outer edge, said security device comprising a cut resistant face plate lying in a plate plane and attachment means for connecting said face plate to said steering wheel, said face plate including at least two plate sections and plate connection means for connecting together each of said plate sections, said plate connection means providing independent rotation of each of said plate sections in said plate plane between a collapsed and a completely open position, said attachment means including an opening on each of said plate sections and positioned inwardly from a peripheral edge of each of said plate sections and spaced on each of said plate sections to be in a non-overlapping relationship with an adjacent plate sections are in said completely open position, at least one of said plate sections including two legs wherein each leg has a first end and a second end and an outer peripheral edge connected between the first end of each leg, said two legs forming an angle of less than 180°.

5,735,150
VEHICLE ANTI-THEFT DEVICE

Richard M. Desouza, 72 Wilclay Ave., Markham, Ontario, Canada, L3S 1R1
Filed May 20, 1997, Ser. No. 859,458
Int. Cl.⁶ B60R *25/02*
U.S. Cl. 70—209 **11 Claims**

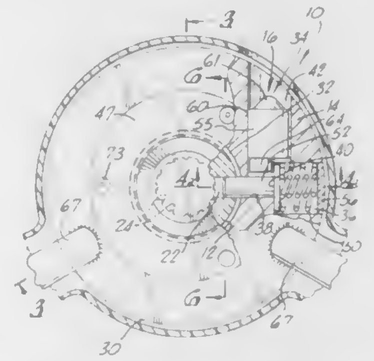
1. A vehicle anti-theft device for preventing theft of a vehicle and removal of a driver side air bag therefrom comprising, in combination:

- a steering wheel;
- an interior locking component adapted for lockable coupling with a periphery of the steering wheel, the interior locking component comprising a central bushing, a pair of fixed arms extend outwardly in an angular orientation from the central bushing, free ends of the fixed arms having hooked portions dimensioned for engaging the periphery of the steering wheel, the central bushing having a receiving sleeve secured thereto and extending radially therefrom in an angular orientation, the interior locking component including an adjustable arm slidably received within the receiving sleeve, a free end of the adjustable arm having a U-shaped portion dimensioned for abuttingly receiving an interior surface of the periphery of the steering wheel in a locked orientation, the adjustable arm having a plurality of teeth formed within an interior edge thereof, the interior locking component including a locking member coupled with a side portion of the receiving sleeve, the locking member having an engaging portion selectively engaging the teeth of the adjustable arm in the locked orientation, the locking member having a key slot therethrough in communication with the engaging portion; and
- an exterior component adapted for rotatable coupling with respect to the interior locking component and the steering wheel, the exterior component including a tapered circular portion, the circular portion having a diameter greater than a diameter of the steering wheel, the circular portion having a peripheral rim extending rearwardly therefrom, a boss extending rearwardly from a central point of the circular portion, the boss rotatably received within the central bushing of the interior locking component, the circular portion having an aperture therethrough offset from the central bushing.



5,735,151
ANTI-THEFT DEVICE FOR MOTOR VEHICLES

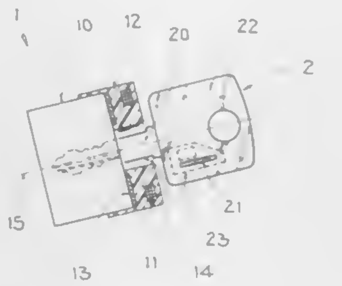
Mark Nickeas, 30816 Whim Dr., Westlake Village, Calif. 91362, and Martin Nickeas, 631 Oakrun #209, Agoura Hills, Calif. 91362
Continuation of Ser. No. 334,410, Nov. 4, 1994, abandoned. This application Sep. 6, 1996, Ser. No. 706,617
Int. Cl.⁶ B60R *25/02*
U.S. Cl. 70—221 **6 Claims**



1. An anti-theft device for motor vehicles which selectively disables the vehicle by interrupting the operative connection of a steering wheel to a steering column, said device comprising a first member adapted to be fixed to the steering wheel, a second member adapted to be fixed to the steering column, said first member cooperating with said second member to define a rotatable mounting of the steering wheel on the steering column, a locking mechanism carried by one of said members, said mechanism being key actuated between a locking position and an unlocking position for selectively coupling and uncoupling said first member to and from said second member when said first member is in radial alignment with said second member and including spring actuated means for automatically coupling said first member to said second member upon said locking mechanism being actuated to the locking position and said first member subsequently rotated into radial alignment with said second member.

5,735,152
LOCKING SYSTEM WITH MAGNETIC FIELD SHIELD

Günter Dietz, Heilsbronn; Matthias Kuhn, Eckental, and Thomas Rupprecht, Moosbach, all of Germany, assignors to Temic Telfunken Microelectronic GmbH, Heilbronn, Germany
Filed Dec. 20, 1996, Ser. No. 770,906
Claims priority, application Germany, Dec. 22, 1995, 195 48 268.9
Int. Cl.⁶ E05B *49/00;* **H05K** *9/00*
U.S. Cl. 70—278 **12 Claims**



1 A locking system having a lock unit and with a key unit between which power and data can be transmitted, wherein the lock unit has a lock body on which a coil carrier with a first induction coil, provided for the transmission of power and data, is located, wherein a second induction coil is provided in the key unit for the transmission of power and data, and wherein the lock unit has a screening body located between the first induction coil and the lock body to screen off magnetic fields, with the screening body being made of a material with good electrical conductivity

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5,735,153
PIN TUMBLER CYLINDER LUCK WITH SHEARABLE ASSEMBLY PINS AND METHOD AND APPARATUS OF MANUFACTURE

Robert Harold Hanneman, Wind Lake; James George Wagner, West Bend, and Steven A. Fantl, Colgate, all of Wis., assignors to Master Lock Company, Milwaukee, Wis.
Continuation of Ser. No. 684,752, Jul. 19, 1996, Pat. No. 5,697,239, which is a continuation of Ser. No. 388,950, Feb. 15, 1995, abandoned, which is a continuation-in-part of Ser. No. 293,368, Aug. 19, 1994, abandoned, which is a continuation-in-part of Ser. No. 110,264, Aug. 23, 1993, abandoned. This application Apr. 14, 1997, Ser. No. 834,141
Int. Cl.⁶ E05B *27/04*
U.S. Cl. 70—493 **7 Claims**

1 A method for manufacturing a lock having a shell, a turnable plug rotatably mounted within said shell and having a keyhole for insertion of a key, a shear line between the shell and plug, a plurality of aligned shell and plug passageways, and assembly pins in said passageways, comprising the steps of:

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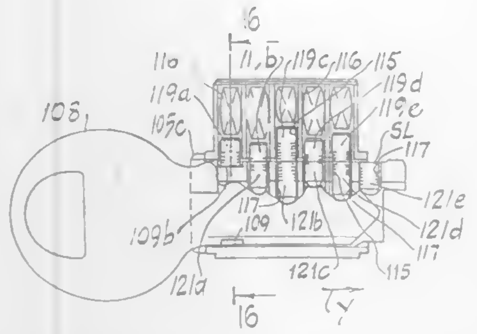


a) positioning said shell and plug with said shell held against movement relative to said plug and with the shell passageways aligned with the plug passageways and with an assembly pin located within each aligned shell and plug passageway, each assembly pin having a series of spaced weakened zones and a strength such that application of a first shearing force to said assembly pins equal to or less than the maximum rotative force that can be applied to said plug through said keyhole by every key-like tool that can be inserted into said keyhole will not shear said assembly pins along said weakened zones;

b) aligning a selected weakened zone of each assembly pin with each other for shearing; and

c) thereafter shearing said assembly pins along said selected weakened zones by application of a second shearing force larger than said maximum rotative force along the shear line to shear each assembly pin into two pin sections.

5,735,154
METHOD OF CONTROLLING THE PASSAGE OF ROLLING STOCK THROUGH A CONTINUOUS MILL TRAIN

Otto Hein, Steyr, Austria, assignor to GFM GmbH, Steyr, Austria

Filed Jun. 26, 1996, Ser. No. 670,940
Claims priority, application Austria, Jul. 31, 1995, 1302/95
Int. Cl.⁶ B21B *37/74*

U.S. Cl. 72—13.4 3 Claims

1. A method of controlling the passage of rolling stock through a continuous mill train of successive roll stands comprising rolling shafts supporting the rolls, a rolling-mill drive preceding the rolling shafts, and individual electric motor drives having a steplessly variable rotary speed connected to the rolling-mill drive to apply torque to the rolling shafts, which comprises the steps of

(a) measuring a reaction force on a machine part of a respective one of the stands to obtain a physical parameter changing in dependence on the torque before and after an initial pass of a stand succeeding the one stand, and

(b) controlling the rotational speed of the individual electric motor drive for the succeeding one stand in dependence on any change of the measured physical parameter.

5,735,155
METHOD FOR MANUFACTURING PATTERNED TREAD PLATES

William C. Morton, Barrington, and Jeffery W. Covert, Libertyville, both of Ill., assignors to Morton Manufacturing Company, Libertyville, Ill.

Filed Oct. 24, 1996, Ser. No. 735,662
Int. Cl.⁶ B21C *51/00*

U.S. Cl. 72—14.8 2 Claims

1. A method for manufacturing patterned tread plates comprising the steps of:

providing a press having a path for advancing a sheet therethrough, said press being equipped with a plurality of selectively gaggable dies and punches arranged in a plurality of rows in said path to sequentially engage said sheet when the same is being advanced therethrough in said path,

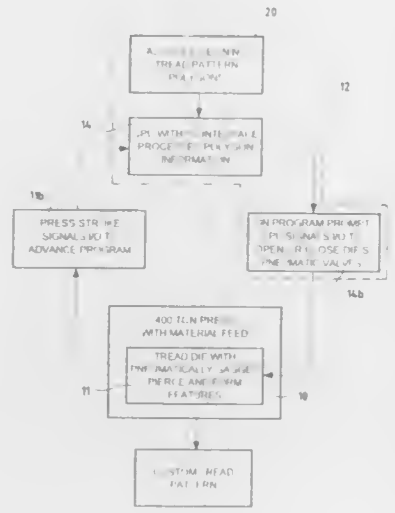
operably associating with said press a CPU having large capacity data storage means,

introducing a multiplicity of sets of codes into said data storage means with each set of codes corresponding to a different tread pattern, some of said codes including select gagging instructions for the operation of said dies,

providing an operator/CPU interface and entering a first code set selection signal into said interface, and

operating said CPU to produce a predetermined number of tread plates according to said first code set,

said press dies and punches being arranged in at least four rows with a plurality of dies or punches in each row, the first row comprising dies shaped and arranged to form spaced apart buttons in said sheet, the second row comprising punches being arranged to punch holes in the previously developed buttons, the third row comprising punches being arranged to punch holes in the spaces between said buttons, and the fourth row comprising dies being shaped and arranged to emboss the perimeter of each of the holes developed by said third row of punches.



5,735,156
METHOD AND APPARATUS FOR FORMING A NON-CIRCULAR PIPE

Yuji Yoshitomi, Ibaraki-ken; Shinji Tanaka, Ushiku; Shota Iwakura, Ibaraki-ken; Takeshi Araya, Hitachi; Takamitsu Nakazaki, Takahagi; Norin Yokoba, and Toshimi Sato, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 529,981, Sep. 19, 1995, abandoned. This application May 22, 1997, Ser. No. 862,296
Claims priority, application Japan, Sep. 20, 1994, 6-224763
Int. Cl.⁶ B21D *26/02*

U.S. Cl. 72—57 8 Claims

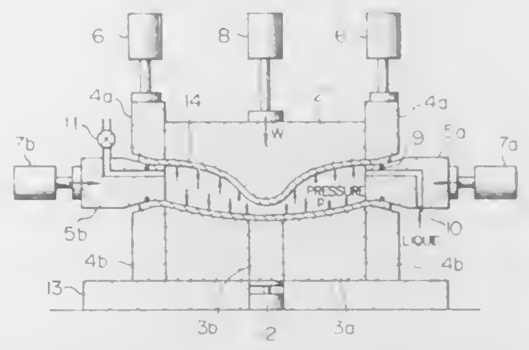
1. A method for forming non-circular pipes having different sectional shapes along a longitudinal direction thereof, comprising:

providing a raw pipe between upper and lower dies;

sealing ends of the raw pipe,

applying an internal pressure within the sealed pipe;

while maintaining at least said internal pressure, actuating at least one of said upper and lower dies to apply a load to said raw pipe in a direction perpendicular to said longitudinal direction to form an intermediate pipe having an intermediate section with a non-circular cross-section, wherein said intermediate section has a lower surface which is substantially flat; and then



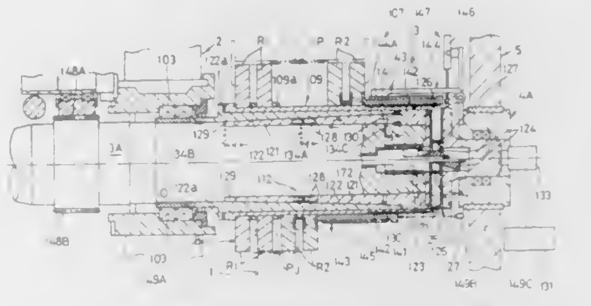
removing a portion of said intermediate pipe at said intermediate section to form two non-circular pipes.

5,735,157
ROLL WIDTH ADJUSTING DEVICE

Yasuhiro Yamamoto, Souraku-gun, and Masaru Nagao, Neyagawa, both of Japan, assignors to Hitachi Zosen Corporation, Osaka, Japan

Division of Ser. No. 478,559, Jun. 7, 1995, Pat. No. 5,660,068. This application Dec. 6, 1996, Ser. No. 761,720
Claims priority, application Japan, Jun. 9, 1994, 6-127193; Nov. 25, 1994, 6-290240; Apr. 7, 1995, 7-81606
Int. Cl.⁶ B21D *3/02*

U.S. Cl. 72—164 2 Claims



1. A roll width adjusting device in a roll processing facility having a pair of straightening rolls fitted on a roll shaft projecting from a roll support frame toward the pass line, said straightening rolls each comprising a fixed roll fixed on the roll shaft, and a movable roll movable on the roll shaft toward and away from the fixed roll, and said roll width adjusting device comprising:

an inner taper sleeve fitted for slide movement within a predetermined range on the roll shaft,

an outer taper sleeve fitted on said inner taper sleeve, said outer taper sleeve having an inner peripheral taper surface contacting the outer peripheral taper surface of said inner taper sleeve,

a roll sleeve fitted on said outer taper sleeve and said movable roll fitted on said roll sleeve for axial slide movement,

an adjusting male threaded portion formed on the outer peripheral surface of said roll sleeve,

a width change sleeve, fitted on said roll sleeve and having an adjusting female threaded portion threadedly engaged with said adjusting male threaded portion of said roll sleeve and connected to the movable sleeve,

sleeve locking means for preventing rotation of said width change sleeve,

sleeve expanding and contracting means for responding to the axial slide movement of the inner taper sleeve by expanding or contracting the outer diameter of the roll sleeve by its taper surface to thereby fix or release said movable roll and width change sleeve to or from the roll shaft, and

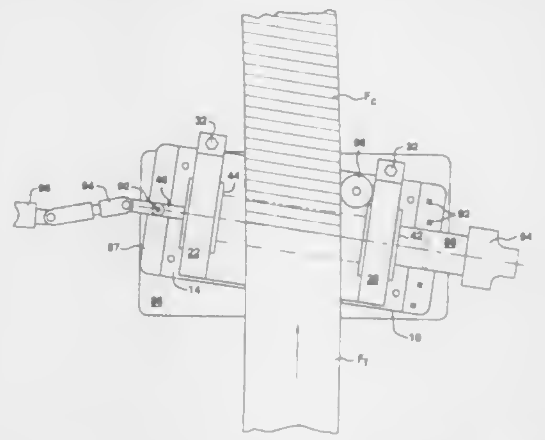
roll position adjusting means responsive to the release of the movable roll and width change sleeve from the roll shaft by said sleeve expanding and contracting means and to the prevention of the rotation of the width change sleeve by the sleeve locking means, for causing the width change sleeve and movable roll to slide axially by the rotation of the roll shaft and the action of the adjusting male and female threaded portions.

5,735,158
METHOD AND APPARATUS FOR SKEW CORRUGATING FOIL

Gordon Wayne Brunson, Chagrin Falls, Ohio, assignor to Engelhard Corporation, Iselin, N.J.

Filed Oct. 10, 1996, Ser. No. 728,642
Int. Cl.⁶ B21D *13/04*

U.S. Cl. 72—196 12 Claims



1. Apparatus for continuously forming corrugated metal sheet material in which corrugations are oriented at an oblique angle to side edges of the sheet material, comprising:

a pair of corrugating gear rollers supported for rotation on respective first and second parallel axes, the corrugating gear rollers having meshing linear teeth parallel to the first and second axes, the meshing teeth providing a corrugating nip, at least one of the first and second gear rollers being movable toward and away from the other of said gear rollers to position the teeth in respective conditions of corrugating and released meshing engagement at the corrugating nip,

means for directing a metal sheet material to the corrugating nip along a path at an oblique angle to the axes of the corrugating gear rollers; and

means for driving the corrugating gear rollers to corrugate the sheet material and for alternating the teeth between corrugating and released meshing engagement at the corrugating nip

5,735,159
ASSEMBLY TO EXPEL BARS

Davinci Schiavi, Udine, Italy, assignor to Danieli Centro Maskin SpA, Pradamano, Italy

Filed Aug. 16, 1996, Ser. No. 698,849
Claims priority, application Italy, Aug. 31, 1995, UD95A0167
Int. Cl.⁶ B21C *1/32*

U.S. Cl. 72—275 4 Claims

1. A bar production line having a longitudinal feed axis, comprising:

a straightening and drawing assembly for straightening and drawing bar fed along the longitudinal feed axis from a coiled roll;

a shearing assembly provided downstream of the straightening and drawing assembly for shearing to size bar fed along the longitudinal feed axis downstream of the straightening and drawing assembly,

a revolver-type storage assembly provided downstream of the shearing assembly and comprising a rotary drum having a

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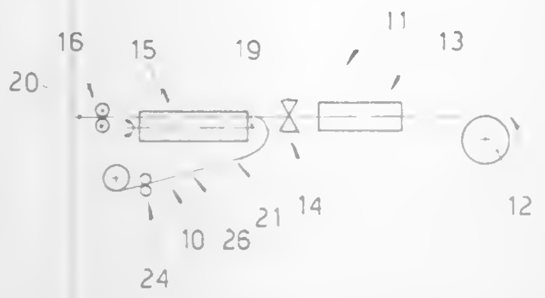

plurality of container seatings provided around a periphery thereof to hold drawn and sheared to size bars, each container seating having an intake through which a drawn and sheared to size bar enters the container seating, the rotary drum being rotatable about an axis parallel to the longitudinal feed axis to align one of the container seatings with the longitudinal feed axis;

a gauging assembly provided along the longitudinal feed axis downstream of the revolver type storage assembly; and

a bar expulsion assembly comprising a guide having one end cooperating with the intake of the container seating lying momentarily on the longitudinal feed axis, and a thrust element having a first resting position offset from the longitudinal feed axis and a second working position in cooperation with the guide and the intake of the container seating momentarily lying on the longitudinal feed axis for expelling the bar provided in the container seating momentarily lying on the longitudinal feed axis.

5,735,160
STRETCH FORMING METAL BODIES WITH POLYMERIC INTERNAL MANDRELS

Thomas J. VanSumeren, Waterford, Mich., and Robert P. Evert, Allison Park, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Apr. 15, 1997, Ser. No. 839,616

Int. Cl.⁶ B21D *9/01*

U.S. Cl. 72—296 **10 Claims**

1. A process for forming into a desired shape an elongated hollow metal body having opposed longitudinally spaced first and second end portions comprising:

(a) inserting a solid polymeric first mandrel into said first end portion and a solid polymeric second mandrel into said second end portion, each said mandrel having an outer wall adjacent an interior wall of said body,

(b) stretching said body longitudinally by pulling said end portions in opposite directions with sufficient force to exceed an elastic limit and to initiate elongation through plastic deformation, and

(c) while stretching said body longitudinally, bending the body between its end portions transversely of the direction of the pulling, each said mandrel supporting said body against collapse during said bending

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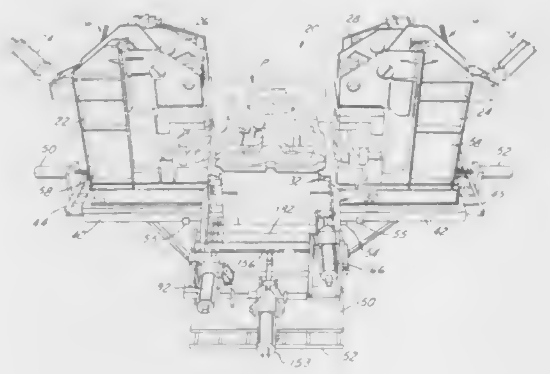
5,735,161
FLANGING APPARATUS

Gerald A. Brown, Roseville; Gerrit W. Sloat, Grand Blanc, and Timothy A. VerVaecke, New Baltimore, all of Mich., assignors to Western Atlas, Inc., Warren, Mich.

Filed Jan. 28, 1997, Ser. No. 789,753

Int. Cl.⁶ B21D *11/10;11/22*

U.S. Cl. 72—306 **11 Claims**



1. Apparatus for forming the opposite side edge portions of a panel comprising

a panel support,

a first forming unit operative to form one side edge portion of the panel,

a second forming unit operative to form the opposite side edge portion of the panel,

a first guide supporting the first forming unit on one side of the support for movement toward and away from an advanced position adjacent the one side edge portion of the panel when supported by the support,

a second guide supporting the second forming unit for movement toward and away from an advanced position adjacent the opposite side edge portion of the panel when supported on the support,

power units for moving said forming units along said respective guides, and

first and second power devices operative to activate the respective first and second forming units when they are in their advanced positions to form the opposite side edge portions of the panel,

wherein said first forming unit is operative to form a first flange on said one side edge portion of the panel and the second forming unit is operative to form a second flange on said opposite side edge portion of the panel, and

wherein each of said first and second forming units comprises a base adapted to support the panel adjacent a side edge portion thereof,

a ram having a panel-clamping pad,

said ram being movable in a direction toward the base to a panel-clamping position in which the pad clamps the panel against the base,

said ram having a flange-forming tool,

said ram being movable in the same direction beyond the panel-clamping position to a flanging position in which the flange-forming tool forms a first or second flange on one of the side edge portions of the panel,

a yieldable device supporting said pad on said ram permitting said pad to yield as said ram moves beyond the panel-clamping position to the flange forming position, and

a drive for moving the ram as aforesaid

5,735,162
FOLDING DEVICE

Mikael Mattsson, Mörrum, and Bo Johansson, Olofström, both of Sweden, assignors to AB Volvo, Gothenburg, Sweden

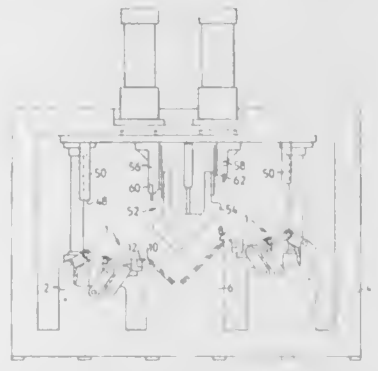
PCT No. PCT/SE95/00565, § 371 Date Nov. 1, 1996, § 102(e) Date Nov. 1, 1996, PCT Pub. No. WO95/32064, PCT Pub. Date Nov. 30, 1995

PCT Filed May 18, 1995, Ser. No. 732,373

Claims priority, application Sweden, May 19, 1994, 9401740

Int. Cl.⁶ B21D *39/02*

U.S. Cl. 72—315 **18 Claims**



1. Clinching press comprising a press tool (**52**) and a prebending unit (**1**) for producing a reciprocal movement of a tool holder (**14**) pivotally joined to a foundation (**2**), said tool holder being supported in such a manner that it is displaceable, through motion of an operating means (**50**) coupled to the press tool (**52**), along a predetermined path of movement between a starting position, a work position and an end position, and the tool holder (**14**) being provided with a return means (**38, 42**) for returning the tool holder (**14**) to its starting position, and a knee-joint mechanism (**28, 30**), which, in the form of two articulated lengths, is joined, at one end, to a pivot point (**36**) on the tool holder (**14**), and, on the other hand, to a stationary pivot point (**34**) in the foundation, wherein the knee-joint mechanism (**28, 30**), under influence of the operating means (**50**), can be moved in a continuous movement from a first bent-out position where the tool holder (**14**) is in its starting position, via a completely extended position where the tool holder (**14**) is in its work position, to a second bent-out position where the tool holder (**14**) is in its end position, and the returning means (**38, 42**) being arranged to return the knee-joint mechanism (**28, 30**) and the tool holder (**14**) in a reversed continuous movement from the second bent-out position, via the completely extended position to the first bent-out position, where the tool holder (**14**) once again takes its starting position.

5,735,163
PRESS WORKING METHOD INCLUDING STEP OF STRENGTHENING LOCAL PORTION OF BLANK

Akihito Sato, Toyota; Shinichiro Nakamura, Nagoya, and Takashi Hosoe, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

Filed Aug. 24, 1995, Ser. No. 518,828

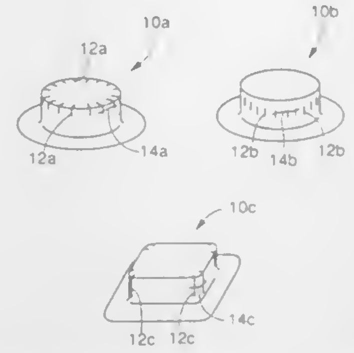
Claims priority, application Japan, Aug. 29, 1994, 6-203281; May 15, 1995, 7-115497

Int. Cl.⁶ B21D *22/00;22/21;* B21C *37/02*

U.S. Cl. 72—348 **16 Claims**

1. A method of effecting press working on a blank, comprising the steps of:

increasing mechanical strength of a local portion of said blank by heating said local portion by application of high energy and quenching said local portion, thereby to cause structural transformation of material in said local portion, said local portion being a portion of the blank to be elongated in a direction of elongation during an initial period of a pressing step, being prone to fracture due to stress concentration as the press working proceeds, and including at least one linear portion extending in the direction of elongation; and



after increasing the strength of said local portion, effecting said pressing step wherein a central portion of said blank including said local portion is pressed against a punch while the blank is held under pressure at an outer peripheral portion thereof, so that the blank undergoes plastic deformation according to a shape of said punch, and so that said structural transformation of the material in said local portion in said step of strengthening contributes to prevention of fracture in said local portion due to stress concentration.

5,735,164
UPSETTING TOOL OF A PAIR OF UPSETTING TOOLS FOR THE DEFORMATION OF CONTINUOUSLY CAST SLABS IN A SLAB UPSETTING PRESS

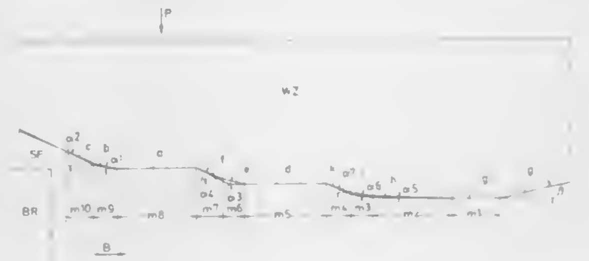
Gerhard Heitze, Netphen; Adolf Müller, Wilnsdorf, and Günter Kneppe, Hilchenbach, all of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany

Filed Jul. 17, 1996, Ser. No. 682,444

Claims priority, application Germany, Jul. 19, 1995, 195 26 279.4; Sep. 28, 1995, 195 36 044.3; Jan. 9, 1996, 196 00 477.2; Feb. 8, 1996, 196 04 596.7

Int. Cl.⁶ B21B *15/00,* B21J *7/14*

U.S. Cl. 72—416 **19 Claims**



1. An upsetting tool of a pair of upsetting tools for deforming continuously cast slabs in a slab upsetting press, wherein the slab is moved through the slab upsetting press in a travel direction, the slab having side surfaces, the upsetting tool comprising a plurality of upsetting for acting on one of the side surfaces of the slab, the upsetting surfaces comprising a parallel upsetting surface extending parallel to the travel direction of the slab, a first upsetting surface located in travel direction in front of the parallel upsetting surface, and at least two additional upsetting surfaces between the first upsetting surface and the parallel upsetting surface, wherein the first upsetting surface and the at least two additional upsetting surfaces have angles of inclination relative to the travel direction of the slab, the angles of inclination of the at least two additional upsetting surfaces being smaller than the angle of inclination of the first upsetting surface, the parallel upsetting surface extending in a plane, wherein a first of the at least two additional upsetting surfaces has a length measured in the plane of the parallel upsetting surface which is smaller than a length of a second of the at least two additional upsetting surfaces measured in the plane of the parallel upsetting surface.

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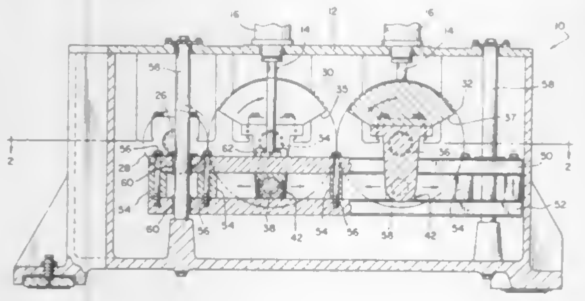
5,735,165

BODYMAKER DRIVE SYSTEM

Robert L. Schockman, St. Henry, and Roderick A. Lavy, Piqua, both of Ohio, assignors to The Minster Machine Company
Filed Jun. 23, 1995, Ser. No. 493,934
Int. Cl.^{6} B21J *9/19; 13/04*
U.S. Cl. 72—452.5 23 Claims

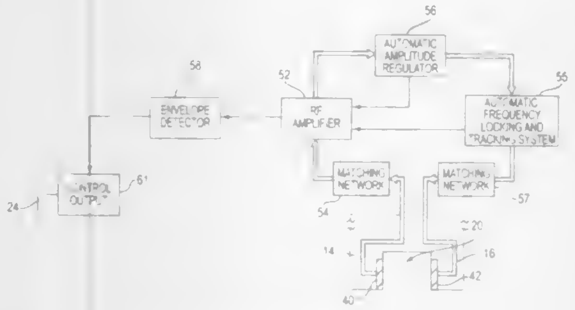


1. A blank forming metal can bodymaker apparatus comprising:
a housing;
a punch disposed within said housing for vertically upward reciprocating drawing movement;
at least one crankshaft rotationally disposed in said housing, said crankshaft having an axis of rotation;
a drive unit drivingly connected to said crankshaft, said drive unit including at least two counterrotating drive members each having a counterweight thereon; and
a scotch yoke mechanism connected between said crankshaft and said punch, said counterweights balancing inertial forces created by said scotch yoke mechanism and said punch, said scotch yoke mechanism translating rotational movement of said crankshaft into reciprocating movement of said punch, whereby lateral deflections of said punch are minimized.

5,735,166

ULTRASONIC MICRO-SENSOR FOR LEVEL LEAK ALERT AND INTERFACE DETECTOR

Naim Dam, Muttontown, N.Y., assignor to Cosense, Inc., Hauppauge, N.Y.
Filed Dec. 12, 1994, Ser. No. 353,833
Int. Cl.^{6} G01F *23/00*
U.S. Cl. 73—290 V 8 Claims

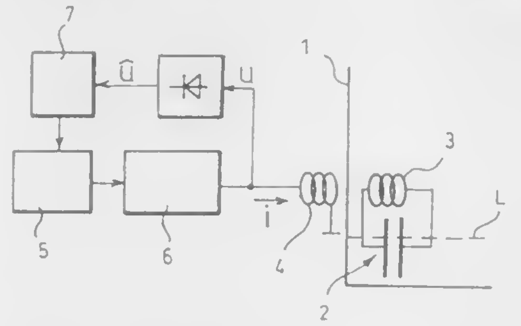


1. An ultrasonic sensor comprising:
an elongated, generally flat, one piece, integral body of plastic material of generally rectangular shape having a width greater than its thickness and less than its length and having spaced arms at one end of the body along its length forming a gap between the opposing faces of the arms,
a piezoelectric ultrasonic element in each arm and opposing each other across the gap; and
circuit means including at least one electronic component mounted within said plastic body connected to said elements for forming a circuit to produce a first type of signal when liquid is present in the gap between said spaced arms.

5,735,167

METHOD AND ARRANGEMENT FOR MEASURING LIQUID LEVEL

Pertti Puukangas, and Antti Särelä, both of Espoo, Finland, assignors to Instrumentarium Oy, Helsinki, Finland
Filed Jun. 19, 1996, Ser. No. 666,851
Claims priority, application Finland, Jun. 21, 1995, 953107
Int. Cl.^{6} G01F *23/26*
U.S. Cl. 73—304 C 12 Claims

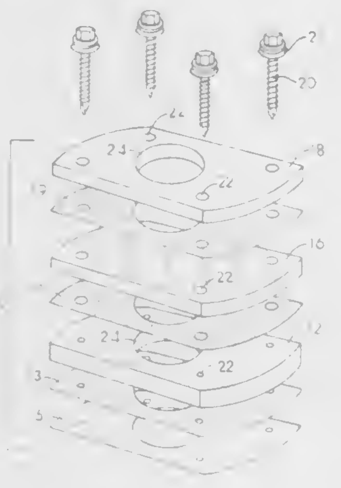


1. A method for identifying liquid levels, in which method a capacitor is arranged into liquid in a container, between plates of which capacitor, liquid will enter in such a manner that the liquid-filled portion of the space between the plates changes with liquid level and determines the capacitance of the capacitor, and in which method a signal obtained from the capacitor is employed, the signal being dependent on the liquid level in the container, whereby a coil is connected to the capacitor forming an electrical circuit with the capacitor, and the liquid level, while determining the capacitance of the capacitor, at the same time determines the resonance frequency of the electrical circuit, the coil being arranged inside the liquid container, and the resonance frequency is measured from outside the container inductively without a lead-through to the container.

5,735,168

ANIMAL FEEDER SIGHT GLASS DEVICE

Jack Harrison, 10625 County Rd. 200, Alvin, Tex. 77511
Filed Apr. 23, 1996, Ser. No. 636,480
Int. Cl.^{6} G01F *23/02*
U.S. Cl. 73—323 3 Claims



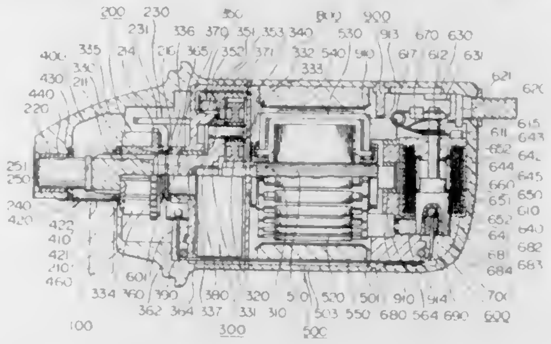
1. An animal feeder sight glass device for attaching to a vessel which comprises:
a single multi-layered component adapted to attach to said vessel which consists essentially of
(a) a foam gasket with a central opening adapted to seat on said vessel,
(b) a transparent lens,

(c) an outside lens holder face plate with an opening, said central opening in said gasket and said opening in said face plate being aligned,
(d) aligned screw openings in said gasket and face plate, said gasket and face plate having the same outside dimensions,
(e) an adhesive layer between said foam gasket and said transparent lens, and
(f) an adhesive layer between said transparent lens and said face plate; and
metal screws insertable into said outer lens holder face plate of said single component to secure said single component to said vessel.

5,735,169

STARTER HAVING MAGNET SWITCH WITH HEAT DISSIPATION CHARACTERISTICS

Masami Niimi, Handa; Masanori Ohmi, Anjo; Tsutomu Shiga, Nukata-gun, and Nobuyuki Hayashi, Nagoya, all of Japan, assignors to Nippoondenso Co., Ltd., Kariya, Japan
Filed Nov. 29, 1995, Ser. No. 564,519
Claims priority, application Japan, Nov. 29, 1994, 6-294818; Nov. 24, 1995, 7-305674
Int. Cl.^{6} F02N *11/00*
U.S. Cl. 74—7 A 20 Claims



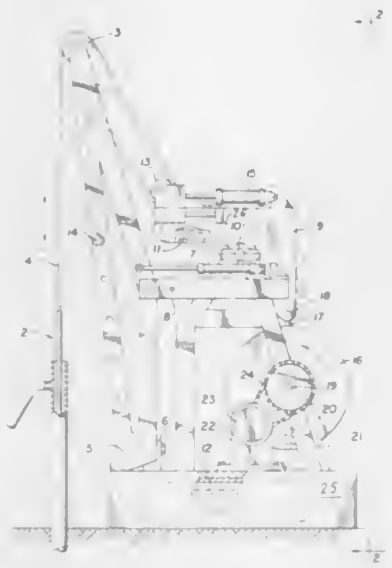
1. A starter comprising:
a starter motor;
an output shaft driven by said starter motor;
a pinion gear provided at one axial side of said starter motor for engaging with said output shaft through a helical spline and for meshing with a ring gear of an engine;
a magnet switch provided in a vicinity of the other axial side of said starter motor for flowing current to said starter motor and for shifting said pinion gear to a direction of said ring gear;
said magnet switch having a coil with insulating coating thereon for generating magnetomotive force upon current flow, a sleeve made of non-magnetic and heat-conductive material, and a plunger made of magnetic material and provided slidably in an inner circumference of said sleeve; and said coil having one end portion grounded, and being directly wound on an outer circumference of said sleeve therefrom; wherein said sleeve has an engagement portion raised at an axial end thereof for electrical connection with said one end portion of said coil.

5,735,170

PUMPING UNIT WITH DYNAMIC FLUID BALLAST

Donald R. Bales, Avenue C and Cedar, P.O. Box 936, Denver City, Tex. 79323; Darryl L. Bales, 2811 43rd St., Apt. 9, Lubbock, Tex. 79413, and Clifford B. Fedler, 7913 Joliet Ave., Lubbock, Tex. 79423
Filed Sep. 11, 1995, Ser. No. 526,853
Int. Cl.^{6} F16H *21/32*
U.S. Cl. 74—41 13 Claims

1. A pumping unit for operating a well pump having a rod string which is reciprocated from an uppermost position to a lowermost position, comprising:



a. a horizontal base at ground level;
b. a pumping unit support structure securely mounted on the base;
c. a member mounted on the support structure for pivotal movement about on axis;
d. means connected to the member for pivoting said member between two positions;
e. means mounted on the member and connected to the rod string in such a manner that the rod string is in its uppermost position when the member is in one of said positions and is in its lowermost position when the member is in the other position; and
f. a counterweight in the form of a tank for holding a constant fluid volume, said tank being so positioned that the fluid center of gravity located in the center of the tank moves toward and away from said axis as said member is pivoted mounted on the member for movement with said member, said counterweight being so positioned relative to said axis that the force of gravity acting on the counterweight applies a greater torque to the member when the rod string is in its lowermost position than is applied when the rod string is in its uppermost position; the counterweight mounted on the member of applying a variable torque to the member to pivot said member, being so positioned relative to said axis that the torque applied to the member by the counterweight resists movement of the rod string in one direction and assists movement of the rod string in the other direction the variable torque resists said movement increasing as the rod string approaches the end of its travel in said one direction and the torque which assists movement decreasing as the rod string approaches the end of its travel in the other direction

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5,735,171

PIVOT JOINT WITH RETAINER CLIP

Donald B. Moote, Lake Orion, Mich.; Kris B. Rogers, Toronto, Canada; Andrew C. Stewart, Lake Orion, Mich.; Frank R. Varela, Etobicoke, Canada; Michael W. Boles, Grand Blanc; Gerald McLean, South Lyon, both of Mich., and Teodor G. Nedelcu, Willowdale, Canada, assignors to ITT Corporation, New York, N.Y.
Division of Ser. No. 143,939, Oct. 27, 1993, and a continuation-in-part of Ser. No. 143,479, Oct. 26, 1993, Pat. No. 5,449,258. This application May 15, 1995, Ser. No. 441,664
Int. Cl.^{6} B60S *1/18*
U.S. Cl. 74—42 28 Claims

1. A windshield wiper pivot joint comprising:
a rotatable shaft having first and second opposed ends and a uniform cross-section along at least a portion of a longitudinal length thereof.

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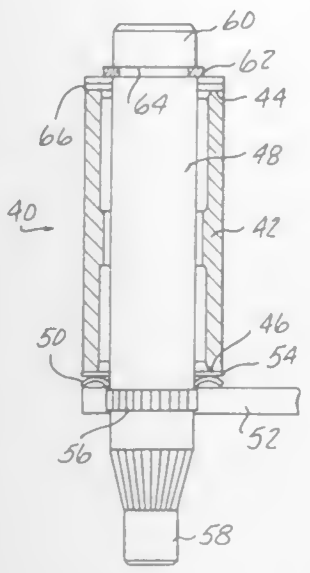


- a housing surrounding the rotatable shaft and having opposed ends; and
- retainer clip means, axially engageable along the longitudinal length with the uniform cross-section and fixedly mounted adjacent one end of the rotatable shaft and the housing, for retaining the rotatable shaft and the housing in a fixed axial dimensional relationship while being rotatable with the shaft with respect to the housing, wherein the retainer clip means includes a plurality of spaced notches formed in a shaft-engaging surface and extending radially outward to define a discontinuous shaft-engaging surface.

5,735,172
SWASHPLATE MACHINE

Alfred Parker, 46 Byron Ave., Takapuna, Auckland, New Zealand

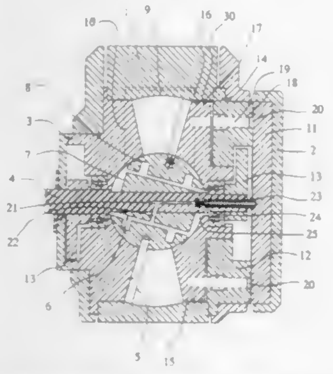
PCT No. PCT/NZ94/00121, § 371 Date May 24, 1996, § 102(e) Date May 24, 1996, PCT Pub. No. WO95/12054, PCT Pub. Date May 4, 1995

PCT Filed Oct. 28, 1994, Ser. No. 637,665

Claims priority, application New Zealand, Oct. 28, 1993, 250094

Int. Cl.⁶ F01C *9/00;* **F04C** *9/00;* **F16H** *23/00*

U.S. Cl. 74—60 **7 Claims**



1. A swashplate machine comprising a casing having end assemblies, a pair of end cones each having opposed semi-spherical surfaces and defining with the casing a ball assembly and swashplate chamber, an axle journalled with respect to the casing supporting a ball assembly and a swashplate which occupy the swashplate chamber, a baffle fixed to the casing which intersects and divides the swashplate chamber, wherein at least one of said cones is slidably mounted in the casing on a guide, the arrangement being such that during operation of the machine limited axial movement of said at least one cone is possible whilst rotational movement of the cone is prevented by said guide.

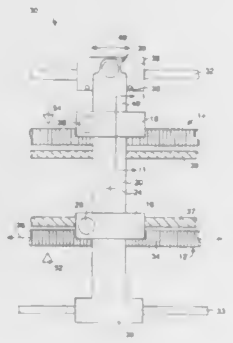
5,735,173
PIVOTALLY LINKED POSITION CONTROL DRIVE SYSTEM

Ronald W. Parker, Clinton, Conn., assignor to Probot Incorporated, Branford, Conn.

Filed Oct. 4, 1995, Ser. No. 538,929

Int. Cl.⁶ F16H *27/02*

U.S. Cl. 74—89 **19 Claims**



1. A position control drive system, comprising:
- first, second and third spaced, parallel running rails with said third rail being in opposition to said first rail and said second rail being disposed between said first rail and said third rail;
- a first electronically responsive drive unit electromagnetically coupled to said first rail;
- a second electronically responsive drive unit electromagnetically coupled to said second rail;
- a passive guide unit mechanically coupled to said third rail;
- a first linkage rigidly linking said first drive unit to said second drive unit with a desired control point disposed therebetween; and
- a second linkage pivotally linking said second drive unit to said passive guide unit thereby preventing binding of the drive units against the rails.

5,735,174
BEARING, FEMALE SCREW, LINEARLY MOVING BLOCK, LINEARLY MOVING BLOCK UNIT, AND GUIDE RAIL

Nobuo Enomoto, Uenohara 1835, Uenohara-machi, Kita-tsuru-gun, Yamanashi-ken, 409-01, Japan

PCT No. PCT/JP95/00397, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO95/24570, PCT Pub. Date Sep. 14, 1995

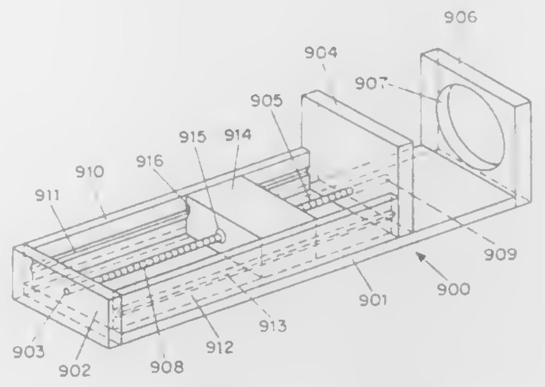
PCT Filed Mar. 10, 1995, Ser. No. 535,153

Claims priority, application Japan, Mar. 10, 1994, 6-066783; Jun. 16, 1994, 6-157904; Jun. 23, 1994, 6-164718

Int. Cl.⁶ F16C *29/04*

U.S. Cl. 74—89.15 **1 Claim**

1. A linearly moving block unit comprising:
- a screw shaft having an external thread;
- a linear guide rail disposed in parallel with said screw shaft, said guide rail including two side walls, each side wall having an inner surface and a recessed guide groove formed in said inner surface in parallel with said screw shaft;
- an angular nut including a center hole and two side surfaces, each side surface including a recessed nut groove disposed in parallel with said screw shaft and said center hole having a female screw disposed therein, said female screw being composed of a carbon fiber resin and having an internal thread formed to directly receive and engage said external thread of said screw shaft;



- said screw shaft extending through said center hole of said angular nut with said external and internal threads being in direct engagement;
- said angular nut being moveably fitted into said linear guide such that said recessed nut grooves oppose said respective recessed guide grooves to form respective roller beating holders; and
- roller beatings rotatably disposed in each of said respective roller beating holders so that said angular nut is smoothly slid along said linear guide when said screw shaft is rotated, wherein the rotation of said screw shaft is directly transmitted to said angular nut.

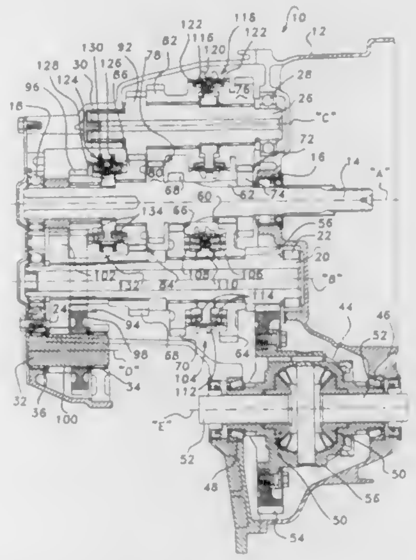
5,735,175
MULTI-SPEED MANUAL TRANSAXLE

John R. Forsyth, Romeo, Mich., assignor to New Venture Gear, Inc., Troy, Mich.

Filed Oct. 18, 1996, Ser. No. 732,754

Int. Cl.⁶ F16H *3/08*

U.S. Cl. 74—331 **9 Claims**



1. A manual transmission comprising:
- an input shaft;
- an output shaft;
- a first input gear fixed to said input shaft;
- a first speed gear rotatably supported on said output shaft and meshed with said first input gear;
- a second input gear fixed to said input shaft;
- a second speed gear rotatably supported on said output shaft and meshed with said second input gear;
- a first synchronizer clutch for selectively coupling either of said first and second speed gears to said output shaft;
- an intermediate shaft having a transfer gear fixed thereto;
- a third input gear fixed to said input shaft;
- a third speed gear rotatably supported on said intermediate shaft and meshed with said third input gear,
- a fourth input gear fixed to said input shaft,
- a fourth speed gear rotatably supported on said intermediate shaft and meshed with said fourth input gear;
- a second synchronizer clutch for selectively coupling either of said third and fourth speed gears to said intermediate shaft,
- a fifth input gear rotatably supported on said input shaft and meshed with said transfer gear;
- a fifth speed gear fixed to said output shaft and meshed with said fifth input gear;
- a third synchronizer clutch for selectively coupling said fifth input gear to said input shaft;
- a reverse input gear fixed to said input shaft,
- a reverse output gear rotatably supported on said output shaft,
- an idler gear meshed with said reverse input gear and said reverse output gear; and
- a fourth synchronizer clutch for selectively coupling said reverse output gear to said output shaft.

5,735,176
MANUAL TRANSMISSION FOR A MOTOR VEHICLE

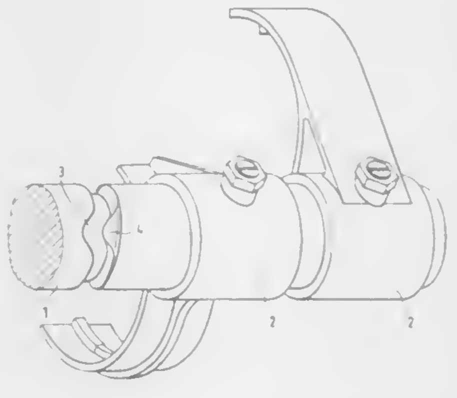
Gamjad Winkam, Zolling; Ewald Erbersdobler, Munich, and Ernst Biskup, Eichenau, all of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany

Filed May 1, 1996, Ser. No. 640,710

Claims priority, application Germany, May 5, 1995, 195 16 651.5

Int. Cl.⁶ B60K *20/02,* **F16H** *59/04*

U.S. Cl. 74—337.5 **14 Claims**



1. A shifting assembly for a motor vehicle manual transmission of the type having gear wheel pairings of fixed and loose wheels on a plurality of parallel shafts, said shifting assembly comprising
- a shift roller,
- a plurality of shift forks supported on the shift roller,
- a groove on one of the shift roller and shift fork for each shift fork, and
- a radial projection on the other one of the shift fork and shift roller projecting into a corresponding one of the grooves,
- said grooves being configured to effect axial movement of the associated shift fork, in response to rotational movement of the shift roller,
- wherein at least one of the circumferential grooves is constructed to be at least partially stepped in a radial direction to thereby define different shifting sequences at different step levels of the stepped groove portions.

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5,735,177
REMOTE CONTROL MECHANISMS

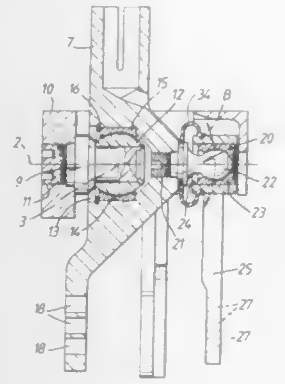
David John Crack, Chelmsford, England, assignor to Morse Controls Limited, Basildon, England

Filed Jun. 22, 1995, Ser. No. 493,846

Claims priority, application United Kingdom, Jun. 28, 1994, 9412932

Int. Cl.^{6} B60K *20/04;* **F16C** *11/06;* **G05G** *9/10*

U.S. Cl. 74—473 R **11 Claims**



1. A remote control mechanism comprising a control member pivotable about plural mutually displaced intersecting axes to effect through a pair of control links different modes of operation of a controlled device, the control member being mounted pivotably about a first ball member, wherein said mutually displaced intersecting axes pass through a geometric center of the first ball member, to effect, when pivoted about a first axis of said plural mutually displaced axes, an operative movement of a first output member thereby, in use, to displace one of the control links, and the remote control mechanism also including a second ball member which, in a neutral position of the control member, has its geometric center lying on an axis essentially coaxial to said first of said mutually displaced axes and is operatively movable, in response to pivotal motion of the control member about the second of said mutually displaced axes, to effect an operative movement of a second output member and thereby, in use, to displace the other control link, and means to accommodate pivotal movement of the second ball member out of the plane of the second output member as the second ball member is operatively moved.

5,735,178
ACTUATING DEVICE FOR A PARKING BRAKE

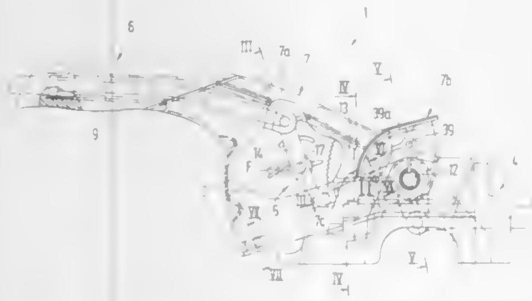
Vasil Barbunopulos, Vaihingen, Germany, assignor to Ing. h.c.F. Porsche AG, Weissach, Germany

Filed May 24, 1996, Ser. No. 653,027

Claims priority, application Germany, Jun. 9, 1995, 195 21 159.6

Int. Cl.^{6} B60T *7/08*

U.S. Cl. 74—535 **11 Claims**



1. An actuating device for a parking brake, comprising:

a handbrake lever having a shell-shaped housing formed by two half-shells;

a locking device mounted in said handbrake lever including a detent segment and a detent pawl, said shell-shaped handbrake lever surrounding the detent segment and the detent pawl;

an actuating rod operating said actuating device;

a cover strip covering said two half-shells forming the handbrake lever;

wherein said two half-shells include bearing bushings for the locking device and for a pivotable mounting in a pedestal which is mounted on a vehicle body;

wherein associated ones of said two half-shells each have molded tubular guide projections for the actuating rod that are connected with a one-piece handle which is slid over said guide projections; and

wherein said one-piece handle, together with said cover strip and said two half-shells, produces a flat continuous outer surface for said handbrake lever.

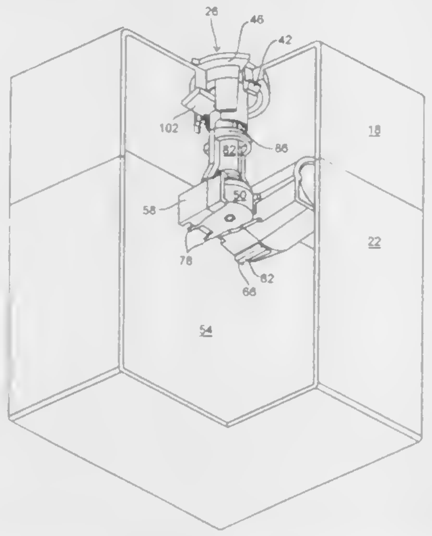
5,735,179
DEVICE FOR PROVIDING AXIAL AND SPATIAL MISALIGNMENT COMPENSATION BETWEEN A ROTATABLE COMPONENT AND A ROTATING MEANS

Stanley H. Edwards, Jr., Raleigh; T. Ray Robbins, Zebulon, and Barry Edward Powell, Raleigh, all of N.C., assignors to Square D Company, Palatine, Ill.

Filed Oct. 12, 1995, Ser. No. 542,216

Int. Cl.^{6} G05G *1/10*

U.S. Cl. 74—553 **9 Claims**



1. A compensating device for providing axial and spatial misalignment compensation between a rotatable component mounted within an enclosure and a rotating means being generally external to the enclosure, said compensating device comprising:

an indicator, rotatably attached to the enclosure by integrally formed flexible latches and an integrally formed flange such that an indicating portion thereof is external to the enclosure and a receiving portion thereof is within the enclosure;

a shaft having a first end formed to be snugly but slidably received within said receiving portion of said indicator such that axial misalignment between the rotatable component and said indicator may be compensated for, a second end being formed to engage the rotatable component such that a rotation of said indicator will produce a like rotation of the rotatable component, and a spatial compensation means, integrally formed from said shaft between said first and second ends such that a compensation can be created between said first and second ends of said shaft member, said shaft member being rotatable about its axis while maintaining said compensating angle such that compensation for spatial misalignment between the axis of the rotatable component and an axis of said indicator is provided.

5,735,180
INDEXING MECHANISM

David R. McMurtry, Wotton-Under-Edge, United Kingdom, assignor to Renishaw PLC, Gloucestershire, United Kingdom

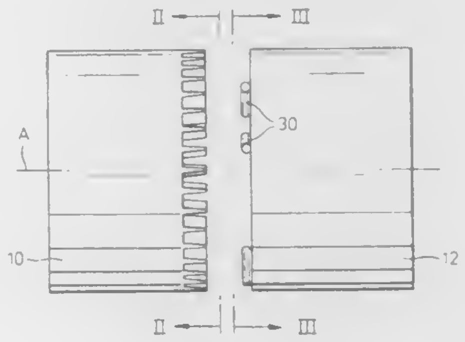
PCT No. PCT/GB95/01158, § 371 Date Feb. 6, 1996, § 102(e) Date Feb. 6, 1996, PCT Pub. No. WO95/32838, PCT Pub. Date Dec. 7, 1995

PCT Filed May 22, 1995, Ser. No. 586,899

Claims priority, application United Kingdom, Jun. 1, 1994, 9410989

Int. Cl.^{6} B23Q *16/08*

U.S. Cl. 74—813 R **6 Claims**



1. An indexing mechanism having: a first body which has a circular array of first members, each of the first members having a pair of circumferentially spaced first surfaces, and confronting first surfaces from adjacent first members being mutually convergent;

a second body rotatable relative to the first body, which has at least three second members, each of the second members, having a pair of circumferentially spaced second surfaces, which are adapted to seat in a cleft defined by a pair of mutually convergent first surfaces; wherein the members on at least one of the bodies are symmetrical about a radially extending axis of symmetry, and have a surface region which is curved in a plane orthogonal to the axis, and whose radius of curvature is greater than half the distance between centers of adjacent first members.

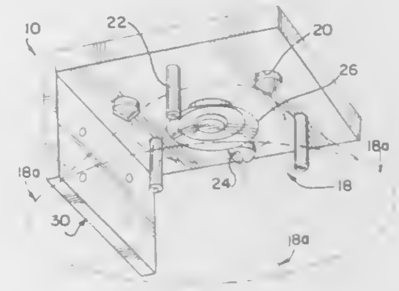
5,735,181
APPARATUS FOR REMOVING A SAFETY CAP FROM A SAFETY CONTAINER

Arthur G. Anderson, 5142 N. Monitor Ave., Chicago, Ill. 60630

Filed Mar. 5, 1996, Ser. No. 611,219

Int. Cl.^{6} B67B *7/00*

U.S. Cl. 81—3.25 **18 Claims**



1. For a container system comprising a safety container and a safety cap, an apparatus for releasing the safety cap from the safety container, the apparatus comprising:

means defining a cone-shaped surface, the means including a plurality of circumferentially disposed hemispherical members for wedgingly engaging the outer periphery of the safety cap, thereby providing resistance to rotation of the safety cap when the safety cap is pressed into pressure engagement with the hemispherical members and the safety container is rotated

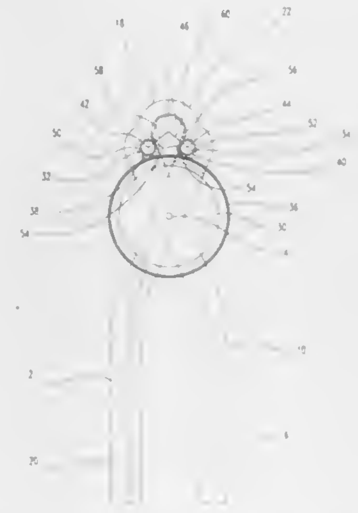
5,735,182
APPARATUS FOR ASSEMBLING THREADED CONNECTORS

Ronald Lee Wild, Carmel, Ind., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 25, 1995, Ser. No. 533,046

Int. Cl.^{6} B25B *17/00*

U.S. Cl. 81—57.3 **10 Claims**



1. An apparatus for assembling a first threaded part having a first longitudinal axis to a second threaded part having a second longitudinal axis, the first and second parts being dimensioned and arranged for threaded mating engagement, the apparatus comprising:

an opposing set of jaws that move between an open position for receiving the first threaded part and a closed position for grasping the first threaded part, the opposing set of jaws moving between the open and closed positions by pivoting about a pivot point,

a drive roller that rotates the first threaded part grasped by the opposing set of jaws about the first longitudinal axis so as to cause the first and second threaded parts to enter into threaded mating engagement; and

a roller gear and a drive gear that rotates about the pivot point and drives the roller gear, the drive roller being mounted to the roller gear

5,735,183
POWER SCREWDRIVER AND CLUTCH MECHANISM USED THEREIN

Yasuo Sasaki; Mitsuo Ogura, and Yuuichi Satou, all of Hitachinaka, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,712

Claims priority, application Japan, Jan. 31, 1995, 7-014374

Int. Cl.^{6} B25B *23/157*

U.S. Cl. 81—473 **30 Claims**

1. A power screwdriver of the type including a drive shaft member for transmitting a power from a drive unit, an axially movably supported output shaft member holding a bit, and a compression spring urging said output shaft member and said drive shaft member away from each other, in which transmission of a rotational force from said drive shaft member to said output shaft member is interrupted according to a predetermined axial displacement of said output shaft member relative to said drive shaft member, wherein the improvement comprises:

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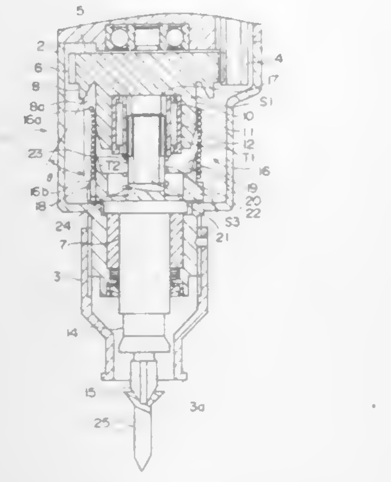


a coiled clutch spring coaxial with said drive shaft member and said output shaft member and extending spirally over and along respective cylindrical surfaces of said drive shaft member and said output shaft member, said clutch spring having a portion firmly secured to one of said output shaft member and said drive shaft member; and

means on the other of said output shaft member and said drive shaft member for locking a second portion of said clutch spring in response to the axial displacement of said output shaft member.

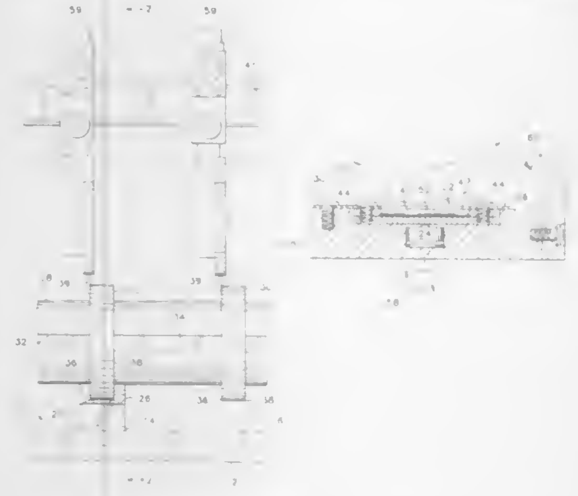
5,735,184
POWERED TOOL POSITIONER SYSTEM

William R. Miller, Portland, Oreg.; Peter P. Ackerman, Vancouver, and Robert F. Shinn, Camas, both of Wash., assignors to Tidland Corporation, Camas, Wash.

Filed Oct. 27, 1995, Ser. No. 549,657

Int. Cl.^{6} B26D *1/24;5/02*

U.S. Cl. 83—504 **4 Claims**



1 A power-operated tool positioner for moving a tool substantially parallel to a tool-positioning axis, said tool positioner comprising at least a first tool-contacting positioning member having a first pushing surface facing toward, and movable by power selectively in, a first direction substantially parallel to said tool-positioning axis so as to exert a first pushing force against said tool in said first direction, and a tool-contacting stabilizing assembly having a second pushing surface facing toward, and movable by power selectively in, a second direction substantially transverse to said tool-positioning axis, so as to exert a second pushing force against said tool and wherein said tool-contacting positioning member and said tool-contacting stabilizing assembly are interconnected with each other so as to move in unison, said tool-contacting stabilizing assembly being movable in said first direction relative to said tool while exerting said second pushing force against said tool and said tool-contacting stabilizing assembly including friction-reducing means for contacting said tool to facilitate movement of said tool-contacting stabilizing assembly in said first direction relative to said tool while exerting said second pushing force against said tool.

5,735,185
ROTARY-TYPE SHEET CUTTER

Takajiro Kondo, Yonago; Masato Ashida, and Iwao Kashiwagi, both of Yasugi, all of Japan, assignors to Hitachi Metals, Ltd., Tokyo, and Yasugi Seimitsu, Ltd., Yasugi, Japan

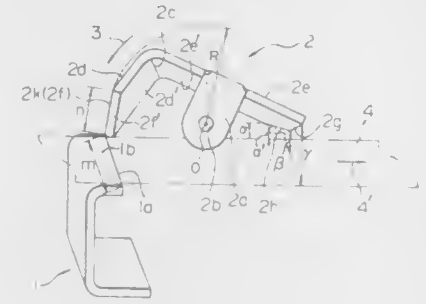
Continuation of Ser. No. 174,028, Dec. 28, 1993, abandoned.

This application May 15, 1996, Ser. No. 647,671

Claims priority, application Japan, Dec. 28, 1992, 4-347816

Int. Cl.^{6} B26D *7/26*

U.S. Cl. 83—611 **48 Claims**



1. A rotary-type sheet cutter for cutting a continuous sheet material comprising:

a stationary blade having an end edge extending along a widthwise direction of the sheet material; and

a rotary blade having an end edge which rotates about a rotary axis (O) extending along the widthwise direction of the sheet material during rotation of the rotary blade,

the end edge of the rotary blade intersection-contacting the end edge of the stationary blade under pressure so as to cut the sheet material along the widthwise direction when the rotary blade rotates, wherein:

the rotary blade comprises a flat plate bent along a first bend line (c) which extends along the widthwise direction of the sheet material, the end edge of the rotary blade and the first bend line (c) forming an angle (ϕ) opening toward a cutting starting side, and wherein:

cutting starting and cutting finishing end points on the end edge of the rotary blade define two phantom end circles of a phantom cylinder as the rotary blade is rotated around the rotary axis,

cutting starting and cutting finishing end points on the end edge of the stationary blade are on respective ones of the phantom end circles,

a first angle is defined between the end edge of the rotary blade and a first imaginary line on the surface of the phantom cylinder, said first line being drawn parallel to the rotary axis, and a second angle is defined between the end edge of the stationary blade and a second imaginary line on the surface of the phantom cylinder, said second line being drawn parallel to the rotary axis, said first angle being less than said second angle, and

intermediate portions of the rotary and stationary blades, respectively, between the cutting starting and cutting finishing end points are disposed inside the circumferential surface of the phantom cylinder.

5,735,186
PUNCHING-NIBBLING PRESS

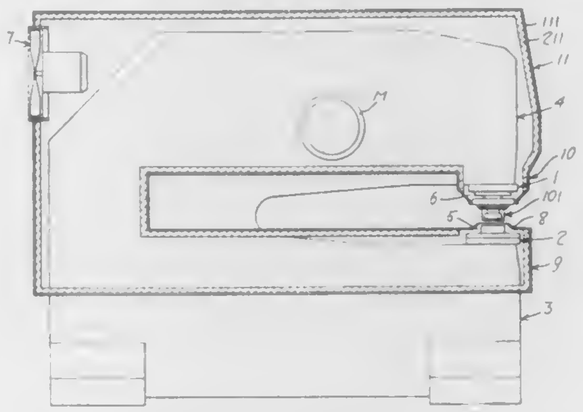
Giancarlo Piccini, Via del Laghetto 12/2, I-16033 Lavagna, Province of Genova, Italy

Filed Apr. 18, 1996, Ser. No. 634,260

Claims priority, application Italy, May 10, 1995, GE95A0050

Int. Cl.^{6} B26F *1/00*

U.S. Cl. 83—685 **8 Claims**



1. A punching-nibbling press comprising:

a bed;

a die unit mounted on said bed and comprising a die-holder head and a die mounted on said die-holder head, said die having a workpiece-contacting surface,

a punching unit comprising a punch-holder head and a punch mounted on said punch-holder head, said punch having a workpiece-contacting surface;

a pillar fixed to said bed and supporting said punching unit, such that said punch is positioned coaxially above and facing said die with the workpiece-contacting surface of said punch facing the workpiece-contacting surface of said die, and such that the punch is spaced above said die a distance sufficient to allow a workpiece to be positioned between the workpiece-contacting surfaces of said punch and die;

means for moving said punch in a direction towards the die to effect a punching-nibbling stroke on a workpiece interposed between said workpiece-contacting surfaces of said punch and die, and for moving said punch in a direction away from the die to effect a return stroke;

a die-noise suppressing vacuum chamber formed by a wall laterally surrounding said die unit, said die-noise suppressing chamber having an aperture which faces said punch, said aperture being coaxial with the die and being substantially coplanar with the workpiece-contacting surface of said die, said die-noise suppressing chamber being closed to the environment by placement of a workpiece over said aperture;

a punch-holder head-noise suppressing vacuum chamber formed by a wall laterally surrounding said punch-holder head;

a punch-noise suppressing vacuum hood laterally surrounding said punch and mounted for movement therewith, said hood having an aperture which faces said die, said aperture having a rim which is coaxial with said die and which allows said punch to be moved therethrough during motion of said punch in said punching-nibbling and return strokes, said vacuum hood being closed to the environment except for said aperture, said aperture being positioned such that said rim of said aperture contacts a workpiece when the punch contacts a workpiece which is positioned between the workpiece-contacting surfaces of said punch and die, thereby causing said punch-noise suppressing vacuum hood to be closed to the environment;

a noise-suppressing vacuum chamber at least partially enclosing said bed;

a noise-suppressing vacuum chamber at least partially enclosing said pillar;

suction means for creating a vacuum in said vacuum hood and in each of said noise-suppressing vacuum chambers;

conduit means connecting said vacuum hood and each of said noise-suppressing vacuum chambers to said suction means for creating a noise-suppressing vacuum in said hood and in each of said chambers, each of said vacuum chambers being closed to the environment except for the aperture of said die-noise-suppressing vacuum chamber which is closed to the environment by placement of a workpiece thereover, and except for the aperture of said punch-noise-suppressing hood which is closed to the environment when the rim of said aperture contacts a workpiece interposed between the workpiece contacting surfaces of said punch and die.

5,735,187
PNEUMATICAL PISTON-CYLINDER UNIT HAVING A HYDRAULIC CONTROL MEANS

Bert Harju, Harads, Sweden, assignor to Pos-Line Aktiebolag, Harads, Sweden

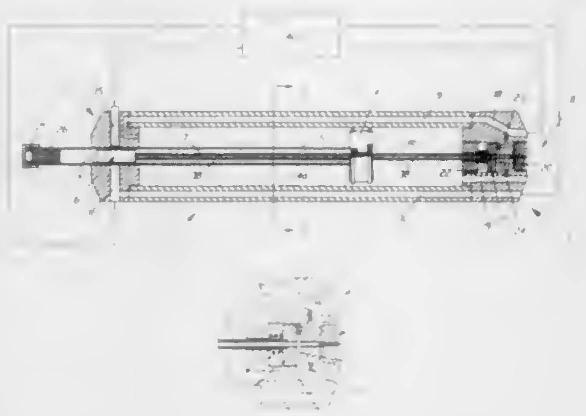
PCT No. PCT/WE93/01033, § 371 Date Jun. 5, 1995, § 102(e) Date Jun. 5, 1995, PCT Pub. No. WO94/13962, PCT Pub. Date Jun. 23, 1994

PCT Filed Nov. 30, 1993, Ser. No. 446,853

Claims priority, application Sweden, Dec. 11, 1992, 9203737

Int. Cl.^{6} F15B *15/26*

U.S. Cl. 91—44 **11 Claims**



1. A pneumatic piston-cylinder unit comprising

an air cylinder:

an air piston reciprocatable in said air cylinder and which divides said air cylinder into first and second sides;

a tubular piston rod attached to said air piston including a hydraulic chamber which is filled with a hydraulic liquid;

first and second air channels by which compressed air is selectively fed to the first and second sides of said air cylinder;

an integrated hydraulic control system including

- (a) a hydraulic cylinder which is located within said hydraulic chamber of said tubular piston rod and which is movable a limited distance with respect to said air cylinder from a first position to a second position,
- (b) a hydraulic piston in said hydraulic cylinder which is stationary with respect to said air cylinder so that movement of said hydraulic cylinder moves said hydraulic cylinder relative to said hydraulic piston, and
- (c) a liquid flow path between said hydraulic cylinder and said hydraulic piston which is closed when said hydraulic cylinder is in the first position and which is opened when said hydraulic cylinder is in the second position, and

an actuation means, which is fixedly mounted in said cylinder, (i) for moving said hydraulic cylinder to the second position and hence for opening the liquid flow path when compressed air is present in either of said first and second air channels whereby said air piston is movable in said air cylinder by the compressed air, and (ii) for moving said hydraulic cylinder to the first position and hence for closing the liquid flow path when compressed air is absent from both of said first and second air channels whereby any movement of said air piston relative to said air cylinder is prevented by the closing of said liquid flow path.

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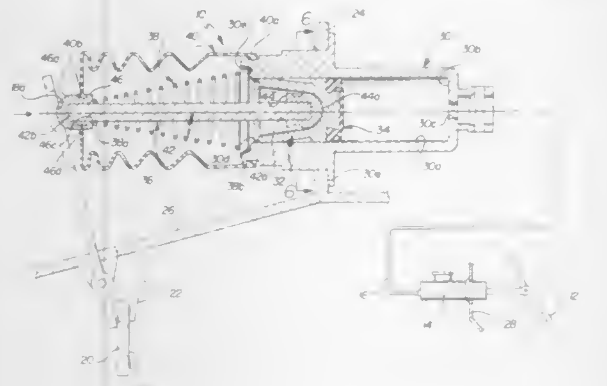
5,735,188
EXTERNAL SLAVE CYLINDER FOR HYDRAULIC CLUTCH RELEASE SYSTEM

Richard A. Nix, Ortonville, and Leslie P. Branum, Troy, both of Mich., assignors to Automotive Products (USA), Inc., Auburn Hills, Mich.

Filed Jun. 4, 1996, Ser. No. 658,022
Int. Cl.^{6} F16J *15/00*
U.S. Cl. 92—129 **22 Claims**



1 A pressure cylinder assembly comprising:
- a body member defining a cylindrical bore having a closed front end and an open rear end;
- a piston slidably received in the bore and defining a front end defining a front face facing the closed end of the bore;
- a seal of elastomeric material having a rearwardly opening cup configuration, being fitted over the front end of the piston, and including a base portion positioned against the front end of the piston in covering relation to the piston front face and a peripheral lip portion sealingly engaging the cylindrical bore; and
- a push rod having a forward end associated with the piston and projecting out of the open rear end of the bore to position a rear end of the push rod rearwardly of the rear end of the bore

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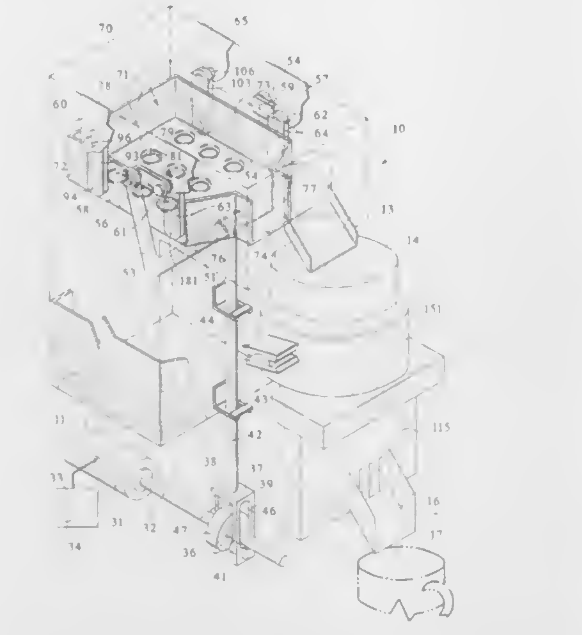
5,735,189
WATER DIPPER FOR A BREWING MACHINE

Alan M. King, 4369 Montrose Ave., Westmount, Canada, H3Y 2B2

Filed Sep. 20, 1996, Ser. No. 718,230
Int. Cl.^{6} A47J *31/00;* **B67D** *5/62*
U.S. Cl. 99—300 **9 Claims**

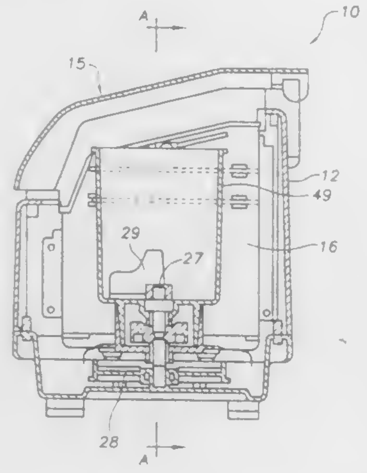


1 A device for supplying hot water to a beverage brewer comprising:
- a hot water tank including hot water therein;
- a dipper mounted in said tank and movable from a first position to a second position so as to discharge hot water into said beverage brewer in the second position; and
- driving means connected to said dipper to move the dipper from said first position to said second position wherein the dipper receives water in the first position in response to the driving means advancing the dipper in the hot water tank and receiving the hot water contained therein.

5,735,190
COMBINATION BREAD-BAKING MACHINE AND CONVECTION OVEN

John C. K. Sham, Rm. 1508, Block C, 19 Broadhead Road, Hong Kong, Hong Kong

Filed Dec. 2, 1996, Ser. No. 758,840
Int. Cl.^{6} A47J *27/00*
U.S. Cl. 99—327 **17 Claims**

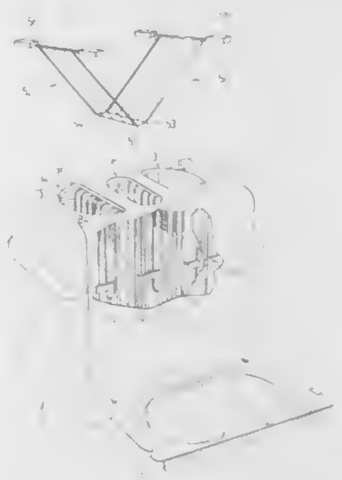


1. A combination bread-baker and convection oven, comprising:
- a housing having a baking and cooking chamber;
- a heating coil supported by said housing, for supplying heat to said baking and cooking chamber;
- a motor-driven fan mounted adjacent said baking and cooking chamber, for circulating heated air about said baking and cooking chamber;
- a first drive-motor supported by said housing, for driving said motor-driven fan;
- a rotatable kneading wand disposed in said baking/cooking chamber for kneading bread dough;
- a removable mixing bowl disposed in said baking/cooking chamber, for containing bread dough;
- a second drive-motor supported by said housing, for rotatably driving said kneading wand;
- a microprocessor operatively connected to said heating coil and said first and second drive-motors, for digitally controlling baking and cooking cycles;
- a control panel supported by said housing and operatively connected to said microprocessor for selecting a baking or cooking cycle; and
- a temperature sensor disposed within said baking and cooking chamber, said temperature sensor being operatively connected to said microprocessor, said temperature sensor sending a signal to said microprocessor that is indicative of the degree of temperature within said baking and cooking chamber, so that said microprocessor can cyclically control heat within said baking and cooking chamber by controlling said heating coil and said motor-driven fan.

5,735,191
COOKING APPLIANCE FOR MEAT AND BUNS

Gordon K. Russell, 21 Edge Valley Dr., Toronto, Ontario, Canada; Clement Ching, 107 Hollywood Ave., North York, Ontario, Canada, and Kam Chuen Chan, 5568 Heather Street, Vancouver, British Columbia, Canada, V5Z 3M6

Filed Jun. 17, 1997, Ser. No. 877,158
Int. Cl.^{6} A47J *27/12;37/08*
U.S. Cl. 99—339 **15 Claims**



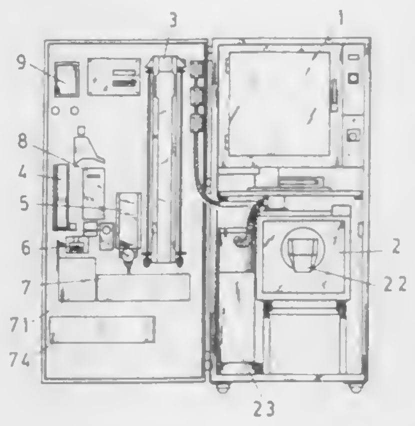
1 A cooking appliance for simultaneously heating at least one bread portion and at least one substantially flat food portion, said cooking appliance comprising:
- (a) at least one food chamber, where each chamber is for containing a flat two-sided food portion in a vertical position,
- (b) first electric element means for heating both sides of the food portion in each food chamber;
- (c) at least one bread chamber for containing a bread portion in a vertical position;
- (d) second electric element means for heating at least one vertical surface of the bread portion;
- (e) food support means for supporting the food portion in the food chamber in a position adjacent the first electric element means to allow heat from the first element means to impinge on the sides of the food portion; and
- (f) bread support means for supporting the bread portion in the bread chamber in a position adjacent the second element means to allow heat from the second element means to impinge on the vertical surfaces of the bread portions.

5,735,192
MACHINE FOR DISPENSING FRIED POTATOES

Javier Fernandez Paez, Madrid, Spain, assignor to Patatas Chef, S.L., Madrid, Spain

PCT No. PCT/ES95/00141, § 371 Date Oct. 23, 1996, § 102(e) Date Oct. 23, 1996, PCT Pub. No. WO96/26507, PCT Pub. Date Aug. 29, 1996

PCT Filed Nov. 29, 1995, Ser. No. 737,303
Claims priority, application Spain, Feb. 23, 1995, 9500355
Int. Cl.^{6} A47J *27/00;37/00;37/12;* **G01F** *11/00*
U.S. Cl. 99—342 **15 Claims**



1 French fries dispensing machines, comprising a cold store (1.5), French fries dosing equipment (1), frier (2) fitted with two blades and a filter that fries previously cut potatoes fed from a hopper (1.3) using a worm screw (1.4); and means to dispense container (3), forks (4), sauces (5), salt (6); and further fitted with a tray pulling trolley (7), wherein said machine, once the preferred type of fries and condiments has been duly selected using push buttons (9), and after inserting the required price for one or several serves into the cash collection slot (8), the frying process is performed, after which an optical indicator (1), together with a sound indicator offering an appropriate message, are activated and the various products are duly dispensed, an external gate is lifted and the user, only has to remove the food tray and fork from the dispensing window (7.1), characterized by its cold store fitted with a potato chip dispensing device (1) using Roman scales, being the frier fitted with two blades and a double filter (2) utilizing a matt and active coal, and by this automatic machine being further fitted with dispensing means (3) that prevent the trays (3.4) from dropping in a tilted position and which also dispenses forks (4), as well as sauce (5) and salt (6) dosers that may be programmed at will, whereas an external product access window is lifted and the user only has to remove the food tray and fork from the dispensing window (7.1).

5,735,193
FOOD PROCESSOR

Po Feng Chang, No. 9, An Shuen N. 2St, Pei Tung Dist, Tai-Chung City, Taiwan

Filed Jun. 27, 1997, Ser. No. 883,854
Int. Cl.^{6} A23N *1/00;* **A47J** *43/046,43/07;* **B02C** *18/16*
U.S. Cl. 99—494 **7 Claims**

1 A food processor comprising:
- a lower bowl having a first bottom and a first peripheral wall extending from said bottom, a protrusion extending from an inner side of said first bottom for a blade means rotatably mounted thereto;
- a mediate bowl having a second bottom and a second peripheral wall extending from said second bottom, a slit defined in said second bottom and a scrapping blade fixedly and inclinedly disposed to said second bottom wherein a sharp edge of said scrapping blade extends above an inner side of said second bottom and is located adjacent to said slit, an outer peripheral wall disposed around said second peripheral wall with a

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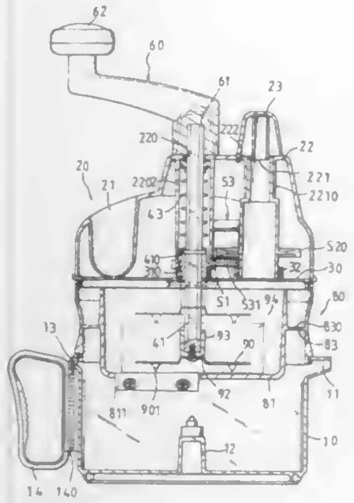
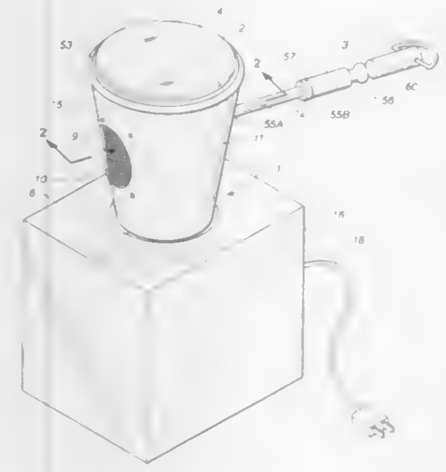


plurality of connecting plates connecting between said second peripheral wall and said outer peripheral wall which is mounted to said first peripheral wall;
a disk disengagably mounted to said mediate bowl and having a central hole defined therethrough;
a cap mounted to said disk and having a first hole defined therethrough:
a first shaft having a polygonal cross section and having a first end extending through said first hole of said cap and a second end extending through said central hole of said disk, a fixing plate disengagably connected to said second end of said first shaft, a flange extending radially from said first shaft so that a spring is mounted to said first shaft and biasedly disposed between said flange and an inner flange extending inwardly and radially from an inner periphery defining said first hole, and
a crank member having a first end with a first polygonal recess defined therein so as to securely mount to said first end of said first shaft and rotate said shaft.

5,735,194

APPARATUS FOR SEPARATING CHAFF AND ROASTING COFFEE AND COCOA BEANS

David M. Cochran, 851 Tulare St., Pismo Beach, Calif. 93449
Filed Jan. 3, 1997, Ser. No. 778,696
Int. Cl.⁶ A47J *37/00*; A23N *12/12*
U.S. Cl. 99—483 37 Claims

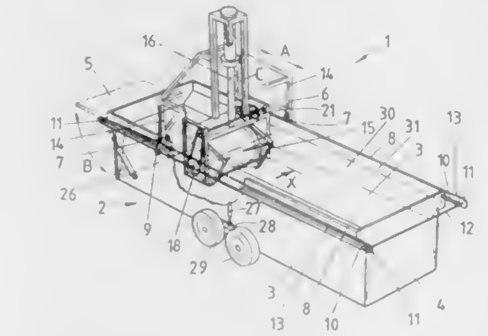


1. An apparatus for separating chaff from roasted beans selected from the group consisting of coffee, cocoa and mixtures thereof which comprises a hopper having an open top, an open bottom mountable over means for roasting beans and at least one exhaust gas outlet located on said hopper; a lid for covering the top; and a screen mounted over said exhaust gas outlet, said screen being coated with a mixture of materials that causes the surface of the screen to become electrostatically charged during the bean roasting process and at least one protective coating of a resin to cover the mixture of materials, the resin coating having sufficient thermal stability to withstand temperatures of at least 600° F., whereby the chaff that becomes separated from the beans during the roasting process is entrained in the exhaust gases which pass upward from said means for roasting beans and through the open bottom and is collected on the electrostatically charged screen.

5,735,195

COTTON MODULE BUILDER ASSEMBLY

Geoffrey John Hewitt, Dalby, and John Edward Hewitt, Macalister, both of Australia, assignors to G. T. Enterprises Pty Ltd, Queensland, Australia
Filed Jul. 29, 1996, Ser. No. 681,816
Claims priority, application Australia, Jul. 31, 1995, PN4465
Int. Cl.⁶ B30B *3/02*
U.S. Cl. 100—65 25 Claims



1 A cotton module builder, comprising:
an open top bin having two spaced side walls and two spaced end walls, at least one of said walls being a door wall movable from a closed position to an open position;
a carriage movably mounted to said bin to thereby move along a length of one of said side walls;
a pressure member rotably mounted to said carriage along an axis lateral to a direction of movement of said that said carriage, so pressure member rotates during movement of said carriage, and
a drive mechanism operatively coupled to said rotating pressure member for lifting said pressure member, and for applying different downward pressures to said pressure member to compact the cotton with different pressures,
wherein said pressure member and said drive mechanism in combination can apply different compressive pressures to a cotton module being formed in said bin during movement of said carriage

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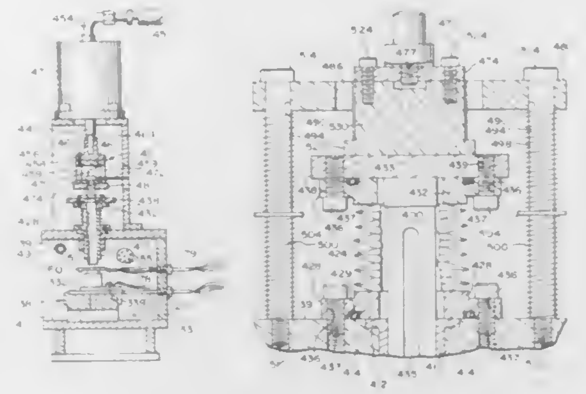
5,735,196

APPARATUS FOR APPLYING A FORCE TO LAMINATED INTEGRATED CIRCUIT DEVICES

Stanley Robert Jordan, Boca Raton; Gary Leon Stewart, Lake Worth, and Ralph Trollinger, Pompano Beach, all of Fla., assignors to IBM Corporation, Armonk, N.Y.
Filed May 29, 1996, Ser. No. 672,391
Int. Cl.⁶ B30B *9/00*; *15/00*
U.S. Cl. 100—90 12 Claims

1. An apparatus for applying a force to a workpiece that is positioned within a sealed vacuum enclosure, comprising:
a force-applying member;
an actuator for the force-applying member;
sealing structure for sealing said force-applying member to an opening in said enclosure permitting access by said force-



applying member, said sealing structure comprising a flexible sleeve, the force-applying member passing through the sleeve, a first end of the sleeve being hermetically fastened to the force-applying member, a second end of the sleeve being hermetically fastened to said enclosure about said opening, whereby the force-applying member can move within said opening and said flexible sleeve will flex with said movement

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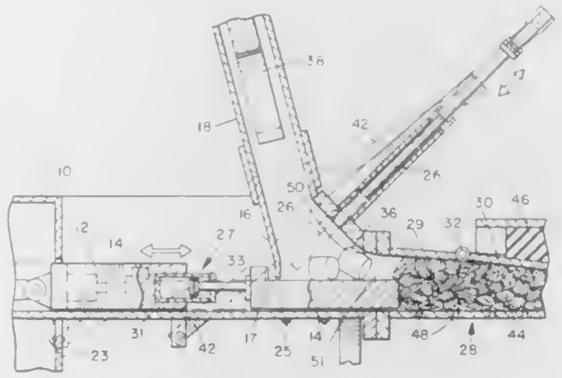
5,735,197

OIL FILTER COMPACTOR

Donald R. Kleine, 9201 Isaac St., Santee, Calif. 92071, assignor to Donald R. Kleine
Filed Jun. 23, 1994, Ser. No. 264,305
Int. Cl.⁶ B30B *9/06*, *15/30*
U.S. Cl. 100—127 30 Claims



1 A compactor for compacting articles, comprising
a compaction die oriented generally along an axis, said compaction die having an open interior, an inlet end, and an outlet end forward of said inlet end, said inlet end having a cross-sectional area, said open interior having a cross sectional area decreasing in a forward direction from said inlet end to said outlet end along said axis,
a restrictor connected to the compaction die at said outlet end and comprising a portion movable in response to force generated by said articles, said restrictor restricting movement of said articles in a forward direction through said interior of said compaction die;
a primary ram movable along said axis for urging said articles into said interior of said compaction die, said primary ram having a front end and a cross sectional area smaller than said cross sectional area of said inlet end of said compaction die:
an actuator for moving said primary ram front end between a primary ram retracted position and a primary ram extended position, said primary ram moving in a direction from said inlet end of said compaction die toward said outlet end of said compaction die when said primary ram front end moves from said retracted position to said extended position,
a feed for providing said articles to said open interior of said compaction die at a feed position forward of said primary ram retracted position and rearward of said primary ram extended position;
said feed having an inlet portion and an outlet portion, and a juncture portion at an article feeding position connecting the outlet portion of the feed to the compaction die inlet end, with the juncture portion having an inner surface which has a varying curvature, and
a secondary ram located at said juncture portion, said secondary ram moving between a secondary ram retracted position and a secondary ram extended position, said secondary ram moving from said retracted position to said extended position in a direction having a component of motion along said compaction die axis and from said outlet end toward said inlet end of said compaction die, the secondary ram located along an axis, and an angle between the compaction die axis and the secondary ram axis being generally equal to 45 degrees

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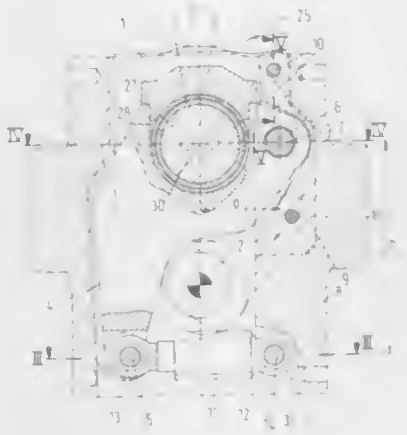
5,735,198

ROLLER BEARING APPARATUS

Dieter Junk, Kreuztal, Germany, assignor to Voith Sulzer Finishing GmbH, Krefeld, Germany
Filed Jul. 8, 1996, Ser. No. 677,572
Claims priority, application Germany, Jul. 7, 1995, 195 24 747.7
Int. Cl.⁶ B30B *3/04*
U.S. Cl. 100—170 22 Claims



1 A roller bearing apparatus for supporting a compensation roller that is disposed adjacent to a roller of a roller stack, said compensation roller having an axis, said roller stack having an axis, a plane being defined by said compensation roller axis and said roller stack roller axis, said roller bearing apparatus comprising.
a frame:
a bearing support disposed in said frame, said bearing support receiving a ball joint, said bearing support being movable relative to said frame to act as a lever, said bearing support pivoting about a pivot point, said ball joint being movable essentially in a linear press direction that is parallel to said plane, said pivot point and a center point of said ball joint defining a line that is essentially perpendicular to said press direction,
a pressure transducer disposed between said frame and said bearing support, said pressure transducer acting in a direction that is disposed exterior to said ball joint, said pressure transducer extending on both sides of said plane, said pressure transducer acting substantially perpendicularly to said plane

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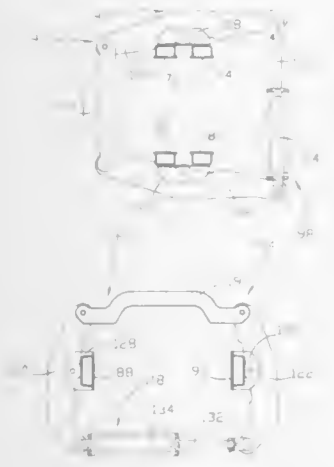
5,735,199
FOUR-SIDE SQUEEZE MECHANISM FOR EXTRUSION-TYPE SQUARE BALER

Edward Wesley Esau, Hesston, and Cecil Leon Case, Newton, both of Kans., assignors to Hay & Forage Industries, Hesston, Kans.

Filed Oct. 4, 1996, Ser. No. 726,390

Int. Cl.⁶ A01F *15/04;* **B30B** *9/30*

U.S. Cl. 100—191 6 Claims



1 In an extrusion-type square baler having a bale chamber for forming bales therein, the bale chamber presenting an inlet end and a discharge end, the discharge end having a discharge opening, the improvement comprising.

- a pair of elongated and vertically spaced top and bottom rails extending between the inlet and discharge ends of the bale chamber;
- a pair of elongated and horizontally spaced left and right siderails extending between the inlet and discharge ends of the bale chamber; and
- a squeeze mechanism positioned proximate the discharge end of the bale chamber for adjusting the size of the discharge opening of the bale chamber, the squeeze mechanism including
  - a vertical squeeze assembly including a first fluid power assembly for selectively shifting the top and bottom rails towards and away from one another for adjusting the vertical distance between the top and bottom rails near the discharge opening of the bale chamber, and
  - a horizontal squeeze assembly including a second fluid power assembly for selectively shifting the left and right siderails towards and away from one another for adjusting the horizontal distance between the left and right siderails near the discharge opening of the bale chamber,
  - said first and second power assemblies being at least essentially simultaneously actuatable to simultaneously adjust all four sides of the bale chambers.

5,735,200
STAMPING PRESS LOADER

Carl Tomei, Clarkston; Donley Townsend, Detroit, and John Jackson, Troy, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

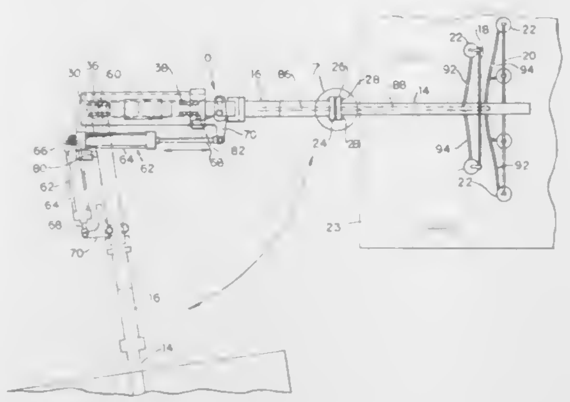
Filed Jul. 1, 1996, Ser. No. 674,039

Int. Cl.⁶ B30B *15/30*

U.S. Cl. 100—215 7 Claims

1. Apparatus for loading sheet material into a stamping press comprising

- an elongated boom having an inner end and an outer tool-supporting end.
- a tool having grippers for picking up and releasing sheet material,



- means releasably attaching the tool to the tool-supporting end of the boom,
- a boom-supporting carriage adjacent to the stamping press,
- means for moving said carriage toward and away from the stamping press from a retracted position to an advanced position, and
- means mounting the inner end of said boom on said carriage for lateral swinging movement from a loading position in which said boom extends toward the stamping press and, when the carriage is in the advanced position, the tool is disposed in the stamping press, to a tool-changing position extending at an acute angle to said loading position.

5,735,201
APPARATUS INCLUDING MUTUALLY COMMUNICATING HYDRAULIC CYLINDERS FOR EVEN DISTRIBUTION OF BLANK-HOLDING FORCE ON PRESSING MACHINE

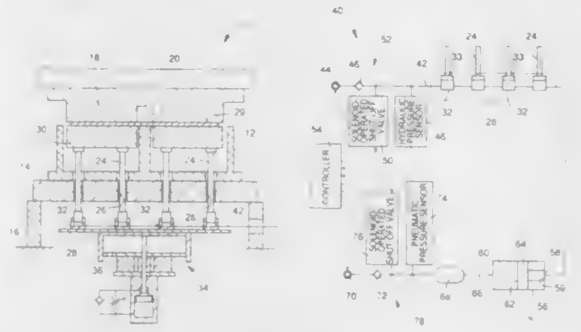
Norihisa Hirao, Okazaki; Kazunari Kirii, Aichi-ken, and Munetaka Toda, Kariya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

Filed Dec. 18, 1995, Ser. No. 574,181

Claims priority, application Japan, Dec. 21, 1994, 6-318151; Aug. 14, 1995, 7-207113

Int. Cl.⁶ B30B *15/02*

U.S. Cl. 100—269.01 19 Claims



1. A balancing apparatus for a pressing machine for performing a pressing operation on a blank, comprising:

- force generating means including a cushioning pneumatic cylinder for generating a blank-holding force during said pressing operation for holding said blank;
- a plurality of balancing hydraulic cylinders having respective oil chambers communicating with each other and including respective pistons that are moved to neutral positions thereof during the pressing operation, for evenly distributing said blank-holding force;
- a connecting passage connecting said oil chambers of said balancing hydraulic cylinders to each other; and
- discharge control means connected to said connecting passage, for inhibiting, prior to said pressing operation, a discharge flow of a working fluid from said balancing hydraulic cylinders and thereby holding said pistons of all of the balancing hydraulic cylinders at upper stroke ends thereof, and for permitting, during said pressing operation, said discharge flow of the working fluid, thereby to permit said pistons to be moved to said neutral positions for even distribution of said blank-holding force;
- said discharge control means comprising at least one discharge control cylinder to provide a chamber having a volume variable by an amount corresponding to the volume of working fluid discharged during movement of said pistons from the upper stroke ends thereof to said neutral positions.

5,735,202
PRINT SORTING METHOD FOR IMAGE FORMING APPARATUS WITH SORTER AND CONTROL SYSTEM FOR EXECUTING SUCH PRINT SORTING METHOD

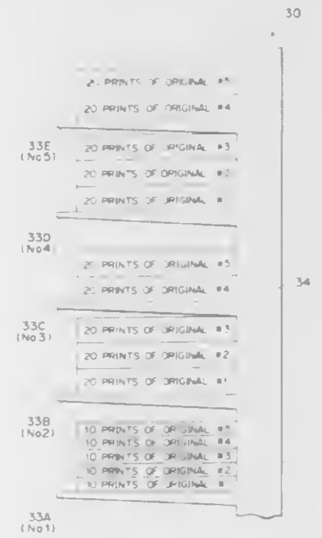
Toshiyuki Sakakibara, and Mitsuo Sato, both of Shibata-machi, Japan, assignors to Tohoku Ricoh Co., Ltd., Miyagi, Japan

Filed Jan. 17, 1997, Ser. No. 784,991

Claims priority, application Japan, Apr. 4, 1996, 8-082797

Int. Cl.⁶ B65H *39/00*

U.S. Cl. 101—2 15 Claims



1. A method of sorting prints which carry original images printed by an image forming apparatus and are delivered to bins of a sorter used in combination with the image forming apparatus, the method comprising:

- (a) a first sorting step in which prints are delivered to bins of the sorter in a grouped state; and
- (b) a second sorting step in which the prints grouped in the process (a) are manually removed from the bins, are relocated to a sheet tray of the image forming apparatus, and are conveyed from the sheet tray through the image forming apparatus and are delivered to the bins where the prints are collected and arranged in proper sequence, and
- wherein images of the original document are printed on sheets in the first sorting step while no image is printed on the prints in the second sorting step.

5,735,203
APPARATUS FOR PRINTING SOLDER PASTE TO A PRINTED CIRCUIT BOARD AND SEPARATING A SCREEN MASK PLATE FROM THE PRINTED CIRCUIT BOARD

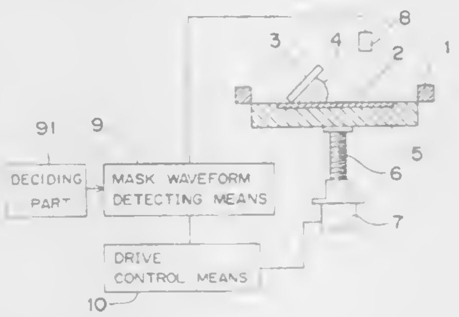
Masahiro Taniguchi, Hirakata; Toshinori Mimura, Katano; Kazue Okanoue, Kadoma; Hiroaki Onishi, Higashiosaka, and Nobuya Matsumura, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 631,021, Apr. 12, 1996. This application Dec. 12, 1996, Ser. No. 762,872

Claims priority, application Japan, Apr. 12, 1995, 7-86595

Int. Cl.⁶ B41F *15/26*

U.S. Cl. 101—126 12 Claims



1. An apparatus for printing solder paste to a printed circuit board with use of a screen mask plate and a squeegee, the screen mask plate comprising a mask having a free surface, the apparatus comprising:

- a moving device for moving one of the printed circuit board and the screen mask plate in a direction to be separated from the other of them after printing of the solder paste at a first moving speed and a second moving speed faster than the first moving speed;
- a control means for controlling the moving device so as to move the one of the printed circuit board and the screen mask plate at the first moving speed in the direction to be separated from the other of them after printing of the solder paste and until We one of the printed circuit board and the screen mask plate reaches a plate-separation position which is a position immediately before the screen mask plate and the printed circuit board are completely separated from each other, and so as to change the first moving speed to the second moving speed when the one of the printed circuit board and the screen mask plate reaches the plate-separation position;
- a device for detecting a printed state of the solder paste on the printed circuit board; and
- a means for setting the plate-separation position based on a result detected by the detecting device

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5,735,204
DAMPENING WATER CIRCULATION SYSTEM FOR OFFSET PRESS

Akira Hara, Room No. 10, Fung Full Commercial Centre, 480 Kings Road, North Point, Hong Kong, and Hiraku Onuma, 18-3-2-50, Utsukushiga-Oka 1-chome, Midori-ku, Yokohama-shi Kanagawa, Japan

Continuation of Ser. No. 285,976, Aug. 4, 1994, abandoned. This application Aug. 22, 1997, Ser. No. 924,403

Claims priority, application Japan, Aug. 11, 1993, 5-219130; Oct. 29, 1993, 5-294501

Int. Cl.⁶ B41F *7/32, 7/26*

U.S. Cl. 101—148 10 Claims

1 A dampening fluid circulation system for use in a printing press, comprising:

- (a) a form plate rotatably affixed to the press;
- (b) a dampening fluid reservoir;
- (c) a dampening fluid fountain roller aligned parallel to said form plate;

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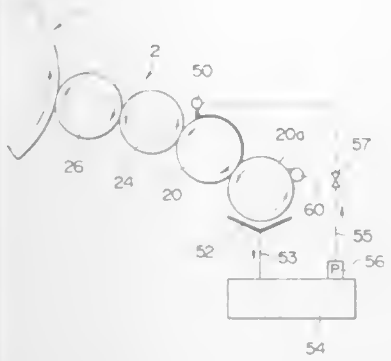


- (d) a dampening fluid supply member in fluid communication with said dampening fluid reservoir and positioned adjacent to said fountain roller, said supply member having an orifice directed towards said fountain roller so that a dampening fluid traveling through said fluid supply member exits said orifice, a portion of said dampening fluid adhering to said fountain roller;
- (e) at least one other roller aligned parallel to said form plate, said other roller interposed between said form plate and said fountain roller, and in serial contact with said form plate and said fountain roller so that said dampening fluid may be transmitted from said fountain roller, to said other roller, and to said form plate;
- (f) a dampening fluid pool member comprising a substantially hollow bar, said dampening fluid pool member aligned parallel and adjacent to said fountain roller and creating a dampening fluid retaining gap disposed between said fountain roller and said pool member; and
- (g) a dampening fluid collector positioned below said fountain roller and said other roller whereby said collector collects a portion of dampening fluid falling from said other roller and said fountain roller, said collector being in fluid communication with said dampening fluid reservoir.

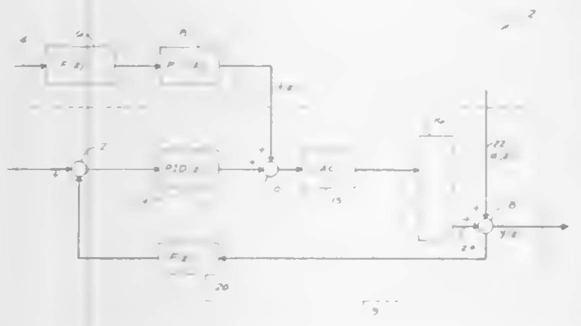
5,735,205
PRINTING PRESS CONTROLLER

Richard Eric Nordgren, Daleville, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed Nov. 7, 1996, Ser. No. 744,607

Int. Cl.⁶ B41F *13/24*

U.S. Cl. 101—181 **6 Claims**



1. A printing press controller for controlling printing press register non-uniformities, wherein said controller is comprised of:

- a first printing press production stage data input means;
- a first filter means operatively connected to said first printing press production stage data input means;
- a model means operatively connected to said first filter means;
- a signal feedback means operatively connected to said model means;
- a data set-point entry means operatively connected to said signal feedback means; and
- a second printing press production stage data input means operatively connected to said signal feedback means wherein said signal feedback means is further comprised of,
  - a PID controller means operatively connected to said data set-point entry means,
  - a first summer means operatively connected to said model means and said PID controller means,
  - a converter means operatively connected to said first summing means,
  - a printing press means operatively connected to said converter means,
  - a second summer means operatively connected to said printing press means and said second printing press production stage data input means, and
  - a second filter means operatively connected to said second summer means and said data set-point entry means.

5,735,206
DEFORMABLE MANDRELS FOR ROTARY PRINTING CYLINDERS

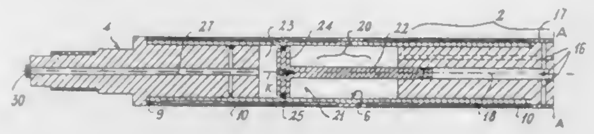
Felice Rossini, Milan, Italy, assignor to Erminio Rossini, sPa, Milan, Italy

Filed Mar. 11, 1996, Ser. No. 613,897

Claims priority, application Italy, Mar. 20, 1995, MI95A0543 U

Int. Cl.⁶ B41F *13/08*

U.S. Cl. 101—216 **9 Claims**



3. A printing cylinder mandrel for supporting a printing sleeve to be mounted thereon, the printing sleeve being of a type carrying print characters, the mandrel being surface-deformable and able to assume at least two configurations, in one configuration of the mandrel the sleeve can be selectively mounted on the mandrel and unmounted from the mandrel and in the other configuration of the mandrel the sleeve is torsionally locked to the mandrel, the mandrel comprising:

- a core having an outer surface,
- a deformable element having an inner surface disposed to oppose said outer surface of said core,
- a plurality of intercommunicating perimetral chambers defined between said outer surface of said core and said inner surface of said deformable element, said chambers being configured to contain an incompressible fluid,
- a channel connected to said perimetral chambers and configured for containing said incompressible fluid; and
- a presser means for pressurizing said fluid in order to achieve the surface deformation of the mandrel and the torsional coupling and locking of the sleeve, said presser means being guidedly movable within the mandrel and being activated by feeding a pressurized fluid into the mandrel, said presser means including a hydraulic bellows having a hollow bellows portion communicating with said channel.

5,735,207
DEVICE FOR ADJUSTING GUIDE YOKES IN ROTARY PRINTING PRESSES

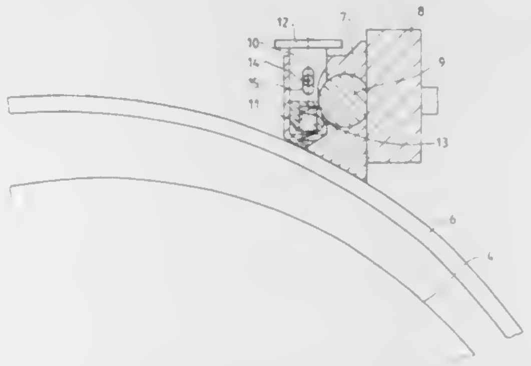
Stefan Otto Adolf Döpke, deceased, late of Rehburg-Loccum; Franz-Adolf Döpke, heir, Rehburg-Loccum; Katrin Ewert, heir, Jügesheim-Rottgau, and Jürgen Rautert, Heidelberg, all of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Nov. 1, 1996, Ser. No. 741,788

Claims priority, application Germany, Nov. 4, 1995, 29517472 U

Int. Cl.⁶ B41F *5/00*

U.S. Cl. 101—216 **8 Claims**



1. Device for adjusting guide yokes in rotary printing presses, the rotary printing presses comprising side racks, and at least one rotatably mounted cylinder for advancing sheets of printing stock, the cylinder having an outer circumferential surface, said device for adjusting guide yokes comprising:

- a crossbeam fastened to the side racks of the press and disposed substantially transverse to the direction of travel of the sheets of printing stock;
- a profile guide disposed along said crossbeam;
- a holder disposed on said profile guide;
- a guide yoke for guiding the sheets of printing stock along the outer circumferential surface of the cylinder during rotation of the cylinder;
- said guide yoke being attached to said holder;
- a clamping bolt disposed in part within said holder,
- said clamping bolt comprising a mechanism for releasably clamping said holder onto said profile guide; and
- said mechanism comprises a biasing spring.

5,735,208
APPLICATOR FOR A PRINTING MACHINE

Peter Hummel, Offenbach, and Robert Ortner, Alzenau, both of Germany, assignors to MAN Roland Druckmaschinen AG, Germany

Filed May 19, 1997, Ser. No. 818,706

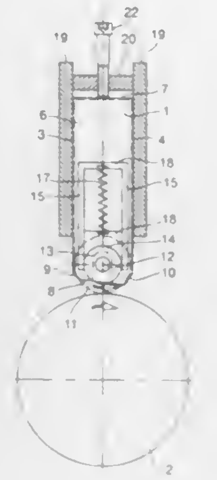
Claims priority, application Germany, Mar. 14, 1996, 196 09 946.3

Int. Cl.⁶ B41F *5/00*

U.S. Cl. 101—329 **19 Claims**

1. An assembly for the metered application of a fluid or the like to a driven cylinder of a printing machine comprising:

- a least one container at least partially filled with the medium to be applied providing an outlet opening facing the cylinder defined by an opening boundary surface;
- a rotatably mounted metering roller arranged at the outlet opening with at least a portion thereof which protrudes outwardly from the outlet opening disposed to be driven by friction contact with the cylinder, the opening boundary surface and the peripheral surface of the metering roller defining a metering gap which is adjustable in its width; and
- an adjustment device coupled with the container adapted to change the position of the metering roller relative to the container opening boundary surface and to thereby change the width of the metering gap.



5,735,209
DOCTOR BLADE UNIT FOR THE INKING SYSTEM OF A ROTARY PRINTING PRESS

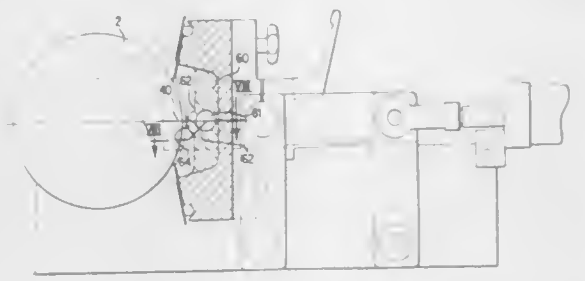
Fritz Achelpohl, Lienen, Germany, assignor to Windmöller & Hölscher, Lengerich/Westf., Germany

Filed Sep. 17, 1996, Ser. No. 714,861

Claims priority, application Germany, Sep. 28, 1995, 195 36 268.3

Int. Cl.⁶ B41F *1/46*

U.S. Cl. 101—363 **5 Claims**



1. A combination of a screen roller and a doctor blade unit for an inking system of a rotary printing press, comprising:

- a doctor blade carrier that is formed of a profiled rail with a channel-shaped recess;
- two doctor blades fastened to said doctor blade carrier and disposed at an angle relative to each other, the doctor blades, in cooperation with the screen roller, enclosing the channel-shaped recess and delimiting an ink chamber;
- sealing elements provided on ends of the doctor blade carrier and sealing off said ink chamber, said doctor blade carrier including holes therein for supplying and discharging ink into and from the ink chamber;
- an insert with a hole that extends parallel to an axis of the roller inserted into the recess, the hole that extends parallel to the axis interconnecting with lateral holes in the insert that form spraying nozzles for spraying a cleaning fluid into the ink chamber;
- a piston and cylinder device for pressing the doctor blade carrier against the screen roller; and
- covers on ends of the ink chamber which carry the sealing elements and accommodate said insert, one of said covers including a hole communicating with one end of said hole that extends parallel to an axis of the roller for supplying cleaning fluid.

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5,735,210
DOCTOR BLADE UNIT FOR THE INKING SYSTEM OF A ROTARY PRINTING PRESS

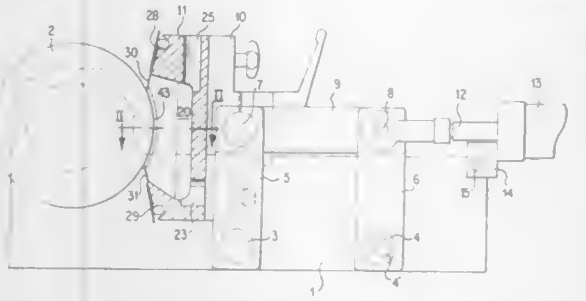
Günter Rogge, Lienen, and Ludger Ottenhues, Tecklenburg, both of Germany, assignors to Windmöller & Hölscher, Lengerich/Westf., Germany

Filed Apr. 23, 1996, Ser. No. 636,859

Claims priority, application Germany, May 3, 1995, 195 16 224.2

Int. Cl.⁶ B41F *31/05;31/06*

U.S. Cl. 101—366 **3 Claims**



1. A combination of an inking roller and a doctor blade unit for an inking system of a rotary printing press comprising:

a doctor blade carrier,

two doctor blades that can be brought in contact with the inking roller fastened on said doctor blade carrier parallel to and angled toward one another,

sealing elements provided on ends of said doctor blade carrier, said doctor blades defining an inking chamber in cooperation with the inking roller, the doctor blade carrier and the sealing elements provided on the ends of said doctor blade carrier,

ducts for supplying and discharging ink into and out of the ink chamber,

clamping elements for pressing the doctor blade carrier against the inking roller,

parallel pitmans,

a doctor blade unit carrier, joined to said doctor blade carrier, to which said parallel pitmans are connected,

coupling rods joining pairs of said parallel pitmans,

articulated shafts coupling said coupling rods to said parallel pitmans,

an inking system frame to which the parallel pitmans are coupled. and

a device that displaces one of the pairs of said parallel pitmans.

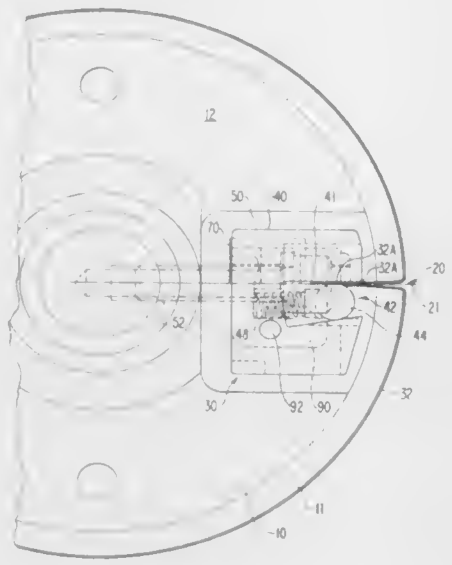
5,735,211
CLAMPING AND TENSIONING DEVICE FOR PRINTING PLATES

Thomas Dewayne Parks, Tacoma; Michael Rolland Turner, Renton, both of Wash.; Dale Leon Bunnell, Chesterfield, and Gary Wilson Teeter, St Louis, both of Mo., assignors to Mark Andy, Inc., Chesterfield, Mo.

Filed Jun. 13, 1996, Ser. No. 661,789

Int. Cl.⁶ B41F *21/00*

U.S. Cl. 101—415.1 **35 Claims**



1. A printing cylinder system for use in a printing press, comprising:

a printing cylinder having a narrow first slot extending lengthwise in an outer surface in said printing cylinder with first slot having a bissecting plane that includes an axis of said printing cylinder;

a clamping mechanism disposed movably within the volume of said printing cylinder for clamping a flexible printing plate securely around said printing cylinder;

a mounting mechanism for holding said clamping mechanism in a relative position within said printing cylinder and including control means for moving said clamping mechanism within said printing cylinder substantially toward or away from said first slot;

wherein said clamping mechanism comprises:

a plate clamp block with a longitudinal clamping slot disposed therein, with said clamping slot having an opening aligned to communicate with the outer surface of said plate clamp block, said clamping slot disposed to communicate with said first slot to receive and hold at least one edge of said flexible printing plate via said first slot;

wherein, once said at least one end of said flexible printing plate is received and held within said clamping slot said mounting mechanism is controlled to move said clamping mechanism relative to said first slot to tighten said flexible printing plate around said printing cylinder; and further comprising:

a first and a second shafts disposed one at either end of said printing cylinder and concentric therewith, and including at least one hole in each of said first and second shafts aligned approximately on the same centerplane as said first slot;

wherein said printing cylinder includes an end cap disposed on either end thereof, with each of said end caps including an opening therein;

wherein said clamping mechanism has a first and second ends thereof extending through said openings in the end caps so as to be positioned in parallel and spaced from said first and second shafts, said openings in said end caps being of a sufficient size to allow said clamping mechanism to be moveable within said openings so that said clamping mechanism can be moved toward or away from said first slot, and including at least one hole in each of said first and second ends of said clamping mechanism in registry with said at least one hole in said first and second shafts; and

wherein said mounting mechanism comprises at least a first threaded fastener for securing said first end of said clamping mechanism to said first shaft, and a second threaded fastener for securing said second end of said clamping mechanism to said second shaft.

5,735,212
CYLINDER CLEANING APPARATUS

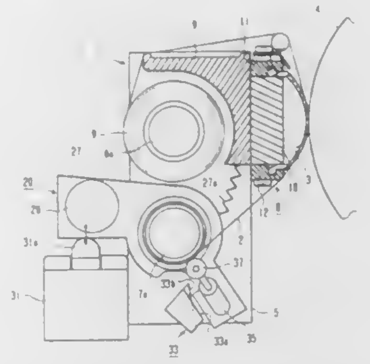
Hideo Oyaizu, Tokyo, Japan, assignor to Baldwin-Japan Ltd., Tokyo, Japan

Filed Aug. 3, 1995, Ser. No. 510,782

Claims priority, application Japan, Aug. 9, 1994, 6-207981

Int. Cl.⁶ B41F *35/00*

U.S. Cl. 101—423 **11 Claims**



1. A cylinder cleaning apparatus for cleaning an external surface of a cylinder of a press having a cleaning cloth which is fed from a cloth feed roll to a cloth wind shaft, the cylinder cleaning apparatus comprising:

power generation means for generating a power for rewinding the cloth feed roll and winding the cloth wind shaft, wherein said power generation means includes a cloth feed arm means for paying out a first length of cloth from the cloth feed roll and rewinding a second length of cloth from the cloth wind shaft, said cloth feed arm means rotatably mounted to the press for movement through a displacement degree; and

shift means, mounted on said cloth feed arm means, for selectively transmitting said power to a one of the cloth feed roll and the cloth wind shaft.

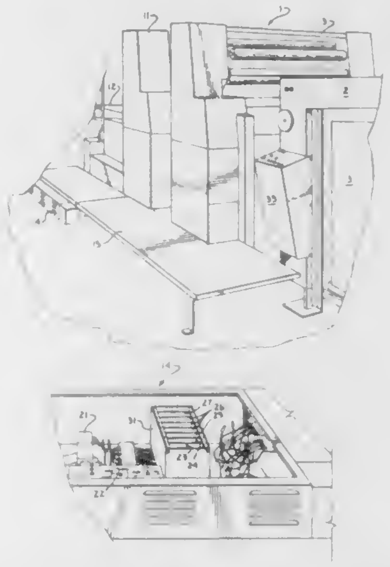
5,735,213
PRINTING PRESS PROGRAMMABLE LOGIC CONTROLLER CONVERSION METHOD

Bryan L. Bury, 210 SW. Seagull Ct., Lee's Summit, Mo. 64082

Filed Aug. 30, 1996, Ser. No. 705,700

Int. Cl.⁶ B41F *1/56*

U.S. Cl. 101—480 **3 Claims**



1. A method of converting a printing press which is equipped with a plurality of discrete OEM PC boards, each PC board including an multiple contact edge connector with the PC boards being connected to the printing press by removably plugging each such edge connector into a corresponding one of a plurality of edge connector receivers which are electrically connected to the printing press, said OEM PC boards collectively at least partially controlling said printing press,. said method including the steps of:

a. preprogramming a digital PLC controller to emulate the control functions of said PC boards;

b. positioning said PLC controller on a rack equipped with a plurality of multiple contact edge connectors corresponding in number and position to said edge connector receivers of said printing press;

c. electrically connecting respective input and output terminals of said PLC controller to respective ones of said contacts on said edge connector of said rack, and

d. removing said OEM PC boards from said printing press and plugging in said rack in place thereof.

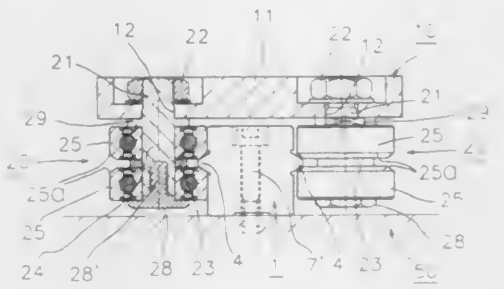
5,735,214
STREAMLINE TRACK SYSTEM WITH CARRIERS AND RAIL

Nobuyuki Tsuboi, 23-2-706 Hayakocho, Neyagawa City, Osaka 572, Japan

Filed Dec. 27, 1996, Ser. No. 773,830

Int. Cl.⁶ B61C *11/04*

U.S. Cl. 105—29.1 **12 Claims**



1. A track system comprising:

a guide rail having a pair of opposed parallel guide sides and a pair of opposed parallel set sides, each of said guide sides provided with a pair of parallel plain lanes and a parallel V edge protruded between said pair of parallel plain lanes, said V edge having a top portion and a base portion,

at least one carrier adapted to be run along said guide rail and comprising a frame and a plurality of roller assemblies rigidly secured to said frame for supporting said at least one carrier by engaging with said opposed parallel guide sides, each of said roller assemblies comprising a journal and a pair of ball bearings mounted on said journal with a space between said pair of ball bearings; and

each of said pair of ball bearings including an outer race which engages with each of said pair of parallel plane lanes and which has a beveled corner facing to said V edge, each of said pair of ball bearings adapted to cooperate with said V edge such that said beveled corner engages with said base portion of said V edge and such that said top portion of said V edge remains in said space between said pair of ball bearings without engaging said outer race

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5,735,215
RAIL-BORNE MOTIVE POWER UNIT

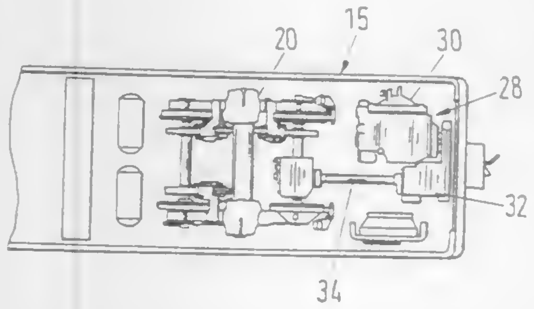
Ferdinand Tegeler, Berlin, Germany, assignor to ABB Henschel Aktiengesellschaft, Berlin, Germany

Filed May 29, 1996, Ser. No. 654,533

Claims priority, application Germany, Nov. 30, 1994, 9415770 U

Int. Cl.⁶ B61C *3/00;7/00*

U.S. Cl. 105—34.1 **28 Claims**



1. A rail-borne motive power unit for conveying passengers, comprising:

a low-floor vehicle coach body having a central part and at least one end part, said central part housing a passenger compartment and being lowered relative to said at least one end part;

said at least one end part being embodied as a motor-coach head and housing a driver's cab;

running-gear assemblies supporting said coach body, and at least one electric drive motor drivingly connected to at least one of said running-gear assemblies;

a drive unit drivingly connected to said at least one drive motor, said drive unit comprising a drive selected from the group of a diesel-mechanical drive, a diesel-electric drive, a purely electric drive, a multi-system drive formed by a combination of a diesel-electric drive with a purely electric drive, a multi-system drive formed by a combination of two different electric drive variants, a multi-system drive formed by a combination of a diesel-electric and two different electric drive variants;

said drive unit is stationary relative to said coach body and said running-gear assemblies are bogies with driven axles; and

drive shafts connecting said bogies to said drive unit.

5,735,216
ROLLER BEARING ADAPTER STABILIZER BAR

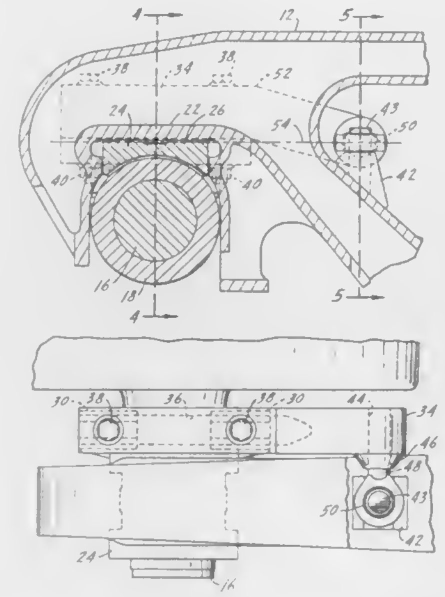
Robert L. Bullock, Antioch, and Armand P. Taillon, Chicago, both of Ill., assignors to Standard Car Truck Company, Park Ridge, Ill.

Continuation-in-part of Ser. No. 365,414, Dec. 28, 1994, abandoned. This application Jul. 12, 1996, Ser. No. 682,842

Int. Cl.⁶ B61F *15/00*

U.S. Cl. 105—218.1 **6 Claims**

1. A three-piece rail car truck having a pair of side frames, a bolster extending between said side frames, a pair of wheelsets, roller bearing adapters, each of which is seated on an end of said wheelsets, each of said side frames having a pedestal at each end thereof formed and adapted to seat upon one of the roller bearing adapters, the improvement comprising a stabilizer bar connected between each of said roller bearing adapters and an adjacent portion of one of said side frames, the connection between each of said stabilizer bars and one of the roller bearing adapters being rigid, the connection between each of said stabilizer bars and one of the side frames providing for limited movement therebetween, each of said stabilizer bars being significantly less stiff than an axle or the side frames and functioning as a yaw spring stiffness between said axle and side frame, thereby resisting unsquaring relative movement between the wheelsets and side frames.



5,735,217
RAIL-TYPE CONVEYOR SYSTEM

Helmut Halbig, Oberschleissheim, and Werner Gstöttmayer, Eichenau, both of Germany, assignors to Telelift GmbH, Puchheim, Germany

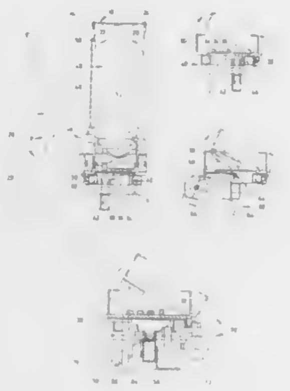
PCT No. PCT/EP94/03772, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/14599, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 14, 1994, Ser. No. 633,755

Claims priority, application Switzerland, Nov. 24, 1993, 3507/93

Int. Cl.⁶ B61B *13/00*

U.S. Cl. 105—239 **14 Claims**



1. A rail-type conveyor system comprising:

a plurality of self-propelling identical trucks guided along a longitudinal travel path, each of said trucks being provided with a respective plurality of wheels and a respective lock means for controllably opening and locking the truck;

at least one dispatching station along said path formed with at least one loading station receiving each of the trucks upon stopping thereof, said one loading station being provided with:

a respective C-shape rail pivotally mounted on a longitudinal side thereof and extending along a longitudinal axis and formed with a pair of opposite longitudinal sides extending at least at a length corresponding to a length of the truck and engaging the wheels of the truck,

a respective lift means including a respective drive actuatable by the truck and a lifting member for pivoting the rail between horizontal and inclined positions of the rail,

a respective delivery means for loading the truck with a load in the horizontal position of the rail, and

a respective unloading means mounted on a one side of the respective rail and extending laterally off the rail for receiving the load from the truck opened by the respective locking means upon pivoting of said rail in the inclined position.

5,735,218
DESK

Michael Andrew Fewchuk, Eastwood, Australia, assignor to Sebel Furniture Limited, Bankstown, Australia

Filed Jun. 21, 1996, Ser. No. 670,189

Claims priority, application Australia, Jun. 23, 1995, PN3768

Int. Cl.⁶ A47B *27/00*

U.S. Cl. 108—6 **14 Claims**

7. A school desk comprising a frame and a desk top having a flat writing surface, wherein said desk top is pivotally mounted on said frame and is movable between a first position in which said writing surface is substantially horizontal and a second position in which said writing surface is upwardly forwardly inclined, and wherein said desk includes releasable latch means comprising a pair of pivoted link over-centre toggle assemblies, said assemblies being substantially rigidly connected to each other so as to pivot in unison to retain said desk top in said inclined second position.

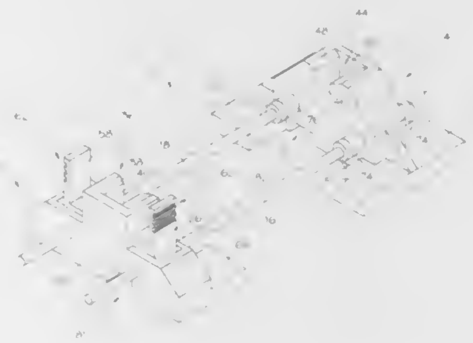
5,735,219
OPEN BASE ADJUSTABLE PALLET FOR SUPPORTING WORK PIECES

Eric John Kirker, Vandalia; Taggert R. McGough, Clayton, and William R. Patterson, Miamisburg, all of Ohio, assignors to Odawara Automation, Inc., Tipp City, Ohio

Filed Nov. 27, 1996, Ser. No. 757,431

Int. Cl.⁶ B65D *19/38*

U.S. Cl. 108—54.1 **14 Claims**



1. An open base adjustable pallet for supporting a work piece, said open base adjustable pallet comprising

at lease one carriage rod;

a first support member mounted on one end of said at least one carriage rod for extensible travel along said at least one carriage rod, said first support member including a coupling device for releasably coupling said first support member to said at least one carriage rod, whereby said first support member is adjustably coupled on said at least one carriage rod, said coupling device comprising a pivot arm having a hole therein through which said at least one carriage rod passes, and a torsion spring having a helical portion which encircles said at least one carriage rod and frictionally engages said at least one carriage rod when said torsion spring is relaxed and disengages said at least one carriage rod when said torsion spring is compressed, wherein rotation of said pivot arm about said rod in a first direction compresses said torsion spring and enables said first support member to be moved along said rod and releasing said pivot arm relaxes said torsion spring and couples said support member to said rod.

a second support member mounted on an end of said at least one carriage rod opposite said first support member.

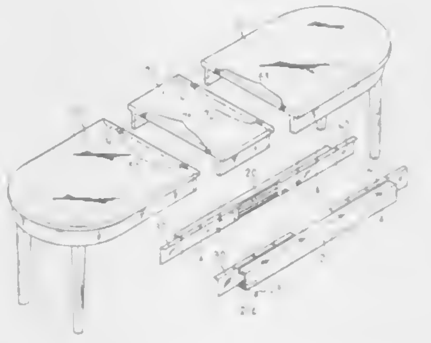
5,735,220
SLIDE RAILS OF EXTENSIBLE TABLE

Ming-Cheng Wang, 1598-7, Chun Suan Rd., Shen kang Hsiang Taichung Hsien, Taiwan

Filed Dec. 16, 1996, Ser. No. 769,677

Int. Cl.⁶ A47B *1/00*

U.S. Cl. 108—87 **2 Claims**



1. A slide rail of an extensible table, said slide rail comprising

a sliding seat having a C-shaped cross section, two guide rails and two guide slots, said sliding seat provided in one side wall thereof with a gear fastened therewith,

a first sliding support having an L-shaped cross section, a plurality of sliding wheels, a top plate provided with a plurality of threaded holes, and a side plate provided with a rack fastened therewith such that a toothed side of said rack faces a floor, said first sliding support fitted into said sliding seat from one end of said sliding seat such that said sliding wheels are corresponding in location to one of said two guide rails of said sliding seat, and that said rack is corresponding in location to one of said two guide slots of said sliding seat, and further that said toothed side of said rack is engaged with said gear of said sliding seat; and

a second sliding support having an L-shaped cross section, a plurality of sliding wheels, a top plate provided with a plurality of threaded holes, and a side plate provided with a rack fastened therewith such that a toothed side of said rack faces a direction opposite to the floor, said second sliding support fitted into said sliding seat from another end of said sliding seat such that said sliding wheels are corresponding in location to another one of said two guide rails of said sliding seat, and that said rack is corresponding in location to another one of said two guide slots of said sliding seat, and further that said toothed side of said rack is engaged with said gear of said sliding seat

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5,735,221

BACKROOM SHELVING SYSTEM

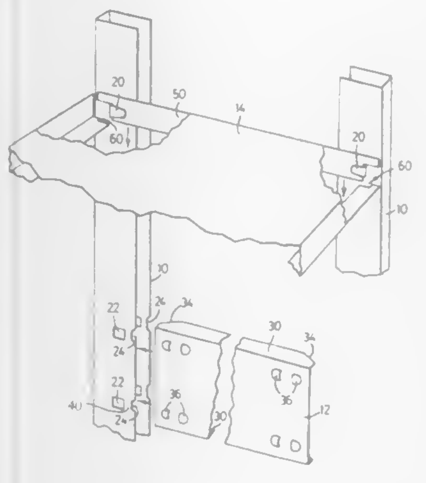
Jaime Benayon, 400 Fenmar Drive,, Weston, Ontario, Canada, M9L 1M6

Filed May 17, 1996, Ser. No. 651,039

Claims priority, application Canada, Apr. 12, 1996, 2174008

Int. Cl.^{6} A47B *9/00*

U.S. Cl. 108—107 **12 Claims**



1. A shelving construction comprising a) a plurality of upright members each having substantially a U-shaped cross-section including two opposed, flat, uniformly spaced-apart, substantially parallel flanks interconnected by a web portion from which the flanks extend, each flank terminating at a respective free edge; b) a plurality of shelves connected between upright members; and c) at least one stiffener plate sized to extend between and into two upright members which are disposed such that the flanks of each upright member extend toward the other upright member, the stiffener plate having an effective width such that it is snugly received within both upright members, each upright member defining at least one bridging portion, the stiffener plate having, for each bridging portion, two spaced-apart protrusions such that said bridging portion can snap into the space between the protrusions when the stiffener plate is inserted into the respective upright member; the stiffener plate being a substantially rectangular panel having two opposed edges adapted to enter respective upright members, and a further two opposed edges along each of which a marginal portion is bent substantially at right angles, the width of the marginal portions determining said snug reception into the upright members; each of the upright members connected by a given stiffener plate having a pair of longitudinally spaced-apart apertures in at least one flank, each aperture being spaced inward from the corresponding free edge of the flank, whereby each said bridging portion is defined by an integral, vertical, longitudinally extending strap of material between the aperture and the free edge.

5,735,222

VERTICALLY ADJUSTABLE DETACHABLE KEYBOARD TRAY

Sharon L. Webb, 9680 Paseo Montril, San Diego, Calif. 92129

Continuation of Ser. No. 198,369, Feb. 18, 1994, abandoned. This application Feb. 9, 1996, Ser. No. 605,283

Int. Cl.^{6} A47B *9/06;9/14*

U.S. Cl. 108—144 **20 Claims**

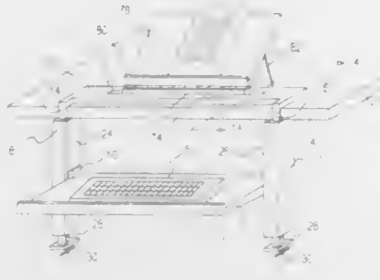
1. A device for suspending a keyboard from a desk top comprising:

(a) tray means for supporting a keyboard,

(b) means for vertically suspending the tray means below the desk top at any selected one of a plurality of vertical levels,

(c) means, affixed to the means for vertically suspending the tray means, for clamping onto a margin of the desk top, and

(d) wherein the tray means provides a level surface for supporting the keyboard at each selected vertical level.



5,735,223

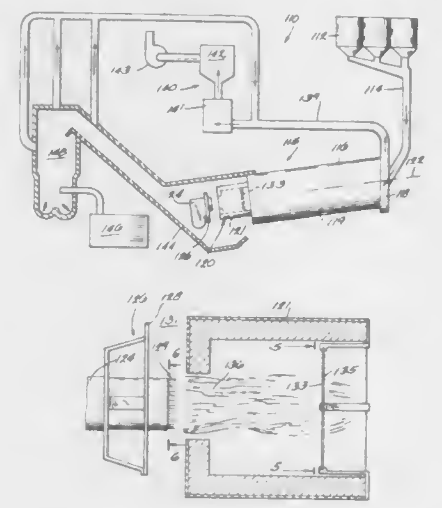
METHOD FOR DISPOSING OF PAPER IN AN ASPHALT PLANT

Thomas R. Amon, 219 Sunset Dr., Elkhorn, Wis. 53121

Continuation-in-part of Ser. No. 371,161, Jan. 11, 1995, Pat. No. 5,520,124. This application May 10, 1996, Ser. No. 645,952

Int. Cl.^{6} B23K *3/02*

U.S. Cl. 110—226 **22 Claims**



16. A method for operating an asphalt plant, said method comprising the steps of:

a) introducing stone aggregate into a dryer unit to heat the stone aggregate, the dryer unit including a container and a burner for producing a flame to provide thermal energy for heating the stone aggregate in the container;

b) supplying burner air for providing oxygen to the burner flame, and

c) causing the burner flame to extend through a plurality of openings in a grate which is spaced from the burner, such that the grate improves the thermal efficiency of the dryer unit for heating the stone aggregate

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5,735,224

THERMAL DECHLORINATING APPARATUS AND METHOD FOR COLLECTED ASH

Gentaro Takasuka, and Mazumi Itaya, both of Ichihara, Japan, assignors to Mitsui Engineering & Shipbuilding Co., Ltd., Tokyo, Japan

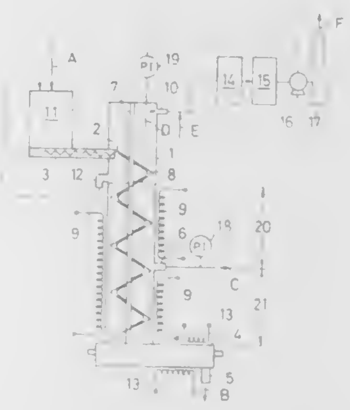
PCT No. PCT/JP95/01099, § 371 Date Apr. 10, 1996, § 102(e) Date Apr. 10, 1996, PCT Pub. No. WO95/33585, PCT Pub. Date Dec. 14, 1995

PCT Filed May 6, 1995, Ser. No. 591,539

Claims priority, application Japan, Jun. 6, 1994, 6-124002

Int. Cl.^{6} F23G *5/00*

U.S. Cl. 110—259 **13 Claims**



1. A thermal dechlorinating apparatus for collected ash, comprising a vertically elongated cylindrical apparatus body, a collected ash inlet and a collected ash outlet which are provided on the apparatus body and spaced in a vertical direction thereof, an inlet port for heated air provided on a portion of the apparatus body between the collected ash inlet and the collected ash outlet, an exhaust gas outlet provided on a portion of the apparatus body above the collected ash inlet, a rotary shaft provided along an axial direction of the apparatus body, a screw provided on the rotary shaft, and heating means provided on a portion of the apparatus body between the collected ash inlet and the collected ash outlet, and

wherein the screw is a ribbon screw which gives an upward component force under regular rotation and which gives a downward component force under reverse rotation

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5,735,225

METHOD FOR RECOVERING ENERGY FROM SOLID WASTE

Giuseppe Natta, Giussago; Enrico Calcaterra, Codogno, and Marco Tugnoli, Corteolona, all of Italy, assignors to Fertilvita S.r.l., Corteolona (Pavia), Italy

Filed Oct. 2, 1995, Ser. No. 537,455

Claims priority, application Italy, Oct. 4, 1994, MI 94A002013

Int. Cl.^{6} F23G *7/00*

U.S. Cl. 110—346 **7 Claims**

1. Method for recovering energy from waste, comprising.

a) triturating waste material coarsely;

b) accumulating the triturated waste material in an enclosed space in layers which are less than approximately 18 meters thick;

c) fermenting and drying the waste material in the presence of air which is made to flow through said layers;

d) feeding said air from the waste material to a biofilter;

e) refining said waste material by screening, eliminating iron and other metals, and pneumatically removing light and fine material;

f) triturating said fine material into pieces having an average diameter of less than one cm; and

g) storing and burning the triturated fine material.

5,735,226

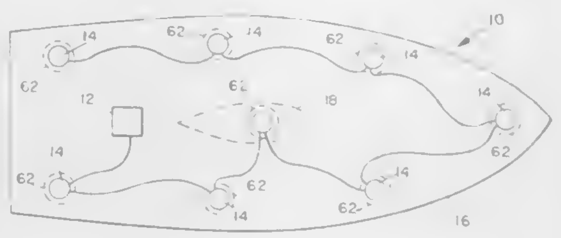
MARINE ANTI-FOULING SYSTEM AND METHOD

G. Patrick McNeal, Prescott, Ariz., assignor to SGP Technology, Inc., Van Nuys, Calif.

Filed May 8, 1996, Ser. No. 643,422

Int. Cl.^{6} B63B *59/04*

U.S. Cl. 114—222 **17 Claims**



1. A system for inhibiting growth of marine organisms on a submerged surface comprising.

a driver board, said driver board having an electrical signal output,

a magna-polar filter, said magna-polar filter having an electrical signal input and an electrical transducer output said electrical signal input of said magna-polar filter being in electrical connection with said electrical signal output of said driver board, wherein said filter receives said electrical signal output from said driver board and generates an electrical signal having enhanced frequencies, said electrical signal having enhanced frequencies being electrically communicated to said driver board thereby enhancing said electrical signal output to an electrical signal output having enhanced frequencies,

a plurality of transducers, each said transducer having an electrical input, each said electrical input being electrically connected to said electrical signal output of said driver board to receive said electrical signal output having enhanced frequencies, each said transducer converts said electrical signal having enhanced frequencies to a first acoustic signal, and

wherein said transducers are firmly attached to said submerged surface to communicate said first acoustic signal to said submerged surface to inhibit growth of said marine organisms on said submerged surface.

5,735,227

APPARATUS FOR SEALING RUPTURES

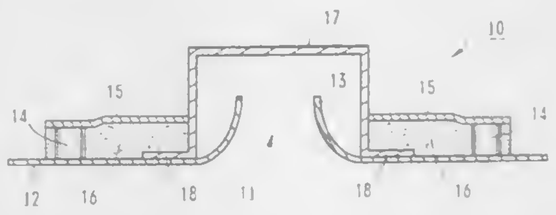
Grahame J. Goulding, Bringelly, Australia, assignor to Environmental Emergency Seals Pty Limited, Wales, Australia

Continuation of Ser. No. 129,861, Sep. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 988,948, Mar. 9, 1993, abandoned. This application Apr. 5, 1995, Ser. No. 417,443

Claims priority, application Australia, Sep. 11, 1990, PK2253; Dec. 7, 1990, PK3785; Sep. 11, 1991, PCT/AU91/00422; Oct. 1, 1992, PL5071

Int. Cl.^{6} B63B *43/16*

U.S. Cl. 114—227 **7 Claims**



1. An apparatus for substantially sealing a rupture in a wall which may have fluid on one side, said apparatus comprising

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a deformable backing plate to substantially conform to the contour of the wall, said backing plate being sized and shaped to surround the rupture being sealed;

a resilient compressible seal fixed to a major surface of said backing plate, said seal having a seal surface sized and shaped to sealingly contact the wall surrounding the rupture to at least substantially seal the rupture when the resilient compressible seal is compressed against the wall, said seal having a plurality of apertures extending to said seal surface;

a plurality of magnets fixed to said backing plate, said magnets being arranged in a pattern to surround the rupture, each of said magnets having a face to magnetically engage the wall for magnetic attachment of said apparatus to the wall; and wherein

said magnets are each aligned with a respective one of the apertures so that when seal is in an uncompressed condition before attachment of said apparatus to the wall, said surface extends beyond said faces of said magnets; and

when said apparatus is magnetically attached to the wall by magnetic engagement of the faces with wall, said backing plate is urged toward the wall by said magnets, to sealingly compress said seal between said backing plate and the wall until said seal surface is generally coplanar with said exposed magnet faces.

5,735,228

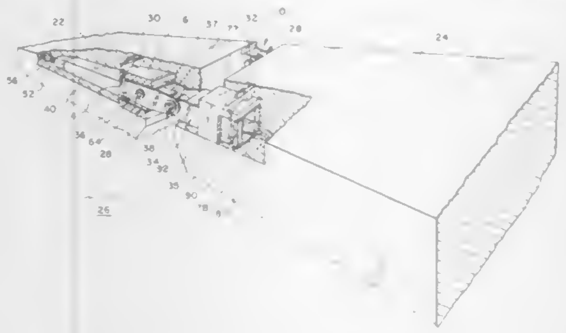
BARGE LINKING SYSTEM USING FLEXIBLE CONNECTORS

Tsongshih Huang, Westlake Village, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 13, 1997, Ser. No. 816,927

Int. Cl.^{6} B63B *35/44*

U.S. Cl. 114—266 **14 Claims**



1. A pontoon linking system for connecting a first pontoon to a second pontoon in a seawater environment, said pontoon linking system having a pair of flexible connector assemblies, said pair of flexible connector assemblies connecting a rear portion of said first pontoon to a front portion of said second pontoon, each of said flexible connecter assemblies comprising:

a forward housing having a pair of slots, said forward housing being positioned within an elongated opening at the rear portion of said first pontoon when said first pontoon is connected to said second pontoon;

a rear housing coupled to said forward housing, said rear housing being positioned Within an elongated opening at the front portion of said second pontoon when said first pontoon is connected to said second pontoon;

a shear pin for coupling said forward housing to said rear housing, said shear pin allowing for a rotational movement of said forward housing and said rear housing around said shear pin;

a flexible sleeve attached to a front end of said forward housing, said flexible sleeve having a tapered front end and a chain sling support member attached to the tapered front end of said flexible sleeve, said chain sling support member having a pair of slots, a first of said pair of slots being perpendicular to a second of said pair of slots;

a chain sling mounted within said flexible sleeve, said chain sling having a rear end connected to said forward housing and a forward end extending through the pair of slots of said chain sling support member,

said pair of slots of said forward housing including a first and second slot, the first slot of said forward housing being aligned with a first slot within said first pontoon and the second slot of said forward housing being aligned with a second slot within said first pontoon when said first pontoon is connected to said second pontoon;

a first guillotine collar fitted within the first and second slots of said forward housing and the first and second slots of said first pontoon to secure said forward housing to said first pontoon;

said pair of slots of said rear housing including a first and second slot, the first slot of said rear housing being aligned with a first slot within said second pontoon and the second slot of said rear housing being aligned with a second slot within said second pontoon when said first pontoon is connected to said second pontoon; and

a second guillotine collar fitted within the first and second slots of said rear housing and the first and second slots of said second pontoon to secure said rear housing to said second pontoon.

5,735,229

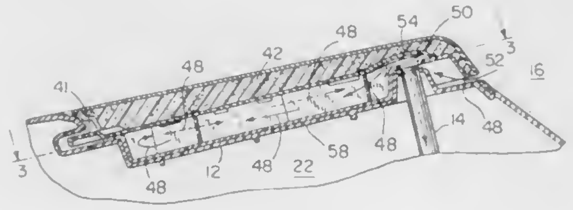
PERSONAL WATERCRAFT SEAT HAVING AIR INTAKE SILENCER

Ian G. House, Oshkosh, and Christopher K. Wachowski, Hartford, both of Wis., assignors to Brunswick Corporation, Lake Forest, Ill.

Filed Dec. 12, 1996, Ser. No. 764,741

Int. Cl.^{6} B63B *17/00*

U.S. Cl. 114—363 **36 Claims**



1. A watercraft comprising:

an engine located within an engine compartment:

an engine compartment air intake tube that allows intake air to flow into the engine compartment from the ambient environment; and

a seat located rearward of a steering assembly for the watercraft the seat including a seat base that is mounted to the watercraft, the seat base having

an acoustic silencer, an air intake port that allows intake air from the ambient environment to flow into the acoustic silencer, and an air supply port that allows intake air to flow from the acoustic silencer to the engine compartment air intake tube;

wherein the acoustic silencer in the seat base reduces the level of sound propagating from the engine compartment through the engine compartment air intake tube to the ambient environment.

5,735,230

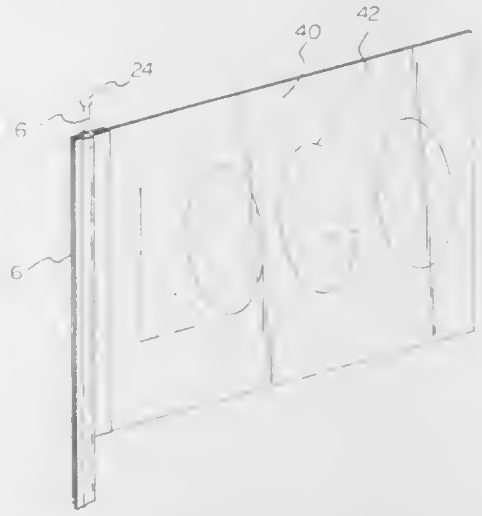
APPARATUS FOR SUPPORTING FLAGS ON AUTOMOBILE ANTENNAS

Daniel R. Romesburg, 1816 Rebecca Rd., Lutz, Fla. 33549

Filed Sep. 6, 1996, Ser. No. 711,169

Int. Cl.^{6} G09F *17/00*; B60Q *1/26*

U.S. Cl. 116—173 **8 Claims**



1. An apparatus for supporting flags on automobile antennas for removably positioning flags over antennas of automobiles comprising, in combination:

an antenna securement portion comprised of a cylindrical tube adapted for securement to an antenna of an automobile, the antenna securement portion being molded of polypropylene, the cylindrical tube having a vertical slot therethrough extending inwardly of an interior cylindrical bore thereof, the interior cylindrical bore having a diameter greater than a diameter of the antenna, the cylindrical tube having a length of about thirty inches, the cylindrical tube being of a size whereby when positioned over the antenna a lower end of the tube resting on a portion of the automobile and an upper end of the tube is located immediately beneath an enlargement at an upper end of the antenna for minimizing a chance of inadvertently lifting of the tube from the antenna, the cylindrical tube having a pair of opposed clips, each of the clips having an inner portion and an outer portion, each inner portion having an interior end molded with opposing edges of the vertical slot of the cylindrical tube, each outer portion molded with exterior ends of the inner portion and extending angularly therefrom;

a flag attachment portion comprised of a pair of opposed linear arms extending outwardly from the cylindrical tube of the antenna securement portion in a position diametrically opposed from the pair of clips, the flag attachment portion having a length of about one-third of the length of the cylindrical tube of the antenna securement portion, and

a flag comprised of a flexible sheet, the flexible sheet having indicia disposed thereon and a periphery, the flexible sheet removably received between the pair of opposed linear arms of the flag attachment portion, the flag having a thickness greater than a space defined between the pair of opposed linear arms.

5,735,231

AUTOMATIC DOG AND CAT FEEDER

Bruno Terenzi, 1341 Claremont Dr., San Bruno, Calif. 94066

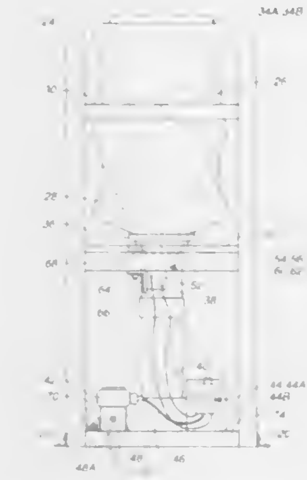
Filed Aug. 19, 1996, Ser. No. 699,550

Int. Cl.^{6} A01K *5/02*

U.S. Cl. 119—51.11 **7 Claims**

1. An automatic dog and cat feeder comprising:

a. a housing consisting of access holes;



b. a frame,

c. a hopper with top inlet hole for receiving feed and outlet hole on lower portion;

d. a funnel template installed in said hopper and formed in lower portion therein;

e. a cover for the hopper inlet hole.

f. a support base with a center hole on said frame;

g. a closet and hub installed on said base into its hole and the hopper accommodated above it;

h. a bend spigot and hub with a slot,

i. a pipe inserted into said bend spigot and hub with slot and said pipe exiting a hole in said housing to the exterior,

j. a valve positioned in said bend spigot and hub slot hole capable of reciprocating;

k. a feed dish positioned to receive feed from the pipe, and

l. an automatic control means for operating said valve at predetermined time periods to thereby control amount of feed discharged to exterior feed dish.

5,735,232

ANIMAL LITTER AND PROCESS FOR PRODUCING IT

Rüdiger Lang, Brey; Peter Schlimm, Montaubaur; Dietmar Lange, Vallendar, and Rolf Hornig, Kirchlinteln-Luttum, all of Germany, assignors to EFFEM GmbH, Germany

PCT No. PCT/DE94/00845, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/02956, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 20, 1994, Ser. No. 581,624

Claims priority, application Germany, Jul. 20, 1993, 43 24 297.9; Aug. 23, 1993, 43 28 285.7

Int. Cl.^{6} A01K *29/00*

U.S. Cl. 119—171 **65 Claims**

1. Animal litter, particularly cat litter, from or with a proportion of particles, which comprise at least one moisture-absorbing organic material and at least one platelet like mineral material wherein the mineral material consists essentially of particles which are usually identifiable as platelets (macroplatelets)

5,735,233

ANIMAL CAGE RACK LOCKING MECHANISM

Eric A. Deitrich, Woodbine; John E. Sheaffer, Perryville, both of Md.; Neil E. Campbell, Hasbrouck Heights; James Best, Weehawken, both of N.J.; William Marston, Conowingo, and Ronald W. Hardesty, Belair, both of Md., assignors to Lab Products, Inc., Seaford, Del.

Filed Nov. 9, 1995, Ser. No. 556,156

Int. Cl.^{6} A01K *31/00*

U.S. Cl. 119—452 **20 Claims**

1. An animal cage rack locking mechanism for releasable locking a cage to a rack comprising

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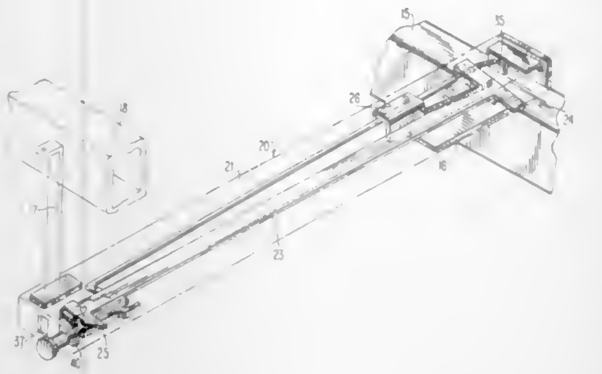


a sleeve;
an indexing arm disposed in the sleeve and adapted to extend into a slide path of the cage within the rack;
a locking arm disposed in the sleeve and operatively coupled to the indexing arm, the indexing arm causing the locking arm to extend from the sleeve as the cage moves along the cage slide path to lock the cage in the rack; and
a pivoting member pivotably disposed within the sleeve, the pivoting member having a first end and a second end, the indexing arm being formed at the first end of the pivoting member, and the locking arm being formed at the second end of the pivoting member.

5,735,234

EXTENSIBLE TETHER APPARATUS AND METHOD

River May, 1301 Nutmeg La., Davis, Calif. 95616
Filed May 13, 1997, Ser. No. 855,262
Int. Cl.^{6} A01K *27/00*
U.S. Cl. 119—795 **20 Claims**

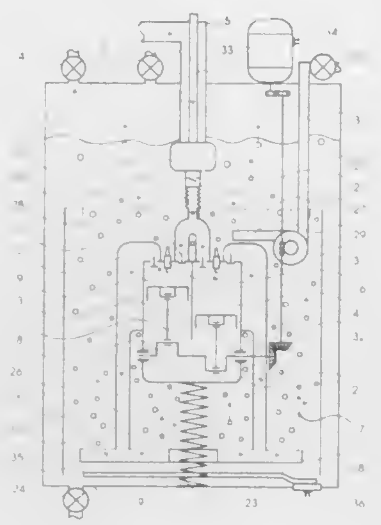
1 An extensible tether apparatus, comprising:
(a) a ring;
(b) a cord, said cord including a first end, said first end of said cord affixed to said ring,
(c) said cord including a first loop, said first loop passing through said ring,
(d) said cord including a second loop, said second loop passing through said ring, said second loop adjacent said first loop, and
(e) said first and second loops defining a channel, said cord passing through said channel

5,735,235

METHOD AND SYSTEM FOR HEATING A LIQUID

Weicheng Li, 1810-100 Parkway Forest Dr., Willowdale, ON., Canada, M2J 1L6
Filed Apr. 16, 1996, Ser. No. 633,170
Int. Cl.^{6} F22B *33/00*
U.S. Cl. 122—1 R **8 Claims**

1 A process for heating a liquid in a container comprising the steps of



submerging an internal combustion engine means in said container so that said engine means is wholly surrounded by said liquid to be heated within said container;
drawing a combustible fluid and an oxidizing fluid into said engine means through a valve outlet means,
operating said engine means by burning a mixture of said combustible fluid and oxidizing fluid within said engine means;
producing hot gases, heat and mechanical power within said engine means,
pressing said hot gases through openings below said engine means into said liquid to form gas bubbles;
mixing said gas bubbles with said liquid for heating said liquid by direct thermal transfer;
converting said mechanical power produced by said engine means for driving other mechanical components working in said heating process;
closing said valve outlet means and maintaining a high pressure in said engine means so that any residual of said hot gases are entrapped in said engine means to inhibit flow of liquid from said container into said engine means when said engine means is in inoperative condition.

5,735,236

FOSSIL FUEL-FIRED ONCE-THROUGH FLOW STREAM GENERATOR

Wolfgang Kastner, Herzogenaurach; Wolfgang Köhler, Kalchreuth, and Eberhard Wittchow, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Jun. 20, 1994, Ser. No. 262,466
Claims priority, application Germany, Dec. 20, 1991, 41 42 376.3
Int. Cl.^{6} F22B *37/00*
U.S. Cl. 122—6 A **3 Claims**

1 A once-through flow steam generator, comprising:
burners for a fossil fuel,
an inlet header;
an outlet header,
a vertical gas flue including substantially vertically disposed tubes for channeling steam, said substantially vertically disposed tubes each having inlet ends being connected to said inlet header and, said substantially vertically disposed tubes each having outlet ends being connected to said outlet header and said outlet ends delivering the steam to said outlet header with a specified temperature;
said vertical gas flue having a lower end and said burners being disposed in said lower end for heating said substantially vertically disposed tubes,
a pressure-equalization vessel,
pressure-equalization tubes each branching off from a respective one of said substantially vertically disposed tubes at a

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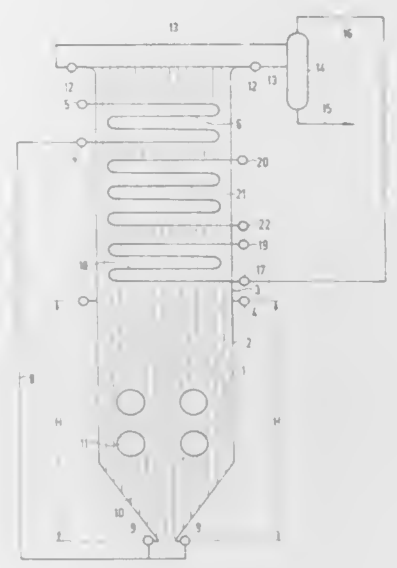
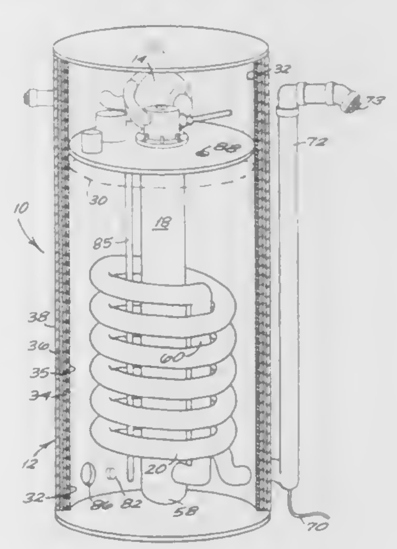


branching-off point above said burners and at a same height, said pressure-equalization tubes being connected to said pressure-equalization vessel, and
said height of said branching-off point of each of said substantially vertically disposed tubes is chosen such that it is ensured that the geodesic pressure drop in said substantially vertically disposed tubes is at least a multiple of a pressure drop due to friction in said substantially vertically disposed tubes.

5,735,237

HOT WATER STORAGE HEATER

Peter J. Phillip, Hartsville; Darryl L. Ruark, Lugoff, and Gary J. Potter, Bethune, all of S.C., assignors to AOS Holding Company, Wilmington, Del.
Filed Feb. 16, 1996, Ser. No. 602,303
Int. Cl.^{6} F22B *5/00*
U.S. Cl. 122—13.1 **20 Claims**

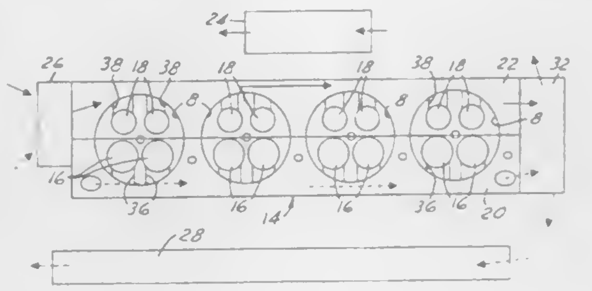


1. A water heater comprising:
a tank dimensioned for containing a quantity of water;
a hollow tube in said tank;
a hollow coil in said tank and connected with said tube so that said coil and said tube are in fluid communication;
said tank having a top and a bottom and said hollow tube having a top and a bottom, and wherein said top of said hollow tube is positioned in said top of said tank and said bottom of said hollow tube is positioned in said bottom of said tank, and wherein said coil is connected to said bottom of said hollow tube wherefrom said coil rises and then coils about said hollow tube toward said bottom of said tank,
means for combusting a mixture of gas and air, said combusting means being positioned so that combustion of said mixture takes place within said hollow tube; and
means for pumping air into said combusting means, said pumping means being in fluid communication with said hollow tube

5,735,238

HEAT MANAGEMENT SYSTEM FOR INTERNAL COMBUSTION ENGINES

Stephen George Russ, Canton, and William Francis Stockhausen, Northville, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Oct. 21, 1996, Ser. No. 734,643
Int. Cl.^{6} F04P *3/00*
U.S. Cl. 123—41.29 **16 Claims**



1 A heat management system for a reciprocating internal combustion engine having a cylinder block and a cylinder head with intake and exhaust valves located within the cylinder head on intake and exhaust sides, respectively, of each cylinder, with said heat management system comprising:
a heat intensifying subsystem comprising a first circuit for circulating liquid coolant exclusively between the exhaust side of the cylinder head, a first heat exchanger, and a coolant pump whenever an operating temperature of the engine is less than a first predetermined threshold; and
a heat dissipation subsystem comprising a second circuit for circulating liquid coolant between the cylinder block, the intake side of the cylinder head, the exhaust side of the cylinder head, and a second heat exchanger whenever an operating temperature of the engine exceeds a second predetermined threshold.

5,735,239

CAMSHAFT ARRANGEMENT FOR DOHC ENGINE

Tomohiro Sugano; Yukihiro Kawashima; Hiroshi Yajima, and Hideki Kubo, all of Fujisawa, Japan, assignors to Isuzu Motors Limited, Tokyo, Japan
Filed Apr. 25, 1996, Ser. No. 635,181
Claims priority, application Japan, Apr. 28, 1995, 7-106049
Int. Cl.^{6} F01L *1/02*
U.S. Cl. 123—90.31 **5 Claims**

1. A dual overhead camshaft (DOHC) engine comprising.
a plurality of cylinder heads having the same configuration, each cylinder head having front and rear end portions, space being defined in the front and rear end portions of each cylinder head, at least one cylinder being formed for each cylinder head,
two camshafts for each cylinder head for activation of intake and exhaust valves for each cylinder head, the camshafts having the same configuration;

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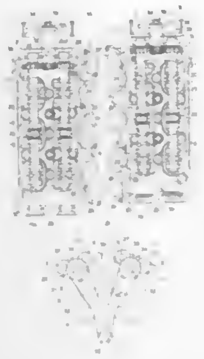


means for driving the camshafts in the same direction, the camshaft driving means being provided for each cylinder head;

a crankshaft,

a power transfer mechanism extending to the camshaft driving means from the crankshaft for driving the camshaft driving means,

wherein each cylinder head includes a respectively associated intermediate shaft, wherein each intermediate shaft includes first and second ends and at least one of said first and second ends of each intermediate shaft projects out of its respectively associated cylinder head and the remaining end of each intermediate shaft projects in the space of the associated cylinder head, wherein each intermediate shaft is coupled to said crankshaft by a first transmission means located outside of the cylinder heads, wherein each intermediate shaft of each head is coupled to the two camshafts respectively associated with the same head by way of a second transmission means residing in the space of the associated cylinder head.

5,735,240

DIRECT INJECTED ENGINE

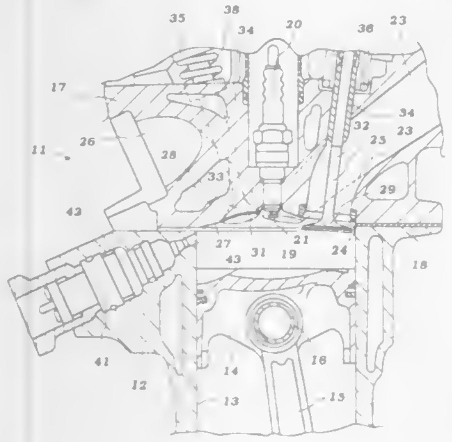
Takeshi Ito; Naoki Tsuchida, and Masahisa Kuranishi, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jun. 19, 1996, Ser. No. 666,747

Claims priority, application Japan, Jun. 19, 1995, 7-175383

Int. Cl.^{6} F02B *17/00*

U.S. Cl. 123—295 **20 Claims**



1 A direct injected internal combustion engine having a cylinder block defining at least one cylinder bore, a cylinder head closing one end of said cylinder bore, a piston reciprocating in said cylinder bore and forming with said cylinder bore and said cylinder head a combustion chamber, a plurality of valve seats formed in said cylinder head comprising at least one intake valve seat for providing an intake flow path into said combustion chamber for an air charge and an at least one exhaust valve seat for providing an exhaust flow path from said combustion chamber to the atmosphere, a plurality of poppet valves supported in said cylinder head and having head portions cooperating with said intake and exhaust valve seats for controlling the flow therethrough, there being at least two of one of the intake and exhaust valve seats, at least one fuel injector mounted in said cylinder block for spraying fuel into said combustion chamber through said cylinder bore, and a spark plug mounted in said cylinder head with its gap being disposed centrally of said combustion chamber for firing the charge formed by said fuel injector

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5,735,241

START UP CONTROL SYSTEM FOR DIRECT FUEL INJECTION ENGINE AND THE METHOD THEREOF

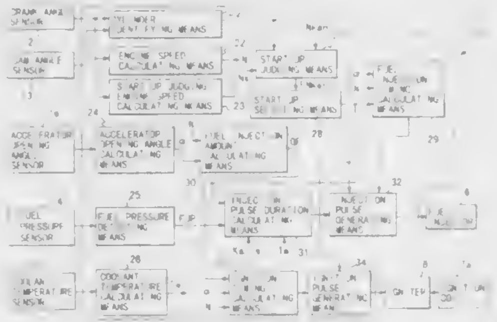
Takashi Matsuura, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1997, Ser. No. 791,961

Claims priority, application Japan, Feb. 29, 1996, 8-043759

Int. Cl.^{6} F02D *45/00*

U.S. Cl. 123—305 **19 Claims**


ENGINE SPEED CALCULATING MEANS
START UP JUDGING MEANS
START UP JUDGING ENGINE SPEED CALCULATING MEANS
ACCELERATOR OPENING ANGLE CALCULATING MEANS
INJECTION PULSE DURATION CALCULATING MEANS
COOLANT TEMPERATURE CALCULATING MEANS
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1 A start up control system for a cylinder direct fuel injection engine having a plurality of cylinders with a fuel injector provided in each of said cylinders, comprising:

- cylinder identifying means for identifying a particular cylinder performing a combustion stroke;
- start up judging engine speed calculating means for calculating a start up speed of said particular cylinder during the combustion stroke,
- start up judging means for judging whether said particular cylinder is in a starting up condition or has completed firing by comparing said start up speed for said particular cylinder with a specified firing completion speed;
- start up selecting a means for selecting a start up control process for said particular cylinder when said start up judging means judges that said particular cylinder is in the starting up condition and for selecting a normal operation control process for said particular cylinder when said start up judging means judges that said particular cylinder has completed firing

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5,735,242

FUEL PRESSURE ACTIVATED ENGINE COMPRESSION BRAKING SYSTEM

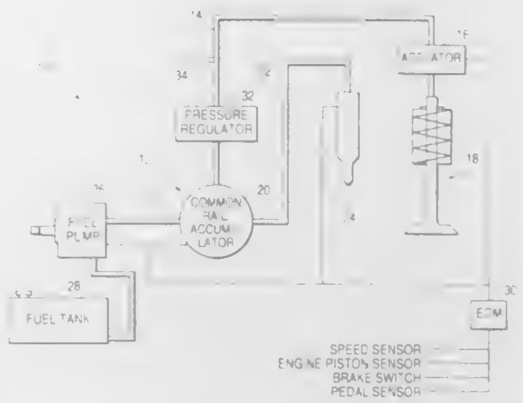
Jim Kahlenbeck, and John Jerl Purcell, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Apr. 17, 1996, Ser. No. 634,062

Int. Cl.^{6} F01L *13/06;* **F02D** *13/04;43/00*

U.S. Cl. 123—322 **27 Claims**

1 A compression braking system for an internal combustion engine having at least one piston reciprocally mounted within a cylinder for cyclical successive compression and expansion strokes and at least one exhaust valve operable to open against a closing bias to exhaust gas from the cylinder in variable timed relationship to the piston strokes to operate the engine in either a power mode or a braking mode, said braking system comprising:



- a high pressure fuel supply means for supplying fuel at high pressure for delivery to the engine including a pump means for pressurizing fuel and a high pressure fuel accumulating means for accumulating and temporarily storing fuel received from said pump means at a predetermined high pressure level said accumulating means supplies fuel at said predetermined high pressure level to a plurality of fuel injectors;
- an actuating means for opening said at least one exhaust valve during the braking mode, said actuating means including a braking fuel circuit communicating with said accumulating means and a brake actuating valve positioned along said braking fuel circuit for controlling fuel flow through said braking fuel circuit, wherein fuel flowing through said braking fuel circuit from said accumulating means at a predetermined actuating fuel pressure causes movement of said at least one exhaust valve; and
- a pressure regulating means positioned downstream of said pump means for maintaining the fuel delivered to said actuating means at a predetermined actuation fluid pressure level, said predetermined actuation fluid pressure level being less than said predetermined high injection pressure level.

5,735,243

CONTROLLER FOR PREVENTING THROTTLE VALVE FROM LOCKING AT ITS FULLY CLOSED POSITION

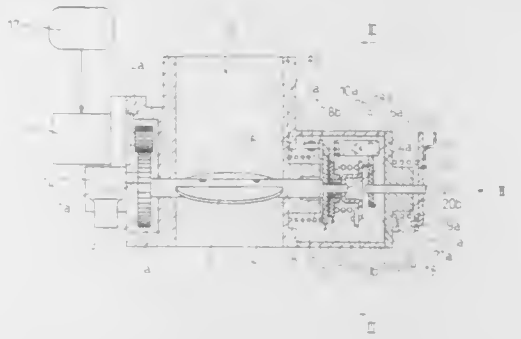
Toshimichi Asai, and Sunao Kitamura, both of Obu, Japan, assignors to Aisan Kogyo Kabushiki Kaisha, Obu, Japan

Filed Jun. 13, 1997, Ser. No. 874,671

Claims priority, application Japan, Jun. 17, 1996, 8-155569

Int. Cl.^{6} F02D *7/00*

U.S. Cl. 123—396 **2 Claims**



1 A throttle valve controller for opening and closing a throttle valve by a torque generated either by a motor or by an operation of an accelerator by an operator, said controller comprising

- a throttle shaft (**4**) supported by a body (**1**) such that the throttle valve (**5**) can be rotated with said shaft (**4**) in an intake passage formed in said body for opening and closing the intake passage;
- a motor (**2**) for rotating said throttle shaft (**4**);
- a throttle lever (**7**) fixed to said throttle shaft (**4**),
- a return spring (**8**) for biasing said throttle shaft (**4**) in a valve closing direction;
- a relief lever (**6**) capable of rotating with respect to said throttle shaft (**4**);
- a relief spring (**10**) interposed between said throttle shaft (**4**) and said relief lever (**6**) for biasing said throttle shaft (**4**) in a valve opening direction with respect to said relief lever (**6**) and for biasing said relief lever (**6**) in a valve closing direction with respect to said throttle shaft (**4**) by a biasing force greater than that of said return spring;
- a first engaging member (**6***a*) formed on said relief lever (**6**) for engaging said throttle lever (**7**), said relief lever (**6**) being positioned in the valve opening side of said throttle lever (**7**);
- a stopper (**9**) for stopping rotation of said relief lever (**6**) in the valve closing direction at a position where said throttle valve (**5**) is opened by a predetermined angle from a fully closed position of said throttle valve;
- a kick lever (**18**) adapted to be rotated by said operation of said accelerator; and
- a second engaging member (**18***a*) formed on said kick lever (**18**) for engaging said relief lever (**6**) when said kick lever (**18**) is rotated in the valve opening direction greater than a predetermined angle, said kick lever (**18**) being positioned in the valve closing side of said relief lever (**6**).

5,735,244

ENGINE CONTROL APPARATUS

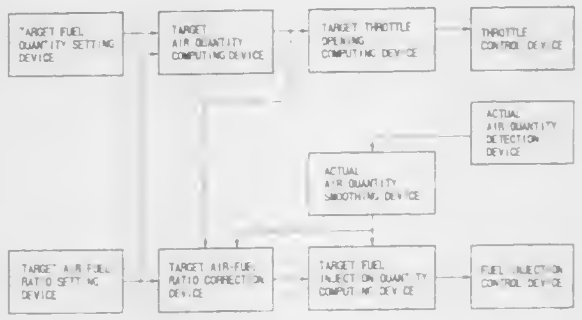
Kenichi Machida, and Hajime Hosoya, both of Atsugi, Japan, assignors to Unisia Jecs Corporation, Kanagawa-ken, Japan

Filed Feb. 4, 1997, Ser. No. 795,177

Claims priority, application Japan, Feb. 13, 1996, 8-025691

Int. Cl.^{6} F02D *41/34*

U.S. Cl. 123—399 **5 Claims**


TARGET FUEL QUANTITY SETTING DEVICE
TARGET AIR QUANTITY COMPUTING DEVICE
TARGET THROTTLE OPENING COMPUTING DEVICE
THROTTLE CONTROL DEVICE
ACTUAL AIR QUANTITY DETECTION DEVICE
ACTUAL AIR QUANTITY SMOOTHING DEVICE
TARGET AIR-FUEL RATIO SETTING DEVICE
TARGET AIR-FUEL RATIO CORRECTION DEVICE
TARGET FUEL INJECTION QUANTITY COMPUTING DEVICE
FUEL INJECTION CONTROL DEVICE

1 An engine control apparatus for controlling throttle opening and fuel injection quantity in order to realize a target engine torque, said engine control apparatus comprising:

- target fuel quantity setting means for setting-a target fuel quantity based on the target engine torque,
- target air-fuel ratio setting means for setting a target air fuel ratio based on the target engine torque;
- target air quantity computing means for computing a target air quantity from the target fuel quantity and the target air fuel ratio;
- target throttle opening computing means for computing a target throttle opening based on the target air quantity,
- throttle control means for controlling a throttle valve to give the target throttle opening,
- actual air quantity detection means for detecting an actual air quantity controlled by said throttle valve,
- target fuel injection quantity computing means for computing a target fuel injection quantity from the actual air quantity and the target air-fuel ratio, and
- fuel injection control means for controlling a fuel injector to give the target fuel injection quantity, and also including,
- target air fuel ratio correction means for correcting the target air-fuel ratio input to said target fuel injection quantity computing means, based on a relationship between the actual air quantity and the target air quantity

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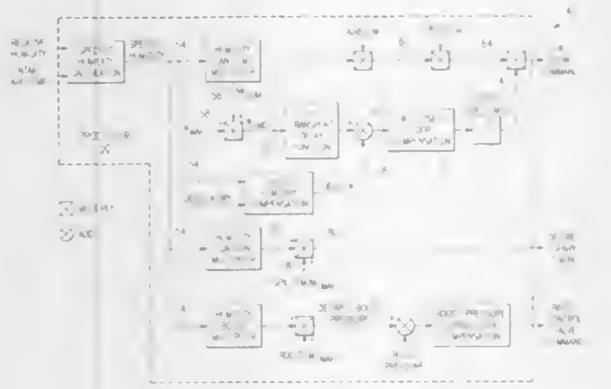
METHOD AND APPARATUS FOR CONTROLLING FUEL/AIR MIXTURE IN A LEAN BURN ENGINE

John Thomas Kubesh; Lee Gene Dodge, and Daniel James Podnar, all of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Oct. 22, 1996, Ser. No. 735,105

Int. Cl.^{6} F02D *41/04*; F02P *5/15*

U.S. Cl. 123—417 **22 Claims**



1 A humidity compensation system for a lean burn combustion engine having a desired fuel/air ratio comprising:

- a temperature sensor for measuring the temperature of the air supplied to the engine;
- a humidity sensor for determining the relative humidity of the air supplied to the engine and
- a processor operable to:
  - receive a signal associated with the temperature from the temperature sensor,
  - receive a signal associated with the relative humidity from the humidity sensor;
  - calculate the specific humidity of the air supplied to the engine based on the signal received from the temperature sensor and the signal received from the humidity sensor;
  - calculate a compensated desired fuel/air ratio based on the specific humidity of the air supplied to the engine

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5,735,246

FUEL SCHEDULING AS A FUNCTION OF MISFIRE RATE

Michael T. Vincent, Novi; Mark S. Borland, Birmingham; Kim A. Morehouse, Stockbridge, and James R. Tamm, Ann Arbor, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

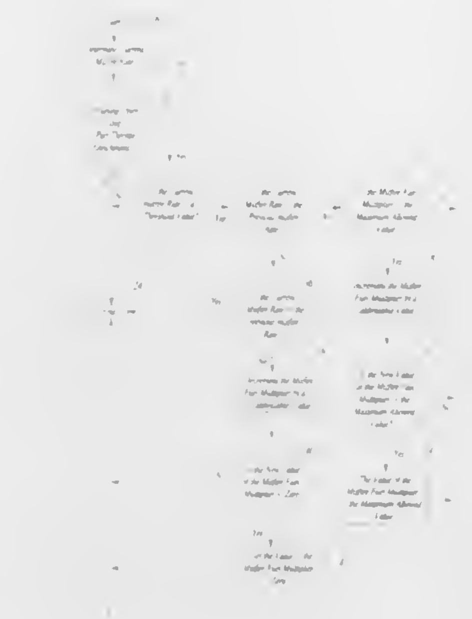
Filed Sep. 30, 1996, Ser. No. 723,400

Int. Cl.^{6} F02D *41/14*

U.S. Cl. 123—436 **30 Claims**

1 A method of controlling exothermic activity in a catalytic converter comprising:

- determining a misfire rate in an internal combustion engine:
- comparing said determined misfire rate to at least one predetermined misfire rate, and
- adjusting a ratio of fuel to air a calibrated amount according to said determined misfire rate and said at least one predetermined rate, wherein said adjusting includes maintaining a fuel to air ratio at a current ratio when said determined misfire rate equals said at least one predetermined rate



5,735,247

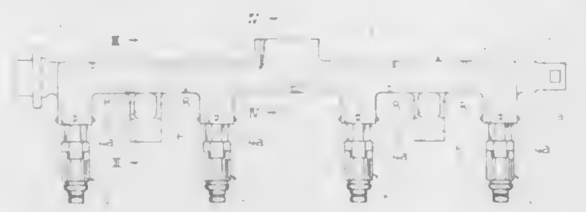
FUEL DELIVERY SYSTEM WITH IMPROVED FUEL LEAKAGE PREVENTION

Touji Tsuzuki, and Isamu Suzuki, both of Obu, Japan, assignors to Aisan Kogyo Kabushiki Kaisha, Obu, Japan

Filed Feb. 28, 1997, Ser. No. 807,537

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—470 **7 Claims**



1 A fuel delivery system for delivering fuel to an engine comprising

- a pipe having a fuel passage and a plurality of fuel injector mounting holes each mounting hole communicating with the fuel passage;
- a plurality of fuel injectors, each fuel injector mounted on a fuel injector mounting hole, and
- a mounting portion for fixing said pipe to said engine, so that each fuel injector mounted on said mounting hole is positioned in a predetermined positional relation with respect to the engine when said pipe is fixed to said engine by mounting portion, the mounting portion having a weak portion, wherein a fracture strength of the pipe is larger than the fracture strength of the weak portion and the mounting strength of each fuel injector with respect to said pipe is predetermined to be larger than the mounting strength of a fuel injector with respect to the engine

5,735,248

FUEL INJECTION METHOD FOR GAS FUEL ENGINE

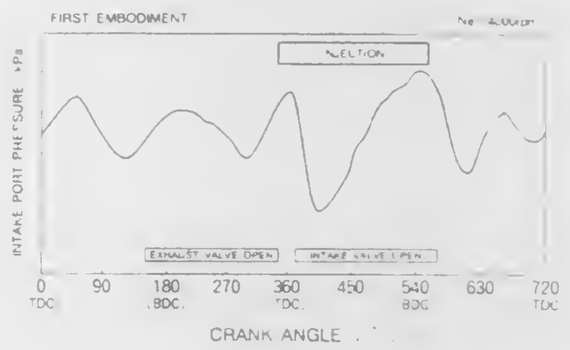
Hiromi Matsuura; Hideki Minami; Susumu Nakajima; Kazuhiro Ueda; Shigeru Aoki, and Toshiyuki Nishida, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,519

Claims priority, application Japan, Sep. 4, 1995, 7-226882

Int. Cl.^{6} F02M *21/02*

U.S. Cl. 123—527 **3 Claims**



1 A fuel injection method for a gas fuel engine having an intake port into which a gaseous fuel is injected, said method comprising the step of

- setting fuel injection end timing to be after the start of opening of an intake valve of said engine and fuel injection start timing to be before the start of opening of said intake valve of said engine

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5,735,249

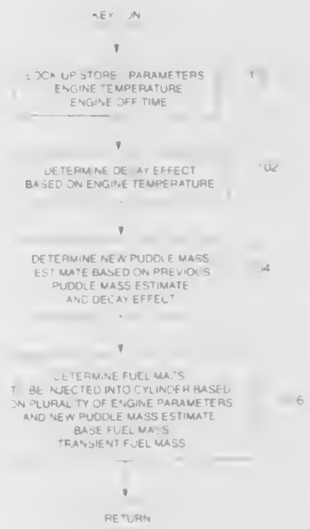
METHOD AND SYSTEM FOR CONTROLLING FUEL DELIVERY DURING ENGINE CRANKING

Alastair William Parke, Ann Arbor; Jeffrey Allen Doering, Canton, both of Mich.; Jon Dixon, Maldon, United Kingdom; Michael J. Cullen, Northville, Mich.; Paul Charles Mingo, Farmington Hills, Mich., and Robert Matthew Marzonie, Northville, Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jul. 2, 1997, Ser. No. 887,127

Int. Cl.^{6} F02D *41/06*

U.S. Cl. 123—491 **17 Claims**


LOOK UP STORED PARAMETERS
ENGINE TEMPERATURE
ENGINE OFF TIME
DETERMINE DECAY EFFECT
BASED ON ENGINE TEMPERATURE
DETERMINE NEW PUDDLE MASS
ESTIMATE BASED ON PREVIOUS
PUDDLE MASS ESTIMATE
AND DECAY EFFECT
DETERMINE FUEL MASS
TO BE INJECTED INTO CYLINDER BASED
ON PLURALITY OF ENGINE PARAMETERS
AND NEW PUDDLE MASS ESTIMATE
BASE FUEL MASS
TRANSIENT FUEL MASS
RETURN

1 A method for determining an amount of fuel to be delivered to an individual cylinder of an internal combustion engine during engine cranking, the individual cylinder having an intake port for regulating entry of the fuel into the cylinder and having a prior puddle mass estimate corresponding to a mass of fuel previously remaining in the intake port before key off of the engine, the method comprising

- sensing a plurality of engine parameters,
- determining a temperature of the engine stored at key off,
- determining a new puddle mass estimate for the cylinder based on the temperature of the engine stored at key off and the prior puddle mass estimate; and
- determining a desired fuel mass to be injected into the cylinder based on the new puddle mass estimate and the plurality of engine parameters

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5,735,250

FUEL PUMP FOR TWO-STROKE INTERNAL COMBUSTION ENGINE

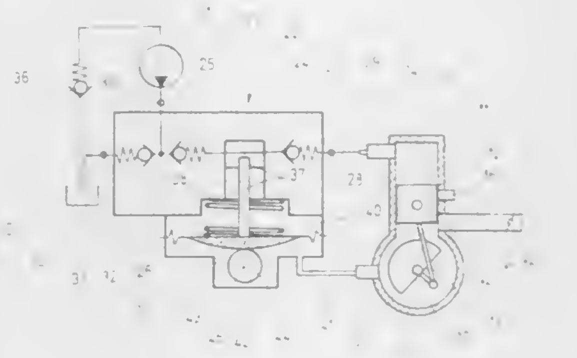
Helmut Rembold, Stuttgart; Gottlob Haag, Markgroeningen, and Heinz Stutzenberger, Vaihingen, all of Germany, assignors to Robert Bosch, GmbH, Stuttgart, Germany

Filed Jul. 29, 1996, Ser. No. 687,897

Claims priority, application Germany, Jul. 28, 1995, 195 27 629.9

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—504 **19 Claims**



1 A fuel pump for a two-stroke internal combustion engine, comprises a crank case (**10**), at least one combustion cylinder (**11**) disposed in said crank case, an injection nozzle (**14**), an air supply opening (**15**), and an exhaust outlet opening (**16**), an air intake conduit (**17**), and a throttle valve (**18**), said conduit is attached to the air supply opening (**15**), a pump chamber (**24**), which is embodied in a pump housing (**23**) and communicates via an inlet valve (**25**) with a fuel supply (**26**) and communicates via an outlet valve (**27**) with a connection fitting (**28**) for an injection line (**29**) leading to the injection nozzle (**14**), and a pump piston (**37**), which defines the pump chamber (**24**) and is axially driven to execute a pumping motion with a feed and intake stroke, a stop (**42**) is provided to meter the fuel quantity delivered by the pump piston (**37**) via the outlet valve (**27**), said stop defines the intake, stroke of the pump piston (**37**) and whose relative position to the bottom dead center of the pump piston (**37**) is controlled as a function of operating parameters of the two-stroke engine, said stop (**42**) is constituted by a circumference of an eccentric cam (**44**), said cam is disposed in the pump housing (**23**) on the end face of the pump piston (**37**) remote from the pump chamber (**24**), so that the cam can rotate around a rotational axis (**45**) which is aligned lateral to the stroke direction of the pump piston (**37**), said cam (**44**) is non-rotatably seated upon a rotary shaft supported in the pump housing (**23**), said shaft is non-rotatably engaged by an adjusting lever (**46**), which is coupled to a controlling unit, said controlling unit is coupled to the throttle valve (**18**) in the air intake conduit (**17**) of the two-stroke engine

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5,735,251
FUEL-VAPOR EMISSION CONTROL APPARATUS FOR ENGINE

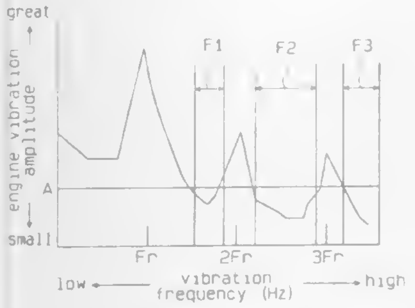
Yoshihiko Hyodo, Susono; Takaaki Itoh, Mishima, and Naoya Takagi, Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed May 14, 1997, Ser. No. 856,418

Claims priority, application Japan, May 15, 1996, 8-120315

Int. Cl.^{6} F02M *33/02*

U.S. Cl. 123—518 **20 Claims**



1 A fuel-vapor emission control apparatus mounted on a vehicle having an internal combustion engine and a fuel tank, wherein said engine has a cylinder and is supported by mounting means, and wherein said fuel-vapor emission control apparatus purges fuel-vapor from said fuel tank and supplies the purged fuel-vapor to said engine, said fuel-vapor emission control apparatus comprising:

a purge control valve for controlling the amount of purged fuel-vapor that is supplied to said engine,

an operating state detector for detecting the operating state of said engine,

a valve controller for subjecting said purge control valve to duty control in accordance with data from said operating state detector, and

suppressing means for suppressing resonance of said engine and said mounting means when purged fuel-vapor is being supplied to said engine

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5,735,252
METHOD FOR PNEUMATICALLY CHECKING THE OPERABILITY OF A TANK-VENTING SYSTEM

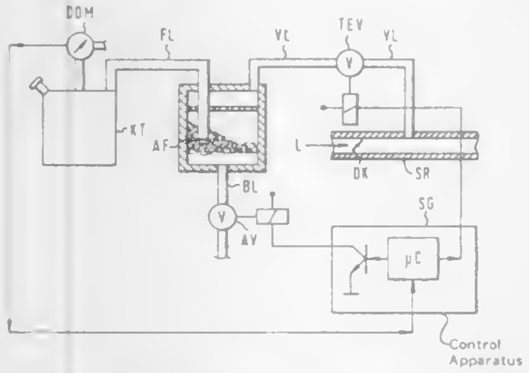
Andreas Blumenstock, Ludwigsburg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 18, 1996, Ser. No. 731,737

Claims priority, application Germany, Oct. 18, 1995, 195 38 775.9

Int. Cl.^{6} F02M *37/04*

U.S. Cl. 123—520 **8 Claims**



1 A method for pneumatically checking the operability of a tank-venting system having a tank made of a material such as plastic, the tank-venting system further includes an adsorption filter having a venting line with a closeable shutoff valve mounted in the venting line, the adsorption filter being connected to the tank via a tank connecting line, and a tank-venting valve, which is connected to the adsorption filter via a valve line, the method comprising the steps of:

first charging said tank-venting system with a first overpressure or underpressure which exceeds, by a predetermined value, a second overpressure or underpressure corresponding to a diagnostic overpressure or diagnostic underpressure with said shutoff valve closed;

removing said first overpressure or underpressure after a pregiven time span has elapsed;

making an overpressure or underpressure decay gradient measurement only after an essentially constant diagnostic overpressure or diagnostic underpressure adjusts in said tank-venting system, and,

drawing a conclusion as to the tightness of said tank-venting system based upon said decay gradient measurement

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5,735,253
CONTROL SYSTEM FOR AN INTERNAL COMBUSTION ENGINE USING EITHER GASOLINE OR METHANE OR LPG AS A FUEL

Aldo Perotto, Meana di Susa; Roberto Boni, Candiolo, and Giorgio Bortignon, Piossasco, all of Italy, assignors to C.R.F. Societa' Consortile per Azioni, Turin, Italy

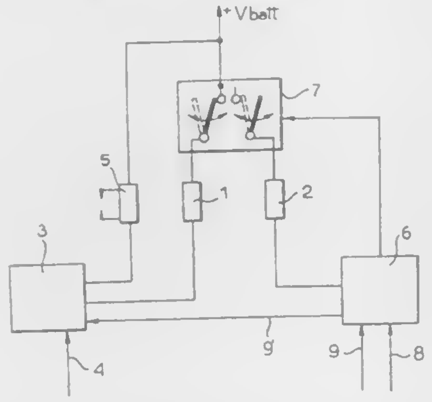
PCT No. PCT/EP95/02296, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO95/34752, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 13, 1995, Ser. No. 722,005

Claims priority, application Italy, Jun. 16, 1994, TO94A0494

Int. Cl.^{6} F02B *13/00*

U.S. Cl. 173—575 **1 Claim**



1. A control system for an internal combustion engine comprising a gasoline feeding system including a plurality of gasoline injectors associated with a plurality of cylinders of the engine and a main electronic control unit for controlling the injectors on the basis of signals representative of engine operating parameters and for controlling ignition in said plurality of cylinders of said engine on the basis of signals representative of angular positions of the engine shaft, a plurality of gaseous fuel injectors associated with said plurality of cylinders and an auxiliary electronic control unit comprising:

means for selecting a mode of operation of the engine from a plurality of modes of operation including a mode only with gasoline feed, a mode only with gaseous fuel feed, and a mode with mixed feed;

means for controlling said gaseous fuel injectors on the basis of signals representative of said engine operating parameters; and

means for modifying said signals representative of said angular positions of said engine shaft which are to be sent to said main electronic control unit, so that said ignition becomes adapted to operation with said gaseous fuel feed.

5,735,254
CIRCUIT FOR DETECTING AN OVERVOLTAGE ON A SWITCHED INDUCTIVE LOAD

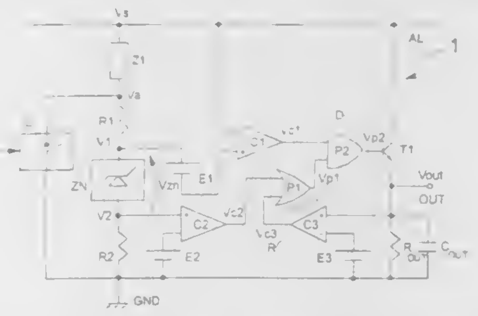
Sergio Palara, Acitrezza; Stefano Sueri, Catania, and Salvatore Scaccianoce, Riposto, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, and Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, both of Italy

Filed Apr. 29, 1996, Ser. No. 639,794

Claims priority, application European Pat. Off., Apr. 28, 1995, 95830168

Int. Cl.^{6} F02P *17/12*

U.S. Cl. 123—644 **24 Claims**



1 A circuit for detecting an overvoltage in an electrical load connected to a feed line and a control switch, the circuit having a voltage signal at an output terminal and comprising

a first threshold comparator having an output terminal, a first input terminal held at a first reference voltage and a second input terminal connected to the feed line;

a second threshold comparator having an output terminal, a first input terminal held at a second reference voltage and a second input terminal connected to the electrical load;

an output transistor connected to the feed line and the output terminal of the circuit, the transistor being driven by a logic block having inputs connected to the outputs of the first and second threshold comparators and,

a feedback block connected to the output terminal of the circuit and a further input terminal of the logic block.

5,735,255
ENGINE CONTROL SYSTEM FOR A LEAN BURN ENGINE HAVING FUEL VAPOR RECOVERY

David George Farmer, Plymouth; Gopichandra Surnilla, and Daniel V. Orzel, both of Westland, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Apr. 3, 1997, Ser. No. 826,602

Int. Cl.^{6} F02M *33/02;* **F02D** *41/14*

U.S. Cl. 123—698 **15 Claims**

1 A control method controlling air/fuel operation of an engine coupled to a fuel system, comprising the steps of

purging air through the fuel system to purge a mixture of said air and any fuel vapors from the fuel system into an air/fuel intake of the engine;

providing an indication of fuel vapor presence during said purging step; and

enabling operation of the engine at an air/fuel ratio lean of a stoichiometric air/fuel ratio when said fuel vapor indication is below a predetermined value

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5,735,256
BALL LAUNCHING DEVICE

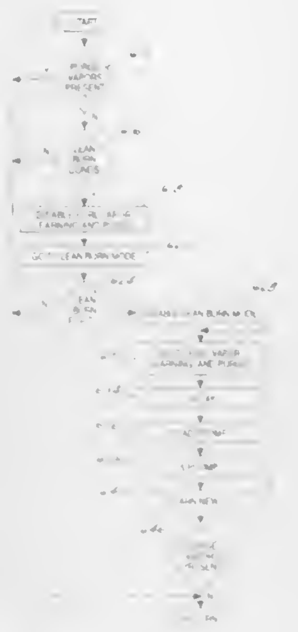
Randolph F. Monk, 216 N. Washington St., Galion, Ohio 44833

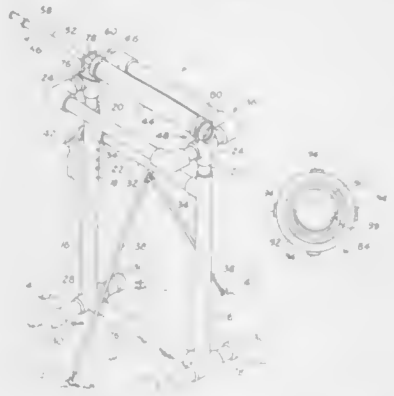
Filed Nov. 26, 1996, Ser. No. 753,510

Int. Cl.^{6} F41B *11/00*

U.S. Cl. 124—65 **9 Claims**

1 A ball launching device for launching projectiles in a deflected flight path, comprising:





a launching tube having an ingress end and an opposite egress end;

a plunger means disposed within the launching tube for selective slidable reciprocable movement therein in in order to eject projectiles from the egress end;

a plurality of shooting heads, each being selectively removably securable to the egress end of the launching tube, and each shooting head having an aperture for allowing passage of projectiles therethrough and an annular gasket inwardly disposed circumjacent the aperture;

projectile deflection means attached inward of the gasket for causing deflection of a projectile launched through the tube, and

means to halt the movement of the plunger means disposed within the tube so that the amount of movement of the plunger means toward the egress end to eject the projectiles is limited.

5,735,257
MULTI-CHAMBER STABILIZER FOR ARCHERY BOWS

Randy J. Walk, Tooele, Utah, assignor to Hoyt USA, Salt Lake City, Utah

Filed Feb. 2, 1996, Ser. No. 596,435

Int. Cl.^{6} F41B *5/20*

U.S. Cl. 124—89 **20 Claims**

1 A stabilizer for an archery bow, comprising

an elongate housing having opposite ends,

means at one end of the housing for mounting the housing to an archery bow riser,

a plurality of separate internal chambers within the elongate housing, each chamber configured to accept damping means therein; and

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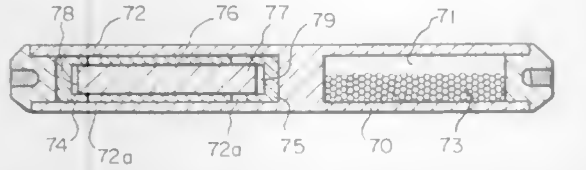


damping means of different types in at least two of the plurality of separate internal chambers.

19. A stabilizer for an archery bow, comprising:

an elongate housing having opposite ends;

means at one end of the housing for mounting the housing to an archery bow riser; and

a plurality of separate internal chambers within the elongate housing, each chamber configured to accept damping means therein;

wherein at least two chambers of the plurality of separate internal chambers are of unequal size.

5,735,258
CUTTING MACHINE

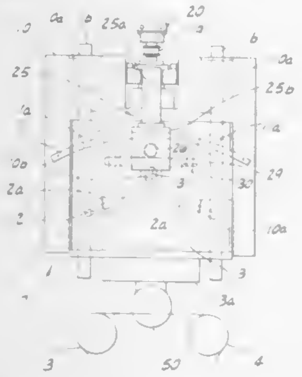
Kiyohito Okuno; Sadahiko Itoh, and Hisashi Horii, all of Ohtsu, Japan, assignors to MEMC Electronic Materials, Inc., St. Peters, Mo.

Filed Sep. 20, 1996, Ser. No. 717,092

Claims priority, application Japan, Sep. 22, 1995, 7-269504

Int. Cl.⁶ B28D *1/06*

U.S. Cl. 125—16.02 **12 Claims**



1. A cutting machine for cutting a workpiece, the cutting machine comprising:

a framework;

a cutting mechanism;

a holding mechanism constructed for holding the work piece as the work piece is cut by the cutting mechanism, the holding mechanism and cutting mechanism being arranged for relative movement to bring the work piece into contact with the cutting mechanism for cutting the work piece;

the holding mechanism being mounted on the framework for pivoting motion with respect to the framework thereby to pivot the work piece relative to the cutting mechanism as the workpiece is cut by the cutting mechanism, the holding mechanism being mounted for pivoting the work piece about a longitudinal axis of the work piece, said pivoting motion comprising a rocking, reciprocating motion.

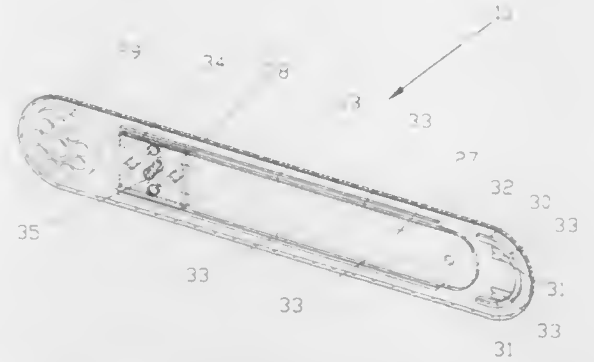
5,735,259
HIGH SPEED CUTTING BELT

Steven W. Hoerner, East Aurora, N.Y.; Gene A. Fisher, Largo, Fla., and Edwin C. Pow, Suwanee, Ga., assignors to Norton Company, Worcester, Mass.

Filed Oct. 30, 1995, Ser. No. 550,306

Int. Cl.⁶ B28D *1/08*

U.S. Cl. 125—21 **2 Claims**



1. A high speed cutting belt for cutting various aggregate and non-aggregate, natural stone, and composite building materials with steel or non-steel reinforced materials while hydroplaning on a stationary guide, said cutting belt comprising:

a tensile member base consisting of a wire rope(s) continuous loop with both ends permanently joined together and put into tension prior to molding, consisting of a double wire rope, continuous loop, running through and fastened to anchors, and overlapped at the ends of the wire rope to provide a fastening; and said anchors are shaped to maintain said double wire tensile member base in a parallel, separated position, and said anchors are about 0.250" long, about 0.116" high and about 0.205" wide;

a plurality of equally spaced diamond and metal matrix cutting segments having anchors with said wire rope running through said anchors and with said diamond and metal matrix cutting segments brazed to said anchors and crimped to said wire rope; and

urethane plastic molded over said tensile member base, and said diamond and metal matrix cutting segments, and thereby forming a continuous, flexible, belt, said belt having a pentagonal shape in cross-section as defined 90° "V" shaped bottom, inner surface, flat side surfaces, and a flat, outer top surface.

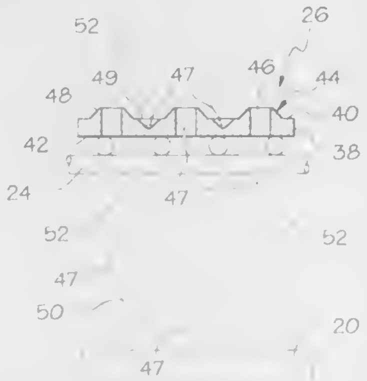
5,735,260
TILE FOR USE WITH A COOKING GRILL

Peter Rimback, Oakwood, Ohio, assignor to Hanover Catalog Holdings, Inc., Weehawken, N.J.

Filed Apr. 30, 1996, Ser. No. 640,356

Int. Cl.⁶ F24C *3/00*

U.S. Cl. 126—41 R **24 Claims**



1. A food cooking grill comprising

a heat source;

a food support grid;

a grate positioned below the grid and above the heat source; and

a grill tile positioned on the grate, wherein the grill tile includes a base having top and bottom surfaces, the top surface having an imperforate dimple shaped to receive and collect food drippings; and a boss extending upwardly from the top surface and having an upper surface and a channel extending through the upper surface and tile to the bottom surface and having an opening sized to occupy substantially the entire upper surface, the channel being shaped to allow food drippings to flow freely therethrough such that a portion of the food drippings falling upon the top surface collect in the imperforate dimple and are vaporized, and substantially all of the food drippings falling upon the upper surface flow through the channel to exit the bottom surface.

5,735,261
OVEN DOOR OF A KITCHEN STOVE

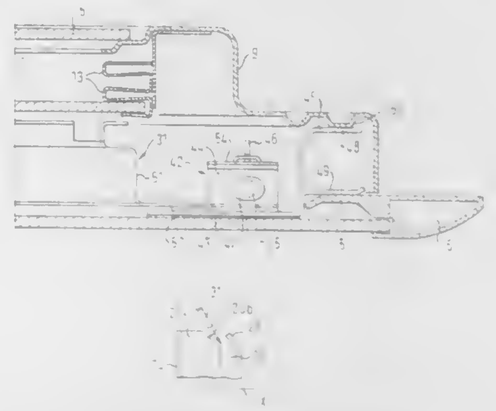
Michael Kieslinger, Freising, Germany, assignor to Bosch-Siemens Hausgeraete GmbH, Munich, Germany

Filed Sep. 5, 1995, Ser. No. 523,264

Claims priority, application Germany, Sep. 5, 1994, 44 31 619.4

Int. Cl.⁶ F23M *9/00*

U.S. Cl. 126—190 **22 Claims**



1. An oven door of a kitchen stove, comprising:

an inner door bottom;

an outer door unit having additional door elements;

a front panel forming a door front;

connecting elements acting as carriers for said additional door elements, said connecting elements being secured to said front panel and being connected to said door bottom through contact points of low capacity for heat exchange, for joining said front panel to said door bottom; and

mutually opposite door sides, said connecting elements enabling a fixation of said additional door elements and a connection with said door bottom substantially through form-locking engagement and force-locking engagement in the vicinity of said mutually opposite door sides.

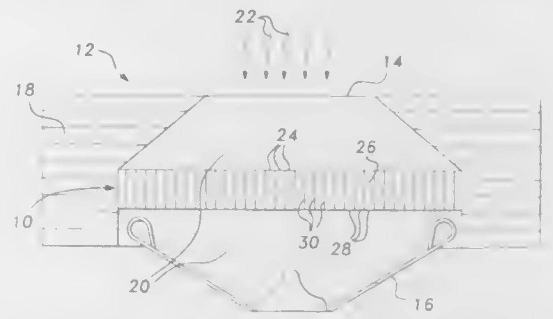
5,735,262
SOLAR ENERGY DIFFUSER

William H. Houtman, Ann Arbor, Mich., assignor to Stirling Thermal Motors, Inc., Ann Arbor, Mich.

Filed Jul. 22, 1996, Ser. No. 685,927

Int. Cl.⁶ F24J *2/46*

U.S. Cl. 126—649 **20 Claims**



1. A solar energy receiver assembly for receiving solar energy from a solar energy concentrator, said solar energy receiver assembly comprising:

a solar energy receiver having a receiver chamber and an open receiver aperture through which air and solar energy enters said receiver chamber,

means for absorbing solar energy, fixed to said solar energy receiver within said receiver chamber and located opposite said receiver aperture,

a diffuser located within said receiver chamber between said receiver aperture and said means for absorbing solar energy, said diffuser having a plurality of open cavities, each of said cavities having an outer opening, an inner opening, and side walls,

said cavities positioned so said solar energy is received into said cavities from said solar energy concentrator though said outer openings and is emitted from said cavities to said means for absorbing solar energy through said inner openings,

said cavities allowing air within said receiver chamber to circulate between said receiver aperture and said means for absorbing solar energy, and

said side walls restricting the circulation of air within said receiver chamber near said means for absorbing solar energy

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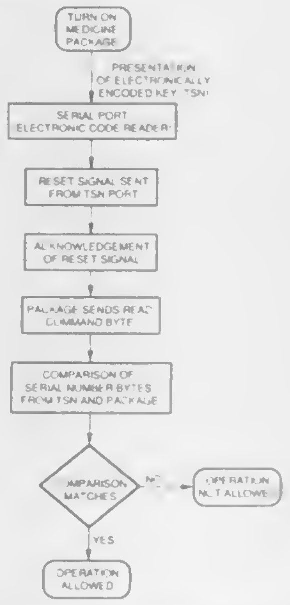
5,735,263
LOCKOUT DEVICE FOR CONTROLLED RELEASE OF DRUG FROM PATIENT-ACTIVATED DISPENSER

Reid M. Rubsamen, Berkeley; Lester John Lloyd, Orinda, and Eric T. Johansson, Dublin, all of Calif., assignors to Aradigm Corporation, Hayward, Calif.

Continuation of Ser. No. 331,065, Oct. 28, 1994, Pat. No. 5,507,277, which is a continuation-in-part of Ser. No. 11,289, Jan. 29, 1993, abandoned. This application Apr. 15, 1996, Ser. No. 632,779

Int. Cl.⁶ A61M *11/00*

U.S. Cl. 128—200.14 **7 Claims**


TURN ON MEDICINE PACKAGE
PRESENTATION OF ELECTRONICALLY ENCODED KEY (TSN)
SERIAL PORT (ELECTRONIC CODE READER)
RESET SIGNAL SENT FROM TSN PORT
ACKNOWLEDGEMENT OF RESET SIGNAL
PACKAGE SENDS READ COMMAND BYTE
COMPARISON OF SERIAL NUMBER BYTES FROM TSN AND PACKAGE
COMPARISON MATCHES
NO
OPERATION NOT ALLOWED
YES
OPERATION ALLOWED

1. A hand-held, portable, self-contained device for the intrapulmonary delivery of aerosolized drug, comprising:

a disposable drug formulation container, the container having therein formulation which includes a pharmaceutically active drug;

a component for holding the disposable container,

a means for aerosolizing the drug into particles for delivery to a patient;

a prevention device which prevents access to the drug when activated and allows access to the drug when deactivated wherein activation and deactivation are obtained upon receipt of a unique code from a source external to the body of the device; and

a key, external to the body of the device, which provides the unique code to the prevention device;

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wherein the container is a pressurized container having therein said drug and a low boiling point propellant held in the container under pressure.

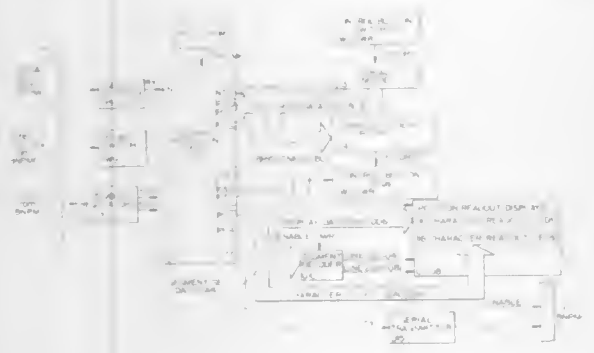
5,735,264
MOTORIZED MAMMOGRAPHIC BIOPSY APPARATUS

Bernard Siczek, Boulder; Menachem Assa, Englewood, and Michael A. DePourhaix, Arvada, all of Colo., assignors to Fischer Imaging Corporation, Denver, Colo.

Continuation of Ser. No. 18,805, Feb. 17, 1993, Pat. No. 5,415,169, and a continuation-in-part of Ser. No. 817,722, Jan. 7, 1992, abandoned, and Ser. No. 799,418, Nov. 27, 1991, Pat. No. 5,240,011, said Ser. No. 817,722 is a continuation of Ser. No. 440,775, Nov. 21, 1989, Pat. No. 5,078,142, and Ser. No. 799,418. This application Jun. 7, 1995, Ser. No. 485,442

Int. Cl.^{6} A61B *5/05*

U.S. Cl. 128—653.001 **24 Claims**



1 An apparatus for performing medical procedures on a pendulant breast of a patient in a prone position, comprising

- a table for supporting a patient in a prone position, the table having a breast aperture therein through which one of the patient's breasts is permitted to penduently protrude;
- a compression paddle, disposed beneath said table, for compressing the pendulent breast of the prone patient into a stationary mammographic position within a predetermined frame of reference;
- an imaging source and receiver, disposed beneath said table and in predetermined relation to said predetermined frame of reference, for imaging the pendulent breast while in the mammographic position, wherein first and second stereotactic images corresponding with two different imaging angles are provided relative to the predetermined frame of reference,
- a tissue biopsy assembly, selectively positionable under the table in predetermined relation relative to said predetermined frame of reference, for obtaining a tissue sample from the patient's pendulent breast while maintained in the stationary mammographic position;
- a display for visually displaying to a user at least a portion of each of said first and second stereotactic images while the patient's pendulent breast is maintained in the stationary mammographic position;
- a cursor for allowing a user to visually identify and specify, via a first input signal, a location of interest on each of said displayed portions of said first and second stereotactic images, wherein digitized two-dimensional information is automatically generated corresponding with the location of interest specified using said cursor in relation to said displayed portions of said first and second stereotactic images;
- a processor for using said digitized two-dimensional information and digitized physical information corresponding with one or more physical attributes of said tissue biopsy assembly, to automatically compute positioning information for positioning the tissue biopsy assembly in at least one position relative to said predetermined frame of reference for obtainment of a tissue sample from said location of interest specified using said cursor in relation to said displayed portions of said first and second stereotactic images.

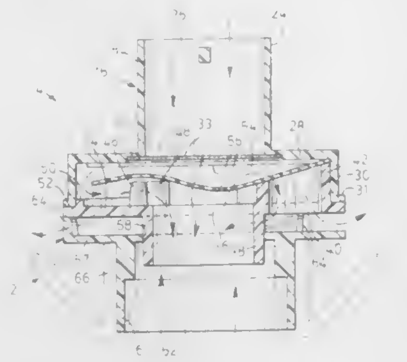
5,735,265
CPR FACE MASK WITH FILTER PROTECTED FROM PATIENT-EXPIRED CONDENSATE

Stephen Flynn, 255 Chartwell Road, Oakville, Ontario, Canada, L6J 3Z7

Filed Nov. 21, 1996, Ser. No. 755,761

Int. Cl.^{6} A61M *16/00;* **A62B** *18/08;18/10*

U.S. Cl. 128—203.11 **4 Claims**



1. A CPR face mask having.

- a face engaging part positionable on the face of a patient to surround at least the mouth of the patient,
- an air flow control valve carried by the face engaging part and having an upper inlet into which air can be blown by a CPR giving person and which passes downwardly through a first outlet into a patient's mouth, said flow control valve causing air passing upwardly from the patient's mouth into the first outlet to be released to the external atmosphere through a second outlet without passing to the inlet,
- said flow control valve having a flexible diaphragm operable to prevent air flow from the inlet to the second outlet when the CPR giving person is blowing into the inlet and to prevent air flow from the first outlet to the inlet when air passes upwardly from the patient's mouth into the first outlet, and
- a filter immediately upstream of the diaphragm with respect to air flow blown into the first inlet by the CPR giving person,
- the air flow control valve having a housing with an upwardly extending tubular portion providing said inlet, and means for protecting said filter from patient-expired condensation comprising said diaphragm having a filter-blocking position assumed during patient exhalation and a medial portion providing a valve chamber containing said diaphragm, said diaphragm being moved upwardly by air passing upwardly from the patient during exhalation to prevent air from passing to the inlet and also to engage the filter.

5,735,266
INSULATED CONDITIONED RESPIRATORY AIR TRANSPORT TUBE

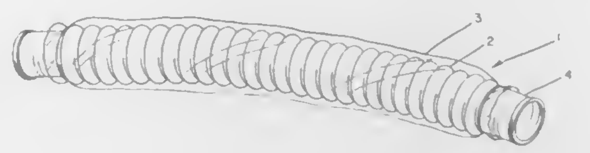
Charles A. Smith, 811 Starlite Dr., Louisville, Ky. 40207

Continuation-in-part of Ser. No. 367,733, Jan. 3, 1995, which is a continuation-in-part of Ser. No. 900,995, Jun. 19, 1992, Pat. No. 5,377,670, which is a continuation-in-part of Ser. No. 593,555, Oct. 9, 1990, abandoned, which is a continuation-in-part of Ser. No. 275,940, Nov. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 19,248, Feb. 26, 1987, abandoned, which is a continuation-in-part of Ser. No. 910,625, Sep. 23, 1986, abandoned. This application Dec. 26, 1995, Ser. No. 578,439

Int. Cl.^{6} A61M *16/00;* **A62B** *7/00;9/06;* **F24J** *3/00*

U.S. Cl. 128—204.18 **3 Claims**

1 In a patient temperature control system, a conditioned air transport tube comprising an air impervious corrugated tube for carrying conditioned gases and an outer casing of first internal diameter for insulating the corrugated tube, said corrugated tube being located within said casing and having an outer diameter less than said internal diameter of said casing, said casing being of an overall length greater than the length of said corrugated tube and being sealed at its ends to the ends of the corrugated tube such that the casing is in a slightly longitudinally compressed state relative to said corrugated tube thereby defining an insulating dead air space between said corrugated tube and said casing, wherein the ratio of linear volumes of said casing and said corrugated tube are in the range of up to 10.0 to 1.0, said casing further being of smooth sidewall construction and being of thickness which is equal to or less than the thickness of said corrugated tube.



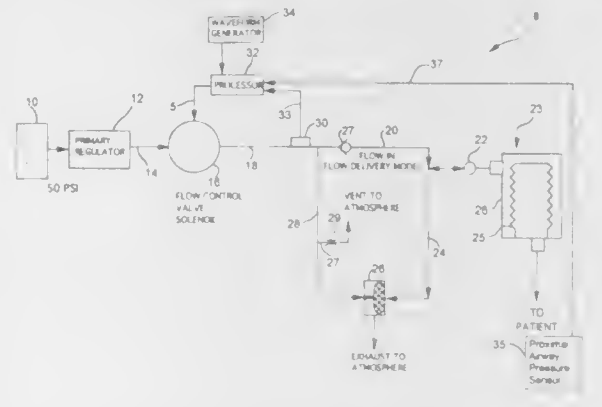
5,735,267
ADAPTIVE CONTROL SYSTEM FOR A MEDICAL VENTILATOR

Ronald L. Tobia, Sun Prairie, Wis., assignor to Ohmeda Inc., Liberty Corner, N.J.

Filed Mar. 29, 1996, Ser. No. 625,494

Int. Cl.^{6} A61M *16/00*

U.S. Cl. 128—204.21 **22 Claims**



1 A medical ventilator for providing gas to a ventilator connection in order to produce inhalation and exhalation ventilation cycles, said medical ventilator comprising:

- (a) a gas source;
- (b) a ventilator circuit communicating with the gas source for conveying gas to and away from the ventilator connection;
- (c) valve means for controlling the flow of gas in said ventilator circuit;
- (d) means for sensing an operational parameter which is indicative of a mode of operation of the ventilator, the ventilator operating in a flow delivery mode, or a flow exhaust mode;
- (e) processor means, operatively connected to the means for sensing, for controlling the valve means according to a signal from said means for sensing which represents said operational parameter, the processor means including:
  - (i) a flow delivery control means for controlling the valve means when the ventilator is in the flow delivery mode;
  - (ii) a flow exhaust control means for controlling the valve means when the ventilator is in the flow exhaust mode;
  - (iii) means for adaptively selecting one of the flow delivery control means or the flow exhaust control means based on the signal from the said means for sensing;
- whereby the ventilator is capable of adaptively switching between the flow delivery and flow exhaust control means within a single breath of a patient depending on the mode of operation of the ventilator and independent of whether said ventilator is in said inhalation cycle or said exhalation cycle.

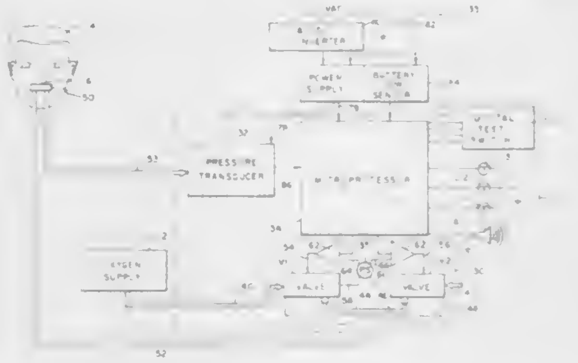
5,735,268
INTERMITTEN GAS-INSUFFLATION APPARATUS AND METHOD THEREFOR

James Chua; Peter W. Salter, both of Tehachapi; Francis J. Kelly, Upland; Robert Toshiaki Wada, Claremont, and Roy Yasuo Fujimoto, Upland, all of Calif., assignors to Salter Labs, Arvin, Calif.

Filed Jun. 7, 1995, Ser. No. 480,355

Int. Cl.^{6} A61M *16/00*

U.S. Cl. 128—204.23 **6 Claims**



1. A method for intermittently insufflating a gaseous fluid from a pressurized gaseous fluid source into an entrance of a respiratory system of a breathing patient after an inhalation interval and during an exhalation interval of an immediate breathing cycle and into a subsequent inhalation interval of a successive breathing cycle, comprising the steps of:

- (a) determining a negative peak pressure value which occurs during the inhalation interval of the immediate breathing cycle.
- (b) determining a positive peak pressure value which occurs during the exhalation interval of the immediate breathing cycle.
- (c) commencing delivery of the gaseous fluid to the entrance of the respiratory system of the patient during the exhalation interval of the immediate breathing cycle when a first predetermined percentage of the positive peak pressure value is achieved;
- (d) continuing delivery of the gaseous fluid to the entrance of the respiratory system during the subsequent inhalation interval of the successive breathing cycle;
- (e) commencing delivery of additional gaseous fluid to the entrance of the respiratory system of the patient during the subsequent inhalation interval of the successive breathing cycle when a third predetermined percentage of the negative peak pressure value is achieved after step (d), and
- (f) ending delivery of the gaseous fluid to the respiratory system during the subsequent inhalation interval of the successive breathing cycle when a second predetermined percentage of the negative peak pressure value is achieved

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5,735,269
DIVING REGULATOR DEMAND VALVE WITH A FIRST CLOSING BAFFLE AND A SECOND AIR DIRECTING BAFFLE

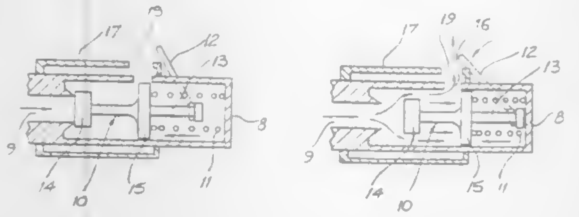
Kim Preece, Manly Vale, Australia, assignor to T.D. Preece & Co. Pty. Ltd., Manly Vale, NSW, Australia

Division of Ser. No. 71,946, Jun. 3, 1993, Pat. No. 5,437,268, which is a continuation of Ser. No. 654,659, Apr. 5, 1991, abandoned. This application Jul. 28, 1995, Ser. No. 508,364

Claims priority, application Australia, Jun. 6, 1989, PJ4577

Int. Cl.^{6} A62B *9/02;7/04;* **A61M** *16/00;* **F16K** *31/26*

U.S. Cl. 128—205.24 **5 Claims**



1. In the combination of a breathing regulator for use in underwater breathing, having,
   a primary housing with a breathing chamber,
   a valve, and
   a diaphragm that moves in response to a vacuum in the breathing chamber, the valve comprising:
      an inlet and an outlet and a flow path within the valve enabling travel of air between the inlet and the outlet and thence to an outlet in the primary housing and, via a mouthpiece, to lungs of a user, and
      a poppet slidably mounted in the valve to open and close the flow path, the poppet including an elongate member having a first end and a second end with a first closing baffle attached to the first end of the elongate member,
   means for biasing the poppet so as to act on the elongate member to close the flow path with the first closing baffle, and,
   means for moving the poppet in response to movement of the diaphragm,
   the improvement to the poppet comprising
      the first closing baffle at the first end of the elongate member abutting the inlet when air is not being demanded by the user, thereby closing the flow path;
      the poppet is slidably mounted with a second intermediately positioned baffle on the elongate member between first end and the second end of the elongate member in the flow path; and
   the second intermediately positioned baffle for moving the poppet in response to movement of the diaphragm operative to urge the poppet, elongate member and first closing baffle away from the inlet, to cause air travelling through the valve to continuously impinge on the second intermediately positioned baffle attached to the elongate member thereby assisting opening of the valve and reducing effort required to operate the valve.

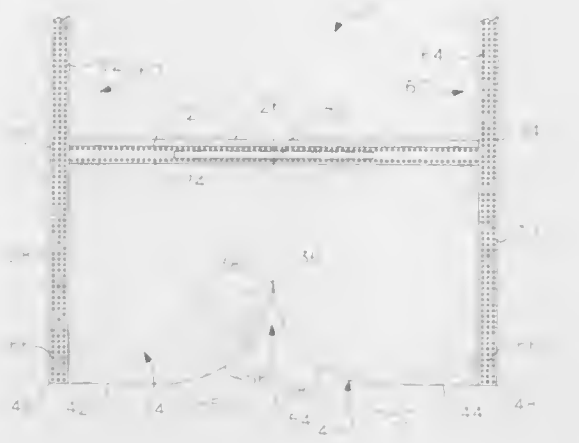
5,735,270
DISPOSABLE FACE MASK

Robert T. Bayer, 42 Lakeview Rd., Asheville, N.C. 28804

Continuation-in-part of Ser. No. 468,529, Jun. 6, 1995. This application Oct. 22, 1996, Ser. No. 735,011

Int. Cl. A62B *7/10*

U.S. Cl. 128—206.14 **28 Claims**



1. A foldable, disposable face mask comprising:
   a single generally rectangular sheet of filter material having a generally straight top edge, a pair of generally straight side edges shorter than said top edge and defining respective top corners with said top edge, a fold line midway between said side edges extending perpendicularly to said top edge from said top edge a distance less than the length of said side edges to a termination point, and a bottom edge opposite said top edge and having a configuration symmetrical on either side of the fold line;
   said sheet bottom edge having a pair of side portions defining respective bottom corners with said side edges and extending generally parallel to said top edge a distance from the respective bottom corners to respective transition points, and a pair of further portions extending from respective ones of the transition points in directions generally angled upwardly towards said top edge to said fold line termination point;
   said sheet being folded on said fold line, said bottom edge side portions being joined to each other and said bottom edge further portions on either side of the fold line being joined to each other such that a mask body is formed which is essentially flat for storage and which, when unfolded, has an opening defined by said sheet top and side edges and sized to cover a wearer's nose and mouth of a wearer;
   a foam sealing strip attached to the inside surface of the sheet with reference to the opening adjacent to the edges defining the opening, said foam sealing strip being tacky at least along said top edges for adhesion to a wearer's face; and
   a mask tieing device attached to the top corners.

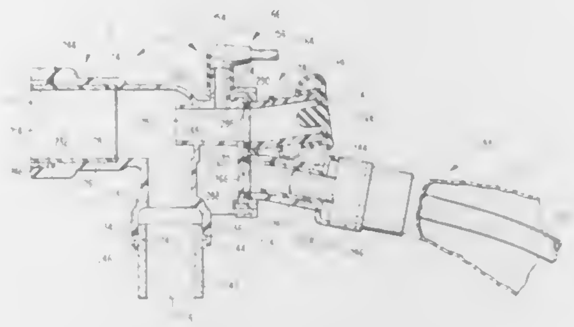
5,735,271
MULTIPLE ACCESS ADAPTORS FOR MONITORING, SAMPLING, MEDICATING, ASPIRATING, AND VENTILATING THE RESPIRATORY TRACT OF A PATIENT

Rick D. Lorenzen, Ogden; Darrel R. Palmer, Sandy; William R. Houghton, Midvale; Gerry A. Arambula; David Theron Van Hooser, both of Salt Lake City; Richard C. Lambert, Highland; Billy M. Jensen, Sandy, and Gene Stewart, Midvale, all of Utah, assignors to Ballard Medical Products, Draper, Utah

Continuation of Ser. No. 395,351, Feb. 28, 1995, abandoned, and Ser. No. 591,950, Jan. 23, 1996, which is a continuation of Ser. No. 245,333, May 18, 1994, abandoned. This application May 22, 1996, Ser. No. 653,938

Int. Cl.^{6} A62B *9/02,9/06,* **A61M** *16/00*

U.S. Cl. 128—207.16 **38 Claims**



1. An adapter assembly for connection to a proximal end of an endotracheal tube and to a ventilator so as to provide ventilation of an intubated patient's respiratory tract, and for delivering respiratory therapy by way of aspiration of fluids and by way of other treatment including any one of delivery of fluids, removing patient samples or providing visual inspection of the respiratory tract through the endotracheal tube without interruption of ventilation, said adapter assembly comprising
   adapter means for providing a flow path therethrough which is substantially axially aligned with and adapted for fluid communication with a proximal end of an endotracheal tube, said adapter means comprising a distal port means adapted for removable coupling to a proximal end of an endotracheal tube, proximal port means adapted for removable coupling to a ventilator, first access port means for providing a substantially axially aligned access to said flow path by a first catheter means for aspirating a respiratory tract, and second access port means for providing a substantially axially aligned access to said flow path by a second catheter means adapted for providing said other treatment,
   an access control means for selectively positioning one or the other of said first and second access port means in substantial axial alignment with said flow path,
   first catheter means, connected to said first access port means, for aspirating a respiratory tract when desired, said first catheter means being slidably positionable through said first access port means for substantially axially aligned entry through said flow path and into a proximal end of an endotracheal tube; and
   second catheter means, connected to said second access port means, for providing said other treatment when desired, said second catheter means being slidably positionable through said second access port means for substantially axially aligned entry through said flow path and into a proximal end of an endotracheal tube.

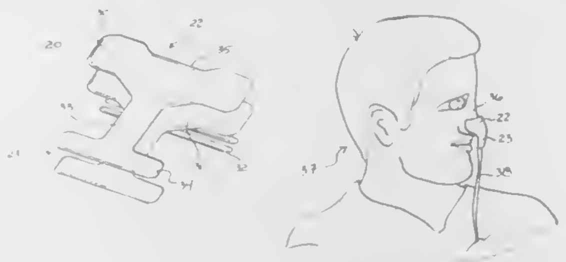
5,735,272
NASAL TUBE HOLDER HAVING A NASAL DILATOR ATTACHED THERETO

Michael M. Dillon, 8436 W. Piccadily Rd., Phoenix, Ariz. 85037; David F. Kreitzer, 8220 E. Montecito Ave., Scottsdale, Ariz. 85251, and Dan B. Pool, 23 E. Surrey Rd., Phoenix, Ariz. 85029

Filed Jan. 22, 1997, Ser. No. 785,130

Int. Cl.^{6} A61M *15/08;5/32;* **A62B** *7/00;* **A61F** *5/08*

U.S. Cl. 128—207.18 **14 Claims**



1. A nasal tube holder for anchoring a tube in a nasal passage, comprising:
   a nasal dilator affixable over the bridge of a nose, the nasal dilator including a first end, a second end and biasing means for biasing said first end and said second end of the nasal dilator outwardly from the face of the user whereby the nasal passages are maintained in a dilated condition,
   a tube holding portion depending from the nasal dilator, for engaging a tube and anchoring the tube within a nasal passage, and
   an adhesive backing carried by the nasal dilator and the tube holding portion for adhering the nasal dilator to a nose and a tube to the tube holding portion

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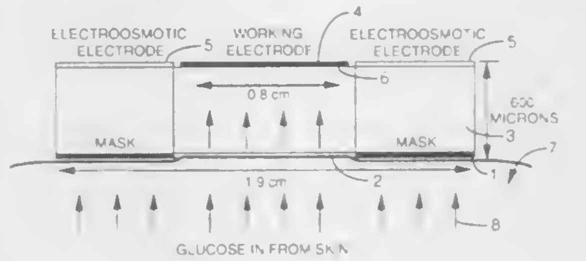
5,735,273
CHEMICAL SIGNAL-IMPERMEABLE MASK

Ronald T. Kurnik, Foster City; Janet Tamada, Belmont, and Michael Tierney, San Jose, all of Calif., assignors to Cygnus, Inc., Redwood City, Calif.

Filed Sep. 12, 1995, Ser. No. 527,061

Int. Cl.^{6} A61B *5/00,* **A61N** *1/30*

U.S. Cl. 128—635 **20 Claims**



19. An assembly for use in a monitoring device for monitoring a chemical signal, comprising
   a) an ionically conductive material,
   b) a mask characterized by being impermeable to the chemical signal, the mask being positioned between ionically conductive material and a source of chemical signal and
   c) a working electrode which measures chemical signal transported from the source of chemical signal
   wherein the mask is concentric to the working electrode and further wherein the chemical signal that passes through a plane of the mask is that chemical signal that is transported from the source to the catalytic surface in a manner which is substantially perpendicular to the catalytic surface

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5,735,274
APPARATUS AND METHOD FOR ANALYZING PARTICLES INCLUDING SHIFTING A JUDGEMENT REGION

Kimiyo Shibata, Kakogawa, and Yoshihiro Mishima, Kobe, both of Japan, assignors to Toa Medical Electronics Co. Ltd., Hyogo, Japan

Filed Jul. 3, 1996, Ser. No. 675,260

Claims priority, application Japan, Jul. 4, 1995, 7-168750

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 128—637 **20 Claims**

1. An apparatus for analyzing particles comprising
   distribution data preparation means for measuring parameters that characterize particles contained in a specimen and for preparing distribution data of the particles in a coordinate space based on the parameters,
   judgement region storage means for storing in advance a predetermined judgement region in the coordinate space.

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base point extraction means for extracting, when the distribution data forms at least one group, a group base point that shows a position of the group;
judgement region correction means for shifting a position of the judgement region in the coordinate space by referring to each group base point extracted every time a distribution data is prepared by the distribution data preparation means; and
judgement means for judging abnormality of the specimen based on the particles present within the shifted judgement region.

5,735,275

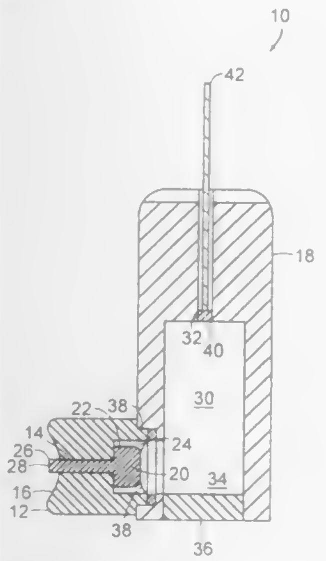
TONOMETER UTILIZING HYDRAULIC PRESSURE

Jon Ballou, 54 Ellsworth Ave., Beverly, Mass. 01915; Francis J. Porter, 7 King Philip Dr., Millis, Mass. 02054, and August O. Westner, 5 Wright St., Winchester, Mass. 01890

Filed Jun. 13, 1996, Ser. No. 661,794

Int. Cl.⁶ A61B *3/16*

U.S. Cl. 128—645 17 Claims



9. A tonometer comprising:
a) a body;
b) an eyepiece coupled to the body having a conduit extending through an outer surface of the eyepiece, the outer surface being concave shaped to conform around an eyeball;
c) a plunger extending through the conduit having a head at a first end and having a probe at a second end which extends beyond the outer surface of the eyepiece so as to contact the eyeball when the eyepiece is positioned around the eyeball;
d) a fluid reservoir positioned within the body having a top and a bottom;
e) a membrane for sealing the bottom of the reservoir, the membrane is in juxtaposition with the head of the plunger; and
f) an indicator positioned in the fluid reservoir and extending out of the body for measuring a level of fluid in the reservoir, the level of fluid in the reservoir being proportional to an intraocular pressure of the eyeball when the eyepiece is positioned around the eyeball.

5,735,276

METHOD AND APPARATUS FOR SCANNING AND EVALUATING MATTER

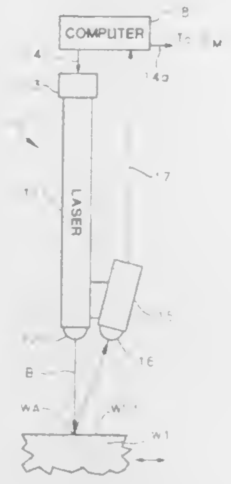
Jerome Lemelson, 868 Tyner Way, Incline Village, Nev. 89450

Filed Mar. 21, 1995, Ser. No. 407,690

Int. Cl.⁶ A61B *5/00* G01N *21/64*

U.S. Cl. 128—653.1 83 Claims

1. A method of electro-optically scanning tissue comprising the steps of:



(a) generating a first beam of radiation;
(b) scanning said tissue with said first beam of radiation, whereby said beam moves relative to said tissue, to cause said tissue to fluoresce;
(c) photoelectrically detecting said fluorescence and generating first variable electrical signals at a position to receive both reflected and fluorescent radiation;
(d) digitizing said first variable electrical signals and generating first digital code signals;
(e) spectrally analyzing said first digital code signals with a computer and generating second code signals; and
(f) employing said second code signals to intelligibly indicate the condition of said tissue.

5,735,277

METHOD OF PRODUCING AN ENDOPROSTHESIS AS A JOINT SUBSTITUTE FOR KNEE-JOINTS

Luis Schuster, Ringstr. 15, D 86911 Riederau, Germany

Filed Sep. 20, 1995, Ser. No. 530,829

Claims priority, application Germany, Sep. 27, 1994, 44 34 539.9

Int. Cl.⁶ A61B *6/00*

U.S. Cl. 128—653.1 7 Claims

1. A method of producing an endoprosthesis as a joint replacement for knee joints comprising:
preparing a preoperative tomographic image of the damaged knee joint;
preparing a healthy knee joint tomographic image by approximating the contours of at least the femoral bone and the tibia of the damaged knee joint to those of a healthy knee joint;
preparing a postoperative tomographic image of the damaged knee joint;
comparing and determining the differences between: (1) the contours of at least the femoral bone and of the tibia of the healthy knee joint tomographic image, and (2) the contours of at least the femoral bone and of the tibia of the postoperative tomographic image of the damaged knee joint, to prepare a tomographic reference image representing said differences, and
preparing at least a femoral component and a tibial component of an endoprosthesis based on the tomographic reference image.

5,735,278

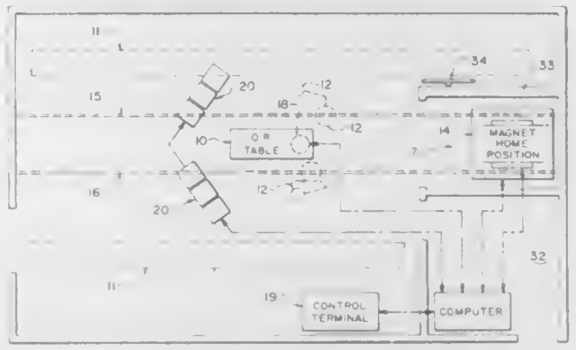
SURGICAL PROCEDURE WITH MAGNETIC RESONANCE IMAGING

David Hoult; John K. Saunders, both of Winnipeg; Garnette Roy Sutherland, Calgary, and Franklin A. Roberts, Winnipeg, all of Canada, assignors to National Research Council of Canada, Ottawa, Canada

Filed Mar. 15, 1996, Ser. No. 616,737

Int. Cl.⁶ A61B *5/055*

U.S. Cl. 128—653.2 20 Claims



1. Apparatus for use in surgical procedures comprising:
an operating table for receiving a patient for surgery, the table having a first end and a second end,
and a magnetic resonance imaging system for obtaining images of a part of the patient at a series of times through the surgical procedure for analysis by the surgical team to allow the surgical team to monitor the progress of the surgery, the magnetic resonance imaging system comprising:
  - a magnet for generating high magnetic fields;
  - a control system for controlling and varying the magnetic fields;
  - a radio frequency transmission and detection system for eliciting and detecting from the part of the patient nuclear magnetic resonance signals, in response to the magnetic field, including an RF probe arranged to be located adjacent to the part of the patient;

and a computer and display monitor for decoding and displaying the detected signals;
and means mounting the magnet for movement relative to the table in a direction away from the first end of the table from a first position at the table to a second position remote from the table;
the first position of the magnet being arranged such that the part of the patient is positioned in the magnetic field of the magnet while the patient remains in place on the table;
the second position of the magnet being arranged such that the magnet is spaced from the first end of the table by a distance sufficient to allow the surgical team to move around the first end of table and to each side of the table to access the patient and sufficient to allow to allow the surgical team to carry out the surgical procedure.

5,735,279

SQUID MAGNETOMETRY USING FERRO-, FERRI- ARE PARAMAGNETIC PARTICLES

Jo Klaveness; Thorfinn Ege, both of Oslo, Norway, and Scott M. Rocklage, Los Gatos, Calif., assignors to Nycomed Imaging AS, Oslo, Norway

Division of Ser. No. 199,252, Mar. 28, 1994, Pat. No. 5,496,534. This application Jun. 7, 1995, Ser. No. 483,168

Claims priority, application United Kingdom, Sep. 26, 1991, 9120508

Int. Cl.⁶ A61B *5/055*

U.S. Cl. 128—654 12 Claims

1. A method of generating a magnetometric image of a human or non-human animal body which method comprises administering into the gastrointestinal tract, the reproductive tract, the urinary tract, a closed body cavity or the musculature of said body physiologically tolerable lipid-coated ferromagnetic or ferrimagnetic particles and generating a magnetometric image of at least a part of said body into which said particles distribute.

5,735,280

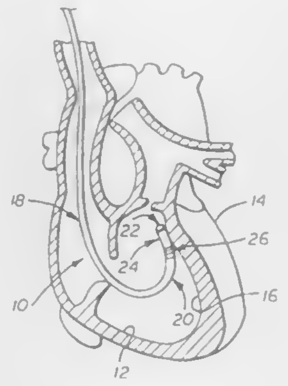
ULTRASOUND ENERGY DELIVERY SYSTEM AND METHOD

Marshall L. Sherman, Cardiff, and Thomas M. Castellano, Temecula, both of Calif., assignors to Heart Rhythm Technologies, Inc., Temecula, Calif.

Continuation-in-part of Ser. No. 434,004, May 2, 1995, Pat. No. 5,606,974. This application Sep. 9, 1996, Ser. No. 708,829

Int. Cl.⁶ A61B *8/00*

U.S. Cl. 128—600.03 32 Claims



1. A system for delivering energy to biological tissue, comprising:
a catheter having distal and proximal ends,
an ultrasonic transducer adapted to transduce electrical energy into acoustic energy, the transducer having a characteristic frequency, the transducer mounted at the distal end of the catheter;
a power supply that provides electrical energy to the ultrasonic transducer at a selectable frequency,
a power transfer sensor coupled to the ultrasonic transducer that measures the response of the ultrasonic transducer to the power provided to it by the power supply, the sensor providing a power transfer signal,
a processor adapted to automatically control the power supply to vary the frequency of electrical energy applied to the transducer and to monitor the power transfer signal in response to the frequency variation to determine the characteristic frequency of the transducer.

5,735,281

METHOD OF ENHANCING AND PROLONGING THE EFFECT OF ULTRASOUND CONTRAST AGENTS

Patrick G. Rafter, Woburn; Ronald D. Gatzke, Lexington, and Alwyn P. D'Sa, Cambridge, all of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 9, 1996, Ser. No. 695,267

Int. Cl.⁶ A61B *8/00*

U.S. Cl. 128—662.02 20 Claims

1. A method for enhancing and prolonging the effect of ultrasound contrast agents comprising the steps of:
introducing an ultrasound contrast agent into a patient;
applying a high power stimulus each period to generate a high power stimulus image,
receiving and processing the high power stimulus image,
applying M ($M > 0$) low power stimuli each period to generate multiple low power stimulus images, and

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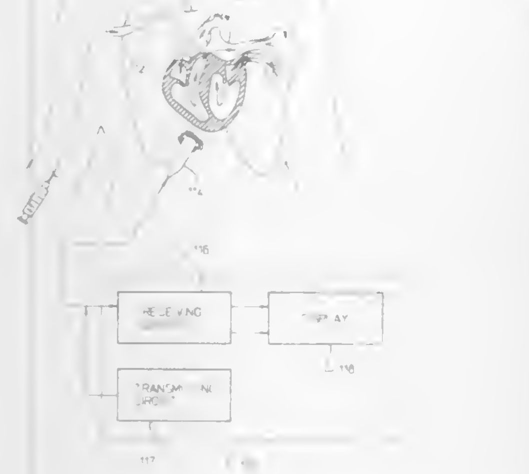


receiving and processing the multiple low power stimulus images.

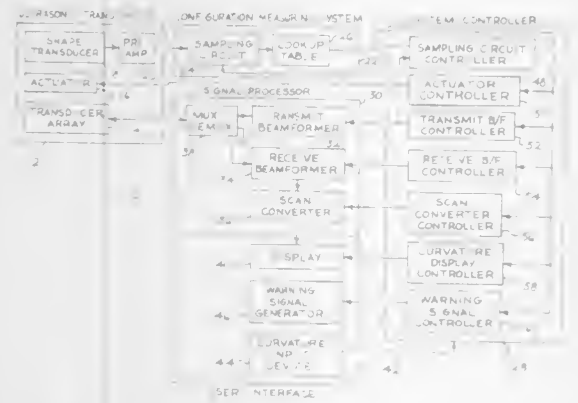
5,735,282
FLEXIBLE ULTRASONIC TRANSDUCERS AND RELATED SYSTEMS

John A. Hossack, Palo Alto, Calif., assignor to Acuson Corporation, Mountain View, Calif.

Continuation-in-part of Ser. No. 657,646, May 30, 1996. This application Sep. 18, 1996, Ser. No. 716,517

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 128—662.03 **14 Claims**



1. In an ultrasonic imaging system of the type comprising a receive beamformer, the improvement comprising:

an ultrasonic transducer comprising a plurality of ultrasonic transducer elements, said transducer elements movable between at least first and second configurations which differ in curvature, said transducer elements supplying receive signals to the receive beamformer;

a scan converter controller operative to generate a control signal indicative of configuration of the transducer elements;

a scan converter, said scan converter responsive to the receive beamformer and to the control signal to reduce image distortion associated with movement of the transducer elements between the first and second configurations.

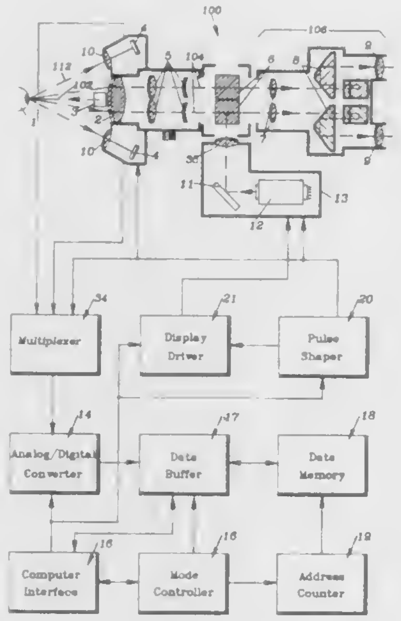
5,735,283
SURGICAL KERATOMETER SYSTEM FOR MEASURING SURFACE TOPOGRAPHY OF A CORNEA DURING SURGERY

Richard Kieth Snook, 8050 N. Tackroom La., Tucson, Ariz. 85741

Filed Oct. 9, 1996, Ser. No. 727,920

Int. Cl.^{6} A61B *3/107*

U.S. Cl. 128—664 **18 Claims**



1. An instrument for measuring surface topography of a cornea during surgery, said instrument comprising:

(a) an optical projector that projects a pattern onto said cornea, said pattern comprising a plurality of isolated points;

(b) a first camera and a second camera each comprising a camera lens and a detector array, said first camera, said second camera, and said projector directed toward a single point, said first camera and said second camera producing images of said plurality of isolated points projected on said cornea, said location of each of said isolated points on said cornea dependent upon said surface topography;

(c) a computer processor that employs triangulation calculations to determine said surface topography from said location of said isolated points on said cornea; and

(d) a display for displaying said surface topography.

5,735,284
METHOD AND SYSTEM FOR NON-INVASIVE DETERMINATION OF THE MAIN CARDIORESPIRATORY PARAMETERS OF THE HUMAN BODY

Alexander Tsoglin, Tel-Aviv, and Efim Frinerman, Bat-Yam, both of Israel, assignors to N.I. Medical Ltd., Tel-Aviv, Israel

Continuation-in-part of Ser. No. 82,606, Jun. 24, 1993, Pat. No. 5,469,859. This application Jun. 13, 1995, Ser. No. 490,047

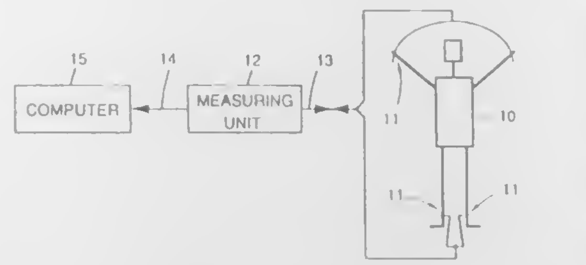
Claims priority, application Israel, Jun. 24, 1992, 102300

Int. Cl.^{6} A61B *5/04*

U.S. Cl. 128—696 **16 Claims**

1. A method for determining at least one main cardiorespiratory parameter of an individual, the method comprising the steps of:

attaching at least two electrodes to the body of an individual and providing a low impedance contact between the electrodes and a skin of the individual, and positioning the electrodes on at least one arm or at least one leg and at least another arm or at least another leg of the individual to enable current to pass between said at least two electrodes on said at least one arm or at least one leg to at least another arm or at least another leg of the individual;



passing an alternating current with a stable and constant amplitude through said at least two electrodes;

measuring, while passing said alternating current, a potential change as the result of a current flow to obtain a measurement of an electrical integral bioimpedance of the body of the individual from a measured potential between said at least two electrodes;

simultaneously separating an active component of the integral bioimpedance from measured integral bioimpedance,

calculating at least one of a cardio parameter and a respiratory parameter of the individual from the active component of said integral bioimpedance, using a semi-empiric formula applicable to integral bioimpedance measurements to obtain a number of values of said at least one parameter for a number of cardiac cycles during a respiratory cycle, and calculating an average of said at least one parameter during a single respiratory cycle; and

displaying said average of said at least one parameter thus obtained.

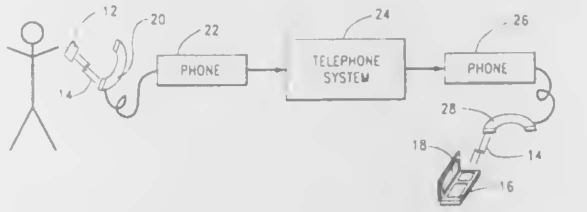
5,735,285
METHOD AND HAND-HELD APPARATUS FOR DEMODULATING AND VIEWING FREQUENCY MODULATED BIOMEDICAL SIGNALS

David E. Albert; Landgrave T. Smith, both of Oklahoma City; Carl J. Rieger, Ponca City; Colin J. Cumming, Stillwater, all of Okla., and Leslie D. Hoy, Knoxville, Tenn., assignors to Data Critical Corp., Oklahoma City, Okla.

Filed Jun. 4, 1996, Ser. No. 658,236

Int. Cl.^{6} A61B *5/0432*

U.S. Cl. 128—696 **14 Claims**



1. A hand-held computer device for patient monitoring, comprising,

a palmtop digital computer that includes microphone means for receiving a frequency modulated audio signal indicating a selected, continuously variable biomedical parameter of a patient's physical condition;

analog to digital converter means changing the frequency modulated audio signal to a digital signal,

means for band pass filtering said digital signal to produce a filtered digital signal having a low frequency pass band,

a digital polyphase demodulator receiving said digital signal for transformation to a de-modulated digital signal; and

means for displaying the filtered digital signal for a selected time interval.

5,735,286
APPARATUS AND PROCESS FOR MEASURING AND PROCESSING PHYSIOLOGICAL SIGNALS

Philippe Notton, 7 Chemin des Dames, 57500 Saint-Avold, and Daniel Schang, 9 rue George Sand, 57730 Folschviller, both of France

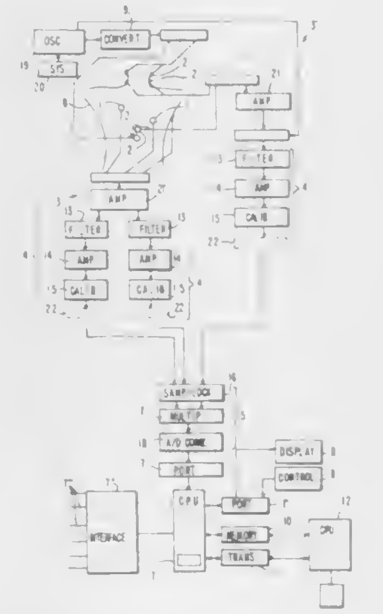
PCT No. PCT/FR94/00930, § 371 Date Mar. 20, 1996, § 102(e) Date Mar. 20, 1996, PCT Pub. No. WO95/02991, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 25, 1994, Ser. No. 586,920

Claims priority, application France, Jul. 23, 1993, 93 09262

Int. Cl.^{6} A61B *5/02*

U.S. Cl. 128—700 **24 Claims**



1. An apparatus for measuring and processing physiological signals to determine cardiac and circulatory parameters of a subject having a body with a surface, the apparatus comprising:

a plurality of electrodes (**1**,**2**,**1**′,**2**′) adapted to be connected to the surface of the body and distributed over the surface to delimit a volume in the body,

capturing means (**3**) connected to the electrodes for capturing at least one electrocardiographic signal from the subject and at least one impedance signal representing a variation in impedance of the volume of the body,

shaping means (**4**) connected to the capturing means for shaping the electrocardiographic and impedance signals,

digitizing means (**5**) connected to the shaping means for digitizing the shaped signals;

a digital preprocessing unit (**7**) having a control (**8**) for controlling operations of the unit and a display (**9**) for displaying results of the operations of the unit and, said digital preprocessing unit being connected to said digitizing means for receiving the digitized and shaped electrocardiographic and impedance signals;

said digital preprocessing unit (**7**) being programmed to calculate from the electrocardiographic and impedance signals, a plurality of significant parameter data for each heartbeat of the subject, the significant parameter data comprising heart rate (FC), cardiac output (QC), cardiac work (WC), peripheral resistance (RV), a ratio between a derivative of the electrocardiographic signal and a derivative of the impedance signal (IC), an ejection fraction (FE), mean blood pressure (PAM), systolic blood pressure (PAS) and diastolic blood pressure (PAD).

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a central digital processing device (**12**) for collecting and storing the significant parameter data; and

transfer means (**10**,**11**) connected between the digital preprocessing unit (**7**) and the central digital processing device (**12**) for transferring data from the unit (**7**) to the device (**12**), the transfer means comprising at least one of a detachable storage memory (**10**) detachably connected to the unit and the device for transferring data from the unit to the device, and a transmitting element (**11**) connected between the unit and the device for directly transferring data from the unit to the device;

said central digital processing device (**12**) being programmed for analyzing the significant parameter data over a period of a multiplicity of heartbeats, the analysis including comparing significant parameter data currently accumulated with previously accumulated significant parameter data, displaying data and printing data.

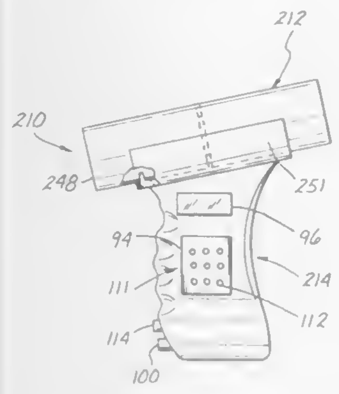
5,735,287
BIODEGRADABLE AIR TUBE AND SPIROMETER EMPLOYING SAME

Ronald A. Thomson, San Clemente, Calif., assignor to Desert Moon Development Limited Partnership, Dana Point, Calif.

Division of Ser. No. 274,470, Jul. 13, 1994, Pat. No. 5,564,432. This application May 28, 1996, Ser. No. 654,303

Int. Cl.^{6} A61B *5/087*

U.S. Cl. 128—725 **19 Claims**



1. An air tube for use in a differential pressure spirometer comprising,

a tubular portion defining an open inlet, an open outlet and a hollow space therebetween, and being sized and adapted to be removably coupled to a housing of a differential pressure spirometer;

a resistive element located in said hollow space and being sized and adapted to cause a pressure difference as air flows in said hollow space across said resistive element; and

at least one through port located in said tubular portion which opens directly to said hollow space and is spaced apart from said resistive element, provided that said air tube is disposable and at least a major portion of said tubular portion is biodegradable.

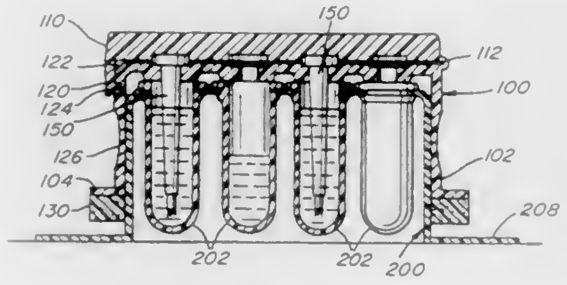
5,735,288
ALLERGY TESTING APPARATUS WITH VARIABLY SPACED TEST TESTING SITES

Henry Fishman, 5173 Linnean Terrace N.W., Washington, D.C. 20008

Continuation of Ser. No. 461,251, Jun. 5, 1995, Pat. No. 5,605,160, which is a continuation of Ser. No. 13,679, Feb. 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 931,202, Aug. 17, 1992, Pat. No. 5,335,670, which is a continuation of Ser. No. 685,626, Apr. 15, 1991, Pat. No. 5,154,181, which is a continuation of Ser. No. 501,376, Mar. 29, 1990, Pat. No. 5,027,826, which is a continuation of Ser. No. 339,863, Apr. 14, 1989, abandoned, which is a continuation of Ser. No. 204,967, May 31, 1988, abandoned, which is a continuation of Ser. No. 88,139, Aug. 21, 1987, abandoned, which is a continuation of Ser. No. 853,710, Apr. 18, 1986, Pat. No. 4,711,247. This application Sep. 30, 1996, Ser. No. 723,296

Int. Cl.^{6} A61B *5/10*

U.S. Cl. 128—743 **12 Claims**



1. An allergy testing apparatus for testing a patient for a plurality of substances, comprising

a first member having a plurality of receiving areas, said receiving areas being arranged at respective positions on said first member, said receiving areas selectively receiving a respective pricking or piercing element therein;

a plurality of pricking or piercing elements which are selectively received in said receiving areas of said first member, at selected positions of said first member, for pricking or piercing the skin of a patient at spaced apart positions in use,

a retaining member arranged to fix said pricking or piercing elements at respective receiving areas of said first member to retain said pricking or piercing elements relative to said first member and to prevent tipping or tilting of said pricking or piercing elements in said first member, said retaining member comprising a cover member which is engageable with said first member; and

a well tray having a plurality of receptacles for receiving substances for which a patient is to be tested at selected receptacles corresponding in position to the pricking or piercing elements which are received at receiving areas of said first member, said first member with said received pricking or piercing elements, being engageable with said well tray for causing the pricking or piercing elements to contact said substances in respective associated receptacles, said first member being thereafter removable from said well tray for application of said substances to a patient;

said removed first member then being adapted to be placed against the skin of a patient and to be pressed downwardly against the skin of the patient to cause said pricking or piercing elements to contact the skin of the patient and to apply said substances at respective spaced apart positions on the skin of the patient

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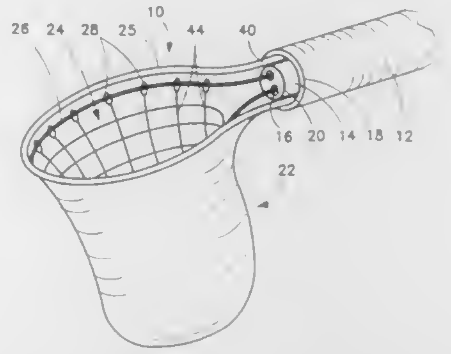
5,735,289
METHOD AND APPARATUS FOR ORGANIC SPECIMEN RETRIEVAL

Herbert G. Pfeffer, 14 Clubway, Hartsdale, N.Y. 10530, and Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Filed Aug. 8, 1996, Ser. No. 693,486

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 128—751 **24 Claims**



1. An apparatus for specimen retrieval comprising:

an outer pouch having a rim defining an aperture;

a mesh enclosure in the form of a network having a maximum mesh size and an enclosure opening substantially larger than said mesh size, said mesh enclosure being disposed inside said pouch, the enclosure opening being substantially aligned with the aperture;

means connected to said pouch for closing the aperture; and

means connected to said enclosure for constricting said enclosure to morsellate a specimen contained therein.

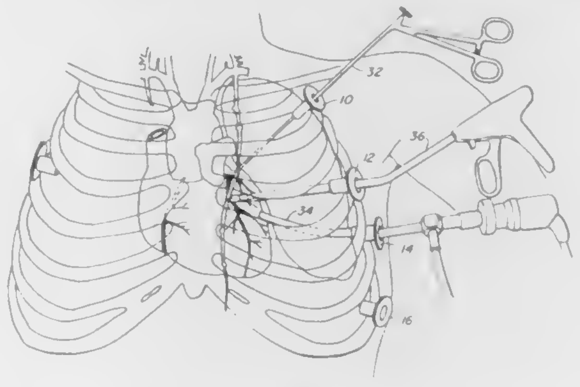
5,735,290
METHODS AND SYSTEMS FOR PERFORMING THORACOSCOPIC CORONARY BYPASS AND OTHER PROCEDURES

Wesley D. Sterman, San Francisco; Lawrence C. Siegel; Patricia E. Curtis, both of Hillsborough; John H. Stevens, Palo Alto, and Timothy R. MacHold, Moss Beach, all of Calif., assignors to Heartport, Inc., Redwood City, Calif.

Continuation-in-part of Ser. No. 23,778, Feb. 22, 1993, Pat. No. 5,452,733. This application Jul. 28, 1994, Ser. No. 281,891

Int. Cl.^{6} A61B *19/00*

U.S. Cl. 128—898 **20 Claims**



1. A method for forming an anastomosis between a mammary artery and a coronary artery of a patient, said method comprising,

positioning at least one trocar sheath through the patient's chest,

introducing a viewing scope into the patient's chest;

transecting the patient's mammary artery using a tool introduced through the at least one trocar sheath while viewing the artery using the viewing scope;

establishing cardiopulmonary bypass;

stopping heart contraction;

forming an incision in a coronary artery using a cutting tool introduced through a trocar sheath, and

connecting the internal mammary artery to the incision in the coronary artery using an anastomosis tool

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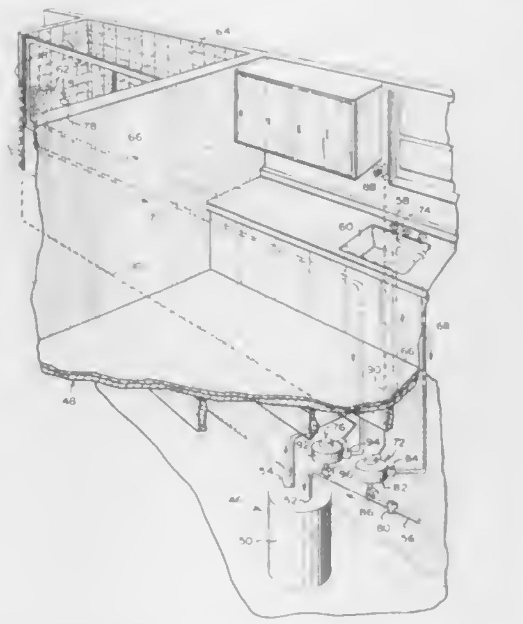
5,735,291
HOT WATER RE-CIRCULATING SYSTEM

Godfrey K. Kaonohi, 47-641 Uakea Pl., Kaneohe, Hi. 96744

Filed Dec. 21, 1995, Ser. No. 576,010

Int. Cl.^{6} F16L *5/00*

U.S. Cl. 137—337 **5 Claims**



1. A hot water re-circulating system in a building comprising

a) a hot water heater located in the building, said hot water heater having a cold water inlet port and a hot water outlet port;

b) a cold water feed line connected to said cold water inlet port of said hot water heater;

c) a first hot water faucet located in the building remotely from said hot water heater;

d) a second hot water faucet located in the building remotely from said hot water heater;

e) a hot water supply line extending between said hot water outlet port of said hot water heater and said first and second hot water faucets;

f) a first auxiliary water return line extending between said hot water supply line adjacent said first hot water faucet and said cold water inlet port of said hot water heater;

g) a second auxiliary water return line extending between said hot water supply line adjacent said second hot water faucet and said cold water inlet port of said hot water heater;

h) means in said first auxiliary water return line comprising a first electrically operated pump for re-circulating cool water standing in said hot water supply line, when said first hot water faucet is closed, back into said hot water heater through said cold water inlet port, so that when said first hot water faucet is opened, hot water will immediately exit through a first spout fluidly connected to said first hot water faucet,

i) means in said second auxiliary water return line comprising a second electrically operated water pump for re-circulating cool water standing in said hot water supply line when said second hot water faucet is closed, back into said hot water heater through said cold water inlet port, so that when said

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second hot water faucet is opened hot water will immediately exit through a second spout fluidly connected to said second hot water faucet, and

j) first/timer switch means located adjacent said first hot water faucet upon actuation for energizing said first electrically operated pump and second timer/switch means located adjacent said second hot water faucet upon actuation for energizing said second electrically operated pump to re-circulate the cool water in the first or second auxiliary water return line back into said hot water heater and bring hot water from said hot water heater up through the hot water supply line to the faucet corresponding to the actuated timer/switch means

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5,735,292

METHOD AND DEVICE FOR THE PRODUCTION OF FILTER TIP BANDS FOR VENTILATED CIGARETTES

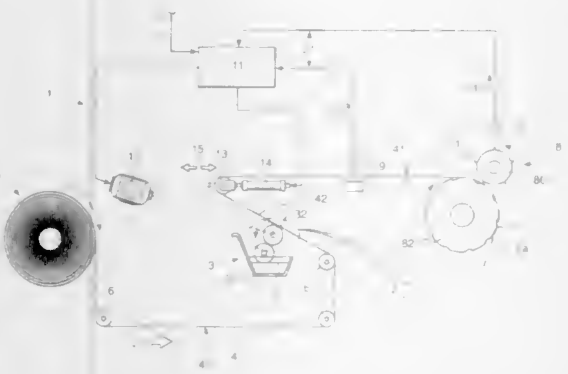
Fiorenzo Draghetti, Medicina, Italy, assignor to G.D. S.p.A., Bologna, Italy

Filed Oct. 7, 1996, Ser. No. 726,490

Claims priority, application Italy, Oct. 6, 1995, B095A0474

Int. Cl.^{6} A24C *5/38*

U.S. Cl. 131—34 7 Claims



1. A method for producing filter tip bands for ventilated cigarettes, comprising the steps of:

feeding a continuous strip of bank stock longitudinally along an established feed path;

applying an adhesive substance to the strip at a gumming station located on said path, using a gumming device, so as to define on the strip a longitudinally periodic succession of gummed areas alternated with non-gummed areas.

repeatedly cutting the strip transversely at a cutting station located longitudinally further along said path than said gumming station, using a cutter acting along transverse cutting lines spaced from one another by preset intervals which coincide with respective ones of said gummed areas, thereby producing a succession of bands.

continually sensing actual spatial disposition of said periodic succession at a sensing station located between said gumming device and said cutter;

comparing said actual spatial disposition relative to said cutter, with a desired spatial disposition relative to said cutter; and

continually correcting said periodic succession upstream of said sensing station, using feedback control from said sensing station, for eliminating variations in said actual spatial disposition from said desired spatial disposition

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5,735,293

APPARATUS FOR HEATING ADHESIVE-CONTAINING SEAMS OF TUBULAR WRAPPERS FOR MATERIALS OF THE TOBACCO PROCESSING INDUSTRY

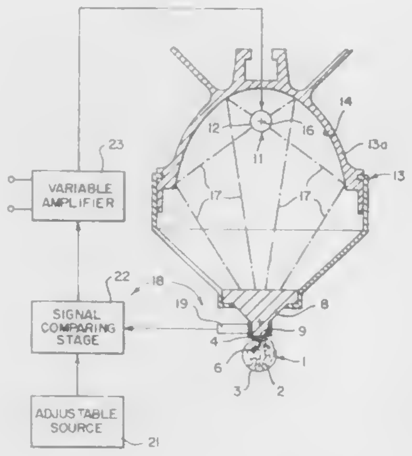
Antoine Coniglio, Lyons; Peter Sandkamp, Verrieres-le-Buisson, and Robert Calvairac, Lisses, all of France, assignors to Decouflé s.a.r.l., Chilly-Mazarin, France, and RICA, Vittorio Veneto, Italy

Filed Oct. 23, 1995, Ser. No. 546,871

Claims priority, application Germany, Oct. 21, 1994, 44 37 631.6

Int. Cl.^{6} A24C *5/26*

U.S. Cl. 131—68 15 Claims



1. Apparatus for conditioning an adhesive-containing longitudinally extending seam of a tubular wrapper confining particular material of the tobacco processing industry and advancing longitudinally along an elongated path, comprising a source of radiant energy spaced apart from said path; and means for at least indirectly heating the seam in a portion of said path with radiant energy issuing from said source

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5,735,294

LIGHTER WITH GUARD

James M. McDonough, Guilford, Conn.; Gerald J. Doiron, Marco Island, Fla.; Paul H. Adams, Monroe, Conn.; Chris A. Barone, Trumbull, Conn., and Floyd B. Fairbanks, Naugatuck, Conn., assignors to Bic Corporation, Milford, Conn.

PCT No. PCT/US94/08447, § 371 Date Jan. 29, 1996, § 102(e) Date Jan. 29, 1996, PCT Pub. No. WO95/04247, PCT Pub. Date Feb. 9, 1995

Continuation-in-part of Ser. No. 261,527, Jun. 17, 1994, Pat. No. 5,520,197, which is a continuation-in-part of Ser. No. 97,685, Jul. 28, 1993, Pat. No. 5,483,978. This PCT application Jul. 26, 1994, Ser. No. 586,719

Int. Cl.^{6} F23D *11/36*

U.S. Cl. 131—329 35 Claims

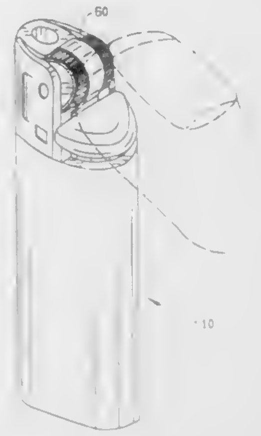
1. A lighter comprising:

a lighter body containing a fuel reservoir with a valve for releasing fuel therefrom;

spark producing element rotatable by a user to produce sparks directed toward said valve, said element mounted on the body with at least a portion thereof exposed of manipulation and rotation by the user;

a valve actuator depressible to actuate said valve and release said fuel; and

a guard member mounted on the lighter and extending around at least said exposed portion of said spark producing element, wherein said shield member is disposed radially outward from said spark producing element and is depressible to a position permitting manipulation of said spark producing element.



5,735,295

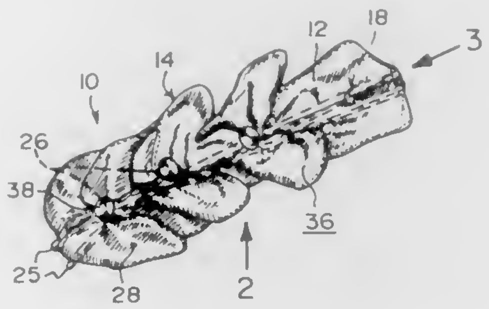
HAIR ADORNMENT HAVING HAIR CLIP

Sheila A. Sammon, 58 Thomas St., Coram, N.Y. 11727

Filed Oct. 21, 1996, Ser. No. 735,797

Int. Cl.^{6} A45D *8/08*

U.S. Cl. 132—275 2 Claims



1. A decorative bobby pin for securement to and adornment of hair, comprising:

a straight hairpin for holding a lock of hair in place, said hair pin including a thin strip of metal core material coated with a synthetic resin and bent in an elongated U-shaped configuration including a straight arm, and undulating tension arm, and a pair of rounded tip ends made from and integral with said synthetic resin, so that hair can be held between said straight arm and said undulating tension arm:

adorning means for the hair, including a textile decoration comprising a one piece continuous section of flexible fabric entirely covering and overlaying said hairpin said section of flexible fabric being bunched at periodic intervals along the length of said hairpin and secured in this configuration by fastening means disposed at periodic intervals in a line along the length of said hairpin for attaching said fabric directly to said hairpin, and a bead mounted on said flexible fabric above each said fastening means, said beads being spaced in a straight row along the length of said hairpin, whereby adornment of said adornment means is enhanced and said fastening means are concealed by said beads, said section of flexible fabric having a length dimension just greater than that of said hairpin, whereby said section of flexible fabric covers and conceals said hairpin, and a width dimension less than half the length of said hairpin, whereby said section of flexible fabric drapes over said hairpin and conceals said hairpin at lateral sides thereof, and can be lifted by the fingers to afford finger access to said hairpin for maneuvering said hairpin; and

said fastening means comprising adhesive material applied to said outer surface of said straight arm of said hairpin and to said rear surface of said flexible fabric only at overlying areas of said flexible fabric.

5,735,296

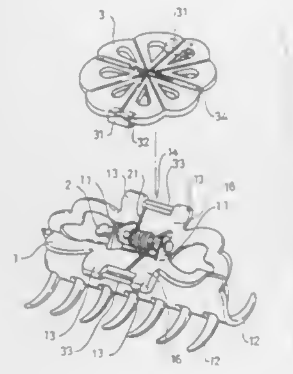
HAIR HOLDER

Chin-Chin Chen, No. 48, Dwan Ming Street, Kaohsiung, Taiwan

Filed May 19, 1997, Ser. No. 859,223

Int. Cl.^{6} A45D *8/20*

U.S. Cl. 132—277 4 Claims



1. A hair holder, comprising:

a pair of bodies each including a mediate portion pivotally coupled together by a pivot shaft, each said body including a number of teeth formed on a lower portion thereof, each said body further including an extension plate extending from the mediate portion thereof, each said extension plate including a notch defined in a mediate section thereof, thereby defining two spaced ears, a pin being fixedly mounted between the ears.

means for biasing said extension plates away from each other and for biasing said teeth toward each other, and

a cover plate removably attached to the bodies, the cover plate including a flexible mediate section having a gap defined in an underside thereof, thereby allowing the cover plate to be bendable along the flexible mediate section, the cover plate further including a flexible engaging member formed on each of two sides of the underside thereof, each said engaging member including a longitudinal recess defined in an underside thereof for fittingly, pivotally, releasably receiving an associated pin.

5,735,297

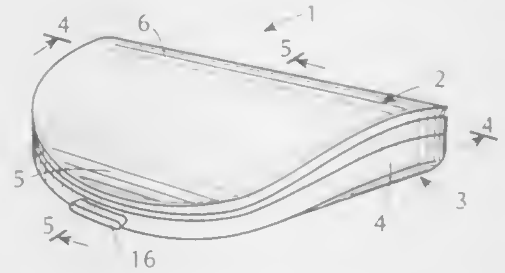
CONTAINER MADE OF CURVED PLANES IN OPPOSITION

Garfield Litton, Glenrock, N.J., assignor to Revlon Consumer Products Corporation, New York, N.Y.

Filed Apr. 29, 1996, Ser. No. 640,983

Int. Cl.^{6} A45D *33/24 33/26*

U.S. Cl. 132—294 18 Claims



1. A container having a first surface comprised of a plane having a center, and a first edge and second edge in opposition, which first

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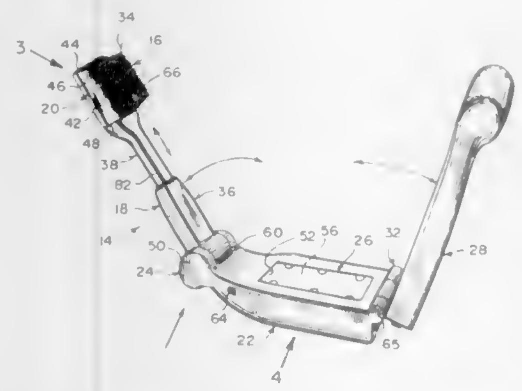
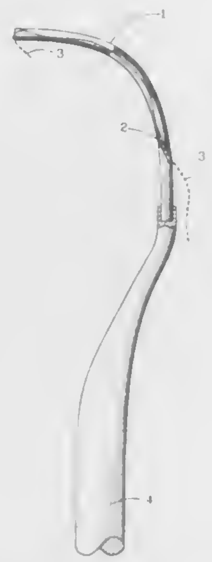
and second edges are curved downward from the center at an angle of 1 to 90 degrees, and a second surface comprised of a plane having a center, and a first edge and a second edge in opposition, which first and second edges are curved upward from the center at an angle of 1 to 90 degrees, and sidewalls interposed between, and perpendicular to, said first and second surfaces, the sidewalls being of varying dimensions such that they are higher at the sides of the compact and lower at the front and rear of the compact.

5,735,298
TRI-FOLD MULTIPURPOSE TOOTHBRUSH
Harlo Mayne, and P. Dustin McNeill, both of 569 Washington St., Quincy, Mass. 02169
Filed May 22, 1996, Ser. No. 651,211
Int. Cl.^{6} A45D *44/18*; A46B *11/00*
U.S. Cl. 132—309 **18 Claims**



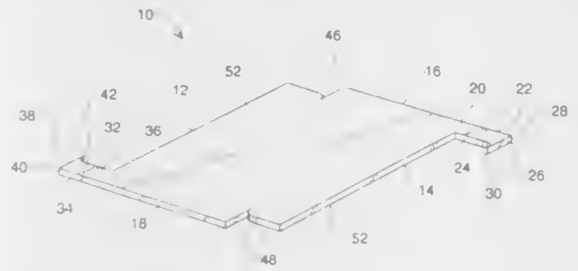
1 A tri-fold multipurpose toothbrush which comprises:
a) means for cleaning teeth;
b) an arm assembly;
c) means on a first end of said arm assembly for retaining said teeth cleaning means thereto in a removable manner;
d) a case;
e) means at a second end of said arm assembly for pivoting said arm assembly on a first end of said case, so that said arm assembly with said teeth cleaning means can fold down upon said case when not in use and can fold out from said case when in use;
f) means for locking said arm assembly in any angle when folded out from said case, said locking means including:
  i) said case having a top compartment;
  ii) a locking rod extension unit carried in said top compartment;
  iii) a cover plate thumb grip with a spring placed over said locking rod extension unit in said top compartment, so that said cover plate thumb grid can be depressed into said top compartment by said teeth cleaning means when said arm assembly is folded down and by a thumb of a person when said arm assembly is folded out;
  iv) said first pivoting means on the second end of said arm assembly having gear teeth thereon;
  v) a spring biased pin carried in said case and in engagement with said locking rod extension unit, so that when said cover plate thumb grip is depressed down by the thumb of the person said pin will engage with said gear teeth to hold said arm assembly stationary at an angle thereto; and
  vi) a slide button carried on said case and in engagement with said pin, so that when said button is manually pulled back said pin will disengage from said gear teeth, to allow said arm assembly to pivot freely on said first pivoting means;
g) a handle having a recessed area; and
h) means at a first end of said handle for pivoting said handle on a second end of said case, so that said handle can fold down upon said case with the recessed area over said arm assembly with said teeth cleaning means when not in use, and said handle can fold out from said case to be gripped by a hand of a person when in use.

5,735,299
QUICK RELEASE LINE INSERTER
Frederick H. Kaltenbach, 1138 Winged Foot Cir., West, Winter Springs, Fla. 32708
Filed Feb. 13, 1997, Ser. No. 799,551
Int. Cl.^{6} A61C *15/00*
U.S. Cl. 132—323 **22 Claims**



1. A quick-release line inserter comprising:
an inserter shaft that is sized, shaped and structured to enter confined spaces having entrances with a particular range of entrance sizes;
at least one line slot on the inserter shaft,
the line slot being sized, shaped and positioned to contain a line on the inserter shaft;
the line having a design range of cross-sectional areas for entering the entrances in association with the inserter shaft;
a shaft handle to which a handle end of the inserter shaft is attached; and
wherein the inserter shaft is cylindrical, the line slot is positioned helically on the inserter shaft, with design degrees of helical rotation on the inserter shaft and the entrances which the inserter shaft is sized, shaped and structured to enter are spaces between teeth of an individual.

5,735,300
TOOTHPICK
Patrick O. Higgins, 214 5th St., Catawissa, Pa. 17820
Filed Nov. 19, 1996, Ser. No. 752,287
Int. Cl.^{6} A61C *15/02*
U.S. Cl. 132—329 **8 Claims**



1 A substantially planar toothpick comprising:

a. a straight first edge which is opposite and parallel to a straight second edge;
b. a straight third edge which is opposite and parallel to a straight fourth edge;
c a first arm extending outwardly from the second edge and having a first arm first edge which is collinear with the third edge and is disposed opposite and parallel to a first arm second edge;
d. the first arm further including a first distal edge which is parallel to the second edge, the intersection of the first arm first edge and the first distal edge forming a first point, and
e the first arm second edge extending straight outward from the second edge, then extending away from the first arm first edge to form a first barb at the intersection of the first arm second edge and the first distal edge.

5,735,301
UROSTOMY PATIENT EQUIPMENT IRRIGATION SYSTEM
Gary Rower, 105 White Oak Trail, Peachtree City, Ga. 30269
Filed Feb. 22, 1996, Ser. No. 605,670
Int. Cl.^{6} B08B *9/08*
U.S. Cl. 134—167 R **16 Claims**

1. A waste equipment cleaning system for cleansing and deodorizing a medical container and associated tubing with a secondary cleansing fluid comprising
a urostomy patient night drainage container, associated low pressure tubing and adapter;
a first connection of said adapter to a primary fluid pressurized water source;
a second connection of said adapter to a tip resistant secondary cleansing fluid container;
a venturi tube located within said adapter;
said secondary cleansing fluid container containing a secondary cleansing fluid and a secondary fluid feed tube operatively connected to said venturi tube;
an adapter tip connected to a distal end of said venturi tube for connection to said low pressure tubing, and
wherein said primary fluid pressurized water source generates a suction within said venturi section to draw said secondary cleansing fluid from said secondary container to be mixed therewith and circulated throughout the urostomy patient night drainage container and associated tubing

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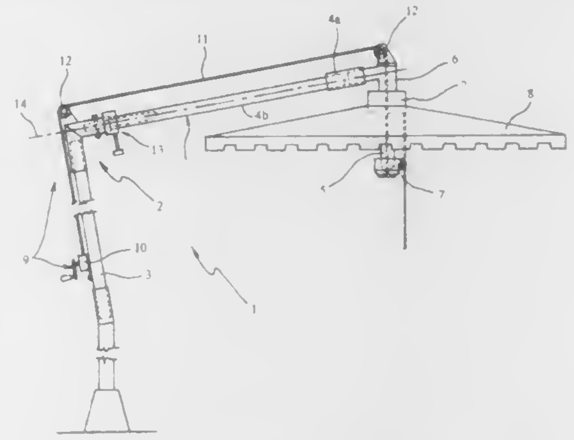
5,735,302
ADJUSTABLE HANGING SUNSHADE UMBRELLA
Fortunato Saliva, Novara, Italy, assignor to F.I.M. S.r.l., Italy
Filed Oct. 25, 1996, Ser. No. 738,020
Int. Cl.^{6} A45B *11/00*
U.S. Cl. 135—20.1 **8 Claims**



1. An adjustable hanging sunshade umbrella comprising:
a support structure provided with a side standard and a transverse arm joined to the side standard in cantilevered fashion and having a substantially rectilinear longitudinal extension direction.
a central rod connected to a first end portion of said transverse arm.
support and operation means for a protective covering connected to said central rod. and
a position-adjusting device rotating said central rod about a direction-adjusting axis substantially coincident with said longitudinal-extension direction of the transverse arm and locking said central rod at a desired angular position

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5,735,303
CRUTCH AND LEG SUPPORTING APPARATUS
Joe C. Cole, 10902 Lockgate, Houston, Tex. 77048
Filed Apr. 21, 1997, Ser. No. 844,650
Int. Cl.^{6} A45B *3/00*
U.S. Cl. 135—66 **9 Claims**

1. A crutch and leg supporting apparatus including
a first pair of spaced elongated support members having spaced aligned apertures formed therein
an upper horizontally extending support member coupled to uppermost portions of the first pair of elongated support members;
an intermediate horizontally extending support member coupled between intermediate portions of the first pair of elongated support members.
a lower support member having elongated portions thereof slidably couplable between lower most portions of the first pair of elongated support members.
a second pair of elongated support members. each one of the second pair having an upper end portion. and
means for pivotably coupling the second pair the upper end portions of of elongated support members to lowermost portions of the first pair of elongated support members so that when the first pair of elongated support members are used in a substantially vertical position the second pair of elongated support members can be pivoted to a closed position to extend downwardly to a position substantially parallel to the first pair of elongated support members and so that when the first pair of elongated support members are used in a substantially horizontal position the second pair of elongated support members can be pivoted to an open position to extend outwardly to a position substantially diagonally to the first pair of elongated support members said first pair of elongated support members would be raised above the grounds

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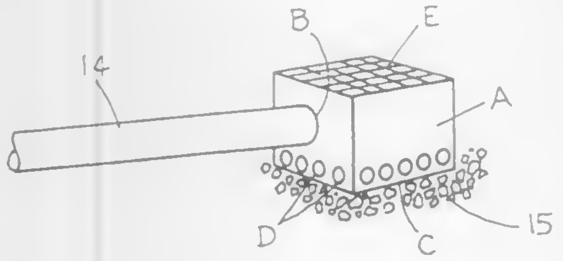
5,735,304
RAINWATER COLLECTION AND DISTRIBUTION APPARATUS AND METHOD

William M. Chumley, 3303 Green Pond Rd., Woodruff, S.C. 29388

Filed May 14, 1996, Ser. No. 645,627
Int. Cl.⁶ E04D *13/08*
U.S. Cl. 137—15 16 Claims

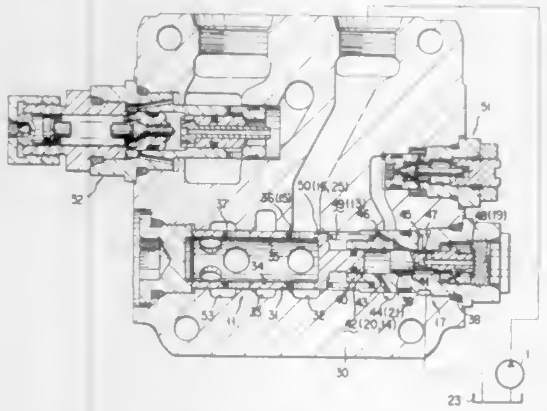


1 The method of collecting and distributing water from a gutter on lawn turf comprising the steps of:
directing water underground in a lateral flow away from said gutter;
providing an upright box for receiving said water through an opening in a side of said box,
positioning the box providing an open top adjacent ground level,
reducing the velocity of said flow of water by collecting same in the box;
permitting water collected in the box to overflow substantially at ground level and spread gently over the area around the box;
providing a hinged cover at a top of the box for permitting upward pivotal opening of the cover at one end thereof when dictated by the water level in the box permitting said overflow, and
draining water from a lower portion of said box avoiding accumulation of standing water;
whereby erosion is minimized and water may be conserved by irrigating the area around the box.

5,735,305
UNLOADING SYSTEM FOR HYDRAULIC CIRCUIT

Kazunori Ikei, and Keisuke Taka, both of Tochigi-ken, Japan, assignors to Komatsu Ltd., Tokyo, Japan

PCT No. PCT/JP94/02175, § 371 Date Jun. 11, 1996, § 102(e) Date Jun. 11, 1996, PCT Pub. No. WO95/17609, PCT Pub. Date Jun. 29, 1995
PCT Filed Dec. 21, 1994, Ser. No. 663,193
Claims priority, application Japan, Dec. 22, 1993, 5-323644
Int. Cl.⁶ F15B *13/08*
U.S. Cl. 137—115.23 2 Claims

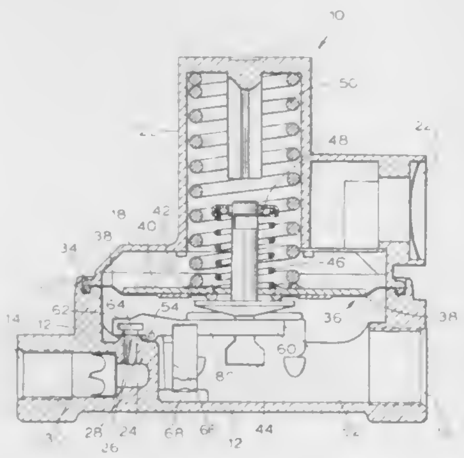


1. An unloading system comprising:
a valve main body;
an unload valve, for draining a part of supplied pressurized fluid to a tank,
said unload valve being defined by a valve bore formed in said valve main body and a valve body,
said valve bore having an inlet port, a tank port and an outlet port,
said valve body being fitted in one side of said valve bore for communicating with the inlet port, the tank port and the outlet port, and for increasing and decreasing an open area between said inlet port and said tank port, and for forming a first pressure receiving chamber in communication with said inlet port, such that a pressure biases said valve body in a direction of said valve bore for reducing the open area; and
a switching valve, arranged in series with said unloading valve in an axial direction of said valve main body, for draining a pressurized fluid for biasing said unload valve in a direction so as to reduce a flow rate to the tank,
said switching valve being defined by a spool inserted in the other side of said valve bore for defining a second pressure receiving chamber to be supplied with a load pressure between said spool and said valve body, and a spring for biasing said spool in a direction so as to establish communication between said first pressure receiving chamber and said tank against the load pressure of said second pressure receiving chamber.

5,735,306
REGULATOR FLOW FLUCTUATION STABILIZER

Charles M. Olds, Anna; Mark E. Hood, Allen, and John D. Hostutler, Princeton, all of Tex., assignors to Fisher Controls International, Inc., Clayton, Mo.

Filed Aug. 16, 1996, Ser. No. 698,819
Int. Cl.⁶ G05D *11/00*
U.S. Cl. 137—116.5 4 Claims

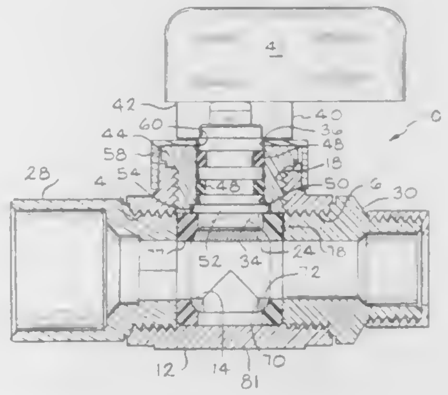


1 In a gas pressure regulator including a gas flow control orifice communicating the gas from a regulator input to a regulator output, a moving diaphragm responding to pressure changes, and a pivoting lever coupled between the diaphragm and the flow control orifice to regulate the flow of gas through the flow control orifice in response to the moving diaphragm, the improvement of a stabilizer for fluid flow fluctuations to stabilize pressure regulation, said stabilizer comprising:
a spring clip mounted in said gas pressure regulator in frictional engagement with said pivoting lever, said spring clip including opposite parallel surfaces frictionally engaging said pivoting lever during pivoting movement of said pivoting lever.

5,735,307
VALVE INTERCHANGEABLE BETWEEN ANGLE AND STRAIGHT

Charles S. Charron, Oakville, Canada, assignor to Dahl Brothers Canada Limited, Mississauga, Canada

Filed Feb. 27, 1996, Ser. No. 607,818
Int. Cl.⁶ F16K *5/06*
U.S. Cl. 137—270 14 Claims

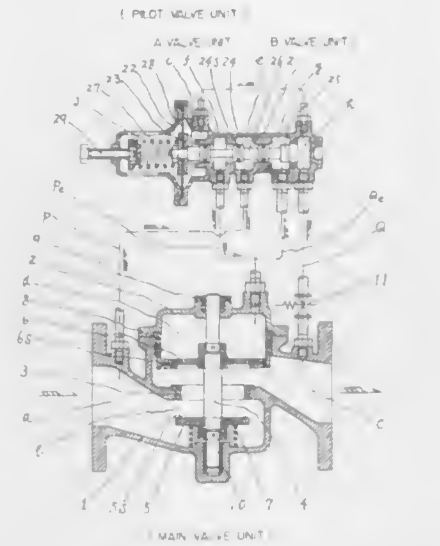


6. A combination of parts which are interchangeable between a straight valve and an angle valve, the combination comprising a valve body having first, second and third faces and including first and second bore means in said first and second faces, respectively, and in fluid communication with each other and having a common axis and further including a third bore means in said third face of said valve body and in fluid communication with said first and second bore means and having an axis which is perpendicular to said common axis, means comprising a ball disposable at the intersection of said common and said third bore axes and handle means for rotating said ball for opening and closing the valve, each of said first, second, and third bore means adapted to receive said valve opening and closing means whereby to provide fluid passage between the other two bore means when the valve is open, said first, second and third faces of said valve body being machined substantially identically and substantially symmetrically to a point of intersection of said common axis and said axis perpendicular to said common axis so that each of said first, second and third bore means is able to accommodate interchangeably said valve opening and closing means.

5,735,308
AUTOMATIC CONSTANT-PRESSURE REGULATING LIFT DEVICE

Hiroshi Yokota, and Shingo Yokota, both of Hiroshima, Japan, assignors to Kabushiki Kaisha Yokota Seisakusho, Hiroshima-ken, Japan

PCT No. PCT/JP94/01432, § 371 Date Jan. 23, 1996, § 102(e) Date Jan. 23, 1996, PCT Pub. No. WO95/06834, PCT Pub. Date Mar. 9, 1995
PCT Filed Aug. 31, 1994, Ser. No. 582,998
Claims priority, application Japan, Sep. 2, 1993, 5-218271
Int. Cl.⁶ F16K *17/22*
U.S. Cl. 137—488 1 Claim

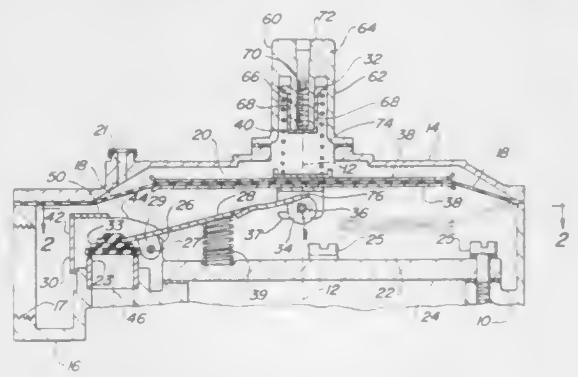


1 An automatic constant-pressure lift valve having a main valve element disposed in a valve opening formed in a valve body so as to be driven by a pilot valve unit that operates according to variation of the pressure flowing through the valve body, characterized in that:
the main valve element (5) and a main valve driving member (6) are disposed in combination in the main valve body (1) of a main valve unit, the main valve element (5) is disposed at an upstream side of a main valve seat member (3), to form a valve opening (b) between the main valve element (5) and the valve seat member (3), and the main valve driving member (6) is fitted slidably in a cylindrical member (8) at a downstream side of the valve seat member (3) so as to form a main valve driving pressure chamber (d) together with a bonnet (2) put on the main valve body,
the pilot valve unit comprises an A valve unit and a B valve unit which are operated by balance of the valve-outlet pressure of a liquid in the outlet passage of the main valve unit and a force exerted thereon by an external control force applying means, the main valve driving pilot valve unit without fixed restriction passage is constructed by connecting in series the pilot A valve unit and the pilot B valve unit through the main valve driving pressure chamber (d) in a direction from an inlet passage (a) toward an outlet passage (c), said pilot A valve unit operating to open when the valve outlet pressure drops below a predetermined level, said pilot B valve unit operating to open when the valve outlet pressure rises beyond the predetermined level, said pilot valve units remaining closed while the valve outlet pressure is at the predetermined level,
the respective valve elements of the main valve unit, the pilot A valve unit and the pilot B valve unit are arranged to separate instantaneously from the corresponding valve seats, respectively, by variation of the valve-outlet pressure when the same are clogged.

5,735,309
LOW PRESSURE GASEOUS FUEL PRESSURE REGULATOR FOR TURBOCHARGED GASEOUS FUEL ENGINES

Dean Albert Kariniemi, Plymouth, and Thomas Scott Patterson, Ann Arbor, both of Mich., assignors to Detroit Diesel Corporation, Detroit, Mich.

Filed Apr. 29, 1996, Ser. No. 641,164
Int. Cl.⁶ F16K *31/12*
U.S. Cl. 137—505.46 14 Claims



1 A gaseous fuel pressure regulator, comprising
a housing having a central axis running through the middle of the housing, separating the housing into first and second sides,

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and a transverse axis perpendicular to the central axis; and a gaseous fuel inlet port positioned in said first side parallel to said central axis, and a gaseous fuel outlet port positioned in said first side and parallel to said transverse axis;

a diaphragm subdividing said housing into a pressurized gaseous fuel chamber, and a reference pressure chamber; spring means within said reference pressure chamber exerting a control force on said diaphragm;

a valve element movable toward and away from said inlet port for controlling gaseous fuel flow into said pressurized gaseous fuel chamber; a lever in said gaseous fuel chamber supporting said valve element; means connecting said lever to said diaphragm, whereby movement of said diaphragm along said central axis controls the valve element; and

a baffle comprised of an arcuate wall partially surrounding said gaseous fuel inlet port and two divergent sidewalls extending from said arcuate wall away from said gaseous outlet port, said baffle including detachably mounting means comprising a mounting ear extending right angularly from each baffle sidewall; said baffle interposed between said gaseous fuel inlet port and said gaseous fuel outlet port, whereby gaseous fuel flowing through said inlet port is directed away from said outlet port.

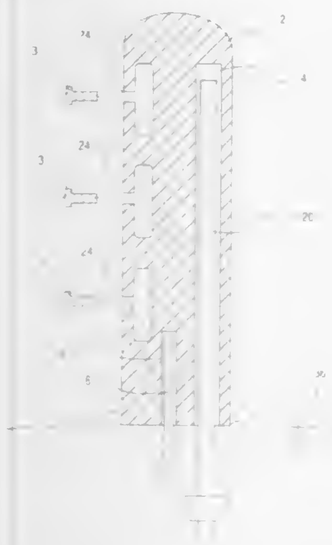
5,735,310
ADAPTABLE FENCING SYSTEM

James Ruble Hipshire, 1724 Thompson Creek Rd., Morristown, Tenn. 37813

Filed Sep. 5, 1995, Ser. No. 523,684

Int. Cl.⁶ E04H *17/22*

U.S. Cl. 256—66 **20 Claims**



1. A system of fencing requiring no digging of post-holes, said system of fencing utilizing

modularized outer posts, each said outer post being generally vertically elongated and having an outer surface and a bottom surface,

a first internal elongated cavity, said first internal cavity being contained within and formed by said outer posts, said first internal cavity penetrating said bottom surface and extending substantial the length of said outer post and oriented such that the axial length of said first cavity runs parallel with the axial length of said outer post,

a second internal elongated cavity, said second internal cavity penetrating said bottom surface and extending within said post a distance no greater than one-half the overall length of said post;

a metal inner post of the type generally readily available having an elongated shaft and a base said base for penetrating the ground, said inner post fitting within said first internal elongated cavity of said outer post for supporting said outer post, an anchor spike for penetrating firmly into the ground, said anchor spike fitting within and contained by said second internal cavity for securely retaining said outer post,

a plurality of elongated, horizontal plank for connection between adjacent outer posts, thereby forming a fence segment, each said horizontal plank having a pair or connection ends opposite one another; and

a plurality of retaining pegs, each said retaining peg for penetrating the outer surface of an outer post for providing connection means for securing said horizontal plank to said outer post.

5,735,311
PRESSURE COMPENSATION VALVE

Naoki Ishizaki, and Mitsumasa Akashi, both of Tochigi-ken, Japan, assignors to Komatsu, Ltd., Tokyo, Japan

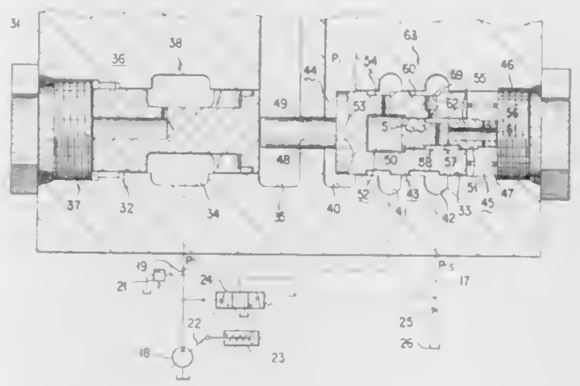
PCT No. PCT/JP95/01377, § 371 Date Dec. 20, 1996, § 102(e) Date Dec. 20, 1996, PCT Pub. No. WO96/01951, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 11, 1995, Ser. No. 750,876

Claims priority, application Japan, Jul. 12, 1994, 6-159926

Int. Cl.⁶ F15B *11/05*

U.S. Cl. 137—596 **2 Claims**



1. A pressure compensation valve, characterized in that it comprises:

a check valve portion having an inlet port that is connected to a discharge path of a hydraulic pump, an outlet port that is connected to an inlet side of a directional control valve and a valve for controlling an area of opening between both said ports; and

a pressure reduction valve portion which is comprised of a spool that defines at its both sides a first pressure chamber and a second pressure chamber, respectively, and is adapted to be slidable to to allow said valve to be thrusted in a first direction in which said area of opening is increased under a self-load pressure applied to said first pressure chamber and to be slidable to allow said valve to be thrusted in a second direction in which said area of opening is decreased under a pressure within said second pressure chamber, an internal passage that is formed inside of said spool and that is adapted to supply a discharge pressure fluid of said hydraulic pump to said second pressure chamber when said spool has been slid to assume not less than a predetermined displacement made in said first direction, a first throttle that is disposed in said internal passage, and a port for establishing a communication between a load pressure detecting path that is connected via a second throttle to a reservoir and said first throttle.

5,735,312
SANITARY WATER VALVE

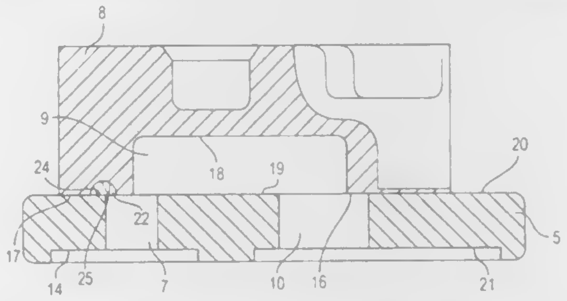
Hermann-Josef Schneider, Schweich, Germany, assignor to American Standard Inc., Piscataway, N.J.

Filed May 30, 1996, Ser. No. 655,530

Claims priority, application Germany, Jun. 16, 1995, 195 22 098. 6

Int. Cl.⁶ F16K *11/074;27/04*

U.S. Cl. 137—625.4 **5 Claims**



1. A sanitary water valve including a housing containing control elements formed from at least two discs, the first of said discs fixedly disposed and provided with inlet apertures and an outlet aperture, a first side of said first disc adapted to be coupled to water supply pipes at said inlet apertures and adapted to be coupled to a water outlet pipe at said outlet aperture, a second side of said first disc contiguous with the second of said discs, said second disc movably arranged on said first disc and having a surface duct for deflecting functions, said surface duct is able to overlap simultaneously said inlet apertures and said outlet aperture, a plurality of static seals in said housing contiguous with said inlet and outlet apertures, the improvement wherein:

said second disc has one or more depressions therein, said depressions form chambers with a surface of said second side of said first disc, whereby said chambers relieve any pressure which may be acting on said first disc.

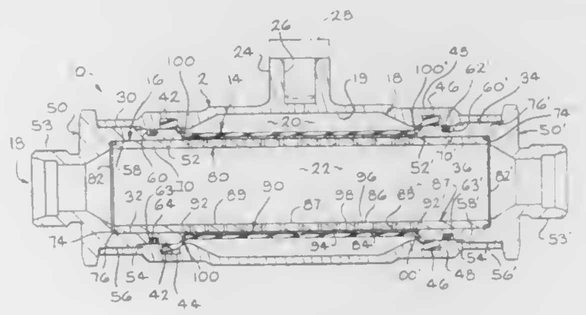
5,735,313
NOISE SUPPRESSOR

Gary M. Jenski, Jr., Jackson, and Jeffrey C. Shiery, Parma, both of Mich., assignors to Aeroquip Corporation, Maumee, Ohio

Continuation-in-part of Ser. No. 703,647, Aug. 27, 1996. This application Oct. 22, 1996, Ser. No. 735,344

Int. Cl.⁶ F16L *55/04*

U.S. Cl. 138—30 **12 Claims**



1. A noise suppressor device comprising:

a housing defining an axially extending bore through which pressurized fluid flows;

a bladder coaxially positioned in the bore;

a spool assembly coaxially positioned in the bladder, the spool assembly consisting of an inner spool layer and an outer spool layer which axially surrounds the inner spool layer, the inner spool layer having radially oriented first perforations extending therethrough, the first perforations being in communication with axially oriented fluid flow paths circumferentially extending around an outer surface of the inner spool layer, the outer spool layer having radially oriented second perforations extending therethrough; and

the first perforations extending through the inner spool layer defining a first pattern and the second perforations extending through the outer spool layer defining a second pattern, the first perforations in the inner spool layer are nonaligned from the second perforations in the outer spool layer, wherein a direct line of sight through the first perforations and second perforations is prevented and wherein the second perforations in the outer spool layer are in communication with the fluid flow paths in the inner spool layer, and wherein an unobstructed gap is defined between the inner spool layer and the outer spool layer, the gap defining a tortuous path between the first perforations in the inner spool layer and the second perforations in the outer spool layer.

5,735,314
HYDRAULIC ACCUMULATOR FOR A BRAKE SYSTEM

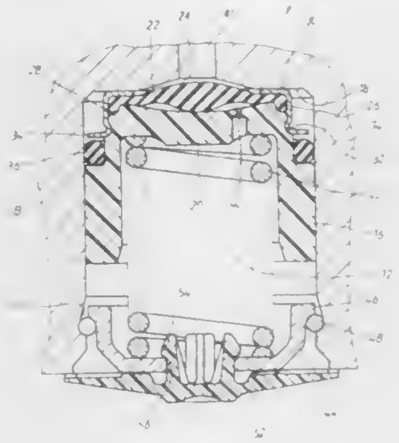
Norbert Alaze, Markgroeningen, and Wolfgang Schuller, Sachsenheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 31, 1996, Ser. No. 656,514

Claims priority, application Germany, May 31, 1995, 195 19 832.8

Int. Cl.⁶ F16L *55/04*

U.S. Cl. 138—31 **18 Claims**



1. A hydraulic accumulator for a hydraulic brake system with a traction control system for a motor vehicle, which comprises a piston having an open end and a closed end which piston is moved back and forth in a bore of a housing, a spring (42) that applies a spring force on said piston during movement within said bore of said housing, the piston (16) has a damping diaphragm (22) on said closed end which is supported against a front end face of the piston and oriented toward a brake fluid source, said damping diaphragm is elastic in at least one direction perpendicular to a plane of the diaphragm.

5,735,315
WIRE LOOM DOBBY

Arnold E. Petsche; Nasser Ghariban, and Mark A. Goodman, all of Arlington, Tex., assignors to A.E. Petsche Company, Inc., Arlington, Tex.

Filed Sep. 11, 1996, Ser. No. 712,450

Int. Cl.⁶ D03C *1/06*

U.S. Cl. 139—68 **9 Claims**

1. A dobby for use with a loom, the dobby having at least one pair of pivotally mounted fingers for movement in a cycle between upper and lower positions, each pair of fingers including a first

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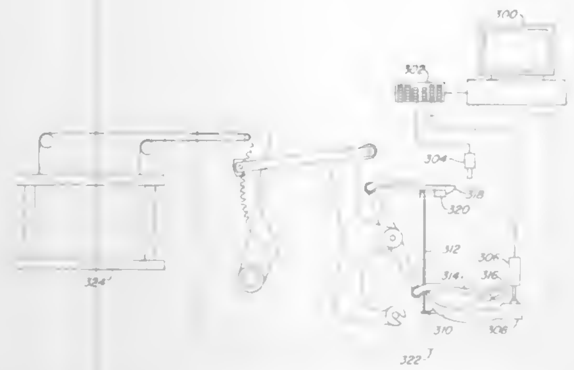

finger and a second finger, at least one pair of pivotally mounted hooks, each pair of hooks including a first hook and a second hook, with each pair of hooks connected to a single frame and each hook within the pair of hooks being connected to a finger within the pair of fingers for movement between upper and lower positions during the cycle, and a pair of knives having means for reciprocating alternately between inward and outward positions during each half of the cycle for engaging one of the hooks when one of the knives is in an inward position and one of the hooks is in a lower position to pull the hook outward to lift the frame from a lower position to an upper position, the pair of knives including a first knife and a second knife, the dobby comprising:

- actuator means connected to both of the fingers in the pair of fingers for moving the pair of fingers in unison between the upper and lower positions,
- control means for controlling the movement of the actuator during each half of the cycle; and wherein
- the actuator means and the control means have during one mode of operation means for placing the pair of fingers in the upper position during both halves of the cycle, thereby placing the pair of hooks in the upper position during both halves of the cycle, causing the frame to remain in the lower position during both halves of the cycle.

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AIR WEAVING LOOM INCLUDING A LEADING END WEFT STRETCHER AND METHOD FOR INSERTING A WEFT THREAD INTO A WEFT INSERTION CHANNEL OF THE LOOM

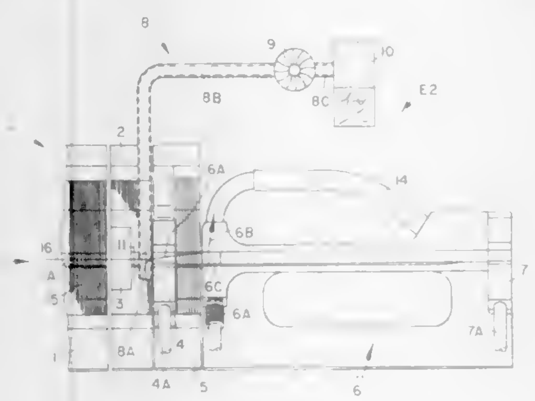
Josef Hehle, Hoerbranz, Austria, assignor to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

Filed Dec. 9, 1996, Ser. No. 761,852

Claims priority, application Germany, Dec. 8, 1995, 195 45 839.7

Int. Cl.⁶ D03D *47/30*

U.S. Cl. 139—194 7 Claims



1. A method for inserting a weft thread into a weft insertion channel (1A) having an entrance (E1) and an exit (E2) in a reed (1) of an air nozzle weaving loom (L), comprising the following steps:

- (a) blowing a weft thread (16) into and through said weft insertion channel (1A) from said entrance (E1) to said exit (E2),
- (b) stretching said weft thread on its way through said weft insertion channel,
- (c) monitoring the arrival of said weft thread with a weft stop motion device (4),
- (d) activating a suction device (8, 8A, 9) positioned upstream of said weft stop motion device (4) as viewed in the weft insertion direction, in response to a signal from said weft stop motion device (4),
- (e) simultaneously deactivating said stretching of said weft thread in response to said signal from said weft stop motion device (4),
- (f) seizing a leading end (16A) of said weft thread (16) by said suction device (8A),
- (g) cutting off said leading weft thread end (16A), and
- (h) transporting away a cut-off leading weft thread end (16A) by said suction device (8, 8A, 9), whereby auxiliary warp threads and a catch selvage are avoided.

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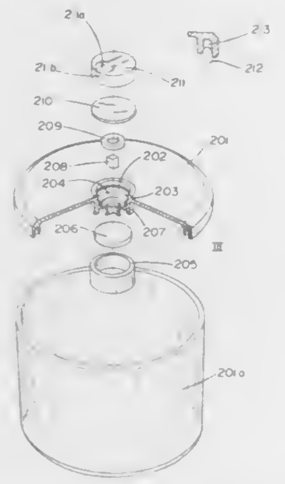
SEALED CONTAINER AND SUCTION PUMP UNIT

Mao Sheng Wu, Taipei, Taiwan, assignor to Enrichwell Enterprise Co., Ltd., Taipei, Taiwan

Filed Oct. 18, 1996, Ser. No. 734,034

Int. Cl.⁶ B65B *31/04*

U.S. Cl. 141—65 5 Claims



1. A sealed container and suction pump unit comprising a sealed container and a suction pump adapted for drawing air out of said sealed container, said sealed container comprises a top-open container body having a top rim, and a container cover fastened to the top rim of said container body to seal said container body, wherein said container cover comprises a center air hole at the center, a tubular downward flange perpendicularly raised from the inside around said center air hole, a carrier flange suspended inside said tubular downward flange, a plurality of equiangularly spaced partition ribs raised around said tubular downward flange on the outside, a cup mounted on said tubular downward flange and covered around said partition ribs, an air filter element mounted within said cup and stopped between said tubular downward flange and said cup, a magnet mounted on said, carrier flange within said tubular downward flange, a press member mounted in said center air hole, a seal ring mounted on said carrier flange within said tubular downward flange around said magnet, an air passage disposed in communication between said center air hole and the inside of said container body, a metal pressure plate mounted in said center air hole and supported on said seal ring below said press member and attracted by said magnet to close said air passage, a downward mounting groove disposed around the border and adapted for coupling to the top rim of said container body, and a packing strip mounted in said downward mounting groove for

sealing the gap between said cover and said container body said press member comprising a horizontal springy flap at the center, and a vertical press lever extended from one end of said horizontal springy flap at right angles and pressed on a border area of said metal pressure plate and forced by said springy flap to tilt said metal pressure plate, causing it to open said air passage

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AUTOMATIC METHOD AND DEVICE FOR FILLING INSULATING GLAZING UNITS

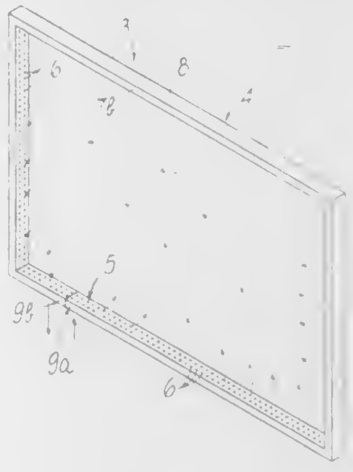
Fortunato Vianello, Vallio Di Roncade, Italy, assignor to For.El. Base di Vianello Fortunato & C. S.n.c., Vallio di Roncade, Italy

Filed Oct. 19, 1995, Ser. No. 545,275

Claims priority, application Italy, Oct. 28, 1994, TV94A0125

Int. Cl.⁶ B65B *1/09;1/16;3/08;3/10*

U.S. Cl. 141—67 23 Claims



1. An automatic device for filling, with gases other than air, insulating glazing units constituted by two glass plates between which a spacer frame is interposed, said spacer frame being constituted by a hollow profile enclosing an inner region, said profile being sealed on lateral edges thereof to said glass plates so as to form an inner space, said device comprising,

- a station for conveying said two glass plates after coupling thereof to said spacer frame,
- at least one nozzle connectable to said spacer frame;
- an insert for joining and closing said spacer frame, said inner region of said hollow profile forming thus a manifold, said insert comprising at least two holes and a dividing wall interposed between said holes, said holes being located on a side of said insert that lies outside said inner space of said glazing unit for providing access from outside to said manifold,
- a coupling means for coupling said at least one nozzle to said holes for selectively injecting gas in, and expelling air from said inner space, said holes being further sealable automatically upon ending of the filling.

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DISPERSING APPARATUS AND METHOD

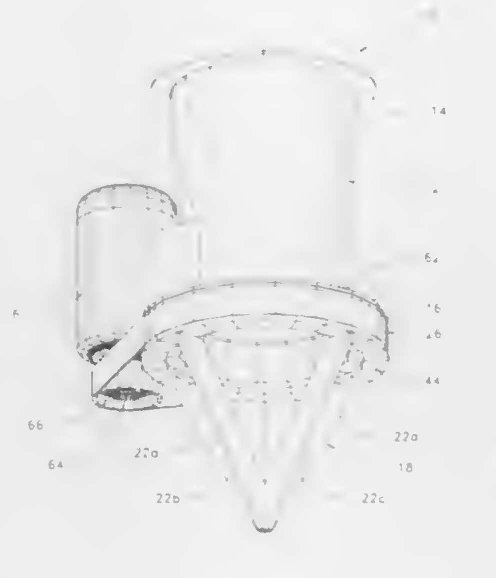
John O. McNamara, 398 Amanda Dr., Savannah, Ga. 31406, and John Patrick McNamara, 1963 Banyon Tree Rd., Collinsville, Ill. 62234

Filed Oct. 3, 1995, Ser. No. 538,700

Int. Cl.⁶ B65B *1/04*

U.S. Cl. 141—286 9 Claims

1. A dispersing apparatus for uniformly dispersing a stream of particulate material pieces into a storage area from a supply outlet



in order to achieve efficient and compact accumulation of the material pieces in the area, the dispersing apparatus is configured to be disposed substantially adjacent said supply outlet and comprising a single converging spout and an impeller operatively connected to the spout, via a bearing housing, including a plurality of impeller blades disposed remote from said spout for rotating through said stream for transversely engaging and thereby propelling said material pieces outwardly from said supply outlet and toward said area, wherein the impeller is driven by a motor disposed adjacent said spout and a belt connecting said motor to said bearing housing and wherein the spout is arranged such that it provides a passage for said particulate material pieces with no obstruction by objects so as to allow said material to be delivered unfettered to the impellers and storage area

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5,735,320

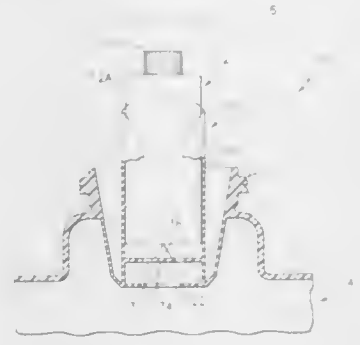
DISPENSER FOR A TWO-PART COMPOSITION

Michael P. Tune, Cordova, Tenn., and W. Lance H. Hemsarth, Ringwood, N.J., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Aug. 21, 1996, Ser. No. 700,809

Int. Cl.⁶ B65D *81/00*

U.S. Cl. 141—330 6 Claims



1. A dispenser for separately storing and facilitating the mixture of separate components of a two-part composition, said dispenser including:

- a first container having a chamber for retaining one of said components,
- a second container having a chamber for retaining the other of said components and for mixing said components together to form said composition,
- a receptacle sleeve mounted on said second container and adapted to secure the two containers together during periods

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of storage and transportation, said receptacle sleeve includes a base having an aperture passing therethrough and an upwardly extending piercing element positioned adjacent to said aperture; and,

said first container has an upper portion and a lower portion, said upper portion having an opening communicating with said chamber and a penetrable seal covering said opening during periods of storage and transportation;

wherein said first container is adapted to be secured within said receptacle sleeve with said lower portion in contact with said piercing element and,

upon removal and inversion of its orientation, is further adapted to be reinserted into said receptacle sleeve to dispense the contents of the first container into said chamber of the second container to permit mixture of the components while protecting the user from direct contact with the unmixed components; and

wherein said dispenser further includes a detachable measuring cap for enclosing said first container during periods of storage and transportation

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5,735,321

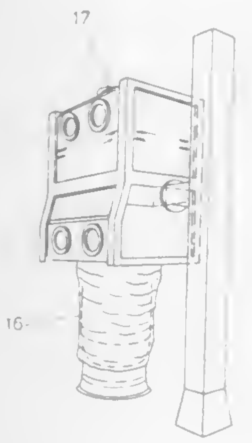
ISOLATOR SYSTEM

Ryder Martyn, Rastrick, and Neil Graham Cocker, Flockton, both of Great Britain, assignors to Extract Technology Ltd., Huddersfield, England

Filed Jul. 20, 1995, Ser. No. 504,851

Int. Cl.^{6} B65B *1/04*

U.S. Cl. 141—383 **10 Claims**



1 An isolator system comprising

a first container having a removable lid positioned at a lidded end of the container;

an isolator having a first sealable aperture to allow sealing attachment to the first container;

a second sealable aperture to allow sealing attachment to a second container;

access means to allow protected access to the inside of the isolator;

an impervious bag open at one end, the first container being positionable within the bag, and the open end of the bag sealingly connectable with the first aperture of the isolator thus sealingly attaching the first container to the isolator.

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END PIECE AND NOZZLE RECEPTOR FOR A FILL PIPE OF A VEHICULAR FUEL TANK

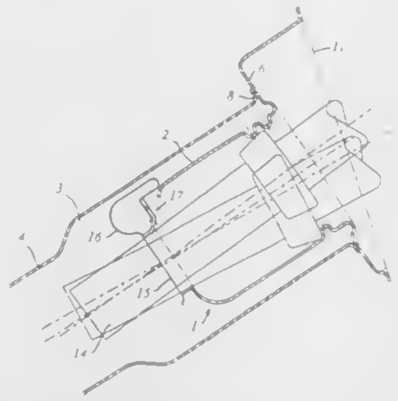
Sandor Palvölgyi, Gleisdorf, Austria, assignor to Blau International GesmbH, Preding, Austria

Filed Jul. 29, 1996, Ser. No. 681,892

Claims priority, application Austria, Aug. 1, 1995, 1313/95

Int. Cl.^{6} B65B *1/04*

U.S. Cl. 141—386 **20 Claims**



1 End piece and nozzle receptor for a fill pipe (4) to a fuel tank of a motor vehicle, comprising

a single, unitary element (1) of electrically conductive sheet metal having a tubular portion (2) and being formed with a sealing flange (6) at one end thereof, which flange is adapted for electrically conductive, tight, sealed, weldable, brazeable or solderable connection with an end portion of the fill pipe (4) and defines a metal-to-metal connecting ring surface (7) for welding, brazing or soldering said element (1) to the end portion (8) of the fill pipe (4);

fuel cap engagement means (5), optionally a thread, for selective, removable engagement of a fuel cap with said end piece and nozzle receptor (1), located at an inner surface of the tubular portion in the vicinity of the sealing flange;

a circumferential apron (9) unitarily formed on the sealing flange (6) and extending generally axially from the sealing flange (6),

at least one laterally extending attachment projection (10) extending from said apron, for engagement with a chassis or body (11) of the motor vehicle;

said tubular portion (2) having a constricted opening (13) at an end remote from the sealing flange (6) for reception of a fuel nozzle (14) to fill fuel into the tank;

a valve flap (15) to selectively close the tubular portion (2), located adjacent said constricted opening (13) on the tubular portion (2); and

attachment means (17) for said valve flap (15) formed on said tubular portion (2) adjacent said constricted opening (13).

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TREE CUTTER DEVICE

Brady Lee Maloch, Darlington Chain Saw, 1623 S. Main St., Darlington, S.C. 29532

Filed Sep. 3, 1996, Ser. No. 707,014

Int. Cl.^{6} A01G *23/08*

U.S. Cl. 144—34.1 **24 Claims**

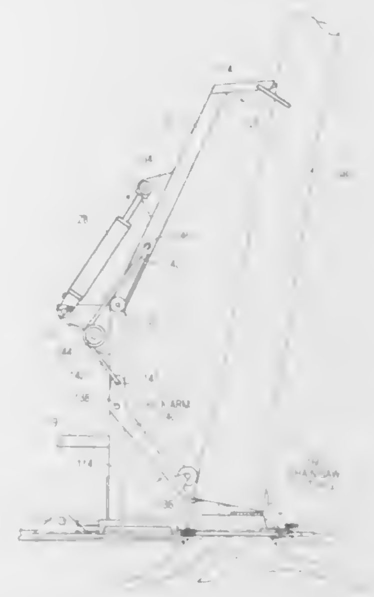
1 A tree cutting device comprising:

a frame,

connecting device on said frame to attach said frame to a transport means,

gripping means mounted on said frame actuated when said frame is proximate to with in contact with said tree to contact and to grip at least a surface of said tree;

a first boom extending upwardly from said frame;



a second boom pivotably mounted to a an upper portion of said first boom and extending in an obtuse angle to said first boom in a direction toward said gripping means,

means at an upper end of said second boom to contact at least a surface of said tree adjacent said second boom; and

a cutting device mounted on said frame and adapted to move toward and away from said tree

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5,735,324

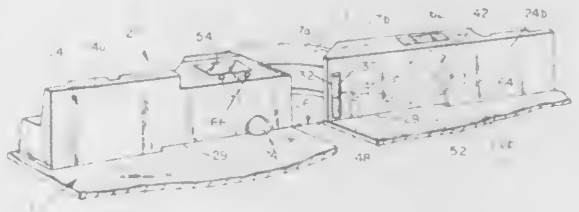
MITER BOX WITH ELECTRONIC MEASURING OF LUMBER

Felix C. Ponce, 6725 Bovey Ave., Reseda, Calif. 91335

Filed Mar. 1, 1996, Ser. No. 609,714

Int. Cl.^{6} B27G *5/00*

U.S. Cl. 144—216 **13 Claims**



1 Apparatus including a miter box, frame and trim saw, and radial saw in combination with instrumentation for measuring linear movement of lumber therein, comprising

an apparatus guide having a base, a back, an aperture dividing said base and said back into first and second portions for placing an apparatus saw blade therebetween, and a connection securing said base and said back portions together, said guide permitting linear movement of the lumber relative to said aperture to enable cutting of the lumber by the saw blade, and

a measuring device mounted in said guide and having an element contactable with the lumber, thereby to measure linear movement of the lumber on said guide

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TREE FEEDING DEVICE OF A TREE HANDLING MACHINE

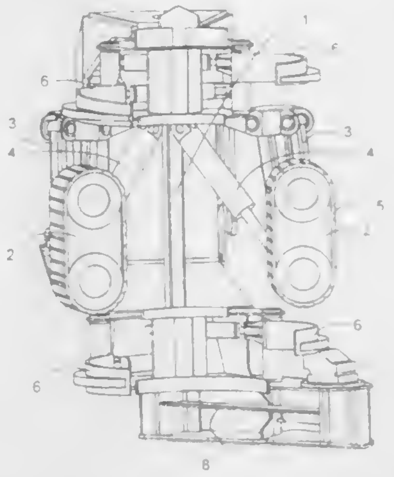
Arto Timperi, Tampere; Mauri Marttila, Valkkinen, and Harri Niemi, Tampere, all of Finland, assignors to Plustech Oy, Tampere, Finland

Filed Jul. 16, 1996, Ser. No. 686,926

Claims priority, application Finland, Jul. 17, 1995, 953449; Feb. 21, 1996, 960778

Int. Cl.^{6} B27B *31/00*; B27C *1/12*; A01G *23/08*

U.S. Cl. 144—250.17 **12 Claims**



1 A tree feeding device of a tree handling machine having a saw for cross cutting a tree trunk, a conveying unit for moving the tree trunk, an actuator for positioning the conveying unit, and delimbing blades for delimbing the tree trunk, the conveying unit comprising at least one rotatable body with a peripheral, substantially rigid surface extending around an axis of rotation and in the direction of the axis of rotation, and a continuous contact member of elastic material adapted to be supported on the peripheral surface and to transmit a force acting between the rotatable body and the tree trunk for moving the tree trunk, said force being transmitted directly between the peripheral surface and the continuous contact member, and the continuous contact member being in direct contact with the peripheral surface and capable of moving freely in relation thereto in a manner determined by a load placed on the elastic material by said force

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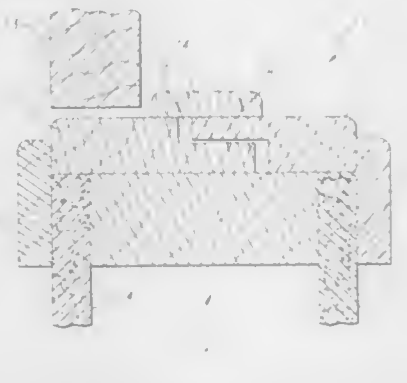
SPLIT JAMB FOR A DOOR FRAME OPENING AND METHOD OF MAKING A SPLIT JAMB

Marc A. Seidner, 234 Conway Ave., Los Angeles, Calif. 90024

Filed Mar. 18, 1997, Ser. No. 819,752

Int. Cl.^{7} B27D *1/00*

U.S. Cl. 144—350 **11 Claims**



1 A method of making a base for a split jamb for a door frame opening, with the base having a groove for receiving the tongue of a slide of a split jamb, including the steps of

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providing an elongate panel,

making a plurality of parallel cuts in the panel, with the cuts not cutting through the panel,

said cuts including a plurality of pairs of slots, with the slots of a pair spaced from each other leaving panel material between the slots of each pair;

adhering a stop strip over each pair of slots covering the slots of the pair; and

gang sawing the panel into jamb base strips by cutting between the slots of each pair of slots to remove the panel material between the slots providing individual jamb base strips.

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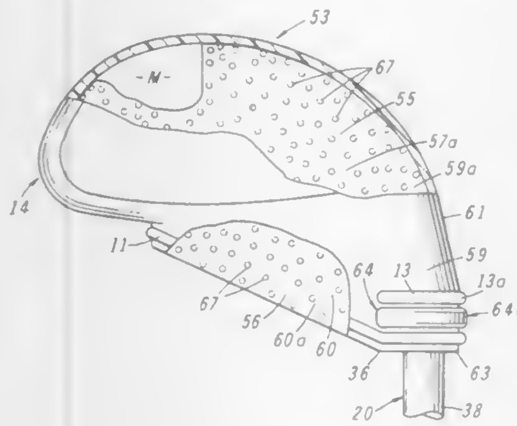
ENLARGED IRON COVER WITH TEXTURED INNER SURFACE

Gary Aldcroft, Long Beach, and David Hoyt, Culver City, both of Calif., assignors to Principle Plastics, Inc., Gardena, Calif.

Continuation-in-part of Ser. No. 434,517, May 4, 1995, Pat. No. 5,611,379. This application Sep. 19, 1995, Ser. No. 530,065

Int. Cl.⁶ A63B *57/00;* B65D *65/08*

U.S. Cl. 150—160 **15 Claims**



1. A head cover for an iron golf club which has a head connected to a shaft by a hosel member, said head cover including:

(a) an enlarged cover section which fits over the head of irons of different sizes, said cover section having an interior surface and including an internal cavity, an enlarged open mouth through which the head passes upon placing the cover section over said head, and a protector section having openings therein and an interior surface which covers, at least partially, the hosel member when the head is received within the cavity, said interior surface of said cover section being of a rough texture to facilitate entry of the head of the iron golf club; and

(b) means defining a clip connected to said protector section near the open mouth thereof said means defining a clip comprises a clip having legs extending through said openings in said protector section which expand with the shaft of the iron golf club being pushed into the cavity and retract to hold the shaft when the head is received within the cavity

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WINDOW SHADE SYSTEM WITH MULTIPLE, SEQUENTIALLY CONNECTED WINDOW SHADING ELEMENTS

LaVerne W. Salhoff, P.O. Box 85505, and Gregory D. Salhoff, P.O. Box 5505, both of Las Vegas, Nev. 89185-0505

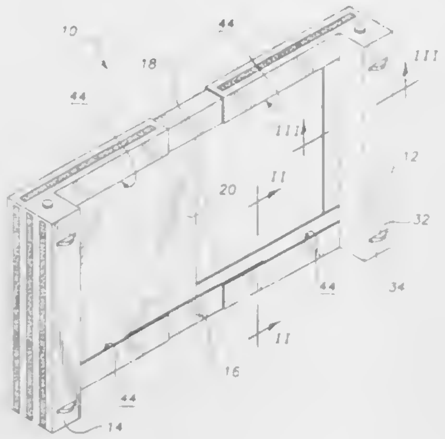
Filed Oct. 17, 1996, Ser. No. 731,646

Int. Cl.⁶ A47H *1/00*

U.S. Cl. 160—25 **7 Claims**

1. A window shade system comprising

a flexible shading member having multiple, sequentially connected shading elements, at least one of said shading elements having a tint factor of between five and fifty percent inclusive, at least one of said shading elements having a tint factor between fifty-one and ninety-five percent inclusive; and



first and second reel assemblies, each reel assembly being attachable to a structure adjacent a window, said first reel assembly having a first rotatable reel shaft secured to a first end of said shading member, said second reel assembly having a second rotatable reel shaft secured to a second end of said shading member, said first and second reel assemblies working in a complimentary fashion such that when one reel assembly is rotating in a take off direction said other reel assembly is rotating in a take-up direction;

said first reel assembly being positioned within a first reel compartment formed within a first reel housing;

said second reel assembly being positioned within a second reel compartment formed within a second reel housing;

said first reel housing including a first pair of spaced trackways that extend from said first reel housing adjacent to a first opening formed through an outer wall of said first reel housing and in connection with said first reel compartment formed therein, said first pair of spaced trackways each having a guide channel formed therein for receiving and guiding an edge section of said shading member into and out of said first opening;

said second reel housing including a second pair of spaced trackways that extend from said second reel housing adjacent to a second opening formed through an outer wall of said second reel housing and in connection with said second reel compartment formed therein, said second pair of spaced trackways each having a guide channel formed therein for receiving and guiding an edge section of said shading member into and out of said second opening;

said first pair of spaced trackways being connectable to said second pair of spaced trackways, said window shade system further including:

first and second adjustment segments that are each connectable between a trackway of said first reel housings and a trackway of said second reel housing.

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CONNECTOR FOR PULL CORDS

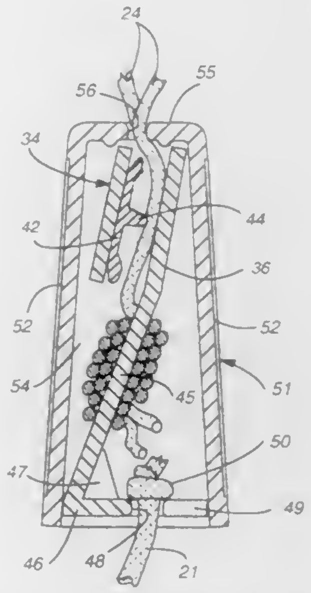
Terry L. Akins, Louisville, and Joseph E. Kovach, Thornton, both of Colo., assignors to Hunter Douglas Inc., Upper Saddle River, N.J.

Continuation of Ser. No. 469,455, Jun. 6, 1995, abandoned. This application Jan. 22, 1997, Ser. No. 787,085

Int. Cl.⁶ E06B *9/30*

U.S. Cl. 160—178.1 R **4 Claims**

1. A connector, pull cord and manipulating cord combination, said connector being adapted for connecting two or more pull cords, said connector comprising a wedge cleat including a cleat body and a moveable slide to releasably connect said pull cords to said connector, a block member integral with said cleat body around which said pull cord can be wound, a tassel plate integral with said cleat body, a releasable manipulating cord mounted on said tassel plate, and a cover positioned over the cleat body



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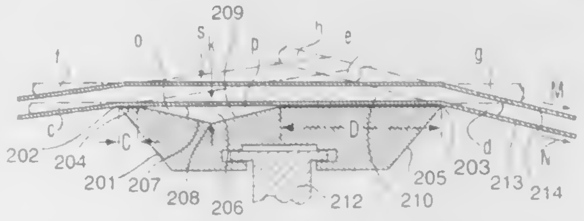
FORMATION IN A TWO FABRIC PAPER MACHINE

Werner Buchmann, Baie d'Urfe, Canada; Michael McMahon, Peachtree, Ga., and Richard Pitt, Almonte, Canada, assignors to JWI Ltd., Kanata, Canada

Continuation-in-part of Ser. No. 226,321, Apr. 12, 1994, abandoned. This application Jun. 11, 1996, Ser. No. 661,871

Int. Cl.⁶ D21F *1/00*

U.S. Cl. 162—301 **16 Claims**



1. A forming section, for use in a two-fabric paper making machine having a machine direction and a cross machine direction, including in combination:

(i) a first and a second endless moving forming fabric loop, both loops moving in a joint run at a known speed and under a known tension through the forming section, and between which fabrics a layer of stock of known thickness is conveyed;

(ii) at least one formation blade extending in the cross machine direction in contact with the first fabric such that under the machine direction tension both fabrics with stock therebetween wrap about the at least one blade so that each fabric has a total angle of wrap that is equal to or greater than 0.5° while the first fabric is in hydraulically sealing contact with the formation blade;

(iii) both first and second fabrics wrapping about the downstream edge of the at least one blade with an angle of wrap that is equal to or greater than 0.5°;

(iv) the at least one formation blade having a top face, a bottom, a leading edge and a trailing edge,

(v) the top face of the at least one blade having upstream and downstream fabric contact surfaces in contact with the first fabric with a cavity intervening therebetween, and

(vi) the intervening cavity including upstream and downstream walls each diverging from the upstream and downstream fabric contacting surfaces, and having both a Z direction depth measured from the machine side of the first fabric to the lowest point in the cavity, and a machine direction width, wherein

a) the upstream cavity wall diverges from the upstream fabric contact surface in a down stream direction at an angle which is from about 0.5° to about 8°,

b) the downstream cavity wall diverges from the downstream fabric contact surface in an upstream direction at an angle which is from about 0.5° to about 8°, and

c) the cavity depth and width are each sized in proportion to the thickness of the stock layer above the blade upstream surface so as to withdraw fluid from the stock between the forming fabrics by a foiling action, and to return the withdrawn fluid back into the stock as a smooth flow, the amount of fluid flow being effective to improve formation, but ineffective to break the hydraulic seal between the fabric and the formation blade

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5,735,331

METHOD AND APPARATUS FOR REGULATING THE TEMPERATURE IN A CHEMICAL MELT DISSOLVING TANK

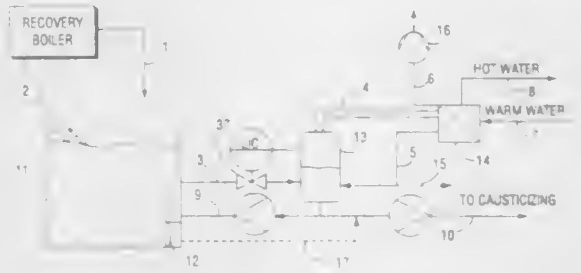
Holger Engdahl, and Jouni Jäntti, both of Savonlinna, Finland, assignors to Ahlstrom Machinery Corporation, Helsinki, Finland

Filed Sep. 27, 1996, Ser. No. 722,782

Claims priority, application Finland, Sep. 29, 1995, 954665

Int. Cl.⁶ D21C *11/02*

U.S. Cl. 162—30.1 **20 Claims**



1. A method of regulating the temperature in a dissolving tank for a chemical melt produced by combustion of spent liquor in a cellulose pulp mill, said method comprising the steps of:

(a) dissolving the melt in liquid in the dissolving tank to produce green liquor;

(b) expanding at least part of green liquor produced in the dissolving tank to cool the green liquor; and

(c) returning at least a significant portion of the cooled, expanded, green liquor to the dissolving tank to regulate the temperature in the dissolving tank

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5,735,332

METHOD FOR MAKING A CERAMIC METAL COMPOSITE

Marcus A. Ritland, Golden, and Dennis W. Readey, Lakewood, both of Colo., assignors to Coors Ceramics Company, Golden, Colo.

Continuation of Ser. No. 403,786, Jun. 9, 1995, abandoned, which is a continuation-in-part of Ser. No. 946,972, Sep. 17, 1992, abandoned, and Ser. No. 947,427, Sep. 18, 1992, abandoned. This application Feb. 3, 1997, Ser. No. 789,075

The portion of the term of this patent subsequent to May 6, 2014, has been disclaimed.

Int. Cl.⁶ B22D *19/00*

U.S. Cl. 164—98 **22 Claims**

1. A method for making a ceramic-metal composite, comprising the steps of:

(a) forming a green body comprising a ceramic powder,

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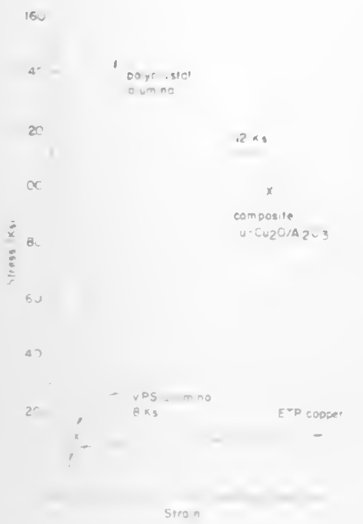

(b) sintering said green body until a sintered ceramic having a predetermined average pore size is obtained, and

(c) infiltrating said ceramic with a molten metal, wherein said molten metal comprises oxygen, such that capillary action of the sintered ceramic pulls said molten metal into said sintered ceramic such that substantially all of the volume percent porosity is filled with the molten metal

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5,735,333

LOW-MELTING-POINT METAL MATERIAL INJECTION MOLDING METHOD, AND MACHINE FOR PRACTICING THE METHOD

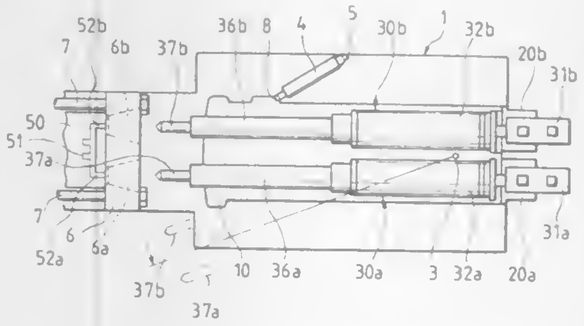
Ayato Nagawa, Hiroshima, Japan, assignor to The Japan Steel Works, Ltd., Tokyo, Japan

Filed May 29, 1996, Ser. No. 654,870

Claims priority, application Japan, May 29, 1995, 7-152789

Int. Cl.^{6} B22D *17/10; 17/20*

U.S. Cl. 164—113 **7 Claims**



1 A method of injection-molding a low melting-point metal material comprising the steps of:

melting a solid low-melting-point metal material in each cylinder barrel of a pair of injecting units by using heat which is externally applied thereto, and frictional heat and shearing heat which are produced when a screw in each of said cylinder barrels is rotated, said pair of injecting units communicating with a single mold cavity via sprues;

measuring said molten solid low-melting point metal in each of said pair of said injecting units up to a predetermined quantity;

driving said screw of each of said cylinder barrels in an axial direction to inject said low melting point metal material into said cavity.

5,735,334

CASTING OF LIGHT METAL ALLOYS

Thomas Leonard Sutton, Preston; John Campbell, Worcester; Michael Joseph Flynn, Poswick, and Gary McBain, Cleveleys, all of United Kingdom, assignors to Alloy Technologies Limited, England

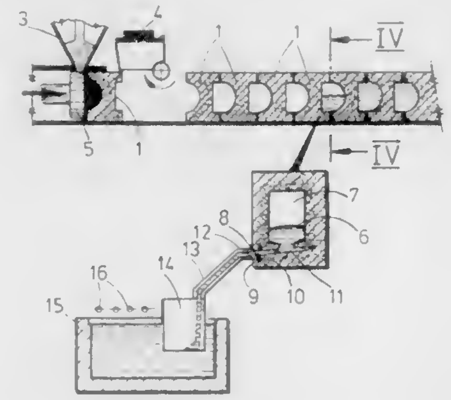
PCT No. PCT/GB92/02268, § 371 Date Mar. 21, 1995, § 102(e) Date Mar. 21, 1995, PCT Pub. No. WO93/11892, PCT Pub. Date Jun. 24, 1993

PCT Filed Dec. 7, 1992, Ser. No. 244,352

Claims priority, application United Kingdom, Dec. 7, 1991, 9126046; Jul. 28, 1992, 9216069

Int. Cl.^{6} B22C *11/10, 47/02*

U.S. Cl. 164—130 **20 Claims**



1 A method of casting light alloy metal products, comprising the steps of

introducing molten light alloy metal into a series of continuously produced contiguous sand moulds, each sand mould having a vertical parting line, an inlet and a cavity, by bottom filling the mould inlets and cavities sequentially in a manner permitting control of flow velocity and pressure, and

advancing the moulds in unison after each introducing step and before complete solidification of the metal introduced into a mould inlet in that introducing step.

8 A casting apparatus comprising

means for producing a series of contiguous sand moulds, each sand mould having a vertical parting line, a cavity and an inlet;

means for bottom filling the mould inlets and cavities sequentially with molten metal in a manner permitting control of flow velocity and pressure; and

means for advancing the moulds in unison after each filling operation and before complete solidification of the metal introduced into a mould inlet in that operation.

5,735,335

INVESTMENT CASTING MOLDS AND CORES

James Randall Gilmore, Ligonier, and Lawrence J. Rhoades, Pittsburgh, both of Pa., assignors to Extrude Hone Corporation, Irwin, Pa.

Filed Jul. 11, 1995, Ser. No. 501,511

Int. Cl.^{6} B22C *9/00;* **B22D** *31/00*

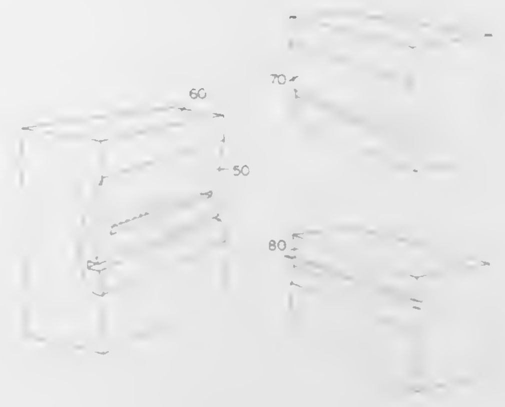
U.S. Cl. 164—516 **20 Claims**

1 A method of investment casting a complex three dimensioned shape with a ceramic mold comprising the steps of:

A Forming a ceramic mold of a sintered ceramic;

B Shaping at least a selected three dimensioned shaped part of said sintered ceramic mold by ultrasonic machining working of the surface of said sintered ceramic mold;

C Pouring molten metal into said mold.



D. Cooling said molten metal to a solid casting, and

E Removing said mold from said casting.

5,735,336

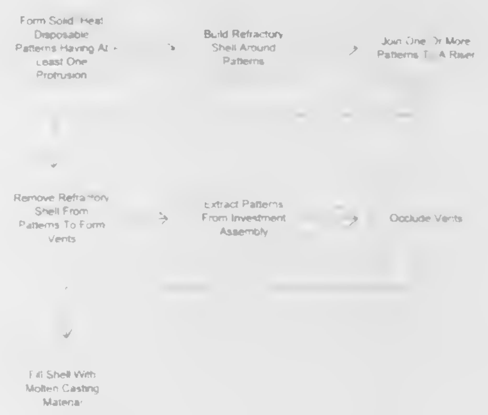
INVESTMENT CASTING METHOD UTILIZING POLYMERIC CASTING PATTERNS

James A. Oti, Franklin, Mass., assignor to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Aug. 11, 1995, Ser. No. 514,502

Int. Cl.^{6} B22C *9/04*

U.S. Cl. 164—516 **22 Claims**


Form Solid Heat Disposable Patterns Having At Least One Protrusion
Build Refractory Shell Around Patterns
Join One Or More Patterns To A Riser
Remove Refractory Shell From Patterns To Form Vents
Extract Patterns From Investment Assembly
Occlude Vents
Fill Shell With Molten Casting Material

1 An investment casting process, comprising the steps of

forming one or more solid, heat disposable patterns of an article to be cast, the patterns being formed from a polymer selected from the group consisting of a moldable thermoplastic and a photocurable polymer, the patterns each including at least one protrusion on each pattern, wherein the protrusions cause the patterns to deviate from the shape of the article to be cast;

building a shell around the patterns by applying thereto one or more coatings of a refractory material to form, upon drying, an investment assembly;

removing the refractory material from the protrusions formed on the patterns to create one or more vents in the investment assembly at a position corresponding to the location of a mold cavity;

rapidly extracting the patterns from within the investment assembly through a flash firing technique by subjecting the investment assembly to an elevated temperature to yield a shell having one or more mold cavities, wherein each mold cavity represents a negative of the article to be cast and each cavity has at least one vent;

occluding the vents present within the mold cavities; and

filling the shell with a molten casting material such that the molten casting material fills the mold cavities within the shell to form, upon cooling, cast articles.

5,735,337

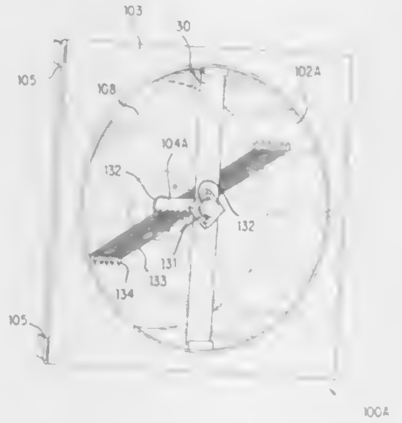
CLEANING DEVICE INTERNALLY MOUNTED WITHIN A TUBULAR FILTER

John W. Edwards, Arcadia, Fla., assignor to Advanced Contracting & Hedging, Inc., Alva, Fla.

Continuation-in-part of Ser. No. 34,806, Mar. 19, 1993, abandoned. This application Mar. 1, 1994, Ser. No. 203,299

Int. Cl.^{6} B01D *46/04;* **A47L** *5/14*

U.S. Cl. 165—41 **16 Claims**



1 A tubular cleaning device for cleaning a vehicle engine radiator during operation of said vehicle engine radiator, said cleaning device comprising:

a tubular filter mounted adjacent said radiator, said filter having an inside surface and an outside surface,

a plurality of holes extending through said filter,

at least one air nozzle disposed inside said filter and fixed to a corresponding at least one hollow nozzle shaft, said nozzle shaft extending radially away from a hollow rotatable support shaft centrally disposed inside said filter, said support shaft being connected to a source of pressurized air, and

means for rotating said support shaft, wherein upon actuation of said pressurized air source, said air nozzle directs pressurized air toward said inside surface of said filter while said rotating means rotates said support shaft and thereby said nozzle shaft and said air nozzle, and wherein said means for rotating said support shaft and said pressurized air source operate simultaneously with said vehicle engine radiator during said operation of said vehicle engine radiator, wherein said air nozzle is disposed at an angle relative to said nozzle shaft such that pressurized air exiting said air nozzle causes said support shaft, nozzle shaft and air nozzle to rotate

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5,735,338

CONTROL DEVICE FOR A VEHICLE AIR-CONDITIONING SYSTEM

Tristan Chevroulet, Norwich, Great Britain, and Jian A. Piccolo, La Chaux-de-Fonds, Switzerland, assignors to SMH Management Services AG, Biel, Switzerland

Filed Feb. 16, 1995, Ser. No. 389,418

Claims priority, application France, Feb. 22, 1994, 94 01981

Int. Cl.^{6} F25B *29/00*

U.S. Cl. 165—42 **10 Claims**

1 An air-conditioning system control device for conditioning air supplied to a passenger space of a vehicle, said device comprising

a fan having an outlet;

a first conduit connected to the outlet of the fan, said first conduit containing at least one heat releasing component and having an outlet at its downstream extent in the direction of air flow;

an opening in said first conduit downstream in the direction of air flow from said at least one heat releasing component, said opening communicating with the exterior of both said device and said passenger space;

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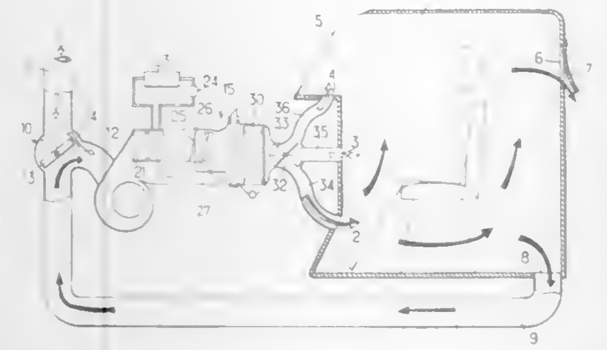


a first valve in said first conduit for selectively directing air flow out of said opening while blocking air flow to said passenger space, or blocking air flow through said opening while permitting air flow to said passenger space;

a second conduit connected in parallel with said first conduit to the outlet of said fan, said second conduit having an outlet at its downstream extent in the direction of air flow and a second valve for at least partially blocking air flow through said second conduit;

a common distributer disposed downstream of the outlets of the first and second conduits for selectively directing air from the outlets of the first and second conduits toward an upper part and a lower part of said passenger space,

said fan, said at least one heat releasing component, the first and second conduits, the first and second valves and said common distributer being grouped together in a single apparatus which may be installed and removed in a single piece

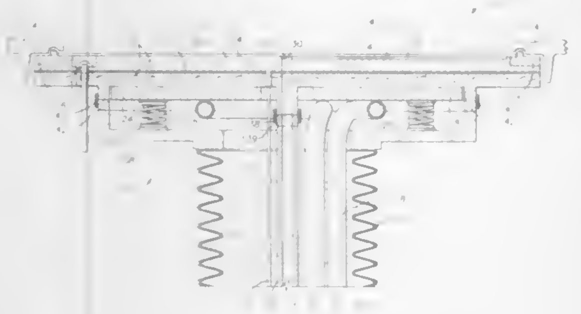
5,735,339
SEMICONDUCTOR PROCESSING APPARATUS FOR PROMOTING HEAT TRANSFER BETWEEN ISOLATED VOLUMES

Robert E. Davenport, San Jose, and Avi Tepman, Cupertino, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 73,029, Jun. 7, 1993, Pat. No. 5,511,799. This application Dec. 5, 1995, Ser. No. 567,625

Int. Cl.^{6} B25B *11/00;* **F28F** *7/00*

U.S. Cl. 165—80.1 **13 Claims**



1 Apparatus for promoting heat transfer comprising

a chamber defining a chamber volume containing a chamber atmosphere;

an expandable volume containing a heat transfer medium; and

sealing means, located between the expandable volume and the chamber volume, for isolating the heat transfer medium from the chamber atmosphere

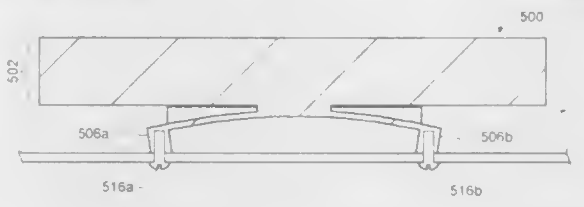
5,735,340
HEAT SINK WITH INTEGRAL ATTACHMENT MECHANISM

Ali Mira, San Jose, Calif., and Mark August, deceased, late of Los Gatos, Calif., by Tamara August, legal representative, assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed May 15, 1996, Ser. No. 649,769

Int. Cl.^{6} H05K *7/20;* **H01L** *23/40*

U.S. Cl. 165—80.3 **4 Claims**



1. A heat sink having an integral attachment mechanism, said heat sink comprising:

a thermally conductive unit adapted to thermally contact a heat generating device mounted on a substrate; and

a flexible connector integral with said thermally conductive unit, said flexible connector adapted to couple said thermally conductive unit to said substrate such that said thermally conductive unit thermally contacts said heat generating device, said flexible connector further comprising:

a plurality of posts extending outwardly from said thermally conductive unit, each of said plurality of posts having a side surface and a bottom surface, said bottom surface adapted to be disposed adjacent to the surface of said substrate on which said heat generating device is mounted, said bottom surface of each of said plurality of posts beveled such that said bottom surface of each of said plurality of posts is disposed substantially parallel to said substrate when said plurality of posts are bent.

5,735,341
PRIMARY DIVIDER PLATE

Harold G. McClellan, Cambridge, and William G. Schneider, Branchton, both of Canada, assignors to The Babcock & Wilcox Company, New Orleans, La.

Continuation of Ser. No. 509,906, Aug. 1, 1995, Pat. No. 5,623,763. This application Nov. 15, 1996, Ser. No. 749,590

Int. Cl.^{6} F28F *7/00, 5/22*

U.S. Cl. 165—81 **9 Claims**

1 A primary divider plate for a steam generator, comprising

a curved plate constructed to extend across a cavity within a primary head of the steam generator, said curved plate having a rim around its periphery, said rim having a groove positioned therein and being constructed to engage sealing means within the steam generator, said curved plate including corner sealing means for minimizing leakage in the primary head of the steam generator, said corner sealing means including an upper seal bar, a middle seal bar, and a lower seal bar at each side of each tubesheet seat bar ear in the region of the upper corners of the primary divider plate

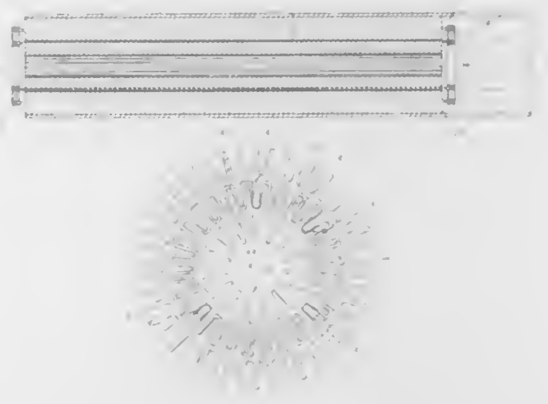
5,735,342
HEAT EXCHANGER

Minoru Nitta, 2207 Laurel Way, Upland, Calif. 91784

Filed May 17, 1996, Ser. No. 649,467

Int. Cl.^{6} F28D *7/10*

U.S. Cl. 165—122 **13 Claims**



1 A heat exchanger comprising

a first pipe having a longitudinal axis, first radially outward fins extending parallel to the longitudinal axis and first radially inward fins extending parallel to the longitudinal axis;

a second pipe positioned in the first pipe along the longitudinal axis, and having second radially outward fins extending parallel to the longitudinal axis and second radially inward fins extending parallel to the longitudinal axis, the first radially inward fins and the second radially outward fins being interdigitated,

first and second end caps extending between the first and second pipes at the ends thereof, respectively;

radial dividers extending between the first pipe and the second pipe and parallel to the longitudinal axis

6 A heat exchanger comprising

a first pipe having a longitudinal axis, first radially outward fins extending parallel to the longitudinal axis and first radially inward fins extending parallel to the longitudinal axis,

a second pipe positioned in the first pipe along the longitudinal axis, and having second radially outward fins extending parallel to the longitudinal axis and second radially inward fins extending parallel to the longitudinal axis, the first radially inward fins and the second radially outward fins being interdigitated,

first and second end caps extending between the first and second pipes at the ends thereof, respectively, the first and second end caps each having a hole inwardly of the circular channels aligned with the inside of the second pipe, the second pipe, the first end cap and the second end cap defining a central passage open at both ends, the second radially inward fins extending into the central passage.

5,735,343
REFRIGERANT EVAPORATOR

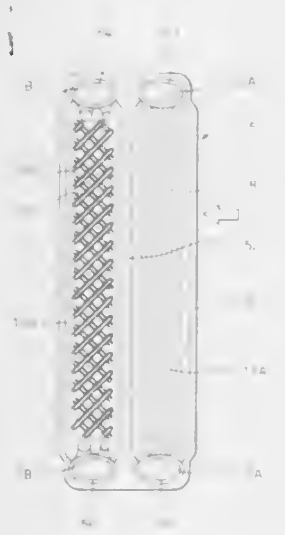
Yoshiharu Kajikawa, Hekinan; Masahiro Shimoya, and Eiichi Torigoe, both of Kariya, all of Japan, assignors to Denso Corporation, Kariya, Japan

Filed Dec. 17, 1996, Ser. No. 767,951

Claims priority, application Japan, Dec. 20, 1995, 7-332093

Int. Cl.^{6} F28D *1/03*

U.S. Cl. 165—153 **7 Claims**



1 A refrigerant evaporator for evaporating refrigerant by heat exchanging with outside air flowing therethrough in an air flow direction, comprising:

means for forming a refrigerant passage by an inner wall thereof said refrigerant passage including an upstream refrigerant passage, into which said refrigerant flows, disposed at a downstream side in said air flow direction, and a downstream refrigerant passage, from which said refrigerant is discharged, disposed at an upstream side in said air flow direction and connected to said upstream refrigerant passage;

refrigerant agitating means for agitating said refrigerant therethrough, said refrigerant agitating means being formed throughout said upstream refrigerant passage by projecting inwardly a part of said wall forming said upstream refrigerant passage; and

heat transmitting area increasing means for increasing a heat transmitting area, said heat transmitting means being separately formed from said inner wall and thermally connected to a surface throughout said inner wall forming said downstream refrigerant passage

5,735,344
TUBING HANGER WITH HYDRAULICALLY ENERGIZED METAL ANNULAR SEAL WITH NEW DESIGN TUBING HANGER RUNNING TOOL

Neil S. Duncan, Fife, Scotland, assignor to FMC Corporation, Chicago, Ill.

Filed May 28, 1996, Ser. No. 654,501

Int. Cl.^{6} E21B *33/04*

U.S. Cl. 166—75.14 **6 Claims**

1 A tubing hanger locatable in a wellhead and comprising

an exterior surface including a reduced diameter portion,

an annular seal located on the reduced diameter portion and including two sealing portions,

a seal actuating device associated with the seal and movable relatively to the seal and the exterior surface to urge one sealing portion into engagement with the exterior surface and the other sealing portion into engagement with a surface of the wellhead to form a seal between the tubing hanger and the wellhead,

wherein the seal comprises an annular base and a pair of radially spaced annular flanges projecting from the base in a generally

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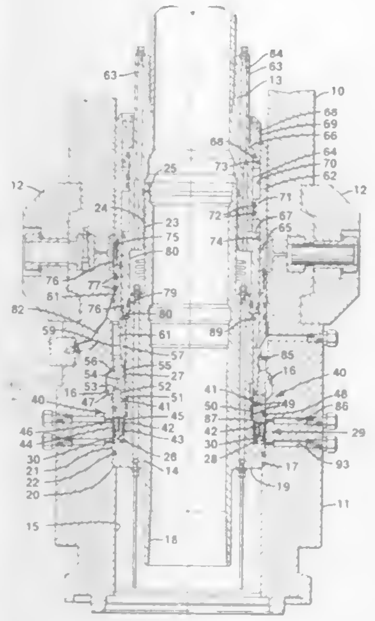


axial direction. each flange forming a respective sealing portion. the seal actuating device being insertable between said flanges to urge said sealing portions into said respective engagements;

wherein the seal actuating device includes an annular piston movable axially relative to the exterior surface and in sealing engagement therewith. the piston also being in sealing engagement with the wellhead so that fluid pressure applied to a radially extending annular surface of the piston causes axial movement of the seal actuating device to engage said sealing portions; and

further comprising a running tool connected to said tubing hanger. said running tool having an annular seal for engagement with the wellhead at a position axially spaced from said piston to define. with the tubing hanger and the wellhead. a chamber which can be pressurized to move said piston.

5,735,345

SHEAR-OUT LANDING ADAPTER

Richard M. Dobson; Jefferey D. Herndon, and Leo D. Hudson, all of Bakersfield, Calif., assignors to Bestline Liner Systems, Inc., Bakersfield, Calif.

Filed May 2, 1996, Ser. No. 641,836

Int. Cl.^{6} E21B *23/02*

U.S. Cl. 166—208 **19 Claims**

1 A landing adapter for a well casing. comprising

a landing fixture attachable to the well casing and including a landing ring extending inwardly to define a hole axially therethrough. the landing ring having an upward shoulder and a downward shoulder;

an adapter body fitting within the landing ring and including a first outwardly facing cavity and a second outwardly facing cavity.

an actuator positioned in the first outwardly facing cavity. the actuator including a body fitting within the hole. an engagement shoulder extending outwardly from the body to engage the upward shoulder of the landing ring and an extention fitting within the hole and extending from the body. the body being smaller axially of the hole than the first outwardly facing cavity;

a shear element positioned in the second outwardly facing cavity and having a first position extending outwardly of the adapter body to outwardly of the downward shoulder with the adapter body in the landing ring and a second position not extending outwardly of the adapter body. the extention being selectively engagable with the shear element with the shear element in the second postion.

5,735,346

FLUID LEVEL SENSING FOR ARTIFICIAL LIFT CONTROL SYSTEMS

James Robert Brewer, Gaylord, Mich., assignor to ITT Fluid Technology Corporation, Midlantic Park, N.J.

Filed Apr. 29, 1996, Ser. No. 639,564

Int. Cl.^{6} G21B *47/00*

U.S. Cl. 166—250.03 **28 Claims**

1 A system for determining a liquid level of a column of liquid contained in a well for controlling an artificial lift system for said well based on said liquid level of said column of liquid. comprising.

introduction means for introducing a gas adjacent to a bottom of said column of liquid. said gas being introduced at a predetermined rate of flow so as to exhibit a predetermined negligible mount of pressure resistance due to frictional liquid flow and sufficient to overcome a pressure exerted by said column of liquid adjacent to a bottom of said well·

sensing means fluidly coupled to said introduction means, for sensing a pressure at which said gas overcomes said pressure exerted by said column of liquid adjacent the bottom of said well. said column of liquid exhibiting a predetermined pressure gradient which depends upon the liquid level of said column of liquid: and.

processing means responsive to said sensing means. for determining the liquid level of said column of liquid from said pressure exerted by said column of liquid and said predetermined pressure gradient.

5,735,347

Patent Not Issued For This Number

5,735,348

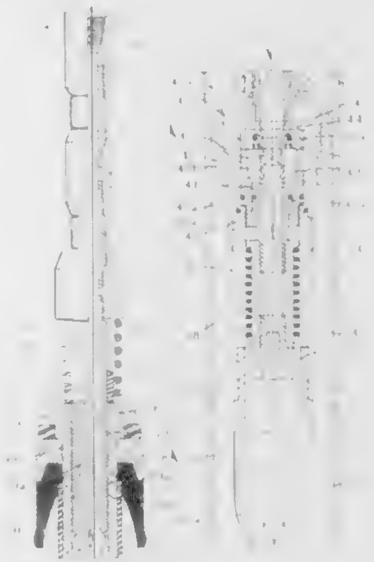
METHOD AND MULTI-PURPOSE APPARATUS FOR DISPENSING AND CIRCULATING FLUID IN WELLBORE CASING

Samuel P. Hawkins, III, Mineral Wells, Tex., assignor to Frank's International, Inc., Houston, Tex.

Filed Oct. 4, 1996, Ser. No. 726,112

Int. Cl.^{6} E21B *33/05*

U.S. Cl. 166—285 **43 Claims**



1. A fill-up and circulating tool for inserting into the upper end of a casing string to fill fluid into and to circulate fluid from inside the casing into a wellbore for use on top drive and rotary type drilling rigs, the fill-up and circulating tool comprising

a mandrel having a central axial bore defining a flowpath therethrough. said mandrel having an inlet. an outlet. an outer surface and a plurality of apertures near said outlet;

a sliding sleeve having an outer surface. said sliding sleeve in slidable engagement with and disposed about the outer surface of said mandrel for covering said mandrel apertures;

a top sub assembly connected to the inlet of said mandrel for connecting the mandrel to the rig and extending the length thereon;

a packer cup fixedly connected to said sliding sleeve for sealing engagement with the inside diameter of the casing; and

a lower body having an outlet. said lower body connected to the outlet of said mandrel for limiting the travel of the sliding sleeve

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5,735,349

COMPOSITIONS AND METHODS FOR MODIFYING THE PERMEABILITY OF SUBTERRANEAN FORMATIONS

Jeffrey C. Dawson, Spring; Hoang Le, Houston, and Subramanian Kesavan, The Woodlands, all of Tex., assignors to BJ Services Company, Tomball, Tex.

Filed Aug. 16, 1996, Ser. No. 689,969

Int. Cl.^{6} E21B *33/138*

U.S. Cl. 166—295 **10 Claims**

1. A method for modifying the permeability of a subterranean formation, comprising the steps of:

mixing a vinylamide monomer of the formula

$$CH_2{=}C(R){-}C(O)N(R')_2$$

where R represents hydrogen. methyl. ethyl. or propyl moiety and R' represents hydrogen, methyl. ethyl or propyl moiety

a monomer containing ammonium or quaternary ammonium moieties; and

a crosslinking monomer;

to form a dispersion of water swellable crosslinked polymer particles. wherein said water swellable crosslinked polymer particles are of a size smaller in diameter than the pores of the subterranean formation:

adding an inverting surfactant to said dispersion of water swellable crosslinked polymer particles.

adding said dispersion of water swellable crosslinked polymer particles to a carrier fluid to form a treatment fluid. and

injecting said treatment fluid into at least a portion of said subterranean formation.

5,735,350

METHODS AND SYSTEMS FOR SUBTERRANEAN MULTILATERAL WELL DRILLING AND COMPLETION

James R. Longbottom, Magnolia; Don C. Cox, Roanoke; John C. Gano, Carrollton; William R. Welch, Carrollton; Pat M. White, Carrollton, all of Tex.; Richard Charles Jacquier, Aberdeen, United Kingdom; Tommie Austin Freeman, Flower Mound, Tex.; Harold Wayne Nivens, Runaway Bay, Tex.; Paul David Holbrook, Lewisville, Tex., and David H. Mills, Aberdeen, Scotland, assignors to Halliburton Energy Services, Inc., Dallas, Tex.

Continuation of Ser. No. 296,941, Aug. 26, 1994, Pat. No. 5,564,503. This application Oct. 15, 1996, Ser. No. 731,464

Int. Cl.^{6} F21B *43/14*

U.S. Cl. 166—313 **98 Claims**

1 A method for creating a multilateral well. comprising the steps of

setting a diverter at a prescribed position and prescribed orientation in a main well flow conductor located in a main wellbore;

creating a window through a sidewall of the main well flow conductor and drilling into the material surrounding the main well flow conductor. thereby creating a lateral wellbore

lining the lateral wellbore with a liner. a portion of the liner extending into the main well flow conductor. and.

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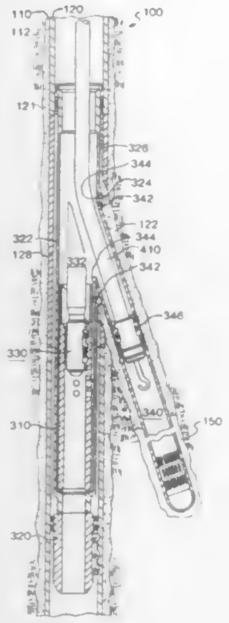


cementing the liner in place within the lateral wellbore, the step of cementing creating a pressure-bearing seal between the window and the liner.

5,735,351

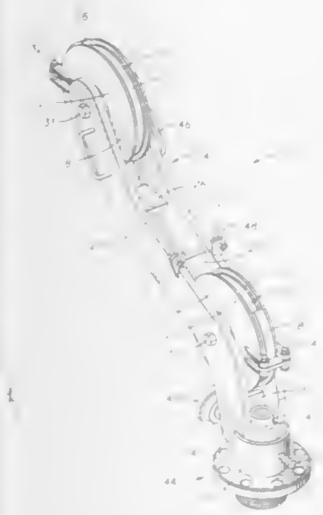
TOP ENTRY APPARATUS AND METHOD FOR A DRILLING ASSEMBLY

Charles M. Helms, 1202 Castlewood, Friendswood, Tex. 77546

Filed Mar. 27, 1995, Ser. No. 410,894

Int. Cl.⁶ E21B *43/00*

U.S. Cl. 166—384 55 Claims



1. An elongate-member guide for use between a lifting means for longitudinal movement of a drill string and a top-drive for rotational movement of a drill string, said elongate-member guide including a first bending means and a second bending means.

5,735,352

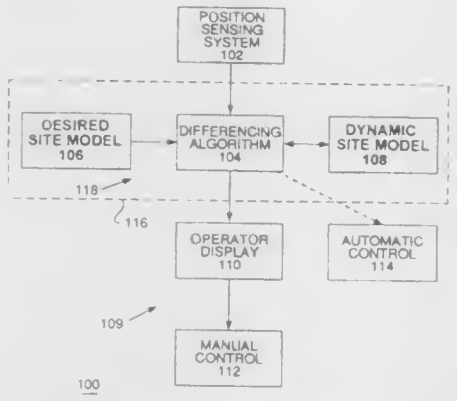
METHOD FOR UPDATING A SITE DATABASE USING A TRIANGULAR IRREGULAR NETWORK

Daniel E. Henderson, Washington; Craig L. Koehrsen, Peoria; David A. Paul, Peoria, and William C. Sahm, Peoria, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Dec. 17, 1996, Ser. No. 768,150

Int. Cl.⁶ G05B *19/18;* F21B *21/06*

U.S. Cl. 172—4.5 6 Claims



1. A method for updating a site database, the site database modeling an elevation of a work site using a Triangular Irregular Network (TIN), the TIN being composed of a plurality of points, each point having associated known X and Y coordinates and a known elevation and being associated with a set of other points in the TIN to form triangles, including the steps of:

receiving a new set of points, the new set of points including at least first and second points, the first and second points having associated X, Y, and Z coordinates;

comparing said new set of points with a previous set of points; and

updating the Triangular Irregular Network with the new set of points if a minimum distance has been traversed by a work machine.

5,735,353

SERVO-PLIERS

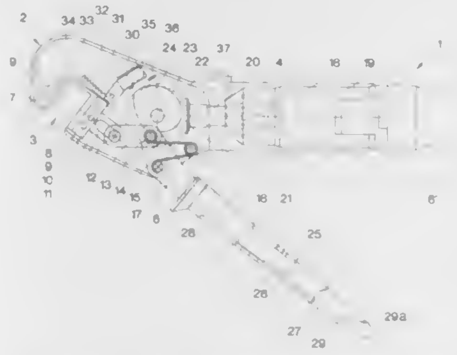
Hans Undin, Osterskar, Sweden, assignor to Weidmuller Interface GmbH & Co., Detmold, Germany

Filed Apr. 28, 1995, Ser. No. 430,863

Claims priority, application Germany, Apr. 28, 1994, 44 14 967.0

Int. Cl.⁶ B25B *7/00;* B23D *29/02*

U.S. Cl. 173—11 17 Claims



1. Pliers comprising a housing, a handle, a switch on the handle, a pliers mouth, a drive device and a motor, the handle being pivotably mounted on the pliers housing, the pliers mouth accommodating processing elements and the drive device, the drive device being operated by pivoting the handle, the drive device driving the processing elements, the motor being in the pliers housing and exerting a further driving force on the processing elements in addition to the drive device, the motor exerting the further driving force during pivoting of the handle, operation of the switch activating the motor, said switch being operated by a gripping force such that the switch is open until a predetermined gripping force is exerted on the switch whereupon the switch is closed and the motor is actuated.

5,735,354

PULSE IMPACT MECHANISM, IN PARTICULAR FOR PULSE SCREWING DEVICE

Hôrst Weidner, Gaildorf; Robert Klenk, Grosserlach; Wolfgang Backe, and Egbert Schneider, both of Aachen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

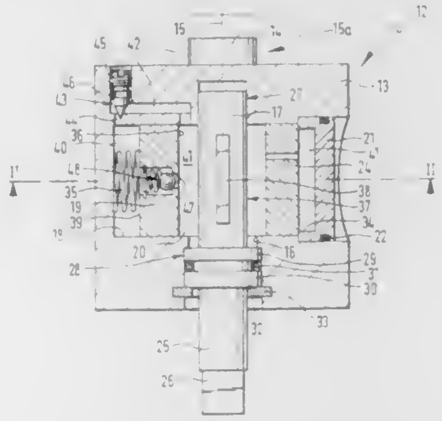
PCT No. PCT/DE94/01484, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/17281, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 14, 1994, Ser. No. 666,547

Claims priority, application Germany, Dec. 21, 1993, 43 43 582.3

Int. Cl.⁶ B25B *21/02*

U.S. Cl. 173—93.5 10 Claims



1. A pulse impact mechanism, in particular for pulse screwing device comprising a rotation element (**13**, **113**), rotatable about a rotation axis (**15**, **115**) of the pulse impact mechanism (**12**, **112**), that has an axially extending central receiving opening (**16**, **116**); and a core part (**17**, **117**), leading to a side, that is arranged rotatably relative to the rotation element (**13**, **113**) inside the receiving opening (**16**, **116**), the rotation element (**13**, **113**) has at least one radial bore (**18**, **118**), extending perpendicular to the rotation axis (**15**, **115**), in which at least one reciprocating piston (**19**, **119***a*, **119***b*) is received in radially displaceable fashion, the at least one said reciprocating piston (**18**, **119***a*, **119***b*) is received in radially displaceable fashion, the at least one said reciprocating piston (**19**, **119***a*, **119***b*) having a working surface (**39**, **139**) at an end and control means (**36**, **136**) located in a region of the core part (**17**, **117**), the control means (**36**, **136**) cooperating with at least one circumferential control track (**37**, **137**), connected to the core part (**17**, **117**), the at least one control track (**37**, **137**) has in the circumferential direction of the core part (**17**, **117**) an alternating radial spacing from the rotation axis (**15**, **115**) to generate a radial displacement of the reciprocating piston (**19**, **119***a*, **119***b*) so that pressure can be applied via the working surface (**39**, **139**) to a pressure medium located in a pressure chamber (**40**, **140**).

5,735,355

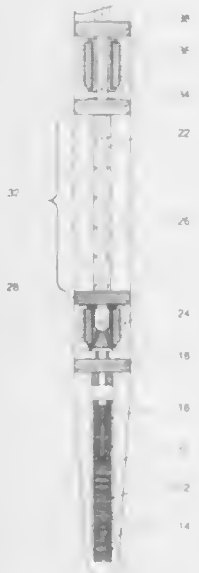
ROCK MELTING TOOL WITH ANNEALER SECTION

Gilles Y. Bussod, Santa Fe, N. Mex.; Aaron J. Dick, Oakland, Calif., and George E. Cort, Montrose, Colo., assignors to The Regents of the University of California, Los Alamos, N. Mex.

Filed Aug. 21, 1996, Ser. No. 700,954

Int. Cl.⁶ E21B *7/14* E21C *37/16*

U.S. Cl. 175—11 7 Claims



1. A rock melting penetrator having a melting tip for heating a surrounding geological structure to a molten state comprising

a cooling section for cooling said molten geological structure to a viscous state at a glass transition temperature for said molten geological structure; and

an annealing section for cooling said molten geological structure through an annealing temperature range below said glass transition temperature at a cooling rate effective to relax thermal strains in said molten geological structure as said molten state of said geological structure about said rock melting penetrator cools to form a glass lining

5,735,356

WELL BORING METHOD AND APPARATUS

Victor Boulard, 2862 Rue Valleyview Box 39, Blezard Valley, Ontario, Canada, P0M 1E0

Filed Jun. 6, 1996, Ser. No. 656,957

Int. Cl.⁶ E21B *7/18 21/00*

U.S. Cl. 175—21 15 Claims

1. A method of removing soil from a well, comprising

lowering empty reservoir means to the bottom of the well inside a well liner,

jetting fluid into the liner into contact with soil at the bottom of the well thereby creating a slurry wave with the soil inside the liner rising to overflow into the reservoir means.

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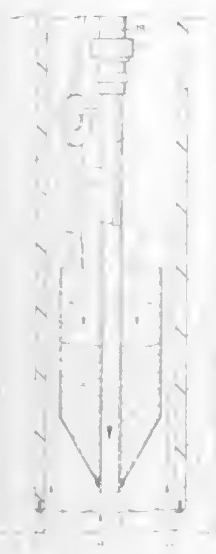


removing the reservoir means from the well after at least a portion of soil from the slurry wave has settled therein; and sinking the liner further into the well.

5,735,357

APPARATUS FOR AND METHOD OF DIRECTIONAL DRILLING

Carl R. Palm, Kemah, Tex., assignor to Radius Metier, Inc., Houston, Tex.

Filed May 10, 1996, Ser. No. 644,428

Int. Cl.^{6} E21B *7/08*

U.S. Cl. 175—61 **7 Claims**

3. A method of actuating a rotator to rotate a steering tool an incremental distance relative to a supporting pipe string comprising the steps of increasing the pressure in the drilling fluid to move a torque tube downward to allow drilling fluid to flow through the torque tube to the mud motor and to move an inclined cam arm to a position generally perpendicular to the longitudinal axis of the rotation to force the torque tube and the mud motor to rotate an incremental distance

5,735,358

INDEXING PERCUSSIVE DRILLING BIT

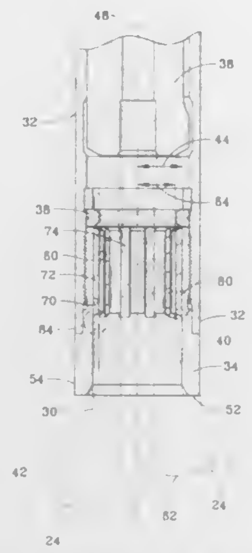
Leland H. Lyon, Roanoke, Va., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jun. 6, 1996, Ser. No. 660,630

Int. Cl. E21B *10/36*

U.S. Cl. 175—96 **5 Claims**

1. A chuck and drill bit combination for insertion into a front end of a casing member of a percussive, down the hole drill for selectively engaging and disengaging said chuck and drill bit during drilling operations comprising



(a) a chuck adapted for insertion into said casing member:

(b) a drill bit adapted for insertion into said chuck,

(c) means for retaining said drill bit within said chuck while permitting said bit to move axially between a first and second stop position,

(d) said bit and chuck each having splines and grooves adapted to overlap and engage each other in said first stop position and further adapted to disengage from each other in said second stop position, whereby said bit is restrained from rotational movement but capable of axial movement in said first stop position and capable of both axial and rotational movement in said second stop position;

(e) said bit having a head with an outer periphery containing a plurality of abrasion resistant gage buttons for maintaining maximum borehole diameter;

(f) said chuck and bit combination further comprising:

(g) said chuck having an inner circumferential surface forming a plurality of alternately spaced, axially extending chuck splines and grooves;

(h) said bit having a shank with an outer surface forming a plurality of alternately spaced, axially extending bit splines and grooves, said bit splines and grooves and chuck splines and grooves adapted to overlap and engage each other in said first stop position and further adapted to disengage from each other in said second stop position; and

(i) said bit head having an outer periphery containing a plurality of drilling gage buttons, said gage buttons being angularly positioned around a drill centerline with respect to said bit grooves and splines whereby, in said first stop position, at least one gage button is axially aligned with each bit spline.

5,735,359

WELLBORE CUTTING TOOL

Mark H. Lee, Spring, Tex., and Robert S. Beeman, Bossier City, La., assignors to Weatherford/Lamb, Inc., Houston, Tex.

Filed Jun. 10, 1996, Ser. No. 660,813

Int. Cl.^{6} E21B *10/26*

U.S. Cl. 175—269 **19 Claims**

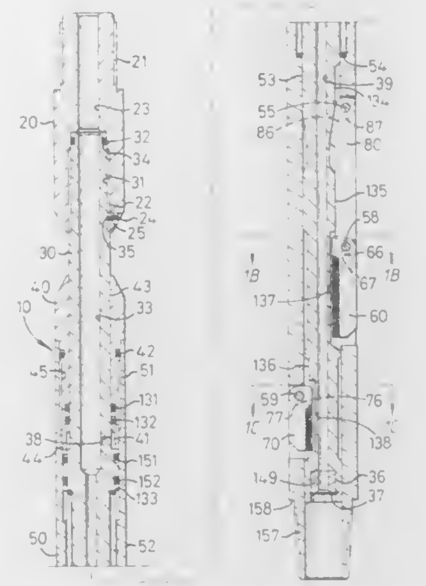
1. A cutting tool for use in a wellbore, the tool comprising

an inner mandrel connectible to a tubular string extending from a surface of the wellbore down to a subterranean location in the wellbore,

an outer body disposed about the inner mandrel and movable with respect thereto,

at least one first blade pivotably mounted to the outer body at a first height on the outer body,

at least one second blade pivotably mounted to the outer body at a second height on the outer body, the second height above the first height, and the at least one second blade having a support notch,



the at least one first blade and the at least one second blade movable from a first position against the outer body to a second position extending out from the outer body when the outer body moves upwardly with respect to the inner mandrel

a support arm corresponding to each of the at least one second blade, the support arm pivotably connected to the outer body and movable outwardly by contacting the inner mandrel as the outer body moves upwardly with respect to the inner mandrel, and

the support arm movable so that a portion thereof moves into the support notch of the at least one second blade and is releasably held therein.

5,735,360

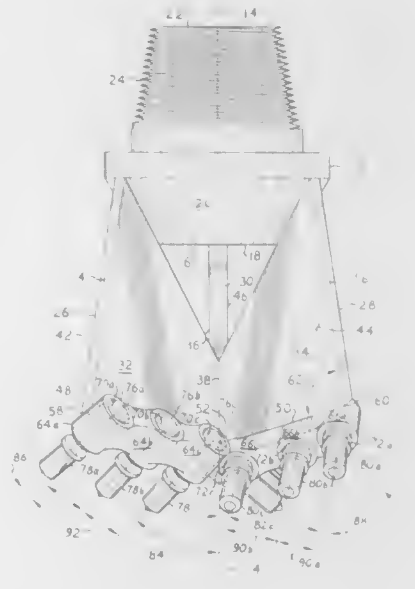
MINING BIT

Robert W. Engstrom, 2209 Foxhill Ave., Gillette, Wyo. 82718

Filed Nov. 12, 1996, Ser. No. 746,464

Int. Cl.^{6} E21B *10/42*

U.S. Cl. 175—391 **20 Claims**



1. A rotary mining bit, comprising:

a hollow central body having a central axis and a single large diameter axial passage therethrough, with said central body further having a forward truncated conical working end portion and an opposite rearward attachment end portion adapted for the removable attachment of said bit to a cooperating drill stem;

a plurality of flat, planar wings extending radially from said central body and evenly spaced therearound, with each of said wings being parallel to and coplanar with said central axis of said body and having a forward face in the direction of rotation of said rotary mining bit,

each of said wings including a forward portion disposed forwardly of said working end of said central body, with said forward portion of each of said wings extending inwardly to said central axis of said central body and being affixed to each other said forward portion of said wings at a wing juncture along said central axis of said body,

each of said wings further having a leading edge, with each said leading edge and said wing juncture defining a bit apex, and.

each said leading edge including a plurality of spaced apart cutting tooth sockets affixed therealong, with each of said sockets having a cutting tooth removably affixed therein and coaxial therewith.

5,735,361

DUAL-POLE PERSONAL TOWING VEHICLE

Kenneth R. Forrest, 28030 National Hills, Los Altos Hills, Calif. 94022

Filed Dec. 5, 1995, Ser. No. 567,459

Int. Cl.^{6} B62D *51/04*, **B62M** *27/02*

U.S. Cl. 180—6.24 **21 Claims**

1. A personal towing vehicle for towing a user comprising

a chassis;

a first drag pole and a second drag pole, each with a ski pole like grip, each drag pole having a grip end and being coupled to the chassis through a corresponding universal joint, each drag pole being freely movable at the grip end in at least lateral directions in a plane normal to a travel direction without impacting steering, and the grip comprising means for steering the vehicle without restricting lateral hand and torso movement of the user;

at least three ground contact points, including at least one means mounted to said chassis for driving said vehicle and at least one support element mounted to said chassis for balance and stable support of said chassis; and means mounted to said chassis and coupled to said driving means for powering said chassis and pulling said user solely by manipulation of each freely-moveable drag pole

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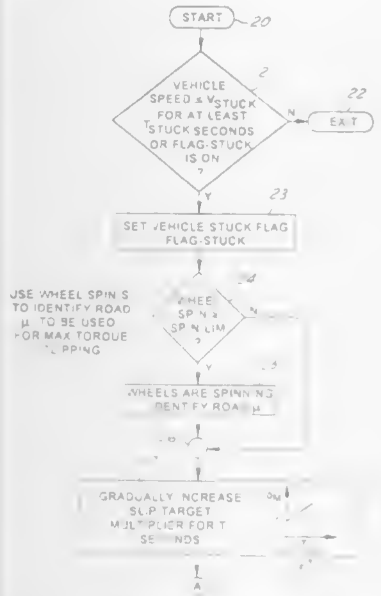
5,735,362
TRACTION CONTROL FOR MOVING A VEHICLE FROM DEEP SNOW

Davorin D. Hrovat; Minh N. Tran, both of Dearborn, and John L. Yester, Bloomfield, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Mar. 5, 1996, Ser. No. 610,918

Int. Cl.^{6} B60K *15/00*

U.S. Cl. 180—197 **2 Claims**


START
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VEHICLE SPEED ≤ V_{STUCK} FOR AT LEAST T_{STUCK} SECONDS OR FLAG-STUCK IS ON ?
2
22
N
EXIT
Y
23
SET VEHICLE STUCK FLAG FLAG-STUCK
USE WHEEL SPINS TO IDENTIFY ROAD µ TO BE USED FOR MAX TORQUE CLIPPING
N
Y
WHEELS ARE SPINNING IDENTIFY ROAD µ
GRADUALLY INCREASE SLIP TARGET MULTIPLIER FOR T SECONDS
A

1. A method of operating a traction control system for a vehicle with an internal combustion engine and a plurality of wheels, including the steps of:

establishing a predetermined amount of slip required for operating the traction control system to reduce power applied to the driving wheels;

determining the vehicle is stuck,

spinning the wheels to clear loose material;

increasing the magnitude of the predetermined amount of slip required for operating the traction control system to reduce power applied to the driving wheels; and

reducing spinning of the wheels to drive the vehicle out of loose material.

5,735,363
AUXILIARY DRIVE APPARATUS

Danny Horovitz, Kfar Tavor, and Arie Becker, Jordan Valley, both of Israel, assignors to S.A.E.Afikim, U.S.A., Inc., Visalia, Calif.

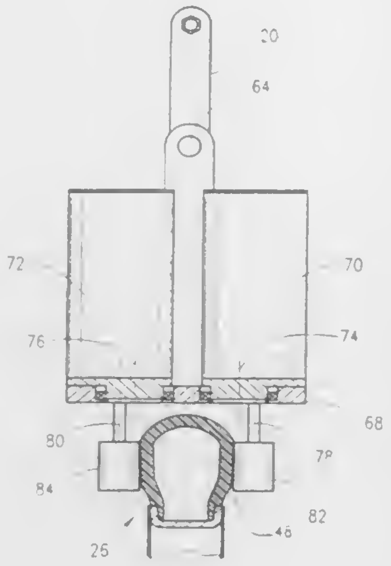
PCT No. PCT/US94/02815, § 371 Date Apr. 11, 1996, § 102(e) Date Apr. 11, 1996, PCT Pub. No. WO94/21509, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 15, 1994, Ser. No. 513,981

Claims priority, application Israel, Mar. 18, 1993, 105104

Int. Cl.^{6} B62M *7/10*

U.S. Cl. 180—205 **13 Claims**



1. Auxiliary drive apparatus comprising

a wheel having an axis of rotation; and

first and second wheel engagement elements arranged for driving engagement with said wheel, at least one of the wheel engagement elements being coupled to a motor, for being driven thereby,

said first and second of wheel engagement elements being arranged for rotation about respective first and second engagement element rotation axes,

said first and second wheel engagement elements being mounted such that the effective traction of the engagement thereof with the wheel increases automatically with increased resistance to rotation of the wheel and decreases automatically with decreased resistance to rotation of the wheel;

and wherein a mounting of said first and second wheel engagement elements is such that a separation between the first and second wheel engagement element rotation axes, said separation lying parallel to the axis of rotation of the wheel, is variable.

5,735,364
LUBRICATING STRUCTURE FOR A WHEEL DRIVING APPARATUS

Yoichi Kinoshita, Kanagawa, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

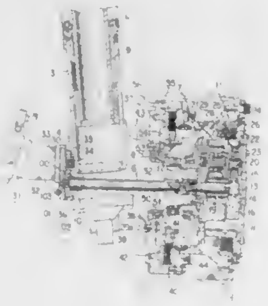
PCT No. PCT/JP93/01662, § 371 Date Jun. 8, 1995, § 102(e) Date Jun. 8, 1995, PCT Pub. No. WO94/13504, PCT Pub. Date Jun. 23, 1994

PCT Filed Nov. 12, 1993, Ser. No. 454,140

Claims priority, application Japan, Dec. 10, 1992, 4-085068 U

Int. Cl.^{6} B60K *7/00*

U.S. Cl. 180—308 **12 Claims**



1. A lubricating structure for a wheel driving apparatus, said lubricating structure comprising:

a wheel mounting body rotatably supporting a wheel hub on which a tire can be mounted;

a shaft bore formed in said wheel mounting body;

a drive shaft inserted in said shaft bore such that an annular space is formed between an inner peripheral surface of said shaft bore and said drive shaft, said drive shaft being coupled to said wheel hub via a reduction gear mechanism and a clutch mechanism;

a hydraulic motor attached to said wheel mounting body and having an output side coupled to said drive shaft;

a braking mechanism mounted between said wheel hub and said wheel mounting body, wherein said annular space communicates with a lubricant oil inlet and a peripheral port via individual lubricable portions, and a lubricant oil is supplied from said lubricant oil inlet and is discharged from said peripheral port, and

a discharging conduit connected to said peripheral port.

5,735,365
POWER STEERING DEVICE

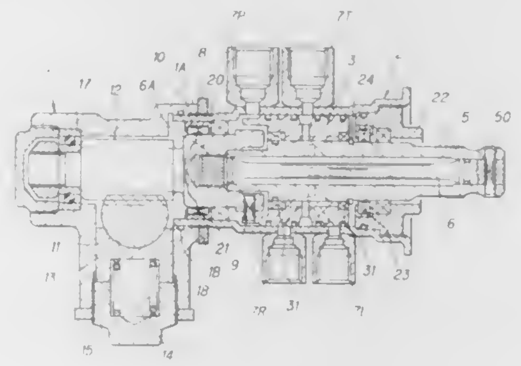
Masayuki Sako; Takuro Hirano, and Shiro Suo, all of Tokyo, Japan, assignors to Kayaba Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1995, Ser. No. 523,204

Claims priority, application Japan, Sep. 8, 1994, 6-214826

Int. Cl.^{6} B62D *5/22*

U.S. Cl. 180—428 **3 Claims**



1. A power steering device for use with a steering mechanism having a power cylinder for driving said steering mechanism, comprising:

an input shaft that rotates according to a steering input;

a pinion connected to said input shaft via a torsion bar;

a rack engaging said pinion and engageable with said steering mechanism;

a valve sleeve joined to said pinion;

a gear box housing said pinion;

a valve housing that houses said valve sleeve such that it is free to rotate;

an oil pressure port provided in said housing,

said valve sleeve and said input shaft defining an oil path for supplying oil pressure to said power cylinder from said oil pressure port according to the relative rotation positions of said valve sleeve and said input shaft, wherein said valve housing and said gear box are independent; and

means for joining said valve housing and said gear box in any desired relative rotation position including screw parts that screw into each other formed in both said gear box and said valve housing coaxially with said pinion and a lock nut that limits the relative rotation of said valve housing and said gear box joined via said screw parts, and said screw parts having pitches such that there is no obstruction to the flow of oil in said oil path when the relative rotation position of said valve housing and said gear box is varied within one rotation.

5,735,366
DISK BRAKE ROTOR EXHIBITING DIFFERENT MODES OF VIBRATION ON OPPOSITE SIDES DURING BRAKING

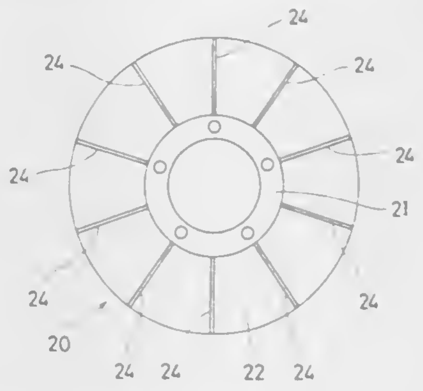
Toshitaka Suga, Nagoya, and Masayoshi Katagiri, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 19, 1996, Ser. No. 715,910

Claims priority, application Japan, Sep. 19, 1995, 7-240236; Aug. 8, 1996, 8-210288

Int. Cl.^{6} F16D *65/847*

U.S. Cl. 188—218 X **14 Claims**



1. A disc brake rotor comprising:

a rotor that includes a disc portion having an inner circumferential boundary and an outer circumferential boundary, said disc portion also having oppositely disposed first and second side surfaces for contacting a brake pad device;

a plurality of first grooves extending from the inner circumferential boundary to the outer circumferential boundary on the first side surface of the disc portion, said first grooves being substantially equally spaced by a first angular interval, and

a plurality of second grooves extending from the inner circumferential boundary to the outer circumferential boundary in the second side surface of the disc portion, said second grooves being substantially equally spaced at a second angular interval that is different from the first angular interval.

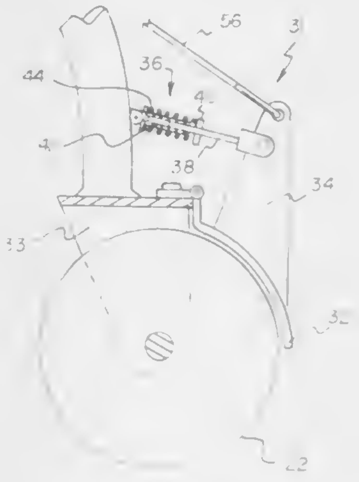
5,735,367
HAND OPERATED SHOPPING CART BRAKE

Wilmer R. Brubaker, 110 Panorama Dr., Bishop, Calif. 93514

Filed Nov. 18, 1996, Ser. No. 751,652

Int. Cl.^{6} B60B *33/00;* **B62B** *5/04*

U.S. Cl. 188—19 **1 Claim**



1. A new and improved hand operated shopping cart brake comprising, in combination

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a shopping cart having an upper storage portion with a bottom face, a rear face, a front face, a top opening and a pair of side faces defining an interior space; a lower storage portion situated below the bottom face of the upper storage portion with a plurality of stanchions coupled between a rear extent thereof and the bottom face of the upper storage portion, the lower storage portion further including a pair of front swiveling wheels depending from two front corners thereof and a pair of rear wheels depending from two rear corners thereof and rotatable about a fixed axis; a handle portion having a pair of generally vertical bars extending upwardly from opposite side faces of the upper portion adjacent the rear face thereof with a horizontal bar formed therebetween at the ends thereof, a horizontally oriented handle bar coupled to the ends of the horizontal bar via connecting members and further parallel therewith and positioned upwardly and rearwardly therefrom;

a brake mechanism including an arcuate shoe hingably coupled at an upper end thereof to the lower storage portion of the cart at a top portion of a fork of the cart, a tab having a length of at least 1 and ½ inches integrally coupled to an outer surface of the shoe and extending upwardly therefrom, an adjustable spring mechanism whose flexible portion lies in a direct line between the end of the first arm and the end of the second arm, said first arm rotatably coupled adjacent a top extent of the tab with a flange formed on a central extent thereof and a second hollow arm rotatably coupled to the lower storage portion of the cart wherein the first arm is slidably situated within the second arm and a spring is situated about the arms between the lower storage portion of the cart and the flange, whereby the shoe has a first unbiased orientation abutting an associated rear wheel for precluding the movement of the cart and a second biased orientation with the shoe positioned away from the wheel for allowing the movement of the cart;

a brake disengagement assembly including a hand lever having a pair of lever rods rotatably coupled at a midpoint thereof to the horizontal bar of the handle portion of the cart adjacent the vertical bars and a horizontally orientated cross bar integrally coupled between first ends of the lever rods, the brake disengagement assembly further including a sheathed cable coupled at a first end thereof to a second end of one of the lever rods and further coupled at a second end thereof to a top extent of the tab of the brake mechanism, whereby the cross bar of the handle lever has a first orientation located at a distance above the horizontal bar of the handle portion of the cart when the shoe is in the first unbiased orientation thereof and the brake shoe is forced to the biased orientation thereof upon a user positioning the handle lever in a second orientation thereof in abutment with the horizontal bar of the handle portion of the cart, and

a brake mechanism cover with a generally rectangular configuration having a slot formed on a top face thereof for allowing the passage of the cable therethrough and a lower slot for allowing rotation of the wheel.

5,735,368
DISK BRAKE MOUNTING MEMBER

Kinzo Kobayashi; Shinji Suzuki, and Kouichi Masuko, all of Yamanashi-ken, Japan, assignors to Tokico Ltd., Kawasaki, Japan

Filed Oct. 18, 1996, Ser. No. 733,782

Claims priority, application Japan, Oct. 20, 1995, 7-297587

Int. Cl.^{6} F16D *65/38*

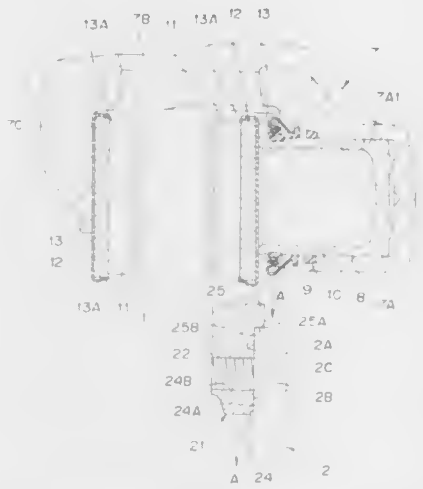
U.S. Cl. 188—73.39 **5 Claims**

1. A disc brake mounting member comprising

a pair of mounts adapted to be secured to a knuckle of a vehicle on one side of a disc;

a first arm positioned on an outer side of one of said pair of mounts with respect to a radial direction of the disc, and

a second arm positioned on an outer side of the other one of said pair of mounts with respect to a radial direction of the disc, said first and second arms being adapted to support a caliper so that the caliper can slide in an axial direction of the disc,



wherein each of said mounts includes an abutting surface to be positioned against the knuckle of the vehicle,

an installation hole formed in a central portion of said abutting surface and extending in the axial direction of the disc for receiving a positioning member, and

a projection positioned on an outer side of said abutting surface relative to a radial direction of the disc, said projection projecting along the axial direction of the disc such that said projection will engage an upper surface of the knuckle when said mounts are inserted between the disc and said knuckle

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5,735,369
BAND BRAKE DRUM SUPPORTING DEVICE FOR AUTOMATIC TRANSMISSION

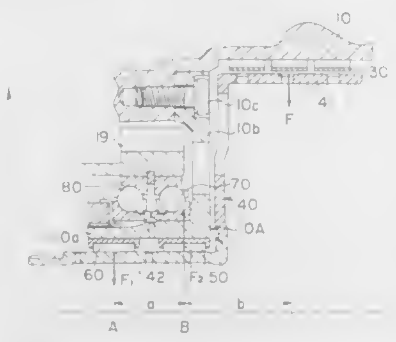
Kazumasa Tsukamoto; Masahiro Hayabuchi; Masaaki Nishida; Akitoshi Kato; Satoru Kasuya; Nobutada Sugiura, all of Anjo, and Tatsuya Iida, Takefu, all of Japan, assignors to Aisin Aw Co., Ltd., Anjo, Japan

Filed Dec. 20, 1996, Ser. No. 771,142

Claims priority, application Japan, May 21, 1996, 8-148522

Int. Cl.^{6} F16D *51/00*

U.S. Cl. 188—77 R **4 Claims**



1. A band brake drum supporting device for an automatic transmission, comprising

a band drum rotatably mounted in a case and engaged by a band brake, said band drum joined to a rotary element of the automatic transmission arranged in the case, wherein said band drum comprises:

a cylindrical band engaging portion,

a cylindrical drum supporting portion radially inward of the band engaging portion and offset axially from the band engaging portion such that a free end of each of said band engaging portion and said cylindrical drum supporting portion open in axially opposite directions; and

an annular portion connecting said cylindrical band engaging portion and said cylindrical drum supporting portion, wherein the outer circumference of the drum supporting portion is supported by two axially separated bearings on

a stationary support portion which extends radially inward from the case, and the stationary support portion includes:

a cylindrical boss portion disposed coaxially opposed with the cylindrical drum supporting portion and engaging a radially outer circumference of the cylindrical drum supporting portion with the two bearings, and

a planar flange portion extending radially inward from the case to an end portion of the boss portion which is axially closer to the band brake.

5,735,370
MOUNTING ARRANGEMENT OF A RUST PREVENTIVE COVER TO COVER A DISK ROTOR OF A DISK BRAKE

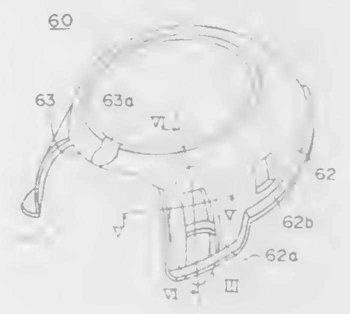
Makoto Nitta, and Takahiro Itoh, both of Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi-Ken, Japan

Filed Jan. 27, 1997, Ser. No. 789,472

Claims priority, application Japan, Jan. 29, 1996, 8-013347

Int. Cl.^{6} F16D *65/00*

U.S. Cl. 188—218 A **8 Claims**



1. A mounting arrangement for a rust preventive cover of a disk rotor provided in a disk brake for a vehicle, wherein the rust preventive cover is mounted to a dust cover provided on an inner side of the disk rotor with respect to the vehicle to separate an interior area within which the disk rotor is located from an exterior of the rust preventive cover, the mounting arrangement comprising

a plurality of protruding portions protruding inwardly from a wall of the rust preventive cover;

an opening formed in each of the protruding portions wherein each opening extends through the rust preventive cover from the interior area to the exterior of the rust preventive cover, and

an engaging portion formed on an outer end of the dust cover so that the engaging portion engages with the opening.

5,735,371
CYLINDER PISTON DEVICE

Klaus-Dieter Jobelius, Boppard; Helmut Morgen, Mannebach; Heinrich Spurzem, Mayen, and Stefan Volpel, Koblenz, all of Germany, assignors to Stabilus GmbH, Koblenz, Germany

Continuation-in-part of Ser. No. 821,190, Jan. 15, 1992, Pat. No. 5,485,987. This application Nov. 20, 1995, Ser. No. 559,852

Claims priority, application Germany, Jan. 21, 1991, 41 01 567.3; Sep. 26, 1995, 195 35 711.6

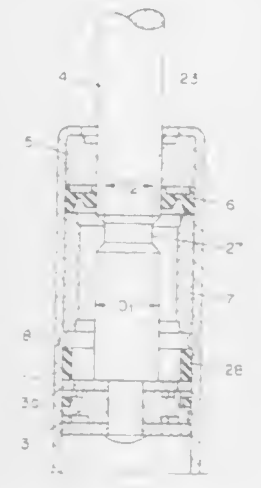
Int. Cl.^{6} F16F *9/02;9/34;* **F05F** *3/02,15/02*

U.S. Cl. 188—276 **53 Claims**

1. A cylinder piston device, comprising

a cylinder member having an axis, a circumferential wall and two ends, said cylinder member defining a cavity therein between said two ends;

a piston rod member extending through at least one end of the cylinder member;



a piston unit carried by the piston rod member internally of the cylinder member.

piston rod guiding and sealing means for sealingly guiding the piston rod member through said at least one end of the cylinder member for telescopic movement relative to the cylinder member throughout a normal operating range of movement of said piston unit.

a volume of pressurized fluid within said cavity and acting on said piston rod member;

means for permitting escape of fluid from said cavity under emergency conditions, said fluid escape means being located at least in part outside of said normal operating range of movement of said piston unit;

the emergency fluid escape means including (1) at least one fluid passage coupling said cavity to atmosphere, (2) means for sealing said at least one fluid passage against fluid flow therethrough during normal operating conditions and for opening said at least one passage for fluid flow therethrough in emergency conditions, and (3) means for maintaining said fluid passage sealing means and said at least one fluid passage in mutually sealing relation with one another against the pressure of said fluid under normal operating conditions and for permitting axial movement of at least one of said fluid passage sealing means and said at least one fluid passage out of said mutually sealing relation with the other of said fluid passage sealing means and said fluid passage under the action of said fluid pressure upon the occurrence of emergency conditions; and

said maintaining means permitting said axial movement in response to the increase in at least one of temperature and pressure beyond respective predetermined values

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5,735,372
VARIABLE CONSTANT FORCE HYDRAULIC COMPONENTS AND SYSTEMS

James M. Hamilton, Solana Beach, and Lonnie K. Woods, Jacumba, both of Calif., assignors to AimRite Systems International, Inc., Solana Beach, Calif.

Continuation of Ser. No. 272,208, Jul. 8, 1994, Pat. No. 5,529,152. This application Apr. 17, 1996, Ser. No. 633,928

Int. Cl.^{6} B60G *17/08*

U.S. Cl. 188—299 **12 Claims**

1. A valve for selectively establishing communication of a fluid between first and second fluid bodies having first and second pressures, respectively, the valve comprising

a valve body,

a valve element carried within the valve body for linear reciprocal movement along a valve axis between a first position wherein an operative portion at a first side of the valve element blocks communication between the first and second fluid bodies and a second position wherein the first and second fluid bodies are in communication, said movement

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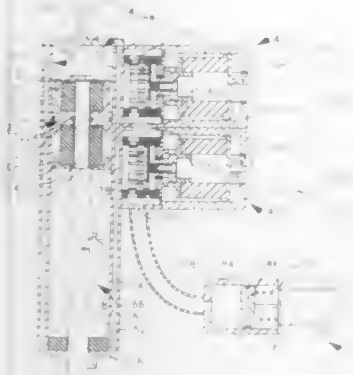


responsive to a force exerted by the fluid on the valve element due to the first pressure, which force is proportional to the product of the first pressure and a cross-sectional area of the first fluid swept by the valve element; and

an actuator in communications with the valve element for applying and modulating an opposing force to the valve element for controlling the response of the valve element to the first pressure when the valve is located between the first and second positions.

5,735,373
SHOCK ABSORBER AND A HINGE EYE FOR A SHOCK ABSORBER

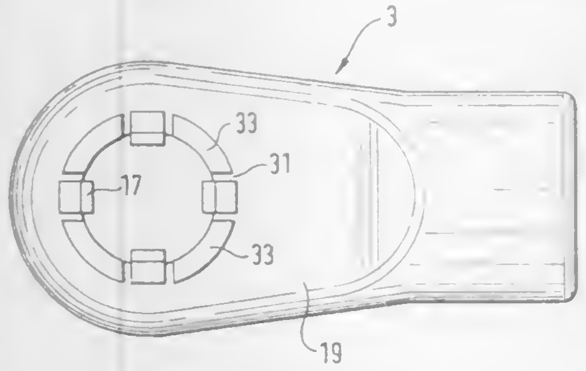
Alfred K. Klein, Weitersburg; Peter Thurmann, Waldesch; Horst Kaufmann, Burgen; Jörg Gustke, Ochtendung, and Horst Maury, Sebastian, all of Germany, assignors to Stabilus GmbH, Koblenz, Germany

Filed Dec. 15, 1995, Ser. No. 573,200

Claims priority, application Germany, Dec. 17, 1994, 44 45 233.0

Int. Cl.^{6} F16F *9/54;* **B60G** *11/27,* **F16J** *10/12*

U.S. Cl. 188—321.11 **20 Claims**



1. A shock absorber assembly comprising
a shock absorber, said shock absorber comprising:
  said shock absorber having a longitudinal axis,
  a first end portion and a second end portion disposed substantially opposite one another along the longitudinal axis of said shock absorber;
said first end portion comprising means for connecting said first end portion to a first element,
said second end portion comprising means for connecting said second end portion to a second element,
said means for connecting said first end portion comprising a hinge eye,
said hinge eye comprising means for receiving a connecting shank;
said means for receiving a connecting shank comprising:
  at least one opening therein for receiving, holding, and making contact with a connecting shank; and
  at least one retaining tab for locking said hinge eye into a groove on a connecting shank;
said at least one opening having a central longitudinal axis and a radial direction substantially transverse to the central longitudinal axis;
said at least one opening comprising a periphery disposed radially from the central longitudinal axis of said at least one opening to receive a connecting shank;
said means for receiving a connecting shank comprising a single, solid piece;
said at least one retaining tab being integral with said periphery immediately adjacent said at least one retaining tab of said at least one opening; and
said integral combination of said at least one retaining tab and said periphery being one homogeneous, molded material.

5,735,374
CURRENT COLLECTOR FOR TRANSMITTING ENERGY BETWEEN A CONTACT WIRE AND A MOTOR COACH

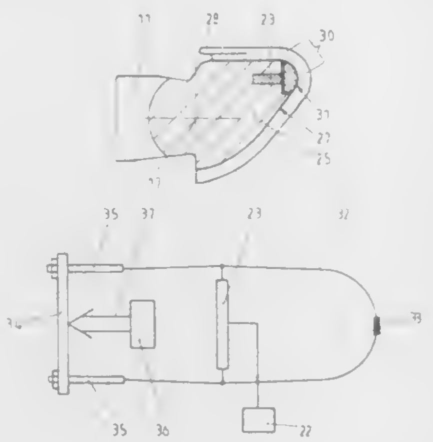
Elmar Breithach, Göttingen, and Andreas Büter, Braunschweig, both of Germany, assignors to Deutsche Forschungsanstalt fur Luftund Raumfahrt e.V., Bonn, Germany

Filed Nov. 1, 1996, Ser. No. 742,921

Claims prinrity, application Germany, Nov. 3, 1995, 195 40 914.0

Int. Cl.^{6} B60L *5/04*

U.S. Cl. 191—54 **8 Claims**



1. A current collector for transmitting energy between an energy transmitting contact wire and a motor coach, the current collector comprising at least one collector shoe, and a support arm constructed and arranged to lift the collector shoe for applying a contact force between the collector shoe and the contact wire in which the collector shoe lies below and against the contact wire, the support arm being rotatably connected to the motor coach about a horizontal axis and being constructed and arranged to be lifted about said axis by a lifting device, wherein the lifting device has an actuator controlled by a control means, said control means acting in response to a signal emitted by a sensor means positioned on the current collector, the lifting device acting upon the support arm via a traction rope, and wherein the actuator acts upon the traction rope

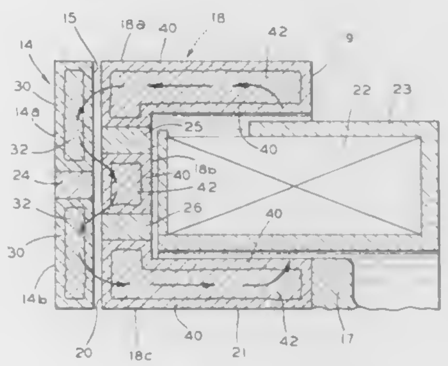
5,735,375
NITROCARBURIZED COMPONENT FOR AN ELECTROMAGNETIC FRICTION CLUTCH ASSEMBLY

Dwight E. Booth, Milton, Wis.; David C. Gustin, Rockton; Paul A. Larson, Belvidere, both of Ill., and Robert A. Olsen, Janesville, Wis., assignors to Dana Corporation, Toledo, Ohio

Filed May 31, 1996, Ser. No. 656,666

Int. Cl.^{6} F16D *27/112*

U.S. Cl. 192—84.961 **29 Claims**



27. An armature for use in an electromagnetically actuated friction clutch comprising a disk-shaped steel body including a hardened outer surface defining a boundary layer having a depth of up to 0.017 inch.

5,735,376
AUTOMATIC TRANSMISSION FOR VEHICLES

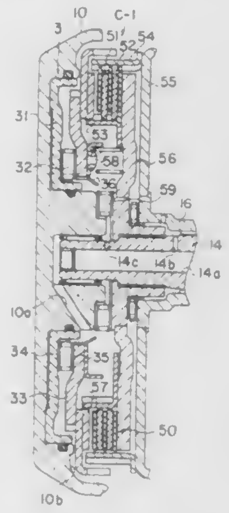
Shuzo Moroto, Nagoya; Takao Taniguchi; Shoichi Miyagawa, both of Okazaki; Kazumasa Tsukamoto, Toyota; Masahiro Hayabuchi; Masaaki Nishida, both of Anjo; Satoru Kasuya, Hekinan, and Yutaka Teraoka, Anjo, all of Japan, assignors to Aisin Aw Co., Ltd., Japan

Filed Mar. 22, 1996, Ser. No. 621,033

Claims priority, application Japan, Mar. 24, 1995, 7-090143; Sep. 25, 1995, 7-269039

Int. Cl.^{6} F16D *25/0638*

U.S. Cl. 192—85 CA **7 Claims**



1. A vehicular automatic transmission for establishing a plurality of forward gear stages, comprising: a transmission case; an input shaft; a transmission mechanism connected to said input shaft and including a plurality of transmission elements and a flange portion; an output shaft connected to said transmission mechanism; a clutch, arranged adjacent said flange portion, for drivably connecting said input shaft to one of said transmission elements; and a hydraulic servo for applying said clutch responsive to an oil pressure,
wherein said transmission case encloses said transmission mechanism, said clutch and said hydraulic servo and includes two axially spaced end walls,
wherein said hydraulic servo comprises
  a stationary cylinder formed on one of said end walls,
  a piston slidably mounted in said cylinder, and defining, together with said cylinder, an oil chamber for receiving the oil pressure, said piston generating a thrust force responsive to receipt of the oil pressure, said thrust force being transmitted to said input shaft through said flange portion,
  a first bearing arranged between said piston and said clutch for transmitting the thrust force of said piston to said clutch while allowing relative rotation between said piston and said clutch; and
  a second bearing interposed between said input shaft and the other end wall opposite said one end wall for transmitting axial forces on said input shaft, to said other end wall

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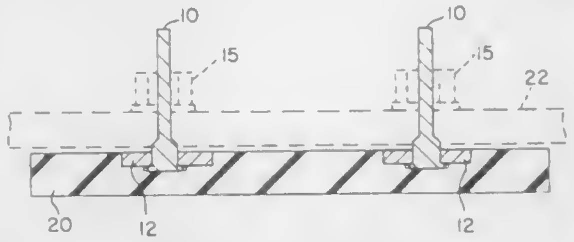
5,735,377
MODULAR IMPACT OR WEAR PADS

Harold Herren, 802 Main St., Platteville, Colo. 80651

Filed Dec. 28, 1995, Ser. No. 579,209

Int. Cl.^{6} B65G *11/16*

U.S. Cl. 193—33 **6 Claims**



1. An impact pad comprising a rubber sheet having first and second major surfaces, a plurality of metal plates secured to said first major surface of said rubber sheet, and a threaded bolt member extending outwardly away from each said metal plate; wherein each said bolt member is secured to a respective one of said metal plates and is perpendicular thereto.

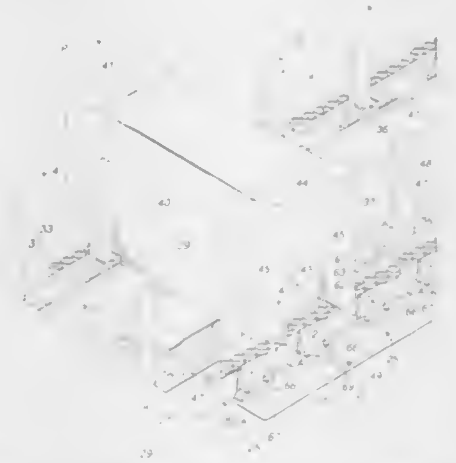
5,735,378
ROLLER HOLD DOWN DEVICE FOR FOUR-SIDED TAPERED CARTONS

Matthew V. Sundquist, Brainerd, Minn., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Dec. 24, 1996, Ser. No. 773,165

Int. Cl.^{6} B65G *13/00*

U.S. Cl. 193—356 **26 Claims**



1. A carton flap hold down apparatus for use in seating a carton on a carton transport conveyor as the carton is moved thereon

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along a path of travel by holding the bottom flap of the carton against a carton flap score rail, the carton transport conveyor having a framework supporting the carton flap score rail and including a guide for folding the bottom flap of the carton into position against the carton flap score rail as the carton advances along the path of travel, said apparatus comprising:

a plurality of aligned carton flap hold down rollers disposed along a common longitudinal axis and extending in the direction of the path of travel for being engaged on the carton flap score rail, each said support roller being supported for rotation on an elongate roller support bar;

a mounting block for being fastened to the framework of the carton transport conveyor with respect to the carton flap score rail, said mounting block being spaced from said roller support bar; and

an elongate intermediate member fastened at one end to said mounting block and fastened at the other of its ends to said roller support bar;

wherein the longitudinal axis of said hold down rollers is inclined toward said mounting block

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5,735,379
MONEY-OPERATED ENTERTAINMENT DEVICE

Ullrich Schulze, Wiesbaden; Horst Niederlein, Bingen, and Andreas Buchholz, Muenster-Sarmsheim, all of Germany, assignors to NSM Aktiengesellschaft, Bingen, Germany

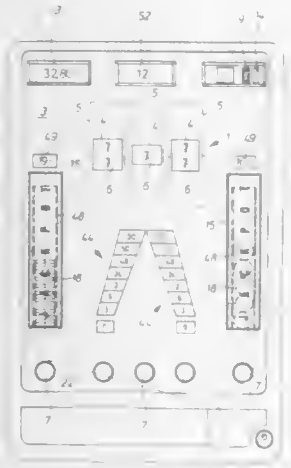
PCT No. PCT/DE94/01014, § 371 Date May 29, 1996, § 102(e) Date May 29, 1996, PCT Pub. No. WO95/07519, PCT Pub. Date Mar. 16, 1995

PCT Filed Sep. 3, 1994, Ser. No. 602,770

Claims priority, application Germany, Sep. 4, 1993, 43 29 945.8; Jun. 27, 1994, 44 22 369.2

Int. Cl.^{6} G07F *17/34*

U.S. Cl. 194—346 35 Claims



1 A computer-controlled entertainment device operated with at least one of money and money equivalents, comprising

a housing;

a plurality of viewing windows disposed on the housing,

symbol game means for displaying winning and losing symbol combinations including a plurality of rotating bodies disposed in the housing behind respective ones of the viewing windows,

an optionally selectable additional prize game means for one of playing to completion and accumulating a prize won in the symbol game means;

a money processing means including a value specific stacking means for items of value, a prize delivery mean operatively connected to the stacking means and comprising at least one collection bin for the items of value, the collection bin being configured such that a filling level thereof is visible from a region outside the entertainment device;

a computer control means for filling the collection bin with items of value up to a final total value which is one of predetermined by a computer and fixed by random control at the stacking means;

means for filling the collection bin from the stacking means; and

means for filling the collection bin manually

5,735,380
SUSPENDED STORAGE APPARATUS

Hauke Schneider, Lottstetten, Germany, and Armin Hofmann, Bussigny, Switzerland, assignors to Sapal Societe Anonyme des Plieuses Automatique, Ecublens, Sweden

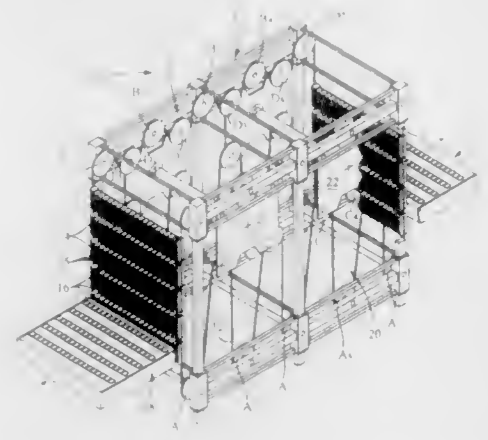
PCT No. PCT/CH95/00098, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO95/29863, PCT Pub. Date Nov. 9, 1995

PCT Filed May 2, 1995, Ser. No. 571,876

Claims priority, application France, May 3, 1994, 94 05778

Int. Cl.^{6} B65G *1/00*

U.S. Cl. 198—347.1 6 Claims



1 A pendulant product storage device for food products, comprising:

a pair of chains extending between a loading station and a receiving station and being moveable parallel to each other, each said chain forming a continuous loop which includes a feed section, in which said pair of chains are moveable from said loading station to said receiving station, and a return section, in which said pair of chains are moveable from said receiving station to said loading station;

a plurality of pendulant product carriers being horizontally suspended from said pair of chains;

a plurality of shelves, each said shelf being arranged horizontally on a corresponding one of said plurality of pendulant product carriers such that each said shelf is moveable, along with said pair of chains, between said loading station and said receiving station;

wherein said receiving station comprises:

a pusher device having a pusher which is horizontally and vertically moveable;

a first driving mechanism for moving said pusher horizontally, said first driving mechanism (**101A**) including a control cam (**102**) connected to said pusher (**107**) to perform said horizontal movement, and

a second driving mechanism for moving said pusher vertically, said second driving mechanism (**101B**) including at least one of a hydraulic jack (**109**) and a screw, having axial movement, connected to said pusher to perform said vertical movement

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5,735,381
HALF-PACKET STEP CONVEYOR FOR PRODUCING TWIN PACKETS OF CIGARETTES

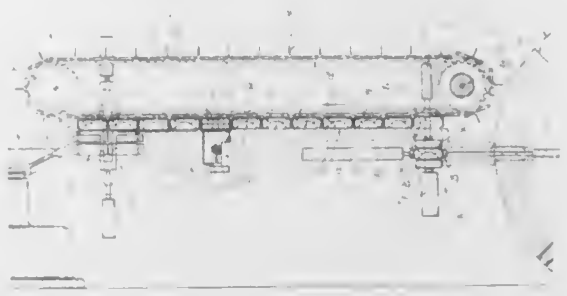
Marco Brizzi, Zola Predosa, and Antonio Gamberini, Bologna, both of Italy, assignors to G.D Societa' Per Azioni, Bologna, Italy

Filed Jan. 19, 1995, Ser. No. 375,524

Claims priority, application Italy, Jan. 20, 1994, BO94A0011

Int. Cl.^{6} B65G *47/04*

U.S. Cl. 198—370.07 8 Claims



1 A half-packet step conveyor for producing twin packets each containing two half-packets, the conveyor comprising a number of pairs of pockets arranged successively along a path, each pair of pockets being adapted to receive the two half packets of a respective twin packet; drive means for advancing the conveyor in a stepped manner and in a given traveling direction; and a restoring device located along said path and comprising transfer means movable in relation to said pockets, for selectively moving a half packet from a first pocket of a first pair of pockets to a free second pocket of a second pair of pockets upstream from the first pair of pockets in said traveling direction, wherein said transfer means comprise a box movable across said path and in a direction crosswise to said traveling direction, the box comprising two compartments aligned in said crosswise direction and each for receiving a half packet; and actuating means connected to the box and for selectively aligning said two compartments with said path.

5,735,382
SETSCREW FEEDING APPARATUS

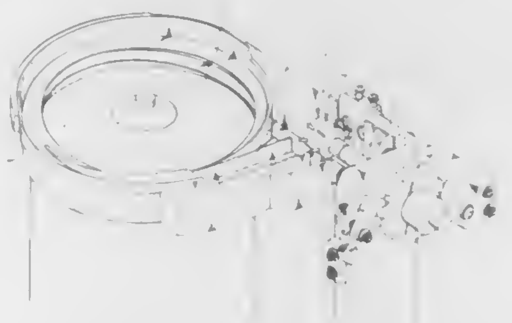
Jong-Kun Jung, Seoul, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Rep. of Korea

Filed May 14, 1996, Ser. No. 645,884

Claims priority, application Rep. of Korea, May 18, 1995, 95-12338

Int. Cl.^{6} B65G *47/24*

U.S. Cl. 198—399 7 Claims



1 An apparatus for feeding a setscrew having a recess, the apparatus comprising,

a supplier provided with a guide rail;

means for feeding the setscrew one at a time, with the recess opened upwardly,

an upper guide pipe whose inlet is disposed immediately under a terminal of the guide rail and whose outlet is disposed immediately above the setscrew feeding means so that the setscrew leaving the guide rail is delivered into the setscrew feeding means therethrough; and

a lower guide pipe whose inlet is disposed immediately under the setscrew feeding means opposite to the upper guide pipe, wherein said setscrew feeding means includes

an inner cylindrical member provided with a groove which is formed on a circumferential surface thereof and a first guide hole which is formed in the groove and radially passes through the inner cylindrical member; and

an outer cylindrical member provided with a cavity, a second guide hole radially extending to be in communication with the cavity, and a pin which is fixed to the outer cylindrical member opposite to the second guide hole and extends radially inward into the cavity, wherein

the inner cylindrical member is disposed in the cavity in such a way that the first and the second guide holes are disposed in communication with each other and the pin is fitted into the groove, and

the set screw feeding means is rotatable between a first position in which the first and second guide holes are in communication with the upper guide pipe, and a second position in which the first and second guide holes are in communication with the lower guide pipe, the pin moving along the groove as the set screw means is rotated between said first and second positions

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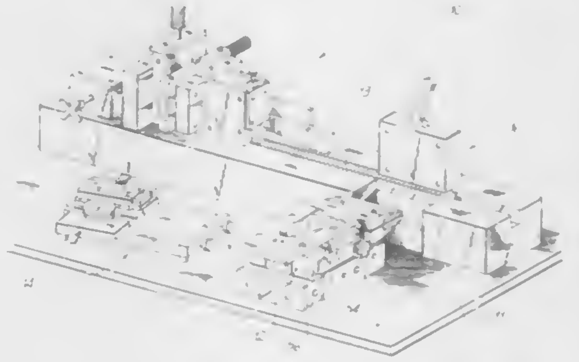
5,735,383
NEEDLE TRANSPORTING APPARATUS

Richard Abbate, Wallingford, and Richard Parente, Milford, both of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Division of Ser. No. 372,706, Jan. 13, 1995, Pat. No. 5,542,523, which is a continuation of Ser. No. 131,908, Oct. 8, 1993, abandoned, which is a division of Ser. No. 959,151, Oct. 9, 1992, Pat. No. 5,282,715. This application Jun. 11, 1996, Ser. No. 661,570

Int. Cl.^{6} B65G *47/26*

U.S. Cl. 198—456 10 Claims



1 A system for processing a plurality of elongated workpieces comprising:

aligning means for sequentially aligning a plurality of workpieces in a longitudinal side by side arrangement such that a first end of each of said plurality of workpieces are presented for simultaneous reception;

holding means having first and second jaw members moveable between a first open and a second closed position for receiving at least said first end of said workpieces from said aligning means, wherein said first and second jaw members are laterally movable relative to each other while in said closed position whereby workpieces disposed therein are uniformly rotatable while being held by said jaw members

transport means for sequentially moving each of said plurality of workpieces from said aligning means to said holding means and

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means for assisting in calibrating the lateral movement of said jaws, said calibrating assisting means including:
a frame having a mounting surface; and
means for indicating a measurement including a gauge, said measurement indicating means being attachable to said frame, said measurement indicating means providing an indication of the relative movement of said jaw members.

5,735,384

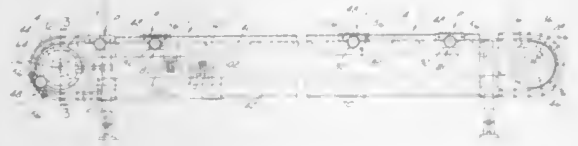
ENDLESS ACCUMULATING CONVEYOR

Kenneth B. Lingo, Shelby Township, and John H. Nolan, Harrison Township, both of Mich., assignors to Western Atlas, Inc., Hebron, Ky.

Filed Aug. 29, 1996, Ser. No. 705,183

Int. Cl.⁶ B65G *15/00*

U.S. Cl. 198—465.1 **16 Claims**



1 An elongated accumulating conveyor comprising
laterally spaced-apart upper guide rails and laterally spaced-apart lower guide rails extending lengthwise of said conveyor,
pallets adapted to be slidably supported on said upper guide rails and on said lower guide rails,
an endless, flexible roller chain having an upper run between and parallel to said upper guide rails and a lower run between and parallel to said lower guide rails,
said upper and lower runs being connected at the ends of said conveyor by curved sections thereof,
a drive for orbiting said chain including a first drive sprocket mounted for rotation at one end of the conveyor and meshing with the curved section of the chain at said one end of the conveyor,
a dogging device on each pallet having a rotatable sprocket engageable between adjacent rollers of said chain to move the pallet with said chain along said supper and lower runs,
a friction clutch for the dogging device on each pallet operably associated with the rotatable sprocket to resist rotation of the sprocket and to permit the sprocket to rotate to cause the dogging device to release and slip past the rollers of said chain when said pallet encounters a predetermined resistance to movement,
mechanism for positively propelling each pallet over the curved section at one end of the conveyor from one run to the other without slip comprising a second drive sprocket rotatable as a unit with and on the same axis as said first drive sprocket, and
an abutment on each pallet engageable with said second drive sprocket,

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5,735,385

CONVEYOR BELT SCRAPERS

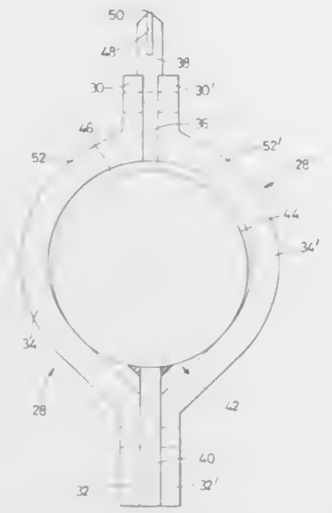
Alan Bowler, 164 Barrs Road, Cradley Heath, Warley, West Midlands B64 7EX, England, and John Anthony Brumby, 1 Quay Street, Lostwithiel, Cornwall, PL22 0B5, Great Britain

Filed Mar. 11, 1997, Ser. No. 814,354

Claims priority, application United Kingdom, Mar. 16, 1996, 9605591

Int. Cl.⁶ B65G *45/16*

U.S. Cl. 198—499 **5 Claims**



1 A conveyor belt scraper comprising a scraping blade, a blade-holding buffer and means supporting said buffer, said buffer being arranged to hold said blade in engagement with a conveyor belt and being resiliently compressible in the direction towards and away from the belt, said buffer-supporting means comprising a beam and said buffer comprising a hollow structure which surrounds said beam, said buffer being secured to said beam on the opposite side of said beam from said blade but being clear of surfaces on the same side of said beam as the blade to permit compressive deflection of the structure, portions of opposite side walls of said hollow structure providing laterally-extending blade-supporting limbs which are spaced apart to opposite sides of the blade and comprise bodies of elastomeric material whereby the limbs can bend under load from the blade.

5,735,386

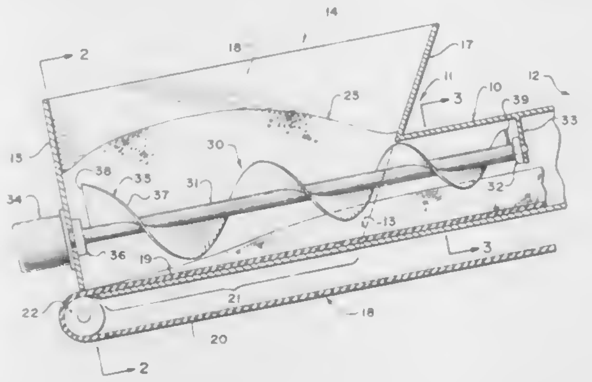
TUBE AND BELT CONVEYOR

Richard J. Epp, and Dwayne S. Epp, both of Box 64, Fiske, Saskatchewan, Canada, s0l 1c0

Filed May 15, 1996, Ser. No. 649,756

Int. Cl.⁶ B65G *47/56*

U.S. Cl. 198—550.01 **8 Claims**



1 A conveyor comprising:
an elongate tube having a feed end;
an endless belt,
guide means mounting the belt such that a feed run of the belt passes through the tube for carrying particulate material therethrough and a return run passes outside the tube with a feed end portion of the belt exposed beyond the feed end of the tube,
a hopper at the feed end of the tube for directing particulate material deposited into the hopper such that the particulate material is guided onto the feed end portion of the belt and is moved thereon longitudinally of the tube into the feed end of the tube,
and an auger feed member mounted above the feed end of the belt and extending longitudinally therealong with a forward end of the auger feed member projecting into the feed end of the tube for assisting the feed of the particulate material into the feed end of the tube.

5,735,387

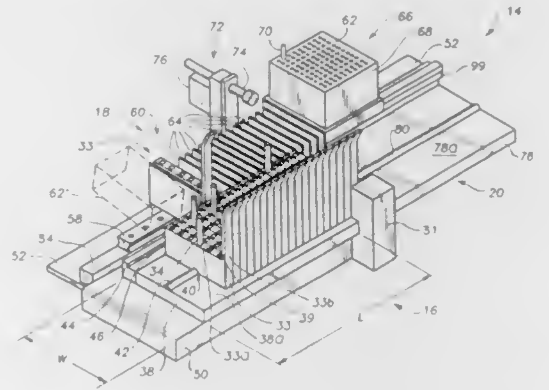
SPECIMEN RACK HANDLING SYSTEM

James P. Polaniec, N. Ridgeville; David J. Lapeus, Garfield Heights, and Mary Beth Whitesel, Grafton, all of Ohio, assignors to Chiron Diagnostics Corporation, E. Walpole, Mass.

Filed Jul. 14, 1995, Ser. No. 502,610

Int. Cl.⁶ B65G *15/58*

U.S. Cl. 198—690.1 **10 Claims**



1. An analyzer system for analysis of a sample disposed in a sample container held by a sample rack, said analyzer system comprising:
an input queue having at least one entry point and a transfer point;
a process queue having an entry point aligned with the transfer point of said input queue and a transfer point;
an infeed apparatus for moving the sample rack from the transfer point of said entry queue to the entry point of said process queue;
an output queue comprising an entry point aligned with the transfer point of said process queue;
wherein a first one of said input queue, said process queue and said output queue includes
a tray having first and second opposing ends and first and second opposing surfaces;
a magnet, proximate said tray and magnetically coupled to the sample rack; and
a drive system comprising a first pulley, a second pulley, a belt disposed around said first and second pulleys, said magnet coupled to said belt, and a motor coupled to a first one of said first and second pulleys for driving said belt and said magnet about said pulleys for moving said magnet in first and second directions between the first and second ends of said tray, wherein movement of said magnet causes a corresponding movement of the sample rack,
a first guide projecting from a first surface of said input queue along a first central portion of said input queue for engaging a recess region provided in a center portion of the sample rack,
a second guide projecting from the first surface of said input queue along a first edge of said input queue for engaging a first end of the sample rack; and
a third guide projecting from the first surface of said input queue along a second edge of said input queue for engaging a second end of the sample rack

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5,735,388

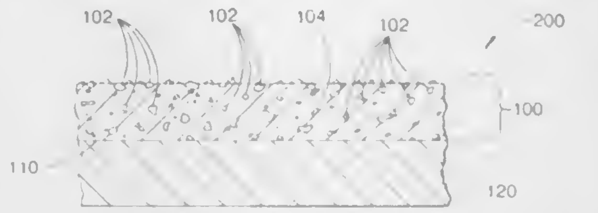
CONVEYOR SYSTEM DIVERTER COMPONENTS HAVING FRICTION-ENHANCING SURFACES AND RELATED METHODS OF USE

Gerald A. Brouwer, Granville, Mich., assignor to Mannesmann Dematic Rapistan Corp., Grand Rapids, Mich.

Continuation of Ser. No. 751,786, Nov. 18, 1996, Pat. No. 5,630,495, which is a continuation of Ser. No. 314,331, Sep. 28, 1994, abandoned. This application May 7, 1997, Ser. No. 852,677

Int. Cl.⁶ B65G *29/00*

U.S. Cl. 198—699.1 **11 Claims**



1 A conveyor system utilizing at least one powered component having a friction-enhancing outer article contacting surface, said system comprising:
a conveyor including a conveying surface supported by a frame work structure;
said conveying surface including at least one powered roller, and
wherein said powered roller includes a friction-enhancing layer disposed on at least a portion of an outer article contacting surface of said powered roller, said friction-enhancing layer including an effective amount of grit material dispersed in a metallic material contacting said outer article contacting surface of said powered roller.

5,735,389

CONVEYING SYSTEM

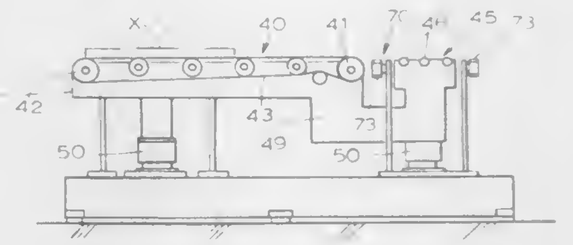
Masahiko Houzouji, Hannan, and Osamu Sakamoto, Sennan, both of Japan, assignors to Bando Kagaku Kabushiki Kaisha, Kobe, Japan

PCT No. PCT/JP94/01952, § 371 Date Jul. 17, 1996, § 102(e) Date Jul. 17, 1996, PCT Pub. No. WO96/15965, PCT Pub. Date May 30, 1996

PCT Filed Nov. 17, 1994, Ser. No. 676,283

Int. Cl.⁶ B65G *15/00*

U.S. Cl. 198—809 **6 Claims**



1 A conveying system comprising a conveying unit, a pair of lifts, and a support, wherein,
the conveying unit comprises a pair of belts stretched over driving pulleys connected to each other by a shaft,
each of the lifts comprises a pair of vertically engaged cylindrical hollow frames, the frames having open ends with slightly different diameters, the open end of one frame being smoothly inserted into the open end of the other frame;
each of the lifts comprises an air bag stored in the space enclosed by the frames, the air bag being capable of increasing the height of said frames when filled with air; and
the conveying unit is mounted on the frames of the lifts

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5,735,390
KEYSWITCH DEVICE

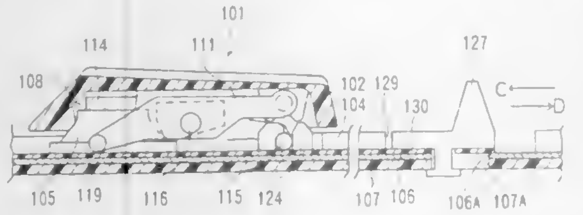
Takeyuki Takagi, Nagoya, and Isao Mochizuki, Gifu-ken, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Continuation-in-part of Ser. No. 495,076, Jun. 27, 1995, abandoned. This application Jun. 19, 1996, Ser. No. 666,072

Claims priority, application Japan, Jul. 20, 1994, 6-190991; Jul. 20, 1994, 6-190992; Jun. 29, 1995, 7-163606; Aug. 28, 1995, 7-218455

Int. Cl.^{6} H01H *13/70*

U.S. Cl. 200—344 **37 Claims**



1. A keyswitch device comprising:
a key top having an upper finger touching face and a lower face to which first and second holding portions are provided;
a support plate disposed beneath the key top, the support plate having an upper portion provided with a third holding portion facing the first holding portion and a fourth holding portion facing the second holding portion;
a switching pattern provided on the support plate between the key top and the support plate;
a guide support member supporting the key top for moving the key top vertically toward and away from the switching pattern, the guide support member comprising a first link member held by the first and fourth holding portions and a second link member pivotally connected to the first link member and held by the second and third holding portions; and
a switching member performing a switching operation in accordance with the movement of the key top, the switching member being movable to an operating position beneath the key top via the guide support member to make an electrical connection with the switching pattern and to a non-operating position removed from beneath the key top and disengaged from the guide support member

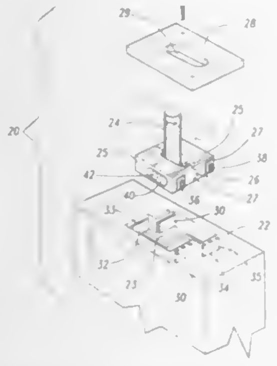
5,735,391
DUAL SLIDE THREE-POSITION SWITCH

George B. Wolfe, Plymouth, and Richard Harrell, Taylor, both of Mich., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

Filed Dec. 20, 1996, Ser. No. 771,292

Int. Cl.^{6} H01H *15/06*

U.S. Cl. 200—549 **17 Claims**



15. A three-position switch comprising:
a moving switch body comprising two separately movable contact members, each of said contact members having end faces defining axial ends of said moving contact members, one of said end faces of each of said contact members carrying an actuation contact, said actuation contacts being at opposed axial ends of said moving contact members;
a switch housing having a pair of actuation contact plates, said actuation contact plates being operable to complete an electrical circuit when contacted by one of said actuation contacts from said contact members, said actuation contacts being spaced from respective ones of said contact plates in opposed directions;
an actuation knob received at a central location between said moving contact members; and
springs biasing said contact members towards a neutral position at which said actuation contacts are maintained out of contact with said actuation contact plates, each of said contact members being movable in opposed directions relative to each other along said axial direction to bring its associated actuation contact into contact with one of said actuation contact plates to complete an electrical circuit, and said actuation contact being brought into contact with said actuation contact plate in a plane which is perpendicular to said axial direction.

5,735,392
SWITCHING DEVICE

Takeshi Shirasaka, Miyagi-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 31, 1997, Ser. No. 829,770

Claims priority, application Japan, Apr. 4, 1996, 8-082739

Int. Cl.^{6} H01H *21/00*

U.S. Cl. 200—553 **2 Claims**

1. A switching device, comprising:
first and second fixed contacts mounted in parallel on the bottom of a base;
a first movable contact piece and a second movable contact piece which are pivotally arranged on said first and said second fixed contacts, and which can be in contact with said first and said second fixed contacts, respectively,
a pivot member pivotally supported by said base,
driving rods which are elastically held in said pivot member in a removable manner, and whose tips slide on said first movable contact piece and said second movable contact piece, respectively, while being in contact therewith; and
a locking member which is replaceable with either of said first movable contact piece and said second movable contact piece, and having a convex cam surface formed on the upper surface thereof with which one of said driving rods slidably comes into contact,
wherein said first movable contact piece and said second movable contact piece are mounted on the base, said pivot member is located in a neutral position by said driving rods when pressing force is not applied on said pivot member, said first movable contact piece is brought into contact with one of said first fixed contacts and said second movable contact piece is brought into contact with one of said second fixed contacts,

and, when said pivot member is pivoted by applying thereto the pressing force, said first movable contact piece is brought into contact with the other one of said first fixed contacts and said second movable contact piece is brought into contact with the other one of said second fixed contacts, and
wherein, when said locking member is attached to said base in place of either of said first movable contact piece and said second movable contact piece, said pivot member is held at a tilted position by said driving rods elastically brought into contact with said locking member so as to bring said remaining second movable contact piece into contact with one of said second fixed contacts, or bring said remaining first movable contact piece into contact with one of said first fixed contacts.

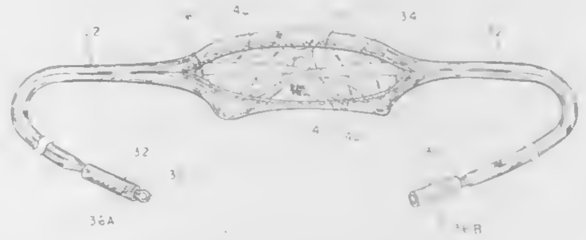
5,735,393
EYEGLASS RETAINER/COVER

Chih Cheng Shiue, 4713 Shadwell Pl., San Diego, Calif. 92130; Frank Hermansen, 181-A Costa Mesa St., Costa Mesa, Calif. 92627; Jenny Shei, 4713 Shadwell Pl., San Diego, Calif. 92130, and Carl A. Winefordner, 181-A Costa Mesa St., Costa Mesa, Calif. 92627

Filed Sep. 9, 1996, Ser. No. 711,270

Int. Cl.^{6} A45C *11/04; 11/06*

U.S. Cl. 206—5 **6 Claims**



1. An eyeglass retainer/cover comprising
a pattern of resilient fabric including
a central pocket section having a width and selvaged pocket edges,
a right strap and a left strap, each said strap having a width smaller than the width of said central pocket section and ending at a terminus, and
a right tapered semiarch section joining said central pocket section with said right strap and a left tapered semiarch section joining said central pocket section with said left strap, each said semiarch section including an upper edge and a lower edge;
a seam joining the upper edge and the lower edge of each said semiarch section, thereby defining a generally funnel-shaped throat, said central pocket section including a flap formed between a pocket fold line and the selvaged pocket edges, said flap foldable inwardly into said pocket section about said pocket fold line for retaining a pair of eyeglasses within said pocket section; and
a glasses earpiece grasping means joined to the terminus of each said strap.

5,735,394
CARRIER WITH TEAR RESISTANT HANDLE

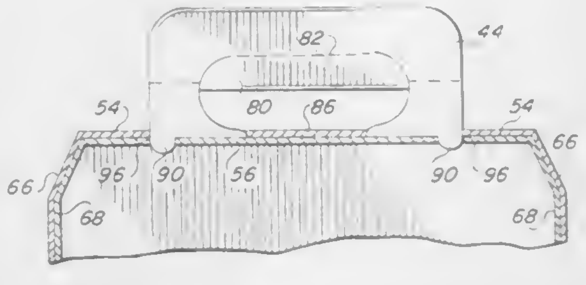
Glen Ray Harrelson, Gainesville, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Nov. 13, 1996, Ser. No. 748,934

Int. Cl.^{6} B65D *71/40*

U.S. Cl. 206—151 **15 Claims**

1. An article carrier, comprising:
a top panel having opposite side edges and opposite end edges, the top panel being connected at the side edges thereof to side panels;



a handle connected to the top panel by a fold line located substantially along a centerline of the carrier, the handle being comprised of a plurality of plies;
the handle fold line being substantially parallel to the side edges of the top panel and having opposite ends terminating at points spaced from the end edges of the top panel,
the top panel being comprised of a first top panel section which partially overlaps and is adhered to a second top panel section, each top panel section being connected by the handle fold line to a handle ply;
the top panel including apertures extending from the ends of the handle fold line toward the end edges of the top panel, and
downwardly extending tabs at opposite ends of the handle extending through the apertures in the top panel into the interior of the carrier.
9. A blank for forming an article carrier, comprising
a first handle section connected to a substantially similar second handle section along a central fold line, each handle section having opposite end edges,
a first top panel section connected to the first handle section along a first fold line and a second top panel section connected to the second handle section along a second fold line,
a slit extending from each end edge of the first handle section into the first top panel section, and a slit extending from each end edge of the second handle section into the second top panel section, and
each slit extending beyond the associated first or second fold line and including a transverse portion which terminates at the associated first or second fold line to define a handle tab,
the transverse portions of the slits forming cutouts in the first and second top panel sections in a carrier formed from the blank so as to receive the handle tabs of such a carrier

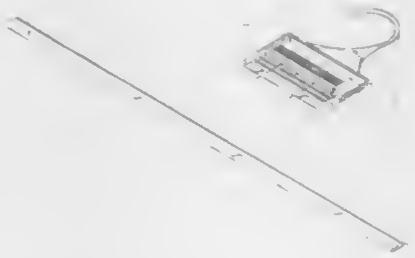
5,735,395
AIRTIGHT GARMENT HANGING BAG

Luke Lo, No. 9, Lane 34 Chin Men St., Taipei, Taiwan

Filed Jun. 28, 1996, Ser. No. 671,645

Int. Cl.^{6} B65D *33/14 33/24, 85/18, 81/20*

U.S. Cl. 206—278 **8 Claims**



1. A garment hanging bag comprising a garment bag, a clip strip and a clip member, the garment bag having an entrance on an edge for a garment to be placed therein, the clip strip having a length slightly longer than a width of the entrance, the clip strip including an upper and a lower clip plates which are engageable with each other to clip and seal the entrance, a sucking nozzle being disposed on another edge of the garment bag, the clip member being used to

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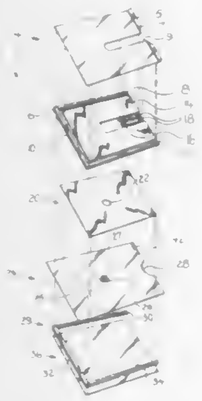
clip and seal the sucking nozzle, and wherein a hanging support is disposed on a top edge of the clip member for hanging the garment bag.

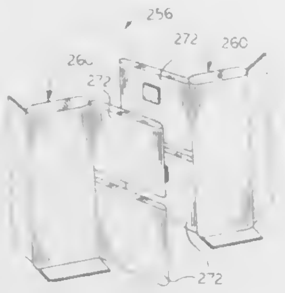
5,735,396
COMPACT DISC STORAGE CONTAINER
George P. Condorodis, 7010 NW. 38th Manor, Coral Springs, Fla. 33605
Filed Oct. 21, 1994, Ser. No. 326,844
Int. Cl.⁶ B65D *85/57*
U.S. Cl. 206—308.1 **15 Claims**



1 A compact disc storage container comprising.
a center plate with a center plate liner attached:
a front cover perimetrically attached to said center plate thereby defining an album cover pocket;
a rear cover perimetrically attached to said center plate thereby defining a compact disc pocket,
a rear cover tab rigidly attached to said rear cover and extending away from said center plate at an angle of approximately 30 degrees, thereby forming a funnel opening leading into said compact disc pocket;
a rear cover liner attached to said rear cover.
a rear cover second cutout extending from said rear cover tab to a center of said rear cover;
a rear cover liner cutout surrounding said rear cover second cutout; and
dust covers attached to said rear cover at said rear cover second cutout, said dust covers being disposed substantially coplanar with said rear cover and extending into said rear cover second cutout.

13. A compact disc storage container comprising.
a rear cover comprising a rear cover tab, a rear cover first cutout, and a rear cover second cutout, said rear cover tab being rigidly attached to said rear cover at an angle of approximately 30 degrees relative to a plane of said rear cover. said rear cover second cutout communicating with said rear cover first cutout, said rear cover second cutout extending from said rear cover first cutout towards a center of said rear cover;
a rear cover liner attached to said rear cover. said rear cover liner comprising a rear cover liner cutout surrounding said rear cover second cutout;
dust covers attached to said rear cover at said rear cover second cutout, said dust covers being disposed coplanar with said rear cover and extending into said rear cover second cutout,
a center plate perimetrically attached to said rear cover. said center plate comprising a ramped post sized to fit loosely through a compact disc center hole. said ramped post extending through said rear cover liner aperture and into said rear cover second cutout;
a center plate liner comprising a center plate liner aperture attached to said center plate. said ramped post extending through said center plate liner aperture: and
a front cover perimetrically attached to said center plate

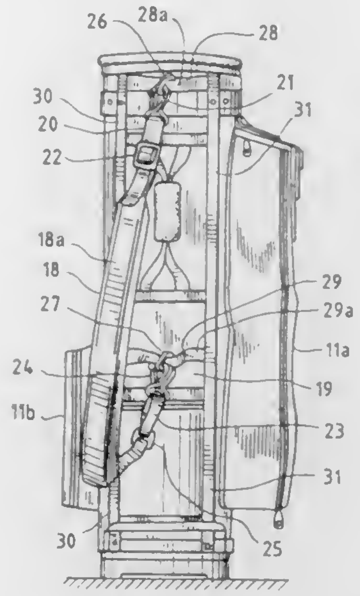
5,735,397
LENS-GATE DIVIDER SYSTEM FOR CAMERA BAGS
Ryan Cyr, Hidden Hills, Calif., assignor to Tamrac, Inc., Chatsworth, Calif.
Division of Ser. No. 385,311, Feb. 7, 1995, Pat. No. 5,573,114.
This application Sep. 9, 1996, Ser. No. 709,726
Int. Cl.⁶ B65D *85/38*
U.S. Cl. 206—316.1 **7 Claims**



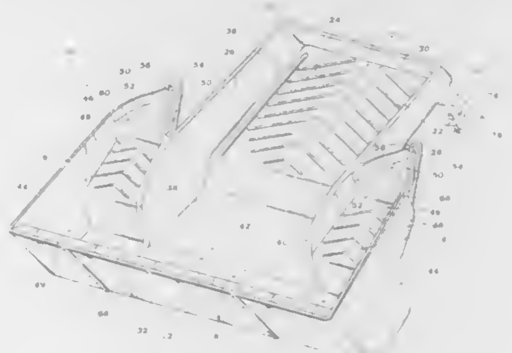
1 A camera bag for holding photographic equipment, comprising.
a. a generally rectangular base wall and a pair of end walls connected at their ends to a pair of sidewalls. the walls extending upwardly from the base wall to form an enclosure with a top opening;
b. a cover secured to said enclosure and adapted to be positioned to span and enclose said top opening of said enclosure for restraining and protecting said photographic equipment;
c. at least one pair of spaced apart vertical panels attachable to and extending between said sidewalls of said enclosure and leaving a gap portion between the at least one pair of vertical panels, and spaced from one of said end walls of said enclosure, each of the pair of panels having a bottom edge, two vertical side edges and a top edge;
d. means for stabilizing said at least one pair of vertical panels within said enclosure; and
e. two pairs of swinging gates extending between said at least one pair of vertical panels and covering said gap portion in said enclosure, two of the two pairs of swinging gates stacked and hingeably attached to a proximal one of said two vertical side edges of said at least one pair of vertical panels, and the other two of the two pairs of swinging gates stacked and hingeably attached to a proximal one of said two vertical side edges of the other one of said at least one pair of vertical panels, where the two pairs of swinging gates can be swung open or closed to transform said at least one pair of vertical panels into a full length divider

5,735,398
GOLF BAG WITH SLIDABLE STRAP
David Price, Hendersonville, Tenn., assignor to Wilson Sporting Goods Co., Chicago, Ill.
Continuation of Ser. No. 378,408, Jan. 26, 1995, abandoned.
This application Dec. 3, 1996, Ser. No. 757,142
Int. Cl.⁶ A63B *55/00*
U.S. Cl. 206—315.3 **3 Claims**

1 A golf bag comprising: a generally tubular bag portion having an elongate, generally rounded, tubular body with a longitudinal axis, a bottom, and an open top: a first foldable strip fixedly secured to a top portion of tubular body proximate the open top; a second foldable strip fixedly secured to the tubular body a predetermined distance below the first strip proximate a mid-portion of the tubular body; a foldable strap extending continuously between the first and second strips; a first ring member normally connected to the strap and disposed in sliding engagement with the first strip. a second ring member normally connected to the strap and disposed in sliding engagement with the second strip: stop means for limiting the movement of the first and second ring members; said strap extending from the first to the second strip without being connected to the tubular body between the first and second strips; said stop means including a pair of belt members disposed in spaced relation substantially longitudinally of the body; said first and second strips extending substantially around the entire body.

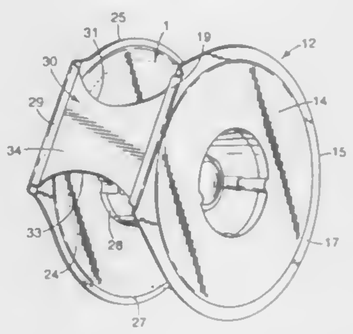


5,735,399
PAINT TRAY
Ray M. Ste. Marie, P.O. Box 6133, Brookings, Oreg. 97415
Filed Jun. 6, 1996, Ser. No. 656,981
Int. Cl.⁶ B65D *1/36;* B44D *3/12;* B05C *21/00*
U.S. Cl. 206—362 **18 Claims**



1. A paint tray, comprising.
a) a main paint well having a deep end and a shallow end. with sidewalls defining the main paint well. the shallow end designed to remove paint from a paint roller as the paint roller is rolled in the shallow end. the deep end designed to hold a quantity of paint into which a paint roller can be dipped,
b) a side paint well having a deep end and a shallow end. adjacent the deep end of the main paint well. the side paint well including a deep well area contiguous with the deep end of the main paint well:
c) the main paint well and the side paint well formed as a single. one-piece unit from a plastic material: and
d) a paint instrument holder, fixed to the side paint well. for gripping a handle of a painting instrument

5,735,400
PROTECTOR FOR A ROLL OF TAPE
Joy A. Packard, Somerset, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation of Ser. No. 582,171, Jan. 2, 1996, abandoned.
This application Jul. 1, 1996, Ser. No. 674,304
Int. Cl.⁶ B65D *85/671*
U.S. Cl. 206—408 **20 Claims**



1. A one-piece protector for a roll of tape having a leading end portion of tape, a pair of sides and edges. a width. an outer peripheral surface defining an outer diameter. and a core defining an inner diameter; said protector comprising:
a first side portion comprising a first side wall having an outer periphery with a substantially circular portion defining an outer diameter which is at least as large as the outer diameter of the roll of tape. and a first hub portion;
a second side portion comprising a second side wall adapted to be placed substantially opposite said first side wall. said second side wall having an outer periphery having a substantially circular portion defining an outer diameter which is at least as large as the outer diameter of the roll of tape. and a second hub portion;
releasable hub means for releasably attaching said first hub portion to said second hub portion to form a hub adapted to receive the roll of tape. said hub having an axis and an outer hub diameter that is sized and shaped to afford free rotation of the roll of tape about the hub. said hub being adapted to receive the roll of tape in one of either a) a first orientation which affords clockwise rotation of the roll of tape about the axis of the hub. or b) a second orientation which affords counterclockwise rotation of the roll of tape about the axis of the hub,
a transverse. peripheral bridge portion extending between outer peripheries of said first and second side walls. said peripheral bridge portion having a pair of edges and a tape anchoring surface extending therebetween. said tape anchoring surface being sized and shaped to have the leading end portion of the tape adhered thereto when the roll of tape is mounted in either the first or the second orientation:
wherein the outer peripheries of said first and second side walls are free of any portions extending therebetween other than said peripheral bridge portion to provide an opening for access to the outer peripheral surface of the roll of tape. and
wherein the protector is free of any teeth or serrations for cutting the tape.

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MACHINE FOR MAKING UP READY TO USE DOSES OF ANIMAL SEMEN AND DOSE OF SEMEN MADE UP BY THIS MACHINE

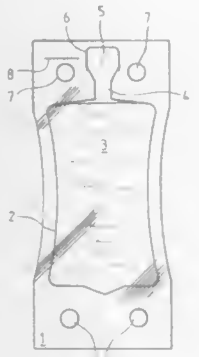
Robert Cassou; Maurice Cassou, and Bertrand Cassou, all of L'Aigle, France, assignors to Instruments de Medecine Veterinaire, L'Aigle, France

Filed Dec. 19, 1995, Ser. No. 574,869

Claims priority, application France, Dec. 23, 1994, 94 15621

Int. Cl.^{6} B65D *73/00*

U.S. Cl. 206—469 **6 Claims**



1. Dose of animal semen of the type in which said semen is contained in a sachet made of two films of thermoplastics material welded together by a weld delimiting a pocket to which a filler tube extended by a funnel is connected, which semen dose includes an inverted U-shape sealing weld the branches of which intersect the part of said weld delimiting said funnel in its widest part, an incision approximately perpendicular to the branches of said inverted U-shape sealing weld and internal walls that are dry at least between said branches of said inverted U-shape sealing weld, wherein a first end of said incision is at a distance from an edge of said dose and a second end of said incision is at a distance from said U-shape sealing weld.

5,735,402
SELECTION APPARATUS FOR POWDERS AND FINE PARTICULATE MATERIAL

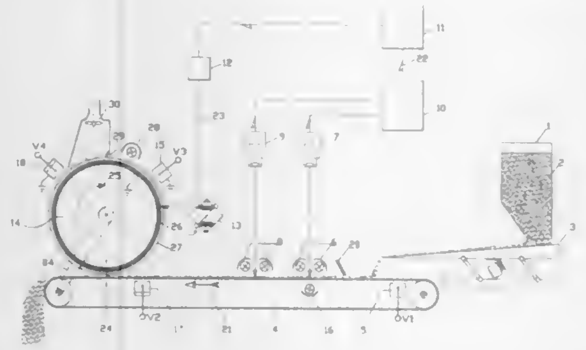
Raffaele Pezzoli, and Claudio Quarantelli, both of Parma, Italy, assignors to Protec S.r.l., Collecchio, Italy

Filed Apr. 2, 1996, Ser. No. 626,410

Claims priority, application Italy, Jul. 3, 1995, PR95A0021

Int. Cl.^{6} B03C *7/00*

U.S. Cl. 209—129 **15 Claims**



1. An apparatus for sorting particulate material containing desirable and undesirable components, and removing undesirable components therefrom, comprising:

(A) mobile support means for supporting and transporting said particulate material on a surface thereof,

(B) means for determining and indicating the presence and position of said undesirable components on said mobile support means;

(C) means for removing said undesirable components from said mobile support means, comprising:

(1) a photoconducting means capable of moving in a manner synchronized with the motion of said mobile support means, comprising a photoconducting surface having a position thereon corresponding to a position on said mobile support means;

(2) electrostatic charge means for providing an electrostatic charge to said photoconducting surface;

(3) latent image generation means for generating a latent image of electrostatic charges on said photoconducting surface at one or more positions thereon corresponding to one or more positions on said mobile support means;

wherein said photoconducting means is disposed relative to said mobile support means such that said latent image on said photoconducting surface and the corresponding position on said mobile support means come into sufficiently close proximity that particulate material located at said position on said mobile support means are attracted by, and move to, said photoconducting surface: and

(4) means for removing particulate material from said photoconducting surface

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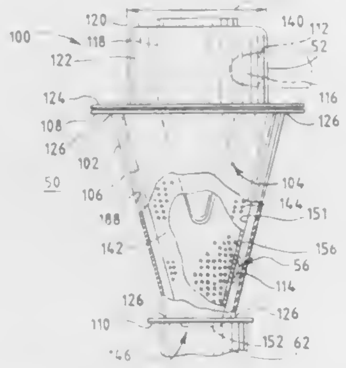
5,735,403
APPARATUS FOR REMOVAL OF FINE PARTICLES IN MATERIAL FLOW SYSTEM

Michael L. Stiglianese, 777 Annoreno Dr., Addison, Ill. 60101

Filed Mar. 22, 1995, Ser. No. 408,379

Int. Cl.^{6} B07B *9/00*

U.S. Cl. 209—23 **19 Claims**



1. A particle separator for a material flow system, the material flow system having an airflow generator to generate a flow of air and to provide supply material having coarse and fine particulate material to the particle separator, the particle separator comprising.

a housing having a top portion and a bottom portion and a longitudinal axis extending from the top portion to the bottom portion;

a chamber defined within the housing, said chamber formed by an outer shell having a substantially solid surface and an inner shell disposed within the outer shell in a spaced relation thereto, the inner shell having a substantially solid surface and having a cross-sectional contour similar to the cross-sectional contour of the outer shell.

an inlet disposed towards the top portion of the housing, the inlet in communication with the flow of air and the supply material and in communication with the chamber, said inlet configured to direct the flow of air and the supply material into the chamber;

said outer shell and inner shell configured to facilitate swirling of the airflow and the supply material within the chamber,

a selectively permeable particle screen disposed between the outer shell and the inner shell, said particle screen configured to separate the fine particles from the coarse particles by permitting the fine particles to pass through the screen while the coarse particles do not pass therethrough;

an exhaust outlet in communication with the chamber and the housing and configured to direct the separated fine particles and the flow of air away from the chamber, and

a coarse particle port disposed towards the bottom portion of the housing and configured to direct the separated coarse particles away from the chamber

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5,735,404
MERCHANDISE PACKAGE AND METHOD OF MANUFACTURING THE SAME

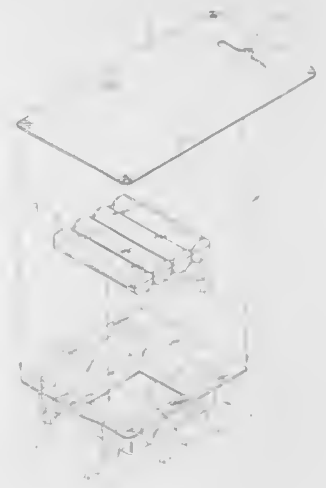
Katsuhiko Kumakura, Kyoto, and Tadashi Ono, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed May 6, 1996, Ser. No. 643,684

Claims priority, application Japan, May 11, 1995, 7-113420; Dec. 12, 1995, 7-323262

Int. Cl.^{6} B65D *85/08*

U.S. Cl. 206—469 **15 Claims**



1. A merchandise package comprising:

a mounting board,

a packing part including a substantially transparent plastic shrink-packing film for containing therein at least an article, and

a holding part having a dent for containing the packing part and a collar part to be bonded to said mounting board, said holding part holding said packing part in cooperation with said mounting board

15. A method of manufacturing a merchandise package, in which

a mounting board is bonded to a holding part of a synthetic resin,

said holding part having a dent for packing said articles and

a collar part being formed around said dent and bonded to said mounting board,

said method comprising the steps of,

pressing and heating a metal mold against said synthetic resin sheet for forming said dent, and

cutting through said synthetic resin sheet by an arc shape blade disposed in said metal mold for forming an arc-shaped cutting part in said synthetic resin sheet

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5,735,405
PILE UP TRAY FOR THE TRANSPORTATION OF PRODUCTS

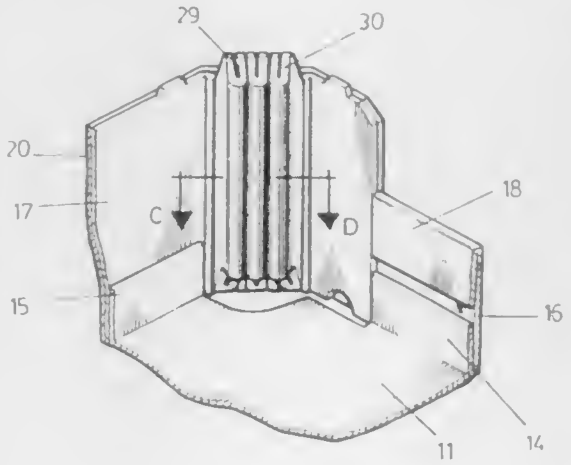
Fatima March Vila, Barcelona, Spain, assignor to Videcart, S.A., Navarra, Spain

Continuation of Ser. No. 443,474, May 18, 1995, abandoned, which is a division of Ser. No. 71,645, Jun. 3, 1993, Pat. No. 5,507,390. This application Sep. 19, 1996, Ser. No. 715,752

Claims priority, application Spain, Jun. 3, 1992, 9201137; Jul. 3, 1992, 9202098; Aug. 17, 1992, 9201722; May 27, 1993, 9301161

Int. Cl.^{6} B65D *21/00*

U.S. Cl. 206—511 **10 Claims**



1. A stackable tray for the transportation of goods, comprising one piece of compact cardboard forming a bottom of the tray and a marginal flange, and an additional piece or pieces of compact cardboard forming a side wall of the tray, the piece or pieces forming the side wall of the tray being fixed to the outside of the marginal flange of the bottom and joined at corners of the tray forming reinforced corners including folded over flanges extending upward forming pile-up stubs.

5,735,406
CARRIER FOR A MEDICATION DISPENSER

Paul J. Keffeler, Omaha, Nebr., assignor to Opus III-VII, Omaha, Nebr.

Filed Sep. 13, 1995, Ser. No. 527,690

Int. Cl.^{6} B65D *83/04 1/24*

U.S. Cl. 206—535 **2 Claims**

1. In combination:

a medication dispenser carrier comprising a bottom wall, opposite upstanding side walls and opposite upstanding end walls, said side walls and said end walls of said carrier having upper and lower ends,

a medication dispenser selectively removably positioned in said carrier between said side walls and said end walls thereof,

said medication dispenser including a bottom wall, opposite upstanding side walls and opposite upstanding end walls, said side walls and said end walls of said dispenser having upper and lower ends, and a cover means extending between the upper ends of said side walls and said end walls of said dispenser;

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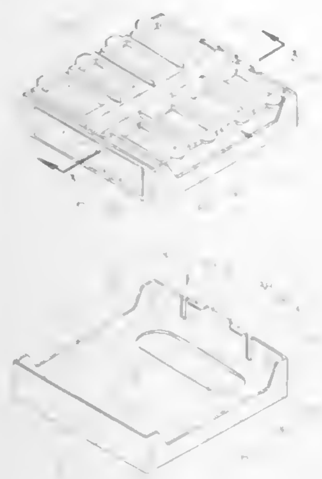


at least one of said carrier walls having retainer means thereon for engagement with one of said walls of said dispenser for selectively maintaining said dispenser in said carrier;
said carrier bottom wall having an opening formed therein.

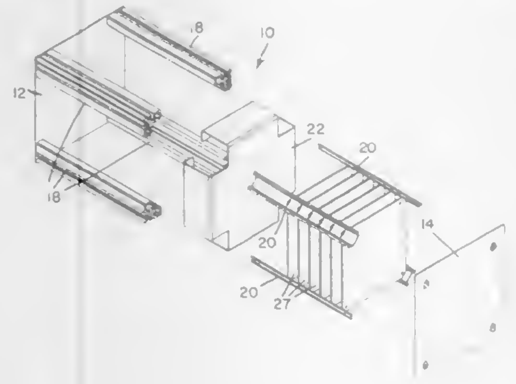
5,735,407
CONTAINER FOR PRINTED CIRCUIT BOARDS

James H. Kallio, South Barre, Mass., assignor to North East Systems Associates, Inc., Stow, Mass.

Filed Oct. 3, 1996, Ser. No. 726,074

Int. Cl.^{6} B65D *85/86*

U.S. Cl. 206—707 **18 Claims**



1 A container for vertical rectangular printed circuit boards having two upper corners and two lower corners, said container comprising:

(a) a vertical first end cap;
(b) a vertical second end cap spaced from said first end cap, each of said first and second end caps having an upper forward corner, on upper rearward corner, a lower forward corner and a lower rearward corner;
(c) a horizontal first lower beam connected to the lower forward corner of said first end cap and a second end connected to the lower forward corner of said second end cap;
(d) a horizontal second lower beam having a first end connected to the lower rearward corner of said first end cap and a second end connected to the lower rearward corner of said second end cap, each of said first and second lower beams having a plurality of spaced transverse slots for receiving the two lower corners of a plurality of printed circuit boards and supporting the printed circuit boards and supporting the printed circuit boards on said first and second lower beams;
(e) a first arm having a front end and a back end, the back end of said first arm being pivotally connected to the upper rearward corner of said first end cap;
(f) a second arm having a front end and a back end, the back end of said second arm being pivotally connected to the upper rearward corner of said end cap; and
(g) a horizontal upper beam having a first end and a second end, the first end of said upper beam being connected to the front end of said first arm, the second end of said upper beam being connected to the front end of said second arm, said upper beam having a plurality of spaced transverse slots, said upper beam and said first and second arms being pivotally movable as a unit between an open position in which said upper beam is positioned above said printed circuit boards and a closed position in which said upper beam engages said printed circuit boards so that the upper corners of said printed circuit board which are directly above said first lower beam enter the transverse slots of said upper beam for securing said printed circuit boards within said container.

7 A container for rectangular printed circuit boards, said container comprising:

(a) a rectangular vertical first end cap;
(b) a rectangular vertical second end cap which is substantially the same size and shape as said first end cap and spaced from said first end cap, each of said first and second end caps having a pair of opposite upper corners and a pair of opposite lower corners; and
(c) at least two elongated horizontal beams for connecting said fast and second end caps, each of said horizontal beams having a first end and a second end, said horizontal beams being connected at their first ends to diagonally opposite upper and lower corners of said first end cap, and at their second ends to diagonally opposite upper and lower corners of said second end cap so that said horizontal beams are parallel, each of said horizontal beams having a plurality of spaced vertical slots for receiving the corners of printed circuit boards and far supporting said printed circuit boards within said container, each of said horizontal beams comprising:
(1) a rigid connecting rail which has a first end connected to said first end cap and a second end removably connected to said second end cap, said rigid connecting rail having at least one longitudinal guide slot; and
(2) a spacing rail which is slidingly mounted in the longitudinal guide slot of said rigid connecting rail for longitudinal movement between a closed position between the first and second ends of said connecting rail to an open position in which at least a substantial portion of said spacing rail is beyond the second end of said connecting rail when said second end cap is removed from the second ends of said connecting rails, said spacing rail having transverse vertical slots far supporting a plurality of printed circuit boards outside of said container when each spacing rail is in its open position and for supporting said printed circuit boards within said container when each spacing rail is in the closed position, thereby enabling said horizontal beams to be connected to said second end cap.

14. A container for rectangular printed circuit boards, said container comprising.

(a) a rectangular vertical first lower end cap;
(b) a rectangular vertical second lower end cap which is substantially the same size and shape as said first lower end cap and spaced from said first lower end cap, each of said first and second lower end caps having a pair of opposite upper corners and a pair of opposite lower corners;
(c) a vertical first upper end cap pivotally connected to one of the upper corners of said first lower end cap;
(d) a vertical second upper end cap pivotally connected to the upper corner of said second lower end cap which is directly opposite said one upper corner of said first lower end cap;
(e) a pair of parallel lower horizontal beams having first ends connected to opposite lower corners of said first lower end cap and second end connected to opposite lower corners of said second lower end cap, each of said upper beam and said lower beams having a plurality of spaced transverse slots for receiving the lower corners of printed circuit boards oriented in spaced parallel planes, said lower horizontal beams defining with said first and second lower end caps a lower container portion;

(f) an upper horizontal beam having a first end connected to said first upper end cap and a second end connected to said second upper end cap, said upper horizontal beam having a plurality of spa transverse slots for receiving an upper corner of each of said printed circuit boards, said first and second upper end caps and said upper horizontal beam being pivotally movable as a unit, relative to said first and second lower end caps, between an open position in which said upper beam is spaced above said first and second lower end caps sufficiently to enable printed circuit boards to be inserted laterally of said horizontal beams into said lower container portion and into engagement with said pair of lower horizontal beams and a closed position for enabling said upper horizontal beam to engage said printed circuit board located within said lower container portion

5,735,408
CASSETTE STORING ELECTRONIC COMPONENTS CAPABLE OF INHIBITING ELECTRONIC COMPONENTS FROM MUTUAL CONTACT

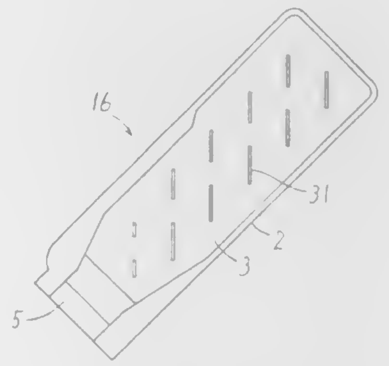
Kenichi Fukuda, and Toshikuni Hisaki, both of Takefu, Japan, assignors to Murata Manufacturing Co, Ltd., Nagaokakyo, Japan

Continuation of Ser. No. 517,673, Aug. 22, 1995, abandoned. This application Apr. 4, 1997, Ser. No. 833,117

Claims priority, application Japan, Aug. 26, 1994, 6-202404

Int. Cl.^{6} B65D *73/02*

U.S. Cl. 206—723 **22 Claims**



1. A cassette for operable inclined attachment to a hopper of an apparatus for mounting electronic components to discharge a plurality of freely movable electronic components by gravitational free-fall into an aligning passage within said hopper, said cassette comprising:

a case which defines a storage space in its interior for storing a plurality of electronic components which are unaligned and freely movable within said storage space, said case further comprising a discharge port configured for operable attachment to said aligning passage, and for communicating with said storage space for discharging said unaligned electronic components to said aligning passage wherein said freely movable electronic components are aligned in a predetermined direction in said aligning passage; and
at least one baffle wall included in said interior for partially blocking movement of said plurality of electronic components within said storage space;
wherein said case comprises a lower interior surface defined in the direction of the length of said case, wherein said at least one baffle is independent from said lower surface of said case to the extent that movement of said electronic components toward said discharge port is possible when said case is inclined.

5,735,409
SCREEN CLOTH ELEMENT AND SCREEN CLOTH FOR MAKING THE SAME

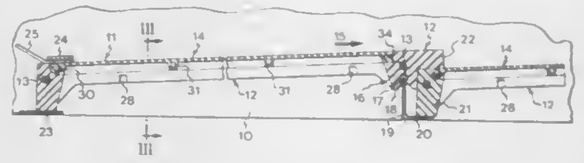
Mats Anders Malmberg, Trelleborg, Sweden, assignor to Trellex AB, Trelleborg, Sweden

Filed Mar. 27, 1995, Ser. No. 411,416

Claims priority, application Sweden, Oct. 5, 1994, 94850172

Int. Cl.^{6} B07B *1/49*

U.S. Cl. 209—399 **16 Claims**



1 A plurality of screen cloth elements mounted in a screen frame of a screening machine, said screen cloth elements being arranged one after another overlapping in a roof tile manner, each screen cloth element having a rigid mounting frame and a screen cloth which is retained thereby, said screen cloth having a rigid screen cloth frame and being designed as a separate element from the rigid mounting frame, said rigid mounting frame of said screen cloth element having a guide device laterally open relative to said screen cloth element and designed for sliding engagement with said screen cloth during insertion thereof in said guide device and further designed to prevent relative movements between said screen cloth and said rigid mounting frame of said screen cloth element in directions making an angle with a plane of said screen cloth, wherein guide surfaces of said guide device are so positioned in said screen cloth element as to be protected against contact with material placed on the screen cloth element during use, wherein said guide surfaces of successive screen cloth elements are protected by said screen cloth.

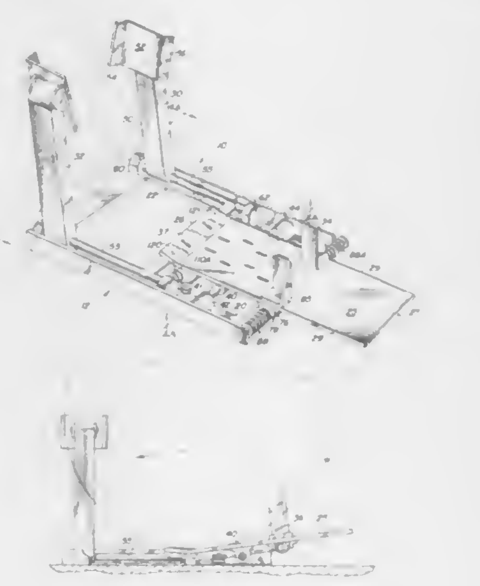
5,735,410
STAND FOR VEHICLE WHEEL

Ervin C. Kallstrom, 55 W. Hoover #11, Mesa, Ariz. 85210

Filed Sep. 12, 1996, Ser. No. 713,004

Int. Cl.^{6} A47F *5/00*

U.S. Cl. 211—20 **9 Claims**



1 A stand for securing the front tire-supporting wheel of a two-wheeled cycle in a stabilized, upright position, said stand comprising:

(a) a base having opposite sides and a forward and a rear end.

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(b) a wheel-receiving ramp pivotally mounted on a base, said ramp being pivotal between a wheel loading and a loaded position.

(c) a pair of oppositely disposed forward support means pivotally mounted on the opposite sides of said base, said forward support means movable between an open and a closed tire-engaging position;

(d) first actuating means interconnecting said ramp and said forward support means for moving said forward support means to said closed tire-engaging position when said ramp is pivoted to said loaded position.

(e) a pair of oppositely disposed rear support means mounted on said ramp and movable between a first and a closed tire engaging position; and

(f) second actuating means interconnecting said ramp and said rear support means and operable to move said rear supports from said first to said closed position when said ramp is pivoted to said loaded position with said wheel thereon.

5,735,411
CONSTRUCTIONAL SYSTEM

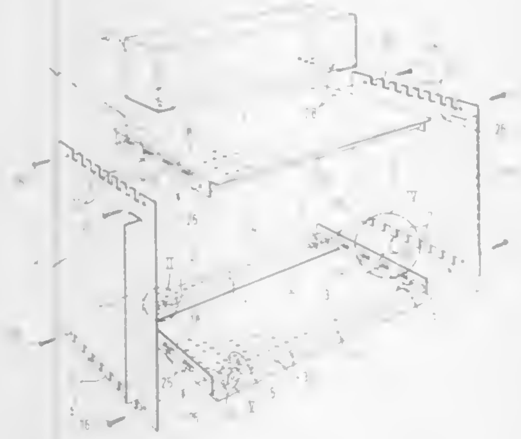
Hans Flamme, Unterhaching; Peter Simon, München, and Gerd Rheindt, Haar, all of Germany, assignors to Knürr-Mechanik für die Elektronik Aktiengesellschaft, München, Germany

Filed Feb. 9, 1996, Ser. No. 600,266

Claims priority, application Germany, Feb. 14, 1995, 295 02 404.6; May 2, 1995, 195 15 934.9

Int. Cl.^{6} A47F *7/00*

U.S. Cl. 211—26 **24 Claims**



1. A constructional system for equipment cabinets for accommodating electrical and electronic assemblies, units and printed circuit boards having vertically and horizontally arranged components comprising:

joint zones for connecting the components to each other including first joint zones designed in any of horizontal struts, cross struts and vertical struts, said struts being formed by a flat material including multiple bends or folds, the first joint zones being formed as end face location channels in said struts,

thread forming screws for fixing of said vertically and horizontally arranged components at said struts, and

engagements or indentations formed by one of a cutting tool and a punching machine diametrically to the longitudinal axes of said struts in at least one edge zone of said end face location channels.

5,735,412
SELF-GRIPING RACK AND METHOD FOR STACKING ARTICLES WITH RACK

Amuel E. Sheckells, 2374 Old Wire Rd., Meridian, Mich. 39301

Filed May 22, 1996, Ser. No. 651,489

Int. Cl.^{6} B65D *85/20*

U.S. Cl. 211—59.4 **44 Claims**

1. A rack having a plurality of holders for receiving articles in seats thereon, a first holder being positioned between a second and third holder, the first holder having a seat facing a first direction and the second and third holders each having at least one lower, arcuate seat facing a second direction and at least one side arcuate seat, the first direction being opposite to the second direction, the first holder being readily flexible and the second and third holders being rigid, the at least one side seat of each second and third holder being generally perpendicular to the at least one lower seat, the lower seats being adapted to engage a different article than the side seats.

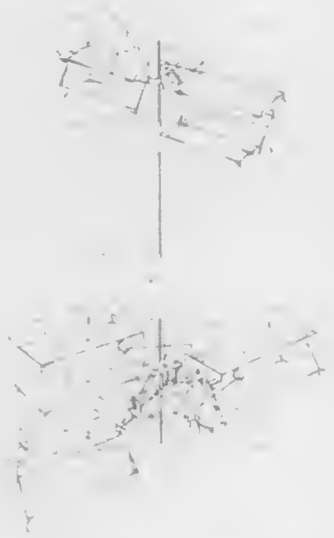
5,735,413
STORAGE CADDY AND WORK STATION

Benigene Allen, 2337 Swanson Rd., Portage, Ind. 46368

Filed Sep. 5, 1996, Ser. No. 708,633

Int. Cl.^{6} A47F *5/00*

U.S. Cl. 211—107 **19 Claims**



1. A storage caddy for a column comprising:

a main body having a mounting means for mounting said main body around said column, and

a support member pivotally connected to said main body and extending away from said main body, a tray rotatably connected to said support member such that said tray can be pivotally moved forward to a position that is accessible to a user and then moved back to a storage position away from an area used by said user; and

control means operatively associated with said tray for allowing rotation of said tray during the pivotal movement of said tray so that said tray is oriented at a fixed lateral angle with respect to a plane extending along the pivotal axis of the support member and column

5,735,414
SWIVEL-TYPE COAT HANGER ASSEMBLY

Chiu-hsiang Lo, No. 20, Lane 305, Sec. 3, Chungshan Rd., Lilin Village, Tantzu Hsiang, Taichung Hsien, Taiwan

Filed Jul. 29, 1996, Ser. No. 681,802

Int. Cl.^{6} A47F *7/00*

U.S. Cl. 211—162 **5 Claims**

1. A hanger assembly comprising

a base defining at least two elongate slots therein, a bore defined in said base and located between said two elongate slots,

at least one upright post having a lower end portion fixedly mounted on said base, a plate formed on the lower end portion of said upright post and defining a hole in a threaded periphery thereof, two extensions extending downwardly from said plate and each received in a corresponding one of said two elongate slots

a positioning member extending through said bore of said base and engaged in said hole of said plate, thereby fixing said plate on said base;

an upper bracket including at least one supporting brace fixedly mounted on an upper end portion of said upright post, and an annular track fixedly mounted on said supporting brace and

at least one suspension frame including a top rack slidably mounted on said annular track, and a bottom rack slidably mounted on said base

5,735,415
CHRISTMAS TREE WITH SHELVING SYSTEM

Steven P. Wilson, Lansing, Mich., assignor to S. P. Wilson, Inc., Lansing, Mich.

Filed Jul. 10, 1996, Ser. No. 677,895

Int. Cl.^{6} A47B *43/00*

U.S. Cl. 211—187 **1 Claim**

1. A Christmas tree having shelf structure incorporated therein comprising a vertical column, a plurality of branches extending from said column, a pair of brackets mounted on said column at a common vertical position radially extending in three radial directions from said column in a substantially common horizontal plane, each of said brackets having a pair of arms angularly disposed with respect to each other and each arm having an inner end, a concave

transition portion interconnecting said bracket's arm's inner end adapted to engage said column, a band encircling a portion of said column including ears adapted to engage said bracket arms' inner ends, fasteners interposed between said band ears and said arm's inner ends and contiguous bracket arms, such that the band and brackets firmly squeeze the column to achieve a mechanical connection thereto, and a single shelf simultaneously supported upon said bracket's arms

5,735,416
TRAVERSING GEAR ARRANGEMENT FOR A CRANE MOVING ON RUBBER TIRED WHEELS OR THE LIKE

Olavi Jussila, Hyvinkää, Finland, assignor to KCI Konecranes International Corporation, Hyvinkaa, Finland

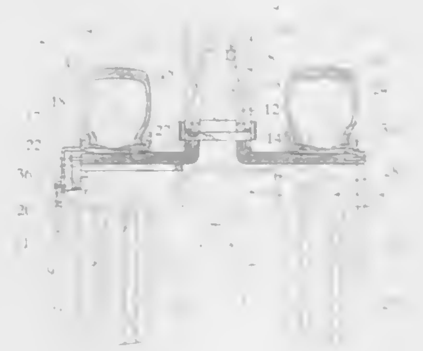
PCT No. PCT/FI95/00935, § 371 Date May 28, 1996, § 102(e) Date May 28, 1996, PCT Pub. No. WO96/02455, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 7, 1995, Ser. No. 612,963

Claims priority, application Finland, Jul. 15, 1994, 943399

Int. Cl.^{6} B66C *5/02*

U.S. Cl. 212—344 **4 Claims**



1. A wheel traversing gear assembly for a crane movable on wheels comprising a hollow pipe shaft

a pair of wheels each of the wheels being mounted on the pipe shaft, one of the pair of wheels being a drive wheel and the other a free wheel,

a traversing gear including an electric motor and gearing, the traversing gear being connected to the drive wheel and at least partly disposed inside the pipe shaft, and

first and second bearings arranged to roll on a surface of the pipe shaft, the drive wheel being mounted on the pipe shaft via said first roller bearing and the free wheel being mounted on the pipe shaft via said second roller bearing

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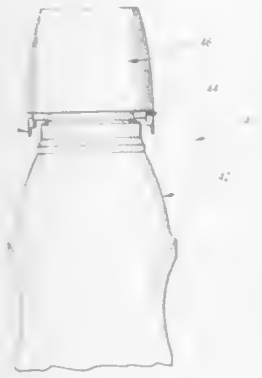
CONTAINER CLOSURE LOCKING ASSEMBLY

Richard C. Darr, Medina, Ohio, and Craig A. Larson, Howell, Mich., assignors to Plastipak Packaging, Inc., Plymouth, Mich.

Filed Dec. 5, 1996, Ser. No. 761,760
Int. Cl.^{6} B65D *55/02*
U.S. Cl. 215—216 **27 Claims**



1. A container closure locking assembly, comprising:

a plastic container having a body portion for holding container contents, a lower closed end for supporting the container, an upper dispensing end including a neck and a round dispensing spout having a central axis, said spout extending upwardly from the neck and including an external closure thread, and the upper dispensing end also including a retaining flange and a rotational positioning formation;

a plastic lock ring molded separately from the container and subsequently mounted and mechanically secured to the container, the plastic lock ring being positioned so as to extend around and be supported by the neck of the upper dispensing end below the external closure thread of the dispensing spout, said lock ring including retainers for engaging the retaining flange of the upper dispensing end of the container to secure the lock ring to the container, the lock ring including at least one external lock having an outer curved ramp surface of a radially ramped shape with respect to the central axis, the external lock including a lock surface that faces circumferentially with respect to the central axis, the external lock including an unlocking actuator for moving the lock surface thereof radially inward by manual movement of the unlocking acuator and the lock ring also including a rotational positioning formation that engages the rotational positioning formation of the container to rotatively position the lock ring and the lock surface thereof about the central axis, and

a closure having an internal thread that is threaded onto the external thread of the dispensing spout to secure the closure and close the container, the closure having at least one internal lock having an inner curved ramp surface of a radially ramped shape with respect to the central axis, the internal lock of the closure also having a lock surface that faces circumferentially with respect to the central axis and is engaged with the lock surface of the external lock on the lock ring to prevent unthreading rotation of the closure from the dispensing spout, and the lock surface of the internal lock of the closure being disengaged from the lock surface of the external lock of the lock ring by inward manual movement of the unlocking actuator to permit unthreading rotation of the closure

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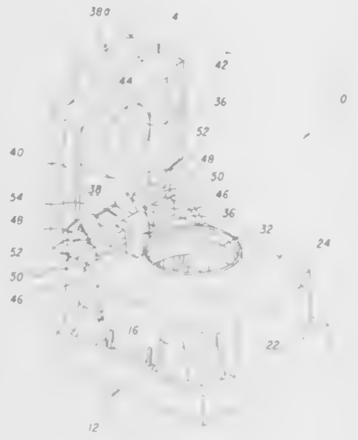
5,735,418
CLOSING DEVICE FOR CONTAINER

Hermann Erb, Fussgönnheim; Stephan Sattler, Peissenberg, and Albert Wohland, Viernheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Filed Jun. 1, 1995, Ser. No. 457,436
Claims priority, application Germany, Jun. 1, 1994, 44 19 116.2
Int. Cl.^{6} B65D *43/16*
U.S. Cl. 215—237 **22 Claims**



1. A closing device for containers, said closing device comprising

a lid having a first stopping abutment protruding therefrom,

a lid support hingably connected to said lid, said lid support including a second stopping abutment thereupon, said second stopping abutment on said lid support being disposed to engage said first stopping abutment on said lid when said lid is in an opened position,

spring means disposed between said lid and said lid support, said spring means being configured to urge said lid toward a closed position with respect to said lid support when an angle between the lid and the lid support is smaller than an angle at which the spring means is at a dead center position, said spring means urging said first stopping abutment on said lid into contact with said second stopping abutment on said lid support in an opening direction of said lid, defining an open position, when the angle between the lid and the lid support is larger than the angle at which the spring means is at the dead center position,

wherein said first and second stopping abutments have respective first and second contact surfaces, and wherein a force from the spring means acting upon the lid to swing the lid beyond the dead center position, to said open position, generates a reactive force in a direction which is perpendicular to planes of the contact surfaces.

5,735,419
RESEALABLE PLASTIC SNAP-FIT CLOSURE WITH ANTI-TAMPER FUNCTION

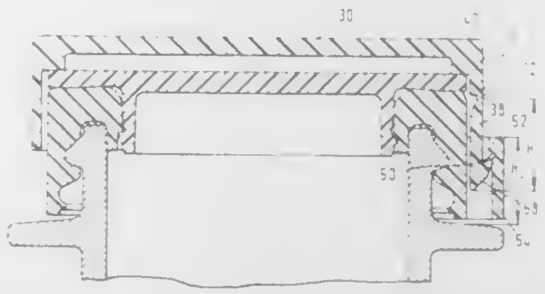
Xiaoli Ma, Bartlett, Ill., assignor to Crown Cork & Seal Company, Inc., Philadelphia, Pa.

Filed Feb. 16, 1996, Ser. No. 606,042
Int. Cl.^{6} B65D *55/02*
U.S. Cl. 215—253 **14 Claims**

1. In a closure for sealing the mouth of a container, said closure comprising

an attachment ring for durable installation on the container at its mouth, said ring having an opening substantially coextensive with said mouth,

a sealing assembly installed in said ring to sealingly engage the mouth said assembly comprising



a plug having a sealing lip and an annular protrusion extending outwardly beyond the lip, and a release lever connected to said plug to pry the plug out of the opening, the improvement wherein

said release lever comprises at least one radial hook extending downwardly from the lever and being attached to the outer edge of the lever by frangible means,

said hook being engageable with retainer connected to the mouth of the container, directly or indirectly

the lever being connected to the retainer in its closed position by means of the hook, the frangible means being constructed to break when the lever is lifted during a first opening of the closure

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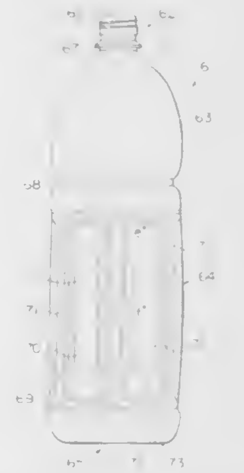
5,735,420
BIAXIALLY-STRETCH-BLOW-MOLDED CONTAINER HAVING EXCELLENT HEAT RESISTANCE AND METHOD OF PRODUCING THE SAME

Setsuko Nakamaki; Yoshitsugu Maruhashi; Nobuyuki Kato; Kenji Matsuno, all of Yokohama; Hideo Kurashima, Yokosuka; Hiroo Ikegami, Sagamihara, and Kimio Takeuchi, Kawasaki, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Division of Ser. No. 442,401, May 6, 1995, Pat. No. 5,585,065. This application Aug. 14, 1996, Ser. No. 696,739
Claims priority, application Japan, May 16, 1994, 6-100365
Int. Cl.^{6} B65D *1/02, 1/42, 23/00*
U.S. Cl. 215—373 **6 Claims**



1. A one-piece type heat resistant polyester bottle having excellent strength in its bottom portion, heat resistance, symmetrical panel-sinking stability in the presence of a vacuum pressure and self-standing stability obtained by stretch blow molding a thermoplastic polyester and having a neck portion, a barrel portion which is dram and is heat set and a bottom portion the barrel portion thereof being provided with a panel rib structure to prevent poor-looking deformation of the bottle caused by the vacuum pressure, wherein the bottom portion includes a bottom center portion having a thick portion at its center which is inwardly recessed in an axial direction of the bottle and a peripheral grounding portion which downwardly extends in the axial direction beyond the bottom center portion, the portions excluding the neck portion part of the barrel portion continuous to the neck portion and the thick portion at the center of the bottom portion, have a thickness which is reduced to not larger than 0.6 mm and are molecularly oriented to have a birefringence in a circumferential direction of not smaller than 0.070 and are further heat set to have a crystallinity of not smaller than 35 %.

5,735,421
PLASTIC BOTTLE HAVING ENHANCED SCULPTURED SURFACE APPEARANCE

David A. Deemer, and Charles M. Brandt, both of Douglasville, Ga., assignors to Constar Plastics, Inc., Atlanta, Ga.

Continuation of Ser. No. 482,805, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 236,365, Apr. 29, 1994, abandoned. This application Feb. 9, 1996, Ser. No. 599,109
Int. Cl.^{7} B65D *1/40*
U.S. Cl. 215—382 **20 Claims**

1. A plastic bottle having a substantially uniform side wall thickness yet having a sculptured appearance the bottle comprising a base portion for supporting the bottle on an underlying substrate, a side wall portion extending upward from a lower margin united to the base portion to an upper margin, a shoulder portion extending from the upper margin of the side wall portion to a neck portion, and a finish portion united to the neck portion and adapted to receive a closure, at least one of the side wall and shoulder portions including a plurality of generally vertical ribs spaced uniformly around a circumference of the bottle, each generally vertical rib having an upper and lower end, at least one set of the upper and lower ends of the ribs terminating at a common height on the container, at least one of the upper and lower ends of the ribs being joined together by a set of rib segments forming a line around the circumference of the bottle giving the bottle an appearance of a substantial variation in side wall thickness wherein each of the plurality of generally vertical ribs comprises in cross section a central portion situated at a first radius from the bottle axis and a pair of generally symmetric side portions leading to the bottle surface at a second radius from the bottle axis and wherein each of the generally symmetric side portions of each of the plurality of generally vertical ribs includes in cross section a curved surface portion having a radius less than 4 times the thickness of the side wall

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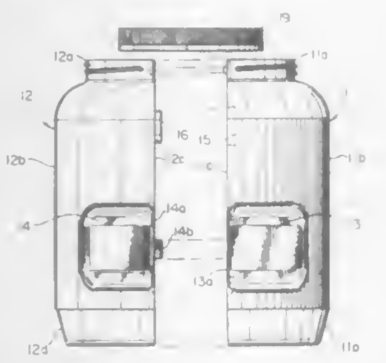
5,735,422
MULTIPLE PART CONTAINER

Randolph K. Binter, 928 Fernwood, Moorestown, N.J. 08057
Continuation of Ser. No. 605,462, Feb. 26, 1996, abandoned.
This application Apr. 4, 1997, Ser. No. 825,960
Int. Cl.^{6} B65D *1/04, 1/10, 1/40*
U.S. Cl. 220—4.21 17 Claims



1. A multiple part container having a central longitudinal axis and a rounded cross section, said multiple part container comprising

a plurality of individual separable containers each having a mouth, a flat sidewall, a curved sidewall and a closed bottom to form fractional portions of said multiple part container, a depression on each side of the curved sidewall of each individual container, said depressions in each curved sidewall extending inwardly toward said central longitudinal axis and mating with a depression in the adjacent fractional portion of the multiple part container, and

locking structure integral with and extending outwardly from said mating depressions of each individual container for locking together said individual containers forming said fractional portions about said central longitudinal axis to form a unitary multiple part container

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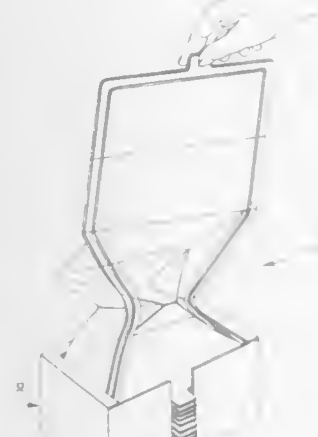
5,735,423
FOLDABLE SELF-STANDING CONTAINER WITH METHOD OF MANUFACTURE AND BULK DISPENSER

William S. Black, 696 E. 400 South, Provo, Utah 84606, assignor to William S. Black, Provo, Utah
Division of Ser. No. 508,817, Jul. 28, 1995, abandoned. This application Sep. 26, 1996, Ser. No. 721,047
Int. Cl.^{6} B65D *25/38*
U.S. Cl. 220—23.83 20 Claims



1. A dispensing system for dispensing a foldable, self standing container, the dispensing system comprising

(a) a foldable, self standing container the foldable, self standing container having a substantially flat, folded position and an alternate open, self standing position,

(b) a receptacle containing the foldable, self standing container, the foldable, self standing container being positioned within the receptacle in the substantially flat, folded configuration and

(c) means for removing the foldable, self standing container from the receptacle in a manner whereby the foldable, self standing container transitions into the open, self standing position as it emerges from the receptacle, the means for removing the foldable, self standing container from the receptacle comprising an opening in the receptacle through which the foldable, self standing container can be removed, the foldable, self standing container having a surface area that is larger than the surface area of the opening of the receptacle

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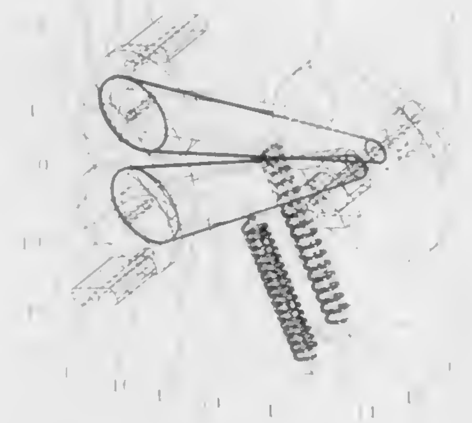
5,735,424
FUEL PORT ACCESS DOOR CONNECTED AUTOMOBILE GAS CAP ASSEMBLY

Everett G. Diederiks, Jr., 12804 Valleyhill St., Lake Ridge, Va. 22192, and Edwin E. Puett, Jr., 101 SE. Ontario Way, Stuart, Fla. 34997
Filed Jul. 19, 1995, Ser. No. 503,951
Int. Cl.^{6} B65D *51/16*
U.S. Cl. 220—203.01 20 Claims



1. A gas cap assembly for selectively providing access to a filling port of a fuel fill tube located behind a pivotable access door formed as part of a vehicle body portion comprising:

a body unit sealingly engageable at the filling port of the fuel fill tube, said body unit including a central opening for receiving a fuel nozzle,

a cover member pivotally attached to said body unit through a hinge member, said cover member being pivotable between a closed position in which said cover member covers said central opening and an open position wherein a fuel nozzle can be directly inserted through said central opening into the fuel fill tube, and

means for interconnecting said cover member with the pivotable access door such that opening of the access door automatically shifts said cover member from said closed position to said open position

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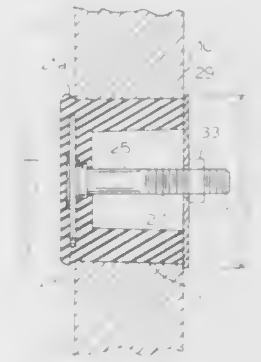
5,735,425
REUSABLE BEER KEG PLUG

Leigh P. Beadle, 375 1/2 Tenney Cir., Chapel Hill, N.C. 27514
Filed May 20, 1996, Ser. No. 650,738
Int. Cl.^{6} B65D *53/00*
U.S. Cl. 220—235 2 Claims



1. A reusable expandable plug for plugging an inwardly tapered round hole formed in a wall of a beer keg and extending between an outer surface and an inner surface, said plug comprising

(a) an integral cup-like body portion formed of a food grade elastomeric material and having a conical, substantially smooth side wall extending between an outer open end with a first outside diameter and a closed base wall having a second outside diameter that is smaller than said first outside diameter, said cup-like body portion being adapted to frictionally fit within said inwardly tapered hole prior to being expanded and said body portion being of a depth so as to project internally of said hole in said beer keg wall

(b) a first round rigid plate embedded in said base wall,

(c) a shaft embedded in said base wall and having an inner end secured to said first plate and a threaded outer end extending outwardly of the outer open end of said side wall,

(d) a second round rigid plate having a central aperture adapted to loosely receive said shaft and having an outside diameter at least slightly in excess of the outside diameter of said side wall outer open end such that a peripheral portion of said second plate is able to bear on said keg wall surrounding said hole when said second plate is drawn toward said first plate and

(e) threaded fastener means fitted on said threaded outer end for drawing said second plate toward said first plate when said plug is frictionally fitted within said hole so as to cause said body portion side wall to expand and frictionally grip an inner surface of said hole and to cause a relatively small portion of said sidewall projecting internally of said hole in said beer keg to expand to a diameter greater than an inside diameter of said hole

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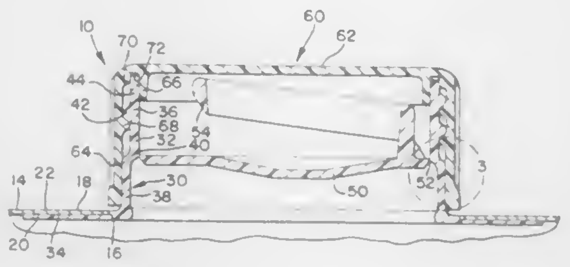
5,735,426
FITMENT-CLOSURE ASSEMBLY FOR GABLE-TOPPED CARTON

David E. Babcock, Lafayette, and Hugh C. Ermston, Carmel, both of Ind., assignors to Alcoa Closure Systems International Inc., Crawfordsville, Ind.
Filed Dec. 17, 1996, Ser. No. 768,138
Int. Cl.^{6} B65D *5/22*
U.S. Cl. 220—258 14 Claims

1. A fitment and closure assembly useful with a gable topped carton having a gable forming panel with a pouring hole through which contents are pourable from the carton, the fitment and closure assembly comprising:

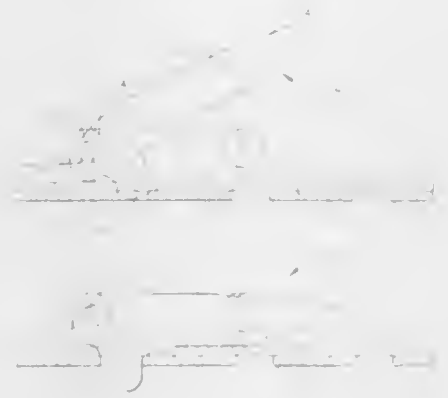
(a) a fitment molded from a polymeric material and having a tubular spout and an annular flange unitary with the tubular spout, the tubular spout being formed with an external thread and terminating at an unthreaded upper end extending above the external thread, the annular flange extending outwardly from the tubular spout below the external thread, the fitment being attachable to the gable forming panel so that the annular flange is attached to the gable-forming panel around the pouring hole, and so that the tubular spout extends upwardly from the pouring hole.



(b) a closure molded from a polymeric material and having an upper wall and a tubular skirt unitary with the upper wall, the tubular skirt depending from the upper wall and having an internal thread and an upper shoulder above the internal thread, the closure having a plug seal unitary with the closure wall, the plug seal being tubular and depending from the upper wall so as to form an annular recess between the plug seal and the upper shoulder, the plug seal extending below the upper shoulder, the closure being threadable onto the fitment so that the external and internal threads are interengaged, so that the plug seal enters the tubular spout before the upper end of the tubular spout enters the annular recess to provide a primary seal at an annular interface between the plug seal and the upper end of the tubular spout, and so that the upper end of the tubular spout enters the annular recess with an interference fit so as to provide a seal at another annular interface between the upper shoulder and an outwardly facing surface of the upper end of the tubular spout, said plug seal extending into said upper end of said tubular spout inwardly of said external thread, said tubular spout having a thickness no greater than approximately 0.033 inch, except at the external thread.

5,735,427
OPEN TOP CONTAINER

John H. Hunter, Placerville, and Charles F. Hudson, Rowland Hts., both of Calif., assignors to Russell-Stanley Corporation, Redbank, N.J.
Filed Oct. 23, 1995, Ser. No. 546,976
Int. Cl.^{6} B65D *45/16*
U.S. Cl. 220—324 17 Claims



1. A container comprising:

a drum having an opening for receiving material to be contained therein and a circular flange about said opening, said flange having a first engagement means associated therewith;

a lid for covering said opening of said drum, said lid having a second engagement means associated therewith and engageable with said first engagement means.

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one or more clamps comprising means for rotating the lid and locking the first and second engagement means into an engaged relationship
wherein said first engagement means comprises slots in the flange for receiving said second engagement means and further wherein at least one of said cooperating first or second engagement means comprises a chamfered surface which contacts the cooperating engagement means when the one or more clamps are activated to draw the lid down onto the drum.

5,735,428
SEALING CONTAINER

Yuh Shun Chern, 3F, No. 54, Lane 27 Sanho Road, Sec. 4, Sanchung, Taipei, Taiwan

Filed Apr. 10, 1997, Ser. No. 827,824
Int. Cl.⁷ B65D *51/16*, F05C *5/02*

U.S. Cl. 220—324 **1 Claim**

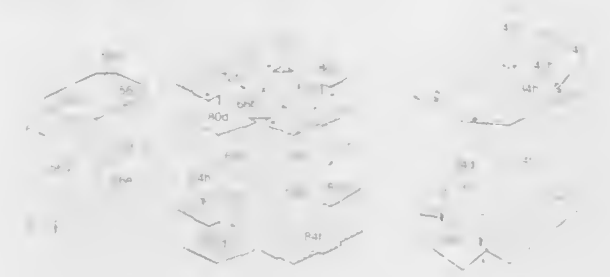
1. A sealing container comprising
a container body having a first pair of lugs and a second pair of lugs raised from the periphery at two opposite sides near its topmost edge
a sealing cap pivoted to the first pair of lugs of said container body for sealing said container body, said sealing cap having a retainer block raised from the periphery corresponding to the second pair of lugs of said container body
a pivot pin transversely coupled between the second pair of lugs of said container body; and
a lever turned about said pivot pin and having a top end terminating in a hooked portion to be forced into engagement with the retainer block of said sealing cap to hold down said sealing cap on said container body
wherein said second pair of lugs of said container body comprises each a through-hole in which said pivot pin is mounted, and a springy, smoothly curved projecting portion projecting into said through-hole [illegible] lugs comprising [illegible] vertical [illegible] portion at the top, a transverse retaining portion at the bottom, and an [illegible] intermediate portion [illegible] between said [illegible] portion and said transverse retaining portion corresponding to said springy smoothly curved projecting portion [illegible] said lever is allowed to be turned about said pivot pin to force its hooked portion into or out of engagement with said retainer block of said sealing cap [illegible] and transverse retaining portion [illegible] portion.

5,735,429
CONTAINER FOR BULK FREE FLOWING MATERIAL

James R. Whitworth, Sheperdsville, Ky., assignor to Willamette Industries, Inc., Portland, Oreg.

Filed Nov. 15, 1995, Ser. No. 559,279
Int. Cl.⁶ B65D *5/56*

U.S. Cl. 220—416 **11 Claims**



1. A container constructed of corrugated fiberboard for containing fluent materials, comprising
a polygonal tubular outer box
a polygonal tubular inner box having a greater number of sides than the outer box and disposed within the outer box, the sides of the inner box defining a passageway therethrough.
a first pair of flaps, one flap of said pair connected to one side of the inner box, the other flap of said pair connected to an opposite side of the inner box, each flap of said pair including an outer free marginal edge
wherein each flap of said pair is foldable over the passageway such that the outer free marginal edge of the first flap of said pair engages the outer free marginal edge of the second flap of said pair when the flaps are folded over the passageway into a closed position, the engaged flaps when in the closed position locking the inner box into a fixed cross sectional shape, each flap of said first pair of flaps also including opposite free side edges, at least one of said opposite free side edges defining a shoulder therealong; and
at least one additional flap connected to a side of the inner box and defining an edge that engages said shoulder when said first pair is in the closed position, thereby locking said first pair of flaps in the closed position and preventing said first pair of flaps from moving out of said closed position.

5,735,430
UNDERGROUND STORAGE CONTAINER

Dewitt Y. Gorman, P.O. Box 266935, Houston, Tex. 77207

Filed Aug. 10, 1995, Ser. No. 513,484
Int. Cl.⁶ B65D *41/04*

U.S. Cl. 220—484 **20 Claims**

1. An underground storage container for safeguarding and protecting [illegible] from weather damage comprising:

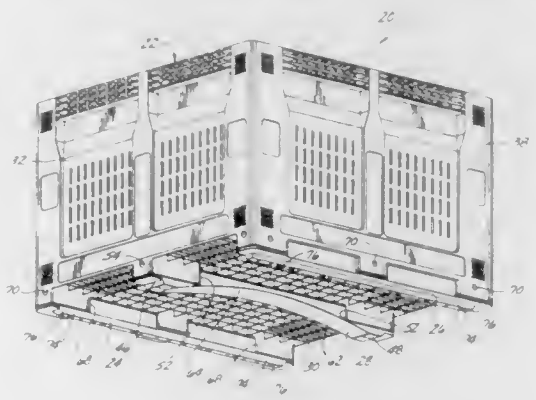
a hollow container having an upper end and a lower end, said upper end having an opening therein;
a cover which mates sealingly within said opening to isolate the interior of said container from the exterior of said container, said cover forming a hole therethrough;
means for connecting said cover to said container;
a vacuum release mechanism disposable within said hole for connecting to said cover, said vacuum release mechanism having a first position allowing fluid communication through said hole between the interior of said container and the exterior of said container for eliminating pressure differentials between the interior of said container and the exterior of said container facilitating opening and closing of said cover on said container, said vacuum release having a second position preventing fluid communication between the interior of said container and the exterior of said container through said hole for sealing said container; and
an auger affixed to the exterior of said container for securing said container in the ground during installation.

5,735,431
BIN HAVING AN ARCHED BEAM BOTTOM

Stephane F. LeTrudet, St. Charles, Mo., assignor to Allibert-Contico, L.L.C., St. Louis, Mo.

Filed Aug. 19, 1996, Ser. No. 699,620
Int. Cl.⁶ B65D *6/00*

U.S. Cl. 220—639 **20 Claims**

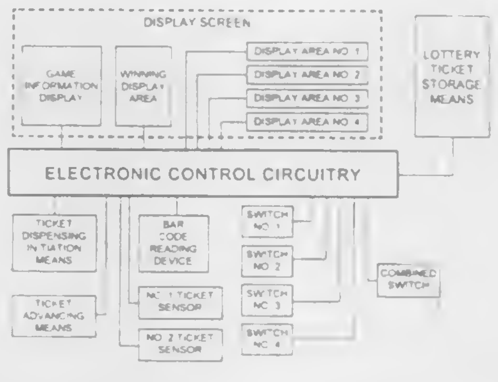


1. A bin comprising:
a bin bottom; and
forward and rearward opposing end walls and first and second opposing side walls, said end walls and side walls extending up from the bottom and defining a bin interior configured for holding product;
said bottom comprising a support beam extending generally rearwardly from the forward end wall to the rearward end wall and being laterally spaced between the side walls, and a plurality of stiffening ribs between the support beam and side walls, said stiffening ribs having generally straight lower edges, said support beam being generally arch shaped and having a downward-facing, arcuate surface constituting a part of an underside of the bottom, said arcuate surface being generally curved as viewed in a vertical cross-section taken along the length of the support beam.

5,735,432
SYSTEM FOR AND METHOD OF DISPENSING LOTTERY TICKETS

Raymond G. Stoken, and Bernard J. Dobransky, Jr., both of Irwin, Pa., assignors to Cory Consultants, Inc., Tucson, Ariz.
Continuation-in-part of Ser. No. 527,946, Sep. 14, 1995, Pat. No. 5,657,899. This application May 6, 1996, Ser. No. 643,313
Int. Cl.⁶ B65G *59/00*

U.S. Cl. 221—1 **33 Claims**



1. A lottery ticket dispensing system for lottery tickets of the type which includes a front sheet having window means which are normally closed, a rear sheet, means for bonding the front sheet and the rear sheet together, play symbols on an inward side of the rear sheet toward an inward side of the front sheet, the play symbols capable of being winning symbols, the play symbols being located in play regions on the inward side of the rear sheet in alignment with the window means, and the window means for being opened to reveal the play symbols in the play regions thereunder, said lottery ticket dispensing system comprising.
a bar code window in one of the front sheet and the rear sheet of the lottery ticket which said bar code window is normally closed;
bar code markings for each lottery ticket on at least one of the inward side of said bar code window and the inward side of the other of the rear sheet and the front sheet in alignment with said bar code window;
said bar code markings including ticket information for indicating the play symbols in the play regions as aligned with the window means;
a lottery ticket dispensing machine including a housing and a front panel;
ticket storage means in said housing for storing a plurality of the lottery tickets;
electronic control means in said housing including ticket dispensing means for dispensing each lottery ticket from said ticket storage means for advancement toward said front panel;
bar code window opening means in said housing for opening said bar code window to reveal said bar code markings of each lottery ticket dispensed from said ticket storage means.
a bar code reading device in said housing adjacent to said bar code window opening means operably connected to said electronic control means for reading and identifying the bar code markings of each lottery ticket and for storing said ticket information in said electronic control means regarding the play symbols as located in the play regions as each lottery ticket advances toward said front panel:
said front panel having display areas which directly correspond to the play regions on the inward side of the rear sheet of the lottery ticket;
said display areas being operably connected to said electronic control means for receiving display signals therefrom;
means for providing an actuation signal to said electronic control means to cause said electronic control means to generate said display signals for said display areas.

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said display signals producing display symbols in said display areas; and,

for each lottery ticket having been dispensed from said ticket storage means, said display symbols in said display areas being directly indicative of the play symbols of the play regions which correspond to said display areas.

5,735,433
APPARATUS FOR DISPENSING SLICED BREAD

Andrew Harold Power, 79 Bridge Street, Toowoomba, Queensland, 4350, Australia

PCT No. PCT/AU95/00298, § 371 Date Nov. 22, 1996, § 102(e) Date Nov. 22, 1996, PCT Pub. No. WO95/31921, PCT Pub. Date Nov. 30, 1995

PCT Filed May 23, 1995, Ser. No. 737,918

Claims priority, application Australia, May 23, 1994, PM5785

Int. Cl.^{6} A47G *19/32*, A47J *47/01*

U.S. Cl. 221—229 **15 Claims**

1 An apparatus for dispensing sliced bread comprising a rigid container body in which a plurality of bread slices can be placed, the container body being generally closed to prevent the bread from becoming stale and having an upper inlet to allow bread slices to be placed in the container body, the container body further having a generally open lower end through which bread slices can pass,

a base assembly linearly moveable between a closed position where it closes the open lower end of the container body, and an open position where the base assembly is spaced from the open lower end to allow bread to be removed from the apparatus, the base assembly having a bread support platform which can support the lowermost slice of bread in the container body when the base assembly is in the closed and open positions,

biasing means to naturally bias the base assembly into its closed position, and,

separating means adjacent the lower end of the container body and moveable between a retracted position where bread slices can move past the separating means and into the base assembly and an extended position where such movement is prevented, the separating means being moved between its said positions upon movement of the base assembly.

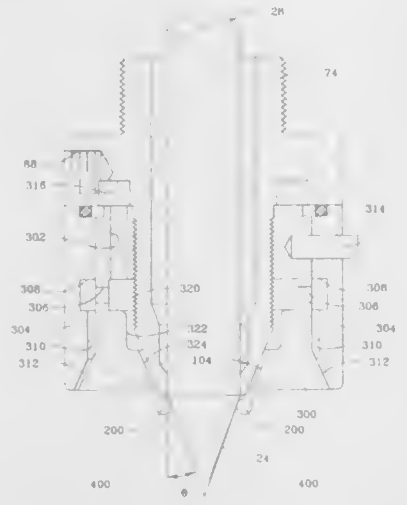
5,735,434
DISPENSING APPARATUS WITH IMPROVED FLUID VALVE AND AIR KNIFE AND METHOD

David M. J. Rayner, Orangeville, Canada, assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Continuation-in-part of Ser. No. 721,781, Sep. 25, 1996, abandoned. This application Feb. 24, 1997, Ser. No. 804,847

Int. Cl.^{6} B67D *1/08*

U.S. Cl. 222—1 **22 Claims**



1 A dispensing apparatus for dispensing a material, the apparatus comprising:

a) a valve assembly comprising

1) a valve member movable in a reciprocating fashion along an axis, said valve member including a stem having at least one material transfer recess provided on the stem and a tapered dispensing end having an angle of taper, said valve member movable between a first position where a discrete toroidal mass of material to be dispensed is formed at the dispensing end and a second position where a discrete toroidal mass of material to be dispensed is not formed at the dispensing end; and

b) a material dispensing assembly comprising fluid knife means for moving the discrete toroidal mass to be dispensed from the dispensing end away from the dispensing end, when the valve member is in the first position, said fluid knife means being supplied substantially parallel to the angle of taper of the dispensing end.

5,735,435
FUEL DISPENSER WITH SEISMIC VIBRATION PERCEPTION FUNCTION.

Kenji Kobayashi; Kengo Yamazaki, and Hiroyuki Okaniwa, all of Tokyo, Japan, assignors to Tatsuno Corporation, Tokyo, Japan

Filed Mar. 22, 1996, Ser. No. 620,571

Claims priority, application Japan, Mar. 23, 1995, 7-090354; Apr. 6, 1995, 7-106859

Int. Cl.^{6} B67D *5/08*

U.S. Cl. 222—63 **10 Claims**

1 A fuel dispenser with a seismic vibration perception function comprising:

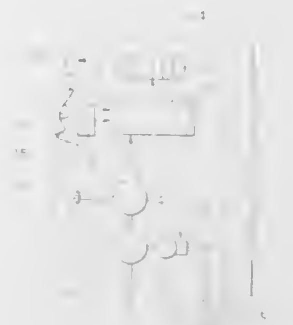
a pump motor,

a fuel-feeding pump which is driven by said pump motor;

flow volume measuring means for measuring the amount of fed fuel and outputting a flow volume pulse signal,

a nozzle switch for transmitting a nozzle-unhooked signal and a nozzle-hooked signal; and

fueling control means for causing said pump motor to be "on" and "off" by receiving said nozzle unhooked signal and said nozzle-hooked signal respectively, and counting the flow volume of fuel by receiving said flow volume pulse signal, said fueling control means comprising seismic vibration perception means for perceiving vibration and transmitting a seismic vibration perception signal for suspending electric supply to said pump motor.



5,735,436
JUICE CONCENTRATE PACKAGE FOR POSTMIX DISPENSER

Alfred A. Schroeder; Michael T. Romanyszyn, Jr., both of San Antonio, Tex.; Stephen B. Getsy, Erie, Pa.; Gregg S. Montgomery, West Chester, Ohio; Joseph J. Wolfe, Scottsdale, Ariz., and Norman P. Wittig, Corry, Pa., assignors to The Coca-Cola Company, Atlanta, Ga.

Division of Ser. No. 443,985, May 18, 1995, Pat. No. 5,615,801, which is a continuation-in-part of Ser. No. 178,721, Jan. 10, 1994, Pat. No. 5,494,193, which is a division of Ser. No. 843,757, Feb. 28, 1992, Pat. No. 5,305,923, which is a continuation of Ser. No. 752,406, Aug. 30, 1991, abandoned, which is a continuation-in-part of Ser. No. 634,857, Dec. 27, 1990, abandoned, which is a continuation-in-part of Ser. No. 534,601, Jun. 6, 1990, abandoned, and a continuation-in-part of Ser. No. 715,433, Jun. 14, 1991, abandoned. This application Jan. 21, 1997, Ser. No. 786,720

Int. Cl.^{6} B67D *5/56*

U.S. Cl. 222—129.1 **2 Claims**

1 A disposable juice concentrate package for insertion into a postmix juice dispenser comprising:

(a) an integral, disposable plastic package housing enclosing a concentrate chamber and a pumping chamber,

(b) said package housing including an upper concentrate housing enclosing said concentrate chamber and having a concentrate chamber outlet opening,

(c) said package housing including a lower pump housing enclosing said pumping chamber and having a concentrate inlet opening into said pumping chamber and a concentrate outlet opening out of said pumping chamber,

(d) said concentrate housing having a lower peripheral connecting edge surrounding said concentrate chamber outlet opening,

(e) said pump housing having an upper peripheral edge surrounding said pump housing inlet opening,

(f) said upper peripheral edge of said pump housing being sized to mate with, and being sealed to, said lower peripheral connecting edge of said concentrate housing, and

(g) a progressive cavity pump located in said lower pump housing and having an inlet end adjacent said inlet opening of said pumping chamber and having an outlet end adjacent said outlet opening of said pumping chamber, said pump including a rotor and a stator, said rotor including a drive shaft extending through a liquid-tight seal through said pump housing exteriorly of said pump housing.

5,735,437
LOCKABLE, HAND-HELD DISPENSER AND MIXING TRAY FOR DISPENSING SMALL QUANTITIES OF MATERIAL

Bruce R. Broyles, Oakdale; James A. Wilson, North St. Paul; Vern E. Radewald, Birchwood, and James C. Biesecker, Eagan, all of Minn., assignors to Minnesota Mining and Manufacturing, St. Paul, Minn.

Continuation of Ser. No. 589,818, Jan. 22, 1996, abandoned. This application May 29, 1996, Ser. No. 655,051

Int. Cl.^{6} B67D *5/52*

U.S. Cl. 222—137 **24 Claims**

7 A dispenser comprising:

a body,

a first chamber connected to said body for containing a quantity of material to be dispensed, said first chamber including an outlet,

a plunger coupled to said body and movable relative to said body in an advancement direction toward said chamber,

a lever pivotally connected to said body and movable relative to said body between a first position and a second position, said lever being connected to said plunger for advancing said plunger as said lever is moved from said first position to said second position, and

a cap detachably connected to said outlet, said cap including an arm in contact with said lever when said cap is connected to said outlet for releasably retaining said lever in said first position.

5,735,438
PRESS-TO-OPEN DISPENSING CLOSURE

Efrem Ostrowsky, 2775 Fort Sheridan Ave., Highland Park, Ill. 60035

Filed Apr. 26, 1996, Ser. No. 638,096

Int. Cl.^{6} B65D *47/08*

U.S. Cl. 222—153.06 **24 Claims**

1 A dispensing closure system for a container having an opening through which the contents of the container are dispensed comprising:

a unitary operating structure mounted on one side of said opening and including first and second arms connected together by an integral hinge at adjacent ends of the arms, the opposite ends of the arms being secured to the container at spaced apart pivots, the arms and the hinge being constructed and arranged to permit the arms and the hinge to be moved between a first stable position with the hinge disposed outside

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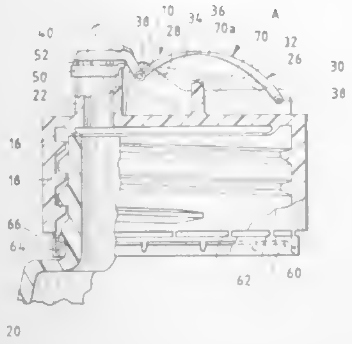


a line passing through the spaced apart pivots and a second stable position with the hinge disposed inside said line; and

a closure member fixed to one of said arms for pivotal movement between a first position closing said opening in the container when the arms and the hinge are in said first stable position, and a second position spaced outwardly of the opening when the arms and the hinge are in said second stable position,

whereby the closure member is opened by pushing inwardly on the arms of the operating structure in a direction opposite the opening direction of the closure member.

5,735,439
APPARATUS FOR THE METERED DISCHARGE OF BULK MATERIAL FROM A FLEXIBLE SUPPLY CONTAINER ESPECIALLY IN A DOSING SYSTEM

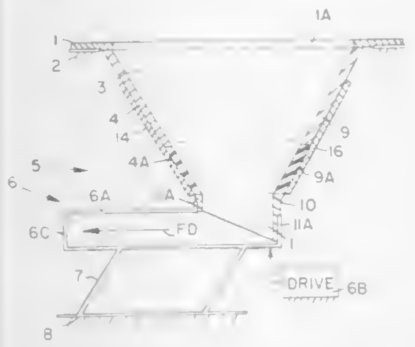
Harald Heinrici, Biebesheim; Ludger Toerner, Eppertshausen, and Juergen Biebel, Ruesselsheim, all of Germany, assignors tu Carl Schenck AG, Darmstadt, Germany

Filed Sep. 30, 1996, Ser. No. 723,530

Claims priority, application Germany, Oct. 6, 1995, 195 37 219.0

Int. Cl.^{6} B65D *83/00*

U.S. Cl. 222—199 **17 Claims**



1 An apparatus for discharging bulk material comprising a bulk container for holding bulk material, said bulk container having a container wall with a determined vibration response characteristic, a filling opening, a discharge opening, and at least one movable wall portion (4A, 9A) in said container wall for transmitting a discharge enhancing motion to bulk material inside said bulk container, a discharging device (6) for feeding bulk material out of said bulk container, a rigid vibration transmitting mounting (10) rigidly securing said discharging device (6) to said discharge opening of said supply container for transmitting vibratory motions of said discharging device (6) through said movable wall portion (4A, 9A) of said bulk container to said bulk material, and a flexible mounting (7) movably securing said discharging device (6) to a fixed support (8) for substantially preventing the transmission of said vibratory motions of said discharge device (6) to said fixed support (8) while enhancing the transmission of said vibratory motion of said discharging device (6) to said bulk material through said at least one movable wall portion (4A, 9A) and through said rigid vibration transmitting mounting (10)

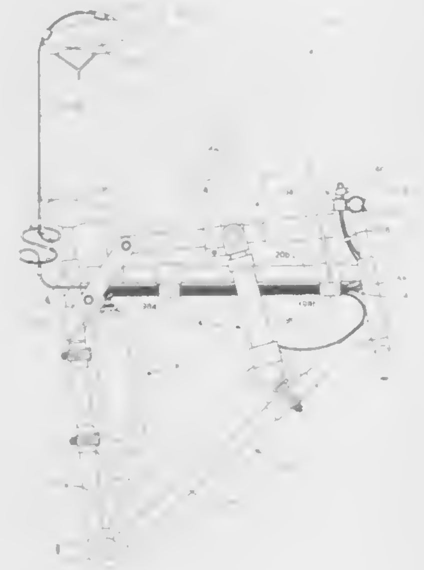
5,735,440
BICYCLE MOUNTED SQUIRT GUN AND FLUID DISPENSING APPARATUS

Michael A. Regalbuto, 3734 Benton St., Santa Clara, Calif. 95051

Filed Apr. 15, 1996, Ser. No. 633,065

Int. Cl.^{6} A01C *5/64*

U.S. Cl. 222—610 **20 Claims**



1 An apparatus for dispensing fluid from a bicycle having a handlebar assembly and a frame, comprising,

a pump having a manual actuator, a first frame mounting bracket for mounting the pump to the frame and a pump exhaust port;

a reservoir having a second frame mounting bracket, coupled to the pump exhaust port, for holding fluid under pressure,

an actuatable trigger assembly for mounting to the bicycle and coupled to the reservoir for releasing fluid under pressure;

a mountable nozzle coupled to the reservoir by a fluid delivery hose, the nozzle for dispensing fluid responsive to the actuation of the trigger assembly; and

a lever with a first end having a pivotable mounting bracket for pivotably mounting the first lever end to the frame and a second end attached to the pump actuator, for manually actuating the pump as the lever is pivoted about the first lever end.

5,735,441
APPARATUS FOR ATTACHING TWO-WHEELED VEHICLE PARTS ALLOWING ADJUSTMENT OF THE ATTACHMENT ANGLE

Takuya Fujimoto, Osaka, Japan, assignor to Cateye Co., Ltd., Osaka, Japan

Filed Oct. 12, 1995, Ser. No. 541,257

Claims priority, application Japan, Oct. 17, 1994, 6-250893

Int. Cl.^{6} B62J *6/00*

U.S. Cl. 224—420 **8 Claims**

1 An apparatus for attaching a two-wheeled vehicle part, comprising:

a first attachment part attached to a component of a two-wheeled vehicle;

a second attachment part fixed on a part for a two-wheeled vehicle,

a third attachment part detachably engaging said first and second attachment parts and when engaged, allowing relative rotation of said first and second attachment parts around an axis passing through said first and second attachment parts, and

inhibiting means for inhibiting rotation of said first and second attachment parts, said inhibiting means being accessible even when the first attachment part and the second attachment part are engaged.

5,735,442
DEVICE, CLAMPING TOOL AND PROCESS FOR BREAKING AWAY CUTTINGS WHEN CUTTING OUT BLANKS FROM CARDBOARD

Dirk Emrich, Graf-Albert-Str. 22, 51709 Mullenbach, Germany

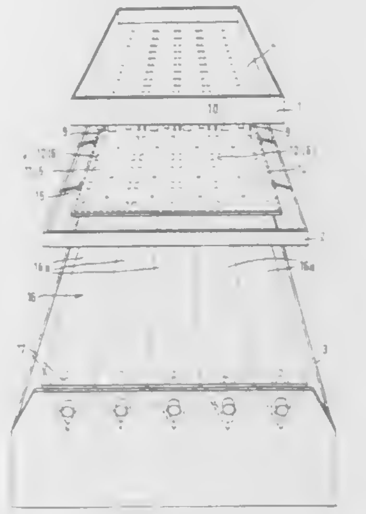
PCT No. PCT/EP94/01569, § 371 Date Nov. 14, 1995, § 102(e) Date Nov. 14, 1995, PCT Pub. No. WO94/26480, PCT Pub. Date Nov. 24, 1994

PCT Filed May 14, 1994, Ser. No. 537,748

Claims priority, application Germany, May 15, 1993, 43 16 318.1

Int. Cl.^{6} B26F *3/02*

U.S. Cl. 225—1 **14 Claims**



1 Device for breaking away blank cuttings during the cutting out of cardboard in an automatic cutting press, comprising:

a matrix adapted to underlie the cardboard, said matrix having openings which are slightly larger than the cuttings to be broken away,

cyclically vertically movable breaking away tools disposed vertically above the matrix,

cyclically vertically movable clamping tools for gripping and separating the cuttings in conjunction with the breaking away tools, the clamping tools being disposed vertically below the matrix (11), characterized in that

the clamping tool is constructed as a flat element (16) with a surface which spans over said openings (12) of the matrix (11), which can be pressed onto said matrix (11), and which is bringable into an operative conjunction with the breaking away tools over the cuttings (6) for breaking away the latter, wherein the element (16) has a multipart construction which comprises a plurality of rotary clamping segments (16a) that form a cohesive planar surface on the matrix (11) in a starting position, and that form openings in the clamping face between the clamping segments (16) when spaced from the matrix (11) for ejecting the cuttings (6) from the device.

5,735,443
SINGLE PART BURSTER

Robert S. Ring, 33 Forest Park Dr., Rochester, N.H. 03868

Filed Sep. 8, 1993, Ser. No. 117,669

Int. Cl.^{6} B65H *35/10*

U.S. Cl. 225—4 **14 Claims**

12 A method of bursting continuous single part business forms having perforation lines formed periodically therein, and having a paper weight of about 32 lb. or less, utilizing a burster having gapped slow speed rolls upstream of high speed rolls, and a breaker blade between the slow and high speed rolls, comprising the steps of:

(a) feeding the forms with a paper weight of about 32 lbs. or less to the slow speed rolls at a speed not less than a first speed

b) driving the slow speed rolls at substantially the first speed,

(c) passing the forms through a fixed gap between the slow speed rolls of between 0.005-0.008 inches that is of sufficient spacing to prevent bubble formation in the forms and adjusting the gap prior to the practice of step (a),

(d) driving the high speed rolls at a second speed, significantly greater than the first speed, and

(e) when a perforation moves past the slow speed rolls, effecting bursting at a perforation line.

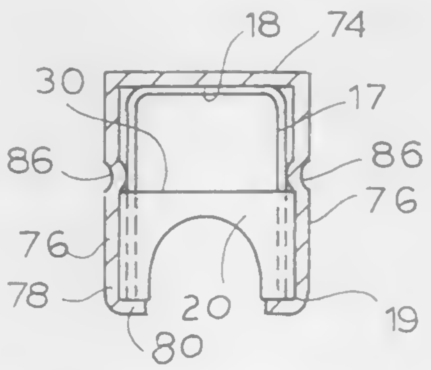
5,735,444
INSULATED STAPLE DRIVING SYSTEM

Rudolf Wingert, West Milford, N.J., assignor to Arrow Fastener Co., Inc., Saddle Brook, N.J.

Filed Sep. 23, 1996, Ser. No. 717,630

Int. Cl.^{6} B25C *5/02*, **B27F** *7/00*

U.S. Cl. 227—120 **6 Claims**



1 A staple driving system comprising

a staple gun, and

a strip of insulated staples for securing an object to a support surface and adapted to be installed seriatim with said staple gun,

said strip of staples comprising

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(a) a plurality of staples, each of which comprises a generally U-shaped staple having substantially parallel legs including free end portions and a bight portion extending between said legs, and

(b) a plurality of molded bodies of insulating material respectively molded on said staples, each of said molded bodies having a base adapted to be engaged with a support surface and a generally semi-circular recess formed therein between the legs of said staple, said semi-circular recess opening towards said base with its widest portion located at the base, whereby the body may be installed over the object to be secured to the support surface in a direction perpendicular to the support surface while within said staple gun,

each of said molded bodies including a top portion generally complementary to the bight portion of its associated staple, said top portion of the molded body having a recess formed therein for receiving said bight portion when the staple is driven into a base, said molded body having a wall portion between the recess of said top portion and said generally semi-circular recess, and frangible means on each of said molded bodies for releasably securing the molded bodies to form said continuous strip of staples, said frangible means being integrally molded with said bodies and holding the bodies in closely spaced relation with each other,

said staple gun including

- a housing having a staple discharge opening;
- a magazine track for holding said strip of staples,
- pusher means for advancing staples in said strip to said staple discharge opening during operation of the staple gun, and
- means for driving a staple from said strip out of said discharge opening;
- said magazine track comprising an elongated support frame having a top, vertical sides and a pair of inwardly directed flanges extending from said vertical sides beneath said top for supporting the bases of said molded bodies on opposite sides of the semi-circular recess formed therein; said track having open front and rear ends, with said front end being located adjacent the discharge opening of the staple gun housing, said vertical sides of the track being engaged in a wall of the staple gun housing and said flanges terminating at a position spaced from said staple gun housing wall thereby to define a staple discharge space through which said staples are discharged, said magazine track further comprising elongated inwardly extending ribs formed thereon located to engage the parallel legs of the staples to guide the staples in said magazine track and located to engage the top portion of said molded bodies to resist movement of the bodies relative to their associated staple while in the magazine track,
- said pusher means having a generally U-shaped head having a bight portion and a pair of spaced legs and means for biasing said head into engagement with the last staple in said strip, said head being inverted in said track, said pair of spaced legs having first lower sections positioned to engage the molded body of the last staple of the strip whereby the staple and its associated molded body are held uniformly in the track.

5,735,445
SURGICAL STAPLER

Claude A. Vidal, Santa Barbara, and Alan K. Plyley, Goleta, both of Calif., assignors to United States Surgical Corporation, Norwalk, Conn.

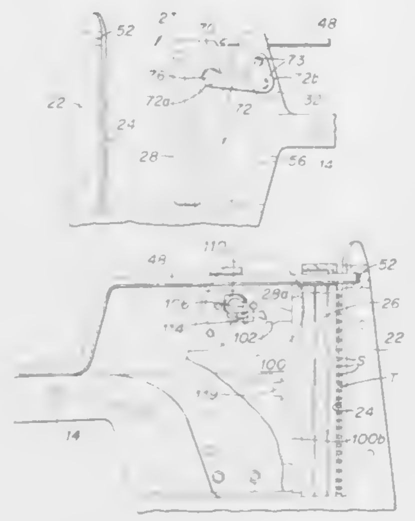
Continuation of Ser. No. 399,929, Mar. 7, 1995, abandoned. This application Mar. 14, 1997, Ser. No. 818,086

Int. Cl.^{6} A61B *17/072*

U.S. Cl. 227—175.4 **32 Claims**

1. An apparatus for simultaneously securing a plurality of surgical staples in tissue comprising:

a supporting frame;



- a staple cartridge containing a plurality of staples receivable into said frame;
- an anvil mounted on said supporting frame for engagement by said staples;
- approximation means for moving said staple cartridge within said supporting frame from a retracted position to a clamping position proximate said anvil;
- a pusher member positioned at least partially within said staple cartridge and movable relative thereto into driving engagement with said staples;
- an operating member movable within said supporting frame for advancement of said pusher member relative to said staples so as to drive said staples into engagement with said anvil, and
- locking means for releasably locking said operating member against movement relative to said supporting frame, said locking means including a locking element connected to said approximation means and having a locking protuberance for engaging said approximation means, said locking protuberance moveable from a first position relative to said operating member to a second position, wherein said locking element blocks movement of said operating member toward said staple cartridge.

5,735,446
FRICTION WELDING NON-METALLICS TO METALLICS

Dawn Roberta White, Ann Arbor; Richard Lawrence Allor, Livonia; John Scott Badgley, Garden City, all of Mich., and Jerald Edward Jones, Golden, Colo., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jul. 5, 1995, Ser. No. 498,495

Int. Cl.^{6} B23K *20/12*

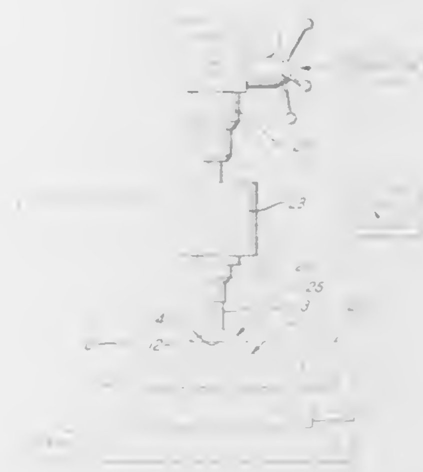
U.S. Cl. 228—114.5 **14 Claims**

1. A method of bonding a conductive metal member to a flat or convex fragile non-conducting member, comprising:

(a) depositing a thin adherent conductive pad onto the fragile member to present a first friction creating surface;

(b) forming the conductive metallic member with a second friction mating surface conforming essentially to the first friction creating surface;

(c) bringing the first and second friction surfaces together with high relative movement transverse to the surfaces and with a gradually increasing forging force along an axis perpendicular to the surfaces to generate sufficient frictional heat therebetween to effect at least a galling or smearing of melted particles of said surfaces, and



(d) abruptly ceasing the relative rotation and ceasing increasing forging force upon the attainment of melted particles at the engaging interface between said surfaces.

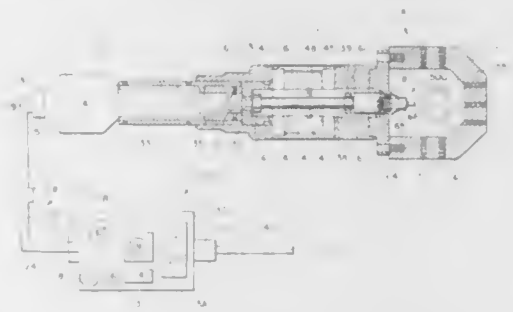
5,735,447
FRICTION WELDING APPARATUS

John W. Fix, Jr., Palm City, Fla., assignor to The Safe Seal Company, Inc., La Porte, Tex.

Division of Ser. No. 191,618, Feb. 4, 1994, Pat. No. 5,558,265. This application Sep. 23, 1996, Ser. No. 717,857

Int. Cl.^{6} B23K *20/12*

U.S. Cl. 228—114.5 **2 Claims**



1. A method of friction welding a first workpiece to a second workpiece, the process being characterized by the steps of:

- securing said second workpiece in a fixed, nonrotating relationship relative to said first workpiece;
- placing the first workpiece in a contacting relationship relative to the second workpiece so as to create a first selected contact pressure therebetween;
- establishing a weld containment chamber around said first workpiece;
- rotating said first workpiece at a selected speed relative to said second workpiece so as to induce a burn-off phase and an upset phase while simultaneously maintaining positive fluid pressure within said chamber;
- gradually increasing a forging pressure between said first workpiece and said second workpiece to a second selected contact pressure; and
- terminating rotation of said first workpiece relative to said second workpiece.

5,735,448
METHOD OF REPAIRING SURFACE AND NEAR SURFACE DEFECTS IN SUPERALLOY ARTICLES SUCH AS GAS TURBINE ENGINE COMPONENTS

Peter J. Draghi, Simsbury; Norman Pietruska, Durham, and Wayne K. Armstrong, Meriden, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 416,428, Apr. 4, 1995, abandoned, which is a division of Ser. No. 192,242, Feb. 7, 1994, Pat. No. 5,437,737. This application Oct. 22, 1996, Ser. No. 740,147

Int. Cl.^{6} B23K *35/14 1/008*

U.S. Cl. 228—119 **3 Claims**

1. A method of repairing surface and near surface defects in a superalloy article having a base metal surface such that minimal finishing steps are required to return the article to its proper dimensions, the method comprising the steps of:

(a) cleaning the base metal surface of the article;

(b) applying a repair coating to the base metal surface of the article, particularly to any surface and near-surface defects, the repair coating comprising a composition selected from the group consisting of between about 20 weight percent and about 60 weight percent volatile organic carrier and between about 20 weight percent and about 60 weight percent water-based carrier, wherein the repair coating further comprises between about 3 weight percent and about 8 weight percent fluxing agent including a halide compound, between about 1 weight percent and about 5 weight percent thickening agent, balance a metallic filler mix comprising

- a first finely divided homogeneous particulate component substantially corresponding in composition to that of the article,
- a second finely-divided homogeneous particulate component having as its base the same base metal as that of the article and containing a melting point depressant in a quantity substantially exceeding that present in the article,
- the first and second particulate components being intimately blended to form a powder mix which has an overall composition approximating that of the article, said first component of the mix remaining solid at a temperature below the melting point of the article, wherein the coating has a paint-like consistency;

(c) heating the article to a temperature between about 975° F. and about 1,025° F. and holding at the temperature to achieve a uniform temperature throughout the article;

(d) heating the article to a temperature between about 1,775° F. and about 1,825° F. and holding at the temperature to achieve a uniform temperature throughout the article;

(e) raising the temperature of the article to a processing temperature below the melting temperature of the article, said processing temperature being just beyond the melting point of the second particulate component such that the second particulate component melts and flows into any surface and near-surface defects while the first particulate component remains solid;

(f) heating the article to a temperature between about 2,185° F. and about 2,215° F. and holding at the temperature to effect isothermal resolidification of the mix by diffusion of the melting point depressant into the article and into the first particulate component; and

(g) continuing exposure of the article to high temperature for homogenization, whereby minimal finishing steps are required to return the article to its proper dimensions.

5,735,449
METHOD AND APPARATUS FOR BONDING SEMICONDUCTOR ELECTRONIC DEVICES

Pierangelo Magni, Villasanta, Italy, assignor to SGS-Thomson Microelectronics S. r. l., Agrate Brianza, Italy

Division of Ser. No. 413,993, Mar. 30, 1995, Pat. No. 5,660,316. This application Apr. 4, 1997, Ser. No. 833,101

Claims priority, application European Pat. Off., Mar. 31, 1994, 94830155.1

Int. Cl.^{6} B23K [illegible]

U.S. Cl. 228—180.5 **10 Claims**

4. A method of operating a bonding apparatus to form electric connections between a plurality of bonding pads on a batch of

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semiconductor electronic devices and a respective plurality of contact leads formed on a frame on which the batch of electronic devices has been arranged, the frame being movable with respect to the bonding apparatus in a longitudinal direction, the electronic devices being arranged on the frame in a plurality of columns and rows, the bonding apparatus including a bonding head and an X-Y table carrying the bonding head, the X-Y table moving the bonding head between a plurality of position settings that define a working range of the bonding head with respect to the X-Y table, the method comprising the steps of:

A. positioning the frame so that a first electronic device in a first column and a first row on the frame is within the working range of the bonding head;

B. moving the bonding head through its working range with respect to the X-Y table to form an electric connection between each bonding pad on the first electronic device and a corresponding contact lead;

C. moving the X-Y table with respect to the frame so that a second semiconductor electronic device in a second column and the first row on the frame is within the working range of the bonding head; and

D. moving the bonding head through its working range with respect to the X-Y table to form an electric connection between each bonding pad on the second electronic device and a corresponding contact lead.

5,735,450

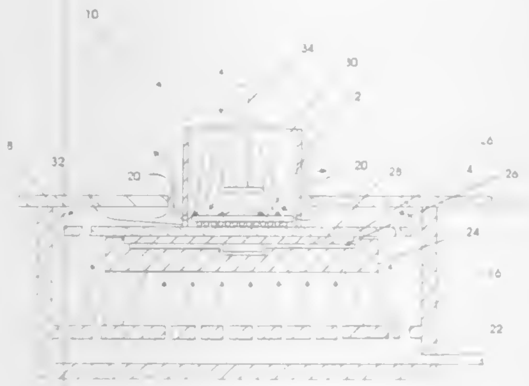
APPARATUS AND METHOD FOR HEATING A BOARD-MOUNTED ELECTRICAL MODULE FOR REWORK

Craig Grant Heim, Kirkwood; Christian Robert Le Coz, Endicott, both of N.Y., and Russell H. Lewis, Ft. Collins, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 21, 1996, Ser. No. 669,902

Int. Cl.⁶ B23K 1/012 1/018

U.S. Cl. 228—191 12 Claims



1. An apparatus for heating an electronic module having surface contacts by which said module is attached to a wiring surface of a card having a substantially planar bottom surface, comprising:

a preheater having a cover with an opening defined therein and an inlet port connectable with a source of heated gas;

a removable support member disposed within said preheater;

a heating element disposed on said support member;

a thermally conductive plate disposed on said heating element in thermally conductive relationship therewith and adapted to support a selected portion of said bottom surface of the card in thermally conductive communication with said portion of the bottom surface of the card; and

a nozzle connectable with a source of heated gas and adapted to contact the wiring surface of said circuit board at a defined position whereat said nozzle provides pressure over and around said module mounted on said card.

5,735,451

METHOD AND APPARATUS FOR BONDING USING BRAZING MATERIAL

Yoshiaki Mori; Takuya Miyakawa; Yasuhiko Asano; Osamu Kurashina; Satoshi Miyamori; Yohei Kurashima, and Makoto Anan, all of Suwa, Japan, assignors to Seiko Epson Corporation, Toky, Japan

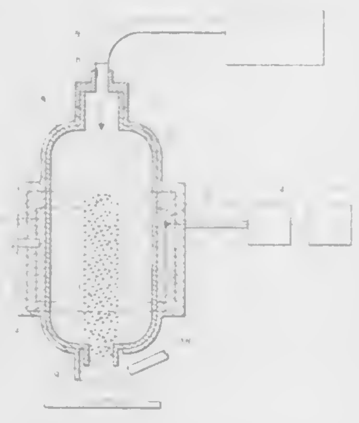
PCT No. PCT/JP94/00562, § 371 Date Feb. 10, 1995, § 102(e) Date Feb. 10, 1995, PCT Pub. No. WO94/22628, PCT Pub. Date Oct. 13, 1994

PCT Filed Apr. 5, 1994, Ser. No. 347,398

Claims priority, application Japan, Apr. 5, 1993, 5-078309; May 14, 1993, 5-113204

Int. Cl.⁶ B23K 31/02 35/38

U.S. Cl. 228—206 58 Claims



1. A method of bonding two components together employing a brazing material comprising the steps of forming a gas discharge in a gas near or at atmospheric pressure to produce active species of said gas by providing energy across said gas, and then treating a surface of at least one of said components with the active species generated in said gas discharge prior to bonding.

5,735,452

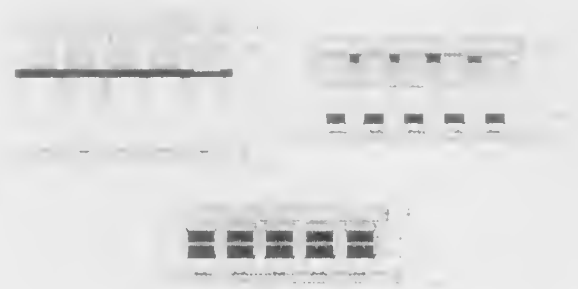
BALL GRID ARRAY BY PARTITIONED LAMINATION PROCESS

Roy Yu, Wappingers Falls; William Harrington Brearley; Kimberley Ann Kelly, both of Poughkeepsie, all of N.Y.; Patrick Michael O'Leary, Redding, Conn.; Arthur Gilman Merryman, Hopewell Junction, and James Patrick Wood, Beacon, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 17, 1996, Ser. No. 668,016

Int. Cl.⁶ B23K 31/02

U.S. Cl. 228—254 12 Claims



1. A method of forming a ball grid array to provide a chip carrier with I/O capabilities, said ball grid array being attached to pads positioned on said chip carrier, said method comprising the steps of:

a) placing a mask having a pattern of individual openings matching the footprint of said pads in contact with said pads;

b) placing a sheet of solder material in contact with said mask;

c) pressing said sheet of solder material against said mask causing the breaking of said sheet into pieces, and trapping each of said pieces inside each of said individual openings;

d) heating at least said trapped pieces to melt said trapped pieces, said trapped pieces taking a shape that is determined by the shape of said openings; and

e) joining said shaped trapped pieces to their corresponding pad.

5,735,453

DECORATIVE NOVELTY ARTICLES

James W. Gick, 71 S. Peak, Laguna Niguel, Calif. 92677, and Terri L. Gick, 3182 Colinos, Coto de Caza, Calif. 92679

Filed Nov. 14, 1995, Ser. No. 557,609

Int. Cl.⁶ B42D 15/02

U.S. Cl. 229—92.8 10 Claims

1. A decorative article suitable for mailing without an outer envelop, said article comprising:

a first outer layer of material having a substantially planar first decorative surface;

a stiff inner layer of foam board having a substantially uniform nominal thickness of about [illegible] inches; and

a second outer layer of material having a desired surface, said first outer layer secured to one surface of said inner layer such that said first decorative surface is exposed, said second outer layer secured to an opposite surface of said inner layer,

said article being die cut with a non heated tool and having a perimeter showing said first and second outer layers and said inner layer therebetween, said perimeter after being die cut having a thickness of at least [illegible] inches so as to meet postal size regulations for mailing.

5,735,454

COHESIVE SELF LATCHING TRAYS

Kurt D. Jensen, Cincinnati, Ohio, assignor to International Paper Company, Purchase, N.Y.

Filed May 30, 1996, Ser. No. 655,589

Int. Cl.⁶ B65D 5/[illegible]

U.S. Cl. 229—123.1 8 Claims

1. A paperboard container for the packaging of food product, [illegible] said container formed of two trays, each of said two trays having a central wall and four side walls, each said side wall extending substantially orthogonally from a respective one of said central walls to thereby form said trays, a horizontal flange extending outwardly from respective two side walls of each said tray, each said flange having two surfaces, each said flange having a free edge, each said flange having a [illegible] of cohesive [illegible] on one of its said two surfaces, said container formed by placing two said trays together, one on top of the other, with their respective cohesive layers of respective flanges [illegible] each other to thereby form a sealed container which is openable by

peeling said flanges apart in opposite directions normal to said flanges.

5,735,455

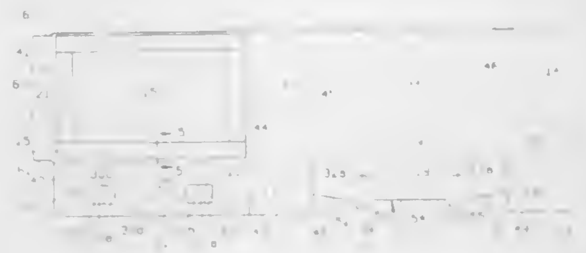
EASILY ERECTABLE ONE-PIECE CONTAINER WITH ATTACHMENT MEANS AND BLANK THEREFOR

John E. Raniere, Sr., 1995 Farrell, Park Ridge, Ill. 60068

Filed Aug. 7, 1996, Ser. No. 693,404

Int. Cl.⁶ B65D 25/20

U.S. Cl. 229—185 2 Claims



1. A receptacle for attachment to an upright metallic surface comprising front, bottom, back and first and second side panels assembled to define a rectangular open top receptacle:

a) both of the side panels being rectangular and having bottom flaps hingedly connected thereto;

b) the back panel being rectangular and having a bottom flap hingedly connected to one edge and a glue flap hingedly connected to an adjacent second edge, the back panel being hingedly connected to the first side panel, the bottom flap having opposed cut out areas therein;

c) the front panel being rectangular and having a hingedly connected bottom flap, the front panel being hingedly connected to both of the side panels, the bottom flap having opposed sets of tabs aligned with the cut out areas of the back panel bottom flap;

d) the bottom panel defined by the said bottom flaps folded toward each other with the front panel bottom flap tabs engaged with the back panel bottom flap cut outs;

e) the back panel glue flap being adhesively secured to the second side panel; and

f) magnetic tape secured to the outer surface of the back panel.

2. A blank for a rectangular receptacle for attachment to an upright metallic surface comprising front, bottom, back and first and second side panels:

a) both of the side panels being rectangular and having bottom flaps connected thereto by score lines;

b) the back panel being rectangular and having a bottom flap connected to one edge by a score line and a glue flap connected to an adjacent second edge by a score line, the back panel

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being connected to a first side panel by a score line, the bottom flap having opposed cut-out areas therein,

c) the front panel being rectangular and having a bottom flap connected to one edge by a score line, said bottom flap having a free edge, the front panel being connected to both of the side panels by score lines, the bottom flap having spaced apart tabs on the free edge and arcuate cuts in the flap opposite the tabs, the tabs and cuts being aligned with the cut-out areas of the back panel bottom flap when the blank is erected into a rectangular shape, and

d) magnetic tape secured to the outer surface of the back panel around the edges thereof.

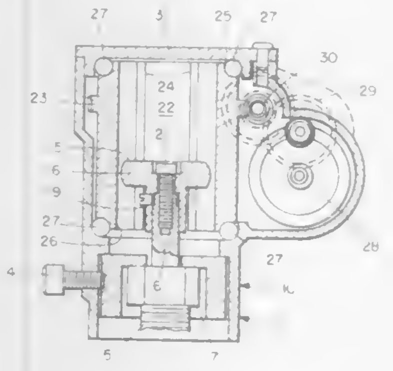
5,735,456
UNIVERSAL RETROFIT VALVE ACTUATOR AND SYSTEM

Jonathan K. Marin, Brooklyn, N.Y.; James R. Pope, Cambridge, Mass.; Richard C. Steele, Warwick, R.I., and Ronald R. Bilodeau, Jr., Mattapoisett, Mass., assignors to The Steam-O-Stat Company, R.I.

Filed Sep. 7, 1994, Ser. No. 301,950

Int. Cl.^{6} F16H *1/18*, G05D *15/00*

U.S. Cl. 236—75 18 Claims



1. A valve actuator in a system for driving a valve stem to open or close a valve, said actuator being anchorable in a fixed position with regard to the valve opposed to the valve stem, said actuator including a drive gear, means to drive said drive gear, said drive gear being rotatable and including at least one elongated drive cam having a first driving surface and a second driving surface, a lug including at least one driven cam having a first driven surface and a second driven surface, said lug being mounted on the valve stem for rotation therewith, said drive cam being engagable with said driven cam when said actuator is anchored in fixed position opposed to said lug, said first surfaces of said drive cam and of said driven cam being engagable to rotate said lug in one direction, said second surfaces of said drive cam and of said driven cam being engagable to rotate said lug in another direction, and all said respective surfaces of said drive cam and said driven cam being spaced apart from each other when not engaged whereby there is play between all said surfaces, said actuator including a bottom portion open to the valve stem, said bottom portion having a periphery with at least one slotted opening having a lock portion for selective stationary mounting of said actuator on the valve.

5,735,457
RUBBER MIXTURE FOR AN ELASTIC INTERMEDIATE LAYER FOR A RAIL SUPPORT

Edgar Böhm, Gotha; Manfred Klerk, Hamburg; Karl-Heinz Krause, Chemnitz; Gerhard Merkmann, Gotha; Rolf Steinmüller, Gotha, and Klaus Tühel, Gotha, all of Germany, assignors to Phoenix Aktiengesellschaft, Hamburg, Germany

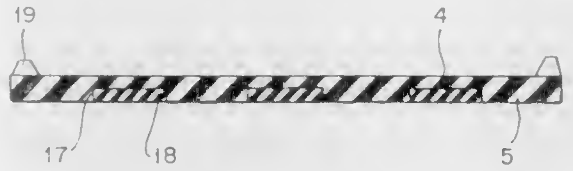
PCT No. PCT/DE95/00186, § 371 Date Feb. 26, 1996, § 102(e) Date Feb. 26, 1996, PCT Pub. No. WO95/22659, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 15, 1995, Ser. No. 549,844

Claims priority, application Germany, Feb. 19, 1994, 44 05 294.4

Int. Cl.^{6} E01B *9/62*

U.S. Cl. 238—283 18 Claims



1. Elastic intermediate layer with a low dynamic stiffening, a high dynamic load carrying ability, a high specific volume resistance, and a low frequency-dependence of the dynamic stiffening, and said intermediate layer comprising

a rubber mixture selected from the group consisting of natural rubber (NR), epoxidized natural rubber (E-NR), isoprene rubber (IR), butadiene rubber (BR), acrylate rubber (ACM), styrene-butadiene rubber (SBR), and the mixtures thereof, said rubber mixture containing mixing ingredients selected from the group consisting of fillers, plasticizers, and anti-aging agents, said rubber mixture containing an amount of rubber ranging from 45% to 75% by weight based upon the total weight of said mixture; and

said elastic intermediate layer being formed into a plate and positioned between a rail base and a tie top side of a high-speed rail track, a top side of said elastic intermediate layer, which is a surface supporting the rail base, being formed planar, while an underside of the intermediate layer facing the tie top side, has a surrounding edge, and which surrounding edge extends all around the rail base and has a minimum width X of 5 mm, said edge has at least one venting joint, said elastic intermediate layer is provided with at least one entire recess having a minimum depth Y of 3 mm, the side wall of said at least one recess in upper part extending vertically and in lower part extending at an angle α being 45° to 60°.

5,735,458
FASTENING RAILWAY RAILS

Trevor P. Brown, Petts Wood; Brian G. Conroy, Crabtree Park; Stephen J. Cox, Richmond; Christopher Gardner, Sheffield; Roger D. Larke, Retford; Barry Marshall, Sheffield, all of United Kingdom, and Jan Svendsen, Tranby, Norway, assignors to Pandrol Limited, Surrey, United Kingdom

Continuation-in-part of Ser. No. 474,181, Jun. 7, 1995, abandoned, which is a division of Ser. No. 244,716, Oct. 25, 1994, abandoned. This application Aug. 30, 1996, Ser. No. 705,672

Claims priority, application United Kingdom, Dec. 18, 1991, 9126886; Mar. 17, 1992, 9205791

Int. Cl.^{7} E01B *9/00*

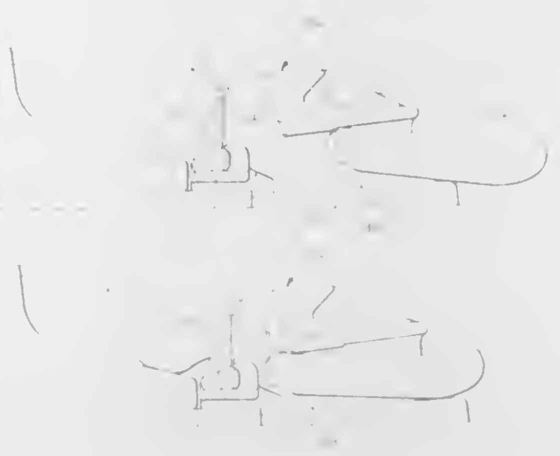
U.S. Cl. 238—343 17 Claims

1. A railway rail anchoring device for use with a railway rail fastening clip which is approximately M shaped in plan and has first and second leg portions and a rail bearing portion, the device comprising:

a base member; and

first and second clip retaining members connected together by said base member such that the first clip retaining member is spaced apart from the second clip retaining member so as to define between said first and second clip retaining members an opening for receiving the said rail bearing portion of such a clip,

wherein each of the said first and second clip retaining members defines a passageway for receiving one of the leg portions of such a clip, a boundary surface of at least one of the said passageways including, at a location intermediate respective ends of said passageway, first locating means for engagement, when the device is in use with such a clip, with a first region of the leg portion of the clip located in said passageway such that the clip can be held in a preassembly position in which the clip is retained by the device but the rail bearing portion of the clip does not bear on a rail, second locating means also being provided on a boundary surface of at least one of the said passageways for engagement with a second region of the leg portion of the clip located in said passageway such that the clip can be held in a working position in which the rail-bearing portion of the clip bears on the rail, the first and second locating means being such that the clip cannot move out of said pre-assembly position towards a rail unless driven in a first direction and the clip cannot move out of said working position away from said rail unless driven in a second direction, opposite to said first direction, and the said first locating means being provided by an abutment surface protecting from the said boundary surface.



5,735,459
METHOD FOR FORMING AND APPLYING BIOLOGICAL CONTROL SYSTEM

Walter K. Kropf, Harrisburg, Oreg., assignor to Smucker Manufacturing, Inc., Harrisburg, Oreg.

Filed Jun. 23, 1995, Ser. No. 494,163

Int. Cl.^{6} B05B *9/00*

U.S. Cl. 239—8 17 Claims

1. A method of applying a biological control system to a target crop in an active use zone, which comprises:

providing a bio carrier system including at least one active biological control agent comprising any one of adult insects, insect larva and insect eggs, a soluble cellulose-containing compound and water which is non-toxic with respect to said active biological control agent,

combining the soluble cellulose containing compound, the biological control agent and water to form said biological control system,

transporting said bio carrier through the atmosphere toward the active use zone while maintaining the biological control agent in an active state,

delivering said bio carrier system to, and depositing said bio carrier system in, said active use zone while maintaining the biological control agent in an active state,

adhering the biological control agent in the active use zone while maintaining the biological control agent in an active state, and

maintaining the biological control agents in an active state in said active use zone without being substantially inhibited by the adhesive properties of the soluble cellulose containing compound thereby permitting said active biological control agents to protect said target crop from attack by harmful pests and predators which would harm or destroy said target crop.

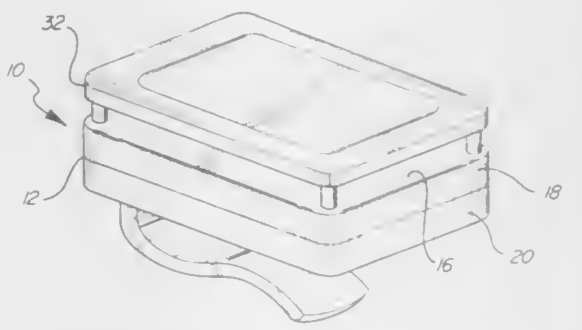
5,735,460
AIR FRESHENER HOUSING COVER

Kenneth D. Eisenbraun, Birmingham, Mich., assignor to United Industrial Trading Corp., Troy, Mich.

Filed Jun. 7, 1996, Ser. No. 660,803

Int. Cl.^{7} A24F *25/00*

U.S. Cl. 239—34 12 Claims



1. An air freshener assembly comprising:

a rigid housing having:

an interior cavity accessible from exteriorly of the housing;

an exterior surface having a substantially planar portion;

a plurality of apertures formed in the substantially planar exterior surface of the rigid housing;

an insert containing a volatile fragrant material, the insert having outer dimensions such that the insert is capable of being disposed within the interior cavity of the rigid housing;

a substantially rigid cover member having an upper decorative surface and a lower surface, the substantially rigid cover member being substantially planar;

a plurality of flexible lock arms and an equal number of mating holes for attaching the substantially rigid cover member to the substantially planar exterior surface of the rigid housing, the lock arms and holes aligned so that the lock arms snap into the mating holes, thereby attaching the lower surface of the substantially rigid cover member to the exterior surface of the rigid housing so that the substantially rigid cover member is supported substantially parallel and spaced from the substantially planar exterior surface to permit volatilized aromatic gas emitted from the apertures to mix with ambient air; and

means for attaching the exterior surface of the rigid housing to a supporting member such that the upper decorative surface of the substantially rigid cover member is visible.

5,735,461

HIGH-PRESSURE CLEANER WITH BYPASS VALVE FOR THE PUMP

Lars Winther, Randers, Denmark, assignor to Kew Industri A/S, Denmark

Filed Mar. 15, 1996, Ser. No. 616,203

Claims priority, application Denmark, Mar. 30, 1995, 0346/95

Int. Cl.^{6} B05B *9/00*

U.S. Cl. 239—124 **7 Claims**

1. A high pressure cleaner comprising
- a high-pressure pump having a suction side and a delivery side.
- a motor driving said pump and having a power supply circuit:
- a liquid supply connected to the suction side of said pump;
- a cleaning gun connected to the delivery side of said pump through a delivery duct and comprising a manually operable stop valve.
- a bypass valve for, in an open condition, allowing flow from said delivery side to said suction side of said pump;
- flow-sensing means, associated with said delivery duct, for opening said bypass valve when flow in said delivery duct ceases or decreases below a predetermined magnitude and for acting upon said bypass valve in a direction providing closing of said valve when said flow is equal to or above said predetermined magnitude.
- a normally closed switch connected in the power supply circuit for said motor and mechanically connected to said flow sensing means, and
- movement-delaying means mechanically connected to said flow-sensing means and to said switch, for, when said flow-sensing means opens said bypass valve, providing opening of said switch after a predetermined time interval

5,735,462

DEVICE FOR THE TRANSMISSION OF MOTION TO AN OSCILLATING ARM OF AN IRRIGATION DEVICE

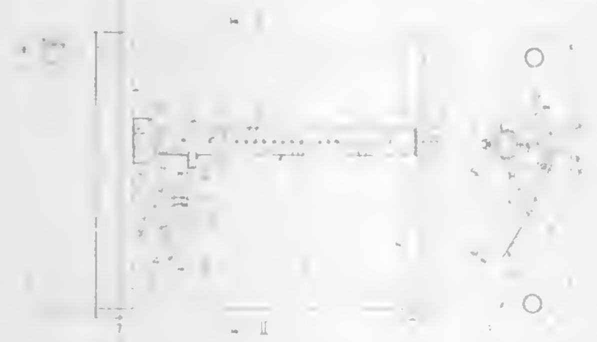
Gianfranco Roman, Pasiano, Italy, assignor to Claber S.p.A., Veneto, Italy

Filed Dec. 28, 1995, Ser. No. 580,334

Claims priority, application Italy, Jan. 3, 1995, MI950003 I

Int. Cl.^{6} B05B *3/16*

U.S. Cl. 239—242 **7 Claims**



1. A device for the transmission of motion to an oscillating arm of an irrigation device, said arm being rotatably fastened at its ends to a pair of side elements of the irrigation device, from one of which there extends a driving shaft, comprising a cam substantially in the shape of a heart secured to said shaft, a connecting rod coupled to said cam by a pair of shoes that engage the perimeter of said cam in substantially diametrically opposite positions, the connecting rod being provided with a slot wherein a guide for the connecting rod is secured to said cam, and a crank secured to said arm, characterized in that said connecting rod can be hinged to said crank in a plurality of positions substantially aligned along a radial direction lying in a plane orthogonal to the axis of rotation of the arm and placed at different distances from said axis of rotation.

5,735,463

JETAVATOR FOR ROCKET ENGINE

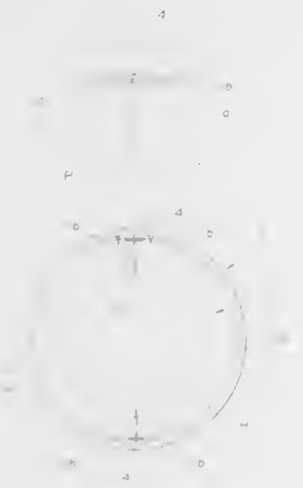
Akira Osada, Urawa; Takefumi Shiraishi, Tokyo, and Hiroshi Fujiyoshi, Kawasaki, all of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed Mar. 21, 1996, Ser. No. 620,691

Claims priority, application Japan, Mar. 31, 1995, 7-076590

Int. Cl.^{6} B64C *15/06*

U.S. Cl. 239—265.19 **8 Claims**



1. A jetavator for a rocket engine, comprising
- a heat resistant layer having an annular cross section directly contactable with combustion gas, said heat-resistant layer having a slit formed therein passing from an inner peripheral surface to an outer peripheral surface thereof, and
- a device for preventing the combustion gas from leaking through said slit,
- wherein said jetavator is arranged to be rotatably installed on a nozzle of the rocket engine so as to deflect a jet of the combustion gas.

5,735,464

NOZZLE PROTECTOR FOR AEROSOL SPRAY CANS

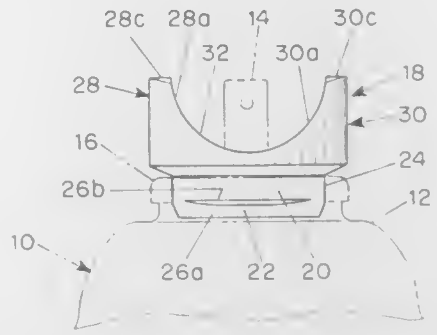
Nelson Darrach, III, 12 Sanders St., St. Johnsville, N.Y. 13452

Filed May 1, 1995, Ser. No. 431,572

Int. Cl.^{6} B67D *5/06*

U.S. Cl. 239—288.5 **11 Claims**

1. A nozzle protector for an aerosol spray can of the type having in a top portion an annular bead that surrounds a nozzle and is formed by a rolled seam between a dome-like top closure of the can and a circular valve mounting plate and defines with the valve-mounting plate an inwardly opening annular groove, the protector having
- a retaining sleeve portion having an upper part adapted to lie radially within the bead and a pair of snap in retaining rib portions projecting outwardly in generally opposite directions and adapted to be received in and captured by the groove, and
- a pair of nozzle-protecting side wall portions joined to the upper part of the retaining sleeve portion, the wall portions having outer surfaces that are segments of a substantially circular cylinder having an axis coextensive with an axis of the retaining sleeve portion, that adjoin each other along junctures proximate to the retaining sleeve portion, and that have a diameter greater than that of the retaining sleeve portion,



- first edges defining a first opening shaped and dimensioned to permit a spray to be ejected from the nozzle and outwardly of the wall portions when the protector is attached to the can,
- second edges defining a second opening shaped and dimensioned to permit a finger of a user to be received inwardly of the wall portions and engage the nozzle when the protector is attached to the can, and
- upper edges positioned to be located above an uppermost extremity and on generally diametrically opposite sides of the nozzle when the protector is attached to the can

5,735,465

AEROSOL DISPENSER WITH TWO SPRAY NOZZLES

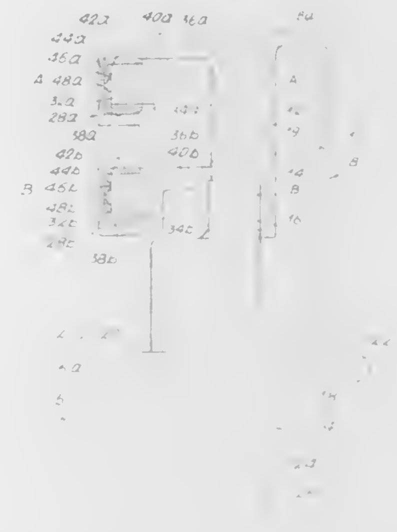
Vincent De Laforcade, Rambouillet, France, assignor to L'Oreal, Paris, France

Filed Mar. 29, 1996, Ser. No. 623,784

Claims priority, application France, Mar. 31, 1995, 95 03838

Int. Cl.^{6} B05B *11/00, 1/14*

U.S. Cl. 239—337 **14 Claims**



1. A dispenser comprising
- a valve for dispensing a liquid product to be dispensed in a form of an aerosol with the aid of a propellent gas, the valve being mounted on a container containing the liquid,
- a hollow operating stem including a product inlet and a product outlet,
- a push button for actuating the valve via the stem:
- first and second nozzles provided in the push button: and
- respective first and second ducts linking the first and second nozzles to the outlet of the stem:
- wherein the first nozzle is a nozzle that delivers a spray having a mechanical effect, and the second nozzle is a nozzle that delivers a spray of product, the first nozzle including means for dispersing said spray onto a narrower area than said second nozzle

5,735,466

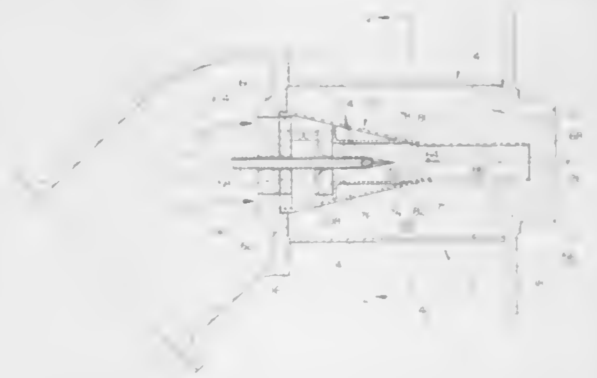
TWO STREAM TANGENTIAL ENTRY NOZZLE

Stephen K. Kramer, Stuart, and Peter K. Hauck, Jupiter, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 20, 1996, Ser. No. 770,281

Int. Cl.^{6} B05B *7/10*

U.S. Cl. 239—406 **4 Claims**



1. A fuel nozzle assembly for use a gas turbine engine, comprising:
- a centerbody including
  - a longitudinal axis,
  - a centerbody base, said centerbody base having at least one air supply port extending therethrough,
  - a radially outer surface including a frustum portion defining the outer surface of a frustum that is coaxial with the longitudinal axis and flares toward the frustum base thereof, and a cylindrical portion which is integral with the frustum portion and said frustum portion is between said cylindrical portion and said centerbody base,
- an internal passageway coaxial with the longitudinal axis and including a first cylindrical passage, a second cylindrical passage, and a tapered passage, each passage having a first end and a second end, said second cylindrical passage having a diameter greater than said first cylindrical passage, said second cylindrical passage communicating with said first cylindrical passage through said tapered passage, said first end of said tapered passage integral with said second end of said first cylindrical passage, said second end of said tapered passage integral with said first end of said second cylindrical passage, said first end of said tapered passage having a diameter equal to the diameter of the first cylindrical passage, and said second end of said tapered passage having a diameter equal to the diameter of the second cylindrical passage, each of said passages coaxial with the longitudinal axis, said first cylindrical passage includes a discharge orifice that is circular, coaxial with said axis and located at the first end of said first cylindrical passage,
- an internal chamber located between said centerbody base and said second end of said second cylindrical passage, said at least one air supply port communicating with said second cylindrical passage through said chamber,
- a swirler coaxial with the axis and is located within the chamber immediately adjacent the second end of the second cylindrical passage,
- a fuel lance coaxial with said axis and extending through said centerbody base, said internal chamber, and said swirler, and terminating within said second cylindrical passage, and

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a scroll swirler having

first and second endplates, said first endplate in spaced relation to said second endplate, said second endplate having a combustor inlet port extending therethrough, said inlet port coaxial with said axis and including a convergent surface, a divergent surface, and a cylindrical surface extending from said convergent surface to said divergent surface,

at least two cylindrical arc scroll members, each scroll member defining a body of partial revolution about a centerline, each of said scroll members extending from said first endplate to said second endplate and spaced uniformly about the axis thereby defining a mixing zone therebetween, each of said scroll members in spaced relation to each of the other scroll members, each of said centerlines located within said mixing zone, each of said centerlines in spaced relation to, equidistant from, and parallel to said axis, thereby defining inlet slots extending parallel to said axis between each pair of adjacent scroll members for introducing combustion air into said mixing zone, each of said scroll members including a fuel conduit for introducing fuel into combustion air introduced through one of said inlet slots,

wherein said first endplate is connected to said first endplate

5,735,467
THREE-WAY ADJUSTABLE SHOWER DEVICE

Cheng-Chung Lee, 5F., No. 11-6, Alley 4, Lane 63, Yi Li St., Pei Tou District, Taipei, Taiwan

Filed Sep. 5, 1996, Ser. No. 708,622

Int. Cl.^{6} A62C *31/00*, B05B *15/00*; F23D *11/38*

U.S. Cl. 239—414 6 Claims

1. A three-way adjustable shower device comprising:

a dual pipe elbow having two elbow inlets for hot water and cold water respectively, a shower head seat and an elbow outlet,

a hose means having a first dual flow passages inside for hot and cold water respectively and two ends, one end connecting with the elbow outlet of the dual pipe elbow, and another end connecting with a shower body; wherein the shower body has a shower arm with a second dual flow passage inside connecting at one end thereof with the first dual flow passages, an adjusting cell located at another end of the second dual flow passage having an adjusting opening on the top and an assembly cap screwed at the bottom thereof with a bulge formed on the top surface of the assembly cap, and a water collecting cell located inside a shower head extended beyond the shower arm; wherein the water collecting cell having a button hole on the top and a water outlet at the bottom thereof,

an adjusting valve located inside the adjusting cell above the assembly cap having a water passage inside, a pushing stud on the top accessible from the adjusting opening of the shower body for adjusting water temperature and flow rate and

a spring valve means including a spring cap, a nozzle, a retaining ring, a flush barrel, a push button flange, a pair of springs, four hooks and three washers, wherein the spring cap has screw threads on the outside rim and two symmetrical cap studs on the inside rim thereof with a nozzle slot adjacent each cap stud, the nozzle has two symmetrical nozzle studs and two nozzle apertures with a nozzle barrel located there between and a flow outlet at the bottom; the retaining ring has two symmetrical ring rods on the top rim with a ring slot adjacent each ring rod; the flush barrel has two symmetrical barrel apertures, two ring apertures two barrel studs, and a barrel neck having a plural number of barrel openings formed therein, the push button flange has two symmetrical button apertures and a push button head;

wherein the shower body may be operated by a user single handed for water flowing out in spouting, flushing or spraying fashion.

5,735,468
GAS/LIQUID MIXING APPARATUS

Alan Patrick Casey, Level 5, 10 Help Street, Chatswood NSW 2067, Australia

PCT No. PCT/AU93/00520, § 371 Date May 19, 1995, § 102(e) Date May 19, 1995, PCT Pub. No. WO94/08724, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 7, 1993, Ser. No. 411,824

Claims priority, application Australia, Oct. 13, 1992, PL5261

Int. Cl.^{6} B05B *7/06*

U.S. Cl. 239—425 14 Claims

1. A mixing apparatus comprising a nozzle in fluid communication with a source of liquid, and a gas passage immediately adjacent and extending past the nozzle so as to, in use, direct a gas towards and past the nozzle, the nozzle being adapted to direct the liquid in the passage as a substantially continuous, generally radially emanating sheet, such that gas flowing through the passage impacts the liquid sheet to produce a substantially uniform cloud of atomised liquid droplets downstream of the nozzle, the gas passage having a gas valve means upstream of the nozzle, gas valve means is selectively movable between an open and a closed position in coordination with the opening and closing of a plurality of cooperating valve parts of the nozzle such that the nozzle is open only when the gas valve means is also open.

5,735,469
COMPACT DIFFUSER

Sergio E. Rodriguez, Woodland Hills; James P. Maddox, Van Nuys; Raymond J. Netzer, Newbury Park, and Alan Z. Ullman, Northridge, all of Calif., assignors to Boeing North American, Inc., Seal Beach, Calif.

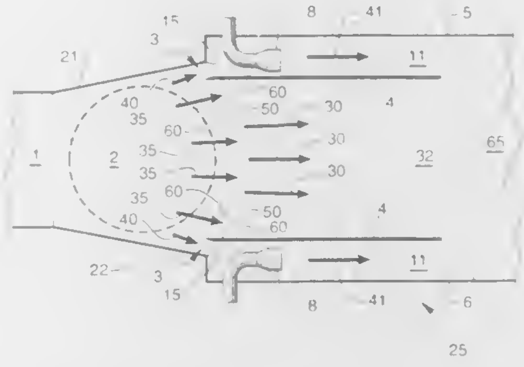
Filed May 28, 1996, Ser. No. 653,851

Int. Cl.^{6} B05B *7/00*

U.S. Cl. 239—430 4 Claims

1. A compact diffuser comprising:

a cavity having a top cavity wall, a bottom cavity wall, a cavity entrance and a cavity exit for containing a gas flow to be diffused for pressure recovery, the gas flow entering the cavity entrance having a boundary layer flow along the top cavity wall, a boundary layer flow along the bottom cavity wall, and



a supersonic central core flow between the top and bottom boundary layer flows,

a top boundary ejector chamber and a bottom boundary ejector chamber attached to the cavity exit, and a core flow chamber therebetween,

a splitter plated having a leading edge proximate the top cavity wall at the cavity exit and a splitter plated having a leading edge proximate the bottom cavity wall at the cavity exit, the splitter plates forming a boundary wall between the boundary ejector chambers and the core flow chamber, the leading edge of the splitter plate providing a boundary layer scoop for separating the boundary layer flow and the core flow, whereby the boundary layer flows enter the boundary ejector chambers at the boundary layer scoops and the core flow enters the core flow chamber, such that the core flow undergoes a single near normal shock to a higher subsonic pressure on entering the core flow chamber,

at least one ejector nozzle in the top boundary ejector chamber and at least one ejector nozzle a bottom boundary ejector chamber to pump the boundary layer flows to the same or greater pressure as the core flow in the core flow chamber,

the splitter plates having a trailing edge, the pumped boundary layer flows and the core merging at the trailing edge of the splicer plates before exiting the diffuser.

5,735,470
IRRIGATION HOSE HAVING HOLES FORMED ON EXTERNAL WALLS OF ALL FLOW PASSAGES

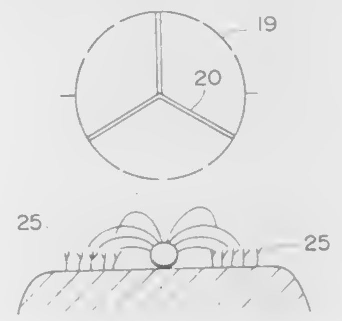
Tatsuya Ohe, Yamaguchi-ken, and Toshihisa Hori, Tokyo, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Continuation of Ser. No. 547,072, Oct. 23, 1995, abandoned. This application Jul. 17, 1997, Ser. No. 895,627

Claims priority, application Japan, Oct. 27, 1994, 6-263607

Int. Cl.^{6} B05B *15/00*

U.S. Cl. 239—566 6 Claims



1. An irrigation hose made of thermoplastic resin, said irrigation hose having a multiplicity of flow passages defined by at least one partition dividing the inside thereof, each of said flow passages provided with irrigation holes formed in a member of a tube portion thereof which is in contact with outside air such as that said irrigation holes are formed on external walls of all of said flow passages.

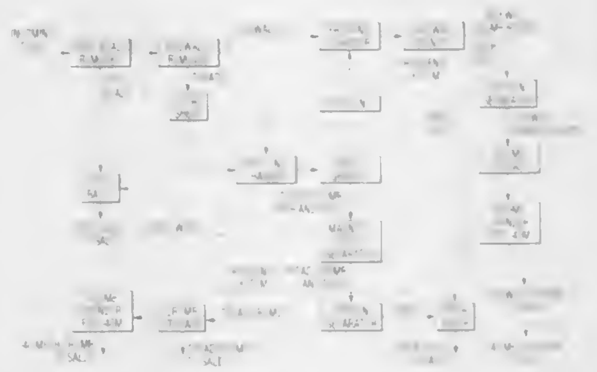
5,735,471
CRYOGENIC TIRE DISINTEGRATION PROCESS AND APPARATUS

Louis Muro, 435 Roy Ave., #106, Dorval, Quebec, Canada, H9S3E2

Filed Dec. 18, 1996, Ser. No. 768,930

Int. Cl.^{6} B02C *19/12*

U.S. Cl. 241—23 25 Claims



1. Method for disintegration of thermoplastic elastomeric materials containing fibres and wires comprising:

subjecting segments of said elastomeric materials to temperatures able to bring only thermoplastic elastomeric component of said segments into a brittle glass-like state,

gradual fracturing of said frozen segments provided to separate and release said elastomeric component from said wires and fibres,

wherein said fracturing is effected by means of a bending force applied to said frozen segments causing said elastomeric component to be broken into small particles at a natural fracture planes without exertion of any compression force to said segments, and wherein said wires and fibres become released from said elastomeric component and remain substantially intact,

separating said small particles and said intact wires and fibres.

5,735,472
ROTATING DRUM COMPRISING SCREENING AND MASHING CHAMBERS FOR SEPARATING PAPER FIBERS AND CONTAMINANTS

Alain Serres, Reims, and Roland Fejoz, Vitry Le Francois, both of France, assignors to E & M Lamort, Vitry Le Francois, France

Filed Jul. 12, 1996, Ser. No. 679,519

Claims priority, application France, Jul. 13, 1995, 95 08499

Int. Cl.^{6} B02C *23/16*

U.S. Cl. 241—79.3 7 Claims

1. A device for separating paper fibers and contaminants from a mixture containing water, fibers, contaminants, paper or cardboard pellets, said device comprising

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a rotatable drum comprising a screening chamber for screening the mixture and a mashing chamber for mashing the mixture; and

means for moving the mixture from said screening chamber to said mashing chamber and back again to said screening chamber.

5,735,473

METHOD AND APPARATUS FOR AVOIDING RIBBON WINDINGS

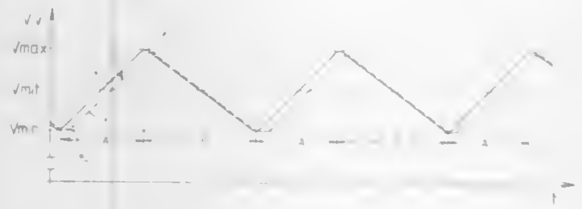
Ferdinand-Josef Hermanns, Erkelenz, and Ralf Hoffmann, Mönchengladbach, both of Germany, assignors to W. Schlafhorst AG & Co., Moenchengladbach, Germany

Continuation of Ser. No. 766,927, Dec. 16, 1996, abandoned, which is a continuation of Ser. No. 496,330, Jun. 29, 1995, abandoned. This application May 30, 1997, Ser. No. 866,507

Claims priority, application Germany, Jun. 29, 1994, 44 22 711.6; May 27, 1995, 195 19 542.6

Int. Cl.⁶ B65H *54/14*

U.S. Cl. 242—18.1 9 Claims



1. In a method for avoiding ribbon windings in the winding of a cross-wound bobbin or cheese, which includes driving the cheese with a drive drum having reversing thread grooves for yarn guidance, continuously varying a circumferential speed of the drive drum, accelerating the cheese with the drive drum so that the cheese follows a course of motion of the drive drum with slip, and monitoring a rotary speed of a drive motor for the drive drum with a winding station computer, the improvement which comprises:

defining, with a winding station computer, a torque required for driving the drive drum with the drive motor such that the slip between the drive drum and the cheese is varied;

feeding a command value specification of a current to a current regulator of the drive motor through the winding station computer for adjusting a torque output of the drive drum to the torque defined in the defining step, and accelerating the drive drum with a constant torque and braking the drive drum with another constant torque, and consequently preventing a rotary speed of the drive drum and a rotary speed of the cheese to assume a relationship that causes ribbon windings.

6. An apparatus for winding cross-wound bobbins or cheeses, comprising:

a support for cheeses;

a drive drum disposed in vicinity of said support, said drive drum acting as a drive mechanism for the cheeses and having reversing thread grooves for yarn guidance and for laying a yarn;

a drive motor for driving said drive drum at an adjustable torque output; and

a winding station computer connected to said drive motor for monitoring and regulating said adjustable torque output of said drive motor, said drive motor being connected to receive from said winding station computer a current signal adjusted to cause a slip between said drive drum and said cheeses during an acceleration phase and adjusted to provide a constant torque during said acceleration phase in which said motor accelerates said drive drum towards an upper rotary speed.

5,735,474

METHOD FOR FORWARDING AND REWINDING PHOTOSENSITIVE MATERIAL

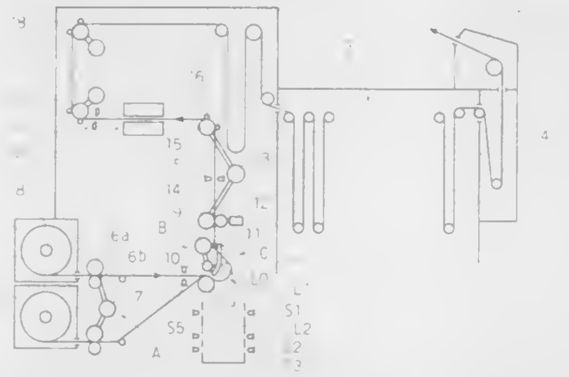
Shinji Narukami, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

Filed Sep. 9, 1996, Ser. No. 708,824

Claims priority, application Japan, Sep. 11, 1995, 7-233077; Sep. 11, 1995, 7-233078

Int. Cl.⁶ G03B *27/00*

U.S. Cl. 242—332.2 4 Claims



1. A method of rewinding a photosensitive material in a photoprocessing apparatus in which the photosensitive material is forwarded from a magazine for storing the photosensitive material wound in a form of a roll for treatment, characterized by successively providing a forwarding mechanism, first and second detectors for detecting a tip end of the photosensitive material in front of a magazine light shielding slit, and, when the photosensitive material forwarded from inside the magazine is rewound in the magazine, rewinding the photosensitive material at a high speed with the forwarding mechanism until the tip end of the photosensitive material is detected by the second detector, and, after the tip end passes the second detector, switching the speed to a low speed, and applying brake when the photosensitive material passes the first detector to allow the tip end to stop at a position of the forwarding mechanism.

5,735,475

MULTI-MOTOR FILM FEEDING DEVICE WITH PLANETARY GEARING

Tsutomu Wakabayashi, Tokyo; Koichi Daitoku, Sagamihara, and Akira Ezawa, Tokyo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Division of Ser. No. 351,146, Nov. 30, 1994, Pat. No. 5,445,340, which is a continuation of Ser. No. 236,152, May 2, 1994, abandoned, which is a continuation of Ser. No. 144,618, Nov. 1, 1993, abandoned, which is a continuation of Ser. No. 620,614, Dec. 3, 1990, abandoned. This application May 24, 1995, Ser. No. 448,661

Claims priority, application Japan, Dec. 4, 1989, 1-313496; Jan. 30, 1990, 2-17876

Int. Cl.⁶ G03B *21/43; 1/58*

U.S. Cl. 242—333 4 Claims

1. An apparatus to which a cartridge including a film, a container for containing said film and a rotatable cartridge spool for feeding said film is loadable, said apparatus comprising:

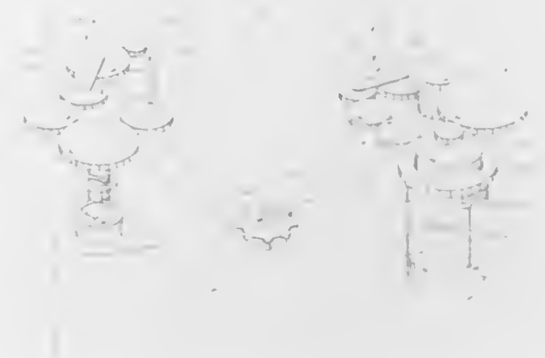
a cartridge cover, said cartridge cover covering said cartridge loaded in said apparatus;

a rewinding part, said rewinding part directly rotating said cartridge spool in a predetermined direction to rewind said film into the film cartridge;

a cover detector, said cover detector detecting opening/closing of said cartridge cover;

a cartridge detector, said cartridge detector detecting whether or not said cartridge is loaded in said apparatus;

a winding part, said winding part directly rotating said cartridge spool in a direction opposite to said predetermined direction to feed the film out of said cartridge; and



a control portion, said control portion being electrically connected to said rewinding part, said cover detector, said cartridge detector and said winding part, wherein said control portion is constructed so that only when opening of said cartridge cover is detected by said cover detector and nonexistence of said cartridge in said apparatus is detected by said cartridge detector after operation of said rewinding part to completely rewind the film into the cartridge, said control portion thereafter lets said winding part operate when existence of a cartridge in said apparatus and closing of said cartridge cover are detected.

5,735,476

REEL DRIVING APPARATUS FOR MAGNETIC RECORDING AND REPRODUCING APPARATUS

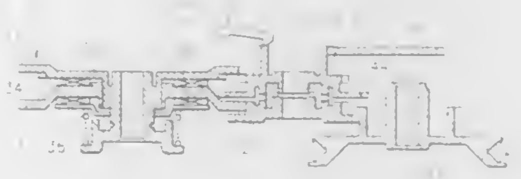
Tae Hyung Kim, Seoul, and Yong Sang Lee, Kyungki-Do, both of Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Jan. 17, 1997, Ser. No. 785,510

Claims priority, application Rep. of Korea, Jan. 19, 1996, 1133/1996

Int. Cl.⁶ G11B *15/44*

U.S. Cl. 242—356.3 11 Claims



1. A reel driving apparatus for a magnetic recording and reproducing apparatus, comprising:

a reversible motor;

a transmission gear which is inserted onto a shaft between a supply reel and a take-up reel and is rotatable by a rotational force from the reversible motor;

a slip mechanism having an input gear integrally connected with the transmission gear and an output gear having a pair of gear portions, with the output gear receiving the rotational force from the input gear through a friction member;

a lifting and lowering gear having a pair of gear portions which are selectively connected with the gear portions of the output gear by a lifting and lowering means, and being rotated, lifted and lowered with respect to the shaft; and

an idler gear which is always connected with the lifting and lowering gear for selectively transferring a rotational force from the lifting and lowering gear to one of supply and take-up reels.

5,735,477

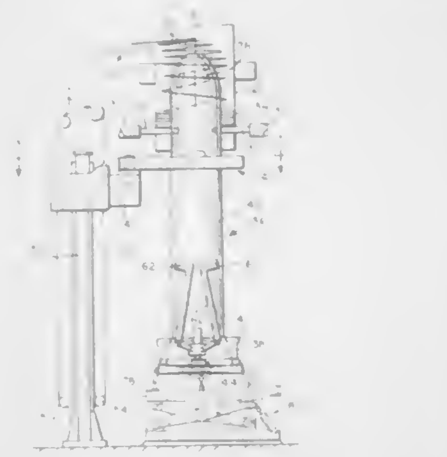
STEM COIL PALLET FOR MAKING HALF WEIGHT COILS

T. Michael Shore, Princeton; Raymond R. Starvaski, Worcester, and Melicher Puchovsky, Dudley, all of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Jan. 22, 1997, Ser. No. 787,579

Int. Cl.⁶ B21C *47/24*

U.S. Cl. 242—363 21 Claims



1. In a rolling mill having a reforming chamber through which rings of hot rolled steel rod descend along a vertical path from the delivery end of a conveyor onto a support on an underlying carrier, the carrier having an upstanding stem around which the rings accumulate to form a cylindrical coil, apparatus for subdividing said coil, comprising:

first intercepting members supported independently of said carrier at a level above said support;

first operating means for adjusting said first intercepting members between retracted positions clear of said path and operative positions projecting into said path to interrupt the descent of rings towards said support;

second intercepting members supported on said carrier at a level beneath said first intercepting members; and

second operating means for adjusting said second intercepting members between retracted positions clear of said path and operative positions projecting into said path to subdivide said coil into a lower segment comprising the rings previously accumulated therebeneath and an upper segment axially spaced from said lower segment by a gap occupied by said second intercepting members and comprising rings to be subsequently accumulated thereabove following retraction of said first intercepting members to their retracted positions.

5,735,478

SEAT BELT WEBBING RETRACTOR

Ivanna G. Malinow, Clinton Township; Harley L. Kapanka, Rochester, and Lloyd M. Snyder, Sterling Heights, all of Mich., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Jul. 30, 1996, Ser. No. 688,378

Int. Cl.⁶ B60R *22/34*

U.S. Cl. 242—376.1 17 Claims

1. A vehicle seat belt retractor for use in [illegible] a length of seat belt webbing extensible about a vehicle occupant to help protect the vehicle occupant, said retractor comprising:

a spool on which the seat belt webbing is wound and which is rotatable about an axis in a belt retraction direction and in an opposite belt withdrawal direction;

a shaft fixed for rotation with said spool, said shaft being acted upon by a first force due to gravity;

the seat belt webbing providing a second force on said shaft acting counter to said first force when the seat belt webbing is withdrawn from said spool; and

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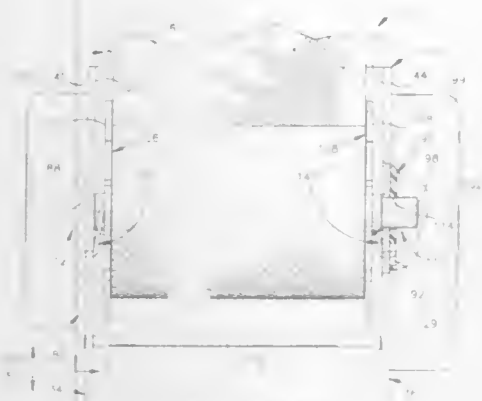


means for providing a biasing force on said shaft acting counter to said first force;

said means for providing a biasing force comprising a pair of springs located at opposite ends of said spool, said springs supporting said shaft for rotation about said axis, said springs acting against said shaft and in a direction opposite to said first force due to gravity.

5,735,479
RETRACTOR FOR SEAT BELT

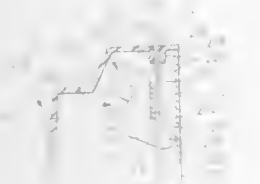
Takanobu Sasaki, and Kazumi Hirata, both of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan

Division of Ser. No. 329,255, Oct. 26, 1994, Pat. No. 5,558,294. This application Jul. 2, 1996, Ser. No. 674,731

Claims priority, application Japan, Oct. 26, 1993, 5-62079 U

Int. Cl.⁶ B65H 75/48

U.S. Cl. 242—377 10 Claims



1. A retractor for a seat belt, comprising:

a retractor base;

a bobbin fixed to a winding shaft rotatably supported by said retractor base;

a webbing, at least a portion of said webbing being wound around said bobbin and extending out of the retractor;

a clamping member movable for clamping the webbing;

a holding plate fixed to said retractor base for holding the webbing between said holding plate and said clamping member;

a swing lever connected to said clamping member for pushing the clamping member in a webbing holding direction;

a dust cover attached to said retractor base for covering an outer periphery of said retractor base; and

a webbing guide for regulating a webbing moving path so that the webbing wound around said bobbin is drawn out from a predetermined position on said retractor base;

wherein said webbing guide includes a first positioning portion located on an end of the webbing guide that is closer to said bobbin in a longitudinal direction along a length of a portion of the webbing extending out of said retractor and a second positioning portion, fixed to said retractor base and to said dust cover, located on an end of the webbing guide that is opposite to said first positioning portion in the longitudinal direction,

wherein each of said first and second positioning portions includes a plurality of protrusions being formed at intervals in a width direction of the webbing and being extended in the longitudinal direction, and said first positioning portion being fixed to said swing lever, and

wherein an end of each of said protrusions of said second positioning portion that is the farthest from said bobbin in the longitudinal direction is bent in a direction away from the webbing with respect to the thickness direction of said webbing.

5,735,480
RELAY APPARATUS FOR RELATIVE ROTATING MEMBERS

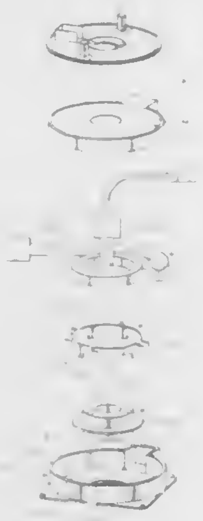
Kazuya Arai; Masakazu Umemura; Hiroyuki Okamoto; Takeshi Sakakibara; Satoshi Ishikawa; Hiraku Tanaka, and Kazuhito Sakai, all of Shizuoka-ken, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 693,947

Claims priority, application Japan, Aug. 11, 1995, 7-206067; Feb. 6, 1996, 8-020302; Jun. 13, 1996, 8-152338

Int. Cl.⁶ B65H 75/02 H01R 3/00

U.S. Cl. 242—378 16 Claims



1. A relay apparatus for relatively rotating members, comprising:

a first member having an internal cylindrical portion;

a second member having an external cylindrical portion which surrounds the internal cylindrical portion with a predetermined gap therebetween, wherein the external cylindrical portion is relatively rotated with respect to the internal cylindrical portion;

a flexible flat cable stored along an annular space between the internal cylindrical portion and the external cylindrical portion and including an inner peripheral portion held by the internal cylindrical portion and an outer peripheral portion held by the external cylindrical portion; and

a C-shaped moving member having an inner diameter variable between a minimum and a maximum diameter, said moving member movably arranged along the space for inverting said flexible flat cable in an opening thereof;

wherein one of said first and second members is rotatably driven on a rotating side of said apparatus, the rotating member having a flange formed on its cylindrical portion, and having its peripheral portion of said flexible flat cable and said moving member arranged on the flange, and the other of said first and second members being on a stationary side of said apparatus and including a lower cover, the peripheral portion of said flexible cable of said other member being arranged on said lower cover.

5,735,481
DEVICE FOR WINDING CONTINUOUS-STRIP ROLL-FED MATERIAL

Reinhard Loosen, Krefeld, Germany, assignor to Ramisch Kleinewefers GmbH, Krefeld, Germany

Filed Mar. 5, 1996, Ser. No. 611,127

Claims priority, application Germany, Mar. 6, 1995, 195 07 799.7

Int. Cl.⁶ B65H 19/26 19/28 19/30

U.S. Cl. 242—526.1 20 Claims

1. A device for winding a continuous strip of material reeled off a mother roll sequentially onto several winding tubes, said winding device comprising:

a carrier mount having a cyclically adjustable angle of rotation;

a motor for rotating said carrier mount;

a plurality of rolling spindles supported by said carrier mount and for carrying the winding tubes sequentially through a plurality of stations as said carrier mount is rotated;

at least two drive units for driving said rolling spindles, each of said drive units driving a plurality of rolling spindles,

wherein,

neighboring rolling spindles are driven by different driving units, and

each rolling spindle is permanently engaged with its respective drive unit throughout rotation said plurality of stations.

5,735,482
APPARATUS AND METHOD FOR WINDING, TRANSPORTING, AND UNWINDING CONVEYOR BELTS

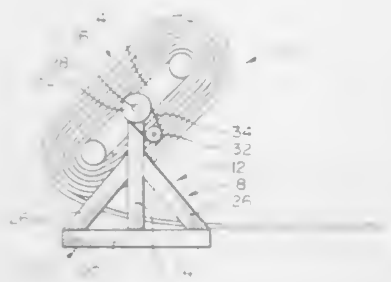
Larry J. Kuzik, 7576 Morrison Cr., Langley, B.C., Canada, V3A 6Y3

Filed Jan. 18, 1996, Ser. No. 588,557

Int. Cl.⁶ B65H 18/10, 75/06

U.S. Cl. 242—537 13 Claims

1. A method of winding, shipping and unwinding a belt length of a conveyor belt having a width with a predetermined width dimension, a thickness of a predetermined thickness dimension, and being made of a hard moderately flexible rubber or rubber like material with longitudinally extending reinforcing cables therein, said method comprising:



a. providing a belt support structure having a longitudinal axis and comprising:

i. a first end section at a first end of said support structure having a first transverse center axis and having a first end support portion defining a first belt support area that extends around said first transverse center axis in approximately a 180° curve;

ii. a second end section at a second end of said support structure having a second transverse center axis and having a second end support portion defining a second belt support area that extends around said second transverse axis in an approximate 180° curve;

iii. a longitudinally aligned intermediate section extending between and interconnecting said first and second end sections and defining upper and lower belt support areas generally parallel to said longitudinal axis;

iv. said first, second and intermediate sections of the support structure collectively defining a continuous belt winding path;

v. said belt support structure having side sections on opposite sides of said belt winding path and spaced from one another to contain said belt on said winding path;

b. rotating said belt support structure about an axis of rotation relative to the belt length to wind the belt length along the belt winding path onto said belt support structure, where said belt winding path comprises:

i. a first end path section extending in an approximate 180° curve around said first belt support area;

ii. a second end path section extending in an approximate 180° curve around said second belt support area;

iii. an upper intermediate path section extending along said upper belt support area generally parallel to said longitudinal axis between upper ends of said first and second path sections;

iv. the lower intermediate path section extending along said lower belt support area generally parallel to said longitudinal axis between lower ends of said first and second path sections,

with said two side sections receiving and aligning said belt length therebetween, and with said belt length being contained within said side sections;

c. Shipping said belt structure with the belt length wound thereon to another location by a shipping means that has length and height shipping restrictions, wherein a maximum length of said shipping restrictions is "x" and a load depth dimension to meet said height shipping restrictions is "y", said method further comprising providing said support structure so that the first and second transverse center axes are spaced from one another by a predetermined distance and said belt length is wound onto said support structure to a predetermined winding depth measured from said first and second transverse center axes radially outwardly, in a manner that said belt length and said support structure, forming a shipping unit, have length and height dimensions within said shipping limits, wherein said winding depth measured from said transverse axes, is "t" and said distance between said first and second transverse axes is "s", said winding depth is selected so that "2t" is between about three meters to four and one half meters and no greater than "y" and said spacing distance "s" is selected so that "s" plus "2t" is no greater than x and is between four to eight meters;

d. Unwinding said belt length from said belt support structure.

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5,735,483
CARDBOARD REEL CLIP HOLDER

Erick M. Bierlein, Cary, N.C., assignor to Delaware Capital Formation, Inc., Wilmington, Del.

Filed Jun. 27, 1996, Ser. No. 671,174
Int. Cl.⁶ B65H *75/14; 75/18*
U.S. Cl. 242—608.7 14 Claims

1. A reel for support of a rope of material wound on said reel said reel being recyclable and comprised of an assembly of three flat planar recyclable members folded and assembled into a reel configuration, comprising in combination

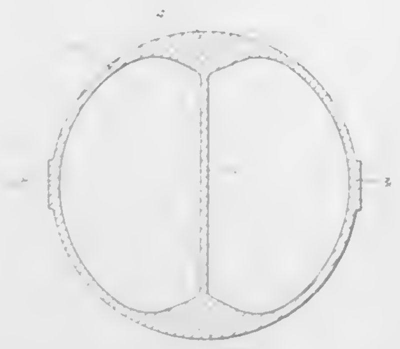
- first and second side members, each member having an inside and an outside, said first and second side members having a center point, at least three substantially congruent, equally radially spaced pairs of slots, each of said pairs of slots characterized by an inner radial slot and an outer radial slot,
- a hub section formed of a longitudinal strip with generally parallel, longitudinal side edges, said side edges having a length generally greater than the circumference of a hub for the assembled reel, and at least three pairs of tabs, each pair comprised of a first tab and a second tab, one of which extends laterally from one side edge and the other of which extends from the other side edge, said pairs of tabs spaced along the side edges so as to align with associated radial slots in the side members and being fitted therethrough from the inside of the side members over a portion of the outside and thence back to the inside to retain the hub section attached to the side sections and thereby form a reel; and
- said hub section further including opposite longitudinal ends, each end including an interlocking tab with a longitudinal slot in each interlocking tab, said slots of the interlocking tabs engaged to form one side of a multi-sided polygonal configuration

5,735,484
HELICOPTER SKID

James Bradley, Sidney, British Columbia, Canada, assignor to Nosterra Holdings Ltd., Sidney, B.C, Canada

Filed Mar. 25, 1996, Ser. No. 622,548
Int. Cl.⁶ B64C *25/52*
U.S. Cl. 244—108 5 Claims

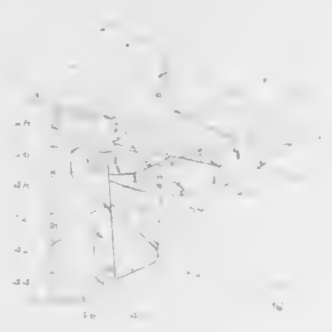
1. A helicopter skid having a wall defining an elongated cylindrical tube, said wall having a top portion and a bottom portion including top and bottom vertical apexes, and said skid including a web extending vertically along the longitudinal axis and between said vertical apexes of the tube



5,735,485
VARIABLE SLOT AIRBRAKE FOR AIRCRAFT WING

Danilo Ciprian, Aussonne; Benoit Hemadou, Tournefeuille, and Pascal Chaumel, Plaisance, all of France, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Dec. 22, 1995, Ser. No. 577,834
Claims priority, application France, Dec. 26, 1994, 94 15641
Int. Cl.⁶ B64C *9/02*
U.S. Cl. 244—113 13 Claims



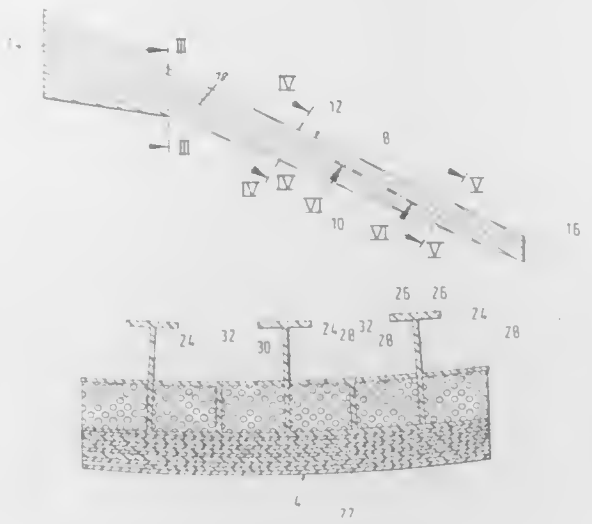
1. An airbrake adapted to be mounted along the upper surface of an aircraft wing, between a rear spar of the wing and a wing flap said airbrake comprising a first panel adjacent said rear spar, a second panel between the first panel and the wing flap, and inclination control means for mounting and actuating the airbrake such that the first panel and the second panel form a contiguous portion of the upper surface of the wing when the airbrake is in a closed position and the first panel and the second panel are at the same angle and form a contiguous surface when the airbrake is in a fully deployed position but the second panel is at a greater angle than the first panel intermediate the closed and fully deployed positions forming a slot between said first and second panels

5,735,486
AIRCRAFT WING

Matthias Piening; Arno Pahsch, and Christof Sigle, all of Braunschweig, Germany, assignors to Deutsche Forschungsanstalt fur Luft-und Raumfahrt e.V., Bonn, Germany

Filed Aug. 9, 1996, Ser. No. 696,029
Claims priority, application Germany, Aug. 11, 1995, 195 29 476.9
Int. Cl.⁶ B64C *3/18; 11/20,* F01D *5/14*
U.S. Cl. 244—124 14 Claims

1. A wing for an aircraft comprising:

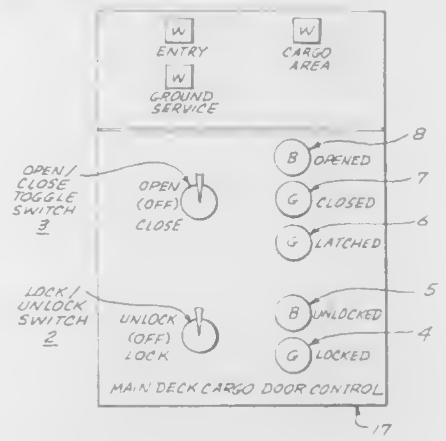


- wing shells fabricated from fibre-reinforced plastics material having high shear strength, each wing shell including an outer fiber ply, an inside, a center portion, and a tip;
- a plurality of spaced apart stringers located on the inside of the wing shells and extending longitudinally substantially along the entire length of the wing, the spaced apart stringers each having a fiber component formed by a fiber ply which is joined to the fiber ply of the wing shell; and
- a plurality of fiber bundles arranged between spaced apart stringers as unidirectional stiffening elements, each wing shell having a synthetic resin matrix having high shear strength in which the fiber bundles are embedded, said fiber bundles extending longitudinally along the length of the wing and having a substantially rectangular cross section.

5,735,487
MAIN DECK CARGO DOOR CONTROL PANEL INDICATION

Vernon L. Abild, Kirkland, and Stephen J. Huard, Everett, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 19, 1995, Ser. No. 574,836
Int. Cl.⁶ B64C *1/14;* E05B *45/12*
U.S. Cl. 244—129.5 2 Claims



1. In combination in an aircraft

- a cargo door,
- a cargo door control panel disposed in said aircraft remote from said cargo door;
- said cargo door control panel having a plurality of panel lamps indicating opened, closed, latched, unlocked and locked positions of said cargo door, and
- a cargo door control and indicator circuit coupled between said cargo door and said plurality of panel lamps

5,735,488
METHOD AND APPARATUS FOR COUPLING SPACE VEHICLES

William C. Schneider, Houston, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed May 28, 1996, Ser. No. 654,460
Int. Cl.⁶ B64G *1/64; 4/00*
U.S. Cl. 244—161 21 Claims

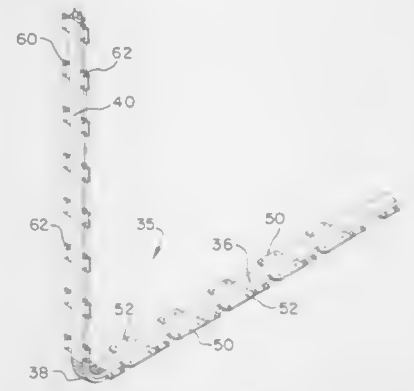
1. Apparatus for structurally connecting a first vehicle with a second vehicle in space, the second vehicle including a rocket propulsion nozzle having a combustion chamber upstream from a nozzle throat, the apparatus comprising:

- an elongate grappling arm extending from the first vehicle;
- an inflatable front bladder positioned adjacent a front end of the grappling arm for engaging, upon inflation, an inner surface of the combustion chamber upstream of the nozzle throat, exerting a first axial reaction load on said inner surface of the combustion chamber, and thereby capturing the rocket propulsion nozzle with the grappling arm,
- an inflatable rear bladder positioned along the grappling arm for engaging, upon inflation, an inner surface of the rocket propulsion nozzle downstream from the nozzle throat exerting a second axial reaction load on said inner surface of the rocket propulsion nozzle downstream from the nozzle throat which balances said first axial reaction load, thereby attaching and aligning the grappling arm with the rocket propulsion nozzle and
- means for inflating said front and rear bladders

5,735,489
HEAT TRANSPORT SYSTEM FOR SPACECRAFT INTEGRATION

Bruce L. Drolen, Pasadena; David B. Esposto, Redondo Beach; George L. Fleischman, Cerritos, and Calvin H. Ito, West Hills, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Dec. 22, 1995, Ser. No. 577,434
Int. Cl.⁶ B64G *1/50*
U.S. Cl. 244—163 21 Claims



1. An apparatus for transferring heat in a spacecraft, comprising

- a flexible heat pipe having a first section, a second section, and a flexible section;
- a first member of the spacecraft coupled to the first section of the flexible heat pipe,
- a second member of the spacecraft coupled to the second section of the heat pipe; and
- the first member of the spacecraft being in a permanently rigidly fixed relationship to the second member of the spacecraft

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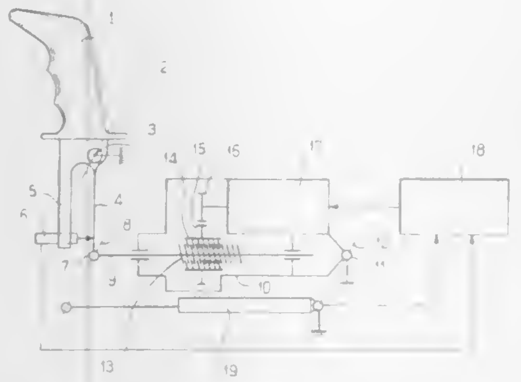
5,735,490
CONTROL DEVICE WITH A CONTROL STICK, PARTICULARLY A SERVO SIDESTICK FOR AIRCRAFT

Jean-Louis Berthet, Figeac, and Eric Bondivenne, Decazeville, both of France, assignors to Ratier-Figeac, Figeac, France
PCT No. PCT/FR94/00908, § 371 Date Apr. 10, 1996, § 102(e) Date Apr. 10, 1996, PCT Pub. No. WO95/03566, PCT Pub. Date Feb. 2, 1995
PCT Filed Jul. 20, 1994, Ser. No. 586,893
Claims priority, application France, Jul. 22, 1993, 93 09035
Int. Cl.^{6} B64C *13/04, 13/46*
U.S. Cl. 244—223 **10 Claims**



1. A control device comprising
(a) a control stick which is displaceable in at least one degree of freedom and which has a user-applied force applied thereto by a user,
(b) means for reproducing, at said control stick, a feeling of a reacting force which reacts against the user applied force;
(c) a computer,
(d) an irreversible actuator which is coupled to said control stick and which controls displacement of said control stick, said irreversible actuator in turn being coupled to said computer, said control stick being displaceable by said irreversible actuator but said irreversible actuator not being displaceable by the user applied force applied to said control stick;
(e) a force detector which is associated with said control stick and which measures the user-applied force and supplies user applied force data, indicative of the user-applied force, to said computer; and
(f) a position detector which is associated with said control stick and which supplies said computer with a feedback of actual position of said control stick
wherein:
said computer controls operation of said irreversible actuator and thus the displacement of said stick, and
said computer servos the position of said control stick to the user-applied force, as a function of the user applied force data and the actual position of said control stick, via a position versus force law entered in said computer

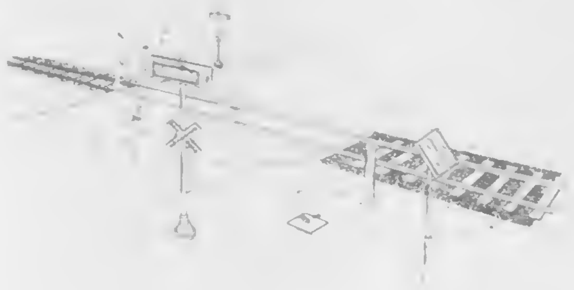
5,735,491
METHOD AND APPARATUS FOR DETECTING AN APPROACHING TRAIN BY DETECTING A BRAKE SYSTEM STATUS SIGNAL

Denny M. Atkinson, Montpelier, Ind., assignor to Michael D. Ray, Montpelier, Ind.
Filed Oct. 9, 1996, Ser. No. 728,037
Int. Cl.^{6} B61L *15/00*
U.S. Cl. 246—124 **22 Claims**

5. An apparatus for detecting the presence of an approaching train, comprising
a warning indicator
a receiver for receiving a brake system status signal transmitted from an approaching train, and
a relay for coupling a voltage potential to said warning indicator when said brake system status signal is received by said receiver wherein said warning indicator, said receiver and said relay are positioned within a passenger vehicle

5,735,492
RAILROAD CROSSING TRAFFIC WARNING SYSTEM APPARATUS AND METHOD THEREFORE

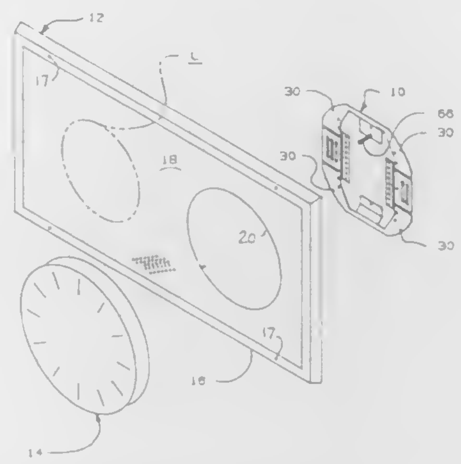
Joseph A. Pace, 9714 N. 72nd St., Omaha, Nebr. 68122
Continuation-in-part of Ser. No. 601,902, Feb. 15, 1996, which is a continuation-in-part of Ser. No. 650,303, Feb. 4, 1991, abandoned. This application Sep. 16, 1996, Ser. No. 710,147
Int. Cl.^{6} B61L *29/32*
U.S. Cl. 246—125 **34 Claims**



1. A railroad crossing traffic warning system for alerting a motorist approaching a railroad crossing over a railroad track to the presence of an oncoming railroad train, said warning system comprising
(a) a train detection sensor for detecting an oncoming train and for producing a train detection signal in response to the presence of an oncoming train, said train detection sensor being positioned adjacent to the railroad track at a predetermined distance from the railroad crossing,
(b) a controller unit for receiving the train detection signal from said train detection sensor, said controller unit comprising:
(i) microprocessor means for processing the train detection signal of said detection sensor,
(ii) sensor signal interface means for interfacing the train detection signal of said detection sensor with said microprocessor means,
(iii) means for controlling said means for alerting the motorist, said controlling means being operationally connected to said microprocessor means and to said alerting means,
(iv) battery means for supplying operational power to said microprocessor means, and
(c) means for alerting the motorist to the presence of an oncoming railroad train such that the motorist may take cautionary or evasive action before the arrival of an oncoming train at the railroad crossing, said alerting means being coupled to and controlled by said controller unit.

5,735,493
ADAPTOR MOUNTING BRACKET FOR CLOCKS

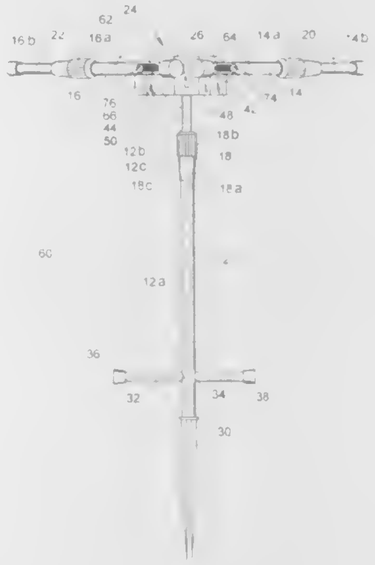
Kevin J. Ditch, Melville, Mo., assignor to American Trading and Production Corporation, Baltimore, Md.
Filed Apr. 27, 1995, Ser. No. 429,958
Int. Cl.^{6} G12B *9/00*
U.S. Cl. 248—27.1 **8 Claims**



1. A clock mounting system comprising:
(a) a panel having an opening,
(b) an adaptor bracket having a first set of mounting portions, a second set of mounting portions and an opening generally aligned with said panel opening, said bracket being adapted to selectively receive a plurality of clocks in mounted relation,
(c) attachment means mounting the bracket to the panel, and
(d) at least one portion of one of said second set of mounting portions including a break-away strap detachable from the bracket and re-attachable to a different part of the bracket, said strap having at least one attachment aperture adapted to suit a selected clock

5,735,494
BAG HOLDER

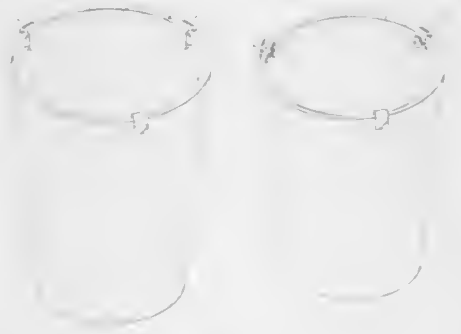
Robert Kurk, 3034 Wynstom Dr., Sebring, Fla. 33872
Filed Mar. 7, 1996, Ser. No. 612,242
Int. Cl.^{6} A63B *55/04*
U.S. Cl. 248—97 **17 Claims**



1. A collapsible bag holder comprising:
longitudinally extending support means having a ground support end and a bag support end opposite said ground support end;
a pair of pivotally mounted bag support arms mounted on opposite sides of said bag support end of said longitudinally extending support means,
a bag support mounting assembly mounted onto the bag support end of said longitudinally extending support means, each bag support arm being mounted on opposite sides of said bag support mounting assembly, said bag support mounting assembly being a block-shaped member of trapezoidal configuration, said bag support arms being mounted on opposed non-parallel sides of said block shaped members, the angle between said opposed non parallel sides being approximately 60°, and,
a ground support assembly attached to said ground support end

5,735,495
TRASH BAG HOLDING DEVICE

Teresita Kubota, 9 Sara La., San Carlos, Calif. 94070
Filed Oct. 23, 1996, Ser. No. 731,970
Int. Cl.^{6} B65B *67/04*
U.S. Cl. 248—100 **19 Claims**



1. A holding device, comprising
a main portion having a first arm and a second arm, said first arm and said second arm being biased inward when outwardly displaced from a resting position, said main portion being retained on a first object;
said second arm having an end portion movable between an open position and a closed position, said end portion being permanently attached to an inner portion of the second arm by a flexible member, and said end portion having an extension matingly and releasably attached to a cavity in said inner portion; and
a flap attached to said first arm and movable between an open position and a closed position with respect to said first arm, said flap having an extension fittable into a cavity in said first arm when in the closed position, wherein a second object is retained between said flap and said first arm when said flap is in the closed position

5,735,496
RIFLE HARNESS

Dorian Dubé, 199 rang Charlotte, St-Liboire, Qc, Canada, J0H 1R0
Filed Sep. 13, 1996, Ser. No. 713,476
Int. Cl.^{6} B68G *5/00*
U.S. Cl. 248—118 **20 Claims**

1. A rifle harness for a human being, said human being having opposite upper limbs, comprising
a belt,
an elbow rest having opposite ends,
one end of said elbow rest, for receiving an elbow of a human being from one of said upper limbs, and adjacent parts of said one upper limb adjacent to said elbow,
and the other end of said elbow rest, adjoining said belt.

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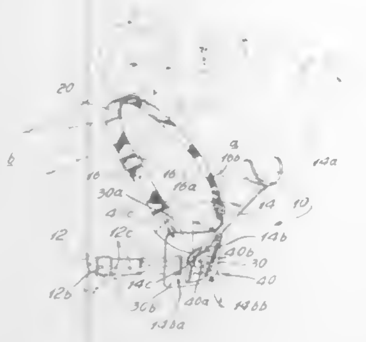
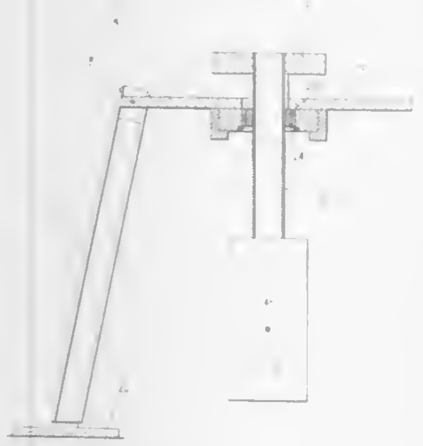


a strap having opposite ends.
one of said ends of said strap being mounted to hold said belt. adjacent to one side of said elbow rest,
and the other of said ends of said strap being mounted to hold said belt, adjacent to a side opposite said one side of said elbow rest.
whereby said strap is for running from said one of said ends holding said belt.
diagonally crossing up the back of said human being.
running over the shoulder joining the other upper limb
and diagonally crossing down the thorax,
for finally holding said belt, at said adjacent to a side opposite said one side of said elbow rest.

5,735,497
SELF-LEVELING MOUNT OR PLATFORM FOR A RAPID DEPLOYMENT SYSTEM

Edwin G. Haas, Sayville, and Edward V. Sullivan, Huntington Station, both of N.Y., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Dec. 26, 1995, Ser. No. 578,361
Int. Cl.⁶ F16M *11/14*
U.S. Cl. 248—181.1 15 Claims

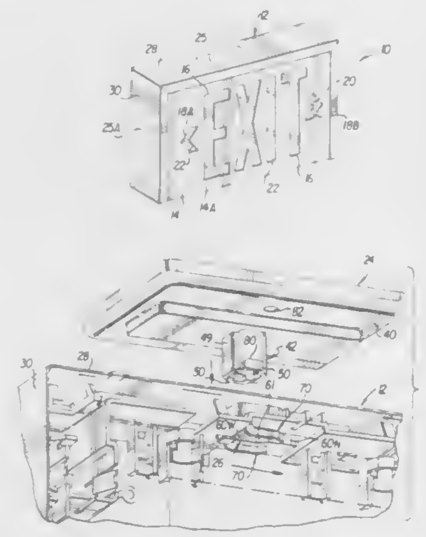


1. A self-leveling platform comprising.
a. a spherical bearing support;
b. an instrument mounting platform which is designed to be horizontally supported by said spherical bearing, and
c a housing, mounted to the lower end of a support member which extends upwardly a given distance to and is supported by and below said spherical bearing support, for housing heavy electronic equipment, such as batteries, such that the center of gravity of the equipment supported by said spherical bearing is positioned vertically below the center of said spherical bearing when the instrument mounting platform is supported in a horizontal position.

5,735,498
APPARATUS FOR MOUNTING AN EMERGENCY SIGN TO A SUPPORT

George Hall Jue, Hoffman Estates, and Gregory Louis Kuffel, Schaumburg, both of Ill., assignors to Cooper Industries, Inc., Houston, Tex.

Filed May 7, 1996, Ser. No. 647,452
Int. Cl.⁶ A47K *1/00*
U.S. Cl. 248—222.12 6 Claims



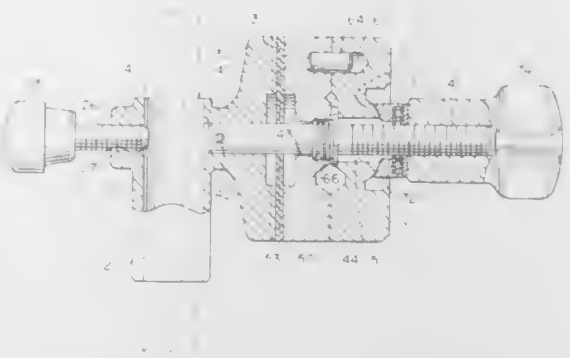
1 In combination, a canopy attachable to a support structure, and a sign housing attachable to the canopy:
the housing including a slot having a wide portion and a narrow portion, the wide and narrow portions being aligned relative to a centerline of the slot;
the canopy including a post having a free end on which a pair of projections project laterally outwardly, the post configured to be insertable into the wide portion of the slot in a direction parallel to the post and slid along the centerline of the slot into the narrow portion thereof wherein the projections secure the post against removal from the slot in a direction parallel to the post;
the housing further including a pair of elastically flexible locking arms having free ends arranged to be cammed away from one another by the post as the post enters the narrow portion of the slot, and to snap back to a position behind the post after the post enters the narrow portion, to prevent return travel of the post into the wide portion of the slot.

5,735,499
GRIP HEAD

Edward Phillips, and Thomas Pfeiffer, both of Burbank, Calif., assignors to Matthews Studio Equipment, Inc., Burbank, Calif.

Filed Mar. 29, 1996, Ser. No. 627,703
Int. Cl.⁶ A47B *96/06*
U.S. Cl. 248—230.1 9 Claims

1 A grip head for coupling an equipment support shaft to a stanchion comprising:
(a) a mounting sleeve adapted to be coupled to the stanchion, said mounting sleeve having an elongated bore disposed therethrough for receiving the stanchion, said bore having first and second substantially perpendicular surface adapted to engage the stanchion;
(b) a fixed positioning member having a planar surface having parallel serrated ridges disposed therein, said fixed positioning member being coupled to and extending from said mounting sleeve;
(c) a cylindrical shaft being coupled to said fixed positioning member perpendicular to the planar surface thereof.



(d) a first rotatable positioning member being slidably coupled about the cylindrical shaft, said first rotatable positioning member having first and second opposed planar gripping surfaces in parallel spaced relation to each other and being perpendicular to the cylindrical shaft, said first gripping surface being in axial abutment to the planar surface of said fixed positioning member and having a plurality of arcuate serrated ridges disposed therein, said second gripping surface having first mounting means disposed therein for receiving and securing the equipment support shaft,
(e) a second rotatable positioning member being slidably coupled about said cylindrical shaft and including a first planar gripping surface having second mounting means disposed therein for receiving and securing the support shaft, said second mounting means being aligned with the first mounting means disposed in said first rotatable positioning member, and a second planar surface axially opposed from said first planar gripping surface of said second rotatable positioning member; and
(f) clamping means coupled to the cylindrical shaft for imposing an axial force against the second planar surface of said second rotatable positioning member causing the first and second mounting means to be aligned with one another for securing the equipment support shaft therebetween

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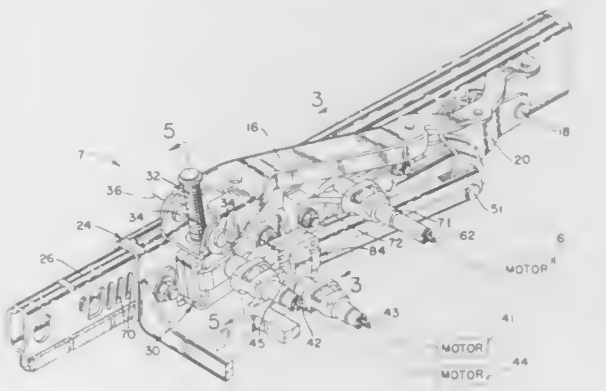
5,735,500
CHUCKLESS POWER SEAT ADJUSTER SLIDE

Hans Juergen Borlinghaus; James Peter Nini, and Thomas Bernard Blake, all of Clinton Township, Macomb County, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 26, 1995, Ser. No. 548,892
Int. Cl.⁶ F16M *13/00*
U.S. Cl. 248—419 1 Claim



1 A powered seat adjuster slide unit, comprising:
a top, generally horizontally oriented vehicle seat mounting rail having first and second ends;
a bottom, generally horizontally oriented bottom rail for supporting said top rail, said bottom rail having first and second ends corresponding to said top rail first and second ends,
a first, generally vertically oriented powered jack screw unit having a lower end pivoted to said bottom rail first end at a pivot axis fixed with respect to said bottom rail and an upper end pivoted to said top rail first end at a pivot axis fixed with respect to said top rail,
a second, generally horizontally oriented powered jack screw unit having an inner end pivoted to said bottom rail intermediate said bottom rail first and second ends at a pivot axis fixed with respect to said bottom rail and also having an outer end,
a single bell crank having an inner pivot point, and outer pivot point, and an intermediate pivot point, with said intermediate pivot point pivoted directly to said bottom rail second end at a pivot axis fixed with respect to said bottom rail, with said inner pivot point pivoted directly to the outer end of said second jack screw unit below said intermediate pivot point at a pivot axis fixed with respect to said bell crank and with said outer pivot point pivoted directly to said top rail second end at a pivot axis fixed with respect to said top rail, with said jack screw units and single bell crank constituting the only operative physical connections between said top and bottom rails,
whereby, by virtue of all of said pivot axes being fixed relative to said top rail, bottom rail, and bell crank, said top rail can be moved and adjusted relative to said bottom rail just by extending and retracting said jack screw units and are locked and stabilized in any relative adjusted position thereof

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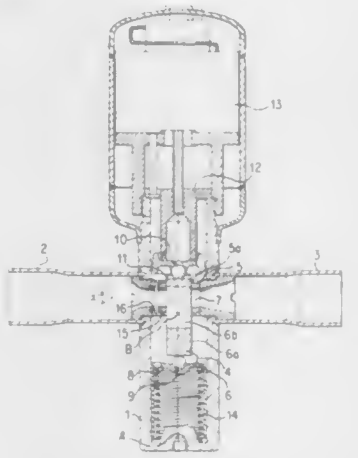
5,735,501
VALVE ARRANGEMENT

Rainer Maurer, Stuttgart, and Ludwig Reisinger, Waiblingen, both of Germany, assignors to Emerson Electric GmbH & Co., Germany

Filed May 16, 1996, Ser. No. 648,818
Claims priority, application Germany, May 19, 1995, 195 18 429.7
Int. Cl.⁶ F16K *3/02;25/00*
U.S. Cl. 251—85 22 Claims



1 Valve, in particular electronic expansion valve arrangement for one of pneumatic and hydraulic pressure media comprising a valve housing having a first pressure medium connection and a second pressure medium connection, which are connected together by a throughflow space formed in a cavity of the housing, and a slider element which is arranged in the valve housing and cooperates with a valve seat, with the slider element being operationally connected to a positioning element of a drive and being displaceably guided parallel to the valve seat between a closed position, in which a contact surface of the slider element closes a throughflow opening formed by the valve seat, and an open position, in which a throughflow passage formed in the slider element frees the throughflow opening, and wherein the slider element is displaceable in the direction towards the valve seat and back, characterized in that the slider element is tiltably arranged in a frame engaged

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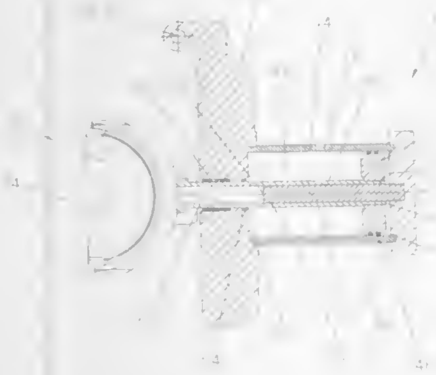
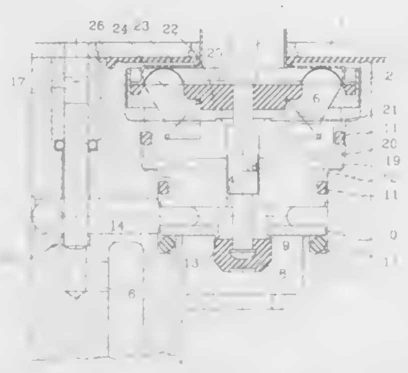
with the positioning element, said slider element being tiltable about at least two axes in such a manner that the position and orientation of the slider element are adjusted automatically during movement of the slider element between said open and said closed position

5,735,502
BOP WITH PARTIALLY EQUALIZED RAM SHAFTS
Bryce A. Levett, Katy, and Mike C. Nicholson, Cypress, both of Tex., assignors to Varco Shaffer, Inc., Houston, Tex.
Filed Dec. 18, 1996, Ser. No. 769,160
Int. Cl.^{6} E21B *33/06*
U.S. Cl. 251—1.3 **20 Claims**



1. A hydraulically actuated blowout preventer for engagement with an oilfield tubular, comprising:
  - a BOP body having a central passageway for receiving the oilfield tubular and radially opposing chambers extending radially outward from the central passageway, the central passageway in the BOP body defining a BOP central axis;
  - first and second ram assemblies each in communication with a respective chamber in the BOP body, each of the first and second ram assemblies including a ram housing sealing connected to the BOP body, a piston movably responsive to hydraulic pressure within the ram housing between an open position and a closed position, a ram block, and a sleeve shaped ram shaft interconnecting the piston and the ram block;
  - first and second ram shaft seals each for sealing between a respective ram housing and a respective ram shaft as each ram assembly moves between the open and closed positions,
  - each sleeve-shaped ram shaft having a bore therein in fluid communication with the central passageway in the BOP body and extending radially outward from the respective ram shaft seal to a radially outward end of the ram shaft,
  - first and second ram shaft rods each fixedly secured to a respective ram housing and positioned within the bore in a respective sleeve-shaped ram shaft, each ram shaft rod extending radially from the respective ram housing toward the respective ram block, and
  - first and second rod seals each for sealing between a respective ram shaft rod and a respective ram shaft as each respective ram assembly moves between the open and closed positions, such that fluid pressure in the BOP passageway opposes closing of each ram shaft as a function of the sealing area of the respective ram shaft seal less the sealing area of the respective rod seal

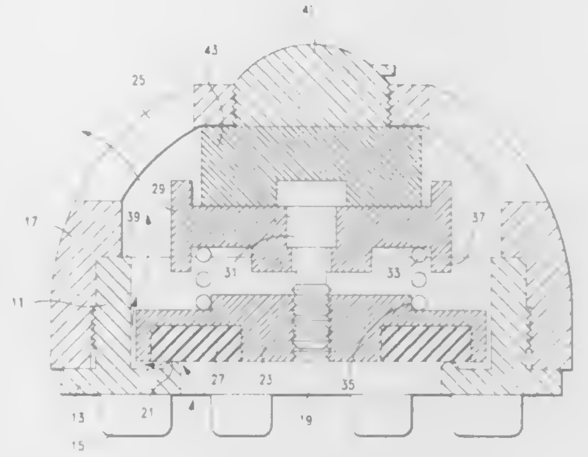
5,735,503
SERVO PRESSURE REGULATOR FOR A GAS VALVE
Albert Hietkamp, Emmen, Netherlands, assignor to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 25, 1996, Ser. No. 738,128
Int. Cl.^{6} F16K *31/12*
U.S. Cl. 251—30.01 **5 Claims**



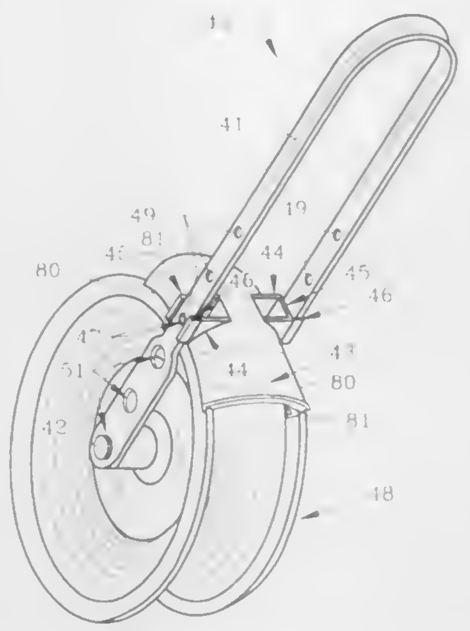
1. In a pressure regulator for generating a control pressure for a diaphragm-operated gas valve which controls gas flow through a first passageway between an inlet and an outlet, the pressure regulator being of the type in which the control pressure is determined by an electromagnetic operator which operates a bleed valve including a first closure member carried on a valve stem and an on-off valve including a second closure member carried on the valve stem, the improvement which comprises,
  - a second passageway for supplying gas at an unregulated minimum pressure from the inlet to the outlet of the diaphragm-operated gas valve, said second passageway including means for adjusting the unregulated minimum pressure the on-off valve being arranged to control gas flow through said second passageway, and
  - a throttling device located downstream of said second passageway for supplying gas from the downstream side of said on-off valve to the bleed valve, said throttling device being formed by a gap between the valve stem and a surrounding wall of a bore in a housing assembly in which the diaphragm operated gas valve is formed, said valve stem being positioned to extend through the bore, wherein a first pressure chamber is defined in the housing assembly and is fluidly coupled to said second passageway, a second pressure chamber is defined in the housing assembly downstream of the first pressure chamber a control chamber of the diaphragm-operated gas valve being fluidly coupled to the second pressure chamber by a third passageway, and a third pressure chamber is defined in the housing assembly downstream of the second pressure chamber and is fluidly coupled to a fourth passageway that bleeds excess pressure to the outlet of the gas valve, the first closure member being located in the third chamber, the first second and third chambers being separated by partitions of the housing assembly.

5,735,504
VARIABLE OVERPRESSURE RELIEF VALVE
William D. Walters, 2230 Biscay Ct., Byron, Calif. 94514
Filed Sep. 24, 1996, Ser. No. 719,265
Int. Cl.^{6} F16K *15/00*
U.S. Cl. 251—83 **5 Claims**

1. A variable overpressure relief valve for a buoyancy compensator comprising
  - a cylindrical base member having a lateral flange for an sealed securement to a material portion of a buoyancy compensator forming an inflatable air compartment thereof, said base member having a central air passageway for communication with said air compartment, said base member formed for releasably engaging a cap,
  - an inner floating first disk disposed internally of a cylindrical cavity of said base member and formed for sealing said air passageway, the diameter of said disk being smaller than the internal diameter of said cylindrical cavity of said base member whereby air vented from said buoyancy compensator air compartment through said air passageway can flow around the edges of said disk and out of said base member,
  - an outer floating second disk interconnected to said first floating disk by a floating bolt captured by and projecting through said second floating disk and threadably engaging said first floating disk, the head of said bolt being disposed in a recessed chamber formed in said second disk whereby said bolt can reciprocate freely therein but is confined in its movement thereby said bolt interconnection between said disks permitting reciprocating movement of said disks with respect to each other but preventing separation of said disks beyond a predetermined adjustable limit and positioning said second disk in a predetermined relation with respect to said first floating disk,
  - spring means disposed between said floating disks and biased to urge said disks apart,
  - a vented cap releasably engaged to said base member permitting air vented around the edges of said first floating disk to exit the interior of said base member,
  - an adjustment button reciprocally engaged to said cap and projecting therethrough whereby said button can move adjustably in and out with respect to the interior of said base member, said adjustment button being interconnected to said second floating disk whereby movement of said button in or out with respect to said base member increases or decreases the spring pressure separating the floating disks depending upon whether the button moves inward or outward with respect to said vented cap, and
  - means for external control of the reciprocatable movement of said button



5,735,505
CABLE PULLEY DEVICE AND METHOD
Newton C. Walton, North Wilkesboro, N.C., assignor to Data Connections, Inc., Greensboro, N.C.
Continuation-in-part of Ser. No. 415,856, Apr. 3, 1995, Pat. No. 5,618,031. This application Mar. 18, 1996, Ser. No. 617,103
Int. Cl.^{6} B66D *59/00*
U.S. Cl. 254—134.3 PA **12 Claims**



1. A cable pulley device comprising: a flexible strap, a wheel, said strap attached to said wheel, a cable guide, said cable guide spanning the entire width of said wheel, said cable guide having a pair of sides, said pair of sides perpendicular to the axis of rotation of said wheel, said pair of sides adjustably attached to said strap contiguous to said wheel to maintain a cable between said cable guide and said wheel.

5,735,506
WINCH WITH HYDRAULIC MOTOR ESPECIALLY FOR HELICOPTER EQUIPPED WITH SONAR
François Warnan, Rambouillet, and Daniel Canto, Ballainvilliers, both of France, assignors to Thomson-CSF, Paris, France
PCT No. PCT/FR94/01529, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/18061, PCT Pub. Date Jul. 6, 1995
PCT Filed Dec. 23, 1994, Ser. No. 666,470
Claims priority, application France, Dec. 30, 1993, 93 15883
Int. Cl.^{6} B66D *1/08*
U.S. Cl. 254—361 **10 Claims**

1. Winch with a hydraulic system comprising:
  - a reversible hydraulic motor driving a winch cable for raising and lowering a load connected to the winch cable
  - a source of hydraulic fluid at an elevated pressure
  - a first supply hose connected to said motor for driving the motor in a direction to raise the load when hydraulic fluid from said source is supplied to said motor via said first supply hose
  - a servovalve connected to said first supply hose and to said source for selectively connecting said first supply hose to said source to supply hydraulic fluid to said motor for raising the load

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- a second supply hose directly connecting said motor to a low pressure hydraulic fluid return; and
- a return hose connecting said servovalve to said second supply hose, wherein said servovalve is movable to a position connecting said first supply hose to said return hose so that hydraulic fluid can circulate in a closed circuit substantially without pressure during a descent of the load.

5,735,507
SAFETY SYSTEM FOR HOIST APPARATUS

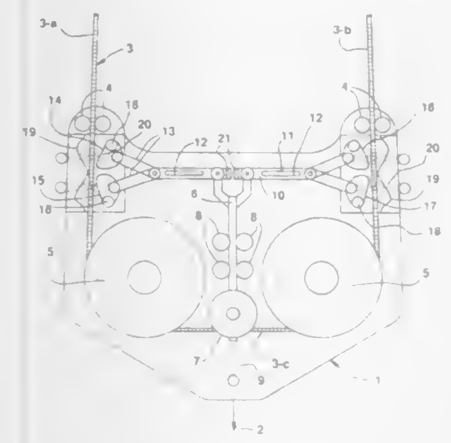
Emilio Sierra Escudero, and José Sierra Escudero, both of Saragossa, Spain, assignors to Ganchos de Seguridad, S.L., Saragossa, Spain

Filed May 30, 1995, Ser. No. 445,453

Claims priority, application Spain, May 30, 1994, 9401183

Int. Cl.^{6} B66D *3/06*

U.S. Cl. 254—391 **40 Claims**



1. A safety device for a hoist apparatus which includes a flexible element (3) to hoist a load, said device comprising
- a housing (1),
- hooking means (2) disposed on said housing for connecting the device to a load,
- trajectory definition means (4, 5) disposed inside said housing (1) for defining a trajectory of the flexible element (3) passing through said housing (1), said trajectory definition means (4, 5) including a pair of lower pulleys (5) disposed such that the trajectory of the flexible element (3) through said housing (1) during operation comprises a first, substantially vertical, branch (3*a*), a second, substantially horizontal, branch (3*c*), and a third, substantially vertical, branch (3*b*);
- first locking means (10, 13-17) disposed within said housing and displaceable between an open position and a locking position;
- second locking means (19) situated within said housing (1), wherein said first locking means (10, 13-17) and second locking means (19) define gaps therebetween which are adapted to allow the flexible element (3) to pass therethrough when the flexible element is intact, wherein the flexible element (3) can move freely through said gaps when said first locking means is in the open position, and wherein a portion of the flexible element (3) is locked between the first locking means (10, 13-17) and the second locking means (19) when said first locking means is in the locking position;
- a latch means (6) displaceable between a first position and a second position and disposed within said housing (1) for maintaining the first locking means (10, 13-17) in the open position while the latch means (6) remains in the first position and the flexible element remains intact
- first activation means (7, 9) for moving the latch means (6) from the first position to the second position when the flexible element (3) ruptures, including support means (7) for keeping the latch means (6) in a first position; and
- second activation means (20) for displacing the first locking means (10, 13-17) to the locking position when the latch means (6) is displaced from the first position towards the second position.

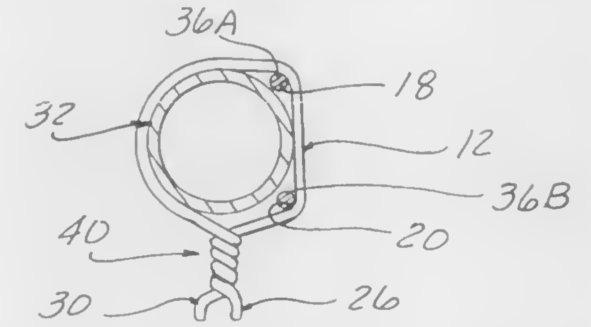
5,735,508
TIE AND METHOD FOR SECURING FENCE FABRIC TO SUPPORTS

Jeffrey J. Lancour, 1646 17.4 Rd., Escanaba, Mich. 49829; Ronald D. Chouinard, 605 Dakote Ave., and Carl J. Wick, 7082 P. Rd., both of Gladstone, Mich. 49837

Filed Jul. 25, 1996, Ser. No. 686,283

Int. Cl.^{6} B21F *7/00;* **E04H** *17/00*

U.S. Cl. 256—57 **5 Claims**



1. A wire tie for connecting wire fabric fencing to a post comprising
- a length of wire having a pair of side-by-side elongated leg segments joined at one end by a substantially straight connecting section, said leg segments both extending away from said connecting section in the same general direction to form a generally U-shaped tie,
- one leg segment having a substantially straight section joined to one end of said connecting section so as to form a first corner, and an inwardly inclined section joined at one end to said straight section of said one leg segment to form a second corner spaced from said first corner;
- the other leg segment having a curved section having a radius and with one end thereof joined to said other end of said connecting section;
- said one of said leg segments having a free end connected to another end of said inwardly inclined section, said other of said leg segments having a free end connected to another end of said curved section, both of said free ends extending away from said connecting section of said tie and wherein said free ends are configured to be twisted together to connect said free ends together.

5,735,509
SEAT SUSPENSION ASSEMBLY

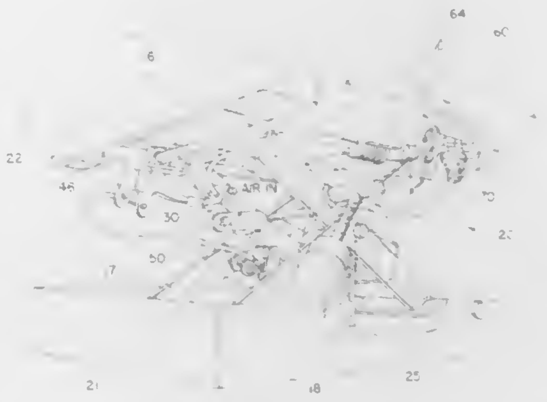
Dennis J. Gryp, East Moline, and Mark H. Toomey, Moline, both of Ill., assignors to Sears Manufacturing Company, Davenport, Iowa

Filed Feb. 8, 1996, Ser. No. 597,435

Int. Cl.^{6} F16F *5/00,* **F16M** *13/00*

U.S. Cl. 267—131 **8 Claims**

1. In a vehicle seat suspension system comprising a linkage assembly having first and second pairs of linkage arms, an upper support and a lower support, an air spring operatively communicating with the linkage assembly, and a suspension adjustment lever, the improvement comprising:
- a pneumatic height adjuster valve adapted to allow the upper support to travel vertically within a predetermined range, said valve being in pneumatic communication with an air source and with the air spring and being coupled to one of the first pair of linkage arms, and a connection assembly operatively connected to one arm of the second pair of linkage arms configured to allow the pneumatic height adjuster valve to respond to movement of the upper support,
- a dump valve in pneumatic communication with the air spring and having an actuator that permits the release of air from the air spring, to thereby allow the upper support to descend to its lowest position; and
- a rollover valve in pneumatic communication with the air spring to permit the automatic release of air from the air spring when the angle between the plane of the upper support and horizontal reaches a predetermined value.



5,735,510
VIBRATION DAMPER APPARATUS

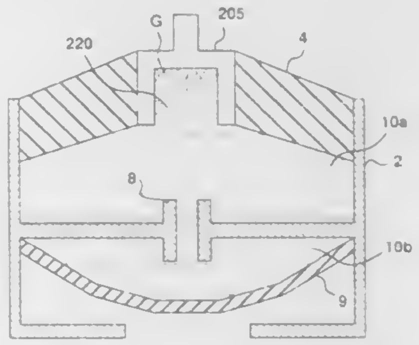
Shin Takehara; Haruyuki Taniguchi; Takahiko Tanaka, and Hiroshi Hashino, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Filed Jun. 5, 1995, Ser. No. 462,368

Claims priority, application Japan, Jun. 6, 1994, 6-123715; May 26, 1995, 7-127975

Int. Cl.^{6} F16F *15/04;* **B60K** *5/12*

U.S. Cl. 267—140.13 **20 Claims**



1. A fluid type of vibration damper apparatus containing fluid in generally rigid container closed up tightly by walls including at least an elastic top wall to which a subject body is connected, for damping and absorbing vibrations of the subject body, said vibration damper apparatus comprising:
- a rigid partition wall for dividing said fluid container into a first fluid chamber defined by said elastic top wall and a second fluid chamber, said rigid partition wall being formed with an orifice which allows said fluid to move between said first fluid chamber and said second fluid chamber due to deformation of said elastic top wall;
- a rigid inner wall for forming a third fluid chamber opening to said first fluid chamber to provide a fluid column directly on said fluid in said first fluid chamber, an opening between said first and said third fluid chambers having a cross sectional area larger than a cross sectional area of said orifice; and
- a predetermined quantity of gas confined in said third fluid chamber so as to be in direct contact with said fluid.

5,735,511
SELF-ADJUSTING STOP MEANS FOR CUSHIONING

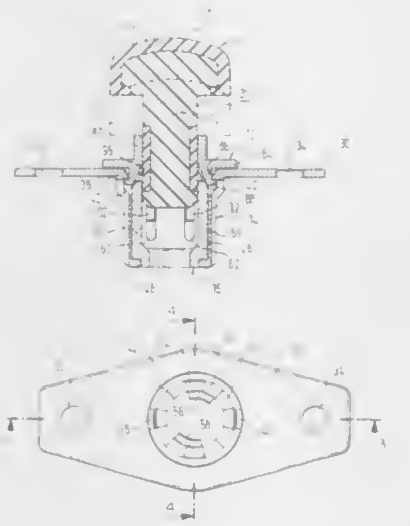
Jurgen Stöcker, Eisingen, and Günter Wibrow, Norderstedt, both of Germany, assignors to HW-AFECO GmbH, Norderstedt, Germany

Filed Apr. 5, 1996, Ser. No. 628,423

Claims priority, application Germany, Apr. 22, 1995, 195 14 994.0

Int. Cl.^{6} F16F *5/00,* **F05F** *5/00*

U.S. Cl. 267—140.13 **20 Claims**



1. A self adjusting stop system for positionally determining a limit stop for a movable element, comprising:
- a housing,
- a stop element axially movable within said housing between a first non limiting position and a second position at which said stop element comprises a limit stop for a movable element
- a clamping element axially movable within said housing between a first position at which said clamping element is disengaged from said stop element so as to permit said stop element to undergo movement within said housing between said first non-limiting position and said second limit stop position, and a second position at which said clamping element is engaged with said stop element so as to fix said stop element at said second position at which said stop element comprises said limit stop for a movable element.
- a coupling element rotatably fixed with respect to said clamping element and rotatably mounted upon said housing,
- first means defined between said coupling element and said clamping element for causing radially inward movement of a portion of said clamping element, and
- second means defined between said clamping element and said housing for causing axial movement of said clamping element with respect to said coupling element
- whereupon axial movement of said stop element from said first non limiting position to said second limit stop position and subsequent rotation of said coupling element, and said clamping element rotatably fixed to said coupling element, with respect to said housing, said second means defined between said clamping element and said housing causes axial movement of said clamping element with respect to said coupling element while said first means defined between said coupling element and said clamping element causes radially inward movement of said portion of said clamping element such that said portion of said clamping element engages said stop element so as to fix said stop element at said second limit stop position.

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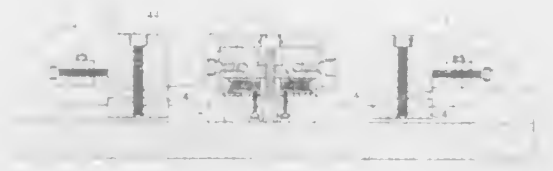
5,735,512
PORTABLE LEVELING VACUUM TOOL
John L. Waddell, Redmond, Wash., assignor to Northwest Product Development, L.L.C., Fall City, Wash.
Filed Aug. 11, 1995, Ser. No. 514,107
Int. Cl.⁶ B25B 11/00
U.S. Cl. 269—21 **30 Claims**

1. A portable leveling vacuum tool for use with a plurality of workpieces having at least a predetermined width to align substantially flat top surfaces of the workpieces in a coplanar orientation, comprising:

a pair of elongated frame rails positionable in spaced-apart parallel relation to each other, each of said frame rails having an elongated bottom surface, said bottom surfaces of said frame rails being spaced apart in a coplanar relation by less than the predetermined workpiece width for engagement of each of said bottom surfaces with the top surface of each of the workpieces to position the top surfaces of the workpieces in coplanar relation, said frame rails are sufficiently flexible to conform to the general curvature of a nonplanar work surface; and

a plurality of vacuum cup assemblies mounted to said frame rails, at least one of said vacuum cup assemblies being adjustably movable along the length of said frame rails and lockable in a selected longitudinal position to prevent movement of said movable vacuum cup assembly along said frame rails during use of the vacuum tool, each of said vacuum cup assemblies including a support body spanning between and attached to each of said frame rails and a vacuum cup supported by said support body in position between said frame rails for engagement with the top surface of one of the workpieces, said vacuum cup being adjustably movable toward the support body and between said frame rails sufficiently to position the top surface of the one of the workpieces that the vacuum cup is engaging substantially coplanar with said bottom surfaces of said frame rails to hold the top surface of the workpiece against said frame rail bottom surfaces.

5,735,513
MULTI-STATION SINGLE ACTION HIGH PRECISION MECHANICAL VISE
Joseph F. Toffolon, 9587B S.W. 84th Ter., Ocala, Fla. 34481, assignor to Joseph F. Toffolon, Ocala, Fla.
Filed Mar. 15, 1996, Ser. No. 616,694
Int. Cl.⁶ B25B 1/20
U.S. Cl. 269—43 **10 Claims**



1. A multi station, single action high precision mechanical vise for simultaneously clamping multiple work pieces to be worked upon, said vise, when oriented horizontally, comprising:

a base including a base plate;

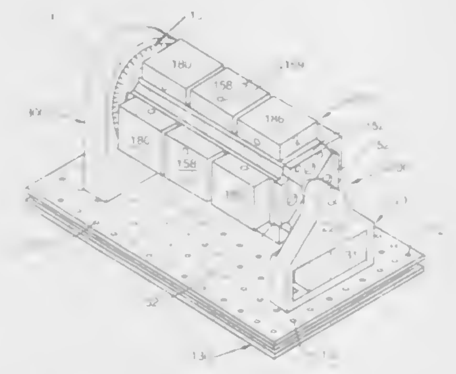
a moveable jaw assembly mounted centrally on said base plate, said moveable jaw assembly including at least two displaceable jaw blocks displaceable between an extended and a retracted position and means for displacing said displaceable jaw blocks;

at least two fixed jaws, with one fixed jaw mounted on said base plate and spaced from each moveable jaw block in the direction of displacement of said moveable jaw block;

wherein said means for displacing said jaw blocks comprises:

a wedge block narrower at the top than at the bottom, said wedge block including identical but mirror image inclined surfaces on opposite sides of said wedge block, said inclined surfaces of said wedge block contacting corresponding faces of said moveable block jaw such that a vertical displacement of said wedge block away from said base plate causes a horizontal displacement of said moveable jaws to the extended position, and a vertical displacement of said wedge block towards said base plate causes a horizontal displacement of said moveable jaws to the retracted position.

5,735,514
INDEXING APPARATUS
James D. Moore, Los Angeles, Calif.; George R. Swann, Gibsonia, and Eric R. Moore, Pittsburgh, both of Pa., assignors to Chick Machine Tool, Inc., Warrendale, Pa.
Filed Sep. 3, 1996, Ser. No. 709,467
Int. Cl.⁶ B25B 1/20
U.S. Cl. 269—43 **32 Claims**



1. Apparatus for selectively indexing an article about an axis comprising:

a housing member;

a first toothed ring non rotatably attached to said housing member;

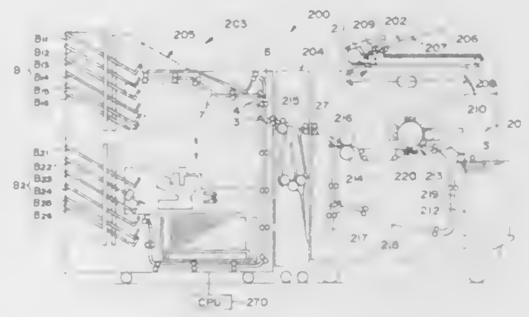
a second toothed ring axially and rotatably supported by said housing member and arranged in confronting relationship with said first toothed ring for selective meshing engagement therewith, said second toothed ring being attached to said article;

a piston member rotatably supported within said housing member and adapted to receive a rotary force, said piston member defining at least one first ramped surface;

a displacement assembly attached to said second toothed ring and having a corresponding displacement member cooperating with each said first ramped surface of said piston member such that when a rotary force is initially applied to said piston member, each said first ramped surface causes said corresponding displacement member to axially displace said second toothed ring out of meshing engagement with said first toothed ring to a disengaged position and thereafter permitting said second toothed ring and article to be selectively rotated about said axis upon the further application of said rotary force to said piston member to rotate said article to a desired angular position about said axis; and

biasing means supported by said housing member for selectively biasing said second toothed ring into said meshing engagement with said first toothed ring when said further application of said rotary force is discontinued.

5,735,515
SHEET HANDLING APPARATUS WITH FOLDED AND NON-FOLDED SHEET TRANSFER SPEEDS
Kenichi Hayashi, and Masaaki Sato, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 1, 1996, Ser. No. 625,293
Claims priority, application Japan, Mar. 31, 1995, 7-076137
Int. Cl.⁶ B65H 39/02
U.S. Cl. 270—58.11 **16 Claims**



1. A sheet processing apparatus, comprising:

tray means for stacking a folded or non-folded sheet;

stacking means for receiving the folded sheet or non folded sheet from said tray means to stack it thereon;

transfer means for transferring the folded sheet or non folded sheet from said tray means to said stacking means; and

control means for controlling speed of said transferring means so as to satisfy,

$$V1<V2$$

where V1 is a transfer speed for the folded sheet, and V2 is a transfer speed of the non-folded sheet.

5,735,516
APPARATUS FOR HANDLING SHEETS
Andre Gerlier, Sciez, France, and Roberto Polidoro, Geneva, Switzerland, assignors to Mars Incorporated, McLean, Va.
Continuation-in-part of Ser. No. 54,888, Apr. 30, 1993, abandoned. This application Nov. 9, 1994, Ser. No. 336,510
Claims priority, application Switzerland, May 27, 1992, 1716/92
Int. Cl.⁶ B65H 39/00
U.S. Cl. 270—60 **54 Claims**

1. Sheet handling apparatus comprising:

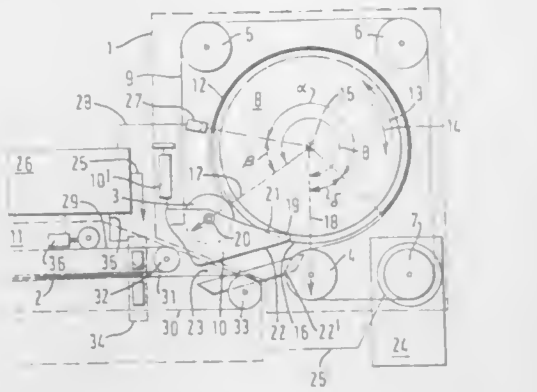
input path means for receiving sheets inputted to the apparatus;

first output means for outputting a rejected sheet;

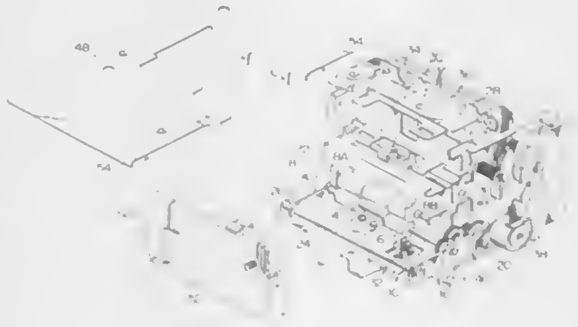
second output means for outputting an accepted sheet;

a temporary storage device for storing temporarily one or more sheets in the apparatus to allow processing of additional sheets; and

transportation means operable to transport a sheet from the input path means to an intermediate position at which the sheet can selectively be outputted by either the first output means or the second output means without fully placing the sheet in the temporary storage device, or the sheet can be selectively stored by the temporary storage device, wherein said transportation means is operable selectively to reverse the direction of movement of the sheet when moving the sheet out of the intermediate position.



5,735,517
SHEET FEED MECHANISM AND PRINTER
Hideo Kanbe, and Kangi Suzuki, both of Shizuoka, Japan, assignors to Star Micronics Co., Ltd., Shizuoka, Japan
Filed Dec. 27, 1995, Ser. No. 579,293
Claims priority, application Japan, Jan. 13, 1995, 7-020989
Int. Cl.⁶ B65H 5/06
U.S. Cl. 271—273 **4 Claims**



1. A sheet feed mechanism for feeding a sheet to be printed by a printer comprising:

driving rollers rotatable in response to applied torque and including a plurality of roller members attached to a drive shaft located at right angles to a sheet feed direction, the drive shaft transmitting the torque from a driving source to the driving rollers, each of the roller members having a working surface which is narrower than a length of the drive shaft and being attached to the drive shaft with a predetermined axial space therebetween;

a driven roller having a single roller member including a plurality of sheet clamping working surfaces and a single intermediate recessed portion, each of the clamping working surfaces being arranged with a predetermined length corresponding to the working surfaces of the driving rollers,

the driven roller member mounted on a support shaft positioned in parallel spaced relation to the drive shaft.

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5,735,518
PAPER SLIP TRANSPORT SYSTEM

Takatoshi Takemoto, Tokyo; Yoshio Ito, and Motohiro Sugawara, both of Hanamaki, all of Japan, assignors to Kabushiki Kaisha Ace Denken, Tokyo, Japan

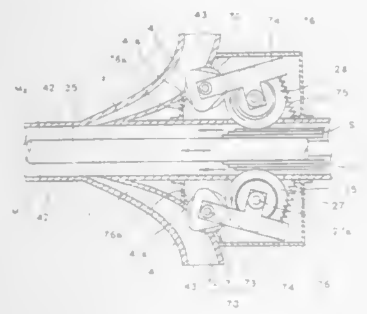
PCT No. PCT/JP94/02071, § 371 Date Jun. 7, 1996, § 102(e) Date Jun. 7, 1996, PCT Pub. No. WO95/15900, PCT Pub. Date Jun. 15, 1995

PCT Filed Dec. 9, 1994, Ser. No. 656,171

Claims priority, application Japan, Dec. 9, 1993, 5-309149

Int. Cl.^{6} B65H *5/02*

U.S. Cl. 271—274 2 Claims



1. A paper slip transport system for guiding paper slips from paper slip dischargers scattered along a main transport passage to the main transport passage and transporting the paper slips along the main transport passage, said transport system comprising:

an endless belt placed along said main transport passage and having an outer peripheral surface coming in contact with one of front and rear faces of the paper slips transported along said main transport passage;

a belt drive mechanism for turning said endless belt;

a plurality of pressure rollers scattered along said main transport passage and having outer peripheral surfaces coming in contact with the other of front and rear faces of the paper slips transported along said main transport passage for pressing the paper slips against said endless belt;

guide passage members each formed with an internal guide passage for guiding paper slips from a respective one of said paper slip dischargers to said main transport passage;

feed rollers each having a rotating shaft perpendicular to a transport direction of the paper slips in a respective one of said guide passages and parallel to the paper slips being transported and having at least a part entering the inside of a respective one of said guide passage member so that an outer peripheral surface each of said feed rollers comes in contact with one of front and rear faces of the paper slips arriving at the respective guide passage from the respective paper slip discharger

swing arms each having one end attached to a respective one of said rotating shafts so that the other end of said each swing arm can swing in a direction approaching said endless belt with the respective rotating shaft of said feed roller as the center; and

urging members each for urging said other end of a respective one of said swing arms in the direction approaching said endless belt, wherein

each said pressure roller is located adjacent a respective one of the guide passages and is attached rotatably to a respective one of said swing arms so that an outer peripheral surface of said pressure roller comes in contact with the outer peripheral surface of a respective one of said feed rollers.

5,735,519
PHOTOSENSITIVE-MATERIAL CONVEYING APPARATUS

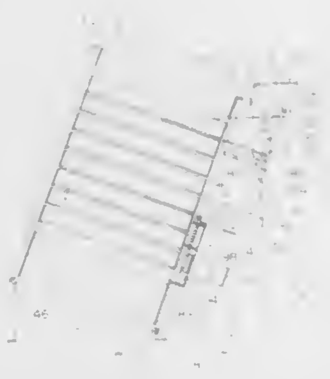
Yoshio Ozawa, and Takasi Ogiso, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 28, 1995, Ser. No. 580,395

Claims priority, application Japan, Feb. 9, 1995, 7-021635; Feb. 28, 1995, 7-040439; Feb. 28, 1995, 7-040440

Int. Cl.^{6} B65H *39/10*

U.S. Cl. 271—294 20 Claims



1. A photosensitive-material conveying apparatus which is provided on a printer processor including a main body for effecting printing, development, and dry processing, a cutter section disposed on the main body for cutting a photosensitive material subjected to dry processing into predetermined lengths, and a discharging section disposed in a vicinity of an upper portion of the cutter section for discharging the cut photosensitive material laterally of the cutter section, said photosensitive-material conveying apparatus being adapted to stack the cut photosensitive material in a predetermined unit, said photosensitive-material conveying apparatus comprising

an endlessly conveying section disposed above said main body and on a photosensitive-material discharging side of said cutter section, an upper portion of said endlessly conveying section being disposed in a vicinity of said discharging section, a lower portion of said endlessly conveying section being disposed at a position remote from said discharging section such that a conveying direction is inclined with respect to a vertical direction;

a placing member disposed below said discharging section so as to place thereon the cut photosensitive material discharged from said discharging section;

a photosensitive-material receiving member provided in said endlessly conveying section to place the cut photosensitive material thereon; and

a pushing-out member adapted to come into contact with one end of the cut photosensitive material placed on said placing member to push out the cut photosensitive material to a predetermined position on said photosensitive-material receiving member

5,735,520
FOLD-THROUGH PICTURE PUZZLE

Jose R. Matos, Plano, Tex., assignor to Lulirama International, Inc., Dallas, Tex.

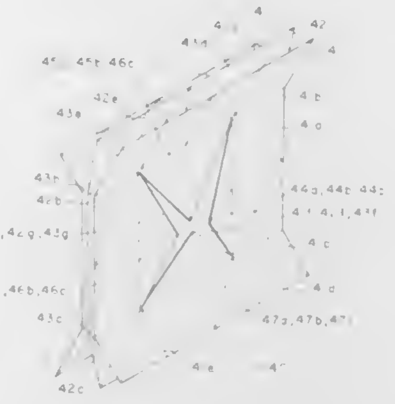
Filed Feb. 7, 1997, Ser. No. 796,977

Int. Cl.^{6} A63F *9/08*

U.S. Cl. 273—155 19 Claims

1. A fold-through puzzle comprising a sheet base having a defined length, width and symmetrical shape comprising an outer periphery having opposite perimeter sections

edges defining an aperture in said sheet base, said aperture having a defined area, length, width and symmetrical shape and said aperture being disposed approximately centrally in said sheet base; and



a foldable peripheral portion having opposing sections, a defined area completely surrounding the aperture and being operable to fold completely through the aperture; wherein:

a) said foldable peripheral portion bears cooperating image portions which form an assembled image when said opposing sections of said foldable peripheral portion are folded in the same direction through said aperture along major fold lines which each have a portion coincident with an edge defining said aperture,

b) the area of said foldable peripheral portion is approximately three times the area of the aperture;

c) the shape of said sheet base is one of a square, triangle, rectangle, pentagon, hexagon, heptagon, and octagon;

d) said sheet base and said aperture have the same shape,

e) said aperture is comprised of plural connecting incisions, and

f) previously opposing perimeter sections of said outer periphery are brought into close proximity, thereby forming an assembled image, when said opposed sections of said foldable peripheral portion are folded in the same direction toward said aperture.

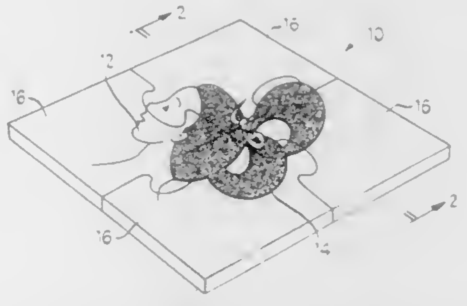
5,735,521
PUZZLE WITH TEXTURED SURFACE

Randall Jon Klimpert, Wilmette, Ill., assignor to Meyer/Glass Design, Ltd., Chicago, Ill.

Filed Oct. 18, 1996, Ser. No. 733,530

Int. Cl.^{6} A63F *9/10*

U.S. Cl. 273—157 R 10 Claims



1. A method of manufacturing a multi-piece puzzle with a visible textured surface area, comprising the steps of

a) Selecting an image comprising a plurality of areas to comprise the multi-piece puzzle;

b) Applying an adhesive to an area of the image;

c) Applying a flocking material to the area covered by the adhesive to form a textured surface area, and;

d) Separating the image into a plurality of pieces to form the multi-piece puzzle which may be disassembled and reassembled, wherein the image and the textured surface area are visible when the pieces are in the correct orientation for reassembly.

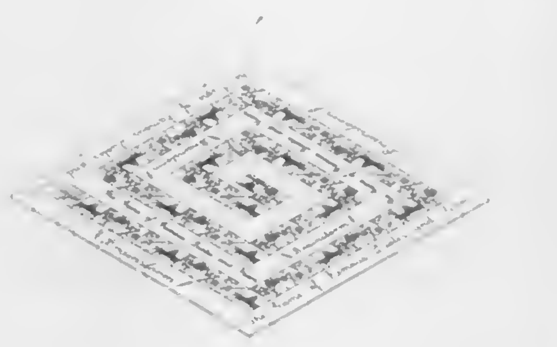
5,735,522
QUOTE AND YEAR TRIVIA QUESTION GAME

Damien Sausa, 71-33 66 Rd., Middle Village, N.Y. 11379

Filed Apr. 24, 1997, Ser. No. 842,221

Int. Cl.^{6} A63F *3/00*

U.S. Cl. 273—249 4 Claims



1. A new and improved quote and year trivia question game comprising, in combination:

a game board with a square configuration having a top face, a bottom face, and a periphery formed therebetween, the top face having a trail with a first end situated adjacent the periphery and a second end situated at a center of the top face wherein the trail has a generally spiral configuration, the trail including a plurality of blocks situated end to end with the blocks including a first set of blocks each having a first indicia printed therein representative of a first subject, a second set of blocks each having a second indicia printed therein representative of a second subject, a third set of blocks each having a third indicia printed therein representative of a third subject, and a fourth set of blocks each having a fourth indicia printed therein representative of a fourth subject, the blocks situated along the trail in a predetermined repetitive order;

a pair of dice each having a cubical configuration with a unique number situated on each side thereof;

a plurality of game pieces each including a bottom extent with a semi-spherical configuration having a planar bottom surface and an arcuate top surface and a post with a first end integrally coupled to the top surface of the bottom extent and extended upwardly therefrom, the post of each game piece further having a bulb integrally formed on a second end thereof;

a plurality of cards each with a rectangular configuration having a front face, a rear face, and a periphery including a top edge, a bottom edge, and a pair of side edges, the front face of each card having a first row situated a first distance from the top edge of the card and having a first indicia printed adjacent one of the side edges of the card with the first row of the front face further having a first quote printed thereon relating to the first subject, a second row situated a second distance greater than the first distance from the top edge of the card and having a second indicia printed adjacent one of the side edges of the card with the second row of the front face further having a first question printed thereon relating to the second subject, a third row situated a third distance greater than the second distance from the top edge of the card and having a third indicia printed adjacent one of the side edges of the card with the third row of the front face further having a second question printed thereon relating to the third subject, and a fourth row situated a fourth distance greater than the third distance from the top edge of the card and having a fourth indicia printed adjacent one of the side edges of the card with the fourth row of the front face further having a second quote printed thereon relating to the fourth subject, each card having a rear face each having a first row situated the first distance from the top edge of the card and having a first indicia printed adjacent one of the side edges of the card with the first row of the rear face further having a first name printed thereon indicating the origin of the first quote, a second row situated

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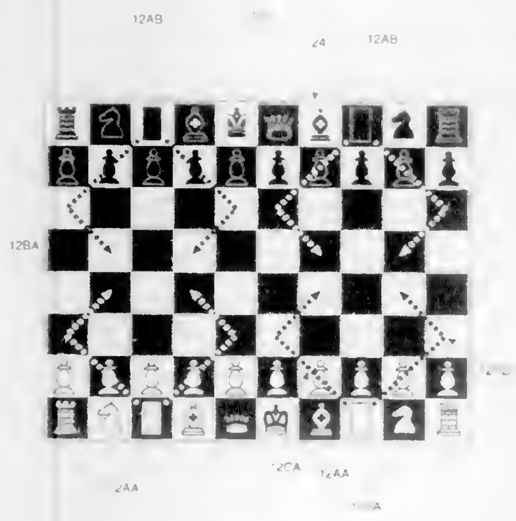
the second distance greater than the first distance from the top edge of the card and having a second indicia printed adjacent one of the side edges of the card with the second row of the rear face further having a first numerical date answer printed thereon indicating the date answer of the first question, a third row situated the third distance from the top edge of the card and having a third indicia printed adjacent one of the side edges of the card with the third row of the rear face further having a second numerical date answer printed thereon indicating the date answer of the second question, and a fourth row situated the fourth distance from the top edge of the card and having a fourth indicia printed adjacent one of the side edges of the card with the fourth row of the rear face further having a second name printed thereon indicating the origin of the second quote; and

a card containment box having a lower portion with a rectilinear configuration including a bottom face and a periphery integrally coupled thereto and extended upwardly therefrom defining a top opening, the periphery of the box having an inset upper edge, the card containment box further having an upper portion with a top face and a periphery integrally coupled thereto and extended downwardly therefrom for being removably coupled to the inset lip of the lower portion of the box, whereby the plurality of cards may be stored therein when not in use.

5,735,523
METHOD OF PLAYING A MODIFIED CHESS GAME

Patrick D. C. Fioriglio, 43 Bay 41st St., Brooklyn, N.Y. 11214
Filed Dec. 10, 1996, Ser. No. 762,766
Int. Cl.^{6} A61F *3/02*
U.S. Cl. 273—261 **5 Claims**



1. A method of playing a modified chess game (10) consisting of the steps of

A) using a game board (26) by a first player and a second player, the game board (26) consisting of only eight horizontal rows and only ten vertical columns having mutual intersections therebetween defining alternating colored squares of play;

B) alternating turns by the first player and a second player;

C) using a first set of game pieces by the first player, the first set of game pieces having an identification means;

C) arranging the first set of game pieces on a side of the game board (26) proximal to the first player

D) positioning initially the first set of game pieces consists of ten first left pawns (24A) on a second proximal row having one left pawn (24A) per square;

E) positioning initially a left rook (14A) on a left proximal square in the first proximal row and first proximal column.

F) positioning initially a left knight (16A) is on a proximal square in the first proximal row adjacent the left rook (14A).

G) positioning a left earl (12AA) is on a proximal square in the first proximal row adjacent the left knight (16A).

H) positioning a left bishop (18A) is on a first right proximal square adjacent the left earl (12AA);

I) positioning a left queen (20A) is on a proximal square in the first proximal row adjacent the left bishop (18A);

J) positioning a left king (22A) on a proximal square in the first proximal row adjacent the left queen (20A)

K) positioning a second left bishop (18A) is on a proximal square in the first proximal row adjacent the left king (22A);

KL) positioning a second left earl (12AA) is on a proximal square in the first proximal row adjacent the second left bishop;

L) positioning a second left knight (16A) is on a proximal square in the first proximal row the second left earl (12AA);

M) positioning a second left rook (14A) is initially positioned on a proximal square in the first proximal row adjacent the second left knight (16A);

N) using the first set of game pieces consisting one of the following steps selected from a group consisting of

i) moving the left rook (14A) from an initial square a number of spaces vertically or horizontally to a secondary square,

ii) capturing an opponent's piece if located in the secondary square,

iii) moving the left knight (16A) from an initial square two squares vertically or horizontally then perpendicularly one additional square to a secondary square.

iv) jumping intermediate game pieces if present by the left knight (16A),

v) capturing an opponent piece if located in the secondary square,

vi) moving the left bishop (18A) a number of squares diagonally from an initial square to a secondary square,

vii) capturing an opponent's piece if located in the secondary square,

viii) moving the left queen (20A) any number of squares vertically or horizontally or diagonally from an initial square to a secondary square,

ix) capturing and opponent piece if located in the secondary square,

x) moving the left king (22A) one square vertically or horizontally or diagonally from an initial square to a secondary square,

xi) capturing an opponent's piece if located on the secondary square,

xii) moving the left pawn (24A) from an initial square to a secondary square in a move selected from a group consisting of the initial square one square forward to the secondary square and from an initial square two squares forward to a secondary square,

xiii) capturing an opponent's piece if located in the secondary square squares diagonally from the path of the first left pawn (24A),

xiv) movement of the left earl consisting of only moving the left earl (12AA) along a left earl first movement direction which comprises a left earl first movement first direction from an initial square along a forward diagonal for two squares,

xv) jumping intermediate game pieces therebetween to a secondary square then moving the left earl (12AA) from the secondary square one square perpendicular to the left earl first movement first direction along a left earl first movement second direction,

xvi) jumping intermediate game pieces therebetween by the left earl (12AA) to a tertiary square,

xvii) capturing an opponent's game piece if located on the tertiary square,

O) using a second set of game pieces by the second player, the second set of game pieces having an identification means differing from the identification means of the first set of game pieces,

P) arranging the second set of game pieces on a side of the game board (26) proximal to the second player,

Q) positioning ten right pawns (24B) on a second proximal row having one right pawn (24B) per square,

R) positioning a right rook (14B) on a left proximal square in the first proximal row and first proximal column,

S) positioning a right knight (16B) on a proximal square in the first proximal row adjacent the right rook (14B);

T) positioning a right earl (12AB) on a proximal square in the first proximal row adjacent the right knight (16B);

U) positioning a right bishop (18B) on a proximal square in the first proximal row adjacent the right earl (12AB);

V) positioning a right queen (20B) on a proximal square in the first proximal row adjacent the right bishop (18B);

W) positioning a right king (22B) on a proximal square in the first proximal row adjacent the right queen (20B);

X) positioning a right bishop (18B) on a proximal square in the first proximal row adjacent the right king (22B);

Y) positioning a second right earl (12AB) on a proximal square in the first proximal row adjacent the right bishop (18B).

Z) positioning a second right knight (16B) on a proximal square in the first proximal row adjacent the second right earl (12AB);

AA) positioning a right rook (14B) on a proximal square in the first proximal row adjacent to the second right knight (16B);

AB) using the second set of game pieces consisting one of the following steps selected from a group consisting of:

i) moving the right rook (14B) from an initial square a number of spaces vertically or horizontally to a secondary square

ii) capturing an opponent's piece if located in the secondary square,

iii) moving the right knight (16B) from an initial square two squares vertically or horizontally then perpendicularly one additional square to a secondary square,

iv) jumping intermediate game pieces if present by the right knight (16B),

v) capturing an opponent piece if located in the secondary square,

vi) moving the right bishop (18B) a number of squares diagonally from an initial square to a secondary square,

vii) capturing an opponent's piece if located in the secondary square,

viii) moving the right queen (20B) any number of squares vertically or horizontally or diagonally from an initial square to a secondary square,

ix) capturing and opponent piece if located in the secondary square,

x) moving the right king (22B) one square vertically or horizontally or diagonally from an initial square to a secondary square

xi) capturing an opponent's piece if located on the secondary square,

xii) moving the right pawn (24B) from an initial square to a secondary square in a move selected from a group consisting of the initial square one square forward to the secondary square and from an initial square two squares forward to a secondary square,

xiii) capturing an opponent's piece if located in the secondary square squares diagonally from the path of the right pawn (24B),

xiv) movement of the right earl consisting of only moving the right earl (12AB) along a right earl first movement direction which comprises a right earl first movement first direction from an initial square along a forward diagonal for two squares,

xv) jumping intermediate game pieces therebetween to a secondary square then moving the right earl (12AB) from the secondary square one square perpendicular to the right earl first movement first direction along a right earl first movement second direction jumping intermediate game pieces therebetween by the right earl (12AB) to a tertiary square capturing an opponent's game piece if located on the tertiary square, and

AC) alternating turns between the first player and the second player wherein the first player and the second player move in turn one of the game pieces according to the game piece moving ability

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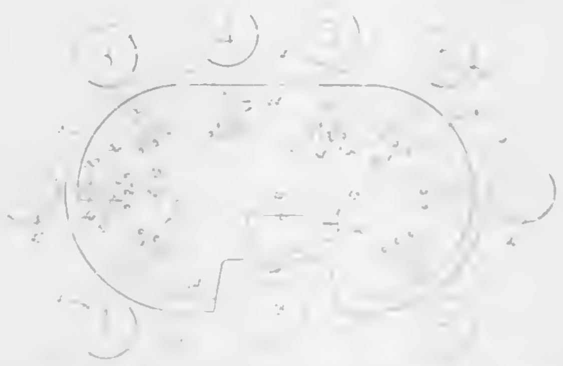
5,735,524
BLACKJACK TYPE CARD GAME

Roger L. Wisted, 10537 Downey Ave., Downey, Calif. 90241
Division of Ser. No. 893,816, Jun. 4, 1992, Pat. No. 5,275,415, which is a continuation-in-part of Ser. No. 682,201, Apr. 5, 1991, abandoned. This application Dec. 20, 1993, Ser. No. 169,024
Int. Cl.^{6} A61F *1/00*
U.S. Cl. 273—274 **8 Claims**



1. A card game apparatus for a number of players comprising

a table having a playing surface and a periphery, a number of player stations provided around said table adjacent said periphery, and a non-playing card dealer station located between two of said players stations;

each of said player stations only include a card receiving area upon which to receive cards, and at least one wagering area, and at least one collection area for receiving an amount from a player to be paid to the establishment wherein said card game is played,

a deck of at least fifty two conventional playing cards, said game being one in which it is played to a predetermined unique point total for players located at said player stations, wherein a card dealer deals two cards from said deck of cards face down which may be inspected by said player at the station adding the value of said two cards, the value being achieved from the face value of cards from two to nine, from a value of ten for all ten cards and count cards and a value of one or eleven for all aces and jokers, but does not participates in the playing or wagering of said card game and additional cards from said deck of cards offered by said dealer face up to each player in rotation wanting to receive said cards in said card receiving area in an endeavor to reach said predetermined unique point total, each player playing against the other said players in said game,

one or more of said players having a winning hand when each respective point total of a players accumulated cards is achieved or are above or below said predetermined unique point total yet closer thereto than other players, and one or more said other players having a losing hand when each respective point total of a players accumulated cards is farther from said predetermined unique point total then said winning point total

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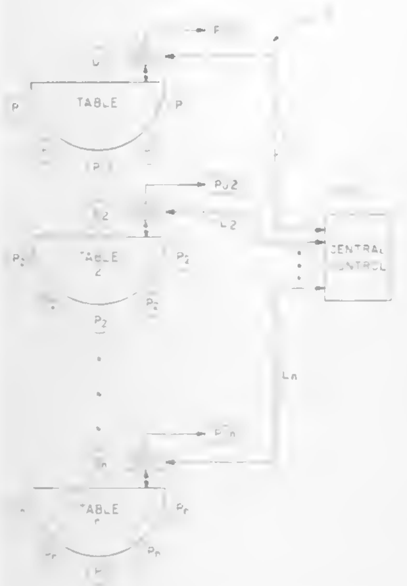
5,735,525
SECURE MULTI-SITE PROGRESSIVE JACKPOT SYSTEM FOR LIVE CARD GAMES

Charles H. McCrea, Jr., 2816 La-Casita, Las Vegas, Nev. 89120
Continuation of Ser. No. 420,303, Apr. 11, 1995, Pat. No. 5,605,334. This application Feb. 5, 1997, Ser. No. 795,992
Int. Cl. A63F [illegible]
U.S. Cl. 273—309 **20 Claims**

1. A secure game table system for monitoring each hand in a live card game, said live card game having at least one deck, said at least one deck having a predetermined number of cards, said secure game table system having players at a plurality of player positions and a dealer at a dealer position, said secure game table system comprising



a shoe for holding each card from said at least one deck before being dealt by said dealer in said hand, said shoe having a detector for reading at least the value of the suite of said each card, said detector issuing a signal corresponding at least to said value and suit for said each card;

a game bet sensor located near each of said plurality of player positions for sensing the presence of a game bet, when the presence of said game bet is sensed, said game bet sensor issuing a signal corresponding to said presence.

a card sensor located near each of said plurality of player positions and said dealer position, said card sensor issuing a signal when a card in said hand is received at said card sensor, and

a game control, said game control having a memory, said game control receptive of said game bet signals from said game bet sensor at each of said plurality of player positions for storing in memory which player positions have in place a game bet, said game control receptive of said value and suit signals from said detector in said shoe for storing in said memory at least the value and suit of each card dealt from said shoe in said hand, said game control receptive of said card received signals from said card sensor at each of said plurality of player positions and said dealer position for correlating in said memory each card dealt from said shoe in game sequence to each card received at a player position having a game bet sensed

5,735,526
METHOD FOR EVALUATION OF SHOTGUN ROUND AND TARGET

Frank Mastandrea, 1300 Hamilton Rd., Pittsburgh, Pa. 15234
Filed Mar. 31, 1997, Ser. No. 831,500
Int. Cl.⁶ F41J *5/16*
U.S. Cl. 273—378 2 Claims

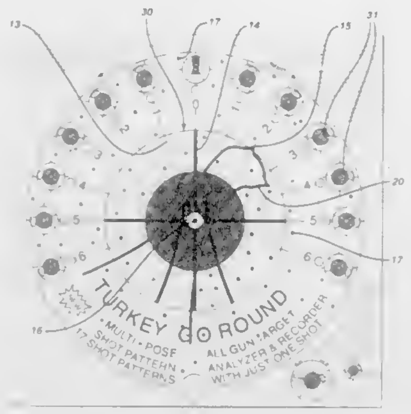
1 A target for use in evaluating the shot spread and pattern for a shotgun, to optimize the selection of ammunition, comprising

a a rectangular target background.

b. a circle circumscribed within said rectangular target background, said circle having a center aiming point, a periphery, and a diagonal line as a fixed vertical axis.

c a multitude of regularly spaced radii propagating from said center aiming point outward to and intersecting with said circle periphery.

d a multitude of scoring areas, in a number corresponding to the multitude of regularly spaced radii, each of said scoring areas being located outside and adjacent to said periphery at a respective point of intersection of said radii with said periphery:



e a multitude of concentric, smaller circles within said circle and focused about said center aiming point each having a small circle periphery whereby the relative distance of said smaller circle periphery from said center aiming point is usable for measuring:

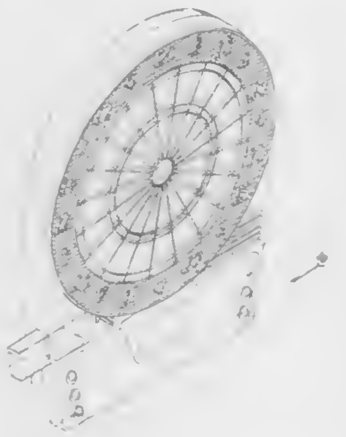
f. a game animal picture in frontal view imposed upon said center aiming point and having a kill zone comprising the game animal head area, game animal neck area and game animal breast area:

g. a transparent overlay having a center of rotation and which is superimposable over and rotatable about said center aiming point and having an overlay pointer at its outermost point whereby an imaginary axis extends through said center of rotation and said overlay pointer, said imaginary axis corresponding to said fixed vertical axis in length, and having a profile view of said game animal inscribed about said imaginary axis, said profile view having an overlay kill zone comprising the profile game animal head area, profile game animal neck area and profile game animal breast area; and.

h written instructions for the employment of said target printed in between said periphery and said rectangular background.

5,735,527
DART BOARD HAVING A DART SUPPORT

Chih-Hao Yin, 7F-1, No. 30, Lin Sen Road, Taichung, Taiwan
Filed Nov. 1, 1996, Ser. No. 742,471
Int. Cl.⁶ F41J *3/00*
U.S. Cl. 273—408 2 Claims



1 A dart board comprising

a dart board body including a front and lower portion having at least one aperture formed therein for stably receiving and supporting a dart therein, said aperture being inclined and defined by a cone shaped wall member, said cone shaped wall member including a free end portion of reduced diameter and having at least one slit formed therein so as to form at least two resilient blades for resiliently engaging with the dart and for stably retaining the dart in place

5,735,528
SELF-LUBRICATING PACKING PIECE

Roy C. A. Olsson, Fagelmar, Sweden, assignor to Lycab AB, Karlskrona, Sweden
PCT No. PCT/SE93/01086, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/16742, PCT Pub. Date Jun. 22, 1995
PCT Filed Dec. 17, 1993, Ser. No. 656,260
Int. Cl.⁶ F16J *15/16*
U.S. Cl. 277—1 16 Claims

15 A method for sealing around an elongated object, comprising

providing a plurality of packing pieces having external surfaces, each said packing piece being made of a material composition comprising at least one type of elastomer, and 1–10 percent by weight lubricant calculated on the total weight of said composition, said lubricant being chemically substantially non-combinable with and chemically substantially non combined with said elastomer, said composition at time of manufacture of each said packing piece being or substantially homogeneous mixture of said lubricant and said elastomer.

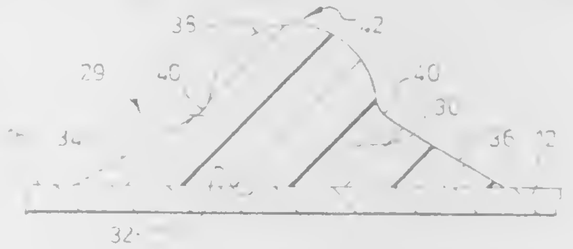
providing a bushing around the elongated object.

packing said bushing with said packing pieces, and

using said elongated object, and, in connection with such use, allowing said lubricant to migrate to said surfaces

5,735,529
BEADS FOR GASKETS

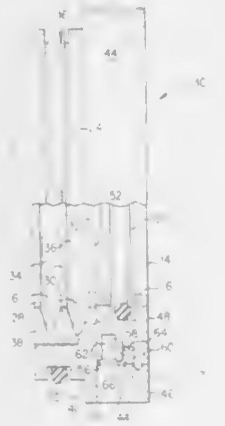
Toby James Patrick Lawrence, Biggleswade, England, assignor to T&N Technology Limited, Rugby, England
PCT No. PCT/GB95/01262, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/34775, PCT Pub. Date Dec. 21, 1995
PCT Filed Jun. 1, 1995, Ser. No. 750,202
Claims priority, application United Kingdom, Jun. 15, 1994, 9411966
Int. Cl.⁶ F16J *15/12*
U.S. Cl. 277—180 6 Claims



1 An elongated bead made of resilient material, the bead being adhered to a planar sheet of a gasket and extending around a closed path on the sheet so that the bead is arranged to create a seal between the sheet and a planar member when relative movement of approach occurs between the sheet and a member causing the bead to be compressed, the bead having a cross sectional shape which in an uncompressed state of the bead is substantially constant along the length of the bead, wherein said cross sectional shape is defined by a substantially planar bottom surface adhered to said sheet, two inclined side surfaces which extend upwardly at inwards inclinations from junctions with the bottom surface, and a convexly curved top surface which is joined to the side surfaces by transitional curved joining surfaces

5,735,530
SEAL DEVICE

Robert A. Merkin; George Fedorovich, both of Nacogdoches, Tex., and Kenneth J. Sharrer, Waterloo, N.Y., assignors to JM Clipper Corporation, Nacogdoches, Tex.
Continuation of Ser. No. 251,268, May 31, 1994, abandoned, which is a continuation-in-part of Ser. No. 64,375, May 21, 1993, Pat. No. 5,316,317. This application Oct. 7, 1996, Ser. No. 725,958
Int. Cl.⁶ F16J *15/447*
U.S. Cl. 277—412 25 Claims



1 A sealed system, comprising

a housing having an opening.

a shaft extending through said opening, said shaft being rotatable relative to said housing;

a stator member sealed to said housing, said stator member being non rotatable relative to said housing, said stator member having a connecting portion, wherein said connecting portion of said stator member includes an annular tooth

a rotor member sealed to said shaft, said rotor member being non-rotatable relative to said shaft, said rotor member having a connecting portion, said connecting portion of said rotor member including an annular notch for receiving said annular tooth, said connecting portion of said rotor member being located radially inside of said connecting portion of said stator member, said connecting portions being connected to each other by heat induced expansion of said connecting portion of said stator member, and

said rotor member further including an outer rotor member surface and a cover flange for preventing [illegible] ing into a space between said outer rotor member surface and said stator member, said annular tooth being [illegible] said outer rotor member surface and said cover flange, said outer rotor member surface and said cover flange each having a diameter, the diameter of said outer rotor member surface being greater than the diameter of said tooth, the diameter of said cover flange being greater than the diameter of said outer rotor member surface

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5,735,531
SEALING ARRANGEMENT

Holger Jordan, Leinfelden-Echterdingen, Germany, assignor to Busak & Shamban GmbH & Co., Germany

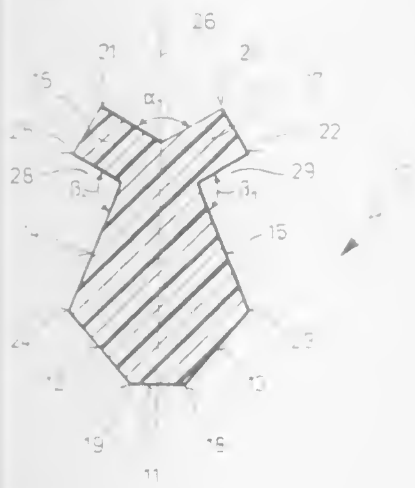
PCT No. PCT/DE94/00789, § 371 Date Sep. 10, 1996, § 102(e) Date Sep. 10, 1996, PCT Pub. No. WO95/02776, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 8, 1994, Ser. No. 571,872

Claims priority, application Germany, Jul. 12, 1993, 43 23 266.3

Int. Cl.^{6} F16J 15/[illegible]

U.S. Cl. 277—500 6 Claims



1. Sealing arrangement comprising

a first machine part having a groove, the groove having a low pressure side and a high pressure side,

a second machine part having a smooth sealing surface facing the groove, the first and second machine parts being concentric and moving relative to one another,

a sealing ring made from a rubber elastic material and sized for placement into the groove, said sealing ring having spreadable shoulders facing a bottom of the groove, the spreadable shoulders having lines of intersection with the bottom of the groove to form a closed ring shaped volume with a prebiased static seal at the bottom of the groove, the sealing ring having a cross section having a first recess which opens towards the low pressure side and a second recess which opens towards the high pressure side, the first and second recesses radially delimiting the shoulders and the first recess defining, together with the low pressure side, a free volume, and a sealing ring surface forms a dynamic seal with the sealing surface, said cross section allowing axial flexing of said sealing ring under axial loading and enabling pressure resistance in a vicinity of the dynamic seal and the sealing ring being substantially unchangeable by pressure in a vicinity of the static seal, the dynamic seal being pressure relieved in proportion to an applied pressure, the sealing ring pivoting towards the low pressure side under the application of fluid pressure in the vicinity of the dynamic seal to reduce a size of the free volume and returning to an original shape and position when the fluid pressure is removed.

5,735,532
SEAL COMPRESSION LIMITING RETAINER

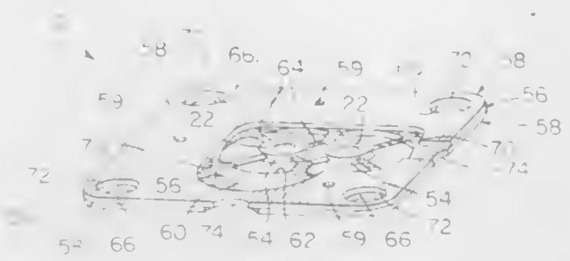
Terence J. Nolan; Jeffrey E. Swensen, both of Eldersburg, and J. Loyd Spence, Elkridge, all of Md., assignors to EG&G Pressure Science, Inc., Beltsville, Md.

Filed Jan. 3, 1997, Ser. No. 778,631

Int. Cl.^{6} F16J 15/06

U.S. Cl. 277—630 39 Claims

1. A seal retainer for coupling at least one seal thereto, comprising:



a substantially flat inner layer lying in a first plane with a first thickness, said inner layer including at least one seal receiving aperture, and at least one resilient retaining element integrally formed with said inner layer as a one piece, unitary member, said at least one retaining element extending inwardly from said inner layer into said at least one seal receiving aperture to a free end, said at least one retaining element being resiliently cantilevered relative to said first inner layer to permit said free end of said at least one retaining element to be resiliently deflected out of said plane of said first inner layer to engage a cavity in the seal, and

a first outer plate with a second thickness fixedly coupled to and overlying a portion of a first side of said inner layer to increase overall thickness of said seal retainer.

5,735,533
CAVITY DEPTH INCREASING RETAINER

Terence J. Nolan; Jeffrey E. Swensen, both of Eldersburg, and J. Loyd Spence, Elkridge, all of Md., assignors to EG&G Pressure Science, Inc., Beltsville, Md.

Filed Jan. 3, 1997, Ser. No. 778,636

Int. Cl.^{6} F16J 15/06

U.S. Cl. 277—630 32 Claims

1. A seal retainer for coupling at least one seal thereto, comprising:

a main layer lying in a plane and having a first thickness with at least one seal receiving aperture formed therein,

at least one resilient retaining element extending inwardly from said main layer into said at least one seal receiving aperture to a free end, said at least one retaining element being resiliently cantilevered relative to said main layer to permit said free end of said retaining element to be resiliently deflected out of said plane of said main layer to engage a cavity of the seal, and

a second layer with a second thickness integrally coupled to said main layer as a one-piece, unitary member and overlapping a portion of said main layer which increases overall thickness of said seal retainer.

5,735,534
EASILY REPLACEABLE TOP JAW FOR A CHUCK

Wayne Edwards, 9555 Williamsville Rd., Mechanicsville, Va. 23111-5444

Filed Nov. 19, 1996, Ser. No. 752,289

Int. Cl.^{6} B23B 31/16

U.S. Cl. 279—124 9 Claims

1. A top jaw assembly configured to be installed upon a serrated surface of a master jaw of a lathe chuck having a planar outer surface and T-shaped channels that each slideably retain a jaw nut having threaded recesses directed orthogonally toward said outer surface, said assembly comprising:

a) a mounting base of monolithic construction having
  i) a bifurcated lower extremity having two opposed coplanar tracks of aligned serrations defining therebetween a straight receiving slot,
  ii) a flat upper extremity of rectangular shape elongated upon a plane of symmetry that characterizes said assembly and having opposed parallel straight long side edges, said upper extremity being disposed in parallel relationship to the plane of said lower extremity,
  iii) paired spaced apart parallel side surfaces,
  iv) first and second bores centered upon said plane of symmetry and extending perpendicularly between said upper extremity and receiving slot, and configured to accommodate passage of bolts that engage the threaded recesses of said jaw nut
  v) a threaded hole centered upon said plane of symmetry and directed perpendicularly between said upper extremity and receiving slot,
  vi) first axial locking means associated with said long side edges, and
  vii) a substantially flat forward surface having first transverse locking means, and

b) a top jaw of monolithic construction configured to releasibly engage said mounting base, and having
  i) a top face and opposed side faces,
  ii) a front portion bounded in part by said side and top faces and further defined by a leading extremity having a workpiece-adapted profile, and a substantially flat trailing extremity configured to abut with the forward surface of said mounting base, said trailing extremity having second transverse locking means configured to engage said first transverse locking means,
  iii) a rear portion having a lower face located above said recessed slot and configured to slidingly abut the upper extremity of said mounting base, and second axial locking means configured to slidingly engage said first axial locking means, and
  iv) a mounting bore extending between said top and lower faces and positioned so as to align with the threaded hole of said mounting base when said mounting base is in engagement with said top jaw.

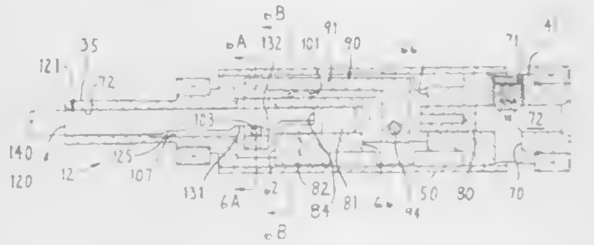
5,735,535
POWERED HIGH SPEED ROTARY SURGICAL HANDPIECE CHUCK AND TOOLS

Daniel L. McCombs, Grand Rapids, and James G. Walen, Kalamazoo, both of Mich., assignors to Stryker Corporation, Kalamazoo, Mich.

Division of Ser. No. 314,819, Sep. 29, 1994. This application Oct. 30, 1996, Ser. No. 740,477

Int. Cl.^{6} B23B 5/22; A61B 17/14

U.S. Cl. 279—131 14 Claims



1. A high speed rotary surgical handpiece having a centrifugal chuck for axial push-in chucking and axial pull-out release of a patient tissue working tool, said chuck comprising:

an axially extending drive shaft having a rotatably driveable rear end portion and having a hollow front end portion comprising a rotational axis and a coaxial central passage for receiving a rear shank portion of a tissue working tool to be rotatably driven;

a centrifugal locking member with a generally axially extending bight located on a first side of said rotational axis, a rear portion fixed on said bight and pivotable about an axis transverse to said rotational axis, a front leg extending radially inboard from said bight and radially past said passage, said front leg having a tool gripping means on the opposite side of said rotational axis for receiving a tool rear shank portion rearward axially therepast and for more strongly radially gripping such a tool in response to faster rotation of said drive shaft, and to resulting increasing centrifugal radial outward force on said bight.

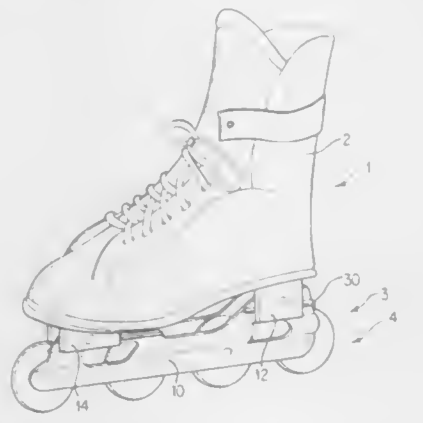
5,735,536
SKATE AND SKATE CHASSIS AND METHOD OF MAKING AND USING THE SAME

Robert Myers, and Richard Maertz, both of Anaheim, Calif., assignors to Motiv Sports, Inc., Anaheim, Calif.

Continuation of Ser. No. 501,627, Jul. 12, 1995, abandoned. This application Nov. 1, 1995, Ser. No. 548,331

Int. Cl.^{6} A63C 1/26; 17/06; 17/18

U.S. Cl. 280—7.13 23 Claims



1. A skate chassis for supporting a motive member and a boot, the skate chassis comprising:

an elongated body having a first end, a second end, sidewalls with outer surfaces, and a motive end, the outer surfaces of the elongated body sidewalls having raised ribs, the motive end having securing means for securing the motive member,

a toe member for supporting the boot, the toe member having sidewalls with inner surfaces and outer surfaces, the inner surfaces of the toe member sidewalls each having a channel, wherein the inner surfaces of the toe member sidewalls each include an upper generally planar surface portion above the channel and a lower generally planar surface portion below the channel, the toe member sidewalls further having means for attaching to the elongated body,

a heel member for supporting the boot, the heel member having sidewalls with inner surfaces and outer surfaces, the inner surfaces of the heel member sidewalls each having a channel, wherein the inner surfaces of the heel member sidewalls each include an upper generally planar surface portion above the channel and a lower generally planar surface portion below the channel the heel member sidewalls further having means for attaching to the elongated body; and

wherein the channels of the toe member sidewalls engage the raised ribs of the elongated body sidewalls so as to allow the toe member to slide longitudinally along the elongated body further the channels of the heel member sidewalls engage the raised ribs of the elongated body sidewalls so as to allow the heel member to slide longitudinally along the elongated body

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5,735,537
BRAKING DEVICE PARTICULARLY FOR SKATES

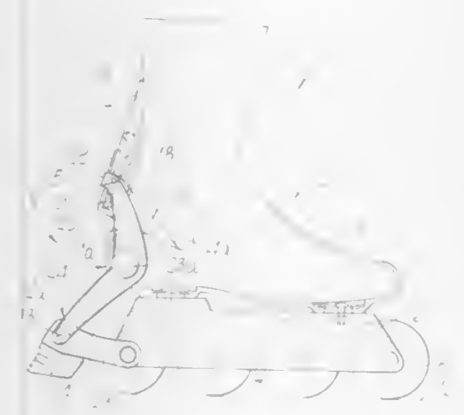
Claudio Zorzi, Paderno Di Ponzano Veneto, Italy, assignor to Nordica S.p.A., Trevignano, Italy

Filed May 3, 1995, Ser. No. 433,119

Claims priority, application Italy, May 13, 1994, TV94A0051

Int. Cl.⁶ A63C *17/14*

U.S. Cl. 280—11.2 **23 Claims**



1. A skate comprising

a longitudinally-extending frame for supporting a plurality of wheels,

a shell mounted above said frame

a quarter articulated to said shell for forward and rearward pivotal movement relative to said shell

a support including two elastic lateral wings, each of said wings having an upper end and a lower end, said wings having their upper ends coupled to said quarter, said lower ends of said wings moving downwardly in response to said rearward pivotal movement of said quarter and upwardly in response to said forward pivotal movement of said quarter, said lower ends moving towards said upper ends in response to an external compressive force applied to said lower ends and said wings providing a return force that tends to bias said lower ends away from said upper ends when said external compressive force is removed,

a breaking element coupled to the lower ends of said wings, and moveable towards and away from a breaking surface in response to the rearward and forward pivotal movement of said quarter

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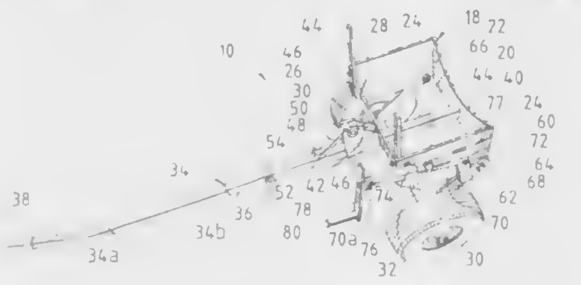
5,735,538
BRAKE DRUM DOLLY

Charles L. Mosher; Gerald E. Barry, both of Owatonna, and Anthony M. Thompson, Faribault, all of Minn., assignors to OTC Division of SPX Corporation, Owatonna, Minn.

Continuation of Ser. No. 197,503, Feb. 16, 1994, abandoned. This application Jan. 3, 1996, Ser. No. 582,233

Int. Cl.⁶ B62B *1/00*

U.S. Cl. 280—47.24 **10 Claims**



1. A dolly for facilitating removal and installation of brake drums on vehicles, comprising:

a frame including a cradle portion for supporting a brake drum

wheel means rotatably mounted on the frame for moving the frame over a support surface including into position beneath a brake drum,

handle means projecting from the frame for manually manipulating the frame including into and out of said position; and

elevating means comprising a linkage between the wheel means and the frame for raising and lowering the frame relative to the wheel means to lift and lower the brake drum relative to the vehicle,

wherein said wheel means are rotatable about a generally horizontal axle means, and said linkage includes a first link arm pivotally connected at one end thereof to the axle means and an opposite end thereof to the frame, a second link arm pivotally connected at one end thereof to the first link arm intermediate the ends thereof, a third link arm pivotally connected to the second link arm spaced from said one end thereof the third link arm being pivotally connected to the frame at a location spaced from a point of connection of the third link arm to the second link arm, and the third link arm being extendable to effect relative pivoting of the second and first link arms and, thereby, movement of the axle means relative to the frame

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5,735,539
TRAILER HITCH LOCKING DEVICE

Harley A. Kravitz, 3041 Brainard Rd., Pepper Pike, Ohio 44124

Filed Feb. 1, 1996, Ser. No. 593,183

Int. Cl.⁶ B60D *1/28*

U.S. Cl. 280—506 **33 Claims**

1. In combination with a receiver trailer hitch having telescopically connected vehicle and received components at least one of

which is tubular, the components being maintained in telescopic relationship by a pin component extending through apertures in each of the components, a connection tightening mechanism comprising:

a) a bridge element,

b) a spaced pair of apertured flanges secured to and projecting from the bridge element so that the bridge element and the flanges together straddle at least one of the components,

c) the pin also extending through the flange apertures to pivotally connect the bridge element to the components, and

d) the mechanism including a spaced pair of projections each engaging a different one of the components at least one of the projections being adjustable whereby to tighten the telescopic connection

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5,735,540
DUAL-CIRCUIT HYDRAULIC SYSTEM FOR AN ACTIVE VEHICLE SUSPENSION CONTROL SYSTEM

Stefan Schiffler, Schonungen-Forst, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Apr. 4, 1996, Ser. No. 627,611

Claims priority, application Germany, Apr. 8, 1995, 195 13 468.0

Int. Cl.⁶ B60G *21/05;21/073*

U.S. Cl. 280—689 **20 Claims**

1. An active vehicle suspension control system with a dual circuit pressure medium actuation system to eliminate a rolling movement of a vehicle said active vehicle control system comprising

a front axle stabilizing arrangement

at least one actuator connecting to said front stabilizing arrangement

said at least one front actuator comprising a first pressure chamber and a second pressure chamber,

said dual circuit pressure medium actuation system comprising a first pressure medium circuit,

said first pressure medium circuit comprising

means for pressurizing said first pressure chamber of said front actuator for providing movement of said front actuator in a first direction,

means for pressurizing said second pressure chamber of said front actuator for providing movement of said front actuator in a second direction and

said front actuator second direction being opposite to said front actuator first direction,

a rear axle stabilizing arrangement,

at least one actuator connecting to said rear stabilizing arrangement;

said at least one rear actuator comprising a first pressure chamber and a second pressure chamber

said dual circuit pressure medium actuation system comprising a second pressure medium circuit

said second pressure medium circuit comprising

means for pressurizing said first pressure chamber of said rear actuator for providing movement of said rear actuator in a first direction

means for pressurizing said second pressure chamber of said rear actuator for providing movement of said rear actuator in a second direction and

said rear actuator second direction being opposite to said rear actuator first direction,

said first pressure medium circuit comprising first valve means for solely controlling pressure medium flow in said first pressure medium circuit;

said second pressure medium circuit comprising second valve means for solely controlling pressure medium flow in said second pressure medium circuit; and

means for operating said front actuator and said rear actuator during failure of at least one component of the dual circuit pressure medium actuation system, said failure operating means comprising

means for disconnecting, during failure of said at least one component, said rear actuator from said means for pressurizing said first pressure chamber of said rear actuator and from said means for pressurizing said second pressure chamber of said rear actuator; and

means for releasing, during failure of said at least one component, the pressure medium from at least one of said rear actuator first pressure chamber and said rear actuator second pressure chamber, upon the vehicle undergoing a rolling movement

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5,735,541
SKI BINDING

Andreas Fritschi, Wimmis, Switzerland, and Tilo Riedel, Fuschl, Austria, assignors to Fritschi AG Apparatebau, Reichenbach, Switzerland

PCT No. PCT/AT96/00013, § 371 Date Sep. 27, 1996, § 102(e) Date Sep. 27, 1996, PCT Pub. No. WO96/23559, PCT Pub. Date Aug. 8, 1996

PCT Filed Jan. 30, 1996, Ser. No. 718,314

Claims priority, application Austria, Feb. 1, 1995, 170/95

Int. Cl.⁶ A63L *9/08*

U.S. Cl. 280—617 **6 Claims**

1. Ski binding with a front jaw (**1**) which is connected to a rear jaw (**2**) by a carrier (**3**), the rear jaw being arranged on the carrier adjustably in the direction of the longitudinal extension thereof, and comprises a laterally pivotal device (**10**) for holding down the sole, the device being supported against lateral pivoting by a pressure element (**13**) which is displaceably mounted in the direction of the longitudinal extension of the carrier and is biased by at least one spring (**14**), characterized in that the carrier (**3**) which is pivotal with the front jaw (**1**) about a transverse axis (**6**) in the range of the front jaw (**1**) consists of a hollow section (**4**), the hollow section receiving the biasing spring (**14**) for the pressure element (**13**) and the spindle (**41**) of a screw drive (**40**) for adjusting the rear jaw (**2**) displaceably mounted on the hollow section (**4**).

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5,735,542

AIRBAG HOUSING

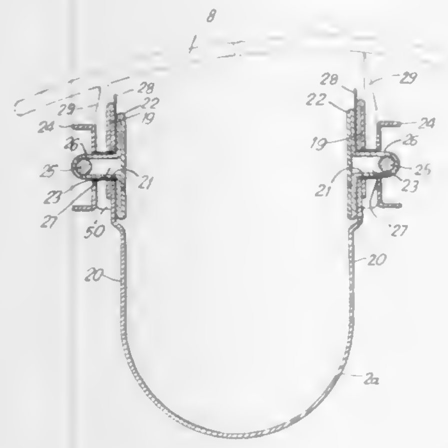
Stefan Bohn, Goldbach, Germany, assignor to MST Automotive GmbH, Aschaffenburg, Germany

Filed Oct. 11, 1996, Ser. No. 729,560

Claims priority, application Germany, Oct. 19, 1995, 195 38 871.2

Int. Cl.^{6} B60R *21/16*

U.S. Cl. 280—728.2 **25 Claims**



1. A housing for a passenger protection device in a motor vehicle having an airbag and a gas generator therein and a protective covering thereon to form a ready to install module, wherein the housing comprises a body having an essentially U-shaped cross section which is uniform lengthwise along an axis, two mainly flat end covers and tension members for simultaneously fastening the airbag and the protective covering to the housing, wherein the body comprises a section cut from elongated stock material by cutting perpendicular to a longitudinal axis of the stock material, wherein the body comprises sheet-metal stock material and wherein the end covers comprises flat sheet-metal parts having the cross sectional shape of the body and margins bent over at approximately right angles to overlap the body.

5,735,543

INSTRUMENT PANEL ARRANGEMENT FOR AN INTERIOR OF A MOTOR VEHICLE

Harald Koppenstein, Remseck, and Van-Hung Guyen, Sindelfingen, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed May 13, 1996, Ser. No. 645,592

Claims priority, application Germany, May 15, 1995, 195 17 782.7

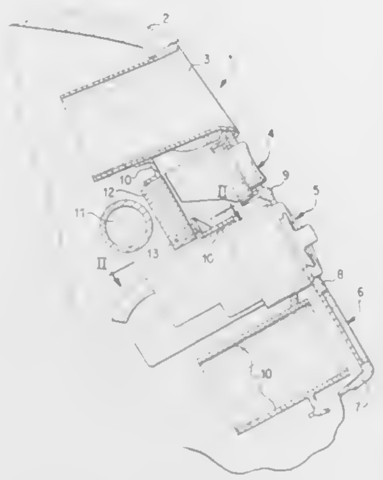
Int. Cl.^{6} B60R *21/045*, **B60K** *37/00*

U.S. Cl. 280—752 **14 Claims**

1. Cockpit instrument panel arrangement for an interior of a motor vehicle to which at least one cross member of a motor vehicle supporting structure is assigned and including a central cockpit area in which several function elements are arranged,

wherein the function elements are combined and held in a compact reinforcing frame, and

wherein at least one energy absorber is arranged along a horizontal, longitudinally extending line of the vehicle directly behind the reinforcing frame and between the reinforcing frame holding the function elements and the cross member when viewed in a longitudinal direction of the vehicle, and being connected to only one of said reinforcing frame and said cross member.



5,735,544

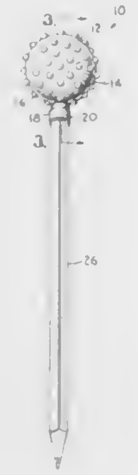
PAGE TURNING DEVICE

Jennifer L. Buckner, 8406 W. 98th St., Overland Park, Kans. 66212

Filed Jul. 1, 1996, Ser. No. 674,014

Int. Cl.^{6} B42D *3/18*

U.S. Cl. 281—45 **10 Claims**



1. A device mountable on the end of a cylindrical writing instrument, such as a pencil, for turning pages of a document, the device comprising:

a substantially spherical body having an outer surface;

a plurality of deformable protuberances spaced about said outer surface of said body wherein said protuberances have an adhesive quality sufficient to grip a page of paper;

wherein said protuberances are sized and spaced to prevent said body from contacting said page of paper;

wherein said protuberances are sized and spaced to allow a plurality of said protuberances to contact the page of paper, and

means associated with said body for mounting said body on the end of the cylindrical writing instrument.

5,735,545

Patent Not Issued For This Number

5,735,546

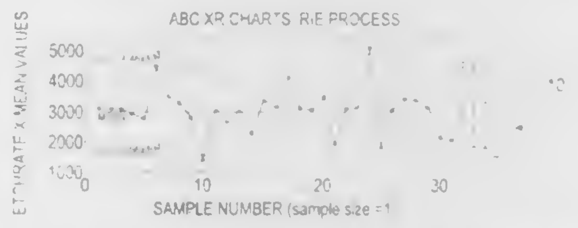
METHOD FOR CONTROLLING A MANUFACTURING PROCESS UTILIZING CONTROL CHARTS

Jerome M. Kurtzberg, and Menachem Levanoni, both of Yorktown Heights, N.Y., assignors to IBM Corporation, Armonk, N.Y.

Filed Oct. 1, 1996, Ser. No. 724,632

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—67 **9 Claims**



1. A computer performed process for monitoring the state of a manufacturing process comprising the steps of:

1) constructing a conventional control chart comprising an ordinate time series of a manufacturing variable of interest and an abscissa control limit window consisting of an upper and lower control limit;

2) utilizing the previous points on said control chart to forecast a predicted value of the time series;

3) plotting said predicted value;

4) predicting a further value of the time series on said control chart based on all previous points including said predicted value;

5) continuing to predict and plot said predicted values of the time series according to steps 3 and 4 until the desired region of prediction is complete;

6) alerting a user that said manufacturing process will be out of control in N time increments whenever a predicted value crosses over the upper or lower control limit.

5,735,547

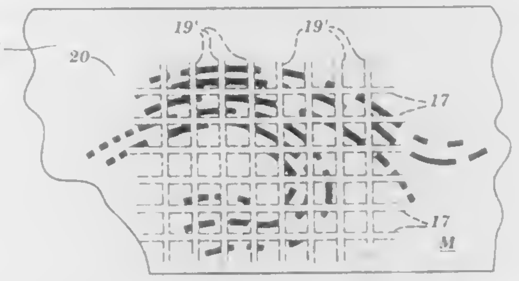
ANTI-PHOTOGRAPHIC/PHOTOCOPY IMAGING PROCESS AND PRODUCT MADE BY SAME

Fredric I. Morelle, 407 Breckenridge Dr. No. 6, Huntsville, Ala. 35802, and Ralph C. Wicker, 194 Oxford St., Apt. #8, Rochester, N.Y. 14607

Continuation of Ser. No. 264,610, Jun. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 930,517, Oct. 1, 1992, abandoned. This application Jan. 3, 1997, Ser. No. 778,916

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—67 **13 Claims**



1. A method for making an image-bearing document non-interferable with respect to a copier which employs an electro-optical scanning and sampling copy protocol comprising:

identifying the blind or non-sampled zones in said copy protocol,

preparing a document substrate, and

placing indicia which comprise at least one image onto said document substrate so as to fall into areas that are not sampled by said copy protocol when said image-bearing document is copied by said copier.

5,735,548

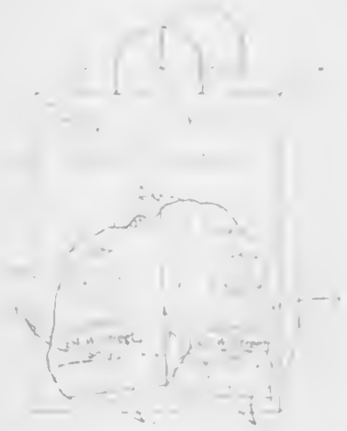
FOOD DONATOR IDENTIFICATION CONTAINER

Gwendolyn L. S. Anderson, 2966 Frazer Rd., Newark, Del. 19702

Filed Nov. 1, 1994, Ser. No. 333,312

Int. Cl.^{6} B42D [illegible]

U.S. Cl. 283—75 **18 Claims**



1. Container means for food, especially confections received by a donee from a donor at Halloween, said container means comprising:

(a) a first receptacle having an opening for receiving donated food items from a donor, and having means thereon for identifying said donor, said first receptacle having closure means for closing said opening, and

(b) a second receptacle having an opening for receiving and holding a plurality of said first receptacles.

5,735,549

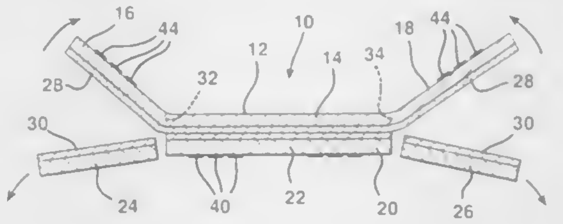
DUAL USE PRODUCT OR SHIPPING LABEL

Patrick A. Konkol, Cincinnati, and Hugh B. Skees, Dayton, both of Ohio, assignors to The Standard Register Company, Dayton, Ohio

Filed Jun. 2, 1995, Ser. No. 458,490

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—81 **16 Claims**



1. A product or shipping label comprising: a face ply having first and second major surfaces and a liner ply having first and second major surfaces with said second major surface of said liner ply including indicia thereon, said face ply and said liner ply each including a pair of end panels having a center panel therebetween, wherein said end panels on said face ply include an adhesive on said first surface thereof and are defined by lines of weakness between said end panels and said center panel, wherein said end panels on said liner ply include a release agent on said first surface thereof and are separated from said center panel, and wherein said first surface of said liner ply is adhered to said first surface of said face ply.

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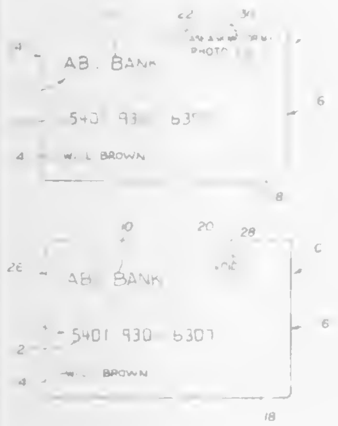
5,735,550
SECURE CREDIT CARD

Michael B. Hinkle, 5911 E. University Blvd. Stuite 108, Dallas, Tex. 75206

Filed May 31, 1996, Ser. No. 658,956

Int. Cl.^{6} B42D 15/10

U.S. Cl. 283—108 **9 Claims**



1. A secure transaction card of the type accepted for transactions by a customer and including usable customer identifying information, the secure transaction card comprising

- a card body;
- said card body having an upper surface;
- said upper surface including an indicator area indicating that the secure transaction card should not be accepted for a transaction by the customer; and,
- a layer removable fom said card body adapted to be superimposed over said indicator area,

whereby, the secured transaction card is in an acceptable state when the removable layer covers the indicator area and the secured transaction card is in an unacceptable state when the removable layer is absent or damaged.

5,735,551
PIPE REPAIR APPARATUS AND METHOD

Gerald E. Whitman, Morris; Matthew D. Krouse, Naperville; Kenneth R. Sturtecky, Geneseo, and Thomas J. Behringer, Bartlett, all of Ill., assignors to Commonwealth Edison Company, Chicago, Ill.

Filed Aug. 22, 1996, Ser. No. 697,312

Int. Cl.^{6} F16L 55/178

U.S. Cl. 285—15 **13 Claims**

1. A pipe repair apparatus comprising

- at least first and second housings, each housing comprising respective first and second ends, and a pair of edges extending therebetween, said housings configured to mate at the edges;
- a plurality of fasteners securing the first and second housings together to form a closed conduit extending between the ends, said conduit shaped to receive a pipe to be repaired;
- a first seal mounted in the housing to extend around the conduit at the first ends of the housings, said first seal oriented to seal the housings against an outer circumferential surface of the pipe;
- a second seal mounted to the housings to extend around the conduit at the second ends of the housings, said second seal oriented to seal the housings against a wall extending outwardly from the pipe;
- a retainer coupled to the housings to clamp the second seal against the wall, said pipe comprising a longitudinal axis adjacent to the second ends of the housings, said retainer pressing the second seal along a direction having a substantial component aligned with the longitudinal axis.

5,735,552
SWIVEL COUPLER

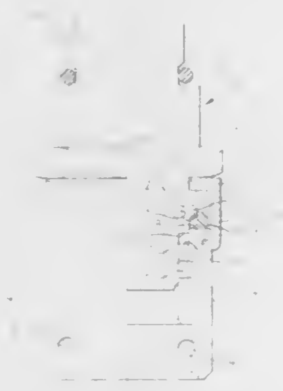
Peter Elliott-Moore, Stoke-on-Trent, England, assignor to Longwall Roof Supports Limited, Wigan, United Kingdom

Filed Oct. 3, 1995, Ser. No. 538,450

Claims priority, application United Kingdom, Nov. 2, 1994, 9422040; Jul. 26, 1995, 9515355

Int. Cl.^{6} F16L 27/08, 35/00

U.S. Cl. 285—81 **5 Claims**



1. A swivel coupler for releasably and fluid tightly connecting first and second parts together so that fluid can pass between the first and second parts and so that the first and second parts can rotate relative to one another, said swivel coupler comprising

- a body having an outer body surface, which at least in part, is right cylindrical,
- a collar rotatably mounted on the right cylindrical outer body surface, the collar being connectable to the first part and the body being connectable to the second part,
- rotary sealing means between the collar and the right cylindrical outer body surface,
- a first bearing race in the right cylindrical outer body surface said first bearing race being one of a ball and roller type;
- at least one radially extending bearing assembly aperture in the collar for inserting one of ball and roller bearings into said first bearing race when the first bearing race and the at least one bearing assembly aperture are radially aligned, said at least one bearing assembly aperture extending through said collar, the collar being displaceable axially relative to the body to bring the one of the ball and roller bearings into contact with a second bearing race on the collar after the one of the ball and the roller bearings have been inserted into the first bearing race, said second bearing race being of one of a ball and roller type; and
- preventing means for preventing the collar from returning to a position in which the at least one bearing assembly aperture and said first bearing race are radially aligned, said preventing means comprising an annular portion for insertion between an end of the collar and a radially outwardly extending shoulder on the body to prevent a return axial displacement of the collar relative to the body, and a skirt portion, which extends along part of an outer surface of the collar to cover the at least one bearing assembly aperture.

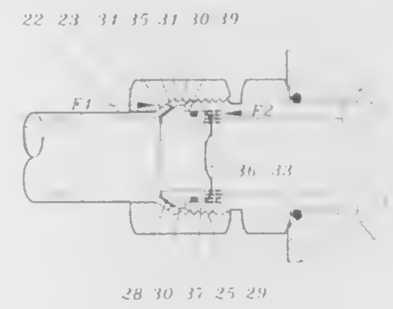
5,735,553
FLARED TUBE FITTING FOR CONNECTING FLOW CONDUCTORS

Albin J. Niemiec, 79700 Hipp Rd., Romeo, Mich. 48065

Filed Mar. 8, 1996, Ser. No. 613,248

Int. Cl.^{6} F16L 33/16

U.S. Cl. 285—101 **20 Claims**



1. A fluid flared tube fitting comprising

- a body having an axial bore, said body having an end which is externally threaded;
- said bore being enlarged at one end to form a recess having an annular body surface;
- a piston having an axial flow passage, said piston at one end having an annular rim portion terminating in an annular rim surface and at the other end a larger diameter conically shaped sealing surface portion, said rim and said conical sealing portions being spaced apart;
- said recess having an axially extending dimension which is longer than the axially extending dimension of said annular rim portion;
- said piston having said rim portion received in said recess of said body, said rim portion having a radial clearance with said body;
- a shoulder between said annular rim portion and the larger diameter conically shaped sealing surface portion which is axially supported by the threaded end of said body;
- a space located between said rim portion of said piston and said annular body surface;
- spring means located in said space between said annular rim surface and said annular body surface; said spring means biasing said piston away from said annular body surface,
- a circular groove located in said rim portion; and
- sealing means located in said circular groove for sealing said radial clearance,
- the nominal diameter of said annular rim surface and said recess being sized to provide an annular area for exerting a hydrostatic pressure force on said piston

5,735,554
TUBE CONDUIT CONNECTION AND METHOD OF PRODUCING THE SAME FROM POLYOLEFINS

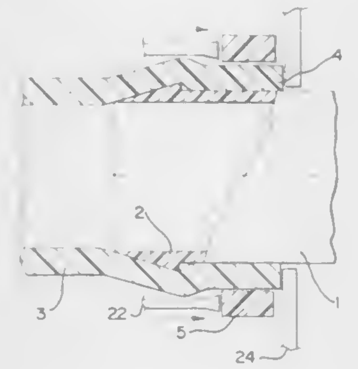
Fredrich Imgam, Am Frankfurter Weg 2, 63133 Heusenstamm, Germany

Continuation of Ser. No. 204,136, Aug. 15, 1994, abandoned. This application Aug. 26, 1996, Ser. No. 702,793

Claims priority, application European Pat. Off., Aug. 31, 1991, 91114686

Int. Cl.^{6} F16L 47/00, B29C 27/00

U.S. Cl. 285—239 **7 Claims**



1. A method of producing a tube conduit connection, comprising the steps of:

- selecting a tube made of cross-linked polyolefin and having a predetermined internal diameter;
- providing a connector member having an external diameter greater than said predetermined internal diameter of said tube,
- expanding a tube end of said tube at environmental temperature to an internal diameter which is greater than said external diameter of said connector member,
- during said step of expanding said tube end, using an expanding mandrel for expanding said tube end to said internal diameter greater than said external diameter of said connector member,
- removing said expanding mandrel from said expanded tube end;
- telescoping said expanded tube end at environmental temperature onto said connector member substantially immediately after removing said expanding mandrel while said tube end is still in an expanded state, and
- permitting said telescoped, still expanded tube end to shrink at environmental temperature onto said connector member due to self reconversion of said expanded tube end and thereby firmly and sealingly interconnecting said tube end and said connector member at said environmental temperature

5,735,555
FUEL RAIL TO FUEL TUBE END COMPACT CONNECTOR

Todd Matthew Answine, Newport News; Anthony Louis Franchitto, Hampton, and Gary Douglas Vattelana, Prince George, all of Va., assignors to Siemens Automotive Corporation, Auburn Hills, Mich.

Filed Dec. 18, 1996, Ser. No. 768,521

Int. Cl.^{6} F16L 39/00

U.S. Cl. 285—319 **1 Claim**

1. A connector assembly for connecting a fuel rail and an inlet tube having an inlet tube end, the inlet tube having a raised annular flange a predetermined distance upstream from its end, the connector assembly comprising:

- a connector body attached to the fuel rail, said connector body having a through bore and counterbored open end wherein said counterbored open end and through bore meet to define an annular shoulder in said connector body.

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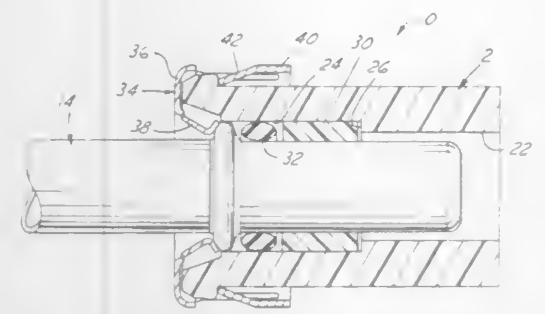


said counterbored open end being sized to receive the inlet tube end and annular flange, said connector body open end having an outwardly extending shoulder, wherein the improvement comprises

a spacer ring mountable on the inlet tube between the raised annular flange and tube end, said spacer ring abutting said annular shoulder in a mounted position of the inlet tube in said connector body;

an annular seal mountable around the inlet tube end between the raised annular flange and said spacer ring for sealing the connection of said connector body and inlet tube against fuel leakage,

an annular clip having a periphery with a generally U-shaped cross section and having a plurality of circumferentially spaced inner legs and a plurality of circumferentially spaced adjacent outer legs joined together at one end thereof by said U-shaped cross section and the other end of said outer legs by means of a circumferential ring, said inner legs being inclined inwardly for resiliently engaging the inlet tube annular flange, said outer legs including resilient locking means biased inwardly from said circumferential ring for sliding over and snapping into withdrawal restraining engagement with said connector body outwardly extending shoulder, said annular clip being mountable on the inlet tube axially upstream from the raised annular flange,

whereby the inlet tube is telescopingly received in said connector body and axially restrained from withdrawal as said locking means is urged into engagement with said connector body outwardly extending shoulder

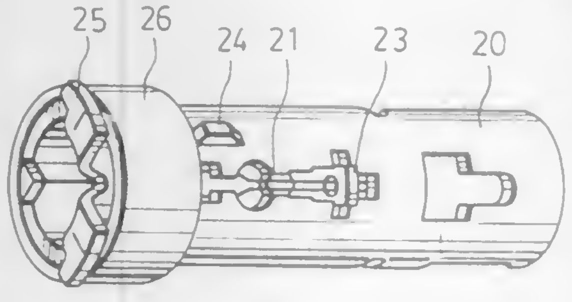
5,735,556
CYLINDRICAL LOCKSET WITH REINFORCED CHASSIS ASSEMBLY

Eric Chan, Taipei, Taiwan, assignor to Kolik Enterprise Co., Ltd., Taipei, Taiwan

Filed Dec. 17, 1996, Ser. No. 768,856

Int. Cl.⁶ E05C 1/12, E05B 3/00

U.S. Cl. 292—169.23 **1 Claim**



1. A cylindrical lockset comprising:

a latchbolt unit;

a chassis assembly including:

a housing,

a retractor disposed in said housing and connected operatively to said latchbolt unit, and

a pair of rollback sleeves extending from opposite sides of said housing, each of said rollback sleeves including a tubular body formed from a bent steel plate with adjoining longitudinal edges, said tubular body having a front end coupled operably with said retractor,

a pair of spring cassettes, each of which is operatively coupled to a respective one of said rollback sleeves, and

a pair of levers, each of which is mounted on a respective one of said rollback sleeves,

said chassis assembly further including a reinforcing ring sleeved on said front end of said tubular body of at least one of said rollback sleeves to force said adjoining longitudinal edges of said tubular body toward each other to prevent prying open of said rollback sleeve, and

wherein one of said adjoining longitudinal edges of said tubular body is formed with a dovetail projection, the other one of said adjoining longitudinal edges of said tubular body being formed with a dovetail groove which engages said dovetail projection to provide additional protection against prying open of said rollback sleeve

5,735,557
LOCK MECHANISM

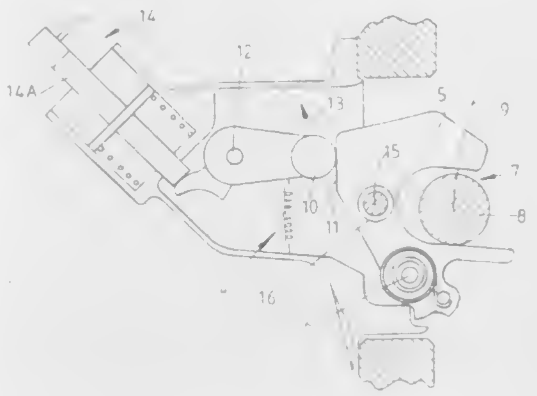
John Herbert Harvey, Wolverhampton, England, assignor to Lucas Industries, plc, England

Filed Sep. 18, 1995, Ser. No. 529,368

Claims priority, application United Kingdom, Sep. 20, 1994, 9418895

Int. Cl.⁶ E05C 3/16

U.S. Cl. 292—216 **8 Claims**



1. A lock for use in a thrust reversal system of a gas turbine engine, the thrust reversal system including a member movable between a stowed position and a deployed position under the control of a thrust reversal system controller, the lock comprising a first locking device having a first operator and including a first locking member movable between an open position and a locked position in which the first locking member cooperates with the thrust reversal system to retain the movable member of the thrust reversal system in its stowed position, a second locking device having a second operator operable independently of said first operator and including a second locking member movable into engagement with said first locking member to secure said first locking member in said locked position wherein said second locking member is movable into an opening formed in said first locking member, said second operator including a piston slidable within a cylinder, said piston adapted to be coupled to said second locking member, resilient means biasing said second locking member to engage within said opening and control means for controlling a fluid pressure applied to said piston such that in one setting of the control means, the fluid pressure applied to said piston exerts a force on said piston to supplement the force exerted on said piston by said resilient means and in another setting of said control means, the fluid pressure applied to said piston exerts a force on said piston to withdraw said second locking member from said opening.

5,735,558
APPARATUS FOR MOUNTING A LATCH DEVICE TO A SLIDING DOOR

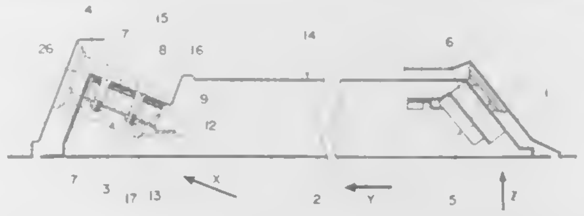
Hrofumi Watanabe, Yamanashi-ken, Japan, assignor to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 368,955, Jan. 5, 1995, abandoned. This application May 28, 1996, Ser. No. 654,001

Claims priority, application Japan, Jan. 11, 1994, 6-013197

Int. Cl.⁶ E05B 9/00

U.S. Cl. 292—337 **16 Claims**



1. A sliding door mounted to a vehicle body and slidable in a first direction parallel to an outer surface of the vehicle body, said sliding door comprising, an outer panel, and inner panel opposite to said outer panel, a side panel connecting said outer panel and said inner panel, a front corner formed between the inner panel and the side panel and a mounting wall formed in a front side portion of the inner panel adjacent to the front corner, a front latch device mounted to said mounting wall and engageable with a front striker fixed to a surface of the vehicle body, said side panel being opposite to said surface on which the front striker is fixed, said door being movable in a second direction at an acute angle to the first direction when the front latch device is engaged with the front striker, and the front latch device mounted to the mounting wall by screws or bolts, wherein said mounting wall is formed at an acute angle to the first direction and in parallel to the second direction

5,735,559
ELECTRIC STRIKE

George Frolov, Farmington, Conn., assignor to Harrow Products, Inc., Grand Rapids, Mich.

Filed Aug. 9, 1996, Ser. No. 695,271

Int. Cl.⁶ E05B 15/02

U.S. Cl. 292—341.16 **24 Claims**

1. An electric strike comprising

a strike frame defining a jamb face opening and a frame face opening, said frame face opening generally orthogonal to said jamb face opening and contiguous with said jamb face opening;

keeper means mounted to said frame for defining a closed position to close said frame face opening, and movable to an open position to open said frame face opening, said keeper means defining a lock recess and said keeper means and said frame defining a bolt receiving cavity,

lock means for locking said keeper means in said closed position, said lock means comprising a swing arm and a lock pin mounted to said swing arm, said swing arm having an unlocked position and a locked position wherein said lock pin extends into said lock recess to lock said keeper means in said closed position

bolt monitoring means for generating an output signal indicative of a bolt in said cavity, said monitoring means extending into said cavity

5,735,560
SAFETY GUARD

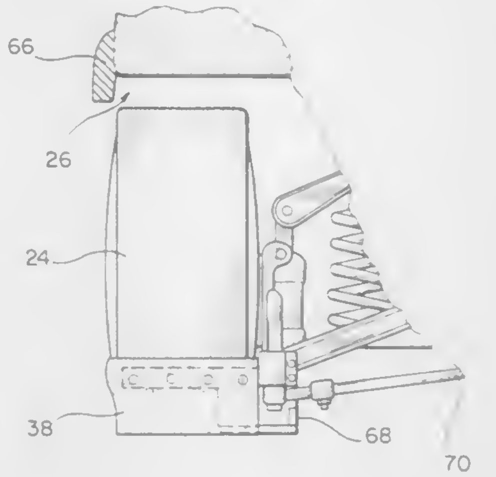
Mark A. Bowen, Beverly Hills, and Mims Bowen, Santa Monica, both of Calif., assignors to Public Transporation Safety Devices Corp., Los Angeles, Calif.

PCT No. PCT/US95/04569, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO95/28300, PCT Pub. Date Oct. 26, 1995

Continuation-in-part of Ser. No. 227,928, Apr. 15, 1994, Pat. No. 5,462,324. This PCT application Apr. 13, 1995, Ser. No. 716,275

Int. Cl.⁷ B60R 19/00

U.S. Cl. 293—15 **8 Claims**



4. A safety guard for a vehicle, said vehicle having a first wheel, a first wheel well, a gap between said wheel and said wheel well, a transverse vehicle axis, a suspension system and a vehicle body said safety guard comprising

(a) a frontal guard piece with a first surface generally facing obliquely with respect to said transverse vehicle axis said frontal guard being spaced a marginal distance from the surface over which said vehicle travels, and

(b) a suspension guard mount attached on a first end to said suspension system and attached on a second end to said frontal guard piece said suspension guard mount being movable inward and outward in unison with said wheel with respect to said transverse vehicle axis, and

(c) movement means for shifting said wheel inward and outward upon steering of the vehicle said movement means being connected to said suspension guard mount to move said suspension guard mount and to move said frontal guard piece to track inward and outward movements of said wheel with respect to said transverse vehicle axis such that animate body parts positioned in front of said wheel will be deflected by the frontal guard piece transversely outwardly with respect to the vehicle body in order to prevent the animate body parts from being run over and crushed by said wheel during movement of the vehicle over said surface

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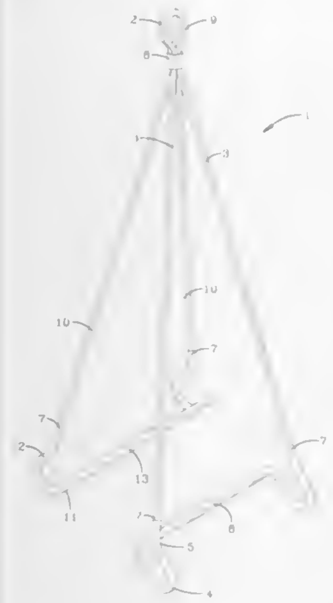
5,735,561
LIFT DEVICE FOR SMALL WATERCRAFT

David G. Parkins, Ft. Lauderdale, Fla., assignor to ABL Boatlifts, Fort Myers, Fla.
Filed Aug. 26, 1996, Ser. No. 701,526
Int. Cl.^{6} B63C *7/20*; B66C *13/02*
U.S. Cl. 294—74 **24 Claims**



1. A lift device for a personal watercraft or a small boat, comprising:

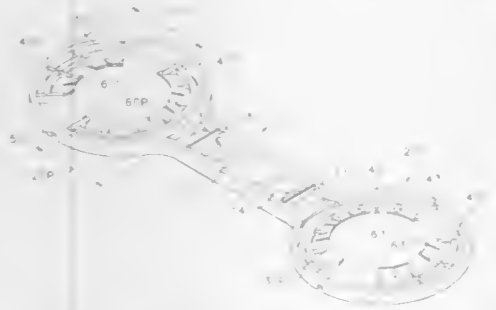
a. a first and second shaped engaging member, each engaging member comprising a shaped rod with a horizontal midsection and an upwardly curved end section on each end of the rod shaped so as to securely engage a gunnel of a personal watercraft or small boat, the horizontal midsection of the first engaging member is positioned opposite from the horizontal midsection of the second engaging member whereby the shaped engaging members engage the gunnels of the personal watercraft or small boat,

b. an attaching mechanism for removably attaching the lift device to a raising or lowering device; and

c. a plurality of elongated lifting members, each lifting member is connected on one end to one end section of one of the shaped engaging members and connected on the opposite end to the attaching mechanism.

5,735,562
MULTI-CONTAINER CARRIER

James C. Borg, Eugene, Oreg., assignor to Oregon Precision Industries, Inc., Eugene, Oreg.
Filed Feb. 18, 1997, Ser. No. 801,523
Int. Cl.^{6} B65D *71/00*
U.S. Cl. 294—87.2 **10 Claims**



1. An integral carrier for carrying multiple containers having annular flanges in their necks, said carrier having top and bottom sides and consisting of at least one strap having a pair of elongate ribs connecting identical neck-engaging structures, each structure having a proximal weight-bearing portion and a distal neck-capturing and -releasing portion and comprising

(a) an outer circumferential rib that is a continuous extension of said pair of elongate ribs,

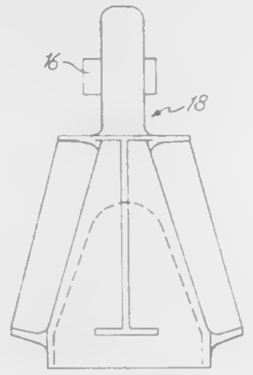
(b) an inner proximal arcuate rib and an inner distal arcuate rib, each located within and being radially connected to said outer circumferential rib, wherein the tensile strength of the inner proximal arcuate rib is greater than that of the inner distal arcuate rib;

(c) a plurality of flanges projecting inwardly from said inner arcuate ribs wherein the flanges projecting from the distal arcuate rib project further inwardly and have greater flex and less tensile strength than do the flanges projecting from the proximal arcuate rib; and

(d) a pair of notches on the bottom side of said outer circumferential rib sufficient to permit flexible hinging of the distal neck-capturing and -releasing portion relative to the proximal weight-bearing portion.

5,735,563
LIFTING DEVICES

Anthony Wood, Sheffield, England, assignor to River Don Castings Limited, Sheffield, England
Continuation of Ser. No. 338,458, Mar. 22, 1995, abandoned. This application Nov. 15, 1996, Ser. No. 746,747
Claims priority, application United Kingdom, May 18, 1992, 9210601
Int. Cl.^{6} B66C *1/66*
U.S. Cl. 294—89 **1 Claim**

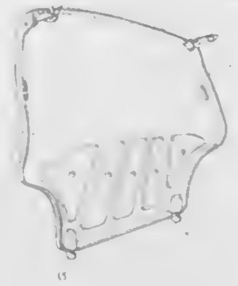


1. A lifting device for a heavy structure, the device comprising a cast steel node secured to the structure through stub members which extend outwardly from a column member of the node, the cast steel node having a steel pin cast as an integral part of the cast steel node, with the pin ends protruding outside of a portion of the cast steel node for connection to link plates of a shackle assembly to facilitate lifting of the structure.

5,735,564
LUGGAGE SAFETY BARRIER

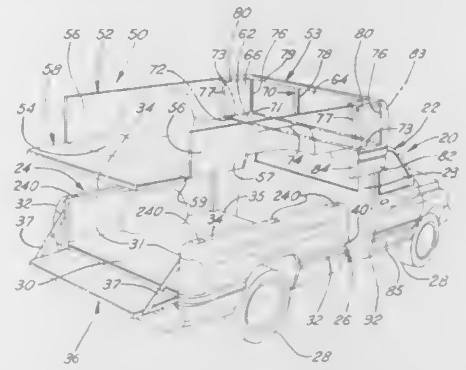
James Deane Coogan, Camden Park, Australia, assignor to Rees Operations Pty. Ltd., Australia
PCT No. PCT/AU95/00562, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO96/06756, PCT Pub. Date Mar. 7, 1996
PCT Filed Aug. 31, 1995, Ser. No. 687,419
Claims priority, application Australia, Aug. 31, 1994, PM 7837
Int. Cl.^{6} B62D *33/04*
U.S. Cl. 296—24.1 **25 Claims**

1. A safety screen for a motor vehicle comprising a unitary formed, yieldable panel of tough impact resistant transparent thermoplastics material, adapted to be mounted within a motor vehicle so as to extend transversely from side to side and from top to bottom of the vehicle so as to separate the loading carrying area from occupants within the vehicle, said panel being shaped and configured so that when thus mounted within the vehicle, the body of the panel or a portion thereof is capable of deforming by eversion when an impact load impacts thereagainst, and in so doing absorb at least some of the impact energy imparted to the panel.



5,735,565
BEDLINER CONVERSION UNIT FOR PICKUP TRUCK

Joseph A. Papai, Birmingham, and Clifford Wilkins, Rochester Hills, both of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.
Filed Apr. 29, 1996, Ser. No. 639,390
Int. Cl.^{6} B60R *13/01*
U.S. Cl. 296—39.2 **17 Claims**



17. A conversion unit for a modified pickup truck supporting a cab and cargo bed on a chassis frame defining a predetermined frame clear length between the cab and an open front end of the bed, the conversion unit comprising:

a plastic bedliner portion, defined by a bottom panel and opposed side panels, and an integral self-supporting, forward extension portion, defined by an extended bottom panel portion and extended opposed side panel portions, said bedliner portion adapted for insertion in the cargo bed and said extension portion incorporating framework means, adapted for mounting on the chassis frame clear length, and

attachment means adapted for securing said framework means to the frame clear length.

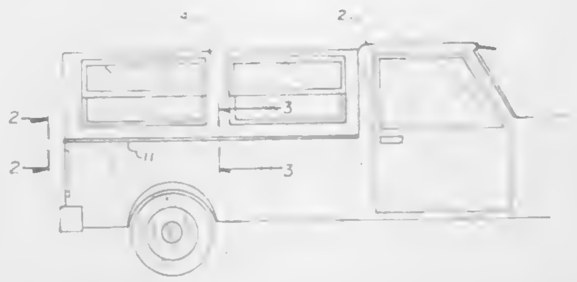
5,735,566
TRUCK BOX ACCESSORY ATTACHMENT SYSTEM

E. Phil Bradley, 2207 Fox Hunt Dr., Monroe, N.C. 28110
Filed Jul. 17, 1996, Ser. No. 682,117
Int. Cl.^{6} B60P *7/02*
U.S. Cl. 296—164 **8 Claims**

1. A Truck Box Accessory Attachment System comprising:

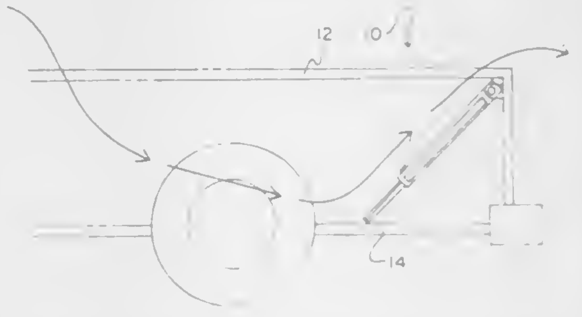
a truck female rail, an attachment male rail, and a slide locking device

wherein the truck female rail and the attachment male rail are insulated and separated from one another by an insulation seal that is comprised of a water tight insulation seal and a slide insulation surface.



5,735,567
WIND DEFLECTOR APPARATUS FOR USE IN A BED OF A PICKUP TRUCK

Robert Mora, Sr., 7642 Leucite Ave., Rancho Cucamonga, Calif. 91730
Filed Apr. 4, 1997, Ser. No. 833,255
Int. Cl.^{6} B62D *35/00*
U.S. Cl. 296—180.1 **3 Claims**



1. A wind deflector apparatus for use in a bed of a pickup truck for reducing air pressure and wind drag forces created in the bed of the pickup truck when it is moving forward, comprising, in combination:

a rigid rectangular back panel having a smooth planar exterior surface and a smooth planar interior surface interconnected by a periphery formed of a long horizontal top edge, a long horizontal bottom edge, and a pair of short side edges extended therebetween, and with the interior surface having two pairs of parallel and horizontally aligned slots formed thereon with each slot of each pair extended linearly from one of the side edges to a location offset from a central portion of the back panel, and with the back panel further having a pair of horizontally aligned bores disposed thereon at a location offset from a central portion of the bottom edge;

a pair of rigid and generally rectangular side panels, each side panel having a smooth planar first surface and a smooth planar second surface interconnected by a periphery formed of a short top edge with an upper lip formed thereon and extended away from the first surface, a short bottom edge with a lower lip extended therefrom and away from the first surface, and long inboard and outboard side edges extended therebetween wherein the outboard side edge has a side lip formed thereon and extended away from the first surface, and wherein the upper lip and the lower lip of each side panel are separately and slidably disposed within a respective pair of slots on the back panel such that each side panel is positioned in a co planar arrangement with the back panel and in contact therewith and wherein each side panel can be slidably extended outward with respect to the back panel to define an

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extended position and wherein each side panel can be slidably extended inward with respect to the back panel to define a retracted position;

a rigid rectangular front panel of a length and a width generally equal to that of the back panel, the front panel having a smooth planar exterior surface and a smooth planar interior surface interconnected by a periphery formed of a long horizontal top edge, a long horizontal bottom edge, and a pair of side edges extended therebetween, a pair of integral parallel linear rails extended outwards from the interior surface thereof and at a position parallel with the side edges thereof, and a pair of horizontally aligned bores disposed thereon at a location offset from a central portion of the bottom edge wherein each bore is positioned in axial alignment with a separate bore on the back panel;

a rigid rectangular planar extension panel having a smooth planar first surface and a smooth planar second surface interconnected by a periphery formed of a long horizontal top edge, a long horizontal bottom edge, and a pair of side edges extended therebetween, a first pair of parallel linear slots formed thereon at a position parallel with the side edges thereof, and a second pair of parallel linear slots formed thereon at a position parallel with and between the first pair of slots and in axial alignment with the pairs of bores of the front panel and back panel, and wherein the extension panel is sandwiched between and in slidable contact with the second surfaces of the side panels and interior surface of the front panel and wherein the rails of the front panel are separately and slidably disposed within the slots of the first pair on the extension panel whereby the extension panel can be extended downward and away from the front panel and the back panel in an extended position and retracted toward the front panel and back panel in a retracted position;

a pair of rigid bolts disposed through the bores of the front panel and back panel and second pair of slots of the extension panel and with each bolt secured with a wing nut to hold the panels in a fixed position when the nuts are tightened and hold the panels in juxtaposition when the nuts are loosened; and

deflector coupling means for pivotally coupling the back panel near the top edge thereof to a bed of a pickup truck at a location near the tailgate whereby the front panel and back panel extend across the bed such that the deflector can be positioned against the tailgate in a stowed configuration or positioned at an angle away from the tailgate in an operable configuration with the side panels and extension panels placed in an extended configuration for use.

5,735,568

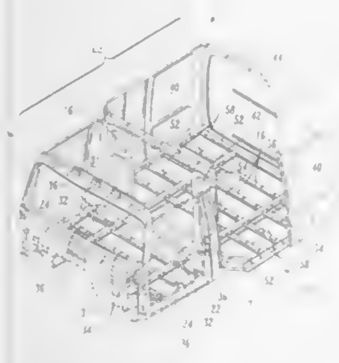
CAB-SLEEPER ASSEMBLY

Wesley Milton Arnold, Kelowna, Canada, assignor to Western Star Trucks, Inc., British Columbia, Canada

Filed Jan. 31, 1997, Ser. No. 792,623

Int. Cl.⁶ B60P *3/32*

U.S. Cl. 296—190 **19 Claims**



1. A unitized cab sleeper assembly for a truck tractor vehicle having a separate chassis frame for mounting the cab sleeper apparatus thereon, the cab sleeper assembly comprising:

(a) a monocoque cab module adapted for mounting to the chassis frame by at least one pair of first mounts, the at least one pair of first mounts positioned in the vicinity of the front end of the cab module;

(b) a monocoque sleeper module coupled to an aft end of the cab module without an intervening flexible section able to absorb relative motion between the cab and sleeper module, except for an optional thin weatherstrip, the sleeper module adapted for mounting to the chassis frame by at least one pair of second mounts, the at least one pair of second mounts positioned about midway along a length of the sleeper module; and

(c) two pairs of couplers coupling the cab module to the sleeper module to form a unitized cab-sleeper module.

5,735,569

STRUCTURE FOR ATTACHING ASSIST GRIP FOR AUTOMOBILE

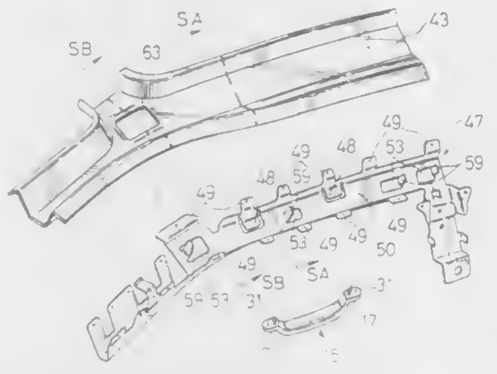
Masahiro Takagi; Masaaki Takagi, both of Fujisawa, and Katsumi Ohata, Zama, all of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed May 17, 1996, Ser. No. 649,532

Claims priority, application Japan, May 18, 1995, 7-119708

Int. Cl.⁶ B62D *25/06*

U.S. Cl. 296—210 **7 Claims**



1. A structure for an automobile comprising:

a roof rail having a shell-like shape which is formed by welding flanges of an outer panel and an inner panel together;

a bracket supported by the inner panel of said roof rail, said bracket having connection portions; and

an assist grip, said assist grip having support portions which are connected to the connection portions of said bracket, the support portions extending through a ceiling member which covers said roof rail and said bracket, and wherein:

said bracket has flange portions at opposite ends thereof so as to be supported by the inner panel, and a projecting portion which projects a predetermined amount toward a main plane of the inner panel, and wherein:

the connection portions are disposed at predetermined intervals, the projecting portion has a plurality of first openings formed by raising tag portions between the connection portions and on the outside of the connection portions, by cutting toward the main plane of the inner panel, and free ends of the tag portions are each positioned to be spaced from the main plane of the inner panel by a predetermined gap.

5,735,570

FOLDABLE CHAIR FRAME

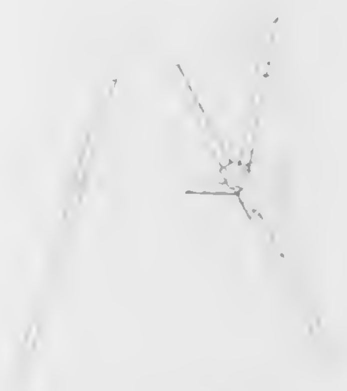
Chuen-Jong Tseng, Chiayi Hsien, Taiwan, assignor to Shin Yen Enterprise Co., Ltd., Taiwan

Filed Jun. 6, 1997, Ser. No. 870,224

Int. Cl.⁶ A47C *1/00*

U.S. Cl. 297—39 **1 Claim**

1. A foldable chair frame comprising:



a back frame portion having a parallel pair of upright posts with lower ends;

a seat frame portion having a parallel pair of horizontal rails with rear ends;

a front support having a parallel pair of front legs, each of which has a lower end adapted to be supported on a ground surface, an upper end, and an intermediate section with a respective one of said rails of said seat frame portion mounted pivotally thereon;

a rear support having a parallel pair of rear legs, each of which has a lower end adapted to be supported on the ground surface, an upper end, and an intermediate portion between said upper and lower ends thereof;

a parallel pair of arm rests disposed on opposite sides of said back frame portion, each of which has a rear end portion mounted pivotally to a respective one of said upright posts of said back frame portion, an intermediate portion with said upper end of a respective one of said rear legs of said rear support mounted pivotally thereon, and a front end portion with said upper end of a respective one of said front legs of said front support mounted pivotally thereon; and

a pair of positioning devices, each of which includes:

- a stationary pivot seat having a parallel pair of first pivot plates, said lower end of a respective one of said posts of said back frame portion and said rear end of a respective one of said rails of said seat frame portion extending between said first pivot plates and being mounted pivotally on said first pivot plates;
- a movable pivot seat having a parallel pair of second pivot plates, each of said second pivot plates having an upper end and a lower end, at least one of said second pivot plates having an outer side formed with a retaining protrusion between said upper and lower ends thereof;
- a first pivot shaft which extends transversely through said upper ends of said second pivot plates of said movable pivot seat and through said first pivot plates of said stationary pivot seat so as to mount pivotally said movable pivot seat on said stationary pivot seat;
- a second pivot shaft which extends through said lower ends of said second pivot plates of said movable pivot seat and a respective one of said rear legs of said rear support so as to mount pivotally the respective one of said rear legs to said movable pivot seat; and
- a retaining sleeve which is sleeved movably on a respective one of said rear legs between an adjacent one of said arm rests and said movable pivot seat, said retaining sleeve being formed with a stop member and being movable along the respective one of said rear legs between a first position, in which said stop member engages one side of said retaining protrusion so as to arrest relative movement between said first and second pivot shafts for retaining said foldable chair frame in an unfolded position, and a second position, in which said stop member is released from said movable pivot seat to permit relative movement between said first and second pivot shafts when said lower ends of said second pivot plates are moved forwardly relative to said upper ends of said second pivot plates to fold said chair frame.

5,735,571

ORTHOPEDIC BEACH AND RELAXING CHAIR

Alexander Vincent Colondona, 1536 Huntington Tpke., Trumbull, Conn. 06611

Filed Mar. 4, 1996, Ser. No. 606,457

Int. Cl.⁶ A47C *1/00*

U.S. Cl. 297—35 **8 Claims**

1. A portable foldable reclining chair comprising:

a back panel for supporting the upper torso having a back panel frame on spaced apart sides thereof, the back panel frame having multiple back cross supports;

a seat panel for supporting the lower torso and lower limbs having a seat panel frame on the spaced apart sides thereof, the seat panel frame having multiple seat cross supports, the seat panel frame attached to the back panel frame by seat frame hinges;

a pair of arm rests for supporting the upper limbs joined to the back panel frame by stationary arm rest pivots;

a pair of spaced apart parallel front legs, having front leg cross supports, pivotally connected to the arm rests by the stationary arm rest pivots in contact with the back panel frame and hingedly coupled to a pair of spaced apart parallel rear legs;

said pair of spaced apart parallel rear legs, having rear leg cross supports and having fixed seat stops positioned to limit the maximum movement of said front legs and said rear legs, fixedly connected to the seat panel frame at a forward portion thereof by mounting angles of a seat adjusting guide assembly on each side slidably adjustable for lowering and raising the level of the chair, said front legs hingedly connected to the outer portion of said rear legs by leg frame hinges forward of the fixed seat stops;

a head rest pivotally mounted at the top of the back panel on a head rest frame having cloth head rest sleeves over foam and connected through a head rest pivot which is rigidly joined to the back cross supports by head rest extension bars passing through a head rest locking clamp and a head rest extension bar guide; and

a foot rest frame having a foot rest sling for supporting the feet pivotally mounted at the bottom of the seat panel and connected through a foot rest pivot which is rigidly joined to the seat cross supports by foot rest extension bars passing through a foot rest locking clamp and foot rest extension bar guides.

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5,735,572

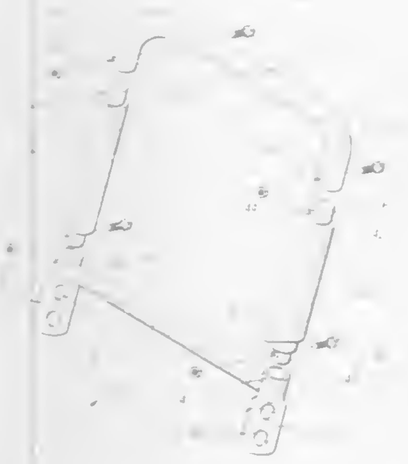
VEHICLE SEAT BACK FRAME AND AIRBAG MODULE ASSEMBLY

David Webster Clark, Troy; Joseph Robert Brown, Grosse Ile, and Marshall Lawrence Quade, Pinckney, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 16, 1997, Ser. No. 786,390

Int. Cl.⁶ B60N 2/42, B60R 21/22

U.S. Cl. 297—216.13 10 Claims



1. A vehicle seat back frame assembly comprising a substantially U-shaped frame assembly defining a structural gap therein axially along the frame assembly and incorporating a side impact airbag module bridging said structural gap as a structural, load-bearing component of the frame assembly, wherein the side impact airbag module forms a continuous, integral portion of said U shape.

5,735,573

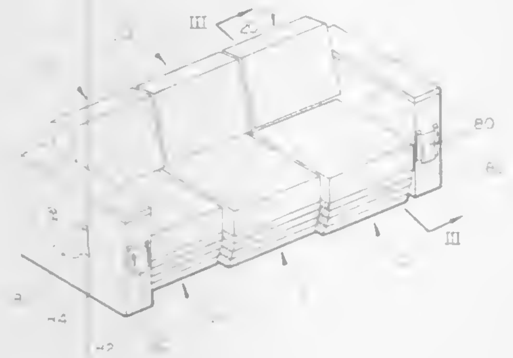
CHAIR WITH POWER SEAT

Jon D. Vredevoogd, 2123 Beacon Hill Rd., Lansing, Mich. 48906-3602

Filed Aug. 20, 1996, Ser. No. 699,771

Int. Cl.⁶ A47C 15/00

U.S. Cl. 297—257 16 Claims



1. An article of furniture comprising:
- a base;
- two armrest pedestals attached to and extending upwardly from opposite ends of the base;
- a power unit mounted on the base; and
- a seat attached to the power unit, the power unit providing selective, independent forward and rearward movement of said seat relative to the base and armrest pedestals, providing independent angular movement about a horizontal axis near a rear of the seat and providing independent angular movement about a horizontal axis near a front of the seat.

5,735,574

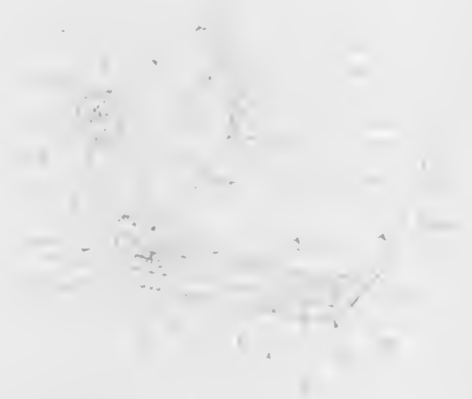
SEAT LUMBAR MOTION CHAIR, ASSEMBLY AND METHOD

Hector Serber, 6 W. Harbor Dr., Sausalito, Calif. 94965

Continuation of Ser. No. 305,026, Sep. 13, 1994, Pat. No. 5,558,399. This application Sep. 24, 1996, Ser. No. 718,998

Int. Cl.⁶ A47C 3/025, 7/46

U.S. Cl. 297—284.4 47 Claims



1. A seat and lumbar motion chair assembly comprising, a back support including a forwardly facing back surface; a back support mounting assembly coupled to said back support and mounting said back support in a stationary position in a generally vertical orientation; a seat having an upwardly facing seat surface; a seat mounting assembly coupled to said seat and mounting said seat in a generally horizontal orientation proximate said back support for guided fore and aft movement of said seat along an upwardly tilting arcuate path having an axis of curvature oriented parallel to said seat surface and to said back surface; a lumbar support; and a lumbar support mounting assembly mounting said lumbar support to proximate a rear of said seat for movement therewith and movably coupling said lumbar support to proximate a mid to full height of said back support for movement of said lumbar support in a manner following said fore and aft movement of said seat, whereby the buttocks and lumbar region of the user seated on said seat can remain supported in substantial contact with said seat and said lumbar support during fore and aft seat and body motion.

5,735,575

ERGONOMIC ANTIFATIGUE SEATING DEVICE AND METHOD

Richard D. Harza, 655 Sheridan Rd., Winnetka, Ill. 60093

Division of Ser. No. 632,770, Apr. 15, 1996, Pat. No. 5,588,704, which is a continuation of Ser. No. 308,621, Sep. 19, 1994, abandoned, which is a continuation of Ser. No. 929,964, Aug. 13, 1992, abandoned. This application Nov. 5, 1996, Ser. No. 743,931

Int. Cl.⁶ A47C 1/00

U.S. Cl. 297—314 6 Claims

1. A method of imparting movement to the hips and lower mid section of a seated person wherein the movement and stimulation simulates that which is imparted to the person through walking, comprising the steps of:
- a) placing a support element which has a left side support and a right side support bracketing a central point so that the support element is under the hips of the seated person with the left side support under the left hip and the right side support under the right hip;
- b) restraining said support element so as to fix a position of said central point while permitting universal movement of said support element about said central point;
- c) pivoting said support element about said central point so as to alternately raise and lower said left and right side supports, thereby alternately lifting one hip of the seated person and then the other hip; and
- d) simultaneously pivoting said support element about said central point so as to alternately rotate said left and right side supports forward and backward, thereby cyclically moving the hips of the seated person forward and backward at the same time that they are being cyclically raised and lowered.

5,735,576

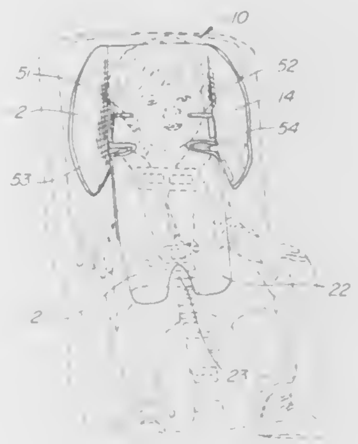
HEAD SUPPORT FOR INFANTS AND TODDLERS

Shirley Pepys, Balboa Island, and Debra L. Dunne, Mission Viejo, both of Calif., assignors to Noel Joanna, Inc., Rancho Santa Margarita

Filed Jun. 18, 1996, Ser. No. 668,097

Int. Cl.⁶ A47C 7/36

U.S. Cl. 297—397 8 Claims



1. An adjustable head support for use with a child ranging in size from a small infant to a large toddler, said support comprising:
- a soft pliable body structure having a pair of flanking wing portions joined to an upper region of a compound central portion, said compound central portion including a lower region and a region intermediate said upper region and said lower region, said intermediate region including a pair of opposing flap sections having upper and lower edges forming gaps with the lower and upper edges of said upper and lower regions of said central portion, respectively, in order to provide safety belt apertures; and
- a plurality of complementary fastener elements arranged along a lower periphery of said wing portions and an outer perimeter of said intermediate and said lower regions of said central portion to permit adjustment of the relative positions of said wing portions and said central portion.

5,735,577

ADJUSTING MECHANISM FOR USE ON THE ARMREST OF A VEHICLE'S SEAT

Kuan-Jen Lin, Chia-Yi, Taiwan, assignor to Gentle Pao Industry Co., Ltd., Chia-Yi, Taiwan

Filed Dec. 23, 1996, Ser. No. 771,926

Int. Cl.⁶ A47C 7/54

U.S. Cl. 297—411.36 1 Claim

1. An improved adjusting mechanism having an arm rest for a vehicle seat for varying the height of the armrest, comprising:
- an adjusting bracket having a hollow interior having a rectangular groove on one side; at the center of said groove being disposed a first elliptic through hole, a curve faced block being disposed on one edge of said groove, adjacent said elliptic through hole, a shaft mounting hole being located next to said block,
- a cover removably secured to said groove-sided face of said adjusting bracket having a hole defined in alignment with said shaft mounting hole of said adjusting bracket, and a second elliptic through hole being located adjacent said shaft mounting,
- a slide board slidably engaged in said adjusting bracket having a lengthwise opening defined thereon, said opening having a dentate portion provided with a plurality of dents on one side of said opening; a protruded abutment shoulder being defined at a first end of said dentate portion and an extended limiting member being secured to a second end of said dentate portion,
- a locking pole slidably engaged respectively in said first and second elliptic through hole of said adjusting bracket and said cover and extending through said opening of said slide board, said locking pole being slidably engaged through said second elliptic hole of said cover by a screw,
- a shaft having a first end fixed in said mounting hole of said adjusting bracket and a second end position in said hole on said cover,
- a retaining ratchet pivotally mounted onto said shaft having a retaining portion and a curved sliding portion,
- a bias spring mounted onto said shaft and disposed above said retaining ratchet being engaged with said retaining ratchet at a first hooked end and being in abutment with said curve faced block at a second end so as to make said ratchet retractable,
- said retaining ratchet being in limited engagement with said dentate portion of said slide board so as to permit said adjustment mechanism to move only in one direction during adjustment of the armrest thereon,
- wherein when said adjustment mechanism is pulled to a top limit, said locking pole is brought down to a lower end of said first elliptic hole of said adjusting bracket by said abutment shoulder of said slide board urging said spring biased retaining ratchet out of limited engagement with said dentate portion so as to permit said adjusting bracket to be upwardly adjusted when said adjusting bracket is moved to a bottom limit of said slide board, wherein said extended limiting member of said slide board abuts against said locking pole which has been retained against said curved sliding portion of said ratchet making said locking pole separate from said ratchet so as to permit the ratchet to resume limited engagement with said dentate portion and permit adjustment of said armrest as said armrest is pulled upward.

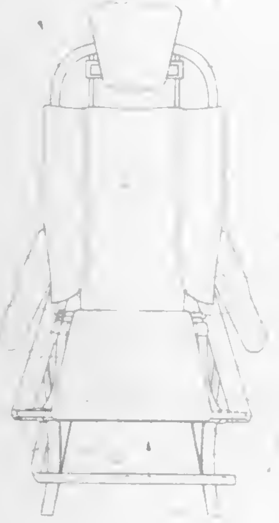
5,735,578
QUICK REPLACEMENT SEAT BOTTOM DIAPHRAGM

James Randall Penley, Pfafftown, N.C., assignor to Burns Aerospace Corporation, Winston-Salem, N.C.

Filed Mar. 27, 1995, Ser. No. 410,777

Int. Cl.^{6} A47C *7/00*

U.S. Cl. 297—440.11 **12 Claims**



1. A passenger seat with a quick replacement seat bottom diaphragm, comprising:

(a) a seat frame assembly, including legs for securing the seat to a deck of a vehicle, and a seat bottom frame and a seat back frame carried by said legs in vertically-spaced relation to the deck, said seat bottom frame including first and second laterally-spaced seat bottom frame members extending in a forwardly direction from the seat back frame;

(b) a seat bottom diaphragm assembly for attachment to said seat bottom frame for supporting a seat bottom cushion, said seat bottom diaphragm assembly comprising:

(1) fore and aft brackets carried by each of said first and second seat bottom frame members;

(2) fore and aft diaphragm stretcher bars extending laterally across the seat bottom frame members for being locked into said fore and aft brackets of said first and second seat bottom frame members;

(3) a seat bottom diaphragm having fore and aft attachment members for being quickly attached to and detached from respective fore and aft stretcher bars, said seat bottom diaphragm having an untensioned fore to aft dimension when not attached to said stretcher bars which is less than the distance between the fore and aft stretcher bars, and a tensioned fore to aft dimension when attached to said stretcher bars sufficient to provide adequate seat bottom support for the seat occupant.

5,735,579
BRAKE ASSURANCE MODULE

James A. Wood, Spartanburg, and Richard J. Mazur, Greer, both of S.C., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

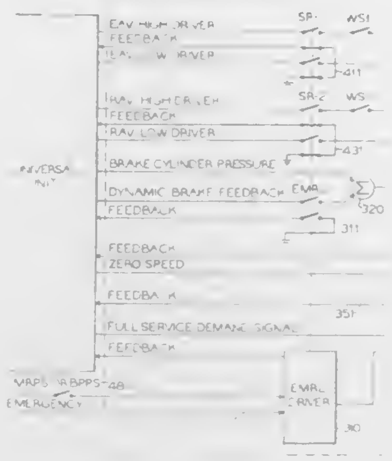
Filed Jan. 28, 1997, Ser. No. 789,919

Int. Cl.^{6} B60T *13/00*

U.S. Cl. 303—7 **21 Claims**

1. A brake assurance module for use with a brake control system for assuring application of the brakes of at least one truck of a rail vehicle, said brake assurance module comprising:

(a) a summing circuit for receiving a signal indicative of friction braking effort on a first feed line and a signal indicative of dynamic braking effort on a second feed line and for summing said friction and said dynamic braking effort signals into a total braking effort signal.



(b) a level detector circuit for generating a threshold signal when said total braking effort signal received from said summing circuit exceeds a predetermined threshold.

(c) a delay circuit which upon receiving said threshold signal from said level detector circuit throughout a preset time period generates a level signal;

(d) an emergency relay driver for controlling a first emergency contact in series within said second feed line such that upon receiving an emergency signal from said brake control system said emergency relay driver conveys an emergency detect signal and opens said first emergency contact thereby preventing said dynamic braking effort signal from being received by said summing circuit.

(e) a valve relay driver for controlling a first set of solenoid relay contacts each of which is in series within a control line used to energize a magnet valve whose operation is normally controlled by said brake control system, said valve relay driver when activated closes said solenoid contacts thereby permitting said brake control system to control said magnet valves and when deactivated opens said solenoid contacts thereby preventing said brake control system from controlling said magnet valves; and

(f) a timer circuit having a set input, a trigger input and a reset input such that said timer circuit activates said valve relay driver upon said set input receiving an indication that both said level signal and a zero speed signal occur simultaneously thereby placing said brake assurance module in a standby mode of operation during which said timer circuit monitors said trigger input for said emergency detect signal in response to which said timer circuit becomes enabled such that if said timer circuit receives at said reset input said level signal within a predetermined time period then said timer circuit resets thereby keeping said brake assurance module in said standby mode else said timer circuit deactivates said valve relay driver thereby placing said brake assurance module in an intervention mode of operation.

5,735,580
RAIL CAR LOAD SENSOR

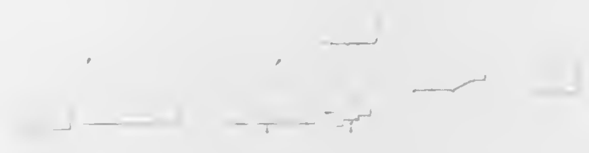
Douglas D. Klink, Weatherby Lake, Mo., assignor to Technical Services and Marketing Inc., Kansas City, Mo.

Continuation-in-part of Ser. No. 559,630, Nov. 20, 1995, Pat. No. 5,603,556. This application Jan. 31, 1997, Ser. No. 791,602

Int. Cl.^{6} B60T *13/24*

U.S. Cl. 303—22.6 **18 Claims**

1. A rail car load sensor for adjusting the operation of a brake system of a rail car traveling on a rail in accordance with the amount of load in the rail car, the rail car including a first component that moves relative to the rail in accordance with the load in the rail car and a second component that remains in a



relatively fixed position relative to the rail regardless of the load in the rail car, said rail car load sensor comprising:

sensor means for sensing the distance between said first component and said second component of said rail car, said sensor means including generating means for generating and directing a transmitted signal towards said second component and receiving means for receiving a reflected signal from said second component; and

control means responsive to said sensor means for generating distance signals representative of the distance between said first component and said second component for use in adjusting the braking force of the rail car brake system in accordance with the amount of load in said rail car.

5,735,581
VALVE ASSEMBLY FOR CONTROLLING A PNEUMATIC BRAKE BOOSTER WITH AN ELECTROMAGNETIC ACTUATION MEANS

Kurt Mohr, Halsenbach-Ehr, Germany, assignor to Lucas Industries public, Solihull, United Kingdom

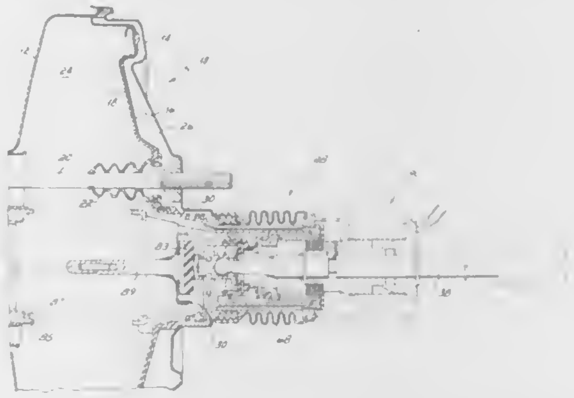
PCT No. PCT/EP95/00954, § 371 Date Sep. 12, 1996, § 102(e) Date Sep. 12, 1996, PCT Pub. No. WO95/26289, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 14, 1996, Ser. No. 704,662

Claims priority, application Germany, Mar. 28, 1994, 44 10 769.2

Int. Cl.^{6} B60T *13/66; 13/57;* **F15B** *9/12, 13/044*

U.S. Cl. 303—114.3 **6 Claims**



1. A valve assembly for controlling a pneumatic brake booster (**10**) with a control housing (**30**) in which a first and a second valve seat (**32**, **34**) are arranged, and with a valve body (**40**) which can contact one of the two valve seats (**32**, **34**) and which

in one position of an actuation member (**38**) is lifted off the first valve seat (**32**) only, whereby two chambers (**24**, **26**) of the brake booster (**10**) are connected with each other and are both separated from an air inlet (**50**), and

in another position of the actuation member (**38**) is lifted off the second valve seat (**34**), whereby the two chambers (**24**, **26**) are separated from each other and one of them is connected with the air inlet (**50**), and with

an additional valve (**30**, **116**) with an annular third valve seat (**66**) which is arranged outside of the control housing (**30**), and a sleeve (**72**) which encompasses the control housing (**30**) at a radial distance and is axially movable with respect to same and which is biased in the direction of the third valve seat (**66**) and forms an additional ventilation duct (**80**) to one of the two chambers, characterized in that

the sleeve (**72**) is movable by means of an electromagnetic actuation means (**90**) for opening of the third valve seat (**66**).

5,735,582
ELECTROMAGNETICALLY CONTROLLABLE VALVE ARRANGEMENT

Hubert Eith; Helmut Staib, both of Schwieberdingen; Michael Friedow, Tamm; Martin Scheffel, Vaihingen/Enz; Jurgen Lander, Stuttgart; Gerhard Stokmaier, Markgrningen, and Hans-Friedrich Schwarz, Muhlacker, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

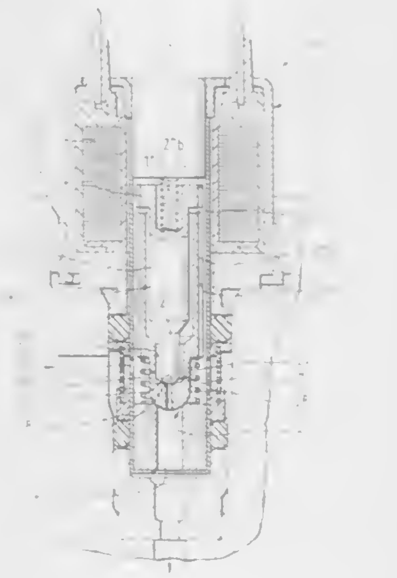
PCT No. PCT/DE95/01561, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO96/15926, PCT Pub. Date May 30, 1996

PCT Filed Nov. 11, 1995, Ser. No. 682,598

Claims priority, application Germany, Nov. 24, 1994, 44 41 791.8; Sep. 9, 1995, 195 33 400.0

Int. Cl.^{6} B60T *8/36*

U.S. Cl. 303—119.2 **12 Claims**



1. A valve assembly, comprising a housing, a master valve having a master valve seat and a master valve closing element, an auxiliary valve having an auxiliary valve seat and an auxiliary valve closing element, a control opening originating at the auxiliary valve seat and passing through the master valve closing element, a spring pre-loading the auxiliary valve closing element to a closed position, a first movable magnetically operative armature for moving the auxiliary valve closing element away from the auxiliary valve seat under influence of an electromagnet, said assembly having a second movable magnetically operative armature which is freely movable relative to the first magnetically operative movable armature of the auxiliary valve closing element, the second movable magnetically operative armature (17, 17*a*, 17*b*, 17*c*, 17*d*) is disposed so as to surround the first movable armature (18, 18*a*, 18*b*, 18*c*) of the auxiliary valve closing element (10) over at least a portion of its length, said second magnetically operative armature being rigidly joined to the master valve closing element (6) and the first and second armatures (17, 17*a*, 17*b*, 17*c*, 17*d*, 18, 18*a*, 18*b*, 18*c*) are provided a single pole core (14) which is disposed immovably in the electromagnet (12).

5,735,583
DEVICE FOR DETECTING FAILURE OF MICROCOMPUTER IN ANTILOCK CONTROLLER

Yoshio Katayama; Kazumi Yasuzumi, and Masahiro Sakaguchi, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

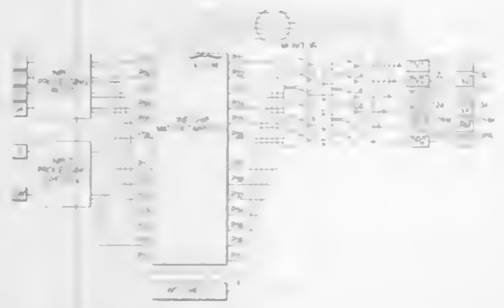
PCT No. PCT/JP94/01553, § 371 Date May 17, 1995, § 102(e) Date May 17, 1995, PCT Pub. No. WO95/08464, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 21, 1994, Ser. No. 436,235

Claims priority, application Japan, Sep. 21, 1993, 5-234922

Int. Cl.^{6} B60T *8/96*

U.S. Cl. 303—122.05 **16 Claims**



1. An antilock controller comprising:

wheel speed detecting means for producing wheel speed signals, means for splitting each of said wheel speed signals into two identical split signals; and

a single control logic operation circuit including, a single central processing unit; at least two input terminals through which said split signals are separately inputted in said logic operation circuit; a first variable storage means for receiving one of said two split signals; a second variable storage means for receiving the other of said two split signals; a first processing program defining a means for controlling said central processing unit to process said one of said two split signals to determine a first output; a second processing program defining a means which is identical to and separate from said first processing program for controlling said central processing unit to process said split signal to determine a second output; at least two output terminals through which said first and second outputs are separately outputted; an output determining logic circuit for processing said first and second outputs and determining an output signal for driving solenoid valves, relays and other driven elements, and an output abnormality detection circuit for determining whether the output signal is normal by comparing and calculating the signals processed by said output determining logic circuit

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5,735,584
PROCESS FOR DRIVING STABILITY CONTROL WITH CONTROL VIA PRESSURE GRADIENTS

Alfred Eckert, Bodenheim, Germany, assignor to ITT Automotive Europe GmbH, Frankfurt am Main, Germany

Division of Ser. No. 475,389, Jun. 7, 1995. This application Jun. 7, 1995, Ser. No. 473,708

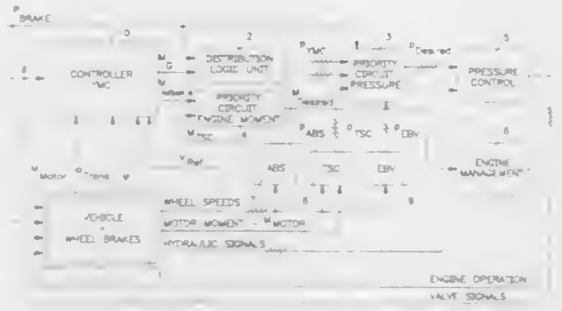
Claims priority, application Germany, Nov. 25, 1994, 44 41 956.2

Int. Cl.^{6} B60T *8/58*

U.S. Cl. 303—140 **26 Claims**

1. In a yaw control system of a vehicle having a plurality of wheel brakes, a method for determining pressure adjustments for the brakes, individually, and applying the pressure adjustments to adjust a yawing moment that is applied to the vehicle by the brakes, comprising the steps of:

(1) detecting a condition in which an increase in the brake pressure applied to a first one of the brakes is required to apply the yawing moment to the vehicle while a driver of the vehicle is actuating the brakes to apply a first braking force to the vehicle;



(2) determining a reduction in pressure that is applied to a second one of the brakes, such that a total braking force applied to the vehicle does not exceed the first braking force when the pressure applied to the first brake is increased, and

(3) reducing pressure in the second brake before initiating the increase in the pressure applied to the first brake

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5,735,585
BRAKE CONTROL APPARATUS CAPABLE OF TRACTION CONTROL OF VEHICLE DRIVE WHEEL AND HAVING DEVICE FOR REDUCING DELIVERY PRESSURE OF PUMP DURING THE TRACTION CONTROL

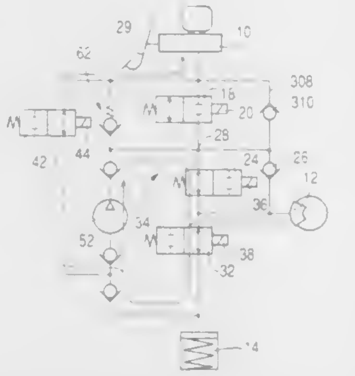
Shin Koike, and Yoshihisa Nomura, both of Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 508,454, Jul. 28, 1995, abandoned. This application Jun. 20, 1997, Ser. No. 879,652

Claims priority, application Japan, Jul. 29, 1994, 6-178298; Jun. 22, 1995, 7-156010

Int. Cl.^{6} B60T *8/58*

U.S. Cl. 303—145 **35 Claims**



1. An apparatus for controlling a brake for a drive wheel of a motor vehicle, said apparatus comprising

a low-pressure source;

a pump for pressurizing a working fluid received from said source;

a valve device having at least a pressure increase state for permitting the fluid pressurized by said pump to be fed into a wheel brake cylinder for braking said drive wheel so as to increase a pressure of the fluid in said wheel brake cylinder, and a pressure decrease state for permitting the fluid to be discharged from said wheel brake cylinder into said low-pressure source so as to decrease the pressure of the fluid in said wheel brake cylinder;

a traction controller for effecting a traction control by selectively placing said valve device in at least said pressure increase state and said pressure decrease state, to control the pressure of the fluid in said wheel brake cylinder thereby controlling a drive force of said drive wheel so that an amount of slip of the drive wheel is held within a predetermined range;

a pump delivery saving device including at least one electrically controlled valve which is operated during said traction control for reducing a delivery pressure of said pump while said pump is operated in at least a portion of a time period during which said valve device is placed in a state other than said pressure increase state; and

enabling and disabling means for enabling and disabling said pump delivery saving device to reduce said delivery pressure of said pump, depending upon fluid temperature information relating to a rise of a temperature of said working fluid

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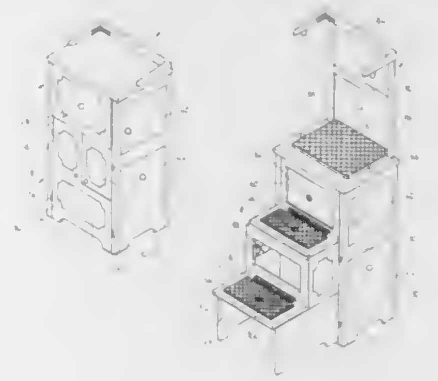
5,735,586
CABINET STRUCTURE THAT IS EXPANDABLE INTO PLATFORM LADDER

Nan-Shan Cheng, 7F-2, No. 24-3, Nung-An Street, Taipei, Taiwan

Filed Apr. 3, 1997, Ser. No. 832,450

Int. Cl.^{6} A47B *83/00*

U.S. Cl. 312—235.1 **20 Claims**



1. A cabinet comprising a frame having a top side covered by a top wall and a bottom side, a front side and a rear side and two opposite lateral sides, the frame having an upper portion within which a drawer is received and a lower portion which defines a bin, the drawer comprising a drawer front panel comprised of four boards foldable to overlap each other and releasably secured together in the overlapping condition with a first securing means, the bin portion comprising two L-shaped door panels arranged to be opposite to each other and respectively hinged to the lateral sides to be rotatable between a closed position where the L-shaped door panels cover the front side of the bin portion of the cabinet frame with lower sections of the L's overlapping each other and an expanded position where the L-shaped door panels are rotated away from the cabinet frame to be substantially parallel with and spaced from each other and thus defining a stair-like configuration having two steps, wherein the boards of the drawer front panel are released and expanded to have alternate ones of the boards supported on the two steps of the L-shaped door panels to serve as treads of the stair-like configuration and the remaining boards serving as risers of the stair-like configuration so as to form a platform ladder with the top wall of the cabinet serving as platform of the platform ladder, a second securing means being provided to releasably secure the boards in the expanded condition which defines the platform ladder

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5,735,587
CLIMATIC CABINET, TURNTABLE AND USE OF THE TURNTABLE

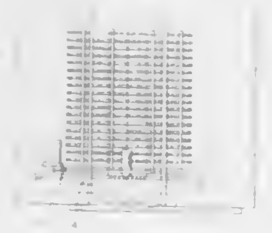
Cosmas Malin, Mauren; Harry Sawatzki, Schaan, both of Liechtenstein; Jurg Gentsch, Oberwil, Switzerland, and Gunter Helwig, Hanau, Germany, assignors to Liconic AG, Fürstentum, Liechtenstein, and Heraeus Instruments GmbH, Hanau, Germany

Filed Feb. 5, 1996, Ser. No. 597,894

Claims priority, application Switzerland, Feb. 6, 1995, 00328/95; European Pat. Off., Sep. 4, 1995, 95113833

Int. Cl.^{6} A47F *3/11*

U.S. Cl. 312—305 **9 Claims**



2. A climatic cabinet including an interior work chamber (11) with access for a user thereto on a user side (31) and with access for an automatic system thereto on a loading side (21), comprising

(a) a conventional door (3) accessing the work chamber on the user side;

(b) a controllable door (2) accessing the work chamber on the loading side, the controllable door being mounted to the cabinet by

a first guidance system (6) including means for moving the controllable door perpendicularly to the loading side, and by

a second guidance system (7) including means for moving the controllable door parallel to the loading side,

(c) a turntable (4) rotatably supported on a bearing (13) disposed on a floor of the work chamber, the turntable further comprising

a support shaft (45),

a plurality of tray disks (41), and

at least three spacer sleeves (47), and wherein

the support shaft and the spacer sleeves are disposed perpendicularly to the tray disks,

the tray disks including respective tray surfaces including positioning elements (51) arising therefrom,

(d) a positioning drive (5);

means for controlling the positioning drive by both the user and the automatic system, and

(e) a coupling (9) between the turntable (4) and the positioning drive (5), the coupling and the positioning drive being disposed inside the work chamber

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5,735,588

PREPARATION DEVICE FOR HOT-MELT ADHESIVES

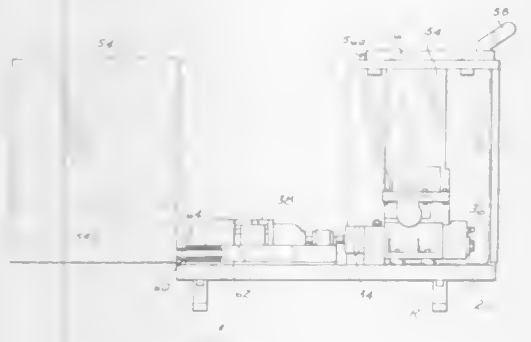
Ralf Dittman, Melbeck, and Matthias Bahr, Luneburg, both of Germany, assignors to Nordson Corporation, Westlake, Ohio

Filed Oct. 10, 1996, Ser. No. 727,995

Claims priority, application Germany, Oct. 11, 1995, 29516126 U

Int. Cl.⁶ A47B *88/00*

U.S. Cl. 312—330.1 9 Claims



1. A preparation device for hot melt adhesive for subsequent application of the hot melt adhesive to a substrate, comprising:

at least two operational components (30, 40) mounted on a common base (20);

a housing (50) attached to the base (20) and enclosing the operational components (30, 40), the housing (50) including a movable housing section (54) movable back and forth in a horizontal plane with respect to at least one of the base (20) and the housing (50), between a closed housing position wherein the operational components are concealed and an open housing position wherein at least one of the operational components is at least partially exposed (30, 40); and

a motion-guiding device (60) operatively connected to the movable housing section (54) and to one of the base (20) and the rest of the housing (50) thereby to permit movement of the movable housing section (54).

5,735,589

SLIDING REFRIGERATOR SHELF ASSEMBLY

Robert S. Herrmann, Grand Haven, and Edmund J. Kane, Holland, both of Mich., assignors to Donnelly Technology, Inc., Holland, Mich.

Continuation of Ser. No. 236,629, Apr. 29, 1994, abandoned. This application Dec. 12, 1995, Ser. No. 571,124

Int. Cl.⁶ F25D *11/00*

U.S. Cl. 312—408 41 Claims

1. A shelf assembly for a refrigerated compartment comprising:

a shelf support including a pair of spaced, generally horizontal, generally parallel, shelf support surfaces, a guide surface on each shelf support surface extending at an angle to said shelf support surface, an undersurface beneath each shelf support surface, and at least one mounting member adapted to mount said shelf support in a refrigerated compartment;

a shelf member slidably mounted for extension and retraction on said shelf support, said shelf member including an article support surface and a pair of spaced side members, said side members being molded in one piece on said article support surface from a moldable material and extending along opposite sides of said article support surface, each side member including a slide surface slidably engaging one of said shelf support surfaces, at least one of said side members having a depending guide member adjacent said slide surface to guide sliding movement of said shelf member, said one guide member including a stop thereon, said guide member extending along said guide surface to limit lateral movement of said shelf member with respect to said shelf support, said guide member also including a laterally extending, lift restraining member, said lift restraining member extending under and immediately adjacent said shelf support undersurface and adapted to engage said undersurface in the event said shelf member is lifted to restrict vertical movement of said shelf member with respect to said shelf support; and

said shelf support also including an elongated opening for receiving and allowing movement of said stop when said shelf member is slidably extended or retracted, and at least one limit surface for engaging said stop member to limit at least one of the extension or retraction of said shelf member.

5,735,590

BACKLIGHTING DEVICE WITH A TRANSPARENT SHEET HAVING STRAIGHT RIDGES

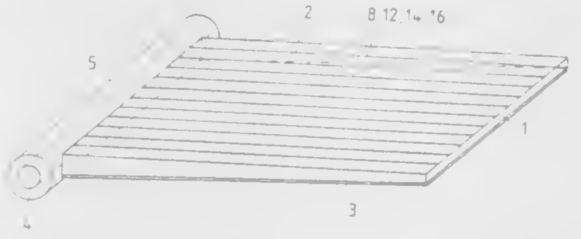
Keiji Kashima, Saitama; Naoki Yoshida, Kanagawa; Taiji Yamamoto, Kanagawa, and Yukio Inagaki, Kanagawa, all of Japan, assignors to Tosoh Corporation, Yamaguchi, Japan

Filed Mar. 1, 1995, Ser. No. 396,529

Claims priority, application Japan, Mar. 2, 1994, 6-032179; Apr. 25, 1994, 6-086222

Int. Cl.⁶ F21V *8/00*

U.S. Cl. 362—31 11 Claims



1. A backlighting device comprising:

at least one linear light source;

a light conducting plate made of a transparent material and having a side face adjacent to the light source, a thickness of the light conducting plate decreasing as a position goes away from the light source;

light diffusing elements formed on a major surface of the light conducting plate opposite to a light exit surface thereof; and

at least one sheet made of a transparent material having, on a same surface thereof, at least one of a number of prisms and protrusions having straight ridges that are arranged substantially parallel with each other at small intervals, the sheet being disposed on a side of the light exit surface of the light conducting plate so that extensions of the straight ridges are substantially perpendicular to a central, longitudinal axis of the light source.

5,735,591

HEADLIGHT-LIGHT UNIT FOR VEHICLE

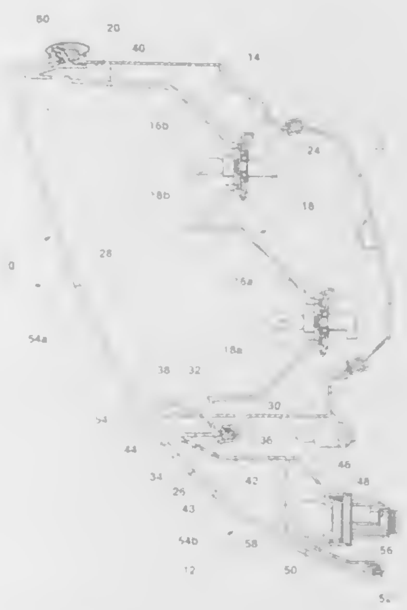
Heinz Ruckwied, Kusterdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 12, 1996, Ser. No. 599,649

Claims priority, application Germany, Mar. 4, 1995, 195 07 585.4

Int. Cl.⁶ B60Q *1/04*

U.S. Cl. 362—61 6 Claims



1. A headlight-light unit for a vehicle, comprising a headlight having a headlight housing with a headlight outlet opening, a light adjoining said headlight and having a light housing with a light outlet opening, and a single cover element having a first portion which covers said headlight outlet opening so as to form a headlight cover member, and a second portion which covers said light outlet opening and forms a light cover member, a frame-like element connecting said cover element with said headlight housing and having a portion which extends outwardly of said headlight housing and forms said light housing, said frame-like element having a circumferential flange, said cover element having a circumferential edge received in said circumferential flange.

5,735,592

PEN SELF-ILLUMINATING WHEN BEING USED

Chih-hsien Shu, No. 29, Lane 58, Sec. 1, Lihsing Rd., Sanchung City, Taipei Hsien, Taiwan

Filed Oct. 29, 1996, Ser. No. 739,425

Int. Cl.⁶ B43K *29/10*

U.S. Cl. 362—118 7 Claims

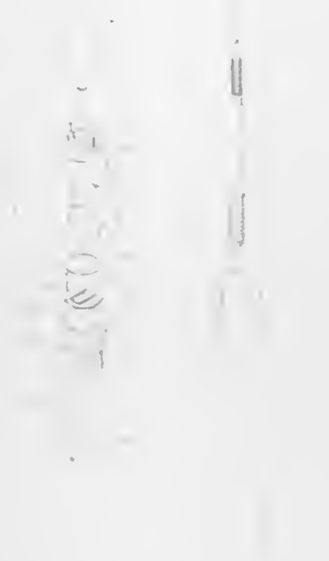
1. A pen self-illuminating when being used comprising:

a barrel;

an ink reservoir having a pair of opposed ears extending from a middle portion thereof and a first spring mounted on the ears;

a clip disposed on the barrel, said clip having a collar on a top thereof and defining a first hole in the collar for the ink reservoir to extend therethrough; and

a switch member disposed on the collar of the clip, said switch member including a cover, a mercury battery, a conducting strip, a spacer and a lamp, said cover having an electropad and a terminal thereon, said electropad being connected with one electrode of the mercury battery, said lamp being connected between the electropad and the terminal, said spacer being disposed between the mercury battery and the conducting strip, said conducting strip defining a central opening therein, an elastic strip extending from a portion of periphery thereof defining the central opening to be retained [illegible] top end of the ink reservoir and a contact strip extending upwardly from a periphery thereof to be [illegible] with the terminal on the cover.



5,735,593

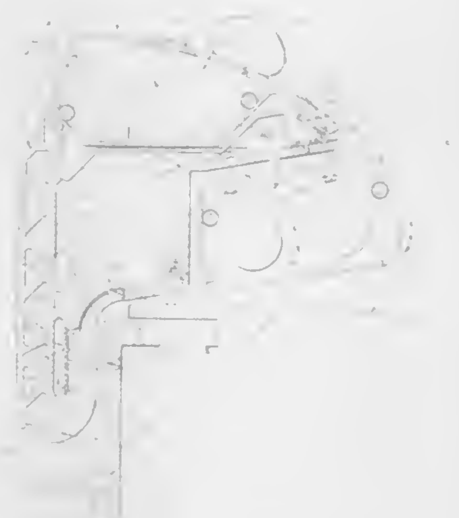
LIGHT FIXTURE APPARATUS FOR A HOSPITAL ROOM

Dennis J. Gallant, Harrison, Ohio; Dale A. Nobbe, Oldenburg, Ind.; John D. Vogel, Columbus, Ind., and Edward W. Catton, New Palestine, Ind., assignors to Hill-Rom, Inc., Batesville, Ind.

Filed Aug. 29, 1996, Ser. No. 705,214

Int. Cl.⁶ F21S *8/00*; F21V *33/00*

U.S. Cl. 362—147 18 Claims



1. A light fixture apparatus [illegible] to a wall of a room, the apparatus comprising:

a unitary support frame including first and second support walls configured to be mounted generally parallel to the wall of the room and a web interconnecting the first and second support walls and including a track on one of the support walls;

a light box coupled to the support frame above the track, the light box including a light source; and

a mounting block configured to mate with and be coupled to the track of the support frame, the mounting block being adapted to receive an accessory [illegible] couple the accessory item to the support frame.

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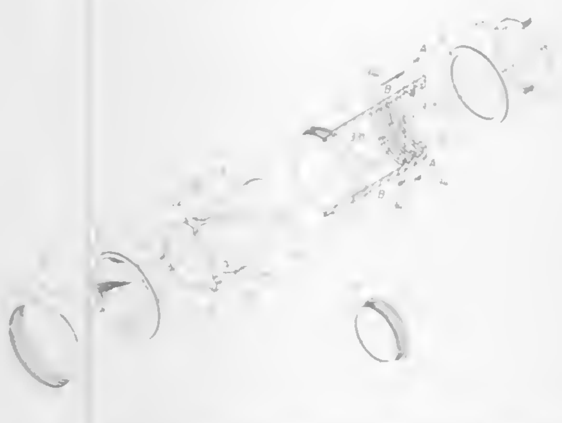
5,735,594
FLASHLIGHT

James Own, 5Fl., No. 12, Lane 240, Jien Shan Rd., Yin-Ko Chen, Taipei Hsien, Taiwan

Filed Dec. 30, 1996, Ser. No. 774,439

Int. Cl.^{6} F21L *11/00*

U.S. Cl. 362—202 **4 Claims**



1. A flashlight comprising a telescopic assembly for shade and a positioning assembly for a waterproof switch socket, the telescopic assembly including
   a) a headlight housing of tubular configuration including a front end having at least one projected tab, a rear end having an inner threaded portion, and at least one spiral groove extending lengthwise along an outer wall of the housing with at least one retaining slot at one end of the spiral groove;
   b) a flashlight barrel of tubular configuration including a front end and a rear end, an outer threaded portion at the front end of said barrel releasably engaging with the inner threaded portion of the housing, a pair of stepped chambers, a push button hole disposed at one of the stepped chambers, and a cover removably engaging with the rear end of the barrel; and
   c) a transparent hollow tubular shade for slidably receiving the headlight housing therein, the shade including a front end and a rear end, an outer threaded portion at the front end of the shade attaching a shade cover to retain a reflective mask, a plurality of spaced circumferential ribs within the rear end of the shade, the ribs collectively defining a pair of grooves therebetween, said grooves respectively receiving a gasket and a rubber ring, a first rib of the spaced circumferential ribs having at least one cutout formed therein and engaged by the projected tab of the housing, and a second rib of the spaced circumferential ribs having a boss thereon and slidably engaging along the spiral groove of the housing permitting the housing to be retracted within and extended from the shade upon rotation of the shade

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5,735,595
LOW PRESSURE RARE GAS DISCHARGE LAMP SIGNALLING SYSTEM

Paulus Q. J. Nederpel, and Antonius J. M. Van Hees, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

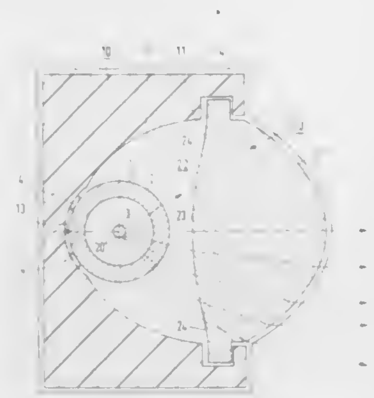
Filed Oct. 6, 1995, Ser. No. 539,920

Claims priority, application European Pat. Off., Oct. 26, 1994, 94203103

Int. Cl.^{6} F21S *3/00*, B60Q *1/00, 1/26*, F21K *27/00*

U.S. Cl. 362—223 **13 Claims**

1. A signalling system, comprising
   a low-pressure rare gas discharge lamp with a tubular lamp vessel whose end portions each accommodate a respective electrode, said electrodes defining a lamp axis on which gas discharge is maintained during lamp operation,
   a housing provided with a light emission window and with light-reflecting means, in which housing the low pressure rare gas discharge lamp is accommodated, said housing having an elongate niche opposite the light emission window, in which the lamp is partly recessed,
   said light reflecting means for reflecting light, said light-reflecting means being comprised by an inner reflective surface of said housing; and
   an elongate converging lens having a focal line which substantially coincides with the lamp axis and closes off the light emission window,
   wherein the inner surface of the housing is diffusely reflecting.



5,735,596
HEADLAMP FOR VEHICLES

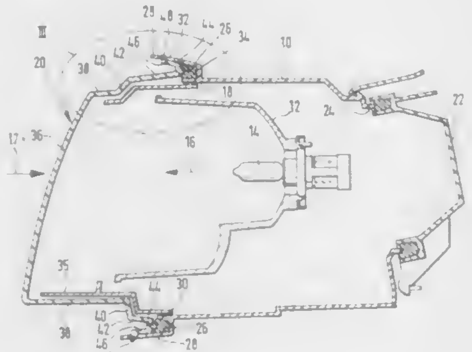
Hans Daumueller, Bodelshausen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Nov. 7, 1995, Ser. No. 551,853

Claims priority, application Germany, Dec. 8, 1994, 44 43 682.3

Int. Cl.^{6} F21V *31/02*

U.S. Cl. 362—267 **11 Claims**



1. A headlamp for vehicles, comprising a housing having a light exit opening; a transparent cover having at least one latching element for latching on a part of said housing, at least one of said latching element and said part of said housing being elastically deformable with respect to an assembly direction of said cover, said cover having a surrounding edge region bearing at least indirectly against said housing, said cover also having an outer edge which surrounds said edge region with clearance at least over a part of a circumference of said cover, said outer edge having a free end which points counter to the assembly direction and serves as said latching element, said outer edge being formed over the entire circumference of said cover.

5,735,597
DECORATIVE LAMP STRUCTURE

Ting-Hung Weng, P.O. Box 96-405, Taipei 10098, China

Filed Oct. 29, 1996, Ser. No. 739,459

Int. Cl.^{6} F21V *27/00*

U.S. Cl. 362—267 **3 Claims**

1. A decorative lamp structure comprising an outer socket having a rectangular positioning channel therein, a connecting sleeve having a bulb socket with two small slots, two outer surfaces and two bevel surfaces, a bulb having two separate filaments, a rectangular fixing member having a suitable taper outer surface, two power wires and two copper plates, said bulb plugged into said bulb socket of said connecting sleeve, said separate filaments of said bulb being pulled out through two filament guide slots in a bottom of the bulb socket and said two small slots and being laid on said two outer surfaces through said two bevel surfaces respectively, a socket opening in said outer socket plugged with said connecting sleeve, an end surface of one end of said outer socket being provided with a bevel surface; both sides of said rectangular positioning channel being provided with two copper plate channels, respectively formed in the outer socket for receiving said two copper plates on said two power wires, respectively, so as to mount said copper plates in place, a bottom of said positioning channel provided with a wire guide hole having two semi-circular slots formed in said outer socket respectively; both sides of the fixing member provided with two semi-circular slots, said two copper plates plugged into said two copper plate channels, said two power wires being positioned in said two semi-circular slots, respectively of said guide hole, after said fixing member pushing and inserting into said bottom of said positioning channel of said outer socket, said two semi-circular slots of said fixing member being in close contact with outer surfaces of said power wires, respectively with said fixing member in close and tight contact with said guide hole, and said power wires fastened in said semi-circular slots of said fixing member and said semi-circular slots of said guide hole without having rain water infiltrated into said outer socket

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5,735,598
SURGICAL LIGHT HANDLE COVER

Bruno J. Ramirez, Simi Valley, Calif., assignor to Graphic Controls Corporation, Buffalo, N.Y.

Continuation of Ser. No. 491,394, Jun. 19, 1995, abandoned. This application Feb. 16, 1996, Ser. No. 603,011

Int. Cl.^{6} F21L *15/12*

U.S. Cl. 362—400 **9 Claims**

1. A handle set for a surgical lighting fixture, comprising a first handle and a second handle, each comprising
   a handle portion having a closed lower end,
   central shield portion attached to the handle portion and having an upper and lower face,
   a pair of outboard shield sections attached to the central shield section by hinge joints so that the outboard shield sections may be folded against said handle portion
   an indentation in the lower end of the handle; and
   a plurality of projecting tabs disposed on the lower face of the shield
   wherein the projecting tabs of the first handle are adapted to frictionally engage the indentation of the second handle and the projecting tabs of the second handle are adapted to simultaneously engage the indentation of the first handle so as to removably secure the first and second handles together

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5,735,599
SCREW FOR MOLDING MACHINE THAT PREVENTS A WRAPPING PHENOMENON

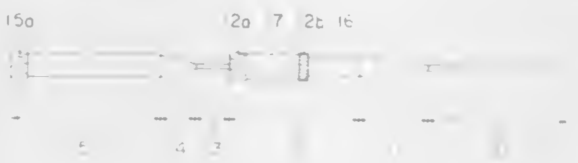
Junya Ishibashi, Numazu; Yoshiharu Uchida, Tagata-gun; Masao Toshida, Numazu, and Kazuhiro Asai, Fuji, all of Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo-to, Japan

Filed Jul. 18, 1996, Ser. No. 683,726

Claims priority, application Japan, Jul. 18, 1995, 7-181535

Int. Cl.^{6} B29B *7/42*

U.S. Cl. 366—82 **2 Claims**



1. A screw for a molding machine, which comprises
   a feed section,
   one or more compression sections, and
   one or more metering sections comprising an intermediate mixing element, a forward end mixing element disposed downstream of said intermediate mixing element at a distance therefrom, a deep flight channel screw section disposed upstream of said intermediate mixing element and having a channel depth, and a shallow flight channel screw section disposed between said intermediate mixing element and said forward end mixing element and having a channel depth shallower than said channel depth of said deep flight channel screw section,
   wherein said intermediate mixing element has a cylindrical outer surface with a plurality of separate and independent grooves thereon, said grooves being configured such that said grooves are aligned at an angle with respect to an axis of rotation of the intermediate mixing element and said grooves are spaced apart from each other, and
   said forward end mixing element has a cylindrical outer surface with a plurality of separate and independent grooves thereon, said grooves being configured such that said grooves are aligned at an angle with respect to an axis of rotation of the forward end mixing element, and said grooves are arranged in an alternating manner so that one of two adjacent grooves extends towards a downstream end of said forward end mixing element along said angle, another of said two adjacent grooves extends towards an upstream end of said forward end mixing element along said angle, and portions of said two adjacent grooves are spaced apart from each other in an overlapping manner

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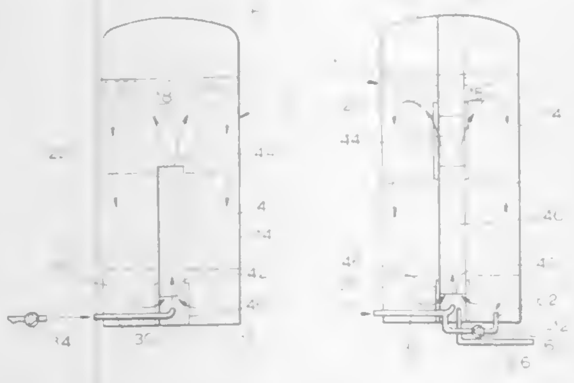
5,735,600
METHOD AND APPARATUS FOR AUTOMATICALLY MIXING DRINKING WATER IN A RESERVOIR

David K. Wyness, Springfield; Donald N. Ruehrwein, Batavia, and John S. Andrepont, Naperville, all of Ill., assignors to Chicago Bridge & Iron Technical Services Company, Oak Brook, Ill.

Filed Jun. 4, 1996, Ser. No. 659,136
Int. Cl.⁶ B01F *13/02, 5/10*
U.S. Cl. 366—101 16 Claims



11. Apparatus for circulating drinking water in a reservoir to reduce disinfectant depletion and growth of pathogens in the drinking water stored in the reservoir, comprising

a reservoir inlet pipe in liquid communication with a lower storage zone of the reservoir;

a pump for pumping water through the inlet pipe, and

a draft tube having an inlet positioned above the inlet pipe for receiving fresh water from the inlet pipe, and an outlet positioned in an upper storage zone in the drinking water reservoir for emitting a mixture of fresh water and water from the lower storage zone into the upper storage zone.

5,735,601
DEVICE FOR PREPARING MIXTURES FOR DISSOLVING DYES IN POWDER FORM IN TEXTILE PLANTS

Paolo De Bona, Soprana, and Walter Lanaro, Trivero, both of Italy, assignors to Lawer S.r.l., Italy

Filed Jun. 24, 1996, Ser. No. 669,033
Claims priority, application Italy, Jun. 23, 1995, TO95A0527
Int. Cl.⁶ B01F *15/02*
U.S. Cl. 366—150.1 29 Claims

1. A device for preparing mixtures of a product and a vector solvent, the device comprising:

a tank in which a mixture is formed,

means for supplying a vector to said tank,

support means for supporting a container, the support means including means for permitting selective inversion of the container supported by the support means so as to pour a product disposed in the container into the tank,

stirring means for mixing in the tank the product poured from the container into the vector, and

supply means for taking the mixture from the tank in order to distribute it to at least one user position,

wherein said support means comprises an arm having an end adapted to support the container, and drive means for imparting to the arm

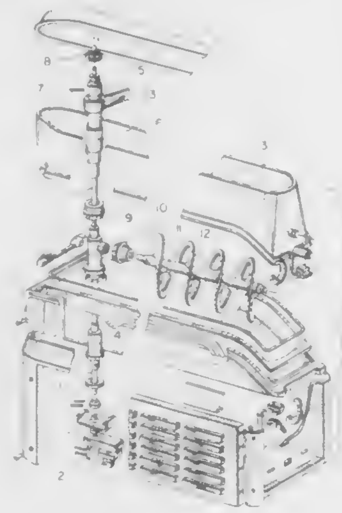
a swinging movement between at least one position in which the end of the arm is outside the tank and at least one position in which the end of the arm is exposed to the inside of the tank and

a rotary movement about a generally horizontal axis in order to invert the container supported by the arm so as to pour the product disposed in the container into the tank.

5,735,602
MACHINE FOR PRODUCING SLUSH, GRANITA AND OTHER SIMILAR PRODUCTS

Cortese Salvatore, Casandrino, Italy, assignor to Elmeco S.R.L., Naples, Italy

Filed Jan. 3, 1996, Ser. No. 582,306
Claims priority, application Italy, Aug. 2, 1995, NA95A00038
Int. Cl.⁶ B01F *7/02*
U.S. Cl. 366—314 3 Claims



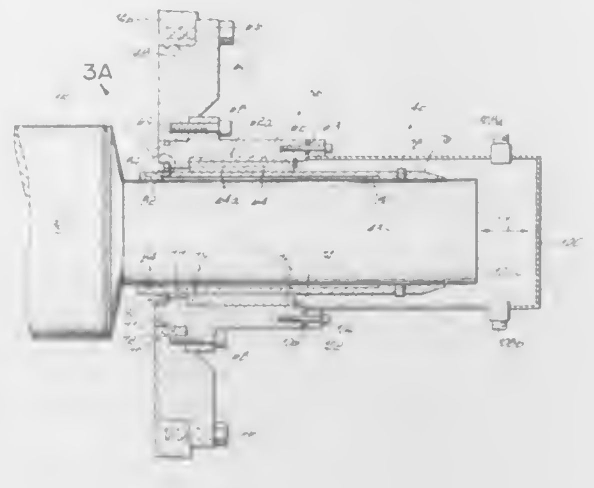
1. A machine for producing slush, granita and similar products, comprising a substantially horizontal bowl; a stirring implement located in said bowl and rotating in said bowl about a substantially horizontal axis; a drive shaft extending substantially vertically through said bowl; a substantially cylindrical element surrounding said drive shaft and fixedly connected with said drive shaft for joint rotation with said shaft, said cylindrical element being connected with said stirring implement so as to connect said drive shaft with said stirring implement; drive means connected with a lower end of said drive shaft and rotating said drive shaft and said cylindrical element so as to rotate said stirring implement.

5,735,603
HORIZONTAL MIXER APPARATUS AND METHOD WITH IMPROVED SHAFT AND SEAL STRUCTURE

Ricky D. Kesig; Michael J. Stokes, both of Cincinnati, Ohio, and Michael J. Middendorf, Florence, Ky., assignors to Littleford Day, Inc., Florence, Ky.

Filed May 3, 1996, Ser. No. 642,680
Int. Cl.⁶ B01F *7/00;* **F16J** *15/00*
U.S. Cl. 366—331 30 Claims

1. A horizontal mixer for mixing and processing materials comprising:



a mixing chamber having a wall defining an inside chamber space configured for receiving material to be mixed,

an elongated rotatable mixing shaft extending through the chamber space, the shaft having a stub end and a drive end, the stub end extending through an opening in the chamber wall,

a bearing operably engaging the shaft stub end, the bearing operable for rotatably supporting said stub end proximate the opening when the shaft rotates,

a sealing shroud supported from the chamber and covering the opening proximate the shaft stub end,

a static shroud seal sealingly disposed between the chamber and sealing shroud for statically sealing the opening, said static shroud seal being out of direct contact with said rotatable shaft end, such that the sealing shroud and seal generally prevent leakage between the chamber and outside atmosphere proximate the shaft stub end.

5,735,604
TEMPERATURE SENSOR AND TEMPERATURE MEASURING SYSTEM USING THE TEMPERATURE SENSOR

Gerardus L. G. Ewals, Venray, and Theodorus A. G. Heeren, Venlo, both of Netherlands, assignors to Oce-Technologies, B.V., Venlo, Netherlands

Filed Jul. 18, 1996, Ser. No. 683,390
Claims priority, application Netherlands, Jul. 26, 1995, 1000888
Int. Cl.⁶ G01K [illegible]
U.S. Cl. 374—134 47 Claims

25. A sensor unit for contactless determination of an object temperature of at least a part of an object, comprising:

a first plate disposed near the object;

a first temperature-sensitive sensor disposed on said first plate for producing a first sensor signal representing a temperature of said first plate;

a second plate spaced from said first plate and disposed near the object; and

a second temperature-sensitive sensor disposed on said second plate for producing a second sensor signal representing a temperature of said second plate

wherein said second plate is positioned with respect to said first plate such that if a stable state ratio (T_a/T_o) between an ambient temperature (T_a) of the sensor unit and a temperature (T_o) of the object has a numerator and a denominator that differ from one another, an associated ratio (T_{p1}/T_{p2}) between a temperature (T_{p1}) of the first plate and a temperature (T_{p2}) of the second plate also has a numerator and a denominator that differ from one another.

41. A method for the contactless determination of an object temperature of at least a part of an object, comprising the steps of:

disposing a first plate near the object;

producing a first sensor signal representing a temperature of the first plate;

disposing a second plate spaced from the first plate and near the object;

producing a second sensor signal representing a temperature of said second plate; and

processing the first and second sensor signals in combination with one another to determine the object temperature

wherein the second plate is positioned with respect to the first plate such that if a stable state ratio (T_a/T_o) between an ambient temperature (T_a) of the sensor unit and a temperature (T_o) of the object has a numerator and a denominator that differ from one another, an associated ratio (T_{p1}/T_{p2}) between a temperature (T_{p1}) of the first plate and a temperature (T_{p2}) of the second plate also has a numerator and a denominator that differ from one another.

5,735,605
THERMOCOUPLE TEMPERATURE PROBE ADAPTER

Allen V. Blalock, Knoxville, Tenn., assignor to DeRoyal Industries, Inc., Powell, Tenn.

Filed Oct. 2, 1996, Ser. No. 720,722
Int. Cl.⁶ G01K *7/02, 13/00*
U.S. Cl. 374—179 14 Claims

1. An adapter for a temperature measuring instrument, the instrument of a type compatible with a thermistor temperature sensor at the instrument's input, the adapter receiving at its input an electrical voltage produced by a thermocouple temperature sensor, the adapter presenting at its output a signal which [illegible] a like sensed temperature [illegible] produced by a thermistor temperature sensor [illegible] temperature [illegible] the adapter comprising:

a [illegible]

[illegible]

[illegible]

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signal which is proportional to an electrical voltage that would exist across the terminals of a thermistor temperature sensor exposed to the same temperature as the thermocouple temperature sensor; and

an output control circuit which produces an output voltage at the adapter's output terminals, the output voltage varying as a function of the second electrical signal at the output of the translation circuit, the output voltage being equivalent to the electrical voltage which would exist across the terminals of a thermistor temperature sensor if the thermistor temperature sensor was connected to the temperature measuring instrument's input and was exposed to the same temperature as the thermocouple temperature sensor.

7. A method for converting a signal produced by a thermocouple temperature sensor into a new signal equivalent to a signal which would appear across the terminals of a thermistor temperature sensor exposed to the same temperature as the thermocouple temperature sensor, the new signal being compatible with a temperature measuring instrument designed for use with a thermistor temperature sensor, the method comprising the steps of:

converting the signal produced at the terminals of the thermocouple temperature sensor into an amplified voltage representing the absolute temperature at the location of the thermocouple temperature sensor;

translating the electrical voltage resulting from the conversion step without any analog-to-digital conversion into an analog electrical signal which is proportional to an electrical voltage that would exist across the terminals of a thermistor temperature sensor exposed to the same temperature as the thermocouple temperature sensor; and

producing an output voltage varying as a function of the analog electrical signal that results from the translation step, the output voltage being equivalent to the voltage across the terminals of a thermistor temperature sensor if the thermistor temperature sensor was connected to the temperature measuring instrument's input and was exposed to the same temperature as the thermocouple temperature sensor.

5,735,606

PLATINUM TEMPERATURE SENSOR

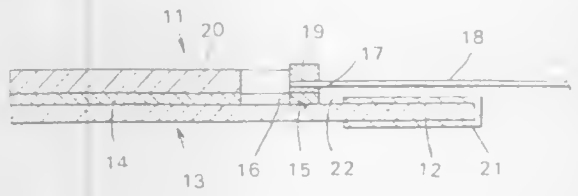
Hiroji Tani, Nagaokakyo, and Teppei Kubota, Kyoto, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Feb. 14, 1996, Ser. No. 601,531

Claims priority, application Japan, Feb. 15, 1995, 7-026707

Int. Cl.^{6} G01K 7/18; H01C 7/00

U.S. Cl. 374—185 **7 Claims**



1. A platinum temperature sensor, comprising:

an insulating substrate having a support portion at one end of said substrate;

a platinum film circuit formed at another end of said substrate and having a heat generating portion; and

a coat formed on only said support portion of said insulating substrate and made from a material having a lower thermal conductivity than that of said insulating substrate, wherein a groove is defined on said insulating substrate at an end of said coat and an end of said platinum film circuit spaced therefrom, said groove preventing heat from dissipating from said platinum film circuit to said coat.

5,735,607

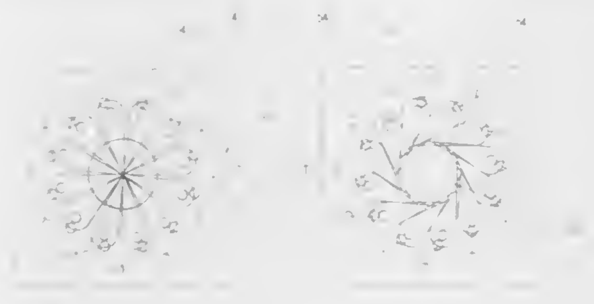
SHAPE MEMORY ALLOY THAW SENSORS

Mohsen Shahinpoor, and David R. Martinez, both of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Dec. 5, 1995, Ser. No. 567,683

Int. Cl.^{6} G01K 5/48

U.S. Cl. 374—187 **14 Claims**



1. A temperature sensor comprising:

a) an indication surface;

b) at least one member having a first shape at temperatures below a critical temperature and a second shape at temperatures above the critical temperature, where each member assumes the second shape when the temperature rises above the critical temperature but does not return to the first shape when the temperature falls below the critical temperature;

c) a plurality of indicators mounted with the members, where the indicators obscure the indication surface when the members are in the first shape, and where the indicators do not obscure the indication surface when the members are in their second shape.

5,735,608

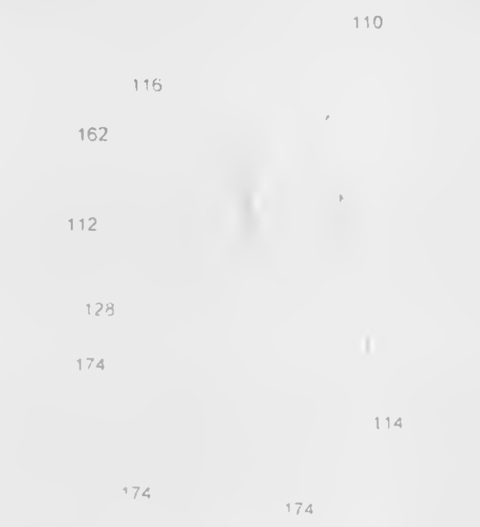
TOTABLE HAMPER

Marlene Branco, 435 Riverside Ave., Westport, Conn. 06880

Filed Apr. 7, 1995, Ser. No. 418,310

Int. Cl.^{6} B65D 30/04; 33/02

U.S. Cl. 383—25 **23 Claims**



1. Apparatus for accumulation and transportation of dirty laundry comprising:

a) a base made of a planar pliable material;

b) a top made of a planar pliable material;

c) a sidewall extending from said base to said top and secured to said base and said top to form a hamper, said base, top, and sidewall defining an internal receptacle volume for receiving dirty laundry;

d) a plurality of separate support members associated with said sidewall for maintaining the shape of said apparatus, wherein said support members are spaced from each other and secured at a point adjacent to said top, and, together with said top and said sidewall, tend to support said sidewall in a position which maintains said internal receptacle volume; and

e) an openable closure in said top, said closure defining an opening for the placement of dirty laundry into said internal receptacle volume.

5,735,609

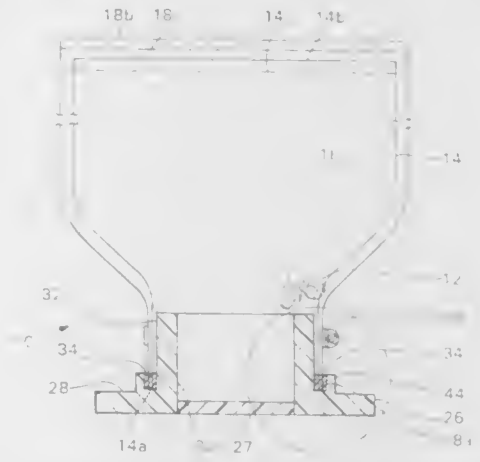
CONTAINER FOR HOLDING STERILIZED ELEMENTS

Paul H. Norton, Trumbauersville, Pa., assignor to The West Company, Lionville, Pa.

Filed Jul. 16, 1996, Ser. No. 682,032

Int. Cl.^{6} B65D 33/16

U.S. Cl. 383—33 **7 Claims**



1. A container for holding elements which are to be sterilized prior to introduction into an isolation system having an isolated inner region, the container comprising:

a first flexible bag defining a cavity for containing the elements, the flexible bag including a first end defining a first opening for removing the elements from the flexible bag;

a transfer port being engageable with the isolation system for transferring elements into the isolation system, the transfer port having an exterior surface which includes a clamp receiving area, and a bore extends through the transfer port and the exterior surface, a groove being located on the transfer port proximate the bore and which extends around the bore, the first end of the first flexible bag being located in the groove such that the first opening is in registry with the bore;

a clamp located around the flexible bag proximate the first end, a portion of the flexible bag being located between the clamp and the clamp receiving area on the transfer port to clamp the flexible bag to the transfer port; and

sealing material located in the groove to encapsulate the first end of the flexible bag to hermetically seal the flexible bag to the transfer port.

5,735,610

LINEAR GUIDE

Damon Mark, Ann Arbor; Chris Seitz, Gregory, and Gene Sloan, Royal Oak, all of Mich., assignors to Machine Systems, Ltd., Ann Arbor, Mich.

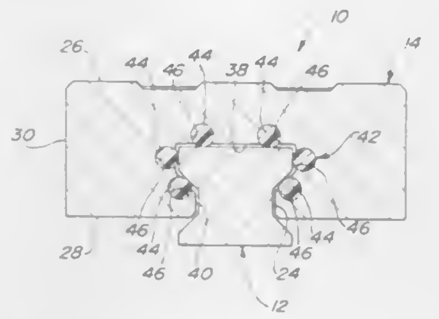
Filed Jan. 15, 1997, Ser. No. 782,315

Int. Cl.^{6} F16C 29/02

U.S. Cl. 384—42 **19 Claims**

1. A linear guide assembly comprising:

a slide body having a top, a bottom, opposing sides and opposing ends, portions of said body defining a channel extending longitudinally through said body and between said ends;



a guide rail having opposing ends and a cross sectional shape corresponding to a cross sectional shape of said channel to permit said rail to be received in said channel;

said body being on said rail and said body longitudinally moveable along said rail while being restricted from laterally and vertically moving relative to said rail;

non-rolling bearing means for facilitating longitudinal movement of said body along said rail, said bearing means mounted to said body; and

mounting means located within said channel for removably mounting said bearing means to said body, said mounting means cooperating with said bearing means for vertically and laterally retaining said bearing means relative to said body and permitting removal and replacement of said bearing means independent of replacement of said body.

5,735,611

BEARING ARRANGEMENT FOR AN OPERATING SHAFT

Ludvik Godesa, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

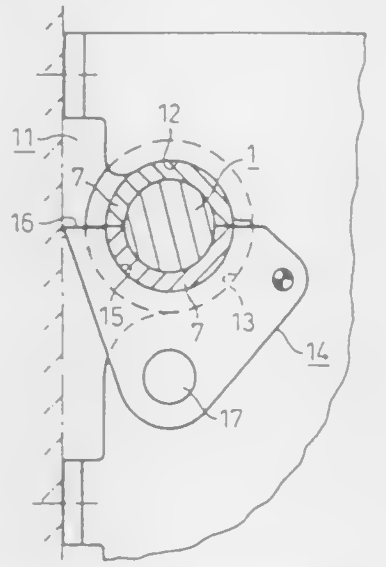
PCT No. PCT/DE95/00491, § 371 Date Oct. 10, 1996, § 102(e) Date Oct. 10, 1996, PCT Pub. No. WO95/29496, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 10, 1996, Ser. No. 722,179

Claims priority, application Germany, Apr. 20, 1994, 44 16 090.9

Int. Cl.^{6} F16C 35/02

U.S. Cl. 384—296 **6 Claims**



1. A bearing arrangement for an operating shaft of a multi-pole electric switching device comprising:

a chassis formed by parallel walls, and

shaft bearings comprising two half-shells, each half shell having a groove on its outer periphery, the half shells being mounted to the parallel walls.

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wherein each of at least two neighboring walls of the chassis include at an edge thereof an open recess having a bordering edge with the radius and width of the groove, wherein the bordering edge defines only part of the recess and wherein the remainder of the recess is defined by another bordering edge corresponding to the outside diameter of the half-shells

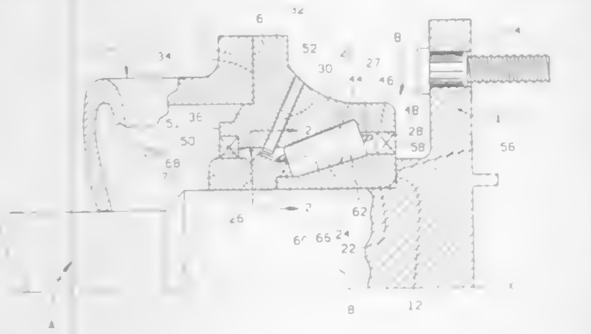
5,735,612
SINGLE ROW TAPERED ROLLER BEARING

Gerald P. Fox, Massillon, Ohio, and John R. Dieterle, Rochester, Hills, Mich., assignors to The Timken Company, Canton, Ohio

Continuation-in-part of Ser. No. 340,054, Nov. 15, 1994, abandoned. This application Mar. 12, 1997, Ser. No. 815,753

Int. Cl.^{6} F16C 33/58

U.S. Cl. 384—448 23 Claims



1 A bearing for facilitating rotation about an axis, said bearing comprising: a cup having a raceway that is presented inwardly toward the axis, the raceway being tapered so that it has a large diameter end and a small diameter end; a cone having a raceway that is presented outwardly toward the cup raceway, the cone raceway likewise being tapered so that it has large and small diameter ends, with the large diameter end being at the large diameter end of the cup raceway and the small diameter end being at the small diameter end of the cup raceway; a first thrust rib mounted in a fixed position with respect to the cup and located beyond the large diameter end of the cup raceway; a second thrust rib mounted in a fixed position with respect to the cone and located at the small diameter end of the cone raceway; tapered rollers arranged in a single row between the raceways of the cup and cone and contacting those raceways along their tapered side faces, the rollers having their large end faces located along the first thrust rib and their small end faces located along the second thrust rib; a speed sensor carried by the cup and presented inwardly toward the axis beyond the small diameter end of the cup raceway; and an excitor ring mounted in a fixed position with respect to the cone beyond the small diameter end of the cone raceway and presented toward the speed sensor, the excitor ring when rotated having the capacity to cause the sensor to produce a pulsating signal which reflects the angular velocity of the excitor ring

5,735,613
SINGLE- OR MULTIPLE-ROW CYLINDRICAL ROLLER BEARING

Knut Mirring, Gochsheim; Klaus Muschiol, and Thomas Peuschel, both of Schweinfurt, all of Germany, assignors to SKF GmbH, Schweinfurt, Germany

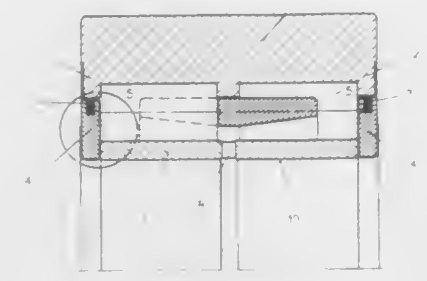
Division of Ser. No. 652,313, May 23, 1996, Pat. No. 5,660,483. This application Jun. 12, 1997, Ser. No. 874,088

Claims priority, application Germany, May 26, 1995, 295 08 774 U

Int. Cl.^{6} F16C 33/66

U.S. Cl. 384—468 2 Claims

1 A cylindrical roller bearing comprising inner and outer races and respective raceways defining an interior space therebetween, said races having at either axial end radial flanges facing one another forming a flange pair, where in each instance one of the facing radial flanges of said flange pair is provided with a seal which with the facing flange forms a sealing face, and a plurality of cylindrical rollers between said races, said inner race provided with at least one hole for supplying an oil mist, and one of said flanges comprising a loosely fitting flange ring which is provided with said seal, and wherein said bearing further comprises pressure-equalizing passages for ventilation of the bearing formed by an annular groove in said flange ring which is in communication with the interior space of the bearing and at least one connecting channel extending from said interior space and communicating with the exterior of the bearing, said connecting channel comprising a hole extending axially in communication with said annular groove



5,735,614
OUTBOARD MOTOR

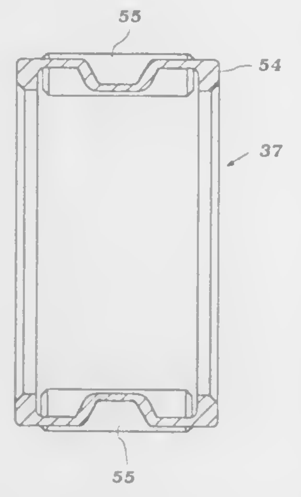
Atsushi Isogawa, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Aug. 28, 1996, Ser. No. 704,141

Claims priority, application Japan, Aug. 31, 1995, 7-224174

Int. Cl.^{6} F16C 33/46

U.S. Cl. 384—476 4 Claims



1 A connecting rod bearing arrangement comprising a metallic connecting rod having a big end, a metallic crankshaft throw passing through said big end, and a metallic bearing interposed between said crankshaft throw and said connecting rod big end, at least a portion of the metallic surface of one of said connecting rod big end, said crankshaft throw and said bearing being coated with an electrical insulating substance

5,735,615
INSULATION ARRANGEMENT FOR ELECTRICAL MACHINE SHAFT BEARING

Joseph H. Pontzer, Athens, Ga., assignor to Reliance Electric Industrial Company, Cleveland, Ohio

Filed Oct. 4, 1996, Ser. No. 726,017

Int. Cl.^{6} F16C [illegible]

U.S. Cl. 384—476 18 Claims

1 Apparatus for supporting a rotatable shaft of an electrical machine, said apparatus comprising

a housing portion defining a configured receptacle, said receptacle including a radial inner surface located about said rotatable shaft,

an insertion member received in said receptacle, said insertion member having a radial outer surface located radially inward from said radial inner surface by a predetermined spacing to define an interposing gap therebetween

a nonconductive binding compound located in said interposing gap to fix said insertion member relative to said housing portion, and

a bearing assembly maintained by said insertion member, said bearing assembly defining a shaft bore for receipt of said rotatable shaft therethrough

5,735,616
PRINTING MECHANISM WITH MEANS FOR PREVENTING CONTACT BETWEEN INK RIBBON AND DRIVE IC OF THERMAL HEAD

Toshio Sugiura, Anjo, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jul. 3, 1996, Ser. No. 675,003

Claims priority, application Japan, Jul. 14, 1995, 7-178827

Int. Cl.^{6} B41J 2/375

U.S. Cl. 400—120.01 21 Claims

1 A printing mechanism for recording images on a recording medium using an ink ribbon urged to follow a transport path comprising

a thermal head,

a drive IC for driving the thermal head, and

an ink ribbon protection means disposed between the drive IC and the ink ribbon, said protection means being made from a flexible polymer material having sufficient flexibility to bend in response to contact with the ink ribbon and for preventing the drive IC and the ink ribbon from contacting each other

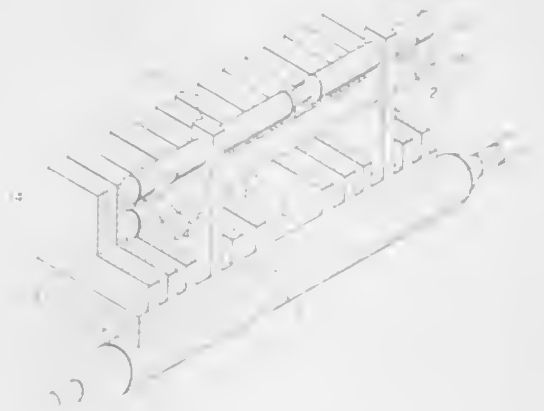
5,735,617
ADJUSTABLE PRINTHEAD MOUNT FOR DOCUMENT IMAGING APPARATUS

Henry George Wirth, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 655,030, May 29, 1996, abandoned. This application Jul. 1, 1997, Ser. No. 886,846

Int. Cl.^{6} B41J 2/27

U.S. Cl. 400—120.17 12 Claims



1 A printhead assembly comprising

a member that cooperates with printer structure to hold the printhead assembly in the printer

an elongated printhead having a length and a linear array of print elements that extend along the length of the printhead across at least a substantial portion of an image to be produced so as to produce a print line with a predetermined contour, and

a shimless connection between the member and the printhead so as to space the printhead from the member, said connection being adjustable along the length of the printhead to locally vary the space between the printhead and the member whereby the shape of the printhead can be changed to adjust the contour of the print line

5,735,618
METHOD AND APPARATUS FOR ADJUSTING HEIGHT OF KEYBOARD

Steve Gluskoter, and Andrew Moore, both of Austin, Tex., assignors to Dell U.S.A., L.P., Austin, Tex.

Filed Jan. 21, 1997, Ser. No. 785,582

Int. Cl.^{6} B41J 29/06; F16M 11/24

U.S. Cl. 400—472 15 Claims

13 A method of improving comfort for users of a computer keyboard, comprising the steps of

mounting a plurality of height adjustable support members to extend from a bottom surface of a housing for the keyboard, each of the support members being adjacent a portion of the keyboard,

independently moving each support member to a plurality of extended and retracted positions relative to the housing,

controllably varying the extended and retracted positions of the support members relative to the housing for continuously varying the height of the housing during operation of the keyboard, and

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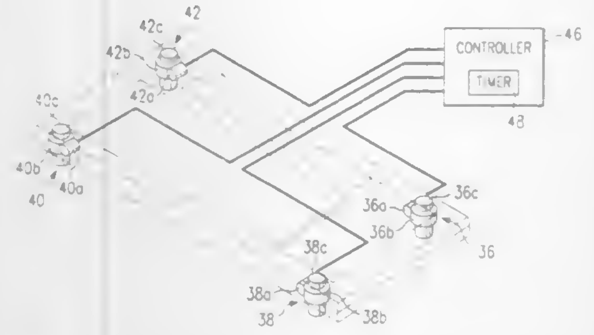


timing the varying of the positions of the support members so that each portion of the keyboard adjacent each respective support member is height adjusted independent of each other portion of the keyboard to an infinitely variable number of positions between a fully retracted and a fully extended position of each support member.

5,735,619

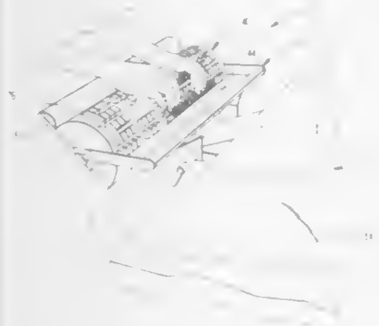
ADJUSTABLE, CURVED KEYBOARD

Soe Myint, 8 Sunset Rd., Sloatsburg, N.Y. 10974

Filed Apr. 1, 1996, Ser. No. 626,038

Int. Cl.^{6} B41J *5/08*

U.S. Cl. 400—488 **17 Claims**



1. A station in combination with a curved keyboard comprising
a support having a front side; and
an adjustable bracket disposed on said support;
said curved keyboard including an elongated base having a longitudinal axis and an upper surface disposed above said axis, said upper surface forming a convex curve about said longitudinal axis, said upper surface having a first side corresponding to a keyboard length and a second side corresponding to a keyboard depth, wherein said first side is longer than said second side and said longitudinal axis is substantially parallel to said first side, said base being supported by said adjustable bracket and being adapted to adjust pivotally about said longitudinal axis to a position in which said base slants away from a user; and
a plurality of rows of keys positioned on said upper surface and about said longitudinal axis, each of said plurality of rows of keys being substantially parallel to said longitudinal axis, each key of said plurality of rows of keys including an arcuate upper surface, wherein the arcuate upper surfaces of said plurality of rows of keys are curved about said longitudinal axis to form a convex typing surface.

5,735,620

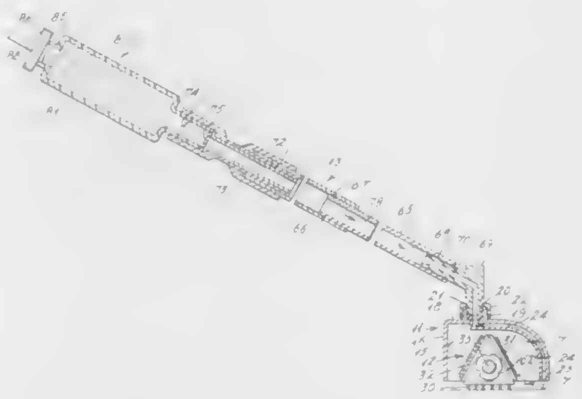
MULTI-PURPOSE CLEANING TOOL

Peggy D. Ford, 1218 Euclid St., NW., Washington, D.C. 20009

Filed Mar. 11, 1996, Ser. No. 613,657

Int. Cl.^{6} A47L *13/12;* **A46B** *11/00*

U.S. Cl. 401—27 **20 Claims**



1. A multi-purpose cleaning tool for dispensing a cleaning liquid comprising:
a handle means having first and second ends;
a housing pivotally adjustable relative to said handle means and having a lower opening therein;
a cleaning implement mounted within said housing and having a plurality of differently oriented cleaning elements each of which are disposed within said housing;
mounting means for rotatably mounting said cleaning implement within said housing so as to selectively position one of said plurality of cleaning elements in an adjusted position so as to extend through said opening;
said handle means defining a liquid passageway therethrough, a hollow connector means for connecting said first end of said handle means in communication with said housing whereby liquid may be provided to said housing adjacent a selected one of said cleaning elements of said cleaning implement from said liquid passageway;
a liquid container mounted to said second end of said handle means; and
valve means for controlling flow of liquid from said container to said liquid passageway.

5,735,621

WRITING UTENSIL STRUCTURE

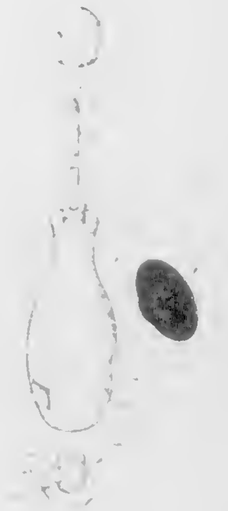
Chung-chen Shih, No. 815, Sec. 2, Changshui Rd., Tachu Li, Hsihu Chen, Changhua Hsien, Taiwan

Filed Jan. 28, 1997, Ser. No. 789,923

Int. Cl.^{6} B43K *9/00,29/00*

U.S. Cl. 401—52 **4 Claims**

1. A writing utensil structure comprising,
a housing having an upper end portion with a reduced diameter neck extending upwardly, and a lower end portion, two diametrically opposite lugs each protruding from said neck, a passage longitudinally defined in the upper end portion of said housing and extending through said neck, a well laterally defined in the lower end portion of said housing, and a plug fitted in said well,
a cap securely mounted on the upper end portion of said housing and including an inner wall having a first recess defined in a lower portion thereof for receiving said neck, a second recess defined in an intermediate portion thereof for receiving each of said two lugs, and a third recess defined in an upper portion thereof and aligning with said passage, two diametrically opposite cavities each defined in a periphery defining said first recess and each communicating with said second recess such



that each of said two lugs can pass through a corresponding one of said two cavities into said second recess, said second recess having a diameter greater than that of said first recess, and a shoulder formed between said first recess and said second recess for limiting each of said two lugs; and
a writing utensil received in said passage and having an upper end with a tip extending upwardly and received in said third recess.

5,735,622

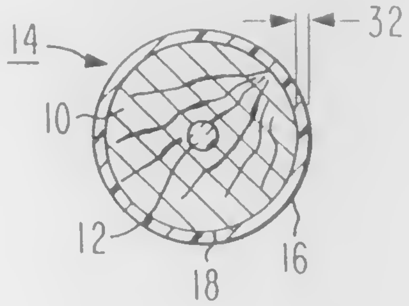
WRITING INSTRUMENT WITH A COMPRESSIBLE FRICTION COATING AND METHOD OF MAKING

Norman Melnick, Edison, and David Warren Melnick, Holmdel, both of N.J., assignors to Pentech International Inc., Edison, N.J.

Filed Dec. 14, 1995, Ser. No. 599,393

Int. Cl.^{6} B43K *19/14*

U.S. Cl. 401—96 **48 Claims**



30. A writing instrument having a resiliently compressible friction coating thereon to facilitate grasping and use thereof comprising:
A. a housing means defining a bore means extending longitudinally therethrough, one end of said bore means defining an end opening therein;
B. a writing medium positioned within said bore means and extending to said end opening thereof; and
C. a resiliently compressible friction coating cured on said housing means by applying of a mixture of a varnish and a hardener component thereon to a thickness of 0.002 to 0.009 inches to facilitate resilient compressibility thereof.

5,735,623

APPLICATOR ELEMENT FOR VISCOUS COSMETICS, IN PARTICULAR FOR NAIL POLISHES

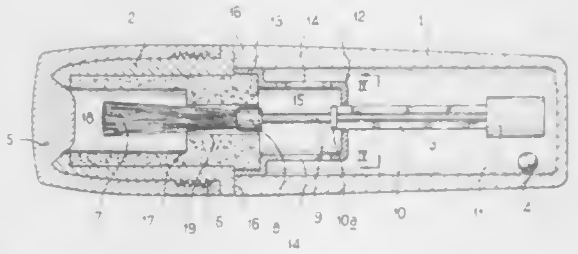
Jean Louis Gueret, Paris, France, assignor to L'Oreal, Paris, France

Continuation of Ser. No. 584,076, Jan. 11, 1996, abandoned. This application Aug. 22, 1997, Ser. No. 916,401

Claims priority, application France, Jan. 11, 1995, 95 00251

Int. Cl.^{6} A46B *[illegible]* **B05B** *[illegible]* **A45D** *[illegible]*

U.S. Cl. 401—115 **17 Claims**



1. An applicator for a viscous cosmetic, comprising:
an applicator body having a front part defining a cavity and a rear part comprising a reservoir for the cosmetic;
a passage connecting said reservoir to said cavity;
an applicator element that can be moved between a closed position, wherein the applicator element is completely accommodated inside the cavity, and an open position, wherein the applicator element projects outside the body, said cavity being closeable by a cap when the applicator element is accommodated inside the cavity;
a rod supporting said applicator element, said rod coming through the passage and having a diameter smaller than that of the passage, so that upon movement of the applicator element from its closed position to its open position, a metered quantity of cosmetic which surrounds the rod inside the reservoir in the closed position of the applicator element is brought inside the cavity, the rod and passage being dimensioned so that said metered quantity of cosmetic is substantially just enough to impregnate the applicator element so that the cavity is never completely filled with cosmetic;
a stopper supported by the rod, positioned so that it is located in the passage when the applicator element is in its closed position, and dimensioned in such a way that it lets the rod move freely between the closed position and the open position of the applicator element despite the viscosity of the cosmetic while the cosmetic cannot substantially pass from the reservoir to the cavity when the applicator element is in the closed position, so that the quantity of cosmetic in the cavity is limited to the metered quantity brought by the rod upon movement of the applicator element from its closed position to its open position;
said applicator body front part containing said applicator element when said applicator is in the closed position;
a wall provided between said reservoir and said cavity, said wall preventing cosmetic from flowing past said wall but allowing solvent to move through said wall such that, in the closed position, solvent can spread into the cavity, resisting hardening or increased viscosity of residual cosmetic remaining in said cavity and on said applicator element after an application of the cosmetic, the wall being configured to substantially contain the applicator element when the applicator is in the closed position.

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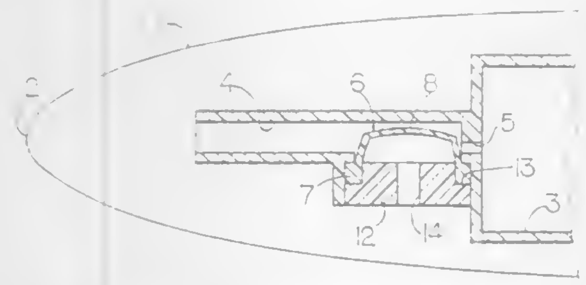
5,735,624
RELATING TO WRITING INSTRUMENTS

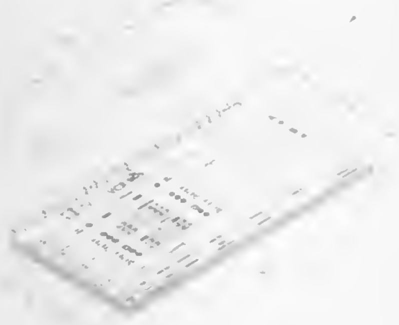
Stephen John O'Connor, and David Anthony Edgerley, both of London, England, assignors to Parker Pen Products, Isleworth, England
PCT No. PCT/GB94/02696, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO95/16577, PCT Pub. Date Jun. 22, 1995
PCT Filed Dec. 9, 1994, Ser. No. 663,242
Claims priority, application United Kingdom, Dec. 17, 1993, 9325891
Int. Cl.^{6} B43K *5/00*
U.S. Cl. 401—217 15 Claims



1. An ink container including a reservoir for containing ink, and feed means for conveying ink from said reservoir, characterized by valve means disposed between said reservoir and said feed means for controlling ink flow to said feed means, said valve means being subjected on one side to pressure in said feed means and on another side to air at atmospheric pressure, said valve means opening when pressure in said feed means falls sufficiently below atmospheric pressure acting on said valve, thereby allowing ink to flow from said reservoir to said feed means.

5,735,625
APPARATUS FOR MATCHING RELATED CONSUMER ELECTRONIC PRODUCTS

Thyra O'Brien, Woodbury Heights, N.J., assignor to Thomson Consumer Electronics, Inc., Indianapolis,, Ind.
Filed Jun. 7, 1995, Ser. No. 477,918
Int. Cl.^{7} F16C *11/00*, B42F *21/00*
U.S. Cl. 402—79 3 Claims



1. A connection instructional device comprising:

a plurality of FROM panels each of which is arranged with electrical connection indicia corresponding to electronic apparata, each FROM panel of said plurality of FROM panels corresponding to a different electronic apparatus;

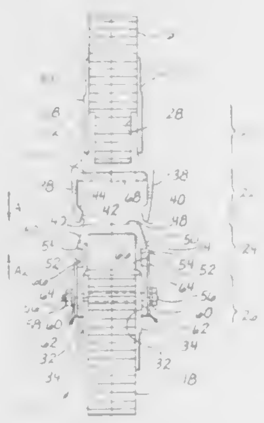
a plurality of TO panels each of which is arranged with electrical connection indicia corresponding to electronic apparata, each TO panel of said plurality of TO panels corresponding to a different electronic apparatus;

a holder constructed and arranged for receiving said plurality of FROM panels in a first stacked array and said plurality of TO panels in a second stacked array, said first and second stacked arrays being positioned side by side to each other, and

flipchart means for permitting a preselected one of said FROM panels to be positioned for viewing and a preselected one of said TO panels to be positioned for simultaneous viewing, side by side with said preselected FROM panel, whereby the electrical connection indicia on said preselected FROM panel and on said preselected TO panel indicate the connections to be made and the components required to electrically connect the electronic apparatus corresponding to said preselected FROM panel with the electronic apparatus corresponding to said preselected TO panel.

5,735,626
SEPARATING RAIL ASSEMBLY

Mohsen A. Khatiblou, Laguna Hills; Hal D. Pope, and James M. Schutt, both of Huntington Beach, all of Calif., assignors to McDonnell Douglas Corp.
Filed Sep. 26, 1996, Ser. No. 721,270
Int. Cl.^{6} F16B *2/00*
U.S. Cl. 403—16 22 Claims



22. A thrusting rail joint assembly for joining and rapidly separating a first host structure and a second host structure, the thrusting rail-joint assembly comprising:

a first host structure;

a second host structure;

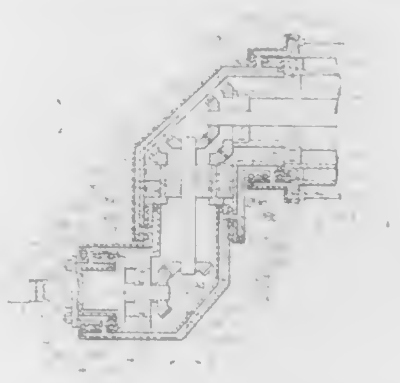
an outer latching member comprising a composite material and having a first joining end and a first latching end, the first joining end of the outer latching member being secured to the first host structure by co-curing without fasteners and the first latching end having a plurality of latching arms extending therefrom;

an inner latching member comprising a composite material and having a second joining end and a second latching end, the second joining end of the inner latching member being secured to the second host structure by co-curing without fasteners and the second latching end having a plurality of recesses disposed thereon for accommodating the plurality of latching arms, biasing members attached to the inner latching member for biasing the plurality of latching arms toward said inner latching member, and

a non-destructive releasable joint adapted to be disposed between the first joining end and the second joining end, the non-destructive releasable joint being adapted to non-destructively separate the inner latching member from the outer latching member.

5,735,627
ARTICULATING MECHANISM FOR ROBOT

Wataru Nagao, and Shingi Takahashi, both of Yokohama, Japan, assignors to Tokico Ltd., Kanagawa-Ken, Japan
Filed Aug. 16, 1996, Ser. No. 699,114
Claims priority, application Japan, Aug. 30, 1995, 7-222371
Int. Cl.^{6} B05B *3/12*; B25J *17/02*; F16L *39/04*
U.S. Cl. 403—38 11 Claims



1. An articulating mechanism for providing a wrist joint action in a robotic device comprising at least three cylindrical casing members rotatably coupled in series about each shaft axis of said casing members so that an end section of one casing member is overlapped coaxially within an end section of another casing member, wherein said end sections are overlapped so as to form a closed-end fluid passage space of a given separation distance, and each of said cylindrical casing members is provided with a fluid communication hole in a wall section so that one end of said fluid communication hole communicates with said fluid passage space, and another end of said fluid communication hole communicates with a fluid path for delivery of a fluid medium.

5,735,628
ROPE END TERMINATION DEVICE

Brian Malcolm Short, Mottingham, United Kingdom, assignor to Bridon PLC, United Kingdom
Filed Aug. 23, 1994, Ser. No. 294,591
Int. Cl.^{6} F16B *2/02*
U.S. Cl. 403—218 9 Claims

1. A rope end termination device, comprising:

a housing member having a generally frusto-conical bore;

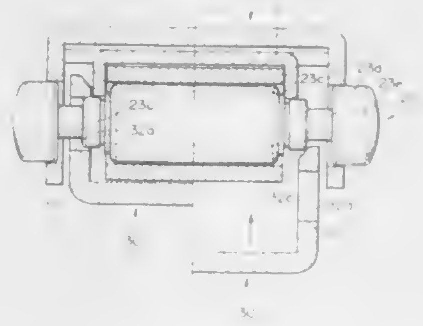
a plurality of generally frusto-conical members having generally frusto-conical hollow chambers wherein, in use, each rope strand of a rope end comprising multiple rope strands is passed through a respective one of said hollow chambers; and

a plurality of wedging means, each of said wedging means corresponding to a respective one of said hollow chambers, wherein, in use, each of said wedging means wedgedly fits within its respective hollow chamber to wedgedly retain a respective rope strand therein;

wherein the frusto-conical members are received in a nested relationship within the bore of the housing member such that each of said frusto-conical members contacts at least one adjacent frusto-conical member and such that a load applied to the rope end acts through the multiple rope strands in a direction towards a narrower end of the housing member bore.

5,735,629
BAND CONNECTION FITTING

Hiroo Sakamoto, and Toshihiro Takahashi, both of Tokyo, Japan, assignors to Seiko Kabushiki Kaisha, Tokyo, Japan
Filed May 29, 1996, Ser. No. 655,118
Claims priority, application Japan, May 31, 1995, 7-134587
Int. Cl.^{6} F16B *21/06*
U.S. Cl. 403—325 2 Claims



1. A connection fitting, comprising:

a connector which has a spring bar provided with press buttons which are pressable toward one another in a direction along a longitudinal direction of the spring bar, and

a receiving member which has claws which, in the normal state, catch said press buttons, and release the engagement when said press buttons are pressed toward one another;

wherein each of said press buttons is connected to a passing section and a rod like covering catch provided sequentially in the inward direction of said spring bar, said covering catch having a larger diameter than said passing section, said connector including an upper cover for covering said passing section;

each of said claws further comprising a receiver part having a size which can receive the covering catch, a catch having a size which allows the passing section to pass through but which catches the covering catch and an inclined portion on a forward edge of the catch for pressing against the covering catch to allow the press buttons to move toward one another;

the covering catch of the spring bar being received within the receiving part of the claws and being caught by both a wall portion of the receiving part and the catch in the normal state when the buttons are in their biased position, and thereby the engagement of the connector and the receiving member is achieved;

the passing section of the spring bar becoming aligned with the catch and passing through the catch of the claw when the press buttons are pressed toward one another, thereby the engagement of the connector and the receiving member is released.

5,735,630
STRIKING TOOL HEAD SYSTEM AND COMMON ELONGATED HANDLE FOR MULTIPLE TOOL HEAD ASSEMBLIES

Bob N. Keathley, Bernie, Mo., and John A. Waddell, Reedsville, Pa., assignors to IXL Mfg. Co., Inc., Bernie, Mo., and Mann Edge Tool Co., Lewistown, Pa.
Filed May 10, 1995, Ser. No. 437,990
Int. Cl.^{6} B25G [illegible]; F16B [illegible]
U.S. Cl. 403—334 37 Claims

1. A striking tool head system, comprising:

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a) tool head means including a tool eye having disposed therein sleeve means for receiving elongated tool handle means to perform a manual tool work operation,

b) said tool eye including a continuous interior surface having a top aperture at an upper surface of the tool head means and a bottom aperture at a lower surface of the tool head means,

c) said sleeve means having a longitudinal axis and including an annular wall structure having an inner tapered bore surface, an exterior surface, an upper aperture end, a sleeve top end opening, and a smaller bottom end opening,

d) the exterior surface of the sleeve means including a tool eye mating portion, an overstrike portion, and retaining means for securing the location of the sleeve means in a sleeve means securing position within the tool eye, and

e) flexing means for enabling the annular wall structure to temporarily collapse inwardly for the retaining means to be located in said sleeve means securing position when the sleeve means is moved in a longitudinal axial direction into one of the tool head eye apertures,

f) said inner tapered bore surface being effective to slidingly receive an elongated handle member having a tapered tool supporting surface that frictionally mates with the inner tapered bore surface when the elongated handle member is slidingly moved in said longitudinal axial direction through the sleeve means from the sleeve top end opening,

g) said overstrike portion of the sleeve means is tapered inwardly toward said smaller bottom end opening from the retaining means which is disposed at a location intermediate a top outer free end and a bottom outer free end of the sleeve means,

h) said continuous interior surface of the tool eye is tapered inwardly through the tool head means from said top aperture to a smaller said bottom aperture,

i) said retaining means including a retaining ledge surface portion that extends in a direction normal to said longitudinal axis of the sleeve means,

j) said tool eye mating portion is tapered from the upper aperture end to the retaining ledge surface portion and frictionally mates with the interior surface of the tool eye when disposed in the sleeve means securing position with the retaining ledge surface portion being disposed contiguously to the lower surface of the tool head means.

5,735,631

JOINT FOR THE SWIVEL BEARING OF A CASING TUBE OF AN INCLINATION-ADJUSTABLE STEERING COLUMN ON A CASING TUBE SUSPENSION

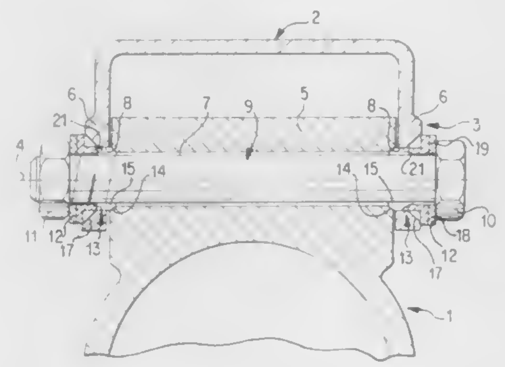
Helmut Patzelt, Kernen, and Manfred Link, Waiblingen, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Aug. 8, 1996, Ser. No. 689,344

Claims priority, application Germany, Aug. 25, 1995, 195 31 278.3

Int. Cl.^{6} B62D *1/16*; F16C *9/04*

U.S. Cl. 403—378 9 Claims



1. Joint for the swivel bearing of a casing tube of an inclination-adjustable steering column on a casing tube suspension, comprising a joint head which is held between laterally surrounding fork legs, coaxial passage bores in the surrounding fork legs from which a longitudinal section of a bearing axle projects into an opposite fitted seat of the joint head, two bearing bushes which surround the projecting longitudinal section of their bearing axle and which are conically constructed on their outer circumference and engage in associated, fittingly conical fitted seat and having an axial load of the bearing bushes tapering toward one another by way of a screwed advance of their bearing axle such that the bearing bushes are pressed without play into their associated fitted seat,

wherein both fitted seats of the joint head are arranged in the end area of a cylindrical bore which is widened by a chamfer to form a fitted seat, and

the bearing bushes have a basic cylindrical shape and a conically slanted end area for engagement thereof in the associated fitted seat, with end area thereof being constructed to be radially flexible.

5,735,632

TRAFFIC MARKER AND BASE UNIT

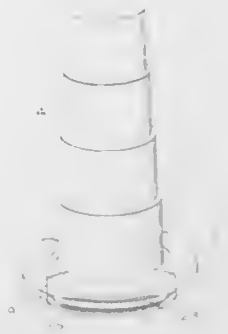
Josef J. Braverman, 32 Loma Vista Drive, Thornhill, Ontario, Canada, L4J 7S3

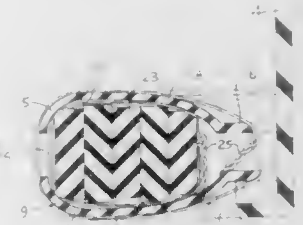
Continuation-in-part of Ser. No. 498,836, Jul. 6, 1995, Pat. No. 5,613,798. This application Dec. 23, 1996, Ser. No. 771,694

Int. Cl.^{6} E01F *9/00*

U.S. Cl. 404—6 9 Claims

1. A base unit for use in association with a body portion of a traffic channelizing device, the base unit having a substantially circular lower base portion comprising a sidewall of a vehicle tire, said sidewall having an inner planar section and an integral outer curved section providing a substantially circumferential convex ground contacting surface, and a substantially circular upper base portion comprising a separate sidewall of a vehicle tire, said sidewall having an inner planar section and an integral outer curved section, disposed to form an annular concave channel between said upper and lower base portions, and at least one additional portion of at least one vehicle tire retained at least partially within said annular channel means, where said sidewalls





are tied to produce an irregular outer shape, such that the device is not prone to rolling when overturned.

5,735,633

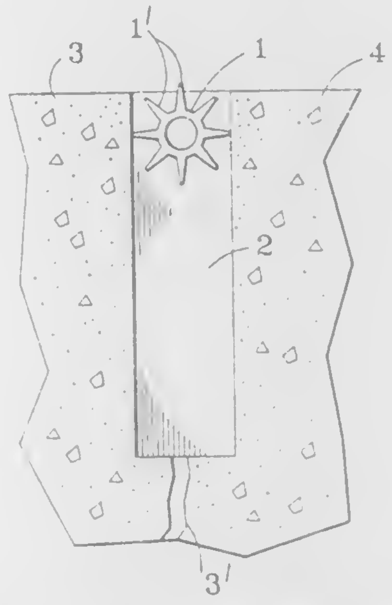
METHOD OF AND DEVICES FOR SEALING AND SUPPORTING CONCRETE FLOOR JOINTS AND THE LIKE

Steven N. Metzger, P.O. Box 2391, Concord, N.H. 03302-2391

Division of Ser. No. 293,795, Aug. 22, 1994, abandoned. This application May 15, 1996, Ser. No. 647,530

Int. Cl.^{6} E01C *11/10*

U.S. Cl. 404—65 5 Claims



4. For use in sealing and supporting floorings in longitudinally extending concrete floor joints and the like having joint opening extending from openings tops down to solid closed bottoms thereof, a one piece resiliently compressible longitudinally extending cylindrical support member integrally externally surfaced to provide at least one externally protruding compressible wiping surface and of slightly larger cross section than that of the joint opening into the top of which the support member with its external protruding wiping surface is intended to be compressibly inserted, the support member and its protruding wiping surface being sufficiently resiliently compressible to enable the member to be pushed all the way down the opening, which the compressed protruding wiping surfaces wipe the joint, and ultimately to seal along the bottom thereof from entry of debris and seepage into the joint wherein said at least one protruding wiping surface comprises a plurality of wiping surfaces and in which the support member is hollow, and the protruding wiping surfaces are radially directed longitudinally extending resiliently compressible ribs disposed transversely circumferentially substantially uniformly about the complete circumference of the support member at top, bottom and sides.

5,735,634

ROAD FINISHER AND A METHOD OF APPLYING SURFACE LAYERS

Alfred Ulrich, Gorxheimertal; Erich Resch, and Günter Zegowitz, both of Mannheim, all of Germany, assignors to Joseph Vogele AG, Mannheim, Germany

Filed Jun. 19, 1996, Ser. No. 666,830

Claims priority, application Germany, Jun. 21, 1995, 295 10 058.3

Int. Cl.^{6} E01C *19/22*, *19/40*, *19/48*

U.S. Cl. 404—102 8 Claims

1. A road finisher for simultaneously applying at least two surface layers, comprising a chassis, a travelling mechanism, at least two premix containers arranged on said chassis, a lateral distributor associated with each respective premix container, each lateral distributor being arranged behind the chassis and adapted to have material supplied thereto from its premix container via a conveyor path extending in the chassis, and further comprising lateral outriggers attached to the chassis, a dragged road-surface applying device for applying a surface layer being arranged on said outriggers behind each lateral distributor, each road surface applying device being a rear high compaction road surface applying screed for recompaction-free application of a surface layer, and each rear high compaction road surface applying screed constructed to be used for applying and compacting concrete and including a tamper device located at the front of the screed and at least one transversely extending high compaction compacting strip separated from said tamper device by a smoothing plate which is adapted to be acted upon by means of a vibration device, said compacting strip being operatively connected to at least one swelling force drive, each swelling force drive being arranged in a high compaction road surface applying screed in such a way that an upwardly directed reaction force resulting from the force applied to the compacting strip is directed straight against the total mass of the high compaction road surface applying screed which acts as an abutment, said tamper device having a tamper strip contact angle that is smaller than 45°.

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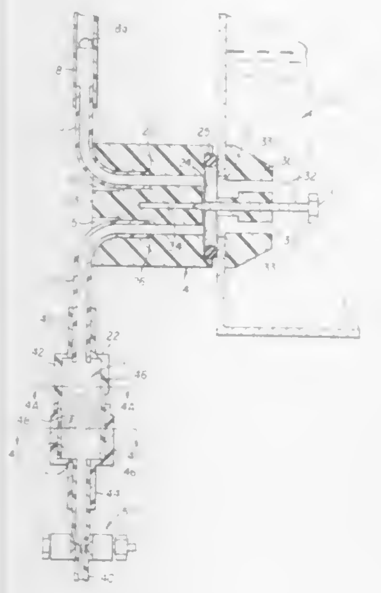
GRAVITY FEED WATERING SYSTEM FOR PLANTS

David B. Johnston, Fairport, N.Y.; Vincent P. Johnston, and Marjorie R. Johnston, both of Sheridan, Wyo., assignors to Northern Tier Gardens Corporation, Fairport, N.Y.

Filed Jan. 4, 1996, Ser. No. 583,188

Int. Cl.^{6} A01G *25/00*

U.S. Cl. 405—36 19 Claims



1. A modular system to irrigate at least one plant site, comprising reservoir means for receiving a volume of water, manifold means for selectively drawing water from the reservoir means, dripper means including means defining a water inlet and a water outlet for producing by gravity droplets of water at a variable drip rate, fluid directing means for directing water from the manifold means to the water inlet of the dripper means, means for varying the drip rate of the water droplets, and distribution means for directing the water droplets from the water outlet of the dripper means to the plant site, wherein the dripper means comprises an upper hollow section having a fluid connection to the water inlet, a lower hollow section frictionally fitting with and manually detachable from the upper section and having a fluid connection to the water outlet, the two hollow sections forming a drip cavity in which the water droplets are formed and which cavity is accessible when the two hollow sections are detached.

5,735,636

METHOD FOR INSTALLING AN EXPANSION JOINT IN A CONCRETE DAM

Peter Szita, and Louis Dubreuil, both of Québec, Canada, assignors to Hydro-Quebec, Montreal, Quebec, Canada

Continuation of Ser. No. 31,465, Mar. 15, 1993, Pat. No. 5,449,248. This application Jun. 7, 1995, Ser. No. 479,044

Claims priority, application Canada, Mar. 30, 1992, 2064429-0

Int. Cl.^{6} E02B [illegible]

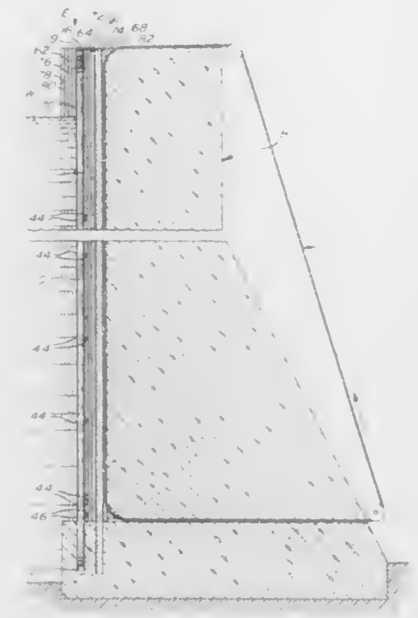
U.S. Cl. 405—116 18 Claims

1. A method for installing an expansion joint in a concrete dam with a sealing device, the method including the following steps:

a) boring a hole in the dam intended for receiving said sealing device at a distance from water retained by the dam;

b) installing said sealing device in said hole; and

c) completing the expansion joint by cutting the dam on one side of said hole such that said hole communicates with the downstream side of the dam and with the water on an upstream side thereof and such that the cut communicates with said hole and thus with said sealing device.



5,735,637

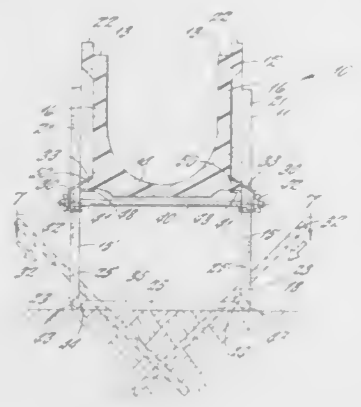
METHOD AND APPARATUS FOR SUPPORTING AND ANCHORING DRAINAGE CHANNEL SECTIONS

Charles E. Gunter, Mooresville, N.C., assignor to ABT, Inc., Troutman, N.C.

Filed Jun. 3, 1996, Ser. No. 657,370

Int. Cl.^{6} E02B *5/00*

U.S. Cl. 405—118 51 Claims



1. A support frame assembly for supporting a plurality of drainage channel sections abutted in an end to end relationship and for anchoring the drainage channel sections to a support surface, said support frame assembly comprising:

a) a pair of legs extending in a generally parallel direction and each having an upper end portion and a lower end portion;

b) channel support pieces mounted on each of said parallel legs adjacent said upper end portions for supporting the abutting drainage channel sections;

c) a cross member extending between said lower end portions of said parallel legs at a position below said channel support pieces, said cross member defining at least one opening adjacent to the support surface; and

d) at least one anchor member extending through said opening in said cross member and engaging the support surface to thereby anchor the frame assembly to the surface.

5,735,638

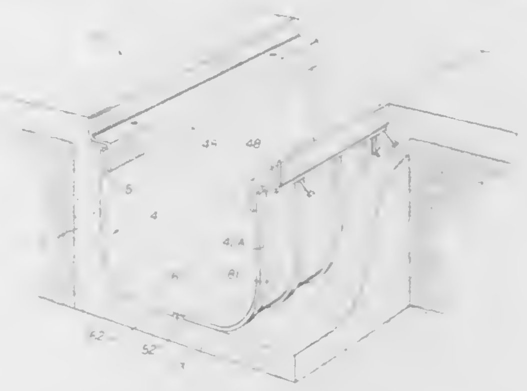
APPARATUS FOR LINING A TRENCH

John A. Beamer, Atlanta, Ga., assignor to Hoosier Group, L.L.C., Atlanta, Ga.

Continuation-in-part of Ser. No. 287,654, Aug. 9, 1994, Pat. No. 5,573,351. This application Jan. 11, 1996, Ser. No. 584,170

Int. Cl.^{6} E01F *5/00*

U.S. Cl. 405—119 16 Claims



1. A trench liner system for lining a trench having at least two, substantially upright walls and a bottom, comprising:

a. a primary liner means, having an interior surface and an exterior surface, extending along the length of the trench;

b. means disposed between the primary liner means and the trench walls and bottom for separating the exterior surface of the primary liner means from the trench walls and bottom so as to allow independent movement of the primary liner means and the separating means for respective expansion and contraction of the primary liner means and the separating means, and

c. means for holding the primary liner means against the trench walls.

5,735,639

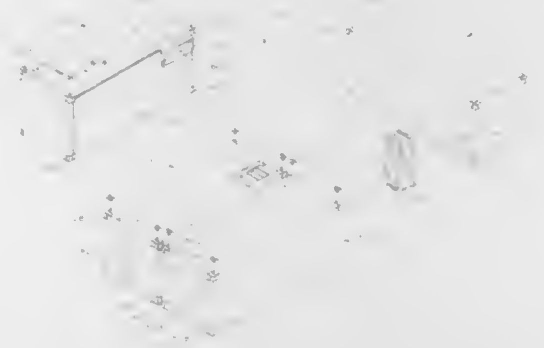
MODULAR MOBILE SAFETY STRUCTURE FOR CONTAINMENT AND HANDLING OF HAZARDOUS MATERIALS

Edward Payne, Fairfax, Va.; Norman Stephen Van Valkenburgh, and Gary Lee Van Valkenburgh, both of Newport Beach, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 13, 1996, Ser. No. 766,680

Int. Cl.^{6} B09B *3/00*

U.S. Cl. 405—128 20 Claims



1. A modular mobile safety structure for housing containers of hazardous materials and providing sump type secondary containment for receiving spillage and leakage of said hazardous materials from said containers that are housed within said modular mobile safety structure, said modular mobile safety structure comprising:

(a) first and second modular storage units, said first modular storage unit being positioned adjacent said second modular storage unit and secured thereto to form a tandem arrangement of modular storage units for treatment and handling of said hazardous materials, said first and said second modular storage units each comprising:

(i) a rectangular shaped base assembly including a framework of a welded assembly of steel components, said framework of said base assembly comprising:

(A) a pair of front and rear support members and a pair of side support members that are arranged end to end to define a rectangular shaped structure, a first group of four corner fittings having first and second orthogonally disposed sides, a top portion and a bottom portion, each end of each of said side support members being attached to the first side of a separate one of said first group of four corner fittings and each end of each of said front and rear support members being attached to the second side of a separate one of said first group of four corner fittings.

(B) a pair of inverted T channel support members disposed substantially parallel to said front and rear support members, one end of each of said inverted T channel support members being attached to one of said side support members and an opposite end of each of said inverted T channel support members being attached the other of said side support members, each of said inverted T channel support members having a base channel member and a floor support channel member mounted on a top portion of said base channel member.

(C) first and second floor support members respectively attached to an inner side of said front support member and an inner side of said rear support member.

(D) a first generally rectangular shaped steel plate mounted on a bottom portion of said front, rear and side support members and a bottom portion of the base channel support member of said pair inverted T channel support members wherein said first generally rectangular shaped steel plate mates with said front, rear and side support members forming a substantially rectangular open secondary container that is leakproof, said open secondary container receiving spillage and leakage of said hazardous materials from said containers that are housed within each of said first and said second modular storage units,

(E) a removable grating type floor supported by said base assembly and resting upon said first and said second floor support members and the floor support channel members of said pair of inverted T channel support members, said removable grating type floor extending substantially horizontally atop said open secondary container;

(ii) inner and outer side walls extending perpendicularly upward from said base assembly, a rear wall extending perpendicularly upward from said base assembly and a front wall extending perpendicularly upward from said base assembly, one end of each of said inner and said outer side walls being secured to a separate one of the opposed ends of said front wall and the other end of each of said inner and said outer side walls being secured to a separate one of the opposed ends of said rear wall to form a rectangular shaped assembly of upstanding walls,

(iii) a rectangular shaped roof mounted atop said rectangular shaped assembly of upstanding walls and extending horizontally over an interior space that is defined between said front and rear walls and between said inner and said outer side walls,

(iv) each of said front, said rear and said inner and said outer side walls and said roof comprising:

(A) a rectangular shaped framework of structural steel support members, at least one outer wall panel mounted to an outer surface of said rectangular shaped framework, an inner wall panel mounted to an inner surface of said rectangular shaped framework, a pair of stack sheets of gypsum type board sandwiched between said at least one outer wall panel and said inner wall panel, said pair of stack sheets of gypsum board being secured to said inner wall panel, and a fiberglass insulation material

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interposed between said pair of stack sheets of gypsum type board and said at least one outer wall panel.

(B) said pair of stack sheets of gypsum type board within each of said front, rear and side walls and said roof providing for a fire rating of at least four hours for said modular mobile safety structure and said fiberglass insulation material allowing said modular mobile safety structure to be adapted for use under varying climatic conditions.

(C) the rectangular shaped framework of said roof having a second group of four corner fittings wherein a first and a second of said second group of four corner fittings are positioned at a top edge region of the inner side wall of said first and said second modular storage units

(D) a first and a second of said first group of four corner fittings being positioned in proximity with a bottom end region of the inner side wall of said first and said second modular storage units.

(b) a first pair of container conlinks for coupling the first and the second of said second group of four corner fittings of said first modular storage unit to the first and the second of said second group of four corner fittings of said second modular storage unit.

(c) a second pair of container conlinks for coupling the first and the second of said first group of four corner fittings of said first modular storage unit to the first and the second of said first group of four corner fittings of said second modular storage unit

(d) said inner side wall of said first and said second modular storage units having a bellows support frame, the bellows support frame of the inner side wall of said first modular storage unit being aligned with the bellows support frame of the inner side wall of said second modular storage unit when said first modular storage unit is positioned adjacent said second modular storage unit to form said tandem arrangement of modular storage units; and

(e) a bellows having one end thereof connected to the bellows support frame of the inner side wall of said first modular storage unit and an opposite end thereof connected to the bellows support frame of the inner side wall of said second modular storage unit, said bellows allowing access between said first modular storage unit and said second modular storage, said bellows being removable from the bellows support frame of the inner side wall of said first and said second modular storage units.

5,735,640

GEO TEXTILES AND GEOGRIDS IN SUBGRADE STABILIZATION AND BASE COURSE REINFORCEMENT APPLICATIONS

Bradley Ross Meyer, Eden Prarie, Minn., and William M. Mattel, Gainesville, Ga., assignors to Nicolon Corporation, Norcross, Ga.

Filed Apr. 3, 1996, Ser. No. 627,045

Int. Cl.⁶ B32B *5/02*; D03D *9/00*; E01C *11/16*; E02D *17/20*

U.S. Cl. 405—258 **22 Claims**

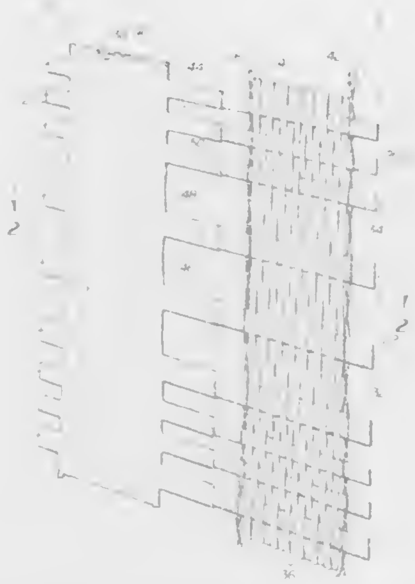
1. A way structure, comprising

A. a subgrade formed at least partially of soil.

B. a base course formed at least partially of a gravel material, and

C. a woven reinforcement membrane contacting the base course, comprising.

1. a plurality of fill member sets, each set formed of a plurality of bracketed fill members extending in a fill direction and a pair of bracketing fill members disposed adjacent the bracketed fill members, extending in the fill direction and bracketing the bracketed fill members, at least some of the fill members comprising a film substrate containing a plurality of slits, the fill member sets featuring first and second sides defining a portion of first and second sides of the reinforcement membrane; and



2. a plurality of warp member sets, each set formed of a plurality of warp yarns extending in a warp direction, alternate warp members in each warp member set positioned on the first and second sides of each fill member intersected by the warp member set, each warp member alternately positioned on first and second sides of successive fill members in a fill member set intersected by the warp member

5,735,641

Patent Not Issued For This Number

5,735,642

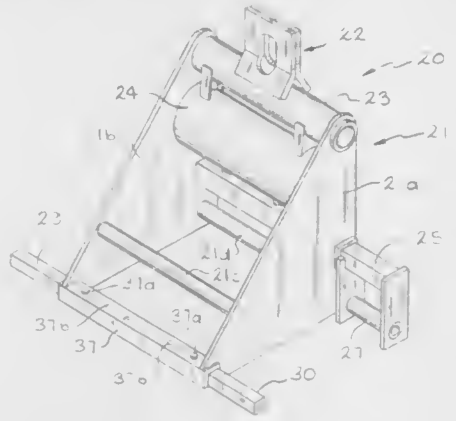
TRENCH SHIELD HANDLING ASSEMBLY

Luther Bradford Barringer, Richfield, N.C., assignor to Efficiency Production, Inc., Mason, Mich.

Filed Mar. 19, 1996, Ser. No. 618,310

Int. Cl.⁶ F02D *17/10*, B66C *1/00*

U.S. Cl. 405—282 **3 Claims**



1. In a trench shield handling assembly selectively adapted to safely and easily retainably engage a trench shield so as to have positive control thereof during lifting, handling, stacking thereof within its operative use position within a trench comprising:

a frame, said frame provided with upwardly extending excavator hook engaging means rotatably mounted on said frame, said excavator hook engaging means provided with counterweight means so as to maintain said upwardly extending excavator hook-engaging means in a vertical upright position when not in use:

a pair of lifting arms selectively extendable outwardly from said frame, said lifting arms provided with downwardly extending trench shield wall engaging means:

horizontally oriented stabilizer guide trench shield wall engaging means provided on said frame in spaced apart opposed position from said pair of lifting arms and said trench shield wall engaging means, said stabilizer guide means coacting with saie trench shield wall engaging means to provide positive control of a trench shield in engagement therewith.

5,735,643

RETAINING WALL SYSTEM

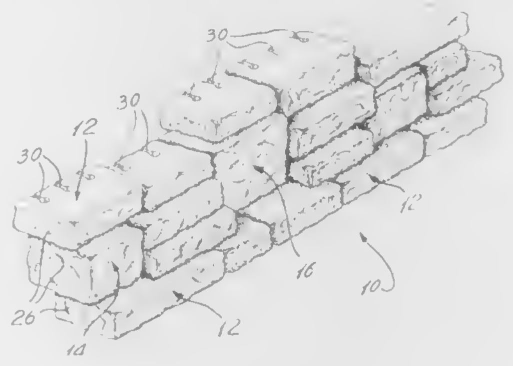
Bertin Castonguay, Magog, and Eric Milot, Montreal, both of Canada, assignors to Groupe Permacon Inc., Ville d'Anjou, Canada

Filed Jan. 22, 1996, Ser. No. 589,640

Claims priority, application Canada, Feb. 24, 1995, 2143379

Int. Cl.⁶ E02D *29/04*

U.S. Cl. 405—286 **19 Claims**



1. A kit for a retaining wall comprising:

at least two molded blocks adapted to be placed in a keyhole overlying position one to the other, each block having top, bottom, front, rear, and end faces, wherein the top and bottom faces are parallel, an opening extending into one of the blocks from one of the top, bottom, and end faces and parallel to the rear face, the key hole opening including a narrow slot extending toward the rear face.

a retaining member adapted to be inserted into the opening, the retaining member including a stem portion to be fitted into the opening, and a narrow shank portion projecting partly in said slot and beyond one of the top and bottom faces, the shank having an abutment portion which is parallel to the rear face, the abutment portion of the shank portion being adapted to engage a rear face of the other of the blocks to retain the one block in relation to the other.

5,735,644

PNEUMATIC TUBE SYSTEM AND BLOWER ASSEMBLY

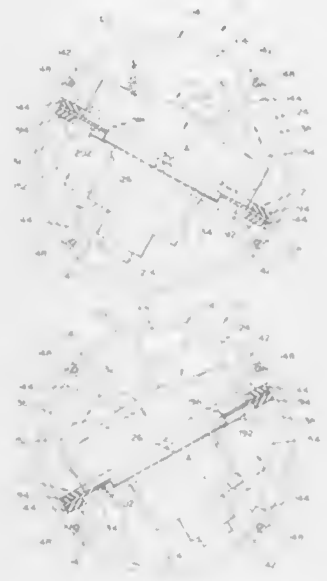
Leo J. Grosswiller, East Canton; Mark A. DePietro, Canton; Morton B. Albert, Akron; Kenneth L. Wilhelm, Massillon, and Robert J. Beck, North Canton, all of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed Mar. 25, 1996, Ser. No. 621,569

Int. Cl.⁶ B65G *51/26*

U.S. Cl. 406—112 **26 Claims**

1. A system for pneumatically transferring articles between two spaced apart locations comprising



a first terminal and a second terminal each having a carrier access opening therein.

a transfer tube connecting said first terminal to said second terminal.

a tubular carrier positionable within said transfer tube to be pneumatically transferred through said first and second terminals, said carrier being manually insertable into and removable from said terminals through said access openings.

a blower assembly within one of said terminals operable to create alternately a pressure or a vacuum in said transfer tube, said blower assembly comprising a housing having a first external port, a second external port, and a first chamber and a second chamber defined within said housing, said chambers being movable within said housing between a first position wherein said first port communicates with said first chamber and said second port communicates with said second port and a second position wherein said first port communicates with said second chamber and said second port communicates with said first chamber; and

a movable blower within said housing for producing a negative pressure in said first chamber and a positive pressure in said second chamber

8. A blower assembly for a pneumatic transfer tube system for alternately creating a pressure and a vacuum in a transfer tube, said blower assembly comprising

a housing having an inner surface defining an internal cavity within said housing and first and second ports communicating with said internal cavity:

an element dividing said cavity into a first isolated chamber and a second isolated chamber, said element being movable within said internal cavity wherein positions of said chambers relative to said housing are movable.

a blower movable within said housing having a vacuum end and a pressure end, said vacuum end communicating with said first isolated chamber and said pressure end communicating with said second isolated chamber, and

a drive assembly for moving said element between a first position wherein said first isolated chamber communicates with said first port and said second isolated chamber communicates with said second port, and a second position wherein said first isolated chamber communicates with said second port and said second isolated chamber communicates with said first port

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5,735,645
ROTARY CUTTING DEVICE

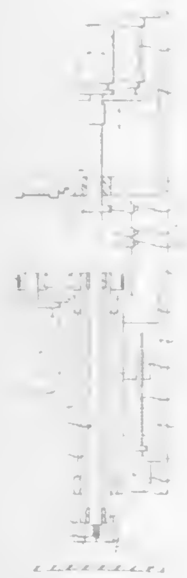
Manfred Dungs, Klein-Ostheim, Germany, assignor to Branson Ultraschall, Dietzenbach, Germany

Filed Feb. 12, 1996, Ser. No. 599,760

Claims priority, application Germany, Feb. 13, 1995, 195 05 111.4

Int. Cl.⁶ B23B *35/00 51/05*

U.S. Cl. 408—1 R **14 Claims**



1. In a cutting device for making holes in walls of hollow bodies made of plastic material, including a mounting means to which a cutting tool for cutting out a hole is secured, said mounting means being rotatably driven and performing an axial feeding motion, and a disk engaging member penetrating a disk which becomes separated in cutting the hole, said engaging member centrally penetrating said disk with respect to the periphery of the hole and said engaging member withdrawing the separated disk which is then removed from the engaging member, the improvement comprising a drive assembly for axially displacing and rotatably driving said engaging member independent of said cutting tool, said engaging member including a self cutting threaded profile turned into the disk before starting the cutting operation of the cutting tool and engaging said disk by forming a thread by means of the self cutting thread of said engaging member.

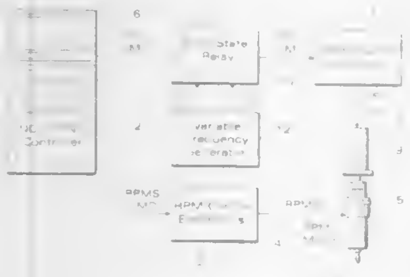
5,735,646
INTERRUPTIBLE FEED RATE DRILLING SYSTEM

Wayne K. Finn, Torrance, Calif., assignor to Excellon Automation Company, Torrance, Calif.

Filed Sep. 22, 1995, Ser. No. 532,122

Int. Cl.⁶ B23B *47/18*

U.S. Cl. 408—3 **11 Claims**



1. A drilling system including a tool, said drilling system comprising:

(a) at least one in feed drive motor for feeding said tool;

(b) at least one tool drive motor for driving said tool;

(c) at least one controller for generating in feed drive signals for controlling said in feed motor;

(d) an electrical circuit for selectively changing the in feed drive signal for the in feed drive motor;

(e) a switch adapted for intercepting the in feed drive signal generated by said controller and selectively outputting portions of said in-feed drive signal to said in feed drive motor when said switch is operated; and

(f) an electrical oscillator for electrically controlling said switch.

5,735,647
TAP HOLE DRILL FOR STEELMAKING VESSEL

Robert L. Woodings, Pittsburgh, and Martin P. Miller, Portersville, both of Pa., assignors to Woodings Industrial Corporation, Mars, Pa.

Filed Feb. 14, 1996, Ser. No. 599,982

Int. Cl.⁶ B23B *49/14*

U.S. Cl. 408—103 **20 Claims**

1. A drilling apparatus for drilling a worn or damaged tap hole refractory liner sleeve from a tap hole nozzle of an oxygen blown steelmaking vessel, said drilling apparatus comprising:

(a) an elongated, hollow boom structure;

(b) an elongated drill shaft rotatably disposed within said boom structure, an outer working end of said drill shaft adapted to extend beyond an outer end of said boom structure and further adapted to receive a drill bit;

(c) a first motor means for rotating said drill shaft within said boom structure;

(d) a second motor means for selectively moving said drill shaft axially in both directions within said boom structure; and

(e) a clamp means disposed on said outer end of said boom structure adapted to engage an outer end of such tap hole nozzle on such steelmaking vessel and axially align said boom structure and said drill shaft with such tap hole nozzle.

5,735,648
TOOL BIT WITH CARRIER MEMBER AND CUTTING MEMBER

Werner Kleine, Achim, Germany, assignor to Hilti Aktiengesellschaft, Schaan, Liechtenstein

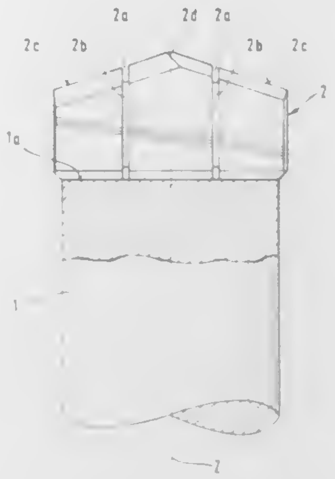
Filed Nov. 28, 1995, Ser. No. 566,575

Claims priority, application Germany, Nov. 28, 1994, 44 42 266.0

Int. Cl.⁶ B23B *51/00;* **E21B** *10/36*

U.S. Cl. 408—144 **20 Claims**

1. A tool bit for use in at least one of drilling and cutting operations in concrete, rock, or masonry comprising an axially extending carrier member (1) having an axis (Z), said carrier member having a working end, a cutting member (2, 3, 4, 5, 6, 7, 8, 9, 10, 11) formed of at least one of a hard material and a carbide material secured in the working end of said carrier member (1), said cutting member (2, 3, 4, 5, 6, 7, 8, 9, 10, 11) having at least one expansion joint (2*a*, 3*a*, 4*a*, 5*a*, 6*a*, 7*a*, 8*a*, 9*a*, 10*a*, 11*a*) therein extending substantially parallel to the axis (Z) of said carrier member.



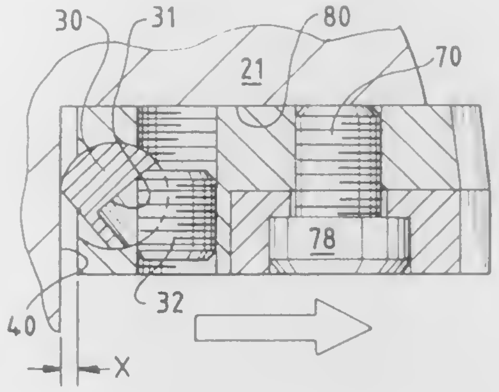
5,735,649
MACHINE TOOL CUTTER POSITION ADJUSTMENT DEVICE

William Boscarino, Des Plaines; Klaus Lohner, Elgin, and John E. Burley, Hanover Park, all of Ill., assignors to Kaiser Precision Tooling, Inc., Elk Grove Village, Ill.

Filed Oct. 8, 1996, Ser. No. 727,012

Int. Cl.⁶ B23B *27/16*

U.S. Cl. 408—153 **13 Claims**



1. A cutter adjustment mechanism for a machine tool, comprising:

a tool head having a recess at least partly defined by at least one planar wall;

at least one means for cutting having at least one edge abutting a planar wall of the recess, adapted to be removably nested in the recess; and,

means for adjusting the position of the cutting means relative to the planar wall, having a non-circular cross-section, so that the surface of the means for adjusting tangentially contacts the planar wall and biases the cutting means toward or from the planar wall as the means for adjusting is rotated.

5,735,650
DRILL BIT FOR DRILLING AN UNDERCUT HOLE

Masaaki Miyanaga, Ashiya, Japan, assignor to Kabushiki Kaisha Miyanaga, Hyogo, Japan

Filed Jan. 17, 1996, Ser. No. 587,395

Claims priority, application Japan, Feb. 28, 1995, 7-040131

Int. Cl.⁶ B23B *29/034*

U.S. Cl. 408—156 **3 Claims**

1. A drill bit for drilling an undercut hole in an object, comprising:

a body having a shank at one end,

a drill bit projecting from the other body end,

a thrust transmitting member adapted for slidable movement on the body and having a contact portion which comes into contact with the surface of the object to be drilled,

a guide groove extending axially in the outer surface of the drill bit and having a sloped surface formed at the bottom thereof,

an undercut cutting member movably mounted in the guide groove and including an undercut cutting edge at the bottom thereof corresponding to the sloped surface,

a pull up spring coupled to the undercut cutting member,

a working force transmitting mechanism coupled intermediate the thrust transmitting member and the undercut cutting member, to press down the undercut cutting member against the resistance of the pull up spring in response to movement of the body and the thrust transmitting member with respect to each other thereby causing the undercut cutting edge to protrude outwardly of the drill bit outer surface,

the thrust transmitting member includes a cylindrical sleeve including an upper end, the contact portion at the sleeve bottom, and an elongated hole in the sleeve;

the body includes a lower portion adapted to fit inside the upper end of the cylindrical sleeve,

a lock pin projecting from the body and engageable with the elongated hole in the cylindrical sleeve,

the pull-up spring is mounted between the contact portion of the cylindrical sleeve and the undercut cutting member, and

the working force transmitting mechanism includes

(1) a plurality of balls housed consecutively in an inverse U-shaped hole made in the body to form a train of balls,

(2) a pair of connecting rods projecting from the body to make contact with respective ends of the train of balls,

the lower end of one of the connecting rods engageably contacting the contact portion of the cylindrical sleeve, and

the lower end of the other connecting rod engageably contacting the undercut cutting member.

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5,735,651
SPINDLE EXTENSION WITH SELF-CONTAINED DRAW BAR

Hugh Harroun, 1101 Fenway Cir., Fenton, Mich. 48430
Continuation-in-part of Ser. No. 298,473, Aug. 29, 1994. This application Jun. 7, 1995, Ser. No. 473,861
Int. Cl.^{6} B23C *5/26*
U.S. Cl. 409—233 **20 Claims**

1. A machine for milling operations, comprising:

a spindle that rotates about a spindle axis and has a terminal end;

an extension having a first extension end removably connected to said spindle adjacent said spindle terminal end and a second extension end distal from said first end, said second end being adapted to be coupled to a tool, said extension being connected to said spindle such that said extension rotates with said spindle, said extension having a stop for preventing a tool that is coupled to said extension from rotating relative to said extension,

a draw bar assembly having an adjustable length and being disposed partially within said extension and axially moveable relative to said extension, said assembly including a pull member at one end of said assembly and having a second end for engaging a tool; and

an actuator for engaging said pull member and axially moving said draw bar assembly in a direction toward said spindle such that said draw bar assembly second end engages a tool.

5,735,652
BROACHING CUTTER

David R. Lund, Charleston, S.C., assignor to Victory in Jesus Ministries, Summerville, S.C.
Filed Jul. 21, 1995, Ser. No. 505,570
Int. Cl.^{6} B23D *9/00;* **B23B** *41/04*
U.S. Cl. 409—288 **16 Claims**

1. A device for broaching a workpiece, comprising:

a first shaft having a first axis of rotation;

a second shaft having a second axis of rotation;

a cutter bit carried by said second shaft;

a rotor attached to said first shaft and rotatable therewith, said second shaft being in operational connection with said rotor; and

means for varying a radial displacement of said second shaft with respect to said first shaft as said first shaft rotates with respect to a workpiece so that said cutter bit revolves around said first axis and can broach said workpiece when said cutter bit is brought into engagement with said workpiece, wherein said means for varying a radial displacement of said second shaft comprises:

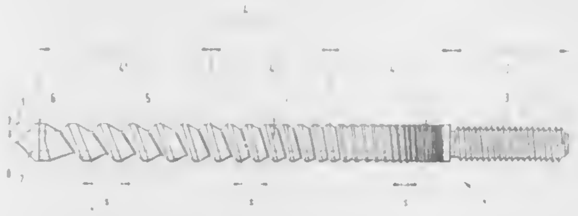
a holder having a cam race formed therein;

a cam follower engaging said holder so that said cam follower follows said cam race when said second shaft revolves around said first axis; and

a connector carried by said rotor and attached to said cam follower, said connector rotatable with said rotor and said first shaft, said cam follower rotating with said connector.

5,735,653
ANCHOR ROD FOR COMPOSITE ANCHORS

Erwin Schiefer, München, and Franz Popp, Buchloe, both of Germany, assignors to Hilti Aktiengesellschaft, Schaan
Filed Feb. 26, 1997, Ser. No. 806,817
Claims priority, application Germany, Mar. 7, 1996, 196 08 859.3
Int. Cl.^{6} F16B *39/00, 39/02,* **F21D** *20/00*
U.S. Cl. 411—82 **8 Claims**



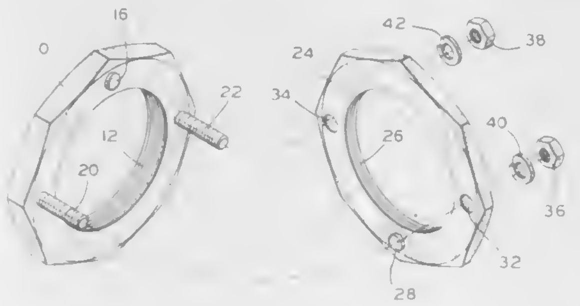
1. An anchor rod for use in a composite anchor where the anchor rod is inserted into a borehole in an anchorage base material containing at least one of an organic and inorganic mortar mass in the borehole, wherein the anchor rod comprises an axially extending rod having a leading end inserted first into the borehole and a trailing end, said rod has an axially extending anchoring region (4) with a thread-like profiling (5) extending axially from the leading end towards the trailing end on an outer surface thereof arranged to interact with the mortar mass in the borehole, means for engaging a load on a trailing end region (2) extending axially from the trailing end towards said anchoring region (4), said thread-like profiling (5) comprises a coarse screw thread having thread pitches (s) diminishing in the axial direction from said leading end to said trailing end region (2).

5,735,654

Patent Not Issued For This Number

5,735,655
LOCK NUT ASSEMBLY FOR VEHICLE AXLES

Thomas M. Callan; Brian T. Callan, both of Defiance, and Kevin R. Diven, Cecil, all of Ohio, assignors to The Defiance Stamping Company, Defiance, Ohio
Filed Apr. 7, 1997, Ser. No. 835,318
Int. Cl.^{6} F16B *37/08; 39/22*
U.S. Cl. 411—291 **6 Claims**



1. A lock nut assembly adapted to be locked on an externally threaded shank having a longitudinal axis comprising:

at least a pair of coaxially oriented nut members having facing surfaces and having threads formed on the inner peripheral surfaces complimenting and cooperating with the externally threaded shank, said nut members containing wrench receiving flats on the outer circumferential surfaces thereof;

spaced apart boss means extending from at least one of the facing surfaces of said nut members toward the facing surface of the other of said nut members, said boss means assuring a minimal spacing between the facing surfaces of said nut members;

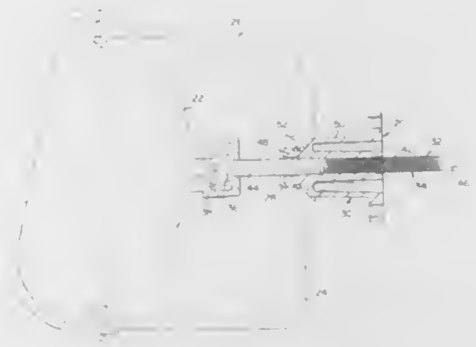
threaded shank memos extending from the facing surface of at least one of said nut members, said shank means extending in a direction parallel to the longitudinal axis of the externally threaded shaft,

aperture means in the other of said nut members for slidingly receiving said threaded shank means, said aperture means enabling said nut members to readily move axially of one another during the application of the assembly on the externally threaded shank, and

nut means receivable on said threaded shank means for tightening said nut members to effect an axial movement thereof to effect a jamming action between the threads formed on the inner peripheral surfaces of said nut members and the externally threaded shank to restrict relative rotational movement between said nut members and externally threaded shank.

5,735,656
SELF-SEALING THROUGH ADJUSTOR

Michael D. Marvell, and Adam W. Solberg, both of Rockford, Ill., assignors to Textron Inc., Providence, R.I.
Filed Dec. 19, 1995, Ser. No. 575,100
Int. Cl.^{6} F16B *35/00; 35/06;* **B60Q** *1/06*
U.S. Cl. 411—366 **11 Claims**

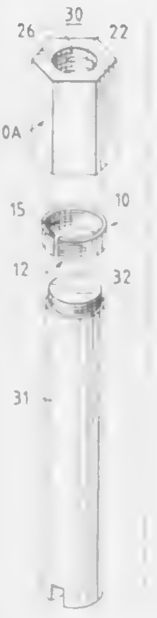


1. A headlamp adjustor mechanism for effecting pivotal movement of a movable headlamp component in a headlamp arrangement comprising: a bushing, said bushing having a bore therethrough, said bore being initially unthreaded and having a predetermined inner diameter, and an adjusting screw member for engagement within said bore, said adjusting screw member having a threaded shank portion and an unthreaded shank portion, said threaded shank portion of said adjusting screw member having a predetermined crest diameter, and said unthreaded shank portion having a predetermined outer diameter, said inner diameter of said initially unthreaded bore being sized relative to said crest diameter of said threaded shank portion such that internal threads are created within said bore when said threaded shank portion contacts said bore, said resulting internal threads having a crest diameter sized relative to said outer diameter of said unthreaded shank portion such that said internal threads are collapsed against said unthreaded shank portion when said unthreaded shank portion contacts said internal threads in said bore to seal said bushing against said unthreaded shank portion, thereby deterring entrance of air and/or contaminants through said bore and into an interior of the headlamp arrangement.

5,735,657
ORBITAL THREADED FASTENER ASSEMBLY

Patrick J. Slepekis, Sturgeon Bay, Wis., assignor to Amkus, Inc.
Filed Aug. 5, 1996, Ser. No. 694,656
Int. Cl.^{6} F16B [illegible]
U.S. Cl. 411—383 **14 Claims**

1. An orbital nut assembly comprising:

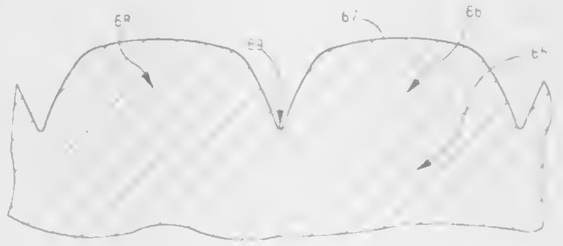


a thread ring of a generally cylindrical shape having internal and external surfaces and a cylindrical axis and a slot therein along the axial length thereof, said thread ring being sufficiently flexible and resilient that the diameter of said thread ring can be temporarily altered by altering the width of said slot, said thread ring having a first series of alternating, circumferential, coaxial grooves and teeth on the external surface thereof, said thread ring having a thread formed on the internal surface thereof; and

an orbital nut having a second series of alternating, coaxial, circumferential grooves and teeth on the internal surface thereof dimensioned and positioned to engage respectively with the teeth and grooves of the first series on the thread ring such that the relative axial positions of the thread ring and the orbital nut cannot change.

5,735,658
THREAD FORMING TOOL

Anton Härle, Drechslerweg 40, D-48161 Münster, Germany
Continuation-in-part of Ser. No. 349,715, Dec. 5, 1994, Pat. No. 5,544,993. This application Jun. 10, 1996, Ser. No. 661,290
Claims priority, application Germany, Dec. 13, 1993, 43 42 415.5
Int. Cl.^{6} B23B *51/00;* **B21D** *17/02;* **F16B** *35/04*
U.S. Cl. 411—414 **31 Claims**



1. A tool comprising means for providing a fastener with a thread having a longitudinal axis, a pitch diameter, a root, a crest and two flanks each extending between said root and said crest and each having a first section disposed between said crest and an imaginary cylinder having said pitch diameter and an axis at least substantially coinciding with said longitudinal axis, each first section making an angle of less than approximately 40° with a plane which is normal to said longitudinal axis and each of said flanks further having an arcuate second section disposed between said

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root and said imaginary cylinder, said second sections jointly including at least four portions having different radii of curvature

5,735,659
BINDING APPARATUS WITH SPINE COVER PRINTING APPARATUS

Hideaki Kosasa, Tokyo; Toshihiko Kusumoto, Yokohama; Yoshimasu Yamaguchi, Kawasaki; Hiroshi Ota, Tokyo; Yuji Yamanaka, Kawasaki, and Kozo Sakakibara, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 14, 1995, Ser. No. 528,416

Claims priority, application Japan, Sep. 14, 1994, 6-248506; Sep. 16, 1994, 6-221751

Int. Cl. B42B *9/00*

U.S. Cl. 412—9 **18 Claims**

1. A bookbinding apparatus comprising:

pasting means for pasting a bookbinding spine cover sheet on a sheet set;

printing means for printing an image on the bookbinding spine cover sheet;

inputting means for inputting data to be used for printing the image by said printing means, wherein when the data are inputted through said inputting means, the sizes of the image to be printed on the bookbinding spine cover sheet by said printing means are selectable;

thickness detecting means for detecting the thickness of the sheet set to be bound; and

regulating means for regulating the sizes of the image to be printed on the bookbinding spine cover sheet in response to the thickness detected by said thickness detecting means.

5,735,660
LOAD HANDLING

Glynn Arthur Ellis, Loughborough, England, assignor to Razedge Limited, England

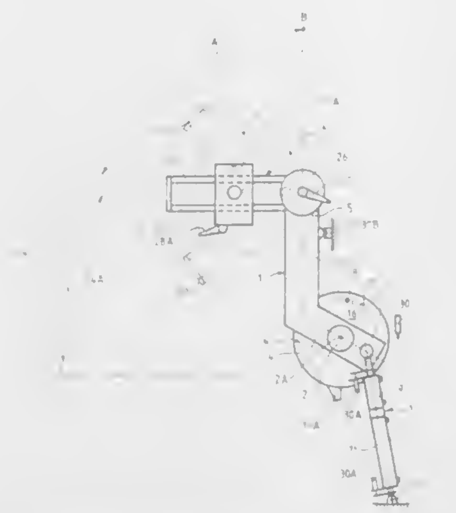
PCT No. PCT/GB93/00321, § 371 Date Oct. 11, 1994, § 102(e) Date Oct. 11, 1994, PCT Pub. No. WO93/15875, PCT Pub. Date Aug. 19, 1993

PCT Filed Feb. 15, 1993, Ser. No. 284,690

Claims priority, application United Kingdom, Feb. 14, 1992, 9203156

Int. Cl. B23Q *7/04*

U.S. Cl. 414—225 **14 Claims**



1. An apparatus for handling a circular saw blade for the purpose of performing a work operation on the blade at a work station comprising:

means for carrying the blade between a supply stack of blades upon which the work operation is to be performed and the work station at which the work operation is performed on the blade, and for carrying the thus worked upon blade to a blade off loading position at which the blade can be off loaded from the carrying means;

means for supporting the supply stack of blades upon which the work operation is to be performed;

means for transferring the blade from the supply stack onto a second blade support means carried by the carrying means, said means for transferring the blade, when at said work station, also enabling transfer of the blade from the second support means to a third support means provided at the work station, said third support means enabling indexing of the blade through the work station, and said transferring means also enabling transfer of the blade from the third blade support means back to the second support means on the carrying means for subsequent movement to the blade off loading position.

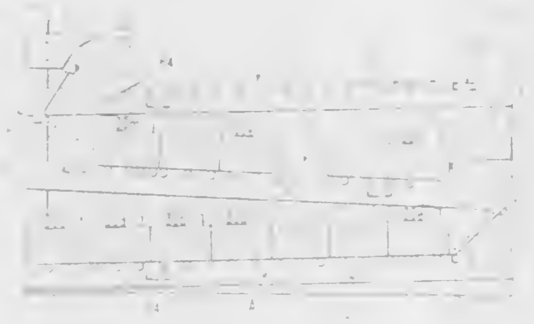
5,735,661
TRANSPORTER FOR STORING AND CARRYING MULTIPLE ARTICLES, SUCH AS COIN COLLECTION BOXES

Alexis W. De Frondeville, Somerville, Mass.; Howard M. Citron, South Salem; David K. Asano, Yorktown Heights, both of N.Y., and Jeffrey H. Hahn, Greenwich, Conn., assignors to Nynex Science & Technology, Inc., White Plains, N.Y.

Filed Oct. 31, 1995, Ser. No. 550,562

Int. Cl.⁶ B65G *1/04*

U.S. Cl. 414—276 **18 Claims**



1. A tiered article transporter for carrying and storing a plurality of similar articles in a compact configuration comprising:

a transporter framework;

transport means connected to said framework for enabling manual movement of said transporter;

a conveyor system comprising a plurality of article conveyors mounted one above the other in said framework; and

article transfer carriages mounted in said framework, each said carriage having article transfer means for directing articles between adjacent ones of said conveyors, each said article transfer means comprising control means and guide means, each said control means spaced from and extending toward the end of one of said conveyors for engaging one of said articles on a corresponding one of said conveyors to block forward movement of said articles and for selectively permitting said one of said articles to tilt forwardly and tumble below an end of said corresponding one of said conveyors, and said guide means spaced below said corresponding one of said conveyors for intercepting said articles as they tumble and for guiding said articles onto an adjacent one of said conveyors.

5,735,662
ADJUSTABLE WAFER TRANSFER MACHINE

Ernest C. Nichols, Boise, and Leo L. Malmin, Jr., Nampa, both of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed May 14, 1996, Ser. No. 649,942

Int. Cl.⁶ B65G *1/10*

U.S. Cl. 414—331 **10 Claims**

1. An adjustable wafer transfer machine, comprising:

a. a base;

b. a moveable transfer arm operatively coupled to the base;

c. a pair of vertically oriented flat plates disposed parallel to and opposite one another over the base, the plates being spaced apart a distance sufficient to allow the horizontal passage of the wafers therebetween and each plate having a series of vertically oriented slots therein; and

d. a plurality of elongated opposing dividers slidably mounted in respective ones of the slots in the plates, the dividers being disposed vertically adjacent to one another at spaced apart intervals and extending horizontally for supporting the wafers along a portion of their perimeter and the dividers moveable in the slots between a first position wherein the dividers are spaced apart a first distance and a second position wherein the dividers are spaced apart a second distance greater than the first distance.

5,735,663
WASTE COLLECTION SYSTEM

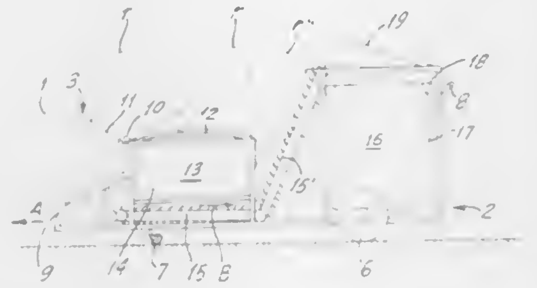
Kurt Zachhuber, Heubergstrasse 4, D-83026, Rosenheim, Germany

Filed Oct. 15, 1996, Ser. No. 730,243

Claims priority, application Germany, Apr. 15, 1994, 44 13 103.8

Int. Cl.⁶ B65F *3/02*

U.S. Cl. 414—338 **8 Claims**



1. Waste collection system comprising a waste receptacle (**1**) and a collection vehicle (**2**) suitable for the mechanized emptying thereof, whereby the waste receptacle (**1**) is suspended from a supporting frame (**3**) by way of a swivel bearing (**22**) so as to swivel around a horizontal axis (**5**), and the collection vehicle (**2**) includes a catch basin (**13**) into which the waste receptacle is emptied when it is swiveled out of its upright position, when the collection vehicle drives past said receptacle and guides the catch basin under the waste receptacle,

wherein the swivel bearing (**22**) is allowed to freely swing the waste receptacle through its upright position and the collection vehicle features a tipping mechanism for the waste receptacle (**1**), which includes a grip element (**10**) that takes hold of a projection or the rim (**11**) of the inclined waste receptacle (**1**) and turns it upside down.

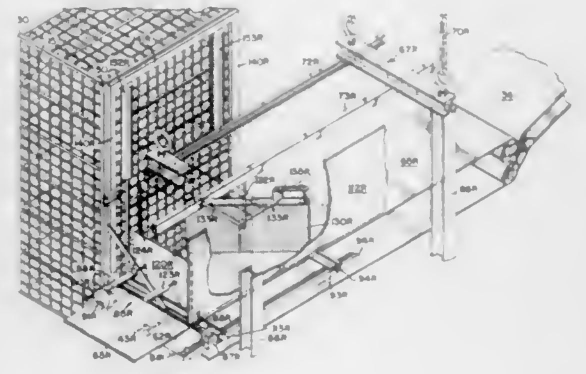
5,735,664
APPARATUS AND METHOD FOR UNLOADING POULTRY FROM MULTILAYER CONTAINERS

Wallace H. Jerome, 1480 E. Maple Ave., Barron, Wis. 54812

Filed Dec. 29, 1995, Ser. No. 578,170

Int. Cl.⁶ B65G *67/24*

U.S. Cl. 414—393 **28 Claims**



1. Carriage apparatus for unloading turkeys from a transport coop of the type having a movable gate for selectively opening and closing an access port into the coop and a floor slidably movable relative to the coop through the access port, comprising:

(a) means for aligning said carriage apparatus in unloading position relative to said coop;

(b) mechanical gate opening means for selectively engaging and moving said gate to open and close said access port of said coop;

(c) mechanical floor engaging means for engaging and moving said floor out of and into said coop through said coop access port; and

(d) mechanical means for urging turkeys carried by said floor off of said floor and onto an unloading receptor when said floor is positioned in an extended manner out of said coop and through said access port.

5,735,665
REACTION HYDRAULIC TURBINE

Han Sol Kang, 129-6 Seowan San-dong, 2ga, Wansan-ku, Chonju-shi, Chollabuk-do 560-150, Rep. of Korea

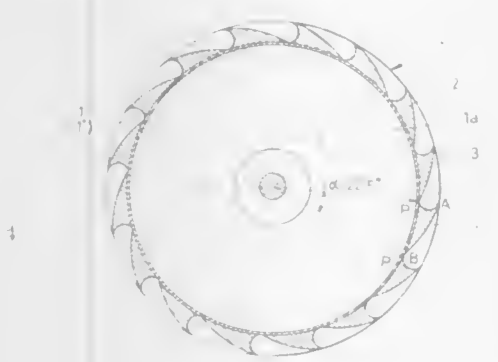
PCT No. PCT/KR95/00038, § 371 Date Oct. 18, 1996, § 102(e) Date Oct. 18, 1996, PCT Pub. No. WO95/28564, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 13, 1995, Ser. No. 737,117

Claims priority, application Rep. of Korea, Apr. 18, 1994, 1994-8047

Int. Cl.^{6} F03B *13/02*

U.S. Cl. 415—3.1 **4 Claims**



1. A reaction hydraulic turbine including a longitudinal hermetically sealed cylinder, said cylinder having a radius, a middle portion, circular side panels attached at each of its two ends, an outer surface and an inner surface, wherein each said side panel having a radius larger than that of said cylinder, and a plurality of regularly spaced blades axially attached to the outer surface of said cylinder, each said blade comprising:

an internal surface curved as a half-cylinder defined by a diameter equal to a difference between the radius of the side panels and the radius of the cylinder; and

an external surface curved as a streamline curve extending from the internal surface of the blade to the internal surface of the following blade wherein a ratio of the cylinder radius to the side panel radius is define to be between 4.5 and 4.6.

5,735,666
SYSTEM AND METHOD OF CONTROLLING THRUST FORCES ON A THRUST BEARING IN A ROTATING STRUCTURE OF A GAS TURBINE ENGINE

Richard P. Johnston, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Dec. 31, 1996, Ser. No. 775,650

Int. Cl.^{6} F01D *3/04*

U.S. Cl. 415—34 **19 Claims**

1. A system for controlling thrust forces on a thrust bearing in a rotating structure of a gas turbine engine, comprising:

(a) means for providing thrust load compensation to said thrust bearing;

(b) a control for operating said thrust load compensation means; and

(c) a sensor for detecting rotational cage speed of said thrust bearing, said sensor providing a signal to said control when a ratio of said rotational cage speed to a rotational speed of said rotating structure falls below a specified amount;

wherein said control causes said thrust load compensation means to provide an additional predetermined load on said thrust bearing so that a resultant load thereon is within a specified load range.

5,735,667
METHOD AND APPARATUS FOR MINIMIZING LEAKAGE IN TURBINE SEALS

William P. Sanders, Aurora, Canada, and Anthony F. Mitola, Clifton Park, N.Y., assignors to Innovative Technology, L.L.C.

Filed May 6, 1996, Ser. No. 643,192

Int. Cl.^{6} F04D *29/08*

U.S. Cl. 415—170.1 **19 Claims**

1. An apparatus for sealing a leakage path in a turbine comprising:

a sealing ring comprising a base portion and a tooth portion, the sealing ring being supported coaxially about a rotatable member of the turbine by means for supporting the sealing ring; and

means for generating, from rotary motion of a working fluid relative to the sealing ring in a portion of the leakage path adjacent a high pressure side of the sealing ring, a region of lowered pressure in the working fluid in the portion of the leakage path adjacent the high pressure side of the sealing ring.

5,735,668
AXIAL BEARING HAVING INDEPENDENT PADS FOR A CENTRIFUGAL PUMP

Manfred P. Klein, Highland Park, Ill., assignor to Ansimag Inc., Elk Grove Village, Ill.

Continuation-in-part of Ser. No. 610,351, Mar. 4, 1996, abandoned. This application May 13, 1996, Ser. No. 645,177

Int. Cl.^{6} F04D *29/04, 29/16*

U.S. Cl. 415—172.1 **62 Claims**

51. A centrifugal pump comprising:

a housing having a housing cavity, an inlet, and an outlet;

a shaft located in the housing cavity;

a radial bearing coaxially surrounding said shaft, the shaft and the radial bearing being rotatable with respect to one another;

an impeller positioned to receive a fluid from the inlet and to exhaust a fluid to the outlet, the impeller cooperating with the shaft;

an axial bearing coaxially located around said shaft, the axial bearing being associated with said impeller, the axial bearing having pads, a ring, and retaining means for retaining the pads, each of said pads having a first side and a second side; the ring having a first face, the first face being located adjacent to the first side of each pad, retaining means for retaining said pads restricting the radial movement of said pads, the second side of each pad disposed within said retaining means, said pads interlocking with said retaining means, the first side of each of said pads oriented substantially parallel to the first face the impeller having a front shroud; said retaining means comprising a set of pockets located in the front shroud; the pockets being arranged at an offset angle with respect to an imaginary circle which is concentric with an impeller periphery of the impeller.

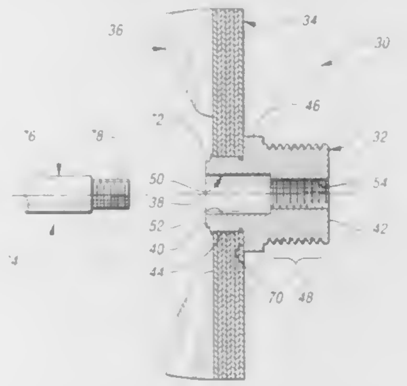
5,735,669
FLY WHEEL ASSEMBLY AND METHOD OF FORMING

Paul W. Niemela, Pickens, S.C., assignor to Ryobi North America, Easley, S.C.

Filed Jul. 31, 1996, Ser. No. 688,718

Int. Cl.^{6} D05B *81/00*, **F04D** *29/30*

U.S. Cl. 416—60 **7 Claims**



1. A combination flywheel, fan and pulley member for attachment to a motor shaft, the member comprising:

a central hub extending along a central axis having a pair of spaced apart ends, a first circumferential surface, a second circumferential surface defining a pulley which is axially spaced from the first circumferential surface, and a central bore extending at least partially through the central hub for cooperation with the motor shaft;

at least one disk formed of a sheet metal stock, the at least one disk having a generally circular outer periphery, and a central aperture sized to cooperate with the central hub first circumferential surface; and

a stamped sheen metal centrifugal fan having a plurality of circumferentially spaced apart, radially extending blades projecting axially from a generally flat axial face and a central aperture sized to cooperate with the central hub first circumferential surface,

wherein the fan and the at least one disk are securely mounted adjacent one another on the central hub first circumferential surface with the fan flat axial face abutting a flat side of at least one disk, and are permanently affixed to the central hub by staking an axial end of the hub adjacent the first circumferential surface.

6. A method of forming a combination flywheel, fan and pulley member for attachment to a motor shaft, the method comprising the steps of:

turning a central hub from bar stock, wherein the hub has a central axis having a pair of spaced apart ends, a first circumferential surface, a second circumferential surface defining a pulley which is axially spaced from the first circumferential surface, and a central bore extending at least partially through the central hub for cooperation with the motor shaft;

stamping a centrifugal fan from sheet metal stock having a plurality of circumferentially spaced apart, radially extending blades projecting axially from a generally flat axial face and a central aperture sized to cooperate with the central hub first circumferential surface;

stamping a plurality of metal disks from sheet metal stock, each disk having a generally circular outer periphery and a central aperture sized to cooperate with the central hub first circumferential surface;

installing the plurality of disks on the first circumferential surface of the central hub sufficient to achieve a desired finished assembly weight;

installing the centrifugal fan upon the first circumferential surface of the central hub; and

attaching at least one of the axially spaced apart ends of the central hub to the centrifugal fan, to securely retain the centrifugal fan and the plurality of disks on the central hub, limiting axial movement and relative rotation therebetween.

5,735,670
ROTOR SYSTEM HAVING ALTERNATING LENGTH ROTOR BLADES AND POSITIONING MEANS THEREFOR FOR REDUCING BLADE-VORTEX INTERACTION (BVI) NOISE

Robert C. Moffitt, Seymour; David G. Matuska, Huntington, both of Conn., and Evan A. Fradenburgh, New London, N.H., assignors to Sikorsky Aircraft Corporation, Stratford, Conn.

Filed Dec. 11, 1995, Ser. No. 569,390

Int. Cl.^{6} B64C *11/28*

U.S. Cl. 416—87 **23 Claims**

13. A Variable Diameter Rotor system (4) for rotorcraft and operative to reduce Blade Vortex Interaction (BVI) noise, said rotorcraft operating in first, second and third operating modes, comprising:

a rotor hub assembly (6) defining an axis of rotation (8) about which said rotor hub assembly (6) rotates,

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odd and even blade assemblies (O$_i$, E$_i$) mounting on and rotating with said rotor hub assembly (6), each of said rotor blade assemblies (O$_i$, E$_i$) having inboard and outboard blade sections (10, 12) defining an internal chamber (64), said outboard blade section (12) telescopically mounted to said inboard blade section (10) and being biased outwardly of said rotational axis (8) by centrifugal loads C acting thereupon;

said odd and even rotor blade assemblies (O$_i$, E$_i$) each defining a radial length R$_o$, and R$_e$, respectively,

means (70) for positioning said outboard blade sections (12) with respect to said inboard blade sections (10), said positioning means (70) further including

a centrifugal restraint assembly (80) disposed in each said internal chamber (64), each said centrifugal restraint assembly (80) including

a retention block (82) disposed in combination with said outboard blade section (12),

a cradle member (84) disposed in sliding combination with an internal wall (64$_w$) of said internal chamber (64), and

a connecting means (86) disposed between and mechanically coupling said retention block (82) to said cradle member (84);

said cradle members (84) being biased outwardly of said rotational axis (8) by said centrifugal forces C, acting on said outboard blade section (12);

said cradle members (84) and the tip end of said outboard blade sections (12) defining a length dimension L therebetween

a stop surface (64s) formed internally of each said internal chamber (64), said stop surfaces (64s$_o$) of said odd blade assemblies (O$_i$), defining a radial distance Rs$_o$, from said rotational axis (8) and said stop surfaces 64s$_e$ of said even blade assemblies (E$_i$) defining a radial distance Rs$_e$ from said rotational axis (8), said radial distance Rs$_e$ of said stop surface (64s$_e$) being between about 0.7Rs$_o$−0.3L to about 0.95Rs$_o$−0.05L, and

actuation means (90), in combination with said centrifugal forces C acting on said outboard blade section (12) operative for transpositioning said cradle members (84) within said internal chambers (64) such that said cradle members (84) are disposed in abutting engagement with said stop surfaces (64s) in one of the operating modes and in abutting engagement with said actuation means (90) in another of said operating modes

whereby, in the first operating mode, said actuation means (90) is disengaged from said cradle members (84$_e$) of said even blade assemblies (E$_i$) such that said cradle members (84$_e$) thereof are positioned in abutting engagement with said stop surfaces (64s$_e$) of said even blade assemblies (E$_i$), and said actuation means (90) is disposed in abutting engagement with said cradle members (84$_o$) of said odd blade assemblies (O$_i$) such that said odd and even blade assemblies (O$_i$, E$_i$) are fully extended, and said radial length R$_e$ of said even blade assemblies (E$_i$) is equal to said radial length R$_o$, of said odd blade assemblies (O$_i$),

whereby, in the second operating mode, said actuation means (90) transpositions said cradle members (84$_o$) of said odd blade assemblies (O$_i$) such that said cradle members (84$_o$) thereof are disposed in abutting engagement with said stop surfaces (64s$_o$), said odd and even blade assemblies (O$_i$, E$_i$) alternately vary in length, and said radial length R$_e$ is between about 70% to about 95% of said radial length R$_o$, and

whereby, in the third operating mode, said actuation means (90) engages said cradle members (84) of said odd and even blade assemblies (O$_i$, E$_i$) for transpositioning said cradle members (84) thereof such that said odd and even blade assemblies (O$_i$, E$_i$) are fully retracted and said radial length R$_e$ of said even blade assemblies (E$_i$) is equal to said radial length R$_o$ of said odd blade assemblies (O$_i$).

5,735,671

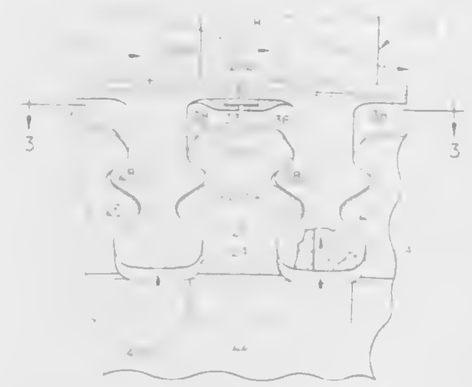
SHIELDED TURBINE ROTOR

John C. Brauer, Lawrenceburg, Ind.; David A. Di Salle, Hamilton; Edward P. Brill, West Chester, both of Ohio; Robert J. Albers, Park Hills, Ky., and Dean T. Lenahan, Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Nov. 29, 1996, Ser. No. 759,093

Int. Cl.^{6} F01D *5/08*

U.S. Cl. 416—95 10 Claims



1. A turbine rotor comprising:

a rotor disk having a plurality of circumferentially spaced apart axially extending dovetail slots defining therebetween respective disk posts, with each post having a radially outer top land and a plurality of tangs spaced radially below said top land inside adjacent ones of said slots;

a plurality of turbine blades each having a dovetail mounted in a respective one of said dovetail slots for radially retaining said blade, a platform integral with said dovetail and extending circumferentially to adjoin adjacent ones of said platforms to define a radially inner flowpath, and an airfoil integral with said platform for extracting energy from combustion gases flowable thereover; and

a thermal barrier coating fixedly bonded to each of said disk post top lands for providing thermal insulation between said platforms and said disk posts.

5,735,672

CENTRIFUGAL COMPRESSOR IMPELLER

LeRoy E. Mrotek, South Beloit, Ill., assignor to Delaware Capital Formation, Inc., Wilmington, Del.

Filed Sep. 16, 1996, Ser. No. 714,559

Int. Cl.^{6} F04D *29/34*

U.S. Cl. 416—213 A 10 Claims

1. An impeller for a compressor comprising:

a hub having a plurality of vanes;

a cover having a plurality of slot weldments, wherein the plurality of slot weldments are fused to the plurality of vanes, and

a plurality of weld fillets formed between the plurality of vanes and an inner surface of the cover formed simultaneously and integrally with the slot weldments.

5,735,673

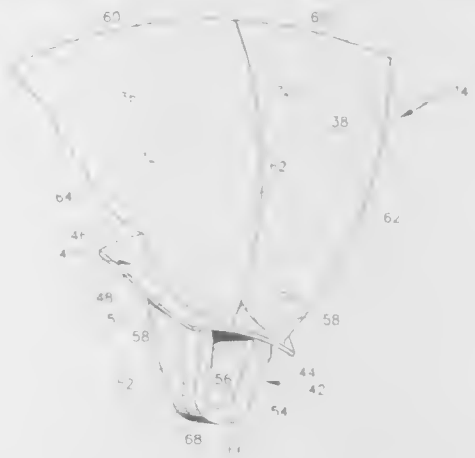
TURBINE ENGINE ROTOR BLADE PAIR

Alfred Paul Matheny, Jupiter, Fla., and Chen Yu J. Chou, Cincinnati, Ohio, assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 4, 1996, Ser. No. 759,827

Int. Cl.^{6} F04D *29/38*

U.S. Cl. 416—223 A 18 Claims



1. A rotor blade pair for rotation around an axial centerline, comprising:

a platform, having an inner and an outer radial surface;

a first airfoil, extending out from said outer radial surface of said platform;

a second airfoil, extending out from said outer radial surface of said platform; and

wherein each said airfoil has a forward edge, an aft edge, a base and a tip;

a root, having a first wall, a second wall, a forward edge, and an aft edge, said walls extending out from said inner radial surface of said platform, and integrally connected to one another, forming a hollow between said walls and said inner radial surface;

wherein said first wall is substantially aligned with said first airfoil, and said second wall is substantially aligned with said second airfoil.

5,735,674

LIQUID-RING GAS PUMP

Klaus Domagalla, Nutteln, and Udo Segebrecht, Heiligenstedten, both of Germany, assignors to SIHI GmbH & Co KG, Itzehoe, Germany

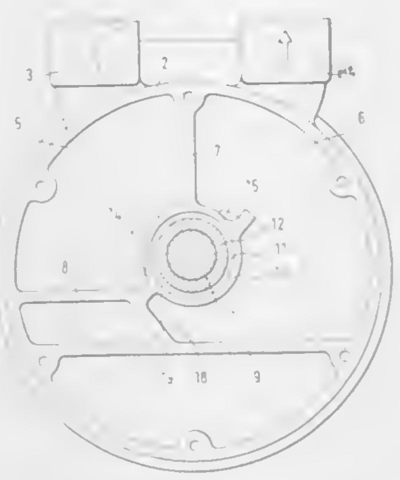
PCT No. PCT/EP95/01433, § 371 Date Oct. 15, 1996, § 102(e) Date Oct. 15, 1996, PCT Pub. No. WO95/29340, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 18, 1995, Ser. No. 727,640

Claims priority, application Germany, Apr. 20, 1994, 9406597 U

Int. Cl.^{6} F04C *19/00*

U.S. Cl. 417—68 8 Claims



1. A liquid-ring gas pump comprising a working space casing (16) defining a working space and containing an overhung impeller (17), a connection casing (2) comprising an inlet chamber (5) and a discharge chamber isolated from the inlet chamber, a shaft for driving said impeller within said working space, a mechanical seal on said shaft and a wall spaced from said seal to define a hub space (11) therebetween for receiving cooling fluid therein, a control plate (13) separating said working space from said inlet and outlet chambers the discharge chamber (6) being fluidly connected to the hub space (11) to allow the recirculation of liquid between the discharge chamber (6) and the working space via the hub space (11).

5,735,675

COMBINATION COMPRESSOR UNLOADER

Richard Claude Peoples, 265 Old Mill Rd., Grove City, Pa. 16127, and Daniel Lee Umbaugh, 24 Northgait Dr., Slippery Rock, Pa. 16057

Filed Jul. 25, 1995, Ser. No. 505,521

Int. Cl.^{6} F04B *49/02*

U.S. Cl. 417—275 9 Claims

1. A combination compressor unloader having a double ended double acting piston and cylinder, said compressor including first means for incremental variable capacity reduction by utilization of remotely controllable means capable of adding a predetermined amount of volume clearance, and further including second means for deactivation of at least one end of said cylinder, characterized in that said first means being reversibly moveable thereby permitting reversible conversion to and from a volume unloader and said second means forming a reversible bypass that can deactivate at least one cylinder end of said double ended piston and cylinder.

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5,735,676

METHOD AND DEVICE FOR THE AUTOLUBRICATION OF THE ROLLING BEARINGS OF TURBOMACHINES

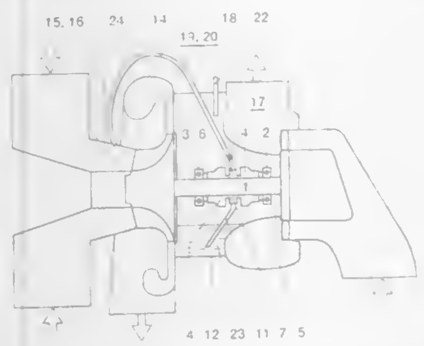
Markus Loos, Gehenstorf, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Nov. 2, 1995, Ser. No. 552,122

Claims priority, application Germany, Dec. 22, 1994, 44 45 957.2

Int. Cl.^{6} F04B *17/00*, F16N *7/36*

U.S. Cl. 417—407 **19 Claims**



6. A device for autolubrication of rolling bearings of a turbomachine having a turbine bearing side and a compressor bearing side, comprising:

centrifuges arranged on a shaft of the turbomachine and having axial lubricating bores, each centrifuge extending on one of the bearing sides;

an oil suction conduit which dips with its lower end into an oil sump and which is connected at its upper end to the centrifuges;

an element which is arranged annularly around the shaft and which is connected in its central region to the centrifuges and imparts to the centrifuges a negative pressure in relation to the oil sump, the element imparting the negative pressure is arranged stationarily and is a negative pressure chamber, the negative pressure chamber is connected via the oil suction conduit to the oil sump and via a first air conduit to a first pressure region; and

a separating point is arranged between lubricating oil located in the centrifuges and the negative pressure region, the oil sump is connected via a second air conduit to a second pressure region of a higher pressure than the first pressure region.

5,735,677

SCROLL TYPE FLUID MACHINE HAVING RECESSES ON THE SWIVEL SCROLL END PLATE

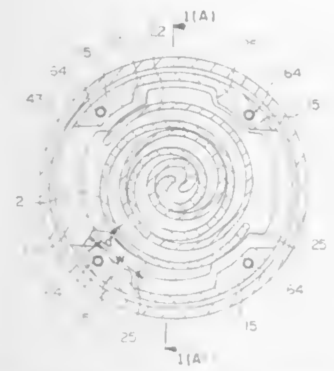
Shigeki Miura; Mikihiko Ishii, both of Nishi-Kasugai-gun, and Masahiro Fukushima, Nagoya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 13, 1996, Ser. No. 662,611

Claims priority, application Japan, Jul. 13, 1995, 7-200423

Int. Cl.^{6} F01C *1/04*

U.S. Cl. 418—55.2 **9 Claims**



1 An arrangement in a scroll type fluid machine, comprising a sealed housing;

a frame in said sealed housing supporting a rotating shaft via a bearing;

a stationary scroll in said housing, said stationary scroll comprising an end plate;

a plurality of legs on an outer circumferential edge of said end plate of said stationary scroll fixed to said frame by bolts;

a swivel scroll in said housing engaged with said stationary scroll, said swivel scroll having a circular end plate having an outer circumferential portion and a swivel wrap, and said swivel scroll being connected with said rotating shaft so as to be able to make revolutional swivel motions upon rotation of said shaft, said swivel scroll having a swivel center;

a rotation prevention mechanism interposed between said frame and said swivel scroll; and

a plurality of cut out recess portions on said outer circumferential portion of said circular end plate of said swivel scroll located at positions corresponding to and receiving respective ones of said plurality of legs, each of said cut out recess portions having a shape having a depth and width so as to avoid interference with the respective one of said plurality of legs upon said swivel scroll undergoing revolutional swivel motions.

5,735,678

SCROLL COMPRESSOR HAVING A SEPARATE STATIONARY WRAP ELEMENT SECURED TO A FRAME

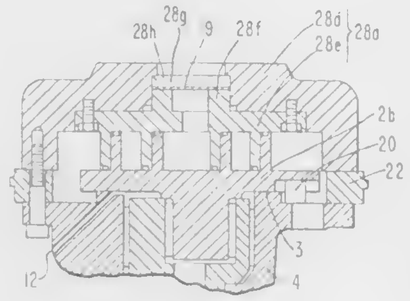
Hiroyuki Fukuhara; Sadayuki Yamada, both of Otsu, and Shigeru Muramatsu, Kusatsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 477,626, Jun. 7, 1995, Pat. No. 5,622,487, which is a division of Ser. No. 334,326, Nov. 2, 1994, abandoned. This applicatinn Oct. 8, 1996, Ser. No. 727,310

Claims priority, application Japan, Nov. 2, 1993, 5-274115

Int. Cl.^{6} F04C *18/04*

U.S. Cl. 418—55.2 **5 Claims**



1 A scroll compressor comprising:

a closed container;

a compression mechanism accommodated in said closed container and comprising a stationary scroll and an orbiting scroll, said stationary scroll comprising a frame, a separate wrap element secured to said frame and an insert integrally formed with said wrap element, said frame having a recess defined therein at a center thereof, said insert being aligned with said recess, and said orbiting scroll having a shaft and a wrap element allowed to undergo circular translation with respect to said wrap element of said stationary scroll;

a thrust bearing for supporting said orbiting scroll;

a crankshaft having an eccentric bearing in engagement with said shaft of said orbiting scroll, said crankshaft driving said orbiting scroll;

an electric motor comprising a rotor mounted on said crankshaft and a stator mounted inside said closed container,

an oil reservoir for reserving lubricating oil inside said closed container; and

a check valve operatively disposed in said recess and seated on said insert so that an axial movement of said check valve is restricted by said frame and said insert.

5,735,679

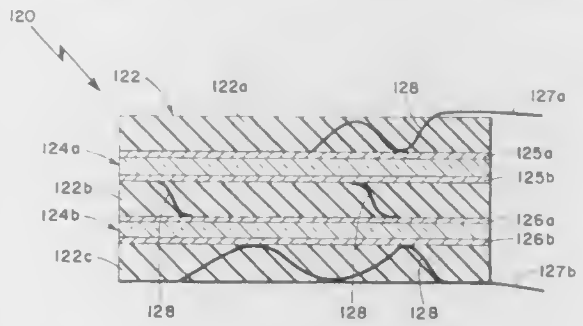
DEVICE HAVING POROUS ROTOR OF SINTERED METAL CONTAINING POLYTETRAFLUOROETHYLENE

Donald H. Hutchins, Sierra Madre, Calif., assignor to Hutchins Manufacturing Co., Pasadena, Calif.

Continuation-in-part of Ser. No. 387,561, Feb. 13, 1995, abandoned. This application Dec. 12, 1995, Ser. No. 570,832

Int. Cl.^{6} F01C *21/00*

U.S. Cl. 418—179 **17 Claims**



1 A rotary fluid device comprising:

a housing containing a chamber through which fluid flows, and

a rotor in said chamber which rotates therein in accordance with the rate of fluid flow through the chamber,

said rotor including a body of porous metal formed of compacted and sintered metal particles and having polytetrafluoroethylene embedded within its pores,

said sintered metal particles of the rotor body being approximately 90% iron and approximately 10% copper at least partially dissolved in the iron.

5,735,680

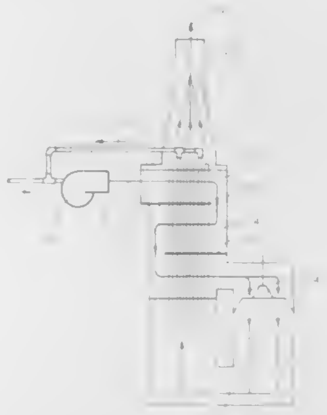
FUME INCINERATION

Gary Henkelmann, Elgin, Ill., assignor to Applied Web Systems, Inc., Elgin, Ill.

Filed Mar. 13, 1997, Ser. No. 816,667

Int. Cl.^{6} F23G *7/06*; F23J *15/00*; F01N *3/10*

U.S. Cl. 431—5 **19 Claims**



1 A fume incinerator comprising:

a combustion chamber including burner means therein;

a heat exchange chamber adjacent to said combustion chamber, said heat exchange chamber having a fume inlet and having passage means for delivering fumes from said heat exchange chamber to said combustion chamber, whereby fumes enter said fume inlet and pass through said heat exchange chamber before entering said combustion chamber for incineration;

a hot end tube mounting means positioned at one end of said heat exchange chamber adjacent to said combustion chamber;

a cold end tube mounting means positioned at the opposing end of said heat exchange chamber;

a plurality of heat exchange tubes, each mounted at one end in said cold end tube mounting means and at its other end in said hot end tube mounting means, said heat exchange tubes extending through said hot end tube mounting means into said combustion chamber, wherein said heat exchange tubes transport incinerated gas from said combustion chamber through said heat exchange chamber, and

scavenging means for evacuating fumes proximate said hot end tube mounting means and for recirculating said evacuated fumes into said fume inlet

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5,735,681

ULTRALEAN LOW SWIRL BURNER

Robert K. Cheng, Kensington, Calif., assignor to The Regents, University of California, Oakland, Calif.

Filed Mar. 19, 1993, Ser. No. 33,878

Int. Cl.^{6} F23M *3/04*

U.S. Cl. 431—10 **47 Claims**

1 A method of burning fuel efficiently and with minimal emission of pollutants comprising,

a) injecting fuel continuously into a mixing zone;

b) injecting an oxygen-containing gas continuously into said mixing zone to produce a fuel and gas mixture which flows in a stream toward an exit,

c) swirling the resulting fuel and gas mixture downstream of said mixing zone using swirling means with sufficient force to impart rotational motion to the periphery of, and in a plane normal to the flow of, said fuel and gas stream, but without inducing recirculation therein;

d) burning said swirling mixture downstream of the mixing zone and swirling means.

5,735,682

FLUIDIZED BED COMBUSTION SYSTEM HAVING AN IMPROVED LOOP SEAL VALVE

Stephen Joseph Toth, Clinton Township, N.J., assignor to Foster Wheeler Energy Corporation, Clinton, N.J.

Continuation of Ser. No. 288,865, Aug. 11, 1994, abandoned. This application Jan. 13, 1997, Ser. No. 782,862

Int. Cl.^{6} F23J *15/02*

U.S. Cl. 431—170 **8 Claims**

1 A pressure seal valve for use in a fluidized bed combustion system including a furnace containing a fluidized bed and a separator for receiving a mixture of flue gases and entrained particulate material from the fluidized bed and separating the particulate material from the flue gases, the pressure seal valve comprising

a first duct connected to the separator outlet for receiving the separated material and extending vertically to promote the flow of the separator through the duct by gravity,

a second duct connected to the first duct and extending horizontally for receiving the separated material from the first duct,

a third duct extending at an angle to the second duct and connecting the second duct to the furnace for passing the separated material back to the furnace,

a first conduit connected to the first duct for introducing air into the first duct for promoting the flow of the separated material from the separator, through the first duct, and to the furnace;

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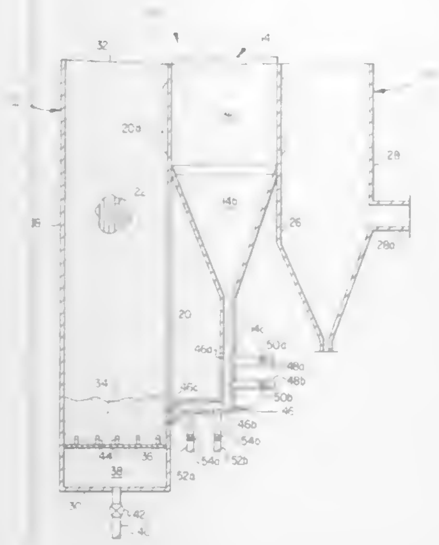


a second conduit connected to the second duct for introducing air into the second duct for promoting the flow of the separated material from the separator, through the second duct, and to the furnace; and

a damper associated with each of the conduits for regulating the introduction of the air, and therefore the flow of the material to the ducts and the height of the material in the first duct, to establish a pressure seal for preventing the backflow of the separated material from the furnace to the separator.

5,735,683

INJECTOR FOR INJECTING AIR INTO THE COMBUSTION CHAMBER OF A TORCH BURNER AND A TORCH BURNER

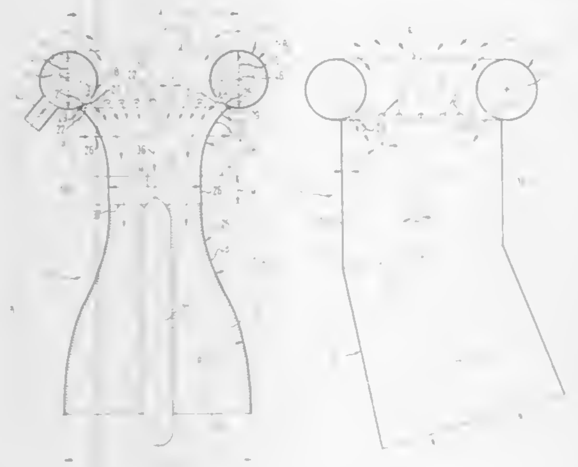
Edgar Muschelknautz, Stuttgart, Germany, assignor to E.E.T. Umwelt - & Gastechnik GmbH, Germany

Filed May 24, 1995, Ser. No. 449,136

Claims priority, application Germany, May 24, 1994, 44 18 014.4

Int. Cl.^{6} F23G *7/06*; F23L *7/00*

U.S. Cl. 431—202 **18 Claims**



1. In combination with a torch burner having an inlet, an outlet, and a combustion chamber between the inlet and the outlet having a wall between the inlet and the outlet, and a series of injectors for receiving driving fluid and ambient air from exterior of the combustion chamber and discharging intermixed ambient air and driving fluid interior of the combustion chamber, the improvement to the injectors comprising in combination:

an air induction opening outside of the combustion chamber for receiving ambient air;

an air flow channel from the air induction opening for receiving ambient air and discharging through the wall of the combustion chamber into the combustion chamber;

the air flow channel having a driving fluid mixing region, and a diffuser region for discharge into the combustion chamber;

the driving fluid mixing region defining a constricting passage from the air induction opening to and toward the driving fluid mixing region;

a driving fluid manifold constituting a ring tube having at least a semi-circular cross-section, the ring tube being mounted to the air induction opening within the driving fluid mixing region, the driving fluid manifold having an inlet for receiving the driving fluid, and a plurality of outlets,

the plurality of outlets discharging to the driving fluid mixing region with a velocity component for moving the intermixed ambient air, and driving fluid from the air induction opening through the diffuser region for discharge to the combustion chamber;

the plurality of outlets provided on the ring tube toward the driving fluid mixing region following a narrowest cross section of the ring tube,

each of the outlets of the plurality of outlets is spaced from the flow channel wall a distance larger than an opening of the outlets; and

the driving fluid manifold defining a dead flow space between the air induction opening and the driving fluid mixing region, with the plurality of outlets directed from the dead flow space into the mixing region.

5,735,684

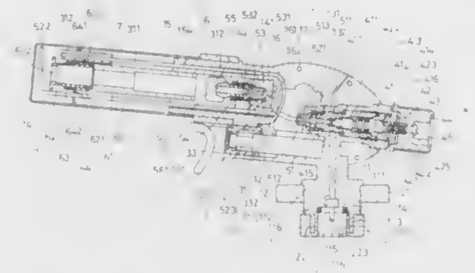
GAS PISTOL WITH REVERSE FLOW HEATING DEVICE

Chin-Lin Tsai, 3F, No. 94, Sec. 4, Chung Hsin Rd., San Chung City, Taipei Hsien, Taiwan

Filed Mar. 20, 1997, Ser. No. 822,353

Int. Cl.^{6} F23D *11/44*

U.S. Cl. 431—242 **12 Claims**



1. An improved gas pistol, comprising:

a base, said base being a substantially T-shaped structure, with a neck disposed at a lower portion thereof, said neck being provided with a through neck channel, a lower portion of said neck extending downwardly to form a neck ring, one side of an upper portion of said neck being provided with a slot, a front end of said slot being provided with a projection which has disposed therein a first polygonal hole and a U-shaped hole for accommodating and connecting a reverse flow heating device, the other side of the upper portion of said neck being provided with a tubular projection which is provided with a second polygonal hole and a tubular hole for accommodating and connecting said reverse flow heating device as well, an outer side of said tubular hole being provided with a post for providing a path for entrance of air;

a support device connected to said neck and said neck ring so that it may be pivotally connected to a gas container to guide gas into said neck channel;

an air control device connected to said slot and having tubes connected to said neck channel to form a passage, said air control device having a control rod the displacement of which may be utilized to control gas connection,

said reverse flow heating device having an insert mount whereby said reverse flow heating device is connected to said air control device to form a passage; said insert mount being inserted into said first polygonal hole, a mount post at one end of said mount being connected to an intake tube of a heating tube so that gas may pass through said intake tube, an annular tube and a discharge tube into a securing nut inside said second polygonal hole, said securing nut being connected in sequence with a relay tube and a gas nozzle and secured inside said tubular hole so that completely vaporized gas may pass through said relay tube and be ejected through said gas nozzle;

an ejection device, said ejection device being connected to said post of said base, completely vaporized gas being mixed with induced air in said ejection device before being ejected through a flame nozzle at a front end of said ejection device such that after a flame is ignited, the surrounding temperature after ignition may preheat said heating tube to achieve complete vaporization of gas, and

an outer tube, said outer tube being connected to said post of said base and enclosing said ejection device and said reverse flow heating device.

5,735,685

GAS INJECTOR FOR A BURNER IN A GAS COOKING STOVE AND METHOD OF MANUFACTURE

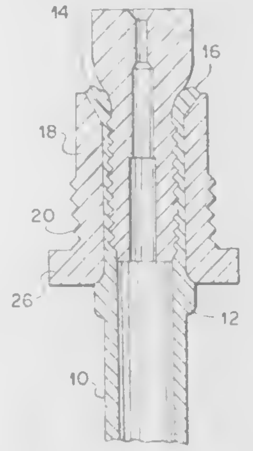
José Antonio Amaya-Orozco, and Victor Esquivel-Guerrero, both of San Luis Potosi, Mexico, assignors to Vitromatic Comercial, S.A.DE C.V., San Luis Potosi, Mexico

Filed Sep. 27, 1994, Ser. No. 312,896

Claims priority, application Mexico, Sep. 27, 1993, 935927

Int. Cl.^{6} B05B *9/00*

U.S. Cl. 431—354 **10 Claims**



1. A gas injector for a gas burner which comprises:

a pipe (10) said pipe (10) comprising an area externally deformed to adopt a semi flattened shape (12) near an upper end of said pipe (10) and an upper external flange (16) which is a part of the upper and of said pipe (10) and extends angularly from the remainder of the upper end of the pipe (10) towards a larger diameter than the remainder of the upper end of the pipe (10) said upper external flange (16) being formed by deformation of said part of the upper end of the pipe (10);

a tubular body (18) firmly coupled on an external section of the pipe (10) between the upper flange (16) and the semi flattened shape (12), said tubular body (18) including a lower section (26) which rests on said semi flattened shape of the pipe (10), and a threaded section (20) on an external section of said tubular body (18);

a nut (36) attached on the threaded section (20) of said tubular body (18); and

a unitary nozzle member (28) coupled inside an interior section of the pipe (10).

5,735,686

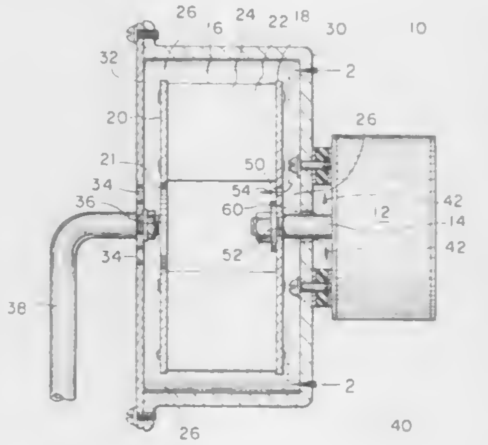
COMBUSTION BLOWER SHAFT LEAKAGE RELIEF

Edward D. Hildreth, Jr., Clarksville, Tenn., assignor to American Standard Inc., Piscataway, N.J.

Filed Sep. 11, 1996, Ser. No. 712,100

Int. Cl.^{6} F23D *14/62*

U.S. Cl. 431—354 **7 Claims**



1. A combustion blower comprising,

a shaft,

an impeller attached to and rotating about the shaft, the impeller including a first end plate including a central aperture providing an entrance for fuel and air and a second end plate attached to the shaft and supporting impeller blades, the impeller blades being attached between the first and second end plates, said shaft being attached to a central region of said second plate the second end plate includes pressure reducing apertures located proximal the shaft,

a housing arranged about the shaft and the impeller, means for supplying fuel into said housing adjacent the aperture in the first end plate, and said housing having an opening slightly larger in diameter than said shaft to allow said shaft to extend out of said housing.

5,735,687

BURNER FOR A HEAT GENERATOR

Hans Peter Knöpfel, Besenburen, and Thomas Ruck, Mellingen, both of Switzerland, assignors to ABB Research Ltd., Zurich, Switzerland

Filed Nov. 22, 1996, Ser. No. 753,330

Claims priority, application Germany, Dec. 21, 1995, 195 47 913.0

Int. Cl.^{6} F23D [illegible]

U.S. Cl. 431—354 **13 Claims**

1. A burner for a heat generator, essentially comprising a swirl generator for a combustion-air flow and means for injecting a fuel into the combustion air flow, wherein a mixing section (220) is arranged downstream of the swirl generator (100), which mixing section (220) has transition swirl passages (201), running inside a first part (200) of the section in the direction of flow, for passing a flow (40) formed in the swirl generator (100) into a tube (20) arranged downstream of the transition passages (201), and wherein an outlet of this tube (20) is spaced from a combustion chamber wall and is formed with an outwardly tapered breakaway edge (A) spaced from the combustion chamber wall and for stabilizing and

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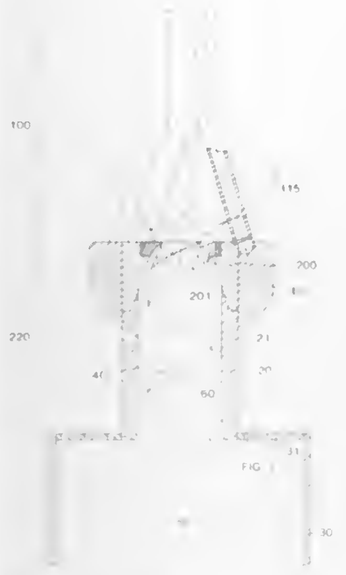


enlarging a backflow zone (50) forming downstream in the combustion chamber

5,735,688
ATTACHMENTS FOR A MANDIBULAR DISTRACTION DEVICE FOR USE IN MANDIBULAR DISTRACTION OSTEOGENESIS

Yan Razdolsky, 600 Lake Cook Rd., Suite 150, Buffalo Grove, Ill. 60089, and Patrick John Driscoll, 203 E. Olive, Prospect Heights, Ill. 60070

Filed Feb. 22, 1996, Ser. No. 606,033

Int. Cl.^{6} A61C *3/00; 13/22*

U.S. Cl. 433—7 **10 Claims**

1. Attachments for use with a mandibular distraction device, comprising:

a receptor attachment adapted to be connected with a tooth engagement member of a mandibular distraction device, said receptor attachment comprising a first metal member having a tooth engagement member connection portion and a connector receiving portion, and

a connector attachment adapted to be connected with an expander assembly of a mandibular distraction device, said connector attachment comprising a second metal member comprising an expander assembly connection portion and a receptor connection portion that is engageable with said connector receiving portion of said receptor attachment,

wherein said connector receiving portion of said receptor attachment comprises a connector guide extending thereon,

wherein said receptor connection portion of said connector attachment comprises an engagement surface complementary to said connector guide of said receptor attachment for removable engagement therewith;

wherein said first metal member has a vertical stop thereon that projects outwardly of said connector guide so as to be able to stop said receptor connection portion of said connector attachment; and

wherein said expander assembly connection portion comprises a planar surface facing away from said receptor attachment when said receptor connection portion is engaged with said connector receiving portion.

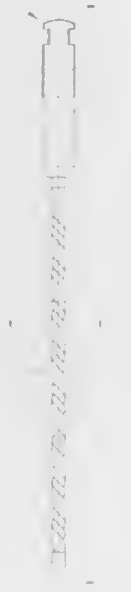
5,735,689
ENDODONTIC DENTAL INSTRUMENT

John T. McSpadden, Chattanooga, Tenn., assignor to Tycom Dental Corporation, Irvine, Calif.

Filed Dec. 11, 1995, Ser. No. 570,642

Int. Cl.^{6} A61C *5/02*

U.S. Cl. 433—102 **18 Claims**



1. An endodontic dental instrument for extirpating and enlarging a wall of a root canal which comprises an elongate shank having a drive end and a tip end with a working portion defined along at least a portion of the length of the shank between the tip end and the drive end, the working portion including a helical radial land and a helical blade edge having substantially no land with a first helical flute disposed between said land and said helical blade edge on one side of said blade edge and a second helical flute disposed between said helical blade edge and said land on the other side of said blade edge.

5,735,690
SET OF DRILLS FOR THE BORING OF THE CORONARY PART OF DENTAL RADICULAR CANALS

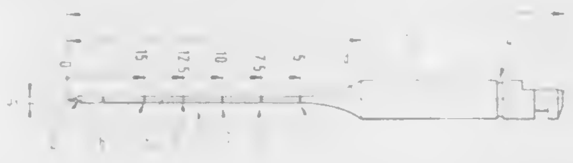
Augusto Malentacca, Rome, Italy, assignor to Maillefer Instruments S.A., Switzerland

Filed Jun. 19, 1996, Ser. No. 666,749

Claims priority, application Switzerland, Jan. 17, 1996, 125/96

Int. Cl.^{6} A61C *5/02*

U.S. Cl. 433—102 **4 Claims**



1. A set of Gates type drills for boring the coronary part of dental radicular canals comprising, each drill including an active part having a stem and a cutting head with at least one helicoidal groove presenting a cutting edge, each active part having a first rear extremity terminating at a handle and a second front extremity terminating at said cutting head, the overall length of said drills being different for each drill of the set, the length of each drill between the first and second extremities varying in inverse ratio with respect to the diameter of the respective cutting head.

5,735,691
DEVICES FOR PERSONAL HYGIENE AND PROFESSIONAL ORAL CARE

Carolyn M. Fetter, 15 Renee Ct., Edison, N.J. 08820

Filed Apr. 19, 1996, Ser. No. 634,827

Int. Cl.^{6} A61C *5/14;* **A61B** *1/24*

U.S. Cl. 433—140 **7 Claims**

1. A disposable mouth prop handle apparatus comprising:

an elongated handle having a first and second end;

a mouth prop longitudinally coupled to said first end of said handle, said mouth prop having a surface for supporting the teeth of a user of said mouth prop, and

a rigid core continuously extending within said handle and said mouth prop,

wherein said handle and said mouth prop are formed integrally to one another of a compressible foam material, said foam material surrounding said rigid core, the compressible foam material being rigid to withstand pressure from the teeth and providing comfort to a user of said mouth prop.

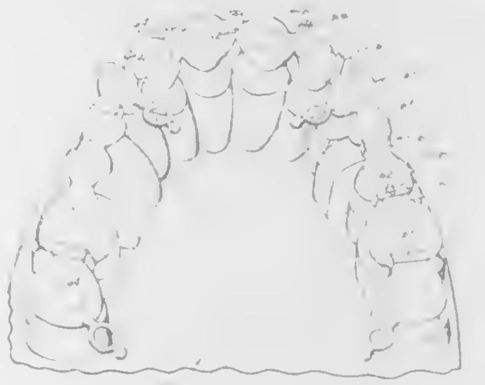
5,735,692
LASER WELDED INVESTMENT CAST DENTAL RESTORATION, METHOD OF MAKING SAME AND WAX PATTERN MAKING METHOD THEREFOR

Robert P. Berger, Encino, Calif., assignor to belle de st. clair, inc., Chatsworth, Calif.

Filed Mar. 20, 1996, Ser. No. 619,016

Int. Cl.^{6} A61C *11/00*

U.S. Cl. 433—213 **24 Claims**



1. A method of forming a one-piece dental restoration having a rigid structure of a prescribed configuration for connection to the dental anatomy of the patient on at least two points fixed relative thereto, the method comprising the steps of:

shaping a wax pattern of at least two wax components, each component including a wax retainer of a shape configured for rigid attachment to a respective one of the points, the pattern including a wax link formed of two wax elements, each element being fixed to one of the components and each having thereon an interface surface that lies in intimate contact with the interface surface of the other element when the components are arranged in the prescribed configuration

by a lost wax investment casting process

forming separate mold cavities from each of the wax components of the wax pattern, and

casting separate restoration sections, one in each of the cavities, each of the cast sections corresponding in shape to one of the components of the pattern and each having a fusible face thereon corresponding to the interface surface of the pattern component from which was formed the cavity in which the restoration section was cast,

arranging the restoration sections in the prescribed configuration with the fusible faces of adjacent sections in intimate mutual contact;

fusing the fusible faces of the restoration sections together to form a one-piece rigid structure of the prescribed configuration; and

finishing the rigid structure to form the dental restoration.

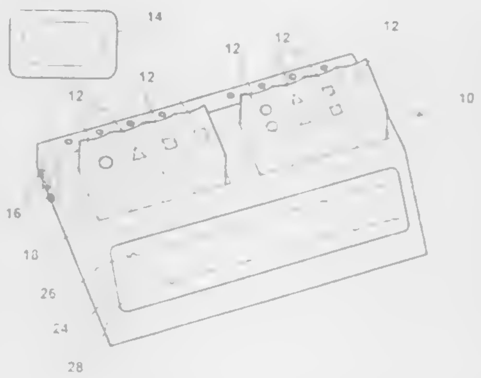
5,735,693
METHOD AND DEVICE FOR LEARNING A FOREIGN LANGUAGE

Ruth Groiss, Jerusalem, Israel, assignor to Multi Lingua Ltd., Jerusalem, Israel

Filed Mar. 29, 1996, Ser. No. 625,493

Int. Cl.^{6} G09B *19/06; 19/08, 3/00;* **A63F** *9/00*

U.S. Cl. 434—157 **27 Claims**



1. A method for learning a spoken language having conjugations and tenses, the method comprising the step of memorizing the conjugations of the language using the human hearing, viewing and feeling senses, wherein using said feeling sense for said memorizing of said conjugations is effected by having said conjugations symbolized by elements, each having a specifying location and further having a specifying surface or construction conferring a learner with an associated specifying feeling, such that when the learner sees a scene displayed on a display and hears a sentence associated with that scene, said sentence includes an associated specific conjugation, the learner touches a specific corresponding element of said elements, said specific corresponding element symbolizing said associated specific conjugation.

14. A device for learning a spoken language having conjugations and tenses, the device comprising elements, each having a specifying location and further having a specifying surface or construction conferring a learner with an associated specifying feeling, each of said elements symbolizing a specific conjugation, such that when the learner sees a scene displayed on a display and hears a sentence associated with that scene, said sentence includes an

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associated specific conjugation the learner touches a specific corresponding element of said elements, said specific corresponding element symbolizing said associated specific conjugation

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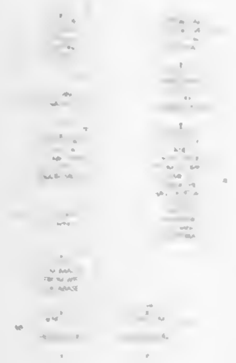
5,735,694

COLLABORATIVE AND QUALITY CONTROL SCORING METHOD

Jay V. Clark, West Liberty; William L. Bramlett, Jr., Swisher, and Judith Moyer, Iowa City, all of Iowa, assignors to National Computer Systems, Inc., Eden Prairie, Minn.
Continuation of Ser. No. 290,019, Aug. 19, 1994, Pat. No. 5,466,159, which is a division of Ser. No. 14,176, Feb. 5, 1993, Pat. No. 5,437,554. This application Nov. 20, 1995, Ser. No. 561,081
Int. Cl. G09B 3/00
U.S. Cl. 434—322 12 Claims



1 A method for verifying test answers between two or more test resolvers, the method comprising the steps of:

- a) electronically receiving an answer to a test question, the answer comprising an electronic representation of at least a portion of a test answer sheet,
- b) electronically transmitting the answer to first and second test resolver terminals to be scored by first and second test resolvers,
- c) electronically receiving first and second test scores for the answer, as determined by the first and second test resolvers, from the first and second test resolver terminals, and
- d) electronically comparing the first and second test scores and for selectively recording a value related to the first and second test scores if the first and second test scores did not contain a discrepancy based on predefined criteria

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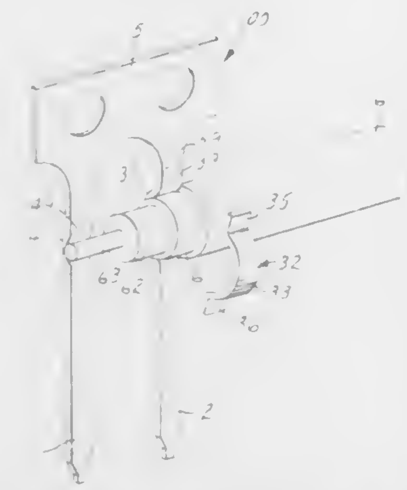
5,735,695

ELECTRICAL CABLE CONNECTING DEVICE

Dirk Heinrich, Hamburg, Germany, assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed May 17, 1996, Ser. No. 649,375
Claims priority, application European Pat. Off., Jun. 21, 1995, 95201678
Int. Cl.⁶ H01R 9/09
U.S. Cl. 439—63 15 Claims



1 Device for electrically connecting at least one cable having at least two conductive members to another electrical component, said device comprising

at least first and second connection members, said first connection member including,
- a first portion electrically connectable to a first conductive member of the cable;
- and a second portion electrically connected to said first portion and electrically connectable to said another electrical component,

said second connection member including
- a third portion electrically connectable to a second conductive member of the cable and a fourth portion electrically connected to said third portion and electrically connectable to said another electrical component; and

said device further comprising
- a joining portion made from electrically conductive material and electrically connecting said first and third portions
- at least one of said first and third portions being adapted to conform to a part of the circumference of the respective one of said first and second conductive members of the cable; and
- a fifth portion made from electrically conductive material and adapted to conform to substantially the remaining part of the circumference of said at least one of said first and second conductive members, said fifth portion being securable and electrically connectable to the respective ones of said first and third portions

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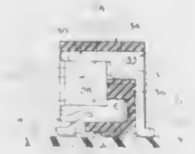
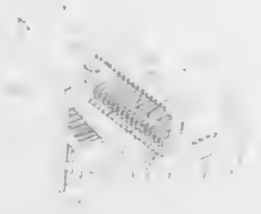
5,735,696

RIGHT-ANGLE BOARD TO BOARD CONNECTOR WITH ANTI-WICKING CHARACTERISTICS AND TERMINAL FOR SAME

Toshihiro Niitsu, and Minoru Fukushima, both of Yokohama, Japan, assignors to Molex Incorporated, Lisle, Ill.
Filed May 14, 1996, Ser. No. 649,892
Claims priority, application Japan, Nov. 16, 1995, 7-013060 U
Int. Cl.⁶ H01R 9/09
U.S. Cl. 439—65 23 Claims



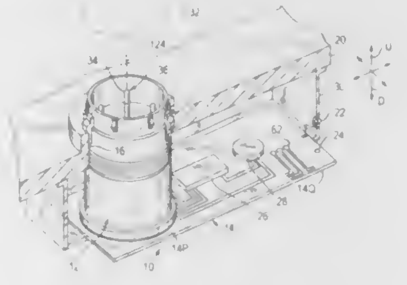


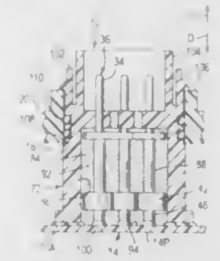
1 An electrical connector comprising a plurality of terminals arranged in a predetermined pitch along the length of the connector, the terminals being mounted in two opposing sets within an insulative housing of the connector, said connector housing having an elongated connector component-receiving slot disposed therein, each terminal of one set of said terminals being blanked and having a body portion, a contact portion extending along said slot for contacting a mating terminal and a solder tail portion extending exteriorly of said connector housing for interconnection to another circuit member, the contact and solder tail portions being interconnected at the body portion, each of said terminals of said one set of terminals having a connector housing engagement portion disposed generally adjacent one end and a bifurcated portion disposed at another end opposite the connector housing engagement portion, the bifurcated end portion including a distinct contact portion and a distinct solder tail portion separated by an intervening cavity, said cavity extending from a front mating face of said connector towards said one end and being at least partially defined by respective opposing, interior surfaces of said contact and solder tail portions, the contact and solder tail portions having respective contact and solder surfaces disposed on exterior surfaces thereof opposite said contact and solder tail portion interior surfaces, thereby increasing the distance which molten solder or solder flux must travel between said solder surface and said contact surface, said cavity extending at least to a rear end of said solder surface of said solder tail portion.

5,735,697

SURFACE MOUNT CONNECTOR

Steven Zoltan Muzslay, Huntington Beach, Calif., assignor to ITT Corporation, New York, N.Y.
Filed Sep. 27, 1996, Ser. No. 722,336
Int. Cl.⁶ H01R 9/09
U.S. Cl. 439—83 10 Claims





1 A connector board assembly that can mate to a connector, comprising:

- a circuit board having a first portion with an upper face that carries a plurality of conductive traces, with said upper face lying in a horizontal plane,
- a plurality of connector contacts having upper ends for mating to said connector and having lower ends that are each soldered to one of said traces;
- a connector housing that has an upper wall with contact passing holes through which said contacts extend and that has vertical walls that extend completely around said contacts, said housing vertical walls extending vertically from said upper housing wall to substantially said circuit board upper face and said housing vertical walls being bonded to said circuit board upper face, with said housing vertical walls having an inner surface
- a quantity of potting compound lying in said housing and bonded to said inner surface of said housing vertical walls, to said contacts, and to said upper face of said circuit board

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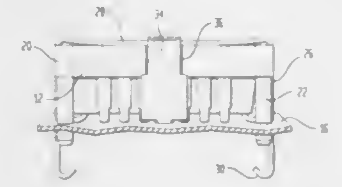
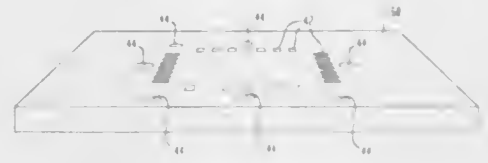
5,735,698

CONNECTOR FOR MOUNTING AN ELECTRICAL COMPONENT

Jan Bakker, Doorn, and Jan Bart Goossens, De Bilt, both of Netherlands, assignors to Lucent Technologies Inc., Murray Hill, N.J.
Filed Jul. 6, 1995, Ser. No. 498,738
Claims priority, application United Kingdom, May 19, 1995, 9510136
Int. Cl.⁶ H01R 4/58
U.S. Cl. 439—91 5 Claims





1 A connector for securing a circuit component to a printed circuit board, said circuit component comprising a component body and a plurality of electrical connection pins, said connector comprising:

- (a) a sheet of resilient anisotropically conductive material;
- (b) a connector support comprising,
  - (1) a rigid rectangular frame having
    - (i) four sides, each of which has a vertical recess,
    - (ii) four corners,
    - (iii) a central aperture into which said component body can be placed so as to fit closely around said component body; and
  - (2) a projecting peg at three of said four corners, wherein each projecting peg projects through said sheet of resilient anisotropically conductive material; and
- (c) a spring clip comprising:
  - (1) an upper part; and
  - (2) four spring projections projecting at right angles from said upper part, wherein each spring projection has
    - (i) a hook shaped foot that projects through said sheet of resilient anisotropically conductive material,
    - (ii) an intermediate broad section, and
    - (iii) a narrower section that fits within one of said vertical recesses

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5,735,699

GROUNDING CLIP FOR USE WITH AN ASSOCIATED AUDIO JACK

Haw-Chan Tan, Diamond Bar; Joel Jyh-Haur Yeh, San Gabriel, both of Calif., and Yao Hao Chang, Chung-Ho, Taiwan, assignors to Hon Hai Precision Co.,Ltd, Taiwan
Filed May 31, 1996, Ser. No. 655,956
Int. Cl.⁶ H01R 13/648
U.S. Cl. 439—92 8 Claims

1 An electrical connector assembly comprising

- an insulative bracket defining a cavity for enclosing at least a connector unit therein,
- said connector unit including an insulative body enclosing a plurality of signal contacts and at least one grounding contact wherein said grounding contact extends downward to a board on which said electrical connector assembly is seated,
- a grounding clip received within a space defined between a front vertical plate of the bracket and the body of the connector unit, wherein said grounding clip includes at least a finger directly contacting the grounding contact of the connector unit

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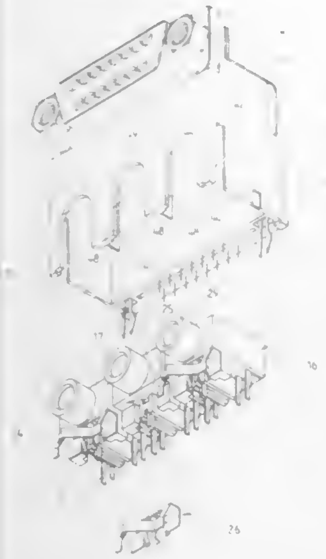


and further includes an engagement tang for engagement with a panel of a computer case, in which said board with the associated connector assembly is located, so as to obtain a shorter grounding path instead of using grounded circuits on the board.

5,735,700

MULTIPOLE ELECTRICAL PLUG CONNECTOR

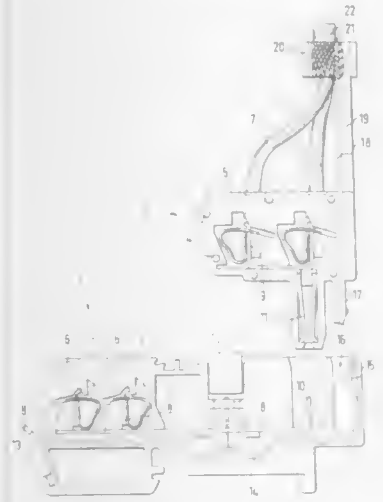
Wolfgang Hohorst, Minden, Germany, assignor to WAGO Verwaltungsgesellschaft mbH, Minden, Germany

Filed Feb. 13, 1996, Ser. No. 600,762

Claims priority, application Germany, Feb. 15, 1995, 195 06 862.9

Int. Cl.⁶ H01R *4/66*

U.S. Cl. 439—98 **3 Claims**



1. A multipole plug connector comprising a first plug connector half which is arranged in a rigid manner on an assembly rail in a housing wall of a device, a second plug-connector half which can be plugged in and withdrawn from the first plug connector half, said second plug connector half having multiwire cable wired thereto and a cable connection which functions as a strain relief, characterized by the first plug connector half having a connection piece for connecting a shield conductor, said shield conductor connection piece being connected to a contact piece of the first plug-connector half by means of a first shield conductor busbar which is arranged in the housing wall of the first plug connector half, said contact piece contacting a counter contact piece of said second plug-connector half when the two halves of the plug connector are plugged together, said counter-contact piece being connected electrically with the cable connection of the second plug connector half, and said cable connection contacting a shield sleeve of a shielded cable fastened thereto.

5,735,701

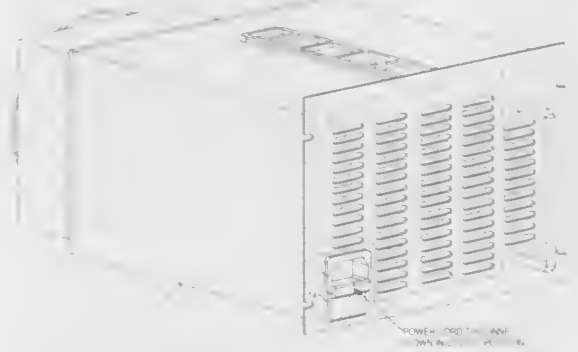
LOCKING POWER CABLE INTERFACE GUARD

Brian S. Jarrett, Cornelius, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 11, 1995, Ser. No. 570,239

Int. Cl.⁶ H01R *13/44*

U.S. Cl. 439—147 **18 Claims**



1. A power supply housing comprising:

a power cable interface, the power cable interface for coupling a power cable to the power supply housing; and

an interface guard, the interface guard having an unlocked position and a locked position, the interface guard blocking the coupling of the power cable to the power cable interface when in the unlocked position, and the interface guard not blocking the coupling of the power cable to the power cable interface in the locked position.

5,735,702

LEVER TYPE CONNECTOR

Masahide Hio, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Apr. 2, 1996, Ser. No. 630,039

Claims priority, application Japan, Apr. 7, 1995, 7-108087; Apr. 11, 1995, 7-111145; Apr. 11, 1995, 7-111146; Apr. 25, 1995, 7-125731; Apr. 25, 1995, 7-125735

Int. Cl.⁶ H01R *13/62*

U.S. Cl. 439—157 **12 Claims**

1. A lever type connector comprising a pair of housings, said pair consisting of a first housing and a second mating housing, said housings adapted to be interconnected by rotation of a lever attached to one of said housings,

said first housing containing a plurality of terminals each of which is adapted to be detachably coupled to a corresponding mating terminal contained in said mating housing, said first housing adapted to draw out an electric wire clamped in each terminal through a wire-drawing surface,

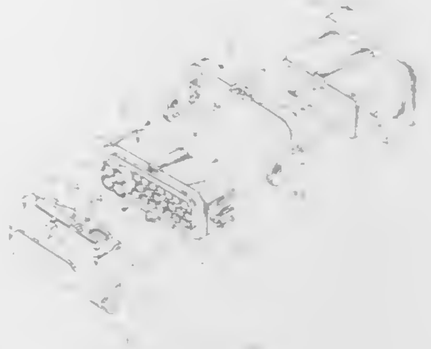
a pair of support axles formed on said first housing;

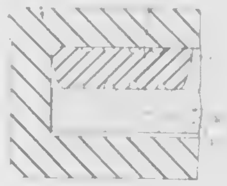
a U-shaped lever rotatably and detachably mounted on said first housing by coupling said pair of support axles in a pair of bearing holes formed in opposed leg portions of said lever,

a cover detachably mounted on said wire-drawing surface of said first housing to protect said electric wires,

a locater for positioning said cover in a given mounting position on said first housing, said locater including engaging portions formed on said first housing and cover,

said lever being selectively mounted on said first housing in a reversible manner upon coupling between said pair of support axles and bearing holes.





said lever adapted to rotate between a fitting position, in which said housings are interconnected, and a detached position, in which said housings are disconnected from each other, a handle of said lever being adapted to approach said second mating housing when said lever rotates to said fitting position,

wherein said cover is provided with a lock member which can move between a locked position, in which said lever is retained by engagement with said lock member, and an unlocked position, in which said lever is disengaged from said lock member, a lock-releasing member adapted to apply a force in an unlocking direction to said cover when said lever is in said fitting position whereby said lock member is moved to said unlocked position.

5,735,703

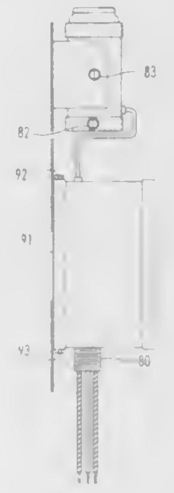
RECESSED BUSHING STYLE LUMINOUS TUBE TRANSFORMER FEATURING VERSATILE MOUNTING CONFIGURATION

Gerald L. Ballard, Brandon, Miss., assignor to MagneTek, Inc., Nashville, Tenn.

Filed Dec. 21, 1995, Ser. No. 576,222

Int. Cl.⁶ H01R *33/02*

U.S. Cl. 439—234 **3 Claims**



1. A transformer enclosure assembly for holding a transformer and providing power connections between a gas discharge lamp and at least one input terminal comprising:

a transformer housing;

a receptacle housing,

a pair of recessed bushings mounted within the receptacle housing for receiving the gas discharge lamp,

a receptacle mounting bracket attached to the receptacle housing, the receptacle housing having a plurality of locations for attaching the receptacle mounting bracket, and

a pair of wires connecting the transformer housing to the receptacle housing such that the receptacle housing can be positioned to have a plurality of orientations, the orientations of the receptacle housing being independent of the orientation of the transformer housing

5,735,704

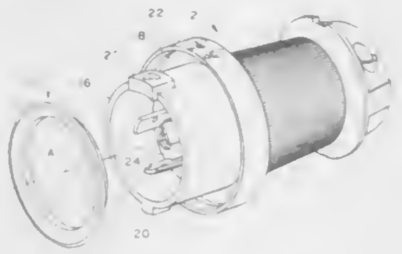
SHROUD SEAL FOR SHROUDED ELECTRICAL CONNECTOR

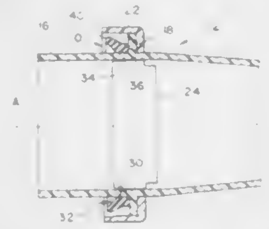
John C. Anthony, Fairfield, Conn., assignor to Hubbell Incorporated, Orange, Conn.

Filed May 17, 1995, Ser. No. 442,840

Int. Cl.⁶ H01R *13/52*

U.S. Cl. 439—271 **33 Claims**





1. A shroud seal for installation on a shroud of an electrical connector, comprising:

an annular ring portion extending about a longitudinal axis and having an annular inner sealing surface inclined relative to said longitudinal axis in its unstressed state forming an opening sized to frictionally engage said shroud of said electrical connector; and

an annular lip portion integrally formed with said ring portion as a one-piece, unitary member of a compliant sealing material, said annular lip portion extending radially and axially relative to said inner sealing surface and having an annular lip sealing surface for engaging a portion of a mating shroud of a mating electrical connector and an annular connecting surface between said inner sealing surface and said lip sealing surface, said connecting surface being inclined relative to said longitudinal axis and to said inner sealing surface

5,735,705

DISCONNECTION PROTECTION DEVICE FOR AN ELECTRIC CONNECTION MEANS

Hans-Heinrich Maue, Bietigheim-Bissingen; Wolfgang Pade, Illingen; Eberhard Spengler, Markgroeningen, and Dirk Langenhan, Schwieberdingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 9, 1996, Ser. No. 647,138

Claims priority, application Germany, May 24, 1995, 195 19 058.0

Int. Cl.⁶ H01R *13/62*

U.S. Cl. 439—372 **4 Claims**

1. A disconnection protecting device for an electrical connection means (11) of an electrical automatic stopping device for a motor

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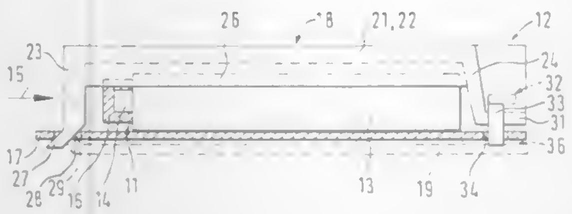


vehicle, wherein said electrical connection means (**11**) comprises a plug (**14**) and a counter plug (**16**) connectable with said plug (**14**), and said disconnection protecting device (**12**) includes, in a locked configuration thereof, means for locking said plug (**14**) together with said counter plug (**16**) in an assembled state of the electrical connection means (**11**) in which said plug (**14**) is connected with said counter plug (**16**) so that said plug (**14**) cannot be disconnected from said counter plug (**16**), and said means for locking said plug (**14**) together with said counter plug (**16**) in said assembled state of the electrical connection means (**11**) comprises a lock member (**32**) at least indirectly fastening said plug (**14**) together with said counter plug (**16**),

wherein the counter plug (**16**) has plate-like extensions (**44**) and the plug (**14**) has separating walls (**42**) engaged with the plate-like extensions (**44**) in the assembled state of the electrical connection means (**11**) and wherein said means for locking said plug (**14**) together with said counter plug (**16**) in the assembled state of the electrical connection means (**11**) comprises a locking element (**33**) insertable and lockable in a throughgoing passage (**46**) passing through both said plate-like extensions (**44**) of the counter plug (**16**) and said separating walls (**42**) of the plug (**14**) in the assembled state of the electrical connection means (**11**) when the plug (**14**) is connected to the counter plug (**16**).

5,735,706

CRAMPING CONNECTOR

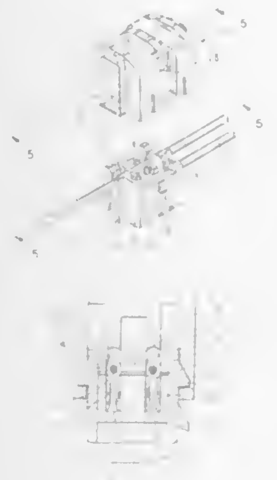
Osamu Ito, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Continuation of Ser. No. 554,868, Nov. 7, 1995, abandoned, which is a continuation of Ser. No. 320,954, Oct. 12, 1994, abandoned. This application Nov. 5, 1996, Ser. No. 743,914

Claims priority, application Japan, Oct. 26, 1993, 5-291292

Int. Cl.⁶ H04R *4/24*

U.S. Cl. 439—402 **13 Claims**



1. A cramping device comprising a housing having at least one first, generally cylindrical slot with a first axis extending in a longitudinal direction, at least one second generally cylindrical slot having a second axis parallel to and spaced apart from said first axis in a transverse direction to said longitudinal direction,

said first slot adapted to receive a first insulated branch wire having a conductive core therein, said second slot adapted to receive a second insulated wire having a second conductive core therein,

a contact in said housing having cutters thereon so as to penetrate insulation on said first wire and said second wire to form an electrical connection therebetween, when said first wire and said second wire are inserted into said first slot and said second slot respectively,

a retainer in said housing to hold said first wire in said first slot while insulation thereon is being penetrated by said connector,

a cover adapted to be placed, in an insertion direction, on said housing in a fully mounted position wherein a pressing section on an inner side of said cover forces said first wire and said second wire into said first slot and said second slot respectively and against said contact to form said electrical connection,

slots to retain said wires, there being a gap between the walls of each slot with a gap diameter smaller than the outer diameter of the wire therein at adjacent upper longitudinal ends of said slots, said gas being wider than said slots, when said first wire and said second wire are placed thereon without entering said slots, said slot portions restrain said first wire and said second wire against longitudinal and lateral movement.

5,735,707

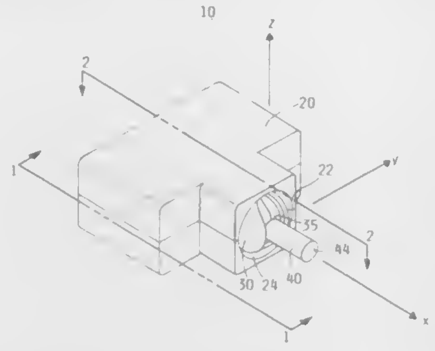
MULTI-DIRECTIONAL SHIELDED CABLE EXIT

Rolland Dean O'Groske; Glenn Ray Oldenburg; Sandra Jeanne Shirk/Heath; Keith Franklin Tharp; Scott Marvin Thorvilson, and Randall Vincent Tointon, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 30, 1996, Ser. No. 644,682

Int. Cl.⁶ H01R *13/56*

U.S. Cl. 439—446 **16 Claims**



1. An electrical connector, comprising:

a housing defining an opening; and

a swivel member defining a cable passageway, the swivel member being configured so that an electrical cable can be disposed through the passageway and the opening, wherein the swivel member is pivotally mounted to the housing such that, when the electrical cable is disposed through the passageway and the opening, the cable may pivotally move within the opening;

wherein the swivel member includes an outer member pivotally mounted within the housing and an inner member pivotally mounted within the outer member, the inner member defining the cable passageway, the outer member defining a slot aligned with the cable passageway.

5,735,708

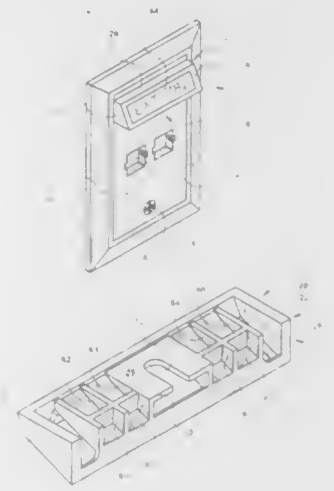
APPARATUS AND METHOD FOR DISPLAYING INFORMATION AT A WALL FACE PLATE

Jaime Ray Arnett, Fishers, and David Louis Reed, New Palestine, both of Ind., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 3, 1996, Ser. No. 644,637

Int. Cl.⁶ H05K *5/03*

U.S. Cl. 439—491 **24 Claims**



1. An apparatus for displaying information at a wall face plate, comprising:

a housing having a display face, and

attachment means for permitting attachment of said housing to an exterior face of said wall face plate, and

an information panel associated with said display face and externally visible, said information panel for displaying said information,

wherein said housing comprises a rear side that is placed contiguous with said exterior face of said wall face plate when said apparatus is attached to said face plate, said rear side having an aperture sized to receive a screw shaft associated with a face plate screw, said aperture extending from an edge of said rear side to an internal region to permit ingress and egress of said screw shaft therethrough.

5,735,709

ZERO INSERTION FORCE CONNECTOR FOR FLEXIBLE CIRCUIT BOARDS

Osamu Hashiguchi, and Kazuomi Sato, both of Tokyo, Japan, assignors to Japan Aviation Electronics Industry Limited, Tokyo, Japan

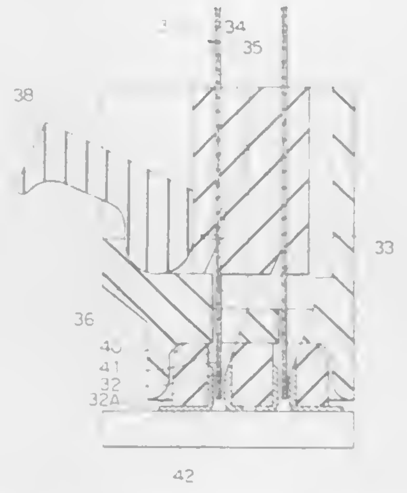
Filed Oct. 2, 1995, Ser. No. 537,530

Claims priority, application Japan, Oct. 6, 1994, 6-242510

Int. Cl.⁶ H01R *9/0*

U.S. Cl. 439—495 **13 Claims**

1. A zero insertion force connector for use in making connections and disconnections between a plurality of flexible circuit boards in multiple rows and counterpart contacts, said connector comprising: a housing; insulator means for rigidly holding portions adjacent to contact points of said flexible circuit boards, said insulator means being displaceable within said housing in a direction perpendicular to said flexible circuit boards; a fixed counterpart insulator having a plurality of pairs of said counterpart contacts which are separated by an interval that is broader than a thickness of said flexible circuit boards; and a driving member for displacing said insulator means so as to control a timing of said flexible circuit boards to complete and open electrical connections between said contact points and said counterpart contacts.



5,735,710

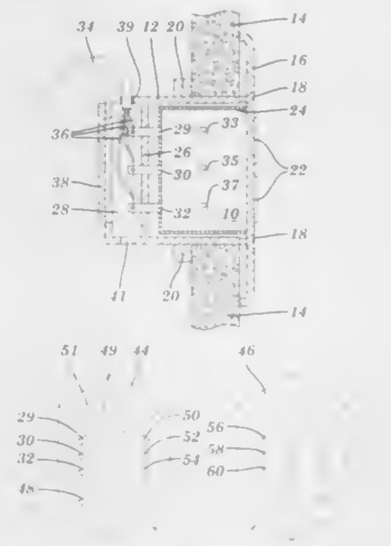
SYSTEMS FOR CONNECTING ELECTRICAL COMPONENTS INTO AN ELECTRICAL WALL BOX

Wayne A. Blaauboer, 18-7th St., Watervliet, N.Y. 12189, and Richard D. Scheuller, Jr., 21 Brookside Ave., Menands, N.Y. 12204

Filed Oct. 17, 1995, Ser. No. 543,990

Int. Cl.⁶ H01R *13/66, 13/70*

U.S. Cl. 439—535 **11 Claims**



1. A system for wiring a building, comprising:

a) a box for containing electrical controls, wherein said box comprises a wall located on the interior of the box for defining a front and back cavity within the box, the wall including at least one hole therein; and

b) control means, mounted within the box, for providing the control of electricity, and including coupling means on each side of the control means, for both physically and electrically coupling two adjacent control means, said control means further comprising wire connection means extending from a back side of the control means and into the back cavity for connecting a power supply wire to the control means, said wire connection means comprising a rod, the rod having a wire hole that is oriented perpendicular to the longitudinal axis of the rod for receiving an electrical wire therethrough, a screw threaded longitudinally into the rod, and the screw positioned to be tightened upon the electrical wire when extending through the wire hole.

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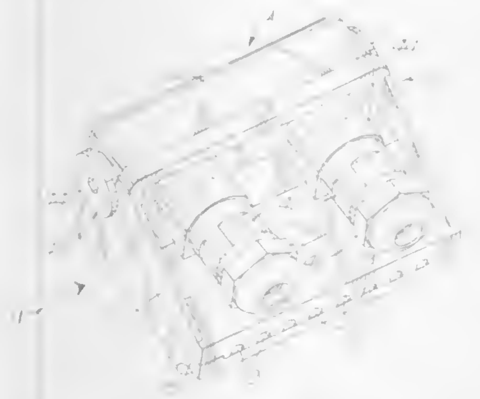
5,735,711
CABLE CONNECTOR

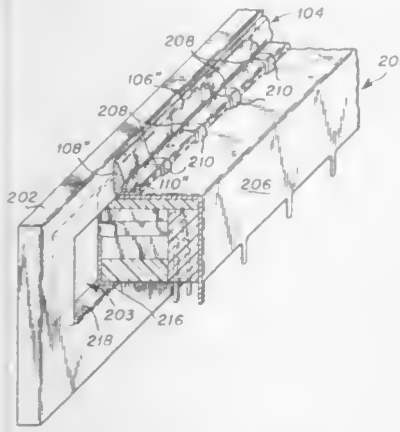
Dieter Fremgen, Wülfrath, Germany, assignor to Raychem GmbH, Ottobrunn, Germany
PCT No. PCT/GB94/01838, § 371 Date Feb. 27, 1996, § 102(e) Date Feb. 27, 1996, PCT Pub. No. WO95/06348, PCT Pub. Date Mar. 2, 1995
PCT Filed Aug. 23, 1994, Ser. No. 605,183
Claims priority, application United Kingdom, Aug. 27, 1993, 9317837
Int. Cl.^{6} H01R *9/05*
U.S. Cl. 439—578 8 Claims



1. A connector device for coaxial cables comprising a housing and a cable connector positioned within the housing for interconnection of the cables, the connector device characterized in that the housing includes a base portion, a first cover portion sealingly engaging the base portion and which is releasably affixed thereto by a releasable connection, and at least one outlet for a through cable which is separated from and distinguished from a plurality of outlets for drop cables, the drop cable outlets being formed in the base portion of the housing and being accessible through a second cover portion which is hinged at one side to the base portion and which makes a connection to another side thereof to the base portion.

5,735,712
SHIELDED CONNECTOR WITH CONDUTIVE GASKET INTERFACE

Orville A. Haas, Pocahontas, Ak., and Edward A. Karale, Fremont, Calif., assignors to Regal Electronics, Inc., Santa Clara, Calif.
Continuatinn-in-part of Ser. No. 526,991, Sep. 21, 1995, Pat. No. 5,647,765. This application Mar. 13, 1997, Ser. No. 816,876
Int. Cl.^{6} H01R *13/648*
U.S. Cl. 439—609 4 Claims



1. A modular jack (**10**) for connection to a printed circuit board and receipt of a modular plug (**12**), comprising:

an outer housing (**30**, **32**) comprised of an electrically insulative material having an opposed top wall (**46**), bottom wall (**48**), side walls (**50**), and a back wall segment (**32**) being integrally formed and defining an interior longitudinally extending cavity (**20**) between them, said cavity forming an externally extending opening about a front end of the housing for receipt of a plug having electrical contacts;

a plurality of jack contacts (**34**), each of the jack contacts (**34**) including a pin portion (**36**), a contact portion (**38**) and an interconnecting portion (**40**) interconnecting said pin portion (**36**) and contact portion, said contact portion (**36**) being within said cavity (**20**) and said pin portion extending externally to the housing for mounting on a printed circuit board;

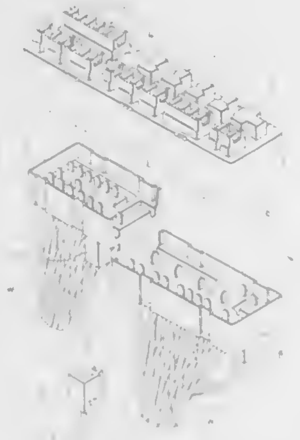
an electrically conductive shield member (**206**) engaged to an exterior surface of the outer housing (**30**, **32**) about said opening,

an electrically conductive compliant member (**204**, **220**) extending about an external edge of the shield member and in electrical connection with the shield member, such that when the housing (**30**, **32**) is positioned on an electrically conductive panel (**202**) and said front end is positioned about an opening (**203**) of said panel, the electrically conductive compliant member (**204**, **202**) makes electrical contact with said panel to create an electrically conductive path between the shield member (**206**), the compliant member and said panel, and

a plurality of clamps (**208**) offset from a front edge of the shield member (**206**) and aligned in a line parallel to said front edge, said clamps (**208**) forming a U-shaped opening having a back wall (**210**), a top wall and a front jaw tooth (**214**) with said tooth (**214**) compressed against the compliant member (**204**, **220**).

5,735,713
ELECTRICAL JUNCTION BOX

Tomohiro Sugiura, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan
Filed Nov. 8, 1996, Ser. No. 748,497
Claims priority, application Japan, Nov. 8, 1995, 7-289869
Int. Cl.^{6} H01R *25/00*
U.S. Cl. 439—638 3 Claims



1. An electrical junction box, comprising:

a cover body having a plurality of cavities engageable with a plurality of electrical components,

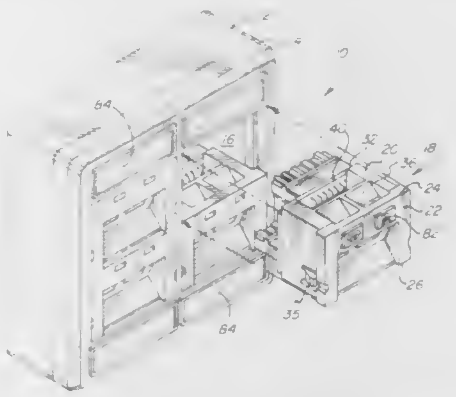
a plurality of rear covers, each of said rear covers corresponding to a respective sub wire harness, and fixedly engageable with said cover body; and

a housing disposed on any one of said rear covers, said housing being engageable with a general connector for connection of power lines;

wherein power is connected to all of said rear covers and said cover body through said housing.

5,735,714
INFORMATION MANAGEMENT OUTLET MODULE AND ASSEMBLY PROVIDING PROTECTION TO EXPOSED CABLING

Stephen A. Orlando, Longboat Key, Fla., and Walter R. Schwer, Westerly, R.I., assignors to Ortronics Inc., Pawcatuck, Conn.
Filed Apr. 6, 1995, Ser. No. 417,596
Int. Cl.^{6} H01R *23/02*
U.S. Cl. 439—676 6 Claims



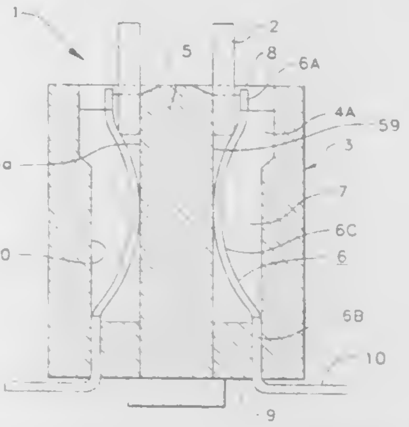
1. An RJ-type connector outlet module which provides protected access to the front of a module and permits straight-on solderless connections to the back, comprising:

a frame having a planar front surface with a channel extending therein for receiving an RJ-type connector plug, wherein the channel is recessed and obliquely oriented with respect to the front surface of the frame, wherein the channel has a long axis which forms an angle in the range from 30° to 60° with respect to a line that is vertical to the planar front surface of the frame and with the channel being sufficiently deep so that an inserted RJ-type connector plug makes electrical contact at a point that is rearwardly of the planar front surface; and

a planar printed circuit board attached to the rear surface of the frame such that an IDC terminal strip can be mounted to permit straight-on insertion of wires.

5,735,715
ELECTRICAL CONNECTOR USING COMPOSITE BEAM WITH LOW INITIAL DEFLECTION RATE

Stanley Wayne Olson, East Berlin, Pa., assignor to Berg Technology, Inc., Reno, Nev.
Continuation of Ser. No. 221,077, Mar. 31, 1994, abandoned, which is a continuation-in-part of Ser. No. 193,443, Feb. 8, 1994, abandoned. This application May 28, 1996, Ser. No. 653,823
Int. Cl.^{6} H01R *13/10*
U.S. Cl. 439—682 5 Claims



1. An electrical connector for electrically connecting at least two pins, said connector comprising:

a receptacle having a top and bottom surface and at least two beam retention bores with an middle wall therebetween, said middle wall having two opposing insertion surfaces, each bore having a corresponding axis, each bore adapted for receiving a corresponding pin, each one of said bores having an inner wall opposite said insertion surface, wherein at least one of said inner walls has a partially indented surface, said housing further having at least one cavity formed in said bottom surface in communication with said two bean retention bores, and

a first contact beam and a second contract beam, said first contract beam and second contact beam each having a first end disposed within an insertion member and a second end extendingly disposed within a corresponding beam retention bore, said insertion member fit in said cavity and mechanically connected to said receptacle such that said insertion member is retained in said receptacle, said first and second contact beams each having unsupported end and a supported end and a curved arc between said support end and unsupported end, said curved arcs extending towards each other and against each respective insertion surface, such that when pins are inserted into respective bores at said unsupported ends during an initial phase of an insertion, each of said contact beams functioning as a cantilever beam so as to allow a substantially low deflection rate and low pin insertion force during said initial phase, further insertion of the pins causing said unsupported ends to reach said inner walls and to slide along said inner walls during later phase of said insertion, thereby retaining said pins within said bores and with each of said contact beams against each respective pin with a substantially high normal force against the respective pin and a relatively low insertion force throughout the entire insertion phase of the respective pin

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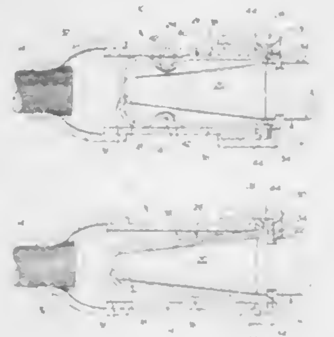
5,735,716
ELECTRICAL CONNECTORS WITH DELAYED INSERTION FORCE

John Peter Bilezikjian, Ypsilanti, Mich., assignor to Yazaki Corporation, Tokyo, Japan
Filed Sep. 18, 1996, Ser. No. 715,404
Int. Cl.^{6} H01R *13/11*
U.S. Cl. 439—843 19 Claims



1. A female electrical terminal for mating engagement with a male terminal having a distal end and lateral surfaces, the female terminal comprising:

a conductive sleeve having a displaceable end surface disposed at a first, closed end of the sleeve and a plurality of spring arms extending from the end surface toward a second, open end of the sleeve, the sleeve having a first configuration wherein inner surfaces of the spring arms are spaced from one another by an amount sufficient to permit the male terminal to be inserted through the open end of the sleeve to an initial contact position wherein the distal end of the male terminal contacts the end surface and the spring arms substantially surround the male terminal without the inner surfaces of the spring arms applying substantial pressure on the lateral surfaces of the male terminal, and the sleeve being deformable to a second configuration by urging the male terminal into the

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sleeve beyond the initial contact position to a fully inserted position wherein the end surface is displaced away from the open end of the sleeve and the spring arms are urged inwardly to apply pressure on the lateral surfaces of the male terminal

5,735,717
FEMALE TERMINAL METAL FIXTURE

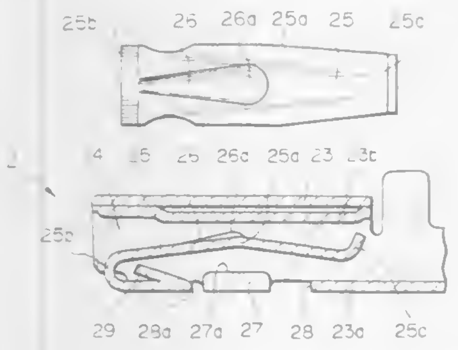
Akira Nabeshima, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Continuation of Ser. No. 499,948, Jul. 10, 1995, abandoned. This application Apr. 9, 1997, Ser. No. 833,810

Claims priority, application Japan, Jul. 11, 1994, 6-182869

Int. Cl.⁶ H01R *11/22*

U.S. Cl. 439—851 **6 Claims**



1. A female terminal fixture comprising an insulation barrel, a wire barrel, and a box-like terminal body, said insulation barrel adapted to be crimped on a sheath of an electrical cable, said wire barrel adapted to be crimped on core wires of said electrical cable,

- said terminal body including an insertion space into which a tab of a male terminal fixture is inserted through a front opening in said body, a turned-back portion in said front opening, an elastic tongue which extends from said turned-back portion into said insertion space so as to resiliently contact said tab, and a pair of stoppers which support said elastic tongue against an excess deflection of said elastic tongue,
- a support portion comprising a lower portion and said tongue, said lower portion extending along a floor of said body from said turned-back portion toward said stoppers and terminating in a lower distal end, said tongue spaced apart from said floor, extending from said turned-back portion toward said stoppers, and terminating in an upper distal end, said upper distal end being farther from said turned-back portion than said lower distal end, an auxiliary stopper extending from said lower distal end toward said turned-back portion and adapted to support said tongue in cases of excessive deflection thereof,
- said elastic tongue being provided on a contact side with a reinforced portion which extends from said turned-back portion to a portion supported by said stoppers,
- said reinforced portion including a longitudinal ramp face which increases in height gradually from said front opening to a contact area

5,735,718
DRIVE UNIT FOR BOATS

Ragnar Ekwall, Hisingsbacka, Sweden, assignor to AB Volvo Penta, Gothenburg, Sweden

PCT No. PCT/SE94/01147, § 371 Date May 29, 1996, § 102(e) Date May 29, 1996, PCT Pub. No. WO95/15282, PCT Pub. Date Jan. 8, 1995

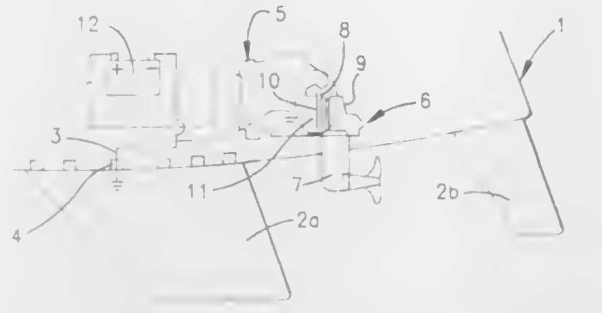
PCT Filed Nov. 29, 1994, Ser. No. 649,708

Claims priority, application Sweden, Dec. 3, 1993, 9304033

Int. Cl.⁶ B63H *5/12*

U.S. Cl. 440—83 **9 Claims**

1. A drive unit for a boat, comprising



- an internal combustion engine with a flywheel fixed on a crank shaft and surrounded by a flywheel casing,
- a propeller drive with a drive housing connected to said flywheel casing and an input shaft driven by said crank shaft,
- fastening means for connecting said drive housing and said flywheel casing,
- electrical insulators between said drive housing and said flywheel casing, and between said fastening means and at least one of said drive housing and said flywheel casing, for establishing an electrically insulative connection between said drive housing and said flywheel casing, and
- a coupling connecting said input to said flywheel, said coupling comprising a further electrical insulator for electrically insulating said input shaft from said flywheel

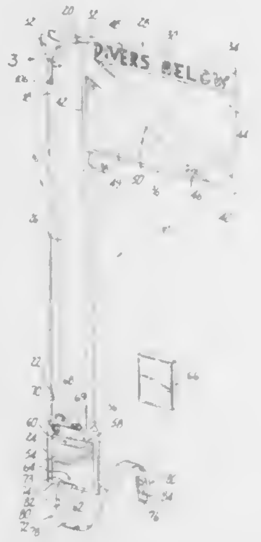
5,735,719
COMBINATION INFLATABLE DIVE FLAG AND FLOAT

Daniel T. Berg, 2745 Cheshire Dr., Baldwin, N.Y. 11510

Filed Dec. 3, 1996, Ser. No. 759,162

Int. Cl.⁶ B63B *22/20, 22/22*

U.S. Cl. 441—11 **22 Claims**



1. A combination inflatable dive flag and float that visually marks a position in a waterway where a diver is diving, comprising:

- a) an inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically shaped mast tube being upright extendable from the position in the waterway where the diver is diving and having an upper portion terminating in a flat, closed, and horizontally-oriented upper end extending out of the waterway, a lower portion terminating in a flat, closed, and generally rectangular-shaped lower end extending into the waterway, a generally cylindrically-shaped outer surface, and a deflated position, so that said combination inflatable dive flag and float can be deflated and rolled for transit and storage,
- b) a rectangular shaped flag having a horizontally oriented upper edge with a proximal end and a distal end, a horizontally oriented lower edge disposed below, and parallel to, said horizontally-oriented upper edge of said rectangular-shaped flag and having a proximal end and a distal end, a vertically oriented inner edge extending perpendicularly downwardly from said proximal end of said horizontally oriented upper edge of said rectangular-shaped flag to said proximal end of said horizontally-oriented lower edge of said rectangular-shaped flag, a vertically-oriented outer edge extending perpendicularly downwardly from said distal end of said horizontally-oriented upper edge of said rectangular-shaped flag to said distal end of said horizontally-oriented lower edge of said rectangular-shaped flag, and a pair of flat, parallel, opposing, and rectangular-shaped outer faces; said rectangular-shaped flag extending perpendicularly horizontally outwardly from, and being integral with, said upper portion of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube, with said vertically-oriented inner edge of said rectangular-shaped flag being disposed longitudinally along said generally cylindrically-shaped outer surface of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube, and with said horizontally-oriented upper edge of said rectangular-shaped flag being collinear with said flat, closed, and horizontally-oriented upper end of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube, so that the position in the waterway where the diver is diving is visually marked and
- c) an automatic pressure relief and manual deflation valve being in fluid communication with said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube and providing an automatic means of preventing over inflation and potential rupture of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube while also providing a manual means of deflating said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically shaped mast tube when desired; said automatic pressure relief and manual deflation valve being disposed on said upper portion of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube, in proximity of said flat, closed, and horizontally oriented upper end of said inflatable, hollow, elongated, slender, vertically-oriented, and generally cylindrically-shaped mast tube

5,735,720
CONTROLLABLE THERMIONIC ELECTRON EMITTER

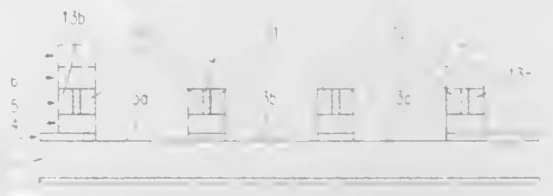
Georg Gärtner, Aachen, and Hans-Jürgen Lydtin, Stolberg, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 367,543, Jan. 3, 1995, abandoned. This application Mar. 11, 1997, Ser. No. 814,685

Claims priority, application Germany, Jan. 8, 1994, 44 00 353.6

Int. Cl.⁶ H01J *3/02, 29/04*

U.S. Cl. 445—24 **8 Claims**



1. A method of manufacture of a controllable thermionic electron emitter device, comprising the steps of

- i) providing a supporting substrate
- ii) forming by deposition a layer of thermionic electron emissive material overlying said substrate
- iii) forming by deposition a layer of protective material on said layer of emissive material;
- iv) forming by deposition a layer of insulating material on said layer of protective material;
- v) forming by deposition a layer of electrically conductive material on said layer of insulating material;
- vi) selectively etching through said layer of conductive material so as to form said layer of conductive material into individual grids that define individual emissive surface regions of said layer of emissive material; and
- vii) further selectively etching through said layer of insulating material and through said layer of protective material so as to expose said defined individual emissive surface regions of said layer of emissive material, said individual grids being adapted to be electrically actuated to control electron emission from said exposed emissive surface regions of said layer of emissive material.

5,735,721
METHOD FOR FABRICATING A FIELD EMISSION DISPLAY

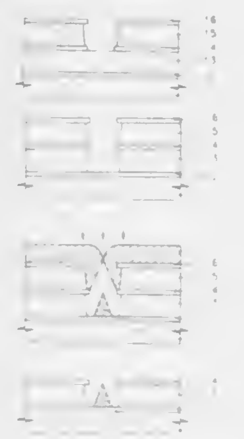
Jun-hee Choi, Seoul, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jun. 7, 1995, Ser. No. 479,040

Claims priority, application Rep. of Korea, Jan. 28, 1995, 1995-1774

Int. Cl.⁶ H01J *9/02*

U.S. Cl. 445—24 **9 Claims**



1. A method for fabricating a field emission display comprising the steps of

- (a) forming a cathode layer having a striped pattern on a substrate,
- (b) forming an insulation layer on said substrate;
- (c) depositing a gate electrode layer on said insulation layer and etching said gate electrode layer to form a gate electrode having a stripe pattern perpendicular to the striped pattern of said cathode layer,
- (d) forming a photoresist layer on said insulation layer,
- (e) etching said photoresist layer using a metal mask to form a hole of a predetermined size therein
- (f) etching said gate layer using said photoresist as a mask for use as a release layer
- (g) etching said insulation layer to form a hole therein aligned with the hole of the photoresist layer
- (h) forming a cone-shaped field emitting micro tip on a bottom of the hole formed in step (g), and
- (i) removing said photoresist layer

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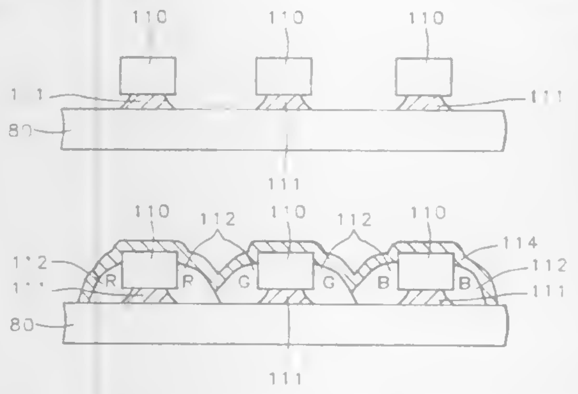
5,735,722
HIGH LUMINESCENCE DISPLAY

David Nan-Chou Liu, Chutung; Jammy Chin-Ming Huang, and Jin-Yuh Lu, both of Taipei, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Division of Ser. No. 494,631, Jun. 23, 1995, Pat. No. 5,655,941. This application May 5, 1997, Ser. No. 851,432

Int. Cl.⁶ H01J *9/227*

U.S. Cl. 445—24 **5 Claims**



1 A method of manufacturing a high luminescence display, comprising the steps of

providing a faceplate having a glass face;

forming a transparent conductive layer over said glass face

forming a plurality of contrast-providing elements over said transparent conductive layer;

patterning said transparent conductive layer by an isotropic etch using said contrast-providing elements as a mask;

forming a plurality of phosphor elements having sloped sides, adjacent to said contrast-providing elements and to said etched transparent conductive layer;

forming a reflective layer over said phosphor elements; and mounting a baseplate having a plurality of electron-emitting elements, and a means for causing said electron-emitting by field emission, parallel and opposite to said faceplate.

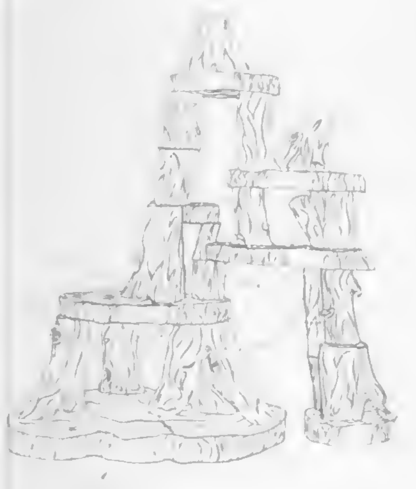
5,735,723
TOY BLOCKS HAVING NATURAL SHAPES

Karl von Oppen, 21103 Mulholland Dr., Woodland Hills, Calif. 91364

Filed Jan. 29, 1997, Ser. No. 790,562

Int. Cl.⁶ A63H *33/04*

U.S. Cl. 446—85 **24 Claims**



1 A tree block set, comprising at least one block fabricated from a portion of a tree and having

a grain,

a plurality of curved natural surfaces created by said tree; and

only two planar cuts substantially parallel to each other and spaced from each other an increment "I"; and,

a plurality of blocks, each of said blocks fabricated from a portion of a tree and having

a grain;

a plurality of curved natural surfaces created by said tree; and,

only two planar cuts substantially parallel to each other and spaced from each other a multiple of said increment "I"

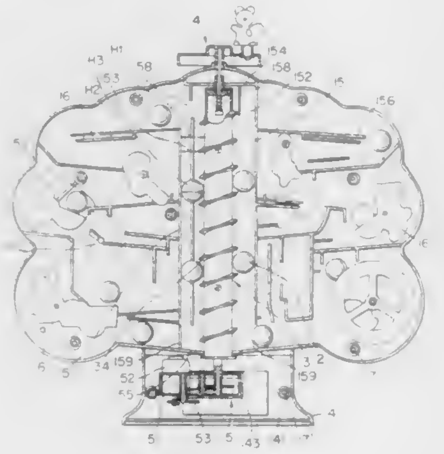
5,735,724
TOY ASSEMBLY HAVING MOVING TOY ELEMENTS

Kazuhiko Udagawa, Tokyo, Japan, assignor to Dah Yang Toy Industrial Co., Ltd., Tainan, Taiwan

Filed Jan. 24, 1997, Ser. No. 787,704

Int. Cl.⁶ A63H *29/08*, G09F *19/02*

U.S. Cl. 446—172 **7 Claims**



1 A toy assembly comprising

a support having an ascending chamber, at least one descending chamber, an upper passage intercommunicating the tops of said ascending and descending chambers, a lower passage intercommunicating the bottoms of said ascending and descending chambers;

at least one movable toy element which is movable in said ascending chamber, said upper passage, said descending chamber, and said lower passage;

a rotary shaft rotatably mounted in said ascending chamber and having a helical ridge formed on the periphery thereof to provide an ascending path for said movable toy element, said rotary shaft being rotatable in one direction to move said movable toy element from said lower passage to said upper passage;

a descending path provided in said descending chamber for said movable toy element to descend by gravity from said upper passage to said lower passage;

a manual operation unit connected to the top of said rotary shaft for driving said rotary shaft, said unit including a first clutch mechanism for disconnecting said rotary shaft from said manual operation unit when said manual operation unit is turned in a direction opposite to said one direction of said rotary shaft,

an electrical operation unit mounted on said support and connected to the bottom of said rotary shaft for driving said rotary shaft in said one direction, and

a second clutch mechanism provided between said electrical operation unit and said rotary shaft for disengaging said rotary shaft from said electrical operation unit when said manual operation mechanism is operated

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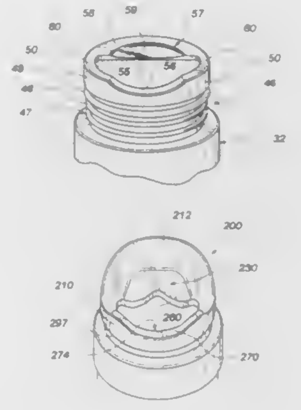
5,735,725
MODULAR GAME CALL SYSTEM

Wilbur R. Primos, Jackson, Miss., assignor to Primos, Inc., Jackson, Miss.

Continuation-in-part of Ser. No. 364,887, Dec. 27, 1994, abandoned. This application May 29, 1996, Ser. No. 657,452

Int. Cl.⁶ A63H *5/00*

U.S. Cl. 446—207 **29 Claims**



1 A game call system, comprising:

a mouthpiece body having an inlet end and an outlet end;

a membrane mounted to the inlet end, the membrane having an exposed edge which vibrates to produce sound;

a peripheral edge circumscribing the inlet end,

a support shelf formed at the inlet end of the mouthpiece section, the support shelf spanning portions between the annular peripheral edge of the inlet end, the support shelf underlying a portion of the membrane;

a free edge formed by the support shelf, the free edge comprising a curved portion.

5,735,726
ANIMATED SITTING AND STANDING SANTA CHARACTER

Seymour Cohen, Jericho, N.Y., assignor to Telco Creations, Inc., Hicksville, N.Y.

Filed Dec. 9, 1996, Ser. No. 762,362

Int. Cl.⁶ A63H *13/00*

U.S. Cl. 446—298 **9 Claims**

1 An animated character capable of moving repeatably from a sitting position to a standing position, comprising

(a) a body including a torso casing member, said casing containing an electric motor rotatably connected to multiple intermeshed gears, and also having a first rotatable curved rod extending upwardly from the casing upper end, and having a second shaft extending outwardly from two opposite sides of the casing,

(b) a head core member attached to the first upper rotatable curved rod and capable of making side to side motions;

(c) dual rotors each attached to each end of said second side output shaft;

(d) dual first levers, each being pivotally attached at one end to said casing and pivotally attached at its other end to a corresponding one of said dual rotors

(e) dual elongated second lever members each pivotably attached at its upper end to a corresponding one of said rotors, and each pivotally attached at its lower end to a vertical leg member; and

(f) dual third lever members, each being pivotably attached at its upper end to said casing, pivotably attached at its midpoint to the midpoint of said second lever member, and pivotally attached at its lower end to the vertical leg member, whereby when said electric motor and said dual rotors are rotated, second lever member and each third lever member can be moved from a near horizontal to a vertical position so that the body of the animated character is movable from a sitting to a standing position.

5,735,727
TRANSMISSION MECHANISM OF TOY CAR

Wen Ho Tsai, 8FL, No. 113, Yu Jen Rd., Taipei, Taiwan

Filed Jul. 25, 1996, Ser. No. 687,300

Int. Cl.⁶ A63H *29/00*

U.S. Cl. 446—462 **8 Claims**

1. A transmission mechanism of a toy car, comprising

a housing in which a power source is disposed, the power source being drivingly connected to a first and a second cams via a gear set,

a driving mechanism composed of a slidable pressing/pushing slide board and a driving slide board which are respectively pushed by the first and second cams to slide, the driving slide board further driving a linkage set connected with a movable casing cover to swing; and

a rotary power wheel set having a rotary power wheel shaft on top side for extending into a sliding path of the pressing/pushing slide board, a gear being disposed around the rotary power wheel shaft for engaging with the gear set, whereby the pressing/pushing slide board depresses the rotary power wheel shaft, making the rotary power wheel set descend and contact with the ground to run over the ground and whereby the driving slide board drives the linkage set to swing and upward push open the movable casing cover

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5,735,728
DEVICE FOR LIFTING AND MOVING BEEHIVE BOXES

Eric J. Nickerson, 1711 Chateau Ct., Fallston, Md. 21047

Filed Nov. 29, 1996, Ser. No. 770,376

Int. Cl.⁶ A01K *55/00*

U.S. Cl. 449—1 **14 Claims**

1 In combination with a beehive capable of standing on a base, the beehive comprising at least one box having opposite side walls, a device for moving said at least one box from a first position to a second position thereof the device comprising

a pair of legs capable of being in an expanded position and in a folded position thereof, each of said pair of legs having an upper end and a lower end.

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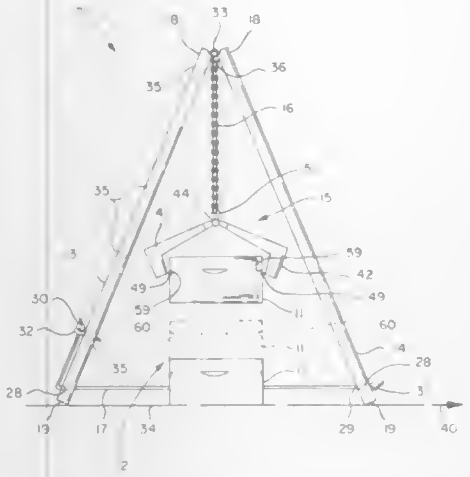


wherein the upper ends of said legs are connected to each other. and

wherein, in their expanded position, said legs are angled to each other at their upper ends in a first plane, and are capable of pivoting in a second plane, substantially perpendicular to said first plane, and relatively to said base about an axis connecting the lower ends of said legs;

a gripper comprising two tongs each tong having a first end and a second end, the tongs being affixed and angled to each other at their first ends and being shaped at their second ends to removably engage the opposite side walls of said at least one box; and

a suspension means suspending the gripper to the upper ends of said pair of the legs;

wherein the lower ends of said pair of the legs, in their expanded position, can be placed on the base a certain distance from the beehive, and are tilted in said second plane towards the beehive until the second end of each tong of the gripper engages a respective one of said opposite side walls of said at least one box in the first position thereof, and

wherein said pair of legs is tilted in said second plane from the beehive, thereby moving said at least one box to the second position thereof.

5,735,729

ABRASIVE COMPOSITION WITH AN ELECTROLYTIC WATER AND A POLISHING PROCESS WITH THE USE OF SAID ABRASIVE COMPOSITION

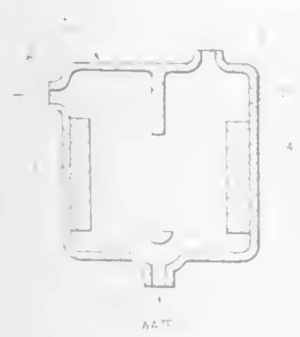
Masatsune Kobayashi, and Koji Takemasa, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 27, 1994, Ser. No. 280,985

Claims priority, application Japan, Jul. 28, 1993, 5-204478

Int. Cl.^{6} B24B *31/00*

U.S. Cl. 451—36 15 Claims



8. A polishing process comprising:

contacting a surface of an object to be polished with an abrasive composition, and

applying a relative motion between the surface of the object and the abrasive composition;

wherein the abrasive composition comprises abrasive grains of an inorganic material dispersed in a dispersion medium, said dispersion medium comprises an aqueous medium containing a cathode water or an anode water.

5,735,730

DISHWASHER WITH VALVE MEANS FOR SEPARATING GRANDULES FROM DISHWATER

Per Jonemo, Malmo, and Rolf Lindqvist, Hollviken, both of Sweden, assignors to GS Development AB, Malmo, Sweden

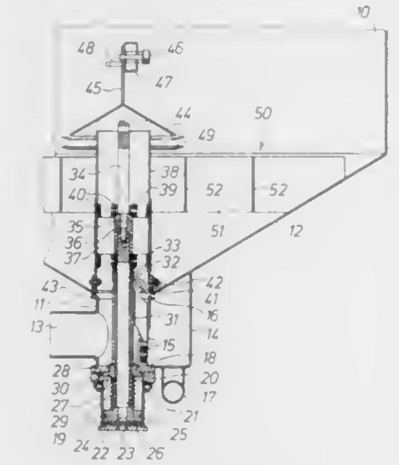
PCT No. PCT/SE93/00167, § 371 Date Sep. 2, 1994, § 102(e) Date Sep. 2, 1994, PCT Pub. No. WO93/17610, PCT Pub. Date Sep. 16, 1993

Continuation of Ser. No. 302,727, Sep. 2, 1994, abandoned. This PCT application Feb. 26, 1993, Ser. No. 679,311

Claims priority, application Sweden, Mar. 3, 1992, 9200639

Int. Cl.^{6} B24C *9/00;35/00;* **B08B** *3/04*

U.S. Cl. 451—87 11 Claims



1. A cleaning machine operating with liquid and granules heavier than the liquid, comprising:

a treatment space for receiving goods to be cleaned said treatment space having a bottom;

nozzles in said treatment space;

a pump connected at a pressure side thereof to said nozzles for ejecting liquid through the nozzles against the goods received by said treatment space to be cleaned therein;

a bottom outlet in said treatment space the pump being connected at a suction side thereof to said bottom outlet.

a granule valve associated with said bottom outlet to control the flow therethrough, and

wherein said valve includes a socket open at both ends, a stationary cap above said socket which is guided for vertical displacement between a position in which the lower end of the socket is raised from said bottom and the upper end of the socket is engaged with the stationary cap to allow the pump to draw liquid with granules entrained therein from a first level in the treatment space at the lower end of the socket, and a lower position wherein the lower end of the socket engages said bottom to allow the pump to draw liquid only from a second level in the treatment space at the upper end of the socket, the granules being collected on the bottom of the treatment space, and a projecting circumferential flange on the socket below the upper end thereof, said flange forming together with said cap a labyrinth seal for preventing granules from being withdrawn together with the liquid at the upper end of the socket when the socket is in said lower position.

5,735,731

WAFER POLISHING DEVICE

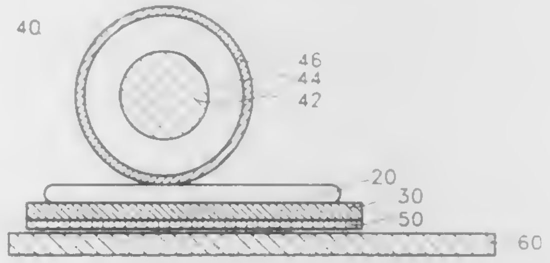
Byoung-hun Lee, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Feb. 23, 1996, Ser. No. 606,194

Claims priority, application Rep. of Korea, Aug. 7, 1995, 95-24297

Int. Cl. B24B [illegible]

U.S. Cl. 451—143 26 Claims



1. A chemical mechanical polishing (CMP) machine for planarizing a semiconductor wafer, said CMP machine comprising:

a flat wafer stage for loading and affixation of said semiconductor wafer so that an exposed surface of said wafer to be polished faces up; and

a cylindrical polishing pad formed above and spaced slightly apart from the exposed surface of said wafer to be polished, said cylindrical polishing pad being rotatable and positionable to contact said wafer along a line across the exposed surface of said wafer,

wherein said cylindrical polishing pad has a rotating axis for transmitting rotation and a double layer polishing pad on a peripheral surface of said rotating axis, said double layer polishing pad being comprised of two layers having different hardnesses; and

wherein an outer layer of said double layer polishing pad, which performs a polishing operation by contacting with part of the surface of said wafer to be polished is formed of a material which is harder than an inner layer, thereof, for improving flattening characteristics.

5,735,732

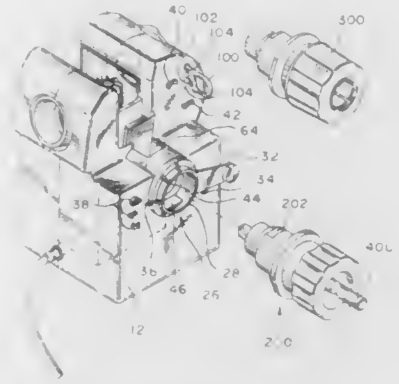
PRECISION DRILL SHARPENER AND GRINDING WHEEL ASSEMBLY THEREFOR

David A. Bernard, P.O. Box 277, Ashland, Oreg. 97520

Filed Jul. 5, 1996, Ser. No. 675,881

Int. Cl.^{6} B24B *5/00*

U.S. Cl. 451—242 23 Claims



1. A drill sharpener comprising:

a housing;

a grinding wheel assembly comprising a grinding wheel disposed within said housing;

a drill mounting chuck having a barrel portion;

a pair of peripheral cams carried by the barrel portion of the chuck;

said housing contains at least two chuck receiving ports, said at least two chuck receiving ports including an alignment port having an opening therein for receiving and positioning a drill relative to the chuck and the cams carried by the chuck;

a second port having a chuck receiving opening therein to position the chuck and the drill in operative relation to a grinding surface of the grinding wheel for sharpening said drill;

wherein the alignment port houses a pair of spring clips for engaging a drill to be aligned and subsequently sharpened, said spring clips being mounted such that leading edges of the spring clips are substantially parallel to each other, said spring clips further being biased toward a first closed position at which said leading edges are closely spaced, and means for moving said spring clips to an open position wherein said leading edges are spread apart such that a drill can be inserted past said leading edges in said alignment port, said spring clip moving means further permitting said spring clips to return toward said first position, wherein said leading edges can engage the drill for alignment purposes.

5,735,733

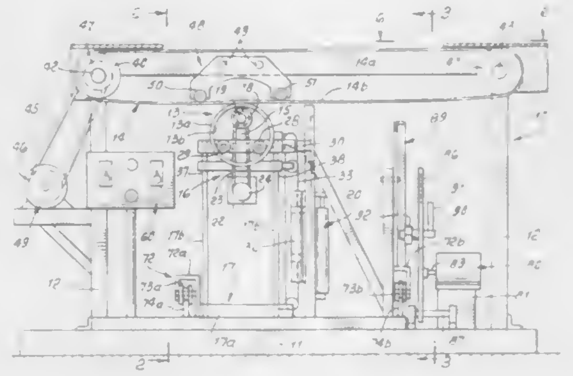
DRUM SANDING APPARATUS

Donald G. Lombardi, Thousand Oaks, Calif., assignor to Drum Workshop, Inc., Oxnard, Calif.

Filed Apr. 7, 1997, Ser. No. 835,003

Int. Cl.^{6} B24B *5/00*

U.S. Cl. 451—307 14 Claims



1. In apparatus to process the outer surface of a cylindrical drum shell, said shell defining a first longitudinal axis, the combination comprising:

a) a frame,

b) first means on the frame to position and rotate the drum about said axis,

c) first structure on the frame, including a belt, for engaging the drum surface during drum rotation,

d) and second means on the frame to effect pressural engagement of the rotating drum surface with the belt,

e) said belt being one of the following:

  i) a drum surface sanding belt

  ii) a drum surface buffing belt

f) said second means including a pressure roller at the inside of said cylindrical drum shell.

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5,735,734

APPARATUS FOR GRINDING RAILS

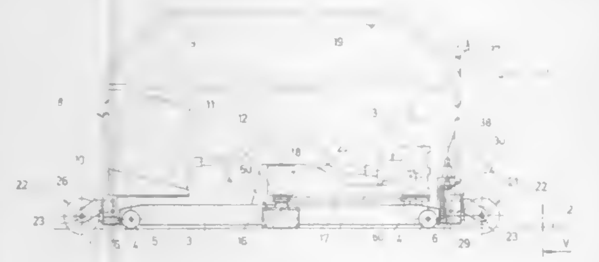
Josef Hertelendi, Freilassing, Germany, assignor to Georg Robel GmbH & Co., Munich, United Kingdom

Filed May 8, 1996, Ser. No. 646,974

Claims priority, application Germany, May 19, 1995, 195 18 457.2

Int. Cl. B24B *23/00*

U.S. Cl. 451—347 **16 Claims**



15 Apparatus for grinding surface irregularities of a rail of a track, comprising

a support frame having first rollers adapted for mobility along the track;

a carrier frame having second rollers adapted for mobility along the track;

a grinding member secured to the carrier frame;

a swivel drive for pivoting the carrier frame with respect to the support frame between a horizontal position in which the first rollers are disposed at an elevated position in relation to the second rollers, with the grinding member positioned to profile the rail tread of a rail head, and with the second rollers rolling on the track, and a lateral position in which the first rollers are lowered onto the track while the second rollers move on the rail head to a lateral disposition to enable the grinding member to profile a side of the rail head; and

guide means for guiding the support frame during movement along the track and adapted for bearing upon a side of the rail.

5,735,735

METHOD FOR THE AUTOMATIC GUTTING OF FISH AND AN APPARATUS FOR IMPLEMENTING THE METHOD

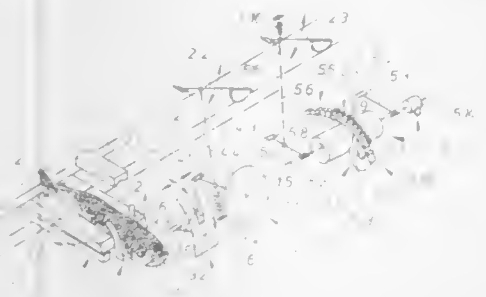
Peter Hahn; Günther Pinkerneil, both of Lübeck, and Klaus Dieter Nüske, Stockelsdorf, all of Germany, assignors to Nordischer Maschinenbau Rud. Baader GmbH & Co KG, Lubeck, Germany

Filed Nov. 1, 1995, Ser. No. 551,340

Claims priority, application Germany, Nov. 4, 1994, 44 39 158.7

Int. Cl. A22C *25/14*

U.S. Cl. 452—119 **15 Claims**



1 A method for automatically gutting fish, comprising the steps

a) opening one end of the fish ventral cavity around the anal orifice,

b) opening the other end of the ventral cavity by performing a transverse cut through the gullet of the fish from the ventral side up to the backbone to create a closed ventral portion intermediate said openings, and

c) removing the entrails from one of the ends of the ventral cavity by applying a force to act within the ventral cavity from the other end of the ventral cavity.

5,735,736

RETAINER FOR POULTRY HOCKS

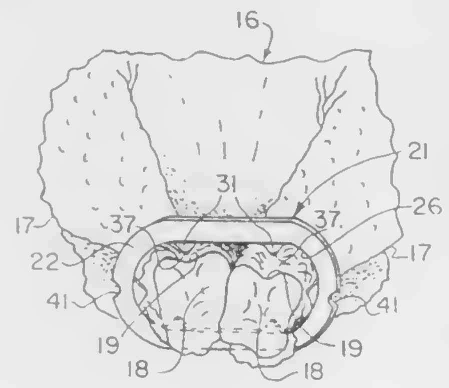
Daniel J. Volk, Alpharetta, Ga., assignor to Volk Enterprises, Inc., Turlock, Calif.

PCT No. PCT/US95/06770, § 371 Date Dec. 6, 1996, § 102(e) Date Dec. 6, 1996, PCT Pub. No. WO95/33382, PCT Pub. Date Dec. 14, 1995

Continuation-in-part of Ser. No. 254,247, Jun. 6, 1994, Pat. No. 5,498,201. This PCT application May 25, 1995, Ser. No. 750,415

Int. Cl.⁶ A22C *21/00*

U.S. Cl. 452—176 **19 Claims**



1 A retainer for use with a body of eviscerated fowl having first and second legs with respective hocks, comprising a unitary substantially planar thin plastic member which mounts about the hocks, the thin plastic member having an outer portion defining an opening which is elongated and of sufficient size to receive the legs and a plurality of protuberances integral with the outer portion extending inwardly into the opening for engaging the legs so as to hold the legs in a position extending substantially perpendicular to the thin plastic member and parallel to each other when the thin plastic member is mounted about the hocks.

5,735,737

ELECTRIC CURRENT CARRYING CONDUIT MOUNTED ON SEALING STRIP AT EXHAUSTING DEVICES

Olof Nils Fridolfsson, Helsingborg, Sweden, assignor to AB Ph. Nederman & Co., Helsingborg, Sweden

PCT No. PCT/SE95/00463, § 371 Date Oct. 24, 1996, § 102(e) Date Oct. 24, 1996, PCT Pub. No. WO95/29771, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 27, 1995, Ser. No. 732,211

Claims priority, application Sweden, Apr. 29, 1994, 9401469

Int. Cl.⁶ F23J *11/02*

U.S. Cl. 454—64 **14 Claims**

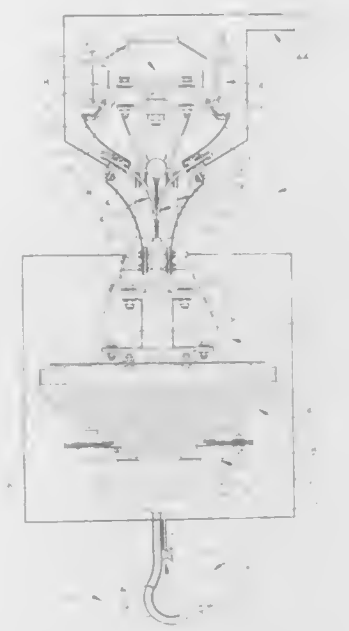
1 Electric current carrying device at exhausting devices for exhausting or sucking out unhealthy gases from vehicles,

whereby the exhausting device (**1**) includes a guide rail (**4**) for a travelling crab (**7**),

whereby the guide rail (**4**) includes at least one sealing strip (**14** and/or **15**) which seals or closes lower portions of said guide rail (**4**),

whereby the interior of the travelling crab (**7**) communicates with the interior of the guide rail (**4**),

whereby a gas conduit (**19**) is provided on the traveling crab (**7**) for removal of the unhealthy gases from vehicles, through the travelling crab (**7**) and the guide rail (**4**),



whereby a device (**21**) operable by means of electric current and located on the travelling crab (**7**) and/or on the gas conduit (**19**) provided thereon is operable through a current circuit (**22**) including electric current carrying lines (**24**, **25**) which extend along the guide rail (**4**) and which are connected to a source (**23**) of current,

whereby the current circuit (**22**) further includes electric current carrying lines (**26**, **27**) which are provided on the travelling crab (**7**) and which are connected to the device (**21**) operable by electric current,

whereby the electric current carrying lines (**26**, **27**) on the travelling crab (**7**) through sliding contacts (**28**, **29**) are in electric current transmitting contact with the electric current carrying lines (**24**, **25**) extending along the guide rail (**4**), and

whereby the device (**21**) operable by electric current is an electromagnetic device for fastening the gas conduit (**19**) to a vehicle (**2**) so that exhausts from the exhaust pipe (**20**) of the vehicle (**2**) can be sucked thereinto,

characterized in that at least one of the electric current carrying lines (**24** and/or **25**) running along the guide rail (**4**) is provided on or is included in or form part of the sealing strip (**14** and/or **15**).

5,735,738

CONDENSATION PREVENTING VENT STRUCTURE

Yukin Kuno; Akira Torimi; Kiyoshi Koga, all of Kasuya-gun; Toshisuke Matsumura, and Hiromasa Yokoi, both of Osaka, all of Japan, assignors to Ok Kizai, Inc., Osaka, and Kyoritsu Air Tech Inc., Fukuoka, both of Japan

Continuation of Ser. No. 352,852, Dec. 10, 1994, abandoned. This application Aug. 13, 1996, Ser. No. 694,464

Claims priority, application Japan, Dec. 15, 1993, 5-343418

Int. Cl.⁶ F24F *13/062*

U.S. Cl. 454—296 **15 Claims**

1 A condensation preventing vent structure having therein at least one fin to define an air-flow passage, said fin being provided with open upper and lower ends to define therein a flow passage, and an air flow damper provided on an upstream side of said fin to damp air flow at a central portion of the flow passage, wherein the air flow damper is provided at a central portion of the damper with a high impedance flow restricting portion, and on a surrounding portion of the damper with a low impedance smooth air flow permitting portion connected to the high impedance flow restricting portion.

5,735,739

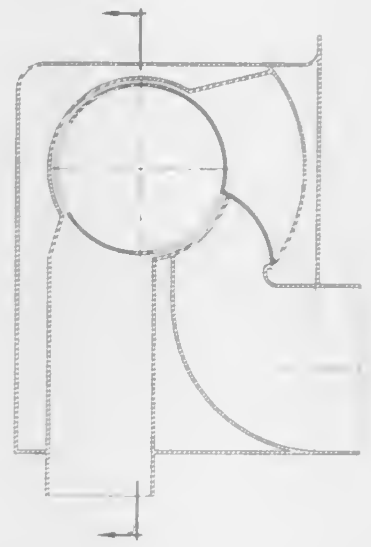
INSULATED EXTERNAL EXHAUST'S END

Jean Yves Daigle, and Michelle Landry, both of 533 Rue Nicole, Lar St-Charles Quebec, Canada, G0A 2H0

Filed Jan. 30, 1995, Ser. No. 380,669

Int. Cl.⁶ F23L *17/02*

U.S. Cl. 454—359 **3 Claims**



1 An exhaust device for allowing exhaust flow to go outside of a building comprising a case having an intake duct going upwardly within the case and an outlet duct going downwardly within the case, a rotary inner cylinder having an inlet opening and an opposite disposed outlet opening, said case having two curved outer walls between and in communication with said intake and outlet ducts, said curved outer walls rotably supporting said inner cylinder in a transverse direction for occluding and unoccluding the inlet and outlet openings of the inner cylinder, said rotary inner cylinder including a trap affixed thereto adjacent the upper portion of said inlet opening, said trap extends outwardly from said rotary cylinder so as exhaust flows upwardly within the intake duct, said inner cylinder is rotated by the exhaust flow forcing the trap upwardly thereby bringing the inlet opening and the outlet opening in unoccluding relationship with the curved outer walls and without the exhaust flow said inner cylinder is rotated by gravity forcing the trap downwardly thereby bringing the inlet opening and the outlet opening in occluding relationship with the curved outer walls.

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5,735,740

DEVICE FOR SEPARATING FRUIT AND ROOT-CROPS FROM EXTRANEOUS MATERIAL

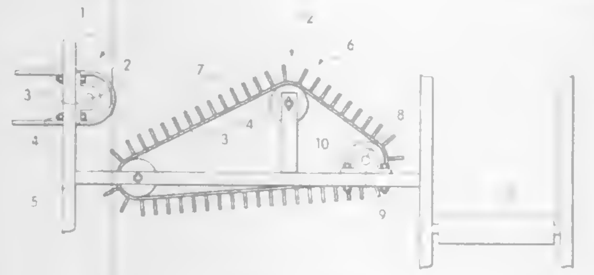
Vladimir Vitalievich Tarasenko, Apt. 74 22b Prodoinaya str., 332313 Melitopol Zaporozhskaya obl., Ukraine, and Vasily Vasilievich Kindzersky, ul. Lesichko 20-12, 279200 Beltsy, Rep. of Moldova

PCT No. PCT/UA93/00006, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO95/15075, PCT Pub. Date Jun. 8, 1995

PCT Filed Dec. 2, 1993, Ser. No. 564,291

Int. Cl.^{6} A01D *46/00*

U.S. Cl. 460—97 **32 Claims**



1. A device for separating vegetables and root-crops from admixtures, comprising:

a transporter mounted on a frame and having a plurality of protruding fingers for receiving separation products comprised of vegetables and admixtures, said transporter having an upper bed with at least one bent part so as to create upwardly and downwardly inclined parts, said bent part causing the protruding fingers to move apart and allow the separation products to drop therebetween, wherein after said fingers pass through said bent part, said fingers clamp together and destroy at least a portion of the admixtures, and

a device for removal of the vegetables from the transporter, said device mounted to an exit end of the transporter.

5,735,741

GAME MACHINE WITH CHAOTIC NUMBER GENERATOR

Shunpei Yamazaki, Tokyo; Akiharu Miyanaga, and Toshiji Hamatani, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, Japan

Filed May 17, 1995, Ser. No. 443,181

Int. Cl.^{6} A63F *9/22*

U.S. Cl. 463—22 **5 Claims**

1. A game machine comprising random number generation means for generating a chaotic random number and control means for using said chaotic random number generated by said random number generating means to control operation of the game machine to prevent a player from easily detecting a regularity of the game.

5,735,742

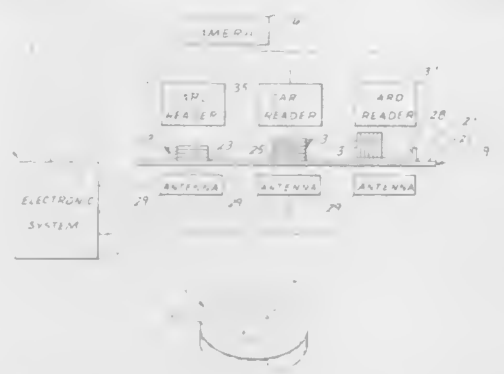
GAMING TABLE TRACKING SYSTEM AND METHOD

John French, San Clemente, Calif., assignor to Chip Track International, Carson City, Nev.

Filed Sep. 20, 1995, Ser. No. 530,833

Int. Cl.^{6} A63F *9/24*

U.S. Cl. 463—25 **26 Claims**



1. A gaming chip, comprising a body and a transponder carried within the body, said transponder being encoded with permanent read-only identification information and further having a data bank for receiving and maintaining changeable information transmitted thereto from an RF antenna.

5,735,743

GAME MACHINE HAVING PLAY-BY-PLAY ANNOUNCEMENT

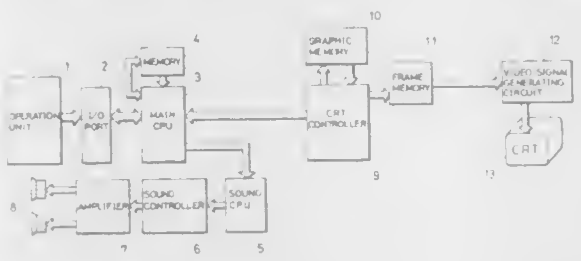
Shiro Murata; Koji Toyohara; Naoki Nishikawa, all of Kobe; Masahiro Ikariko, Kadoma; Kazuhiko Uebara, Kobe, and Hideto Inoue, Akashi, all of Japan, assignors to Konami Co., Ltd., Hyogo-ken, Japan

Filed Dec. 12, 1994, Ser. No. 353,873

Claims priority, application Japan, Dec. 14, 1993, 5-313705

Int. Cl.^{6} A63F *9/00*

U.S. Cl. 463—35 **11 Claims**



1. A game machine comprising

a monitor on which a game scene is displayed,

a manipulator for generating an instructive signal in response to operation of the manipulator by a player

a storage means for storing a data set for each of a plurality of vocal sound groups and each of said data sets is subdivided into a plurality of data subsets,

a controller means for producing successive game scenes on the monitor at predetermined intervals corresponding to a refresh rate of said monitor in accordance with a game program installed therein and said instructive signal generated by the manipulator, and for designating at least one of said data sets corresponding to one of said vocal sound groups associated with a selected series of said successive game scenes

a converter means for converting said at least one of said data sets at a rate for producing an audio signal, and

said controller means including a data transfer means for transferring to said converter means said plurality of data subsets of said at least one of said data sets successively in subset groups, formed of at least one of said data subsets, per one of said predetermined intervals during a predetermined portion of said predetermined intervals wherein individual ones of said subset groups are converted to an audio signal of longer duration than each of said predetermined intervals until all data of said at least one of said data sets is transferred to said converter means and wherein a remaining portion of said predetermined intervals is sufficient for said controller to produce one of said successive games scenes.

5,735,744

INTERACTIVE COMMUNICATION SYSTEM FOR COMMUNICATING VIDEO GAME AND KARAOKE SOFTWARE

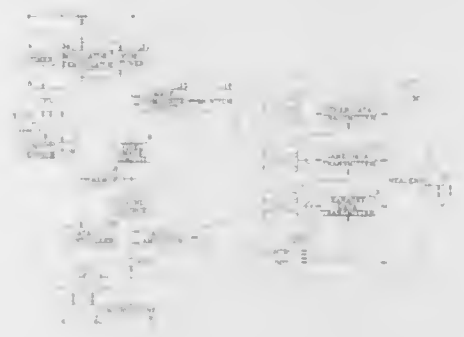
Takeya Okamoto, Nagoya, Japan, assignor to Yugengaisha Adachi International, Aichi, Japan

Continuation-in-part of Ser. No. 232,862, Apr. 25, 1994, Pat. No. 5,489,103. This application Nov. 9, 1995, Ser. No. 555,400

Claims priority, application Japan, Apr. 25, 1994, 5-108303

Int. Cl.^{6} A63F *9/??*

U.S. Cl. 463—40 **3 Claims**



1. A communication system having a host facility and communication terminal device capable of communicating with said host facility, said communication terminal device comprising,

a controller for inputting instructions to play game, receiving means for receiving game data as sent out from said host facility,

game data storage means for storing the game data received by said receiving means,

game executing means for executing game by using the game data stored in said game data storage means, in accordance with instructions from said controller,

display means having a screen for displaying the progress of game by said game executing means,

clock means for keeping a predetermined time period after said receiving means received the game data, and

interference means for interfering with the execution of said game executing means by blocking the view on the screen on which the progress of game is displayed by display means when said clock means counts said predetermined time period,

said host facility comprising,

data file storage for storing game data as well as duration data indicative of the predetermined time period to be counted by said clock means, and

sending out means for sending out the game data and the duration data stored in said data file storage to said communication terminal device

5,735,745

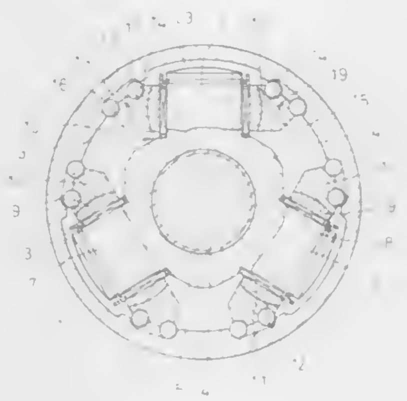
HOMOKINETIC UNIVERSAL JOINT HAVING BALL GROOVES IN A CYLINDRICAL PLANE

Takeshi Kohara; Hiromichi Bando, both of Iwata; Tatsurou Sugiyama, Haibara-gun, and Michio Iihara, Hamamatsu, all of Japan, assignors to NTN Corporation, Osaka, Japan

Continuation of Ser. No. 411,941, Mar. 28, 1995, abandoned. This application Feb. 24, 1997, Ser. No. 805,318

Int. Cl.^{6} F16D *3/205*

U.S. Cl. 464—111 **1 Claim**



1. A homokinetic universal joint comprising a cylindrical outer ring having a cylindrical inner surface and an axis, a tripod member inserted in said outer ring and having three trunnions on an outer periphery thereof, a guide block supported on each of said trunnions so as to be pivotable about and axially slidable along the respective trunnion, said guide block having surfaces formed on both sides of the respective trunnion and facing said cylindrical inner surface of said outer ring, said outer ring being formed, in said cylindrical inner surface, with raceway grooves extending parallel to the axis of said outer ring and facing said surfaces of said guide block, each of said guide blocks being formed in each of said surfaces with a ball circulation groove accommodating a plurality of balls, each of said ball circulation grooves having two straight paths connected together at both ends by arcuate paths, said balls being guided in a direction parallel to the axis of said outer ring while in said straight paths of said ball circulation groove, one of said two straight paths in which said balls are moved under torque being located further apart from an axis of said respective trunnion than the other of said two straight paths in which the balls move under substantially no load

5,735,746

TORSIONAL VIBRATION DAMPER WITH DEFLECTABLE SPOKES

Terry Colford, Queniborough, England, assignor to Firma Carl Freudenberg, Weinheim, Germany

Division of Ser. No. 260,438, Jun. 15, 1994, Pat. No. 5,573,461. This application May 2, 1996, Ser. No. 641,864

Claims priority, application Germany, Jun. 24, 1993, 43 20 938.6

Int. Cl.^{6} F16D *3/56*, *3/64*

U.S. Cl. 464—83 **5 Claims**

1. A torsional vibration damper for damping vibrations of a rotating body, said torsional vibration damper comprising

an outside ring;

an inside ring surrounded by said outside ring,

a plurality of spokes connecting said inside and said outside rings, said spokes being connected to the inside ring and to the outside ring by intermediate layers of an elastic material, said intermediate layers allowing circumferential displacement of said outside ring relative to said inside ring, said spokes having recesses open in a C shape in at least one axial

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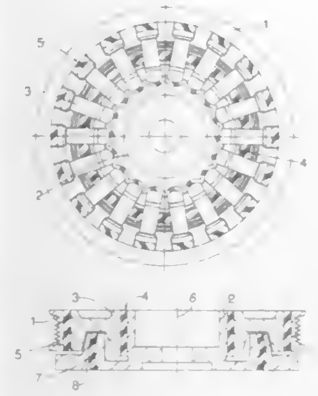


direction, said inside ring comprising a ring projection, said ring projection projecting within said recesses.

5,735,747

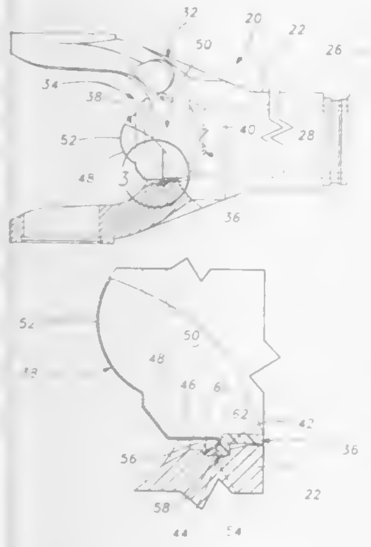
SLIP YOKE SEALING DEVICE

Glenn Gehrke, Davisburg, and Kevin Baldwin, Rochester Hills, both of Mich., assignors to Meritor Heavy Vehicle Systems, LLC

Filed Apr. 12, 1996, Ser. No. 630,700

Int. Cl.^{6} F16D *3/20*

U.S. Cl. 464—133 **19 Claims**



1 A drive transmission, comprising.

a slip yoke having a longitudinal bore extending through a central portion of said yoke, an annular groove being defined in said yoke near one end of said bore.

a shaft slidably received in said bore for axial movement toward and away from said one end of said bore:

a generally flexible diaphragm having an outer periphery received within said annular groove: and

a relatively rigid cap having a circumferential portion received within said groove for keeping said outer periphery of said diaphragm within said groove said diaphragm being disposed between said cap and said longitudinal bore in said yoke.

5,735,748

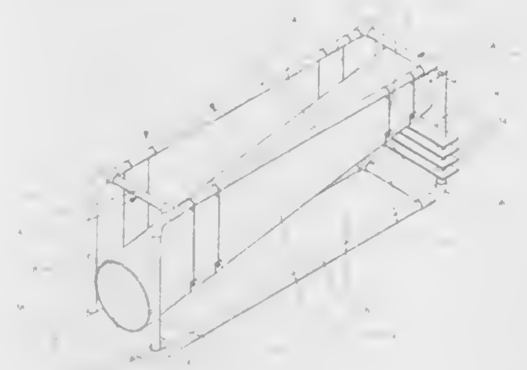
ANGLE ADJUSTABLE TUBULAR WATERSLIDE

Janet D. Meyers, 432 W. Fletcher Dr., Orange, Calif. 92865, and Robert C. Donnell, 12942 7th St., Garden Grove, Calif. 92640

Continuation-in-part of Ser. No. 420,144, Apr. 11, 1995, abandoned. This application May 23, 1996, Ser. No. 652,228

Int. Cl.^{6} A63G *21/18*

U.S. Cl. 472—117 **5 Claims**



1. A new and improved angle adjustable tubular waterslide comprising, in combination:

a frame formed of a plurality of poles and configured as a generally rectangular shaped box with a front end and a rear end, the frame comprising four vertical short poles, four horizontal short poles and two upper long poles and two lower long poles, each pole being formed in a generally cylindrical configuration with two open ends, the four vertical short poles being positioned vertically at each corner of the frame, the two upper long poles each being coupled horizontally between the uppermost extents of two vertical short poles, each of the upper long poles including a plurality of pole eyelets molded thereto at uniformly spaced intervals, the two lower long poles each being coupled horizontally between the lowermost extents of two vertical short poles, the four horizontal short poles being coupled horizontally between the vertical short poles, the horizontal short poles being positioned perpendicular to the long poles to add strength and stability to the apparatus, a plurality of generally rectangular shaped steps being coupled to the front end of the frame, the steps being positioned horizontally one above the other, the steps permitting users to easily enter the apparatus, a semi-rigid runner fabricated of slick plastic being affixed to the lowermost extent of the rear end of the frame, the runner being about seventy five percent of the length of the frame, the runner being formed in a planar generally oval configuration; and

a tube slide fabricated of a thick foldable plastic and formed in a hollow generally cylindrical configuration with an interior surface, an exterior surface, a front open end and a rear open end, the tube slide having a diameter sufficiently large to comfortably receive a child therein, the front end of the tube having a generally planar water spray device affixed thereto, the water spray device including a plurality of apertures and coupling means to permit coupling with a garden hose, water entering the water spray device from a garden hose and dispersing within the interior of the tube slide in the operative orientation, the water reducing the frictional forces encountered by children while sliding down the tube slide, a plurality of tube slide eyelets being molded to each side of the tube at uniformly spaced intervals, a plurality of bungee cords having two free ends, a first free end of each cord being coupled to a pole eyelet on one of the upper long poles of the frame, a second free end of each cord being coupled to a tube slide eyelet of the tube, the frontwardmost cord having a shorter length than the rearwardmost cord with the remaining cords having a gradually increasing length therebetween, the tube being positioned in a downwardly angled orientation from front to rear, the angle of the tube being adjustable by shortening or elongating the bungee cords of the apparatus.

5,735,749

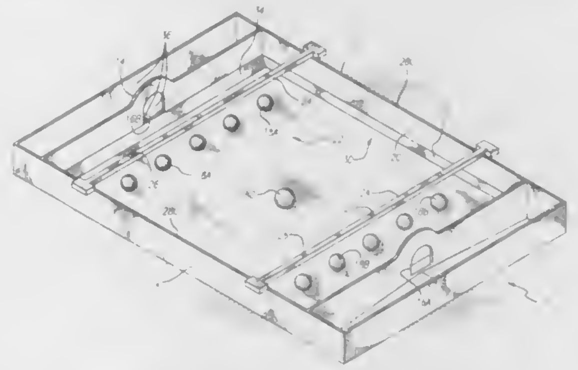
CARPET POOL GAME

Bechara Charbel, 4932 W. 122nd St., Hawthorne, Calif. 90250-3510, and Joseph Machaalani, 11336 Twelfth Avenue, Edmonton, Alberta, Canada, T6J6N 2

Filed Nov. 7, 1996, Ser. No. 746,237

Int. Cl.^{6} A63D *15/00*

U.S. Cl. 473—3 **9 Claims**



1 A game apparatus comprising:

a plurality of walls with ramps integrally formed thereon, the walls being detachably interconnected to provide an outer boundary of a game field, each ramp including a narrow portion positioned over the game field, each ramp tapering from the outer boundary to the narrow portion, the plurality of walls including two end walls and two side walls, each of the end walls being formed with an aperture sized sufficiently large to receive a game ball therethrough, the side walls being marked with visible indicia for initially positioning game balls along the game field:

a plurality of game balls sized to be received through the apertures; and

a mallet for striking the game balls, the mallet being marked with visible indicia which, when the mallet is placed in a predetermined position across the game field, provide visual cues for initially positioning the game balls across the game field.

5,735,750

BILLIARDS BALL RACK

Kenneth Silverman, 30 Treeview Dr., Melville, N.Y. 11747

Division of Ser. No. 253,371, Jun. 3, 1994, Pat. No. 5,601,495. This application Nov. 21, 1996, Ser. No. 753,193

Int. Cl.^{6} A63D *15/00*

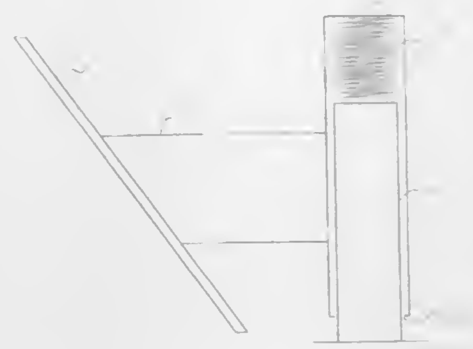
U.S. Cl. 473—40 **8 Claims**

1. An apparatus for arranging a group of balls into a compact formation of a predetermined pattern on the playing surface of a billiards table, said apparatus comprising

a frame having a plurality of side walls forming an opening, where an angle formed between an interior of at least one of the side walls and the playing surface of the billiards table is less than ninety degrees:

at least two elongated sleeves attached to the side walls of the frame. and

at least two elongated support legs having a free end placeable on the billiards table, movably mounted in the sleeves, where said support legs are adapted to be movable, relative to the sleeves between an extended position and a retracted position



wherein a group of balls are compacted together when said legs are in the said retracted position.

5,735,751

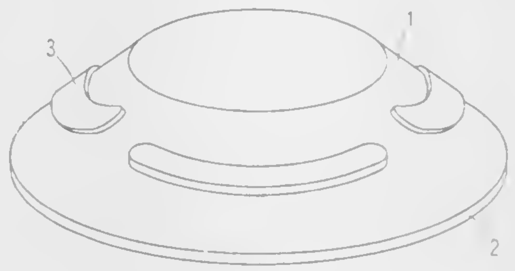
PUTTING TARGET WITH AUDIBLE FEEDBACK

Arcilio S. Pacheco, 14288 Bercaw La., San Jose, Calif. 95124

Filed Mar. 11, 1997, Ser. No. 815,165

Int. Cl.^{6} A63B *69/36*

U.S. Cl. 473—192 **2 Claims**



1 A golf putting target with audible feedback comprising

two thin discs forming a base and a cover respectively, between which is housed a printed circuit board containing a battery, circuitry, a sound synthesizer, and molded pressure bars,

said cover disc being perforated and said molded pressure bars protruding slightly through the perforations

said molded pressure bars having conductive contacts underneath them such that when said bars are depressed a normally open electrical circuit between the battery and the synthesizer is completed, allowing the synthesizer to emit a sound,

said target comprising a low profile to allow a putted golf ball to roll over its top and thus depress the molded pressure bars to cause audible feedback to be emitted to a person putting and allowing a ball to continue rolling past the target

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5,735,752

GOLF CLUB SHAFT AND INSERT THEREFOR

Anthony J. Antonious, 7738 Calle Facil, Sarasota, Fla. 34238

Filed Jun. 13, 1995, Ser. No. 487,247

Int. Cl.^{6} A63B *53/12*

U.S. Cl. 473—317 **41 Claims**

1 A golf club shaft for a golf club head comprising

at least one tubular section, and

a unitary insert attached to said at least one tubular section for regulating the flex point of said shaft, said insert being shorter than said tubular section and having a central section and a pair of couplers integrally formed on opposite ends of said central section at least one of said couplers being attached to an end of said tubular section of the shaft and the central

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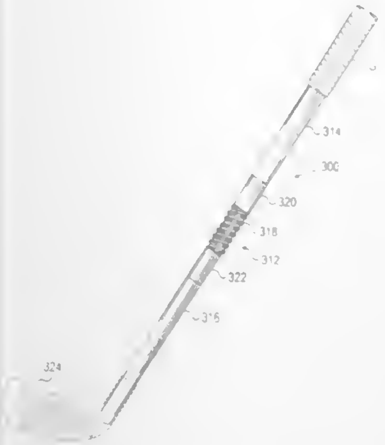


section extending axially outwardly away from the end of said tubular section, said insert being at least as rigid as said tubular section.

5,735,753
GOLF SHAFT WITH BULGE SECTION

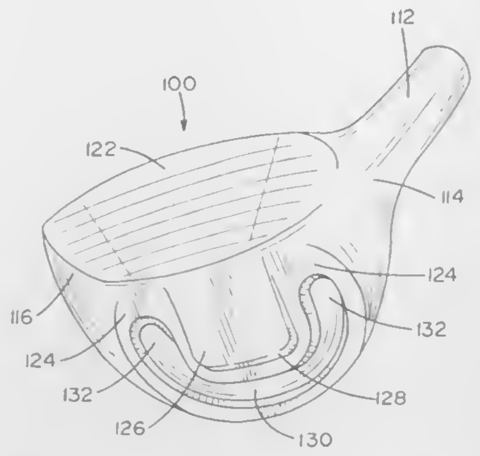
Monte J. Hoffmeyer, Estherville, Iowa, assignor to Berkley, Inc., Spirit Lake, Iowa
Continuation-in-part of Ser. No. 591,822, Jan. 25, 1996, abandoned. This application Jun. 14, 1996, Ser. No. 664,776
Int. Cl.⁶ A63B *53/10*
U.S. Cl. 473—318 **21 Claims**

1. A shaft suited for use as the shaft of a golf club, comprising
a straight shaft made of composite materials comprising a resin matrix with reinforcing fibers with the shaft extending between an upper butt end and a lower tip end, the shaft including a radially outwardly protruding bulge section located on the shaft with the bulge section being spaced from both the tip end of the shaft and the butt end of the shaft, the bulge section having a relatively short length compared to the length of the shaft and being located closer to the tip end of the shaft than to the butt end of the shaft, the bulge section also being formed of additional composite materials comprising a resin matrix with reinforcing fibers such that the bulge section adds mass to the shaft compared to a shaft without the bulge section, the shaft having substantially circular cross-sectional profiles over most of its length including over the bulge section.

5,735,754
AERODYNAMIC METAL WOOD GOLF CLUB HEAD

Anthony J. Antonious, 7738 Calle Facil, Sarasota, Fla. 34238
Filed Dec. 4, 1996, Ser. No. 759,924
Int. Cl.⁶ A63B *53/04*
U.S. Cl. 473—328 **8 Claims**

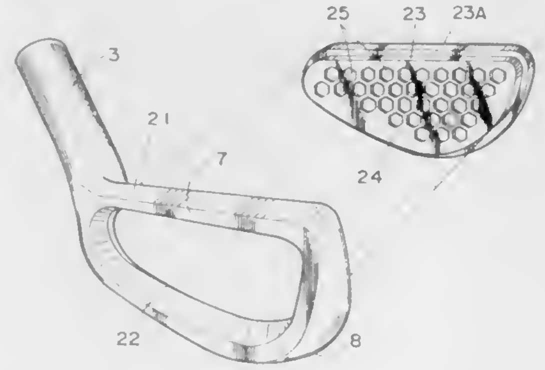
1. An aerodynamic golf club head including a club head body having a heel, toe, rear surface, ball striking face, upper surface and bottom surface, wherein the improvement comprises:
an aerodynamic configuration on said bottom surface adjacent said rear surface in the form of a c-shaped slot having an open end facing forwardly toward said ball striking face, said aerodynamic configuration further including a skid surface



formed on and raised from said bottom surface; said skid surface having a wall separating said skid surface from said bottom surface.

5,735,755
IRON-TYPE GOLF CLUB HEAD

Kenji Kobayashi, Tsubame, Japan, assignor to Kabushiki Kaisha Endo Seisakusho, Niigata-Ken, Japan
Filed Jun. 11, 1996, Ser. No. 661,607
Claims priority, application Japan, Apr. 18, 1996, 8-096959
Int. Cl.⁶ A63B *53/04*
U.S. Cl. 473—342 **10 Claims**

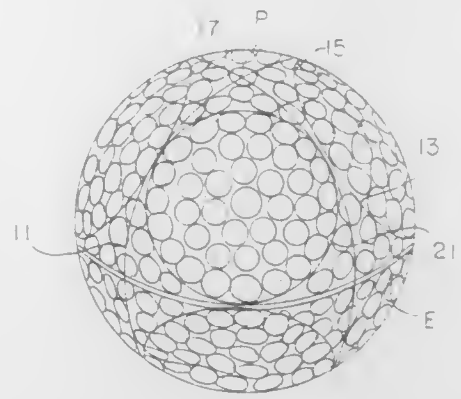


1. An iron type golf club head having a metallic head body with a shaft attaching portion at one side and a face at a front side, comprising:
a plurality of cavities formed on a rear surface of said face by forging, said cavities being each congruent hexagon-shaped, disposed at predetermined intervals in a plurality of ranks.

5,735,756
GOLF BALL AND DIMPLE PATTERN FORMING PROCESS

Joseph F. Stiefel, Ludlow, and Gary Tavares, Starbridge, both of Mass., assignors to Lisco, Inc., Tampa, Fla.
Filed Sep. 10, 1996, Ser. No. 711,488
Int. Cl.⁶ A63B *37/14*
U.S. Cl. 473—382 **9 Claims**

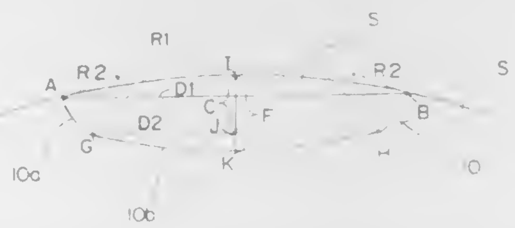
1. A golf ball having a dimpled surface, comprising:
(a) a dimple free equatorial line dividing said ball into two hemispheres each having a pole and substantially identical dimple patterns;
(b) a plurality of imaginary lines extending from said pole to said equatorial line in each hemisphere to divide each hemisphere into four equal quadrants;



(c) a line generally defining an imaginary circle of maximum diameter within each quadrant, said imaginary circles of said four quadrants being adjacent each other and adjacent said equatorial line and spaced from said pole;
(d) a first plurality of dimples forming a substantially identical dimple pattern within each of said imaginary circles without intersecting said circle defining lines; and
(e) a second plurality of dimples arranged between said imaginary circles, said pole, and said equatorial line.

5,735,757
GOLF BALL

Keiji Moriyama, Shirakawa, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-Ken, Japan
Filed Jun. 27, 1996, Ser. No. 670,494
Claims priority, application Japan, Jun. 27, 1995, 7-160764; May 21, 1996, 8-125615
Int. Cl.⁶ A63B *37/14*
U.S. Cl. 473—384 **6 Claims**



1. A golf ball of improved carry and loft of trajectory and having a plurality of dimples on its surface, wherein dimples accounting for not less than twenty percent of the total number of dimples are formed with a double radius shape in which the curvature of the peripheral wall portions of the dimple is smaller than the curvature of the bottom wall portion, and wherein the double radius shape is established such that D2/D1 falls within the following equation

$$0.95 \geq D2/D1 \geq 0.50$$

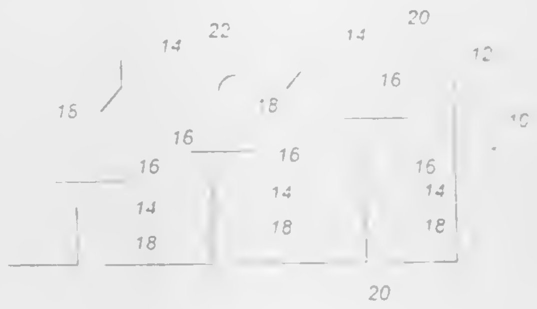
wherein D1 is the diameter of the open end of each of the dimples, and D2 is the diameter of a circle formed by the inflection points of the curvatures, and wherein C/E falls within the following equation

$$1.00 \geq C/E \geq 0.85$$

wherein E is the length of the perpendicular from a ball virtual spherical surface to the dimples deepest portion, and C is the length of the perpendicular from the ball virtual spherical surface to the center of the circle formed by the inflection points.

5,735,758
GOLF TEE INSERTION HEIGHT GAUGE

John S. Miketinac, Box 269A, Pikeville, Tenn. 37367
Filed Mar. 7, 1996, Ser. No. 612,122
Int. Cl.⁶ A63B *57/00*
U.S. Cl. 473—386 **1 Claim**



1. A golf tee insertion gauge and golf tee removal apparatus for use in accurately positioning the head of a golf tee at a desired height above the ground upon insertion of the golf tee into the ground and for use in easily removing the golf tee from the ground, said golf tee gauge comprising:
a body having a left and a right side and a bottom generally perpendicular to said left and right sides, said body having a peripheral edge,
a series of graduated tee receiving apertures defined within said body,
said graduated tee receiving apertures extending through the width of said body and having an opening on said peripheral edge,
said graduated tee receiving apertures each including a golf tee head conforming portion for accepting the head of a golf tee and defining an upper limit for movement of a golf tee placed within said tee receiving aperture, said golf tee head conforming portion including an upper wall for limiting the upper movement of a golf tee and two opposing side walls extending inwardly from said upper wall at an angle of less than ninety degrees,
said golf tee head conforming portion of said tee receiving apertures being positioned relative to said peripheral edge of said body such that the distance between the upper limit of said golf tee head conforming portion to said peripheral edge corresponds to the desired height above ground of the head of the golf tee with said series of graduated tee receiving apertures each having a head conforming portion at a different distance from said peripheral edge presenting a graduated series of selectable distances,
said graduated tee receiving apertures including a shank conforming portion extending from said head conforming portion to said peripheral edge,
said golf tee head conforming portion and said shank conforming portion defining a cross-section replicating that of a golf tee, wherein said junction of said head conforming portion with said shank conforming portion defines shoulders for engaging the head of a golf tee for supporting said golf tee when said body is in an upright position and also for creating a means for removing a golf tee from the ground;
wherein said graduated tee receiving apertures receive a golf tee within its periphery for supporting the golf tee when said body is in an upright position for facilitating in the accurate vertical and horizontal positioning of a golf tee, and
wherein said graduated tee receiving aperture may encircle a golf tee positioned in the ground for removal by engaging the golf tee with shoulders.

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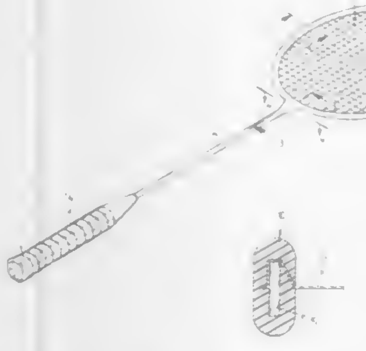
5,735,759

GAME RACKET

Se Lin, and Johnny Lin, both of No. 747, Chong San Road, Ser Nan Tsuen, Shern Gan Hsiang, Taichung Hsien, Taiwan
Filed Mar. 24, 1997, Ser. No. 823,074
Int. Cl.⁶ A63B *49/00*
U.S. Cl. 473—540 2 Claims



1. A game racket comprising:
an annular frame made of plastic material,
a tube secured to said annular frame,
an annular rib engaged in said annular frame and including at least one hole for engaging with said plastic material and for allowing said annular rib to be solidly secured in said annular frame, and
a network including a peripheral portion engaged with said annular rib and engaged in said annular frame for allowing said network to be secured to said annular frame without threading operation.

5,735,760

BASKETBALL NET

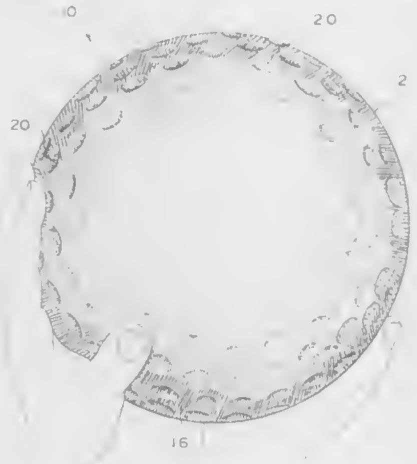
Dean Brewer, 1983 E. 5850 South, Ogden, Utah 84403
Filed Jan. 24, 1996, Ser. No. 590,925
Int. Cl.⁶ A63B *63/08*
U.S. Cl. 473—485 24 Claims

1. A method for making a basketball net adapted to be suspended from a basketball goal comprising a circular hoop having an axis of symmetry, the method comprising:
providing a quantity of knit fabric,
forming a sheet from the quantity of fabric, the sheet being shaped as a segment of a circle to extend from a bottom edge corresponding to a first radius and first arclength, to a top edge corresponding to a second radius and second arclength, and from a left edge corresponding to a first azimuth to a right edge, corresponding to a second azimuth,
connecting the left edge to the right edge to form the sheet into a frustum of a cone having a longitudinal axis;
forming a suspension device proximate the top edge; and
connecting the suspension device to the hoop to substantially align the longitudinal axis with the axis of symmetry.

5,735,761

SPORTS BALL WITH A PLURALITY OF SURFACE DIMPLES FOR REDUCING THE EFFECTIVE DIAMETER OF BALL

Marvin E. Palmquist, 225 Palm Ave., Rockford, Ill. 61107
Division of Ser. No. 237,217, May 3, 1994, Pat. No. 5,518,234.
This application Feb. 27, 1996, Ser. No. 607,709
Int. Cl.⁶ A63B *41/08*
U.S. Cl. 473—596 12 Claims

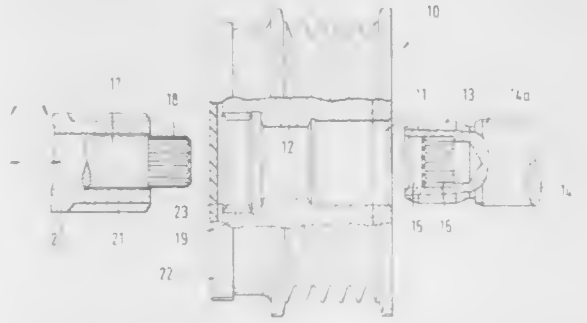


1. A game ball, comprising:
(a) a body having a convex outer surface including a multitude of depressed surfaces forming fingertip engageable dimples spaced apart around substantially the entire outer surface of the game ball to permit a player's fingertips to grasp the game ball by engaging a plurality of the dimples from any of a multitude of locations around the periphery thereof, each of the dimples being sufficiently wide and deep to accommodate only one of the player's fingertips for allowing the player to grasp and manipulate the game ball significantly more efficiently than would otherwise be possible in the absence of the dimples.

5,735,762

PULLEY, IN PARTICULAR FREE-RUNNING PULLEY

Henning Fasterding, Markgroeningen; Hermann Lehnertz, Fellbach, both of Germany, and Oswald Antl, Miskin Pontyclun, Great Britain, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 8, 1996, Ser. No. 612,532
Claims priority, application Germany, Mar. 8, 1995, 195 07 860.8
Int. Cl.⁶ F16H *55/36*
U.S. Cl. 474—166 5 Claims

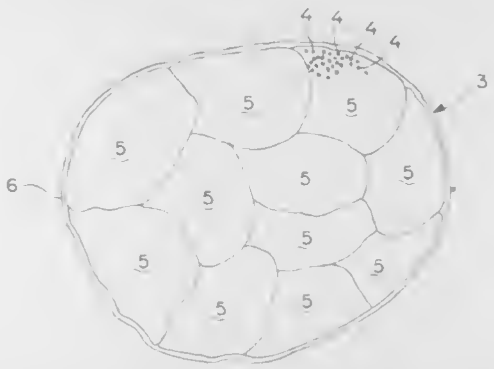


1. A shaft pulley assembly, comprising a pulley with a pulley body having a throughgoing opening, a shaft supporting said pulley and having a shaft end provided with a blind hole, so that said pulley body is mounted on said shaft end through said throughgoing opening, said throughgoing opening having a portion provided with an inner thread and said shaft thread has a counter thread cooperating with said inner thread, said throughgoing opening also having an end portion, said end portion of said throughgoing opening and said blind hole being each provided with contours repeating at regular distances from one another and adapted for a form-locking engagement of a tool for tightening and loosening of said pulley on said shaft.

5,735,763

TENSION MEMBER FOR BELT AND BELT INCLUDING THE SAME

Hideaki Kawahara; Masaki Ochiai; Eijiro Nakashima, and Yuji Takeuchi, all of Kobe, Japan, assignors to Bando Chemical Industries, Ltd., Kobe, Japan
Filed Jul. 16, 1996, Ser. No. 680,650
Claims priority, application Japan, Jul. 24, 1995, 7-187198
Int. Cl.⁶ D02G *3/28*
U.S. Cl. 474—263 8 Claims



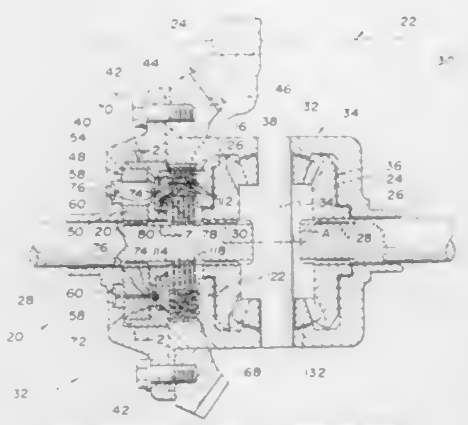
1. A tension member for a belt comprising a plurality of first twist yarns parallel together and reverse twisted, each of said first twist yarns being formed by a plurality of bundles of parallel glass fibers, which are heated after being soaked with a treatment liquid including, as a main component, a mixture of rubber latex and an initial condensation product of resorcinol and formalin, said bundles each being twisted by a first twist number that is between about 1.0 and 4.5 times per inch in order to obtain a first twist yarn wherein a plurality of the first twist yarns are arranged mutually parallel and are twisted in the reverse direction to said first twist by a final twist number that is between about 2.4 and 4.0 times per inch,
wherein spaces among the first twist yarns are squeezed and substantially eliminated by said final twist.

5,735,764

HYDRAULIC COUPLING FOR VEHICLE DRIVETRAIN

Theodore E. Shaffer, and Murat N. Okcuoglu, both of Santa Barbara, Calif., assignors to ASHA Corporation, Santa Barbara, Calif.
Continuation of Ser. No. 482,761, Jun. 7, 1995, Pat. No. 5,595,214, which is a continuation-in-part of Ser. No. 205,900, Mar. 3, 1994, Pat. No. 5,536,215, which is a continuation-in-part of Ser. No. 16,168, Feb. 10, 1993, Pat. No. 5,310,388.
This application Oct. 17, 1996, Ser. No. 733,362
Int. Cl.⁶ F16H *48/26*
U.S. Cl. 475—88 13 Claims

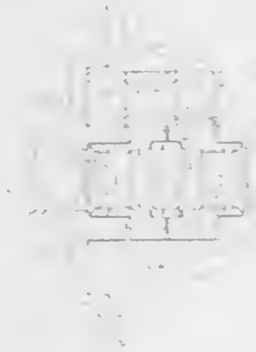
1. A hydraulic coupling for with a vehicle drivetrain within a housing thereof containing hydraulic fluid to rotatively couple a pair of rotary members about a rotational axis, the hydraulic coupling comprising: a casing of a hollow construction that is rotatable within the housing about the rotational axis, a hydraulic pump located within the casing along the rotational axis to provide a pumping action upon relative rotation between the two rotary members; an inlet port through which hydraulic fluid is pumped into the casing by the hydraulic pump; a clutch including a piston chamber located within the casing and having an actuating piston that is received within the piston chamber and actuatable to engage the clutch and couple the two rotary members to each other, the casing including a transfer port through which the pumped hydraulic fluid is fed from the hydraulic pump to the piston chamber, an outlet port through which pumped hydraulic fluid flows from the piston chamber, and a control valve including a temperature compensated valve element movable between an open position spaced from the outlet port and a closed position that closes the outlet port when the pumped fluid reaches a predetermined pressure to actuate the piston and engage the clutch to thereby rotatively couple the pair of rotary members to each other.



5,735,765

DIFFERENTIAL APPARATUS

Masao Teraoka; Satoshi Aiba; Hiraishi Kenji; Kazumitsu Ugajin, and Shuhei Ono, all of Tochigi, Japan, assignors to Tochigi Fuji Sangyo Kabushiki Kaisha, Tochigi-Ken, Japan
Filed Jan. 12, 1996, Ser. No. 587,324
Claims priority, application Japan, Jan. 12, 1995, 7-003319; Jun. 22, 1995, 7-156088
Int. Cl.⁶ F16H *1/45*, *57/04*, B60K *17/20*
U.S. Cl. 475—248 12 Claims



1. A differential apparatus (7), comprising:
a differential casing (21) to be rotated by an engine power,
a plurality of pinion gears (65, 66) slidably housed in accommodation holes (63, 64) formed in said differential casing,
a pair of side gears (35, 37) engaged with each other via said pinion gears, two opposing end surfaces thereof being slidable relative to each other (61),
a block member (47, 91, 97) interposed between two inner circumferential surfaces of said two side gears to center said two side gears, respectively, and
at least one oil sump (77, 79, 95, 101) formed between said block member and said two side gears, to supply lubricant to sliding portions between said block member (47, 91, 97) and

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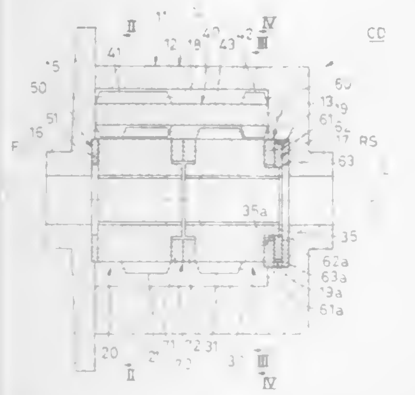
said two side gears (35, 37) and between said two opposing end surfaces of said two side gears, by a centrifugal force generated by said rotating differential casing.

5,735,766

CENTER DIFFERENTIAL FOR FOUR-WHEEL DRIVE VEHICLES

Paolo Sacchettini, and Makoto Nishiji, both of La Louviere, Belgium, assignors to Zexel Corporation, Tokyo, Japan
Filed Mar. 29, 1996, Ser. No. 625,006
Claims priority, application Japan, Mar. 29, 1995, 7-096186
Int. Cl.⁶ F16H *1/06*
U.S. Cl. 475—249 11 Claims



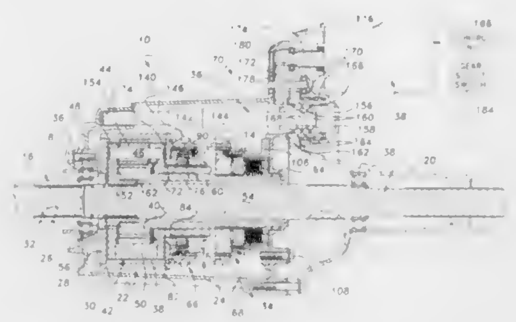
1. A center differential for four-wheel drive vehicles comprising
- (a) a housing capable of turning about a rotational axis thereof, said housing having a front end wall and a rear end wall located axially away from each other
- (b) a generally cylindrical front sun gear and a generally cylindrical read sun gear received within said housing such that they are coaxial with said rotational axis, an end portion of a front output shaft extending through said front end wall of said housing being inserted into and spline connected to said front sun gear, an end portion of a rear output shaft extending through said rear end wall of said housing being inserted into and spline connected to said rear sun gear, a pair of said sun gears each having helical teeth, said helical teeth of said rear sun gear being helically twisted in a direction for generating a force for pushing said rear sun gear toward said rear end wall of said housing when a vehicle is in a coast driving mode,
- (c) a pair of planetary gears rotatably supported by said housing and engaged respectively with said helical teeth of said pair of sun gears, said pair of planetary gears being in engagement with each other, and
- (d) front friction generator means interposed between said front end wall of said housing and said front sun gear and rear friction generator means interposed between said rear end wall of said housing and said rear sun gear, a friction torque to be transmitted between said housing and said rear sun gear through said rear friction generator means when the vehicle makes a turn in its coast driving mode being larger than a friction torque which is transmitted between said housing and said front sun gear through said front friction generator means.

5,735,767

ADD-ON TWO-SPEED COMPOUNDER

John R. Forsyth, Romeo, Mich., assignor to New Venture Gear, Inc., Troy, Mich.
Filed Oct. 21, 1996, Ser. No. 734,765
Int. Cl.⁶ F16H 29/22
U.S. Cl. 475—269 6 Claims

1. A two-speed compounder for transferring rotary power from a transmission to a driveline, comprising:

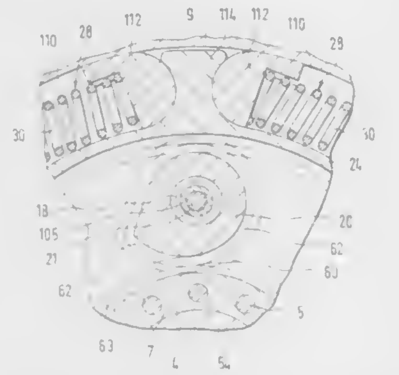


- a housing adapted to be mounted to the transmission;
- an input rotatably supported by said housing and adapted to be driven by the transmission;
- an output rotatably supported by said housing and adapted to drive the driveline;
- a planetary gearset having a first gear component driven by said input, a second gear component, and a third gear component driving said output and intermeshed with said first and second gear components; and
- a power transfer mechanism that is operable in a first mode for establishing a first speed ratio between said input and said output by releasably coupling said third gear component to said first gear component while permitting said second gear component to rotate relative to said housing, said power transfer mechanism further operable in a second mode for establishing a second speed ratio between said input and said output by releasably coupling said second gear component to said housing while permitting said third gear component to rotate relative to said first and second gear components.

5,735,768

TORSIONAL VIBRATION DAMPER WITH VARIABLE TRANSMISSION

Jörg Sudau, Niederwerrn, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany
Filed Jul. 15, 1996, Ser. No. 680,150
Claims priority, application Germany, Jul. 15, 1995, 195 25 842.8
Int. Cl.⁶ F16D 3/80
U.S. Cl. 475—347 5 Claims

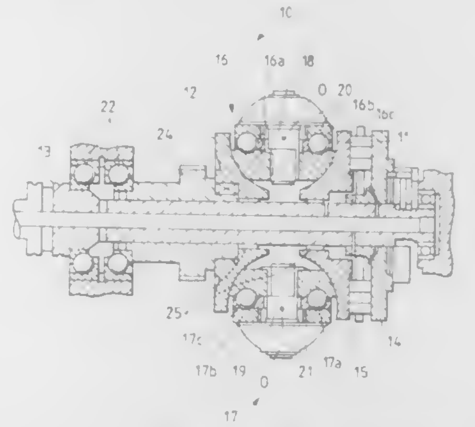


1. A torsional vibration damper comprising: a drive side transmission element, at least one planet carrier rotatable relative to the drive side transmission element, a planetary gear train including elements which include at least one planetary gear, a sun gear engaged with the planetary gear and an internal gear engaged with the planetary gear, and an output side transmission element connected to the planet carrier, the planetary gear train elements being drivable for movement dependent on one of speed and rotational direction of the two transmission elements relative to one another, at least two of the planetary of gear train elements each having an associated bearing and being formed, within a predeterminable roll-off range, with a respective contact curve eccentric to the associated bearing of the planetary gear train element whereby it is possible to change a distance of interengagement of the two planetary gear train elements from their bearings so as to adjust the gearing of the planetary gear train as a function of relative deflection width of the transmission elements relative to one another.

5,735,769

TOROIDAL TYPE CONTINUOUSLY VARIABLE TRANSMISSION PARTS HAVING INCREASED LIFE

Hiromichi Takemura, and Hideki Kokubu, both of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan
Filed Apr. 18, 1995, Ser. No. 423,854
Claims priority, application Japan, Apr. 18, 1994, 6-078833
Int. Cl.⁶ F16H *15/38*, F16C *33/00*
U.S. Cl. 476—40 2 Claims



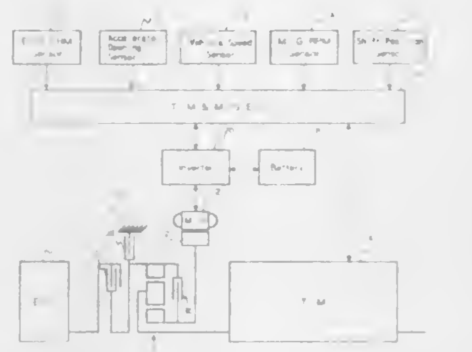
1. A toroidal type continuously variable transmission comprising:
- an input disk mounted on an input shaft;
- an output disk mounted on an output shaft; and
- a pair of power roller bearings each including an inner race, an outer race, and a plurality of rolling elements, said inner race being engaged with said input and output disks to transmit motive power of said input shaft to said output shaft, characterized in that at least one of said inner race, outer race, input disk and output disk are made of case hardening steel, has a surface layer subjected to a heat treatment in which carburizing or carbonitriding, hardening and tempering are performed sequentially, and then to shot peening treatment to impart compressive residual stress, and after the shot peening treatment, grinding finishing is performed to remove a grinding portion of a region having a depth of 0.1 to 0.2 mm from the surface of each of said at least one of said inner race, outer race, input disk and output disk so that the remaining surface layer has a compressive residual stress within a range of −20 to −75 Kgf/mm².

5,735,770

CONTROL SYSTEM FOR VEHICULAR DRIVE UNIT

Kenji Omote, Nishio, and Shigeo Tsuzuki, Takahama, both of Japan, assignors to Aisin AW Co., Ltd., Anjo, Japan
Filed Nov. 22, 1996, Ser. No. 754,996
Claims priority, application Japan, Dec. 8, 1995, 7-345919
Int. Cl.⁶ F16H *61/00*
U.S. Cl. 477—5 9 Claims

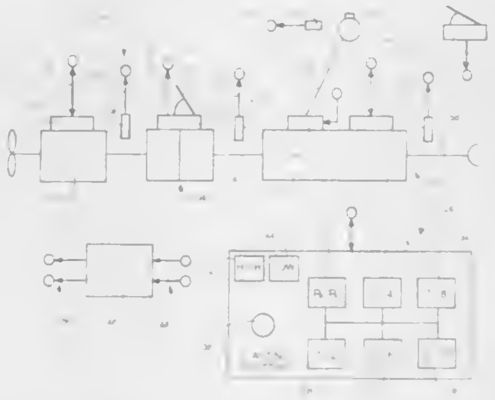
1. A control system for a drive unit of a vehicle comprising
- an engine,
- a motor/generator,
- a transmission,
- a planetary gear connected to said engine through a starting clutch, to said motor/generator and to said transmission; and
- a motor drive controller driving said motor/generator in a predetermined direction prior to the application of said starting clutch at a split starting time of the vehicle, when said starting clutch is applied to interlock said engine and said motor/generator through said planetary gear to output a reaction of an engine output torque to said motor/generator.



5,735,771

SEMI-AUTOMATIC SHIFT IMPLEMENTATION

Thomas A. Genise, Dearborn, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Apr. 30, 1996, Ser. No. 649,830
Int. Cl.⁶ B60K *41/08*
U.S. Cl. 477—111 37 Claims



1. A manually shifted vehicular transmission system comprising
- a transmission section having an input shaft driven by a fuel-controlled engine, an output shaft, a plurality of selectably engageable and disengageable drive ratios, and a selectable neutral, all of said drive ratios and neutral selected by means of selectively engaged and disengaged jaw clutches operatively positioned by a manually operated shift lever having a plurality of shift lever positions,
- means to sense a transmission section neutral condition,
- means to determine a forward target gear ratio;
- means to automatically control fueling of the engine, said means effective, upon sensing transmission section neutral, to cause the engine to achieve a synchronous speed for engaging said target gear ratio; and
- means to sense said engine achieving a synchronous speed for engaging said target gear ratio and for causing the operator to be informed that the target gear ratio is engageable at substantially synchronous speeds.

5,735,772

METHOD AND DEVICE FOR IMPROVING ORAL MOTOR FUNCTION

Mary E. Schiavoni, 136 Arlington St., Brighton, Mass. 02135
Filed Feb. 12, 1996, Ser. No. 599,730
Int. Cl.⁶ A63B *23/03*, A61J *17/00*, A61C *19/04*
U.S. Cl. 482—11 5 Claims

1. A method for improving the oral motor function of persons with oral motor dysfunction, the method comprising the steps of

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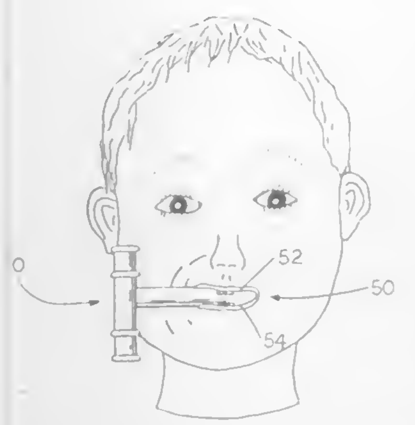


a) providing at least one chewing device comprising a non nutritive, non-toxic and elongated biting portion which has a given effective lateral thickness and is adapted to be received between an upper and a lower biting surface of an orally dysfunctional person's mouth and a handle portion securely connected to the biting portion for enabling manipulation of the device from a position external to a user's mouth;

b) inserting the biting portion of the chewing device between the biting surfaces of the orally dysfunctional person's mouth; instructing and, if necessary, assisting the orally dysfunctional person to hold the chewing device by its biting portion in a selected position between the biting surfaces of the person's mouth for a given length of time; then instructing and, if necessary, assisting the orally dysfunctional person to hold the chewing device by its biting portion in the selected position between the biting surfaces of the person's mouth for progressively greater lengths of time; and

c) instructing and, if necessary, assisting the orally dysfunctional person to engage in at least one cycle of excursion and closure of the biting surfaces of the person's mouth on the biting portion of the chewing device with the chewing device in the selected position; then instructing and, if necessary, assisting the orally dysfunctional person to engage in a progressively increasing number of cycles of repetitive excursion and closure on the biting portion of the device; and

d) repeating at least steps a) and c) with additional chewing devices wherein at least one of the additional chewing devices has a biting portion with a different effective lateral thickness from the effective lateral thickness of the at least one chewing device.

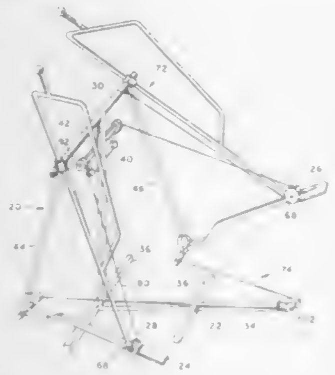
5,735,773
CROSS-TRAINING EXERCISE APPARATUS

Larry W. Vittone, and Suzanne R. Vittone, both of Rte. 1, Box 55, Hurley, Wis. 54534

Filed Aug. 5, 1996, Ser. No. 692,437

Int. Cl.^{6} A63B *21/00;69/16*

U.S. Cl. 482—52 **6 Claims**



1. An exercise apparatus comprising:

a base having a front,

a pair of foot supports pivotally and slidably joined to the base to accommodate a pivotal movement of each foot support relative to the base between forward and rearward positions and to accommodate a sliding movement of each foot support relative to the base between raised and lowered positions;

means associated with the base and joined between the foot supports for coordinating the pivoting of the foot supports between forward and rearward positions so that pivotal movement of one foot support relative to the base in one of a forward and rearward direction effects a corresponding pivotal movement of the other foot support relative to the base in the other of the forward and rearward direction; and

means associated with the base and joined between the foot supports for coordinating the sliding movement of the foot supports between raised and lowered positions so that sliding movement of one foot support relative to the base in one of an upward and downward direction effects a corresponding sliding movement of the other foot support relative to the base in the other of the upward and downward directional

wherein the base has a lower section adapted to rest upon an underlying support surface and an elevated section joined to so as to be elevated above the underlying support surface, and the apparatus includes means interposed between each foot support and the elevated section for pivotally and slidably joining each foot support to the elevated section to accommodate pivotal movement of each foot support relative to the elevated section between forward and rearward positions and to accommodate a sliding movement of each foot support relative to the elevated section between raised and lowered positions and

wherein the interposed means includes a three-member linkage assembly interposed between each foot support and the elevated section wherein each three-member linkage assembly includes a first elongated member having one end which is slidably joined to the elevated section for sliding movement relative thereto, a second elongated member having one end which is pivotally joined to the first elongated member at the end thereof opposite the one end of the first elongated member, and a third elongated member having one end which is pivotally joined to the second elongated member at the one end of the second elongated member opposite the first elongated member and having an opposite end which is pivotally joined to the elongated section; and

each of the foot supports is affixed to a corresponding linkage assembly adjacent the location at which the second elongated member is pivotally joined to the first elongated member so that each foot support can be pivoted and slidably moved relative to the elongated section as aforesaid by way of its corresponding three-member linkage assembly.

5,735,774
ACTIVE CRANK AXIS CYCLE MECHANISM

Joseph Douglas Maresh, P.O. Box 645, West Linn, Oreg. 97068-0645

Filed Jul. 19, 1995, Ser. No. 503,931

Int. Cl.^{6} A63B *22/00;23/10*

U.S. Cl. 482—57 **20 Claims**

1. An exercise apparatus, comprising:

a frame;

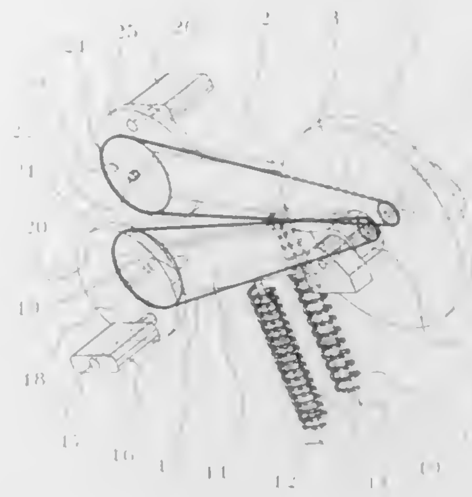
a first arm pivotally connected to the frame and pivotal about a first pivot axis;

a first crank rotatably connected to the first arm and rotatable about a first crank axis which is radially displaced from the first pivot axis;

a first user foot support force receiving member connected to the first crank and rotatable about the first crank axis;

a second arm pivotally connected to the frame and pivotal about a second pivot axis;

a second crank rotatably connected to the second arm and rotatable about a second crank axis which is radially displaced from the second pivot axis; and



a second user foot support force receiving member connected to the second crank and rotatable about the second crank axis.

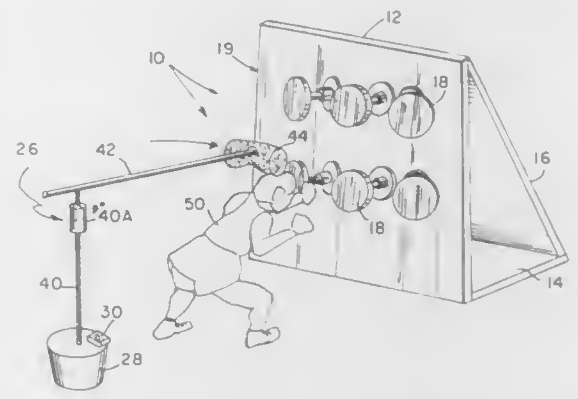
5,735,775
PUNCHING DEVICE

Gregory G. Miasserian, 26 Beacon St., Apt. 37E, Burlington, Mass. 01803

Division of Ser. No. 334,419, Nov. 4, 1994, Pat. No. 5,613,925. This application Mar. 21, 1997, Ser. No. 828,283

Int. Cl.^{6} A63B *69/34*

U.S. Cl. 482—83 **14 Claims**



1. A punching device assembly for punching practice to sharpen skills of a user in punching while avoiding a component of the punching device, the punching device assembly, in combination comprising comprising:

a first component device positioned generally vertically;

at least one pad device attached to the first component device to be punched by a user;

a second component device with a rotatable motorized arm; and

a striking device attached at an outer end of the rotatable motorized arm whereby the striking device rotates into and out of proximity with the at least one pad device and a user is challenged with the combined tasks of striking the at least one pad device assembly while avoiding or preventing being struck by the rotating striking device.

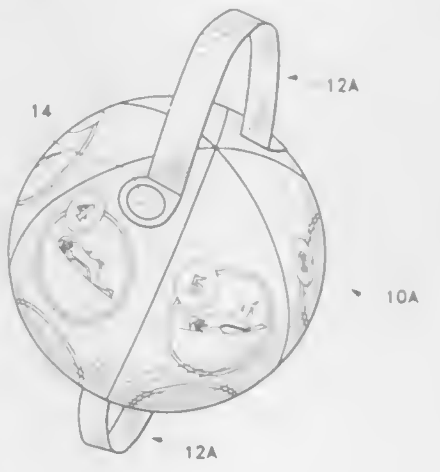
5,735,776
ISOMETRIC EXERCISE BALL

Robert L. Swezey, 10532 Garwood Pl., Los Angeles, Calif. 90024, and Richard Swezey, 148 N. Wilton Pl., Los Angeles, Calif. 90004

Filed Jul. 31, 1995, Ser. No. 509,144

Int. Cl.^{6} A63B *21/002;21/008*

U.S. Cl. 482—91 **16 Claims**



1. An exercise ball comprising:

a hollow inflatable main ball portion made from flexible material shaped to form a sphere of predetermined volume capacity when fully inflated, said ball portion being partially inflated to within a range from about two-thirds to three-quarters of the volume capacity;

a pair of like flexible looped handles disposed at diametrically opposed regions of the main ball portion, the handles being dimensioned to allow a human foot to pass through the looped handle,

an inflatable bladder portion,

first and second complementary hemispheric fabric cover portions constructed and arranged to each have a corresponding one of said looped handles attached integrally thereto at a peripheral region thereof by an attachment straps, said first and second fabric covers being mutually attached around the peripheral region, fully enclosing said bladder portion, each of said cover portions each being constructed and arranged to have pass-through slot means defined in a peripheral region opposite the location of the attachment strap, for utilizing an attachment strap passing through the slot means in order to assist in holding said cover portions together, and

said first and second fabric covers being constructed and arranged to surround said bladder portion and to be mutually attached around peripheral regions thereof so as to form a spherical entity, such that the looped handles are caused to become effectively attached via the respective straps to diametrically opposed regions of the main ball portions, disposed at substantially equal distances outwardly from the main ball portion.

5,735,777
ADAPTIVE WEIGHT DEVICE

Kenneth J. Benoit, 4 Factory Cove Rd., Boothbay Harbor, Me. 04538, and John Li, Bellflower, Calif., assignors to Kenneth J. Benoit, Booth Bay Harbor, Me.

Continuation-in-part of Ser. No. 351,668, Dec. 8, 1994, abandoned. This application Sep. 16, 1996, Ser. No. 714,680

Int. Cl.^{6} A63B *21/075*

U.S. Cl. 482—93 **17 Claims**

1. An adaptive weight device comprising:

a weight component of a selected weight value and having an attachment side for coupling said weight component to an exercise weight, said attachment side including a plurality of localized retention seats spaced around a perimeter of said

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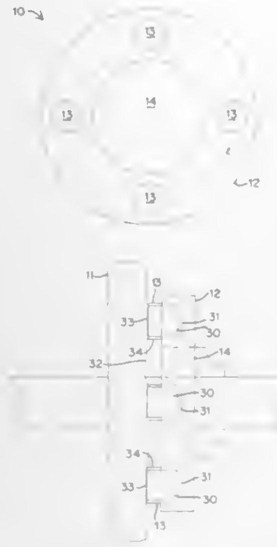


attachment side, wherein each of said retention seats includes retention walls and contains a permanent magnet fixedly positioned therein, wherein each of said magnets within said retention seats is sized so as to minimize the effect of surface variations of the exercise weight while maintaining sufficient magnetic strength to keep said weight component attached to the exercise weight when applied thereto wherein each of said retention seats includes an insulative gap spacing said permanent magnets from direct contact with said retention walls so as to enhance a magnetic effect of said permanent magnets, said adaptive weight device being removably attachable to the exercise weight and utilized for incrementally increasing an aggregate weight value of the exercise weight.

5,735,778

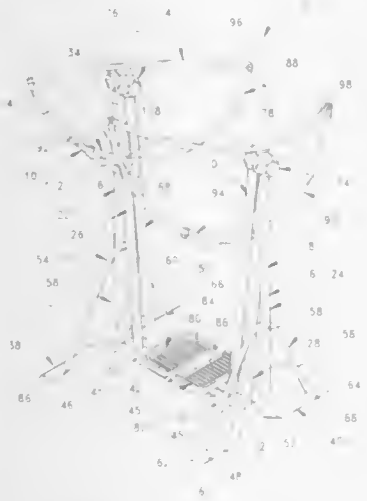
EXERCISE APPARATUS INCLUDING AN IMPROVED UPPER BODY EXERCISE DEVICE

Gary D. Piaget, 3390 American Saddler Dr., Park City, Utah 84060

Filed Feb. 13, 1997, Ser. No. 800,888

Int. Cl.^{6} A63B *22/00;69/06*

U.S. Cl. 482—114 **28 Claims**



1 An exercise apparatus comprising:

lower body exercise means for exercising lower portions of a user's body; and

upper body exercise means for exercising upper portions of said user's body, said upper body exercise means comprising a pair of spaced, upwardly curved rails suspended above a supporting surface, said curved rails being sufficiently spaced for said user to stand therebetween, said upper body exercise means further comprising grip members respectively slidably mounted on each of said rails for receiving the hands of said user during use, said grip members being slidably movable along the curved length of said rails during reciprocating swinging articulation of the user's arms.

5,735,779

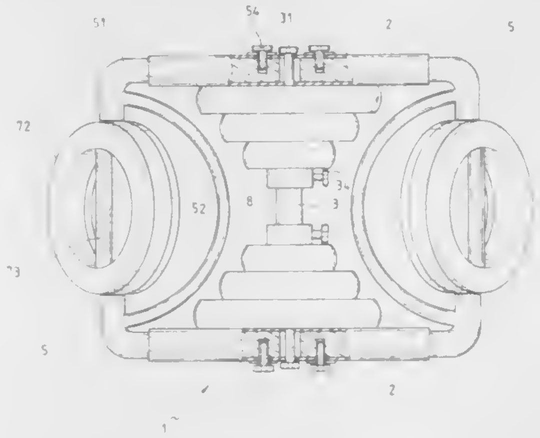
ROTARY EXERCISER

Sen-Chyi Lay, Taipei, Taiwan, assignor to Pro-Supra International Corp., Taipei, Taiwan

Filed May 2, 1997, Ser. No. 850,519

Int. Cl.^{6} A63B *21/075*

U.S. Cl. 482—93 **1 Claim**



1 A rotary exerciser comprising:

a frame assembly including upper and lower sleeves and a polished stem connected to middle sections of the sleeves to form an I-shaped pattern, each sleeve being formed with two axial slots on two sides, two locating sleeves being fitted around the stem and locked by locating screws;

left and a right M-shaped members composed of first and second opposite solid members each having 90 degrees bight section, an end of the solid members being formed with a radial thread hole and inserted into the upper and lower sleeve and adjustably locked in the axial slot thereof, the bight sections of the solid members being connected by an inward arched tube to define an open portion, an end of the bight section being formed with an axial thread hole, whereby a hexagonal bolt can be screwed therein to secure the grip;

two ring-like grips each including an outer disk having a flange and a handle disposed therein, one side of the outer disk being formed with a small diameter section having thread holes on a lateral side, a ring member being fitted on the small diameter section and a cover board being overlaid on the ring member, multiple bolts being passed through through holes in the cover board to assemble the above components into the ring-like grip, the top and bottom of the ring member being formed with through holes, the hexagonal bolts being passed through the through holes and tightened in the thread holes of the bight sections; and

a weight formed with a central hole, whereby when fitting the weight on the stem, the weight tightly abuts against the locating sleeve which is secured by the locating screw on the stem.

5,735,780

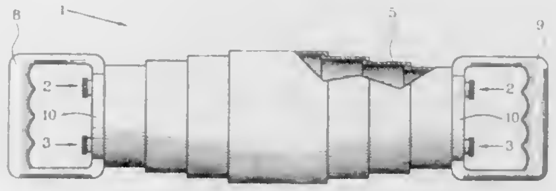
CHEST AND BODY EXERCISER

Renee S. Fazio, Seminole, Fla., and Genevieve M. Griffin, 9091 Baywood Park Dr., Seminole, Fla. 34647, assignors to Genevieve M. Griffin, Orlando, Fla.

Filed May 8, 1996, Ser. No. 646,493

Int. Cl.^{6} A63B *21/008*

U.S. Cl. 482—112 **13 Claims**



1 An exercise apparatus comprising.

a pneumatic resister of linear motion that is sized and shaped to be hand-held at opposite ends of the pneumatic resistor of linear motion by an individual for exercising, wherein the pneumatic resister of linear motion is a telescopic bellows having a centrally positioned fixed tubular portion and a plurality of telescopic tubes slidably engaged and positioned on opposite sides of said central tubular portion, wherein upon the axial compression of said telescopic tubes, said telescopic tubes slide together, substantially filling said fixed central tubular portion;

said plurality of telescoping tubes have sliding seal contact between an internal and external surface and end walls of said sliding telescopic tubes;

holding means attachable to opposite end walls of the pneumatic resister of linear motion; and

flow-resistance means in flow-control relationship to pneumatic resistance of airflow by the pneumatic resister of linear motion.

5,735,781

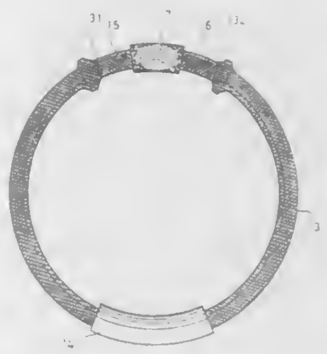
EXERCISING LOOP

Hsueh-Chin Pai, P. O. Box 82-144, Taipei, Taiwan

Filed Dec. 5, 1996, Ser. No. 760,983

Int. Cl.^{6} A63B *21/02*

U.S. Cl. 482—126 **4 Claims**



1. An exercising loop comprising:

a steel open loop having two opposite ends facing each other and spaced by a gap;

a coil spring mounted around said steel open loop;

a collapsible cloth sleeve sleeved onto said coil spring around said steel open loop and having two opposite ends and two elastic bands respectively mounted around the two opposite ends;

a connecting tube covered with a sponge cover and fixedly connected between the two opposite ends of said steel open loop; and.

two grips respectively mounted around the two opposite ends of said steel open loop and fixedly connected to the two opposite ends of said collapsible cloth sleeve and separated by said connecting tube, said grips being moved with the hands along said steel open loop in reversed directions to compress said coil spring when exercising.

5,735,782

ROBOT INSTALLATION

Arne Berg, Västerås, Sweden, assignor to Asea Brown Boveri AB, Västerås, Sweden

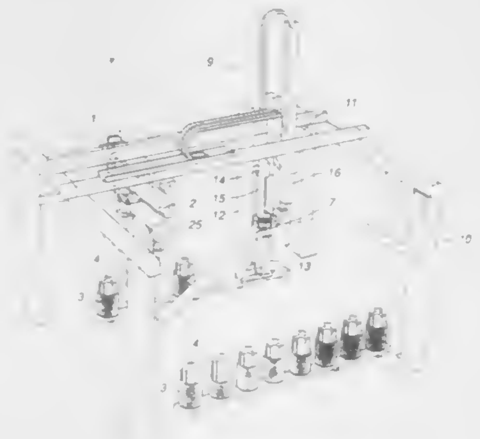
PCT No. PCT/SE95/01080, § 371 Date Apr. 14, 1997, § 102(e) Date Apr. 14, 1997, PCT Pub. No. WO96/09145, PCT Pub. Date Mar. 28, 1996

PCT Filed Sep. 22, 1995, Ser. No. 809,183

Claims priority, application Sweden, Sep. 23, 1994, 9403211

Int. Cl.^{6} B23Q *3/157;* **B26D** *1/24*

U.S. Cl. 483—1 **9 Claims**



1. An installation for mounting a tool set (5), composed of tool parts, on a set-up device (2), comprising at least one manipulator (9) which by means of a gripper (7) collects the tool parts (3) from a plurality of magazines (4) and delivers them to the set-up device (2), characterized in that the manipulator (9) comprises an intermediate magazine (13) for temporary storage of a tool set under build-up and a transfer device (15) for transfer of the tool set to the set-up device (2), whereby the manipulator (9) carries the intermediate magazine (13) and the transfer device (15), and is adapted to move between the magazines (4) and with the aid of the gripper (7) collect tool parts (3) to deliver them into the intermediate magazine (13).

5,735,783

ARRANGEMENT IN CONNECTION WITH A SPREADER ROLL DRIVE

Teuvo Joensuu, Saloinen, Finland, assignor to Raahen Tevo Oy, Saloinen, Finland

Filed May 31, 1996, Ser. No. 655,846

Claims priority, application Finland, Jun. 2, 1995, 952727

Int. Cl.^{6} B21B *35/14*

U.S. Cl. 492—15 **6 Claims**

1. Arrangement in connection with a spreader roll drive, the arrangement comprising:

supporters supporting both ends of a spreader roll,

a motor for driving the spreader roll,

a fixed, bent shaft on which a plurality of flexibly coupled roll segments are rotatably arranged, and

a gear with a drive for changing an angle of the fixed shaft around its centre axis,

wherein the driving motor is directly connected to one end of the spreader roll in the axial direction by a motor flange rigidly

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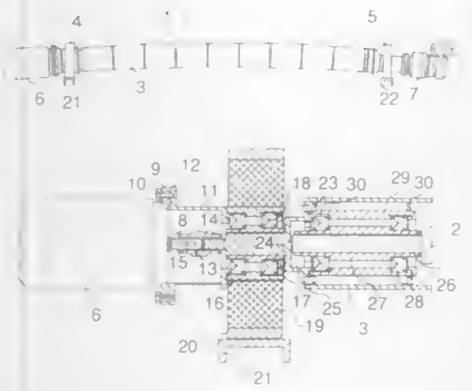


fastened to a flange of a clutch housing and a bearing cap is rigidly fastened at its end to the clutch housing, and

the supporters of the spreader roll include flexible rings which will thus receive angular changes caused by an arching of the spreader roll.

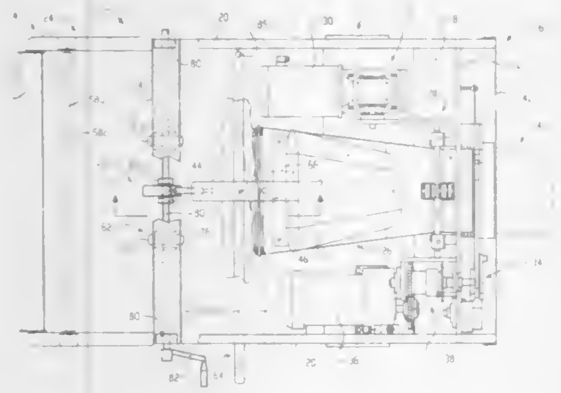
5,735,784
LOADING ASSEMBLY FOR A CUSHIONING CONVERSION MACHINE

Richard O. Ratzel, Westlake, Ohio, assignor to Ranpak Corp., Concord Township, Ohio

Filed Jun. 7, 1995, Ser. No. 478,008

Int. Cl.^{6} B31B *1/00*

U.S. Cl. 493—29 **24 Claims**



1. A cushioning conversion machine which converts a stock material into a cushioning product comprising:

a stock supply assembly which supplies the stock material,

a former assembly which forms the stock material into a strip of cushioning;

a downstream feed assembly located at a downstream end of the former assembly which feeds the strip of cushioning passing therethrough; and

a loading assembly which feeds the stock material through the former assembly during loading of the machine;

wherein the loading assembly includes a loader feed located at an upstream end of the former assembly movable between a load position whereat it feeds the stock material through the former assembly to the downstream feed assembly and a non-load position; and

wherein the loading assembly also includes a loader operator coupled to the loader feed, which selectively moves the loader feed between the load position and the non-load position

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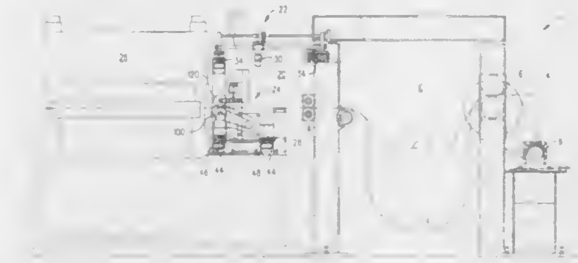
5,735,785
APPARATUS AND METHOD FOR FORMING CARTON BLANKS

Philip J. Lucas, Lakewood, and Gerald P. Leffler, Arvada, both of Colo., assignors to Graphic Packaging Corporation, Paoli, Pa.

Filed Jul. 18, 1996, Ser. No. 684,295

Int. Cl.^{6} B65H *23/04*; B26D *5/34*

U.S. Cl. 493—34 **20 Claims**



1. Apparatus for locating a portion of a continuous web of material having graphics printed thereon in a cutting and creasing machine for forming carton blanks comprising:

a cutting and creasing machine, for making cut and fold lines in successive portions of a continuous web of material having graphics printed thereon to form a carton blank, mounted at a fixed location and having a center line;

a control station, through which said continuous web of material passes, located adjacent to said cutting and creasing machine;

a support frame in said control station having a center line at least parallel to said center line of said cutting and creasing machine;

moving means for intermittently moving a portion of said continuous web of material into said control station,

orientation means in said control station for comparing the location of a section of said graphics on said portion of said continuous web of material with a preset location of where said section of graphics should be located and generating a control signal indicating any deviation of said location of said section of graphics from said preset location of said section of graphics;

said moving means also moving said portion of said continuous web of material from said control station into said cutting and creasing machine; and

control means operating in response to said control signal to operate said moving means to move said portion of said continuous web of material into a correct location in said cutting and creasing machine so that said section of said graphics is properly located in the formed carton blank.

5,735,786
METHOD AND APPARATUS FOR AUTOMATICALLY LINING A CONTAINER

Friedrich Krueger, San Jose, and Robert Johnson, Santa Clara, both of Calif., assignors to K & R Equipment, Inc., San Jose, Calif.

Filed Nov. 1, 1996, Ser. No. 742,513

Int. Cl.^{6} B31B *7/00*

U.S. Cl. 493—101 **11 Claims**

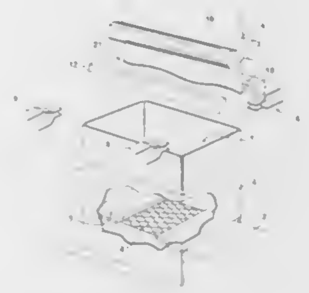
1. A method for lining containers with a flexible bag-type liner comprising the steps of:

a. providing a flexible bag-type liner having a sealed end and an unsealed end, a container having at least a first open end, a plurality of clamps, and a means for drawing air from said container;

b. suspending the liner in the container with the sealed end inside the container and the unsealed end outside the container;

c. grabbing the unsealed end of the liner with the clamps,

d. pulling the clamps apart to open the unsealed end of the liner; and



e. actuating the means for drawing air from the container to open the liner in the container.

5,735,787
CENTRIFUGAL SEPARATOR WITH FLOW REGULATOR AND METHOD

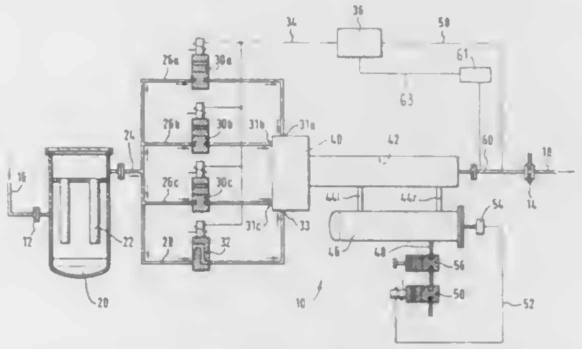
Manfred Lorey, Langenselbold, Germany, assignor to Filtan Filter-Anlagenbau GmbH, Langenselbold, Germany

Division of Ser. No. 371,081, Jan. 9, 1995, Pat. No. 5,599,270. This application Dec. 19, 1996, Ser. No. 769,427

Claims priority, application Germany, Jan. 11, 1994, 4400489.3

Int. Cl.^{6} B04B *11/00*

U.S. Cl. 494—5 **2 Claims**



1. The method of cleansing a finite quantity of a contaminated fluid, which consists of the steps of admitting the fluid into the chamber of a centrifugal separator through a plurality of inlet openings, independently controlling the flow of fluid through one of said inlet openings to enable solely a full flow or else a complete shut-off of the flow to be established through said inlet opening while simultaneously setting the rate of flow of fluid through another one of said inlet openings to a value between two given parameters.

5,735,788
SIMPLE CLAMP TYPE MILL ROLL

Mutsumi Yasutake; Mitsuhiro Takatsuki, and Kyoichi Takahara, all of Gifu-ken, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Filed Oct. 31, 1995, Ser. No. 551,247

Claims priority, application Japan, Jul. 24, 1995, 7-187513

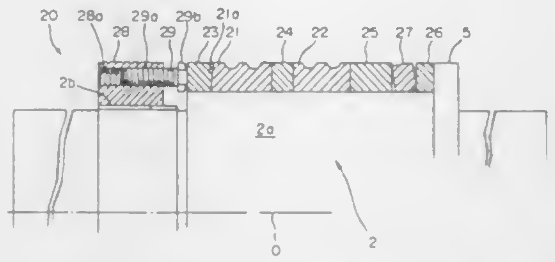
Int. Cl.^{6} B23P *15/00*

U.S. Cl. 492—39 **3 Claims**

1. A mill roll comprising:

a cylindrical shaft having an annular flange fixedly secured to said shaft adjacent one end thereof and an externally threaded surface adjacent the other end thereof,

at least one annular ring having annular spacers disposed at axial ends of said ring concentrically received on said shaft between said annular flange and said externally threaded surface;



an elastic member fitted on said shaft intermediate said at least one annular ring and said annular flange and being operative engage a spacer and thereby urge said at least one annular ring in a direction away from said fixed flange;

an annular locking member having internal threads engageable with the external threaded surface of said shaft for threadedly securing said locking member to said shaft;

a plurality of internally threaded through holes disposed in said locking member at circumferentially spaced locations thereabout; and

a plurality of screw members operative in said holes, each said screw member having an externally threaded shaft and an end having a constricted head for engaging a spacer adjacent thereto for thereby urging said at least one annular ring in a direction opposite to the direction of urging effected by said elastic member.

5,735,789
CENTRIFUGAL SEPARATOR

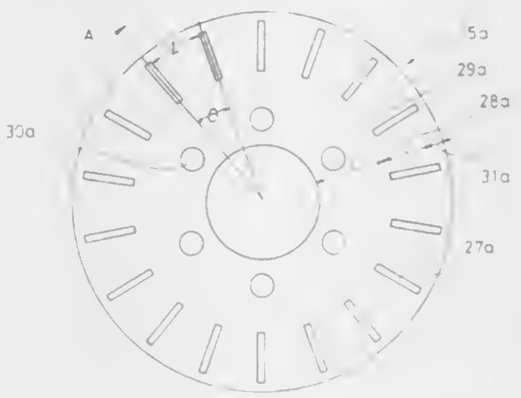
Leonard Borgstrom, Tyresö ; Patrik Brehmer, Taby; Claes-Goran Carlsson; Peter Franzen, both of Tullinge; Claes Inge, Saltsjo-Duvnas; Torgny Lagerstedt, and Hans Moberg, both of Stockholm, all of Sweden, assignors to Alfa Laval Separation AB, Tumba, Sweden

Continuation-in-part of Ser. No. 190,079, Feb. 1, 1994, abandoned. This application Jul. 6, 1995, Ser. No. 498,947

Claims priority, application Sweden, Jun. 16, 1992, 9201838

Int. Cl.^{6} B04B *1/08*

U.S. Cl. 494—70 **14 Claims**



1. A centrifugal separator for cleaning a liquid of a substance dispersed therein, which substance has a lower density than the liquid, comprising a rotor rotatable around a rotational axis, the rotor comprising

an inlet chamber,

a separation chamber,

means connecting said separation chamber to said inlet chamber,

an outlet chamber for liquid which is cleansed of the substance,

means connecting said outlet chamber to said separation chamber,

a stack of several frusto-conical separation discs, each having an inner edge and an outer edge, arranged in the separation chamber coaxial with the rotational axis, said discs being maintained at a distance from each other so that an interspace is formed between each disc and its adjacent discs, and means, including an aperture in each of said discs, for con-

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ducting said liquid and the substance dispersed therein from the inlet chamber to a central part of said interspaces, so that the liquid flows radially outwardly in said interspaces, said apertures being located radially outwardly from the inner edge of said discs to leave a space on said discs between said apertures and said inner edges,

said interspaces having a radial inner zone, which is free from obstacles to a primary geostrophic flow in the circumferential direction, radial flow of liquid and of dispersed substance in this zone during operation of the device occurring in very thin Ekman-layers, along the conical surfaces of the discs, said apertures being located in said inner zone,

said interspaces having radial outer zones which connect with the radial inner zones at the radially outer portions of said inner zones and having a multiplicity of elongated obstacles to liquid flow in the circumferential direction extending radially through the outer zone and equally distributed around the rotational axis to cause primary flow in the radial outer zone to take place essentially radially outwardly between adjacent obstacles,

said obstacles having a length and an orientation in relation to the rotational direction such that a secondary flow, caused by the primary flow in the outer zone in an Ekman-layer on a radially outwardly directed surface of a separation disc, influences a layer of substance separated on said surface with a shearing force in a direction toward the flow obstacle which is immediately adjacent in the direction or rotation, so that separated substance is accumulated at said flow obstacle and flows radially inwardly along the flow obstacle.

5,735,790
DEVICE IN HEARING AIDS

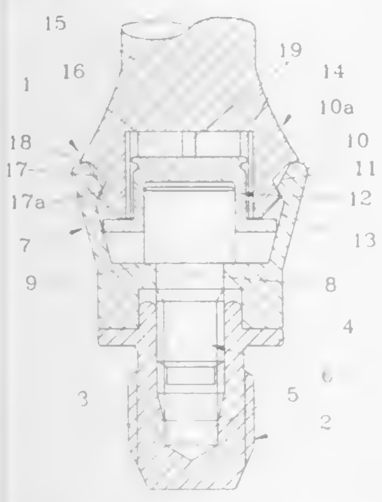
Bo Håkansson, Göteborg, and Peder Carlsson, Kungälv, both of Sweden, assignors to P & B Research AB, Goteborg, Sweden

Filed Dec. 1, 1995, Ser. No. 565,996

Claims priority, application Sweden, Dec. 2, 1994, 9404188

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 600—25 **7 Claims**



1 A device for interconnecting an implant for the hearing impaired comprising:

a substantially rigid, cylindrical, cup-shaped female coupling part with a cup-shaped opening having a circumferential annular bead on its inner periphery about the cup-shaped opening;

a substantially cylindrical, resilient, flexible male coupling part having a walled inner recessed portion in a first end and a circumferential groove about the outside of the recessed inner portion for receiving said annular bead thereby coupling with the female coupling part; and

a vibration exciting apparatus connected to a second end of the male coupling part, wherein

the male coupling part is resilient in the radial direction in order to permit snap-in introduction into the female coupling part; and

the annular bead and groove engagement form a signal transferring surface between said male and female coupling parts.

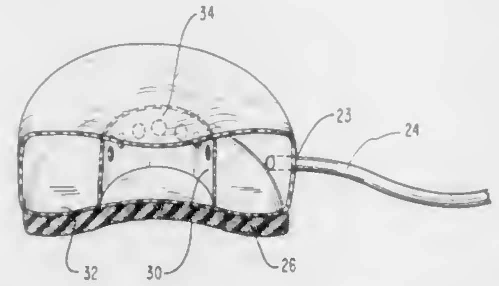
5,735,791
INFLATABLE HEART ELEVATION APPARATUS AND METHOD

John C. Alexander, Jr., Kenilworth, Ill., and Carl A. Swindle, Salt Lake City, Utah, assignors to Research Medical, Inc., West Midvale, Utah

Filed May 14, 1997, Ser. No. 856,255

Int. Cl.⁶ A61B *17/00*

U.S. Cl. 600—37 **20 Claims**



1. An apparatus for improved positioning of cardiac tissue during cardiac surgical procedures, comprising:

a. an inflatable chamber, said inflatable chamber further comprising:
  i) an interior space;
  ii) an anterior surface; and
  iii) a posterior surface;

b. an insulation pad affixed to said posterior surface of said inflatable chamber; and

c. an access port communicating with said interior space of inflatable chamber through which said inflatable chamber may be inflated and deflated.

5,735,792
SURGICAL INSTRUMENT INCLUDING VIEWING OPTICS AND AN ATRAUMATIC PROBE

John C. Vanden Hoek, Elk River; Mark Francis Brown, Coon Rapids; Victor Roy Blackledge, Cologne; Miles A. Finn, Minneapolis; Richard L. Shockey, Coon Rapids, and Thomas C. Barthel, Becker, all of Minn., assignors to Clarus Medical Systems, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 233,013, Apr. 25, 1994, Pat. No. 5,512,034, which is a continuation-in-part of Ser. No. 981,641, Nov. 25, 1992, abandoned. This application Apr. 29, 1996, Ser. No. 638,680

Int. Cl.⁶ A61B *1/00*

U.S. Cl. 600—138 **35 Claims**

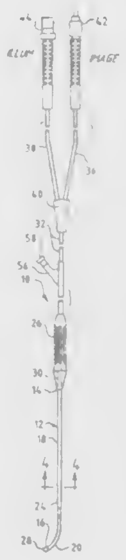
1. A surgical instrument for examining tissue comprising:

(a) an elongated substantially rigid shaft having a proximal end, a distal end and a lumen extending between the ends;

(b) a handle connected to the proximal end of the shaft, the handle including a longitudinal bore communicating with the lumen;

(c) an expanded rigid atraumatic tip on the distal end of the shaft, the tip defining a surface opening that communicates with the lumen; and

(d) a fiber-optic viewing assembly including a plurality of optical image fibers and having an objective lens mounted within the lumen for creating an optical image of tissue proximal to the opening, the assembly being mounted to extend and



terminate within the lumen such that the tissue can be examined.

5,735,793
ENDOSCOPE

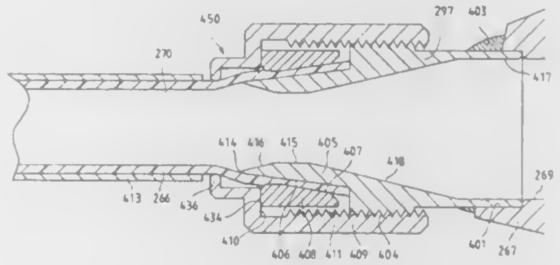
Yukio Takahashi, Hachioji; Ichiro Nakamura, Kokubunji; Masaaki Nakazawa, Hachioji; Hideo Ito, Akishima, and Hisao Yabe, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 585,315, Jan. 11, 1996, abandoned. This application Jul. 11, 1996, Ser. No. 678,180

Claims priority, application Japan, Jan. 12, 1995, 7-3585; Sep. 12, 1995, 7-234486

Int. Cl.⁶ A61B *1/00*

U.S. Cl. 600—153 **29 Claims**



1 An endoscope including:

a tube body (**267**) which forms a conduit;

a flexible tube (**266**) which forms a conduit so as to communicate with the conduit of the tube body when it is connected to the tube body; and

a joint (**450**) for jointing together the tube body and the flexible tube, the joint comprising

a coupling member (**297**) which is disposed between the tube body and the flexible tube and has a first tapered section (**406**) formed on the external surface thereof, so as to become gradually larger toward at least a first distal end of the coupling member, and the end of the flexible tube being fitted over the first tapered section,

a ring-shaped retainer (**408**) fitted over the end of the flexible tube for fixing the end of the flexible tube around the coupling member, the ring-shaped retainer having a second tapered section (**407**), the second tapered section being formed on the internal peripheral surface of the retainer such that the diameter of the retainer becomes gradually larger so as to engage with the first tapered section of the coupling member,

a clamping member (**409**) which fixes the flexible tube to the coupling member by pressing the retainer upon engagement with the coupling member, and

a regulating member (**436**, **440**, **442**, or **444**) for regulating relative movement between the flexible tube and the end of the coupling member in the vicinity of an area where the flexible tube is in contact with an end (**414**) of the coupling member.

5,735,794
ENDOSCOPE HAVING EXTERNAL BATTERY CONNECTED TO BATTERY CASING

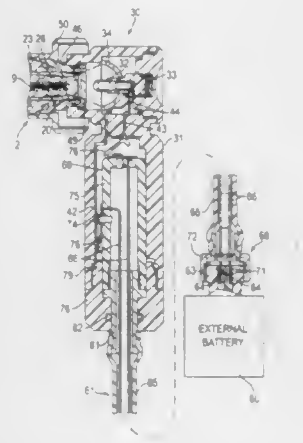
Takashi Koeda; Hiroshi Sano; Hirohisa Ueda; Kunitoshi Ikeda; Kunikiyo Kaneko, and Rensuke Adachi, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 9, 1996, Ser. No. 629,777

Claims priority, application Japan, Apr. 19, 1995, 7-092913

Int. Cl.⁶ A61B *1/06*

U.S. Cl. 600—178 **9 Claims**



1. A portable endoscope system comprising:

an illuminating light guide for transmitting light to illuminate an object, said illuminating light guide having an entrance end portion disposed in an endoscope control part;

a light source lamp in an illuminating light supply unit for supplying illuminating light to said illuminating light guide, said illuminating light supply unit comprising a generally L-shaped cylindrical configuration having a first leg defined by a direction of light emission by said light source lamp and a second leg defined by a battery casing, and being detachably attachable to said endoscope control part;

said battery casing having a first electrode at an end thereof and a second electrode at a side thereof, and

a connecting cable for connecting said light source lamp with an external battery for supplying electricity to said light source lamp through said battery casing from outside said portable endoscope system, said cable having a first electrode at an end of said cable and a second electrode at a side of said cable to connect with said first and second electrodes of said battery casing, respectively, when said cable is connected to said battery casing.

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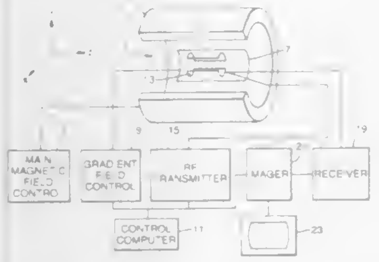
5,735,795
MARKER FOR MAGNETIC RESONANCE IMAGING
Ian Robert Young, Wiltshire, and Michael Burl, Twickenham, both of United Kingdom, assignors to Picker International, Inc., Cleveland, Ohio

Filed Jul. 18, 1996, Ser. No. 683,719

Claims priority, application United Kingdom, Jul. 20, 1995, 9514877

Int. Cl.^{6} A61B *5/055*

U.S. Cl. 600—410 **21 Claims**



1. A method of indicating a location in a region of a body being examined using a magnetic resonance technique, the method comprising the steps of:

positioning a marker within the region, the marker comprising
  a first material having a desired relaxation time; and
  at least a first coil tuned to a desired frequency, said coil not having an external electrical connection,
subjecting the region to a magnetic resonance excitation and detection examination sequence so as to acquire a detected signal, the sequence including at least one magnetic field gradient whereby the detected signals are spatially encoded; and
utilizing the detected signal to determine a location of the marker.

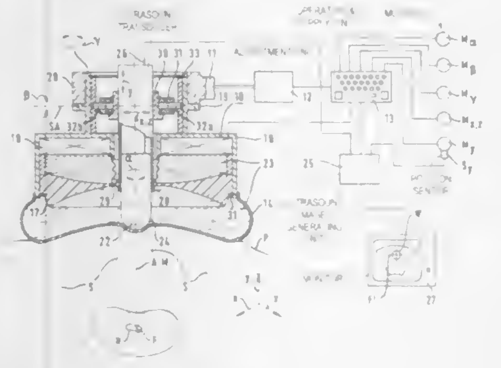
5,735,796
THERAPY APPARATUS WITH A SOURCE OF ACOUSTIC WAVES
Bernd Granz, Oberasbach, and Guenther Winkelmann, Herzogenaurch, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Nov. 22, 1996, Ser. No. 754,152

Claims priority, application Germany, Nov. 23, 1995, 195 43 825.6

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—439 **16 Claims**



1. A therapy apparatus comprising
a source of therapeutic acoustic waves,
a diagnostic ultrasound transducer which emits a diagnostic ultrasound beam directed at a subject to be treated, said diagnostic ultrasound beam having a central ray, and said diagnostic ultrasound transducer also receiving ultrasound waves reflected from said subject
means for operating said ultrasound transducer for displacing said central ray in a scan surface for scanning a body slice of said subject, said body slice having a middle surface corresponding to said scanning surface;
means for generating and displaying a sequence of ultrasound images from the ultrasound waves received by said diagnostic ultrasound transducer; and
adjustment means for, during the generation and display of said ultrasound images, continually displacing said scanning surface relative to said source of therapeutic acoustic waves for producing a maximum displacement of said scanning surface relative to a neural position of said scanning surface which does not substantially exceed twice an image resolution of said ultrasound images measured in a direction of the displacement of the scanning surface.

5,735,797
METHOD AND APPARATUS FOR COMBINING TOPOGRAPHIC FLOW POWER IMAGERY WITH A B-MODE ANATOMICAL IMAGERY
David John Muzilla, Mokwonago; Edgar Joseph Alexander, and Patricia Schubert, both of Milwaukee, all of Wis., assignors to General Electric Company, Milwaukee, Wis.

Filed Dec. 30, 1996, Ser. No. 774,668

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 600—441 **20 Claims**

1. A system for imaging the velocity of scatterers flowing past slowly moving tissue, comprising:

means for supplying basebanded signals derived from ultrasound reflected by the scatterers and by the tissue;
a color flow processor for processing said basebanded signals to output color flow signals representing estimated flow power data of the scatterers, said color flow processor comprising means for compressing said flow power data in accordance with a compression curve transfer function which is shifted away from zero input power;
a B mode processor for processing said basebanded signals to output B mode signals representing the anatomical image data of the tissue;
a display monitor; and
means for combining said B-mode anatomical image data and said estimated flow power data into a frame of image data for display on said display monitor, wherein said combining means comprises:
means for two-dimensional edge-enhancing high-pass topographic filtering of said compressed flow power data,
color mapping means for masking out topographic filtered flow power data within a predetermined range around zero; and
means for outputting the topographic filtered flow power data which was not masked out along with B mode anatomical image data corresponding to the masked out topographic filtered flow power data to said display monitor

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5,735,798
TOILET-INSTALLED DIGITAL SPHYGMOMANOMETER WITH RETRACTABLE CUFF
Kuniaki Shinohara; Takanori Matsuno; Yoshiki Hiruta; Keisuke Kanzaki, and Kentaro Todoroki, all of Kita-kyushu, Japan, assignors to Toto Ltd., Fukuoka, Japan

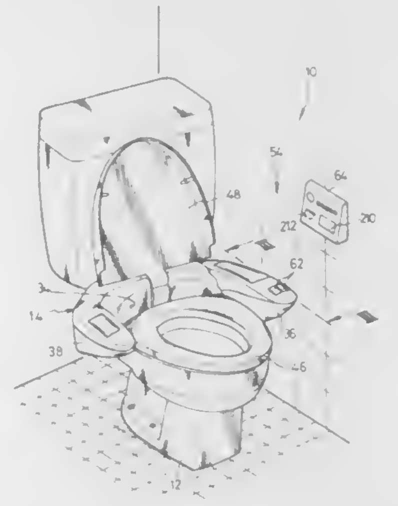
PCT No. PCT/JP95/00420, § 371 Date Feb. 20, 1996, § 102(e) Date Feb. 20, 1996, PCT Pub. No. WO95/26159, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 14, 1995, Ser. No. 557,007

Claims priority, application Japan, Mar. 25, 1994, 6-079800; Mar. 25, 1994, 6-079801

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—490 **18 Claims**



1. In a toilet-installed digital sphygmomanometer having an occluding cuff mounted to a housing adapted to be installed laterally of a toilet seat and processing means associated with said cuff for measuring blood pressure, the improvement comprising:

movable support means arranged in said housing for supporting said cuff to allow for movement of the cuff between an operative position in which said cuff is emerged out of said housing for engagement by the user with its finger and a rest position in which said cuff is retracted substantially within said housing, wherein said cuff is supported by said moveable support means in both the operative and rest positions.

5,735,799
PULSE-WAVE PROCESSING DEVICE
Norimitsu Baba, and Kazuhiko Amano, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

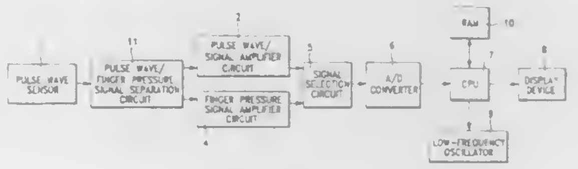
PCT No. PCT/JP93/01895, § 371 Date Dec. 6, 1994, § 102(e) Date Dec. 6, 1994, PCT Pub. No. WO94/15525, PCT Pub. Date Jul. 21, 1994

PCT Filed Dec. 27, 1993, Ser. No. 295,748

Claims priority, application Japan, Jan. 6, 1993, 666/93; Nov. 5, 1993, 277001/93

Int. Cl.^{6} A61B *5/02*

U.S. Cl. 600—500 **9 Claims**


PULSE WAVE SENSOR
PULSE WAVE/FINGER PRESSURE SIGNAL SEPARATION CIRCUIT
PULSE WAVE/SIGNAL AMPLIFIER CIRCUIT
FINGER PRESSURE SIGNAL AMPLIFIER CIRCUIT
SIGNAL SELECTION CIRCUIT
A/D CONVERTER
CPU
DISPLAY DEVICE
RAM
LOW-FREQUENCY OSCILLATOR
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4
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7
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9
10

1. A pulse wave processing device, comprising:
pulse wave detection means for detecting a pulse wave from a part of a living body that applies a pressure at said pulse wave detection means;
pressure detection means for detecting the pressure applied at said pulse wave detection means by the living body,
pulse wave processing means for processing an output of said pulse wave detection means and an output of said pressure detection means to generate an output signal selectively representative of said detected pressure and said detected pulse wave, said pulse wave processing means comprising
testing means for testing whether the pressure detected by said pressure detection means is within a first predetermined range for determining detectability of the pulse wave of the living body,
computing means for computing a pulse count of the living body, based on the pulse wave detected by said pulse wave detection means, if the pressure detected by said pressure detection means is within the first predetermined range,
memory means for storing past pulse wave data and past pressure data,
comparison means for comparing current pulse wave data from said pulse wave detection means and current pressure data from said pressure detection means, respectively, with the past pulse wave data and the past pressure data stored in said memory means, so that an optimal pressure and an optimal pulse wave are determined, and
analyzing means for analyzing the current and past pulse wave data and pressure data for determining the health status of the living body;
display means for displaying the output signal of said pulse wave processing means, said displayed output signal selectively representing said detected pressure and said detected pulse wave; and
notification means for providing a first notification if the pressure detected by said pressure detection means is outside the first predetermined range and for providing a second notification if the pulse count computed by said computing means is outside a second predetermined range.

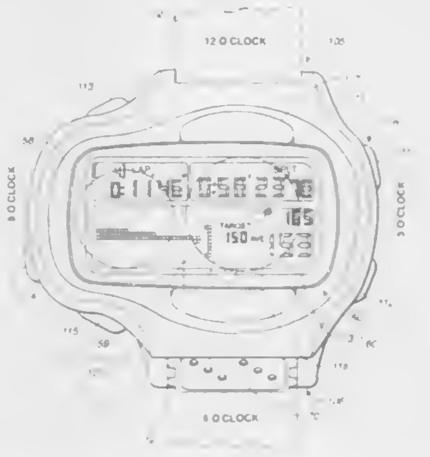
5,735,800
WRIST-WORN PORTABLE DEVICE AND A WRIST-WORN PULSE WAVE MEASURING DEVICE
Naoaki Yasukawa, Suwa, and Masayuki Kawata, Chiba, both of Japan, assignors to Seiko Epson Corporation, Tokyo, and Seiko Instruments Inc., Chiba-ken, both of Japan

Filed May 8, 1996, Ser. No. 646,456

Claims priority, application Japan, May 12, 1995, 7-114962; May 12, 1995, 7-114963

Int. Cl.^{6} A61B *5/02*

U.S. Cl. 600—503 **11 Claims**



1. wrist-worn portable device, comprising:
a device body comprising.
  a main case including a turning stop extending therefrom in a substantially 6 o'clock direction thereof for controlling rotation of said device body when worn around a wrist of a user;

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a back member, connected to said main case, having a shape to accommodate a top of the wrist of the user; and

a display unit arranged in said main case for displaying information;

wherein a center of gravity of said device body in a three and nine o'clock directions on said wrist-worn portable device is offset from a center position in the three o'clock direction; and

a wrist band operatively coupled to said main case for detachably securing said device body to the user.

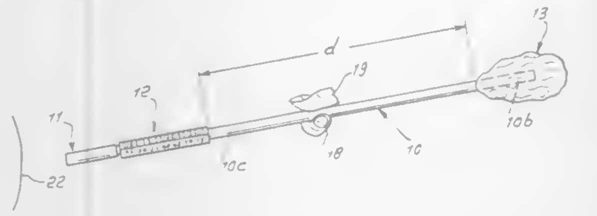
5,735,801
ESTROGEN OR ESTRADIOL NEED DETERMINATION BY VAGINAL ACIDITY DETERMINATION

James C. Caillouette, 685 Oak Knoll Cir., Pasadena, Calif. 91106

Continuation-in-part of Ser. No. 570,534, Dec. 11, 1995, which is a continuation-in-part of Ser. No. 537,379, Oct. 27, 1995, Pat. No. 5,577,512, which is a continuation-in-part of Ser. No. 376,830, Jan. 23, 1995, Pat. No. 5,664,579, which is a continuation-in-part of Ser. No. 295,399, Aug. 25, 1994, Pat. No. 5,425,377. This application Aug. 19, 1996, Ser. No. 699,251

Int. Cl.⁶ A61B *5/00*

U.S. Cl. 600—572 **24 Claims**



1. In the method of determining need for estrogen replacement therapy or estrogen or estradiol dose change, the steps that include:

a) determining local acidity proximate a moist wall surface of the vagina, as differing from desired threshold level, and in the substantial absence of bacterial vaginosis, or vaginitis,

b) and administering sufficient estrogen or estradiol or estrogenic substance to result in change in said acidity toward said level,

c) said administering of sufficient estrogen or estradiol or estrogenic substance being effected on a periodic basis, and said determination of local acidity being repeated, whereby said local acidity is ultimately determined to have reached said desired level

5,735,802

Patent Not Issued For This Number

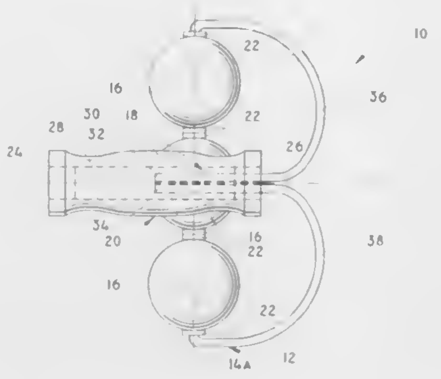
5,735,803
MASSAGE DEVICE

Robert Musilli, 911 Bullis Rd., Elma, N.Y. 14059, and Denis J. Marszalkowski, Manlius, N.Y., assignors to Robert Musilli, Elma, N.Y.

Filed Mar. 4, 1996, Ser. No. 610,399

Int. Cl.⁶ A61H *15/00*

U.S. Cl. 601—129 **13 Claims**



1. A hand-held massage device comprising:

a plurality of massaging elements supported for independent rotation about a first horizontal axis;

a handle extending along a second horizontal axis orthogonal to said first axis and elevated vertically from said first axis, said handle having front and rear opposite ends on said second axis; and

support means connecting said massaging elements and said handle;

wherein an imaginary vertical plane including said first axis and normal to said second axis intersects said handle between said front and rear ends.

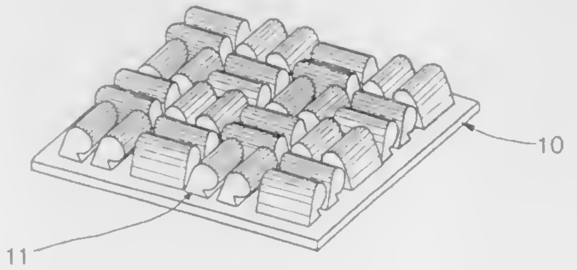
5,735,804
MASSAGING FOOT PAD

Erik Chan, 255 Bridgeside Cir., Danville, Calif. 94506

Filed Sep. 27, 1995, Ser. No. 534,395

Int. Cl.⁶ A43B *13/40;* **A61F** *5/14*

U.S. Cl. 601—136 **19 Claims**



1. A method of massaging a foot, comprising;

positioning a sheet horizontally under a foot, said sheet having a plurality of adjacent groups of foot-massaging protrusions, each group having a plurality of resilient, bendable protrusions, each protrusion having a base attached on top of said sheet and a tip for engaging a bottom of said foot,

said protrusions of a first of said adjacent groups being slanted in a predetermined direction and said protrusions of a second of said adjacent groups being slanted in a different predetermined direction so that said first and second adjacent groups define a predetermined orientation with respect to one another, said plurality of adjacent groups defining a repeating pattern of said predetermined orientation,

each protrusion including an upper side facing obliquely upward and a lower side facing obliquely downward;

alternately pressing said foot downwardly and lifting it upwardly on said sheet so that when said foot moves downward, each protrusion bends downwardly and said tip easily rubs horizontally across said bottom of said foot in one direction, and when said foot lifts upwardly, each protrusion rebounds upwardly, and said tip rubs horizontally across said bottom of said foot in a direction opposite to said one direction,

whereby said bottom of said foot will be massaged with a back-and-forth horizontal movement by said tips when foot moves upwardly and downwardly

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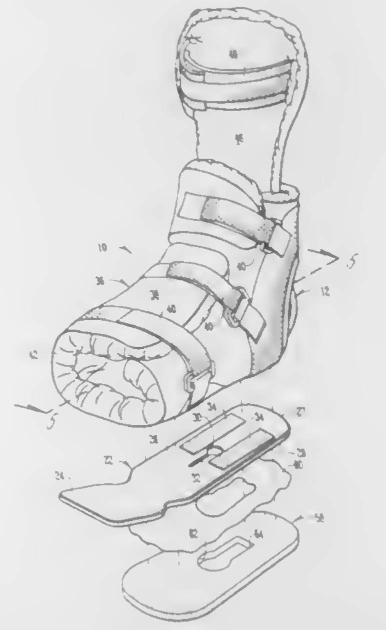
5,735,805
FOOT ORTHOSIS WITH DETACHABLE SOLE PLATE

Constance V. Wasserman, Palm Harbor, Fla.; Harold T. Varn, Lawrenceville, Ga., and Clarence E. Hess, Safety Harbor, Fla., assignors to Restorative Care of America Incorporated, Clearwater, Fla.

Filed Feb. 26, 1997, Ser. No. 807,886

Int. Cl.⁶ A61F *5/00*

U.S. Cl. 602—10 **3 Claims**



1. An ambulatory attachment for a foot orthosis having a stiff L-shaped splint including a substantially horizontal foot portion having a lower surface, an anklet on said foot orthosis having a bottom surface extending over the bottom surface of said splint, and an attachment screw rotatably mounted on said foot portion of said splint and having an enlarged diameter head and extending downwardly through an opening on the bottom surface of said anklet, comprising, an elongated toe plate having an aperture therein

communicating with a forwardly extending elongated slot, a planar sole plate rigidly secured to a lower surface of said

toe plate and having an aperture therein communicating with a rearwardly extending elongated slot, whereupon the head of said attachment screw can be inserted through the aperture in said toe plate and said attachment screw can be slidably moved to the end of said forwardly extending slot dwelling within the aperture in said sole plate,

and a surface connection means detachably securing said toe plate to the bottom surface of said anklet when said sole plate has been moved so that said screw moves into the elongated slot of said toe plate.

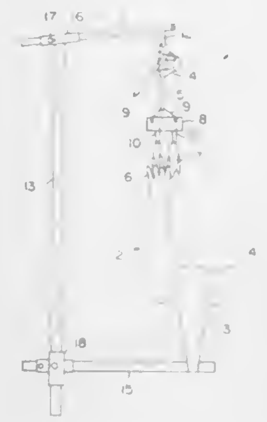
5,735,806
WRIST TRACTION APPARATUS

Stephen J. Leibovic, 11221 Fanwood Ct., Richmond, Va. 23233

Filed Feb. 23, 1996, Ser. No. 605,703

Int. Cl.⁶ A61F *5/04*

U.S. Cl. 602—32 **20 Claims**



1. An apparatus for applying a traction force to an upper extremity of a subject which comprises:

a one-way gripping device having a channel and a cam, said channel having a central axis;

a force applicator which extends through said channel along said central axis and includes a free end and a force applying end; and

means to secure said force applying end of said force applicator to an upper extremity of a subject which means to secure transmits a tensioning force to the upper extremity,

said cam including a gripping surface and being pivotal so that said gripping surface of said cam can be positioned in:

an operable position in which said gripping surface is in said channel and cooperates with a portion of said channel to engage a force applicator positioned in said channel and,

an open position in which said cam is out of said channel,

wherein when said cam is in said operable position it is configured to allow said force applicator to be pulled in a direction away from the subject, thus applying traction while preventing said force applicator from slipping back twoard the subject, thus when said cam is in said open position said force applicator can freely move through said channel in either direction, and

wherein said apparatus is sized and configured to be sterilizable for surgical use.

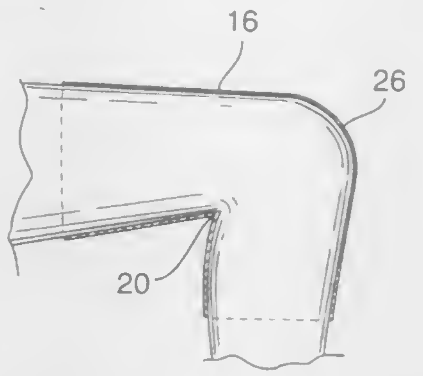
5,735,807
SOFT TISSUE COMPRESSION SUPPORT

Dean E. Cropper, 240 E. Hershey St., Ashland, Oreg. 97520

Filed Mar. 2, 1995, Ser. No. 396,468

Int. Cl.⁶ A61F *5/00*

U.S. Cl. 602—63 **6 Claims**



1. A compression support for a body portion of a person having a tissue injury in said body portion comprising

a laminate material no greater than about 0.025 to 0.045 inch thickness and comprised of a polyurethane membrane no greater than about 0.001 inch thickness and a stretchable material covering said membrane, said material formed into a sleeve for enveloping said body portion, maid sleeve in a stretched state having the property of low active compressibility force and strong passive resistance to expansion with the resistance to expansion substantially greater than the compressibility force.

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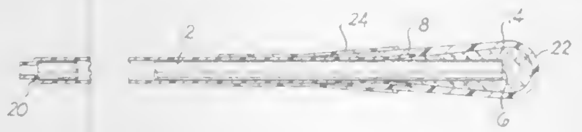
5,735,808
CONTAMINATION SAMPLING DEVICE

Felix A. Delgado, Moorpark, and Susan M. Stern, Chatsworth, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jul. 10, 1996, Ser. No. 687,100
Int. Cl.^{6} A61M *35/00*
U.S. Cl. 604—1 **9 Claims**

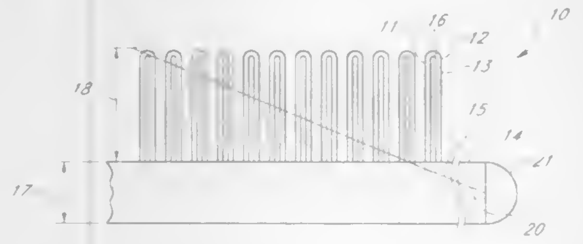


1. A contamination sampling device for gathering contaminants comprising, an elongated handle having a configuration including an exterior surface and two ends, a mass of cotton positioned about and covering the surface at one end of said handle and overlaying part of said surface adjacent to said one end, a synthetic plastic sheath disposed tightly about substantially the remainder of said surface and having a leading end disposed about a portion of the exterior surface of said cotton spaced from said one end, a sheet of fabric cloth formed from synthetic fiber wrapped about the remainder of the surface of said cotton and disposed on a leading end portion of said plastic sheath, and a synthetic plastic tube overlaying and secured to at least part of said sheath and disposed tightly on the fabric spaced from said one end, whereby said fabric at said one end may collect contaminants while said device is held by said sheath remote from said one end.

5,735,809
FIBER ASSEMBLY FOR IN VIVO PLASMA SEPARATION

Reynolds Gorsuch, Yountville, Calif., assignor to Matria Healthcare, Inc., Marietta, Ga.

Filed Dec. 5, 1996, Ser. No. 764,631
Int. Cl.^{6} A61M *37/00*
U.S. Cl. 604—4 **61 Claims**



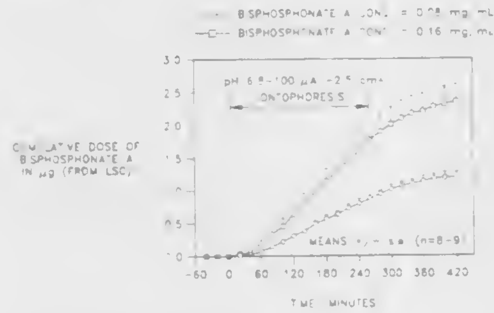
1. A fiber assembly for being implanted in a blood vessel for carrying out in vivo plasma separation comprising:

an elongated hollow catheter having a circumferential fan-like assembly of elongated microporous hollow polymeric fiber loops spaced apart circumferentially and axially, each fiber loop extending substantially radially from the outer surface of said elongated catheter with the interior of each said hollow fiber communicating with the lumen of said catheter, and wherein said catheter comprises a plurality of elongated arc-shaped segments joined axially along said lumen, each of said segments having a plurality of said elongated fiber loops extending radially therefrom.

5,735,810
DEVICE FOR THE IONTOPHORETIC ADMINISTRATION OF BISPHOSPHONATES

Burton H. Sage, Jr., Raleigh, N.C., and Philip G. Green, Cliffside Park, N.J., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 665,181, Jun. 14, 1996. This application Sep. 4, 1996, Ser. No. 708,332
Int. Cl.^{6} A61N *1/30*
U.S. Cl. 604—20 **4 Claims**



1. An iontophoretic device for preventing the onset and advancement of osteoporosis comprising:

(a) a current distributing member;
(b) an ionized substance reservoir containing an ionized or ionizable substance, in electrical communication with the current distributing member and adapted to be placed in ionic communication with an epithelial surface, wherein said ionized or ionizable substance is a bisphosphonate; and
(c) an electrolyte reservoir containing an electrolyte, in electrical communication with an indifferent electrode and adapted to be placed in ionic communication with an epithelial surface wherein said device is capable of delivering an amount of bisphosphonate effective for preventing the onset or advancement of osteoporosis for an extended period of time;
(d) an electrical power source in current delivering connection with the current distributing member and the electrolyte reservoir;

wherein the effective amount of bisphosphonate is delivered over a period of from about four (4) hours to about forty-eight (48) hours, at intervals of from about once a week and up to about twice a year;

wherein the bisphosphonate administered iontophoretically is selected from the group consisting of: Etidronate, clodronate, pamidronate, alendronate, (6-amino-1-hydroxyhexylindene)bis-phosphonate, tiludronate, risedronate, (3-(dimethylamino)-1-hydroxypropylidene)bis-phosphonate, (1-hydroxy-3(methylpentylamino) propylidene)bis-phosphonate (BM 21.0955), (1-hydroxy-3-(1-pyrrolidinyl)propylidene)bis-phosphonate (EB-1053) zoledronic acid, olpadronic acid, incadronic acid, NE-10244, YH-529 and mixtures thereof; and

wherein the ionized substance reservoir further comprises an agent capable of chelating calcium in an amount effective to prevent interaction between the bisphosphonate and any residual calcium in the ionized substance reservoir.

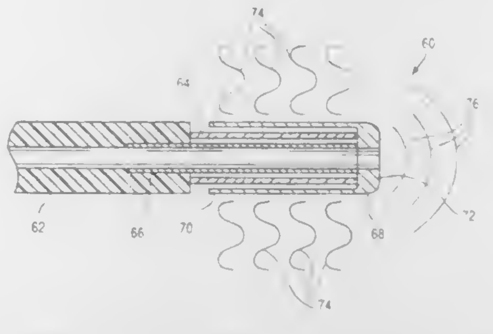
5,735,811
APPARATUS AND METHODS FOR ULTRASONICALLY ENHANCED FLUID DELIVERY

Axel F. Brisken, Fremont, Calif., assignor to Pharmasonics, Inc., Mountain View, Calif.

Filed Nov. 30, 1995, Ser. No. 566,739
Int. Cl.^{6} A61B *17/20*
U.S. Cl. 604—22 **53 Claims**

1. A catheter comprising:

a catheter body having a proximal end and a distal end;
an oscillating driver disposed in catheter body; and
an interface member having an interface surface which extends axially over at least a portion of and is spaced-apart from a circumferential surface of the catheter body, wherein the interface member is coupled to the oscillating driver at a single location so that said driver will transmit axial oscillations to the interface member to cause the interface surface to axially oscillate as a single body relative to the catheter body to induce transverse wave motion in fluid lying adjacent to the catheter body.



5,735,812
WATER SOLUBLE WOUND DRESSING MATERIALS

Craig J. Hardy, Keighley, United Kingdom, assignor to Johnson & Johnson Medical, Inc., Arlington, Tex.

Filed Feb. 28, 1994, Ser. No. 204,024
Claims priority, application United Kingdom, Mar. 3, 1993, 9304309
Int. Cl.^{6} A61F *13/00*
U.S. Cl. 602—43 **11 Claims**

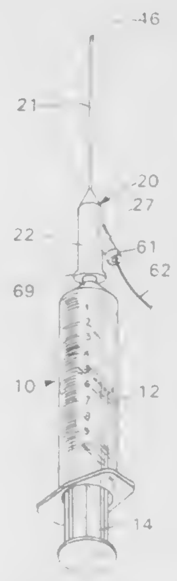
1. A wound dressing comprising a water-soluble material which comprises, by weight based on the weight of the material when anhydrous:

from 5% to 50% of an alginate ester of one or more C_1–C_6 polyhydric alcohols; and
from 50% to 95% of a humectant consisting of one or more C_1–C_6 polyhydric alcohols.

5,735,813
DOUBLE LUMEN INTRODUCING NEEDLE

Ronald L. Lewis, Glen Mills, Pa., assignor to Danron, Inc., Media, Pa.

Filed Oct. 23, 1996, Ser. No. 735,470
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—43 **25 Claims**



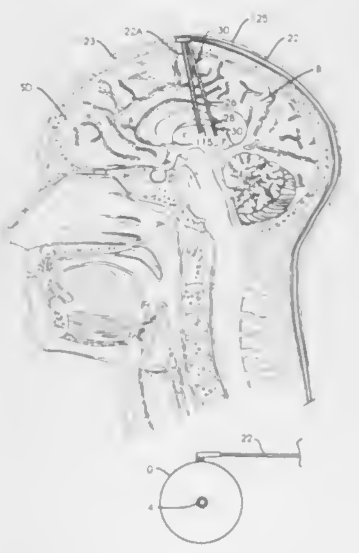
1. A double lumen introducing needle comprising:

a hub having a mounting end and an distal end opposing the mounting end, an at least substantially straight axial passageway extending through the hub between the mounting and distal ends and a side passageway branching from a junction with the axial passageway in the hub and extending away from the junction and the distal end of the hub at an acute angle to the axial passageway extending from the junction to the mounting end, the side passageway terminating in a separate, side port of the hub;
a first lumen extending continuously and unbrokenly from the side passageway, through the junction, along the main passageway between the junction and the distal end of the hub and projecting outwardly from the distal end of the hub, the first lumen having a proximal end located within the hub and fluidly isolated from the axial passageway; and
sidewalls of the hub defining the axial passageway surrounding a second lumen, the second lumen extending between the mounting end and distal end of the hub and surrounding the first lumen within the axial passageway.

5,735,814
TECHNIQUES OF TREATING NEURODEGENERATIVE DISORDERS BY BRAIN INFUSION

Dennis D. Elsberry, New Hope, and Mark T. Rise, Monticello, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 30, 1996, Ser. No. 640,358
Int. Cl.^{6} A61K *9/22*
U.S. Cl. 604—43 **25 Claims**



1. A method of treating a neurodegenerative disorder by means of an implantable pump and a catheter having a discharge portion and having a proximal end coupled to said pump, said method comprising the steps of:

surgically implanting said catheter so that said discharge portion lies adjacent a predetermined infusion site in a brain, and
operating said pump to discharge a predetermined dosage of at least one drug capable of altering the level of excitation of neurons of said brain through said discharge portion of said catheter into said infusion site, whereby neurodegeneration is prevented and said neurodegenerative disorder is therapeutically treated.

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5,735,815

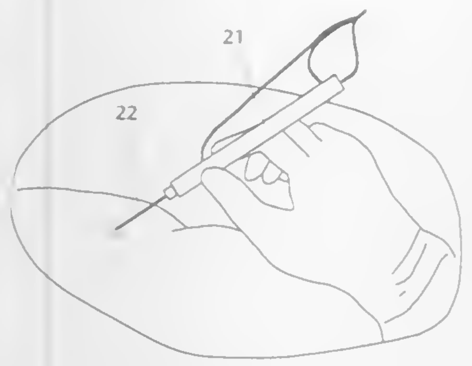
METHOD OF USING FLUID JET SURGICAL CUTTING TOOL

Scott Bair, Atlanta, Ga., assignor to Sentinel Medical, Inc., Norcross, Ga.

Continuation of Ser. No. 441,896, May 16, 1995, abandoned, which is a division of Ser. No. 96,297, Jul. 26, 1993, abandoned. This application Dec. 22, 1995, Ser. No. 578,450

Int. Cl.^{6} A61M *31/00;* **A61B** *17/20;17/32*

U.S. Cl. 604—51 **4 Claims**



1. A method for performing ocular surgery, comprising the steps of:

puncturing the eye capsule with a needle probe, the probe including a needle cannula extending from a handle, the handle being connected to a source of low pressure fluid and including a pressure amplifying mechanism disposed in the handle;
supplying low pressure fluid to the handle from the fluid source;
activating the pressure amplifying mechanism;
generating high pressure fluid pulses from the low pressure fluid by the pressure amplifying mechanism for delivery to the needle cannula; and
impinging the fluid pulses upon a tissue target.

5,735,816

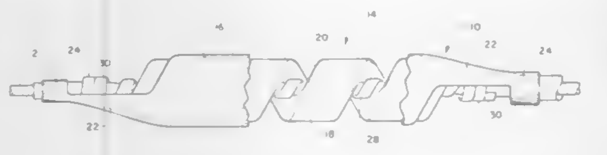
SPIRAL SHEATH RETAINER FOR AUTOPERFUSION DILATATION CATHETER BALLOON

Glen L. Lieber, Poway; Sharon Schwab, San Diego; Don H. Tran, Westminster; Morris H. Deitermann, and Jeffrey S. Trinidad, both of San Diego, all of Calif., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jul. 23, 1996, Ser. No. 685,302

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 604—96 **10 Claims**



1. A spiral balloon perfusion catheter assembly, which comprises:

a catheter;
a catheter balloon mounted on a distal end of said catheter substantially coaxial with said catheter;
said catheter balloon having an exterior spiral lobe and channel pattern; and
a wire retainer having a central spiral region conforming to said channel and radially wound end regions wrapped around said catheter adjacent to primal and distal ends of said catheter balloon;
said wire retainer formed from a shape memory alloy that resists permanent deformation when exposed to balloon expansion pressures.

5,735,817

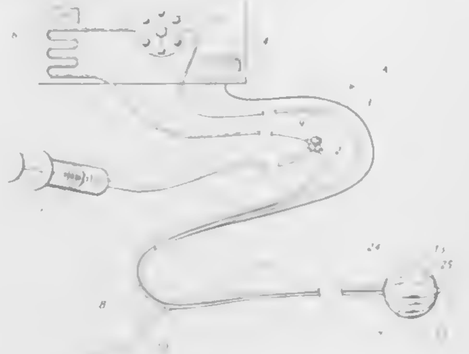
APPARATUS FOR TRANSSPHENOIDAL STIMULATION OF THE PITUITARY GLAND AND ADJOINING BRAIN STRUCTURES

T. R. Shantha, 1657 Kanawha Dr., Stone Mountain, Ga. 30084

Filed May 19, 1995, Ser. No. 445,421

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 604—100 **3 Claims**



1. An apparatus for stimulating the sphenoid sinus and proximate structures of the human body, the apparatus comprising:

an insertion body having a balloon with a flexible outer surface adapted to contact and conform to the interior surface of the sphenoid sinus, the balloon having an interior;
means connected to the interior of the balloon for inflating the balloon while in the sphenoid sinus;
a thermocouple connected to and residing within the interior of the balloon for locally heating and cooling fluid present within the balloon and for locally heating and cooling the interior surface of the sphenoid sinus immediately adjacent the outer surface of the balloon;
a temperature sensor connected to the interior of the balloon and connected to a temperature indicator external to the balloon for monitoring the temperature of the outer surface of the balloon;
electrical stimulators attached to the outer surface of the balloon;
connection means for connecting the electrical stimulators to a power source and control device outside of the sphenoid sinus for stimulating the sphenoid sinus and proximate structures with controlled electric current; and,
means attached to the outer surface of the balloon for discharging drugs from the insertion body into the interior of the sphenoid sinus for absorption by the pituitary gland or central nervous system.

5,735,818

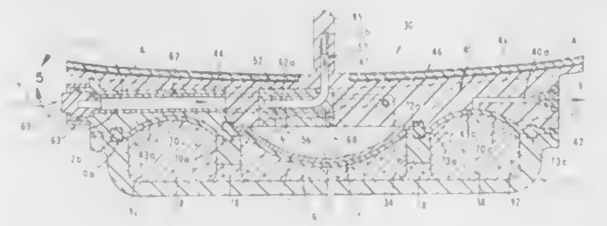
FLUID DELIVERY DEVICE WITH CONFORMABLE ULLAGE

Marshall S. Kriesel, St. Paul; Farhad Kazemzadeh, Bloomington; Matthew B. Kriesel, St. Paul, all of Minn.; William W. Feng, Lafayette, Calif.; Steve C. Barber, Shorewood, Minn., and William J. Kluck, Hudson, Wis., assignors to Science Incorporated, Bloomington, Minn.

Filed Oct. 11, 1995, Ser. No. 541,183

Int. Cl.^{6} A61M *37/00*

U.S. Cl. 604—132 **15 Claims**



1. A device for use in infusing medicinal fluid into a patient at a controlled rate comprising:

(a) a base having an upper surface including a central portion and a peripheral portion circumscribing said central portion, a lower surface engageable with the patient and a channel formed in said base intermediate said upper and lower surfaces, said channel having first and second ends;
(b) stored energy means for forming in conjunction with said central portion of said base, a reservoir having an inlet and an outlet, said stored energy means comprising at least one distendable membrane superimposed over said base, said membrane being distendable as a result of pressure imparted by fluids introduced into said reservoir to establish internal stresses, said stresses tending to move said membrane toward a less distended configuration;
(c) a cover connected to said base, said cover having a first chamber and a second chamber circumscribing said first chamber and at least one passageway interconnecting said first and second chambers, said distendable membrane overlaying said first and second chamber;
(d) a first conformable mass disposed within said first chamber for engagement by said distendable membrane;
(e) a second conformable mass disposed within said second chamber for engagement by said distendable membrane;
(f) infusion means for infusing medicinal fluid from said fluid reservoir into the patient, said infusion means comprising a hollow cannula having:
  (i) an inlet end portion disposed proximate said channel;
  (ii) a central body portion disposed within said channel formed in said base; and
  (iii) an end portion extending outwardly from said channel for insertion into the patient.

5,735,819

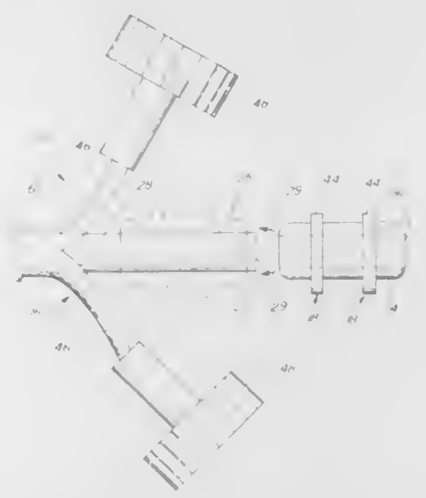
TEAR-APART MEMBER FOR POSITIONING A GROMMET CARRIED THEREON

Gregory D. Elliott, Hagerstown, Ind., assignor to Cook Incorporated, Bloomington, Ind.

Filed Aug. 2, 1996, Ser. No. 692,057

Int. Cl.^{6} A61M *25/06*

U.S. Cl. 604—161 **22 Claims**



1. A device (**10**) for selectively positioning and fixing a grommet (**14**) on a catheter (**12**), comprising:

an elastic grommet (**14**) having a predefined, unstressed interior diameter about no greater than an outer diameter of a catheter (**12**) on which the grommet (**14**) is to be selectively positioned and fixed therealong; and
a positioning member (**16**) carrying the grommet (**14**) thereon, the member (**16**) including a portion (**25**) in contact with the grommet (**14**);
wherein the portion (**25**) of the member (**16**) has an outer diameter at least equal to the predefined, unstressed interior diameter of the grommet (**14**),
wherein the positioning member (**16**) and the grommet (**14**) are selectively positionable together along the catheter (**12**); and
wherein the member (**16**) is capable of being split along at least the portion (**25**), so as to release the grommet (**14**) from the member (**16**) and thereby fix the position of the grommet (**14**) at a selected position on the catheter (**12**)

5,735,820

Patent Not Issued For This Number

5,735,821

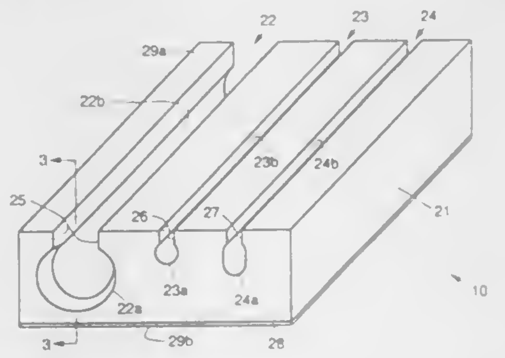
SURGICAL ATTACHMENT DEVICE

William R. Dobkin, 6020 Lido La., Long Beach, Calif. 90803

Continuation of Ser. No. 369,010, Jan. 5, 1995, abandoned. This application Oct. 23, 1995, Ser. No. 546,783

Int. Cl.^{6} A61M *5/32*

U.S. Cl. 604—174 **23 Claims**



1. Apparatus comprising:

a member having first and second surfaces and having an opening formed therein adjacent the first surface, wherein a first portion of the opening is dimensioned to slidably secure a cylindrically shaped member therein, and wherein the first portion of the opening tapers outwardly from a point adjacent a center of the member toward respective opposite ends of the opening, and wherein a second portion of the opening disposed immediately adjacent the first surface is dimensioned to be slightly smaller than the dimension of the first portion of the opening, and wherein the opening further comprises a plurality of inwardly projecting tapered ribs disposed around its internal periphery that taper from a narrowest dimension adjacent the center of the opening to a widest dimension at respective ends of each opening; and
an adhesive layer disposed on the second surface of the flexible member.

5,735,822

TETHER FOR ELONGATED MEMBERS

Robert W. Steins, 7770 Regents Rd., #258, San Diego, Calif. 92122

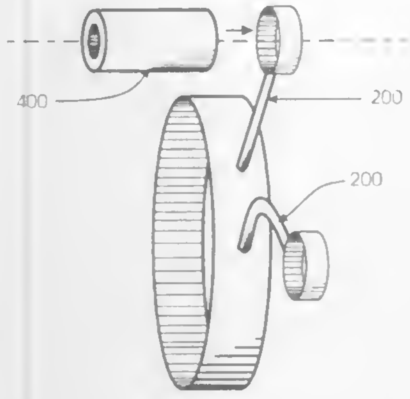
Filed Mar. 12, 1996, Ser. No. 615,492

Int. Cl.^{6} A61M *5/32*

U.S. Cl. 604—179 **15 Claims**

1. A means for tethering elongated members to a human body comprising:

strap means for attaching the tether to an appendage of a human body by substantially encircling the appendage;
a plurality of clamps for releasably restraining elongated members; and
a plurality of connecting means disposed on said strap means for connecting said strap means to each of said clamps, each one of said connecting means defining a fixed length.



wherein at least two of said fixed lengths differ so that at least two of said clamps are located at differing radial distances from said strap means.

5,735,823

SAFETY SYRINGE WITH I.V. PORT ACCESS

Howard S. Berger, Hackensack, N.J., assignor to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 910,196, Jul. 8, 1992, abandoned. This application Nov. 7, 1994, Ser. No. 335,214

Int. Cl.^{6} A61M *5/32*

U.S. Cl. 604—192 **5 Claims**

1 A safety needle device for use with a "y" type connector, the connector having a hollow bore within, a sidearm and an injection port having a pierceable septum to provide access to the bore, comprising:

an elongate barrel having a longitudinal axis and an inside surface defining a chamber, an open proximal end, a distal end having a needle cannula attached thereto, said needle cannula having a lumen therethrough in fluid communication with said chamber, said needle cannula projected distally outwardly from said distal end of said barrel and terminating in a distal tip;

a needle guard having a proximally located first end and a distally located second end, said needle guard being mounted for movement relative to said barrel from a retracted position in which said guard does not materially obstruct access to said distal tip of said needle cannula and an extended position in which said guard substantially prevents inadvertent access to said distal tip of said needle cannula;

means for releasably retaining said guard in said retracted position;

means for locking said guard in said extended position, and

said guard including an open slot extending proximally from said second end, said slot sized to accept the sidearm when said guard is in said extended position, said slot further including a dogleg portion sized to releasably engage the sidearm of the "y" connector with a rotational movement of said guard relative to said axis of said barrel when said needle cannula is penetrating the septum and the bore of the connector is in fluid communication with said chamber of said barrel

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5,735,824

DEVICE FOR METERING AND ADMINISTERING A LIQUID PREPARATION

Birger Hjertman, Vällingby, Sweden, assignor to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden

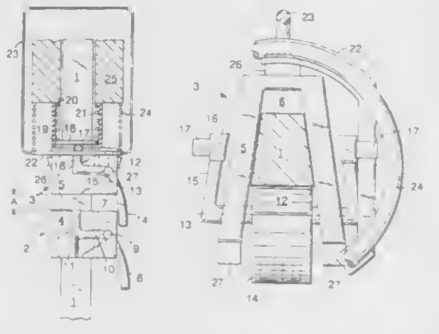
PCT No. PCT/SE94/00360, § 371 Date Jan. 30, 1995, § 102(e) Date Jan. 30, 1995, PCT Pub. No. WO94/25091, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 22, 1994, Ser. No. 362,481

Claims priority, application Sweden, Apr. 30, 1993, 9301495

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—208 **19 Claims**



1 An apparatus for use in an injection device for infinitely variably metering and administering a liquid preparation, which apparatus comprises:

a) a holder device housing a multi-dose injection cartridge containing the preparation, the cartridge comprising a front wall provided with an outlet for discharge of the preparation and a movable wall, whereby movement of the moveable wall in a forward direction will move the preparation towards the front wall and expel it through the outlet,

b) a piston rod arranged movably in relation to said holder device and adapted to engage and move the movable wall in the cartridge;

c) a first coupling and a second coupling, each being individually arranged on said holder device to releasably grip said piston rod, said first coupling being arranged stationary in relation to said holder device and said second coupling being arranged movable in relation to said holder device and along said piston rod when being disengaged therefrom; and

d) a spring arranged between said holder device and said second coupling and being biased to move said second coupling in said forward direction; and wherein:

  i) said piston rod has a wedge-shaped cross-section;

  ii) said first coupling and said second coupling each comprises a wedge-shaped groove, the cross-section of which being adapted to the cross-section of said piston rod; and

  iii) said first coupling and said second coupling each comprises locking means arranged to releasably force said piston rod into said groove, to lock said piston rod to said couplings.

5,735,825

SYRINGE PLUNGER TIP

Brian W. Stevens, Pleasant Grove; Darryl Kent Backman, and Garlyn W. Hendry, both of Salt Lake City, all of Utah, assignors to Merit Medical Systems, Inc., South Jordan, Utah

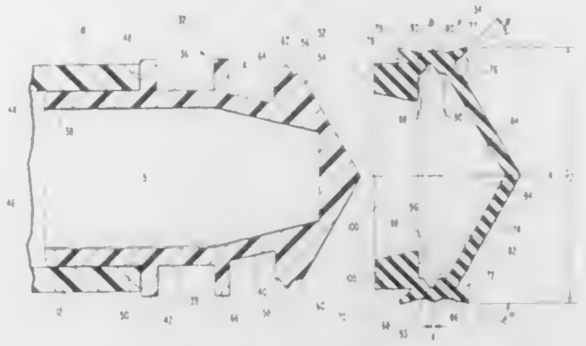
Filed Mar. 22, 1996, Ser. No. 620,386

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—218 **49 Claims**

1. A syringe plunger tip adapted to provide enhanced sealing engagement between the plunger tip and the interior surface of a syringe barrel at high pressures, the plunger tip comprising:

cap means for effecting sealing engagement with the interior surface of said syringe barrel so as to provide enhanced sealing at high pressures to prevent fluid leakage around the cap means;



head means for receiving said cap means in mating engagement, said head means and said cap means providing in combination the plunger tip;

wherein said cap means comprises variable sealing means formed at said radial periphery of said cap means so as to provide a sealing contact with the interior of the syringe barrel that increases with increasing pressure exerted against said plunger tip; and

wherein said head means comprises engagement means positioned in said cap means for radially directing the pressure exerted on said cap means as the pressure increases so as to urge the variable sealing means into tighter engagement with the interior surface of the syringe barrel

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5,735,826

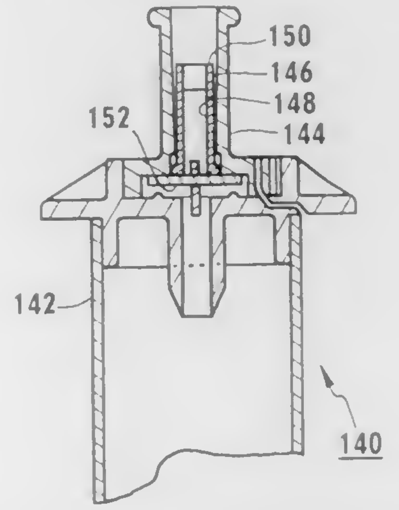
DRIP CHAMBER WITH LUER FITTING

Frank M. Richmond, 205 A Grant St., Harvard, Ill. 60033

Continuation of Ser. No. 377,514, Jan. 24, 1995, abandoned, which is a division of Ser. No. 98,499, Jul. 28, 1993, Pat. No. 5,445,623. This application Nov. 18, 1996, Ser. No. 751,310

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—251 **7 Claims**



1 A device for permitting visual monitoring of fluid flow from a fluid source having a luer fitting to an intravenous (IV) tube, comprising:

a hollow elongated transparent drip chamber having a proximal end engageable with the IV tube, the drip chamber also having a distal end and a drip-forming tube positioned therebetween;

a female luer fitting attached to the distal end of the drip chamber and engageable with the luer fitting of the fluid source, wherein fluid from the fluid source flows through the drip chamber from the distal end of the drip chamber to the proximal end of the drip chamber, the luer fitting establishing a fluid passageway; and

a valve disposed in the passageway of the luer fitting to selectively permit fluid communication through the passageway, the valve having a closed configuration and an open configuration, the valve being biased to the closed configuration and movable to the open configuration when the luer fitting of the device is operably engaged with the luer fitting of the fluid source

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5,735,827

NEEDLE ASSEMBLY HAVING LOCKING ENCLOSURE

James Adwers, Wyckoff, and Richard L. Griffith, Allendale, both of N.J., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 26, 1996, Ser. No. 721,511

Int. Cl.^{6} A61M *5/32*

U.S. Cl. 604—263 **12 Claims**

1 A shield assembly for a needle cannula, said needle cannula having a proximal end securely connected to a hub and an opposed distal end, said shield assembly comprising

an inner shield having a guard slidably movable along said needle cannula from a proximal position where said distal end of said needle cannula is exposed, to a distal position where said guard protectively covers at least said distal end of said needle cannula; and

an outer shield dimensioned and configured for releasably shielding substantially all of said needle cannula when said guard of said inner shield is in said proximal position, said outer shield having at least one lock dimensioned and disposed for substantially permanently locking said outer shield over said needle cannula when said guard of said inner shield is moved to said distal position

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5,735,828

METHOD AND DEVICE FOR CATHETERIZATION

Bjorn Erik Jungnelius, Licknatte, Stenkyrka, S-620 33 Tingstade, Sweden

PCT No. PCT/SE94/00374, § 371 Date Feb. 5, 1996, § 102(e) Date Feb. 5, 1996, PCT Pub. No. WO94/25096, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 26, 1994, Ser. No. 537,906

Claims priority, application Sweden, Apr. 26, 1993, 9301392

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—264 **10 Claims**

1. A device for the catheterization of a cardio-vascular system, comprising a longitudinally extending tubular member made of a thin and flexible material, said tubular member having a tip end and a distal end, a head member permanently connected to said distal end, a catheter receiving channel extending along an extension of said tubular member and said head member, and a narrow slit extending along said tubular member toward said head mem-

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ber, wherein said slit terminates in an opening proximal to said head member and having a width insignificantly larger than a diameter of a catheter to be received in said channel.

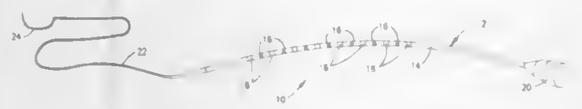
5,735,829
INTERCOSTAL ANESTHETIC INFUSION CATHETER

George Cherian, 6568 High Dr., Prairie Village, Kans. 66208

Filed Mar. 22, 1996, Ser. No. 621,101

Int. Cl.⁶ A61M *5/00*

U.S. Cl. 604—264 **15 Claims**



1 A catheter for applying post-surgical anesthetic locally to spaced apart intercostal nerves of a patient, said catheter comprising:

a catheter tube for insertion in the body of the patient at a selected location extending in proximity to the intercostal nerves, said catheter tube having opposite ends and a tubular wall defining a flow passage for the anesthetic.

a plurality of ports through said tubular wall for discharging the anesthetic from the catheter tube, said ports being spaced apart in an arrangement locating adjacent ports in proximity to adjacent intercostal nerves when the catheter tube is inserted to said selected location;

means on one end of said catheter tube for receiving the anesthetic and directing it to the tube, said one end being outside the body of the patient when the catheter tube is inserted to said selected location;

a thread element on the other end of said catheter tube for pulling said tube to said selected location; and

a needle on said thread element to accommodate threading of the thread element through the body of the patient

5,735,830
POLYMER MATERIAL FOR MEDICAL INSTRUMENTS AND METHOD FOR PRODUCTION OF THE POLYMER MATERIAL

Hans-Gerhard Fritz, Uhingen; Rainer Anderlik, Heidelberg; Armin Singvogel, Remseck, and Michael Heider, Waiblingen-Neustadt, all of Germany, assignors to Willy Rüsch AG, Kernen-Rommelshausen, Germany

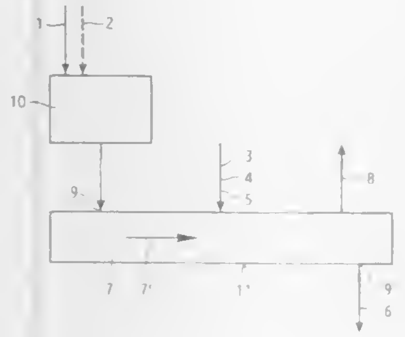
PCT No. PCT/DE95/00168, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO95/21635, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 8, 1995, Ser. No. 676,356

Claims priority, application Germany, Feb. 9, 1994, 44 04 041.5

Int. Cl.⁶ A61M *25/00*

U.S. Cl. 604—280 **16 Claims**



1 A medical instrument comprising

a shaft section having a lumen and formed from a flexible polymer, said flexible polymer comprising at least one of a very low density polyethylene component (VLDPE) and an ultra low density polyethylene component (ULDPE), said flexible polymer being silane-grafted with an organic silane and organic peroxide and being cross-linked by exposure to a water environment

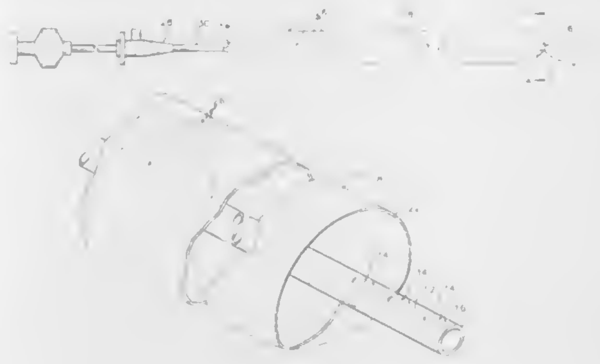
5,735,831
EXPANDABLE FLOWRATE CATHETER ASSEMBLY AND METHOD OF MAKING SAME

Kirk Johnson, Miami Lakes, and Stephen J. Querns, Boca Raton, both of Fla., assignors to Cordis Corporatinn, Miami Lakes, Fla.

Filed Jul. 10, 1996, Ser. No. 677,889

Int. Cl.⁶ A61M *25/00*

U.S. Cl. 604—280 **8 Claims**



1 A catheter assembly for percutaneously delivering diagnostic fluid to a site in the interior of a patient blood vessel comprising:

a) an elongated tube having a center passageway that can be routed into and through a vascular system of a patient, said elongated tube including a tube proximal end and a tube distal end;

b) a flexible sleeve supported by the elongated tube near the tube distal end and defining a space between the interior surface of the sleeve and an exterior surface of said elongated tube, wherein said sleeve comprises a proximal end that is sealed around an exterior circumference of said elongated tube, and wherein said sleeve extends along a length of said elongated tube from said proximal end to a sleeve distal end, and wherein said sleeve distal end defines a generally annular diagnostic fluid delivery opening about an outer surface of said elongated tube through which fluid flows out of said sleeve into the blood vessel, and

c) said tube defining one or more tube openings that extend through a wall of said tube so that the passageway of the elongated tube is in fluid communication with the interior of the sleeve for delivering diagnostic fluid through the one or more tube openings to cause the diagnostic fluid to flow away from the proximal end of the sleeve into the blood vessel through the generally annular fluid delivery opening of said sleeve.

5,735,832
REINFORCED MICRODIALYSIS PROBE

Hans Karlsson, Sollentuna, Sweden, assignor to CMA/ Microdialysis Holding AB, Solna, Sweden

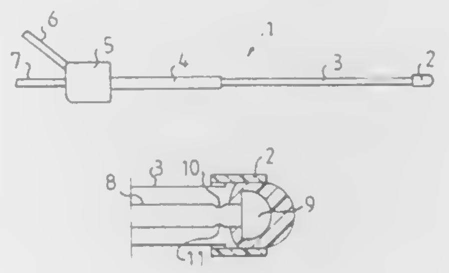
PCT No. PCT/SE95/00095, § 371 Date Jul. 31, 1996, § 102(e) Date Jul. 31, 1996, PCT Pub. No. WO95/20983, PCT Pub. Date Aug. 10, 1995

PCT Filed Feb. 1, 1995, Ser. No. 682,746

Claims priority, application Sweden, Feb. 4, 1994, 9400377

Int. Cl.⁶ A61M *25/00*

U.S. Cl. 604—282 **7 Claims**



1 A microdialysis probe, having a distal end comprising.

a center tube having a proximal end, a closed distal end, a side surface, and a distal aperture located in the side surface, said distal end of said center tube having an enlargement;

a semi-permeable mantle tube surrounding said center tube, said mantle tube having a proximal end and a distal end, said mantle tube being free of an external mounting for support thereof, said mantle tube and said center tube defining a space therebetween, said distal aperture opening into the space between the mantle tube and the center tube;

a fitting partially surrounding said mantle tube for supporting and partially exposing said mantle tube, said fitting including a first tube surrounding and fastened to said proximal end of said mantle tube, said fitting including a second tube surrounding and fastened to said distal end of said mantle tube, said second tube having a closed distal end, said enlargement of said center tube being fitted within said second tube.

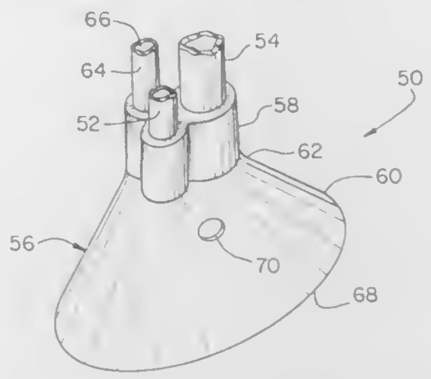
5,735,833
LAVAGE TIP

Daniel H. Olson, Louisville, Ohio, assignor to Bristol-Myers Squibb Co., New York, N.Y.

Filed Dec. 11, 1996, Ser. No. 762,684

Int. Cl.⁶ A61M *35/00; 7/00*

U.S. Cl. 604—289 **7 Claims**



1 A lavage tip for use with an epidermal lavage system to irrigate living tissue, said lavage tip comprising:

a fluid tip including a fluid port, a suction port and an oxygen port; and

a shield connected to said fluid tip, said shield having an open end configured for placement against the tissue to be irrigated, and wherein said shield defines an enlarged internal chamber which is disposed in fluid communication with each of said fluid port, said suction port and said oxygen port, and wherein said fluid port is configured for transporting an irrigating fluid to the chamber, said oxygen port is configured for transporting oxygen to the chamber to provide oxygen therapy to the tissue to promote faster healing, and said suction port is configured for transporting fluid from the chamber

5,735,834
FLUID COLLECTION DEVICE

George P. Hemstreet, Oklahoma City; Karl H. Bergey, Norman; Robert E. Hurst, and Rebecca B. Bonner, both of Oklahoma City, all of Okla., assignors to The Board of Regents of the University of Oklahoma, Norman, Okla.

Continuation of Ser. No. 370,149, Jan. 9, 1995, Pat. No. 5,599,331, which is a division of Ser. No. 5,488, Jan. 19, 1993, Pat. No. 5,380,289. This application Dec. 17, 1996, Ser. No. 768,259

Int. Cl.⁶ A61B *5/00*

U.S. Cl. 604—317 **21 Claims**

1 An apparatus for collecting a biological fluid, the apparatus comprising:

a container having a first end and a second end and enclosing an interior space,

filtering means disposed within the space and mounted between the first end of the container and the second end of the container such that the space is subdivided into a first compartment between the filtering means and the first end and a second compartment between the filtering means and the second end, the first compartment for receiving a cell-containing fluid to be filtered by the filtering means and the second compartment for receiving a filtrate; and

reactant dispenser for storing a reactant and for delivering the reactant into the first compartment of the container for reacting with the cell-containing fluid disposed therein, the reactant dispenser connected to the container and in communication with the space of the container.

5,735,835
FEMALE EXTERNAL URINARY COLLECTION POUCH

Marlan J. Holland, 8775 San Gregorio, Atascadero, Calif. 93422

Filed Oct. 24, 1996, Ser. No. 736,535

Int. Cl.⁶ A61F *5/44*

U.S. Cl. 604—331 **20 Claims**

1. A female urinary collection device comprising

a generally pouch-shaped receptacle for collecting urine from the urethral orifice of a female user, the receptacle having a bottom edge portion and a side wall portion projecting generally from the bottom edge and in a lip portion for sealing engagement with the human tissue substantially outside the area of the labia majora of the user, the side wall portion including at least two zones for anchoring securing means to the side wall, a first securing means being located at a position with the side wall substantially adjacent to the bottom edge for the pouch and for permitting the securing means to engage

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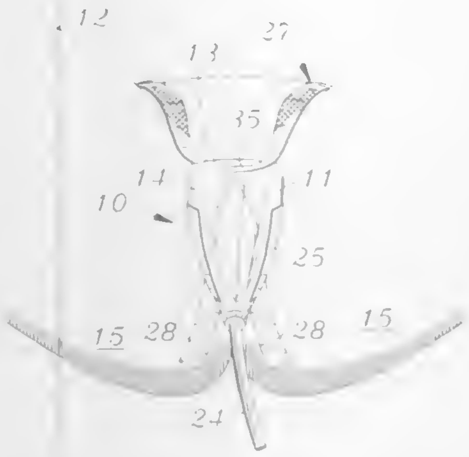


each of two buttocks of a user, and a second securing means being located at a position removed from the bottom edge whereby the second securing means is for securing the receptacle to a portion of the body above the external organs of generation, and the first securing device including an adhesive element, the element being for adhesive bonding with each respective buttock thereby to locate the bottom edge portion of the receptacle relatively securely in relation to the buttocks.

5,735,836
ABSORBENT ARTICLES CONTAINING SUPERABSORBENT MATERIAL WHICH HAS A DELAYED ACTIVATION TIME

Christina Steger, Torslanda; Edward Guidotti, Göteborg; Eje Österdahl, Västra Frölunda, and Urban Widlund, M ölnlycke, all of Sweden, assignors to Molnlycke AB, Gothenburg, Sweden

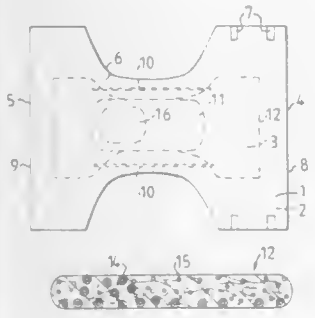
PCT No. PCT/SE94/00572, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO95/00183, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 13, 1994, Ser. No. 553,638

Claims priority, application Sweden, Jun. 21, 1993, 9302146-7

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—368 **15 Claims**



1. An absorbent structure in an absorbent article, such as a diaper, incontinence guard, or sanitary napkin, the structure comprises:

hydrophilic fibers;

particles of a superabsorbent material; and

a front and a back part and a crotch part located therebetween;

said crotch part having a wetting region to which a major part of discharged fluid is directed;

some of the superabsorbent particles are encased in a material that will only dissolve slowly in the discharged fluid to be absorbed, so that the some superabsorbent particles have a delayed activation time and will not begin to absorb the discharged fluid and swell to any greater extent until the encapsulating material is dissolved, wherein the some superabsorbent particles having delayed activation time are localized generally in the wetting region of said structure, and that a remainder of the superabsorbent particles, i.e., which are not encapsulated, are localized primarily in parts of the structure that are located outside said wetting region.

5,735,837
URINE-ABSORBENT BAG FOR INCONTINENCE

Norihiko Ishikawa, Ehime-ken, Japan, assignor to Uni-Charm Corporation, Ehime-ken, Japan

Filed Nov. 27, 1996, Ser. No. 757,860

Claims priority, application Japan, Nov. 30, 1995, 7-312781

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—385.1 **5 Claims**

1. A urine-absorbent bag for incontinence comprising a surrounding wall including a liquid-permeable inner sheet, a liquid-impermeable outer sheet and a liquid-absorbent core disposed therebetween, an upper peripheral edge of the surrounding wall defining an opening for insertion of a wearer's penis, and a bottom edge of the wall spaced apart from the opening, wherein:

the surrounding wall is provided with a cut extending from the upper peripheral edge of the opening toward the bottom edge of the bag so as to divide an upper portion of the surrounding wall into laterally opposite first and second portions and a soft elastic sheet is attached to the surrounding wall to extend over and cover the cut in order to enable a region surrounding the cut to be elastically deformable.

5,735,838
DISPOSABLE DIAPER HAVING ELASTICIZED LEG CUFFS

Peter Rönnberg, Mölndal, and Lennart Nilsson, Skärhamn, both of Sweden, assignors to Molnlycke AB, Gothenburg, Sweden

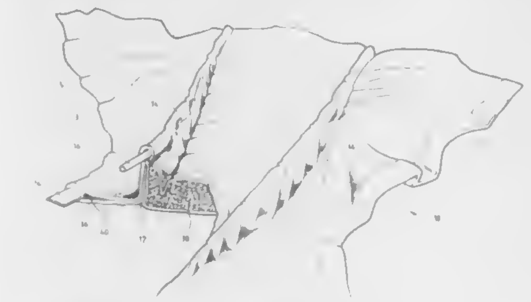
PCT No. PCT/SE94/01064, § 371 Date Jun. 20, 1996, § 102(e) Date Jun. 20, 1996, PCT Pub. No. WO95/13781, PCT Pub. Date May 26, 1995

PCT Filed Nov. 14, 1994, Ser. No. 637,689

Claims priority, application Sweden, Nov. 15, 1995, 9303746

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—385.2 **10 Claims**



1. A disposable diaper comprising: an absorbent core disposed between and secured to a facing sheet and backing sheet, a transverse direction and a longitudinal direction said diaper having a generally hourglass shape with a narrow centrally disposed crotch portion and wider waist portions at transverse end regions of said crotch portion, said waist portions being provided with means for fastening the diaper around a wearer, said diaper further having prestretched elastic means disposed along longitudinal edge portions of said diaper for providing predetermined gathered and substantially non-gathered regions along said edge portions, with substantially non-gathered regions being provided at said waist portions, wherein said elastic means are enclosed within a pocket along each of said longitudinal edge portions, said pocket being formed by one of said sheets with said elastic means being adhered to said pocket at said gathered regions and non-adhered at said non-gathered regions, and said means for fastening the diaper being affixed to said waist portions between said pocket and the other of said sheets.

5,735,839
SHORTS TYPE DISPOSABLE DIAPER

Haruko Kawaguchi; Masao Kurahashi, and Harumitsu Toyoda, all of Haga-gun, Japan, assignors to Kao Corporation, Tokyo, Japan

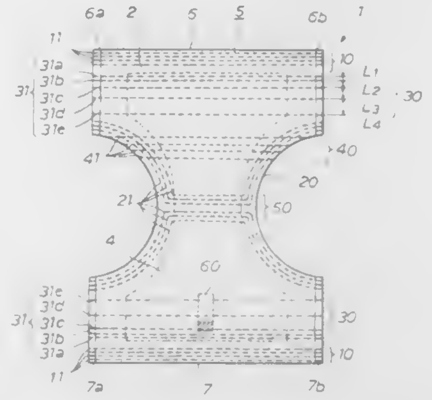
PCT No. PCT/JP95/02077, § 371 Date Jun. 11, 1996, § 102(e) Date Jun. 11, 1996, PCT Pub. No. WO96/11657, PCT Pub. Date Apr. 25, 1996

PCT Filed Oct. 11, 1995, Ser. No. 652,566

Claims priority, application Japan, Oct. 14, 1994, 6-249760; Oct. 14, 1994, 6-249761

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—385.2 **8 Claims**



1. A shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed between the topsheet and the backsheet,

the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waste body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions,

each of the waist opening portion and the pair of leg opening portions being provided with an elastic member which forms substantially continuous gathers along the entire circumstance of the waist opening portion and the leg opening portions, and a plurality of elastic members being provided at a body surrounding portion which is located between the waist opening portion and the pair of leg opening portions and at which the absorbent member is provided, forming substantially continuous gathers along the entire circumference of the body-surrounding portion, said elastic members provided at the body-surrounding portion are disposed in such a manner that the placement of the elastic members relative to each other becomes narrower towards the waist opening portion and that the elastic members provided at the body surrounding portion have an increasing elongation towards the waist opening portion,

the diaper having a plurality of elastic members provided at a urination point located below the body-surrounding portion and adjacent the urination portion of the wearer, said urination point being a lower area of said front waist body portion located between said leg opening portions, thereby forming continuous gathers in the width direction of the diaper, whereby said elastic members stably support said diaper on said wearer to prevent leakage of waste materials.

5,735,840
DISPOSABLE DIAPER WITH INTEGRAL BACKSHEET LANDING ZONE

Mark J. Kline, and David J. K. Goulait, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 717,473, Sep. 20, 1996. This application Nov. 14, 1996, Ser. No. 748,853

Int. Cl.^{6} A61F *13/15*

U.S. Cl. 604—391 **30 Claims**

1. A disposable absorbent article having a front waist region, a rear waist region and a crotch region located between said front waist region and said rear waist region, the absorbent article comprising:

a liquid pervious topsheet;

a liquid impervious backsheet joined with said topsheet, and

an absorbent core located between said topsheet and said back sheet, said absorbent core having a garment surface and a body surface,

said backsheet including an inner web and an outer web, at least a portion of said inner web being juxtaposed said garment surface of said absorbent core, said outer web including, an integral landing zone having portions mechanically prestrained to provide raised elements capable of entangling the engaging components of a complementary male fastening component,

said inner web and said outer web being bonded together except in said landing zone

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5,735,841
NON-SPIKABLE CONNECTOR

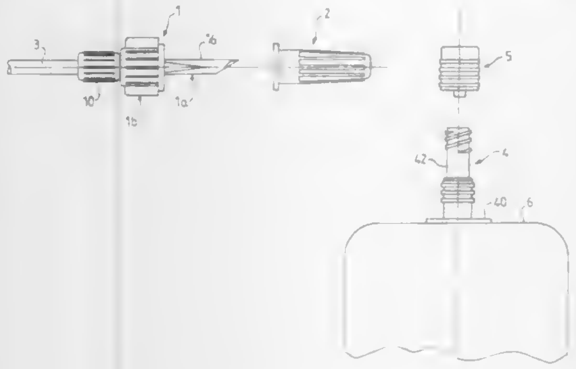
Michel Bourguignon, Lasson, France, and Ignacio Larrain, Traverenges, Switzerland, assignors to Nestec, Ltd., Vevey, Switzerland

Filed Mar. 11, 1996, Ser. No. 613,345

Claims priority, application France, Mar. 13, 1995, 95 02881

Int. Cl.⁶ A61B *19/00;* A61M *5/32*

U.S. Cl. 604—411 9 Claims



1. A connection assembly for providing fluid connection between a sealed container and an enteral feed tube, the assembly comprising, in combination:

a puncturing device having a central longitudinal channel extending from one end to the other and having a tubular base and a tubular spiking element which terminates in a free end, the central longitudinal channel defining an open recess in one end of the tubular base for receiving and holding one end of the feed tube and having an opening at the free end of the tubular spiking element for receiving fluid from the sealed container, the tubular spiking element being of a substantially circular cross-section and increasing in outer diameter from its free end to a position adjacent the tubular base, and the tubular spiking element having a planar cut back in its outer surface extending longitudinally from a position adjacent the tubular base to a position intermediate the tubular base and the free end of the tubular spiking element;

a blocking element positioned on the puncturing device; and

a tubular receiving device having a base connected to the sealed container and a tubular element projecting from the base, the tubular element having a central longitudinal channel extending from an orifice in the base to a free end of the tubular element to provide an opening, the central longitudinal channel being complementary to the tubular spiking element of the puncturing device for receiving the tubular spiking element, and a locking means on the tubular element adjacent its free end that is complementary to the blocking element for releasably locking the puncturing device to the tubular receiving element and providing a leak-proof connection.

5,735,842
LOW PROFILE MANIPULATORS FOR HEART VALVE PROSTHESES

Kurt D. Krueger, Stacy; Michael J. Girard, Lino Lakes, and Guy P. Vanney, Blaine, all of Minn., assignors to St. Jude Medical, Inc., St. Paul, Minn.

Filed Sep. 11, 1995, Ser. No. 526,530

Int. Cl.⁶ A61B *17/00*

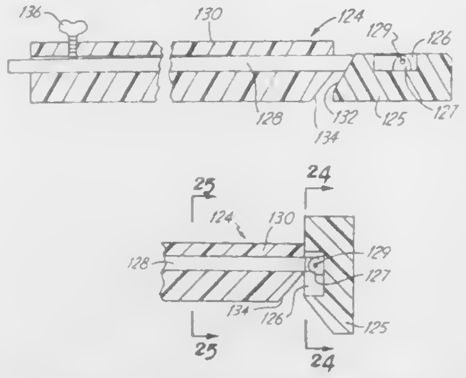
U.S. Cl. 606—1 22 Claims

1. A low profile heart valve holder assembly comprising:

a valve holder body sized for fitting within and supporting a heart valve orifice ring, said heart valve holder defining a plane and having a generally disk-like shape within said plane;

a handle; and

a pivot connection between the handle and the valve holder body permitting pivoting movement of substantially 90° of the valve holder body between first and second positions while supporting a heart valve orifice ring.



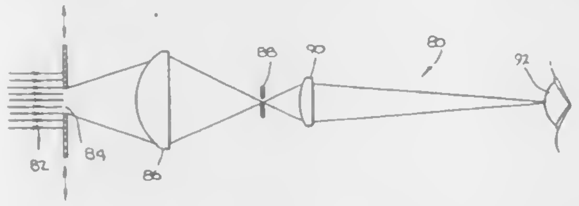
5,735,843
LASER SURGERY APPARATUS AND METHOD

Stephen Trokel, New York, N.Y., assignor to VISX, Incorporated, Santa Clara, Calif.

Division of Ser. No. 341,207, Dec. 5, 1994, which is a division of Ser. No. 893,841, Jun. 4, 1992, abandoned, which is a continuation of Ser. No. 673,541, Mar. 18, 1991, abandoned, which is a continuation of Ser. No. 109,812, Oct. 16, 1987, Pat. No. 5,108,388, which is a continuation of Ser. No. 859,212, May 2, 1986, abandoned, which is a continuation of Ser. No. 561,804, Dec. 15, 1983, abandoned. This application Jun. 7, 1995, Ser. No. 480,243

Int. Cl.⁶ A61N *5/06*

U.S. Cl. 606—5 23 Claims



1. A system for use in a laser source surgical method of removing corneal tissue from a cornea, said system comprising a mask having an aperture for providing a graded intensity to the cornea from center to edge with more intensity at the center than at the edge.

5,735,844
HAIR REMOVAL USING OPTICAL PULSES

R. Rox Anderson, Lexington; Melanie Grossman, Boston, and William Farinelli, Danvers, all of Mass., assignors to The General Hospital Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 382,122, Feb. 1, 1995, Pat. No. 5,595,568. This application Jan. 30, 1996, Ser. No. 593,565

Int. Cl.⁶ A61N *5/06*

U.S. Cl. 606—9 32 Claims

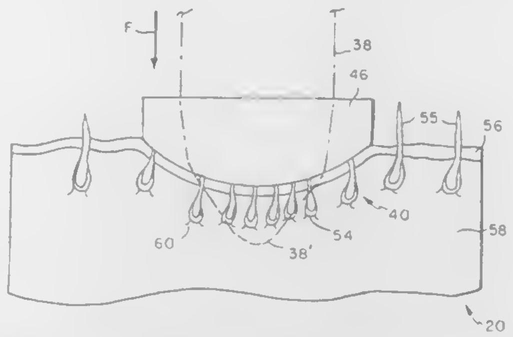
1. A method for the simultaneous removal of a plurality of hairs from a skin region, each hair being in a follicle extending into the skin from a skin surface, the method comprising the steps of:

(a) placing an applicator in contact with the skin surface in said skin region;

(b) applying optical radiation of a selected wavelength and of a selected fluence through said applicator to said skin region, said applying step lasting for a predetermined time interval, and

(c) utilizing said applicator at least during step (b) to cool the skin surface in said skin region to a selected depth,

said selected fluence and said predetermined time interval being selected such that there is at most minimal heating of skin in said skin region to said selected depth, while causing sufficient heating of at least one of hairs and follicles below said selected depth to at least damage said hairs and follicles without causing significant damage to tissue surrounding said follicles.



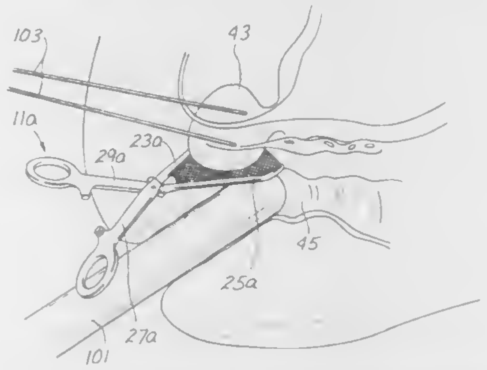
5,735,845
METHOD OF TREATING THE PROSTATE USING CRYOSURGERY

Paul F. Zupkas, San Diego, Calif., assignor to UROS Corporation, San Diego, Calif.

Filed Jan. 17, 1995, Ser. No. 372,953

Int. Cl.⁶ A61N *5/02*

U.S. Cl. 606—20 20 Claims



1. In a method of cryosurgical treatment of the prostate including freezing at least a portion of the prostate with at least one cryosurgical probe, the improvement comprising:

inserting a surgical instrument having a retracted flexible sheet material between the prostate and rectum; and

actuating the surgical instrument to extend the flexible sheet material to form a thermal barrier interposed between the prostate and the rectum to reduce heat transfer from the rectum to the prostate and to thereby reduce the likelihood of tissue destruction of the rectum from the cryosurgical treatment.

5,735,846
SYSTEMS AND METHODS FOR ABLATING BODY TISSUE USING PREDICTED MAXIMUM TISSUE TEMPERATURE

Dorin Panescu, Sunnyvale; Sidney D. Fleischman, Menlo Park, and David K. Swanson, Mountain View, all of Calif., assignors to EP Technologies, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 266,934, Jun. 27, 1994, abandoned. This application May 1, 1995, Ser. No. 431,775

Int. Cl.⁶ A61B *17/39*

U.S. Cl. 606—41 17 Claims

1. An apparatus for ablating body tissue comprising

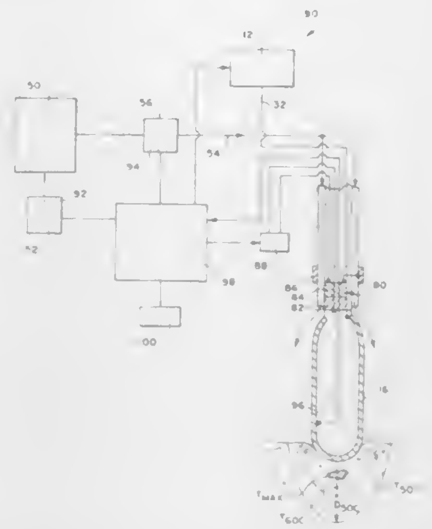
a source of ablation energy,

an electrode coupled to the source for contacting tissue at a tissue-electrode interface to transmit ablation energy at a determinable power level to create a maximum tissue temperature condition beneath the tissue-electrode interface,

a heat removal element connected to remove heat from the electrode at a determinable rate,

a temperature sensing element in thermal conductive contact with the electrode to sense temperature of the electrode,

a processing element coupled to the source and the temperature sensing element to sample the power level at which the electrode transmits ablation energy and the temperature of the electrode sensed by the temperature sensing element, to derive therefrom a prediction of the maximum tissue temperature condition without sampling an actual tissue temperature beneath the tissue-electrode interface, and to control the power level of ablation energy transmitted by the electrode based, at least in part, upon the prediction of the maximum tissue temperature.



5,735,847
MULTIPLE ANTENNA ABLATION APPARATUS AND METHOD WITH COOLING ELEMENT

Edward J. Gough, Menlo Park, and Alan A. Stein, Moss Beach, both of Calif., assignors to ZoMed International, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 515,379, Aug. 15, 1995. This application Dec. 19, 1995, Ser. No. 576,435

Int. Cl.⁶ A61B *17/39*

U.S. Cl. 606—41 51 Claims

1. An ablation apparatus, comprising

a multiple antenna device configured to be coupled to an energy source, the multiple antenna device including a primary

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antenna with a lumen and a longitudinal axis and a distal end sufficiently sharp to pierce tissue, and a secondary antenna at least partially positioned in the secondary antenna including a distal portion configured to be deployed from the lumen in a lateral direction relative to the longitudinal axis, wherein at least a part of a deployed secondary antenna distal portion has at least one radius of curvature;
at least one cable configured to be coupled to the multiple antenna device; and
a cooling element coupled to the primary antenna.

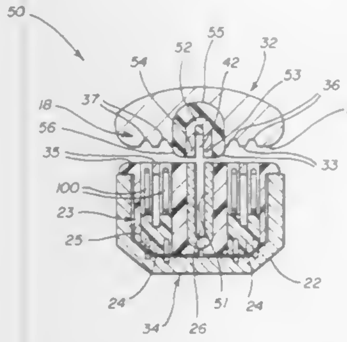
5,735,848
ELECTROSURGICAL STAPLING DEVICE

David C. Yates, West Chester; Jesse J. Kuhns, Cincinnati, and Steven H. Mersch, Germantown, all of Ohio, assignors to Ethicon, Inc., Cincinnati, Ohio

Continuation of Ser. No. 96,154, Jul. 22, 1993, abandoned. This application Apr. 20, 1995, Ser. No. 425,705

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—48 **28 Claims**



1. An electrosurgical device having an end effector comprising.
first and second opposing interfacing surfaces, said interfacing surfaces capable of engaging tissue therebetween, said end effector capable of receiving bipolar energy therein;
electrically isolated first and second poles comprising electrically opposite electrodes capable of conducting bipolar energy therethrough; and
a stapling means for stapling tissue;
wherein said first pole is contained on an electrically insulating portion of said first interfacing surface and said second pole is contained on said second interfacing surface so that bipolar energy may be communicated between said poles through said tissue.

5,735,849
ENDOSCOPIC FORCEPS WITH THUMB-SLIDE LOCK RELEASE MECHANISM

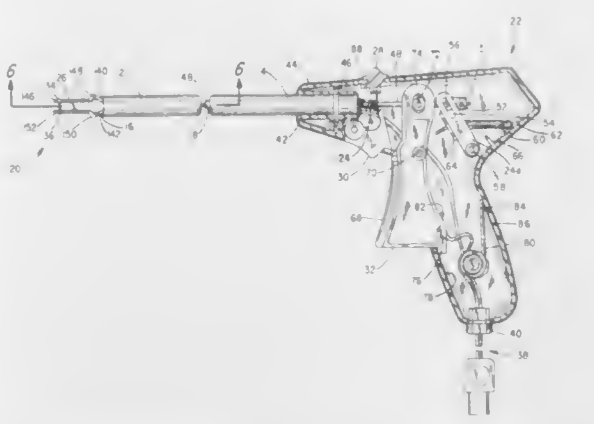
Michael Baden, Rogers, and Brent Anderson, Delann, both of Minn., assignors to Everest Medical Corporation, Minneapolis, Minn.

Filed Nov. 7, 1996, Ser. No. 744,409

Int. Cl.^{6} A61B *17/39*

U.S. Cl. 606—51 **12 Claims**

1. An electrosurgical device comprising:
a) an elongated tubular member having a proximal end and a distal end;
b) a pair of jaws at said distal end of said elongated tubular member moveable between an open position and a closed position;
c) an actuating means operably connected to said proximal end of said elongated tubular member for actuating said pair of jaws between said open position and said closed position;
d) a selector means operably connected to said actuating means for selecting movement of said pair of jaws between a unidirectional mode and a bidirectional mode; and



e) a release means operably connected to said selector means for allowing bidirectional movement when said unidirectional mode is selected.

5,735,850
FASTENING SYSTEM FOR PEDICEL SCREWS

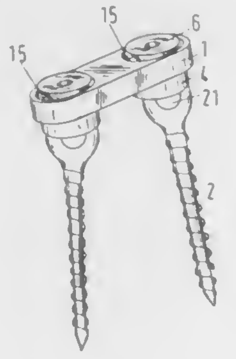
Walter Baumgartner, Wil, and Stefan Freudiger, Bremgarten, both of Switzerland, assignors to Sulzer Medizinaltechnik AG, Winterthur, and Protek AG, Muensingen-Bern, both of Switzerland

Filed Jan. 30, 1996, Ser. No. 593,959

Claims priority, application European Pat. Off., Feb. 17, 1995, 95810106

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—61 **21 Claims**



1. A fastening system for pedicel screws anchorable in different vertebrae of different orientations, said fastening system comprising:
a supporting link including a plurality of apertures each having a receiving surface and a perpendicular and a planar supporting link surface which is normal to the perpendicular;
a plurality of counter-bodies each having a planar counter-body surface butting against one of the planar supporting link surfaces in a self-locking manner, a concave support surface, and a counter-body aperture extending between the planar counter-body surface and the concave support surface, the planar counter-body surface being adjustable relative to the planar supporting link surface to define a degree of inclination relative to the perpendicular;
a plurality of pedicel screws each having a head with a spherically shaped pedicel support surface and defining a pedicel screw axis, the head including an internal threaded portion extending from the spherically shaped pedicel support surface along the pedicel screw axis, the spherically shaped pedicel support surface cooperating with the concave support surface of one of the counter-bodies; and
a plurality of screw elements each having a spherical support surface and an external threaded portion extending along the pedicel screw axis of one of the plurality of pedicel screws, the external threaded portion extending through one of the plurality of apertures of the supporting link and the counter-body aperture of one of the plurality of counter-bodies, and engaging the internal threaded portion of the pedicel screw to secure the pedicel screw to the supporting link and the counter-body, the spherical support surface cooperating with the receiving surface at the aperture of the supporting link, the pedicel screw axis being oriented skewed relative to the perpendicular by a degree equal to the degree of inclination.

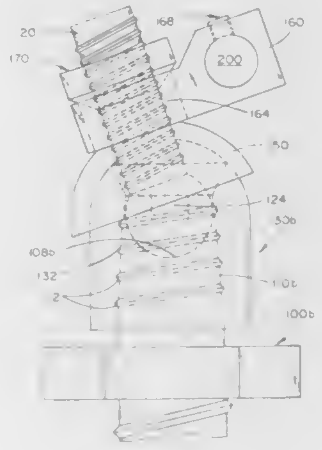
5,735,851
MODULAR POLYAXIAL LOCKING PEDICLE SCREW

Joseph P. Errico, Far Hills; Thomas J. Errico, Summit; James D. Ralph, Oakland, and Steve Tatar, Montville, all of N.J., assignors to Third Millennium Engineering, LLC, Summit, N.J.

Filed Oct. 9, 1996, Ser. No. 728,017

Int. Cl.^{6} A61B *17/70*

U.S. Cl. 606—61 **12 Claims**



1. A modular polyaxial pedicle screw assembly, comprising
a bone screw having a shaft portion and an upper portion having a curvate socket which is coaxial with said shaft portion and which defines a volume having a constant radius of curvature and which is less than a hemisphere formed therein and a threading disposed on the upper circumferential surface of said upper portion;
a stem having an upper post portion and a lower ball portion, the ball portion having a diameter which has the same radius of curvature as the curvate socket of the bone screw and larger than the upper post portion, and said ball portion being shaped to nest and initially rotate in said curvate socket.
a cuff having a hollow cylindrical body having an opening in a top thereof having a diameter greater than that of the upper post portion and less than that of the ball portion, and a threading on a lower interior surface thereof, which threading is coaxial with said opening in said top and is mateable with said threading on said upper circumferential surface of said upper portion of said screw, and such that prior to complete securing of the cuff on the upper portion the stem may polyaxially rotate relative to the shaft with the post portion extending through the opening in the top of the cuff through a range of orientations including orientations which are coaxial and non-coaxial relative to the cuff and bone screw, and such that by complete securing of the cuff on the upper portion the ball portion is crush locked in the curvate socket, thereby preventing further motion of the post relative to the shaft, and means for coupling a rod to the stem.

5,735,852
CLAMP JAW FOR A SPINAL AFFIXATION DEVICE

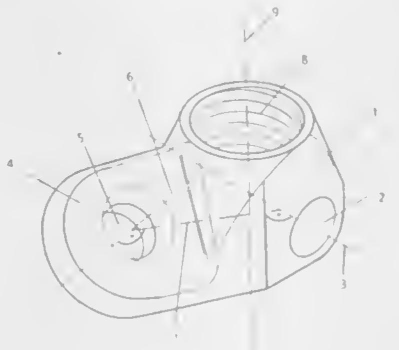
Thomas Amrein, Horw; Konrad Tagwerker, Basel, and Bernhard Jeanneret, Mörschwil, all of Switzerland, assignors to Synthes (U.S.A.), Paoli, Pa.

PCT No. PCT/CH95/00114, § 371 Date Jan. 10, 1997, § 102(e) Date Jan. 10, 1997, PCT Pub. No. WO96/37159, PCT Pub. Date Nov. 28, 1996

PCT Filed May 22, 1995, Ser. No. 776,236

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 606—61 **12 Claims**



1. A clamp for a spinal affixation device comprising:
a base body crossed by a duct for receiving a longitudinal support, the duct having a duct longitudinal axis, and locking means to rotationally and longitudinally lock the longitudinal support to the body, the locking means having a locking means longitudinal axis; and
a substantially tabular extension adjacent the base body and crossed by a screw hole for receiving a bone screw, the screw hole having a center axis the tabular extension having upper and lower surfaces which are substantially parallel to each other;
wherein the duct longitudinal axis and the screw hole center axis are skewed straight lines that do not intersect, the extension is mounted at an angle of between 0° to 45° with respect to a plane of projection formed by the duct longitudinal axis and an orthogonal line perpendicular to both the duct longitudinal axis and the locking means longitudinal axis, and the duct longitudinal axis and the center axis are spaced by a distance of 4–10 mm

5,735,853
BONE SCREW FOR OSTEOSYNTHESIS

Sven Olerud, Villa Malmen, S-740 11 Länna, Sweden

PCT No. PCT/SE95/00744, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/35067, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 16, 1995, Ser. No. 750,708

Claims priority, application Sweden, Jun. 17, 1994, 9402130

Int. Cl.^{6} A61B *17/80*

U.S. Cl. 606—71 **18 Claims**

1. An implant device, comprising:
a plate element, the plate element including a plurality of bone screw holes;
annular hole inserts provided in at least two of the plurality of bone screw holes;
at least two bone screws, the at least two bone screws each having a head portion that is insertable, in a longitudinal direction of the bone screw, in a hole insert of an associated one of the plurality of bone screw holes and lockable and unlockable relative to the hole insert,
the hole inserts each having a convex, substantially spherical, outer annular surface, the outer annular surface of each hole insert cooperating with a matching concave, substantially spherical wall surface of an associated one of the plurality of

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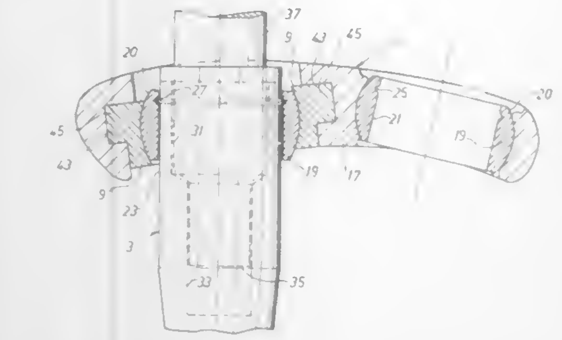


bone screw holes such that when one of the at least two bone screws is inserted in a hole insert of an associated one of the plurality of bone screw holes, the one of the at least two bone screws is movable to different positions relative to the plate element by rotating or tilting the hole insert and the one of the at least two bone screws inserted therein in relation to the wall surface of the associated one of the plurality of bone screw holes, and
means for retaining the head portions of the at least two bone screws in associated ones of the hole inserts such that the head portions are nondisplaceable in the longitudinal direction when the head portions are in a locked condition,
wherein the retaining means provide a snap-in engagement between head portions and the associated hole inserts.

5,735,854
DEVICE FOR APPLYING A SCREW

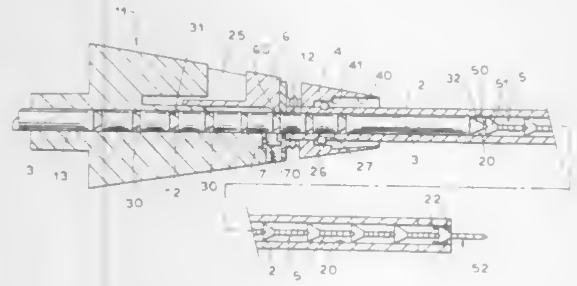
Philippe Caron, Boulevard Daunou, 62200 Boulogne Sur Mer, and Jacques Chereau, 2, rue Marie Curie, 44470 Carquefou, both of France

Filed Sep. 13, 1996, Ser. No. 716,639

Claims priority, application European Pat. Off., Apr. 12, 1996, 96440028

Int. Cl.^{6} A61B *17/56*

U.S. Cl. 606—73 4 Claims



1 Screwing device which comprises a tube (2) which encloses axially aligned screws and a maneuvering shaft, said tube having a free end with means for blocking the head of a screw and allowing only a threaded part of said screw to protrude in a screwing position and for blocking the screw against rearward and forward displacement, axial thrust means for bringing said screw (5) into the screwing position and which can be maneuvered by the user; means for rotationally blocking the screw in the screwing position, said tube also comprising, at said free end, at least two longitudinal slots which confer on said free end transverse elasticity for preventing the screw brought into the screwing position from being driven in rotation when a limit torque is reached

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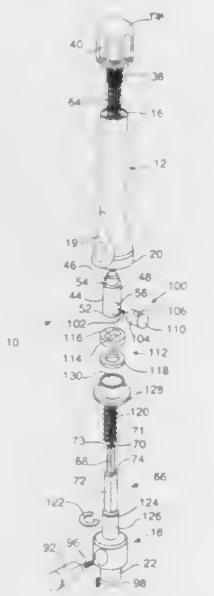
5,735,855
AUTOMATIC IMPACT DEVICE

Gary W. Bradley, 795 Park La. West, Santa Barbara, Calif. 93108

Filed Oct. 25, 1996, Ser. No. 735,185

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 606—86 20 Claims



1 An impact tool for use in surgical procedures, the tool comprising:
a body having a first end and a second end and a channel extending therethrough, the channel having a first region extending from the first end to a point intermediate the first and second ends and a second region extending from the second end to the intermediate point, and a transition region extending about the intermediate point,
means for calibrating impact force delivered by a medical implement coupled to the tool;
means for coupling the implement to the body, the coupling means including a rod extending into the channel, the rod having a shoulder extending about the periphery thereof proximal to an end of the rod;
impact inducing means for causing the medical implement to deliver an impact to a desired object with an impact force calibrated by the calibration means, the inducing means comprising a piston slidably retained in the channel, the piston including a first end coupled to the calibration means, a second end configured to receive the rod, and an actuation mechanism configured to releasably engage the end of the rod; and
return means for causing the rod to be engaged by the actuation mechanism after the implement impacts the object, the return means retaining the rod proximal to the second end of the body to withdraw the rod out of the second end of the piston until the rod is engaged by the actuation mechanism

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5,735,856
ORTHOPEDIC CUTTING GUIDE AND BUSHING

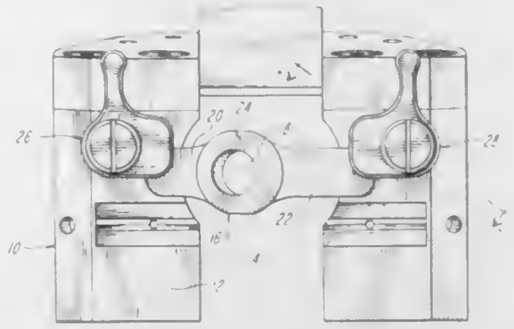
Diana F. McCue, Pocasset; Carl Livorsi, Lakeville, and Paul Monteiro, Somerset, all of Mass., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Jan. 31, 1997, Ser. No. 792,037

Int. Cl.^{6} A61F *5/00*

U.S. Cl. 606—87 20 Claims

1. A medical instrument for orthopedic surgery comprising:
a block having a first face, a second face, a passage through the block from the first face to the second face, and a first recess formed in the first face; and



a locking device secured to the first face of the block, wherein a portion of the locking device is selectively positionable over a portion of the first recess.

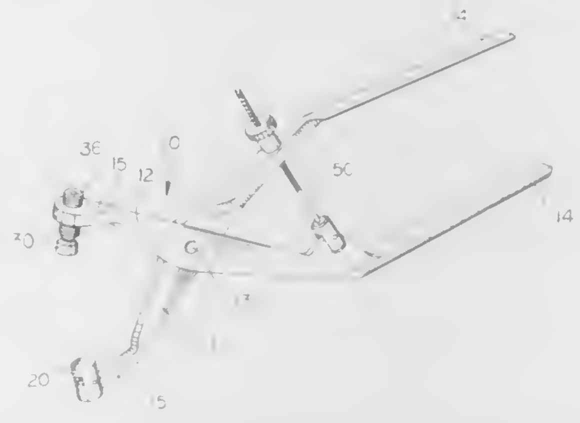
5,735,857
PROSTHETIC GRIPPING INSTRUMENT

Richard A. Lane, Fort Wayne, Ind., assignor to Bristol-Myers Squibb Co., New York, N.Y.

Filed Jul. 22, 1996, Ser. No. 686,169

Int. Cl.^{6} A61B *17/88*

U.S. Cl. 606—99 9 Claims



1. A prosthetic gripping instrument for inserting or removing an orthopaedic product, the instrument comprising a first elongated arm and a second elongated arm, each arm having a proximal end and a distal end, and wherein the arms are interconnected by a connecting mechanism to allow the distal ends of each arm to be moved toward or away from each other, one of said distal ends has a first gripping jaw which is pivotally attached thereto and the other of said distal ends has a second gripping jaw which is swivelably attached thereto, wherein the first jaw is limited to pivotal movement in a single plane about an axis of a pivot pin which interconnects the first jaw to the one distal end, said axis being nonperpendicular to a first gripping surface of the first jaw, and wherein said swivelable second jaw provides multiplanar adjustability.

5,735,858
IOL INSERTION APPARATUS AND METHOD FOR USING SAME

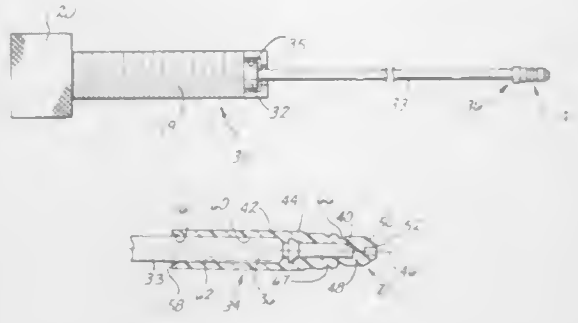
Harish C. Makker, Mission Viejo; Shih-Liang S. Yang, Laguna Hills, and Daniel G. Brady, San Juan Capistrano, all of Calif., assignors to Allergan, Waco, Tex.

Filed Jan. 26, 1996, Ser. No. 592,753

Int. Cl.^{6} A61F *9/11*

U.S. Cl. 606—107 14 Claims

1 An apparatus for inserting an intraocular lens into an eye comprising:



a tube defining a hollow passage, said tube having a port through which the intraocular lens is passed from said hollow passage into an eye, said tube being sized and adapted to maintain the intraocular lens in said hollow passage in a folded condition,
a rod distally movable within said hollow passage and having a distal end portion,
a tip carried by said distal end portion of said rod, said tip being softer than said distal end portion of said rod and being sized and configured so that said tip is held in a fold of the intraocular lens in a folded condition in said hollow passage as said rod is moved distally in said hollow passage; and
said tip is adapted to fit onto said distal end portion and has a proximal end region which has a first outer surface defining a first cross-sectional area and a distal end region which has a second outer surface defining a second cross-section area, the second cross-sectional area being smaller than the first cross-sectional area.

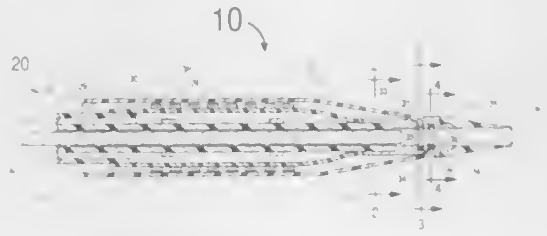
5,735,859
STENT DELIVERY CATHETER

Robert E. Fischell, Dayton, Md.; David R. Fischell, Fair Haven, N.J., and Tim A. Fischell, Richland, Mich., assignors to Cathco, Inc., Dayton, Md.

Filed Feb. 14, 1997, Ser. No. 800,613

Int. Cl.^{6} A61B *11/00*

U.S. Cl. 606—108 13 Claims



8 A stent delivery catheter system for placing a stent within a vessel of a human body, the system comprising:
a flexible guide wire;
a stent delivery catheter system having a distal section which includes a radially expandable metal stent, the stent delivery catheter also having a central lumen through which the guide wire can be slideably placed,
a slidable sheath covering the stent, the sheath having a distal end which is releasably attached by the guide wire to the distal section of the stent delivery catheter

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5,735,860

Patent Not Issued For This Number

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5,735,861
CHANNEL MOUNTED ACTIVATING MECHANISM FOR AN ENDOSCOPIC LIGATOR

Rodney Peifer, Kernersville, and Michael K. Simmons, Winston-Salem, both of N.C., assignors to Wilson-Cook Medical, Inc., Winston-Salem, N.C.

Filed Sep. 6, 1995, Ser. No. 524,069

Int. Cl.^{6} A61B *17/00*

U.S. Cl. 606—139 13 Claims

1. An activating mechanism for activating an endoscopic ligator to ligate lesions within a hollow body organ, the endoscopic ligator being positioned at the distal insertion end of an endoscope, the endoscope having an operating channel which extends through the endoscope from an opening at the distal end to an opening at a proximal end of the endoscope, the ligator having an activation line which is threaded through the operating channel of the endoscope to the proximal opening of the endoscope, said activating mechanism comprising:
- (a) a mounting component, said mounting component having a first portion dimensioned to be inserted into the operating channel of the endoscope and friction fitted therein, said mounting component including a threading channel extending therethrough for threading the activation line through said mounting component when said first portion of said mounting component is inserted into the operating channel of the endoscope; and
- (b) an activating component connected to said mounting component, said activating component including
  - means for attachment of the activation line when the activation line is threaded through said threading channel of said mounting component, and
  - means for retracting the activation line when the activation line is attached to said activating component whereby the ligating device can be selectively activated.

5,735,862
SEMI-AUTOMATIC SUTURING AND SEWING DEVICE

Erwin Reeves Jennings, 4029 Riverside Dr., Brunswick, Ga. 31520, and Jaime D. B. Klatt, 643 Crispen Blvd., Brunswick, Ga. 31525

Filed Sep. 23, 1996, Ser. No. 717,923

Int. Cl.^{6} A61B *12/04*

U.S. Cl. 606—147 18 Claims

1. A semi-automatic suturing/sewing device, comprising:
- a hand graspable tool body;
- a pair of needle holders operably connected to said body for movement with respect to each other into and out of a preset needle transfer position, by application of manual force, each said holder comprising a releasable needle gripping element;
- a power actuator assembly providing motive forces, separate from said manual force, for actuating said gripping elements to move between respective needle gripping and release positions, and for providing a predetermined gripping force of said gripping elements in their respective gripping positions; and
- an electronic control mechanism for controlling operation of said power actuator assembly, said mechanism comprising a detector for producing a first signal when said needle holders have been moved to said needle transfer position, said control mechanism actuating said power actuator assembly in response to said first signal to automatically alternatingly hold said gripping elements in their gripping positions, and move said gripping elements to their release positions, in order to effect successive needle transfers from one needle holder to the other

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5,735,863
BIODEGRADABLE AND BIOABSORBABLE GUIDE CHANNELS FOR USE IN NERVE TREATMENT AND REGENERATION

Francesco Della Valle, Padua; Aurelio Romeo, Rome, and Lanfranco Callegaro, Padua, all of Italy, assignors to Fidia S.p.A., Abano Terme, Italy

PCT No. PCT/EP92/00285, § 371 Date May 24, 1994, § 102(e) Date May 24, 1994, PCT Pub. No. WO92/13579, PCT Pub. Date Aug. 20, 1992

PCT Filed Feb. 10, 1992, Ser. No. 104,025

Claims priority, application Italy, Feb. 11, 1991, PD91A0032

Int. Cl.^{6} A61B *17/00*

U.S. Cl. 606—152 19 Claims

1. A medical device for use in the treatment of damaged nerve tissue, said device comprising a tubular, biocompatible and bioabsorbable composite of at least two layers of coiled threads which comprises:
- a matrix comprised of a biocompatible, bioabsorbable, water-insoluble ester of hyaluronic acid;
- a thread embedded in said matrix, said thread being comprised of a biocompatible, bioabsorbable, water-insoluble ester of hyaluronic acid; and
- an active factor, said factor having activity for treatment of damaged nerve tissue.

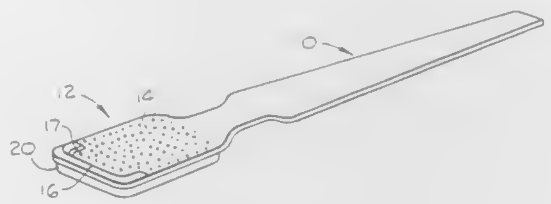
5,735,864
DISPOSABLE TONGUE CLEANER

Charles G. Heisinger, Jr., 1032 Hull Ter., Evanston, Ill. 60202

Filed Feb. 28, 1997, Ser. No. 808,109

Int. Cl.^{6} A61B *17/24*

U.S. Cl. 606—161 15 Claims



1. An oral-hygiene device for cleaning the tongue comprising:
- a. a one piece elongated body having a proximate end for grasping in either hand and a distal end having two substantially flat surfaces on respectively opposite sides, a first and a second surface,
- b. said distal end having a perimeter edge,
- c. said first surface being formed and shaped into a textured surface for scrubbing and loosening debris located on the surface of the tongue, and
- d. located on said second surface is means forming a collecting means for collecting and removing said debris from the mouth,

whereby said device, in response to movement thereof over the tongue, collects, and removes debris from the top surface of the tongue.

5,735,865
INSTRUMENT FOR ENDOSCOPIC THERAPY

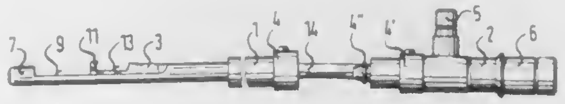
Uwe Schaumann, Villingen-Schwenningen; Helmut Heckele, Knittlingen, and Friederich Hähnle, Bretten, all of Germany, assignors to Richard Wolf GmbH, Knittlingen, Germany

Filed Nov. 29, 1996, Ser. No. 758,532

Claims priority, application Germany, Dec. 19, 1995, 195 47 383.3

Int. Cl.^{6} A61B *17/32*

U.S. Cl. 606—167 6 Claims



1. An instrument for endoscopic therapy, adapted for use in therapy of carpal tunnel syndrome, said instrument comprising:
- a shank tube (1) having an inside with an inner cross-sectional shape having inner dimensions, a length, a longitudinal axis which extends in a longitudinal direction and a longitudinal slit (9) which extends at least over part of the length;
- a cutting tool (3) having a cutter (11) and being displaceable within said shank tube in the longitudinal direction of the shank tube (1),
- an observation optic (2) located in the shank tube,
- means for tilting the cutting tool (3) within the shank tube (1) relative to the longitudinal axis of the shank tube for cutting, the cutter (11) of the cutting tool (3) in a tilted condition extending through the longitudinal slit (9) of the shank tube and projecting beyond an outer diameter of said shank tube, and
- wherein the cutting tool (3) comprises a rigid tube (14, 15, 16, 17) which is longitudinally displaceable inside the shank tube, the rigid tube having a cross-sectional shape and inner and outer dimensions, the cross-sectional shape and the inner dimensions of the rigid tube being adapted to receive the observation optic, the cross-sectional shape and the outer dimensions of the rigid tube being adapted to be received within the inner cross-sectional shape and the inner dimensions of the shank tube (1) such that the rigid tube of the cutting tool (3) together with the cutter (11) can be tilted in the shank tube (1).

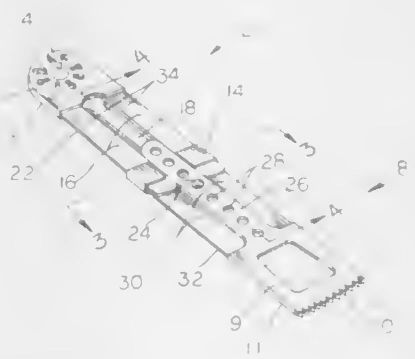
5,735,866
ADJUSTABLE LENGTH SAW BLADE

Kenneth M. Adams, Tampa, and Sorin Nenu, Clearwater, both of Fla., assignors to Linvatec Corporation, Largo, Fla.

Filed Sep. 19, 1996, Ser. No. 715,945

Int. Cl.^{6} A61B *17/14*; B26B *1/00*

U.S. Cl. 606—178 4 Claims



1. A saw blade having a longitudinal axis, the saw blade comprising; a hub portion, a blade portion engaging the hub portion, the blade portion including a cutting end, and a locking mechanism carried by the hub and blade portions, the locking mechanism releasably preventing relative motion between the hub and blade portions, the hub and blade portions being configured to be assembled and locked in a first position in which the hub and cutting end are spaced a first distance along the longitudinal axis, and the hub and blade portions being configured to be assembled in a second position in which the hub and cutting end are spaced a second distance along the longitudinal axis, wherein the hub portion includes a hub end and an engagement end and the blade portion includes a cutting end and an engagement end, the engagement ends of the hub and blade portions being slidingly engageable to guide the hub and blade portions in relative sliding motion along the longitudinal axis, the locking mechanism being operable between a first position in which it prevents relative motion between the hub and blade portions along the longitudinal axis and a second position in which it allows relative motion between the hub and blade portions along the longitudinal axis further wherein the engagement ends of the hub and blade portions are engageable in a tongue-and-groove fashion, the hub portion having a pair of side arms extending from the hub parallel to the longitudinal axis and a central arm extending from the hub parallel to the longitudinal axis between the side arms, the blade portion having a pair of lateral surfaces extending from the cutting end parallel to the longitudinal axis, the lateral surfaces being joined along their length by a central web, the hub and blade portions engaging one another with the side arms lying on top of the lateral surfaces and the central arm lying below the central web.

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5,735,867
WORKING CANNULA FOR ARTHROSCOPY

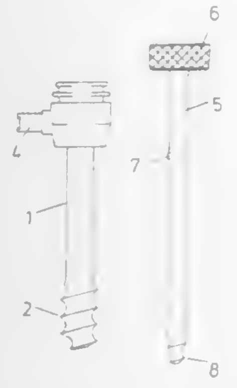
Karl Golser, and Gernot Sperner, both of Anichstrasse 35, A-6020 Innsbruck, Austria

Filed Jul. 29, 1996, Ser. No. 681,854

Claims priority, application Austria, Aug. 23, 1995, GM 454/95

Int. Cl.^{6} A61B *17/34*

U.S. Cl. 606—185 6 Claims



1. An arthroscopic device for performing arthroscopic procedures comprising a cannula and a trocar, said cannula defining a central bore adapted to receive said trocar, said trocar defining a central bore for receiving a guidewire, said cannula having screw threads at its distal end, said trocar having screw threads at its distal end, said cannula and said trocar being designed so that when said trocar is inserted to its fullest extent in the central bore of said cannula, the distal ends of said trocar and said cannula form a continuous thread pattern located on the distal end of said arthroscopic device.

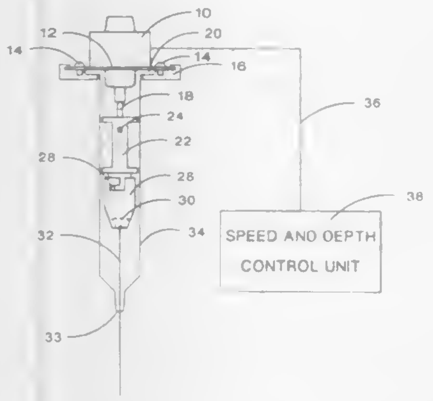
5,735,868
INTRAMUSCULAR STIMULATOR

Young H. Lee, 114 Apley Dr., Cherry Hill, N.J. 08003

Filed May 1, 1996, Ser. No. 641,516

Int. Cl.^{6} A61B *17/34*

U.S. Cl. 606—189 18 Claims



1. A motor-driven intramuscular stimulation needling device for relieving chronic muscular pain, comprising a needle and an electrically powered motor for inserting the needle into an affected muscle so that said needle produces a repeated, controlled motor-driven back and forth poking of the muscle, an energy source for energizing said motor, and a mechanical linkage linking said needle to said motor for causing a linear back and forth motion to said needle when said motor is energized.

5,735,869
BALLOON CATHETER AND STENT DELIVERY DEVICE

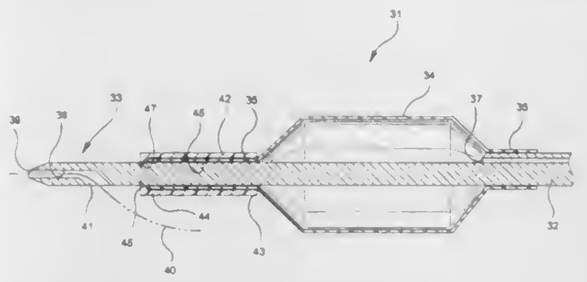
Alfonso Medina Fernandez-Aceytuno, E-Las Palmas de Gran Canaria, Spain, assignor to Schneider (Europe) A.G., Bulach, Switzerland

Continuation-in-part of Ser. No. 547,186, Oct. 24, 1995, Pat. No. 5,628,755. This application Oct. 26, 1995, Ser. No. 548,786

Claims priority, application European Pat. Off., Nov. 30, 1994, 94118900

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 606—194 12 Claims



1. A balloon catheter comprising: a tubular shaft having a proximal end and a distal end, an elongated dilatation balloon with proximal and distal ends, said balloon being mounted on said tubular shaft in the vicinity of the distal end thereof, a first means secured on the tubular shaft for preventing expansion of balloon segments and a second means on the first means cooperating with a third means on the tubular shaft for adjustably fixing the first means on the tubular shaft at different longitudinal positions wherein the tubular shaft comprises a guidewire lumen with an entry for the guidewire distal of the balloon and an exit for the guidewire distal of the proximal end of the tubular shaft and wherein the first means for preventing expansion of balloon segments is either distal of the exit for the guidewire if said exit is proximal of the balloon or proximal of the exit for the guidewire if said exit is distal of the balloon.

5,735,870

Patent Not Issued For This Number

5,735,871
SELF-EXPANDING ENDOPROSTHESIS

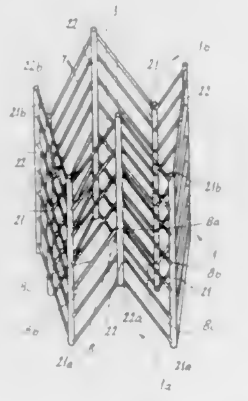
Jean-Claude Sgro, 42 cours Général de Gaulle, 21000 Dijon, France

Filed Dec. 6, 1995, Ser. No. 568,258

Claims priority, application France, Dec. 9, 1994, 94 15085

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 606—198 10 Claims



1. A self-expanding endoprosthesis for supporting a wall of an anatomical channel, being of a generally cylindrical form and of openwork design, forming an internal lumen, and being capable of assuming two configurations, a first configuration in which it is folded-down counter to an inherent centrifugal force of elastic return of the endoprosthesis, and in which the internal lumen exhibits a relatively small diameter, and a second configuration in which it is deployed, released under the effect of said centrifugal force, and in which the internal lumen exhibits a relatively large diameter, said endoprosthesis comprising:

n external longitudinal elements, distributed in a parallel arrangement about a longitudinal axis of the endoprosthesis;

n intermediate longitudinal elements, distributed in a parallel arrangement about the axis of the endoprosthesis, each intermediate longitudinal element being between a respective pair of the external longitudinal elements, n being an integer and the total number of longitudinal elements being 2n;

the intermediate longitudinal elements being offset longitudinally with respect to the external longitudinal elements by a predetermined distance, in such a way that, at each end of the endoprosthesis, adjacent extremities of the intermediate elements are included in a radial plane separated by said predetermined distance from a radial plane including adjacent extremities of the external elements;

a plurality of rings distributed along the axis of the endoprosthesis, joining the external and intermediate longitudinal elements to one another, each ring comprising 2n transverse ring segments connected continuously to one another, each ring segment having first and second ends, the first ends of the ring segments being linked respectively to the intermediate elements, and second ends of the ring segments being linked respectively to the external elements;

the folded-down configuration being obtained by longitudinal reaction of the external elements, with respect to the intermediate elements, in the direction of the axis of the endoprosthesis,

wherein the plurality of rings are separate from one another, and are linked movably to the external and intermediate longitudinal elements;

wherein the respective ring segments of each ring together have the form of a continuous and closed filament, of zigzag configuration, and included in an imaginary envelope of the endoprosthesis, the zigzag configuration of the rings defining vertices, the vertices of each ring being aligned and nested with the vertices of each adjacent ring, in a longitudinal direction which is parallel to the axis of the endoprosthesis,

wherein at least some of said longitudinal elements are flexible, filament-shaped elements.

5,735,872
STENT

Kenneth W. Carpenter, Del Mar; Leo R. Roucher, Jr., Escondido; Eugene J. Jung, Jr., San Diego; Erich H. Wolf, Vista, and Thomas A. Steinke, San Diego, all of Calif., assignors to Navius Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 557,725, Nov. 13, 1995, Pat. No. 5,643,314. This application Oct. 2, 1996, Ser. No. 720,714

Int. Cl.^{6} A61M *29/00*

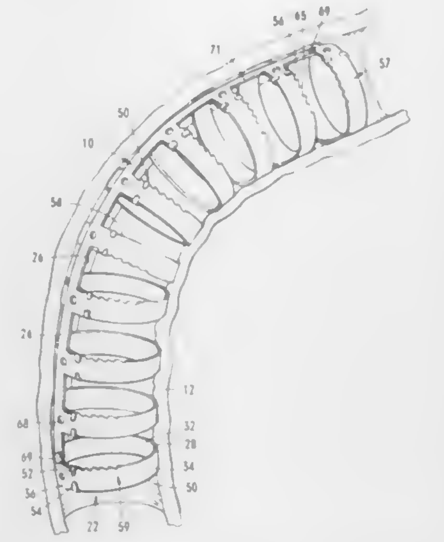
U.S. Cl. 606—198 23 Claims

1. A stent for placement in a vessel, the stent comprising a plurality of interconnected, tubular shaped bands, at least one of the bands comprising:

a first end overlapping a second end and being moveable relative to the second end to reconfigure the band between at least a contracted configuration and a fully expanded configuration;

at least one receiver disposed on a first edge proximate one of the ends; and

a first tab projecting from the first edge proximate the other one of the ends, the first tab including a receiver section that extends substantially radially from the first edge, the receiver section being shaped to engage the receiver and inhibit the band from retracting towards the contracted configuration



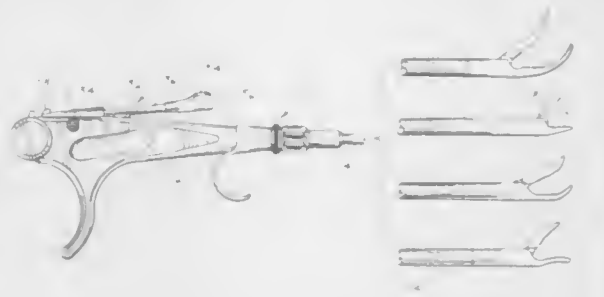
5,735,873
SURGICAL TOOL HANDLE

David S. MacLean, 34180 Lakeside Dr., Grays Lake, Ill. 60030

Filed Dec. 19, 1996, Ser. No. 769,426

Int. Cl.^{6} A61B *17/00*

U.S. Cl. 606—205 24 Claims



1. In a surgical tool of the type comprising a shaft, a movable element mounted to the shaft, a handle mounted to the shaft, and a control rod coupled to the movable element and extending into the handle, the improvement comprising:

a rod actuator mounted in the handle to pivot about a pivot axis and coupled to the control rod such that pivoting movement of the rod actuator with respect to the handle causes the control rod to translate with respect to the shaft;

a ratchet part mounted in the handle and coupled to the rod actuator; and

a ratchet actuator coupled to the ratchet part and mounted in a distal part of the handle such that the pivot axis is disposed intermediate the ratchet actuator and the shaft, said ratchet actuator operating to selectively decouple the ratchet part from the actuator, said ratchet actuator positioned to contact a palm of a user when the user grasps the handle and places a finger on the rod actuator

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5,735,874

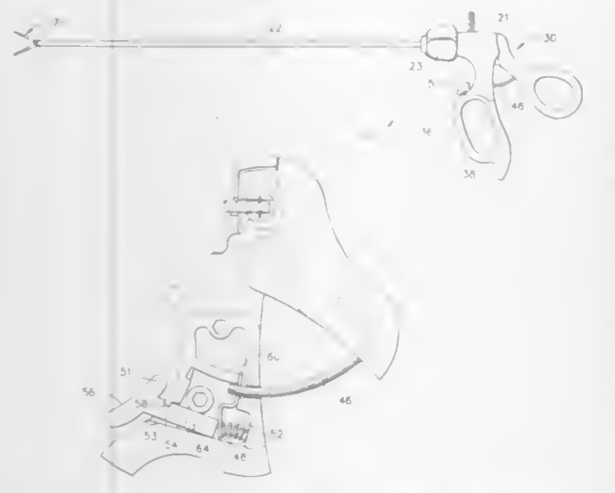
VARIABLE POSITION HANDLE LOCKING MECHANISM

John P. Measamer; Hector Chow, both of Cincinnati; Frederick J. Reber, II, Lebanon; Steven W. Hamblin, Loveland, and James H. Chambers, Bowling Green, all of Ohio, assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio

Filed Jun. 21, 1996, Ser. No. 668,989

Int. Cl.^{6} A61B *17/28*

U.S. Cl. 606—208 **22 Claims**



1. A surgical instrument for grasping and clamping tissue comprising:

a handle body having a locking shoulder;

an elongated shaft having a proximal end and a distal end and connected to said handle body at said proximal end;

an end effector having at least one movable member located at said distal end of said shaft;

an actuation member movably connected to said handle body and operatively connected to said end effector for actuating movement of said at least one movable member;

a locking tab on said handle body and having a hole therethrough, said locking tab being movable between a locked position and an unlocked position;

a locking rod having a proximal end and a distal end, said locking rod being fixed to said actuation member at said proximal end, and wherein at least said distal end of said locking rod is movably engaged with said locking tab through said hole; and

a release trigger slidable linearly in said handle body, said release trigger having a notch therein and operatively connected to said locking tab for releasing engagement of said locking rod and said locking tab from said locked position to said unlocked position, said notch being engageable with said locking shoulder of said body such that said locking tab is moved to said unlocked position, and wherein said actuation member has free bi-directional movement.

5,735,875

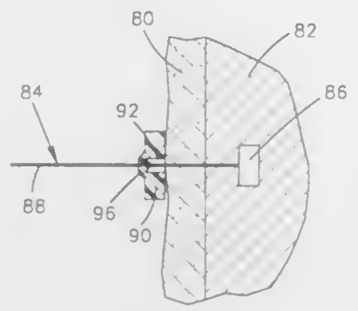
SURGICAL DEVICES ASSEMBLED USING HEAT BONDABLE MATERIALS

Peter M. Bonutti, 1303 W. Evergreen Plz., Effingham, Ill. 62401, and Mark V. Brillhart, Effingham, Ill., assignors to Peter M. Bonutti, Effingham, Ill.

Division of Ser. No. 453,631, May 30, 1995, Pat. No. 5,593,425, which is a continuation-in-part of Ser. No. 833,085, Feb. 10, 1992, abandoned, which is a division of Ser. No. 545,919, Jun. 28, 1990, Pat. No. 5,163,960. This application Jan. 13, 1997, Ser. No. 782,595

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **10 Claims**



1. An assembly for use in surgical applications on human body tissue, said assembly comprising a suture formed of a plastic material which is heat fusible, said suture having a longitudinally extending side surface which is engagable with the body tissue, a fastener formed of a plastic material which is plastically deformable when heated into a transition temperature range of the plastic material forming the fastener, said fastener having a surface which defines an opening through which said suture extends, said fastener having a portion which is plastically deformed by heat softening to extend into engagement with said longitudinally extending side surface of said suture and which is secured to said longitudinally extending side surface of said suture by heat fusing of the material of said fastener with said longitudinally extending side surface of said suture

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5,735,876

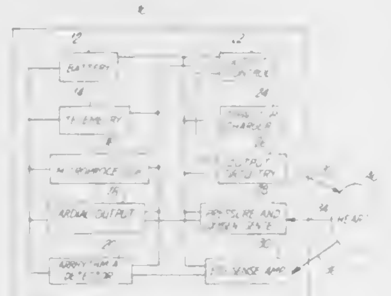
ELECTRICAL CARDIAC OUTPUT FORCING METHOD AND APPARATUS FOR AN ATRIAL DEFIBRILLATOR

Kai Kroll, and Mark W. Kroll, both of Minnetonka, Minn., assignors to Galvani Ltd., Minneapolis, Minn.

Continuation of Ser. No. 754,712, Dec. 6, 1996, which is a continuation of Ser. No. 543,001, Oct. 13, 1995, abandoned, which is a continuation-in-part of Ser. No. 251,349, May 31, 1994, abandoned. This application Oct. 25, 1995, Ser. No. 548,014

Int. Cl.^{6} A61N *1/39*

U.S. Cl. 607—5 **21 Claims**



1. An implantable device for inducing electrical cardiac output in cooperation with an atrial defibrillation therapy system wherein the electrical cardiac output is triggered in the event of atrial defibrillation therapy causes ventricular fibrillation, the device including the atrial defibrillation therapy system comprising:

a power supply system;

a high voltage pulse generating circuit being in electrical communication with said power supply,

at least one electrode adapted for placement in a patient's atrium having electrical connections to said high voltage pulse generating circuit;

control means connected to the high voltage pulse generating circuit to deliver a voltage pulse via said at least one electrode when the atrial fibrillation is detected;

said power supply system, said high voltage, said electrode and said control means being in electrical communication and structured to form said atrial defibrillation therapy system;

a charging circuit connected to said power supply capable of generating voltage pulses of 30–375 volts at a rate of least one pulse per second;

a capacitor for storing energy from said charging circuit;

at least one large electrode adapted to be placed in a patient's ventricle;

an output circuit having electrical communication with a capacitor for delivering voltage pulses to said at least one large electrode wherein said voltage pulses are administered upon sensing ventricular fibrillation; and

said charging circuit, said capacitor, said large electrode and said output circuit being in electrical communication and structure to form said implantable device and further having electrical communication and cooperation with said atrial defibrillation therapy system.

5,735,877

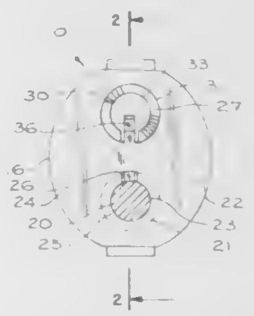
SELF LOCKING SUTURE LOCK

Anthony C. Pagedas, 8401 W. Edgerton, Greenfield, Wis. 53129

Filed Feb. 28, 1996, Ser. No. 607,421

Int. Cl.^{6} A61B *17/04*

U.S. Cl. 606—232 **8 Claims**



1. An improved one-piece self locking suture lock to be used with surgical suture thread and a suture needle, said self locking suture lock comprising:

a body having a front side, a back side, a first stitch lock opening, and a second stitch lock opening;

said first stitch lock opening being cone-shaped, having an outer edge, and having a larger diameter on said front side and a smaller diameter on said back side,

said second stitch lock opening being cone-shaped, having an outer edge, and having a larger diameter on said back side and a smaller diameter on said front side;

said first stitch lock opening having an integral tongue connected to said outer edge of said first stitch lock opening near said front side and extending diametrically at an angle from said front side toward said back side;

said second stitch lock opening having an integral tongue connected to said outer edge of said second stitch lock opening near said back side and extending diametrically at an angle from said back side toward said front side

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5,735,878

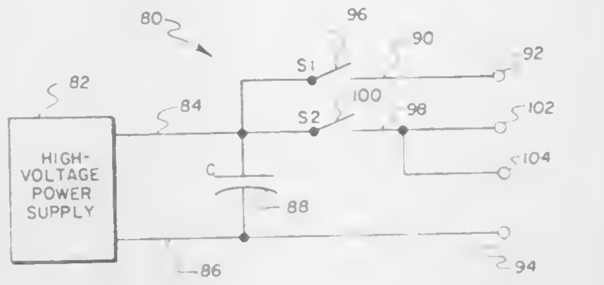
IMPLANTABLE DEFIBRILLATOR HAVING MULTIPLE PATHWAYS

Mark W. Kroll, Minnetonka; Theodore P. Adams, Edina, and Charles G. Supino, Arden Hills, all of Minn., assignors to Angeion Corporation, Plymouth, Minn.

Division of Ser. No. 231,036, Apr. 22, 1994, Pat. No. 5,514,160, which is a division of Ser. No. 841,544, Feb. 26, 1992, Pat. No. 5,306,291. This application Dec. 22, 1995, Ser. No. 577,949

Int. Cl.^{6} A61N *1/36*

U.S. Cl. 607—5 **10 Claims**



1. An implantable defibrillator system having multiple pathways for applying electrical countershocks to a heart of a human patient, the system comprising:

a capacitor energy storage system,

a power supply connected to the capacitor system;

a detection system for detecting a cardiac dysthythmia in the patient;

at least first, second and third implantable electrodes providing at least a pair of discharge pathways through which counter shocks may be applied; and

a controller operably connected to the detection system, the capacitor system, the power supply and the electrodes which, in response to the detection system, selectively charges and discharges the capacitor system to generate a countershock, the countershock being applied through a second discharge pathway at a predetermined time after the countershock has been applied to a first discharge pathway such that both the first and second discharge pathways are energized concurrently

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5,735,879

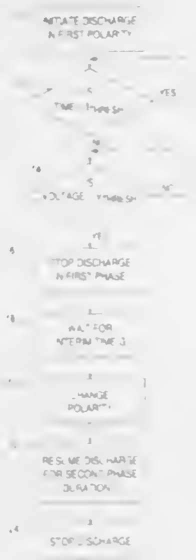
ELECTROTHERAPY METHOD FOR EXTERNAL DEFIBRILLATORS

Bradford E. Gliner, Bellevue; Thomas D. Lyster, Bothell; Clinton S. Cole, Kirkland; Daniel J. Powers, and Carlton B. Morgan, both of Bainbridge Island, all of Wash., assignors to Heartstream, Inc., Seattle, Wash.

Continuation of Ser. No. 103,837, Aug. 6, 1993, abandoned. This application Feb. 20, 1997, Ser. No. 803,094

Int. Cl.^{6} A61N *1/39*

U.S. Cl. 607—7 **18 Claims**


INITIATE DISCHARGE IN FIRST POLARITY
STOP DISCHARGE IN FIRST PHASE
CHANGE POLARITY
FOR SECOND PHASE DURATION
STOP DISCHARGE

4. A method for applying electrotherapy to a patient through electrodes external to a patient, the electrodes being electrically connected in a first predetermined polarity to an energy source charged to an initial level, the method comprising the following step.

discharging the energy source across the electrodes until the end of a predetermined time period and until an electrical unit measured across the electrodes decays to a predetermined terminal level

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5,735,880

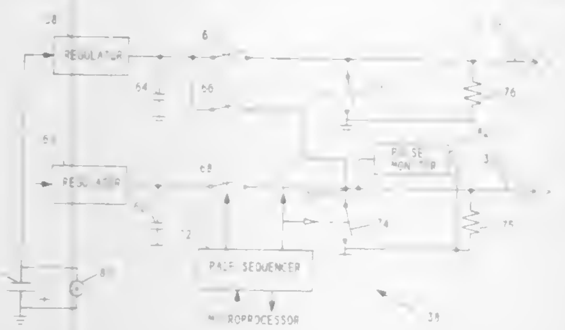
METHOD AND APPARATUS FOR RELIABLY PRODUCING PACING PULSE TRAINS

David Prutchi, and Patrick J. Paul, both of Lake Jackson, Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Sep. 16, 1996, Ser. No. 714,388

Int. Cl.^{6} A61N *1/362*

U.S. Cl. 607—9 **20 Claims**



1. A cardiac stimulation apparatus for a patient whose heart needs cardiac therapy comprising:

a capacitor charging circuit; a first capacitor electrically connected to said capacitor charging circuit for providing a pacing pulse;

a second capacitor electrically connected to said capacitor charging circuit for providing a pacing pulse; and

a control circuit for enabling at least one of said capacitors to be charged and discharged, said control circuit connected to a sequencer for enabling said first and second capacitors to be charged and discharged in alternate cycles to produce a pulse train formed by pulses from said first and second capacitors.

5,735,881

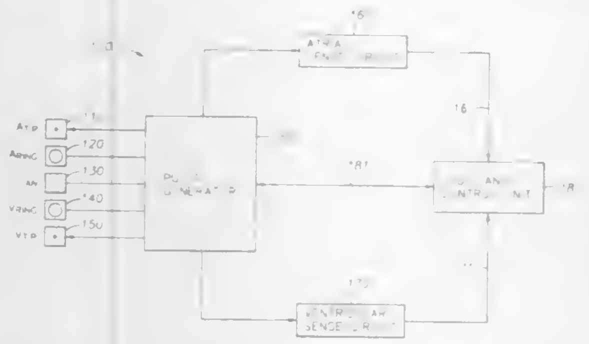
VARIABLE ATRAIL BLANKING PERIOD IN AN IMPLANTABLE MEDICAL DEVICE

Andre Routh, Lake Jackson, Tex.; Annette Bruls, Brussels, Belgium; Craig Housworth, Lake Jackson; Joseph Vandegriff, Brazoria, both of Tex., and Yves Verboven, Kessel-lo, Belgium, assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Apr. 14, 1997, Ser. No. 843,225

Int. Cl.^{6} A61N *1/365*

U.S. Cl. 607—14 **11 Claims**



1. A medical device for electrically stimulating the heart to contract and for distinguishing a normal heart beat from a paced FFRW, comprising:

a plurality of electrodes coupled to the heart;

a logic and control unit for initiating a pacing pulse to be delivered to the heart, said logic and control unit including memory for storing configuration values;

a pulse generator coupled to and controlled by said logic and control unit, said pulse generator delivering a pacing pulse to the heart through said plurality of electrodes;

a sense circuit disposed between said pulse generator and said logic and control unit for processing electrical activity detected in a chamber of the heart and providing a sense signal to the logic and control unit indicative of detected electrical activity in said chamber;

wherein said logic and control unit upon ventricular pacing initiates an absolute blanking period, said absolute blanking period followed by a sense period, said sense period followed by a programmable blanking period, wherein during said sense period the logic and control unit monitors said sense signal and during said absolute blanking period and said programmable blanking period the logic and control unit disables monitoring of said sense signal.

5,735,882

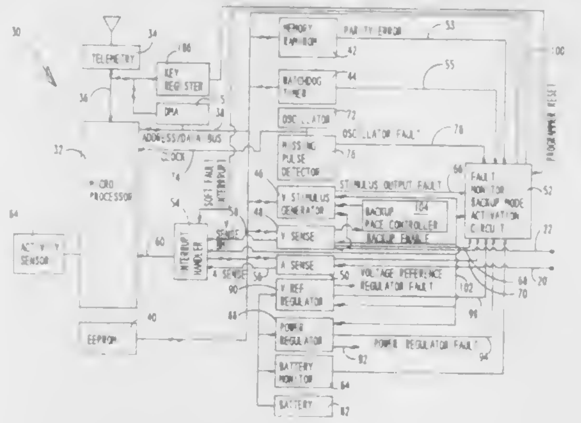
CARDIAC STIMULATOR WITH BACKUP-MODE SELF-RECOVERY

William B. Rottenberg; Patrick J. Paul, and David Prutchi, all of Lake Jackson, Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Nov. 25, 1996, Ser. No. 755,699

Int. Cl.^{6} A61N *1/37*

U.S. Cl. 607—27 **21 Claims**



1. A cardiac stimulator being operable in a normal mode and in a backup mode, said cardiac stimulator comprising:

a circuit for generating a fault signal in response to detecting a fault condition in said normal mode;

a fault monitor being coupled to said circuit to receive said fault signal, said fault monitor activating said backup mode; and

a recovery circuit operable in said backup mode, said recovery circuit automatically reactivating said normal mode.

5,735,883

IMPLANTABLE CARDIAC STIMULATOR WITH IMPEDANCE BASED AUTOTHRESHOLD

Patrick J. Paul, and David Prutchi, both of Lake Jackson, Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Dec. 13, 1996, Ser. No. 766,870

Int. Cl.^{6} A61N *1/37*

U.S. Cl. 607—28 **22 Claims**

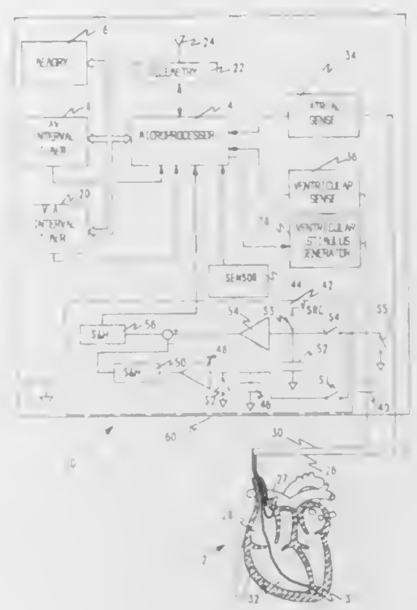
1. A cardiac stimulator, comprising:

at least one stimulus generator,

a control circuit coupled to said generator for causing said generator to generate a sequence of paired stimuli at a selected pacing rate, a leading stimulus of each pair of the paired stimuli having an adjustable energy content beginning with an energy content on one side of the capture threshold, and a trailing stimulus of each pair of the paired stimuli always having an energy content above the capture threshold;

a circuit for adjusting the energy content of the leading stimulus toward the capture threshold;

a sensor for detecting a mechanical property of the heart during a time window at a selected time after application of at least one of said stimuli; and



a circuit coupled to said sensor detecting a substantial change in magnitude in the mechanical property thereby identifying the capture threshold from the energy content of the leading stimulus.

5,735,884

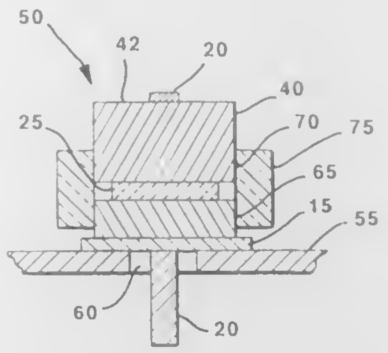
FILTERED FEEDTHROUGH ASSEMBLY FOR IMPLANTABLE MEDICAL DEVICE

David L. Thompson, Fridley, Minn.; Robert T. Sawchuk, Phoenix, Ariz., and Lynn M. Seifried, Minneapolis, Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Oct. 4, 1994, Ser. No. 317,512

Int. Cl.^{6} A61N *1/375*

U.S. Cl. 607—36 **10 Claims**



1. A feedthrough assembly disposed in an aperture of an hermetically sealed implantable medical device, the medical device comprising a metal case having an interior surface and an exterior surface, the aperture extending between the interior and exterior surfaces of the case, the feedthrough assembly comprising:

(1) an electrically conductive pin extending through the aperture such that the pin has a first end projecting from the exterior surface of the case and a second end projecting from the interior surface of the case;

(2) an insulating material supporting the pin within the aperture and in sealing engagement with the pin;

(3) an electrically conductive block spaced from the case and in electrical continuity with the pin; and

(4) an electrical protection device electrically connected at a first point to the block and electrically connected at a second point to the case.

5,735,885

METHODS FOR IMPLANTING NEURAL PROSTHETIC FOR TINNITUS

Matthew A. Howard, III; Timothy A. McCulloch, both of Iowa City, Iowa, and Carol A. Bauer, Houston, Tex., assignors to The University of Iowa Research Foundation, Iowa City, Iowa

Division of Ser. No. 332,755, Nov. 1, 1994, which is a continuation-in-part of Ser. No. 194,017, Feb. 9, 1994, Pat. No. 5,496,369. This application Feb. 6, 1996, Ser. No. 597,289

Int. Cl.^{6} A61F *2/18*

U.S. Cl. 607—55 **20 Claims**

1. A method of implanting an electrode of a neural prosthetic apparatus into an internal target zone of a patient's brain, comprising the steps of

acquiring a three dimensional digital image of the patient's brain and storing said three dimensional digital image as a first data set in a memory of a computer;

digitally subtracting data from said first data set to provide a second data set capable of being displayed as a modified three dimensional image depicting the orientation of the target zone of the patient's brain.

displaying said modified three dimensional image; and

inserting said electrode into said target zone using said modified three dimensional image as a guide, wherein said electrode comprises a plurality of electrical contacts, said prosthetic apparatus comprises a stimulation device for outputting electrical signals, each of said plurality of electrical contacts is electrically coupled to said stimulation device and is capable of outputting electrical discharges in accordance with said electrical signals.

5,735,886

MULTI-PHASIC MICROPHOTODIODE RETINAL IMPLANT AND ADAPTIVE IMAGING RETINAL STIMULATION SYSTEM

Vincent Chow, Hanover Park, Ill., and Alan Y. Chow, 191 Palomino Pl., Wheaton, Ill. 60187, assignors to Alan Y. Chow, Wheaton, Ill.

Continuation-in-part of Ser. No. 465,766, Jun. 6, 1995. This application Jun. 3, 1996, Ser. No. 642,702

Int. Cl.^{6} A61N *1/05*

U.S. Cl. 607—54 **28 Claims**

1. A retinal implant for electrically inducing formed vision in the eye, comprising a PiN microphotodiode having a P-side and an N-side where the P side of the implant has a light filter layer that selectively permits a selected bandwidth of the ultraviolet, visible, and infrared spectrum to pass, and where the N-side of the implant has a light filter layer that selectively permits a selected bandwidth of the ultraviolet, visible, and infrared spectrum to pass, whereby

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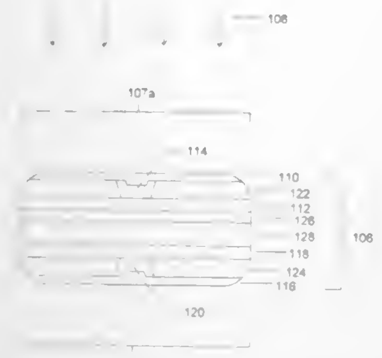
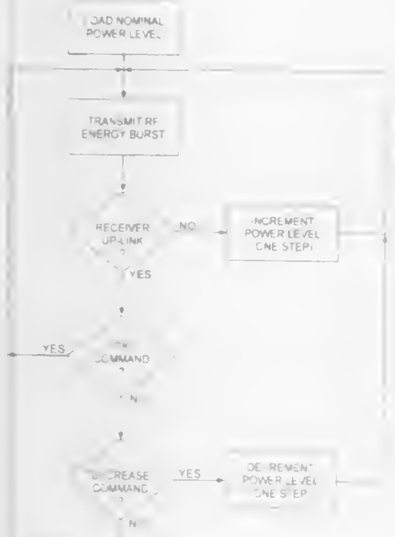


the retinal implant can stimulate the retina regardless of whether the P-side or the N-side is oriented toward light incident to the eye.

5,735,887
CLOSED-LOOP, RF-COUPLED IMPLANTED MEDICAL DEVICE

Francisco Jose Barreras, Sr., and Robert Echarri, both of Miami, Fla., assignors to Exonix Corporation, Miami, Fla.
Filed Dec. 10, 1996, Ser. No. 763,000
Int. Cl.⁶ A61N *1/00*, H04B *7/00*
U.S. Cl. 607—60 **25 Claims**



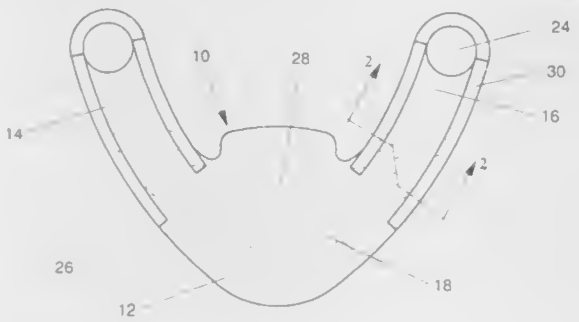
22. An implantable medical device system comprising an implantable medical device, an implantable receiver coupled to and associated with said medical device and a transmitter:
- said transmitter having means for transmitting a burst of RF energy to said implanted receiver.
- said transmitter having means for receiving information from said implanted receiver.
- said receiver having means for receiving said RF burst of energy from said transmitter and for using said burst of energy to supply an electrical signal to said implanted medical device;
- means for transmitting to said transmitter information regarding the amount of RF energy needed to supply adequate power to said receiver and means in said transmitter for adjusting the amount of RF energy transmitted to said receiver depending upon said information received from said receiver

5,735,888

Patent Not Issued For This Number

5,735,889
THERMAL NECK WRAP HAVING MEANS FOR POSITION MAINTENANCE

Timothy A. Burkett, West Chester; Kurt E. Holstein, Cincinnati; Elizabeth M. Harvey, West Chester; William R. Ouellette, Cincinnati, and Leane K. Davis, Milford, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Continuation-in-part of Ser. No. 746,359, Nov. 11, 1996. This application Dec. 20, 1996, Ser. No. 770,362
Int. Cl.⁶ A61F *7/00*
U.S. Cl. 607—96 **4 Claims**



1 A thermal neck wrap comprising:
- a) a piece of flexible material having a first wing portion, a second wing portion, a central body portion therebetween, such that when said neck wrap is placed on a user, said central body portion is centered at said user's upper back and lower neck and said first and second wing portions lay across said user's shoulders;
- b) a plurality of individual thermal elements embedded in and fixedly attached to said central body portion, said plurality of thermal elements having a pattern which approximates the shape and location of muscles in the user's upper back, lower neck, and shoulders, said plurality of thermal elements having an oxygen activated, heat generating chemistry; and
- c) adhesive patches attached to said first and second wing portions for securing said first and second wing portions to said user's chest to maintain positioning of said neck wrap across said user's shoulders.

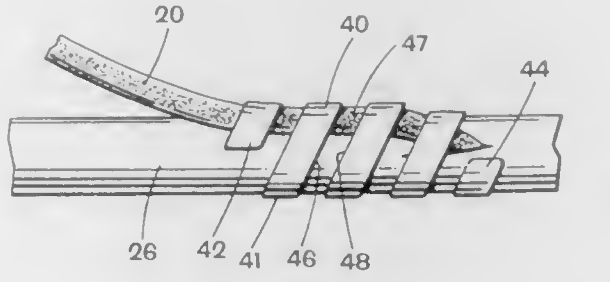
5,735,890
INFLATABLE BLANKET HAVING ACCESS SLITS

Thomas F. Kappel, St. Louis, and Philip M. Metzler, St. Charles, both of Mo., assignors to Mallinckrodt Medical, Inc., St. Louis, Mo.
Filed Oct. 18, 1995, Ser. No. 544,792
Int. Cl.⁶ A61F *7/00*
U.S. Cl. 607—104 **13 Claims**

1 An inflatable blanket for a forced air convection system comprising:
- an upper sheet of material having a generally rectangular shape with an upper end, a lower end and two sides;
- a lower sheet of material having a generally rectangular shape with an upper end, a lower end and two sides;
- wherein said upper sheet and said lower sheet are sealed together around their peripheral edges at their respective upper ends, lower ends and sides, to create an inflatable cavity having an upper end, a lower end, and two sides therebetween;
- an inflation port connecting said inflatable cavity with the atmosphere and through which inflation medium may be introduced to said inflatable cavity to inflate said blanket; and
- wherein said upper sheet and said lower sheet are further sealed together along at least one separable seal line, such that when said separable seal line is separated, portions of said blanket may be moved independently of other portions of said blanket so as to expose desired areas of a patient on which said blanket is being utilized, further including fastening means located along at least one edge of said seal line for holding portions of said blanket on opposite sides of said seal line together after said seal line has been separated

5,735,891
SELF-CLAMPING ANCHORING SLEEVE

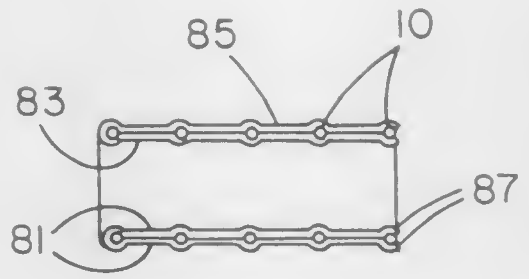
Mark A. White, Friendswood, Tex., assignor to Sulzer Intermedics Inc., Angleton, Tex.
Filed Dec. 2, 1996, Ser. No. 753,826
Int. Cl.⁶ A61N *1/05*
U.S. Cl. 607—126 **5 Claims**



1 A method for anchoring an implantable lead to a blood vessel, comprising the steps of
- (a) providing a lead, said lead having a proximal end and a distal end, an electrode adjacent said distal end and a plug adjacent said proximal end, said electrode being in electrical communication with said plug;
- (b) inserting said distal end into said blood vessel at an anchoring point such that at least a distal portion of said lead lies within said blood vessel and a proximal portion lies outside said blood vessel;
- (c) providing a sleeve separate from said lead said sleeve comprising a resilient helix having an unbiased, coiled shape;
- (d) at least partially uncoiling the sleeve;
- (e) placing the uncoiled sleeve adjacent the blood vessel at the anchoring point; and
- (f) wrapping the sleeve around the blood vessel and lead while allowing the sleeve to partially resume its unbiased, coiled shape until it engages the lead and the blood vessel

5,735,892
INTRALUMINAL STENT GRAFT

David J. Myers, Camp Verde; James D. Lewis, Flagstaff; Wayne D. House, Flagstaff, and Karl E. Schwarz, Flagstaff, all of Ariz., assignors to W. L. Gore & Associates, Inc., Newark, Del.
Filed Aug. 18, 1993, Ser. No. 109,214
Int. Cl.⁶ A61F *2/06, 2/04*
U.S. Cl. 623—1 **48 Claims**



1 A tubular intraluminal graft comprising:
- a) a tubular, diametrically adjustable stent having an exterior surface, a luminal surface and a wall, and having a multiplicity of openings through the wall of the stent;
- b) a first tubular covering of porous expanded polytetrafluoroethylene affixed to the exterior surface of the tubular, diametrically adjustable stent and having an exterior surface, a luminal surface and a seam extending from the exterior surface through to the luminal surface, and
- c) a second tubular covering of porous expanded polytetrafluoroethylene affixed to the luminal surface of the tubular, diametrically adjustable stent, and having an exterior surface, a luminal surface and a seam extending from the exterior surface through to the luminal surface;

wherein the combined thickness of the first and second tubular coverings is less than about 0.10 mm.thick exclusive of the stent.

5,735,893
EXPANDABLE STENTS AND METHOD FOR MAKING SAME

Lilip Lau, Sunnyvale; William M. Hartigan, Fremont, and John J. Frantzen, Copperopolis, all of Calif., assignors to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.
Division of Ser. No. 556,516, Nov. 13, 1995, Pat. No. 5,603,721, which is a division of Ser. No. 281,790, Jul. 28, 1994, Pat. No. 5,514,154, which is a continuation-in-part of Ser. No. 164,986, Dec. 9, 1993, which is a continuation of Ser. No. 783,558, Oct. 28, 1991, abandoned. This application Jan. 14, 1997, Ser. No. 783,097
Int. Cl.⁶ A61F *2/06*
U.S. Cl. 623—1 **13 Claims**

1. An intravascular stent for expanding and implanting in a body lumen, comprising:
- a plurality of spaced apart cylindrical rings positioned along a longitudinal axis, each of the cylindrical rings having a plurality of undulating elements in the form of a repeating pattern of substantially U-shaped members; and
- a plurality of connecting members for connecting adjacent cylindrical rings; and
- the cylindrical rings being positioned relative to each other so that the substantially U-shaped members of adjacent cylindrical rings are out of phase;
- the cylindrical rings having a delivery diameter and an implanted diameter so that as the cylindrical rings are

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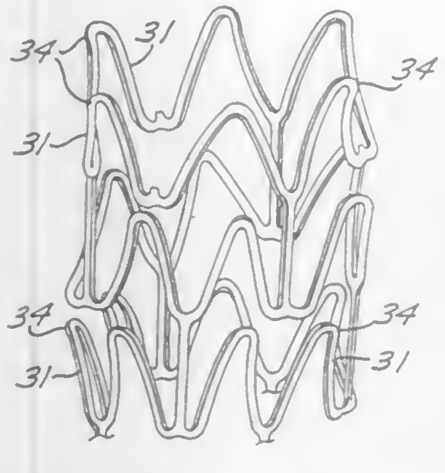
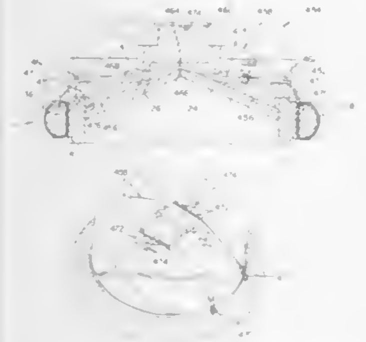


expanded from the delivery diameter to the implanted diameter at lest some of the substantially U-shaped members project radially outwardly

5,735,894
HOLDER FOR HEART VALVE PROSTHESIS

Kurt D. Krueger, Stacy, and Guy Vanney, Blaine, both of Minn., assignors to St. Jude Medical, Inc., St. Paul, Minn.
Continuation-in-part of Ser. No. 449,145, May 24, 1995, Pat. No. 5,578,076. This application May 24, 1996, Ser. No. 653,633
Int. Cl.^{6} A61F *2/24*
U.S. Cl. 623—2 **21 Claims**



1 A holder for holding a heart valve prosthesis during implantation in a patient, the heart valve having an annulus and at least one occluder carried therein moveable between an open position allowing flow through the annulus and a substantially closed position substantially blocking flow through the annulus, the holder comprising:

a holder body generally conforming to the annulus of the heart valve prosthesis;

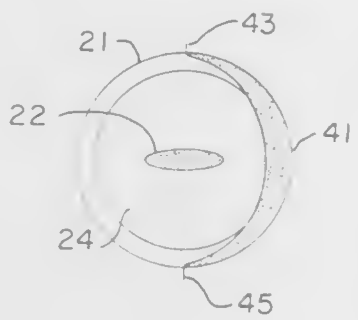
an annular extension protruding from the holder body and adapted to protrude into the annulus of the heart valve prosthesis, at least a portion of the extension adapted to generally conform to a portion of an inner surface of the heart valve prosthesis;

means coupled to the holder body for attaching the holder body to the heart valve prosthesis, wherein the means for attaching comprises an attachment suture; and

an occluder engaging compliant member adjacent the holder body adapted to engage the occluder, the member positioned to contact the occluder when the holder body is attached to the heart valve prosthesis whereby the occluder is maintained in the substantially closed position and substantially protected by the annulus of the heart valve prosthesis, wherein the occluder engaging compliant member comprises an occluder engaging suture which is adapted to extend adjacent the annulus of the heart valve prosthesis and is adapted to contact the occluder to maintain the occluder in the substantially closed position.

5,735,895
ARTIFICIAL ANIMAL EYE WITH NICTITATING MEMBRANE

John R. Rinehart, Milton, Wis., assignor to Rinehart Family Company, Janesville, Wis.
Filed Dec. 6, 1996, Ser. No. 761,643
Int. Cl.^{6} A61F *2/14*
U.S. Cl. 623—4 **5 Claims**



1 An artificial animal eye for use in taxidermy, comprising.

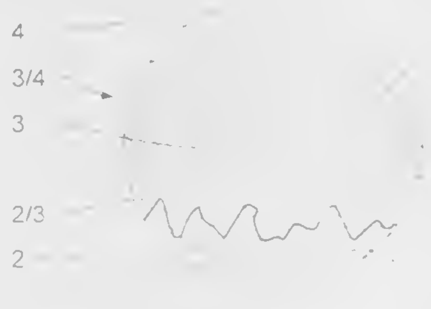
(a) a transparent artificial eyepiece blank having a concave inner surface and a convex outer surface;

(b) animal eye coloration applied on the concave inner surface of the artificial eyepiece blank; and

(c) an integrally formed nictitating membrane formed of coloration fused to the convex outer surface of the eyepiece blank along an edge thereof

5,735,896
BIOCOMPATIBLE PROSTHESIS

Michael Amon, Dormitz, and Armin Bolz, Erlangen, both of Germany, assignors to Biotronik, Berlin, Germany
Filed Apr. 6, 1995, Ser. No. 417,966
Claims priority, application Germany, Aug. 15, 1994, 44 29 380.1
Int. Cl.^{6} A61F *2/02;2/04*
U.S. Cl. 623—11 **4 Claims**



1 A biocompatible prosthesis, comprising:

a prefabricated substrate comprised of one of a metallic and a ceramic material;

a cover layer including a semiconductor material covering a surface of the substrate; and

a boundary layer having a microstructure including reciprocal bumps and dents formed between the surface of the substrate and the cover layer said bumps and dents interlocking said substrate and said cover layer

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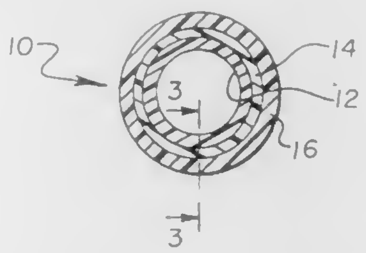
5,735,897
INTRAVASCULAR STENT PUMP

Andrew W. Buirge, Minneapolis, Minn., assignor to SciMed Life Systems, Inc., Maple Grove, Minn.
Continuation of Ser. No. 639,381, Apr. 26, 1996, abandoned, which is a continuation of Ser. No. 300,742, Sep. 2, 1994, abandoned, which is a continuation-in-part of Ser. No. 138,923, Oct. 19, 1993, abandoned. This application Jan. 2, 1997, Ser. No. 775,618
Int. Cl.^{6} A61F *2/04;2/06*
U.S. Cl. 623—12 **58 Claims**



1 An implantable device constructed and arranged in a laminate structure comprising:

first and second spaced layers of support material, at least one of said layers being fluid permeable,

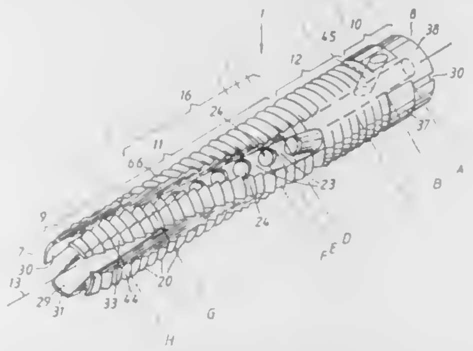
an intermediate third layer of a matrix material having fluid-swellable characteristics, the intermediate layer being held between the first and second layers, and

a drug or therapeutic contained in the intermediate layer,

wherein said device upon implantation has a predetermined outer diameter selected to correspond substantially with an inner diameter of an implant site, whereby when the device is implanted in a vessel in a body, the drug or therapeutic is pumped into the vessel in response to the swelling of the fluid-swellable matrix material.

5,735,898
ANCHORING ELEMENT SUPPORTING PROSTHESIS OR A JOINT MECHANISM FOR A RECONSTRUCTED JOINT

Per-Ingvar Brånemark, Molndal, Sweden, assignor to Medevelop AB, Gothenburg, Sweden
Continuation of Ser. No. 465,139, Jun. 5, 1995, abandoned, which is a division of Ser. No. 145,071, Oct. 27, 1993, abandoned. This application Sep. 25, 1996, Ser. No. 719,585
Claims priority, application Sweden, Oct. 29, 1992, 92 03 181
Int. Cl.^{6} A61F *2/28;* A61B *7/86*
U.S. Cl. 623—16 **3 Claims**



1 A method for supporting a prosthesis or a part thereof by attachment to a separate anchoring element, said method comprising:

step (A) of obtaining a generally cylindrical, essentially rotationally symmetric one piece anchoring element having an inner end and an opposed outer end, the element including.

a longitudinally extending center bore,

an outer wall having a wall thickness, surrounding said bore and having an outer surface,

an inner end portion located toward the inner end of said element,

an outer end portion located toward the outer end of said element,

external threads spiraling around said bore and extending over a major portion of said outer surface, and

at least one slit through said outer wall and extending from said inner end toward said outer end portion;

said outer end portion being operatively constructed for connection with said prosthesis or part thereof,

said inner end portion being operatively constructed for insertion and anchoring in bone tissue;

each slit of said at least one slit being of a spiral form with respect to said bore and extending lengthwise over a major part of said outer surface, said external threads extending over at least said major part;

each slit of said at least one slit being of a first pitch and said external threads being of a second pitch, said first pitch being substantially greater than said second pitch,

each slit of said at least one slit being provided with cutting edges for cutting bone tissue by rotating said anchoring element as said inner end portion is inserted into a hole in said bone tissue;

each slit of said at least one slit having directional spirality which is the same as a directional spirality of said external threads; and

the wall thickness of the element progressively decreases over a portion near the inner end and in a direction towards the inner end,

said method also comprising:

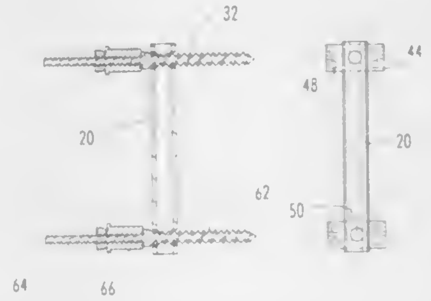
step (B) of forming a hole in bone tissue, said hole being of predetermined diameter, said external threads having an outer diameter which is larger than said predetermined diameter, and having an inner diameter substantially equal to said predetermined diameter of said hole;

step (C) of forcing said inner end portion into said hole after forming thereof is completed, and rotating said anchoring element during said forcing to have said external threads thereof cut complementary internal threads in said bone tissue; and

step (D) of thereafter attaching said prosthesis or part thereof to said outer end portion.

5,735,899
LOW PROFILE INTRAOSSEOUS ANTERIOR SPINAL FUSION SYSTEM AND METHOD

Herbert S. Schwartz; David K. Deboer, and John M. Dawson, all of Nashville, Tenn., assignors to Vanderbilt University, Nashville, Tenn.
Continuation of Ser. No. 351,837, Dec. 8, 1994, abandoned. This application Jul. 25, 1996, Ser. No. 687,291
Int. Cl.^{6} A61F *2/44*
U.S. Cl. 623—17 **15 Claims**



1 A spinal implant for use in short segment anterior fusion of a patient's spine after removal of a diseased or injured anterior

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vertebral body, the removal of the diseased or injured anterior vertebral body creating a void space in the patient's spine, said implant comprising:

a. spinal support means for fusing the patient's anterior spine and for providing load sharing support of the patient's spine when said support means is located in an anterior intraosseous position within the patient's spine, said support means comprising a cylinder of a length sufficient to traverse a distance extending from a hard bone area in an upper anterior vertebral body of the patient's spine above the void space, across the void space, and to an opposite hard bone area in a lower anterior vertebral body of the patient's spine below the void space, said cylinder having transverse bores near each end; and

b. transverse fixation means for securing said spinal support means within the patient's spine, said fixation means adapted for attachment by inserting said fixation means through a first lateral surface of the upper and lower anterior vertebral bodies above and below the void space, through the hard bone area between the first lateral surface of the upper and lower vertebral bodies and said spinal support means, through said bores in said cylinder means, through the hard bone area between said spinal support means and a second lateral surface of the upper and lower anterior vertebral bodies, and through the second lateral surface of said upper and said lower anterior vertebral bodies.

5,735,900

METHOD OF SEALING AN INTERFACE BETWEEN AN ARTICULATING PROSTHESIS AND BONE

David Barrett, London; Gordon Blunn, Bedfordshire; William Muirhead-Allwood, London, and Peter Stanley Walker, Middlesex, all of England, assignors to University College London

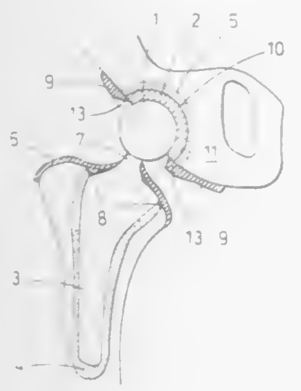
PCT No. PCT/GB94/02284, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO95/10990, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 19, 1994, Ser. No. 619,721

Claims priority, application United Kingdom, Oct. 21, 1993, 9321700

Int. Cl.^{6} A61F *2/30*

U.S. Cl. 623—18 **6 Claims**



1 A method of sealing an interface between an articulating prosthesis and a bone into which one component of the prosthesis is implanted which comprises

applying over a junction between said component and the bone a membrane having a microporous structure, whereby liquids are able to pass through the membrane but wear particles generated by mechanical wear of said prosthesis are not able to pass through the membrane; and

securing the membrane to the bone in an area surrounding the component and securing the membrane to the component so as to cover the junction.

5,735,901

ELEMENT FOR TEMPORARILY INCREASING THE RIGIDITY OF AN ORTHOPAEDIC PROSTHESIS

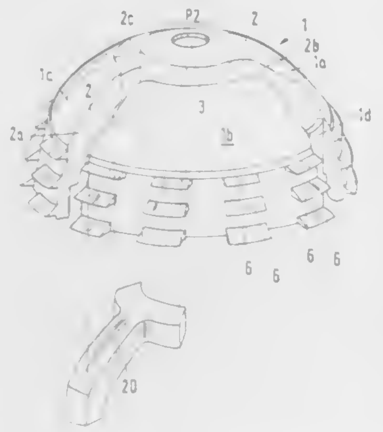
Jean Maumy, Montauban, France, and Roland Baege, Wiesendangen, Switzerland, assignors to Sulzer Medizinaltechnik AG, Winterthur, Switzerland

Division of Ser. No. 287,548, Aug. 8, 1994, abandoned. This application May 29, 1996, Ser. No. 657,453

Claims priority, application European Pat. Off., Aug. 30, 1993, 93810617

Int. Cl.^{6} A61F *2/30*

U.S. Cl. 623—18 **8 Claims**



1 A method for implanting an orthopaedic prosthesis into a patient's body, the method comprising:

inserting a biodegradable element into a recess of a prosthetic body without plastically deforming the prosthetic body, the recess being defined by at least first and second elastic elements;

substantially preventing deflection of the elastic elements toward each other with the biodegradable element,

implanting the prosthetic body into the patient's body; and

biodegrading at least a portion of the biodegradable element thereby creating space within the recess;

wherein the implanting step comprises introducing an acetabulum into a hip joint of the patient

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5,735,902

HAND IMPLANT DEVICE

Shu-Tung Li, Oakland, N.J.; Jack A. McCarthy, Omaha, Nebr.; William G. Rodkey, Edwards, and J. Richard Steadman, Vail, both of Colo., assignors to ReGen Biologics, Inc., Redwood City, Calif.

Continuation-in-part of Ser. No. 232,743, Apr. 25, 1994, Pat. No. 5,624,463, which is a continuation-in-part of Ser. No. 809,003, Dec. 17, 1991, Pat. No. 5,306,311, which is a continuation-in-part of Ser. No. 520,027, May 7, 1990, Pat. No. 5,108,438, which is a continuation-in-part of Ser. No. 317,951, Mar. 2, 1989, Pat. No. 5,007,934, which is a continuation-in-part of Ser. No. 75,352, Jul. 20, 1987, Pat. No. 5,880,429. This application Oct. 23, 1996, Ser. No. 735,891

Int. Cl.^{6} A61F *2/32*

U.S. Cl. 623—18 **20 Claims**

1 A hand augmentation device comprising a dry matrix which contains at least 75% by weight biocompatible and bioresorbable biopolymeric fibers, and has a height of 2 mm to 4 cm, a width of 0.5 cm to 6 cm, a depth of 0.5 cm to 6 cm, a density of 0.1 g/cm^3 to 0.5 g/cm^3, and a pore size of 50 μm to 300 μm.

5,735,903

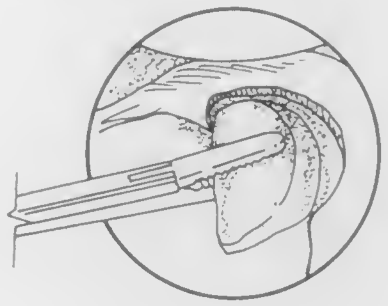
MENISCAL AUGMENTATION DEVICE

Shu-Tung Li, 1 Kiowa Ter., Oakland, N.J. 07436, and Kevin R. Stone, 1 Throckmorton La., Mill Valley, Calif. 94941

Division of Ser. No. 250,008, May 27, 1994, which is a continuation-in-part of Ser. No. 232,243, Apr. 25, 1994, Pat. No. 5,624,463, which is a continuation-in-part of Ser. No. 809,003, Dec. 17, 1991, Pat. No. 5,306,311, which is a continuation-in-part of Ser. No. 520,027, May 7, 1990, Pat. No. 5,108,438, which is a continuation-in-part of Ser. No. 317,951, Mar. 2, 1989, Pat. No. 5,007,934, which is a continuation-in-part of Ser. No. 75,352, Jul. 20, 1987, Pat. No. 4,880,429. This application Jun. 1, 1995, Ser. No. 457,971

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **12 Claims**



1 A method for fabricating a meniscal augmentation device having an in vivo shape of a segmental defect in a meniscus, comprising:

(a) placing a plurality of biocompatible and bioresorbable fibers into a mold, the fibers including natural polymers, analogs of natural polymers, or mixtures of natural polymers,

(b) lyophilizing the molded fibers to produce a dry and porous matrix;

(c) contacting the fibers with a chemical crosslinking agent such that the fibers assume the shape of the mold; and

(d) during step (a) or after step (c), shaping the outer surface of said device to be substantially complementary to that of the segmental defect in the meniscus,

thereby establishing a dry, porous volume matrix having pores the diameter of which range in size from about 50 microns to about 500 microns, the matrix, when implanted into a knee joint, forming a biocompatible and an at least partially bioresorbable scaffold for ingrowth of meniscal fibrochondrocytes and for supporting natural meniscal load forces, and whereby the in vivo outer surface of the composite of said scaffold and said meniscus is substantially the same as a natural meniscus without a segmental defect

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5,735,904

SPACER FOR ESTABLISHING PROSTHETIC GAP AND LIGAMENTOUS TENSION

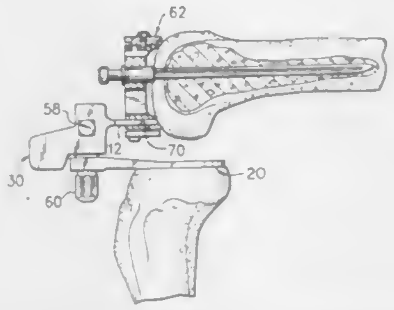
Michael J. Pappas, 61 Gould Pl., Caldwell, N.J. 07006

Filed Jul. 1, 1996, Ser. No. 666,085

Int. Cl.^{6} A61F *2/38*

U.S. Cl. 623—20 **15 Claims**

1 A template system comprising a plurality of templates for use with a corresponding plurality of prosthetic components of different respective sizes, said templates in said template system defining different respective thicknesses for establishing differently dimensioned prosthetic gaps associated with each said corresponding prosthetic component, each said template further defining a plan view surface area, templates in said system that have greater thicknesses further defining larger plan view surface areas



5,735,905

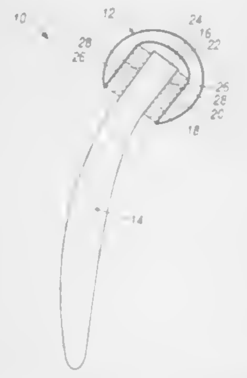
SHOCK ABSORBING ELEMENT FOR A LOAD BEARING PROSTHESIS

Charles H. Parr, San Antonio, Tex., assignor to Southwest Research Institute, San Antonio, Tex.

Continuation of Ser. No. 430,195, Apr. 27, 1995, abandoned. This application May 22, 1996, Ser. No. 651,445

Int. Cl.^{6} A61F *2/36*

U.S. Cl. 623—23 **10 Claims**



1. A femoral head prosthesis capable of passive shock absorption comprising:

a head having an outer surface and an inner surface, said outer surface being movably engageable within an inner cavity of an acetabulum;

a separate stem having two ends, a first end adapted to be inserted into a medullary canal of a femur and a second end having an end surface and a periphery, aid end surface being substantially exposed and said periphery being in mechanical communication with said inner surface of said head via an elastomeric component that allows relative movement between said head and said stem, said elastomeric component being sufficiently deformable to provide passive shock absorption

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5,735,906

HYPOBARICALLY-CONTROLLED ARTIFICIAL LIMB WITH DETENTS FOR AMPUTEES

Carl A. Caspers, 510-8 25th Ave. North, St. Cloud, Minn. 56301

Continuation-in-part of Ser. No. 506,911, Jul. 26, 1995, Pat. No. 5,549,709. This application Jun. 11, 1996, Ser. No. 661,444

Int. Cl.^{6} A61F *2/80*

U.S. Cl. 623—34 **39 Claims**

1 A hypobarically-controlled artificial limb for amputees who have a residual limb, the artificial limb comprising

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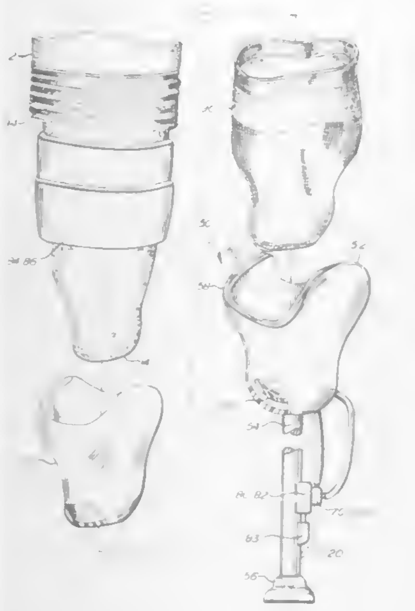


(a) an outer socket with a volume and shape to receive a substantial portion of the residual limb with a space therebetween;

(b) an inner socket with a cavity having a volume and shape for receiving a substantial portion of the residual limb and fitting in said space between said outer socket and the residual limb, said inner socket having an inner surface and an outer surface, said inner surface adapted to receive and support the residual limb, said outer surface opposing said outer socket,

(c) a vacuum source; and

(d) a vacuum valve connected to said vacuum source and in flow communication with said cavity to thereby facilitate drawing of the residual limb into firm contact with said inner surface of said inner socket.

5,735,907

METHOD OF COLORING HAIR WITH SULFO-CONTAINING WATER DISPERSIBLE COLORED POLYMERS

James J. Krutak; Dante J. Rutstrom, both of Kingsport, Tenn.; Keith C. Brown, New Canaan, and Mario L. Garcia, Stamford, both of Conn., assignors to Clairol, Inc., New York, N.Y.

Filed Jun. 7, 1995, Ser. No. 476,303

Int. Cl.^{6} A61K *7/13*

U.S. Cl. 8—405 **17 Claims**

1. A method of non-permanently coloring human hair comprising applying to the fibers a tinctorially effective amount of at least one sulfo-containing, water-dispersible, pre-formed polymer having carbonyloxy linking groups, and a colorant reacted into or onto the polymer backbone.

5,735,908

COMPOSITIONS AND PROCESSES FOR THE OXIDATIVE DYEING OF KERATIN FIBRES WITH PARA-PHENYLENEDIAMINE DERIVATIVES AND A CATIONIC SUBSTANTIVE POLYMER

Jean Cotteret, Verneuil Sur Seine, and Marie-Pascale Audousset, Asnieres, both of France, assignors to L'Oreal, Paris, France

Continuation of Ser. No. 406,418, Mar. 20, 1995, abandoned.

This application Jul. 26, 1996, Ser. No. 686,508

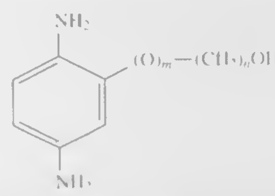
Claims priority, application France, Mar. 21, 1994, 94 03272

Int. Cl.^{6} A61K *7/13*

U.S. Cl. 8—410 **35 Claims**

1. An oxidation dye composition for keratin fibres, comprising, in a medium appropriate for dyeing,

at least one oxidation dye precursor, and optionally, at least one coupler, and at least one cationic substantive polymer which is a dimethyldiallylammonium chloride homopolymer; said at least one oxidation dye precursor being selected from para-phenylenediamines of formula (I):



(I)

in which m is an integer equal to zero or 1, and n is an integer ranging from 1 to 4, or an acid addition salt thereof, the oxidation dye precursor, and coupler if required, being present in amounts effective to react with an oxidation agent to dye said keratin fibres.

5,735,909

COMPOSITIONS AND PROCESSES FOR THE OXIDATION DYEING OF KERATIN FIBRES WITH AN OXIDATION BASE, A META-AMINOPHENOL COUPLER, AND A 6-HYDROXYINDOLINE COUPLER

Mireille Maubru, Chatou, France, assignor to L'Oreal, Paris, France

Filed Feb. 27, 1996, Ser. No. 607,857

Claims priority, application France, Feb. 27, 1995, 95 02272

Int. Cl.^{6} A61K *7/13*

U.S. Cl. 8—412 **21 Claims**

1. A composition for the oxidation dyeing of keratin fibres, said composition comprising, in a medium which is suitable for dyeing:

at least one oxidation base selected from para-phenylenediamines, acid addition salts of said para-phenylenediamines, bis(phenyl)alkylenediamines, and acid addition salts of said bis(phenyl)alkylenediamines,

at least one first coupler selected from meta-aminophenols and the acid addition salts of said meta-aminophenols, and

at least one second coupler selected from 6-hydroxyindoline and the acid addition salts of said 6-hydroxyindoline, wherein said at least one oxidation base, said at least one first coupler, and said at least one second coupler are present in amounts effective to oxidatively dye said keratin fibres.

5,735,910

2-NITRO-PARAPHENYLENEDIAMINES SUBSTITUTED BY SULPHUR IN THE 5-POSITION, THE PROCESS FOR THEIR PREPARATION, DYEING COMPOSITIONS IN WHICH THEY ARE PRESENT AND THEIR USE IN THE DYEING OF KERATIN FIBRES

Alain Lagrange, Coupvray, and Alain Genet, Aulnay Sous Bois, both of France, assignors to L'Oréal, Paris, France

Continuation of Ser. No. 409,002, Mar. 23, 1995, abandoned.

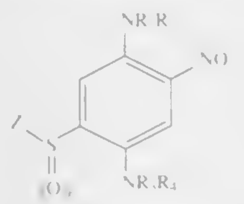
This application Dec. 31, 1996, Ser. No. 775,566

Claims priority, application France, Mar. 24, 1994, 94 03451

Int. Cl.^{6} A61K *7/13*

U.S. Cl. 8—415 **32 Claims**

1. A dyeing composition for the direct dyeing of keratin fibres which comprises in an aqueous, alcoholic or aqueous alcoholic vehicle, at least one compound of the formula (I):



(I)

in which:

n=0, 1 or 2;

R_1, R_2, R_3 and R_4, which may be identical or different, are a hydrogen atom or a linear or branched C_1–C_4-alkyl, a linear or branched C_1–C_4-monohydroxyalkyl, a linear or branched C_2–C_4 -polyhydroxyalkyl, a linear or branched C_1–C_4-aminoalkyl, a linear or branched C_1–C_4 monoalkyl-amino-$(C_1$–$C_4)$-alkyl radical, or a linear or branched C_1–C_4-dialkylamino-$(C_1$–$C_4)$-alkyl radical, and

Z is a linear or branched C_1–C_4-alkyl, a linear or branched C_1–C_4-monohydroxyalkyl, a linear or branched C_2–C_4-polyhydroxyalkyl, a linear or branched C_1–C_4-aminoalkyl, a linear or branched C_1–C_4-alkoxy-$(C_1$–$C_4)$-alkyl, a linear or branched C_1–C_4-acetylaminoalkyl, a linear or branched C_1–C_4 -monoalkylamino-$(C_1$–$C_4)$-alkyl or a linear or branched C_1–C_4 -dialkylamino-$(C_1$–$C_4)$-alkyl radical, a linear or branched tri-$(C_1$–C_4-alkylammonio-$(C_1$–$C_4)$ alkyl-$(C_1$–$C_4)$-alkyl halide or tri-$(C_1$–$C_4)$-alkylammonio-$(C_1$–$C_4)$-alkyl-$(C_1$–$C_4)$-alkysulphate, a substituted or unsubstituted benzyl, a substituted or unsubstituted phenyl, a linear or branched C_1–C_4 -sulphoalkyl or a linear or branched C_1–C_4-alkoxycarbonyl-$(C_1$–$C_4)$-alkyl radical; or a cosmetically acceptable salt thereof, wherein said at least one compound of the formula (I) or salt thereof is present in an amount effective to directly dye said keratin fibres.

5,735,911

FIBRE-REACTIVE DYES AND DYE MIXTURES AND THEIR USE

Athanassios Tzikas, Pratteln, Switzerland, assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

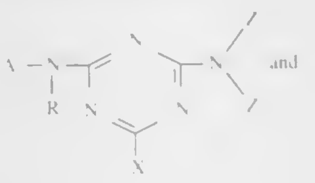
Continuation of Ser. No. 456,215, May 31, 1995, Pat. No. 5,612,463, which is a continuation of Ser. No. 48,082, Apr. 15, 1993, Pat. No. 5,451,665, which is a division of Ser. No. 764,555, Sep. 20, 1991, Pat. No. 5,232,462. This application Jan. 2, 1997, Ser. No. 775,920

Claims priority, application Switzerland, Sep. 25, 1990, 3077/90

Int. Cl.^{6} C09B *67/22*, **D06P** *1/38, 3/66*

U.S. Cl. 8—547 **13 Claims**

1. A dye mixture, which contains dyes of the formulae



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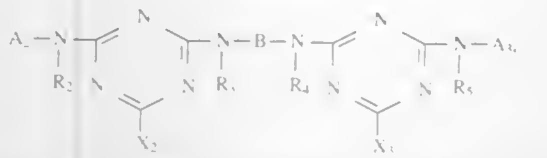


(2)

in which A_1, A_2 and A_3, independently of one another, are the radical of a monoazo, polyazo, metal complex azo, anthraquinone, phthalocyanine, formazan, azomethine, dioxazine, phenazine, stilbene, triphenylmethane, xanthene, thioxanthone, nitroaryl, naphthoquinone, pyrenequinone or perylenetetracarbimide dye, R_1, R_2, R_3, R_4 and R_5, independently of one another, are hydrogen or C_1–C_4alkyl, which can be substituted by halogen, hydroxyl, cyano, C_1–C_4alkoxy, C_1–C_4alkoxycarbonyl, carboxyl, sulfamoyl, sulfo or sulfato, B is an aromatic bridging member, and Z_1 and Z_2 are hydrogen or an aliphatic, aromatic or heterocyclic radical, or Z_1 and Z_2, together with the nitrogen atom linking them, form a five- to seven-membered ring, which apart from C atoms can contain further heteroatoms, and X_1, X_2 and X_3, independently of one another, are fluorine, chlorine, bromine, sulfo or carboxypyridinium.

5,735,912

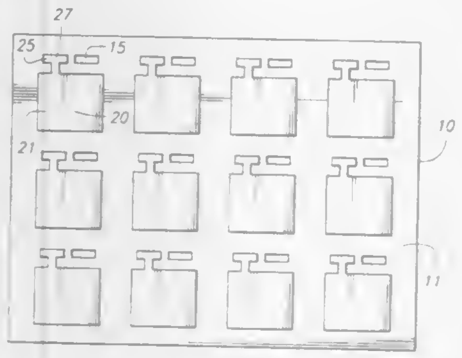
METHODS OF FORMING BATTERY ELECTRODES

Rickie C. Lake, Eagle, Id., assignor to Micron Communications, Inc., Boise, Id.

Continuation-in-part of Ser. No. 71,463, Jun. 2, 1993, Pat. No. 5,624,468. This application May 14, 1996, Ser. No. 645,614

Int. Cl.^{6} H01M *4/08;6/40*

U.S. Cl. 29—623.5 **15 Claims**



1. A method of making a battery electrode comprising fusing an alkali metal onto a previously patterned conductive polymer ink, the conductive polymer ink comprising metal flecks dispersed in a polymeric material.

5,735,913

NICKEL HYDROGEN STORAGE CELL

Yannick Borthomieu, Poitiers, France, assignor to SAFT, Romainville, France

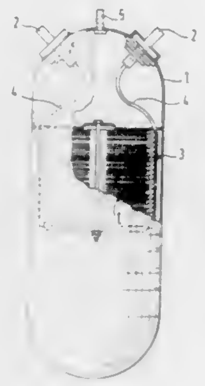
Filed Jun. 12, 1996, Ser. No. 662,373

Claims priority, application France, Jun. 13, 1995, 95 06986

Int. Cl.^{6} H01M *4/02*

U.S. Cl. 29—623.1 **4 Claims**

1. A nickel hydrogen storage cell comprising at least one negative electrode providing a negative capacity and at least one positive electrode providing a positive capacity, the electrochemically active material of said at least one positive electrode containing a majority of nickel hydroxide being deposited electrochemically in the pores of a three-dimensional porous conductive support, wherein the ratio of said positive capacity over said negative capacity lies in the range 1.02 to 1.10, said active material of said at least one positive electrode being covered in cobalt hydroxide after said deposition.



5,735,914

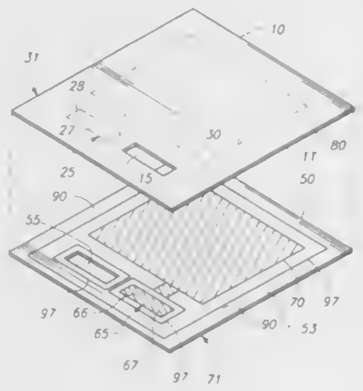
METHOD FOR FORMING BATTERY CONSTRUCTIONS

Rickie C. Lake, Eagle, Id., assignor to Micron Communications, Inc., Boise, Id.

Division of Ser. No. 645,614, May 14, 1996, which is a continuation-in-part of Ser. No. 71,463, Jun. 2, 1993, Pat. No. 5,624,468. This application Apr. 15, 1997, Ser. No. 842,594

Int. Cl.^{6} H01M *6/46;6/40*

U.S. Cl. 29—623.5 **9 Claims**



1. A method of forming a battery, comprising the steps of providing a cathode base, the cathode base comprising:

- a first nonconductive surface;
- a first conductive layer superjacent the first nonconductive surface, the first conductive layer comprising a first area; and
- a cathode layer over the first conductive layer leaving at least a portion of the first area exposed; providing an anode base, the anode base comprising:
  - a second nonconductive surface;
  - a second conductive layer over the second nonconductive surface, the second conductive layer comprising a second area;
  - an anode layer over the second conductive layer leaving at least a portion of the second area exposed, the anode layer comprising an alkali metal; and
  - aligning and coupling the anode layer of the anode base with the cathode layer of the cathode base to form the battery wherein the aligning and coupling leaves at least a portion of the first area and at least a portion of the second area exposed for electrical connection.

5,735,915

SIMPLIFIED PROCESS FOR PRODUCTION OF ALKENYLSUCCINIMIDES OR POLYALKENYLSUCCINIMIDES

Patrick Gateau, Maurepas; Daniel Binet, Rueil Malmaison; Fabrice Paille, Saint Maur des Fosses, and Jean-Pierre Durand, Chatou, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jan. 17, 1997, Ser. No. 784,382

Claims priority, application France, Jan. 18, 1996, 96 00645

Int. Cl.^{6} C10L *1/22*, **C10M** *133/16*

U.S. Cl. 44—347 **18 Claims**

1. A simplified process for preparation of an alkenylsuccinimide or a polyalkenylsuccinimide, comprising a stage (a) in which an alkenylsuccinic anhydride or a polyalkenylsuccinic anhydride is prepared by bringing about an ene-synthesis reaction between at least one olefin or one polyolefin and at least one unsaturated dicarboxylic anhydride that is unsubstituted maleic anhydride or a maleic anhydride substituted by 1 or 2 methyl groups, characterized in that said reaction is toluene or xylene at a ratio of between 30 and 70% by weight relative to the reaction mixture, in which a fraction of said unsaturated dicarboxylic anhydride does not react with said olefin or polyolefin; a stage (b) in which the resultant product of stage (a) that contains unsaturated, unreacted dicarboxylic anhydride is reacted with at least one alcohol or an amine to form a soluble moiety; and a stage (c) in which the resultant product that is obtained in stage (b) is reacted with an amine having a higher activity than the soluble moiety produced in step (b), so as to form said alkenylsuccinimide or polyalkenylsuccinimide.

5,735,916

PROCESS FOR PRODUCTION OF LIGNIN FUEL, ETHYL ALCOHOL, CELLULOSE, SILICA/SILICATES, AND CELLULOSE DERIVATIVES FROM PLANT BIOMASS

James Lewis Lucas, and Fred E. Martin, both of 3950 Via Real #265, Carpinteria, Santa Barbara, Calif. 93013

Continuation-in-part of Ser. No. 460,493, Jul. 13, 1995, abandoned. This application Sep. 16, 1996, Ser. No. 713,127

Int. Cl.^{6} C10L *5/44*

U.S. Cl. 44—605 **5 Claims**

1. A method for producing lignin fuel, silica/sodium oxide, cellulose, and cellulose derivatives from plant biomass comprising the steps of placing plant biomass in a hammermill or ball mill and grinding the plant biomass to 45 to 55 mesh, feeding the reduced size biomass into the first counter-current extractor, admixing the biomass with a mild acid solvent solution of acetic, carbonic hydrochloric, phosphoric, or sulfuric acid at a temperature between 40 and 60 degrees C. and a residence time between 50 and 70 minutes,

- withdrawing a solvent stream from the first counter-current extractor containing 5-carbon sugars, soluble salts, soluble plant proteins, and soluble polypeptides which is passed to a fermentation tank where the 5-carbon sugars are fermented to ethanol,
- withdrawing a solid material stream from the first counter-current extractor and passing the solid material stream through a belt-press filter, dewatering the solid material to between 70% and 80% total solids, and feeding the dewatered solid material stream into a second counter-current extractor, admixing the solid material with a caustic hydroxide solution, dissolving the lignin and silica,
- withdrawing a solvent stream from the second counter-current extractor containing the lignin and caustic silicate and passing the solvent to an ultrafiltration membrane system, separating and concentrating the lignin from the solvent containing the caustic silicate solution,
- withdrawing from the ultrafiltration membrane unit a caustic silicate solution whereby a silica caustic oxide solution is produced,
- withdrawing between 10% and 20% of the caustic silicate solution from the ultrafiltration membrane unit and sending the caustic silicate solution to the caustic solvent added to the second counter-current extractor as a feed back solvent,
- withdrawing the solid stream from the second counter-current extractor and passing the solid stream to a washing centrifuge,
- withdrawing the solid stream from the washing centrifuge and passing the solid to a belt-press filter dewatering the solid to 75% total solids,
- withdrawing the solid from the belt-press filter and passing the solid to a tank wherein the solid cellulose material is converted to a glucose stream using acid hydrolyzing enzymes,
- withdrawing the glucose liquid stream from the hydrolyzing solution and passing the glucose stream to a fermentation tank wherein the glucose is converted to ethanol, carbon dioxide, and water,
- withdrawing an ethanol stream from the fermentation tank and passing the ethanol solution to a distillation unit,
- withdrawing 200 proof (100%) ethanol stream from the distillation unit, passing the ethanol stream to a mixing tank wherein the lignin is mixed with the ethanol in a mixture ratio of 3.8 parts ethanol and 1.0 part lignin (weight/weight) ratio,
- withdrawing the solid from the fermentation tank consisting of spent fermentation organisms and sending these solids to dewatering and drying whereby producing a high protein animal feed,
- withdrawing the ethanol-lignin mixture from the mixing tank thereby producing a high energy petroleum-type fuel

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5,735,917

METHOD OF PROMOTING CARBONIZATION IN THE DOOR REGION OF A COKE OVEN AND OVEN DOOR THEREFOR

Keizo Inoue, Ibaragi, and Hideyuki Kunimasa, Chiba, both of Japan, assignors to The Japan Iron and Steel Federation, Japan

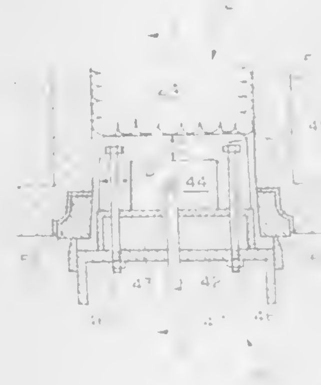
PCT No. PCT/JP95/01536, § 371 Date Apr. 2, 1996, § 102(e) Date Apr. 2, 1996, PCT Pub. No. WO96/04352, PCT Pub. Date Feb. 15, 1996

PCT Filed Aug. 2, 1995, Ser. No. 619,616

Claims priority, application Japan, Aug. 2, 1994, 6-201446; Apr. 18, 1995, 7-117867

Int. Cl.^{6} C10J *3/00*

U.S. Cl. 48—201 **10 Claims**



1. A method for promoting carbonization in a door region of a coke oven comprising the steps of providing a gas passage formed on an inner side of the coke oven door, introducing into said gas passage a combustible gas which is generated during carbonization of coal in the coke oven and introducing an oxygen containing gas into said gas passage, preventing ingress of charged coal into the gas passage and combusting the combustible gas in the gas passage, whereby carbonization of coal in the door region is promoted.

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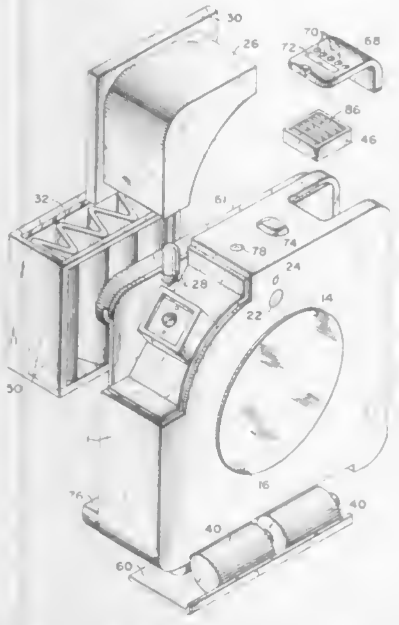
5,735,918

COMBINATION AIR FRESHENER AND AIR FILTER

George Barradas, 15 River View Ct., Greenwich, Conn. 06831
Filed Nov. 19, 1996, Ser. No. 752,251
Int. Cl.^{6} B01D *35/14*
U.S. Cl. 55—274 **15 Claims**

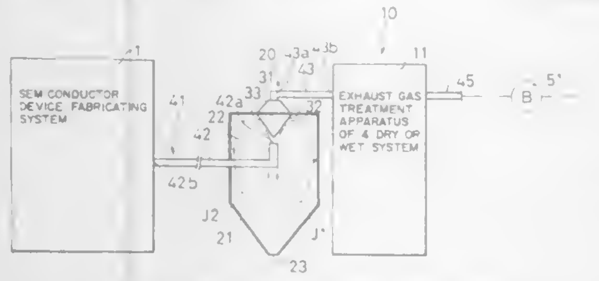


1 A combination portable self-contained automatic air freshener and air filter device for placement in a room comprising: a housing having a motor and rotating fan blades connected to said motor, at least one filter element in said housing and located downstream of said fan blades element, a first air exit in said housing located downstream of said fan blades and filter element, a first part of said room air being conducted through said filter element to produce filtered air, said filtered air being discharged out of said first exit in said housing to the room, an apertured receptacle in said housing, a fragrance element in said receptacle, a conduit for conducting another part of said room air in said housing through said conduit and said fragrance element and receptacle, a second air exit in said housing, said another part of said room air being discharged out of said second exit in said housing whereby aroma is generated in the room.

5,735,919

EXHAUST GAS PROCESSING SYSTEM

Seiichi Fujii, Tokyo, and Hiroshi Nagano, 6-19-8 Shikama, Adachi-ku, Tokyo 123, both of Japan, assignors to Suntec System Co., Ltd., and Hiroshi Nagano, both of Tokyo, Japan
Filed Dec. 16, 1996, Ser. No. 766,124
Claims priority, application Japan, Dec. 14, 1995, 7-326114
Int. Cl.^{6} B04B *15/02*
U.S. Cl. 55—331 **15 Claims**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SEMICONDUCTOR DEVICE FABRICATING SYSTEM
EXHAUST GAS TREATMENT APPARATUS OF A DRY OR WET SYSTEM
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1 In an exhaust gas processing system comprising means for treating an exhaust gas, means for supplying a particle-containing exhaust gas from a semiconductor device fabricating system to the exhaust gas treating means through an exhaust gas discharge line and means for inducing a negative pressure in the exhaust gas treating means to induce the flow of the particle containing exhaust gas thereto, the improvement comprising said exhaust gas discharge line comprising a front exhaust pipe and a rear exhaust pipe and a particle separating apparatus for removing the particles from the particle-containing exhaust gas provided between said front and rear exhaust pipes, said particle separating apparatus comprising a gas vessel which defines a gas chamber for receiving the particle-containing exhaust gas from the front exhaust pipe and an exhaust gas guide member disposed in the gas chamber, said exhaust gas guide member having guide walls which define an internal space therein and are provided with openings through which the internal space communicates with the gas chamber, said front exhaust pipe introducing the particle-containing exhaust gas against outer surfaces of the guide walls such that the particle-containing exhaust gas flows in vertical, whirling currents in the gas chamber to effect separation of particles from the exhaust gas by centrifugal force

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5,735,920

METHOD OF MANUFACTURING OPTICAL GLASS ELEMENT

Masaki Omori, Kawasaki; Hiroe Tanaka; Takeshi Nomura, both of Tokyo; Kiyoshi Yamamoto; Masayuki Tomida, both of Yokohama; Masashi Mashige, and Shizuo Maruyama, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 651,511, May 22, 1996, abandoned, which is a division of Ser. No. 254,064, Jun. 3, 1994, abandoned. This application Aug. 28, 1997, Ser. No. 919,334
Claims priority, application Japan, Jun. 8, 1993, 5-137774; May 24, 1994, 6-109388
Int. Cl.^{6} C03B *11/16*
U.S. Cl. 65—29.18 **2 Claims**

1 A method of manufacturing an optical glass element having a required refractive index, comprising the steps of

(a) selecting a glass material such that a refractive index of said material before press molding in a molten state differs from a refractive index of said material after said press molding by a value between 10×10^{-5} and 600×10^{-5};

(b) melting and heating said glass material to achieve a molten state;

press-molding said glass material at predetermined molding conditions

(d) measuring a difference between a refractive index of said glass material before said press-molding and a refractive index of said glass material after said press-molding;

(e) changing the composition of said glass material to have a refractive index calculated by subtracting said difference measured in step (d) from the required refractive index, by adding at least one member selected from the group consisting of SiO_2, BaO, and B_2O_3 to said glass material.

(f) press-molding a glass material of a composition determined in step (e) at said predetermined molding conditions; and

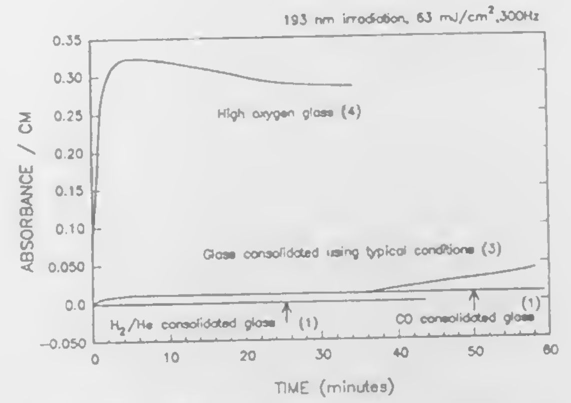
(g) repeating said steps (d), (e) and (f) until the required refractive index is obtained, and using the final composition of the glass material for production of the optical glass element.

5,735,921

METHOD OF REDUCING LASER-INDUCED OPTICAL DAMAGE IN SILICA

Roger J. Araujo, Horseheads; Nicholas F. Borrelli, Elmira; Christine L. Hoaglin, Campbell, and Charlene Smith, Corning, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.
Continuation-in-part of Ser. No. 484,465, Jun. 7, 1995, abandoned. This application Dec. 10, 1996, Ser. No. 762,513
Int. Cl.^{6} C03B *37/00; 37/018; 37/01;* G02B *6/18*
U.S. Cl. 65—32.1 **8 Claims**

1 In a method for making a non-porous body of high purity fused silica glass, comprising the steps of



a.) producing a gas stream containing a silicon containing compound in vapor form capable of being converted through thermal decomposition with oxidation or flame hydrolysis to SiO_2,

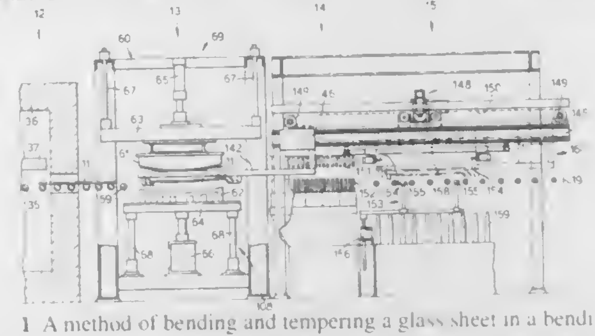
b.) passing the gas stream into the flame of a combustion burner to form amorphous particles of fused SiO_2 containing excess oxygen and

c.) depositing the amorphous particles onto a support, the improvement being the steps of exposing the amorphous particles to a reducing atmosphere having an oxygen chemical potential lower than that of the amorphous particles of fused silica, diffusing excess oxygen from the particles to the atmosphere without reacting with said reducing atmosphere and consolidating the deoxygenated particles into a non-porous body of fused silica glass which is essentially free of excess oxygen, and water.

5,735,922

METHOD OF BENDING AND TEMPERING GLASS SHEETS

Alan Charles Woodward, Winstanley, United Kingdom; Hans-Dieter Funk, Witten, Germany; Richard A. Herrington, Walbridge, Ohio, and Kazunori Yuki, Doshomachi, Japan, assignors to Pilkington Glass Limited, Merseyside, United Kingdom; Flachglas Aktiengesellschaft, Furth, Germany; Libbey-Owens-Ford Company, Toledo, Ohio, and Nippon Sheet Glass Co., Limited, Osaka, Japan
Continuation of Ser. No. 420,653, Apr. 12, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 808,683
Claims priority, application United Kingdom, Apr. 15, 1994, 9407610
Int. Cl.^{6} C03B *23/035*
U.S. Cl. 65—104 **14 Claims**



1 A method of bending and tempering a glass sheet in a bending apparatus including a furnace for heating the sheet, a press bending station having upper and lower press members with opposed complementary shaping surfaces, the upper press member being a vacuum mould that is operable under reduced pressure, and a shuttle carrier ring, the glass sheet having several portions and a periphery, and the shuttle carrier ring conforming to the periphery of the sheet, wherein the method comprises the steps of

heating a glass sheet that is up to 4.2 mm thick to a heat softened condition in said furnace, including heating at least one portion of the sheet to a higher temperature than another portion,

conveying the sheet out of the furnace and into said press bending station,

shaping the sheet by pressing it between said opposed complementary shaping surfaces provided on said upper and lower press members, with at least one of the press members being internally heated to maintain the shaping surface of the at least one press member at a temperature within the range of 200° C. to 350° C. during shaping to thereby bend the glass sheet in two directions disposed at right angles to one another,

transferring the bent glass sheet onto said shuttle carrier ring, by supporting the bent glass sheet on the shaping surface of the upper press member by way of reduced pressure within the upper press member,

lowering the lower press member relative to the upper press member,

moving the shuttle carrier ring and the upper press member relative to each other to bring the shuttle carrier ring into position below the upper press member,

lowering the upper press member towards the shuttle carrier ring in a controlled fashion until the upper press member is close to and slightly above the shuttle carrier ring, and

releasing the bent glass sheet from the upper press member so that the bent glass sheet is accurately placed upon the shuttle carrier ring,

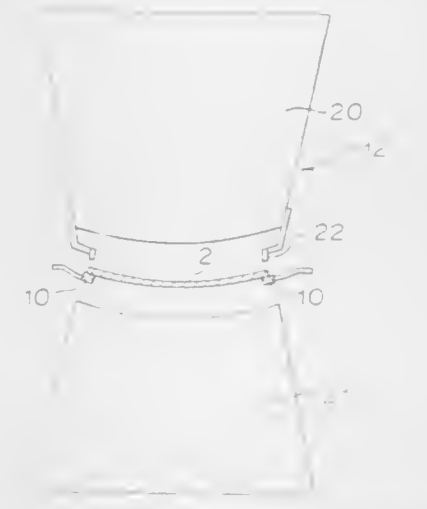
tempering the bent glass sheet, while supported on the carrier ring, by quenching the surfaces of the sheet, and

removing the bent and tempered glass sheet from the carrier ring.

5,735,923

METHOD OF AND APPARATUS FOR COOLING AND TEMPERING A GLASS PLATE

Katsumi Hisaeda, Taketoyo-machi, Japan, assignor to Asahi Glass Company Ltd., Tokyo, Japan
Continuation of Ser. No. 282,432, Jul. 29, 1994, abandoned. This application Apr. 8, 1997, Ser. No. 838,323
Claims priority, application Japan, Jul. 30, 1993, 5-208399
Int. Cl.^{6} C03B *23/02*
U.S. Cl. 65—104 **8 Claims**



1 A method of cooling and tempering a glass plate, the method comprising the steps of

placing a glass plate to be cooled and tempered in a substantially horizontal state on a cooling support ring,

arranging upper and lower cooling air jetting-out devices at upper and lower sides of the glass plate; and

jetting out cooling air from the upper cooling air jetting out device in a downward direction toward an upwardly facing surface of the glass plate, and from the lower cooling air jetting out device in an upward direction toward a downwardly facing surface of the glass plate, wherein the pressure of cooling air jetted out from the lower cooling air jetting out device is higher than that from the upper cooling air jetting

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out device to thereby raise the glass plate from the cooling support ring, caused by the pressure difference between the cooling air from the upper and the lower cooling air jetting out devices, upwardly pressing a peripheral portion of the glass plate against a contact ring having a shape corresponding to the peripheral portion of the glass plate and disposed at a side, facing the glass plate, of the upper cooling air jetting-out device so as to maintain a distance between the upwardly facing surface of the glass plate and a lower surface of the upper cooling air jetting-out device, to thereby cool and temper the glass plate under a condition that the glass plate is raised against the contact ring and said distance is kept between the glass plate and the upper cooling air jetting-out device

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5,735,924

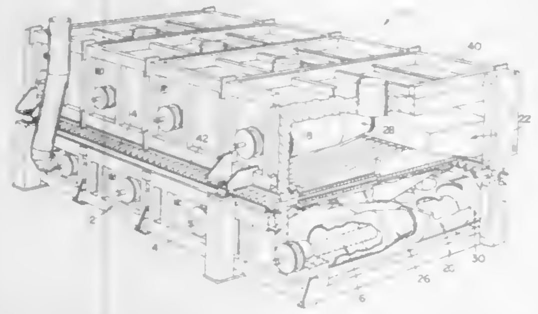
PROCESS FOR HEATING GLASS SHEETS THEREWITHIN A FORCED CONVECTION HEATING APPARATUS BY CONTROLLING IMPINGEMENT VELOCITY

Kenneth R. Kormanyos, Sylvania, Ohio, assignor to Gas Research Institute, Chicago, Ill.

Division of Ser. No. 263,649, Jun. 20, 1994, Pat. No. 5,672,191. This application Dec. 19, 1996, Ser. No. 769,763

Int. Cl.⁶ C03B *25/08*

U.S. Cl. 65—111 **4 Claims**



1. A process for heating a sheet of glass in a forced convection heating apparatus, wherein the apparatus includes a housing having an interior region and the glass sheet has a top and bottom surface, the process comprising the steps of

inserting a glass sheet into the interior region of the housing,
producing hot combustion gases from at least one gas burner;
distributing the hot combustion gases from at least one gas burner toward and into operable contact with at least a portion of the top and bottom surfaces of the glass sheet within the interior region of the housing;
controlling impingement velocity of the hot combustion gases being distributed toward and onto the bottom surface of the glass sheet within the interior region of the housing, and
controlling impingement velocity of the hot combustion gases being distributed toward and onto the top surface of the glass sheet within the interior region of the housing, the controlling of the impingement velocity of the hot combustion gases which are being distributed toward and onto the top and bottom surfaces, respectively, of the glass sheet, being controllable independently of each other.

5,735,925

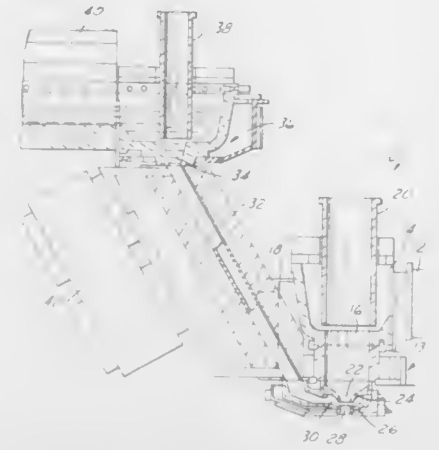
METHOD AND APPARATUS FOR DELIVERING A CASED GLASS STREAM

Garrett L. Scott, Toledo, Ohio, assignor to Owens-Brockway Glass Container Inc., Toledo, Ohio

Filed Sep. 20, 1996, Ser. No. 716,918

Int. Cl.⁶ C03B *5/16, 7/00*

U.S. Cl. 65—121 **34 Claims**



1. In a method of forming a glass stream comprising a first inner layer and a second outer layer which includes providing a spout having a first generally vertical orifice, delivering molten glass from a first source through said first orifice, and delivering glass from a second source such that the glass from said second source provides an outer layer about the glass from the first source, the improvement comprising:

providing a resistance heated tube assembly, having an inlet end and an outlet end through which the glass flows from said second glass source for said outer layer,
providing an electrically heated collar below said spout between said spout and said first orifice,
providing a second orifice in vertically spaced aligned relation below said first orifice,
providing an annular chamber around said second orifice,
positioning said tube assembly such that the inlet end receives glass from said second source and the outlet end delivers glass to said annular chamber,
delivering glass from said first source through said first orifice to and through said second orifice,
delivering glass from said second source from the outlet end of said resistance heated tube assembly to said annular chamber and between said first and second orifices such that said glass from said second source provides an outer layer to said glass from said first source, and glass flowing through said second orifice comprises said first inner layer and said second outer layer, and
providing a casing about said electrically heated collar and providing a generally vertical notch in said casing into which said outlet end of said tube assembly is positioned.

11. In an apparatus for forming a glass stream comprising a first inner layer and a second outer layer which includes a spout having a first generally vertical orifice, means for delivering molten glass from a first source through said first orifice, and means for delivering glass from a second source such that the glass from said second source provides an outer layer about the glass from the first source, the improvement comprising:

a resistance heated tube assembly having an inlet end and an outlet end through which the glass flows from said second source for the outer layer,
an electrically heated collar below said spout between said spout and said first orifice,
a second orifice in vertically spaced relation below said first orifice,
an annular chamber around said second orifice, said tube assembly being positioned such that the inlet end receives glass from said second source and the outlet end delivers glass to said annular chamber, such that glass from said first source is delivered through said spout, said first orifice and said second orifice in sequence, and glass from said second source flows from the outlet end of said resistance heated tube assembly to said annular chamber and between said first and second orifices such that said glass from said second source provides an outer layer to said glass from said first source, and glass flowing through said second orifice comprises said first inner layer and said second outer layer, and
a casing about said electrically heated collar, said casing including a generally vertical notch in said casing in which said outlet end of said resistance heated tube assembly is disposed.

5,735,926

APPARATUS FOR THE DRIVING OF PLUNGERS IN A FEEDER OF A GLASS FORMING MACHINE

Hermann Bögert, Auetal; Gerhard Geisel, Bückeburg, and Heinz Hermening, Porta Westfalica, all of Germany, assignors to The Firm Hermann Heye, Obernkirchen, Germany

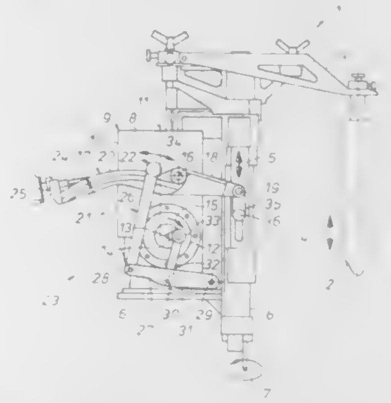
PCT No. PCT/EP95/00588, § 371 Date Feb. 21, 1996, § 102(e) Date Feb. 21, 1996, PCT Pub. No. WO96/00192, PCT Pub. Date Jan. 4, 1996

PCT Filed Feb. 18, 1995, Ser. No. 600,937

Claims priority, application Germany, Jun. 23, 1994, 9410301 U

Int. Cl.⁶ C03B *11/06, 5/26, 7/00; 5/28*

U.S. Cl. 65—362 **19 Claims**



1. Apparatus for the motorized lifting of at least one plunger which is movable into and out of a feeder head of a feeder for a glass forming machine, said apparatus comprising,

a tilt lever mounted for rising and falling movement on a horizontal bearing shaft which is fixed relative to the apparatus, said tilt lever having one arm coupled to a plunger holder which can be raised and lowered, and another arm;
a link member with which said other arm of said tilt lever cooperates, said link member being adjustable along said other arm to change the stroke of the plunger;
a drive system comprising an electric servodrive having a take-off shaft, said servodrive being connected to said link member and controllable by electronic control means, and said servodrive being fixed relative to the apparatus;
a crank fixed to the take-off shaft of said servodrive;
a tie rod on which said link member is arranged;
a pivot lever mounted at a bearing point fixed in relation to the apparatus, said tie rod being coupled at a coupling point to a free end of said pivot lever; and
a push rod having a first end coupled to said pivot lever between said bearing point and said coupling point of said pivot lever, and a second end coupled to said crank.

5,735,927

METHOD FOR PRODUCING CORE/CLAD GLASS OPTICAL FIBER PREFORMS USING HOT ISOSTATIC PRESSING

Jashinder Sanghera, Greenbelt, Md.; Pablo Pureza, Burke; Ishwar Aggarwal, Fairfax, both of Va., and Robert Miklos, LaPlata, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

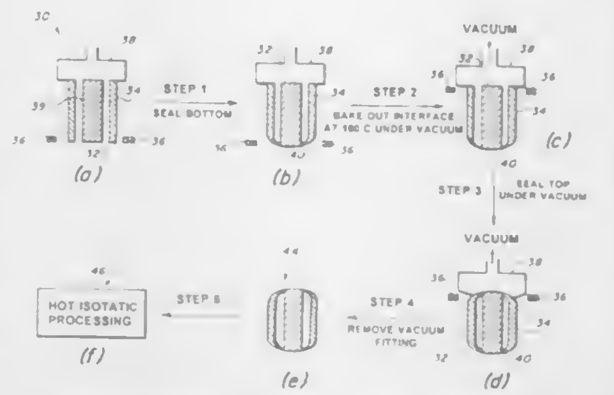
Filed Jun. 28, 1996, Ser. No. 672,771

Int. Cl.⁶ C03B *37/012*

U.S. Cl. 65—389 **16 Claims**

13. A method of forming a glass preform having a glass core and a glass cladding, said preform being useful as an optical fiber preform, said method comprising:

(i) inserting a glass core rod into a cladding glass tube sized so that a space remains between said rod and tube,
(ii) heating one end of said tube to soften and collapse it onto said rod and form a first hermetic seal while inert gas flows through said space and out of said space through said hot



portion being sealed to prevent volatile products from condensing in said space during formation of said seal,
(iii) vacuum outgassing said space between said rod at a temperature below which soot forms;
(iv) softening the other end of said tube to collapse it onto said rod to form a second hermetic seal while maintaining a vacuum in said space, thus sealing said space and forming a sealed composite having a vacuum in said sealed space between said seals and wherein said sealed space is essentially free of soot, and
(v) hot isostatically pressing said composite above all glass transition temperatures of said tube and said rod to collapse said tube onto said rod and eliminate said sealed space and reduce the occurrence and size of any bubbles in the glass;
cooling said hot isostatically compressed composite to below all glass transition temperatures of said rod and said tube to form a preform.

5,735,928

APPARATUS FOR MANUFACTURING A VITREOUS SILICA ARTICLE

Ian George Sayce, Northumberland; Robert Nicholson, Tyne & Wear; Paul Willikam Turnbull, Northumberland, and Peter John Wells, Tyne & Wear, all of United Kingdom, assignors to TSL Group PLC, United Kingdom

PCT No. PCT/GB94/01304, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO95/00450, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 16, 1994, Ser. No. 553,701

Claims priority, application United Kingdom, Jun. 18, 1993, 9312634

Int. Cl.⁶ C03B *37/018*

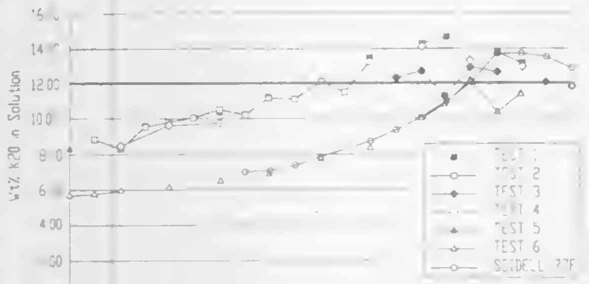
U.S. Cl. 65—531 **21 Claims**

1. A linear burner for the synthesis of silica by vapour-phase reaction of a silicon-containing feedstock in a flame and for the deposition of the resulting soot on a bait piece held adjacent to the burner, which burner comprises at least five slots opening to an exit face of the burner and extending side by side in the elongate direction of the linear burner, and includes means to supply a

separate gas flow to each of said slots, wherein said supply means comprises an assembly of separator plates disposed between opposed casing parts, the separator assembly defining the slots and at least one of the casing parts defining at least part of a respective plenum chamber for each gas flow, each plenum chamber communicating with a different one of said slots in the separator assembly.

5,735,929
HIGH SOLUBILITY K2SO/KN04 CONPOSITIONS

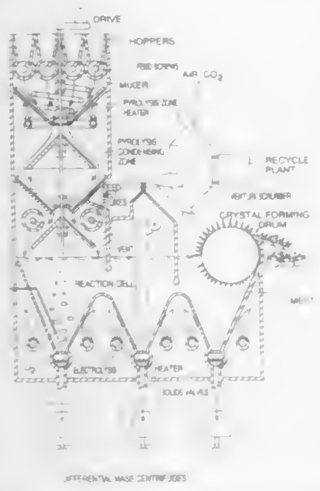
J. C. McLaughlin, Brigham City, Utah, assignor to Great Salt Lake Minerals Corporation, Overland Park, Kans.
Continuation of Ser. No. 310,497, Sep. 22, 1994, abandoned. This application Oct. 8, 1996, Ser. No. 726,929
Int. Cl.^{6} C01D *5/00*, **C05D** *1/00;1/02*
U.S. Cl. 71—63 **27 Claims**



1. A potassium sulfate/potassium nitrate salt product having enhanced water solubility and comprising dry potassium nitrate salt and dry potassium sulfate salt and a surfactant for increasing the solubility of the potassium sulfate/potassium nitrate product in water, said surfactant being present at a level of at least about 0.1 wt %, based upon the weight of said dry potassium sulfate salt, said surfactant being selected from the group consisting of disulfonate and oxyalkylated alcohol-carboxylic acid adduct surfactants, said product containing 30–70 weight percent of the potassium sulfate.

5,735,930
METHOD FOR RESOURCES RECOVERY FROM REFRACTORY CARBONACEOUS MAGMA

Fritz W. Wanzenberg; Frederick Wheelock Wanzenberg; Andrew Kimball Wanzenberg, and Mark Brooks Wanzenberg, all of 9 Campbell La., Larchmont, N.Y. 10538
Filed Nov. 25, 1994, Ser. No. 345,022
Int. Cl.^{6} C22B *4/00*
U.S. Cl. 75—10.1 **7 Claims**



1. A method of refining magma comprising the steps of:

providing an amount of magma which includes silicon carbide, basaltic clay, metals and other insoluble components;

blending said magma with one or more monovalent alkali hydroxides and a chemical oxidizing agent in amounts effective to lower the melting temperature of the magma to below about 320° C.;

melting said magma to form a melt;

injecting oxygen into said melt in amounts effective for reacting with silicon carbide and monovalent alkali hydroxides to produce soluble silicates;

electrolyzing said melt to reduce metals contained in said melt;

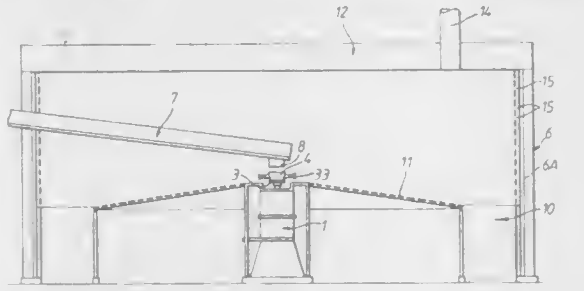
removing metals, basaltic clay and other insoluble components from said melt by gravity separation,

recovering by centrifugation said metals, basalt and other insolubles removed from said melt by gravity separation; and

cooling said melt to a temperature effective for crystallizing soluble silicates in said melt.

5,735,931
SLAG GRANULATION METHOD AND APPARATUS

William Barry Featherstone, Cleveland, United Kingdom, assignor to Davy McKee (Stockton) Limited, England
PCT No. PCT/GB94/01766, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/05485, PCT Pub. Date Feb. 23, 1995
PCT Filed Aug. 11, 1994, Ser. No. 596,334
Claims priority, application United Kingdom, Aug. 12, 1993, 9316767
Int. Cl.^{6} C21B *3/08*
U.S. Cl. 75—334 **20 Claims**



1. A granulator comprising

an enclosure (**6,29**);

a rotary atomiser (**1**) disposed within the enclosure;

means (**7**) for delivering molten material to the atomiser (**1**) so that, in use, the material is broken into globules without the use of fluid jets and the globules are dispersed with the enclosure and partially frozen to form granules;

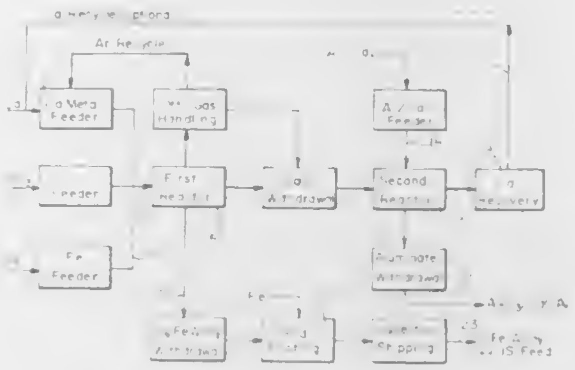
an open-topped trough (**10, 22**) in which the granules are collected and from which they are removed to the exterior of the enclosure; and

means for upwardly projecting an annular curtain (**17, 30**) of gas with entrained granules around the atomiser such that the majority of the globules pass through the curtain to reduce their temperature and to reduce the kinetic energy of the granules so formed.

5,735,932
PROCESS FOR THE CONVERSION OF URANIUM OXIDE TO URANIUM METAL AND URANIUM ALLOYS

Michael J. Stephenson, Oak Ridge; Waldo R. Golliher, Knoxville; Paul A. Haas, Knoxville, and Lark A. Lundberg, Knoxville, all of Tenn., assignors to M4 Environmental Management Inc., Oak Ridge, Tenn.
Filed Jul. 19, 1996, Ser. No. 683,895
Int. Cl.^{6} C22B *60/00*
U.S. Cl. 75—399 **46 Claims**

1. A process for preparing a uranium metal alloy from a uranium oxide feed, said process comprising the steps of:



(a) providing a molten metal bath, said molten metal having a Gibbs free energy of formation of oxide, under the temperature and oxygen partial pressure of the bath, greater than the Gibbs free energy of formation of said uranium oxide;

(b) feeding uranium oxide under the surface of said molten metal bath;

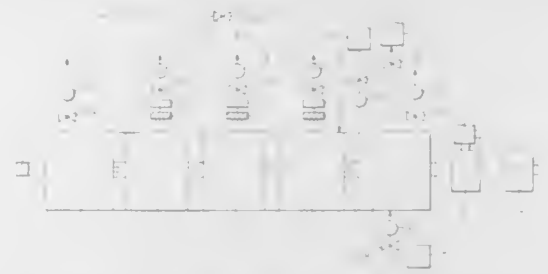
(c) co-feeding reactive metal reductant under the surface of said molten metal bath at a rate and with mixing which causes said uranium oxide to be reduced to the metal, said reactive metal reductant having a Gibbs free energy of formation of oxidation, under the temperature and oxygen partial pressure of the bath, less than the Gibbs free energy of formation of said uranium oxide;

(d) forming a liquid uranium metal alloy with said molten metal bath whereby said liquid uranium metal alloy is discharged from the molten metal bath for subsequent recovery; and

(e) discharging the oxide of said reactive metal reductant from the molten metal reactor for subsequent recovery and recycle.

5,735,933
METHOD FOR PROCESSING METALLIC WASTE

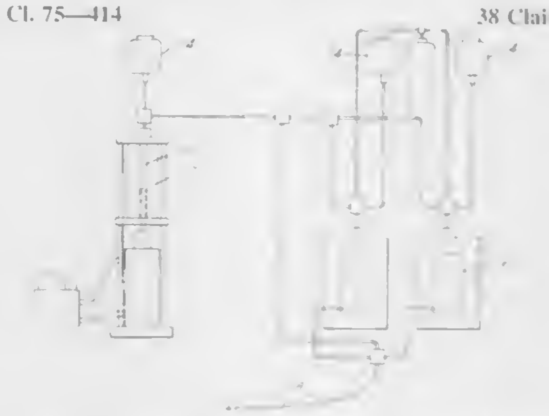
Yoshiaki Yokoyama, Konosu, and Teruhisa Ogihara, Ota, both of Japan, assignors to Teruhisa Ogihara, Gurnma, Japan
Filed Jul. 24, 1995, Ser. No. 506,318
Claims priority, application Japan, Jul. 29, 1994, 6-196269; Sep. 9, 1994, 6-240791; Nov. 2, 1994, 6-292028; Nov. 2, 1994, 6-292029
Int. Cl.^{6} C22B *7/00*
U.S. Cl. 75—403 **21 Claims**



1. A method for processing metal-containing waste material that also contains a non-metal component, characterized by crushing the metal-containing waste material, recovering metal-containing particles of a size in the range that will pass a 50 mesh screen and of increasing sizes to particles that will pass through a one mesh aperture screen from the crushed waste material by separation, introducing said recovered metal-containing particles into a vacuum-heating furnace, preheating the furnace while evacuating air from the furnace by suction, raising the temperature level of the furnace in stages to a first temperature to volatilize non-metal containing waste material, and then to at least one higher temperature to volatilize at least one metal component from the metal-containing waste material while continuing the vacuum suction to remove the volatilized non-metal and metal vapors, recovering the metal and non-metal vapors produced at said first and said at least one higher temperature level, passing the metal vapor through a condenser to convert the metal vapor to liquid metal and passing the non-metal vapor through an adsorber and recovering the liquid metal.

5,735,934
METHOD FOR DELIVERING A GAS-SUPERSATURATED FLUID TO A GAS-DEPLETED SITE AND USE THEREOF

James Richard Spears, Bloomfield Hills, Mich., assignor to Wayne State University, Detroit, Mich.
Division of Ser. No. 273,652, Jul. 12, 1994, Pat. No. 5,569,180, which is a continuation-in-part of Ser. No. 152,589, Nov. 15, 1993, Pat. No. 5,407,426, which is a continuation-in-part of Ser. No. 818,045, Jan. 8, 1992, Pat. No. 5,261,875, which is a continuation of Ser. No. 655,078, Feb. 14, 1991, Pat. No. 5,086,620. This application May 30, 1995, Ser. No. 453,660
Int. Cl.^{6} C21C *5/30*
U.S. Cl. 75—414 **38 Claims**



1. A method of injecting gas supersaturated fluids as a bubble free effluent from a delivery system into a gas-depleted industrial environment, comprising the steps of:

a. eliminating cavitation nuclei from within the delivery system;

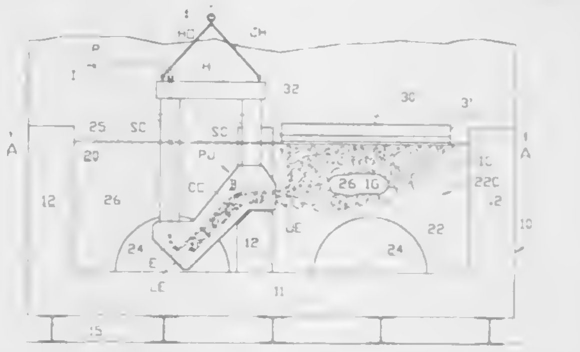
b. compressing a liquid and a gas to form a gas supersaturated liquid;

c. positioning the delivery system in fluid communication with the industrial environment; and

d. ejecting the gas-supersaturated liquid through the delivery system from an exit port as an effluent into the industrial environment without associated cavitation formation in the effluent at or near the exit port.

5,735,935
METHOD FOR USE OF INERT GAS BUBBLE-ACTUATED MOLTEN METAL PUMP IN A WELL OF A METAL-MELTING FURNACE AND THE FURNACE

Larry D. Areaux, Buena Vista, Colo., assignor to Premelt Pump, Inc., Kalamazoo, Mich.
Filed Nov. 6, 1996, Ser. No. 743,720
Int. Cl.^{6} C22B *9/16*
U.S. Cl. 75—571 **24 Claims**



1. A method comprising the following steps: providing an inert gas bubble actuated molten metal pump in a metal-melting furnace

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containing molten metal, providing a heat-resistant and flame-resistant cover above the exit port of said pump and over at least a substantial portion of the molten metal to reduce splashing and spattering at the surface of the molten metal and/or minimize rupture of a thin oxidized layer or skin of metal which exists at the surface of said molten metal, and capturing inert gas used as actuating agent in the molten metal pump beneath said cover to provide a non-oxidizing atmosphere at the surface of said molten metal and beneath said cover.

5,735,936

PROCESS AND APPARATUS FOR ELIMINATING AT LEAST ONE ACID GAS BY MEANS OF A SOLVENT FOR THE PURIFICATION OF NATURAL GAS

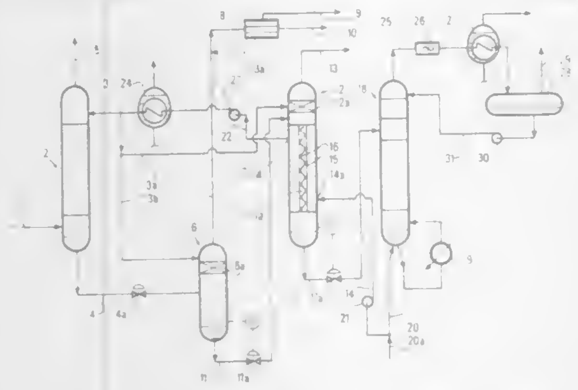
Ari Minkkinen, Saint Nom la Breteche; Joseph Larue, Chambourcy, and Pierre Capron, Briey, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Apr. 18, 1996, Ser. No. 634,703

Claims priority, application France, Apr. 19, 1995, 95 04778

Int. Cl.^{6} B01D *53/14 53/22*

U.S. Cl. 95—49 **24 Claims**



1. A process for the treatment of a gaseous feed containing a mixture of hydrocarbons, hydrogen sulphide and optionally containing carbon dioxide, comprising

a step (a) for contact at a pressure P_2 with at least a portion of a recycled polar solvent phase containing at least 50% of a solvent in at least one absorption zone (**2**), said solvent being a normally liquid non-hydrocarbon organic solvent other than water, said solvent being at least partially miscible with water and distillable at a temperature lower than that of the distillation of water, to obtain a purified gas containing most of the hydrocarbons and containing substantially no hydrogen sulphide, and a first liquid phase comprising the solvent, any remaining hydrocarbons, substantially all the hydrogen sulphide and optionally containing substantially all the carbon dioxide;

a step (c) for thermally regenerating the solvent in at least one distillation column (**18**); and

a step (d) for cooling and recycling resultant regenerated solvent to the absorption zone (**2**);

the process being characterized in that

in a step (b), after step (a), the first liquid phase is depressurized to a pressure P_{12} which is lower than pressure P_2 and heated in at least one column-heat exchanger **12** which is vertical or inclined, which indirectly exchanges heat in its internal portion with a counter-current of resultant heated regenerated solvent phase from step (c), and a second gaseous phase is recovered overhead which contains substantially all remaining hydrocarbons, a minor portion of hydrogen sulphide and most of any carbon dioxide contained in the gaseous feed, and a second heated liquid phase is recovered from the bottom which contains the solvent, most of the hydrogen sulphide and optionally a minor portion of any carbon dioxide,in regeneration step (c), the solvent phase is regenerated by circulating the second liquid phase, after optionally depressurizing in the at least one distillation column (**18**) at a pressure P_{18} which is no greater than the pressure P_{12} in the column-heat exchanger (**12**), and at least a potion of a third acid gas phase containing the major portion of the hydrogen sulphide and any remaining carbon dioxide is recovered overhead, and the regenerated, heated solvent phase is recovered from the bottom; the process being further characterized in that the heated regenerated solvent phase is cooled in the internal portion of the column-heat exchanger (**12**) and the solvent phase is recovered which is recycled under pressure to the absorption zone (**2**) after cooling in accordance with step (d).

5,735,937

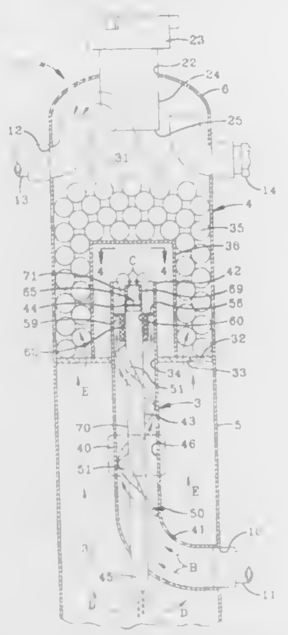
METHOD FOR REMOVING CONTAMINANTS FROM A GAS STREAM

Alan W. Dingfelder, 3582 Williams Rd., North East, Pa. 16428

Division of Ser. No. 394,708, Feb. 27, 1995, Pat. No. 5,554,209. This application May 9, 1996, Ser. No. 649,859

Int. Cl.^{6} B03C *1/02*

U.S. Cl. 95—28 **5 Claims**



1. A method of removing contaminants from a gas stream comprising the steps of:

admitting a contaminated gas stream into a pressure tube;

passing the gas stream through a convergent flow zone and a subsequently divergent flow zone for partially aligning long chain molecules,

passing the gas stream through a magnetic field to differentially effect polar and non-polar molecules; and

admitting the gas stream into a down pipe where long chain molecules will precipitate out of the gas stream.

5,735,938

METHOD FOR PRODUCTION OF NITROGEN USING OXYGEN SELECTIVE ADSORBENTS

Mohamed Safdar Allie Baksh, and Frank Notaro, both of Amherst, N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

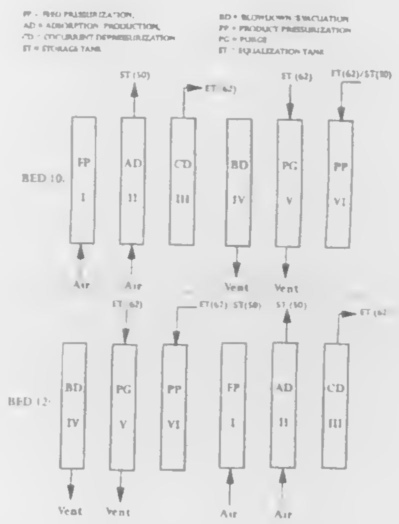
Filed Jan. 15, 1997, Ser. No. 783,086

Int. Cl.^{6} B01D *53/053*

U.S. Cl. 95—101 **26 Claims**

1. A pressure swing adsorption (PSA) method for extracting a more preferred gas from a mixture of said more preferred gas and a less preferred gas, said method employing an adsorbent bed within an enclosure which, on an equilibrium basis, exhibits a selective adsorption preference for said less preferred gas, said method comprising the steps of:

a) pressurizing said adsorbent bed to a high pressure with a feed of said mixture to enable said adsorbent bed to adsorb said less preferred gas;



b) extracting from said bed at bed pressure, a flow of said more preferred gas and storing at least some of said flow of more preferred gas in a product tank;

c) desorbing said less preferred gas from said adsorbent bed by feeding void gas in said enclosure to a storage tank;

d) further desorbing said less preferred gas from said adsorbent bed by venting said adsorbent bed to a low pressure region;

e) purging said adsorbent bed by feeding to said adsorbent bed a portion of said void gas from said storage tank; and

f) pressurizing said adsorbent bed to an intermediate pressure with a further flow of said void gas from said storage tank, and repeating steps a-f until a requirement for said more preferred gas is satisfied.

5,735,939

PIGMENT PREPARATION FOR ANTI-CORROSION COATING MATERIAL

Ralf Glausch, Darmstadt; Georg Reinhard, Dresden; Renate Jircik, Dresden, and Ursula Rammelt, Dresden, all of Germany, assignors to Merck Patent Gesellschaft MIT Beschrankter Haftung, Darmstadt, Germany

Filed Mar. 31, 1995, Ser. No. 414,235

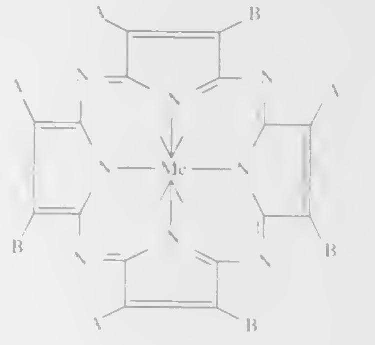
Claims priority, application Germany, Apr. 2, 1994, 44 11 568.7

Int. Cl.^{6} C04B *9/02*

U.S. Cl. 106—14.44 **17 Claims**

1. A pigment for anti-corrosion coating materials, comprising

(i) 3–40% by weight of a monomeric or polymeric, metal free or metal-containing chelate forming compound of the formulae I or II



I

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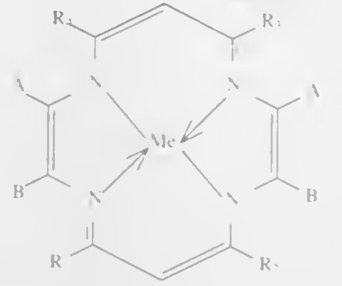

II

in which

A and B are each independently of the other an aromatic or cycloaliphatic radical which may also contain heteroatoms in the ring, and aryl, alkyl, halogen, oxygen-, sulphur- or nitrogen-containing groups as additional substituents, or, for polymeric compounds, a multi-valent aromatic, cycloaliphatic or alkyl linking group,

R , R^2 R^3 and R^4 are independently H atoms or alkyl radicals and

Me is Fe, Ni, Co, Mn, Bi, Sn, Zn or H_2,

(ii) about 3–40% by weight of a material in flake form and

(iii) about 25–80% by weight of a material which binds hydroxide ions.

5,735,940

MARKING COMPOSITION

Miriam Coller, 84-05 Avon St., Jamaica, N.Y. 11432

Continuation-in-part of Ser. No. 534,062, Sep. 26, 1995, abandoned, which is a continuation-in-part of Ser. No. 311,547, Sep. 23, 1994, abandoned. This application Jul. 23, 1996, Ser. No. 685,396

Int. Cl.^{6} C09D *11/00*

U.S. Cl. 106—31.01 **20 Claims**

1. An aqueous marking composition which can be readily removed when desired from a surface of a substrate to which it is applied comprising: water; at least 1% by weight of at least one water soluble or water dispersible antifreeze agents, and at least 0.01% by weight of at least one water or alcohol soluble or water dispersible coloring agents; said marking composition being adapted to provide a colored covering for a substrate surface which can be readily removed from said substrate surface as desired.

5,735,941

INK SYSTEM WITH REDUCED BLEED

James F. Feeman, Wyomissing, Pa.; Ann P. Holloway, Lexington, Ky.; Agnes K. Zimmer, Lexington, Ky.; Jing X. Sun, Lexington, Ky.; Terence E. Franey, Lexington, Ky.; James M. Mrvos, Lexington, Ky., and Bradley L. Beach, Lexington, Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Jul. 24, 1996, Ser. No. 690,468

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.28 **37 Claims**

1. An ink system comprising:

a. a first ink comprising a flocculating dye in an aqueous solution; and

b. a second ink comprising a dispersant pigment complex in an aqueous solution,

wherein the flocculating dye of said first ink is capable of flocculating the dispersant-pigment complex of said second ink.

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5,735,942

COMPOSITIONS CONTAINING BIOACTIVE GLASS AND THEIR USE IN TREATING TOOTH HYPERSENSITIVITY

Leonard J. Litkowski, Baltimore; Gary D. Hack, Columbia, both of Md., and David C. Greenspan, Gainesville, Fla., assignors to USBiomaterials Corporation, Alachua, Fla., and University of Maryland, Baltimore, Md.

Continuation of Ser. No. 597,936, Feb. 7, 1996, abandoned. This application Jul. 16, 1997, Ser. No. 895,329

Int. Cl.⁶ C03C *3/078*; A61K *6/027*

U.S. Cl. 106—35 **20 Claims**

1. A bioactive glass composition comprising particulate bioactive and biocompatible glass having the following composition by weight percentage:

SiO_2	40–60
CaO	10–30
Na_2O	10–35
P_2O_5	2–8
CaF_2	0–25
B_2O_3	0–10

and a particle size range less than 90 μm, wherein the particulate bioactive and biocompatible glass includes an effective dentin tubule occluding amount of particles less than about 10 μm.

5,735,943

RHEOLOGICAL ADDITIVES FOR ASPHALT AND OTHER ORGANIC SYSTEMS COMPRISING ONE OR MORE ORGANOCLAYS AND FIBROUS MATERIAL, A PROCESS FOR PRODUCING SUCH ADDITIVES AND ORGANIC SYSTEMS CONTAINING SUCH ADDITIVES

Charles A. Cody, Robbinsville, and Steven Kemnetz, Trenton, both of N.J., assignors to Rheox, Inc., Hightstown, N.J.

Filed Sep. 4, 1996, Ser. No. 707,563

Int. Cl.⁶ C09D *7/12, 101/02*

U.S. Cl. 106—164.3 **12 Claims**

1. A dry rheological additive for organic fluid systems comprising:

(a) one or more organoclays made by the reaction of smectite clay and one or more organic cations at a percent organic of from about 80% to about 140% of the cation exchange capacity of the smectite clay and;

(b) one or more fibrous materials.

5,735,944

FREE FLOWING ADDITIVE PREPARATIONS, A PROCESS FOR PRODUCING THEM, AND THEIR USE IN POWDER COATINGS

Karlheinz Haubennestel, Wesel, and Alfred Bubat, Wesel-Bislich, both of Germany, assignors to BYK-Chemie GmbH, Wesel, Germany

Filed May 20, 1996, Ser. No. 650,457

Claims priority, application Germany, Jun. 21, 1995, 195 22 475.2

Int. Cl.⁶ C09D *7/12*

U.S. Cl. 106—272 **14 Claims**

1. A free flowing additive preparation suitable for use with a powder coating comprising particles of a substantially homogeneous solid solution or dispersion of one or more waxes having a melting temperature range at least about 10° C. to 20° C. lower than the processing temperature of the powder coating, and one or more liquid or viscous sticky additives.

5,735,945

STATIC CHARGE-SUPPRESSING RELEASE AGENT COMPOSITIONS

Jiann H. Chen, Fairport; William J. Staudenmayer, Pittsford, and Muhammed Aslam, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 21, 1997, Ser. No. 821,993

Int. Cl.⁶ C09D *183/04*

U.S. Cl. 106—287.14 **14 Claims**

1. A toner release agent composition for electrostatography comprising a polydialkylsiloxane oil and an effective amount of a nonionic surfactant, said nonionic surfactant being effective to prevent or substantially suppress triboelectric charging of pressure and fuser members during fusion of thermoplastic toner on a receiver wherein said nonionic surfactant is selected from the group consisting of a silicone glycol polymer, a perfluoroalkylsubstituted polyethylene glycol, and a perfluoroalkylsubstituted silane.

5,735,946

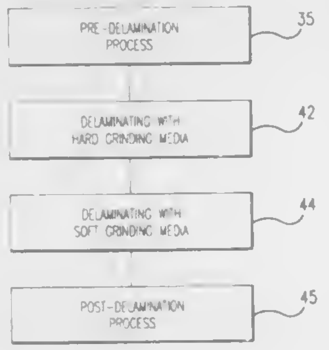
TWO-STAGE PROCESS FOR DELAMINATING KAOLIN

J. Elmo Bloodworth, Milledgeville; John H. Chapman, Sandersville; Sam M. Pickering, Jr., Macon, all of Ga., and Michael A. Linkous, Raleigh, N.C., assignors to U.S. Borax, Inc., Valencia, Calif.

Filed May 14, 1996, Ser. No. 645,880

Int. Cl.⁶ C09C *1/42*; C04B *14/10*

U.S. Cl. 106—486 **20 Claims**


PRE-DELAMINATION PROCESS
35
DELAMINATING WITH HARD GRINDING MEDIA
42
DELAMINATING WITH SOFT GRINDING MEDIA
44
POST-DELAMINATION PROCESS
45

1. A method for producing a delaminated kaolin clay having a G.E. brightness of at least about 85, a solids content of at least about 67 percent by weight, and a viscosity below about 500 cps, said method comprising the steps of:

a) subjecting an aqueous slurry of said kaolin clay to agitation in the presence of a hard grinding media, wherein said media is harder than said kaolin clay; and then

b) subjecting said aqueous slurry of kaolin clay to agitation in the presence of a soft grinding media, wherein said media is softer than said kaolin clay.

5,735,947

CEMENT WITH AIR-COOLED SLAG AND SILICA FUME

Donald Stephen Hopkins, Thornhill, and David Bridson Oates, Kettleby, both of Canada, assignors to Lafarge Canada Inc., Canada

Continuation of Ser. No. 532,161, Sep. 22, 1995, abandoned. This application Apr. 11, 1997, Ser. No. 840,098

Int. Cl.⁶ C04B *7/14*

U.S. Cl. 106—714 **16 Claims**

1. A hydraulic cement mix in which a portion of the hydraulic cement is replaced by a combination of an air-cooled blast furnace slag having a glass content below 70%, by weight, of the slag, and a silica fume, such that said cement mix has a composition comprising, in weight %, to a total of 100%,

i) 28% to 93% of a particulate inorganic, hydraulic cement;

ii) 5% to 60% of an air-cooled blast furnace slag having a glass content below 70%, by weight, of the slag; and

iii) 2% to 12% of silica fume,

said combination of air-cooled blast furnace slag and silica fume restoring loss of strength resulting from replacement of said hydraulic cement with said air-cooled blast furnace slag alone, and restoring slump lost by replacement of said hydraulic cement with said silica fume alone.

5,735,948

PROCESS FOR CO-RECYCLING TIRES AND OILS

Chang Yul Cha; Henry Plancher, both of Laramie, Wyo., and Lawrence S. Kraus, Elburn, Ill., assignors to Univ. of Wyoming, Laramie, Wyo., and Amoco Corp., Chicago, Ill.

Continuation of Ser. No. 342,517, Nov. 21, 1994, Pat. No. 5,470,384, which is a division of Ser. No. 140,378, Oct. 21, 1993, abandoned, which is a continuation of Ser. No. 117,387, Sep. 7, 1993, Pat. No. 5,389,691. This application Jul. 17, 1995, Ser. No. 502,952

Int. Cl.⁶ C04B *24/00*

U.S. Cl. 106—724 **7 Claims**

1. A cement composite composition of matter comprising:

blending common Portland cement; and carbonous residue, produced by the steps comprising: (1) digesting at a maximum temperature below about 750° F. waste tires using oil being selected from the group comprising residuum, new 600w cylinder oil, waste motor oil, trim gas oil, vacuum heavy bottoms, decanted oil, and combinations thereof; (2) mixing at least one additive, being selected from the group consisting of calcium carbonate, calcium hydroxide, calcium oxide, magnesium carbonate, magnesium oxide, magnesium hydroxide, dolomite, sodium carbonate, sodium hydroxide, potassium carbonate, potassium hydroxide, iron oxide, bauxite, red mud, and combinations thereof; (3) retorting at a maximum temperature below about 875° F. to remove light components while retaining said carbonous residue; and wherein said carbonous residue comprises less than five weight percent of said cement composite.

5,735,949

METHOD OF PRODUCING ELECTRONIC, ELECTROOPTICAL AND OPTICAL COMPONENTS

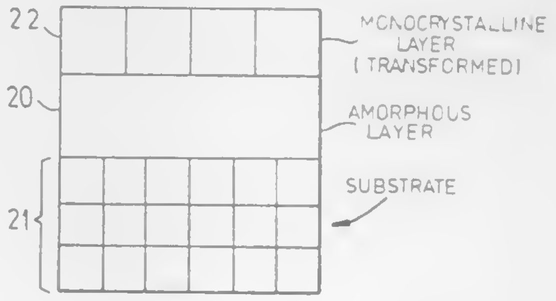
Siegfried Mantl, Jülich; Bernd Holländer, Leverkusen, and Rainer Butz, Linnich-Tetz, all of Germany, assignors to Forschungszentrum Julich GmbH, Julich, Germany

Filed Sep. 13, 1991, Ser. No. 759,571

Claims priority, application Germany, Sep. 13, 1990, 40 29 060.3

Int. Cl.⁶ C03B *1/10*

U.S. Cl. 117—8 **11 Claims**



1. A method of making a crystalline element for an electronic, electrooptic or optical component, comprising,

(a) providing a crystalline substrate having a buried amorphous layer formed therein and a monocrystalline layer on said amorphous layer and separated from said substrate by said amorphous layer; and

(b) transforming said monocrystalline layer into a mixed-crystal structure or a crystalline chemical compound, whereby said amorphous layer is interposed between said substrate and said structure or compound and remains in the crystalline element of said component.

5,735,950

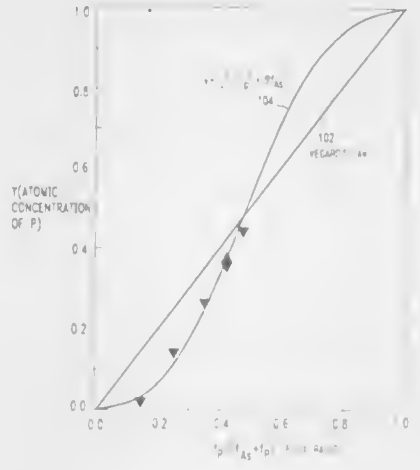
METHOD FOR PRODUCING A PRECISE ALLOY COMPOSITION FROM INPUT VARIABLES UNDER NONLINEAR INCORPORATION CONDITIONS

John Edward Cunningham, Lincroft, and Keith Wayne Goossen, Aberdeen, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 395,271, Feb. 27, 1995, abandoned, which is a continuation of Ser. No. 119,685, Sep. 13, 1993, abandoned. This application May 24, 1996, Ser. No. 653,086

Int. Cl.⁶ C30B *25/16*

U.S. Cl. 117—85 **12 Claims**



1. A method of producing a nonstrained semiconductor alloy composition (c,) from input variables A and B under non-linear incorporation conditions, comprising the steps of

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selecting a bandgap for the alloy,
determining a composition for the alloy based on said bandgap;
determining a value for a fitting parameter β, where β skews incorporation of an input flux f_B due to surface populations of dimer species for a periodic Group of the input variable B;
determining an input flux f_A and said input flux f_B for the input variables A and B, respectively; and
growing the alloy which follows non-linear incorporation to achieve said composition using said determined input fluxes f_A and f_B;
wherein said input fluxes are determined by their second-order relationship to said composition as a function of a normalized input flux ratio, $f_A/(f_B+f_A)$, according to a relationship $c_A=f_A^2/(f_A^2+\beta f_B^2)$.

5,735,951

SINGLE CRYSTAL PULLING APPARATUS

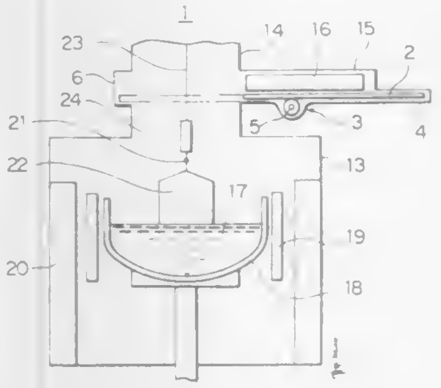
Eiichi Iino; Kiyotaka Takano; Masanori Kimura; Koji Mizuishi, and Hirotoshi Yamagishi, all of Gunma-ken, Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

Filed Jul. 1, 1996, Ser. No. 673,590

Claims priority, application Japan, Jul. 4, 1995, 7-191087

Int. Cl.^{6} C30B *35/00*

U.S. Cl. 117—217 **7 Claims**



1. A single crystal pulling apparatus comprising:
a lower chamber for housing a crucible for containing a melt and means for heating said melt;
an upper chamber for housing a wire by which a single crystal is pulled from said crucible starting with a seed crystal and a mechanism for driving said wire; and
a valve enclosure for accommodating an isolation valve which acts to open or close an opening defined between said both upper and lower chambers,
a heat insulation plate provided below said isolation valve for opening or closing said opening, and for blocking heat transmission to the isolation valve,
and wherein opening and closing of said heat insulation plate is synchronized with opening or closing of said isolation valve.

5,735,952

PAVEMENT AND TENNIS COURT COATING MACHINE

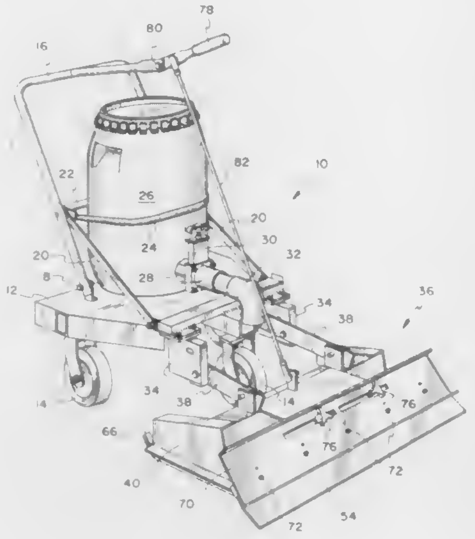
Jack H. Wilson, Sr., 3775 Coker Rd., Jackson, Miss. 39213

Filed Jan. 29, 1996, Ser. No. 593,289

Int. Cl.^{6} B05C *11/02;1/06;11/00,3/02*

U.S. Cl. 118—100 **10 Claims**

1. A coating apparatus comprising.
a) a support frame.
b) a tank for containing coating material mounted on said support frame, said tank having a conduit connected thereto for dispensing coating material onto a surface;



c) a coating material spreading applicator mounted on said support frame for applying coating material, said applicator including a first blade and a finish blade and a pair of end blades; and
d) whereby said end blades are mounted to said support frame independently of said first blade and said finish blade.

5,735,953

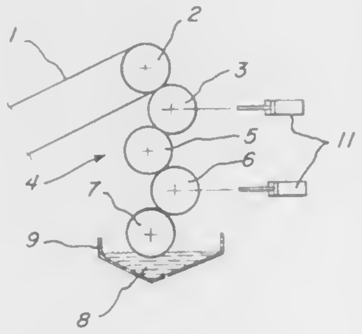
ADJUSTABLE INKING ROLLER TRAIN

Gustav Paulsen, Hundvåg, Norway, assignor to GP-Tinter As, Skjetten, Norway

Filed May 23, 1996, Ser. No. 652,361

Int. Cl.^{6} B05C *1/00*

U.S. Cl. 118—224 **11 Claims**



1. Paper coloring apparatus for water colors or water-based inks, comprising a driven, running paper web positioned around a turning roller constituting a counter-pressure roller for an inker roller and, together with the latter, are included in a roller train having one roller to convey ink from a reservoir to the next adjacent roller in the roller train web, wherein said roller train includes at least five rollers, of which some have a floating position in relation to the other, and that each roller in the roller train is resting directly against an adjacent roller and the inker roller is resting against the paper web, the roller train being driven by the running paper web, through the direct contact between adjacent rollers, whereby alternate rollers are metal rollers and the remaining rollers are rubber rollers, each of said rubber rollers being floatingly suspended and connected to an actuator, said actuator comprising a pressure drive piston and cylinder, and further comprising alternative means for independently driving the roller which conveys ink from the reservoir, said alternative means comprising a motor connected to said roller which conveys ink from the reservoir.

5,735,954

EXPANDABLE STAMP PAD ASSEMBLY

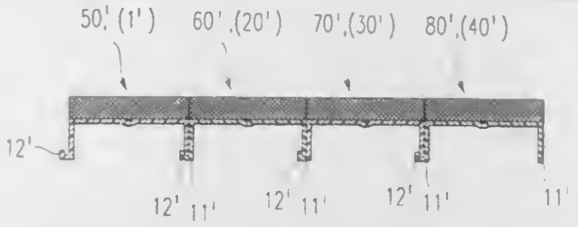
Lothar Zeitler, Kulmbach, Germany, assignor to Noris-Color GmbH, Kulmbach, Germany

Filed Sep. 24, 1996, Ser. No. 719,978

Claims priority, application Germany, Nov. 14, 1995, 295 18 038.2

Int. Cl.^{6} B05C *1/06*

U.S. Cl. 118—264 **11 Claims**



1. An expandable stamp pad assembly comprising multiple adjacent stamp pads; each pad comprising a base with a seating area having upper and lower surfaces and peripheral walls about said seating area, and ink-carrying member substantially coextensive with and affixed to said upper surface and extending above said peripheral walls, selected ones of said peripheral walls having first connecting elements fixed thereto and extending laterally outward therefrom relative to said base seating area, and selected ones of said peripheral walls having second connecting elements thereon to receive and secure said first connecting elements of adjacent ones of said stamp pads positioned with the walls of adjacent pad bases in parallel adjoining relation to each other wherein an expansion of said stamp pad assembly extends, unrestricted, laterally outward from each of said peripheral walls having said connecting elements thereon

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5,735,955

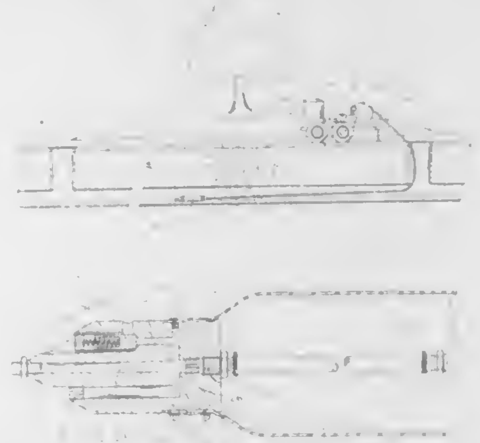
APPARATUS FOR GENERATING AND DISPERSING FOAM HERBICIDE WITHIN A SEWER

James D. Monaghan, and Kenneth Line, both of Salem, Oreg., assignors to General Chemical Company, Salem, Oreg.

Filed Apr. 8, 1995, Ser. No. 419,571

Int. Cl.^{6} B08B *9/04;* **B05B** *13/06*

U.S. Cl. 118—317 **23 Claims**



1. An apparatus for applying a foam coating to the interior of a generally cylindrical line, said apparatus comprising:
a pressurized source of liquid;
an intake manifold connected to said source of pressurized liquid, said intake manifold comprising a plurality of chambers;
a foam production chamber connected to an outlet of said intake manifold, said foam production chamber comprising an outer vessel forming a reaction chamber for foam production and an internal metering hose permeable to said liquid for receiving the pressurized liquid from said intake manifold, said foam production chamber for accepting the pressurized liquid and combining the pressurized liquid with coating and foaming materials to produce a pressurized foam coating; and
an output chamber connected to an outlet of said foam production chamber, said output chamber for accepting the resulting pressurized foam coating and propelling it through a nozzle assembly attached to said output chamber to disperse the foam coating against the walls of a generally cylindrical line

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5,735,956

APPLICATOR FOR COATING A TRAVELING FIBER WEB

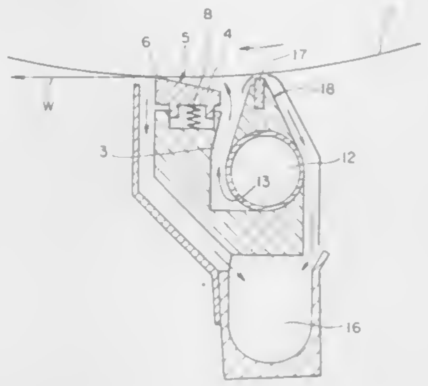
Manfred Ueberschaer, Nattheim; Martin Kustermann, and Stefan Reich, both of Heidenheim, all of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Apr. 18, 1996, Ser. No. 634,586

Claims priority, application Germany, Apr. 20, 1995, 295 06 731.4

Int. Cl.^{6} B05C *5/00*

U.S. Cl. 118—410 **9 Claims**



1. An applicator for coating a traveling fiber web with a coating mixture, said applicator comprising:
a backing roll having an outside surface for carrying the web;
a support beam;
a nozzle for feeding the coating mixture, said nozzle being one of integral with and connected to said support beam;
a doctor bar carried by said support beam, said doctor bar having a guide surface, said guide surface approaching said outside surface of the backing roll defining a converging nip with the backing roll for receiving the coating mixture from said nozzle and producing a hydrodynamic pressure, said guide surface extending to an exit edge at a location nearest the backing roll, said doctor bar allowing zonewise profiling of the coating mixture in a radial direction relative to the backing roll; and
means for flexibly backing said doctor bar on said support beam, said backing means flexibly backing said doctor bar such that an entrance angle of said nip is variable.

5,735,957

DUAL CHAMBER FILM APPLICATOR WITH IN-POND OVERFLOW

Rex A. Becker, Janesville, Wis.; Alfred C. Li, Naperville, Ill., and James R. Burns, Springfield, Pa., assignors to Beloit Technologies, Inc., Wilmington, Del.

Filed Oct. 2, 1995, Ser. No. 537,598

Int. Cl.^{6} B05C *3/02*

U.S. Cl. 118—411 **2 Claims**

1. A film applicator for applying coating material to a traveling substrate, the applicator comprising:
a backing roll which engages the substrate to be coated;
an applicator head, including a housing positioned beneath the substrate and the backing roll.

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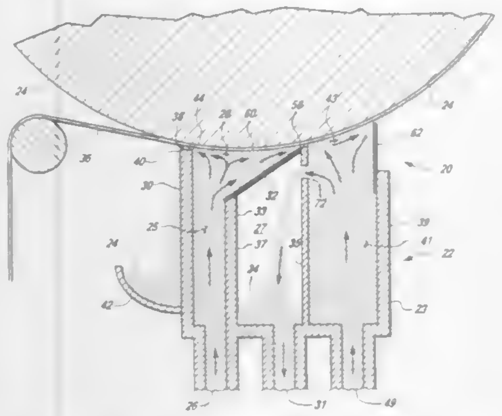


- an upstream baffle plate which extends toward the backing roll from the housing;
- a first wall which extends toward the backing roll from the housing, wherein the first wall is spaced downstream from the baffle plate;
- a converging plate which extends from the first wall into close proximity with the backing roll, wherein the converging plate extends toward the substrate in the downstream direction to define a wedge-shaped region of the applicator head, and wherein coating is introduced by a first means into a first pond defined between the baffle plate and the converging plate, such that coating overflows the baffle plate and is applied to the substrate between the backing roll and the converging plate;
- a second wall which extends toward the backing roll from the housing downstream of the first wall, wherein the converging plate extends between the first wall and the second wall;
- a metering element positioned downstream of the second wall and extending from the housing toward the backing roll, wherein a second coating pond is defined between the second wall and the metering element, and wherein coating is supplied by a second means to the second pond for application to the substrate as it exits the first pond;
- a cavity is defined between the first wall the second wall, and the converging plate, which cavity is maintained at a pressure below the pressure within the second pond, and portions of the second wall define an opening therein to thereby draw coating and air entrained in the coating through the opening in the second wall and into the cavity.

5,735,958

ELECTROSTATIC COATING SYSTEM

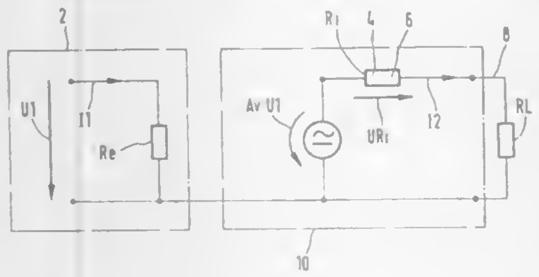
Felix Mauchle, Abtwil, Switzerland, assignor to Gema Volstatic AG, Switzerland

Filed Mar. 26, 1996, Ser. No. 620,668

Claims priority, application Germany, Mar. 27, 1995, 195 11 255.5

Int. Cl.^{6} B05B *5/025*; H05B *1/00*

U.S. Cl. 118—621 **5 Claims**



1. Electrostatic spray coating apparatus including a spray device for spraying coating material onto an article which is electrically connected to ground potential, said spray device having at least one high voltage electrode adapted to impart an electrostatic charge to the sprayed material, a high voltage generator which includes a voltage transformation circuit adapted to convert a relatively low AC voltage applied to an input circuit to a high DC voltage in an output circuit which is applied to the electrode, said voltage transformation circuit having a predetermined voltage multiplication factor and said output circuit having a predetermined internal resistance, characterized in that said apparatus includes means for measuring the level of the relatively low AC voltage applied to the input circuit, means for measuring electric current in the output circuit, means for generating an input voltage signal which is a function of the product of the measured low AC voltage times the predetermined voltage multiplication factor, means for generating a voltage drop signal which is a function of the product of the measured current in the output circuit and the predetermined internal resistance of said output circuit, and means responsive to a difference between the input voltage signal from the input voltage signal generating means and the voltage drop signal from the means for generating a voltage drop signal for determining the actual voltage on the high voltage electrode.

5,735,959

APPARATUS SPREADING FLUID ON FLOOR WHILE MOVING

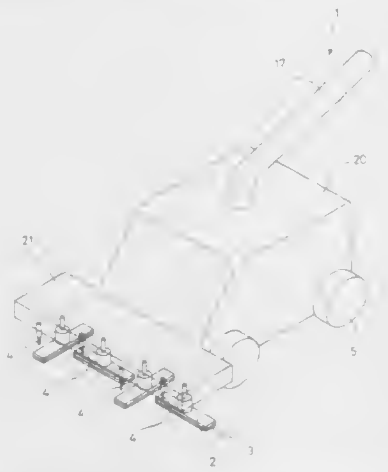
Naoki Kubo, Nishinomiya; Shigeru Oyokota, Takatsuki; Nobukazu Kawagoe, Toyonaka, and Masashi Nishikado, Amagasaki, all of Japan, assignors to Minolta Co, Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 463,506, Jun. 5, 1995, Pat. No. 5,636,402. This application Jan. 24, 1996, Ser. No. 590,896

Claims priority, application Japan, Jun. 15, 1994, 6-132862; Jan. 24, 1995, 7-9055; Mar. 24, 1995, 7-66381; Jun. 2, 1995, 7-137003; Jun. 2, 1995, 7-137004

Int. Cl.^{6} B05C *1/00*

U.S. Cl. 118—663 **13 Claims**



1. A spreading apparatus which is moveable and which spreads a fluid on a surface, comprising:

- a working unit having a working member which spreads fluid on the surface;
- a supplier having an outlet in fluid communication with the working unit through which the fluid is applied onto the surface;
- a speed detector connected to the working unit detecting a moving speed of said working unit, and
- a controller connected to the supplier for controlling said supplier so as to apply the fluid to the surface through the outlet with the quantity of applied fluid controlled based on a detected moving speed;
- wherein the controller further comprises a pulse generator generating a pulse, the pulse being used by said controller for controlling the quantity of applied fluid based on a width of the pulse so that fluid is supplied when the pulse is high and fluid is not supplied when the pulse is low,
- wherein said controller changes the width of the pulse based on the detected moving speed.

5,735,960

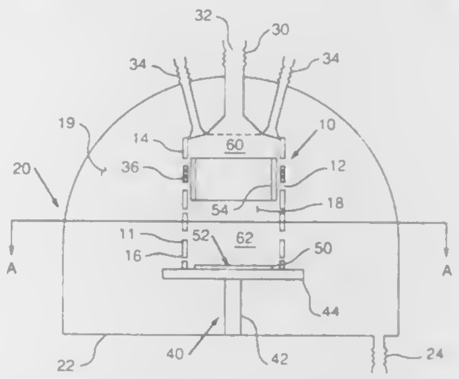
APPARATUS AND METHOD TO INCREASE GAS RESIDENCE TIME IN A REACTOR

Gurtej S. Sandhu; Ravi Iyer, and Sujit Sharan, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 2, 1996, Ser. No. 627,677

Int. Cl.^{6} C23C *16/00*

U.S. Cl. 118—723 IR **30 Claims**



1. An apparatus for controlling the flow of gaseous reactants in a reaction chamber having a gaseous reactant inlet and a substrate support disposed within the reaction chamber, said apparatus comprising.

- a hollow body disposed between the substrate support and the gaseous reactant inlet, said hollow body having a first end and a second end, defining an interior and an exterior, and containing a plurality of perforations nonuniformly distributed over said hollow body

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5,735,961

SEMICONDUCTOR FABRICATING APPARATUS, METHOD FOR CONTROLLING OXYGEN CONCENTRATION WITHIN LOAD-LOCK CHAMBER AND METHOD FOR GENERATING NATIVE OXIDE

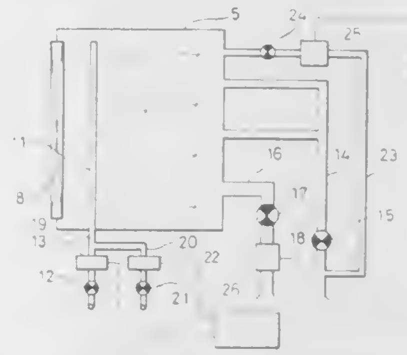
Masakazu Shimada, Tokyo, Japan, assignor to Kokusai Electric Co., Ltd., Japan

Filed May 16, 1996, Ser. No. 648,541

Claims priority, application Japan, May 25, 1995, 7-150891; Apr. 16, 1996, 8-118271

Int. Cl.^{6} C23C *16/00*

U.S. Cl. 118—724 **7 Claims**



1. A semiconductor fabricating apparatus comprising:

- a reaction tube defining a space for heat treating a silicon wafer,
- heater means disposed to extend around said reaction tube;
- a load-lock chamber connected to said reaction tube by means of a gate valve;
- a supply pipe for supplying to said load-lock chamber an inert gas and a gas including oxygen,
- at least one exhaust pipe communicating with said load-lock chamber;
- an inert gas flow rate adjuster for adjusting the flow rate of said inert gas;
- an oxygen gas flow rate regulator for regulating the flow rate of said gas including oxygen;
- an oxygen concentration meter provided with said exhaust pipe; and
- a controller for controlling the flow rate of said inert gas and said gas including oxygen by operation of said inert gas flow rate adjuster and said oxygen gas flow rate regulator so as to maintain said load lock chamber at a desired oxygen concentration level on the basis of a detected oxygen concentration level by said oxygen concentration meter

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5,735,962

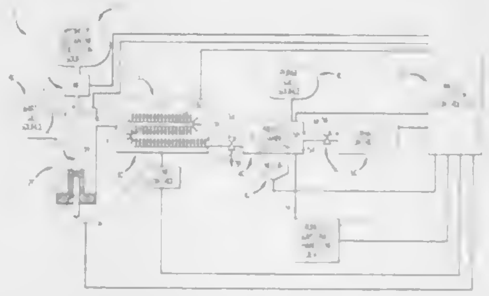
SILICON SUBSTRATE CLEANING METHOD AND APPARATUS

Gary Hillman, Livingston, N.J., assignor to S^3 Service Support Specialties, Inc., Montville, N.J.

Filed Jan. 11, 1996, Ser. No. 582,368

Int. Cl.^{6} B08B *7/00*

U.S. Cl. 134—3 **16 Claims**



1. A method of removing oxide from a silicon substrate comprising the steps of providing a silicon substrate at a silicon substrate temperature, flowing a dry carrier gas through an evaporation chamber at a preselected rate, providing a preselected charge of hydrous cleaning solution of HF and water to said evaporation chamber, evaporating said charge completely to produce a hydrous cleaning vapor from said hydrous cleaning solution and mixing said vapor with said dry flowing carrier gas to create a mixture, supplying said mixture to a heat exchanger to condense some water vapor from said mixture and to lower the dew point of said mixture to below said silicon substrate temperature and supplying said mixture from said heat exchanger to said silicon substrate so that said mixture contacts the substrate and removes oxide therefrom

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5,735,963

METHOD OF POLISHING

Yaw Samuel Oheng, Orlando, Fla., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 17, 1996, Ser. No. 767,758

Int. Cl.^{6} B08B *7/00*

U.S. Cl. 134—3 **6 Claims**

1. A method of polishing a material comprising

- exposing said material to a slurry which contains an abrasive and an organic oxidant being hydroxylamine.

5,735,964

METHOD FOR CLEANING TUBE BUNDLES

Jim E. Amuny, 506 Brimstone, Sulphur, La. 70663

Division of Ser. No. 101,464, Aug. 2, 1993, Pat. No. 5,451,002. This application Jun. 23, 1995, Ser. No. 494,162

Int. Cl.^{6} B08B *3/02*

U.S. Cl. 134—8 **16 Claims**

1. A method of cleaning a tube bundle having a plurality of elongate flow tubes, the method comprising

- (a) providing an elongate lance housing within a lower portion of a cleaning assembly outer shell for substantially restricting movement of a plurality of elongate tubular lances,

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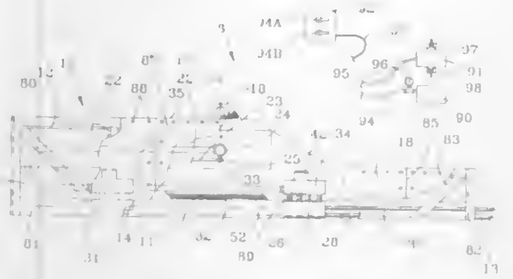


(b) moving the plurality of elongate tubular lances within the lance housing while discharging pressurized fluid to clean the tube bundle during a operation;

(c) simultaneously moving a receiving manifold within the cleaning assembly outer shell and exterior of the lance housing while receiving high pressure fluid from a flexible hose within the cleaning assembly;

(d) simultaneously moving a lance manifold within the lance housing outer shell while providing fluid communication between a lance manifold chamber and each of the plurality of elongate tubular lances; and

(e) positioning a plurality of nipple members for fluidly interconnecting the receiving manifold and the lance manifold.

5,735,965

METHOD FOR THE REMOVAL OF PAINT FROM WHEEL HUBS

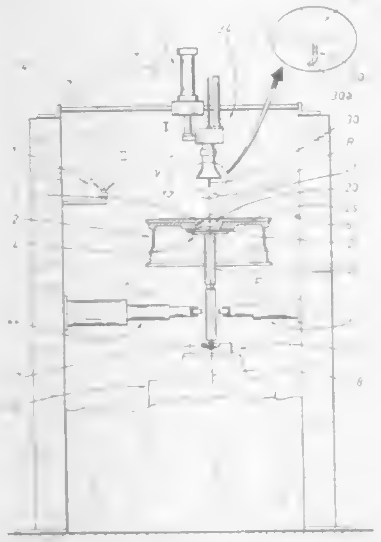
Valter Baldi, Bologna, Italy, assignor to Reynolds Wheels International Ltd., Lugano, Switzerland

Filed Dec. 19, 1995, Ser. No. 574,511

Claims priority, application European Pat. Off., May 15, 1995, 95830198

Int. Cl.^{6} B08B *5/00;5/04;9/00*

U.S. Cl. 134—21 **10 Claims**



1. A method of removing paint, in particular electro-statically applied powders, from wheel hubs, comprising the steps of

blocking the hub from one side with a blocking means applied to a first face of the hub, the blocking means being shaped to combine with at least one substantially cylindrical surface of the hub surrounding an opening of the hub to form a chamber having one side open to a second face of the hub opposite to the first face;

generating a jet of air into the chamber to contact the hub surface directly, indirectly or obliquely with the air and produce turbulence sufficient to remove unwanted layer of paint covering the hub surface; and

generating a negative pressure in at least part of the chamber receiving the jet of air to aspirate and recover the paint removed from the hub and held in suspension by the air in that part of the chamber.

5,735,966

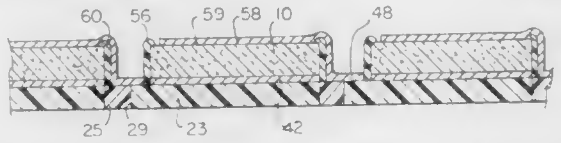
SUBSTRATE STRUCTURES FOR INTEGRATED SERIES CONNECTED PHOTOVOLTAIC ARRAYS AND PROCESS OF MANUFACTURE OF SUCH ARRAYS

Daniel Luch, 17161 Copper Hill Dr., Morgan Hill, Calif. 95037

Continuation-in-part of Ser. No. 441,552, May 15, 1995, Pat. No. 5,547,516. This application Jul. 16, 1996, Ser. No. 683,061

Int. Cl.^{6} H01L *31/05;31/18*

U.S. Cl. 136—244 **16 Claims**



1. An intermediate article in the manufacture of a series interconnected array of photovoltaic cells comprising one or more units, each of said units comprising.

a photovoltaic cell comprising thin films of semiconductor material forming a photovoltaic junction supported on a metal-based foil, said cell having a top cell surface and a bottom cell surface, said cell further having a cell length,a cell width, and a cell thickness, said cell width defining a first cell terminal edge and a second cell terminal edge.

a separately prepared substrate structure comprising electrically conductive material and electrically non-conductive material, said electrically conductive substrate material having a top surface and a linear dimension whose endpoints define first and second terminal edges of said electrically conductive substrate material, said electrically conductive and non-conductive materials being joined together in a generally planar structure,

said photovoltaic cell being joined to said substrate structure such that said first cell terminal edge is positioned between said first and second terminal edges of said electrically conductive substrate material so that a portion of said bottom cell surface overlays a first portion of said conductive substrate material top surface leaving a second portion of said conductive substrate material top surface exposed.

5,735,967

METHOD FOR DISPOSING LINEAR BODY AND SOLAR CELL OBTAINED THEREBY

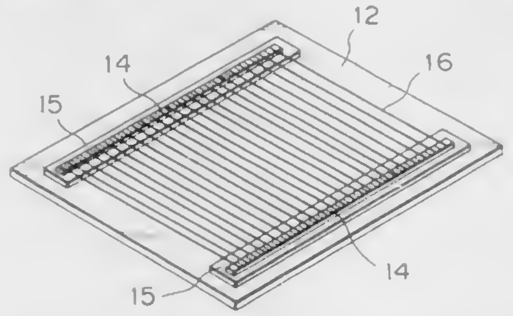
Takeshi Yakou, Tokyo; Tsunenobu Satoi, Yokohama; Eiji Takaki, Ibaraki-ken, and Toshio Akiyama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 5, 1996, Ser. No. 675,830

Claims priority, application Japan, Jul. 11, 1995, 7-174824; Jul. 11, 1995, 7-174825; Jul. 11, 1995, 7-174826; Jul. 11, 1995, 7-174827; Feb. 21, 1996, 8-033621; Jun. 14, 1996, 8-154116

Int. Cl.^{6} H01L *31/04;31/18;31/0224*

U.S. Cl. 136—256 **27 Claims**



5. A solar cell including a substrate, manufactured by a method of providing a plurality of parallel, spaced apart collector wires on

a substrate coated with a photosensitive film, said method comprising the sequential steps of:

simultaneously holding an end of each of the plurality of parallel collector wires at a predetermined spacing therebetween before a first end of the substrate;

simultaneously drawing the plurality of collector wires that are held to a second end of the substrate;

simultaneously fixing said end of each of the drawn collector wires on the second end of the substrate, while the collector wires are simultaneously held at the second end of the substrate;

simultaneously fixing each of the collector wires to the first end of the substrate; and thereafter

simultaneously cutting each of the collector wires at a trailing portion thereof at an inner portion of am edge of the substrate.

5,735,968

Patent Not Issued For This Number

5,735,969

METHOD OF PRODUCING ACICULAR MAGNETIC ALLOY PARTICLES

Jean A. Lown, St. Paul, Minn.; Yasutaka Ota, Hiroshima, Japan; Kenji Okinaka, Hiroshima, Japan, and Hirofumi Kawasaki, Hiroshima, Japan, assignors to Imation Corp., Oakdale, Minn., and Toda Kogyo Corp., Hiroshima, Japan

Filed Mar. 7, 1996, Ser. No. 612,517

Int. Cl.^{6} H01F *1/03*

U.S. Cl. 148—105 **13 Claims**

1. A method for manufacturing magnetic alloy particles comprising the steps of:

a) providing a precursor selected from the group consisting of iron oxide hydroxide particles and iron oxide particles, wherein the precursor particle comprises from about 15 to about 45 atomic % Co based on amount of Fe present.

b) reducing the precursor particles to magnetic alloy particles,

c) passivating the magnetic alloy particles in an oxygen-containing atmosphere at a temperature between about 20 and 100° C.,

d) annealing the passivated magnetic alloy particles in an inert atmosphere at a temperature from about 120° to about 450 C., and

e) further oxidizing the annealed magnetic alloy particles in an oxygen-containing atmosphere

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5,735,970

APPARATUS AND PROCESS FOR THE PRODUCTION OF A NEUTRAL ATMOSPHERE

Marc J. Robert, Bountiful, Utah, assignor to Air Liquide America Corporation, Houston, Tex.

Filed May 30, 1996, Ser. No. 655,756

Int. Cl.^{6} C23C *8/20*

U.S. Cl. 148—208 **14 Claims**

1. A process for producing an atmosphere comprising:

combining an impure nitrogen stream containing between 0.1% and 21% oxygen by volume with a hydrocarbon containing gas to form a feed gas stream:

feeding the feed gas stream into a catalytic reactor having a nickel catalyst on an alumina support; and

heating the catalytic reactor to a temperature ranging from about 500° C. to about 1150° C. to produce a neutral atmosphere,

wherein the catalytic reactor is heated by burners and an oxygen stream is created during formation of the impure nitrogen steam which is used to enhance the performance of the burners.

5,735,971

METHOD FOR THE PRE-TREATMENT OF STEEL PARTS PRIOR TO SALT BATH NITRIDING

Georg Wahl, and Rainer Willing-Lepenies, both of Rodenbach, Germany, assignors to Durferrit GmbH Thermotechnik, Mannheim, Germany

Filed Nov. 28, 1995, Ser. No. 563,547

Claims priority, application Germany, Nov. 29, 1994, 44 42 328.4

Int. Cl.^{6} C23C *8/02;8/40*

U.S. Cl. 148—217 **7 Claims**

1. A method for the pre-treatment of a component made from steel containing more than 10 wt % of chromium and/or more than 4 wt % of nickel which forms passive layers on the surface thereof, comprising treating said component in an oxidizing salt melt at 300° to 500° C. and thereafter nitro-carburizing said component in a cyanide- or cyanate-containing salt bath to thereby achieve flawless nitro-carburizing

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5,735,972

BLACK CHROMATE-TREATMENT SOLUTION FOR ZN-NI ALLOY PLATED FILM

Seiji Kishikawa, and Takashi Yamamoto, both of Tokyo, Japan, assignors to Dipsol Chemicals Co., Ltd., Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 671,596

Claims priority, application Japan, May 23, 1996, 8-127971

Int. Cl.^{6} C23C *22/26*

U.S. Cl. 148—266 **6 Claims**

1. A method for forming a black chromate film on a Zn-Ni alloy plated film, comprising bringing a Zn-Ni alloy plated film having a Ni content ranging from 8 to 20% by weight into contact with a black chromate-treatment solution which comprises 1 to 100 g/l of hexavalent chromium, 1 to 100 g/l of hydrochloric acid residues, 1 to 100 g/l of nitric acid residues 1 to 100 g/l of at least one metal selected from the group consisting of iron, nickel, cobalt and copper, and a balance of water, and which solution is substantially free of silver ions.

5,735,973

PRINTED CIRCUIT BOARD SURFACE PROTECTIVE AGENT

Yasumichi Sasahara, Tokorozawa; Takao Ohno, Hannoh, and Seiji Shibata, Iruma, all of Japan, assignors to Tamura Kaken Corporation, Saitama, Japan

Filed Dec. 20, 1993, Ser. No. 170,049

Int. Cl.^{6} C23F *11/14;11/10*

U.S. Cl. 148—269 **6 Claims**

1. A printed board surface protective agent comprising a compound as expressed by Formula I

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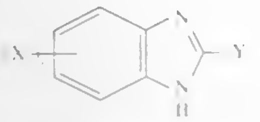
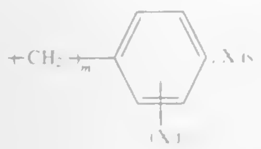


wherein Y is a linear or a branched alkyl group having 1 to 20 carbon atoms or



, X is any of amino group, di-lower alkylamino group, hydroxy group, lower alkoxy group, cyano group, formyl group, acetyl group, benzoyl group, carbamoyl group, carboxyl group, or lower alkoxycarbonyl group, X' is any of alkyl group, halogen atom, amino group, di-lower alkylamido group, hydroxy group, lower alkoxy group, cyano group, formyl group, acetyl group, benzoyl group, carbamoyl group, carboxyl group, lower alkoxycarbonyl group or nitro group; n is an integral number from 1 to 4, and X may be either identical or different when n is in a range from 2 to 4, m is an integral number in a range from 1 to 10, p is 0 or an integral number in a range from 1 to 4, and X' may be either identical or different when p is in a range from 2 to 4.

5,735,974

IRRADIATED INTERMETALLIC COMPOUND CONTAINING PART OF LIGHT-WATER REACTOR

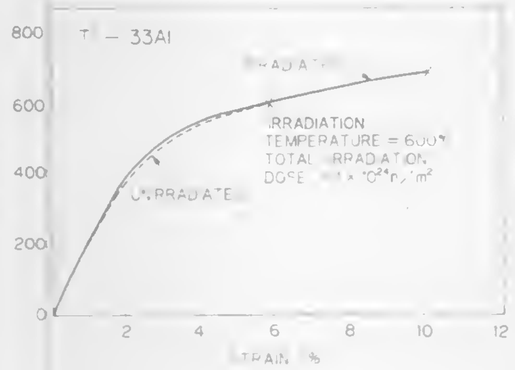
Akimichi Hishinuma, and Katsumaro Fukai, both of Ibaraki-ken, Japan, assignors to Japan Atomic Energy Research, Tokyo, Japan

Filed Dec. 10, 1996, Ser. No. 763,112

Claims priority, application Japan, Dec. 12, 1995, 7-323251

Int. Cl.⁶ G21C *3/07;3/06*

U.S. Cl. 148—330 5 Claims



1. A part of a light-water reactor comprising at least one treated intermetallic compound selected from the group of intermetallic compounds consisting of Ni_3Al, Ni_2Al_3, TiAl, Ti_3Al, Pt_2Si, PtSi, $FeAl_2$, CoAl, and $MoSi_2$, wherein said treated intermetallic compound is produced by a process comprising a step of irradiating the intermetallic compound with at least one selected from the group consisting of a neutron, a light ion, and an electron at temperatures of 0.2 to 0.6 times the melting temperature of the compound, in ° C., with an amount of irradiation of 0.01 to 5.0 displacement per atom.

5,735,975

QUINARY METALLIC GLASS ALLOYS

Xianghong Lin, and William L. Johnson, both of Pasadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Feb. 21, 1996, Ser. No. 604,452

Int. Cl.⁶ C22C *45/10*

U.S. Cl. 148—403 17 Claims

17. A composite material comprising:

particles or fibers of material selected from the group consisting of diamond, cubic boron nitride, refractory metal carbides, nitrides, carbonitrides, oxides and silicides, silicon, refractory metals and intermetallic compounds, pyrolytic carbon, graphite, boron, and silica base glass, and

a matrix for the particles or fibers comprising a metallic glass formed of an alloy comprising at least five elements including

zirconium in the range of from 45 to 65 atomic percent;

from 5 to 15 atomic percent of zinc;

from 4 to 7.5 atomic percent of metal selected from the group consisting of titanium and niobium; and

a balance substantially of metal selected from the group consisting of copper, nickel, cobalt and up to 10 atomic percent iron wherein the ratio of copper to the sum of nickel and cobalt is in the range of from 1:2 to 2:1.

5,735,976

CERAMIC PARTICLES FORMED IN-SITU IN METAL.

Alen Glenn Chu, Export, and Siba P. Ray, Murrysville, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 31, 1996, Ser. No. 594,966

Int. Cl.⁶ C22C *21/00*

U.S. Cl. 148—437 13 Claims

13. A method of forming finely sized carbide phase particles formed in situ in a molten aluminum metal or aluminum metal alloy comprising:

(a) providing a molten composition consisting essentially of molten aluminum metal liquid and molten Ti metal liquid, wherein said molten Ti metal liquid is provided in said molten composition as a liquid and not as a powder;

(b) providing a chloride salt containing carbon particles, wherein said salt comprises NaCl and KCl in a weight/weight ratio within the range of about 0.8–1.2 and of $MgCl_2$ and $CaCl_2$ in amounts comprising up to about 5–10% by weight of the salt mixture; and

(c) reacting said chloride salt containing carbon particles in said molten aluminum metal liquid by vigorously stirring said aluminum metal liquid and said chloride salt containing carbon particles to form a mixture of said molten Ti metal liquid in contact with a portion of said carbon particles at an elevated temperature above about 980° C. for a residence time less than one hour to form a uniform distribution of finely sized ceramic phase particles having an average particle diameter of less than about 0.3 microns formed and dispersed in-situ in an aluminum metal matrix.

5,735,977

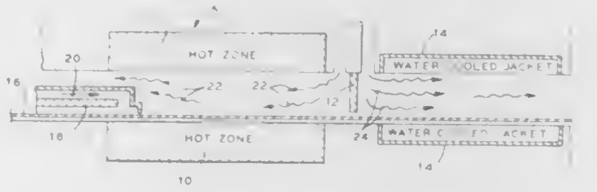
PROCESS FOR REMOVAL OF POLYMER FOAMS FROM NICKEL-COATED SUBSTRATES

Kirt Kenneth Cushnie, Burlington, and Scott Thomas Campbell, Oakville, both of Canada, assignors to Inco Limited, Toronto, Canada

Filed Dec. 12, 1996, Ser. No. 764,249

Int. Cl.⁶ C22B *5/20*

U.S. Cl. 148—516 17 Claims



1. A method of producing nickel structures comprising the steps of:

a) providing a nickel-coated polymer substrate, said nickel-coated polymer substrate having an outer nickel layer and said nickel-coated polymer substrate being at a temperature where said outer nickel layer lacks burst openings,

b) heating said nickel-coated polymer substrate by exposing said nickel-coated polymer substrate to a temperature of at least about 600° C. in less than about five seconds to thermally decompose polymer substrate and cause gaseous decomposition products of the polymer to form a large internal pressure and burst holes through said outer nickel layer of said nickel-coated polymer substrate,

c) discharging gases from the thermally decomposed polymer substrate through said holes through said outer nickel layer to leave a nickel structure, and

d) annealing said nickel structure to increase strength of said nickel structure.

5,735,978

SHEATHING TUBE FOR A NUCLEAR FUEL ROD

Jean-Paul Mardon, Caluire; Jean Senevat, Saint-Brevin-Les-Pins, and Daniel Charquet, Albertville, all of France, assignors to Framatome; Compagnie Generale des Matieres Nucleaires; Cezus, and Zircotube, all of France

Continuation of Ser. No. 347,071, Nov. 23, 1994, abandoned. This application Oct. 11, 1996, Ser. No. 730,013

Claims priority, application France, Nov. 25, 1993, 93/14107

Int. Cl.⁶ C22C *1/18*

U.S. Cl. 148—672 13 Claims

1. A method of manufacturing a tube for sheathing a nuclear fuel rod, comprising the steps of:

(a) drawing a tube blank of zirconium based alloy containing 0.18% to 0.25% by weight of iron, 0.07% to 0.13% by weight of chromium, and 0.35% to 1.70% by weight of tin, 900 ppm to 2300 ppm oxygen, 80 ppm to 200 ppm carbon, and 50 ppm to 120 ppm silicon, the ratio by weight between iron and chromium in the alloy being in the range 1.6 to 3;

(b) carrying out a plurality of successive passes of metallurgical treatment;

(c) carrying out a heat treatment on said tube blank following each of said passes, said heat treatment including after at least one rolling pass performed on said tube blank obtained by drawing, without intermediate annealing, a plurality of annealing passes under an inert atmosphere such that a sum ΣA is greater than $1.5.10^{-7}$.

5,735,979

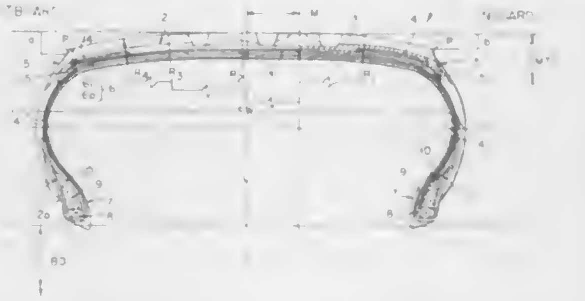
PNEUMATIC TIRE WITH ASYMMETRIC TREAD PROFILE

Francesco Secondari, Madison, Ala., assignor to Dunlop Tire Corporation, Buffalo, N.Y.

Filed Jul. 24, 1995, Ser. No. 505,900

Int. Cl.⁶ B60C *3/06;11/00*

U.S. Cl. 152—209 A 13 Claims



1. A pneumatic tire comprising a carcass extending around the tire from bead to bead, sidewalls and a rubber tread region which has a profile such that when considered in transverse cross section of a new tire, the sides of the tread terminate in inner and outer shoulder regions, respectively, each of said shoulder regions having a shoulder drop, which is defined by the distance in the radially inward direction from the point of maximum tire diameter to a shoulder point at the edge of the shoulder region, wherein when the tire is mounted on a scheduled wheelrim of a vehicle and inflated to a scheduled pressure, the tread region has its point of maximum tire diameter offset in the axial direction of the tire from the centerline of the tire section in the direction of the inner shoulder, and the shoulder drop of the outer shoulder is greater than the shoulder drop of the inner shoulder such that the tread region has an asymmetrical profile, wherein the tread profile on the side of the point of the maximum tire diameter having the largest shoulder drop is defined by a plurality of radii of curvature.

5,735,980

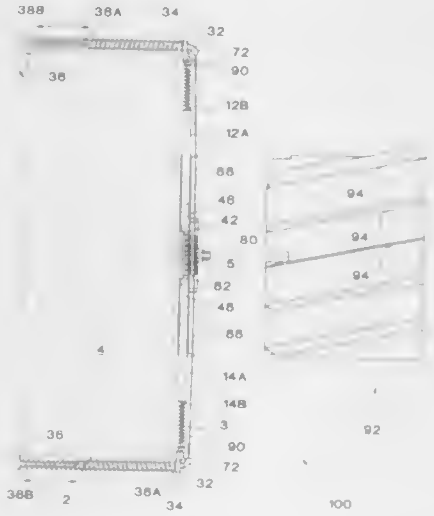
TRACTION DEVICE FOR A WHEELED VEHICLE

Palmer Edward Robeson, 1832 Birch Rd., McLean, Va. 22101

Filed Dec. 16, 1996, Ser. No. 768,075

Int. Cl.⁶ B60C *27/04;27/14*

U.S. Cl. 152—216 11 Claims



1. A traction device for attachment with respect to a tire rotating on an axis, the tire having a terrain engaging surface and a pair of sidewalls connected by the terrain engaging surface, said traction device comprising:

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- a plurality of arms extending radially outward toward the terrain engaging surface, said arms are extensible;
- clamping means for engaging the pair of sidewalls, said clamping means are supported at a radially distal end of each of said plurality of arms_said clamping means include a longitudinally extensible spacer overlying the terrain engaging surface;
- a first winch radially contracting each of said plurality of arms; and,
- a second winch for longitudinally contracting said clamping means.

5,735,981
SUBSTRATE COVERING

Philip Roland Winfield, and David Ions, both of Swindon, England, assignors to Raychem Limited, Swindon, United Kingdom

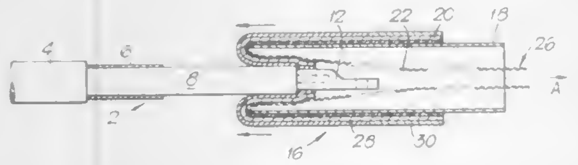
PCT No. PCT/GB94/00731, § 371 Date Oct. 5, 1995, § 102(e) Date Oct. 5, 1995, PCT Pub. No. WO94/23480, PCT Pub. Date Oct. 13, 1994

PCT Filed Apr. 6, 1994, Ser. No. 537,651

Claims priority, application United Kingdom, Apr. 7, 1993, 9307348

Int. Cl.⁶ H02G *15/18*

U.S. Cl. 156—52 **13 Claims**



1. An arrangement for delivering an elastic sleeve on to a substrate, the arrangement comprising:

- (a) a hollow support member, and
- (b) solid friction-reducing means interposed between the sleeve and the support member; wherein
- (c) the elastic sleeve is mounted in a radially-expanded configuration on the support member and has a layer of sealant, mastic, grease or gel material on its outer surface, and
- (d) the friction-reducing means is separable from the support member and from the sleeve, whereby

the application of relative sliding motion between the sleeve and the support member is arranged to allow delivery of the sleeve from the support member on to the substrate in a relaxed configuration.

5,735,982
EROSION CONTROL BLANKET AND METHOD OF MANUFACTURE

Timothy Prunty, Rice Lake, Wis.; Wendell E. Johnson, deceased, late of Dallas, and by John W. Johnson, legal representative, Colleyville, both of Tex., assignors to American Excelsior Company, Arlington, Tex.

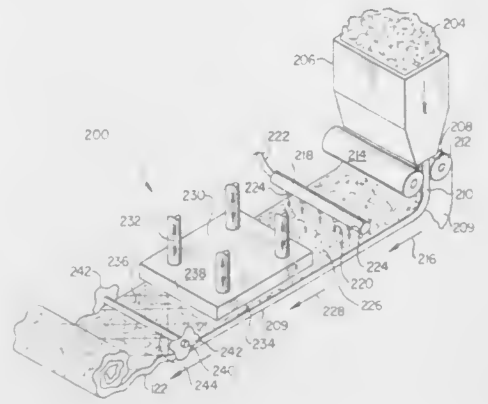
Filed Mar. 10, 1995, Ser. No. 402,166

Int. Cl.⁶ B29C *59/04;* **D04H** *1/64;* **E02B** *3/12*

U.S. Cl. 156—62.2 **22 Claims**

1. A method of manufacturing a vegetation growth-enhancing erosion control blanket that may be placed on an area upon which ground vegetation is to be grown, said method comprising the steps of

- forming a flexible mat of intertwined, elongated members, said members being of a material and collectively defining in said mat a multiplicity of interstitial regions through which portions of the growing ground vegetation may pass;
- securing at least a major portion of said members one to the other by spraying, from one side of the mat, a bonding agent in a manner providing said mat with structural integrity;



- embossing the surface of said mat with a pattern for enhancing the structural integrity thereof and the erosion control aspects therewith; and
- forming a contoured side portion along at least one side edge of said mat for providing an interlocking engagement with a complementary contoured side portion of an adjacent mat

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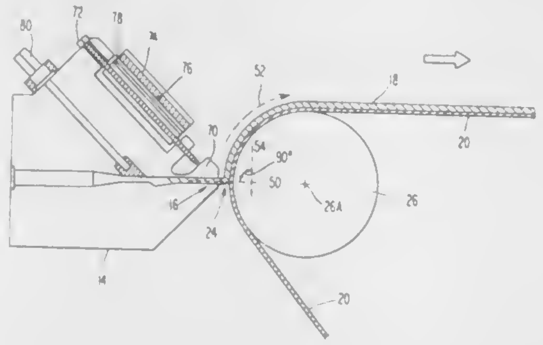
5,735,983
METHOD FOR MANUFACTURING A PRINTING PLATE

William Krebs Goss, Marietta, Ga., and Everett Eugene Garrett, Morristown, Tenn., assignors to Polyfibron Technologies, Inc., Atlanta, Ga.

Continuation of Ser. No. 111,746, Aug. 25, 1993, abandoned. This application May 24, 1996, Ser. No. 669,267

Int. Cl.⁶ B32B *31/00;31/22;31/30*

U.S. Cl. 156—64 **21 Claims**



1. A method for manufacturing a printing element, comprising the steps of:

- providing a sheet die having a continuous lip opening and bolts for controlling the die lip opening, whereby the thickness of an extruded polymeric sheet can be controlled,
- extruding a molten polymer sheet which is or will become photocurable in that portions thereof can be cured when subjected to light or other radiation of an appropriate wavelength, said photocurable polymer comprising an elastomer compound, an ethylenically unsaturated compound having at least one terminal ethylenic group, and a photoinitiator, the sheet having major faces extending continuously and coextensively in a portion of the sheet width between opposite sheet edges;
- moving a carrier web at a location subsequent to the point of extrusion such that a major face of the extended polymer sheet, while in a molten state, is self-laminated continuously and directly in a nip-free manner to the moving carrier; and
- attaching a base sheet to the photocurable polymer sheet

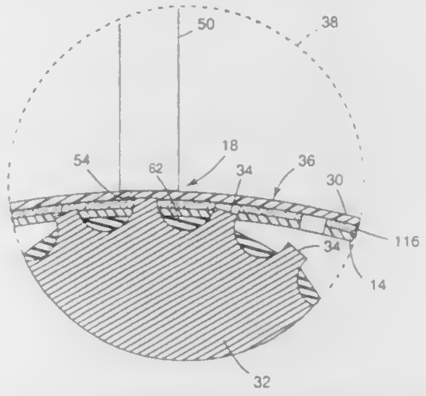
5,735,984
METHOD OF APERTURING THIN SHEET MATERIALS

Randy A. Hoff, Hudson; John W. Louks, North Hudson, both of Wis., and Richard L. Jacobson, Oakdale, Wash., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 335,898, Nov. 8, 1994, abandoned. This application Sep. 23, 1996, Ser. No. 692,035

Int. Cl.⁶ B32B *31/18*

U.S. Cl. 156—73.3 **34 Claims**



1. A method of forming apertures in a nonwoven or foam sheet material having a first side and a second side wherein at least one side of the nonwoven or foam sheet material is substantially coated with an adhesive and further wherein the area of each of the formed apertures is generally greater than about 0.05 square millimeters, the method comprising the steps of:

- (a) placing the adhesive-coated sheet material on a patterned anvil having a pattern of flattened raised areas wherein the height of the flattened raised areas is equal to or less than the thickness of the sheet material and the adhesive; and
- (b) subjecting the sheet material to a sufficient amount of sonic vibrations to aperture the sheet material and the adhesive; and

whereby the sheet material and the adhesive is apertured in a pattern generally the same as the pattern of raised areas on the patterned anvil.

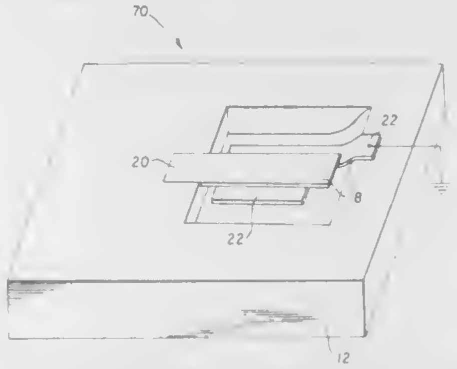
5,735,985
METHOD FOR MICROMOLDING CERAMIC STRUCTURES

Syamal K. Ghosh, Rochester; Edward P. Furlani, Lancaster, and William J. Grande, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 15, 1996, Ser. No. 749,256

Int. Cl.⁶ B32B *31/26;* **C04B** *35/622;* **B29C** *33/40*

U.S. Cl. 156—89 **14 Claims**



1. A method for micromolding a ceramic element comprising the steps of:

- (a) etching a silicon wafer to generate a master mold which includes micro features ranging in size from about 0.1 μm to about 1,000 μm;
- (b) forming a negative master mold from a micro feature replicating material using the master mold;
- (c) mounting the negative master mold in a die;
- (d) placing a ceramic powder having an average particle size ranging in size from about 0.01 μm to about 0.3 μm in the die;
- (e) compression molding the ceramic powder to form a green base element;
- (f) sintering the green base element

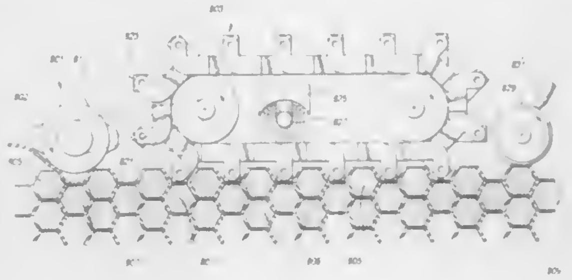
5,735,986
CONTINUOUS PROCESS FOR THE PREPARATION OF HONEYCOMB STRUCTURAL MATERIAL AND APPARATUS SUITABLE FOR USE THEREIN

Barry Michael Fell, 7124 Red Top Rd., Hummelstown, Pa. 17036

Filed Nov. 3, 1995, Ser. No. 552,376

Int. Cl.⁶ B32B *31/00*

U.S. Cl. 156—160 **26 Claims**



1. A continuous process for the preparation of non-expanded honeycomb core, each half-cell height of honeycomb core prepared by a process comprising:

- a) disposing a first set of former bars into the uppermost complete cells of a honeycomb core;
- b) disposing a second set of former bars in antinode depressions in the topmost surface of said honeycomb core, leaving top nodal surfaces of topmost cells of said core exposed between the former bars of said second set of former bars,
- c) sequentially corrugating a non-corrugated web over said second set of former bars to form corrugations such that the bottom antinodal surfaces of said corrugations abut said top nodal surfaces of said cells of said core to form a node-antinode deme;
- d) progressively applying heat and pressure to a plurality of said node-antinode demes, said heat and pressure sufficient to consolidate said node-antinode demes to form consolidated node-antinode demes and a new topmost row of cells

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5,735,987
METHOD AND DEVICE FOR FEEDING WRAPPING MATERIAL AND A TEAR STRIP TO A USER MACHINE

Silvano Boriani, Via Varolio, and Antonio Gamberini, Via Nino Scota, both of Italy, assignors to G.D. Societa' Per Azioni, Bologna, Italy

Filed Sep. 7, 1995, Ser. No. 524,897

Claims priority, application Italy, Sep. 12, 1994, B094A 000406

Int. Cl.⁶ B32B *31/18;* **A24C** *1/00*

U.S. Cl. 156—176 **7 Claims**

1. A method of feeding a wrapping material strip and a tear strip to a user machine, said method comprising feeding the wrapping material strip and the tear strip along respective first path portions to a joining station; controlling tension of the two strips along said first path portions so that the two strips have substantially the same tension and substantially zero tension at said joining station; joining the two strips at the joining station to form a combined wrapping strip complete with tear strip; advancing said combined wrapping strip along a second path portion towards the user

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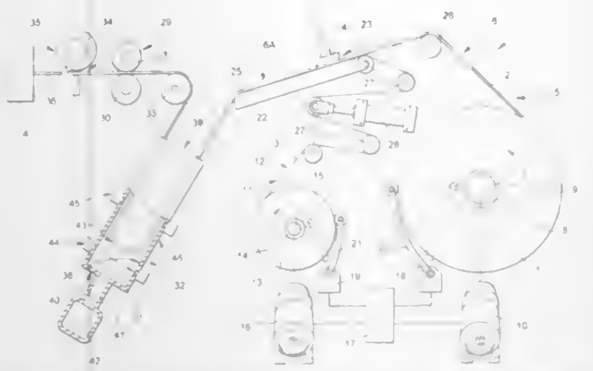


machine; and imparting a given tension to the combined wrapping strip along said second path portion.

5,735,988

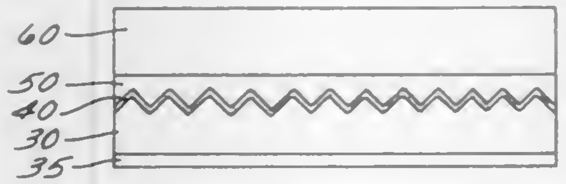
METHOD OF MAKING LIQUID CRYSTAL DISPLAY SYSTEM

Chiu W. Chau, Cerritos, and Jeremy M. Lerner, Culver City, both of Calif., assignors to Physical Optics Corporation, Torrance, Calif.

Filed Mar. 19, 1996, Ser. No. 618,539

Int. Cl.^{6} B32B *3/00*; G02B *6/00*

U.S. Cl. 156—209 **37 Claims**



21 A method of making a collimated backlight for a liquid crystal display having embedded optical elements, comprising the steps of:

providing a resin layer with a replica surface topography, said replica surface topography including replicas of said plurality of optical elements, said replicas of said plurality of optical elements being embedded in said collimated backlight;
cutting said resin layer to form an optical element layer that includes said replica surface topography,
coating said replica surface topography with a layer;
providing a substrate having a substrate refractive index; and
laminating said layer to said substrate with an index matching material having a matching refractive index that is substantially equal to said substrate refractive index;
connecting said substrate to a liquid crystal display, whereby said replicas of said plurality of optical elements are embedded in said collimated backlight.

5,735,989

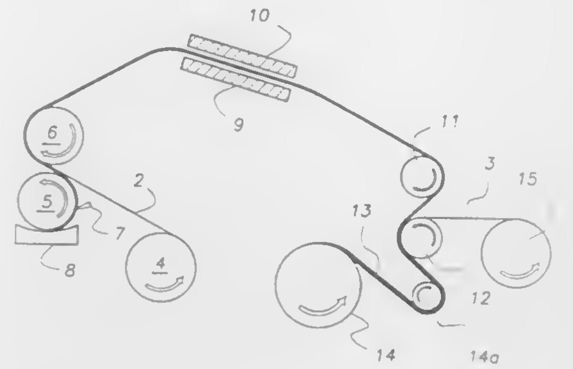
PROCESS FOR TRANSFERRING HOLOGRAPHIC IMAGES

Michael J. Stepanek, Hollis, N.H., assignor to Hampshire Holographic Manufacturing Corp., Milford, N.H.

Filed Jul. 9, 1996, Ser. No. 679,348

Int. Cl.^{6} B32B *31/20;31/12*

U.S. Cl. 156—237 **8 Claims**



1 A process for transferring a holographic image contained on a polymeric support to a thin, tissue paper substrate, wherein said holographic image is a metallized holographic image having a top surface, comprising the steps of

a. coating an adhesive on said top surface of said metallized holographic image and drying said adhesive at a temperature of between 25° and 150° C.,
b. laminating said dried adhesive surface to said thin tissue paper substrate at a temperature between 25°-150° C and a pressure greater than 1 pound per square inch to form a laminate comprising, in order, a polymeric support, a metallized holographic image, an adhesive layer, and a thin, tissue paper; and,
c. delaminating said laminate whereby said metallized holographic image is transferred from said polymeric substrate to said thin tissue paper substrate.

5,735,990

PROCESS FOR PRODUCTION OF CARPETS BACKSIZED WITH AN ETHYLENE/VINYL ACETATE BACKING COMPOSITION

Tsuyoshi Shikano, Gifu-ken; Isao Hanada, Zama; Masakazu Shimizu, Ichihara, and Koichi Matsumoto, Yokohama, all of Japan, assignors to Ikeda Bussan Co., Ltd., Kanagawa-ken, and Nippon Unicar Kabushiki Kaisha, Tokyo, both of Japan

Filed May 14, 1996, Ser. No. 645,661

Claims priority, application Japan, May 15, 1995, 7-138895

Int. Cl.^{6} B32B *3/02*; B29C *47/00*, C09J *4/00*

U.S. Cl. 156—244.11 **6 Claims**

1 In a process for producing a back-sized carpet, wherein the process comprises applying a backing composition on an underside of a carpet base material, the improvements comprising:

(a) that said backing composition comprises:
  (i) a resin component in an amount of from 25% to 75% by weight of said backing composition, said resin component consisting essentially of 50% to 90% by weight of a mixture of a first ethylene/vinyl acetate copolymer and a second ethylene/vinyl acetate copolymer different from the first ethylene/vinyl acetate copolymer, said first ethylene vinyl acetate copolymer having a melt index from 10 to 100 g/10 min. and a vinyl acetate content from 5% to 45% by weight and said second ethylene/vinyl acetate copolymer having a melt index from 0.1 to 9 g/10 min. and a vinyl acetate content from 5% to 45% by weight; and 10% to 50% by weight of an ethylene/alpha-olefin copolymer having a melt index from 1 to 100 g/10 min. and a density from 0.86 to 0.95 g/cm^3;
  (ii) an inorganic filler in an amount from 25% to 75% by weight of said backing composition; and
  (iii) an atactic polypropylene as a dispersing agent in an amount from 1% to 20% by weight of said backing composition, and
(b) said process further comprises kneading and pelletizing said inorganic filler and said dispersing agent of said backing composition to prepare a master batch having an inorganic filler content from 40% to 90% by weight of said master batch;
dry blending said master batch and said resin component to form a dry-blended mixture;
extruding said dry-blended mixture into a sheet through an extruder equipped with T-dies, on the underside of said carpet base material to form a backing layer while said sheet remains in its hot-melted state; and
cooling said sheet to form said back-sized carpet.

5,735,991

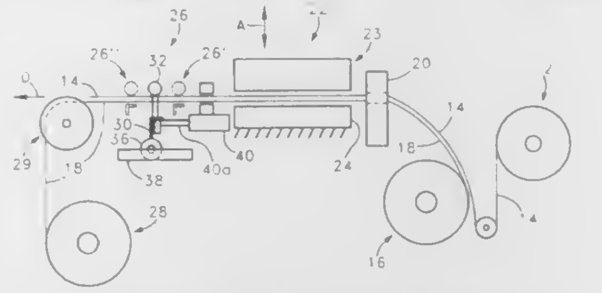
METHOD FOR SEALING AND CUTTING PADS AND MOVING THE SEALED AND CUT PADS TO A TAKE OFF POSITION BY A MOVING SUPPORT

Bruce Strongwater, Englewood, N.J., assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 20, 1995, Ser. No. 546,369

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—268 **19 Claims**



1. A method for producing pads comprising the steps of:
a) providing a substantially flat support member;
b) feeding a non-metallic pad sheet and a support sheet onto said support member so that support sheet rests on said support and said pad sheet rests on said support sheet;
c) providing a die member having a pattern defining a perimeter of at least one pad;
d) providing a cutting member conforming to a perimeter of sad die member and encircling said die member;
e) moving said die member to press said die member into said pad sheet so as to at least partially compress said pad sheet between said die member and said support member;
f) applying electrical energy across said support and said die member for an interval sufficient, to heat seal said pattern in said pad sheet which conforms to the pattern of said die member;
g) pressing said cutting member into said pad sheet to substantially completely sever a portion of the pad sheet from a marginal portion of the pad sheet surrounding the severed portion and partially cutting the support sheet while preventing said support sheet from being completely severed by said cutting member; and
h) moving said cutting member and said die member away from said support sheet and pad sheet.

5,735,992

POLISHING DEVICE WITH SAMPLE HOLDER

Jose Miragaya, Pierrevert, France, assignor to Commissariat a L'Energie Atomique, Paris, France

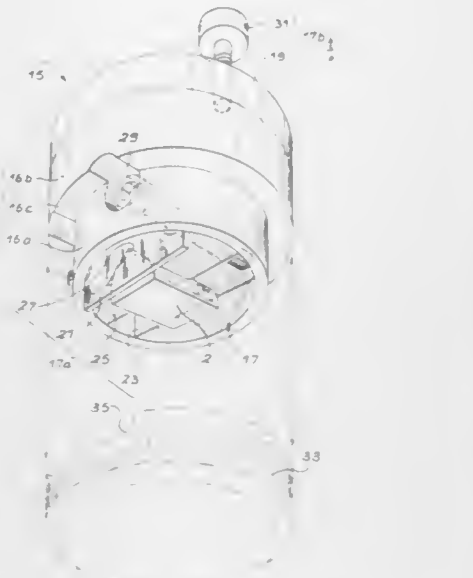
PCT No. PCT/FR95/01085, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO96/05497, PCT Pub. Date Feb. 22, 1996

PCT Filed Aug. 16, 1995, Ser. No. 628,636

Claims priority, application France, Aug. 17, 1994, 94 10079

Int. Cl.^{6} B44C *1/22*

U.S. Cl. 156—345 **6 Claims**



1. Device for polishing samples (**2**) of materials, each having a substantially planar face, incorporating a polishing table (**3**) and a polishing head (**5**) equipped with a support disk (**9**) provided with at least one orifice (**11**), characterized in that it also has a sample holder (**15**), which can at least partly be housed in the orifice (**11**) of the disk and maintains the sample in a chosen position, said sample holder comprising:

a central body (**17**) having a lower portion (**17***a*) with means (**21**, **23**, **25**, **27**, **29**) for holding and positioning the sample, and an upper portion (**17***b*) having a base (**19**) in which are inserted means (**31**) for regulating the depth reading of the sample in the disk orifice,
a sliding jacket (**16**) placed around the central body (**17**) and externally provided with a shoulder (**16***c*), which subdivides said jacket into a stop ring (**16***b*) having an external perimeter approximately equal to that of the base of the central body, and a smaller perimeter centring ring (**16***a*) adjusted to the perimeter of the disk orifice.

5,735,993

PLASMA PROCESSING APPARATUS FOR DRY ETCHING OF SEMICONDUCTOR WAFERS

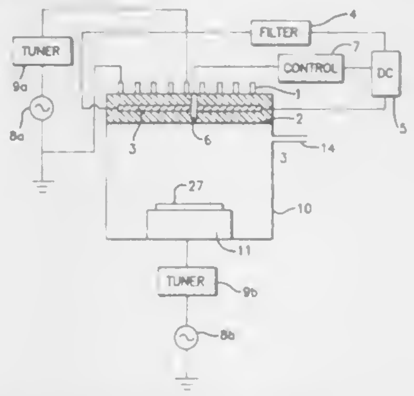
Kazuyoshi Yoshida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 6, 1996, Ser. No. 711,442

Claims priority, application Japan, Sep. 28, 1995, 7-251553

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 156—345 **12 Claims**



1. A plasma processing apparatus comprising:
a vacuum reaction vessel having a wall separating an interior of said vacuum reaction chamber from an exterior, said wall having a dielectric portion and an electrically grounded conductive portion;
a flat electrical coil placed adjacent to said dielectric portion outside said vacuum reaction vessel;
a first high-frequency power supply for feeding a high-frequency current to said coil via a first tuning mechanism;
means for supplying a plurality of processing gasses to said interior of said vacuum reaction vessel;
a lower electrode disposed in said interior of said vacuum reaction vessel to face said dielectric portion and capable of mounting a sample to be processed thereon;
a second high-frequency power supply for feeding a high-frequency voltage to said lower electrode via a tuning mechanism;
an electromagnetic-wave transmitting heating member having a metal plate buried within said dielectric portion and capable of transmitting electromagnetic waves, and also capable of raising the temperature of said dielectric portion.

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a DC power supply for feeding a direct current to the electromagnetic-wave transmitting heating member via a filter capable of cutting off electromagnetic waves.

a temperature measuring means for measuring the temperature of said dielectric portion; and

a controller for controlling the current supplied from said DC power supply to said electromagnetic-wave transmitting heating member on the basis of said temperature measured by said temperature measuring means.

5,735,994
FILM PRINTING DEVICE

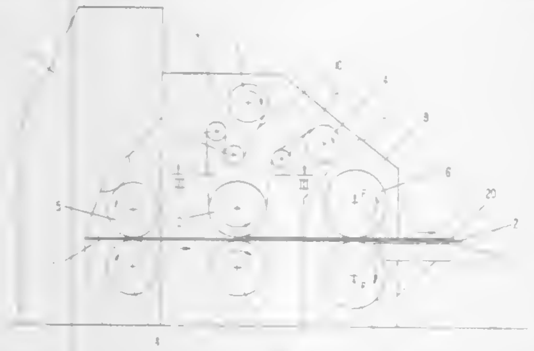
Kurt Lappe, Erlenstrasse 23, D-41470 Neuss, Germany, and Fred Oudt, Albert Biesmanslaan 18, Bus 3.3, BE - 1560 Hoeilaart, Belgium

Continuation of Ser. No. 137,169, Nov. 19, 1993, Pat. No. 5,565,054. This application Jul. 12, 1996, Ser. No. 680,910

Claims priority, application Germany, Apr. 4, 1991, 41 10 801.9

Int. Cl.^{6} B44C *1/17*

U.S. Cl. 156—386 **8 Claims**



1 A transfer film printing device for transferring a print design from a transfer film to a substrate, said device consisting of

a device for applying an adhesive layer to a substrate, said device for applying an adhesive layer comprising an applicator;

a supply device for a transfer film for supplying the transfer film, comprising a support film and a transfer layer, to the substrate,

a printing mechanism having a printing surface and a first counter surface defining a printing slot for simultaneously guiding the substrate to be provided with a print design and the transfer film through said printing slot for transferring at least a portion of the transfer layer as a print design from the transfer film to the substrate;

a removing device for removing the support film of the transfer film together with non-transferred transfer layer from the substrate after leaving said printing mechanism; and

a pressing device, positioned downstream of said printing mechanism and said removing device, having a pressing surface and a second counter surface defining a pressing slot for guiding the substrate with the transferred print design of the transfer layer therethrough

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5,735,995
APPARATUS FOR APPLYING AN APEX FILLER TO A BEAD RING

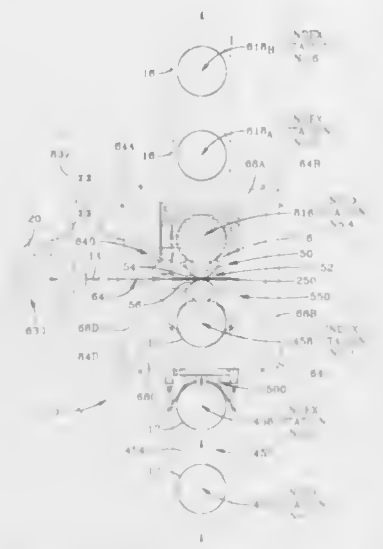
Jeffrey F. Bull, Tallmadge; Thomas D. Cartwright, Stow; Mark Marabito, Medina; Thomas D. Miller, Canton; Ty Rager, Akron, and Evan J. Smith, Massillon, all of Ohio, assignors to The Steelastic Company, L.L.C., Lisle, Ill.

Filed Feb. 13, 1996, Ser. No. 600,896

Int. Cl.^{6} B29D *30/48*

U.S. Cl. 156—398 **29 Claims**

1 Apparatus for applying an apex filler to an annular bead ring comprising:



chuck means for selectively receiving an annular bead ring having an outer circumferential surface;

a pair of opposed, frusto-conical, applying rollers each having a rotational axis and outer surfaces, portions of which are spaced, one with respect to the other, in order to define a nip therebetween having a cross sectional configuration in the shape of the desired apex filler;

means for delivering said chuck means, at least when supporting an annular bead ring, into said nip;

means for presenting a linear strip of uncured elastomeric material in the general cross sectional configuration of the desired apex filler to the outer circumferential surface of said annular bead ring;

said nip adapted to engage said linear strip of uncured elastomeric material and to apply said linear strip to said outer circumferential surface of said annular bead ring;

means for cutting said elastomeric strip to the length required to cover said outer circumferential surface of said annular bead ring, and

retainers to engage substantially the entire apex filler as it is applied to said outer circumferential surface of said bead ring in order substantially to maintain the radial disposition in which said apex filler is applied to said bead ring by said nip while obviating adherence between said retainers and said elastomeric strip.

5,735,996
MULTI-TRANSFER-ROLL HEAT-TRANSFER DECORATOR

Syed A. Asghar, Brockton; Joseph F. Callinan, Natick, and Paul D. Christo, Duxbury, all of Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.

Division of Ser. No. 228,815, Apr. 18, 1994, abandoned, which is a division of Ser. No. 938,929, Aug. 31, 1992, abandoned. This application Mar. 28, 1996, Ser. No. 623,409

Int. Cl.^{6} B65C *9/04*

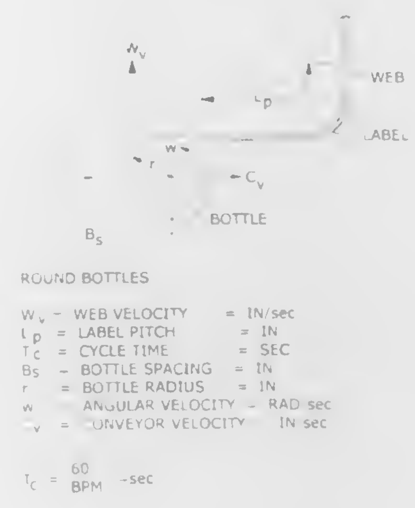
U.S. Cl. 156—448 **3 Claims**

1 Apparatus for applying heat transfer labels disposed on a web to containers comprising:

a. a turret, said turret continuously rotating in a first direction and having thereon a plurality of decorating stations at which labels can be transferred from said web to said containers, each decorating station including a container holding assembly,

b. means for moving said web along a path which passes through at least two of said plurality of decorating stations, said web moving in a second direction at said at least two of said plurality of decorating stations, and

c. means for delivering containers to be decorated to said turret and carrying away containers from said turret after decoration,



d. said first direction being opposite to said second direction

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5,735,997
DEVICE FOR MOUNTING, LAMINATING AND/OR ENCLOSING AN ILLUSTRATION, AND A CASSETTE FOR SUCH A DEVICE

Johannes Antonius Maria Reinders, De Braak 2, NL-8101 GJ Raalte, Netherlands

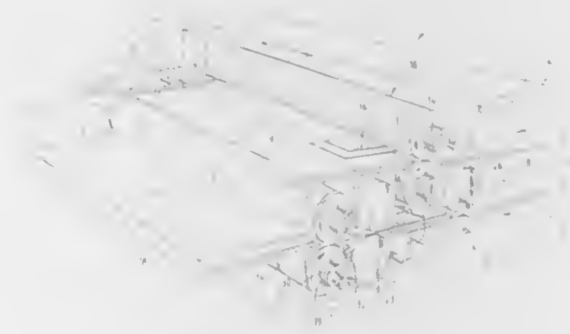
PCT No. PCT/NL94/00146, § 371 Date Mar. 22, 1996, § 102(e) Date Mar. 22, 1996, PCT Pub. No. WO95/00430, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 21, 1994, Ser. No. 564,367

Claims priority, application Netherlands, Jun. 21, 1993, 9301078; Dec. 10, 1993, 9302157; Dec. 10, 1993, 9302158; Dec. 10, 1993, 9302159; Dec. 10, 1993, 9302160

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—495 **39 Claims**



1 A device for at least one of mounting, laminating and enclosing an illustration, comprising:

a) a housing,

b) a mounting and laminating unit having a covering roller pair including an upper covering roller and a lower covering roller and having a cover layer cassette providing a cover foil to at least one of the covering rollers and

c) an enclosing unit having an enclosing roller pair including an upper enclosing roller and a lower enclosing roller, having two enclosing cassettes providing an enclosing foil for the respective enclosing rollers, and having a pair of stretching rollers for stretching therebetween the enclosing foils arranged on the illustration, wherein the mounting and laminating unit and the enclosing unit are located in the housing

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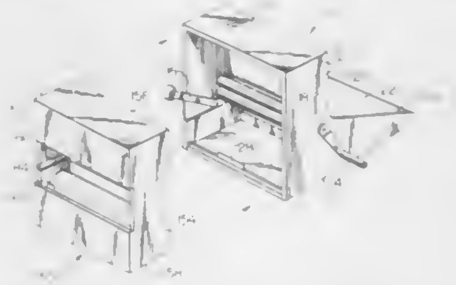
5,735,998
LAMINATING AND ADHESIVE TRANSFER APPARATUS

Franklin C. Bradshaw, Scottsdale, Ariz., assignor to Xyron, Inc., Scottsdale, Ariz.

Continuation of Ser. No. 354,222, Dec. 12, 1994, Pat. No. 5,580,417, which is a continuation-in-part of Ser. No. 247,003, May 20, 1994, Pat. No. 5,584,962. This application Nov. 14, 1996, Ser. No. 748,982

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—495 **16 Claims**



1 An applicator and transfer apparatus comprising

a frame having opposite sides;

a first nip roller rotatably mounted in said frame,

a second nip roller rotatably mounted in said frame parallel to said first nip roller and defining a nip area with said first nip roller, said nip area having a feed side and a discharge side,

actuating means for imparting rotation to at least one of said first and second nip rollers

first and second feed rolls of material, said first and second feed rolls each having opposite ends and a generally cylindrical core about which feed material is wound,

first mounting means for rotatably mounting said first feed roll therein parallel to said first and second nip rollers and second mounting means for rotatably mounting said second feed roll therein parallel to said first and second nip rollers, and

a removable cartridge insertable in said housing, wherein said first and second mounting means are located in said cartridge

wherein said frame includes an open front for receiving said cartridge and a rear wall, said rear wall having an opening therein in alignment with said nip area, and wherein said cartridge includes an open rear in substantial alignment with said open front of said frame, a top wall, a bottom wall, and a front wall, said open rear providing access to said first and second feed rolls and loading of material from said first and second feed rolls to said first and second nip rollers, and said front wall having an opening therein in alignment with said nip area

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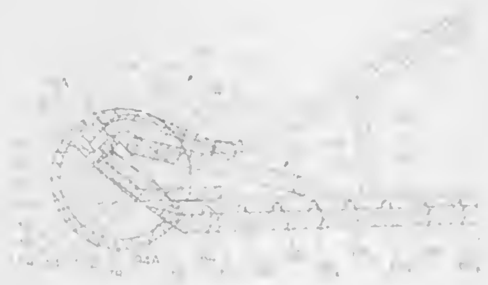
5,735,999
APPLICATOR

Isaac Mendelovich, Elkins Park; Peter W. Bressler, and John D. Coleman, both of Philadelphia, all of Pa., assignors to Tapelicator, Inc., Philadelphia, Pa.

Continuation of Ser. No. 324,552, Oct. 18, 1994, Pat. No. 5,518,576. This application Mar. 15, 1996, Ser. No. 616,609

Int. Cl.^{6} B32B *31/00*

U.S. Cl. 156—523 **7 Claims**



1 A dispenser for material comprising

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- a shell for housing the material, the shell having an exit location for the material, the shell including:
- cutting means movable between a first position and a second, cutting position, for cutting the material downstream from the shell exit, location so that after cutting the material, a trailing portion of the material remains external to the housing;
- a cover for protecting the material, the cover being movable between a cutting position and a stationary position, wherein in the cutting position, the trailing portion of the material is exposed and in the stationary position the cover provides a protective shield for the trailing portion of the material;
- burnishing means for pressing the material against an application surface;
- first control means for moving the cover between the stationary position and the cutting position; and
- second control means for advancing the cutting means to the second, cutting position, wherein the dispenser is operable with one hand.

5,736,000
METHOD AND APPARATUS FOR MANUFACTURING RECTANGULAR FRAMES

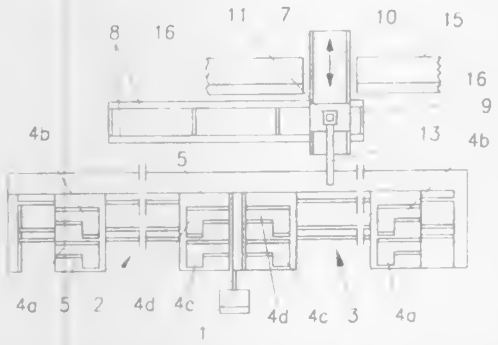
Karl-Heinz Stürtz, Neustadt, Germany, assignor to Willi Stürtz Maschinenbau GmbH, Neustadt, Germany

Division of Ser. No. 437,133, May 5, 1995, Pat. No. 5,660,670. This application Apr. 17, 1997, Ser. No. 837,373

Claims priority, application Germany, May 11, 1994, 44 16 634.6

Int. Cl.⁶ B29C *65/20*

U.S. Cl. 156—499 **9 Claims**



1. An apparatus for manufacturing rectangular frames of plastic material, comprising at least one vertically operating or essentially vertically operating welding machine, the at least one welding machine having an operator side and four welding heads which are movable relative to each other, the at least one welding machine comprising means for clamping four plastic sections which are cut to length with bevels at end faces thereof and are placed from the operator side into the at least one welding machine, means for simultaneously heating and joining together the end faces of the plastic sections under pressure, further comprising a transport unit, the at least one welding machine comprising a transfer unit for transferring welded frames to the transport unit, wherein the transport unit is mounted on a side of the at least one welding machine facing away from the operator side.

5,736,001
COMBINATION DRYWALL JOINT COMPOUND HOPPER AND DRYWALL TAPE DISPENSER

Jeffrey C. Samuelson, Box 2575, Ashville, N.Y. 14710

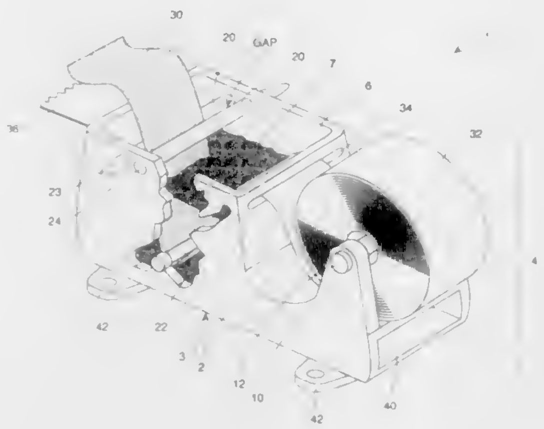
Filed Apr. 10, 1996, Ser. No. 629,883

Int. Cl.⁶ B32B *31/00*

U.S. Cl. 156—575 **4 Claims**

1. A drywall tape and compound dispenser comprising:

- a. a basin for storing drywall joint compound;
- b. a tape holder adjacent to the basin;



- c. an elongated, generally cylindrical first member extending across the basin and positioned near the top of the basin;
- d. an elongated, generally cylindrical second member extending across the basin and parallel to the first member;
- e. the first and second members each having a threaded portion at one end which is threadedly attachable to one side of the basin;
- f. the first and second members each being flattened at an end opposite of the threaded portion to provide a handle for use when threadedly engaging and disengaging the member from the basin, the handle being in the form of a single tapered wing extended generally along a longitudinal axis of the member;
- g. the first and second members forming a gap there-between for permitting passage of drywall tape between the first and second members and for acting as a scraper to govern the amount of joint compound which adheres to the drywall tape; and
- h. an elongated, generally cylindrical turn rod extending across the basin parallel to the first and second members near a bottom of the basin;
- i. wherein the dispenser is adapted to support a roll of drywall tape on the tape holder, the drywall tape extending from the roll, toward and around the turn rod, then toward and between the first and second members;
- j. whereby when the basin is filled with drywall joint compound, the drywall tape is deliverable from the dispenser with a coating of the drywall joint compound on the drywall tape.

5,736,002
METHODS AND EQUIPMENT FOR ANISOTROPIC, PATTERNED CONVERSION OF COPPER INTO SELECTIVELY REMOVABLE COMPOUNDS AND FOR REMOVAL OF SAME

Lynn Renee Allen, Camas, and John Martin Grant, Vancouver, both of Wash., assignors to Sharp Microelectronics Technology, Inc., Camas, Wash., and Sharp Kabushiki Kaisha, Osaka, Japan

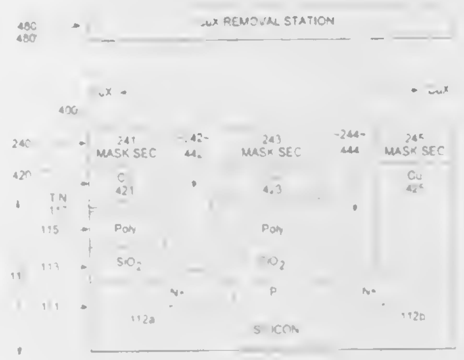
Filed Aug. 22, 1994, Ser. No. 293,821

Int. Cl.⁶ H01L *21/32;21/302;21/306*

U.S. Cl. 156—628.1 **2 Claims**

1 A method for patterning a copper-based layer comprising the steps of:

- (a) providing said cooper-based layer on a substrate where said substrate has pre-defined conductivity regions formed therein:
- (b) anisotropically introducing, while said substrate is at a first temperature of approximately 100° C. or less, a reactant for converting preselected portions of the copper-based layer into a selectively removable compound;
- (c) converting said preselected portions of the copper-based layer that include the introduced reactant into said selectively removable compound: and
- (d) selectively removing at a second temperature, the removable compound while leaving behind nonconverted portions of the copper-based layer, said second temperature being greater than the first temperature: and further wherein:
- (b.1) said step (b) of anisotropically introducing is carried out in a first processing area that is thermally isolated from a second processing area; and
- (d.1) said step (d) of selectively removing at a second temperature is carried out in the second processing area.



5,736,003
APPARATUS FOR CONCENTRATING UREA SOLUTIONS UNDER VACUUM

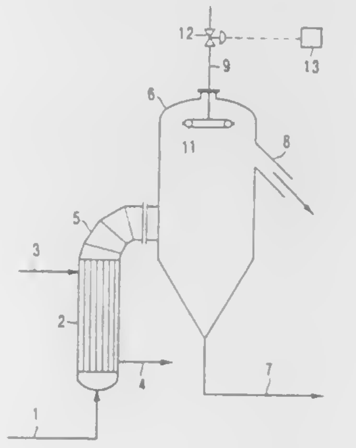
Franco Granelli, Milan, Italy, assignor to Snamprogetti S.p.A., St. Donato, Italy

Continuation of Ser. No. 118,146, Sep. 8, 1993, abandoned, which is a division of Ser. No. 687,116, Apr. 18, 1991, Pat. No. 5,273,623. This application Aug. 10, 1995, Ser. No. 513,251

Claims priority, application Italy, Apr. 24, 1990, 20129A

Int. Cl.⁶ B01D *1/00*

U.S. Cl. 159—31 **6 Claims**



1. An apparatus for concentrating a urea solution under a vacuum so as to result in molten urea being obtained by separation thereof from a gas phase, said apparatus comprising a heat exchanger, a separator operably affixed to said heat exchanger via means for introducing a urea solution into said separator, means for laterally removing vapor from said separator, and means for injecting superheated water vapor into said separator so as to protect a region within said separator from the formation of insoluble incrustations, wherein the position of said means for injecting superheated water vapor into said separator is above said means for laterally removing vapor from the separator, the position of said means for laterally removing vapor from said separator in turn is above said means for introducing the urea solution into said the separator.

5,736,004
CONTROL SCHEME FOR RAPID PULP DELIGNIFICATION AND BLEACHING

George Pangalos, Plainsboro, N.J.; Ronald A. Falcone, Jr.; William L. Mayo, both of Chesapeake, Va., and Gregory J. Bosch, Yardville, N.J., assignors to Union Camp Patent Holding, Inc., Wayne, N.J.

Continuation-in-part of Ser. No. 399,717, Mar. 3, 1995, Pat. No. 5,672,247. This application Jan. 27, 1997, Ser. No. 789,493

Int. Cl.⁶ D21C *7/12*

U.S. Cl. 162—49 **36 Claims**

1. A coupled control method for controlling a chemical pulping process to obtain a desired degree of delignification or bleaching, which comprises:

- (a) adding at least one chemical at a desired amount to pulp.
- (b) passing the pulp into and out of a reactor;
- (c) measuring the brightness value of the pulp between successive lignin content measurements; and
- (d) adjusting the quantity of the at least one chemical required to reach a desired degree of delignification or bleaching in response to the measured brightness and lignin content values.

5,736,005
SCRAPER DEVICE FOR A CONTINUOUS DIGESTER

Jan Flodquist, Skoghall, Sweden, assignor to Kvaerner Pulping Technologies Aktiebolag, Sweden

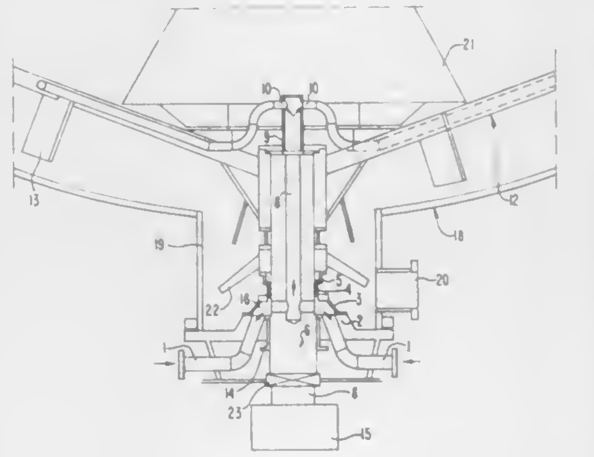
PCT No. PCT/SE94/00300, § 371 Date Oct. 5, 1995, § 102(e) Date Oct. 5, 1995, PCT Pub. No. WO94/24363, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 5, 1994, Ser. No. 530,120

Claims priority, application Sweden, Apr. 21, 1993, 9301304

Int. Cl.⁶ D21C *7/08*

U.S. Cl. 162—52 **6 Claims**



1 A scraper device arranged at a bottom of a continuous digester for pulp production, comprising:

- a vertically arranged rotatable shaft extending through the bottom of the digester;
- at least one scraper arm arranged inside the digester, said scraper arm being arranged at an upper end of said shaft;
- a driver device attached at a lower end of said shaft for driving said shaft;
- an axially extending bore inside said shaft for supplying liquid into the digester, said bore extending from an upper end of said shaft along only a limited part of said shaft.
- a space arranged around a limited part of said shaft and in a vicinity of a lower end of said bore, said space being delimited toward the outside by a plate forming a lower limiting surface of the space, a housing fixed on said plate forming upper and side limiting surfaces of the space, and said space being delimited toward the inside by said shaft.

at least one liquid supply channel communicating with said space;
passages arranged in said shaft communicating between said bore and said space, whereby liquid can flow from the supply channel into said space, through said passages into said bore and into the digester;
a first sealing means arranged between said housing and said shaft, said first sealing means providing a seal against the liquid in said space so that a medium in the digester, which is usually pressurized, is substantially prevented from flowing into said space.
a second sealing means arranged between said plate and said shaft, wherein said second sealing means is accessible from a side with atmospheric pressure, whereby inspection and maintenance of said second sealing means is facilitated; and bearing means arranged on said shaft for supporting said shaft, wherein
no bearings are arranged on the part of said shaft containing said bore, whereby no bearings will be affected by any increase in temperature originating from said liquid.

5,736,006

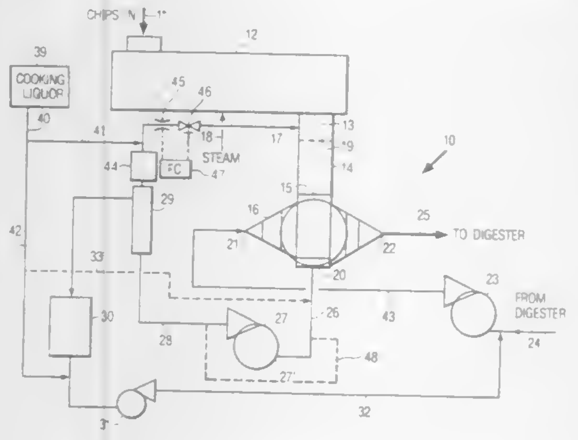
METHOD AND APPARATUS FOR PULPING WITH CONTROLLED HEATING TO IMPROVE DELIGNIFICATION AND PULP STRENGTH

J. Robert Prough, Tarpon Springs, Fla., assignor to Ahlstrom Machinery Inc., Glens Falls, N.Y.

Filed Oct. 10, 1996, Ser. No. 729,022

Int. Cl.^{6} D21C *1/10*

U.S. Cl. 162—52 **20 Claims**



1 A method of treating comminuted cellulosic fibrous material, comprising the steps of:
(a) steaming the material so as to remove the air therefrom and heat the material to a temperature of 110° C. or less;
(b) substantially immediately after step (a), slurrying the material with kraft liquor, including cooking liquor, having a temperature of 110° C. or less so that the slurry has a temperature of 110° C. or less;
(c) substantially immediately after step (b), pressurizing the slurry and hydraulically feeding it to a treatment vessel, the temperature of the slurry being maintained at about 110° C. or less during pressurizing and feeding to the treatment vessel; and
(d) in the treatment vessel raising the slurry temperature to a cooking temperature of at least 140° C. by bringing the material into contact with hot kraft cooking liquid.

5,736,007

METHOD OF LIQUOR REMOVAL FROM PARTICULATE SOLIDS

Geoffrey Graeme Duffy, Auckland, New Zealand, assignor to Auckland UniServices Limited, Auckland, New Zealand

PCT No. PCT/NZ93/00088, § 371 Date Mar. 15, 1995, § 102(e) Date Mar. 15, 1995, PCT Pub. No. WO94/08088, PCT Pub. Date Apr. 14, 1994

PCT Filed Sep. 28, 1993, Ser. No. 397,265

Claims priority, application New Zealand, Oct. 2, 1992, 244599

Int. Cl.^{6} D21C *9/18*

U.S. Cl. 162—53 **10 Claims**

1 A method of removing liquor from pulp which comprises providing a layer of wet pulp on a porous substrate, applying a first pressure differential to the layer of pulp to remove liquor therefrom via said porous substrate, said first pressure differential comprising mechanical pressure applied by progressively forcing the pulp into smaller and smaller volumes, and applying a second pressure differential to the layer of pulp to remove liquor therefrom via said porous substrate; and wherein the second pressure differential comprises the application of a pressurized gas selected from the group consisting of air and steam to the layer of pulp in pressurized pulses of less than 1.2 seconds in duration, and at a pressure ranging from 60 kPa to 420 kPa.

5,736,008

FIBROUS-REINFORCED SHEET

William D. Barrows, Manchester; George H. Crouse, and John F. Morton, both of Westminster, all of Md., assignors to Congoleum Corporation, Mercerville, N.J.

Filed Apr. 8, 1993, Ser. No. 45,467

Int. Cl.^{6} D21H *5/18*

U.S. Cl. 162—102 **31 Claims**

1 In a process for forming a highly filled, fibrous-reinforced sheet in which the sheet is formed from an aqueous dispersion of solids, including fibers, filler, and binder and cationic flocculating agent by continuously feeding a stream of such aqueous dispersion onto a moving porous support surface, wherein the filler comprises at least about 50 wt. % of the solids content of the dispersion, the improvement comprising forming a highly filled, fibrous-reinforced sheet comprising at least about 50 wt. % calcium carbonate filler by the use in the aqueous dispersion of: (a) a filler comprising at least about 50 wt. % of calcium carbonate; (b) a cationic polymeric flocculant having a charge-density of at least about 2 equivalents of cationic nitrogen per kilogram of polymer; and (c) said binder comprising an anionic polymer binder

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5,736,009

GERMICIDAL PACKING PAPER WITH ELECTROCONDUCTIVITY AND METHOD FOR PREPARING THE SAME

Kim Soon-Jai, No. 75-19, Nokbon-dong, Eunpyong-gu, Seoul, Rep. of Korea

Filed Feb. 16, 1996, Ser. No. 602,604

Int. Cl.^{6} D21H *13/50*

U.S. Cl. 162—138 **2 Claims**

1 A method for preparing electroconductive and germicidal packing paper comprising the steps of:
making a pulp-dispersed mixture comprising 80 to 94% by weight of pulp solids in an aqueous pulp suspension, 1 to 5% by weight of carbon staple 20 microns or less in diameter, and 5 to 15% by weight of acrylic staple 15 microns or less in diameter;
adding and dispersing a rosin and a mineral filler at an amount of 0.5 to 1 g and 15 to 20 g per liter, respectively, of said pulp-dispersed mixture;
forming a paper material from the resulting mixture; and
passing the formed paper material through several calendars maintained at a temperature of 120° to 150° C.

5,736,010

PAPER STRENGTHENED WITH SOLUBILIZED COLLAGEN AND METHOD

Kenneth E. Hughes, Gahanna; David C. Masterson, Grove City; David J. Fink, Shaker Heights; Barbara A. Metz, Baltimore; Gordon E. Pickett, Reynoldsburg; Paul M. Gemmer, Columbus, and Richard S. Brody, Worthington, all of Ohio, assignors to Ranpak Corporation, Concord, Ohio

Division of Ser. No. 250,806, May 27, 1994, abandoned, which is a continuation-in-part of Ser. No. 78,932, Jun. 16, 1993, Pat. No. 5,316,942. This application Jun. 7, 1995, Ser. No. 475,486

Int. Cl.^{6} D21H *17/00; 17/22*

U.S. Cl. 162—143 **50 Claims**

1 A method for making a collagen strengthened cellulosic sheet comprising:
a. providing a cellulosic pulp slurry,
b. adding solubilized collagen having a number average molecular weight above 300,000 daltons to said pulp slurry, and mixing for a time effective for interaction of said cellulosic pulp slurry and solubilized collagen;
c. forming said interacted cellulosic pulp slurry and solubilized collagen into a sheet; and
d. drying said sheet.

5,736,011

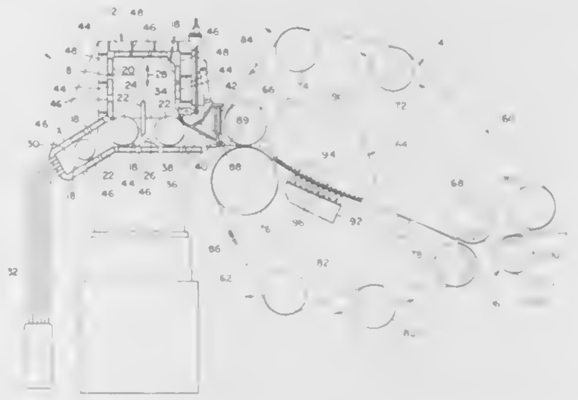
WET END ASSEMBLY FOR A PAPER MAKING MACHINE

Werner Kade, Neenah, and Edwin X. Graf, Menasha, both of Wis., assignors to Voith Sulzer Paper Technology North America, Inc., Appleton, Wis.

Filed Jul. 17, 1996, Ser. No. 682,331

Int. Cl.^{6} D21F *9/02; 1/00*

U.S. Cl. 162—336 **19 Claims**



1. A wet end assembly disposed at a wet end of a paper making machine for forming a fiber web from a fiber suspension, said wet end assembly comprising:
a headbox including a plurality of inner walls defining a chamber, said headbox further including an inlet in communication with said chamber for receiving the fiber suspension and a discharge nozzle in communication with said chamber for discharging the fiber suspension, said headbox further including means, engaged with each of said inner walls, for selectively and adjustably compensating for deflections of each of said inner walls;
a former configured to begin forming the fiber web from the fiber suspension, said former including a moving top endless wire and a moving bottom endless wire, said top endless wire and said bottom endless wire defining a converging gap therebetween, said converging gap having an entrance end positioned adjacent said discharge nozzle for receiving the fiber suspension therefrom; and
a press section including a suction roll carrying an endless belt, said suction roll positioned adjacent said top endless wire whereby the fiber suspension is transferred from a bottom of said top endless wire to a top of said endless belt

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5,736,012

PROCESS FOR THE PREPARATION OF A FLUORINATED ACID

Alagappan Thenappan, Cheektowaga, and Michael Van Der Puy, Amherst, both of N.Y., assignors to AlliedSignal Inc., Morristown, N.J.

Filed Sep. 10, 1996, Ser. No. 711,774

Int. Cl.^{6} C07C *17/00; 51/00; 51/16; 51/31*

U.S. Cl. 204—157.94 **20 Claims**

1 A process for the preparation of a fluorinated acid comprising the steps of:
(a) admixing a hydrofluorocarbon of the formula $F(CF_2)_nCH_3$, wherein n=1–5, with an oxidizing agent, chlorine and an additive to form a reaction mixture; and
(b) irradiating the said reaction mixture with a light source having a wavelength from about 2000 A to about 14000 A to produce said fluorinated acid.

5,736,013

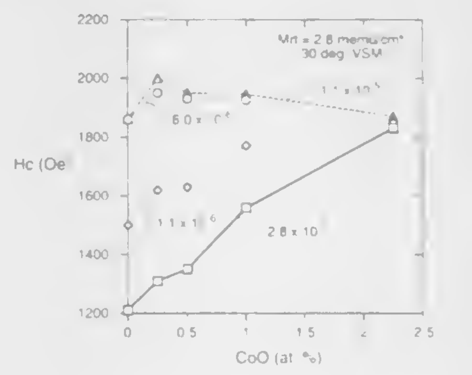
METHOD FOR FORMING AN IMPROVED MAGNETIC MEDIA INCLUDING SPUTTERING OF SELECTED OXIDES OR NITRIDES IN THE MAGNETIC LAYER, AND APPARATUS FOR SAME

Rajiv Yadav Ranjan, San Jose; Miaogen Lu, Fremont; Tsutomu Tom Yamashita, Milpitas, and Tu Chen, Monte Sereno, all of Calif., assignors to Komag, Inc., San Jose, Calif.

Continuation of Ser. No. 223,636, Apr. 6, 1994, abandoned. This application Jan. 3, 1997, Ser. No. 775,987

Int. Cl.^{6} C23C *14/34*

U.S. Cl. 204—192.2 **10 Claims**



1 An improved method of manufacturing a magnetic disk wherein primary constituents from a sputter target are sputter deposited onto a substrate to form a ferromagnetic layer thereon such that oxygen is incorporated into said ferromagnetic layer, the improvement comprising:
providing a sputtering target to which has been added an oxide of at least one of said primary constituents, such that said oxide is deposited with said primary constituents during sputtering in an amount not greater than 10 atomic percent of said primary constituents, and further such that substantially no other impurity elements or impurity compounds are present in the target.
sputter depositing said primary constituents and said oxide of at least one of said primary constituents in a vacuum at a base pressure of not more than $2.8\times10^{-}$ Torr; and
said method capable of manufacturing a ferromagnetic layer having a coercivity of not less that 1500 Oe and simultaneously a coercivity squareness of not less than 0.75

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5,736,014
DEVICE FOR THE SELECTIVE TREATMENT OF THE SURFACE OF WORKPIECES BY FLOODING THE WORKPIECES WITH A TREATMENT LIQUID

Hermann A. Drese, Pforzheim; Werner Emde, Weissach-Flacht, and Klaus Knorr, Leonberg, all of Germany, assignors to Stohrer-Doduco GmbH & Co., Rutesheim, Germany

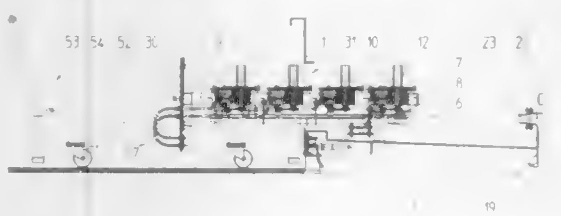
PCT No. PCT/EP94/03294, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/09939, PCT Pub. Date Apr. 13, 1995

PCT Filed Oct. 5, 1994, Ser. No. 624,575

Claims priority, application Germany, Oct. 6, 1993, 43 34 106.3

Int. Cl.⁶ C25D *17/02*, **B05C** *3/00*

U.S. Cl. 204—198 **20 Claims**



1. Device for the selective, especially electrolytic treatment of surfaces of workpieces by flooding the workpieces with a treatment liquid,

by means of a tub (**1**),

by means of treatment tables (**10**) arranged exchangeably in the tub (**1**), for the treatment of workpieces,

by means of at least one supply pipe (**15-21**) going into the tub (**1**) to the treatment tables (**10**), for conveying the liquid,

and by means of at least one drain pipe (**26**) coming out of the tub (**1**), for conveying the liquid,

characterized in that the treatment tables (**10**) are mounted on a pullout module (**7**) and that the tub (**1**) is equipped with a closable access (**31**) in one of its side walls through which the pull-out module (**7**), including the treatment tables (**10**), can be extracted from the tub (**1**).

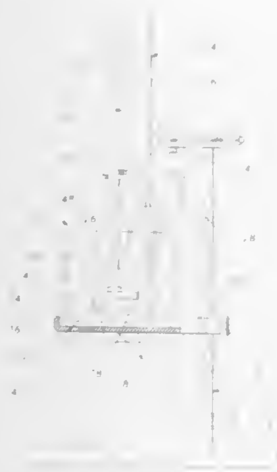
5,736,015
ELECTRICAL DISCHARGE MACHINING APPARATUS

Charles Armentrout, Ann Arbor; Lesley A. Calvert, Munith; Lawrence Davies, Ann Arbor; John Jarchow; Michael Pulka, both of Jackson, and Jon Thomson, Grass Lake, all of Mich., assignors to Pilot Industries, Inc., Dexter, Mich.

Filed Sep. 6, 1996, Ser. No. 709,388

Int. Cl.⁶ B23H *7/00;7/26*

U.S. Cl. 204—224 M **18 Claims**



1. An electrical discharge machining apparatus comprising:

a frame having a base and a vertical support secured to and extending upwardly from said base,

a tank adapted to contain an electrolytic liquid,

a work holder for holding a part to be machined between a raised position in which a portion of said work holder is positioned in said tank and a lower position in which said work holder is positioned above said tank,

means for adjustably securing said tank to said vertical support,

means for adjustably moving said work holder relative to said vertical support along an axis aligned with said tank, and

electrical discharge machining means secured to said vertical support.

5,736,016
ELECTROLYTIC CELL FOR PRODUCING A MIXED OXIDANT GAS

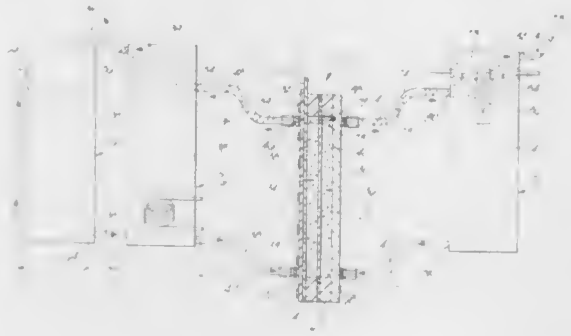
Jeffrey D. Allen, Rockland, Id., assignor to Electrosci, Inc., Irvine, Calif.

PCT No. PCT/US94/12027, § 371 Date Oct. 10, 1996, § 102(e) Date Oct. 10, 1996, PCT Pub. No. WO95/11326, PCT Pub. Date Apr. 27, 1995

Continuation-in-part of Ser. No. 141,229, Oct. 21, 1993, Pat. No. 5,427,658. This PCT application Oct. 20, 1994, Ser. No. 637,711

Int. Cl.⁶ C25B *9/00;15/08*

U.S. Cl. 204—237 **27 Claims**



1. At least one electrolytic cell for generating a mixed oxidant gas for treating bodies of water, each cell comprising:

an anode chamber defined by an anode plate at one end, a permeable membrane at an opposite end, and a first sealing gasket interposed therebetween,

a cathode chamber adjacent the anode chamber defined by a cathode plate at one end, the permeable membrane at an opposite end, and a second sealing gasket interposed therebetween, the first and second gaskets being separated by the permeable membrane;

an anolyte reservoir external from the anode chamber for accommodating a volume of anolyte therein, wherein the anolyte reservoir is connected to the anode chamber to circulate anolyte thereto and to receive mixed oxidant gas therefrom;

a catholyte reservoir external from the cathode chamber for accommodating a volume of catholyte therein, wherein the catholyte reservoir is connected to the cathode chamber to circulate catholyte thereto and to receive gas therefrom;

means for maintaining the anolyte contained within the anolyte reservoir at a controlled specific gravity;

a specific gravity sensor disposed within the catholyte reservoir that when activated causes water to be dispensed into the catholyte reservoir to maintain a controlled catholyte specific gravity therein.

5,736,017
SOLID HIGH POLYMER ELECTROLYTIC MODULE AND METHOD OF MANUFACTURING THE SAME

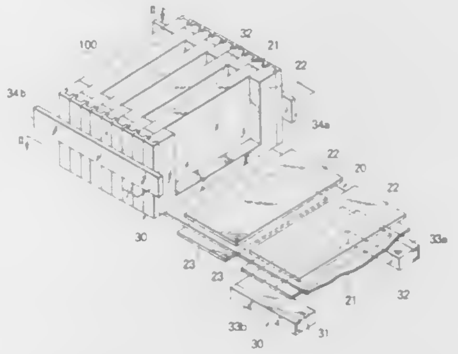
Tetsuo Moriguchi, Tokyo, and Yoshiharu Takeuchi, Hyogo, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 2, 1997, Ser. No. 775,626

Claims priority, application Japan, May 15, 1996, 8-120540; Aug. 30, 1996, 8-230413

Int. Cl.⁶ C25B *9/00*

U.S. Cl. 204—253 **15 Claims**



1. A solid high polymer electrolytic module comprising:

an electrolytic membrane in which an anode is formed on one surface of a belt-shaped solid high polymer electrolytic membrane having hydrogen ions or hydroxide ions as carriers in a longitudinal direction and a cathode is formed on the other surface of said solid high polymer electrolytic membrane in the longitudinal direction to be opposite to said anode;

a plurality of rectangular frames each constituted by an electric insulator having an opening on one side and stacked such that the openings alternately ace upward and downward; and

feeders for supplying electricity from a DC power supply to said electrolytic membrane,

wherein said electrolytic membrane is folded at counter edges opposing said openings of said frames and causes said anode and cathode formed opposite to each other on both the surfaces of said solid high polymer electrolytic membrane to be held between said adjacent frames, thereby constituting a stereoscopically corrugated structure in a stacking direction of said frames.

5,736,018
DEVICE FOR HOLDING COMPONENTS DURING ELECTRODE APPLICATION

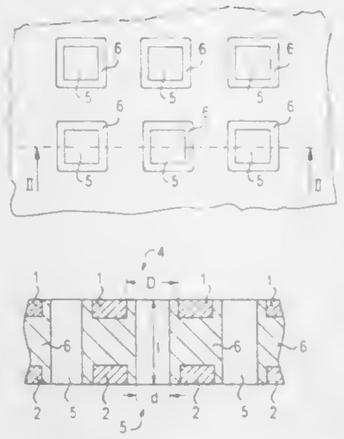
Siegfried Fellner, Preitenegg; Sigurd Greiderer, Feldkirchen; Norbert Landfahrer, Deutschlandsberg; Robert Karner, and Helmut Schwab, both of Graz, all of Austria, assignors to Siemens Matsushita Components GmbH & Co. KG, Munich, Germany

Filed Aug. 19, 1996, Ser. No. 699,633

Claims priority, application Germany, Aug. 18, 1995, 295 13 315.5

Int. Cl.⁶ C25D *17/04*

U.S. Cl. 204—297 R **1 Claim**



1. A device for holding components during electrode application, comprising:

two rigid plates having openings formed therein; and

an elastic material lining said openings in said plates and defining free spaces in said elastic material for receiving components, wherein said elastic material defines a length of said free spaces for holding jacket surfaces of components having adjoining opposed end surfaces on which electrodes are to be applied; whereby the components are held and sealed off in said openings such that the electrodes can be applied on the opposed end surfaces in a single step while the components are held and sealed in said openings.

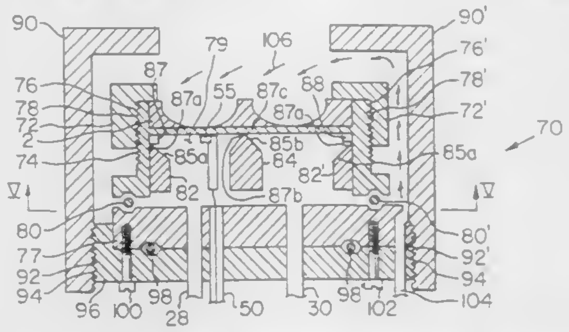
5,736,019
SPUTTERING CATHODE

Mark A. Bernick, 1226 Center St. Extension, White Oak, Pa. 15131

Filed Mar. 7, 1996, Ser. No. 612,390

Int. Cl.⁶ C23C *14/34*

U.S. Cl. 204—298.07 **27 Claims**



1. A magnetron sputtering electrode for use within a magnetron sputtering device, said magnetron sputtering electrode, comprising:

a threaded cathode body;

a threaded target retainer threadably engaged to said cathode body and defining a target receiving recess having a depth,

an insulator plate secured to said cathode body;

said insulator plate and said cathode body defining a magnet receiving chamber;

a plurality of magnets received within said magnet receiving chamber, wherein each of said magnets containing a tip having an apex, wherein said apexes are positioned adjacent a target supporting surface of said cathode body, said magnets cooperating to generate magnetic flux lines which form a closed-loop magnetic tunnel adjacent to a front sputtering surface of the target;

a threaded base plate secured to said insulator plate;

a fluid inlet and a fluid outlet fluidly coupled to said magnet receiving chamber;

a plurality of diverters positioned within said magnet receiving chamber, said diverters defining a fluid flow path that has a varying cross section so as to turbulently mix fluid passing through the magnet receiving chamber; and

an anode shield threadably secured to said threaded base plate, said anode shield surrounds and contains said cathode body and said insulator plate, whereby turning said target retainer relative to said threaded cathode body varies the depth of the target receiving recess so that targets of varying thicknesses can be received within the target receiving recess, and a distance between said anode shield and said target retainer is threadably adjustable by turning said anode shield relative to said target retainer.

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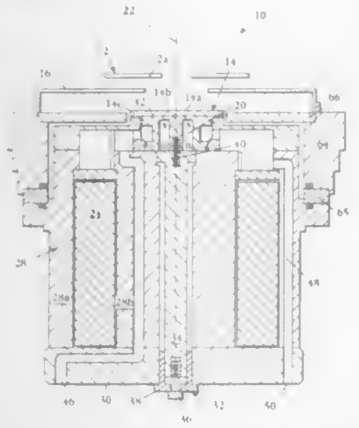
5,736,020
TARGET ASSEMBLY FOR USE IN FORMING AN OVERCOAT IN A MAGNETIC RECORDING MEDIUM

Brij Bihari Lal; Allen J. Bourez, both of San Jose, and Michael A. Russak, Los Gatos, all of Calif., assignors to HMT Technology Corporation, Fremont, Calif.

Continuation-in-part of Ser. No. 427,337, Apr. 24, 1995, Pat. No. 5,520,981. This application Dec. 19, 1995, Ser. No. 575,163

Int. Cl.^{6} C23C *14/00*

U.S. Cl. 204—298.11 **4 Claims**



1 A target assembly for use in depositing a protective overcoat on a magnetic recording medium, where said overcoat extends across an annular, inner landing zone and a data zone, said assembly comprising:

a centrally positioned sputtering target.

inner magnetic means disposed adjacent an inner annular portion of said target, and having a substantially axial magnetic pole orientation.

outer magnetic means disposed adjacent an outer annular region of said target, and having a substantially radial magnetic pole orientation,

said inner and outer magnetic means being oriented to produce a magnetic flux sufficient to ignite a sputtering plasma in said target when power is supplied to said target, and

a shield positioned between said target and a station in the assembly adapted to support such a magnetic recording medium, said shield being positioned between said target and said medium when the medium is held in such a station,

whereby said medium and said shield are oriented to deposit an overcoat on said medium to a thickness of at least 135 A in the landing zone and a thickness of less than 90 A in the data zone

5,736,021
ELECTRICALLY FLOATING SHIELD IN A PLASMA REACTOR

Peijun Ding, San Jose; Zheng Xu, Foster City, and Jianming Fu, San Jose, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Jul. 10, 1996, Ser. No. 677,760

Int. Cl.^{6} C23C *14/34*

U.S. Cl. 204—298.11 **20 Claims**

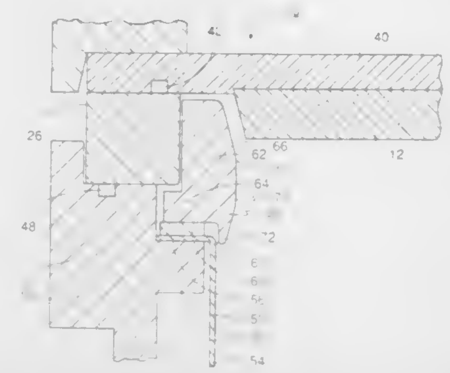
1 A PVD reactor, comprising

a reactor chamber having at least one generally inwardly concave side wall,

a target having a generally planar surface comprising a target material disposed in said chamber;

a support disposed in said chamber capable of supporting a substrate in opposition to said target along a chamber axis, said at least one side wall of said chamber extending generally between said target and said support,

a DC electrical power source for electrically biasing said target at a negative biasing voltage to create a plasma in said chamber;



an electrically floating shield installed in said chamber and having a portion extending in a direction along said chamber axis between said plasma and said at least one wall to protect said wall from sputter deposition; and

a second shield held at a predetermined potential higher than said negative biasing voltage and installed in said chamber between said electrically floating shield and said support to act as an anode with respect to said target.

5,736,022
SPACER

Urban Jonsson Axelsson, Alunda, Sweden, assignor to Pharmacia Biotech AB, Upsala, Sweden

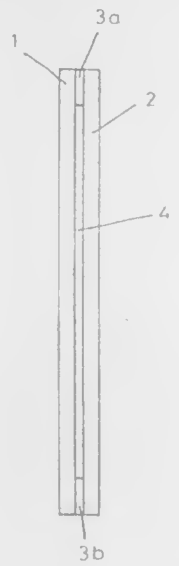
PCT No. PCT/SE95/00762, § 371 Date Dec. 20, 1996, § 102(e) Date Dec. 20, 1996, PCT Pub. No. WO95/35496, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 21, 1995, Ser. No. 750,744

Claims priority, application Sweden, Jun. 21, 1994, 9402190

Int. Cl.^{6} G01N *27/26; 27/447*

U.S. Cl. 204—467 **5 Claims**



1 An arrangement of a gel cassette, comprising:

two glass plates, and

at least two spacers disposed between said glass plates, wherein said spacers are arranged such that the thickness of the spacers defines a space for receiving an electrophoresis gel, said spacers being in the form of elongated, rectangular parallelepipeds, wherein at least one of the spacers is made of glass, and wherein a portion of the lateral surfaces of at least one spacer is polished.

2 An arrangement of a gel cassette, comprising:

two glass plates, and

at least two spacers disposed between said glass plates wherein said spacers are arranged such that the thickness of the spacers defines a space for receiving an electrophoresis gel, said spacers being in the form of elongated, rectangular parallelepipeds, and wherein at least one spacer is chemically hardened glass.

4 A method for the detection of fluorophor labelled samples in a gel filled electrophoresis apparatus, comprising:

projecting an excitation light into a gel contained in said space in said arrangement of claim 1 or 2 from the side of said electrophoresis apparatus; and

detecting the fluorophor labelled samples directly.

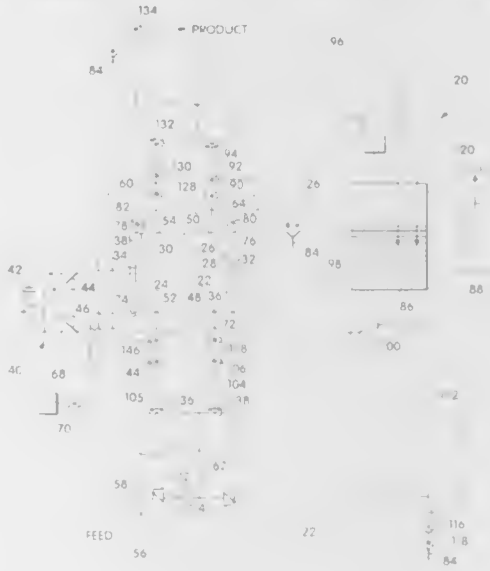
5,736,023
POLARITY REVERSAL AND DOUBLE REVERSAL ELECTRODEIONIZATION APPARATUS AND METHOD

Christopher J. Gallagher, Burlington; Frederick Wilkins, Pepperill, and Gary C. Ganzi, Lexington, all of Mass., assignors to U.S. Filter/Ionpure, Inc., Lowell, Mass.

Continuation of Ser. No. 246,815, May 20, 1994, abandoned. This application Aug. 18, 1995, Ser. No. 517,075

Int. Cl.^{6} B01D *61/44;* C02F *1/469*

U.S. Cl. 204—524 **24 Claims**



1 A method for purifying a fluid comprising

a) providing an electrodeionization apparatus comprising a plurality of compartments including at least one ion-concentrating compartment positioned adjacent at least one ion-depleting compartment, the ion-concentrating and ion-depleting compartments each containing an ion-exchange material and the plurality of compartments being defined in part by spaced, alternating anion-permeable membranes and cation-permeable membranes, the compartments positioned between first and second electrodes in electrical communication with the compartments,

b) establishing a first fluid stream having an ionic concentration through said at least one ion-concentrating compartment and a second a fluid stream having an ionic concentration through said at least one ion-depleting compartment,

c) energizing the electrodes by applying a first polarity to the first electrode and a second polarity to the second electrode to provide an electrical potential across the compartments, thereby establishing a depleted fluid stream exiting said at least one ion-depleting compartment and a concentrated fluid stream exiting said at least one ion-concentrating compartment, the depleted fluid stream having an ionic concentration lower than that of the second fluid stream, and

d) substituting a third fluid stream for the first fluid stream, while maintaining the second fluid stream through said at least one ion-depleting compartment, the third fluid stream having an ionic concentration lower than that of the first fluid stream.

5,736,024
METHOD FOR REMOVING HEAVY METAL IONS DISSOLVED IN A SOLUTION

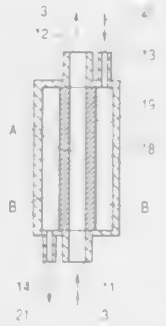
Hirofumi Seo, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 531,870, Sep. 21, 1995, abandoned. This application Mar. 27, 1997, Ser. No. 826,151

Claims priority, application Japan, Sep. 28, 1994, 6-232898

Int. Cl.^{6} B03C *5/00*

U.S. Cl. 204—554 **9 Claims**



1 A method for removing heavy metal ions dissolved in a solution, comprising the steps of

(a) feeding the solution to a solution inlet of a filter, wherein the filter comprises:

a container:

a separating member dividing the container into two discrete chambers, the separating member adapted to attract heavy metal ions in the solution,

the solution inlet adapted to pass the solution containing the heavy metal ions to be removed through one of the two chambers,

a solution outlet adapted to discharge the solution pausing through the one chamber,

a gas inlet adapted to pass a gas through the other of the two chambers,

a gas outlet adapted to discharge the gas passing through the other chamber;

(b) negatively charging the separating member by feeding the gas through the other chamber, and

(c) attracting heavy metal ions in the solution passing through the one chamber to a surface of the negatively charged separating member in contact with the solution to remove the heavy metal ions from the solution.

5,736,025
CONTROL OF TEMPERATURE GRADIENTS DURING GEL ELECTROPHORESIS USING TURBULENT GAS FLOW

Douglas H. Smith, Los Altos; Brian J. Mifsud, San Francisco; Dean S. Burgi, Menlo Park; Thomas E. Davis, San Francisco, and Steven M. VanHuystee, San Mateo, all of Calif., assignors to Genomyx Inc., Foster City, Calif.

Continuation of Ser. No. 222,583, Apr. 4, 1994, abandoned. This application Nov. 7, 1996, Ser. No. 744,689

Int. Cl.^{6} C25B *9/00*

U.S. Cl. 204—621 **31 Claims**

9 A gel electrophoresis separation apparatus, the improvement comprising

a temperature control assembly, comprising a volume of a gaseous heat-exchange medium, a gaseous heat-exchange medium containment housing arranged to define a gaseous heat-exchange medium volume having an outer periphery, a first gaseous heat-exchange medium containment region, a second gaseous heat-exchange medium containment region distal to the first region and separated from the first region by a central gaseous heat-exchange medium containment region, means for driving a gaseous heat-exchange medium within the gaseous heat-exchange medium containment volume wherein the gaseous heat-exchange medium driving means is

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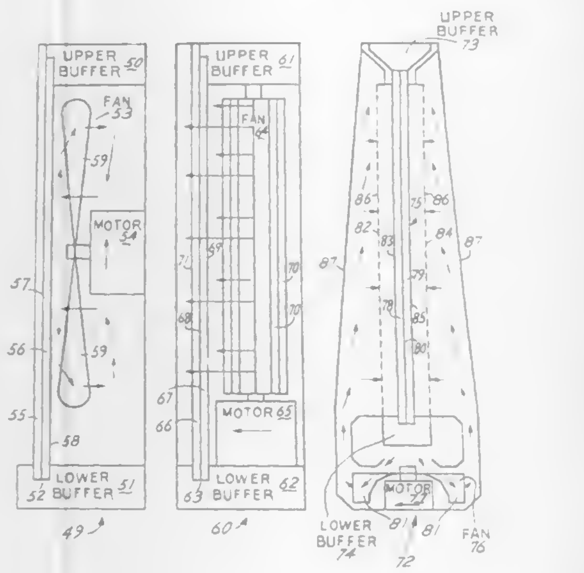


arranged proximally to the second gaseous heat-exchange medium containment region; means for directing the gaseous heat-exchange medium to flow along the outer periphery of the gaseous heat-exchange medium containment volume; and a first and a second impingement plate;

the impingement plates being approximately equal in size and substantially rectangular, each plate having an inner face and a plurality of throughbores, the faces of each impingement plate being oriented approximately parallel to each other; the throughbores disposed approximately perpendicularly to the impingement plate faces and thereby defining impingement passageways;

whereby the first impingement plate is located adjacent to a first gel plate of the gel electrophoresis separation apparatus and arranged to substantially cover it, and defining a space between the gel plate and the impingement plate;

the second impingement plate is located adjacent to a second gel plate of the gel electrophoresis separation apparatus and arranged to substantially cover it, and defining a space between the gel plate and the impingement plate, wherein the first and second gel plates define a gel-containing region located between the first and second gel plates;

whereby the gaseous heat-exchange medium is driven by the gaseous heat-exchange medium driving means within the gaseous heat-exchange medium containment volume along the periphery towards the first region distal to the driving means, and thereby moving through the central region and being contacted with the outer faces of the impingement plates, whereby the gaseous heat-exchange medium communicates with the plurality of throughbores of each of the impingement plates, causing turbulent flow of the gaseous heat-exchange medium within and into the spaces between the gel plates and the impingement plates, and thereby moving to the second region proximal to the gaseous heat-exchange medium driving means,

the turbulent flow induced by passage of the gaseous heat-exchange medium through the throughbores of the impingement plates thereby minimizing temperature gradients within the gel-containing region between the gel plates.

5,736,026

BIOMASS-FUEL CELL COGENERATION APPARATUS AND METHOD

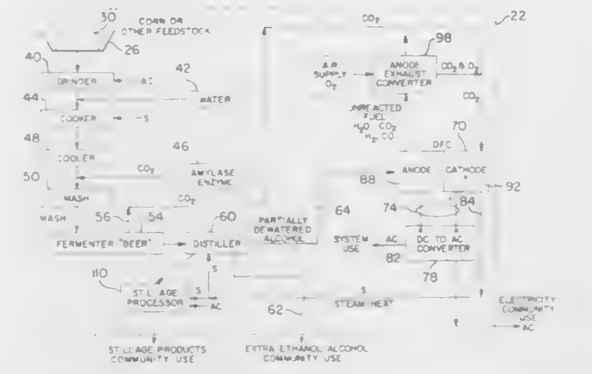
Pinakin S. Patel, and Jen Jung Fan, both of Danbury, Conn., assignors to Energy Research Corporation, Danbury, Conn.

Filed Feb. 5, 1996, Ser. No. 596,616

Int. Cl.^{6} C25B *1/00*

U.S. Cl. 205—343 **46 Claims**

1 A biomass fermentation-electrical fuel cell cogeneration process including the steps of:



(a) fermenting a biomass,

(b) collecting carbon dioxide from the fermenting biomass,

(c) delivering the carbon dioxide to the cathode of an electrical fuel cell which uses the carbon dioxide as a chemical reducing agent in generating electrical energy.

5,736,027

METHOD FOR PRODUCING ELECTROLYTIC WATER

Tadamasa Nakamura, 5-2-401, Toyogaoka 3-chome, Tami, Tokyo, Japan

Filed Jan. 24, 1997, Ser. No. 788,197

Claims priority, application Japan, Jan. 30, 1996, 8-014535

Int. Cl.^{6} C02F *1/461*

U.S. Cl. 205—742 **3 Claims**

1. A method for treating water comprising:

electrolyzing the water to form positively charged water and negatively charged water;

separating said positively charged water from said negatively charged water;

adding vitamin C to the separated positively charged water in the amount of 0.005–0.5 wt. % of the water; and

electrolyzing the positively charged water containing added vitamin C.

5,736,028

SENSOR AND METHOD FOR DETECTING OXIDES OF NITROGEN

Ove Hjortsberg, Göteborg; Staffan Lundgren, Hindås, and Ulf Arlig, Billdal, all of Sweden, assignors to AB Volvo, Sweden

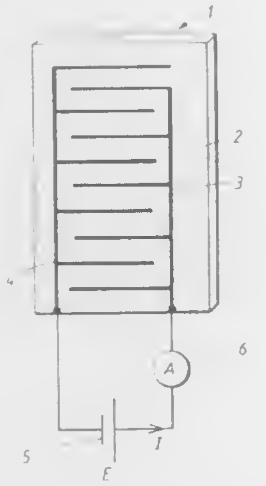
PCT No. PCT/SE94/01050, § 371 Date Jul. 24, 1996, § 102(e) Date Jul. 24, 1996, PCT Pub. No. WO95/13533, PCT Pub. Date May 18, 1995

PCT Filed Nov. 8, 1994, Ser. No. 640,839

Claims priority, application Sweden, Nov. 8, 1993, 9303664

Int. Cl.^{6} G01N *27/407*

U.S. Cl. 205—781 **12 Claims**



10. A method of using a sensor comprising a substrate which comprises a solid electrolyte, said electrolyte including a conductive pattern arranged thereon, said conductive pattern including at least two portions comprising an anode and a cathode comprising a metal which is highly selective for the dissociation of nitrogen oxides as compared to oxygen, whereby a current is generated by the transport of oxygen ions dissociated from said nitrogen oxides, said method comprising measuring the concentration of said nitrogen oxides in a gas independently from the oxygen content in said gas.

5,736,029

AMPEROMETRIC DUAL-ELECTRODE SENSORS

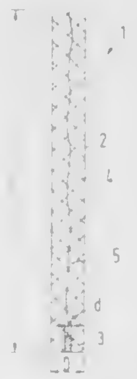
Alexander Pinkowski, Schönbrunn-Haag, Germany, assignor to Prominent Dosiertechnik GmbH, Heidelberg, Germany

Filed Dec. 9, 1996, Ser. No. 762,338

Claims priority, application Germany, Dec. 20, 1995, 195 47 670.0

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 205—789 **17 Claims**



1. An amperometric two-electrode sensor, comprising an operating electrode and a combination reference and counter electrode, wherein the counter electrode is a passivable metal electrode and the sensor is devoid of an internal electrolyte and secondary electrode.

5,736,030

PROCESS FOR MANUFACTURING FINE PARTICLES OF PITCH WITH A HIGH SOFTENING POINT

Masatoshi Tsuchitani, Ichihara; Kiyotaka Suzuki, Sodegaura; Ryoichi Nakajima, and Tomohiko Sato, both of Ichihara, all of Japan, assignors to Maruzen Petrochemical Co., Ltd., Tokyo, Japan

Filed Nov. 30, 1995, Ser. No. 565,116

Claims priority, application Japan, Dec. 7, 1994, 6-331132

Int. Cl.^{6} C10C *1/00; 3/00*

U.S. Cl. 208—45 **18 Claims**

1. A process for manufacturing fine particles of pitch with a high softening point comprising:

a first step of stirring a raw material heavy oil in the presence of a surface-active agent capable of dispersing the raw material heavy oil and water by employing stirring means which provides a shearing force to produce an emulsion with fine spherical particles having a size of 100 μm or less dispersed in water, wherein the raw material heavy oil is a liquid having a viscosity of 1,000 poise or less when stirred;

a second step of causing the emulsion obtained in the first step to come into contact with an extracting organic solvent which can dissolve water and is capable of leaving at least 10% by weight of the raw material heavy oil as an insoluble portion to extract and remove light components from the fine spherical particles of the raw material heavy oil in the emulsion, thereby converting fine particles of the raw material heavy oil to fine particles of pitch with an increased softening point, and

a third step comprising separating and recovering fine particles of pitch with an increased softening point by a solid-liquid separation means from the liquid mixture of the emulsion and the extracting organic solvent obtained in the second step.

5,736,031

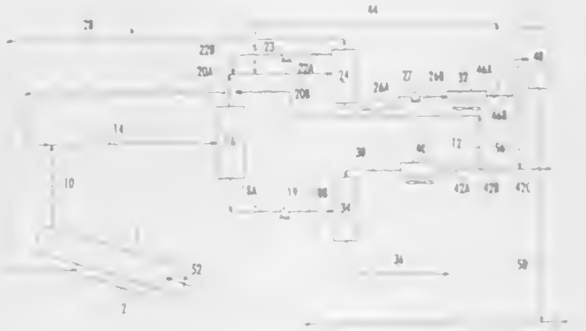
SEPARATION OF HYDROCARBONS WATER/ EMULSIFIER MIXTURES

James O. Nye, Friendswood, and Robin M. Pate, Houston, both of Tex., assignors to Onsite Technology, L.L.C., Tulsa, Okla.

Filed Sep. 26, 1996, Ser. No. 719,681

Int. Cl.^{6} C01G *5/00*

U.S. Cl. 208—340 **18 Claims**



1. A process for obtaining separation of a mixed vaporous stream comprising hydrocarbons, water and emulsifier comprising:

contacting a first vaporous stream comprising hydrocarbons, water and emulsifier with a quench hydrocarbon stream, said quench hydrocarbon stream being at a temperature above the boiling point of water and below the boiling point of the hydrocarbon in said first vaporous stream, to condense a portion of the hydrocarbon in said first vaporous stream and substantially all of said emulsifier to form an oil stream;

recovering a second vaporous stream comprising substantially all of the water as vapor;

condensing said water vapor and a portion of the hydrocarbons in said second vaporous stream and

separating said condensed water and hydrocarbons by phase separation.

5,736,032

STABILIZATION OF BIOWASTES

James P. Cox, and Robert W. Duffy Cox, both of 246 E. Bartlett Rd., Lynden, Wash. 98264

Continuation of Ser. No. 476,268, Jun. 7, 1995, Pat. No. 5,589,164, and Ser. No. 474,329, Jun. 7, 1995, Pat. No. 5,587,157, which is a continuation-in-part of Ser. No. 287,183, Aug. 8, 1994, abandoned, which is a continuation of Ser. No. 886,417, May 19, 1992, Pat. No. 5,352,444. This application Oct. 11, 1996, Ser. No. 729,597

Int. Cl.^{6} A61L *11/00*

U.S. Cl. 424—76.5 **17 Claims**

1. A biowaste treatment agent comprising a surfactant component, a metal component, and an aldehyde:

said surfactant component comprising about 1.0% to about 99.0% by weight of the treatment agent,

said metal component selected from the group consisting of a source of silver and a source of iron, and said metal component comprising from about 0.5% to about 85.0% by weight of the treatment agent, and

said aldehyde comprising about 0.1% to about 80.0% by weight of the treatment agent.

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5,736,033

SEPARATOR FLOAT FOR BLOOD COLLECTION TUBES WITH WATER SWELLABLE MATERIAL

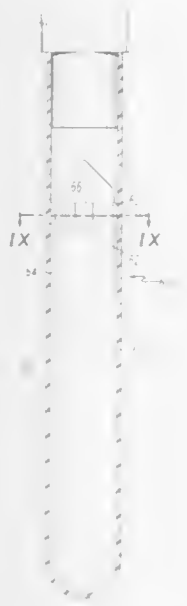
Charles M. Coleman, 958 Washington Rd., Pittsburgh, Pa. 15228, and William G. Kendrick, 34 Willowbrook Dr., Doylestown, Pa. 18901

PCT No. PCT/US95/16133, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO96/18897, PCT Pub. Date Jun. 20, 1996

PCT Filed Dec. 13, 1995, Ser. No. 693,286

Int. Cl.^{6} B01D *21/26;17/038*

U.S. Cl. 210—122 **28 Claims**



25. A fluid collection tube, comprising:

a. a tubular body closed at both ends and having an inner wall which defines a cavity for containing fluid; and

b. a separator comprised of:

  i. a body sized and shaped to fit within the cavity and comprised of at least one material which will not swell when in contact with water and wherein the body has a channel passing therethrough; and

  ii. a water swellable material defining at least one wall of the channel and at least a portion of the water swellable material is within the channel, such that a water containing fluid passing through the channel will cause the water swellable material to swell sealing the channel.

5,736,034

PROTEIN REMOVAL SYSTEM

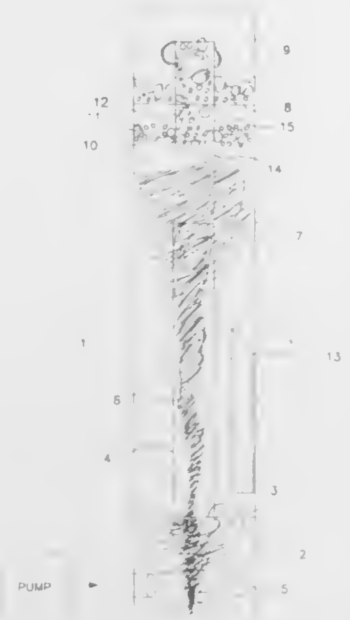
James William Phillips, Jacksonville, and Kurt Steven Bottcher, Jr., New Port Richey, both of Fla., assignors to James W. Phillips, Jacksonville, Fla.

Filed Aug. 27, 1996, Ser. No. 697,543

Int. Cl.^{6} C02F *1/24;* **B03D** *1/24,* **B04C** *5/08*

U.S. Cl. 210—169 **7 Claims**

1. A process for removing proteins from an aqueous fluid which comprises contacting said aqueous fluid with air bubbles flowing in a tight vortex pattern such that proteins attach to said bubbles and create a foam, and removing said foam containing said proteins from said aqueous fluid, wherein said tight vortex pattern is formed by first introducing a water and air mix into a bottom chamber of a protein skimmer device such that said water and air mix has a circular flow pattern in said bottom chamber, and wherein said water and air mix exits said bottom chamber into an inner cylinder having a diameter less than the diameter of said bottom chamber so as to create said tight vortex flow pattern within said inner cylinder.



5,736,035

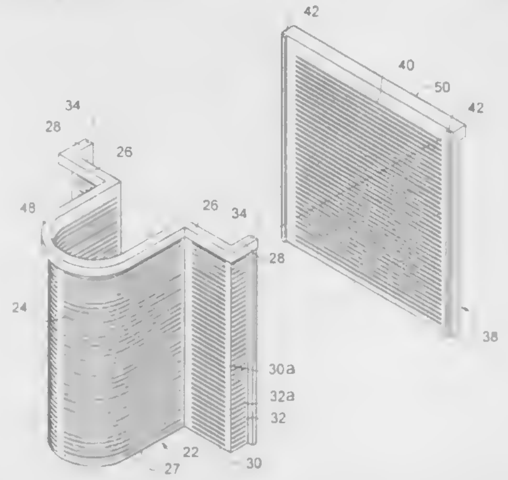
OUTLET FILTER FOR WASTE WATER TREATMENT TANK

Harry L. Nurse, Jr., 10409 Watterson Trail, Louisville, Ky. 40299

Filed Aug. 19, 1996, Ser. No. 699,470

Int. Cl.^{6} B01D *29/37*

U.S. Cl. 210—172 **7 Claims**



1. In combination with a waste water treatment tank, a filter device for separation of solid matter from a liquid comprises:

a filter casing having an open bottom, a closed top and an outlet opening;

an outlet discharge conduit in said tank in flow communication with said filter casing outlet opening;

a filter element of two-piece construction disposed within said casing with a spacing therebetween defining a liquid flow-through chamber, said filter element including a first filter section including a main body portion of generally U-shaped cross-section terminating with opposed outwardly extending L-shaped portions having an inner leg and an outer leg, the outer leg of each L-shaped portion including a first locking means; and, a second filter section being substantially flat with opposed sides, each side having a second locking means in mating relation with said first locking means of said first filter section, said first and second filter sections in a locked arrangement defining a central opening therethrough; and,

a bottom seal extending around the inner periphery of said filter casing at a location below a bottom of said filter element and in contact with said filter element whereby all liquid flows upward through said central opening.

5,736,036

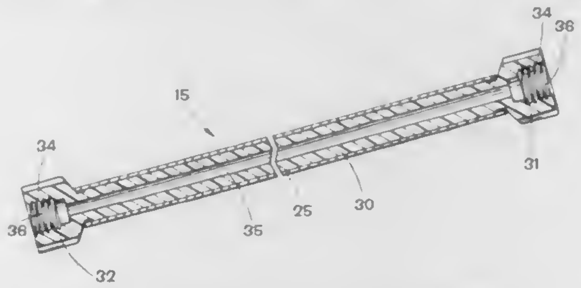
COLUMN FOR LIQUID CHROMATOGRAPHY

Paul E. Upchurch, Coupeville, and Hans G. Schick, Anacortes, both of Wash., assignors to Upchurch Scientific, Inc., Oak Harbor, Wash.

Continuation of Ser. No. 62,402, May 14, 1993, abandoned. This application Jan. 31, 1995, Ser. No. 381,294

Int. Cl.^{6} B01D *15/08*

U.S. Cl. 210—198.2 **20 Claims**



1. A liquid chromatography column which comprises:

an outer metal tube having first and second ends; and

a biocompatible inner tube having a passageway therethrough and having first and second ends, wherein at least a portion of said inner tube is located within said outer metal tube and wherein portions of the first and second ends of said inner tube form shoulders which extend beyond the first and second ends, respectively, of said outer tube, and wherein the shoulders and said inner tube comprise a unitary piece and the shoulders each have an outside diameter greater than the inside diameter of said metal tube, preventing separation of said inner tube from said outer tube

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5,736,037

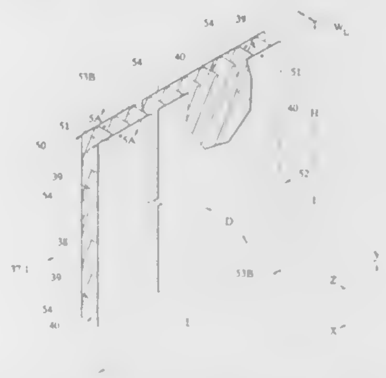
FOLDABLE TUBE SETTLER AND METHOD OF INSTALLING TUBE SETTLER

Charles Lonnie Meurer, 2389 Bitterroot La., Golden, Colo. 80401

Filed Aug. 29, 1996, Ser. No. 705,421

Int. Cl.^{6} B01D *21/02*

U.S. Cl. 210—232 **27 Claims**



1. A foldable tube settler module assembly for a module of settler tubes which settles solids from liquid, said module having a minimum thickness for shipment and a normal thickness for use in settling the solids, said minimum thickness being substantially less than said normal thickness, said tubes being defined by four opposing walls, said assembly comprising:

a pair of sheets, each of said sheets having dimensions along major and minor orthogonal axes, said axes being perpendicular to the direction of said thickness, said sheets defining two of said walls of one of said tubes; and

an interconnect member having a central section defined by opposite sides, and a flex joint on each of said opposite sides and securing each of said sides of said central section to a respective one of said sheets to form another wall of one of said tubes, said another wall extending from each of said sheets in the direction of said thickness of said module when said tube is open to receive the liquid and the solids;

each of said flex joints being flexible to permit relative angular movement between said respective central section and said sheets to allow said sheets to move toward each other and change the direction in which said another wall extends, said changed direction being generally parallel to said sheets to provide said minimum thickness for shipment

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5,736,038

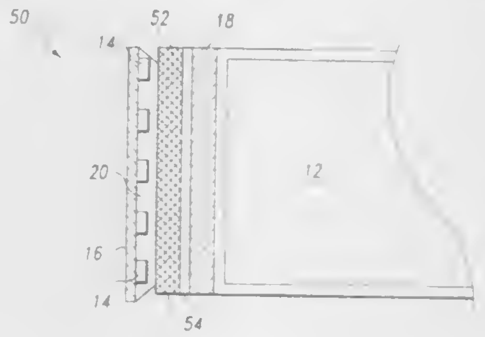
APPARATUS FOR PATIENT SAFETY PROTECTION IN A MEDICAL DEVICE WITH AN ELECTRIFIED ELEMENT

John W. Stoughton, Indianapolis, Ind., assignor to United Medical Manufacturing Co., Indianapolis, Ind.

Filed Mar. 6, 1996, Ser. No. 610,539

Int. Cl.^{6} H02H *9/00*

U.S. Cl. 210—243 **27 Claims**



1. An apparatus for patient safety protection in a medical device with a heater, comprising:

a heater;

an electrically conductive layer disposed between the medical device and the heater, wherein the electrically conductive layer is grounded; and

a first insulation layer disposed between the heater and the electrically conductive layer,

wherein failure of the first insulation layer results in a heater current being shunted to ground by the electrically conductive layer

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5,736,039

ELASTIC SUPPORT AND SHOCK ABSORBING DEVICE WITH A FILTER FILTERING SLEEVE

Attilio Turchetti, Via BR-060 Km. 213/233, 74431-970-Goiania/GO, Brazil

Filed Jun. 10, 1994, Ser. No. 258,515

Claims priority, application Brazil, Jun. 11, 1993, 9302413

Int. Cl.^{6} B01D *33/80;35/00*

U.S. Cl. 210—249 **18 Claims**

17. A filtering apparatus, comprising:

a tilting filtering body having disposed therewithin a filter unit,

said filtering body being provided on its top with a filter unit rinsing device, and being provided on its lower portion with an outlet for filtrate from a filtering process,

said tilting filtering body being also provided with an outlet for solids from said filtering process, wherein said solids outlet is disposed on an extremity of said tilting filtering body which is

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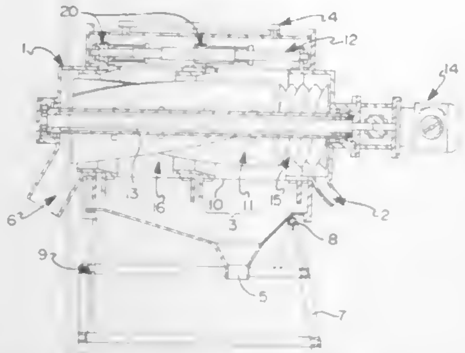


opposed to an extremity of said tilting filtering body upon which said filtrate outlet is disposed;

said tilting filtering body being assembled on a frame by means of linkages and a tilting regulation device; wherein

said filter unit includes a filtering sleeve and an impeller;

said filtering sleeve is assembled on said tilting filtering body by means of supports; and

said filtering sleeve is provided with an inlet close to an inlet of said tilting filtering body;

said filtering sleeve being provided with an internal region lodging at least a portion of said impeller;

said filtering sleeve being provided with an outlet located close to said solids outlet of said tilting filtering body;

said impeller including a shaft which is coupled to a motor assembly outside said tilting filtering body and around which radial blades are assembled, defining an input stage located close to said inlets of said tilting filtering body and said filtering sleeve, and a processing stage located inside said filtering sleeve; and

said supports comprising a set of supports for said filtering sleeve which are elastic and a shock absorbing device operatively associated with said set of supports.

5,736,040

FILTER ASSEMBLY INCLUDING A REINFORCED RADIAL SEAL

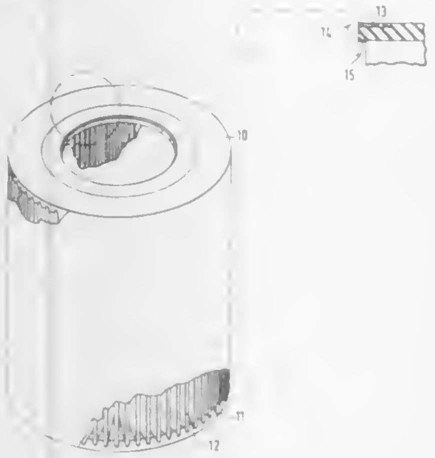
Rolf Duerrstein, Finkenweg 93, D-74321 Bietigheim; Hans Erdmannsdoerfer, Robert -Koch-Strasse 24, D-71640 Ludwigsburg; Bruno Sommer, Nippenburgstrasse 21, D-71636 Ludwigsburg, and Helmut Storz, Terminusstrasse 26, D-71726 Benningen, all of Germany

Filed Oct. 27, 1994, Ser. No. 329,961

Claims priority, application Germany, Oct. 27, 1993, 43 36 638.4; Apr. 7, 1994, 44 11 968.2; Aug. 9, 1994, 44 28 139.0

Int. Cl.^{6} B01D *27/00*

U.S. Cl. 210—437 **8 Claims**



1. A filter arrangement comprising:

a housing;

a center tube connected with the housing and defining an outer peripheral surface,

wherein said housing includes an inlet opening for a medium to be filtered and an outlet opening for discharge of the filter medium through said center tube, and

a metal-free filter cartridge comprising an accordion-folded filter element arranged concentrically with said center tube and having end plates on axial end faces thereof, at least one of said end plates being an annular elastic end plate;

wherein said annular elastic end plate has a thickness defined by a planar outer face which faces axially exteriorly of said cartridge and an inner face which faces axially interiorly of said cartridge, said elastic end plate having an outer peripheral surface facing radially outwardly and an exposed inner peripheral sealing surface facing radially inwardly, said inner peripheral sealing surface defining a central opening which receives said center tube, wherein said inner peripheral sealing surface sealingly abuts the outer peripheral surface of said center tube to form a radial seal therewith, an annular flexible support ring being embedded in said elastic end plate adjacent said radial seal, said support ring being substantially flat and having a planar outer face facing axially exteriorly of said cartridge, said outer face of the support ring being coplanar with said outer face of said end plate and being exposed adjacent said central opening, and said support ring having an exposed radially inwardly facing peripheral edge surface which is contiguous with the inner peripheral sealing surface of said elastic end plate and which abuttingly surrounds the outer peripheral surface of said center tube

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5,736,041

FILTER ELEMENT

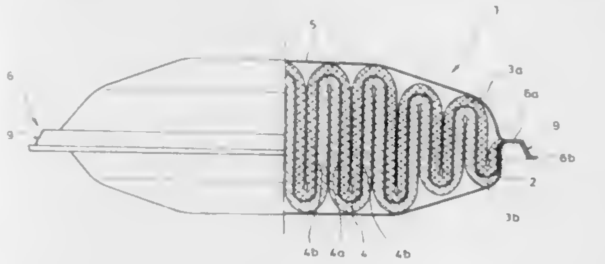
Martin Skov, WalddorfhasLach, Germany, assignor to Moldex-Metric, Inc, Culver City, Calif.

Continuation of Ser. No. 355,916, Dec. 14, 1994, abandoned. This application Dec. 6, 1996, Ser. No. 761,446

Claims priority, application Germany, Dec. 16, 1993, 93 19 372 U

Int. Cl.^{6} B01D *27/08*

U.S. Cl. 210—445 **31 Claims**



1. A filter element for use in a filter holder having a sealing surface, comprising:

a folded, filter material,

a spacer for keeping open the folds and,

a form-defining circumferential outer sealing rim, and wherein the spacer is formed by at least one cover layer, which covers the entire surface of the filter material on at least one side thereof and is folded together with the filter material so that the at least one cover layer spaces the folds of the filter material, and that the form-defining outer sealing rim is formed as a sealing rim for being inserted against the sealing surface of the filter holder and with the folds formed by the at least one cover layer and the filter material both along and traverse to the folds around the circumference of the at least one cover layer and filter material being pressed into said sealing rim at a temperature above the softening temperature of at least a thermoplastic resin provided in at least one of the layers of cover and filter material.

5,736,042

CONICAL FILTER HAVING BONDED END FLAPS

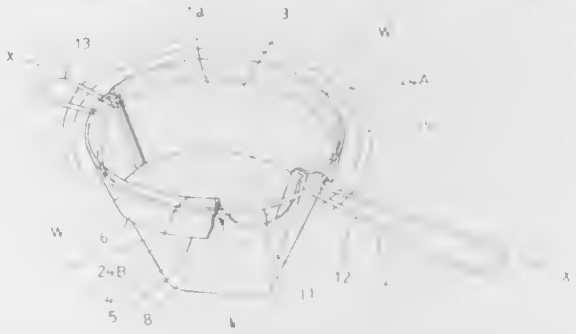
Tsuneo Aoki, Iyomishima, Japan, assignor to Kabushiki Kaisha Tokiwa Kogyo, Ehime, Japan

PCT No. PCT/JP94/02127, § 371 Date Jan. 31, 1996, § 102(e) Date Jan. 31, 1996, PCT Pub. No. WO96/18332, PCT Pub. Date Jun. 20, 1996

PCT Filed Dec. 14, 1994, Ser. No. 596,093

Int. Cl.^{6} B01D *29/085*

U.S. Cl. 210—474 **8 Claims**



1. A filter comprising a pair of substantially identical filter sheets, each having a pair of upwardly diverging side edges and an arc-shaped upper end edge extending between ends of said side edges so as substantially to define a fan-shape, said pair of filter sheets being laid one upon another and bonded to each other at least in the proximity of said side edges so that said arc-shaped upper end edges may form a circular opening as the filter sheets are spaced from each other; and:

a pair of substantially crescent-shaped flap sheets bonded along arc-shaped edges thereof to the respective filter sheets to form a pair of pockets openable downward from said upper end edges.

5,736,043

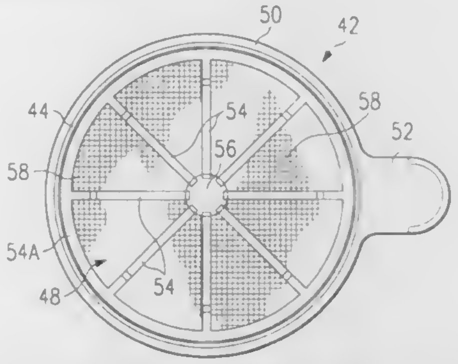
FILTER FOR MEDICAL INSTRUMENT STERILIZATION CONTAINERS

Robert L. Nichols, and William H. Patterson, both of Jacksonville, Tex., assignors to Johnson & Johnson Medical, Inc., New Brunswick, N.J.

Continuation of Ser. No. 87,845, Jul. 1, 1993, Pat. No. 5,474,679, which is a continuation of Ser. No. 980,506, Nov. 23, 1992, abandoned, which is a continuation of Ser. No. 664,030, Mar. 4, 1991, Pat. No. 5,227,074. This application Jun. 7, 1995, Ser. No. 484,100

Int. Cl.^{6} B01D *29/05*

U.S. Cl. 210—477 **5 Claims**



1. A filter for a medical sterilization container having a port, comprising:

an angled interior sidewall defining an aperture with an upper and a lower opening, the upper opening having a larger diameter than the lower opening;

a lip extending from the upper opening radially outward around the perimeter of the upper opening and adapted to seat upon the medical sterilization container adjacent the port, the lip in combination with the sidewall operable to form a seal between the port in the medical sterilization container and the filter in response to pressure placed on at least a portion of the upper opening;

at least one cross member spanning the lower opening of the aperture; and

a filter medium disposed across the lower opening of the aperture and supported by the cross member so that the filter medium is interposed between the interior of the medical sterilization container and the cross member, the filter medium operable to allow fluid communication between the interior of the medical sterilization container and the surrounding environment and to remove articles from a fluid stream passing from the interior of the medical sterilization container through the filter medium in response to a vacuum pressure, the cross member operable to support the filter medium against the vacuum pressure placed on the filter medium as fluid is drawn out of the medical sterilization container

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5,736,044

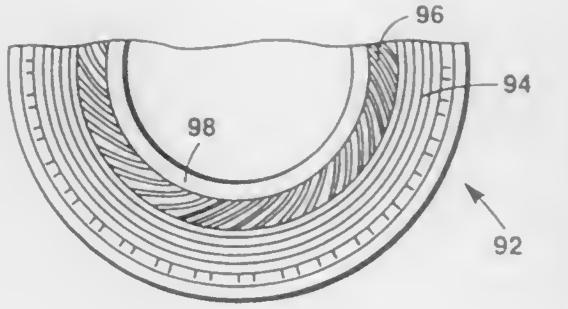
FILTER CARTRIDGE CONSTRUCTION AND PROCESS FOR FILTERING PARTICLE-CONTAINING PAINT COMPOSITIONS

Stephen Proulx, 601 Newton Rd., Littleton, Mass. 01460; Paul J. Cook, 8 Washington St., Manchester-by-the-Sea, Mass. 01944, and Michael L. Heise, 417 Scott Road, Cambridge, Ontario, Canada, N3C 4A5

Divisinn of Ser. No. 552,682, Nov. 3, 1995. This applicatinn Jan. 15, 1997, Ser. No. 783,680

Int. Cl.^{6} B01D *27/06*

U.S. Cl. 210—488 **7 Claims**



1. A filter cartridge for filtering a particle containing a paint composition or a particle loading slurry composition to remove particles of a predetermined size and larger comprising:

a spirally-wound multi-layer material having two opposed spiral end surfaces, said multi-layer material including at least two woven polymer filter layers having substantially uniform sized pores of about said predetermined size and at least two spacer layers; each surface of each filter layer contacting a spacer layer in a spirally wound unit, each of said spacer layers having at least one surface with raised projections, said spacer layers being sealed so that a first set of said spacer layers contacting each filter layer on a first surface is open to the atmosphere on a first spiral end surface and closed to the atmosphere on the second spiral end surface and a second set of said spacer layers contacting the second surface of each filter layer is open to the atmosphere on the second spiral end surface and closed to the atmosphere on the first spiral end surface, said spacer layers being arranged so that spacer layers open on opposing spiral end surfaces are not in contact with each other, the first set of spacer layers being sealed from the atmosphere along a widthwise edge adjacent the center of the spirally-wound material and along a widthwise portion remote from the center of the spirally-wound material

5,736,045
FILTER ELEMENT WITH SUPPORT BODY

Peter Bies, Saarlouis; Artur Jung, Quierschied; Michael Sakranchinsky, St. Ingbert, and Jurgen Hausdorf, Saarbrucken, all of Germany, assignors to HYDAC Filtertechnik GmbH, Sulzbach/Saar, Germany

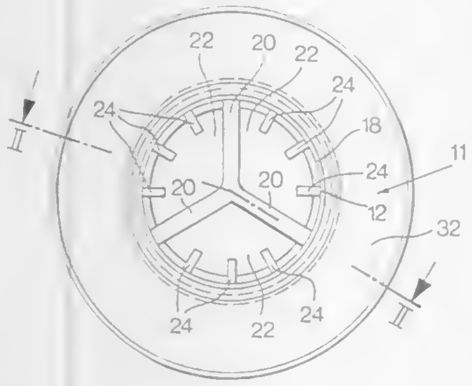
PCT No. PCT/EP94/04045, § 371 Date Sep. 10, 1996, § 102(e) Date Sep. 10, 1996, PCT Pub. No. WO95/25577, PCT Pub. Date Sep. 28, 1995

PCT Filed Dec. 5, 1994, Ser. No. 704,746

Claims priority, application Germany, Mar. 23, 1994, 44 09 970.3

Int. Cl.^{6} B01D *29/15*

U.S. Cl. 210—497.01 **20 Claims**



1. A filter element, comprising:

a support body having a support tube with a plurality of axially spaced, closed rings defining apertures therebetween for flowing filtered medium therethrough and with a longitudinal axis;

a filter mat engaged with said support tube;

support walls subdividing an interior of said support tube into separate chambers and being directly connected on outer peripheries thereof with said rings to support said rings such that said rings surround said support walls and resist pressures during flow of medium through said filter mat, said support walls having surfaces extending completely through said support tube and being aligned with said longitudinal axis; and

reinforcement rods being connected with said rings, extending completely through said support tube parallel to said longitudinal axis, having substantially rectangular transverse cross-sectional configurations, being equidistant from one another and said support walls along said rings and projecting radially at least partially into said chambers.

5,736,046
HIGH-FLUX HOLLOW-FIBER MEMBRANE WITH ENHANCED TRANSPORT CAPABILITY AND PROCESS FOR MAKING SAME

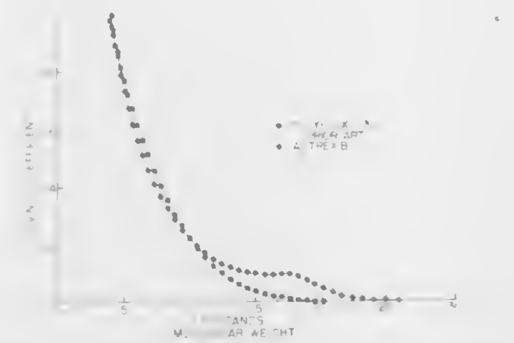
Anders Althin, Miami Lakes; Ben Fernandez, Miami; Raymond Elsen, Miami Lakes; Kees Ruzius, Miami; Lalith Silva, Miami Lakes, and George Washington, Miami, all of Fla., assignors to Althin Medical, Inc., Miami Lakes, Fla.

Continuation of Ser. No. 327,431, Oct. 21, 1994, Pat. No. 5,643,452, which is a continuation of Ser. No. 976,949, Nov. 16, 1992, abandoned. This application Nov. 20, 1996, Ser. No. 752,871

Int. Cl.^{6} B01D *71/16*

U.S. Cl. 210—500.23 **7 Claims**

1. A semipermeable membrane made of a cellulosic material consisting of cellulose acetate, the membrane being configured as a hollow fiber defining a lumen diameter of about 175 to about 210 μm and a wall thickness of about 10 to about 35 μm, the membrane exhibiting an ultrafiltration coefficient (K_{uf}) of about 15 to about 55 mL/hr/mmHg/m^2, a mass-transfer coefficient for urea (K_o urea) of at least 38×10 cm/min, and a ratio of K_{uf} of at least 2.5×10.



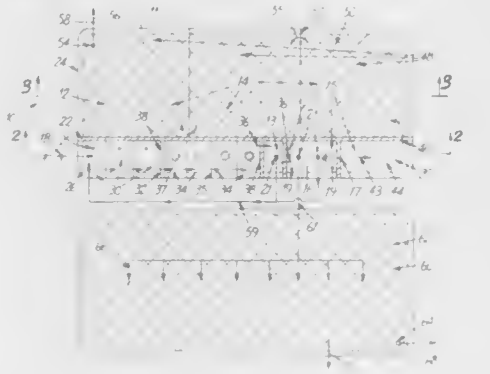
5,736,047
HYBRID BIOLOGICAL NUTRIENT REMOVAL SYSTEM

Viet H. Ngo, Minneapolis, Minn., assignor to Lemna Corporation, St. Paul, Minn.

Continuation-in-part of Ser. No. 395,451, Feb. 28, 1995. This application May 4, 1995, Ser. No. 434,659

Int. Cl.^{6} C02F *3/30;3/32*

U.S. Cl. 210—602 **41 Claims**



1. A process for the removal of biological nutrients from wastewater, the process comprising the steps of:

(a) providing:

(i) an activated sludge system comprising a single-sludge reactor and a clarifier unit, the clarifier unit comprising both a settling zone and a clarification zone, and

(ii) an aquaculture pond, comprising floating aquatic plants, flowably connected with the activated sludge system;

(b) treating wastewater in the single-sludge reactor to produce a mixed liquor;

(c) transferring the mixed liquor to the clarifier unit and operating the clarifier unit to settle a sludge fraction in order to obtain a clarified supernatant fraction;

(d) transferring clarified supernatant to the aquaculture pond, and

(e) incubating the pond under conditions suitable to provide a further reduction in contaminants from the clarified supernatant, wherein flow within the clarifier unit can be interrupted in order to decant supernatant.

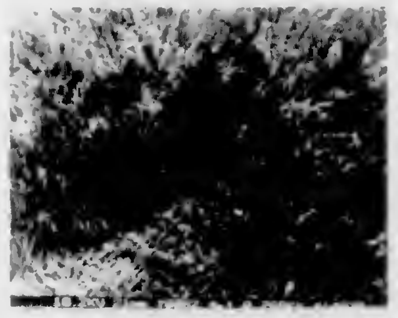
5,736,048
BIOLOGICAL PROCESS OF REMEDIATING CHEMICAL CONTAMINATION OF A POND

Victor M. Ibeanusi, Decatur, Ga., assignor to Spelman College, Atlanta, Ga.

Continuation of Ser. No. 449,102, May 24, 1995, abandoned. This application Aug. 2, 1996, Ser. No. 690,455

Int. Cl.^{6} C02F *3/32;3/34*

U.S. Cl. 210—602 **21 Claims**



1. A process of remediating the chemical contamination of a pond that is contaminated with one or more contaminants selected from the group consisting of toxic heavy metals and one or more aromatic compounds, comprising the following steps:

a) preparing a silage of grass clippings;

b) placing the silage on the surface of the pond and inoculating the pond with an alga and *Bacillus cereus*, using sufficient amounts of said alga and *Bacillus cereus* to cause a mixed algal and bacterial bloom to form on the pond surface and become annealed to the silage;

c) leaving said silage with annealed bloom on the surface of the pond for a time sufficient to allow the bloom to withdraw at least some of the toxic heavy metal content of the pond or for a time sufficient to allow the microorganisms in the bloom to degrade at least some of the aromatic compound content of the pond; and

d) then removing said silage with annealed bloom from the pond.

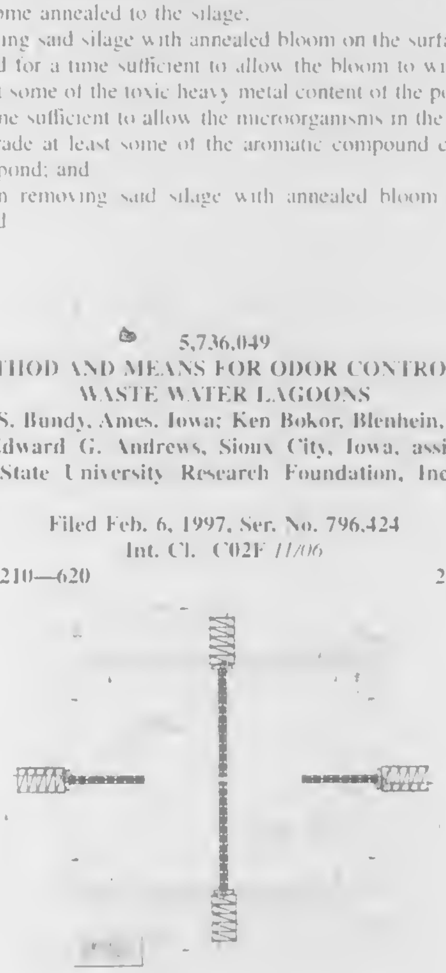
5,736,049
METHOD AND MEANS FOR ODOR CONTROL IN WASTE WATER LAGOONS

Dwaine S. Bundy, Ames, Iowa; Ken Bokor, Blenhein, Canada, and Edward G. Andrews, Sioux City, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Feb. 6, 1997, Ser. No. 796,424

Int. Cl. C02F *11/06*

U.S. Cl. 210—620 **24 Claims**



1. A method of controlling odor in a waste water lagoon having an upper surface comprising the steps of:

aerating a top horizontal layer of said lagoon adjacent said upper surface by introducing air through a plurality of nozzles submerged in said layer to create a plurality of air bubbles in said layer, and

horizontally moving said nozzles progressively through said layer.

8. A device for controlling the odor in waste water lagoons, comprising:

a support structure,

a boom operatively secured to said support structure and extending outwardly therefrom to operatively contact waste water in an adjacent lagoon,

and means on said boom to deliver odor inhibiting material from said boom to an adjacent lagoon with which it is in operative contact,

and power means secured to said boom to cause said boom to move horizontally with respect to an adjacent lagoon while said odor inhibiting material is being delivered.

5,736,050
CURRENTS IN NARROW PORES

Charles A. Pasternak; Charles L. Bashford, both of London; Donald T. Edmonds, Burford, all of United Kingdom, and Adolf A. Lev, St. Petersburg, Russian Federation, assignors to St. George's Hospital Medical School, United Kingdom

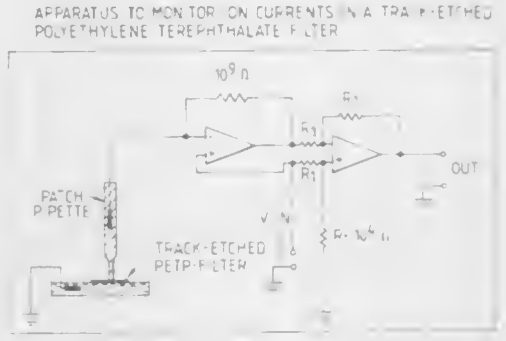
PCT No. PCT/GB94/00032, § 371 Date Nov. 17, 1995, § 102(e) Date Nov. 17, 1995, PCT Pub. No. WO94/15701, PCT Pub. Date Jul. 21, 1994

PCT Filed Jan. 7, 1994, Ser. No. 481,351

Claims priority, application United Kingdom, Jan. 7, 1993, 9300479

Int. Cl.^{6} B01D *11/00*

U.S. Cl. 210—644 **10 Claims**


APPARATUS TO MONITOR ION CURRENTS IN A TRACK-ETCHED POLYETHYLENE TEREPHTHALATE FILTER
10^9 Ω
R_1
R_1
R_1
OUT
PATCH PIPETTE
V
TRACK-ETCHED PETP-FILTER

1. A process for controlling permeability to ions and uncharged molecules through a pore of a synthetic membrane said pore being selected from a hole through said membrane and the space between two apposed surfaces, said apposed surfaces forming said synthetic membrane, said pore having discrete states of differing permeability and, when said pore is a hole through said synthetic membrane, said pore being of less than 10 nanometers radius or, when said pore is formed from two apposed surfaces, said pore being of less than 20 nanometers width, which process comprises placing the pore between a first solution containing an ion, referred to as the transport ion, or uncharged molecule capable of passing through the pore, and a second solution,

and controlling the permeability of ions or uncharged molecules through the pore by means of the transport ion concentration in the first solution and/or proton or multivalent ion concentration in the first and/or second solution.

5,736,051
POLYVINYLIDENE FLUORIDE MEMBRANE AND METHOD FOR REMOVING VIRUSES FROM SOLUTIONS

Peter John Degen, Huntington; Ioannis P. Sipsas, Forest Hills; Gregory C. Rapisarda, West Islip, and Joseph Gregg, Glen Head, all of N.Y., assignors to Pall Corporation, East Hills, N.Y.

Continuation-in-part of Ser. No. 173,755, Dec. 22, 1993, abandoned. This application Oct. 24, 1994, Ser. No. 327,622

Int. Cl.^{6} B01D *69/02; 71/32;* **C12N** *7/00;* **C12Q** *1/70*

U.S. Cl. 210—650 **82 Claims**

1. An isotropic, skinless, porous polyvinylidene fluoride membrane comprising a surface coating of a polymer having the characteristics of rendering said membrane hydrophilic and less susceptible to the adsorption of proteins, wherein said membrane has the characteristic of achieving a titer reduction of at least about 10^{8} against T_1 bacteriophage.

58 A method of filtering a fluid comprising passing a fluid through the membrane of claim 1.

5,736,052

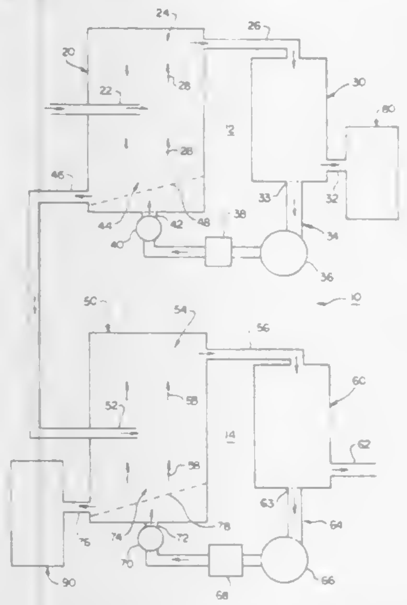
ION EXCHANGE RESIN PARTICLE SEPARATION SYSTEM

John R. Concklin, Forest, Va., assignor to Framatome Technologies, Inc., Lynchburg, Va.

Filed Nov. 27, 1995, Ser. No. 563,181

Int. Cl.^{6} C02F *1/42*

U.S. Cl. 210—675 14 Claims



1. A method for continuously separating ion exchange resin particles, said method comprising the steps of:

(a) separating said particles in a first vertically oriented separation vessel having upper and lower zones, said first separation vessel including: (i) a resin inlet for delivering a mixture of ion exchange resin particles having different terminal settling velocities into the interior of said separation vessel; (ii) an upper outlet for removing a first fraction of resin particles that have a relatively low terminal settling velocity from the upper zone of said separation vessel; and (iii) a lower outlet for removing a second fraction of resin particles that have a relatively high terminal settling velocity from the lower zone of said separation vessel;

(b) receiving said first fraction of resin particles from the upper zone of said first separation vessel in a first collection vessel;

(c) receiving said first fraction of resin particles from said first collection vessel in a first rejuvenation tank connected to said first collection vessel;

(d) draining carrier fluid from said first collection vessel in a first recycle line and directing the carrier fluid into said first separation vessel through a fluid inlet at a bottom of said first separation vessel;

(e) pumping the carrier fluid upwardly through said first separation vessel at a velocity greater than the terminal settling velocity of said first fraction of resin particles and at a velocity less than the terminal settling velocity of said second fraction of resin particles by a first pump located in said first recycle line;

(f) separating said particles in a second vertically oriented separation vessel having upper and lower zones, said second separation vessel including. (i) a resin inlet for delivering said second fraction of resin particles into the interior of said second separation vessel; (ii) an upper outlet for removing a first sub-fraction of said second fraction of resin particles that have a relatively low terminal settling velocity from the upper zone of said separation vessel; and (iii) a lower outlet for removing a second sub-faction of said second fraction of resin particles that have a relatively high terminal settling velocity from the lower zone of said second separation vessel;

(g) receiving said first sub-fraction of said second fraction of resin particles from the upper zone of said second separation vessel in a second collection vessel;

(h) draining carrier fluid from said second collection vessel in a second recycle line and directing the carrier fluid into said second separation vessel through a fluid inlet at a bottom of said second separation vessel; and

(i) pumping the carrier fluid upwardly through said second separation vessel at a velocity greater than the terminal settling velocity of said first sub-fraction of said second fraction of resin particles and at a velocity less than the terminal settling velocity of said second sub-fraction of said second fraction of resin particles by a second pump located in said second recycle line.

5,736,053

METHOD OF ELIMINATING MERCURY FROM LIQUID HYDROCARBONS

Kenji Ikushima, Yachiyo; Kenji Mimoto, Funabashi; Akinori Nakayama, Okayama, and Kiyoto Ohtsuka, Bizen, all of Japan, assignors to Taiyo Oil Co., Ltd., Tokyo, and Kuraray Chemical Co., Ltd., Bizen, both of Japan

Filed Jul. 11, 1996, Ser. No. 678,688

Claims priority, application Japan, Jul. 27, 1995, 7-211137

Int. Cl.^{6} C02F *1/28*

U.S. Cl. 210—688 11 Claims

1 A method of eliminating mercury or compounds thereof contained in a liquid hydrocarbon comprising contacting said liquid hydrocarbon with activated carbon, wherein the activated carbon is prepared by activating a carbonaceous material with activating gas comprising less than 15% by volume of water vapor.

5,736,054

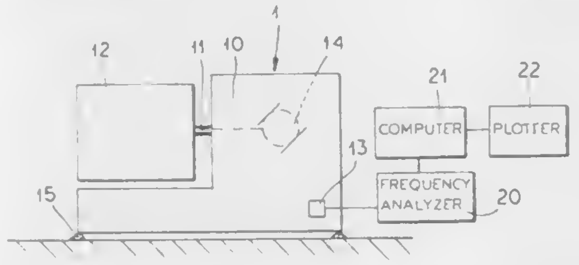
METHOD OF DETERMINING VALUES OF OPERATING PARAMETERS OF A CENTRIFUGE

Johann Feller, Tuntenhausen, and Bruno Hegnauer, Gauting, both of Germany, assignors to Krauss Maffei Aktiengesellschaft, Munich, Germany

Filed Feb. 1, 1995, Ser. No. 381,755

Int. Cl.^{6} B04B *13/00*

U.S. Cl. 210—739 4 Claims



1. A method of determining an operating parameter of a centrifuge selected from a degree of solids filling and a degree of liquid filling, comprising the steps of:

(a) supplying a centrifuge with a suspension of solids in a liquid. and driving said centrifuge to discharge liquid of said suspension and collect said solids;

(b) detecting vibration of said centrifuge resulting from rotation of a centrifuge rotor and producing electrical signals of a frequency and amplitude representing said vibration and having a frequency spectrum characteristic of operation of said centrifuge, presence and absence of said suspension, and characteristics of said liquid and solids in said centrifuge;

(c) subjecting said electrical signals to a frequency spectrum analysis and isolating from said frequency spectrum by said analysis a certain selected frequency; and

(d) determining said parameter selected from a degree of solids filling and a degree of liquid filling by evaluating a change in amplitude of said certain selected frequencies over a time interval

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5,736,055

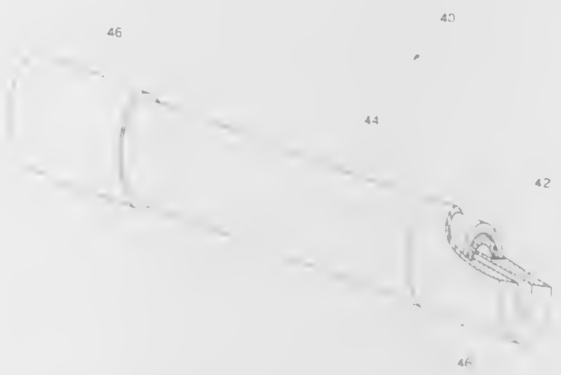
CARTRIDGE FOR PHOTOCATALYTIC PURIFICATION OF FLUIDS

Gerald Cooper, Boulder, Colo., assignor to Photo-Catalytics, Inc., Boulder, Colo.

Filed May 16, 1995, Ser. No. 442,195

Int. Cl.^{6} C02F *1/32*

U.S. Cl. 210—748 26 Claims



1. A replaceable cartridge for use in a photocatalytic fluid purification system, said system having a light source and a fluid flow path, said cartridge comprising

an element having a semiconductor coating attached thereto, said element being permeable to a fluid presented at a boundary of said element so that said fluid can flow through at least a portion of said element, said element having a first rigidity characterized by said element being substantially flexible so that said element is prone to bring deformed when being inserted into a confined area of said system having internal dimensions that are similar to the external dimensions of said element, wherein said element is capable of purifying, by photocatalysis, a fluid passed through said element in the presence of light;

a support means supporting said element, said support means having a second rigidity that is more rigid than said first rigidity so that said support means is unlikely to be deformed when being inserted into said confined area; and

fluid seal means for creating an external fluid seal between a first boundary portion of said element and a second boundary portion of said element to facilitate the flow of fluid through said element from said first boundary portion to said second boundary portion wherein said fluid seal means is adapted for engagement with a portion of said system different from said cartridge to create said external fluid seal;

wherein said replaceable cartridge is adapted to be removably inserted into said confined area of said system, in a position adjacent to said light source and in said fluid flow path, without said element being deformed.

5,736,056

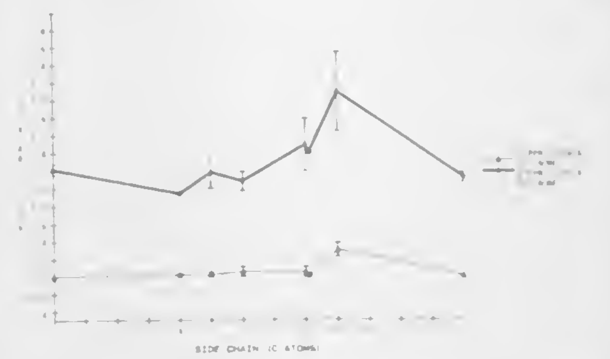
METHOD FOR ENHANCING BIOCIDAL ACTIVITY

J. Barry Wright, and Daniel Michalopoulos, both of Jacksonville, Fla., assignors to BetzDearborn Inc., Trevose, Pa.

Continuation-in-part of Ser. No. 431,338, Apr. 28, 1995, Pat. No. 5,607,597. This application Jan. 15, 1997, Ser. No. 783,683

Int. Cl.^{6} C02F *1/50*

U.S. Cl. 210—755 16 Claims



1 A method for enhancing a treatment containing a biocidal compound to control the growth of microbes in an aqueous system which comprises adding to said system an effective amount of a dinonylsulfosuccinate surfactant, wherein the growth of microbes in said system is controlled while the amount of biocidal compound is decreased, said biocidal compound selected from the group consisting of an isothiazolinone compound, a bromonitropropanediol compound, 2, 2 dibromo-3 nitriloproprionamide, 5-oxo-3, 4-dichloro-1, 2-dithiol and glutaraldehyde

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5,736,057

PROCESS FOR THE PURIFYING OF WATERS FOR HUMAN CONSUMPTION

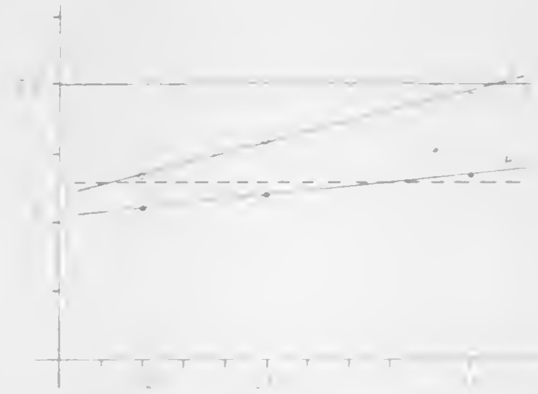
Luigi Minotti, Leggiuno, Italy, assignor to Promox S.R.L., Varese, Italy

Continuation of Ser. No. 282,517, Jul. 28, 1994, abandoned. This application Jun. 3, 1996, Ser. No. 657,428

Claims priority, application Italy, Jul. 29, 1993, MI93A1700

Int. Cl.^{6} C02F *1/72*

U.S. Cl. 210—759 9 Claims



1 Process for the purifying of waters, containing bacteria, algae and protozoan comprising the steps of

purifying said waters with an effective amount of an organic peracid in a concentration ranging from 0.5 to 2 ppm and selected from the group consisting of peracetic acid, performic acid and perpropionic acid to reduce said bacteria, algae and protozoan, and to produce purified waters, and

using said purified waters for human consumption, without giving rise to the formation of mutagenic-cancerogenic agents

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5,736,058

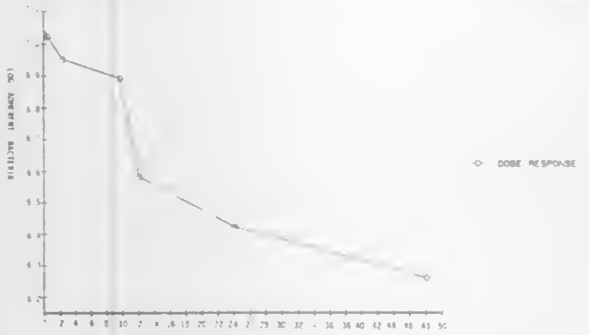
METHOD FOR INHIBITING MICROBIAL ADHESION ON SURFACES

J. Barry Wright, and Daniel L. Michalopoulos, both of Jacksonville, Fla., assignors to BetzDearborn Inc., Trevose, Pa.

Continuation of Ser. No. 638,631, Apr. 26, 1996, Pat. No. 5,593,599, which is a continuation-in-part of Ser. No. 430,569, Apr. 28, 1995, Pat. No. 5,512,186. This application Dec. 20, 1996, Ser. No. 769,473

Int. Cl.^{6} C02F *1/50*

U.S. Cl. 210—764 **20 Claims**



1. A method for inhibiting the microbial colonization of surfaces in contact with an aqueous system which comprises adding to said system an effective amount of an anionic alkylsulfosuccinate surfactant, said method substantially preventing the adhesion of microbes to said surfaces while preserving the viability of the microbes in said system, allowing for the discharge of the microbes from said system.

5,736,059

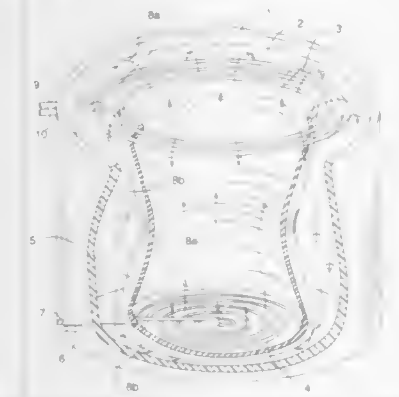
WASTE WATER HEAT RECOVERY SYSTEM

Winston R. Mackelvie, P.O. Box 1156, Knowlton, Quebec, Canada, JOE IVO

Continuation-in-part of Ser. No. 27,290, Mar. 5, 1993, abandoned. This application Sep. 26, 1995, Ser. No. 533,683

Int. Cl.^{6} C02F *1/02*

U.S. Cl. 210—774 **20 Claims**



1. In a plumbing system for a building, the plumbing system including a cold water supply and a water disposal conduit, the improvement comprising an apparatus to transfer heat from waste water in said water disposal conduit to said cold water, said apparatus comprising a reservoir, a heat transfer fluid substantially filling said reservoir, a first heat exchange means disposed bottomwards in said reservoir, said first heat exchange means having an inlet and an outlet, said inlet and said outlet of said first heat exchange means being operatively connected to said waste water disposal conduit such that water passing through said waste water disposal conduit will pass through said first heat exchange means, a second heat exchange means disposed topwards in said reservoir and spaced from said first heat exchange means, said second heat exchange means being immersed in said heat transfer fluid, said second heat exchange means having an inlet and an outlet operatively connected to said cold water supply such that cold water entering said system passes through said second heat exchange means, the arrangement being such that heat is transferred from said first heat exchange means to said second heat exchange means by means of said heat transfer fluid.

18. A method of recovering heat from waste water in a plumbing system in a building, said method comprising the steps of supplying a heat exchange apparatus comprising a reservoir, a heat transfer fluid substantially filling said reservoir, a first heat exchange means disposed bottomwards in said reservoir and spaced from the bottom thereof, a second heat exchange means disposed topwards in said reservoir and spaced from said first heat exchange means, said second heat exchange means being immersed in said heat transfer fluid, causing waste water from said plumbing system to pass through said heat exchange means prior to exiting to a drain, and directing cold water through said second heat exchange means whereby heat is transferred from said first heat exchange to said second heat exchange means by means of said heat transfer fluid.

5,736,060

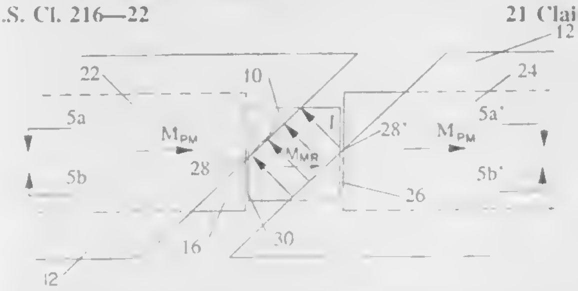
READ SENSITIVITY MR HEAD USING PERMANENT MAGNET LONGITUDINAL STABILIZATION

Peter Kurt George, Bloomington, Minn., and Garrett Aquila Garrettson, Los Altos, Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 468,779, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 420,450, Apr. 10, 1995, which is a continuation of Ser. No. 936,185, Aug. 25, 1992, abandoned. This application May 27, 1997, Ser. No. 863,606

Int. Cl.^{6} G01R *33/02*; G11C *19/08*

U.S. Cl. 216—22 **21 Claims**



1. A method of making a magnetoresistive sensor comprising:

forming a magnetoresistive element on a substrate, the magnetoresistive element having an end surface defining a plane intersecting the substrate, the magnetoresistive element having a first magnetization vector; and

forming a permanent magnet having an end surface confronting the end surface of the magnetoresistive element and having a second magnetization vector, the first and second magnetization vectors having substantially equal magnitudes and directions to prevent magnetic flux discontinuities between the end surface of the magnetoresistive element and the end surface of the permanent magnet.

5,736,061

SEMICONDUCTOR ELEMENT MOUNT AND PRODUCING METHOD THEREFOR

Tsuyoshi Fukada, Aichi-gun; Yasutoshi Suzuki, Okazaki; Koushu Satoh, and Hiroaki Kawashima, both of Chiba, all of Japan, assignors to Nippondenso Co. Ltd., Kariya, and Iwaki Glass Co., Ltd., Funabashi, both of Japan

Filed Jun. 27, 1996, Ser. No. 671,536

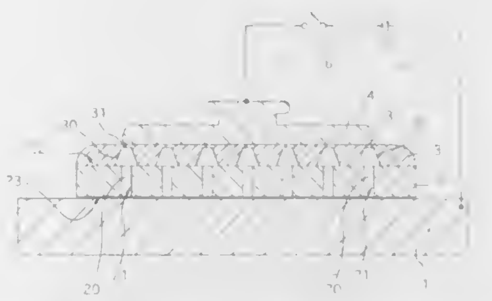
Claims priority, application Japan, Jun. 29, 1995, 7-164169

Int. Cl.^{6} B44C *1/22*

U.S. Cl. 216—33 **28 Claims**

1. A manufacturing method for a semiconductor element mount, comprising the steps of:

physically processing a glass-made member for the semiconductor element mount; and



chemically etching a surface roughness of the glass-made member caused by the step of physically processing the glass-made member to smoothen a surface of the glass-made member.

5,736,062

AZEOTROPE-LIKE MIXTURES UTILIZABLE AS REFRIGERATING FLUIDS

Giampiero Basile, Alessandria, and Ezio Musso, Castelleto D'Orba, both of Italy, assignors to Ausimont S.p.A., Milan, Italy

Continuation of Ser. No. 287,248, Aug. 8, 1994, abandoned. This application Feb. 12, 1996, Ser. No. 600,151

Claims priority, application Italy, Aug. 13, 1993, MI93A9081

Int. Cl.^{6} C09K *5/04*

U.S. Cl. 252—67 **4 Claims**

1. Azeotropic-like compositions consisting essentially of, by weight, from 20 to 50% of CF_3CHF_2 (R 125), from 5 to 20% of CF_3CH_3 (R 143a), from about 1 to 5% of $CH_3CH_2CH_3$ (R 290), and from 40 to 60% of $CHClF_2$ (R 22), wherein the vapor pressure (abs. bar) for said compositions changes by about 5 to about 15% after about 50% of the composition has been evaporated at 25° C.

5,736,063

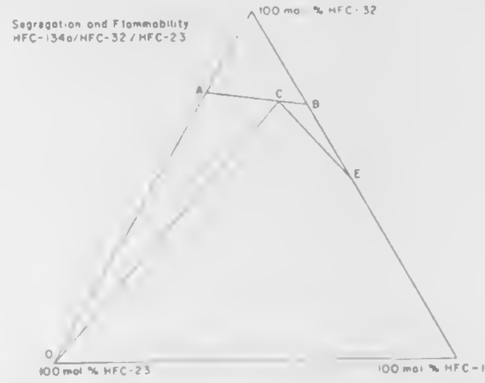
NON-AZEOTROPIC REFRIGERANT COMPOSITIONS CONTAINING CARBON DIOXIDE

Robert Gerard Richard, Cheektowaga; Ian R. Shankland, and Rajiv Ratna Singh, both of Williamsville, all of N.Y., assignors to AlliedSignal Inc., Morris Township, N.J.

Continuation of Ser. No. 452,231, May 26, 1995, abandoned, which is a division of Ser. No. 895,254, Jun. 8, 1992, abandoned, which is a continuation of Ser. No. 671,270, Mar. 18, 1991, abandoned. This application Oct. 24, 1996, Ser. No. 736,613

Int. Cl.^{6} C09K *5/04*

U.S. Cl. 252—67 **5 Claims**



1. Refrigerant compositions comprising from about 10 to about 90 weight percent of difluoromethane; from about 1 to about 50 weight percent of carbon dioxide; and from about 1 to about 50 weight percent of a hydrofluorocarbon selected from the group consisting of pentafluoroethane, 1,1,1,2,3,3,3-heptafluoropropane, 1,1,1,2,2,3,3-heptafluoropropane, or 1,1,1,2,2-pentafluoropropane, wherein said refrigerant compositions have a vapor pressure substantially equal to the vapor pressure of chlorodifluoromethane.

5,736,064

ELECTRORHEOLOGICAL FLUID COMPOSITION CONTAINING INORGANIC/ORGANIC COMPOSITE PARTICLES

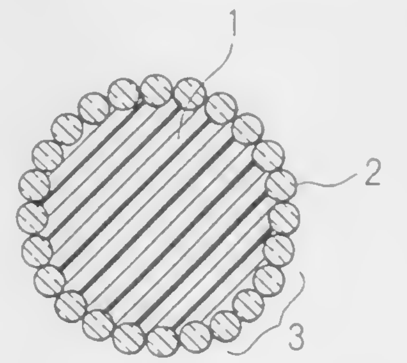
Kazuya Edamura, Tokyo; Yasufumi Otsubo, Chiba, and Masataka Mizoguchi, Tokyo, all of Japan, assignors to Fujikura Kasei Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 286,414, Jul. 13, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 638,855

Claims priority, application Japan, Jul. 15, 1993, 5-175706

Int. Cl.^{6} C10M *171/00; 169/04*

U.S. Cl. 252—74 **5 Claims**



1. An electrorheological fluid composition comprising inorganic/organic composite particles dispersed in an electrically insulating medium,

said inorganic/organic composite particles consisting essentially of a core consisting of an electrically insulating organic polymeric compound and a single shell consisting essentially of microparticles of an electrically semiconducting inorganic material having an electrical conductivity within a range of 10^{3} to 10^{-11} Ω^{-1}/cm at room temperature,

wherein the electrically semiconducting inorganic material are metal oxides, metal hydroxides, hydroxides of metal oxides, or inorganic ion exchangers, or metal oxides, metal hydroxides, hydroxides of metal oxides, or inorganic ion exchangers which are subjected to metallic doping,

and wherein the electrically insulating organic polymeric compound is at least one of poly(meth)acrylic ester, (meth)acrylic ester-styrene copolymer, polystyrene, polyethylene, polypropylene, nitrile rubber, butyl rubber, ABS resin, nylon, polyvinyl butyrate, ionomer, ethylene-vinyl acetate copolymer, vinyl acetate resin, or polycarbonate resin.

5,736,065

CHEMICAL REDUCING SOLUTION FOR COPPER OXIDE

Akishi Nakaso, Oyama, and Youichi Kaneko, Shimodate, both of Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 382,583, Feb. 2, 1995, abandoned. This application Mar. 12, 1997, Ser. No. 815,599

Claims priority, application Japan, Feb. 2, 1994, 6-010737

Int. Cl.^{6} C01B *6/10*, C09K *15/02*

U.S. Cl. 252—188.26 **5 Claims**

1. A chemical reducing solution for chemically reducing copper oxide to metallic copper which consists essentially of an aqueous solution of an alkali boron hydride admixed with a water-soluble polyoxyethylene chain-containing organic compound having a

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molecular weight of 200 or above and an alkali hydroxide to provide a pH value of 11.0 or above.

5,736,066

OPTICALLY ANISOTROPIC FILM

Takanobu Noguchi; Toshihiro Ohnishi; Michitaka Morikawa, and Masato Kuwabara, all of Tsukuba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 9, 1995, Ser. No. 555,807

Claims priority, application Japan, Nov. 10, 1994, 6-276570; Apr. 10, 1995, 7-083920; Apr. 10, 1995, 7-083921; Jul. 11, 1995, 7-174696

Int. Cl.^{6} C09K *19/52;19/00*

U.S. Cl. 252—299.01 **19 Claims**

1 An optically anisotropic film in which retardation at 80° C is 20–97% of that at 30° C, said film comprising a mixture of at least one liquid crystal compound and a transparent or semitransparent polymer, the ratio of said liquid crystal compound being 0.5–50% by weight based on the combined weight of said liquid crystal compound and said polymer.

5,736,067

OPTICAL COMPENSATORY SHEET AND PROCESS FOR PREPARATION OF THE SAME AND LIQUID CRYSTAL DISPLAY

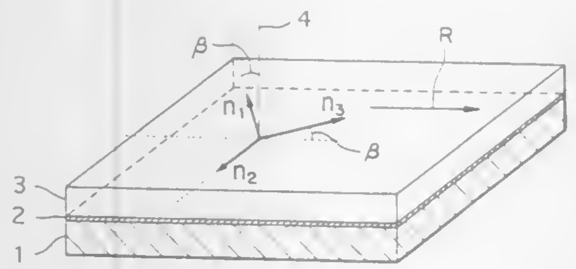
Ken Kawata; Masaki Okazaki; Koh Kamada, and Yoshinori Suzuki, all of Kanagawa, Japan, assignors to Fuji Photo Film Co, Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 348,087, Nov. 25, 1994, abandoned. This application Apr. 4, 1996, Ser. No. 627,378

Claims priority, application Japan, Nov. 25, 1993, 5-295501; May 26, 1994, 6-113006

Int. Cl.^{6} C09K *19/54*, **G02F** *1/1335*

U.S. Cl. 252—299.5 **20 Claims**



1 An optical compensatory sheet which comprises a layer in the condition of a mono-domain of a discotic nematic phase, an optic axis of the sheet being inclined at 5 to 50 degrees from a line normal to the sheet.

5,736,068

TRIPHENYLENE COMPOUNDS AND PREPARATION OF DISCOTIC LIQUID CRYSTALLINE CROSSLINKED POLYMERS

Lukas Haeussling, Laubenheim; Dirk Funhoff, Heidelberg; Karl Siemensmeyer, Frankenthal; Karl-Heinz Etzbach, Frankenthal; Friedrich Closs, Frankenthal; Helmut Ringsdorf, and Peter Schuhmacher, both of Mainz, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03649, § 371 Date May 22, 1996, § 102(e) Date May 22, 1996, PCT Pub. No. WO95/14652, PCT Pub. Date Jun. 1, 1995

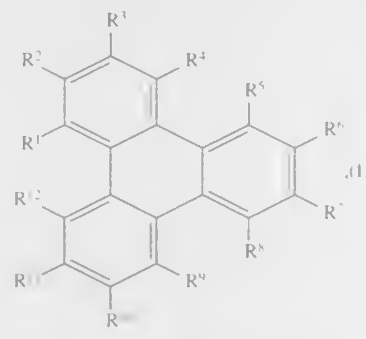
PCT Filed Nov. 8, 1994, Ser. No. 649,693

Claims priority, application Germany, Nov. 23, 1993, 43 39 711.5

Int. Cl.^{6} C09K *19/32;19/52;19/34* **F21V** *9/00*

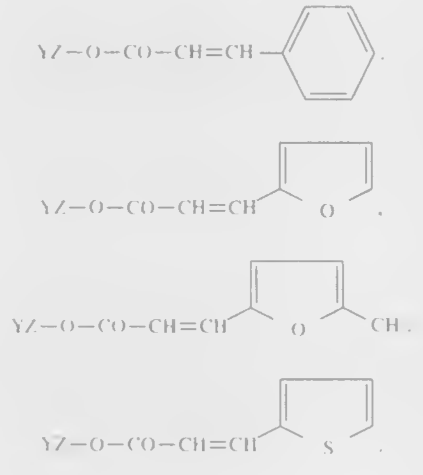
U.S. Cl. 252—299.62 **5 Claims**

1 A compound of the formula (I)

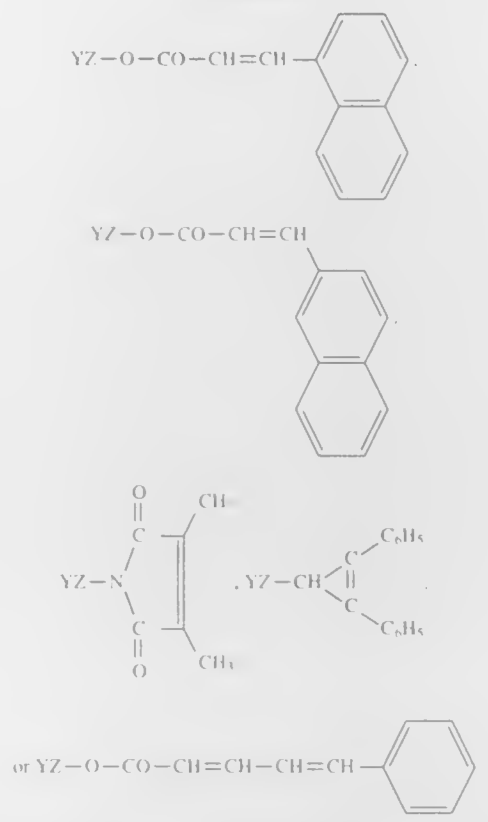


where R^1 to R^{12} are identical or different and are each hydrogen, halogen, alkyl, X-alkyl, where X is O, S or NH, or N(alkyl)$_2$, where each alkyl radical is of 1 to 20 carbon atoms, or are each such additionally substituted alkyl radicals containing as substituents, COOH, OH, NCO, NH_2, NHR^{13}, $N(R^{13})_2$, or OR^{13}, wherein R^{13} is a straight chain or branched alkyl, of up to 12 carbon atoms, aryl, alkaryl, oxaalkyl having up to four oxygen atoms in the chain or thiaalkyl having up to 4 sulfur atoms in the chain, or are each radicals which contain C—C double bonds, C—C triple bonds, oxiranyl groups or thiiranyl groups, with the proviso that at least three of the radicals R^1 to R^{12} are radicals containing oxiranyl or thiiranyl groups or radicals containing C—C double bonds, of the formulae

$Y-CO-CH=CH_2$, $Y-CO-C(CH_3)=CH_2$,



-continued



where Y is O, S or a single bond, Z is $(CH_2)_n$ and n is from 1 to 12.

5,736,069

RADIATION IMAGE STORAGE SCREEN COMPRISING AND ALKALI METAL HALIDE PHOSPHOR

Peter Willems, Stekene; Paul Leblans, Kontich; Luc Struye, Mortsel, all of Belgium; Johann-Martin Spaeth; Thomas Hangleiter, both of Paderborn, Germany, and Carsten Dietze, Borchen, Germany, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

Filed Jun. 20, 1996, Ser. No. 666,934

Claims priority, application European Pat. Off., Jun. 30, 1995, 95201785

Int. Cl.^{6} C09K *11/34*

U.S. Cl. 252—301.4 H **9 Claims**

1. A radiation image storage screen comprising an alkali metal halide phosphor corresponding to formula I

$$M^{1+}X.aM^{2+}X'_2.bM^{3+}X''_3:cZ \qquad I$$

wherein:

M^{1+} is at least one member selected from the group consisting of Li, Na, K, Cs and Rb,

M^{2+} is at least one member selected from the group consisting of Be, Mg, Ca, Sr, Ba, Zn, Cd, Cu, Pb and Ni,

M^{3+} is at least one member selected from the group consisting of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Al, Bi, In and Ga,

Z is at least one member selected from the group Ga^{1+}, Ge^{2+}, Sn^{2+}, Sb^{3+} and As^{3+},

X, X' and X" can be the same or different and each represents a halogen atom selected from the group consisting of F, Br, and Cl, and $0 \leqq a \leqq 1$, $0 \leqq b \leqq 1$ and $0 < c \leqq c0.2$.

5,736,070

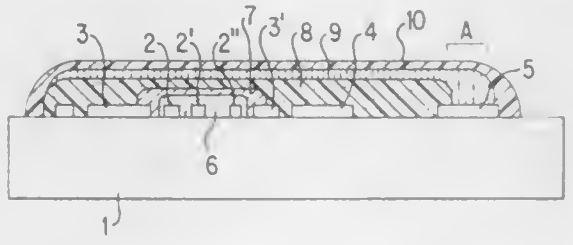
ELECTROCONDUCTIVE COATING COMPOSITION, A PRINTED CIRCUIT BOARD FABRICATED BY USING IT AND A FLEXIBLE PRINTED CIRCUIT ASSEMBLY WITH ELECTROMAGNETIC SHIELD

Hisatoshi Murakami; Shinichi Wakita; Tsunehiko Terada, and Shohei Morimoto, all of Osaka, Japan, assignors to Tatsuta Electric Wire and Cable Co., Ltd., Osaka, Japan

Continuation of Ser. No. 494,199, Jun. 23, 1995, abandoned, which is a continuation of Ser. No. 317,410, Oct. 3, 1994, abandoned, which is a continuation of Ser. No. 959,854, Oct. 13, 1992, abandoned. This application Apr. 25, 1996, Ser. No. 637,460

Int. Cl.^{6} H01B *1/22;* **C08K** *3/08*

U.S. Cl. 252—512 **6 Claims**



1. An electroconductive coating composition comprising
(A) 100 parts by weight of a copper metal powder coated with 0.05 to 0.2 weight part of a titanate, a zirconate or a mixture thereof;
(B) 5 to 30 parts by weight of a resole phenolic resin;
(C) 0.5 to 4 parts by weight of a chelating agent which prevents oxidation of a copper metal powder and contributes to perpetuation of electric conductivity;
(D) 0.1 to 5 parts by weight of an adhesion improving agent; and
(E) 0.5 to 7 parts by weight of a conductivity improving agent selected from the group consisting of a nitrogen-containing compound having a phenyl group, a nitrogen containing compound having a heterocyclic compound, a compound which will develop electric conductivity on chemical oxidative polymerization and a compound which will develop electric conductivity on electrolytic polymerization.

5,736,071

TRANSPARENT CONDUCTIVE DOUBLE OXIDE AND METHOD FOR PRODUCING SAME

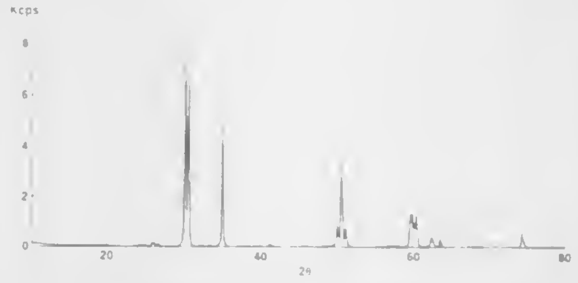
Keiji Sato, Ube, Japan, assignor to Central Glass Company, Limited, Yamaguchi, Japan

Filed Jan. 16, 1997, Ser. No. 784,327

Claims priority, application Japan, Jan. 18, 1996, 8-006824; Jan. 18, 1996, 8-006825

Int. Cl.^{6} H01B *1/08;* **C01G** *1/00;15/00;30/00*

U.S. Cl. 252—518.1 **17 Claims**



1. A double oxide which is transparent and electrically conductive, said double oxide having a defective fluorite crystal structure and being represented by a formula of $In_3Sb_{1-x}O_{7-\delta}$ where X is in a range of from about −0.2 to about 0.2, and δ is in a range of from about −0.5 to about 0.5

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5,736,072
DEVICE FOR PRODUCING CARBONATED WATER

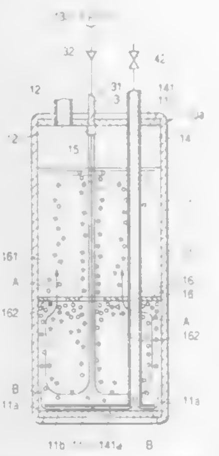
Takeshi Satoh, Sawa-gun, Japan, assignor to Sanden Corporation, Isesaki, Japan

Filed Oct. 10, 1996, Ser. No. 728,609

Claims priority, application Japan, Oct. 17, 1995, 7-268417; Oct. 18, 1995, 7-270240

Int. Cl.^{6} B01F *3/04*

U.S. Cl. 261—27 **7 Claims**



1. A device for producing carbonated water including,
- a hermetic container,
- a first pipe member continually conducting carbonic acid gas into an inner hollow space of said hermetic container,
- a second pipe member intermittently conducting pressurized water into said inner hollow space of said hermetic container in response to demand,
- a third pipe member intermittently conducting carbonated water temporarily staying in said container to a location exterior to said container in response to demand,
- a nozzle connected to one end of said second pipe member and disposed within said container at a position which is located at a top end of said container, said nozzle allowing pressurized water to be downwardly injected into said inner hollow space of said container, and
- a plate member disposed within said inner hollow space of said container,
- wherein said plate member includes a first hole which is located at a position corresponding to a downward path of said injected water, and at least one second hole which is located at a position offset from an upward path of said injected water.

5,736,073
PRODUCTION OF NANOMETER PARTICLES BY DIRECTED VAPOR DEPOSITION OF ELECTRON BEAM EVAPORANT

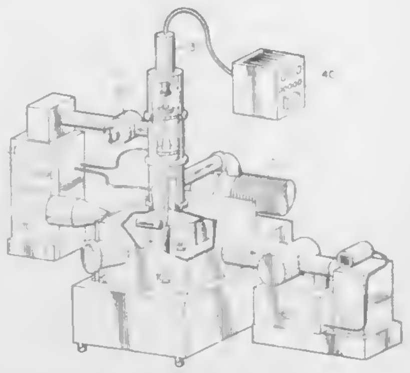
Haydn N. G. Wadley, Keswick, and James F. Groves, Charlottesville, both of Va., assignors to University of Virginia Patent Foundation, Charlottesville, Va.

Filed Jul. 8, 1996, Ser. No. 679,435

Int. Cl.^{6} B29C *9/00*

U.S. Cl. 264—10 **30 Claims**

1. A process for the preparation of nanometer powders comprising: providing a deposition chamber, wherein said deposition chamber has an operating pressure of from 0.001 Torr to atmospheric pressure and has coupled thereto a means for providing a carrier gas steam and a means for providing an electron beam at said operating pressure and further contains an evaporant source:
- impinging said evaporant source with said electron beam to generated said evaporant;
- entraining said evaporant in said carrier gas stream in an amount sufficient to cause growth, in said carrier gas steam, of nanometer particles of the evaporant; and
- collecting said nanometer particles in a collection means selected from the group consisting of a cyclone separator and a non-reactive liquid substrate.



30. An apparatus for preparing nanometer powders, comprising:
- a deposition chamber;
- an electron beam gun coupled to said deposition chamber, wherein said electron beam gun is capable of providing an electron beam in said deposition chamber when said deposition chamber is maintained at an operating pressure of 0.001 Torr to atmospheric pressure;
- a means for generating a carrier gas stream, wherein said means for generating a carrier gas stream is located such that said electron beam passes through at least a portion of said carrier gas stream prior to impinging on an evaporant source; and
- a collection means for collecting the nanometer powder produced, by directing said carrier gas stream into said collection means, wherein said collection means is selected from the group consisting of a cyclone separator and a non-reactive liquid substrate

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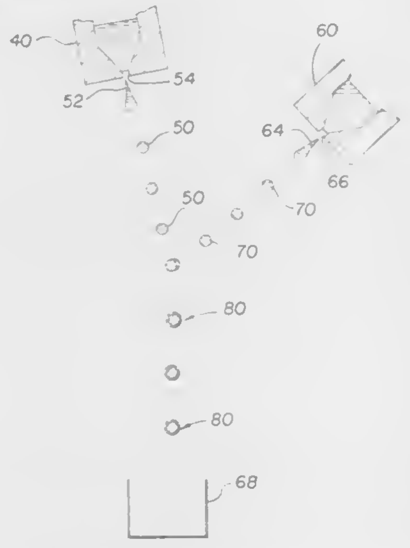
5,736,074
MANUFACTURE OF COATED SPHERES

Donald J. Hayes, and Mary W. Hartnett, both of Plano, Tex., assignors to Micro Fab Technologies, Inc., Plano, Tex.

Filed Jun. 30, 1995, Ser. No. 496,972

Int. Cl.^{6} B29B *9/10*

U.S. Cl. 264—6 **17 Claims**



1. A method of making solid spheres of substantially uniform size and shape comprising the steps of:
- (a) forming a first stream of generally spherical drops of liquid first material in a line-of-flight between a first ejector and a collector;
- (b) forming a second stream of drops of a second material in a line-of-flight between an ejector and the line-of-flight of said first stream;
- (c) causing drops of said second material to collide with drops of said first material in said first line-of-flight and form unitary bodies of substantially uniform size and shape;

- (d) causing said unitary bodies to form substantially solid spheres while in said line-of-flight between said first ejector and a collector; and
- (e) collecting said substantially solid spheres.

7. A method as set forth in claim 1 including the step of maintaining sufficient heat energy in the drops of first material to cause the second material which collides therewith to form a liquid layer of uniform thickness on the drops of first material

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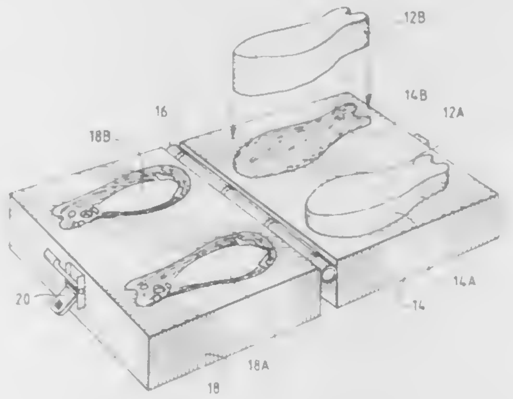
5,736,075
METHOD OF FORMING A MOLDED PRODUCT USING A FREEZING STEP

James S. W. Lee, Long Island, N.Y., and Kwong-Wai Chow, Hunghom, Hong Kong, assignors to C.J. Associates, Ltd., Kowloon, Hong Kong

Filed Oct. 22, 1996, Ser. No. 734,900

Int. Cl.^{6} B29C *67/20*

U.S. Cl. 264—28 **11 Claims**



1. A method of molding, from porous material, a low-density product having an impermeable surface, comprising the steps of:
- A. preparing a mold having a cavity the outline of which defines the outline of said product,
- B. stamping from said porous material a blank having substantially the outline of said product;
- C. inserting said blank into said cavity with the outline of said blank substantially congruent with the outline of said cavity,
- D. heating said mold with said blank therein to form said blank permanently into said product;
- E. and then removing said product from said mold and freezing said product;
- the durations and temperatures of said heating and freezing steps being chosen such that an impermeable surface is permanently formed on said product,
- whereby said product has the appearance of having been formed from non-porous material

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5,736,076
GRAPHITE MOLDINGS

Ruprecht Meissner, Weisenheim; Matthias Irgang, Heidelberg; Knut Eger, Limburgerhof; Peter Weidlich, Mannheim, and Heinz Dreyer, Ludwigshafen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Aug. 22, 1995, Ser. No. 517,841

Claims priority, application Germany, Aug. 27, 1994, 44 30 478.1

Int. Cl.^{6} B01J *20/02*

U.S. Cl. 264—29.6 **6 Claims**

1. A process for the production of a graphite molding containing from 30 to 98% by weight of graphite, from 2 to 30% by weight of a binder and up to 50% by weight of other optional additives, which process comprises,
- forming a graphite powder mixture with said binder, wherein said graphite powder consists essentially of from 5 to 100% by weight of a rhombohedral crystalline graphite;
- compression molding said mixture at a temperature of from 10° to 100° C. and a compressive force of from 5 to 100 kN, and
- subjecting the initially molded product to a heat treatment in the absence of oxygen at a temperature of from 300° to 600° C

5,736,077
METHOD FOR LINING A MANHOLE

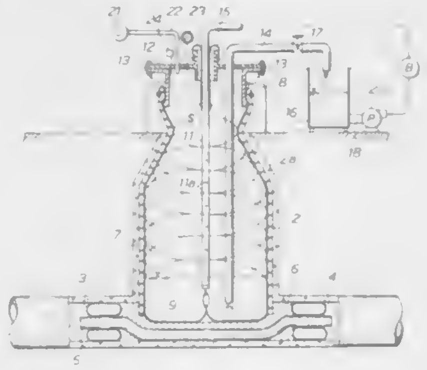
Takao Kamiyama, Hiratsuka, and Yasuhiro Yokoshima, Ibaraki-ken, both of Japan, assignors to Yokoshima & Company, Ibaraki-ken, and Shonan Gosei-Jushi Seiksakusho K.K., Kanagawa-ken, both of Japan

Filed Sep. 25, 1995, Ser. No. 533,220

Claims priority, application Japan, Sep. 28, 1994, 6-232796; Dec. 13, 1994, 6-309276

Int. Cl.^{6} F04B *1/16*, **B32B** *31/00*

U.S. Cl. 264—32 **2 Claims**



1. A method for lining a manhole which communicates with a main pipe at a bottom of said manhole, which method comprises the steps of:
- (a) plugging said main pipe with a first plug means and a second plug means such that said first plug means disconnects said manhole from an upstream portion of said main pipe and said second plug means disconnects said manhole from a downstream portion of said main pipe, and then communicating said upstream portion with said downstream portion by means of a hose extending between said first plug means and said second plug means,
- (b) partially filling that portion of said main pipe which is isolated between said first plug means and said second plug means, with a liquid absorbent filler which absorbs liquid resin pressed out of a tubular liner inserted into said manhole and thereby prevents said liquid resin pressed out of said liner from coming in contact with said main pipe;
- (c) inserting into said manhole said tubular liner which is soaked with said curable liquid resin,
- (d) everting an inflatable bag of a highly airtight plastic film into said tubular liner with a fluid pressure,
- (e) closing an open end of said everted bag thereby forming a closed space inside said bag,
- (f) supplying pressurized fluid to said closed space to thereby cause said bag to inflate and press said liner against an inner wall of said manhole such that liquid resin pressed out of said liner is absorbed by said liquid absorbent filler,
- (g) curing said liquid resin of said liner to thereby harden said liner,
- (h) removing said everted inflatable bag from said manhole and
- (i) removing said liquid absorbent filler from said main pipe

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5,736,078

METHOD FOR MANUFACTURING UNCOATED VINYL COVERING

Michael Derek Tisack, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jan. 17, 1997, Ser. No. 785,046

Int. Cl.^{6} C11D *10/00*

U.S. Cl. 264—39 12 Claims

1. A method of manufacturing an uncoated covering having a finished surface that displays a uniform appearance for an automotive instrument panel comprising the steps of:

providing an electroplated nickel tool having a grained surface;
dispensing a quantity of melt fusible powdered vinyl into said tool;
heating said tool to melt said vinyl and to form said covering, said vinyl leaving deposits that adhere to said surface;
removing said vinyl covering from said tool; and
periodically cleaning said surface with a cleaning solution of glycol ether DPM and triethanolame to remove said deposits, said cleaning solution removing said deposits without damaging said tool.

5,736,079

METHOD OF CONTROLLING AN EJECTOR OF AN INJECTION MOLDING MACHINE

Masao Kamiguchi; Yuichi Hosoya, both of Minamitsuru-gun, and Minoru Kobayashi, Oshino-mura, all of Japan, assignors to Fanuc Ltd., Minamitsuru-gun, Japan

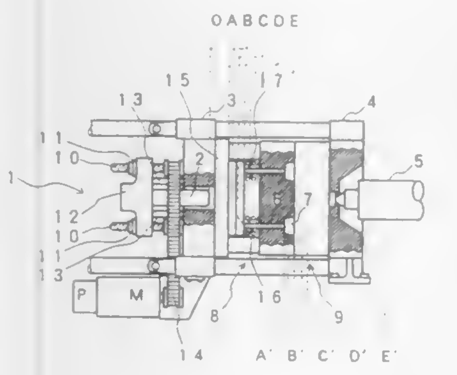
PCT No. PCT/JP95/02166, § 371 Date May 21, 1996, § 102(e) Date May 21, 1996, PCT Pub. No. WO96/13369, PCT Pub. Date May 9, 1996

PCT Filed Oct. 20, 1995, Ser. No. 648,140

Claims priority, application Japan, Oct. 26, 1994, 6-286011

Int. Cl.^{6} B29C *45/40*

U.S. Cl. 264—40.1 5 Claims



1. An ejector control method for an injection molding machine, in which the operation of an ejector mechanism driven by a servomotor is controlled according to a movement command program, by which a molded product remaining in a cavity or core of a movable mold fixed to a movable platen is removed from said cavity or core and dropped by protruding an ejector pin in said cavity or core, said method comprising the steps of:

making said ejector pin reach a predetermined protrusion limit position beyond a position where the removal of said molded product from said cavity or core is to be completed, by conducting positioning confirmation, and
making said ejector pin perform a plurality of cycles of reciprocating motion of a short amplitude, without any positioning confirmation, so that said ejector pin neither retracts beyond a position where the removal of said molded product from said cavity or core is started nor protrudes to said protrusion limit position.

5,736,080

PROGRAM SETTING METHOD FOR INJECTION MOLDING MACHINE CONTROL DEVICE

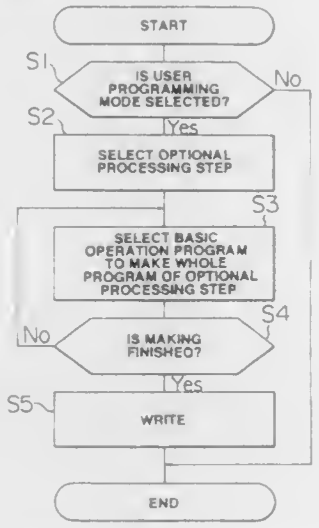
Masashi Suganuma, Nagano, Japan, assignor to Nissei Plastic Industrial Co., Ltd., Nagano-Ken, Japan

Filed May 24, 1996, Ser. No. 653,350

Claims priority, application Japan, May 26, 1995, 7-152287

Int. Cl.^{6} B29C *45/76*

U.S. Cl. 264—40.3 20 Claims


START
S1
IS USER PROGRAMMING MODE SELECTED?
No
S2
Yes
SELECT OPTIONAL PROCESSING STEP
S3
SELECT BASIC OPERATION PROGRAM TO MAKE WHOLE PROGRAM OF OPTIONAL PROCESSING STEP
S4
No
IS MAKING FINISHED?
Yes
S5
WRITE
END

1. A method of operating a molding machine, the molding machine including a display, a user input device, a control unit, and a memory; wherein the control unit controls various aspects of the molding machine; the memory has free space and also stores a plurality of unit programs; each unit program has a respective label; and each unit program is made up of basic operations useable by the control unit to control an aspect of the molding machine, the method comprising the steps of:

displaying, on the display, a plurality of the respective labels for the plurality of unit programs;
accepting a user's selection, via the user input device, of one or more of the respective labels;
assembling the basic operations of the unit programs associated with the selected labels in a predetermined order to form a whole program;
storing the whole program in the free space of the memory;
running the control unit using the whole program stored in the memory; and
operating the molding machine under the control of the control unit.

5,736,081

METHOD AND APPARATUS FOR FORMING COMPOSITE MATERIAL INCLUDING SOLID FILLER PARTICLES

Yoshihiro Yamakawa, Komaki; Masaru Takino, Kakamigahara; Masatoshi Nozaki, Kasugai, and Tadashi Miyawaki, Owakura, all of Japan, assignors to Mitsuboshi Belting Ltd., Nagata, Japan

Continuation of Ser. No. 581,767, Sep. 13, 1990, abandoned. This application Aug. 4, 1992, Ser. No. 924,783

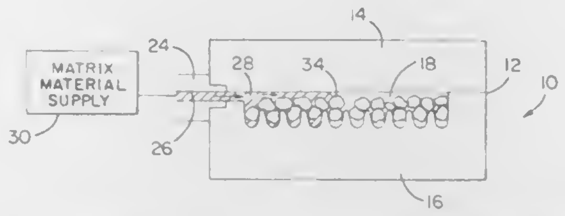
Claims priority, application Japan, Sep. 13, 1989, 1-237570

Int. Cl.^{6} B29C *39/10;70/42*

U.S. Cl. 264—113 22 Claims

1. A method of forming a composite structure comprising the steps of:

providing a solid surface against which the composite structure can be molded;
providing a plurality of discrete filler particles;
placing a plurality of discrete filler particles directly against the solid surface;



providing means on the surface for preventing said discrete particles on said surface from shifting freely along said surface,
said preventing means comprising a plurality of pockets formed as one piece with the solid surface, each said pocket configured to receive a substantial portion of a discrete filler particle to prevent the discrete particle in the pocket from sliding along said solid surface;
directing a liquified matrix material against said discrete particles on the surface; and
solidifying the matrix material to unite the plurality of discrete particles and matrix material into said composite structure.

5,736,082

METHOD FOR PRODUCING A PLASTIC MOLDING WITH A FOAM CORE AND AN OUTER SKIN

Toshiyasu Funato; Koichi Abe, and Yasushi Yokoi, all of Anjo, Japan, assignors to Kabushiki Kaisha Inoac Corporation, Nagoya, Japan

Division of Ser. No. 337,434, Nov. 8, 1994, abandoned. This application Sep. 4, 1996, Ser. No. 706,461

Claims priority, application Japan, Mar. 11, 1994, 6-67612; Mar. 25, 1994, 6-79677; Jul. 1, 1994, 6-173728

Int. Cl.^{6} B29C *44/06;44/14*

U.S. Cl. 264—46.5 8 Claims

1. A method of producing a molding, comprising the steps of:

disposing a skin member on a die surface of a first die, said skin member having an inner surface and an outer surface, ends of said skin member bending inwardly, away from said outer surface of said skin member, said outer surface of said skin member contacting said die surface of said first die;
disposing a core about said skin member, end portions of said core having an interior side wall contacting said ends of said skin member at the outer surface of said skin member, said core and said skin member thereby defining a foaming material receiving portion, said core having an inner surface and an outer surface, said foaming material receiving portion being bounded by an inner surface of said skin and said inner surface of said core;
pouring and foaming a foaming material into said foaming material receiving portion; and
leaking said foaming material from said foaming material receiving portion to an exterior of said foaming material receiving portion through through-holes in said core so as not to produce voids in the foam, forming an engaging portion between the foam and the core

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5,736,083

PROCESS OF MAKING COMPOSILE FIBERS AND MICROFIBERS

Jeffrey S. Dugan, Asheville, N.C., assignor to BASF Corporation, Mt. Olive, N.J.

Division of Ser. No. 314,647, Sep. 28, 1994, which is a division of Ser. No. 40,714, Mar. 31, 1993, Pat. No. 5,405,698. This application Apr. 18, 1995, Ser. No. 423,715

Int. Cl.^{6} D01D *5/36;* **D01F** *8/06;8/12;8/14*

U.S. Cl. 264—103 5 Claims

1. A process for the manufacture of a composite fiber comprising the steps of:

(a) melting a water-insoluble polyolefin and a water-soluble polymer in two separate extruders into two melt flows,
(b) directing the melt flows through two channels into one spinnerette;
(c) spinning a fiber from the spinnerette such that the fiber has a plurality of at least 19 microfiber islands of the water-insoluble polyolefin uniformly distributed across the cross-section of the fiber and continuous over the length of the fiber, said microfiber islands being surrounded by a sea of the water-soluble polymer;
(d) quenching the fibers;
(e) treating the fibers with a water-free spin finish, and
(f) drawing the fibers.

5,736,084

APPARATUS FOR SUPPLYING PARTICLES AND/OR GRANULES TO FORM A LAYER OF PRESCRIBED THICKNESS AND METHOD FOR PRODUCING PATTERNED SHAPED ARITICLES USING THE APPARATUS

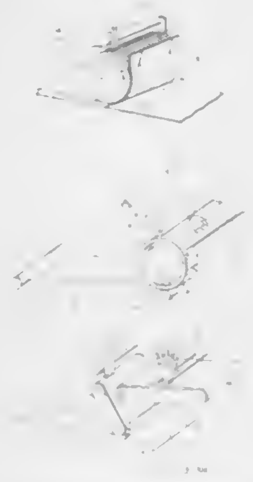
Hiroshi Uchida, Ashikaga; Mituhiro Onuki, Kiryu, and Hideo Watanabe, Ashikaga, all of Japan, assignors to CCA Inc., Tokyo, Japan

Division of Ser. No. 353,997, Dec. 6, 1994, Pat. No. 5,554,393, which is a continuation of Ser. No. 22,295, Feb. 25, 1993, abandoned. This application Jun. 18, 1996, Ser. No. 665,415

Claims priority, application Japan, Feb. 26, 1992, 4-73025

Int. Cl.^{6} B29C *39/12*

U.S. Cl. 264—112 8 Claims



1. A method of forming a patterned shaped article on a given surface, the method comprising the steps of:

using a particle-supplying means to supply plural kinds of particles into a plurality of spaces defined by cells densely arranged in an endless cell form so that the supplied particles can express a prescribed pattern;
temporarily retaining the supplied particles in said spaces,
releasing the temporarily retained particles onto the given surface with the prescribed pattern kept expressed while moving one of the given surface and the cell form having the supplied particles retained temporarily in said spaces, and
causing the released particles to set into an integral mass

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3. A method of forming a patterned shaped article on a given surface, the method comprising the steps of:

using particle-supplying means to supply plural kinds of particles into a plurality of spaces defined by projections densely bristling on an endless bristling form so that the supplied particles can express a prescribed pattern;

temporarily retaining the supplied particles in said spaces;

releasing the temporarily retained particles onto the given surface with the prescribed pattern kept expressed while moving one of the given surface and the bristling form having the supplied particles retained temporarily in said spaces; and

causing the released particles to set into an integral mass.

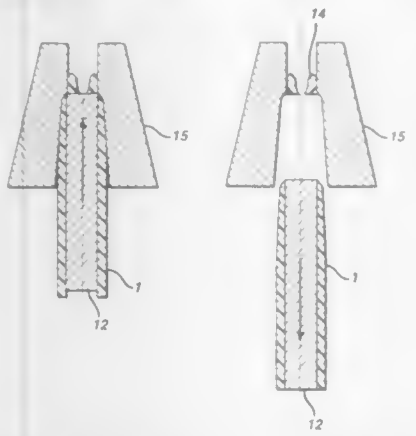
5,736,085
CATHETER BEVELING AND DIE CUT PROCESS

Ronald C. Brown, Santa Cruz, Calif.; Joseph J. Chang, Avon, and Dennis Bialecki, Oxford, both of Conn., assignors to Johnson & Johnson Medical, Inc., Arlington, Tex.

Filed Dec. 30, 1996, Ser. No. 773,938

Int. Cl.⁶ B29C *37/02;* **B28B** *7/14*

U.S. Cl. 264—161 **10 Claims**



1. A process for beveling a tip of an intravenous catheter comprising the steps of:

a) placing a tubular catheter over a first mandrel with said first mandrel extending beyond the tip of the catheter to be beveled;

b) heating a mold having a tapered inner mold surface,

c) inserting the catheter carrying first mandrel into said mold to engage the material of the catheter with said tapered inner mold surface;

d) allowing the material to melt and flow on said tapered inner mold surface to form a predetermined beveled outer surface of the catheter tip with flash extending beyond the beveled catheter tip;

e) removing said first mandrel from the catheter in said mold;

f) inserting a second mandrel of a larger diameter into the catheter in said mold; and

g) advancing said second mandrel until a portion of said second mandrel engages said mold to cut the flash from the beveled catheter tip.

5,736,086
PROCESS FOR FORMING LAYERED STRUCTURE OF METAL SHEET AND POLYESTER

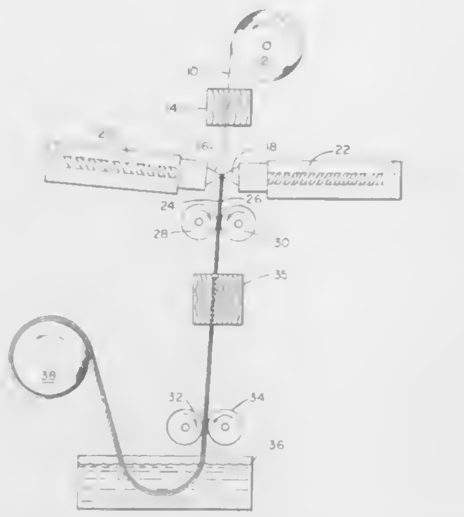
Allan S. Jones, Church Hill; Richard L. McConnell, and James W. Mercer, Jr., both of Kingsport, all of Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Continuation of Ser. No. 311,630, Sep. 23, 1994, abandoned. This application Mar. 29, 1996, Ser. No. 625,790

Int. Cl.⁶ B29C *47/06*

U.S. Cl. 264—171.17 **8 Claims**

1. A process for forming a layered structure of metal sheet and polyester comprising



(A) directing a continuous length run of metal sheet along a path extending in a downward, generally vertical direction,

(B) coating at least one side of said sheet with a layer of molten polyester having repeat units from a dicarboxylic acid component comprising at least 80 mol % terephthalic acid, naphthalenedicarboxylic acid, 1,4-cyclohexanedicarboxylic acid or mixtures thereof and repeat units from a glycol component comprising about 0–30 mol % diethylene glycol, 10–60 mol % 1,4-cyclohexanedimethanol and about 10–90 mol % ethylene glycol,

(C) prior to the coating step (B), heating said metal sheet to a temperature of about 150° C. to about 350° C.,

(D) immediately following the coating step (B), passing the coated metal sheet through a pair of cooperating nip rolls adjusted to firmly press said polyester into contact with said metal sheet, and

(E) following step (D), optionally quenching said layered structure to a temperature below the glass transition temperature of the polyester to thereby ensure that the polyester coating is in an amorphous state.

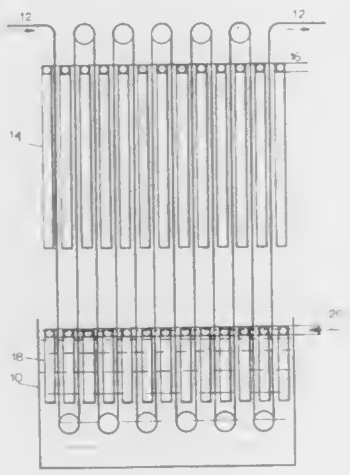
5,736,087
METHOD FOR FINISHING OF SAUSAGE CASINGS

Alexander Rozenberg, Mogilev, Belarus, assignor to Alfacel s.a., Madrid, Spain

Filed Oct. 30, 1996, Ser. No. 741,315

Int. Cl.⁶ D01F *2/06*

U.S. Cl. 264—188 **8 Claims**



1. In methods for the regeneration of cellulosic artificial sausage casings comprising decomposition of residual xanthate and regeneration of cellulose comprising the steps of immersing the regenerating casing in at least one regeneration bath comprising a solution of sodium sulfate and sulfuric acid, and subsequently

immersing the regenerated casing in at least one finishing bath to remove impurities from the regenerated casing the improvement comprising the steps of:

maintaining said regeneration bath at a temperature greater than 80° C. and sparging gas against the regenerating casing in said bath, and

actively cooling the regenerating casing upon withdrawal from the regeneration bath.

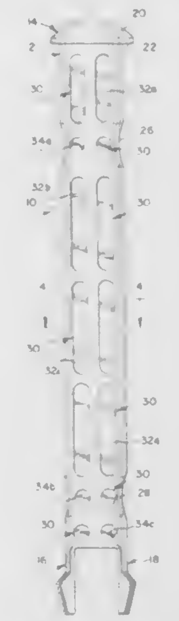
5,736,088
METHOD OF MAKING A PLASTIC KNUCKLE PIN

Michael K. Burke, Wheaton, and John D. Anderson, Aurora, both of Ill., assignors to Zeftek, Inc., Montgomery, Ill.

Division of Ser. No. 622,961, Mar. 27, 1996, Pat. No. 5,630,519. This application Sep. 19, 1996, Ser. No. 715,082

Int. Cl.⁶ B29C *71/02;* **B61G** *1/28*

U.S. Cl. 264—237 **9 Claims**



1. A method of making a plastic knuckle pin for a coupler on a railway car, wherein the pin includes a shaft with fluting along its length to increase the surface area of the pin and a head at one end, said method comprising the steps of

(a) melting a suitable plastic raw material,

(b) injecting said melted plastic material into a mold;

(c) forming a knuckle pin having fluting from said plastic material in said mold;

(d) removing said knuckle pin from said mold;

(e) placing said knuckle pin in a hot water bath;

(f) removing said knuckle pin from said hot water bath and allowing said knuckle pin to be cooled therein;

(g) allowing said knuckle pin to be cooled in air, wherein said fluting increases the surface area of the pin being cooled to enhance cooling, thereby reducing stresses and resulting in a plastic knuckle pin having a substantially uniform matrix

5,736,089
METHOD FOR PRODUCING ROLLERS COVERED WITH LAYERS OF SILICONE-BASED MATERIAL

Franco Stefani, Sassuolo, Italy, assignor to Syfal S.R.L., Sassuolo, Italy

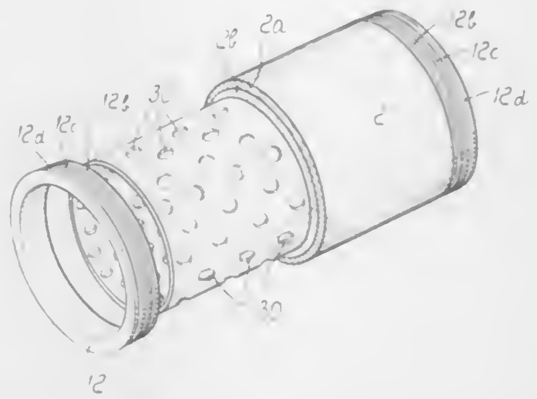
Filed Feb. 28, 1995, Ser. No. 396,387

Claims priority, application Italy, Mar. 8, 1994, MO94A00032; Mar. 8, 1994, MO940010 U

Int. Cl.⁶ B29C *39/08;39/10;39/12*

U.S. Cl. 264—255 **17 Claims**

1. Method for producing rollers covered with layers of elastic silicone-based material, comprising:



a first step, in which a prepared cylindrical supporting structure defining an internal cavity is positioned on a machine that rotates at variable speeds, said structure having a perforated peripheral outer surface, said surface being coverable with elastic material;

a second step, in which elastic silicone-based material ranging from fluid to semifluid state is introduced in said internal cavity of said supporting structure, and said supporting structure being further rotated about its own axis,

a third step, in which said supporting structure activated so as to rotate rapidly, causing said material to pass, by centrifugal force, from said internal cavity to said outer surface thereof through said perforated peripheral outer surface for forming at least one layer covering with said material, said covering wrapping said outer surface of said supporting structure;

a fourth step, in which said supporting structure is rotated at a low rate and said obtained covering is cured by heating, and

a fifth step, in which said covered supporting structure is removed from said machine, wherein said second, third, and fourth steps are repeated in a cyclic manner to provide a plurality of layers of materials on a single supporting structure.

5,736,090
METHOD OF IN-MOLD COATING

Yoshiaki Yamamoto; Kenji Ohta; Kenji Yonemochi, all of Komaki; Satoshi Fujii, Kasugai; Takeshi Fujishiro, and Toshiaki Izumida, both of Hiratsuka, all of Japan, assignors to Dai Nippon Tokyo Co., Ltd., Osaka, and Mitsubishi Engineering-Plastics Corp., Tokyo, both of Japan

Filed Mar. 20, 1996, Ser. No. 618,716

Claims priority, application Japan, Mar. 23, 1995, 7-064560

Int. Cl.⁶ B29C *45/16,* **C08G** *18/00*

U.S. Cl. 264—255 **20 Claims**

1. A method of in-mold coating, comprising steps of injecting a melt of a thermoplastic resin molding material into a cavity of a mold having an inner wall, followed by molding, to form a molded product, then injecting a coating composition between the molded product and the inner wall of the mold, followed by curing the coating composition, to form a coated molded product, and withdrawing the coated molded product from the mold, wherein said coating composition comprises

(A) a vehicle component comprising (i) a urethane acrylate oligomer or a urethane methacrylate oligomer, which is a reaction product, containing no substantial unreacted isocyanate groups, of (a) an organic polyisocyanate, (b) an organic polyol and (c) a hydroxyalkyl acrylate or a hydroxyalkyl methacrylate, and (ii) a polymerizable unsaturated monomer,

(B) a polyisocyanate compound, and

(C) a polymerization initiator

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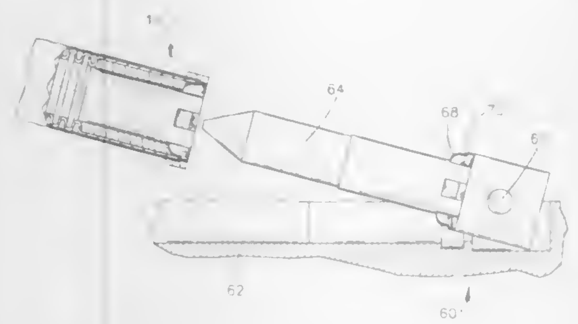
5,736,091
METHOD OF MANUFACTURING COMPOSITE TUBING

Christopher Searazzo, Twinsburg, and Lawrence N. Mears, Solon, both of Ohio, assignors to OEM/Miller Corporation, Aurora, Ohio

Division of Ser. No. 394,393, Feb. 24, 1995. This application Mar. 8, 1996, Ser. No. 613,066

Int. Cl.^{6} B29C *45/14*

U.S. Cl. 264—263 **5 Claims**



1 A method of making a composite tube comprising:

a) forming a central section having an inner corrugated portion, said corrugated portion having corrugations, and a surrounding portion bonded to at least certain crests of the corrugations,

b) forming a spaced pair of generally cylindrical end sections connected to opposite ends of the central section;

c) telescoping one of the end sections over an internal, cylindrically contoured, die core part:

d) continuing the telescoping until an inner surface of the one end section engages at least three circumferentially spaced die fingers around the core part thereby locating the one end section in concentric relationship with the core part;

e) positioning an external die part in spaced concentric relationship around the one end section, the external die part having an inner surface contoured to the desired external configuration of a coupling being formed;

f) injecting a heat softened, thermoplastic material into the space between the die inner surface and the core part to form a coupling having:

  i) a circumferentially endless portion within the one end section:

  ii) an external circumferentially endless portion surrounding the one end section;

  iii) an end part connecting the endless portions and overlying an end of the one end section; and,

  iv) at least three expansion recesses in the end part delineated by the fingers, and,

g) the thermoplastic material as it is injected being maintained at a sufficiently elevated temperature to effect bonding between the coupling and the one end section.

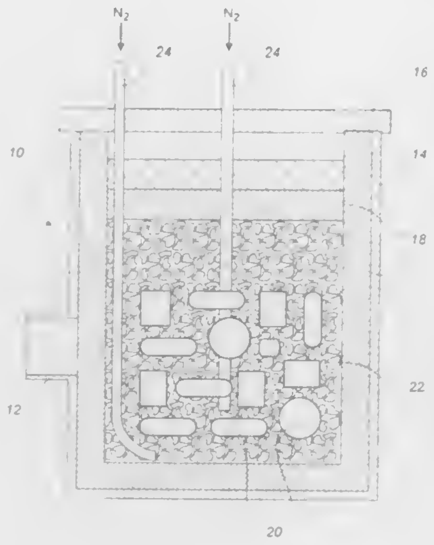
5,736,092
MICROWAVE SINTERING PROCESS

Prasad Shrikrishna Apté, St. Albert, and Larry Roy Morris, Yarker, both of Canada, assignors to Microwear Corporation, Fort Saskatchewan, Canada

Continuation of Ser. No. 220,840, Mar. 31, 1994, abandoned. This application Jun. 17, 1996, Ser. No. 664,811

Int. Cl.^{6} C04B *33/32*

U.S. Cl. 264—432 **16 Claims**



1. A process of sintering a material selected from the group consisting of ceramics, ceramic composites and metal materials, comprising:

surrounding the material to be sintered with a granular susceptor bed, said bed comprising:

(a) a major amount of a microwave susceptor material, and

(b) a minor amount of a refractory parting agent, either mechanically dispersed with the susceptor material, or as a coating on the susceptor material, to form granules;

introducing a flow of a protective gas around the material to be sintered such that the protective gas flows through the bed, and

irradiating the material to be sintered and the granular susceptor bed with microwave energy.

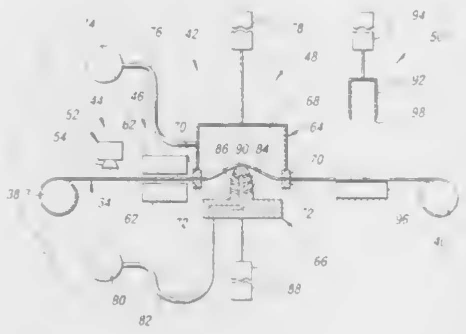
5,736,093
METHOD FOR MAKING A MULTI-LAYER BLOW MOLDED CONTAINER

William A. Slat, Brooklyn, Mich., assignor to Plastipak Packaging, Inc., Plymouth, Mich.

Filed Jan. 18, 1996, Ser. No. 588,519

Int. Cl.^{6} B29C *49/22*

U.S. Cl. 264—513 **12 Claims**



1 A method for making a multi-layer blow molded container comprising:

spraying a pattern of barrier layer spots onto a sheet of virgin polyethylene terephthalate so as to cover less than the entire sheet;

thermoforming the sheet of polyethylene terephthalate at each barrier layer spot to provide a preform liner having a virgin polyethylene terephthalate layer and a barrier layer;

injection molding an outer layer of polyethylene terephthalate around the exterior of the liner to provide a multi-layer preform; and

blow molding the multi-layer preform to provide the multi-layer blow molded container.

5,736,094
METHOD FOR MANUFACTURING A CATHETER WITH VARYING PHYSICAL PROPERTIES ALONG ITS LENGTH

Johannes Gerardus Maria van Muiden, Peize, Netherlands, assignor to Cordis Corporation, Miami, Fla.

Filed Apr. 17, 1996, Ser. No. 633,599

Claims priority, application Netherlands, Apr. 18, 1995, 1000162

Int. Cl.^{6} B29C *35/10*

U.S. Cl. 264—471 **8 Claims**

1 Method for manufacturing a catheter comprising the manufacturing of a tubular, general tapered basic body with a proximal and a distal end, the arranging of a connecting member at the proximal end and the finishing of the distal end;

wherein the basic body contains at least some material which crosslinks when exposed to radiation and wherein the basic body is exposed to controlled radiation;

wherein the wall of the basic body is made up of at least three layers and wherein at least a central crosslinked layer comprises the material which crosslinks; and wherein the finishing comprises the arranging of a catheter-end section which is free of material forming crosslinks.

5,736,095
METHOD OF PRODUCING CERAMIC HEATER FOR OXYGEN SENSOR

Takeo Shimada, Atsugi, and Kiyoshi Matsushita, Osaka, both of Japan, assignors to Unisia Jecs Corporation, Atsugi, and Miyagawa Kasei Industry Co., Ltd., Osaka, both of Japan

Filed Apr. 20, 1995, Ser. No. 426,121

Claims priority, application Japan, Apr. 20, 1994, 6-104486

Int. Cl.^{6} C04B *33/32*

U.S. Cl. 264—614 **11 Claims**

1. A method of producing a ceramic heater, comprising the steps of:

(a) molding a green cylindrical object from a ceramic material which contains a binder;

(b) baking said green cylindrical object at a relatively low temperature thereby to produce a baked cylindrical object, said relatively low temperature being a temperature ranging from approximately 800° C. to approximately 1400° C., which is sufficient for removing the binder from the cylindrical object;

(c) printing a heater pattern on a cylindrical surface of said baked cylindrical object, said heater pattern being constructed of an electrically conductive material:

(d) coating the printed cylindrical surface of said baked cylindrical object with a green protection layer thereby to produce a layer-coated cylindrical object; and

(e) baking said layer-coated cylindrical object at a relatively high temperature sufficient for fully baking said baked cylindrical object, said heat pattern and said green protection layer, said high temperature being a temperature ranging from approximately 1400° C. to approximately 1700° C.

5,736,096
APPARATUS FOR PURIFYING METAL

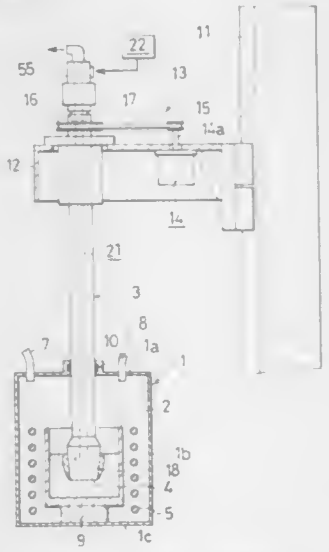
Ryotatsu Otsuka, Kawachinagano; Jin Zhang, Sakai; Takashi Tomita; Tohru Nunoi, both of Nara, and Tomohiro Machida, Yao, all of Japan, assignors to Sharp Kabushiki Kaisha, and Showa Aluminum Corp., both of Osaka, Japan

Filed Aug. 2, 1996, Ser. No. 691,320

Claims priority, application Japan, Aug. 4, 1995, 7-199877; Aug. 4, 1995, 7-199878

Int. Cl.^{6} C22B *7/04*

U.S. Cl. 266—205 **8 Claims**



1 A metal purifying apparatus comprising

a closed melting furnace equipped with heating means.

a molten metal holding crucible disposed within said melting furnace;

a vertical hollow rotary shaft penetrating through a top wall of said melting furnace;

a packing sealing off a clearance around an outer periphery of said rotary shaft in a shaft penetrating portion of said top wall of said melting furnace,

rotary drive means for rotatingly driving said rotary shaft;

a hollow rotary cooling body which is fixedly provided at a lower end of said rotary shaft and which has a hollow interior space in communication with an interior space of said rotary shaft.

a cooling fluid supply source for supplying a cooling fluid to said hollow interior space of said cooling body; and

wherein said cooling body is immersed in a molten metal placed in said crucible and rotated by rotating said rotary shaft by said drive means while said cooling fluid is being supplied to said hollow interior space of said cooling body from said supply source to crystallize a metal of higher purity on an outer periphery of said cooling body, said rotary shaft having disposed therein a cooling fluid discharge pipe with a top end positioned above said top wall of said melting furnace and a lower end positioned below said top wall of said melting furnace, an outer periphery of said discharge pipe and an inner periphery of said rotary shaft being spaced apart from each other to define said interior space in said rotary shaft which provides a cold cooling fluid supply channel for passing therethrough said cooling fluid to be supplied from said supply source to said hollow interior space of said cooling

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body, said cooling fluid discharge pipe having an interior providing a hot cooling fluid discharge channel for discharging therethrough a hot cooling fluid supplied to said interior of said cooling body and heated by heat from said molten metal.

5,736,097

METHOD OF PREVENTING PITTING CORROSION

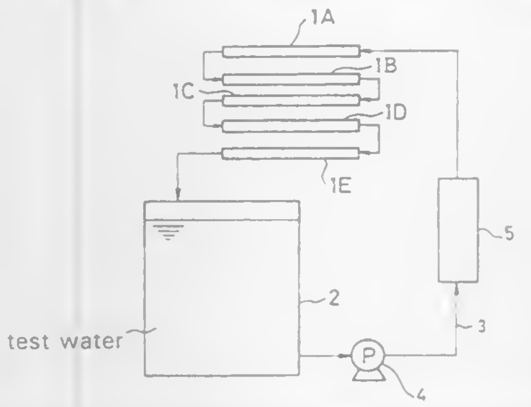
Yuichi Ono, Tokyo, Japan, assignor to Kurita Water Industries Ltd., Tokyo, Japan

Filed Feb. 10, 1997, Ser. No. 798,463

Claims priority, application Japan, Feb. 23, 1996, 8-036465

Int. Cl.⁶ C23F *11/00*, B08B *9/03*; C02F *1/72*

U.S. Cl. 422—14 **6 Claims**



1. A method of preventing pitting corrosion in a thermal storage water system or a closed water system, which is provided with copper or a copper alloy comprising: adding hydrogen peroxide or a hydrogen peroxide producing agent to circulating water in the thermal storage water system or the closed water system so that a concentration of hydrogen peroxide in the circulating water becomes 1 to 200 mgH_2O_2/L, to thereby prevent pitting corrosion of copper or the copper alloy in the thermal storage water system or the closed water system.

5,736,098

METHOD FOR A SERVICING FLUID DISPOSAL SYSTEM

Michael John Kerwin; Jacky S. Yam, both of St. Louis, Mo.; Keith G. Korte, Damiansville, Ill., and Theodore J. Klefisch, Jr., Maryland Heights, Mo., assignors to Sherwood Medical Company, St. Louis, Mo.

Division of Ser. No. 130,070, Sep. 30, 1993, Pat. No. 5,449,009. This application May 11, 1995, Ser. No. 439,019

Int. Cl.⁶ A61L *2/16*, B08B *3/08*; A61M *1/00*

U.S. Cl. 422—28 **13 Claims**

1. A method of servicing a fluid collection unit with a servicing unit, the method steps comprising:

inserting a fluid collection unit into a stationary docking portion of a servicing unit,

cycling the servicing unit through an automatic servicing cycle to clean the fluid collection unit, the servicing cycle comprising the steps of:

- purging with a fluid force the fluid collection unit of any fluid content,
- rinsing the fluid collection unit with a rinsing fluid,
- purging with a fluid force the fluid collection unit of the rinsing fluid, and
- removing the fluid collection unit from the servicing unit;

wherein the fluid collection unit remains stationary throughout said automatic servicing cycle.

5,736,099

TEST PLATES FOR AGGLUTINATION TEST AND PRODUCTION PROCESS THEREOF

Tsuneo Hiraide; Tetsuro Ogawa; Ayumi Mitoh, all of Tokyo; Tadahiko Kitano, 954-30, Yokokawamachi, Hachioji-shi, Tokyo, and Mikio Nakayama, 11-25, Saginumadai 3-chome, Narashino-shi, Chiba-ken, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha; Tadahiko Kitano, both of Tokyo, and Mikio Nakayama, Chiba-ken, all of Japan

Filed Dec. 28, 1995, Ser. No. 579,584

Claims priority, application Japan, Dec. 28, 1994, 6-328789

Int. Cl.⁶ G01N *33/53*

U.S. Cl. 422—57 **18 Claims**

1. A test plate for an agglutination test, comprising:

a plate with a plurality of wells formed thereon, each of said wells having directly adhered to a surface thereof at least one protein selected from the group consisting of a protein A and a protein G.

5,736,100

CHEMICAL ANALYZER NON-INVASIVE STIRRER

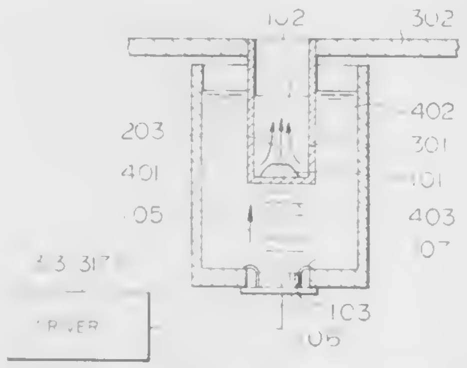
Ryo Miyake, Tsukuba; Koichi Tsuzuki, Tsuchiura; Isao Yamazaki; Hideo Enoki, both of Ibaraki-ken, and Hiroshi Mitsumaki, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 19, 1995, Ser. No. 531,199

Claims priority, application Japan, Sep. 20, 1994, 6-224768

Int. Cl.⁶ G01N *37/00*; B01F *11/02*

U.S. Cl. 422—64 **23 Claims**



1. In a chemical analyzer including a reaction vessel, means for feeding a sample into said reaction vessel through an upper opening thereof, means for feeding a reagent into said vessel through the upper opening thereof, and means for measuring a physical property of said sample during or after reaction of said sample with said regent, the improvement comprising sound wave generating means disposed in non-contact relationship with and outside of said reaction vessel for directing sound waves toward said reaction vessel in such a manner as to induce acoustic straight flow within said vessel at a level sufficient to mix said sample and said reagent.

5,736,101

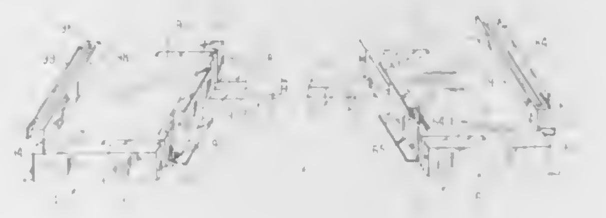
AUTOMATED ANALYTICAL INSTRUMENT HAVING A FLUID SAMPLE HOLDING TRAY TRANSPORT ASSEMBLY

F. Thomas Gianino, Methuen, Mass., assignor to Rehring Diagnostics, Westwood, Mass.

Division of Ser. No. 180,760, Jan. 10, 1994, abandoned, which is a continuation of Ser. No. 907,703, Jul. 1, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 464,009

Int. Cl.⁶ G01N *35/02*

U.S. Cl. 422—65 **1 Claim**



1. An automated analytical instrument for use in conducting assays for a component of interest in a fluid sample, said automated analytical instrument comprising:

- a. an assay module supply unit for holding a supply of assay modules;
- b. a testing system for assaying the fluid sample for a component of interest using an assay module; said testing system including a fluid dispensing assembly;
- c. an assay module transport assembly for transporting the assay module form said assay module supply unit to said testing system;
- d. a fluid sample holding tray transport assembly for transporting a fluid sample holding tray carrying fluid sample holding containers wherein said fluid sample holding tray transport assembly includes
  - i. a conveyor for transporting the fluid sample holding tray along a path past said fluid dispensing assembly whereat quantities of sample fluids can be aspirated from said fluid sample holding containers and for transporting the fluid sample holding tray away form said fluid dispensing assembly, wherein said conveyor includes carriage means for receiving the fluid sample holding tray.
  - ii. a fluid sample holding tray loading unit for loading a fluid sample holding tray onto said conveyor for transport to said fluid dispensing assembly, said loading unit adapted to hold a plurality of fluid sample holding trays hereon and including means for detected the presence of a fluid sample holding tray hereon.
  - iii. a fluid sample holding tray unloading unit for unloading a fluid sample holding tray from said conveyor at a location past said fluid dispensing assembly said unloading unit adapted to hold a plurality of fluid sample holding trays thereon;
  - iv. whereby said conveyor for transporting the fluid sample holding tray by a reversibly driven stepper motor controlled by a microprocessor to load, move, dispense and unload a rush fluid sample holding tray from a row of fluid sample loading trays on the loading unit for processing and return said rush tray to the unloading unit for disposal, and continue to automatically select the next fluid sample tray form the unloading unit and conveying it back along the fluid sample holding tray transport assembly path

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5,736,102

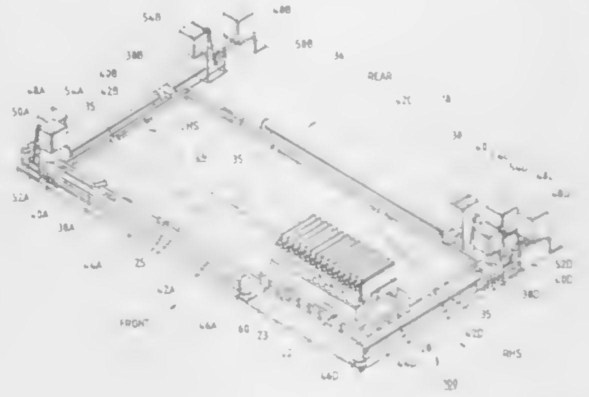
TEST SAMPLE POSITIONING SYSTEM

William Ernest Seaton, Chesterfield; Mark Joseph Fanning, Florissant; Craig Drager, Ballwin; Ron Robinson, Bridgeton; Roger James Morris, St. Louis, all of Mo.; Jean-Pierre Bernard Gayral, Amberieu en Bugey, France, and JoAnne T. Gerst, St. Louis, Mo., assignors to bioMerieux Vitek, Inc., Hazelwood, Mo.

Filed Feb. 21, 1996, Ser. No. 604,725

Int. Cl.⁶ G01N *35/04*

U.S. Cl. 422—65 **11 Claims**



1. A system for moving a sample holder within a machine, comprising

- a base pan having first, second, third and fourth side regions, said sample holder placed on and moved about said machine on said base pan.
- a first drive means engageable with said sample holder for moving said sample holder along a first direction along said base pan aligned with said first side region.
- a second drive means engageable with said sample holder for moving said sample holder along a second direction along said base pan aligned with said second side region.
- a third drive means engageable with said sample holder for moving said sample holder along a third direction along said base pan aligned with said third side region.
- a fourth drive means engageable with said sample holder for moving said sample holder along a fourth direction along said base pan aligned with said fourth side region.

said first, second, third and fourth drive means independently operable so as to move said sample holder about said base pan sequentially along said first second, third and fourth side regions and without requiring the presence of other sample holders on said base pan to effectuate the movement of said sample holder about said first, second, third and fourth side regions of said base pan

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5,736,103

REMOTE-DOSING ANALYTE CONCENTRATION METER

Jerry Thomas Pugh, Mountain View, Calif., assignor to Lifescan, Inc., Milpitas, Calif

Filed Aug. 9, 1996, Ser. No. 694,971

Int. Cl.⁶ G01N *33/48*, *35/00*

U.S. Cl. 422—68.1 **9 Claims**

1. A meter for measuring a concentration of an analyte in a sample of biological fluid that is applied to a first surface of a porous membrane that contains a reagent which reacts with the analyte to cause a change in reflectance of a second surface of the membrane, the membrane being attached to and substantially closing an end of a hollow frustum device, and the meter comprising

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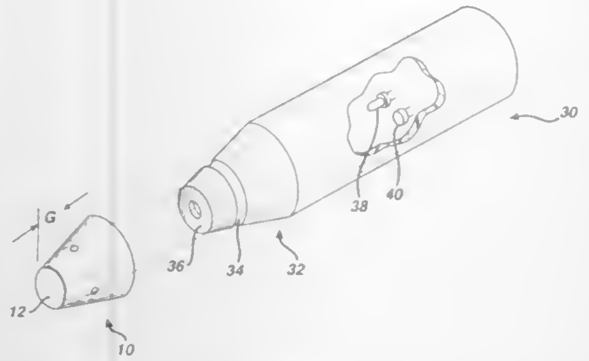


(a) a body having a frustum-shaped distal section for mating engagement with the device, the section tapering inwardly to an end that faces the second surface of the membrane.

(b) an optical system in the body to direct a beam of light out from the distal end and to accept light reflected back from the second surface of the membrane.

(c) means for measuring the light reflected back into the body both before and after the sample is applied to the membrane, and

(d) means for computing the analyte concentration in the fluid from the measured values of reflected light.

5,736,104

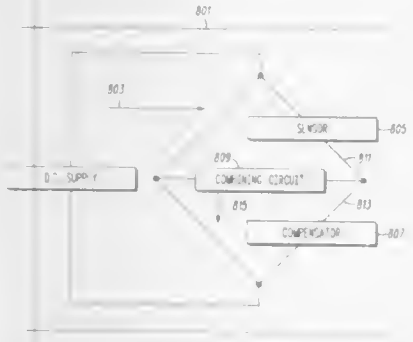
TRANSITION METAL OXIDE BASED CALORIMETRIC NON-METHANE HYDROCARBON SENSOR AND METHOD

Seajin Oh, and Jose Joseph, both of Palo Alto, Calif., assignors to Motorola Inc., Schaumburg, Ill.

Filed Mar. 27, 1996, Ser. No. 622,273

Int. Cl.^{6} G01N *27/16*

U.S. Cl. 422—96 **6 Claims**



1 A sensor for measuring a concentration of non-methane hydrocarbons in an automotive exhaust gas stream comprising

a carrier;

a chromium oxide (Cr_2O_3) catalyst disposed onto the carrier for oxidizing hydrocarbons in the automotive exhaust gas stream;

a temperature measurement device thermally coupled to the chromium oxide (Cr_2O_3) catalyst on said carrier for measuring a concentration of non-methane hydrocarbons and carbon monoxide (CO) in the automotive exhaust gas stream and providing an output signal indicative thereof.

a compensating sensor having an output for providing a signal indicative of a concentration of carbon monoxide (CO) in the automotive exhaust gas stream; and

a circuit, operatively coupled to the temperature measurement device and the compensating sensor, for combining the output signal of the temperature measurement device with the signal indicative of the concentration of carbon monoxide (CO) in the automotive exhaust gas stream, to produce a signal indicative of the concentration of non-methane hydrocarbons in the automotive exhaust gas stream.

5,736,105

METHOD AND DEVICE FOR SIMULTANEOUSLY TRANSFERRING PLURAL SAMPLES

Thomas W. Astle, 607 Harborview Rd., Orange, Conn. 06477

Division of Ser. No. 649,431, Feb. 1, 1991, Pat. No. 5,525,302. This application Feb. 9, 1996, Ser. No. 599,579

Int. Cl.^{6} B01L *3/02*

U.S. Cl. 422—100 **1 Claim**

1 A device for dispensing or aspirating a plurality of liquid samples, comprising:

(a) a plurality of parallel channel means having first and second ends;

(b) a plurality of piston means having first and second ends, with said second ends of said plurality of piston means being disposed within said plurality of channel means for relative axial movement therein;

(c) a plurality of fluid sealing means disposed between said plurality of pistons means and said first ends of said plurality of channel means;

(d) a plurality of pipette tips disposed at said second ends of said plurality of channel means;

(e) a plate operatively attached to said plurality of piston means for raising or lowering said second ends of said plurality of piston means within said plurality of channel means;

(f) said plate lying in a plane orthogonal to the major axes of said plurality of piston means;

(g) each of said piston means being attached to said plate by means of first and second retainer rings adjacent, respectively, upper and lower surfaces of said plate, such that said plurality of piston means have limited free movement with respect to said plate in the direction of said raising or lowering, but have freedom of movement with respect to said plate orthogonally to said direction of said raising or lowering.

5,736,106

THERMAL CYCLING REACTION APPARATUS AND REACTOR THEREFOR

Takahiko Ishiguro, Kanagawa; Shingo Fukunaga, Tokyo, and Yasutami Mitoma, Kanagawa, all of Japan, assignors to Tosoh Corporation, Shinnanyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,270

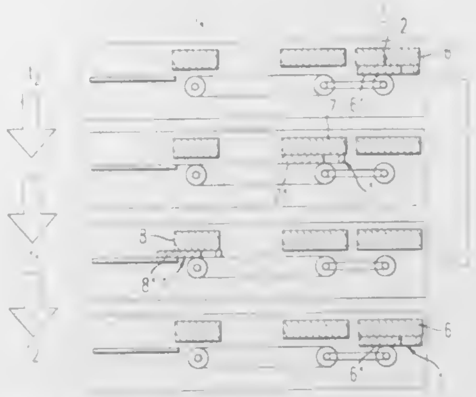
Claims priority, application Japan, Jan. 26, 1995, 7-010636

Int. Cl.^{6} B01L *3/00;* C12P *19/34;* C12M *3/04;1/40*

U.S. Cl. 422—131 **11 Claims**

1 A reactor for a thermal cycling reaction, the reactor being able to be delivered along a delivery path having plural and separate temperature-controlling blocks fixed thereon, each of said temperature controlling blocks respectively having a fixed temperature-controlling surface of a prescribed area at a controlled temperature, the reactor being capable of repeatedly contacting successively in a predetermined order with a selected temperature controlling block, said reactor comprising a reactor body being in a shape of a plate, said reactor body having a heat-transferring area on at least one face of the plate to be brought into face-to-face contact with the respective temperature-controlling surfaces, said reactor body further having a cavity which forms a reaction chamber, said cavity having an opening on at least one face of the plate, wherein a heat-resistant sealing sheet for sealing the reaction chamber covers the opening of the chamber;

wherein the reactor further comprises a delivery-assisting member which carries the reactor body, said delivery-assisting member being composed of a poor heat-conductive material, the reactor body and the delivery-assisting member being formed in a plate shape.



5,736,107

APPARATUS FOR OXIDATIVE COUPLING OF METHANE

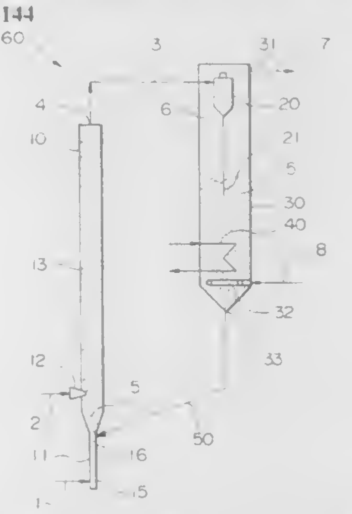
Makoto Inomata; Tsutomu Katagiri, both of Yokohama; Kozo Imura, Handa, and Erli Sun, Yokohama, all of Japan, assignors to Japan National Oil Corporation; Sekiyushigen Kaihatsu Kabushiki Kaisha, and Cosmo Research Institute, all of Tokyo, Japan

Division of Ser. No. 564,556, Nov. 21, 1995. This application Jan. 28, 1997, Ser. No. 787,046

Claims priority, application Japan, Dec. 5, 1994, 6-301216

Int. Cl.^{6} F27B *15/08*

U.S. Cl. 422—144 **4 Claims**



1 An apparatus for oxidative coupling of methane whereby reaction gases, which include a coupling feed gas containing methane and a gas containing oxygen, are allowed to react in the presence of a catalyst, and a coupling product gas containing an unsaturated hydrocarbon is produced;

said apparatus for oxidative coupling of methane comprising a coupling reactor in a shape of a vertical pipe, a gas-solid separator, and a catalyst feedback means, which are connected in a loop;

said coupling reactor comprising a catalyst-bed formation section, which is provided at a bottom portion of said coupling reactor, for forming a conveying catalyst bed which is formed by an ascending stream which contains said catalyst, a gas introduction nozzle for supplying at least a part of at least one of said reaction gases to said conveying catalyst bed, a coupling reaction section for producing a coupling product gas by allowing methane and oxygen to react in the presence of said catalyst, and a coupling-product-gas withdrawl outlet, which is provided at a top portion of said coupling reactor. for withdrawing said coupling product gas together with said catalyst;

said gas-solid separator being provided for separating said coupling product gas and said catalyst; and

said catalyst feedback means being provided for feeding back said catalyst, which is separated in said gas-solid separator, to said catalyst-bed formation section of said coupling reactor wherein said apparatus for oxidative coupling of methane further comprises between said gas-solid separator and said catalyst feedback means, a catalyst cooling means for cooling said catalyst.

5,736,108

REFRIGERANT UNIT IN HYDROGEN TREATING PLANT

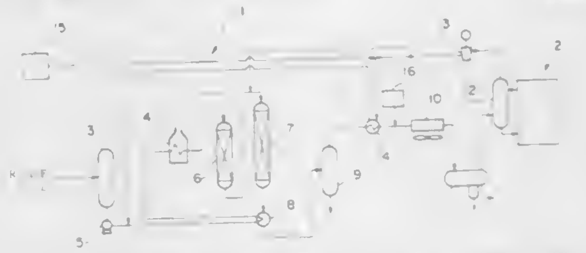
Katsuhiko Kawakami; Junichi Takano, and Nobuyoshi Sawamura, all of Tokyo, Japan, assignors to Softard Industries Co., Ltd., Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 621,917

Claims priority, application Japan, Aug. 4, 1995, 7-199774

Int. Cl.^{6} C01B *17/48*

U.S. Cl. 422—161 **7 Claims**



1 In a hydrogen treating plant which includes a recycle gas line having a reactor for regenerating a hydrogen sulfide by hydrogenating sulfur and an H2S absorber for absorbing the hydrogen sulfide generated in the reactor, and a liquid cyclic line circulating an amine aqueous solution for absorbing the hydrogen sulfide in said H2S absorber therein, the improvement comprising a refrigerant unit which is provided in the liquid cyclic line in order to rapidly cool the reactor when the operation of said hydrogen treating plant is interrupted, wherein said refrigerant unit is a chilled water unit cooling the amine aqueous solution by using chilled water, and wherein said liquid cyclic line includes a main pump and a standby pump which are provided to operate as low pressure amine aqueous solution pumps circulating the amine aqueous solution, said standby pump being connected with said chilled water unit.

5,736,109

INTUMESCENT SHEET MATERIAL AND PASTE WITH ORGANIC BINDER

Gary F. Howorth; John J. Rogers, both of St. Paul, Minn., and Toshiyuki Watanabe, Atsugi, Japan, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 30, 1995, Ser. No. 497,671

Int. Cl.^{6} F01N *3/24,3/20*

U.S. Cl. 422—179 **18 Claims**

1. A catalytic converter or diesel particulate filter comprising

(a) a housing:

(b) a catalytic converter element or diesel particulate filter element disposed within said housing; and

(c) a intumescent sheet material disposed between said catalytic converter element and said housing.

wherein said intumescent sheet material comprises 1 to 70 dry weight percent of said sheet material of at least one unexpanded intumescent material, from 25 to 40 dry weight percent of said sheet material of organic binder, 5 to less than 74 dry weight percent of said sheet material of inorganic binder, and 0 to 70 dry

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weight percent of said sheet material one or more fillers selected from the group consisting of hollow glass bubbles, non-delaminated expanded vermiculite, perlite, calcium carbonate, talc, feldspar, silicon carbide, silica sand, and mixtures thereof.

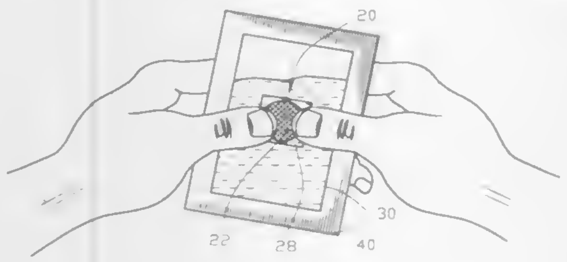
5,736,110
ACTIVATOR FOR INITIATING CRYSTALLIZATION OF A SUPERSATURATED SOLUTION

Stephen P. Angelillo, P.O. Box 493000, Leesburg, Fla. 34749-3000, and Robert H. Birdsey, 4205 Wood Dr., Mount Dora, Fla. 32757

Continuation of Ser. No. 442,172, May 16, 1995, abandoned. This application May 10, 1996, Ser. No. 644,429

Int. Cl.^{6} F24J *1/00*

U.S. Cl. 422—245.1 18 Claims



1. An improved activator for initiating crystallization of a supersaturated solution within a flexible container, the activator comprising.
- a flexible screen for immersing in the supersaturated solution within the flexible container;
- said flexible screen defining a plurality of apertures therein; and
- an activation material affixed to said screen within said plurality of apertures, said activation material for interacting with said screen to initiate crystallization of the supersaturated solution upon flexing of said flexible screen.

5,736,111
METHOD FOR PRODUCING IRON-CONTAINING COMPLEX OXIDE POWDERS

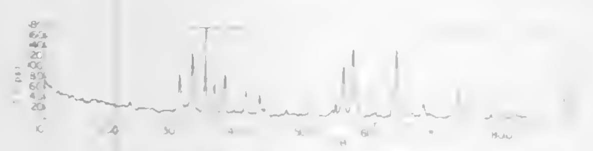
Kunio Saegusa, Ibaraki, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 29, 1996, Ser. No. 687,970

Claims priority, application Japan, Jul. 31, 1995, 7-215410

Int. Cl.^{6} C01G *49/00*

U.S. Cl. 423—594 6 Claims



AN X-RAY POWDER DIFFRACTION PATTERN OF POWDER OBTAINED IN EXAMPLE

1. A method for producing an iron-containing complex oxide powder represented by the general formula:

$XO\ nFe_2O_3$,

wherein X represents one or more elements selected from the group consisting of Pb, Mg, Ca, Sr, Ba, Zn, Cu, Mn, Fe, Co and Ni and n represents an integer of 1 to 6, which comprises heating a mixture of an oxide of an X atom and iron oxide, or a mixture of a compound of the X atom and a compound of iron, which can be converted into the oxides, in an atmosphere gas containing at least one gas selected from a bromine gas, an iodine gas, a hydrogen bromide gas and a hydrogen iodide gas.

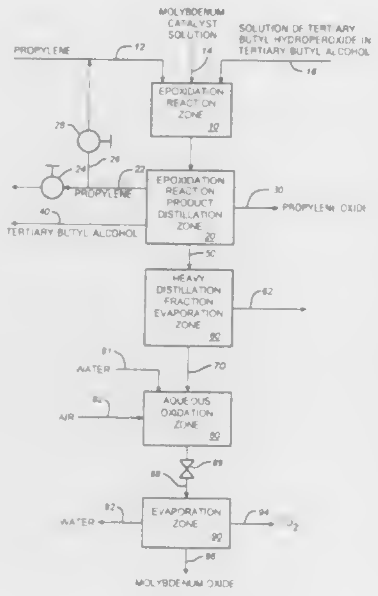
5,736,112
AQUEOUS OXIDATION OF ORGANIC MOLYBDENUM COMPOUNDS

William Allen Smith, Round Rock, Tex., assignor to Huntsman Specialty Chemicals Corporation, Austin, Tex.

Filed May 8, 1995, Ser. No. 436,538

Int. Cl.^{6} B01D *11/00*

U.S. Cl. 423—54 7 Claims


MOLYBDENUM CATALYST SOLUTION
SOLUTION OF TERTIARY BUTYL HYDROPEROXIDE IN TERTIARY BUTYL ALCOHOL
PROPYLENE
12
14
16
EPOXIDATION REACTION ZONE
10
28
24
26
22
PROPYLENE
EPOXIDATION REACTION PRODUCT DISTILLATION ZONE
20
30
PROPYLENE OXIDE
40
TERTIARY BUTYL ALCOHOL
50
HEAVY DISTILLATION FRACTION EVAPORATION ZONE
60
62
81
WATER
70
84
AIR
AQUEOUS OXIDATION ZONE
80
88
89
92
WATER
EVAPORATION ZONE
90
94
96
MOLYBDENUM OXIDE

1. A method for the recovery of molybdenum oxides from an organic solvent solution of organic molybdenum compounds containing about 0.1 to about 5.0 wt. % of molybdenum, which comprises the steps of:
- adding said organic solvent solution of organic molybdenum compounds to about 5 to about 200 parts of water per part of organic solvent solution and reacting the organic molybdenum compounds therein with oxygen at a temperature of about 200° to about 450° C. and a pressure of about 1000 to about 6000 psig. for a reaction time within the range of about 0.5 to 5 hours sufficient to substantially convert the organic components of the organic molybdenum compounds to carbon dioxide and water and to convert the molybdenum components to molybdenum oxides to thereby form an aqueous reaction product containing molybdenum oxides, and
- removing water from said aqueous reaction product to form concentrated molybdenum oxides.

5,736,113
METHOD FOR BENEFICIATION OF TRONA

Wayne C. Hazen, Denver; Roland Schmidt, Lakewood, and Dale Lee Denham, Jr., Louisville, all of Colo., assignors to Environmental Projects, Inc., Casper, Wyo.

Filed Jan. 11, 1996, Ser. No. 583,879

Int. Cl.^{6} C01D *11/00*, C22B *26/10*; B03C *7/00*

U.S. Cl. 423—206.2 26 Claims

1. A process for beneficiation of trona from a feedstream of trona having impurities comprising electrostatically separating a first portion of impurities from said trona, wherein said trona is maintained at a temperature of between about 25° C. and about 45° C. throughout said step of electrostatically separating.

5,736,114
SPINEL-BASED CATALYSTS FOR REDUCING EXHAUST EMISSIONS OF NO_x

Philippe Barthe, Saint Martin du Tertre; Pierre Macaudiere, Asnieres/Seine, and Thierry Seguelong, Nanterre, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Filed Apr. 7, 1995, Ser. No. 418,686

Claims priority, application France, Apr. 8, 1994, 94 04158

Int. Cl.^{6} C01B *21/04*

U.S. Cl. 423—213.2 24 Claims

1. A process for the catalytic treatment/conversion of oxygen-rich exhaust gases to reduce emissions of NO_x comprising contacting an oxygen-rich exhaust gas with a catalytically effective amount of a normal or inverse spinel oxide other than $ZnAl_2O_4$

5,736,115
PROCESS FOR THE REMOVAL OF CARBON DIOXIDE FROM GASES

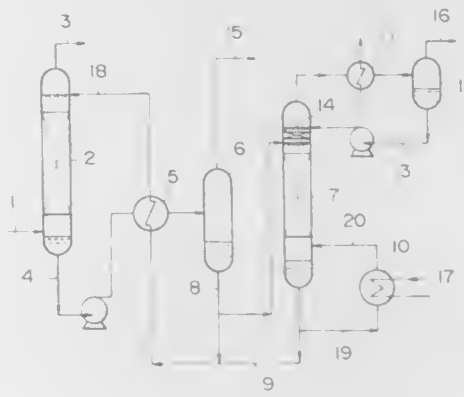
Masaki Iijima, Tokyo, and Shigeaki Mitsuoka, Hiroshima-ken, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 6, 1996, Ser. No. 692,582

Claims priority, application Japan, Dec. 1, 1995, 7-314121

Int. Cl.^{6} C01B *31/20*

U.S. Cl. 423—228 3 Claims



1. A process for removing carbon dioxide from gas, said method comprising:
- contacting a gas having a carbon dioxide partial pressure ranging from 1 to 50 atmospheres absolute pressure with an absorbing fluid comprising an aqueous solution containing 3-(dimethylamino)-1,2-propanediol to produce a treated gas having a reduced carbon dioxide content and a carbon dioxide-rich absorbing fluid, and
- flashing said carbon dioxide-rich fluid at near atmospheric pressure to release carbon dioxide from said fluid such that a carbon dioxide-lean absorbing fluid is formed which may be used in said contacting step.

3. A process for removing carbon dioxide from gas, said method comprising:
- contacting a gas having a carbon dioxide partial pressure ranging from 0.3 to 50 atmospheres absolute pressure with an absorbing fluid comprising an aqueous solution containing 3-(diethylamino)-1,2-propanediol to produce a treated gas having a reduced carbon dioxide content and a carbon dioxide-rich absorbing fluid, and
- steam stripping said carbon dioxide-rich fluid to release carbon dioxide from said fluid such that a carbon dioxide-lean absorbing fluid is formed which may be used in said contacting step.

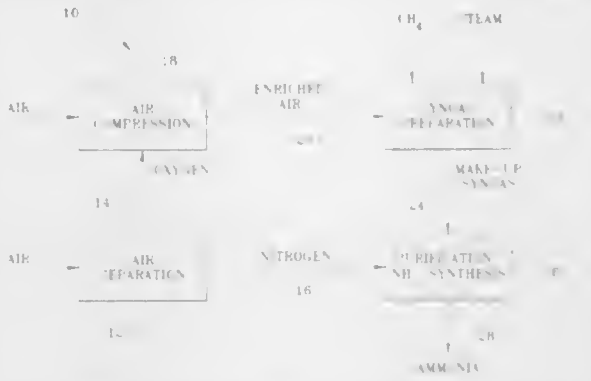
5,736,116
AMMONIA PRODUCTION WITH ENRICHED AIR REFORMING AND NITROGEN INJECTION INTO THE SYNTHESIS LOOP

Joseph Ray LeBlanc, Fulshear, and Stan A. Knez, Houston, both of Tex., assignors to The M. W. Kellogg Company, Houston, Tex.

Filed Oct. 25, 1995, Ser. No. 547,853

Int. Cl.^{6} C01C *1/04*

U.S. Cl. 423—359 15 Claims



1. A retrofit method for increasing the production capacity of an ammonia plant having a front end including in series primary and secondary reformers and high and low temperature shift converters for reacting a hydrocarbon feed, steam and air to form a makeup syngas stream comprising hydrogen and nitrogen at a design stoichiometry of about 3, and a synthesis loop wherein a recycle syngas stream is combined with the makeup gas to form a syngas feed to ammonia converters, comprising the steps of.
- enriching air supplied to the secondary reformer to an oxygen content of 25 to 40 volume percent and increasing the hydrogen content of the makeup syngas stream above the design stoichiometry:
- supplying a substantially pure nitrogen stream to the synthesis loop to obtain a desired hydrogen to nitrogen ratio in the syngas feed to the ammonia converters

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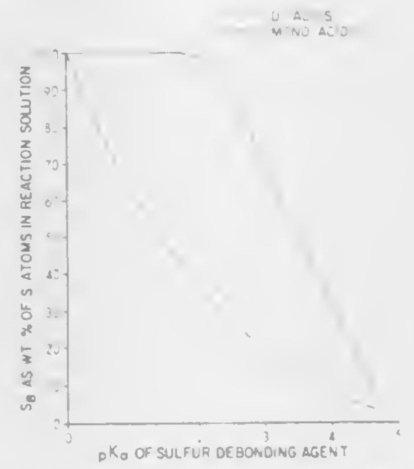
5,736,117
SULFUR DEBONDING AGENT ENHANCING SULFUR RECOVERY FROM A HYDROGEN SULFIDE CONVERSION PROCESS

Mark A. Plummer, Littleton, and James E. Tackett, Castle Rock, both of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Sep. 29, 1995, Ser. No. 537,204

Int. Cl.^{6} B01D *53/52*, C01B *17/05*

U.S. Cl. 423—573.1 32 Claims



1. A process for converting hydrogen sulfide gas to a polymeric sulfur species comprising

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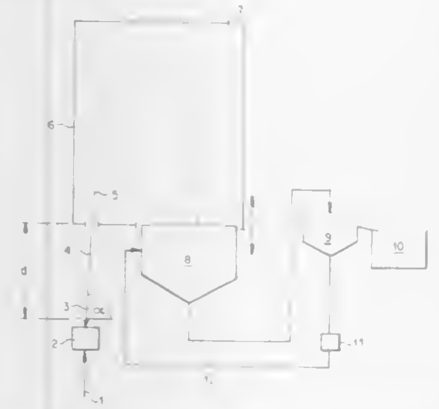
providing a reaction solution containing a H_2S complexing agent and a quinone:
contacting said reaction solution with hydrogen sulfide gas,
reacting said hydrogen sulfide gas with said H_2S complexing agent and said quinone to produce a soluble sulfur-containing constituent dissolved in said reaction solution:
adding a sulfur debonding agent to said reaction solution, said sulfur debonding agent having a pK_a below about 5 at about 25° C.,
reacting said sulfur debonding agent with said soluble sulfur containing constituent to produce a free polymeric sulfur species insoluble in said reaction solution; and
separating said free polymeric sulfur species from said reaction solution.

5,736,118
METHOD OF PRODUCING SPHERICAL PARTICLES

Helmut Derleth, and Karl-Heinz Bretz, both of Nienburg/Weser, Germany, assignors to Solvay Deutschland GmbH, Hanover, Germany
PCT No. PCT/EP94/00587, § 371 Date Sep. 5, 1995, § 102(e) Date Sep. 5, 1995, PCT Pub. No. WO94/20203, PCT Pub. Date Sep. 15, 1994
PCT Filed Mar. 1, 1994, Ser. No. 513,885
Claims priority, application Germany, Mar. 5, 1993, 43 06 875.8; Feb. 18, 1994, 44 05 202.2
Int. Cl.⁶ B29B *9/00*; B01J *35/08*
U.S. Cl. 423—659 **14 Claims**



1 A method of producing spherical particles made from inorganic oxides by sol/gel conversion, said method comprising the steps of:
spraying an inorganic oxide sol upwardly at an angle of 80° to 88° from horizontal into a reaction zone containing a reactant gas which reacts with the sol to form a gel, said spraying being effected in such a manner that the sol does not split up into individual sol droplets until immediately before or as it enters the reaction zone, and the resulting sol droplets fly through the reaction zone on a curved trajectory during which they are gelled, and
catching presolidified droplets in a trap.

5,736,119
DETECTION AND THERAPY OF LESIONS WITH BIOTIN/AVIDIN-METAL CHELATING PROTEIN CONJUGATES

David Milton Goldenberg, Short Hills; Gary L. Griffiths, Morristown, and Hans J. Hansen, Mystic Island, all of N.J., assignors to Immunomedics, Inc., Morris Plains, N.J.
Continuation of Ser. No. 62,662, May 17, 1993, abandoned. This application Mar. 23, 1995, Ser. No. 409,960
Int. Cl.⁶ A61K *51/00*; C07K *16/00*
U.S. Cl. 424—1.53 **27 Claims**

1. In a method for targeting a diagnostic or therapeutic metal ion to a lesion in a patient, comprising the steps of:
(a) administering by parenteral injection a biotinylated targeting conjugate comprising biotin and an antibody or antibody fragment that preferentially binds a marker substance produced by or associated with a lesion, thereby accreting said targeting conjugate preferentially at said lesion,
(b) administering by parenteral injection a clearing and localizing agent comprised of avidin or a biotin-binding avidin derivative thereby (i) binding and preferentially localizing said agent to said targeting conjugate accreted at said lesion, and (ii) binding said agent to unaccreted targeting conjugate to clear said unaccreted conjugate from said patient;
(c) administering by parenteral injection a biotinylated metal ion delivery conjugate comprising biotin, a metal ion chelating agent and metal ions chelated to said agent, thereby binding said metal ion delivery conjugate to avidin in said agent localized at said lesion and targeting said metal ion to said lesion, and
(d) detecting or treating said lesion by said targeted metal ion;
the improvement wherein,
said metal ion chelating agent is a naturally occurring protein that chelates a plurality of metal ions and wherein said naturally occurring protein has a molecular weight of at least about 60,000 Daltons

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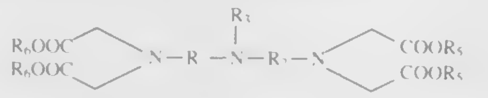
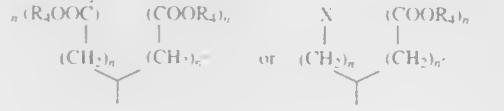
5,736,120
METHOD FOR PREPARING RADIOLABELED PEPTIDES

Ananthachari Srinivasan, 332 Woodmere Dr., St. Charles, Mo. 63304
Filed Jun. 7, 1996, Ser. No. 660,262
Int. Cl.⁶ A61K *51/00*; A61M *36/14*
U.S. Cl. 424—1.69 **5 Claims**

1 A method for making a radiolabeled peptide composition comprising the steps of:
preparing a chelating agent of the formula.



where R_1 and R_2 are same or different and are linking moieties containing between about 1 and about 10 carbon atoms;
R_3 is a hydrogen or a branched or straight chain alkylcarboxyl group of the formula:



where X is one of NH_2, NCS, NCO, OH, SH, C_6H_4—NH_2, C_6H_4—NCS, C_6H_4—NCO, C_6H_4—OH C_6H_4—SH; n' is 0–5; n" is 0 or 1 and n'" is 0–5;
R_4–R_6 are hydrogen or a protecting group and wherein only one of R_4, R_5 or R_6 is hydrogen;
combining the chelating agent with a peptide in a solid phase peptide synthesizer to form a chelate-peptide conjugate; and
complexing a radionuclide to the conjugate to form the radiolabeled peptide.

5,736,121
STABILIZED HOMOGENOUS SUSPENSIONS AS COMPUTED TOMOGRAPHY CONTRAST AGENTS

Evan C. Unger, Tucson, Ariz., assignor to ImaRx Pharmaceutical Corp., Tucson, Ariz.
Continuation-in-part of Ser. No. 247,656, May 23, 1994, abandoned. This application May 19, 1995, Ser. No. 444,754
Int. Cl.⁶ A61K *49/04*; A61B *5/055*
U.S. Cl. 424—9.4 **31 Claims**

1 A method of providing an image of an internal region of a patient comprising (i) administering to the patient a stabilized, substantially homogeneous, aqueous suspension of a gaseous precursor, (ii) allowing said gaseous precursor to undergo a phase transition from a liquid to a gas in vivo, and (iii) scanning the patient using computed tomography to obtain visible images of the region, wherein said gaseous precursor comprises a perfluorocarbon and said suspension is in the form of an emulsion.

5,736,122
TECHNETIUM-99M LABELED PEPTIDES FOR THROMBUS IMAGING

Richard T. Dean, and John Lister-James, both of Bedford, N.H., assignors to Diatide, Inc., Londonberry, N.H.
Continuation-in-part of Ser. No. 807,062, Nov. 27, 1991, Pat. No. 5,443,815, , and a continuation-in-part of Ser. No. 480,551, Jun. 7, 1995, which is a continuation of Ser. No. 264,176, Jun. 22, 1994, abandoned, which is a continuation of Ser. No. 653,012, Feb. 8, 1991, abandoned, said Ser. No. 273,274 is a continuation of Ser. No. 886,052, May 21, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 482,880
Int. Cl.⁶ A61K *51/00*; A61M *36/14*
U.S. Cl. 424—169 **6 Claims**

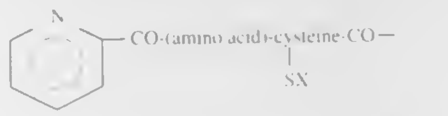
1. A reagent for preparing a thrombus imaging agent for imaging a thrombus within a mammalian body comprising a specific binding peptide having an amino acid sequence of 4 to 100 amino acids and a technetium-99m binding moiety covalently linked to the specific binding peptide, wherein the peptide binds to a component of a thrombus, the technetium-99m binding moiety being selected from the group consisting of moieties having formula:

$C(pgp)^s—(aa)—C(pgp)^s$

wherein $C(pgp)^s$ is a cysteine having a protected thiol group and (aa) is any primary α- or β-amino acid;
a moiety comprising a single thiol moiety of formula

$A—CZ(B)—[C(RR')]_n—X$

wherein
A is H, HOOC, H_2NOC, or —NHOC;
B is SH or NHR";
X is H, methyl, SH or NHR";
Z is H or methyl,
R and R' are independently H or lower alkyl;
R" is H, lower alkyl or —C=O;
n is 0, 1 or 2;
and
where B is NHR", X is SH, Z is H and n is 1 or 2;
where X is NHR", B is SH, Z is H and n is 1 or 2,
where B is H, A is HOOC, H_2NOC, or —NHOC, X is SH, Z is H and n is 0 or 1;
where Z is methyl, X is methyl, A is HOOC, H_2NOC, or —NHOC, B is SH and n is 0;
and wherein the thiol moiety is in the reduced form:



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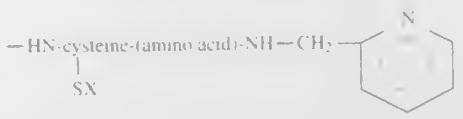
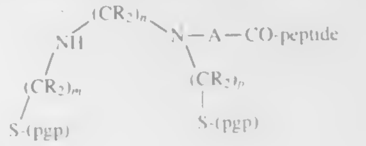


II

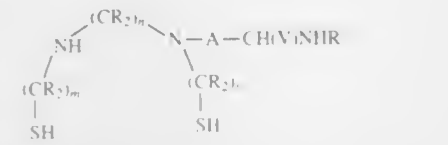
wherein
X=H or a protecting group;
(amino acid)=any amino acid;



III

wherein
each R is independently H, CH_3 or C_2H_5;
each $(pgp)^S$ is independently a thiol protecting group or H;
m, n and p are independently 2 or 3;
A=linear or cyclic lower alkyl, aryl, heterocyclyl, combinations or substituted derivatives thereof.

and

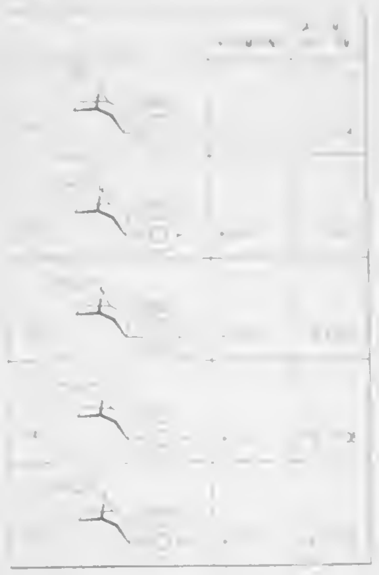


IV

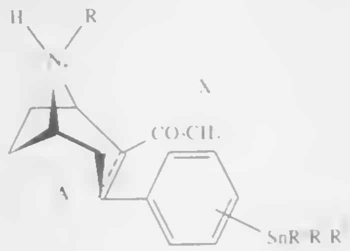
wherein
each R is independently H, CH_3 or C_2H_5,
m, n and p are independently 2 or 3;
A=linear or cyclic lower alkyl, aryl, heterocyclyl, combinations or substituted derivatives thereof,
V=H or —CO—peptide;
R'=H or peptide;
and wherein when V=H, R'=peptide and when R'=H, V=—CO—peptide,
wherein each R is independently H, lower alkyl having 1 to 6 carbon atoms, phenyl, or phenyl substituted with lower alkyl or lower alkoxy, and wherein each n is independently 1 or 2, and
wherein the technetium-99m binding moiety forms a complex with technetium-99m and the complex of the radiolabel-binding moiety and technetium-99m is electrically neutral;
wherein the reagent is radiolabeled with technetium-99m.

5,736,123
COCAINE RECEPTOR BINDING LIGANDS

Frank I. Carroll, Durham, N.C., assignor to Research Triangle Institute, Research Triangle Park, N.C.
Continuation-in-part of Ser. No. 972,472, Mar. 23, 1993, Pat. No. 5,413,779, and Ser. No. 164,576, Dec. 10, 1993, Pat. No. 5,496,953, which is a continuation-in-part of Ser. No. 792,648, Nov. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 564,755, Aug. 9, 1990, Pat. No. 5,128,118. This application May 8, 1995, Ser. No. 436,970
Int. Cl.⁶ A61K *51/04*; C07D *451/02*
U.S. Cl. 424—1.85 **8 Claims**



1 A compound of the formula



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wherein R is $(CH_2)_nCH_2Y$, and wherein Y is H or F. X is a pharmaceutically acceptable anion,
wherein $SnR^1R^2R^3$, is ortho, meta or para and wherein R^1, R^2, R^3 are independently alkyl of 1–6 carbon atoms and n is an integer of 0–5, and is a single or double bond

5,736,124
AEROSOL FORMULATIONS CONTAINING P134A AND PARTICULATE MEDICAMENT

Rachel Ann Akehurst; Anthony James Taylor, and David Andrew Wyatt, all of Ware, Great Britain, assignors to Glaxo Group Limited, London, England

Continuation of Ser. No. 328,957, Oct. 24, 1994, abandoned, which is a continuation of Ser. No. 94,174, Aug. 5, 1993, abandoned. This application May 30, 1995, Ser. No. 453,820

Claims priority, application United Kingdom, Dec. 12, 1991, 9126444; Feb. 6, 1992, 9202522

Int. Cl.^{6} A61K *9/12*

U.S. Cl. 424—45 43 Claims

1. A pharmaceutical aerosol formulation consisting essentially of (i) particulate medicament, (ii) 1,1,1,2-tetrafluoroethane as propellant, and (iii) 0.01 to 5% w/w based upon the propellent of a polar cosolvent which is a C_{2-5} aliphatic alcohol or polyol or a mixture thereof, the particulate medicament being present in an amount from 0.005% to 5% w/w relative to the total weight of the formulation and having a particle size of less than 100 microns, and which formulation contains less than 0.0001% w/w surfactant based upon the weight of medicament.

5,736,125
COMPOSITIONS CONTAINING COPOLYMERS AS A THICKENING AGENT

Natalie A. Morawsky, Kingston, Great Britain, and Gary T. Martino, Plainsboro, N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Jan. 10, 1997, Ser. No. 780,951

Int. Cl.^{6} A61K *7/42*

U.S. Cl. 424—59 15 Claims

1. A composition comprising an oil and a polymeric thickener consisting essentially of at least one copolymer which has a hydrophobic functionality sufficient to provide at least partial solubility in oil and a hydrophilic functionality present in an amount effective to provide thickening of the oil, said hydrophilic functionality being provided by a constituent selected from the group consisting of C_3-C_6-α,β-ethylenically unsaturated carboxylic monoacid, C_4-C_6-α,β-ethylenically unsaturated carboxylic diacid, monoesters and monoamides of such carboxylic diacid

5,736,126
LIQUID TRANSDERMAL ANALGESIC

H. Wayne Van Engelen, and Patricia A. Van Engelen, both of 9618 Savannah Crossing Ct., Vienna, Va. 22182

Filed Mar. 15, 1996, Ser. No. 616,931

Int. Cl.^{6} A61K *31/60; 7/26*

U.S. Cl. 424—78.02 29 Claims

1. A liquid composition applied transdermally for relief of pain, the composition comprising

alcohol in an amount by weight of about 60 to about 93 percent,
glycerin in an amount by weight of about 2 to about 14 percent,
an analgesic agent in an amount by weight of about 2 to about 28 percent, the analgesic agent comprising a derivative of salicylic acid, and
aloe vera in an amount by weight of at least about 0.3 percent, the liquid composition permeating skin to relieve pain

5,736,127
POLYMERIC NITROGEN-CONTAINING DRUG SALT FORMS FOR CONTROLLED RELEASE

Vladimir A. Stoy, and Charles K. Kliment, both of Princeton, N.J., assignors to Hymedix International, Inc., Dayton, N.J.

Continuation of Ser. No. 201,357, Feb. 24, 1994, abandoned, which is a continuation-in-part of Ser. No. 864,050, Apr. 6, 1992, abandoned. This application Sep. 5, 1996, Ser. No. 711,345

Int. Cl.^{6} A61K *31/74*

U.S. Cl. 424—78.02 12 Claims

1. A composition, comprising:

a drug-polymer salt comprising a therapeutically effective amount of a nitrogen-containing drug, and comprising at least the following constituents:
(a) a drug a having basic nitrogen group as part of its chemical structure, said basic group being capable of forming a salt with an acid; and,
at least one hydrophilic polymer containing pendant carboxyl-amidine-carboxyl triads.

5,736,128
COSMETIC COMPOSITION FOR REJUVENATION OF SKIN WITHOUT SKIN IRRITATION

Ratan K. Chaudhuri, Lincoln Park, and David B. Bower, Sewell, both of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed May 14, 1996, Ser. No. 644,998

Int. Cl.^{6} A61K *31/765; 7/00*

U.S. Cl. 424—78.03 14 Claims

1. A cosmetic composition for rejuvenating the appearance of skin with substantially no skin irritation, in the form of a lotion, creme, solution or gel, consisting essentially of an aqueous, alcoholic or aqueous-alcoholic solution of 0.5 to 25 wt. % of a copolymer having a carboxylic acid functionality which is a methyl vinyl ether/maleic acid copolymer, said composition having a pH of 1.5 to 5.0.

5,736,129
FLOW CYTOMETRIC PHARMACOSENSITIVITY ASSAY AND METHOD OF CANCER TREATMENT

Rajko D. Medenica, One Ocean Point, Port Royal Plantation, Hilton Head Island, S.C. 29928, and David K. Powell, 95 Headlands Dr., Hilton Head Island, S.C. 29926

Filed Nov. 17, 1995, Ser. No. 559,812

Int. Cl.^{6} A61K *38/19;* **C12Q** *1/06;* **G01N** *33/52*

U.S. Cl. 424—85.4 14 Claims

1. A method for treating non-leukemic cancers in humans comprising,

(a) preparing a cancer cell suspension from a cancer specimen obtained from a human non-leukemic cancer patient;
(b) preparing a control sample from the cancer cell suspension;
(c) preparing several drug samples from several putative cancer cell growth-inhibiting drugs and the cancer cell suspension, each drug sample containing a mixture of the cancer cell suspension and at least one drug; and then
(d) incubating the control sample and drug samples; then
(e) staining the control samples and drug sample with a DNA intercalating dye; then
(f) determining the cancer cell viability in the control sample and the drug samples by use of a flow cytometer and determining the white cell content of the cancer cell suspension and adjusting the determined cancer cell viability of each drug sample and the control sample to compensate for the white cell content of each, whereby an adjusted cancer cell viability of each drug sample and the control sample is obtained; then
(g) comparing the adjusted cancer cell viability of each drug sample with the adjusted cancer cell viability of the control sample, and then

(h) preparing a drug treatment regimen for the human non leukemic cancer patient containing selected drugs chosen from the several cancer cell growth-inhibiting drugs, the selected drugs corresponding to the drugs in the drug samples having the lowest adjusted cancer cell viability in comparison to the control sample; and then
(i) administering the drug treatment regimen to the human non-leukemic cancer patient in an amount which is effective to inhibit the growth of the cancer.

5,736,130

Patent Not Issued For This Number

5,736,131
HYBRID TOXIN

Hendrik Jan Bosch, Utrecht, and Willem Johannes Stiekema, Wageningen, both of Netherlands, assignors to Sandoz Ltd., Basel, Switzerland

PCT No. PCT/EP94/02909, § 371 Date Feb. 21, 1996, § 102(e) Date Feb. 21, 1996, PCT Pub. No. WO95/06730, PCT Pub. Date Mar. 9, 1995

PCT Filed Sep. 1, 1994, Ser. No. 602,737

Claims priority, application United Kingdom, Sep. 2, 1993, 9318207

Int. Cl.^{6} A01N *63/00, 37/18;* **C07K** *14/325;* **C12P** *21/02*

U.S. Cl. 424—93.2 18 Claims

1. A purified fragment of a *Bacillus thuringiensis* toxin comprising amino acids 1–620 of SEQ ID NO:6, or a purified fragment of a *Bacillus thuringiensis* toxin comprising amino acids 1–620 of SEQ ID NO:6 wherein at least one of the following substitutions is present:

Ile at position 609 is replaced with Leu;
Ala at position 618 is replaced with Glu;
Ser at position 620 is replaced with Tyr

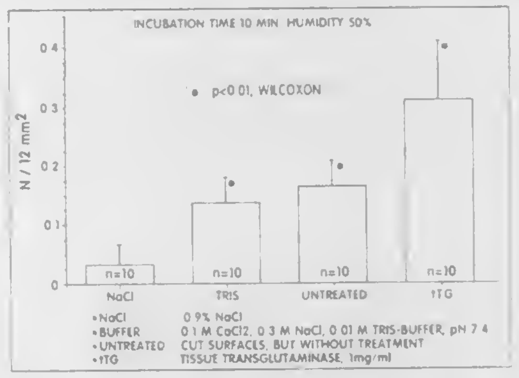
5,736,132
METHOD OF PROMOTING ADHESION BETWEEN TISSUE SURFACES

Kay Juergensen, Murten; Daniel Aeschlimann, Basel, and Ernst B. Hunziker, Riedholz, all of Switzerland, assignors to Orthogene, Inc., San Francisco, Calif.

Division of Ser. No. 71,528, Jun. 3, 1993, Pat. No. 5,549,904. This application Jan. 29, 1996, Ser. No. 592,921

Int. Cl.^{6} A61K *38/45, 38/27;* **A61F** *2/00, 13/02*

U.S. Cl. 424—94.5 16 Claims



1. A method of promoting adhesion upon treatment of tissue comprising

providing tissue for adhesion, and
applying to said tissue an effective amount of tissue transglutaminase to promote adhesion of said tissue in the presence of a divalent metal ion selected from the group consisting of calcium and strontium in an amount in the range of about 0.5 mM to about 100 mM at a pH of about 7.0 to about 8.5.

5,736,133
METHOD AND COMPOSITION FOR THE TREATMENT OF A INDIVIDUAL INFECTED WITH AN IMMUNODEFICIENCY VIRUS

Ellis L. Kline, Pendleton, and Walter W. McAlhaney, Anderson, both of S.C., assignors to Molecular Rx, Inc., Pendleton, S.C.

Continuation of Ser. No. 393,120, Feb. 21, 1995, Pat. No. 5,558,863, which is a continuation of Ser. No. 229,703, Apr. 19, 1994, abandoned, which is a continuation of Ser. No. 860,546, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 682,071, Apr. 9, 1991, abandoned. This application Sep. 19, 1996, Ser. No. 716,053

Int. Cl.^{6} A61K *38/47*

U.S. Cl. 424—94.61 14 Claims

1. A method for treating a human infected with a human immunodeficiency virus, comprising administering to the human between approximately 10 mg to 10^{-5} mg of neuraminidase

5,736,134
TISSUE PLASMINOGEN ACTIVATOR VARIANTS

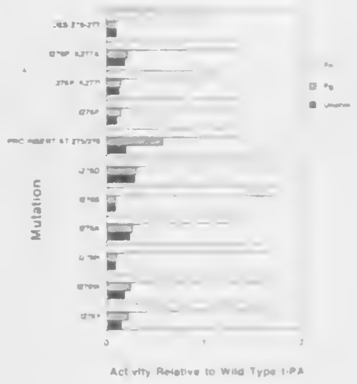
Herbert L. Heyneker, Hillsborough; Gordon A. Vehar, San Carlos; Nicholas F. Paoni, Moraga, and William F. Bennett, San Mateo, all of Calif., assignors to Genentech, In.c, So. San Francisco, Calif.

PCT No. PCT/US92/10677, § 371 Date Aug. 17, 1994, § 102(e) Date Aug. 17, 1994, PCT Pub. No. WO93/12225, PCT Pub. Date Jun. 24, 1994

Continuation of Ser. No. 808,537, Dec. 16, 1991, abandoned, and a continuation-in-part of Ser. No. 741,120, Aug. 5, 1991, Pat. No. 5,147,643, , which is a continuation of Ser. No. 186,494, Apr. 26, 1988, abandoned, which is a continuation of Ser. No. 71,506, Jul. 9, 1987, abandoned, which is a continuation-in-part of Ser. No. 846,697, Apr. 1, 1986, abandoned, and Ser. No. 725,468, Apr. 22, 1985, abandoned. This PCT application Dec. 14, 1992, Ser. No. 244,773

Int. Cl.^{6} A61K *38/48;* **C12N** *9/48, 1/21;* **C07H** *21/04*

U.S. Cl. 424—94.64 20 Claims



1. A human tissue plasminogen activator (t-PA) variant which has enhanced fibrin specificity having an amino acid other than isoleucine at position 276 of the amino acid sequence of wild type t-PA

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5,736,135

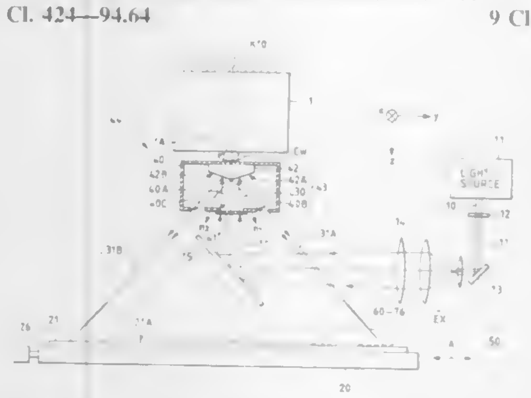
METHOD FOR MAKING VARIANT SECRETED PROTEINS WITH ALTERED PROPERTIES

David V. Goeddel, Hillsborough; Glenn C. Rice, Palo Alto, and David W. H. Leung, Foster City, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 221,660, Apr. 1, 1994, abandoned, which is a continuation of Ser. No. 8,940, Jan. 26, 1993, abandoned, which is a division of Ser. No. 728,456, Jul. 11, 1991, Pat. No. 5,223,408. This application Feb. 13, 1995, Ser. No. 389,615

Int. Cl.^{6} A61K *38/49;* **C12N** *9/48;9/64;15/55*

U.S. Cl. 424—94.64 **9 Claims**



1. A t-PA variant comprising, as a sole alteration, a substitution at an amino acid residue selected from the group consisting of residues 115, 142, and 159, wherein the substitutions at residues 115 and 142 are selected from the group consisting of charged residues, aliphatic residues, aromatic residues, and residues, and nonpolar residues, and wherein the substitutions at residue 159 are selected from the group consisting of acidic residues, and uncharged residues.

5,736,136

IMMUNOGLOBULIN INFUSION IN XENOTRANSPLANTATION

Denis Glotz, Paris, France, assignor to SangStat Medical Corporation, Menlo Park, Calif.

Continuation of Ser. No. 75,127, Jun. 11, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 585,606

Int. Cl.^{6} C07K *16/00,* **A61K** *31/00;39/395*

U.S. Cl. 424—132.1 **9 Claims**

1. A method for enhancing the survival of a mammalian xenotransplant in a mammalian host, said method comprising:

administering to said host a dosage of intravenous immunoglobulin (IVIg) effective to reduce or delay the immune hyperacute rejection response of said host, whereby the survival time of said xenotransplant is increased.

5,736,137

THERAPEUTIC APPLICATION OF CHIMERIC AND RADIOLABELED ANTIBODIES TO HUMAN B LYMPHOCYTE RESTRICTED DIFFERENTIATION ANTIGEN FOR TREATMENT OF B CELL LYMPHOMA

Darrell R. Anderson, Escondido; Nahil Hanna, Olivenhain; John E. Leonard, Encinitas; Roland A. Newman; Mitchell E. Reff, both of San Diego, and William H. Rastetter, Rancho Sante Fe, all of Calif., assignors to Idec Pharmaceuticals Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 978,891, Nov. 13, 1992, abandoned. This application Nov. 3, 1993, Ser. No. 149,099

Int. Cl.^{6} A61K *39/395,* **C07K** *16/30,* **C12N** *1/21;5/20*

U.S. Cl. 424—133.1 **6 Claims**

1. Immunologically active, chimeric anti-CD20 antibody produced from a transfectoma comprising anti-CD20 in TCAE 8, ATCC deposit number 69119.

5,736,138

MONOCLONAL ANTIBODIES WITH SPECIFIC BINDING AGAINST MEMBRANE PROTEINS ON HUMAN CELLS, AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

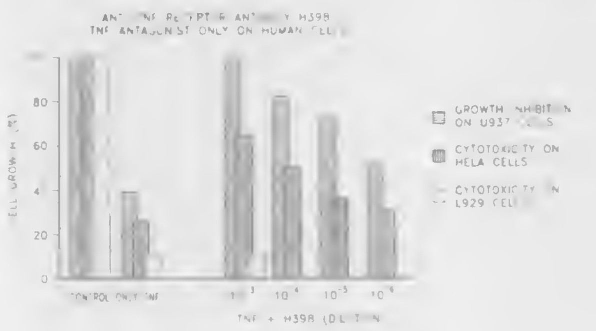
Klaus Pfizenmaier, Lindenallee 7, D-3400 Göttingen; Peter Scheurich, Uhlandstrasse 18 a, D-3406 Bovenden, and Bettina Thoma, Rastenburgerstrasse 13, D-3400 Göttingen, all of Germany, assignors to Klaus Pfizenmaier; Peter Scheurich, and Bettina Thoma, all of Germany

Filed Feb. 12, 1991, Ser. No. 654,257

Claims priority, application Germany, Feb. 28, 1990, 40 06 269.5

Int. Cl.^{6} A61K *39/395;39/00;* **C07K** *16/28;16/18*

U.S. Cl. 424—143.1 **6 Claims**



5. A pharmaceutical composition which comprises a monoclonal antibody which has been given accession number H398 at the ECACC, or antigen binding fragments thereof, which antibody is a TNF antagonist which binds to the 60-kD component of the human TNF membrane receptor and neutralizes the cytotoxic and cytostatic effects stimulated by TNF and a pharmaceutically acceptable carrier, the 60-kD component being determined by means of 7.5% PAGE under non-reducing conditions.

5,736,139

TREATMENT OF CLOSTRIDIUM DIFFICILE INDUCED DISEASE

John A. Kink; Bruce S. Thalley; Douglas C. Stafford, all of Madison, Wis.; Joseph R. Firca, Vernon Hills, Ill., and Nisha V. Padhye, Madison, Wis., assignors to Ochidian Pharmaceuticals, Inc., Madison, Wis.

Continuation-in-part of Ser. No. 422,711, Apr. 14, 1995, which is a continuation-in-part of Ser. No. 405,496, Mar. 16, 1995, which is a continuation-in-part of Ser. No. 329,154, Oct. 24, 1994, which is a continuation-in-part of Ser. No. 161,907, Dec. 2, 1993, Pat. No. 5,601,823, which is a continuation-in-part of Ser. No. 985,321, Dec. 4, 1992, which is a continuation-in-part of Ser. No. 429,791, Oct. 31, 1989, Pat. No. 5,196,193. This application Jun. 7, 1995, Ser. No. 480,604

Int. Cl.^{6} A61K *39/395,* **C07K** *16/12*

U.S. Cl. 424—164.1 **28 Claims**

1. A method of treating *Clostridium difficile* disease, comprising:

a) providing:
  i) a subject exposed to *Clostridium difficile* exhibiting symptoms comprising diarrhea; and
  ii) avian antibody reactive with Toxin A of *Clostridium difficile*, said antibody in a therapeutic amount that is orally administrable, and

b) administering said antibody orally to said subject under conditions such that said subject ceases to exhibit symptoms and treatment can be terminated.

5,736,140

RECEPTOR SPECIFIC TRANSEPITHELIAL TRANSPORT OF IMMUNOGENS

Richard S. Blumberg, Chestnut Hill; Neil E. Simister, Wellesley, and Wayne I. Lencer, Jamaica Plain, all of Mass., assignors to Brigham and Women's Hospital, Boston, and Brandeis University, Waltham, both of Mass.

Filed Jan. 17, 1995, Ser. No. 374,159

Int. Cl.^{6} A61K *39/00;39/002;39/02;39/12,39/35,39/395;* **C07K** *16/00*

U.S. Cl. 424—178.1 **20 Claims**

1. A method for activating or suppressing an immune response of a mammal, comprising:

administering to an epithelial barrier of a mammal in need of such immune activation or suppression an effective amount of a conjugate of an antigen and a FcRn binding partner, wherein said epithelial barrier expresses a receptor binding the Fc portion of an IgG immunoglobulin (FcRn receptor) and wherein said antigen is selected from the group consisting of:

an antigen that is characteristic of a pathogen,

an antigen that is characteristic of an autoimmune disease, and

an antigen that is characteristic of an allergen.

5,736,141

METHOD TO PREVENT FERTILIZATION IN MAMMALS BY ADMINISTERING A SINGLE DOSE OF ZONA PELLUCIDA DERIVED ANTIGENS, LIPOSOME AND FREUND'S ADJUVANT

Robert Brown, Dartmouth; Michael Mezei, Halifax; Bill Pohajdak, Dartmouth, and Warwick Charles Kimmins, Halifax, all of Canada, assignors to Dalhousie University, Canada

Continuation of Ser. No. 347,348, Dec. 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 892,807, Jun. 5, 1992, abandoned. This application Oct. 30, 1996, Ser. No. 739,812

Int. Cl.^{6} A61K *39/00;9/127;35/54*

U.S. Cl. 424—184.1 **6 Claims**

1. A method of preventing fertilization in a mammal for at least twelve months which method consists of a single parenteral administration of an effective amount of a vaccine composition comprising a zona pellucida derived antigen and a Freund's adjuvant in a liposome formulation.

5,736,142

ALTERATION OF IMMUNE RESPONSE USING PAN DR-BINDING PEPTIDES

Alessandro Sette, La Jolla; Federico Gaeta, Foster City; Howard M. Grey; John Sidney, both of La Jolla, and Jeffrey L. Alexander, Encinita, all of Calif., assignors to Cytel Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 121,101, Sep. 14, 1993, abandoned. This application Sep. 14, 1994, Ser. No. 305,871

Int. Cl.^{6} A61K *38/00;* **C07K** *7/02;7/04*

U.S. Cl. 424—185.1 **56 Claims**

1. A composition comprising a peptide capable of binding antigen binding sites on MHC molecules encoded by substantially all alleles of a DR locus, the peptide consisting of 2 D-amino acids and 11 L-amino acids, said peptide having the formula R_1—R_2—R_3—R_4—R_5, proceeding from the amino-terminus to the carboxy-terminus, wherein:

R_1 is a D-amino acid followed by alanine or lysine,

R_2 is selected from the group consisting of cyclohexylalanine, tyrosine, and phenylalanine,

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, and tryptophan-threonine-leucine-lysine; and

R_5 consists of 2 or 4 amino acids followed by a D-amino acid, wherein each of the 2 or 4 amino acids is independently selected from the group consisting of alanine, serine and valine.

5,736,143

ANTI-INFLAMMATORY, TOLEROGENIC AND IMMUNOINHIBITING PROPERTIES OF CARBOHYDRATE BINDING-PEPTIDES

Louis D. Heerze; Glen D. Armstrong, and Richard Smith, all of Edmonton, Canada, assignors to Alberta Research Council, Edmonton, Canada

Division of Ser. No. 995,503, Dec. 21, 1992, Pat. No. 5,453,272, which is a continuation-in-part of Ser. No. 956,043, Oct. 2, 1992, abandoned. This application Feb. 17, 1995, Ser. No. 390,510

Int. Cl.^{6} A61K *39/10*

U.S. Cl. 424—190.1 **8 Claims**

1. A method for modulating the induction of an immune response to an antigen in a mammal by administering the antigen in combination with an effective amount of at least one lectin derived carbohydrate binding peptide capable of binding terminally linked α-sialic acid(2→6)βGal- and/or α-sialic acid(2→3)βGal- groups on structures or molecules comprising such groups wherein said lectin derived carbohydrate binding peptide is represented by formula I (SEQ ID No:1).

$$SPX_1GX_2C \qquad \text{I}$$

where X_1 is selected from the group consisting of amino acids Y, F, W, and H, and X_2 is selected from the group consisting of amino acids Y, F, R, W, and H.

5,736,144

METHOD OF PRODUCING A MEDICINAL TEA FOR TREATING INFERTILITY IN MALES AND FOR TREATING PROSTATITIS

Salva Gideon, 201 Lloyd Manor Road, Suite 200, Etobicoke, Ontario, Canada, M9B 6H6

Filed Dec. 4, 1995, Ser. No. 566,498

Claims priority, application Canada, Dec. 2, 1994, 2137219

Int. Cl.^{6} A01N *65/00*

U.S. Cl. 424—195.1 **11 Claims**

1. A method of treating clinically diagnosed infertility in a mammalian male comprising

(a) boiling the leafy portions of radish plants of the species *Raphanus sativus* in water for a period of time sufficient to produce a tea, and

(b) having said male ingest tea produced by the method of step (a) in a treatment program comprising prescribed dosages of said tea for an ongoing treatment sufficient to restore the fertility of said male.

5,736,145

PROCESS FOR PREPARING PURIFIED AZADIRACHTIN IN POWDER FORM FROM NEEM SEEDS AND STORAGE STABLE AQUEOUS COMPOSITION CONTAINING AZADIRACHTIN

P. M. Murali, Tamil Nadu, India, assignor to Dalmia Centre for Biotechnology, Tamil Nadu, India

Filed Jul. 17, 1996, Ser. No. 683,506

Claims priority, application India, Jul. 17, 1995, 898/MAS/95

Int. Cl.^{6} A01N *65/00;43/16*

U.S. Cl. 424—195.1 **17 Claims**

1. A process for preparing a substantially purified Azadirachtin A powder, comprising the steps of:

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a) passing at least three batches of an aqueous polar solvent through decorticated and pelleted neem seeds to obtain a solvent extract, wherein neem oil is not oozed from said seeds;
b) removing Azadirachtin A from said solvent extract with a polar solvent to obtain an Azadirachtin A solution;
c) removing the polar solvent from the Azadirachtin A solution to obtain a concentrated Azadirachtin A solution;
d) removing trace oil and hydrophobic impurities from the concentrated Azadirachtin A solution with a non-polar solvent;
e) removing water from the concentrated Azadirachtin
f) recovering a substantially purified Azadirachtin A powder.

5,736,146

CONJUGATES OF POORLY IMMUNOGENIC ANTIGENS AND SYNTHETIC PEPTIDE CARRIERS AND VACCINES COMPRISING THEM

Irun R. Cohen; Matityahu Fridkin, both of Rehovot, and Stephanie Konen-Waisman, Tel Aviv, all of Israel, assignors to Yeda Research and Development Co. Ltd., Israel

PCT No. PCT/US93/07096, § 371 Date Feb. 22, 1995, § 102(e) Date Feb. 22, 1995, PCT Pub. No. WO94/03208, PCT Pub. Date Feb. 17, 1994

PCT Filed Jul. 28, 1993, Ser. No. 379,613

Claims priority, application Israel, Jul. 30, 1992, 102687

Int. Cl.⁶ A61K *39/385;39/09;39/112*

U.S. Cl. 424—194.11 **25 Claims**

1. A conjugate comprising a poorly immunogenic antigen covalently attached to a synthetic peptide carrier constituting a T cell epitope of hsp65 in which said synthetic peptide carrier is selected from the group of peptides consisting of
(a) NEDQKIGIEIIKRTLKI (Pep278h) (SEQ ID NO: 1),
(b) NEDQKIGIEIIKRALKI (Pep278m) (SEQ ID NO:2),
(c) EGDEATGANIVKVALEA (Pep278mt) (SEQ ID NO:3),
(d) VLGGGSALLRSI (Pep II) (SEQ ID NO:4), and
(e) an analog of Pep278h (SEQ ID NO: 1):

458 474
N E D Q K I G I E I I K R T L K I.

that has at least 70 % of the electric and hydrophilicity/hydrophobicity characteristic of human hsp65 from position 458 to position 474, said peptide or analog being capable of increasing substantially the immunogenicity of the poorly immunogenic antigen when the conjugate is administered in vivo.

5,736,147

Patent Not Issued For This Number

5,736,148

INFECTIOUS JAPANESE ENCEPHALITIS VIRUS CDNA CLONES THAT PRODUCE HIGHLY ATTENUATED RECOMBINANT JAPANESE ENCEPHALITIS VIRUS, AND VACCINES THEREOF

Hideo Sumiyoshi, Branford, Conn., and Charles H. Hoke, Jr., Columbia, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 348,882, Nov. 28, 1994, abandoned, which is a continuation of Ser. No. 76,886, Jun. 15, 1993, abandoned. This application May 11, 1995, Ser. No. 438,702

Int. Cl.⁶ A61K *39/12*, **C12N** *7/04*

U.S. Cl. 424—218.1 **9 Claims**

1. An isolated, mutant Japanese encephalitis virus (JEV) that possesses a single mutation characterized in that an acidic amino acid selected from the group consisting of glutamic acid and aspartic acid at position 138 of the envelope protein is replaced with a basic amino acid selected from the group consisting of lysine and arginine.

5,736,149

ALLERGENIC PROTEINS AND PEPTIDES FROM JOHNSON GRASS POLLEN

Asil Avjioglu, Towson, Md.; Mohan Bir Singh, and Robert Bruce Knox, both of Victoria, Australia, assignors to The University of Melbourne, Parkville, Victoria, Australia

Continuation of Ser. No. 971,096, Oct. 30, 1992, Pat. No. 5,480,972. This application Jun. 6, 1995, Ser. No. 470,165

Int. Cl.⁶ A61K *3/00;35/78;35/80;* **C07K** *1/00*

U.S. Cl. 424—275.1 **8 Claims**

1. A fragment of an isolated Johnson grass pollen allergen Sor h I protein consisting of the amino acid sequence shown in FIG. 5 (SEQ ID No. 2), said fragment comprising one or more T cell epitopes recognized by a T cell receptor specific for said Sor h I allergen, provided that said fragment is not from *Lolium perenne* or *Cynodon dactylon.*

8. A composition comprising the fragment of any one of claims 1, 2, 3 and 4∫7 and a pharmaceutically acceptable carrier or diluent.

5,736,150

FAR-INFRARED RADIATING CREAM FOR EXTERNAL APPLICATION

Chung Yueh Tsai, Taipei, Taiwan, assignor to Fu Hsiang Textile Co., Ltd., Taipei, Taiwan

Filed Dec. 17, 1996, Ser. No. 769,007

Int. Cl.⁶ A61K *7/48*

U.S. Cl. 424—401 **3 Claims**

1. A far-infrared radiating cream comprising 4 wt % of a far-infrared radiating compound and 96 wt % of a cream, said far-infrared radiating compound comprising 70 wt %–90 wt % of powdered perlite wherein said perlite is comprised of 73.41% of SiO_2, 12.34% of Al_2O_3, 1.33% Fe_2O_3, 2.95% of Na_2O, 5.33% of K_2O, and 3.70% of crystallized water and wherein said perlite has a purity of more than 99.9% and a granularity in the range of 7–8 μm, 7 wt %–20 wt % of Ta_2O_5, and 3 wt %– 10 wt % Nb_2O_5, said cream being comprised of propylene glycol, cetanol, squalane, paraffin oil, stearyl alcohol, glycine, propyl paraben, dL-α-tocopherol.

5,736,151

ANTIBIOTIC OIL SUSPENSIONS

Todd P. Foster, Kalamazoo, and David L. Kiefer, Alanson, both of Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

Filed Dec. 9, 1996, Ser. No. 806,584

Int. Cl.⁶ A61F *2/02;* **A61K** *31/545*

U.S. Cl. 424—423 **23 Claims**

1. In an oil suspension of ceftiofur hydrochloride in unit dosage form consisting of an effective amount of ceftiofur hydrochloride, a biocompatible oil and one or more pharmaceutically acceptable excipients, the improvement characterized by:
an amount of water which is present at about 0.25% to about 20.20% of the suspension.

5,736,152

NON-POLYMERIC SUSTAINED RELEASE DELIVERY SYSTEM

Richard L. Dunn, Fort Collins, Colo., assignor to Atrix Laboratories, Inc., Fort Collins, Colo.

Filed Oct. 27, 1995, Ser. No. 549,414

Int. Cl.⁶ A61F *2/02;* **A61K** *47/30*

U.S. Cl. 424—426 **20 Claims**

1. A method of treating a tissue defect in an animal, comprising:
(a) administering a composition to the tissue defect, the composition comprising:
  (i) a non-polymeric, water-insoluble material that is biodegradable; and
  (ii) a biocompatible, organic solvent that at least partially solubilizes the non-polymeric, water-insoluble material and is miscible to dispersible in water or body fluids and capable of dissipating, diffusing or leaching from the composition into body fluid upon placement within a body; and
(b) allowing the composition to coagulate or precipitate in situ to form a solid implant; wherein the implant is effective to treat the tissue defect.

5,736,153

PLASTER WITH A SUPPLY OF A MEDICALLY ACTIVE SUBSTANCE

Jacobus Stephanus Lamers, Bemmel, Netherlands, assignor to Lamers Beheer B.V., Gendt, Netherlands

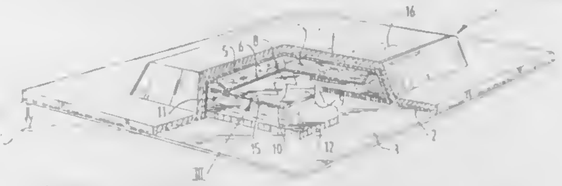
PCT No. PCT/NL93/00216, § 371 Date Jun. 15, 1995, § 102(e) Date Jun. 15, 1995, PCT Pub. No. WO94/09735, PCT Pub. Date May 11, 1994

PCT Filed Oct. 26, 1993, Ser. No. 428,163

Claims priority, application Netherlands, Oct. 27, 1992, 9201864

Int. Cl.⁶ A61M *37/00;* **A61K** *9/70;* **A61F** *13/02*

U.S. Cl. 424—449 **9 Claims**



1. A plaster, comprising:
a porous cushion and at least one adhesive edge with which the plaster can adhere to the skin;
a capsule closed by a breakable membrane and adjoining the cushion via the membrane, in which capsule a supply of a medically active substance is contained which, through breaking of the membrane, can be absorbed into the cushion for contact with and gradual delivery to the skin; and
breaking means for breaking the membrane,
wherein the breaking means comprise two plates adjacent to the membrane and mutually adjoining with at least partially complementary edges, which plates can be pressed toward one another by a user, whereby the plates hinge relative to the at least partially complementary edges and at least one of the at least partially complementary edges breaks the membrane, and
wherein the two plates lie substantially in one plane prior to breaking of the membrane.

5,736,154

TRANSDERMAL DELIVERY SYSTEM

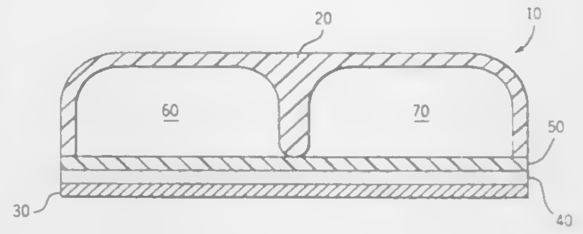
Richard C. Fuisz, Great Falls, Va., assignor to Fuisz Technologies Ltd., Chantilly, Va.

Filed Mar. 11, 1996, Ser. No. 613,710

Int. Cl.⁶ A61F *13/00*

U.S. Cl. 424—449 **13 Claims**

1. A dermal multi-layered intralesional drug delivery system consisting essentially of



a top layer;
a control membrane attached to the top layer, forming at least one internal chamber; and
a bottom layer releasably attached to the control membrane;
said at least one chamber containing interferon for intra-lesion, passive treatment of an individual with a carcinoma treatable with intralesional interferon,
wherein the interferon does not pass into the bloodstream during delivery.

5,736,155

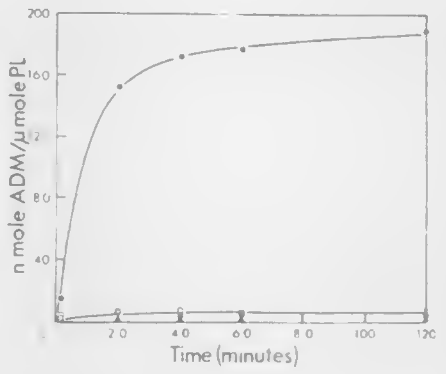
ENCAPSULATION OF ANTINEOPLASTIC AGENTS IN LIPOSOMES

Marcel B. Bally; Pieter R. Cullis; Michael J. Hope; Thomas D. Madden, and Lawrence D. Mayer, all of Vancouver, Canada, assignors to The Liposome Company, Inc., Princeton, N.J.

Continuation of Ser. No. 146,464, Nov. 2, 1993, abandoned, which is a continuation of Ser. No. 741,612, Aug. 7, 1991, abandoned, , which is a continuation of Ser. No. 749,161, Jun. 26, 1985, abandoned, which is a continuation-in-part of Ser. No. 638,809, Aug. 8, 1984, abandoned. This application Jun. 5, 1995, Ser. No. 461,212

Int. Cl.⁶ A61K *9/127*

U.S. Cl. 424—450 **6 Claims**



1. A method for loading liposomes with an ionizable antineoplastic agent comprising preparing liposomes having a concentration gradient of one or more charged species across their membranes, said concentration gradient being capable of generating a transmembrane potential having an orientation which will cause the ionizable antineoplastic agent to be loaded into the liposomes, wherein the concentration of the ionizable antineoplastic agent in the liposomes after loading is at least about 20 mM, the concentration gradient is produced by forming the liposomes in a first aqueous medium comprising the charged species and then modifying the concentration of the charged species in the medium external to the resultant liposomes to obtain a second aqueous medium having a different concentration of the charged species and wherein the transmembrane potential is maintained after loading the liposomes so as to inhibit the release of the loaded agent from the liposomes.

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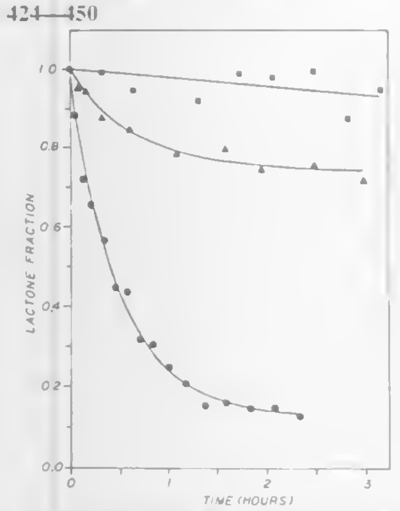
LIPOSOMAL ANF MICELLULAR STABILIZATION OF CAMPTOTHECIN DRUGS

Thomas G. Burke, Columbus, Ohio, assignor to The Ohin State University, Columbus, Ohio

Division of Ser. No. 407,989, Mar. 22, 1995, Pat. No. 5,552,156. This application Apr. 12, 1996, Ser. No. 631,072

Int. Cl.^{6} A61K *8/127*

U.S. Cl. 424—450 **11 Claims**



1. A micelle composition for the delivery of a camptothecin drug, comprising:

at least one camptothecin drug containing a lactone ring; and

a micelle comprising at least one membrane comprised of surfactant or lipid or mixture thereof; said membrane defining a closed compartment; wherein said camptothecin drug is associated with said micelle such that said lactone ring is protected from hydrolysis and stabilized.

5,736,157

METHOD OF REGULATING CHOLESTEROL RELATED GENES, ENZYMES AND OTHER COMPOUNDS, AND PHARMACEUTICAL COMPOSITIONS

Kevin Jon Williams, 425 Wister Rd., Wynnewood, Pa. 19096

Filed Oct. 11, 1996, Ser. No. 728,697

Int. Cl.^{6} A61K *31/01*

U.S. Cl. 424—450 **43 Claims**

1. A method of manipulating gene expression in a liver cell, said liver cell having at least one gene selected from the group consisting of a gene for an LDL receptor, a gene for HMG-CoA reductase, a gene for cholesterol 7-alpha-hydroxylase, and a gene regulating a function involved in cholesterol homeostasis, comprising the step of:

administering during a treatment period a therapeutically effective mount of a multiplicity of large liposomes comprised of phospholipids, said large liposomes having diameters larger than about 50 nm, and controlling expression of at least one of said genes by said administration of said multiplicity of said large liposomes.

5,736,158

PARTIAL DENTURE CLEANSER WITH FLUORIDE

Marco Quast, Krefeld, Germany, assignor to The Block Drug Company, Jersey City, N.J.

Filed Mar. 27, 1996, Ser. No. 622,769

Int. Cl.^{6} A61K *7/30*

U.S. Cl. 424—464 **16 Claims**

1. A composition for the cleaning and protection of partial dentures and the associated natural teeth of the wearer consisting essentially of:

a. a peroxy bleach cleanser in an amount of from about 5.0 wt % to about 70.0 wt % of the total weight of the composition;

b. a fluoride source incorporated in a polymer matrix in a polymer/fluoride weight ratio of from about 3:1 to 1:3;

c. at least one surfactant in an amount of from about 3.0 wt % to about 18.0 wt %;

d. an organic peroxyacid bleach in an amount of from about 10.0 wt % to about 40.0 wt %;

e. an active bicarbonate-based effervescent agent in an amount of from about 5.0 wt % to about 65.0 wt %;

f. said composition is formulated as a two-layer compressed tablet wherein one layer contains the peroxyacid bleach cleanser and surfactant while the other layer contains said fluoride and a surfactant; wherein said partial dentures are oxidized by said bleach and retain at least a portion of said fluoride on the surface of the denture for the sustained delivery to the natural teeth once the partial denture is placed back into the mouth.

5,736,159

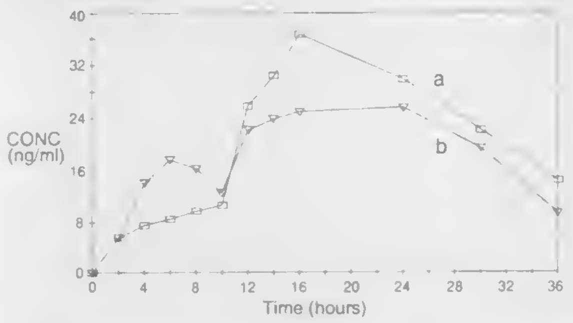
CONTROLLED RELEASE FORMULATION FOR WATER INSOLUBLE DRUGS IN WHICH A PASSAGEWAY IS FORMED IN SITU

Chih-Ming Chen, Cooper City; Der-Yang Lee, Plantation, and Jianbo Xie, Davie, all of Fla., assignors to Andrx Pharmaceuticals, Inc., Fort Lauderdale, Fla.

Filed Apr. 28, 1995, Ser. No. 430,356

Int. Cl.^{6} A61K *9/36*

U.S. Cl. 424—480 **6 Claims**



1. A controlled release pharmaceutical tablet which comprises:

a) a compressed core which consists essentially of:

(i) a calcium channel blocker;

(ii) at least 23% to 55% by weight, based on the total weight of the core, of a water soluble osmotic agent;

(iii) a water soluble pharmaceutically acceptable polymeric binder;

(iv) a water-swellable pharmaceutically acceptable polymer; and

(b) a membrane coating around said core tablet which consists essentially of triacetin plasticized cellulose acetate, hydroxypropyl cellulose and polyethylene glycol.

5,736,160

PROCESS AND DEVICE FOR TREATING AND HEALING A BONE VOID

Timothy Ringeisen, and John H. Brekke, both of Duluth, Minn., assignors to THM Biomedical, Inc., Duluth, Minn.

PCT No. PCT/US94/12424, § 371 Date Apr. 26, 1996, § 102(e) Date Apr. 26, 1996, PCT Pub. No. WO95/11707, PCT Pub. Date May 4, 1995

Continuation of Ser. No. 144,714, Oct. 28, 1993, abandoned. This PCT application Oct. 28, 1994, Ser. No. 637,651

Int. Cl.^{6} A61K *9/16*

U.S. Cl. 424—487 **22 Claims**

1. An improved process for treating and healing a bone deficiency by incorporating biologically active agents onto the internal surfaces of a porous hydrophobic biodegradable or bioresorbable body, comprising:

(a) providing a hydrophobic biodegradable or bioresorbable body formed of a polymerized alpha hydroxy acid and having

external surfaces, and voids or pores within the hydrophobic body presenting internal surfaces, with no point within the body being greater than 0.75 mm from a surface which is in contact with interstitial fluid in which the hydrophobic body is capable of being shaped to conform to the size and shape of the bone deficiency to be treated and healed;

(b) contacting the hydrophobic body with an aqueous solution of a physiologically acceptable surfactant and a biologically active agent whereby the surfactant and the biologically active agent are deposited on the internal surfaces of the voids or pores of the hydrophobic body; and

(c) applying the hydrophobic body containing the biologically active agent into the bone deficiency to be treated and healed.

5,736,161

PHARMACEUTICAL PREPARATION FOR IMPROVING THE BIOAVAILABILITY OF DRUGS WHICH ARE DIFFICULT TO ABSORB AND A PROCEDURE FOR OBTAINING IT

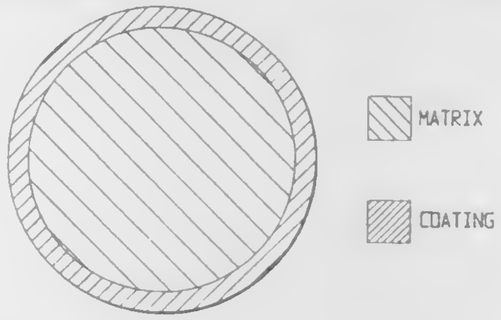
Jose de los Santos Garces; Angel Bonilla Munoz, and Jose Maria Garcia Anton, all of Barcelona, Spain, assignors to Lipotec S.A., Barcelona, Spain

Filed Jul. 21, 1994, Ser. No. 278,520

Claims priority, application Spain, Jul. 21, 1993, 9301637

Int. Cl.^{6} A61K *9/16;9/50;9/54;9/62*

U.S. Cl. 424—493 **32 Claims**



1. A pharmaceutical preparation, comprising microparticles selected from the group consisting of dehydrated millispheres, dehydrated microspheres, dehydrated nanospheres and dehydrated particles, said microparticles comprising hydrocolloid onto which has been deposited a film of a cationic polysaccharide, a promoter of adsorption via the mucous membranes and incorporating within the hydrocolloid of the microparticle a pharmacologically useful drug.

5,736,162

Patent Not Issued For This Number

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Patent Not Issued For This Number

5,736,164

FUNGICIDAL COMPOSITIONS FOR PLANTS CONTAINING PHOSPHONATE AND PHOSPHATE SALTS, AND DERIVATIVES THEREOF

John B. Taylor, 1420 Lemon St., DeLan, Fla. 32720-4599

Filed Aug. 30, 1996, Ser. No. 705,594

Int. Cl.^{6} A01N *59/26*

U.S. Cl. 424—601 **8 Claims**

1. A fungicidal composition for controlling fungus disease in plants comprising:

enhanced fungicidally effective amounts of at least a first salt selected from a group consisting of K$_2$HPO$_4$, KH$_2$PO$_4$ and K$_3$PO$_4$; and a second salt selected from a group consisting of K$_2$HPO$_4$, KH$_2$PO$_4$ and K$_3$PO$_4$ wherein said composition comprises an aqueous solution and each of said first and second salt being present in solution from about 20 millimole to about 5% vol./vol.

5,736,165

IN-THE-EYE USE OF CHLORINE DIOXIDE-CONTAINING COMPOSITIONS

Paul S. Ripley, Irvine; Anthony J. Dziabo, Lake Forest, and Claude B. Anger, Long Beach, all of Calif., assignors to Allergan, Waco, Tex.

Continuation-in-part of Ser. No. 66,746, May 25, 1993, abandoned. This application Jul. 20, 1994, Ser. No. 277,718

Int. Cl.^{6} A61K *33/20,33/40;* **A01N** *59/00*

U.S. Cl. 424—661 **22 Claims**

1. A method of caring for a mammalian eye comprising:

applying directly to a mammalian eye an effective, ophthalmically acceptable amount of a composition which includes chlorine dioxide in an amount effective as an antiseptic in said eye, said amount of chlorine dioxide being less than about 50 ppm by weight of said composition.

5,736,166

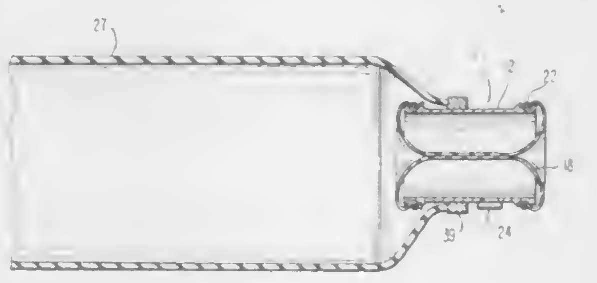
FLOW-THROUGH APPARATUS FOR LINING OF PIPELINES

Richard Carl Polivka, Lemont, Ill., assignor to Insituform (Netherlands) B.V., Netherlands

Filed Jun. 11, 1996, Ser. No. 661,832

Int. Cl.^{6} B29C *63/36*

U.S. Cl. 425—11 **8 Claims**



1. An apparatus for allowing flow through when lining a conduit or passageway with a curable resin impregnated flexible liner using a fluid medium under pressure to install the lining, comprising

(a) a substantially rigid hollow tubular body with an upstream side adjacent an inlet end, a downstream side adjacent an outlet end, and a passage therethrough,

(b) a flexible bladder sealably mounted to the interior of the tubular body for forming a pressure chamber between the tubular body and bladder, and

(c) fluid pressure inlet means for providing pressurized fluid to the chamber to inflate the bladder within the tubular body sufficient to close the passage through the tubular body and allowing effluent to flow through the passage defined by the flexible bladder when effluent pressure within the liner exceeds the pressure within the pressure chamber

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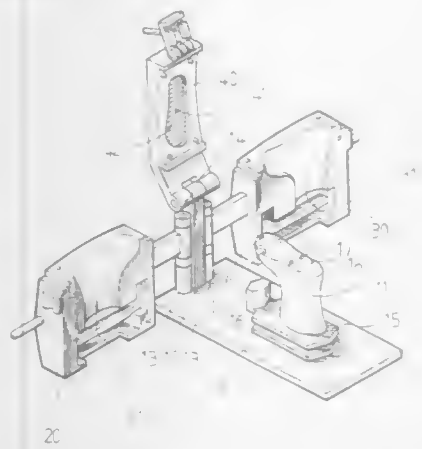
MOLD DEVICE FOR MAKING SAFETY SHOE
Hui Hwa Chang, No. 46, Yii Her Street, Taiping City, Taichung Hsien, Taiwan

Filed Feb. 27, 1997, Ser. No. 810,509

Int. Cl.^{6} B29C *45/14; 45/26*

U.S. Cl. 425—119 **1 Claim**



1. A mold device for making a safety shoe, said mold device comprising:

a board,

a last and a post secured on said board, said last including an upper portion having a plurality of spacers and a plurality of cone-shaped supports for engaging with a protector and for spacing the protector from said upper portion of said last, said post including two side pivot shafts and an upper lateral pivot axle,

a pair of mold pieces pivotally coupled to said post at said pivot shafts respectively, said mold pieces each including a mold cavity for engaging with said last, and

a cover pivotally coupled to said post at said pivot axle,

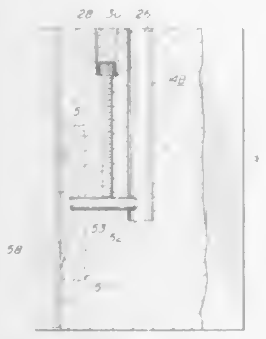
said spacers and said supports being adapted to support and to space the protector from said last and said mold pieces and said cover for allowing the protector to be engaged in the safety shoe.

5,736,168
BLOW MOLD WITH REPLACEABLE INSERTS
Shailesh Goyal, Tempe, and Thomas Kieran, Phoenix, both of Ariz., assignors to Star Container Co., Phoenix, Ariz.

Filed Sep. 17, 1996, Ser. No. 715,005

Int. Cl.^{6} B29C *49/52*

U.S. Cl. 425—183 **17 Claims**



1. A mold for use in producing blow molded thermoplastic containers including in combination

a multi-section mold body having a top, a bottom and inner side surfaces forming a cavity in the closed position thereof;

a recess formed in the inner side surface of at least one of said sections of said mold body;

a removable insert having a face surface and a rear surface with a pin extending perpendicularly from the rear surface thereof for placement in said recess and said mold body having a hole for receiving said pin extending into said one of said sections of said mold body; and

a device for releasably securing said insert in said one of said sections of said mold body engaging said pin in said hole without disassembling said mold.

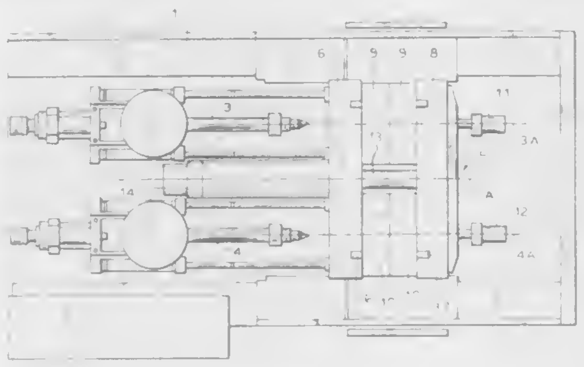
5,736,169
CLOSING APPARATUS FOR MULTIPLE-MOLD INJECTION-MOLDING SYSTEM
Peter Brams, Munich, and Werner Mandl, Unterzeitlbach, both of Germany, assignors to Krauss-Maffei AG, Munich, Germany

Filed Dec. 4, 1995, Ser. No. 566,784

Claims priority, application Germany, Dec. 8, 1994, 44 43 689.0

Int. Cl.^{6} B29C *45/66*

U.S. Cl. 425—450.1 **13 Claims**



1. An injection-molding apparatus comprising:

a housing;

a plate fixed on the housing;

a plurality of fixed mold halves on the fixed plate,

a plate movable along an axis inwardly toward and outwardly away from the fixed plate and supported on the housing without tie rods,

respective movable mold halves on the movable plate engageable on inward movement of the movable plate with the fixed mold halves, the fixed and movable mold halves symmetrically flanking the axis;

an actuator rod passing along the axis through the fixed plate between the fixed mold halves and having an outer end fixed at the axis to the movable plate and an opposite inner end, the fixed mold plate lying between the inner and outer rod ends, and

means including an actuator fixed to the housing at the axis and to the inner rod end and braced outwardly against the fixed mold plate for displacing the movable mold plate and the movable mold halves axially toward and away from the fixed mold plate and fixed mold halves, the fixed mold plate lying between the actuator and the fixed mold half

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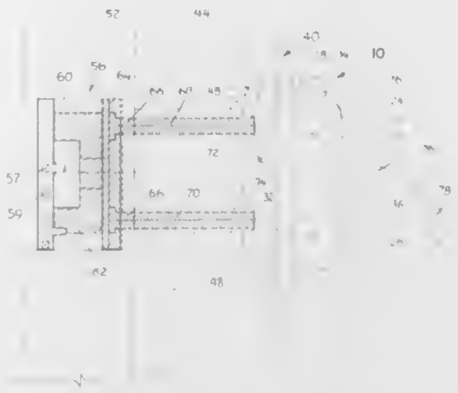
5,736,170
APPARATUS FOR BLOW MOLDING INTERLOCKING DRINK CONTAINERS
Theodore A. Stoner, 1660 S. Alibion St., Ste. 309, Denver, Colo. 80222

Continuation-in-part of Ser. No. 348,049, Dec. 1, 1994. This application Apr. 24, 1996, Ser. No. 638,955

Int. Cl.^{6} B29L *49/70*

U.S. Cl. 425—537 **14 Claims**

1. An apparatus for blow molding interlocking drink containers, each container having a hollow container body with a top including an upwardly tapered neck and an opening into the hollow body, a bottom, a first side with an upper and a lower male lug, a second side with an upper and a lower female cavity and a third and a fourth side, the apparatus comprising



a split mold having a male block and a female block, said female block when in a closed position with said male block used for forming the first side of the container with male lugs and a portion of the third and fourth sides and a portion of the top and bottom of the container;

said male block used for forming the second side of the container with female cavities and a portion of the third and fourth sides and a portion of the top and bottom of the container; and

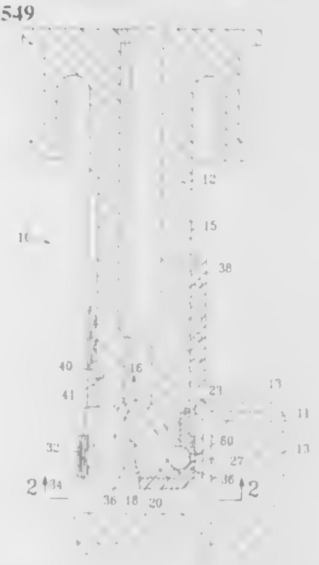
ejector means positioned in said male block, said ejector means when actuated for engaging the female cavities in the second side of the container and for ejecting the container in a controlled upright position after the container has been molded and said split mold opened for discharging the container therefrom.

5,736,171
FLUID INJECTING NOZZLE HAVING SPACED PROJECTIONS
Alan N. McGrevy, Chino, Calif., assignor to Caco Pacific Corporation, Covina, Calif.

Filed Jun. 4, 1996, Ser. No. 657,279

Int. Cl.^{6} B29C *45/20*

U.S. Cl. 425—549 **33 Claims**



1. A nozzle for transporting molten material to a cavity in a mold through an opening in the mold, including,

a nozzle body,

there being a runner in the nozzle body for the introduction of the molten material into the nozzle body,

there being an orifice in the nozzle body in communication with the runner in the nozzle body,

a heat insulating cap on the nozzle body, the heat insulating cap having a gate well communicating with the orifice in the nozzle body for the flow of the molten material through the orifice and the gate well,

the heat insulating cap being constructed to provide a shearing of the article from the mold with a smooth surface at the shearing position after the solidification of the article in the mold,

first means extending between the nozzle body and the cap for aligning the nozzle body and the cap to provide for the communication between the gate well in the cap and the orifice in the nozzle body,

the heat insulating cap has a side wall and a bottom wall,

second means extending from the cap to the mold at spaced positions around the periphery of the cap to position the cap relative to the mold and to provide for a maximal heat in the molten material flowing through the passage into the cavity in the mold, and

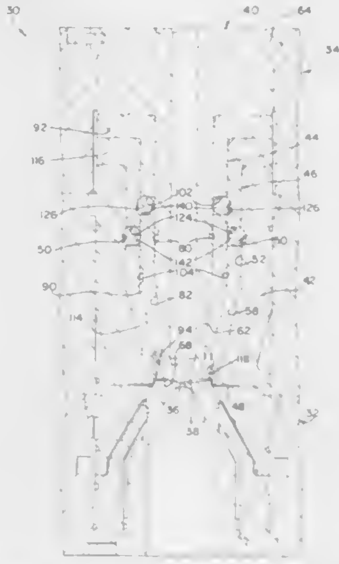
means for heating the molten material in the passage.

5,736,172
STAGED SEQUENTIALLY SEPARATED INJECTION MOLD APPARATUS FOR FORMING CONTAINER CLOSURES
Hugh Urmston, Carmel, Ind., assignor to Alcoa Closure Systems International, Inc., Crawfordsville, Ind.

Filed May 7, 1996, Ser. No. 643,929

Int. Cl.^{6} B29C *45/44*

U.S. Cl. 425—556 **8 Claims**



1. A staged, sequentially separated injection molding apparatus for forming a molded container closure, comprising:

a mold base portion and a plurality of concentric, telescopic mold elements;

said plurality of telescopic mold elements including an outer mold element engageable with said base portion, said outer element having a mold face partially defining a mold cavity with said base portion, and an inner wall having at least one recess therein,

at least one intermediate mold element having a mold face for further defining said mold cavity with said base portion, a hollow, elongated body portion receivable in said outer mold element adjacent to said inner wall, and a flange portion distal from said mold face, said elongated body portion having at least one opening therethrough adapted to coact with said recess in said outer mold element, said flange portion being adapted to receive a strip bolt therein for moving said intermediate mold element relative to said outer mold element,

an inner mold element having a mold face for further defining said mold cavity with said base portion, an elongated body portion receivable in said intermediate mold element, and a flange portion distal from said mold head, said body portion having an outer wall having at least one recess therein adapted to coact with said opening in said body portion of said intermediate mold element, said flange portion being adapted

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to receive said strip bolt therein for moving said intermediate mold element relative to said outer mold element;

means for injecting mold material into said mold cavity; and

at least one movable, locking cam member positioned in said opening in said intermediate mold element and adapted to move between one of a first position wherein said cam member holds said intermediate mold element against movement relative to said outer mold element as said inner mold element is moved away from said base portion, and a second position wherein said intermediate element is movable with said strip bolt and said inner element relative to said base portion, to facilitate opening of said mold cavity for removal of the molded container closure therefrom.

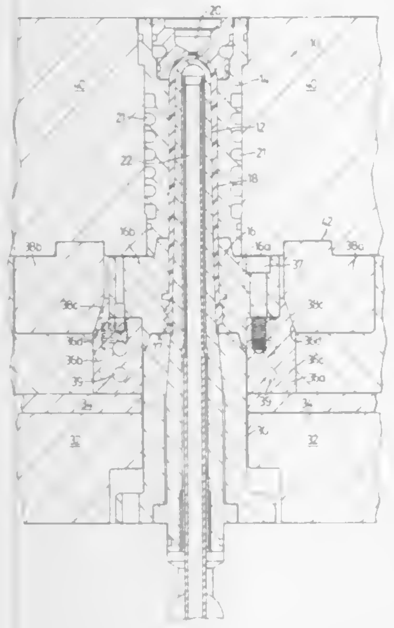
5,736,173
PREFORM INJECTION MOULD WITH SLIDE TAPER LOCKS

John B. Wright, Alliston; Mark W. Burrows, Georgetown, and Walter Kovac, Bolton, all of Canada, assignors to Zygo Mold Limited, Etobicoke, Canada

Filed Apr. 24, 1996, Ser. No. 641,985

Int. Cl.^{6} B29C *45/44*

U.S. Cl. 425—577 13 Claims



1. A preform injection mould for forming a preform moulded article comprising:

a mould core assembly;

a female mould moveable axially relative to said mould core assembly;

a neck ring constituted by separable neck ring parts moveable radially relative to said mould core assembly and positioned between said female mould and said mould core assembly, said female mould and neck ring surrounding a portion of said mould core assembly when said injection mould is in a mould closed condition in a manner to define a mould cavity therebetween into which molten plastic is injected to form said preform moulded article, said female mould being axially spaced from both said mould core assembly and said neck ring and said neck ring parts being separated and radially spaced from said mould core assembly when said injection mould is in a mould open condition;

a first taper lock constituted by mating portions of said neck ring and said female mould when said injection mould is in said mould closed condition;

a second taper lock constituted by said mating portions of said neck ring and said mould core assembly when said injection mould is in said mould closed condition, said second taper lock including a female taper defined by a portion of said neck ring and a complimentary male taper defined by said mould core assembly;

slides secured to said neck ring parts and being moveable to move said neck ring parts radially;

slide locks to abut said slides when said injection mould is in said mould closed condition to inhibit radial movement of said slides and to back up said second taper lock; and

a drive to move said female mould axially relative to said mould core assembly and to move said slides to move radially said neck ring parts to actuate said injection mould between said mould closed and mould open conditions.

5,736,174
ALKOXYLATED ALCOHOL FAT SUBSTITUTES

Charles F. Cooper, and Stephen D. Harper, both of Paoli, Pa., assignors to Arco Chemical Technology, L.P., Greenville, Del., and CPC International, Inc., Englewood Cliffs, N.J.

Continuation of Ser. No. 213,305, Mar. 14, 1994, abandoned. This application Feb. 9, 1996, Ser. No. 599,655

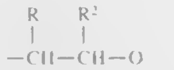
Int. Cl.^{6} A23L *1/00*; A23D *7/00*

U.S. Cl. 426—531 14 Claims

1. A fat component useful for preparing a reduced calorie food product, said fat component comprising (i) an edible triglyceride and (ii) an alkoxylated alcohol comprised of:

(a) an aliphatic hydrocarbyl group bearing n pendant ether oxygen atoms wherein said aliphatic hydrocarbyl group is derived from an alcohol having n hydroxy groups;

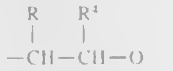
(b) from n to 10 times n short chain oxyalkylene units having a structure



$$\begin{matrix} R^1 & & R^2 \\ | & & | \\ -CH & - & CH-O \end{matrix}$$

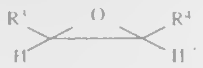
wherein R^1 and R^2 are the same or different and are selected from hydrogen, and C_1-C_4 alkyl, subject to the provision that each short chain oxyalkylene unit has a total of no more than 6 carbon atoms;

(c) from n-1 to 5 times n long chain oxyalkylene units having a structure



$$\begin{matrix} R^3 & & R^4 \\ | & & | \\ -CH & - & CH-O \end{matrix}$$

wherein one of R^3 or R^4 is hydrogen or C_1–C_4 alkyl and the remaining R^3 and R^4 is selected from C_{10}-C_{22} alkyl and said long chain oxyalkylene units are derived from one or more long chain expoxides of structure



(d) x terminal fatty acid acyl groups, wherein x is zero or an integer of up to

$$\frac{n}{2},$$

and

(e) n-x terminal hydrogen atoms;

wherein n is an integer of from 2 to 8 and the aliphatic hydrocarbyl groups, short chain oxyalkylene units, and long chain oxyalkylene units are interconnected through ether linkages.

5,736,175
CHEWING GUMS CONTAINING PLAQUE DISRUPTING INGREDIENTS AND METHOD FOR PREPARING IT

Theresa Cea, Brooklyn, and Anne Manz, City Island, both of N.Y., assignors to Nabisco Technology Co., Chicago, Ill.

Filed Feb. 28, 1996, Ser. No. 608,449

Int. Cl.^{6} A23G *3/30*

U.S. Cl. 426—6 29 Claims

1. A method of preparing chewing gum containing a plaque disrupting active ingredient comprising:

a. admixing a plaque disrupting active ingredient and a molten edible polyol,

b. cooling the molten polyol containing the plaque disrupting active ingredient; and

c. combining the cooled material with a gum base and optional flavoring and sweetening ingredients,

wherein said polyol is selected from the group consisting of polyols containing 5-12 carbon atoms substituted with 5-9 hydroxyl groups.

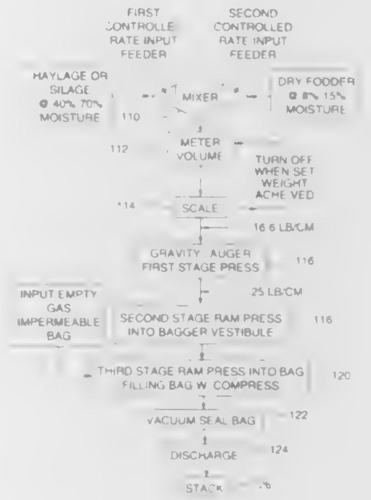
5,736,176
HIGH DENSITY COMBINATION DRY HAY AND HAYLAGE/SILAGE LIVESTOCK FEED-MAKING METHOD

John M. Gombos, Ellensburg, Wash., and Moshe Leashno, Long Beach, Calif., assignors to A.C.X. Trading, Inc., Ellensburg, Wash.

Division of Ser. No. 250,796, May 27, 1994, abandoned. This application Dec. 26, 1995, Ser. No. 579,306

Int. Cl.^{6} A23K *1/00*

U.S. Cl. 426—54 31 Claims


FIRST CONTROLLE RATE INPUT FEEDER
SECOND CONTROLLED RATE INPUT FEEDER
HAYLAGE OR SILAGE @ 40% 70% MOISTURE
MIXER
DRY FODDER @ 8% 15% MOISTURE
110
112
METER VOLUME
TURN OFF WHEN SET WEIGHT ACHIEVED
114
SCALE
16 6 LB/CM
GRAVITY AUGER FIRST STAGE PRESS
116
25 LB/CM
INPUT EMPTY GAS IMPERMEABLE BAG
SECOND STAGE RAM PRESS INTO BAGGER VESTIBULE
116
THIRD STAGE RAM PRESS INTO BAG FILLING BAG W COMPRESS
120
VACUUM SEAL BAG
122
DISCHARGE
124
STACK

1. A method of making a mixed feed livestock cargo unit suitable for long distance shipping, the method comprising

fermenting fresh hay to form fermented haylage;

mixing dry hay with said fermented haylage in a ratio proportioned to produce a mixed feed product having a net moisture content in the range of 20% up to about 35%,

providing the mixed feed product to a compression apparatus,

compressing the mixed feed product in the compression apparatus; and

sealing the compressed mixed feed product in a container for shipment.

5,736,177
CELLULOSE COMPOSITION, ITS PREPARATION, AND ITS USE IN A LIPID

Emanuel J. McGinley, Morrisville, and Aaron C. Venables, Yardley, both of Pa., assignors to FMC Corporation, Philadelphia, Pa.

Filed Mar. 8, 1994, Ser. No. 208,153

Int. Cl.^{6} A23L *1/0534*

U.S. Cl. 426—96 17 Claims

1. A composition comprising a co processed powered comprising aggregate (1) from about 90 to 50% by weight of a finely divided substantially colloidal cellulose component having a mean particle size of from about 0.1 to 1 micron and (2) from about 10 to 50% by weight of a surfactant component comprising one or more surfactants.

5,736,178
COLLOIDAL DISPERSIONS OF GLUTEN, METHOD OF MAKING AND USE THEREFOR

Richard B. Cook, Revere, and Mark L. Shulman, Waltham, both of Mass., assignors to Opta Food Ingredients, Inc., Bedford, Mass.

Filed May 2, 1995, Ser. No. 432,988

Int. Cl.^{6} A23J *3/18*

U.S. Cl. 426—93 13 Claims

1. A method for making an aqueous, colloidal dispersion of gluten microparticles, comprising the steps of

a. preparing a dilute aqueous acid dispersion of gluten under agitating conditions to yield a stable colloidal dispersion of gluten microparticles, wherein the dispersion is stable and homogeneous under storage conditions; and

b. removing insoluble starch present in the gluten from the aqueous acid dispersion.

5,736,179
TUBULAR FOODSTUFF CASING HAVING A CHITOSAN COATING

Klaus-Dieter Hammer, Mainz, and Hermann Winter, Wiesbaden, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed Aug. 11, 1992, Ser. No. 928,027

Claims priority, application Germany, Aug. 21, 1991, 41 27 604.3

Int. Cl.^{6} A22C *13/00*

U.S. Cl. 426—105 18 Claims

1. A cellulose-based tubular foodstuffs casing having inner and outer surfaces, said casing comprising a coating on said inner surface, on said outer surface, or on said inner and said outer surfaces, wherein

said coating comprises chitosan chemically linked to cellulose present in said casing, and

wherein said cellulose has been prepared from a viscose solution by coagulation and regeneration.

5,736,180

SPICE IMPREGNATED EDIBLE WRAPPING FOIL

Bernd Peiffer, Theodor House Strasse 13, D-69234 Dielheim; Joachim Keil, Alte Landstrasse 36, D-69469 Weinheim, and Franz Maser, G7 35, D-68159, Mannheim, all of Germany

PCT No. PCT/EP94/03395, § 371 Date Nov. 13, 1995, § 102(e) Date Nov. 13, 1995, PCT Pub. No. WO95/17100, PCT Pub. Date Jun. 29, 1995

PCT Filed Oct. 14, 1994, Ser. No. 507,242

Claims priority, application Germany, Dec. 21, 1993, 43 43 670.6

Int. Cl.^{6} A23L *1/221;1/48*

U.S. Cl. 426—138 8 Claims

1. An edible collagen wrapping foil for wrapping foodstuffs, said wrapping foil having an inwardly oriented foodstuff contacting surface and an opposing outwardly oriented surface, said foil comprising collagen gel and finely divided spices in particle form, the finely divided spice particles being embedded in the collagen gel and at least partially enclosed in it, such that the flavor of said spice particles are transferable to a food to be wrapped in said foil through said inwardly oriented surface and wherein the outwardly oriented surface of the collagen foil has an essentially closed collagen skin sufficient to prevent both the exit of flavor of said spices through the outwardly oriented surface to the exterior and high moisture loss.

5,736,181

PROCESS FOR THE PRODUCTION OF EGG ROYALE

Klaus Bezner, Untergruppenbach-Unterheinriet; Florian Biller, Untergruppenback-Unterheinriet, and Horst Klukowski, Neuenstadt-Kochertuern, all of Germany, assignors to CPC International Inc., Englewood Cliffs, N.J.

Filed Jul. 26, 1996, Ser. No. 686,884

Int. Cl.^{6} A23C *9/00;19/00,* **A21D** *13/00;* **A23B** *4/03*

U.S. Cl. 426—285 11 Claims

1. A process for the production of egg royale by coagulation of a mass containing whole egg, said process comprising (1) producing a premix containing more than 10% by weight of moisture, said premix comprising milk powder, whole egg, raising agent and seasonings, (2) agglomerating and applying said premix in thin sheeting compressed by a roller to a steam belt on which the mass layer is treated with superheated steam for a time sufficient for coagulation of the egg white to take place, (3) dicing the resulting egg royale mass to form dice, and (4) drying said dice.

5,736,182

AROMA CONCENTRATION PROCESS

Joseph Victor Jimenez, Dublin, and Richard Tien-Szu Liu, Worthington, both of Ohio, assignors to Nestec S.A., Vevey, Switzerland

Filed Dec. 12, 1996, Ser. No. 766,200

Int. Cl.^{6} A23C *1/06;* **A23F** *5/00;* **A23L** *2/00;* **B01D** *9/04*

U.S. Cl. 426—384 21 Claims

1. A process for the production of a concentrated aroma solution from an aqueous solution containing water-soluble aroma components, the process comprising:

adding soluble solids to the aqueous solution containing the water-soluble aroma components to provide a fortified solution;

chilling the fortified solution to provide ice and a concentrated aqueous liquid having a concentration of soluble solids above 9% by weight and containing water-soluble aroma components; and

collecting a portion of the concentrated aqueous liquid as the concentrated aroma solution by separation of the ice from the liquid.

5,736,183

Patent Not Issued For This Number

5,736,184

PROCESS AND MACHINE FOR PRODUCING FOODSTUFF PARTICLES

John Arthur Wrigglesworth, Cleveland, and John William Balaan Reed, Easton, Norwich, both of England, assignors to Zeneca Limited, London, England

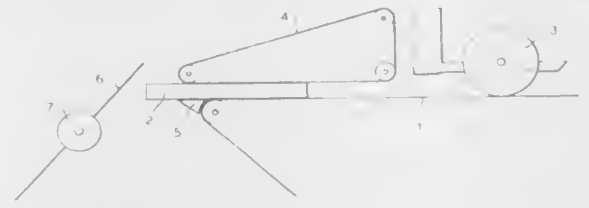
PCT No. PCT/GB94/02448, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO95/13170, PCT Pub. Date May 18, 1995

PCT Filed Nov. 8, 1994, Ser. No. 637,785

Claims priority, application United Kingdom, Nov. 9, 1993, 9323032

Int. Cl.^{6} A23P *1/00*

U.S. Cl. 426—518 18 Claims



1. A process of producing foodstuff particles with ragged edges which comprises tearing an edge from a layer of a fibrous foodstuff in stiff condition by bending the edge thereby deforming and fracturing it and pulling-out fibre particles thus imparting a ragged edge to the layer and the torn edge.

5,736,185

METHOD FOR SUPPRESSING GRASSY SMELL AND ACID TASTE OF VEGETABLES AND FRUIT

Hiroyuki Kohno, Nagoya; Hitomi Yoshimura, Chita, and Tatsuya Uraji, Nagoya, all of Japan, assignors to Nikken Chemicals Co., Ltd., Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 687,058

Claims priority, application Japan, Aug. 21, 1995, 7-233182; Jul. 9, 1996, 8-196968

Int. Cl.^{6} A23L *2/06*

U.S. Cl. 426—589 12 Claims

1. A method of suppressing the grassy smell and acid taste characteristic of vegetables and fruits in the production of a food or drink product from vegetables and fruits having a strong grassy smell and acid taste, said method comprising adding to the product erythritol in an amount of 0.2 to 3.0 wt % of the weight of the product.

5,736,186

PROCESS FOR PRODUCING DRY AND SEMI-DRY SAUSAGE PRODUCTS

William C. Holdren, and Don E. Alden, both of Hutchinson, Kans., assignors to Doskocil Food Service Company, L.L.C., South Hutchinson, Kans.

Filed Jan. 3, 1996, Ser. No. 582,751

Int. Cl.^{6} A23L *1/314;1/317*

U.S. Cl. 426—646 62 Claims

1. A process for rapidly producing dry and semi-dry sausage products without extended fermenting and drying steps comprising:

admixing meat with an acidulant to form a sausage admixture, said acidulant being encapsulated by an encapsulating material having a melting temperature of at least about 90° F. such that said acidulant is prevented from substantially contacting said meat until said encapsulating material is heated to at least about 90° F. and melts, said acidulant further being employed in an amount and having a strength sufficient to lower the pH of said sausage admixture to a value no greater than 5.3 when said encapsulating material melts;

forming said sausage admixture into at least one shaped sausage product having at least one cross-sectional dimension no greater than 1.0 inch; and

after forming said sausage admixture into at least one shaped sausage product having at least one cross-sectional dimension no greater than 1.0 inch, heating said shaped sausage product at a temperature and for a period of time sufficient to (a) melt said encapsulating material and allow said acidulant to contact said meat and lower the pH of said product to a value no greater than 5.3 and (b) dehydrate said product such that the moisture to protein ratio in said product is no greater than 3.7 to 1, said heating step being carried out for a period of time no greater than about 1 hour and in a heating apparatus operating at a dry bulb temperature in the range of from about 90° F. to about 500° F. for at least about 70% of the period of time that said heating step is carried out.

5,736,187

PROCESS OF MAKING PHENYLALANINE-FREE FOOD FOR INFANTS AND SMALL CHILDREN

Erhard Tesmer, Offenburg; Marianne Vetter, Neu-Isenburg; Günther Raffler, Karlstein-Dettingen, and Friedrich Schweikhardt, Friedrichsdorf, all of Germany, assignors to Milupa GmbH & Co. KG, Friedrichsdorf, Germany

PCT No. PCT/EP95/04671, § 371 Date Oct. 9, 1996, § 102(e) Date Oct. 9, 1996, PCT Pub. No. WO96/16559, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 27, 1995, Ser. No. 682,627

Claims priority, application Germany, Nov. 30, 1994, 44 42 668.2

Int. Cl.^{6} A23L *1/305;1/304*

U.S. Cl. 426—656 11 Claims

1. Process for the production of a phenylalanine-free nutrient base for infants and small children, which in addition to an amino acid mixture which has all L-amino acids necessary for the nutrition of the child except for phenylalanine, also contains fat(s) and/or carbohydrates and also optionally minerals and/or trace elements, wherein an aqueous formulation containing these components is spray-dried, characterised in that:

at least the amino acids lysine and cystine are at least in part mixed dry into the product obtained after the spray-drying.

5,736,188

PRINTED FLUID TRANSPORT DEVICES

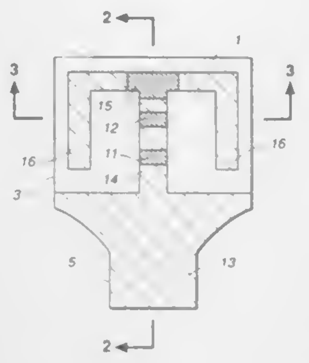
Susan Alcock, The Granary, Uphoe Manor Farm, Harrold Road, Lavendon, Olney, Bucks MK46 4HX; Stephen White, 23 Normandy Close, Kempston, Bedford MK42 8TR; Anthony Turner, 8 Brook End, North Crawley, Bedfordshire; Steven Setford, 50 Barnards Hill, Marlow, Bucks SL7 2NZ; Ibtisam Tothill, 4 Thrift View, Bedford Road, Cranfield, Beds MK43 OHA; Jon Dicks, 8 Mountfield Close, Newport Pagnell, Bucks MK16 OJE; Sarah Stephens, 67 Bolingbroke Road, Stoke, Coventry CV3 1AP; Jennifer Hall, 4 Partridge Piece, Cranfield, Beds MK43 OBP, and Phillip Warner, 15 Victoria Street, Wolverton, Milton Keynes MK12 5HG, all of United Kingdom

Filed Aug. 8, 1995, Ser. No. 512,358

Int. Cl.^{6} A01N *1/02;* **B05D** *1/32;5/00*

U.S. Cl. 427—2.11 8 Claims

1. A method of manufacturing a fluid transport device, which method comprises providing a backing sheet and printing onto said backing sheet a material comprising silica, cellulose, a silica derivative or a cellulose derivative to provide a pattern having a liquid application zone with at least two fluid guiding pathways extending from the liquid application zone and leading to a merged zone, said material being printed in a manner that provides for liquids or solutes to flow from said liquid application zone to said merged zone at different transit times.



5,736,189

METHOD AND AN APPARATUS FOR FORMING A PHOSPHOR LAYER WITHIN A PROJECTION CCRT

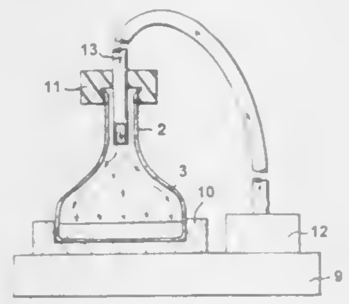
Hyn Dae Bae, Daeku-si, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Sep. 18, 1995, Ser. No. 529,737

Claims priority, application Rep. of Korea, Sep. 16, 1994, 23675/1994

Int. Cl.^{6} B65D *5/06,* **B65C** *3/00*

U.S. Cl. 427—64 4 Claims



1. A method for forming a phosphor layer of a projection cathode ray tube, the method comprising the steps of

supporting an integrally formed panel and funnel of the cathode ray tube;

injecting a phosphor suspension into an inside of the integrally formed panel and funnel of the cathode ray tube.

hermetically closing the inside of the integrally formed panel and funnel of the cathode ray tube from outside the cathode ray tube; and

heating the integrally-formed and hermetically-closed panel and funnel of the cathode ray tube, and, at the same time, supplying heated air into the inside of the panel and funnel.

2. An apparatus for forming a phosphor layer of a projection cathode ray tube having an integrally formed panel and funnel with a neck, the apparatus comprising

a supporter for supporting the cathode ray tube;

a heating plate installed on said supporter for heating the integrally formed panel and funnel of the cathode ray tube;

a closing cap configured to be fitted into an end of the neck of the funnel for hermetically closing an inside of the cathode ray tube from outside the cathode ray tube;

an air generator installed on said supporter for generating heated air under a predetermined pressure, and

an air guidance hose having an end configured to be inserted into the neck via a center of said closing cap for leading said

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air generated from said air generator into the inside of the cathode ray tube.

5,736,190

EXTERIOR PROTECTIVE LAYER FOR AN ELECTRICAL COMPONENT

Douglas A. Usifer, Belle Mead; Melvin Brauer, East Brunswick, both of N.J.; James C. Chang, Crystal Lake, Ill., and Yuan Chieh Chu, East Windsor, N.Y., assignors to Cashem, Inc., Bayonne, N.J.

Division of Ser. No. 218,010, Mar. 25, 1994. This application Feb. 23, 1996, Ser. No. 606,374

Int. Cl.^{6} B05D *1/36.5/12*

U.S. Cl. 427—96 **42 Claims**

1. A method for providing an exterior moisture barrier layer of a cured copolymer on the outer surface of an electrical component, which comprises:

contacting at least a portion of the outer surface of the electrical component with a composition comprising at least one oligomer having a terminal ethylenic group, at least one polymerizable monomer having a terminal ethylenic group, a free radical initiator curing agent, and a transition metal salt; and

copolymerizing the at least one oligomer and the at least one monomer upon the outer surface portion of the electrical component to form an exterior moisture barrier layer thereon.

5,736,191

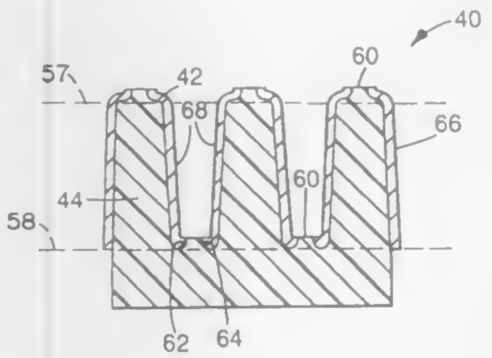
MICRORIDGE ABRASION FOR SELECTIVE METALIZATION

Rolf W. Biernath, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 599,643, Feb. 9, 1996, abandoned, which is a continuation of Ser. No. 516,519, Aug. 17, 1995, abandoned, which is a continuation of Ser. No. 279,442, Jul. 25, 1994, abandoned. This application May 20, 1997, Ser. No. 859,666

Int. Cl.^{6} B05D *5/12*

U.S. Cl. 427—96 **6 Claims**



1. A method for electrically isolating areas of a substrate comprising:

a) providing an electrically insulating substrate with a major surface comprising a plurality of ridges and grooves, said substrate further comprising at least one sacrificial microridge extending above the surface of the substrate, wherein the at least one microridge is located in a position selected from the group consisting of an a ridge and in a groove;

b) applying a conductive coating to overlie at least a portion of the surface of the substrate and said at least one microridge; and

c) removing at least a portion of the at least one microridge sufficient to provide electrically isolated areas on the surface of the substrate.

5,736,192

EMBEDDED ELECTROCONDUCTIVE LAYER AND METHOD FOR FORMATION THEREOF

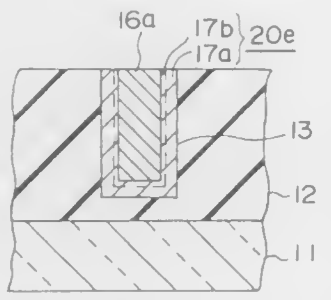
Shigeru Okamoto, Kanagawa, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 7, 1996, Ser. No. 660,524

Claims priority, application Japan, Jul. 5, 1995, 7-169537; Feb. 27, 1996, 8-039495

Int. Cl.^{6} B05D *5/12*

U.S. Cl. 427—99 **9 Claims**



1. A method for the formation of an embedded electroconductive layer, comprising steps of

forming an opening part or a depressed part in an insulating layer;

forming a ground layer for covering said opening part or said depressed part;

reducing the surface of said ground layer by exposing said ground layer to a reducing gas; and

growing an electroconductive layer by a vapor phase chemical growth method using a metallic precursor thereby embedding said electroconductive layer in said opening part or said depressed part via said ground layer.

5,736,193

SOLDERABLE WIRE-COATING COMPOSITIONS AND PROCESS FOR THE CONTINUOUS COATING OF WIRES

Michael Schink, Neu Wulmstorf; Klaus Wilhelm Lienert, Hamburg; Joachim Runge, Reinbek, and Silvia Hentschel, Hamburg, all of Germany, assignors to BASF Lacke +Farben, AG, Muenster-Hiltrup, Germany

PCT No. PCT/EP94/00583, § 371 Date Sep. 5, 1995, § 102(e) Date Sep. 5, 1995, PCT Pub. No. WO94/20966, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 1, 1994, Ser. No. 492,105

Claims priority, application Germany, Mar. 12, 1993, 43 07 848.6

Int. Cl.^{6} B05D *5/12;* **C08F** *8/30;* **C08G** *18/10*

U.S. Cl. 427—117 **9 Claims**

1. Solderable hot melt wire-coating compositions based on hydroxyl group-containing polyesters, blocked polyisocyanates, organic solvents and catalysts, wherein the wire-coating compositions consist essentially of

A) from 7 to 25% by weight of hydroxyl group-containing polyesters,

B) from 55 to 70% by weight of a fully blocked aromatic diisocyanate adduct or of a plurality of fully blocked aromatic diisocyanate adducts,

C) from 0.1 to 3% by weight of catalysts,

D) from 1 to 8% by weight of a polyol or of a plurality of polyols, and

E) from 1 to 36.9% by weight of an alkylene carbonate or of a plurality of alkylene carbonates

the total weight of the wire-coating compositions in each case being 100% by weight wherein the coating composition has a solids content of at least 62%, a viscosity of at least 400 mPas at 120° C. and a flux time of less than 2 seconds at a temperature of 375° C.

5,736,194

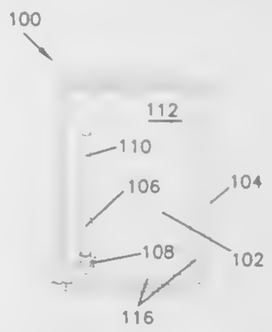
METHOD AND APPARATUS FOR MASKING

Charles LeRoy Bedbury, Dayton, and James Harold Anderson, Andover, both of Minn., assignors to Federal-Hoffman, Inc., Anoka, Minn.

Filed Nov. 5, 1996, Ser. No. 744,104

Int. Cl.^{6} B05D *1/32;3/00;* **B05C** *11/11*

U.S. Cl. 427—282 **23 Claims**



1. An apparatus for coveting selected portions of a structure, comprising:

a support member having a rectangular planar section with four sides extending from a first face of the planar section forming a rectangular mask;

an expandable element mounted to the sides of the support member, configured for engaging the structure proximate at a border between the selected covered portion and uncovered portion of the structure, and,

a valve in fluid communication with the expandable element, wherein the valve is mounted to the support member interiorly of the sides and the planar section.

5,736,195

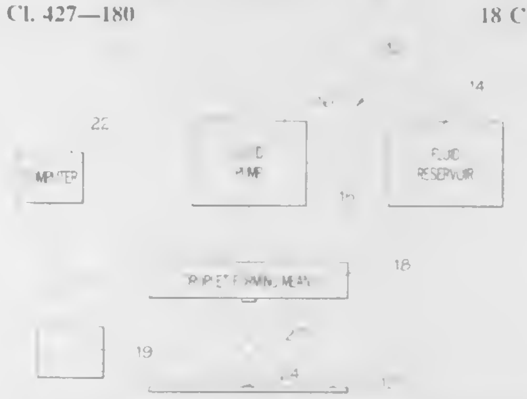
METHOD OF COATING A THIN FILM ON A SUBSTRATE

Peter D. Haaland, Centerville, Ohio, assignor to Mobium Enterprises Corporation, Louisville, Colo.

Continuation-in-part of Ser. No. 121,726, Sep. 15, 1993, Pat. No. 5,403,647. This application Apr. 3, 1995, Ser. No. 415,637

Int. Cl.^{6} B05D *1/12;1/08*

U.S. Cl. 427—180 **18 Claims**



1. A method of coating a thin film on a substrate comprising the steps of:

generating a volume of a fluid having a preset surface area;

accelerating said volume of fluid by impacting said volume with a pressurized stream of a second fluid to a velocity, whereby said volume of fluid is accelerated in the direction of said substrate; and

controlling a ratio of said volume to said surface area of said fluid such that said velocity of said volume of fluid at impact with said substrate results in wetting of said substrate with a film of said fluid but does not cause rippling, splashing or inhomogeneities in said film on said substrate wherein said velocity v, volume V and surface area A of said accelerated fluid are such that the ratio

$$\frac{\rho v^2 V}{2\sigma A}$$

is greater than or equal to 1, wherein ρ is the density of the fluid and σ is the surface tension of the fluid.

5,736,196

FLUID CURE OF EPOXY-BASED COATING POWDER

Owen H. Decker, Wyomissing; Dieter W. Jungelaus, Lancaster; Karl R. Wursthorn, Mohnton; Glenn D. Correll, Birdsboro, all of Pa., and David A. Mountz, Hattiesburg, Miss., assignors to Morton International, Inc., Chicago, Ill.

Filed Oct. 2, 1996, Ser. No. 720,826

Int. Cl.^{6} B05D *3/04*

U.S. Cl. 427—341 **23 Claims**

1. In a method of forming a coating on a substrate comprising providing a coating powder formed of a composition comprising an epoxy resin, applying the coating powder to said substrate, and fusing and curing said coating powder on said substrate, the improvement wherein curing is effected by exposing the coating powder composition to a separate fluid curative or fluid cure catalyst selected from the group consisting of ammonia, multifunctional mercaptans, aliphatic amines, HCl and Lewis acids contemporaneously with application of said coating powder to said substrate or subsequent to application of said coating powder to said substrate.

5,736,197

METHOD OF WATERPROOFING RIGID STRUCTURAL MATERIALS

John H. Gaveske, Shakopee, Minn., assignor to Poly-Wall International, Inc., White Bear Lake, Minn.

Continuation of Ser. No. 434,780, May 4, 1995, which is a continuation-in-part of Ser. No. 258,558, Jun. 10, 1994, which is a division of Ser. No. 982,851, Nov. 30, 1992, abandoned. This application Oct. 1, 1996, Ser. No. 723,576

Int. Cl.^{6} B05D *3/02*

U.S. Cl. 427—393 **8 Claims**

1. A method of waterproofing a wooden structural unit comprising the steps of:

(a) applying to at least one surface of the unit a liquid composition in an organic solvent vehicle comprising

  (i) about 100 parts by weight of a binder resin comprising about 65-95 wt-% polystyrene and about 5-35 wt-% of a polymer selected from the group consisting of an unvulcanized natural rubber, styrene-butadiene rubber, polyisoprene, a butadiene polymer, polybutene, isobutylene-isoprene copolymer, an ethylene propylene copolymer and terpolymer and a mixture thereof,

  (ii) about 0 to 50 parts by weight of a plasticizer,

  (iii) about 0 to 200 parts by weight of a filler, and

  (iv) about 0 to 100 parts by weight of a particulate solid selected from the group consisting of an opacifying agent and a pigment, and

(b) solidifying the liquid composition to form a continuous film which binds to wood and has an average water vapor permeability of less than about $1*10^{-2}$ perms-inch.

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5,736,198

SELF-RECOVERABLE COVERING MATERIAL AND METHOD FOR FABRICATING THE SAME

Yoshiyuki Yasutomi, Mito; Shigeru Kikuchi, Tokai-mura; Yukio Saito, Hitachi; Mitsuo Nakagawa, Mito, and Motoyuki Miyata, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 309,149, Sep. 20, 1994, abandoned. This application Nov. 13, 1995, Ser. No. 557,960

Claims priority, application Japan, Sep. 20, 1993, 5-255197

Int. Cl.^{6} B05D *1/36*

U.S. Cl. 427—419.7 20 Claims

1 A process for making a self-recovering product for use in a reactive environment, said process comprising:

forming a base member comprising at least one kind of ceramics, metals and C/C composites; and

forming a self-recovering protective layer substantially isolating said base member and exposed to a reactive environment,

wherein said self-recovering protective layer comprises:

an outer layer of protective material comprising an oxide compound resistive to the reactive environment; and

an inner layer of protective material, located between the base member and the outer layer of protective material, said inner layer comprising a reactive material including a boride selected from the group consisting of Aluminum, Hafnium, Tantalum, Yttrium and Zirconium,

wherein said reactive material is present in quantities sufficient to substantially reisolate the base member, by means of reaction between the reactive material and the reactive environment, when the reactive material is exposed to the reactive environment through an opening in the outer layer of protective material.

5,736,199

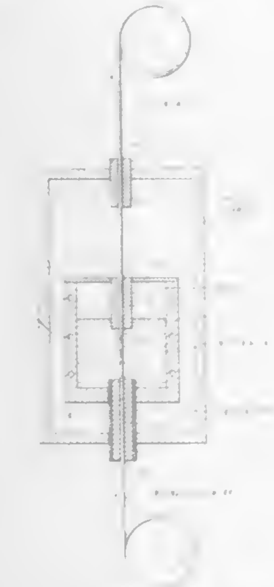
GATING SYSTEM FOR CONTINUOUS PRESSURE INFILTRATION PROCESSES

Joseph T. Blucher, Waltham, Mass., assignor to Northeastern University, Boston, Mass.

Filed Dec. 5, 1996, Ser. No. 760,974

Int. Cl.^{7} B05D *1/18;1/00;* B22D *11/00*

U.S. Cl. 427—430.1 8 Claims



1 A method for pressure infiltration of a fiber preform with a matrix material comprising:

providing a pressurized chamber.

heating a bath of the matrix material within the pressurized chamber to a temperature above the melting temperature of the matrix material;

providing a temperature gradient along an elongated entering orifice to the bath of molten matrix material, the temperatare gradient selected to maintain matrix material in the entering orifice in an entirely solid state at a location farthest from the bath, in an entirely liquid state closest to the bath, and in both the liquid and solid states therebetween.

moving a fiber preform through the entering orifice into the bath of molten matrix material and out of the bath, the fiber preform becoming infiltrated with molten matrix material in the bath;

allowing the matrix material to solidify within the fiber preform in in a gas environment in the pressurized chamber outside of the bath; and

directing the fiber preform through an exiting orifice in the pressurized chamber, the exiting orifice sealing the pressurized chamber from gas losses.

5,736,200

PROCESS FOR REDUCING OXYGEN CONTENT IN THERMALLY SPRAYED METAL COATINGS

M. Brad Beardsley, Laura, and Gary L. Biltgen, Peoria, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed May 31, 1996, Ser. No. 657,927

Int. Cl.^{6} C23C *4/06*

U.S. Cl. 427—450 13 Claims

1 A process for reducing oxygen content in thermally sprayed metal coatings obtained from metal powders containing oxygen, comprising the steps of:

providing an oxygen containing metal powder, said metal powder having a particle size in the range of from about 10 μm to about 500 μm;

bonding carbon powder to said metal powder by mixing said metal powder with said carbon powder and polyvinyl alcohol, forming a paste of said metal powder-polyvinyl alcohol mixture, drying said paste, particulating said dry paste and forming a flowable carbon coated metal powder having a particle size in the range of from about 50 μm to about 300 μm, said metal powder being adherently encapsulated by said carbon powder,

said carbon powder being present in the range of from about 0.1% to about 2.0% by weight of said carbon coated metal powder; and

thermally spraying said carbon coated metal powder onto a substrate and depositing a metal coating on said substrate

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5,736,201

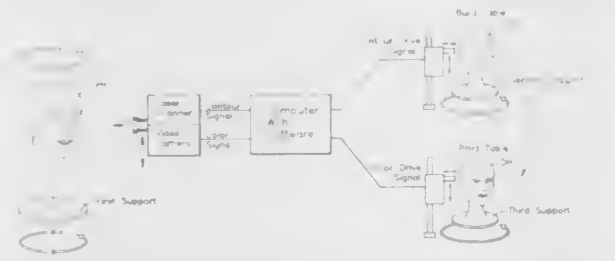
PROCESS FOR MAKING A DOLL'S HEAD LOOKING LIKE THE HEAD OF A LIVING PERSON

Mary Linda Flint, 217 Artillery Rd., Middlebury, Conn. 06762

Division of Ser. No. 439,881, May 12, 1995, Pat. No. 5,596,503. This application Jun. 17, 1996, Ser. No. 665,304

Int. Cl.^{6} B05D *1/04;5/06;* G06F *17/50*

U.S. Cl. 427—466 2 Claims



1 A process for coloring a doll's head to look like a living person comprising the steps of rotating the living person a full 360° and scanning the head of the living person with a color video camera successively for each of the primary colors in successive adjacent vertical lines to produce a color signal, rotating the doll's head and applying successively different primary color inks to successive adjacent vertical lines on the head corresponding to the color signal.

5,736,202

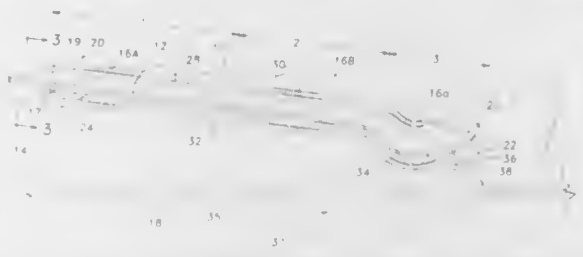
METHOD FOR PROVIDING MOLTEN BRONZE ON A SUBSTRATE

Nigel J. Chivers, Marietta, Ohio, assignor to Glacier Vandervell, Inc., Troy, Mich.

Filed Dec. 30, 1996, Ser. No. 777,533

Int. Cl.^{6} H05B *6/02*

U.S. Cl. 427—591 5 Claims



1. The method of providing molten bronze for cladding onto steel strip, said method comprising the steps off

a) providing a melting furnace consisting of a cylindrical retractory tube having an axis inclined relative to the horizontal so that it extends downwardly; creating electromagnetic forces in said tube to heat the tube;

b) feeding bronze wire into said retractory tube for movement axially downwardly in the tube;

c) controlling said electromagnetic forces so as to first heat the moving wire in the furnace and then melt the wire so that it will flow out of the tube onto a pre-heated steel strip.

5,736,203

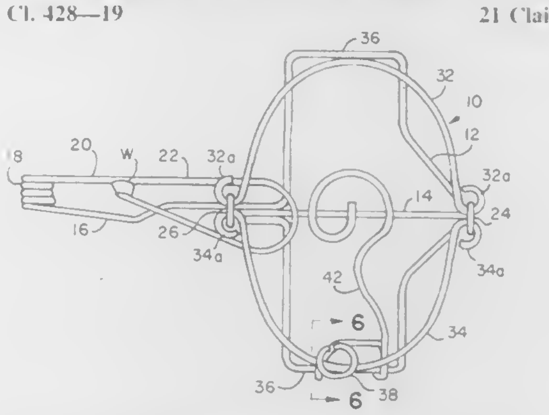
JAW TYPE TRAP

Denny M. Swartz, Star Rte., Box 29, Reno, Ohio 45773

Filed Feb. 9, 1996, Ser. No. 598,906

Int. Cl.^{6} A01M *23/26;* A47G *33/10*

U.S. Cl. 428—19 21 Claims



1. A jaw type trap comprising:

a horizontal base frame extending laterally of the trap from each side of a longitudinally extending center line of the trap and having laterally outer frame portions spaced from the center line of the trap on each side thereof and at least two spaced apart lateral frame portions extending between the laterally outer frame portions;

a hinge loop attached to each lateral frame portion near the center line of the trap and extending upwardly therefrom, each loop forming a hinge opening which is in axial alignment with the hinge opening formed by the opposite loop;

a pair of substantially U-shaped jaws each having one end hingedly engaging one of the hinge loops and an opposite end hingedly engaging the opposite hinge loop;

the jaws being pivoted at the hinge loops to swing from a horizontal open position to a vertical closed position with one of the jaws being latchable and the other jaw being nonlatchable;

a latch mechanism hingedly mounted on one of the laterally outer frame portions to retain the latchable jaw in a horizontal position when the trap is set.

a trigger arm attached to the latch mechanism to release the latch mechanism when the trap is sprung; and

a spring means attached to the base frame near the longitudinally extending center line of the trap and having a jaw closing portion to urge the jaws into a closed position when the latch is released.

5,736,204

COMPOSTABLE PACKAGING FOR CONTAINMENT OF LIQUIDS

Stuart P. Suskind, Wayne, Pa., assignor to The Estate of Leonard Pearlstein, Wayne, Pa.

Continuation of Ser. No. 962,100, Oct. 16, 1992, abandoned. This application Jun. 7, 1994, Ser. No. 255,807

Int. Cl.^{6} B32B *31/22*

U.S. Cl. 428—34.2 17 Claims

1. A method of making a compostable package for containing material comprising:

providing a base of paperboard having an external surface and an internal surface;

treating at least said internal surface with corona discharge or a flame;

coating at least the internal surface of said paperboard to a thickness of from about 0.5 mil to about 2.0 mils with an aliphatic polyester capable of preventing leaks,

wherein at least said treated internal surface and said coating define a water insensitive inter-facial bond free of adhesive,

wherein said base and said aliphatic polyester are compostable at substantially the same rate to carbon dioxide, water and biomass, and

wherein said base has a cross-directional Taber stiffness of 50 to 150, a thickness of from about 4 to 25 mils, and a basis weight of from about 35 to about 220 lbs/ream;

forming said paperboard into a container wherein said internal surface having said aliphatic polyester thereon forms the interior of the container and said external surface forms the exterior of the container; and

filling the container with a liquid or liquid containing material therein and sealing said container.

5,736,205

Patent Not Issued For This Number

5,736,206

MOLDED BODY OF QUARTZ GLASS AND PROCESS FOR THE PRODUCTION OF A MOLDED BODY OF QUARTZ GLASS

Wolfgang Englisch, Kelkheim; Stephan Moritz, Erlensee, and Dietmar Hellmann, Linsengericht, all of Germany, assignors to Heraeus Quarzglas GmbH, Hanau, Germany

PCT No. PCT/EP94/03722, § 371 Date May 7, 1996, § 102(e) Date May 7, 1996, PCT Pub. No. WO95/13248, PCT Pub. Date May 18, 1995

PCT Filed Nov. 10, 1994, Ser. No. 640,759

Claims priority, application Germany, Nov. 12, 1993, 43 38 807.8

Int. Cl.^{6} C03B *19/06,20/00;* B01J *3/00;* H01L *21/02*

U.S. Cl. 428—34.6 22 Claims

1. Molded body of quartz glass which has at least one surface region of transparent quartz glass, having an exposed surface with a surface microroughness of less than 8 μm, said body comprising a base consisting of a base material which has a chemical purity of at least 99.9% and a cristobalite content of no more than 1%, which is gas-impermeable and opaque and contains pores, which has, at a wall thickness of 1 mm, a nearly constant direct spectral transmission of less than 10% in the wavelength range of λ=190

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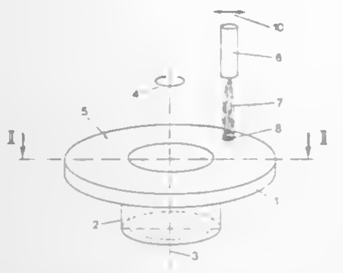
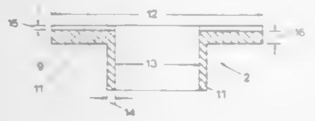
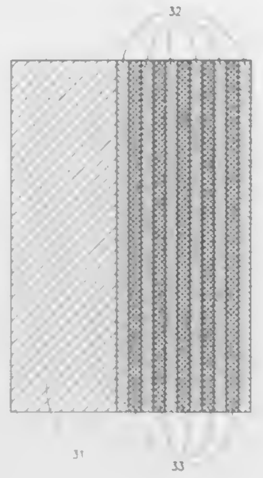






nm to λ=2,650 nm; and which has a density of at least 2.16 g/cm^3; and wherein the transparent surface region is formed from the base material by subjecting the base material to a heat treatment at a temperature above 1,650° C., the transparent layer being at least 0.5 mm thick, the direct spectral transmission of the transparent layer in the wavelength range of λ=600 nm to λ=2,650 nm being at least 60% for a thickness of 1 mm.

13. Process for the production of a molded body of quartz glass with at least one surface region of transparent quartz glass, the exposed surface of which is smooth, with a microroughness of less than 8 μm, comprising the steps of producing a base by the slip casting method, where quartz glass of a purity of at least 99.9% is ground into a powder with a particle size of less than 70 μm; forming a slip from the powder and stabilizing the slip over the course of 1–240 hours by keeping it in continuous motion; loading the stabilized slip into a porous mold corresponding to the base, where it is allowed to remain for a predetermined period of time; after removal from the mold, drying the base blank and heating it in a furnace at a heating rate of 5–60 K/min to a sintering temperature in the range of 1,350°–1,450° C. and then exposing the blank to a temperature of more than 1,300° C. for a period of at least 40 minutes; cooling the sintered base and then heating a surface region of the opaque, porous, gas-impermeable base material forming the base locally by means of a heat source to a temperature in the range of 1,650°–2,000° C. to transform the porous, opaque base material into transparent quartz glass until the thickness of the transparent surface region is at least 0.5 mm and its direct spectral transmission in the wavelength range of λ=600 nm to λ=2,650 nm has a value of at least 60% for a layer thickness of 1 mm.

5,736,207

VESSEL OF PLASTIC HAVING A BARRIER COATING AND A METHOD OF PRODUCING THE VESSEL

Marten Walther, Bubenheim; Martin Heming, Stromberg; Michael Spallek, Ingelheim, and Gudrun Zschaschler, Zornheim, all of Germany, assignors to Schott Glaswerke, Mainz, Germany

Filed Oct. 27, 1995, Ser. No. 549,180

Claims priority, application Germany, Oct. 27, 1994, 44 38 359.2

Int. Cl.^{6} B65D *90/04;90/06*

U.S. Cl. 428—34.7 **6 Claims**

1 A vessel comprising:

a vessel body made of plastic;

a barrier coating in the form of a multilayer coating including a plurality of sequentially disposed barrier layers applied to said vessel body and being of different composition;

at least two of said barrier layers being of an inorganic barrier material wherein said layers are selected from the group consisting of at least one of oxides, nitrides, oxynitrides and mixtures thereof;

at least one of said barrier layers being an organic barrier layer made of a polymer material and the organic barrier layer being arranged in said multilayer coating to alternate with the inorganic barrier layers; and,

said organic barrier layer containing up to 10 metal atoms per carbon atom.

5,736,208

HEAT SHRINKABLE ARTICLE

Manfred Hermann Otto Wilck, Neubiberg, Germany, and Sean Michael Lewington, Swindon, England, assignors to Raychem GmbH, Ottobrunn, Germany

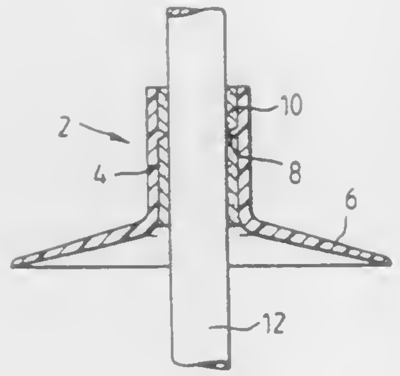
PCT No. PCT/GB94/01136, § 371 Date Dec. 14, 1995, § 102(e) Date Dec. 14, 1995, PCT Pub. No. WO94/29886, PCT Pub. Date Dec. 22, 1994

PCT Filed May 25, 1994, Ser. No. 557,152

Claims priority, application United Kingdom, Jun. 14, 1993, 9312199

Int. Cl.^{6} H01B *17/38*

U.S. Cl. 428—34.9 **11 Claims**



1 A tubular shrinkable article for shrinking into sealing contact with a substrate, comprising a generally tubular portion for sealing to the substrate and a flange extending radially therefrom at one end, wherein the inner surface of the tubular portion is provided with an adhesive layer and with projection means, whereby on shrinking the tubular portion onto the substrate the projection means penetrates into the adhesive layer thereby to enhance the gripping of the article on the substrate.

5,736,209

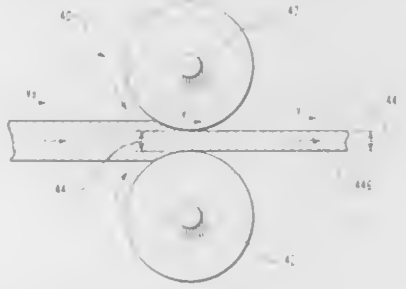
COMPOSITIONS HAVING A HIGH UNGELATINIZED STARCH CONTENT AND SHEETS MOLDED THEREFROM

Per Just Andersen, Santa Barbara; Shaode Ong; Bruce J. Christensen, both of Goleta, and Simon K. Hodson, Santa Barbara, all of Calif., assignors to E. Kashoggi, Industries, LLC, Santa Barbara, Calif.

Continuation-in-part of Ser. No. 152,354, Nov. 19, 1993, Pat. No. 5,508,072, Ser. No. 158,824, Nov. 24, 1993, Pat. No. 5,506,046, and Ser. No. 192,965, Feb. 7, 1994, abandoned. This application Apr. 9, 1996, Ser. No. 629,539

Int. Cl.^{6} B32B *1/08;5/02;23/18*

U.S. Cl. 428—36.4 **86 Claims**



1 A starch-bound sheet comprising:

(a) a binding matrix including starch and a cellulosic ether, the starch having a concentration in a range from about 5% to about 90% by weight of solids in the sheet, the cellulosic ether having a concentration in a range from about 0.5% to about 10% by weight of solids in the sheet;

(b) fibers substantially homogeneously dispersed throughout the binding matrix and having a concentration in a range from about 3% to about 40% by weight of solids in the sheet; and

(c) an inorganic mineral filler included in a range from about 0% to about 90% by weight of solids in the sheet, the starch-bound sheet having a thickness less than about 1 cm and a density greater than about 0.5 g/cm^3.

5,736,210

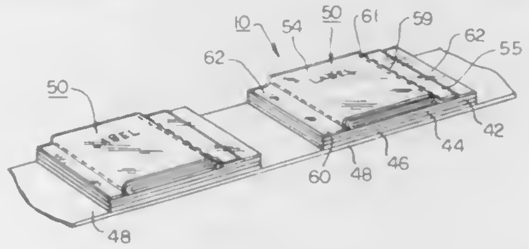
LABEL AND METHOD FOR FORMING A LABEL FROM DOUBLE COATED TAPE

Carl W. Treleaven, Greensboro, N.C., assignor to Pharmagraphics (Midwest), L.L.C., and Pharmagraphics (Southeast), L.L.C., both of Greensboro, N.C.

Filed Jun. 15, 1994, Ser. No. 259,856

Int. Cl.^{6} G09F *3/02*

U.S. Cl. 428—40.1 **9 Claims**



1 A label product, comprising:

(a) a web of double coated tape, said web including.

(i) a carrier formed from a polymeric film having a thickness of between 0.5 mil and 4.5 mils and an upper surface and a lower surface;

(ii) a silicone coated release liner having an upper surface,

(iii) said lower surface of said carrier permanently coated with a first adhesive layer and said upper surface of said carrier permanently coated with a second adhesive layer;

(iv) said carrier releasably secured to said upper surface of said release liner by said first adhesive layer; and

(b) a plurality of outserts affixed at spaced positions along said web, each of said outserts having a bottom panel, said bottom panel of said outsert secured to said upper surface of said carrier by said second adhesive layer

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5,736,211

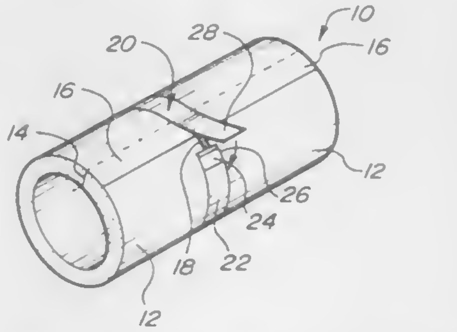
BUTT STRIP TAPE FOR INSULATION APPLICATION

Dennis G. Fontanilla, East Hanover, N.J., assignor to Compac Corporation, Netcong, N.J.

Continuation of Ser. No. 416,519, Apr. 4, 1995, abandoned, which is a continuation of Ser. No. 217,154, Mar. 24, 1994, abandoned. This application Mar. 8, 1996, Ser. No. 612,778

Int. Cl.^{6} B32B *7/10*

U.S. Cl. 428—40.1 **9 Claims**



1 A butt strip sealing tape construction for sealing a seam between abutting portions of insulation comprising:

a multilayer butt strip tape body constructed of a kraft paper outer surface layer adhered to a metal foil inner surface layer using a fiberglass reinforced inner surface layer, said tape body having a first end and a second end, said tape body formed of sufficient length to cover the seam between the insulation portions and to overlap said second end of said second end of said tape body onto said first end of said tape body upon placement of said tape on the insulation, said tape body outer surface extending from said first end to said second end and a layer of pressure sensitive adhesive completely covering said inner surface of said tape body, and

a bond enhancing plasitc polymer film is adhesively mounted to said outer surface proximate only said first end of said tape body to maintain exposure of a majority of said outer surface along said tape body, said film forming an adhesion surface at said first end of said tape body for said pressure sensitive adhesive of said second end of said tape body, said bond enhancing film proximate said first end of said tape body providing adhesion of said first end to said second end while maintaining separation of said pressure sensitive adhesive from said outer surface along said film upon overlap of said second end onto said first end thereby sealing the seam of insulation.

5,736,212

FORM WITH DETACHABLE CARD, SUPPORT AND COVERING MATERIAL THEREFOR, AND PROCESS FOR PRODUCING THE SAME

Jules Fischer, Widen, Switzerland, assignor to Folien Fischer AG, Dottikon, Switzerland

PCT No. PCT/CH95/00019, § 371 Date Nov. 1, 1995, § 102(e) Date Nov. 1, 1995, PCT Pub. No. WO95/20493, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 26, 1995, Ser. No. 525,793

Claims priority, application Switzerland, Jan. 26, 1994, 228/94

Int. Cl.^{6} B42D *15/10*

U.S. Cl. 428—42.2 **25 Claims**

1 Form (1) with integrated, detachable card (3) and onto the back of the form, at least partly covering the area of the card (3), is stuck a support material (2), which besides a support layer (21) has

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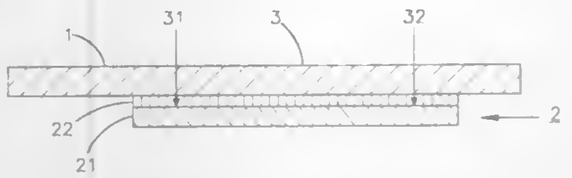


a peel glue layer (22) with respect to the card (3), wherein the card (3) is a blank produced by punching performed from the front of the form and extending up to the support layer (22) and held in the form (1) by the support layer (21), the peel glue layer remaining entirely on the support layer and no longer being sticky after the card is detached from the form

5,736,213
LOTION APPLICATIOR AND MASSAGING DEVICE

Shiolett B. Meier, Edmond, Okla., assignor to Useful Products, Inc., Edmond, Okla.

Filed Jan. 15, 1997, Ser. No. 784,093

Int. Cl.^{6} A45D *34/04*

U.S. Cl. 428—76 **20 Claims**

1 A lotion applicator comprising:

a flexible body having a left end, a right end, a top and a bottom, and wherein both the top and the bottom each have a generally smooth, non-absorbent exterior surface made from a non-woven material,

an elongated strip of elastic material having two ends, both ends being attached to the left end of the flexible body to form an open loop left handle; and

an elongated strip of elastic material having two ends, both ends being attached to the right end of the flexible body to form an open loop right handle.

5,736,214
LAMINATED ASSEMBLY CONSTITUTED BY A WARP OR WEFT-KNITTED LOOP FABRIC ADHERED FLAT ON A SUPPORT, AND ITS MANUFACTURING METHOD

Jean-Philippe Billarant, Paris, France, assignor to Aplix, Paris, France

Filed Nov. 27, 1996, Ser. No. 758,596

Claims priority, application France, Nov. 29, 1995, 95 14140

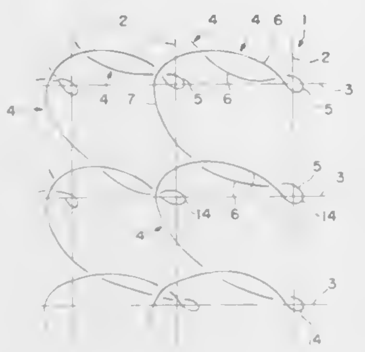
Int. Cl.^{6} A44B *18/00;* **B32B** *3/06;7/00;31/12*

U.S. Cl. 428—92 **10 Claims**

1 A laminated assembly forming the female, loop portion of a self-gripping hook-and-loop fastener, said assembly comprising:

(a) a light-weight, open, mechanically fragile and dimensionally unstable knitted fabric adhered in a flat condition onto a support member:

(b) said knitted fabric including interknitted warp and weft yarns, and a multitude of loops having feet cooperating with the warp and weft yarns and a pair of elongate legs extending from the feet and forming a free loop top remote from the feet:



(c) said loops being sized in relation to the spacing of the warp and weft yarns of the fabric so that at least one of the two legs of the loop intersects at least one of the warp or weft yarns in spaced-apart relation from the foot of said at least one leg;

whereby each of said loops bears on at least one warp or weft yarn to form an overlapping zone where the loop does not adhere to the support member, thus maintaining the self-gripping ability of the loops.

5,736,215
PROCESS FOR THE MANUFACTURE OF A PROFILE PART

Hans-Volker Buchholz, and Alistair Hill, both of Hildesheim, Germany, assignors to Meteor Gummiwerke K.H. Bädje GmbH & Co., Bockenem, Germany

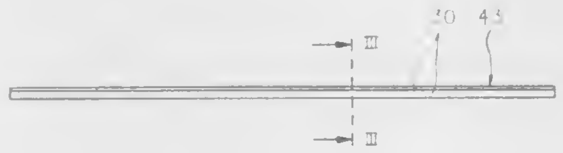
PCT No. PCT/EP94/00868, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO94/25246, PCT Pub. Date Nov. 10, 1994

PCT Filed Mar. 19, 1994, Ser. No. 535,262

Claims priority, application Germany, Apr. 30, 1993, 43 14 192.7

Int. Cl.^{6} B32B *3/06*

U.S. Cl. 428—99 **21 Claims**



1 A process for producing a compound profile part having plasticizable constituents, said profile part having at least one profile section made of an elastomeric material and at least one fastening section made of a thermoplastic plastics material; said process comprising the steps of:

(a) extruding said thermoplastic plastics material;

(b) subsequently calibrating said thermoplastic plastics material extruded in step (a), and cooling said thermoplastic plastics material extruded in step (a) to a temperature compatible for co-extrusion with said elastomeric materials;

(c) co-extruding continuous lengths of said thermoplastic plastics material calibrated and cooled in step (b) and said elastomeric material for forming the compound profile;

(d) chemically bonding said thermoplastic plastics material and said elastomeric material to each other by covulcanization,

(e) cutting said continuous co-extruded lengths to a length;

(f) heating said length where necessary depending upon the location of a desired change in shape until its plasticizable constituents are in a plastic state;

(g) shaping said length after step (f) in a shaping tool into the desired shape; and

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(h) cooling said length to a non-plastic state of the plasticizable constituents while maintaining the desired shape of step (g).

5,736,216
FASTENER HAVING HIGH SILENCING PROPERTY

Norihito Shibahara, Hachioji; Hiroaki Takahashi, Sagamihara; Osamu Sawajiri, Sagamihara, and Shinji Torigoe, Sagamihara, all of Japan, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US95/04265, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO95/27418, PCT Pub. Date Oct. 19, 1995

PCT Filed Apr. 6, 1995, Ser. No. 702,619

Claims priority, application Japan, Apr. 12, 1994, 6-073340

Int. Cl.^{6} A44B *18/00*

U.S. Cl. 428—99 **21 Claims**

1 A fastener having a high silencing property comprising a base portion, a stem portion implanted and interconnected to said base portion and a head portion interconnected to said stem portion in a spaced-apart relationship by a predetermined distance from said base portion, wherein at least a part of said stem portion or said head portion contains polyphase polymer materials comprising a first polymer resin selected from the group consisting of polyamide resin, polypropylene resin, ionomer resin, urethane resin, and acrylic resin, and a second polymer resin containing a fluorocarbon resin or a ultra-high molecular weight polyethylene resin

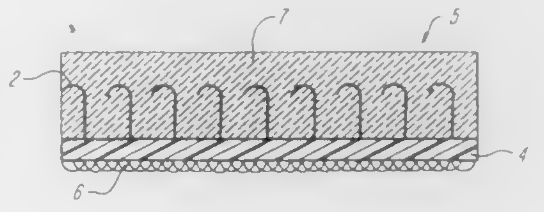
5,736,217
DIE CUT MOLD-IN

Donald L. Banfield, Hudson, and Gerald F. Rocha, Bedford, both of N.H., assignors to Velcro Industries B.V., Curacao, Netherlands Antilles

Continuation of Ser. No. 536,965, Sep. 29, 1995, Pat. No. 5,540,970, which is a continuation of Ser. No. 390,150, Feb. 21, 1995, abandoned, which is a continuation of Ser. No. 87,917, Jul. 6, 1993, abandoned, which is a continuation-in-part of Ser. No. 695,183, May 3, 1991, abandoned, and Ser. No. 976,485, Nov. 16, 1992, abandoned, which is a continuation of Ser. No. 695,183. This application Jul. 19, 1996, Ser. No. 684,109

Int. Cl.^{6} A44B *21/00*

U.S. Cl. 428—100 **6 Claims**



1 A hook and loop fastener intended to be incorporated into plastic articles by plastic molding processes comprising a separable fastener member having a base member and a plurality of engaging elements upstanding from one surface thereof; means for covering and intimately surrounding and encasing at least some of said engaging elements, adapted to protect said covered and surrounded and encased elements when exposed to the harsh environment of a molding process, said means being removable from the fastener after the molding process to expose said covered and surrounded and encased engaging elements without substantially destroying the performance thereof, the means for covering and intimately surrounding and encasing the at least some engaging elements including magnetizable means.

5,736,218
WOOD BOARD AND A FLOORING MATERIAL MADE THEREFROM

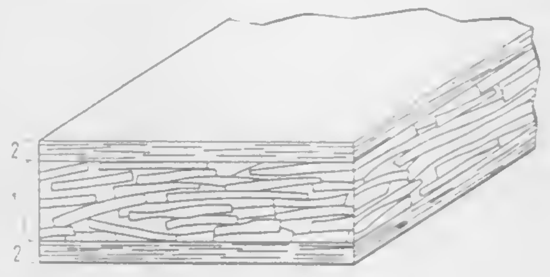
Ritsuo Iwata; Satoshi Suzuki; Hirotosi Takahasi, and Takayuki Endo, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Continuation of Ser. No. 248,704, May 25, 1994, Pat. No. 5,506,026. This application Oct. 24, 1995, Ser. No. 548,022

Claims priority, application Japan, May 13, 1993, 5-129669; Oct. 29, 1993, 5-272674; Nov. 9, 1993, 5-279911

Int. Cl.^{6} B32B *5/12*

U.S. Cl. 428—107 **18 Claims**



1 A wood board, comprising:

a core layer comprising a strand board, and

a surface layer laminated to at least one surface of said core layer and comprising an oriented strand board,

wherein said surface layer comprises wooden strands thinner than wooden strands comprising said core layer, the length of the wooden strands in the core layer and surface layer being within the range of 20–100 mm, the average thickness of the strands in the core layer being in the range of 0.60–0.90 mm, the average thickness of the strands in the surface layer being in the range of 0.20–0.50 mm and the width of the strands in the core layer and the surface layer being in the range of 2–60 mm

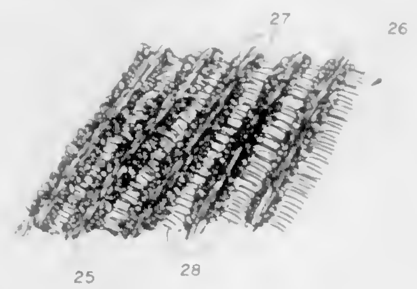
5,736,219
ABSORBENT NONWOVEN FABRIC

Susan Lynn Suehr, Belle Mead; Linda J. McMeekin, Bound Brook; James E. Knox, Jamesburg, and Frank J. Flesch, Toms River, all of N.J., assignors to McNeil-PPC, Inc., Skillman, N.J.

Continuation of Ser. No. 398,715, Mar. 6, 1995, abandoned, which is a continuation of Ser. No. 112,922, Aug. 30, 1993, abandoned. This application Jun. 11, 1996, Ser. No. 661,858

Int. Cl.^{6} B32B *5/12,* **D04H** *3/10*

U.S. Cl. 428—113 **7 Claims**



1 A nonwoven fabric having a repeating pattern of three interconnected fiber arrays,

a first fiber array comprising a plurality of parallel fiber segments;

a second fiber array adjacent to said first fiber array, said second fiber array comprising a plurality of twisted and turned fiber segments that form a band disposed substantially perpendicular to said parallel fiber segments, and

a third fiber array interconnecting said first and second fiber arrays, said third fiber array comprising a plurality of highly entangled fiber segments;

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said fabric having substantially uniform absorbent characteristics in all directions within the plane of the fabric.

5,736,220
SURFACE TREATED SYNTHETIC REINFORCEMENT FOR STRUCTURAL WOOD MEMBERS

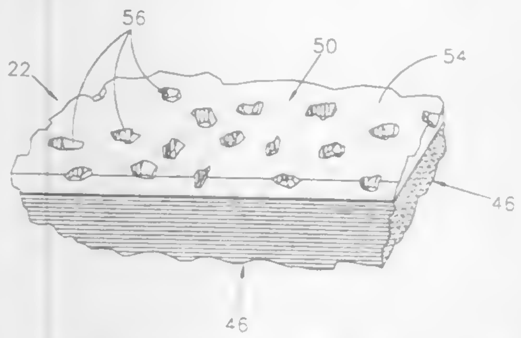
Daniel A. Tingley, 3310 SW Willamette Ave., Corvallis, Oreg. 97333

PCT No. PCT/US95/11647, § 371 Date Oct. 8, 1996, § 102(e) Date Oct. 8, 1996, PCT Pub. No. WO96/08366, PCT Pub. Date Mar. 21, 1996

Continuation-in-part of Ser. No. 307,315, Sep. 16, 1994, Pat. No. 5,498,460, which is a continuation-in-part of Ser. No. 37,580, Mar. 24, 1993, Pat. No. 5,362,545. This PCT application Sep. 15, 1995, Ser. No. 648,040

Int. Cl.^{6} B32B *3/06;3/30;5/08;* **E04C** *3/12;3/26,3/29*

U.S. Cl. 428—114 **40 Claims**



1. A synthetic reinforcement to be adhered into a wood structural member for increasing a load-carrying capacity of the wood structural member, said reinforcement comprising:
  a plurality of continuous fibers; and
  a resin encasement for including substantially all of said continuous fibers and having a surface characterized by a plurality of micro-recesses located in a generally random pattern for the purpose of facilitating adhesion of the synthetic reinforcement to another surface.

7. A synthetic reinforcement to be adhered to a wood structural member for increasing a load-carrying capacity of the wood structural member, said reinforcement comprising:
  a plurality of continuous fibers; and
  a resin encasement for including substantially all of said continuous fibers therein characterized by surface features area-increasing on at least one external major surface which serve to facilitate adhesion of that surface to another surface; and
  wherein said synthetic reinforcement is less than 2 millimeters thick.

14. A structural wood system, wherein a first wood lamina is adhesively connected to a set of adhesively joined synthetic reinforcements, each comprising:
  a plurality of substantially continuous fibers along the length of the synthetic reinforcement; and
  a resin encasement for encasing substantially all of the fibers characterized by surface area-increasing features on at least one external major surface which serve to facilitate adhesion of that surface.

5,736,221
WELDED PLASTIC PANELS AND METHOD OF MAKING SAME

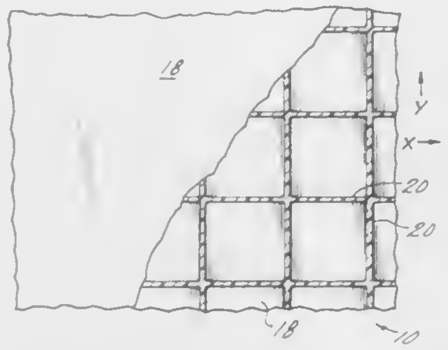
James S. Hardigg, Conway, Mass.; Robert L. Wells, Thetford Center, Vt., and Mark C. Gaydos, Greenfield, Mass., assignors to Hardigg Industries, Inc., South Deerfield, Mass.

Filed Jul. 21, 1995, Ser. No. 505,403

Int. Cl.^{6} B32B *3/12*

U.S. Cl. 428—116 **21 Claims**

1. A panel having two distinct panel portions said portions each comprising a skin and integrally molded supporting ribs extending generally perpendicularly to said skin from a first of two surfaces of said skin, said ribs defining a bonding surface spaced from said first surface of said skin by the extent of said ribs, said panel portions being bonded at the bonding surface of the ribs of each portion.



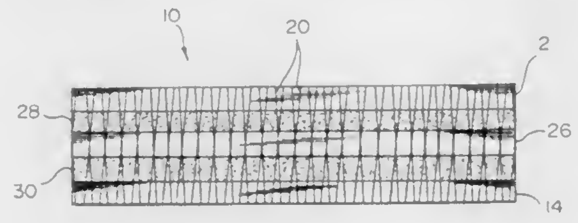
5,736,222
INTERLACED Z-PIN STRUCTURES

James J. Childress, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Mar. 19, 1996, Ser. No. 618,650

Int. Cl.^{6} B32B *5/00*

U.S. Cl. 428—119 **14 Claims**



1. A pin-reinforced sandwich structure, comprising:
(a) a core having opposed first and second surfaces defining a reference plane and a normal plane;
(b) a first face sheet adjacent the first surface;
(c) a second face sheet adjacent the second surface;
(d) a plurality of pins inserted into and terminating in the first and second face second face sheets and extending through the core to form a pin-reinforced sandwich structure, wherein the pins form an interlaced Z-pin region having an interlaced, ordered configuration of pins having at least a portion of the pins off-normal to the reference plane;
(e) a bore through the core and face sheets in the interlaced Z-pin region and
(f) a fastener in the bore wherein the Z pin region has an areal density of pins in the range from about 0.375-1.50%.

5,736,223
MULTILAYER EMBOSSED PAPERS, AND DEVICE AND METHOD FOR PRODUCING SAME

Pierre Laurent, Colmar, France, assignor to James River, Kunheim, France

PCT No. PCT/FR94/00852, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO95/02089, PCT Pub. Date Jan. 19, 1995

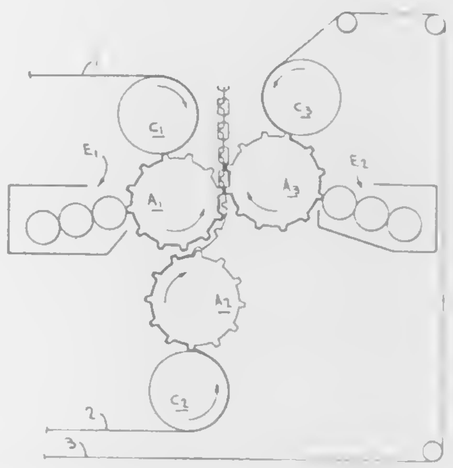
PCT Filed Jul. 8, 1994, Ser. No. 591,482

Claims priority, application France, Jul. 9, 1993, 93 08509

Int. Cl.^{6} B32B *3/00;* **B31F** *1/22*

U.S. Cl. 428—154 **14 Claims**

1. A multi-layer paper comprising at least three embossed plies of paper with each ply having regularly distributed projections, wherein two of said at least three embossed plies of paper comprise a first external ply and a second external ply and are positioned in relation to each other such that projections on the first external ply are arrayed in a tip-to-tip relation with projections on the second external ply, and further wherein another ply of said at least three embossed plies of paper is present as a middle ply between said first external ply and said second external ply so that projections of said middle ply nest between adjacent projections of one of the first external ply or the second external ply.



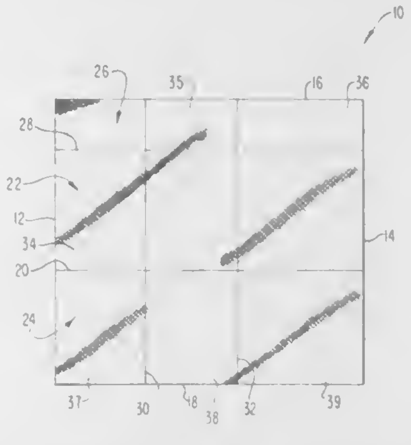
5,736,224
NAPKIN

Bernard E. Dodge, Palatka, Fla., assignor to Georgia-Pacific Corporation, Atlanta, Ga.

Filed Jun. 17, 1996, Ser. No. 664,690

Int. Cl.^{6} B32B *3/00;23/02*

U.S. Cl. 428—156 **18 Claims**



1. A napkin comprising a sheet of paper having at least one fold line to define a plurality of overlapping sections, at least one section being larger than at least one other section such that each larger section defines a marginal portion along one side of the napkin that extends beyond each other section, each said marginal portion including a first embossing pattern and the remainder of the napkin including a second embossing pattern, the first embossing pattern being generally deeper than said second embossing pattern and formed in substantially only said marginal portion.

5,736,225
HANDRAIL AND PROCESS FOR THE PREPARATION THEREOF

György Nagy, Bad Neuenahr, Germany, assignor to Böttcher Tech GmbH & Co., Grafschaft-Gelsdorf, Germany

Filed Jan. 11, 1996, Ser. No. 584,023

Claims priority, application Germany, Jan. 10, 1995, 195 00 300.4

Int. Cl.^{6} B32B *3/28;* **B65G** *15/00*

U.S. Cl. 428—167 **16 Claims**

1. A handrail for escalators and speedwalks including,
  a) a lower outer layer comprising a conveyor part in the middle of the outer layer and two lateral slide parts,
  b) an upper outer layer comprising an elastic coating of the handrail; and
  c) an inner layer comprising a traction carrier having a width, positioned between said upper and lower outer layers;
characterized in that said handrail has a bottom side and a longitudinal axis, and the lower outer layer contains two longitudinal grooves, which are located at the bottom side of said handrail and are symmetrically disposed relative to the longitudinal axis, the spacing between said grooves being greater than the width of said inner layer.

5,736,226
WAFER AND METHOD OF PRODUCING A WAFER

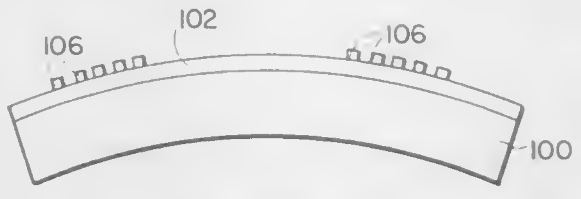
Keiichiro Tanabe; Yuichiro Seki, and Naoji Fujimori, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jun. 7, 1995, Ser. No. 480,786

Claims priority, application Japan, Jun. 9, 1994, 6-152701

Int. Cl.^{6} C23C *16/26*

U.S. Cl. 428—174 **16 Claims**



1. A wafer comprising a distorted substrate which is substantially flat in a free-standing state and a (111) oriented polycrystalline diamond film chemical vapor deposited on the substrate, the diamond film having a polished film surface with a roughness of less than Rmax50 nm and Ra20 nm.

5,736,227
LAMINATED WOOD FLOORING PRODUCT AND WOOD FLOOR

James C. Sweet, Statesville, and William S. Smith, Davidson, both of N.C., assignors to Triangle Pacific Corporation, Dallas, Tex.

Continuation of Ser. No. 185,489, Jan. 24, 1994, abandoned, which is a continuation of Ser. No. 967,718, Oct. 28, 1992, Pat. No. 5,283,102. This application Jun. 12, 1995, Ser. No. 436,523

Int. Cl.^{6} B32B *3/00;* **E04F** *13/08*

U.S. Cl. 428—192 **13 Claims**

1. A wood flooring strip for assembly into a wood floor, said flooring strip comprising
  (a) a top, decorative wood layer,
  (b) a base layer for being adhered to a supporting subfloor,
  (c) at least one intermediate layer positioned intermediate said top layer and said bottom layer;
  (d) said top, said at least one intermediate layer, and said base layer bonded in registration to each other to define a unitary laminated elongate wood flooring strip,
  (e) locking means extending along the length of said flooring strip on both side edges for locking adjacent flooring strips together side-to-side to form an assembled wood floor, said locking means comprises a tongue formed on one side edge of

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the flooring strip and a mating groove on the other side edge of the flooring strip, each of said tongue and said groove for mating connection with complementary elements on adjacent flooring strips, said flooring strips including non-locking, opposing end portions, said end portions each having a first non-locking flat area encompassing the entire end portion surface area of at least the top, decorative wood layer for abutting engagement with like flat areas on adjacent flooring strips to form a substantially continuous, flat decorative flooring surface, and a second non-locking area encompassing the entire end portion surface area of at least the base layer for providing a gap between the base layers of adjacent flooring strips, and;

(f) said flooring strip having a lengthwise dimension of between 1.5 and 7 inches and a lengthwise dimension of between 2 feet and 8 feet.

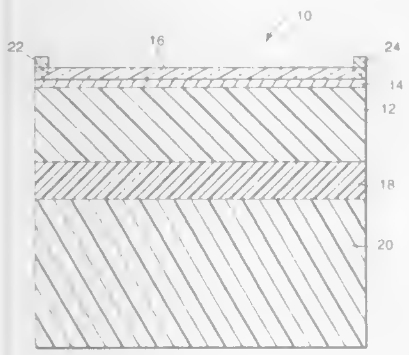
5,736,228
DIRECT PRINT FILM AND METHOD FOR PREPARING SAME

Terry L. Morris, Eagan, Minn., and William A. Neithardt, Ridgefield Borough, N.J., assignors to Minnesota Mining And Manufacturing Company, St. Paul, Minn.

Filed Dec. 29, 1995, Ser. No. 581,324

Int. Cl.^{6} B32B *3/00*

U.S. Cl. 428—195 **20 Claims**



1. A direct print film, comprising a durable, conformable, polymeric substrate having a conductive, electrostatic printable layer comprising conductive pigment particles having a size ranging from about 0.5 μm to about 4 μm, wherein the conductive layer contacts a major surface of the substrate and wherein a pressure sensitive adhesive contacts a second major surface of the substrate.

5,736,229
SINGLE-LAYERED PAPER PRODUCT

Reinhold Uhlemayr, Rutesheim, Germany, assignor to Drescher Geschaeftsdrucke GmbH, Rutesheim, Germany

Division of Ser. No. 349,001, Oct. 26, 1994, Pat. No. 5,639,561. This application Aug. 15, 1996, Ser. No. 698,023

Claims priority, application Germany, Sep. 15, 1994, 44 32 902.4; Sep. 15, 1994, 44 32 876.1; Sep. 15, 1994, 44 32 903.2

Int. Cl.^{6} B32B *7/12,3/00*

U.S. Cl. 428—195 **12 Claims**

1. In a laser printable paper sheet article comprising an adhesive coating on a surface thereof, said adhesive coating being adapted to be activated for adhering the paper sheet with itself or with a neighbouring paper sheet, the improvement which comprises said adhesive coating including a polyvinyl alkylether proportion of at least 0.01 g_2 in relation to the coated paper surface

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5,736,230
SINGLE LAYERED PAPER PRODUCT

Reinhold Uhlemayr, Rutesheim, Germany, assignor to Drescher Geschaeftsdrucke GmbH, Rutesheim, Germany

Division of Ser. No. 349,001, Oct. 26, 1994, Pat. No. 5,639,561. This application Aug. 15, 1996, Ser. No. 698,117

Claims priority, application Germany, Sep. 15, 1994, 44 32 902.4; Sep. 15, 1994, 44 32 876.1; Sep. 15, 1994, 44 32 903.2

Int. Cl.^{6} B32B *7/12;3/00*

U.S. Cl. 428—195 **16 Claims**

1. In a laser printable paper sheet article comprising an adhesive coating on a surface thereof, said adhesive coating being adapted to be activated for adhering the paper sheet with itself or with a neighbouring paper sheet, the improvement which comprises said adhesive coating including a polyethylene glycol proportion of at least 0.1 g/m^2 in relation to the coated paper surface.

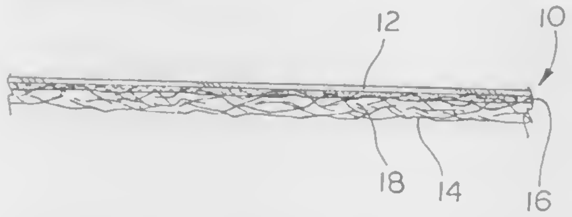
5,736,231
PROTECTIVE WRAP WITH ADDITIVE DELIVERY SYSTEM

Gregory L. Todt, Union, Mich., assignor to Transhield Technology Co., LLC, Elkhart, Ind.

Continuation-in-part of Ser. No. 525,275, Sep. 8, 1995, abandoned. This application Aug. 19, 1996, Ser. No. 699,461

Int. Cl.^{6} B32B *27/18;* **B65D** *85/68*

U.S. Cl. 428—198 **14 Claims**



1. Material for protecting products comprising a film having opposite sides and a hot melt adhesive applied to one side of said film, said adhesive including particles of a vapor corrosion inhibitor mixed in said adhesive, said vapor corrosion inhibitor emitting a corrosion inhibiting vapor protecting said product from corrosion, said film being impermeable to the vapor emitted by said vapor corrosion inhibitor, said adhesive securing a nonwoven fabric to said film, said nonwoven fabric being readily permeable to the vapor emitted by said vapor corrosion inhibitor

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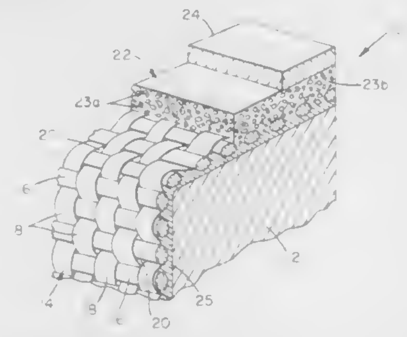
5,736,232
HIGH TEMPERATURE COMPOSITE AND METHOD

Wei-Teh Shih, Yorba Linda; James Acker Tallon, Buena Park, and Ashok Kumar Janah, Manhattan Beach, all of Calif., assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Jun. 15, 1989, Ser. No. 366,721

Int. Cl.^{6} B32B *5/00*

U.S. Cl. 428—210 **17 Claims**



8. In a densified carbon/carbon composite structure including within the structure thereof at least one oxidation protection agent and including thereover at least one of a glass coat and a ceramic coat configured for providing oxidation protection at elevated temperatures, the improvement comprising:

a finely woven ceramic-containing fabric adheringly applied to desired exterior surfaces of the carbon/carbon composite structure as a wrapping ply;

a glass coat optionally including a ceramic component applied thereover after all desired densification of the carbon/carbon composite structure has been accomplished; and

a ceramic coating applied thereover.

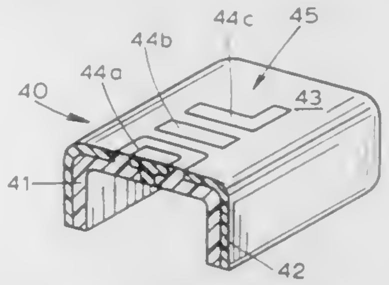
5,736,233
METHOD OF PRODUCING MULTICOLOR BACKLIT DISPLAY GRAPHICS, AND PRODUCT THEREOF

Michael Edwin Fye, Kokomo, Ind., assignor to Delco Electronics Corporation, Kokomo, Ind.

Filed Dec. 9, 1996, Ser. No. 761,957

Int. Cl.^{6} B05D *1/36,3/02,5/06;* **B32B** *3/00*

U.S. Cl. 428—204 **10 Claims**



1. A method of producing an article having a background and a graphic adjacent said background, comprising the steps of

(a) forming a substrate having an outer surface comprising (i) a region of light transmitting graphic material defining at least part of said graphic and (ii) an adjacent region of background material being substantially opaque defining said background, said background material being selected from a group consisting of (1) material pigmented substantially darker than a first color dye ink which is light transmitting, and (2) materials incompatible with said first color dye ink;

(b) applying said first color dye ink on a first area of said outer surface including at least a portion of said graphic material and at least a portion of said background material, and

(c) subjecting said ink to a temperature greater than about 100° C. to cause said first color dye ink to penetrate at least said graphic material, so that said ink colors said graphic but does not visually appear to color said background

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5,736,234
MULTILAYER PRINTED CIRCUIT BOARD HAVING LATTICED FILMS ON AN INTERCONNECTION LAYER

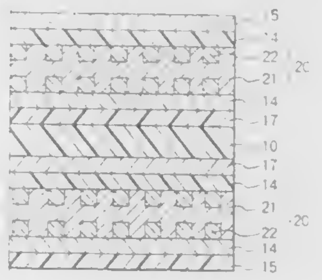
Harumi Mizunashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 21, 1996, Ser. No. 604,481

Claims priority, application Japan, Feb. 28, 1995, 7-040174

Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—209 **13 Claims**



1. A multilayer printed circuit board comprising:

a planar substrate having first and second conductor support surfaces;

at least one conductor layer overlaying one of said first and second conductor support surfaces, said conductor layer including

a metallic sheet made of a first metal having a first and a second surface and having a first thermal expansion coefficient, and

a second metallic fill having a first pattern, formed on said first and second surfaces of said metallic sheet, at least a first portion of said metallic sheet being flush with said first pattern to form a planar surface of said conductor layer, said second metallic film being made of a second metal having a second thermal expansion coefficient lower than said first thermal expansion characteristic

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5,736,235
MAGNETIC RECORDING MEDIUM HAVING AT LEAST TWO MAGNETIC LAYERS WITH EASY AXES ORIENTED IN THE SAME DIRECTION

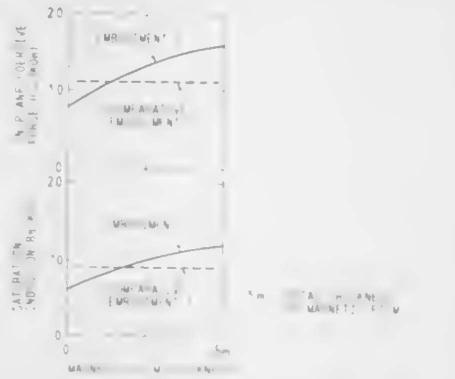
Yoshihumi Matsuda, Hachiouji; Masaaki Futamoto, Tsukui-gun; Yoshinori Miyamura, Nishitama-gun; Tokuho Takagaki, Yokohama; Hisashi Takano; Fumio Kugiya, both of Hachiouji; Takeshi Nakao, Sagamihara; Kyo Akagi, Fuchu; Mikio Suzuki, Kokubunji; Hirotsugu Fukuoka, Hitachioota, and Takayuki Munemoto, Niihari-gun, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 6, 1991, Ser. No. 740,708

Claims priority, application Japan, Aug. 20, 1990, 2-217048

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—212 **15 Claims**



1. A magnetic recording medium which has at least two magnetic layers of thin film formed on a nonmagnetic substrate directly or via an underlayer, characterized in that easy axes of the at least two magnetic layers are oriented in the same direction, and both saturation induction and coercive force in the easy axis direction decrease from a surface of the magnetic recording medium to the nonmagnetic substrate.

5,736,236
MAGNETIC MULTILAYER FILM AND MAGNETORESISTANCE ELEMENT

Satoru Araki, and Daisuke Miyauchi, both of Chiba, Japan, assignors to TDK Corporation, Tokyo, Japan

Division of Ser. No. 79,940, Jun. 23, 1993, Pat. No. 5,510,172. This application Feb. 28, 1996, Ser. No. 608,315

Claims priority, application Japan, Jun. 23, 1992, 4-188840

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—212 **27 Claims**

1. A magnetic multilayer film, comprising a first and second magnetic thin film with a non-magnetic thin film between said first and second magnetic thin film, wherein

said first and second magnetic thin films have different coercive forces, said first magnetic thin film having a lower coercive

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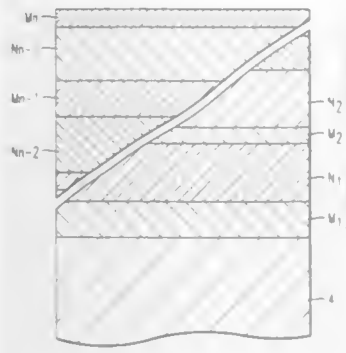


force and squareness ratio SQ_1 of from 0.7 to 1.0, and said second magnetic thin film having a higher coercive force and a squareness ratio SQ_2 of from 0.1 to 0.8;

the first magnetic thin film has a thickness t_1, the second magnetic thin film has a thickness t_2 and the non-magnetic thin film has a thickness t_3 wherein 4 Å$\leq t_2<$30 Å, 20 Å$<t_1<$200 Å $t_1>t_2$ and 4 Å$<t_3<$60 Å.

5,736,237
GEOMEMBRANES

Aaron Seung-Joon Rhee, and Antonios Nicholas, both of Belle Mead, N.J., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.
Filed Nov. 25, 1996, Ser. No. 753,362
Int. Cl.⁶ C08L *23/08*
U.S. Cl. 428—220 **7 Claims**

1. A sheet having a gauge of greater than 10 mils consisting essentially of an extruded in situ blend of two copolymers of ethylene and one or more alpha-olefins having 3 to 8 carbon atoms, said blend having a flow index in the range of about 3 to about 100 grams per 10 minutes; a melt flow ratio in the range of about 50 to about 200; a density in the range of 0.905 to 0.943 gram per cubic centimeter; an Mw/Mn ratio in the range of about 10 to about 50; and a weight average molecular weight in the range of about 180,000 to about 465,000.

6. A geomembrane having a gauge in the range of about 20 to 200 mils consisting essentially of an extruded bimodal in situ blend of polyethylenes having a flow index in the range of about 5 to about 90 grams per 10 minutes; a melt flow ratio in the range of about 50 to about 200, a density in the range of 0.910 to 0.943 gram per cubic centimeter; an Mw/Mn ratio in the range of about 20 to about 40; and a weight average molecular weight in the range of about 180,000 to about 465,000, said blend having been produced in situ by contacting ethylene and at least one alpha-olefin comonomer with a magnesium/titanium based catalyst system in each of two reactors connected in series, under polymerization conditions, wherein (i) the comonomer in one reactor is 1-hexene and, optionally, one or more 3 to 5, 7, or 8 carbon atom alpha-olefins and the polymer formed in the reactor has a relatively high molecular weight; a flow index in the range of about 0.2 to about 1 gram per 10 minutes; and a density in the range of 0.900 to 0.930 gram per cubic centimeter and (ii) the comonomer in the other reactor is 1-butene and, optionally, one or more 3 or 5 to 8 carbon atom alpha-olefins and the polymer formed in said other reactor has a relatively low molecular weight; a melt index in the range of about 100 to about 1500 grams per 10 minutes; and a density in the range of 0.925 to 0.950 gram per cubic centimeter,

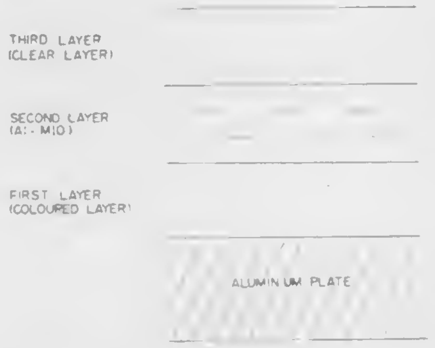
the weight ratio of high molecular weight reactor polymer to the low molecular weight reactor polymer being in the range of about 1:1 to about 1.6:1

5,736,238

Patent Not Issued For This Number

5,736,239
COATING LAYER AND FILM HAVING FLIP-FLOP PROPERTIES

Hidefumi Harada, and Shigeru Nagaoka, both of Yamaguchi-ken, Japan, assignors to Titan Kogyo Kabushiki Kaisha, Yamaguchi-ken, Japan
Continuation of Ser. No. 255,896, Jun. 7, 1994, abandoned, which is a continuation of Ser. No. 5,065, Jan. 15, 1993, abandoned. This application Dec. 21, 1995, Ser. No. 576,844
Int. Cl.⁶ B32B *5/16*
U.S. Cl. 428—329 **2 Claims**

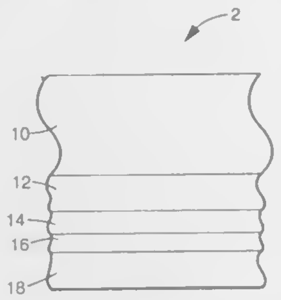


1. A coating layer or a film formed on a substrate having remarkable flip flop properties consisting essentially of
- (a) thin flaky particles of red iron oxide containing aluminum in solid solution described by the formula α-$Fe_{2-x}Al_xO_3$ where $0<x<2$ wherein the average thickness of said particles is less than 0.25 µm,
- (b) a pearl pigment,
- (c) an organic pigment having a color of blue, blue-green or green, and
- (d) a solid vehicle component

wherein the ratio of the weight amount of said thin flaky particles to the weight amount of said solid vehicle component is in the range of from 0.1:100 to 20:100.

5,736,240
AMORPHOUS RARE EARTH OXIDES

Michael B. Hintz, Mahtomedi, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation of Ser. No. 130,294, Oct. 1, 1993, abandoned. This application Oct. 31, 1995, Ser. No. 550,570
Int. Cl.⁶ G11B *5/66*
U.S. Cl. 428—332 **25 Claims**

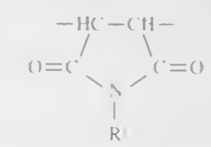


1. A magneto-optical recording medium, comprising a magneto-optical layer, end a dielectric layer comprising at least 51% by volume rare earth oxide and 2 to 49% by volume of a stabilizer for providing resistance to thermally induced crystallization of said dielectric layer, wherein said dielectric layer, when examined by transmission electron microscopy, exhibits a diffuse halo electron diffraction pattern and contains substantially no crystallites larger than 2 nm, thereby indicating said dielectric layer is amorphous, and wherein a film of said dielectric layer having a thickness of ~100 nm deposited on a TbFeCo film having a thickness of ~5 nm, after annealing at 300° C. for one hour in air, a 10 degrees$\leq 2\theta \leq$60 degrees X-ray diffraction scan using copper K-alpha incident radiation of said film of said dielectric layer on said TbFeCo film exhibits no X-ray diffraction peaks corresponding to a crystalline phase of composition, thereby indicating said dielectric layer is stable.

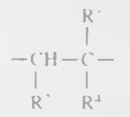
5,736,241
LAMINATE

Hiroshi Inoue, and Toru Doi, both of Yokkaichi, Japan, assignors to Tosoh Corporation, Yamaguchi-ken, Japan
Filed Mar. 6, 1996, Ser. No. 611,573
Claims priority, application Japan, Mar. 8, 1995, 7-048242
Int. Cl.⁶ B32B *3/26*
U.S. Cl. 428—332 **5 Claims**

1. A laminate comprising an N-alkyl-substituted maleimide-olefin copolymer with component (I) shown below being 30 to 98 mol % of the copolymer and component (II) shown below being 70 to 2 mol % of the copolymer, wherein the weight average molecular weight in terms of polystyrene of the copolymer is not less than 1×10^3 to not more than 5×10^6 and an aromatic polycarbonate, wherein the thickness of N-alkyl-substituted maleimide-olefin copolymer layer x and the thickness of aromatic polycarbonate layer y in said laminate satisfy following formula (III)


(I)

wherein R^1 denotes an alkyl group with 1 to 18 carbon atoms or a cycloalkyl group with 3 to 12 carbon atoms,


(II)

$$-CH(R^2)-C(R^3)(R^4)-$$

wherein R^2 is a hydrogen atom or an alkyl group with 1 to 8 carbon atoms, and R^3 and R^4 denote alkyl groups with 1 to 8 carbon atoms,

$$0.4<x/(x+y)<0.98 \qquad (III)$$

wherein said laminate has a flexural modulus of elasticity of 35,000 kg/cm² or more.

5,736,242
SUPPORT FOR PHOTOGRAPHIC PRINTING PAPER

Shinji Kato, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 28, 1995, Ser. No. 580,513
Claims priority, application Japan, Dec. 28, 1994, 6-339644
Int. Cl.⁶ B32B *27/32*
U.S. Cl. 428—335 **13 Claims**

1. A photographic printing paper comprising a substrate having a back side on which side an emulsion layer is not coated and a front side, and both sides of the substrate are coated with a waterproof resin coating, wherein said waterproof resin coating on the back side of said substrate is a multilayer laminate comprising an upper resin layer and a lower resin layer provided nearer to the substrate than the upper layer, and said lower resin layer is adhered to the substrate, the lower resin layer contains high density polyethylene having a melt flow rate of not less than 8 g/10 min. in an amount of not less than 90% by weight based on the total weight of resin, and the lower layer is thinner than the upper layer

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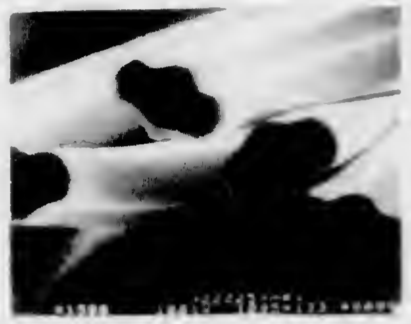
5,736,243
POLYESTER TOWS

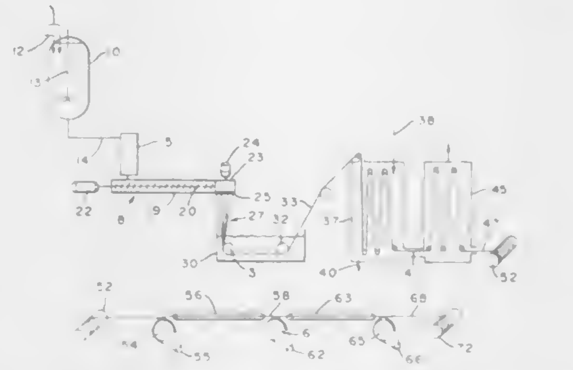
Arun Pal Aneja, Greenville, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 497,495, Jun. 30, 1995, Pat. No. 5,591,523, and Ser. No. 642,650, May 3, 1996, which is a continuation-in-part of Ser. No. 497,499, Jun. 30, 1995, abandoned. This application Jun. 12, 1996, Ser. No. 662,804
Int. Cl.⁶ D02G *3/00*
U.S. Cl. 428—357 **1 Claim**



1. A tow that is suitable for processing on a worsted or woollen system and that consists essentially of continuous polyester filaments of average denier per filament about 0.7 to about 4.5, wherein said filaments have a cross-section that is of scalloped-oval shape with grooves, and said grooves run along the length of the filaments, and wherein said polyester filaments are of polyester polymer that is of relative viscosity (LRV) about 8 to about 12 and that has a chain-brancher content of 0.3 to 0.7 mole %.

5,736,244
SHAPED POLYETHYLENE ARTICLES OF INTERMEDIATE MOLECULAR WEIGHT AND HIGH MODULUS

Sheldon Kavesh, Whippany, and Dusan Ciril Prevorsek, Morristown, both of N.J., assignors to AlliedSignal Inc., Morristown, N.J.
Continuation of Ser. No. 107,421, Aug. 16, 1993, abandoned, which is a continuation of Ser. No. 629,183, Dec. 21, 1990, abandoned, which is a continuation of Ser. No. 241,800, Sep. 6, 1988, abandoned, which is a continuation of Ser. No. 812,709, Dec. 23, 1985, abandoned, which is a division of Ser. No. 690,914, Jan. 11, 1985, Pat. No. 4,663,101. This application Aug. 28, 1995, Ser. No. 520,328
Int. Cl.⁶ D02G *3/00*
U.S. Cl. 428—364 **13 Claims**



1. A film or fiber consisting essentially of polyethylene having a weight average molecular weight between about 200,000 and less than 800,000 kg/kg mole, said fiber or film having a tensile modulus of at least 350 grams/denier, a tenacity of at least 13 grams/denier, a crystalline orientation function of at least 0.95, a main melting temperature of at least 140° C. (measured at 10° C./minute heating rate by differential scanning calorimetry), an ultimate elongation of not more than 5%, and a traverse microfibrillar spacing of less than 150 Å

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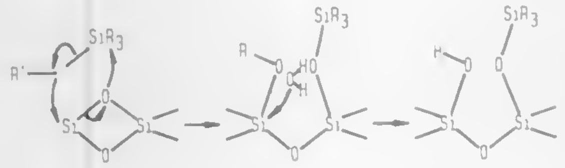
5,736,245
CHEMICAL TREATMENT FOR SILICA-CONTAINING GLASS SURFACES

Alexis Grabbe, Albuquerque; Terry Arthur Michalske, Cedar Crest, and William Larry Smith, Albuquerque, all of N. Mex., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 17, 1994, Ser. No. 261,565
Int. Cl.^{6} B32B *9/00*
U.S. Cl. 428—391 **3 Claims**



1. A fiber-optic cable comprising a silica-containing glass filament having a surface layer integral with said glass filament, and surrounding the filament, a jacket comprising a vinylated organic polymeric material, wherein:

a) the surface layer comprises attached molecules of at least a first compound and a distinct second compound, both said compounds selected from the group consisting of silane and its ethyl, dimethyl, diethyl, and diethylmethyl derivatives, the siloxanes and their analogs, the cyclosiloxanes and their analogs, the organo-H-silanes and their analogs, and the organosiloxanes and their analogs,

b) said group excludes all alkoxysilanes and their analogs, all chlorosilanes and their analogs, all silazanes and their analogs, and all silamines and their analogs;

c) the attached molecules of the first compound are substantially chemically bound to the jacket such as to impart a desired degree of adhesion between the surface layer and the jacket, and

d) the attached molecules of the second compound are present in sufficient concentration to limit said adhesion to said desired degree.

5,736,246
REINFORCING GLASS STRANDS AND COMPOSITES RESISTANT TO CORROSIVE MEDIA

Eric Augier, Barberaz; Didier Muller, La Ravoire, and Michel Arpin, La Motte Servolex, all of France, assignors to Vetrotex France, Aubervilliers Cedex, France

Filed Aug. 29, 1996, Ser. No. 705,683
Claims priority, application France, Sep. 1, 1995, 95 10316
Int. Cl.^{6} B32B *9/00* **C08K** *9/06*
U.S. Cl. 428—392 **21 Claims**

1. Reinforcement glass strands comprising glass strands coated with a sizing composition comprising at least one silane satisfying the following formula

$$Si(R^1)(R^2)(R^3)R^4$$

wherein:

R¹ and R² are each, independently, an alkoxy group;

R³ is an alkoxy group or a hydrocarbon radical that optionally contains only one or more nitrogens,

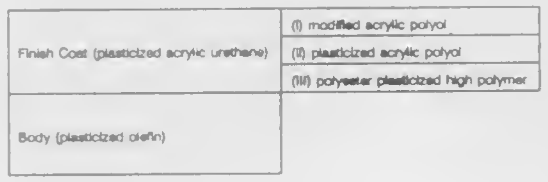
R⁴ is a hydrocarbon radical that optionally contains only one or more nitrogens, and includes at least one unsaturated ring substituted with at least one unsaturated chain conjugated with the unsaturated ring.

5,736,247
COATED MOLDED ARTICLES OF OLEFIN RESIN

Ryoiti Takada; Kazuyuki Ohishi; Hiroshi Watarai, and Yasuhiro Miyazima, all of Inazawa, Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-ken, Japan

Continuation of Ser. No. 363,551, Dec. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 137,741, Oct. 19, 1993, abandoned. This application Dec. 31, 1996, Ser. No. 777,572

Claims priority, application Japan, Oct. 30, 1992, 4-293505; Oct. 30, 1992, 4-293520
Int. Cl.^{6} B32B *27/30; 27/32; 27/40*
U.S. Cl. 428—424.2 **11 Claims**


Finish Coat (plasticized acrylic urethane)
(I) modified acrylic polyol
(II) plasticized acrylic polyol
(III) polyester plasticized high polymer
Body (plasticized olefin)

1. A coated molded article comprising:

(a) a body of a molded article comprising a plasticizing olefin resin, and

(b) a finish coat consisting essentially of an acrylic urethane resin paint formed from a composition consisting essentially of:

(i) graft copolymer comprising a polar group-introduced polyolefin as a main backbone chain and a plasticizing acrylic polyol resin as a side chain;

(ii) a plasticizing acrylic polyol resin;

(iii) a plasticizing polyester containing polymer, and

(iv) hexamethylene diisocyanate, the finish coat being formed directly on the body of the molded article.

5,736,248
TWO-LAYER HIGH TEMPERATURE COATING ON A CERAMIC SUBSTRATE, AND PROCESS FOR OBTAINING SAME

Stanislav Serguevich Solntsev; Vladimir Mihailovich Tjurin; Natalia Vladimirovna Izaeva; Alexei Yurievich Bersenev, and Galina Anatolievna Solovjeva, all of Moscow, Russian Federation, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France, and VIAM - All Russian Institut of Aviation Materials, Moscow, Russian Federation

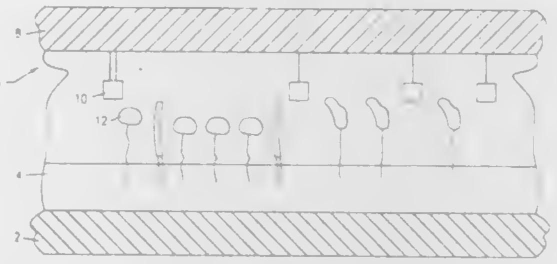
Division of Ser. No. 404,921, Mar. 16, 1995, Pat. No. 5,534,300. This application Apr. 24, 1996, Ser. No. 639,109
Claims priority, application France, Mar. 16, 1994, 94 03049
Int. Cl.^{6} B32B *18/00*
U.S. Cl. 428—427 **3 Claims**

1. A high temperature coating on a ceramic substrate, which coating comprises a barrier layer as a primer layer and an emissivity glaze layer as a topcoat layer, wherein said barrier layer comprises 90 to 99.9% by weight of a quartz glass and 0.1 to 10% by weight of a silicon tetraboride having a purity of greater than 96% by weight, and said emissivity glaze layer comprises 95 to 98.5% by weight of a high silica glass and 1.5 to 5.0% by weight of a silicon tetraboride having a purity of greater than 96% by weight.

5,736,249
NON-STICK POLYMER-COATED ARTICLES OF MANUFACTURE

John Ralph Smith, Gansevoort, N.Y., and Nissim N. Garti, Jerusalem, Israel, assignors to Decora, Incorporated, Fort Edward, N.Y.

Filed Aug. 16, 1994, Ser. No. 291,091
Int. Cl.^{6} B32B *15/08*
U.S. Cl. 428—447 **18 Claims**



1. A coated article of manufacture having permanent non-stick foul-release and ice-phobic surface characteristics, said article comprising:

(a) an inorganic, organic or metallic substrate,

(b) a hydrophobic primary coating on said substrate, said primary coating comprising one or more layers of a polymeric material having non-stick, hydrophobic or semi hydrophobic properties and a pencil hardness of greater than about 1H (scratch and up to 3H (gouge) by ASTM D3363 and a surface energy in the range of from about 22 to about 28 dynes/cm², and,

(c) a hydrophobic top coating on said primary coating, said top coating comprising

(i) a monomeric or polymeric siliconic material adapted to provide a surface energy of from about 18 to about 21 dynes/cm² said siliconic compound having organic functional groups for enhancing hydrophilicity and for reacting with an interdigitating means; and

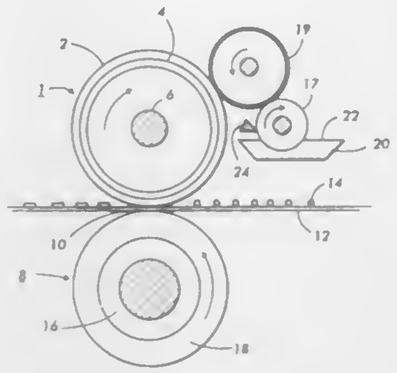
(ii) interdigitating means for coupling said top coating to said primary coating, said interdigitating means comprising a bi- or poly functional chemical compound adapted to bind to the primary coating (b) by mechanical interdigitation and to bind to the siliconic compound (c)(i) by physical or chemical interaction and thereby to couple compound (c)(i) to the primary coating (b), said bi- or poly functional compound (c)(ii) comprising a surface coupling agent adapted to provide efficient wetting of said primary coating (b), when top coating (c) is applied from a liquid, a paste, an aqueous solution or a dispersion, and said surface coupling agent is adapted to provide chemical or physical interdigitation of the top coating (c) on the primary coating (b) and wherein said surface coupling agent comprises a dialkyl ester of a sodium or potassium sulfosuccinic acid, an alkyl amide sulfonate, a C_{10}-C_{16} alkylsulfonate of sodium, potassium or ammonium, a mono- or di-ester of an alkyl phosphate, an ethoxylated alcohol, C_{8-16} fatty alcohol having 2 to 9 ethoxy groups an alkyl or aryl-sulfonate, a fatty ester sulfonate, a fluorosurfactant, or a mixture of any of the foregoing and wherein the primary and top coating are applied to the substrate without heat curing.

5,736,250
CROSSLINKED LATEX POLYMER SURFACES AND METHODS THEREOF

George J. Heeks, Rochester; Santokh S. Badesha, Pittsford; Clifford O. Eddy, Webster, and Arnold W. Henry, Pittsford, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 8, 1996, Ser. No. 694,121
Int. Cl.^{6} B32B *9/04;* **G03G** *13/20;* **B25F** *5/02*
U.S. Cl. 428—447 **40 Claims**

1. A fuser system member comprising a supporting substrate and an environmentally friendly outer surface thereon comprising a crosslinked hybrid composition, wherein said hybrid composition comprises a latex fluorocarbon elastomer and an amino siloxane.

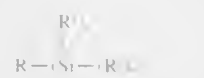


5,736,251
LUBRICIOUS SILICONE SURFACE MODIFICATION

Leonard Pinchuk, Miami, Fla., assignor to Corvita Corporation, Miami, Fla.

Continuation of Ser. No. 527,747, Sep. 13, 1995, abandoned, which is a division of Ser. No. 138,697, Oct. 18, 1993, abandoned. This application Dec. 20, 1996, Ser. No. 777,741
Int. Cl.^{6} B32B *25/04*
U.S. Cl. 428—447 **36 Claims**

1. A lubricious surface coating for reducing the coefficient of friction of a surface of an elastomeric article, said surface coating including a surface modifying composition consisting essentially of a crosslinked silane which, prior to crosslinking, had the formula:



$$R-\overset{(R^2)_m}{\overset{|}{Si}}-(R^1)_n$$

wherein R is a moiety selected from the group consisting of unsubstituted and halogen-substituted aliphatic, cycloaliphatic, aromatic and alkyl aromatic groups having less than or equal to about ten carbon atoms, R¹ is a moiety independently selected from the group consisting of hydrogen, hydroxy, halogen, alkoxy and acyloxy groups, R² is a moiety independently selected from the group consisting of hydrogen, alkyl and halogen substituted alkyl groups, n is an integer of 1 to 3 inclusive, and m=3−n, and

said crosslinked silane is a firmly adherent matrix crosslinked with the surface of the elastomeric article, which matrix has a thickness of between about 0.01 and about 20 microns and forms a plurality of raised micro-nodules which penetrate and bond into the surface of the elastomeric article and which reduce the coefficient of friction of the surface of the elastomeric article.

5,736,252
METHOD OF MAKING WHITE DIAMOND FILM

Louis K. Bigelow, Boylston, Mass.; Kevin J. Gray, Nashua, N.H.; Grant Lu, Shrewsbury; Matthew A. Simpson, Arlington, both of Mass., and Gordon L. Cann, Laguna Beach, Calif., assignors to Saint-Gobain/Norton Industrial Ceramics Corp., Worcester, Mass.

Division of Ser. No. 348,506, Dec. 1, 1994, which is a continuation of Ser. No. 7,433, Jan. 22, 1993, abandoned. This application May 19, 1995, Ser. No. 445,399
Int. Cl.^{6} B01J *3/06*
U.S. Cl. 428—408 **6 Claims**

1. Polycrystalline diamond film material made by chemical vapor deposition having an optical absorption coefficient of less than 10 per centimeter and a lateral thermal conductivity by

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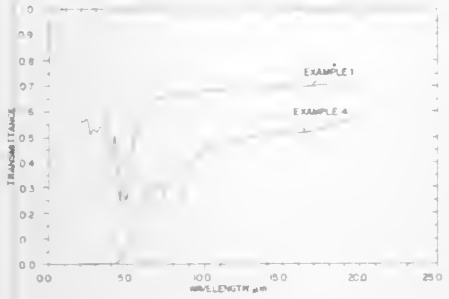


converging wave of at least about 13 watts per centimeter per degree Celsius.

5,736,253
HOT-STAMPING FOILS

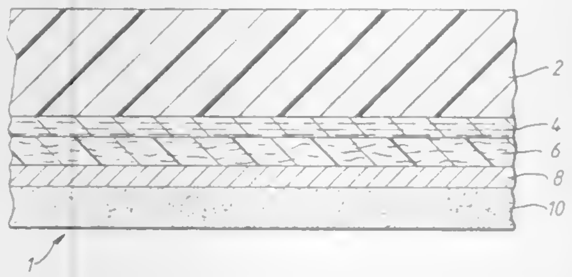
Trevor Thomas Hinchcliffe, 32d Forrester Park Road, Edinburgh, Scotland, EH12 9AG; Philip Norman Spencer, 3 Hallcroft Park, Ratho, Midlothian, Scotland, EH38 8RZ, and James Clifford Kelly, 185 Causewayside Street, Newington, Edinburgh, Scotland

Filed Mar. 20, 1996, Ser. No. 620,840

Claims priority, application United Kingdom, Mar. 20, 1995, 9505606

Int. Cl.^{6} B32B *15/08;27/00;15/04*

U.S. Cl. 428—461 **11 Claims**



1. A hot-stamping foil comprising a metallic layer carried on a flexible carrier layer, and having a layer of a heat-activated adhesive on the surface of the metallic layer opposite the carrier layer and a layer of a lacquer composition coating the surface of the metallic layer facing the carrier layer, the lacquer being a blend of at least 50% by weight, based on the total dry weight of the lacquer composition, of a copolymer of styrene and maleic anhydride (SMA copolymer) with at least one other acrylic copolymer selected from polymethylmethacrylate copolymers, polyacrylic acid copolymers and styrene/acrylic acid copolymers.

5,736,254
MULTILAYER LAMINATE

Seiji Suzuki, Nagoya, and Toshitsugu Kikuchi, Toyonaka, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

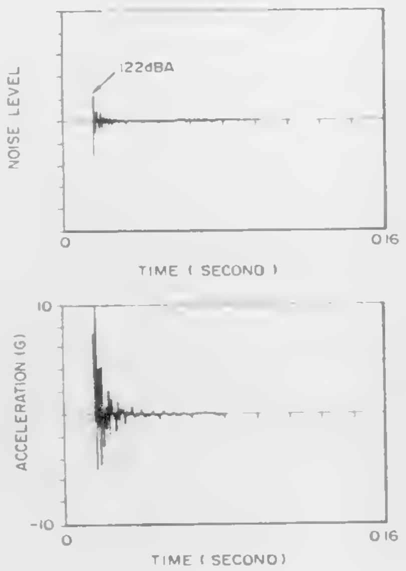
Continuation of Ser. No. 244,460, Jun. 2, 1994, abandoned. This application Apr. 30, 1996, Ser. No. 641,269

Claims priority, application Japan, Oct. 2, 1992, 4-264825

Int. Cl.^{6} B32B *15/08;15/14*

U.S. Cl. 428—461 **8 Claims**

1. A multilayer laminate which consists essentially of a metal plate and at least two fiber-reinforced polypropylene layers containing a glass fiber having a length of 10 mm or more, said at least two fiber-reinforced polypropylene layers being laminated respectively on each side of the metal plate to completely encapsulate the metal plate, said multilayer laminate having a super impact absorpivity shown by a noise level at an impact of 125 dBA or below as determined by measuring a level of noise through a microphone placed in a predetermined position at a distance of about 50 mm from the multilayer laminate after allowing a steel ball to fall freely from a height of about 500 mm and impact said multilayer laminate, said steel ball having a diameter of about 11.0 mm and a mass of about 5.6 g, or a vibration damping rate of 1 G or below after about 0.04 seconds as determined by measuring a strength of a virbration by means of an accelerometer attached to a side reverse to the impacted portion after allowing a steel ball to fall freely from a height of about 500 mm and to impact said multilayer laminate, said steel ball having a diameter of about 11.0 mm and a mass of about 5.6 g.



5,736,255
ALUMINUM PHOSPHATE/SILICON DIOXIDE-BASED SEALING MATERIAL

Satoshi Sasaki, and Hideo Nitta, both of Saitama-ken, Japan, assignors to Praxair S.T. Technology, Inc., Danbury, Conn.

Filed Oct. 28, 1993, Ser. No. 142,017

Int. Cl.^{6} B32B *17/00*

U.S. Cl. 428—469 **5 Claims**

5. A metal article resistant to attack by molten metal having a layer on its surface which comprises 15 to 50 wt. % silicon dioxide and 50 to 85 wt. % aluminum phosphate with normal impurities.

5,736,256
LITHOGRAPHIC PRINTING PLATE TREATED WITH ORGANO-PHOSPHONIC ACID CHELATING COMPOUNDS AND PROCESSES RELATING THERETO

Howard A. Fromson, 49 Main St., Stonington, Conn. 06378; Robert F. Gracia, Woodstock Valley, Conn.; Sean P. Evans, South Windsor, Conn., and William J. Rozell, Vernon, Conn., assignors to Howard A. Fromson, Stonington, Conn.

Continuation-in-part of Ser. No. 577,043, Dec. 22, 1995, abandoned, which is a continuation-in-part of Ser. No. 454,608, May 31, 1995, abandoned. This application May 23, 1996, Ser. No. 652,402

Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—469 **15 Claims**

1. Lithographic developing composition consisting essentially of a monomeric, organo-phosphonic acid chelating compound containing at least three methane organo-phosphonic acid groups bound to a nitrogen atom or salt thereof

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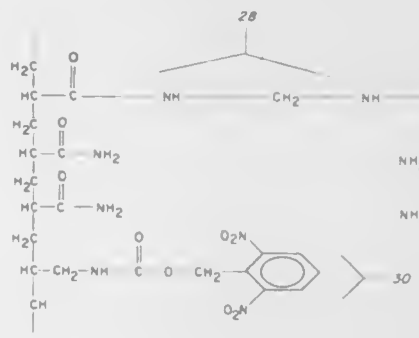
5,736,257
PHOTOACTIVATABLE POLYMERS FOR PRODUCING PATTERNED BIOMOLECULAR ASSEMBLIES

David W. Conrad, 8778 Old Colony Way, 2D, Alexandria, Va. 22309, and Paul T. Charles, Jr., 8515 Grandhaven Ave., Upper Marlboro, Md. 20772

Filed Apr. 25, 1995, Ser. No. 428,454

Int. Cl.^{6} B32B *27/08;* **G01N** *33/53;* **C12M** *1/00;* **C08F** *2/46*

U.S. Cl. 428—474.4 **7 Claims**



1. A biochip for detecting multiple analytes, said biochip comprising:

a substrate coated with two or more biomolecules in a pattern wherein said biomolecules are attached to said substrate via an intervening polymerized network layer, said polymerized network layer formed by the polymerization and photoactivation of acrylamide, a bis vinyl compound, and a photoactivatable compound, each of said acrylamide and said compounds containing one or more vinyl groups.

5,736,258
FILM EXTRUDED FROM AN IN SITU BLEND OF ETHYLENE COPOLYMERS

Francis H. Moy, Belle Mead, N.J., assignor to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Jul. 3, 1996, Ser. No. 675,596

Int. Cl.^{6} B32B *27/32*

U.S. Cl. 428—523 **7 Claims**

1. A shrink film comprising a blend of copolymers of ethylene and one or more alpha-olefins having 3 to 12 carbon atoms formed in situ, said blend having a melt index in the range of about 0.2 to about 3.5 grams per 10 minutes; a melt flow ratio in the range of about 50 to about 175; a molecular weight in the range of about 90,000 to about 225,000; a Mw/Mn ratio of at least about 8; and a density in the range of 0.910 to 0.940 gram per cubic centimeter, said shrink film being formed at a blow up ratio in the range of about 2:1 to about 6:1 and having the following properties:

(i) at about 135 degrees C., a shrinkage of at least about 50 percent in the machine direction and zero or positive shrinkage in the transverse direction;

(ii) melt stress is zero or positive kilopascals; and

(iii) a cooled stress of at least about 0.35×10^3 kilopascals.

5,736,259
PACKING MATERIAL FOR HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY AND PROCESS FOR PRODUCING THE SAME

Hiroshi Oda, and Kiyokazu Murata, both of Hyogo, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

PCT No. PCT/JP95/00490, § 371 Date Oct. 20, 1995, § 102(e) Date Oct. 20, 1995, PCT Pub. No. WO95/25279, PCT Pub. Date Sep. 21, 1995

PCT Filed Mar. 17, 1995, Ser. No. 537,912

Claims priority, application Japan, Mar. 17, 1994, 6-47053; Mar. 17, 1995, 7-00490

Int. Cl.^{6} B32B *23/04;* **C07H** *5/04*

U.S. Cl. 428—532 **12 Claims**

1. A packing material for high-performance liquid chromatography, said packing material comprising a polysaccharide derivative coated on a carrier, said polysaccharide derivative being selected from the group consisting of a polysaccharide containing an urethane bond, a polysaccharide containing an ester bond, and a polysaccharide containing an ether bond; and the amount of dissolved matter derived from the polysaccharide derivative being no more than 0.1 mg, the amount of dissolved matter being determined by passing a mixed solution of n-hexane/2-propanol in a volume ratio of 9/1 through a column having an inner diameter of 1 cm and a length of 25 cm at a flow rate of 4.7 ml/min and at a temperature of 40° C., taking 564 ml of the solution and drying it.

5,736,260
MULTILAYER PACKAGING FILM

Haruo Hayashida, Chiba; Akihiro Ichige, Sodegaura; Takeshi Yamada, Suita; Kazuo Kondo; Teruo Tada, both of Marugame; Toyoki Wano, Zentsuji, and Masaaki Zenigame, Marugame, all of Japan, assignors to Sumitomo Chemical Company, Limited, and Okura Industrial Co., Ltd., both of Japan

Filed Sep. 25, 1995, Ser. No. 533,553

Claims priority, application Japan, Oct. 6, 1994, 6-268352

Int. Cl.^{6} B32B *27/32;* **B65B** *11/00*

U.S. Cl. 428—516 **4 Claims**

1. A laminated film comprising at least three layers, wherein a core layer comprising a propylene-ethylene copolymer, having an ethylene content of from 2 to 12 mol %, is interposed between two outer layers, each of said outer layers comprising (A) an ethylene-α-olefin copolymer having a density of less than 0.910 g/cm^3 but not less than 0.870 g/cm^3 and an ethylene content of at least 50 mol % and having only one endothermic peak when analyzed by differential scanning calorimetry, (B) an ethylene-α-olefin copolymer having a density of 0.910–0.935 g/cm^3 and an ethylene content of at least 50 mol %, and (C) an anti-fogging agent, the density of (B) being greater by at least 0.008 g/cm^3 than that of (A), wherein the weight ratio of (A) to (B) is in the range of 95/5 to 40/60.

5,736,261
CONDUCTIVE PASTE

Haruhiko Kano, Muko, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

Filed Nov. 22, 1995, Ser. No. 561,544

Claims priority, application Japan, Nov. 25, 1994, 6-291435

Int. Cl.^{6} B22F *7/04*

U.S. Cl. 428—552 **15 Claims**

1. A conductive paste comprising spherical silver powder, flake-form silver powder, low softening point glass frit, organic rhodium material and an organic vehicle, wherein

the proportion of the flake-form silver powder with respect to the total amount of silver powder is in the range of about 15 to 80 wt %, and

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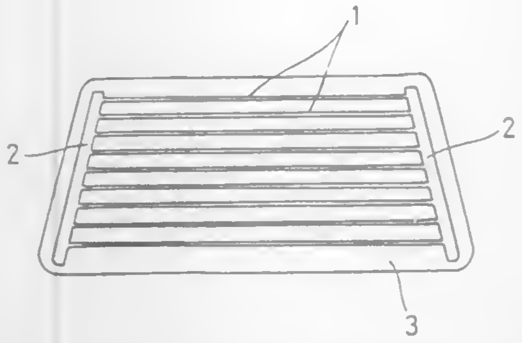


the proportion of the rhodium contained in the organic rhodium material with respect to the total amount of silver powder is 0.00001 to below about 0.001 wt %

5,736,262
MAGNETIC RECORDING MEDIUM

Shin Ohkijima; Masahiro Oka, and Fumiaki Yokoyama, all of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Dec. 5, 1995, Ser. No. 567,417

Claims priority, application Japan, Dec. 5, 1994, 6-300731; Mar. 29, 1995, 7-071517

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—611 14 Claims

1. A magnetic recording medium, comprising
a non-magnetic substrate,
a Co alloy magnetic layer;
a non-magnetic Cr alloy underlayer positioned between said magnetic layer and said substrate; and
an intermediate layer formed of a Co alloy having a hcp structure positioned between said magnetic layer and said non-magnetic underlayer without intervening layers, wherein
the ratio R=(BsIL*tIL)/(BsML*tML)<0.2, wherein (BsIL*tIL) is the product of the saturation magnetic flux density of the Co alloy, which constitutes the intermediate layer and the intermediate layer film thickness, and (BsML*tML) is the product of the saturation magnetic flux density of the Co alloy which constitutes the magnetic layer and the magnetic layer film thickness.

5,736,263
MAGNETIC RECORDING MEDIUM COMPRISING SUCCESSIVE MAGNETIC METALLIC FILMS OF IRON, NICKEL, AND COBALT DEPOSITED ON A SUBSTRATE

Osamu Yoshida; Noriyuki Kitaori; Hirohide Mizunoya; Katsumi Sasaki; Yuzo Matsuo; Shigemi Wakabayashi, and Akira Shiga, all of Ichikaimachi, Japan, assignors to Kao Corporation, Tokyo, Japan

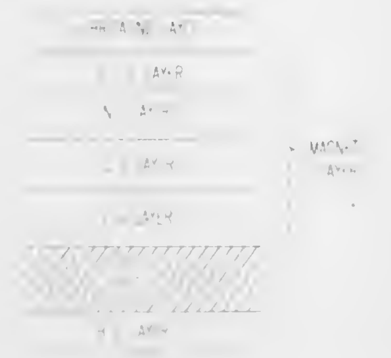
Filed Feb. 8, 1996, Ser. No. 598,419

Claims priority, application Japan, Feb. 8, 1995, 7-020587

Int. Cl.^{6} G11B *05/66*

U.S. Cl. 428—611 20 Claims

1. A magnetic recording medium comprising a base film and, provided thereon, a magnetic layer, wherein said magnetic layer comprises a magnetic metallic film containing iron as a main component formed on said base film, a magnetic metallic film containing cobalt as a main component formed on said film containing iron as the main component, and a magnetic metallic film containing nickel as the main component formed on said film containing cobalt as the main component, wherein the film containing iron as the main component has a thickness of 1000 to 3000 Å, the film containing cobalt as the main component has a thickness of 300 to 2000 Å, and the film containing nickel as the main component has a thickness of 50 to 500 Å.



5,736,264
MAGNETIC CORE AND MAGNETIC HEAD USING THE SAME

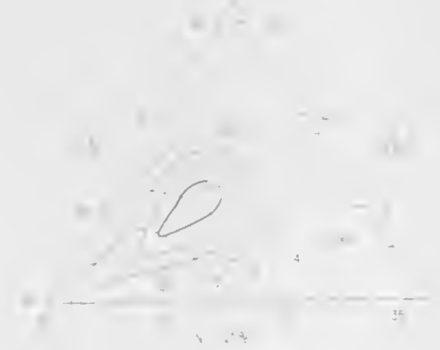
Nobuyuki Ishiwata; Yoshio Takeshima; Takahiro Korenari, and Haruo Urai, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 23, 1993, Ser. No. 35,411

Claims priority, application Japan, Apr. 15, 1992, 4-094675

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—694 R 5 Claims



1. A magnetic head comprising:
a magnetic core comprising a magnetic layer which is of a soft magnetic alloy mainly composed of Fe, N and M, said M being at least one element selected from the group consisting of Ta, Zr, Nb, Hf and Ti, and said composition of said alloy meeting $72 \leq x \leq 82$, $5 \leq y \leq 15$, $10.6 \leq z \leq 15$, and $x+y+z=100$ by atomic weight per cent, wherein said alloy is indicated to be $Fe_xM_yN_z$; and
a substrate for supporting said magnetic core;
wherein said magnetic layer has a structure which is of crystal grains of body-centered cubic,
wherein said crystal grains have lattice planes which are oriented at random,
and wherein said magnetic film achieves a coercivity of less than 0.20 Oe

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5,736,265
MAGNETO-OPTICAL RECORDING MEDIUM AND RECORDING METHOD USING THE SAME

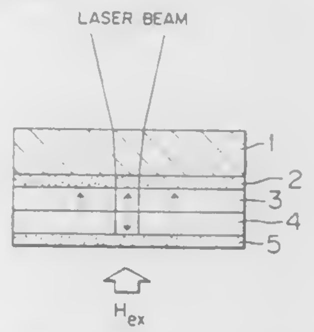
Motoharu Tanaka; Atsuyuki Watada, both of Kawasaki, and Toshiaki Tokita, Zama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 793,853, Nov. 18, 1991, abandoned. This application Jun. 22, 1994, Ser. No. 263,947

Claims priority, application Japan, Nov. 19, 1990, 2-313324; Jan. 18, 1991, 3-018445; Jan. 18, 1991, 3-018446; Sep. 6, 1991, 3-254566

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—694 ML 4 Claims



1. A magneto-optical recording medium comprising a substrate and, provided thereon, a recording layer which comprises,
(a) a memory layer, having a Curie temperature higher than room temperature, consisting of a ferromagnetic layer with perpendicular anisotropy, and
(b) an auxiliary layer consisting of an antiferromagnetic layer which exhibits an antimagnetic phase at room temperature, and a ferromagnetic phase at temperatures near the Curie temperature of said memory layer, because of the occurrence of magnetic phase transformation, with said memory layer and said auxiliary layer being overlaid, said auxiliary layer consisting of Mn_2Sb or $Mn_{2-q}SbY_q$ in which Y is Cr, Ti or V and $0<q \leq 2$.

5,736,266

Patent Not Issued For This Number

5,736,267
TRANSPARENT CONDUCTIVE FILM AND METHOD FOR ITS PRODUCTION, AND SPUTTERING TARGET

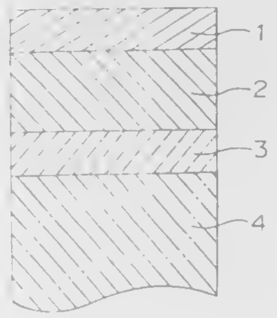
Akira Mitsui; Kazuo Sato; Masami Miyazaki; Junichi Ebisawa; Yasuo Hayashi; Masao Higeta, all of Yokohama; Katsuaki Aikawa, Kanagawa, and Atsushi Hayashi, Yokohama, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Aug. 16, 1995, Ser. No. 515,805

Claims priority, application Japan, Aug. 17, 1994, 6-193421

Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—702 2 Claims



1. A transparent conductive film, comprising zinc oxide containing gallium and silicon, said silicon in an amount of from 0.01 to 1.5 mol % in terms of SiO_2, and said gallium in an amount of from 0.2 to 8.0 mol % in terms of Ga_2O_3.

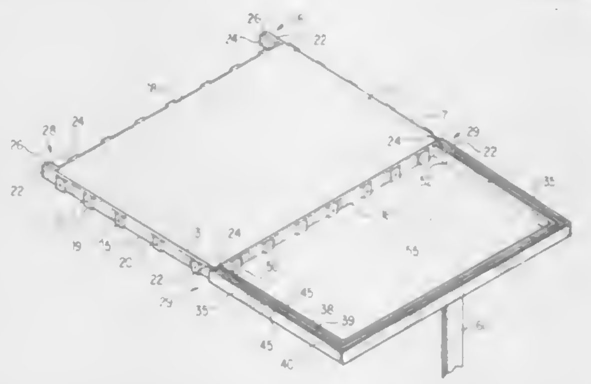
5,736,268
HIGH TEMPERATURE FUEL CELL STACK POWER BUS

Joseph M. Pondo, Bolingbrook, Ill., assignor to M-C Power Corporation, Burr Ridge, Ill.

Filed Sep. 26, 1996, Ser. No. 721,366

Int. Cl.^{6} H01M *8/02*

U.S. Cl. 429—12 8 Claims



1. A fuel cell stack power bus system comprising
a fuel cell stack end plate having a peripheral edge portion,
a plurality of current collectors detachably mounted with respect to said peripheral edge portion,
each said current collector in electrical contact with an adjacent said current collector;
a bus connector in electrical contact with at least one of said current collectors; and
a bus mounted to said bus connector.

5,736,269
FUEL CELL STACK AND METHOD OF PRESSING TOGETHER THE SAME

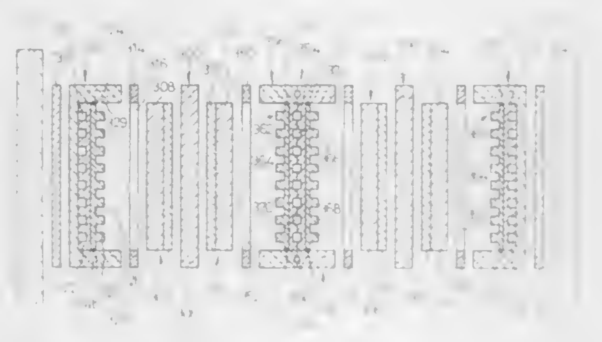
Takafumi Okamoto; Hideo Kato; Norimasa Kawagoe; Akio Yamamoto, and Ichiro Tanaka, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 419,417, Apr. 10, 1995, Pat. No. 5,534,362, which is a continuation of Ser. No. 78,788, Jun. 17, 1993, Pat. No. 5,419,980. This application Jul. 3, 1996, Ser. No. 674,922

Claims priority, application Japan, Jun. 18, 1992, 4-182860; Jul. 13, 1992, 4-206977; Jun. 14, 1996, 8-154624

Int. Cl.^{6} H01M *8/10*

U.S. Cl. 429—32 15 Claims



1. A fuel cell stack of a solid polymer electrolyte membrane type comprising,
a solid polymer electrolyte membrane having a fuel gas side and an oxidant gas side,
a first electrode formed separately from said solid polymer electrolyte membrane and displaceably disposed on said fuel

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gas side for being pressed, under a pressure of a fuel gas, into contact with one surface of said solid polymer electrolyte membrane;

a second electrode formed separately from said solid polymer electrolyte membrane and displaceably disposed on said oxidant gas side for being pressed, under a pressure of an oxidant gas, into contact with the other surface of said solid polymer electrolyte membrane;

a first separator, arranged adjacent to said first electrode disposed on said fuel gas side, for receiving said fuel gas; and

a second separator, arranged adjacent to said second electrode disposed on said oxidant gas side, for receiving said oxidant gas;

said first electrode disposed on said fuel gas side integrally formed of an electrode catalyst layer facing said fuel gas side of said membrane and a fuel gas diffusion layer, and said second electrode disposed on said oxidant gas side integrally formed of an electrode catalyst layer facing said oxidant gas side of said membrane and an oxidant gas diffusion layer.

5,736,270

BATTERY DEVICE

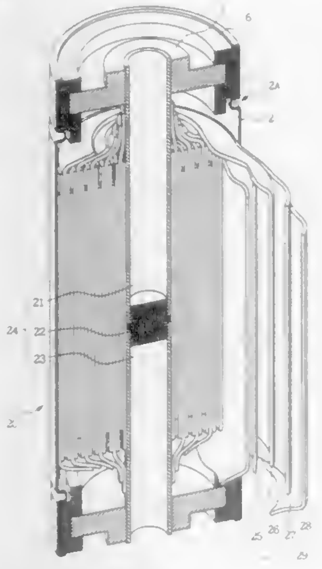
Hirotsugu Suzuki, Chiba, and Nobuhiro Fujiwara, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 7, 1996, Ser. No. 660,427

Claims priority, application Japan, Jun. 8, 1995, 7-167010

Int. Cl.^{6} H01M 2/22

U.S. Cl. 429—94 **11 Claims**



1. A battery device comprising:

an elongate substantially cylindrical anode terminal formed of a first metallic material,

an elongate substantially cylindrical cathode terminal formed of a second metal material different from said first metallic material;

a cylindrical insulating member including a first end telescopically engaging an end of said anode terminal and a second end telescopically engaging an end of said cathode terminal to define an elongate inner tube assembly;

an elongate stacked electrode assembly including a first separator sheet, an anode having a first elongate exposed conductive metal foil edge portion of said first metallic material extending outwardly from one side of said stacked electrode assembly, a second separator sheet and a cathode having a second elongate exposed conductive metal foil edge portion of said second metallic material extending outwardly from a side of said stacked electrode assembly opposite said first metal foil edge portion;

said elongate stacked electrode assembly being spirally wrapped around said inner tube assembly with said first separator sheet disposed adjacent said inner tube, the first metal foil edge of said anode being deformed radially inwardly so that turns of the first metal foil edge are disposed in physical and electrical contact with said anode terminal or with radially inner turns of said first metal foil edge circumferentially contacting said anode terminal, the second metal foil edge of said cathode being deformed radially inwardly so that turns of the second metal foil edge are disposed in physical and electrical contact with said cathode terminal or with radially inner turns of said second metal foil edge circumferentially contacting said anode terminal.

5,736,271

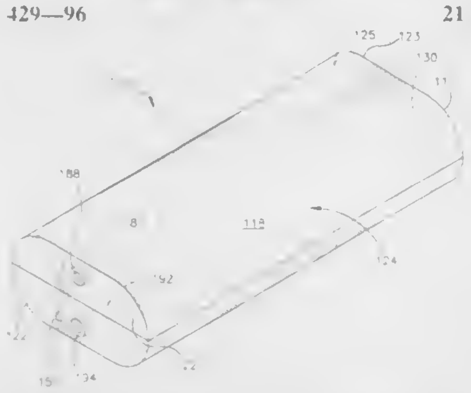
BATTERY PACK FOR PORTABLE ELECTRONIC DEVICE

James M. Cisar, Wadsworth, and Lee E. Leppo, Tallmador, both of Ohio, assignors to Telxon Corporation, Akron, Ohio

Filed Jun. 28, 1996, Ser. No. 672,740

Int. Cl.^{6} H01M *2/10*

U.S. Cl. 429—96 **21 Claims**



1. A battery pack adapted to be removably inserted into a battery receiving compartment of a portable electronic device for supplying power to the device, the device housing including two substantially parallel electrical terminal pins extending into the battery receiving compartment from a portion of a wall defining the compartment, the terminal pins electrically connected to power supply circuitry of the device, the battery pack comprising:

a) a plurality of cylindrically shaped battery cells for providing power to the device;

b) an elongated casing having two spaced apart ends and defining an interior region in which the plurality of battery cells are disposed along two substantially parallel longitudinal axis such that a first cell includes a positive connector plate near a first end of the casing and second cell includes a negative connector plate near the first end of the casing, outer cylindrical surfaces of the first and second cells and an inner surface of the casing defining two elongated open regions extending away from the first end of the casing, the casing further including two spaced apart apertures through the first end of the casing sized to accepting the housing terminal pins;

c) an integrated circuit board disposed intermediate the first end of the casing and the negative and positive connector plates and including conductive traces electrically coupled to the connector plates of the first and second cells;

d) a pair of open ended elongated sockets adapted to receive respective housing terminal pins when the battery pack is inserted into the housing battery receiving compartment, the sockets being affixed to the circuit board and extending though the apertures in the board and into the elongated open regions in a direction substantially parallel to the two longitudinal axis of the cells; and

e) the conductive traces of the board electrically coupling one socket to the positive connector plate and electrically coupling the other socket to the negative connector plate such that a first housing terminal pin is electrically coupled to the positive connector plate and a second housing terminal pin is electrically coupled to the negative connector plate when the battery pack is inserted into the housing battery receiving compartment

5,736,272

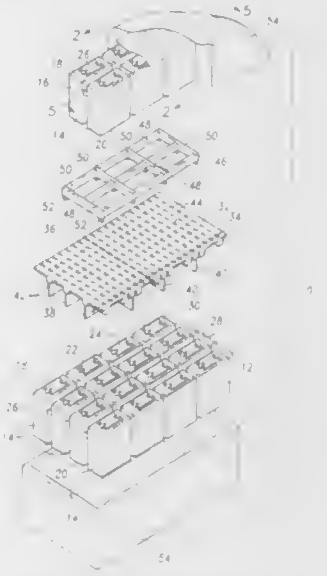
BATTERY TRAY

Michael Jon Veenstra, Allen Park, Mich.; John Clark, and Debra Sojka, both of Granger, Ind., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 21, 1997, Ser. No. 786,492

Int. Cl.^{6} H01M *2/10*

U.S. Cl. 429—99 **7 Claims**



1. A battery tray assembly comprising,

a first member having a first interface surface and a first battery retaining surface, said first retaining surface retaining a top surface of a first shoulder area of a first battery;

a second member having a second interface surface and a second battery retaining surface, said second retaining surface retaining a bottom surface of a second battery, and

a means for securing said first interface surface to said second interface surface, whereby said first and second batteries are retained in a fixed position having said first battery top surface shoulder area supporting the weight of said second member.

5,736,273

BATTERY SOCKET ASSEMBLY

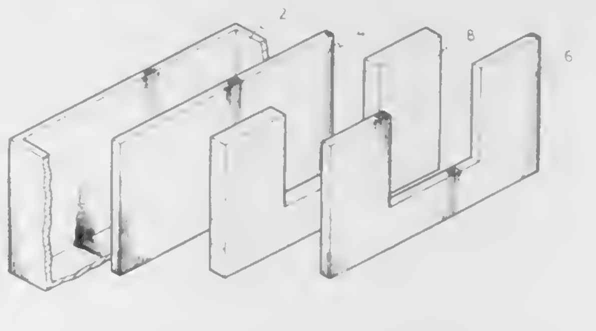
Kyengjun Lee, Seoul, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed Nov. 4, 1996, Ser. No. 740,881

Claims priority, application Rep. of Korea, May 15, 1996, 96-11982

Int. Cl.^{6} H01M *2/10*

U.S. Cl. 429—100 **5 Claims**



1. A battery socket assembly for receiving a battery having a protruding positive pole and a flat negative pole, the battery socket assembly comprising:

a battery barrel having an end,

an anode plate positioned at the end of the battery barrel;

a cathode plate spaced apart from the anode plate, said cathode plate having a surface for contacting the flat negative pole of the battery, and a groove for passing the protruding positive pole of the battery to the anode plate; and

an insulator disposed between and contacting both the anode plate and the cathode plate, said insulator having a groove for passing the protruding positive pole of the battery to the anode plate

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5,736,274

CONJUGATED N-FLUOROPYRIDINIUM SALT-CONTAINING POLYMER AND USE OF THE SAME

Teruo Umemoto; Kenji Adachi; Ginjiro Tomizawa; Sumi Ishihara, and Masayuki Nagayoshi, all of Tsukuba, Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

PCT No. PCT/JP95/02172, § 371 Date Apr. 18, 1997, § 102(e) Date Apr. 18, 1997, PCT Pub. No. WO96/12702, PCT Pub. Date May 2, 1996

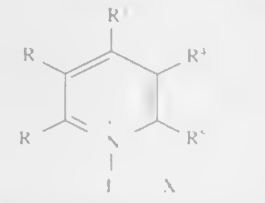
PCT Filed Oct. 20, 1995, Ser. No. 817,794

Claims priority, application Japan, Oct. 22, 1994, 6-282491

Int. Cl.^{6} C07D *213/89* H01M *4/60*

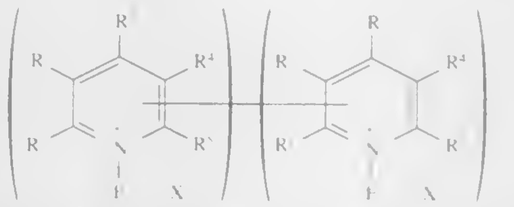
U.S. Cl. 429—192 **21 Claims**

1. A conjugated N-fluoropyridinium salt-containing polymer having a recurring unit represented by the formula (I)



(I)

wherein adjacent R^1 and R^2, R^2 and R^3, R^3 and R^4 or R^4 and R^5 are optionally bonded with each other to form —CR^6=CR^7—CR^8=CR^9—, simultaneously two of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8 and R^9 are respectively a single bond and the remainder are the same or different, each is hydrogen atom, a halogen atom, an alkyl group, a haloalkyl group, an aryl group, an alkoxyl group, an aryloxy group, an alkoxycarbonyl group, an aryloxycarbonyl group, a cyano group, a nitro group or an acyl group, X^- is a conjugate base of a Bronsted acid, or a conjugated N-fluoropyridinium salt-containing polymer represented by the formula (VII)



(VII)

wherein R^1 and R^2, R^2 and R^3, R^3 and R^4 or R^4 and R^5 are optionally bonded with each other to form —CR^6=CR^7—CR^8=CR^9—, also R^1 and R^2, R^2 and R^3, R^3 and R^4 or R^4 and R^5 are optionally bonded with each other to form —CR^6=CR^7—CR^8=CR^9—, one of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8 and R^9 is single-bonded to one of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8 and R^9 and the remaining R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8 and R^9 are the same or different, each is hydrogen atom, a halogen atom, an alkyl group, a haloalkyl group, an aryl group, an alkoxyl group, an aryloxy group, an alkoxycarbonyl group, an aryloxycarbonyl group, a cyano group, a nitro group or an acyl group, X^- and X^- are the same or different, each is a conjugate base of a Brensted acid

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5,736,275

HIGH POWER BIPOLAR BATTERY/CELLS WITH ENHANCED OVERCHARGE TOLERANCE

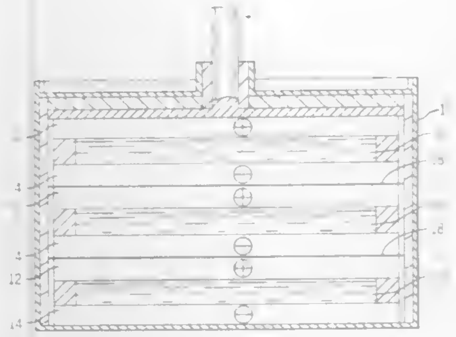
Thomas D. Kaun, New Lenox, Ill., assignor to The University of Chicago, Chicago, Ill.

Filed Apr. 30, 1996, Ser. No. 641,331

Int. Cl.^{6} H01L *4/58* *10/18*

U.S. Cl. 429—199 **24 Claims**

1. A lithium battery, comprising



- a plurality of cells, each said cell with a positive electrode formed of either FeS or FeS_2, and a negative electrode formed of lithium alloy phases,
- a plurality of separators between said positive and negative electrodes; and
- an electrolytic mixture of lithium chloride, lithium bromide, and potassium bromide, said electrolytic mixture modified with lithium iodide in an amount sufficient to increase lithium solubility in said mixture

5,736,276
METHOD FOR FABRICATING PHASE INVERTED MASK

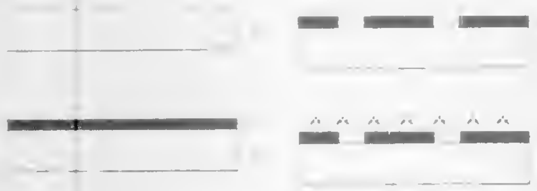
Young Gwan Kim, Chungcheongbuk-do, and Hyun Kyu Han, Seoul, both of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed May 31, 1996, Ser. No. 657,610

Claims priority, application Rep. of Korea, Dec. 26, 1995, 56314/1995

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **10 Claims**



1 A method of fabricating a phase inverted mask comprising the steps of:
- forming a shielding layer pattern on a transparent substrate;
- injecting oxygen ions into a surface of the shielding layer pattern, and
- converting the shielding layer pattern having the oxygen ions injected therein into an oxidation layer to thereby form a phase inverted layer

5,736,277
METHOD OF MAKING MASK PATTERN DATA AND PROCESS FOR MANUFACTURING THE MASK

Toshitsugu Takekuma, Ohme; Toshio Suzuki, Hatoyama-machi; Hidetoshi Iwai, Ohme, and Masamichi Ishihara, Hamura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 534,829, Sep. 27, 1995, Pat. No. 5,565,285, which is a division of Ser. No. 886,403, May 21, 1992, Pat. No. 5,458,998. This application Jul. 11, 1996, Ser. No. 678,662

Claims priority, application Japan, May 22, 1991, 3-117355

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **53 Claims**

1 A method for making a phase-shifting mask in which an integrated circuit pattern of the phase shifting mask is formed in accordance with mask pattern data at least having (1) an actual pattern data corresponding to at least one pattern of the mask to be transferred onto an integrated circuit wafer, (2) an auxiliary pattern data corresponding to the at least one pattern of the mask not to be transferred onto the integrated circuit wafer, and (3) first and second shifter pattern data for respectively patterning first and second shifter pattern groups of the mask, the first and second shifter pattern groups being different from each other for broadening at least one dimension of at least one of the first and second shifter pattern data in a broadening step, the method including carrying out pattern inspection and necessary correction with electronic graphic processing which can memorize graphic data and can carry out an arithmetic process in connection therewith, the method comprising steps of
- (i) storing the first and second shifter pattern data of the mask pattern data by electronic graphic processing so as to electronically independently access the first and second shifter pattern data respectively, and then
- (ii) carrying out graphic inspection of the first and second shifter pattern data of the mask pattern data stored in step (i).

5,736,278
COLOR FILTER HAVING LIGHT SCREENING RESIN LAYER AND FILTER RESIN LAYER

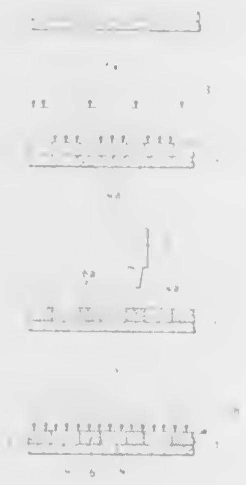
Koichiro Nakazawa, Tokyo; Katsuhiro Shirota, Kawasaki; Takeshi Miyazaki, Ebina, and Akihiko Yamada, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 20, 1996, Ser. No. 667,836

Claims priority, application Japan, Jun. 20, 1995, 7-153268; Jun. 20, 1995, 7-153269

Int. Cl.^{6} G02B *5/20*; G02F *1/1335*

U.S. Cl. 430—7 **13 Claims**



1 A process for producing a substrate having light screening areas, wherein a resin layer having a thickness of at most 2.0 μm, in which numbers of transparent areas and light-screening areas formed with ink dots at margins of the transparent areas are arranged, is formed on a transparent base, which process comprises the steps of:
- (1) forming a resin layer of at most 2.0 μm in thickness, which is capable of setting by light irradiation or light irradiation and heating and is ink-receptive on the transparent base;
- (2) setting portions of the resin layer, at which the transparent areas will be formed, by light irradiation or light irradiation and heating,
- (3) applying an ink, by which the light screening areas are formed, to unset portions of the resin layer at which the light-screening areas will be formed, by an ink-jet system; and
- (4) setting the colored portions of the resin layer by light irradiation or light irradiation and heating

5,736,279
ACCURATE DRILLING OF PROBE HOLES IN THE INSULATING PLATE OF AN ELECTRICAL TEST HEAD

Gary Damon Mott; Ronald Romonosky, both of Austin, and Dale Wayne Wilhite, Round Rock, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 6, 1996, Ser. No. 746,063

Int. Cl.^{6} G06F *9/00*; G01R *15/12*

U.S. Cl. 430—22 **8 Claims**

1 In the fabrication of a test head having a selectively patterned grid of probes located by a hole pattern in an insulating plate, a method of accurately forming the hole pattern, comprising the steps of
- applying a layer of photoimageable material to a planar surface of the insulating plate,
- exposing the photoimageable material in a pattern related to the hole pattern;
- developing the photoimageable material to leave a reference pattern suitable for drill alignment, and
- drilling the insulating plate using the reference pattern for alignment

5,736,280
METHOD OF ESTIMATION OF RESIST PATTERN AND METHOD OF EXPOSURE BASED ON SAME

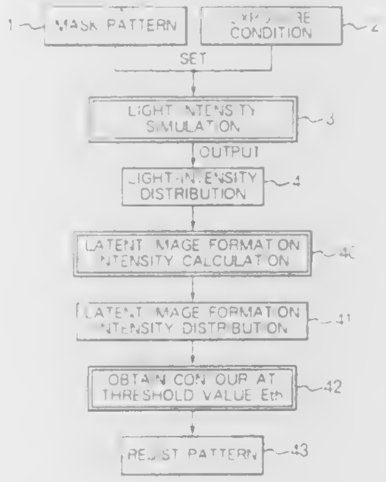
Keisuke Tsudaka, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 558,676

Claims priority, application Japan, Nov. 16, 1994, 6-281749

Int. Cl.^{6} G03C *5/00*, G03F *9/00*

U.S. Cl. 430—30 **13 Claims**


1
MASK PATTERN
EXPOSURE CONDITION
2
SET
LIGHT INTENSITY SIMULATION
3
OUTPUT
LIGHT-INTENSITY DISTRIBUTION
4
LATENT IMAGE FORMATION INTENSITY CALCULATION
40
LATENT IMAGE FORMATION INTENSITY DISTRIBUTION
41
OBTAIN CONTOUR AT THRESHOLD VALUE Eth
42
RESIST PATTERN
43

1 A method of estimation of a resist pattern which calculates a resist pattern formed by projecting a mask pattern on a resist on a wafer by exposure and then developing it, comprising the steps of
- calculating a 2D light intensity of an exposure light projected on the wafer based on the mask pattern and exposure conditions,
- using light intensities at peripheral positions of any noted position on a 2D plane of said wafer and a distance between said noted position and said peripheral positions as a basis for calculating and cumulatively adding an effect of the light intensities at a plurality of said peripheral positions on exposure energy at said any noted position;
- calculating a latent image formation intensity at said any noted position for the 2D plane of said wafer,
- finding a distribution of said latent image formation intensity in the 2D plane of said wafer;
- determining a threshold value of the latent image formation intensity corresponding to amount of exposure and development conditions; and
- finding a contour at said threshold value for the distribution of the latent image formation intensity and,
- estimating the pattern defined by the contour as the resist pattern

5,736,281
DOSE MODIFICATION PROXIMITY EFFECT COMPENSATION (PEC) TECHNIQUE FOR ELECTRON BEAM LITHOGRAPHY

George Patrick Watson, Avon, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 7, 1996, Ser. No. 660,632

Int. Cl.^{6} G03C *5/00*

U.S. Cl. 430—30 **8 Claims**

1 Method for correcting proximity effects in an e beam lithography system, the method comprising the steps of
- applying an electron beam sensitive resist material onto a substrate,
- introducing an image of a pattern into the electron beam sensitive resist material, wherein the incident dose of radiation used to introduce the image of the pattern into the resist material is adjusted by obtaining an exposure dose profile of the pattern, determining a dose height that corresponds to each edge of a feature in said pattern, determining a clearing dose for each of said edges of the feature as a function of said dose height and then determining an incident dose of radiation based upon the clearing dose, and
- developing the image of said pattern

5,736,282
ELECTROPHOTOGRAPHIC PHOTORECEPTORS INCLUDING TITANYLOXYPHTHALOCYANINE CRYSTALS

Shinichi Tamura; Youichi Tei; Naoki Itoh; Kazumi Egota, and Kenichi Ohkura, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 562,348, Nov. 22, 1995, abandoned. This application May 13, 1996, Ser. No. 645,322

Claims priority, application Japan, Nov. 24, 1994, 6-289363; Nov. 10, 1995, 7-292417

Int. Cl.^{6} G03G *5/047*

U.S. Cl. 430—59 **9 Claims**

1 An electrophotographic photoreceptor comprising
- a conductive substrate; and
- a photosensitive layer including a charge generation material and a charge transport material,
- wherein said charge generation material is a titanyloxyphthalocyanine crystal having a maximum diffraction intensity observed at Bragg angle (2θ) of 9.6°±0.2° and clear peaks of diffraction intensity observed at 7.22°±0.2°, 9.60°±0.2°, 11.60°±0.2°, 13.40°±0.2°, 14.88°±0.2°, 18.34°±0.2°, 23.62°±0.2°, 24.14°±0.2°±0.2°, and 27.32°±0.2°, respectively in a X-ray diffraction spectrum obtained by performing a X-ray diffraction method using CuKα as a source of radiation, and having a lattice constant of

$$a=16.3058 \text{ Å}, b=23.078 \text{ Å and } c=8.7155 \text{ Å}$$

$$\alpha=101.352°, \beta=23.078° \text{ and } \gamma=117.530°,$$

with an allowable error of ±1%

2 The electrophotographic photoreceptor as claimed in claim 1, wherein said photosensitive layer is composed of a charge generation layer including said charge generation material and a charge transport layer including said charge transport layer

3 The electrophotographic photoreceptor as claimed in claim 1 wherein said charge transport material is a hydrazone compound

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5,736,283
PHOTOCONDUCTOR FOR ELECTROPHOTOGRAPHY

Seizo Kitagawa, Kawasaki, Japan, assignor to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed Sep. 25, 1996, Ser. No. 719,943

Claims priority, application Japan, Sep. 26, 1995, 7-247083

Int. Cl.⁶ G03G *5/047*

U.S. Cl. 430—59 **20 Claims**

1. A photoconductor for electrography, comprising:
a conductive substrate;
a photosensitive layer which is provided on the conductive substrate and which is comprised of
  a charge generating layer provided on the conductive substrate; and
  a charge transporting layer provided on the charge generating layer as an outermost layer of the photoconductor;
wherein the charge generating layer and the charge transporting layer comprise each an organic material as a main constituent, the outermost layer comprising a poly (2,6-dimethoxyanthracene-9,10-diolyl alkanedioate) resin and a low molecular weight charge transporting material

4. The photoconductor for electrography as claimed in claim 1 wherein the low molecular weight charge transporting material is a hydrazone compound

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5,736,284
CARBAZOLE DERIVATIVE CHARGE TRANSPORTING MATERIAL USING THE SAME AND ELECTROPHOTOGRAPHIC PHOTORECEPTOR

Tohru Kobayashi; Yoshimasa Matsushima; Hiroshi Sugiyama, and Toshimitsu Hagiwara, all of Kanagawa, Japan, assignors to Takasago International Corporation, Tokyo, Japan

Filed Apr. 15, 1997, Ser. No. 839,594

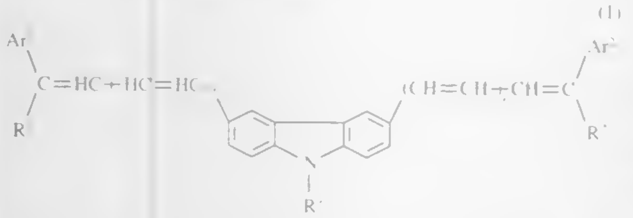
Claims priority, application Japan, Apr. 30, 1996, 8-130556

Int. Cl.⁶ G03G *5/06*; C07D *209/82*

U.S. Cl. 430—79 **3 Claims**

3. An electrophotographic photoreceptor containing a charge transporting material containing a carbazole derivative represented by the following general formula (1).

(1)



wherein Ar^1 and Ar^2, which may be the same or different, each represents an aryl group which may have a substituent group; R^1 and R^2, which may be the same or different, each represents a lower alkyl group or an aryl group which may have a substituent group; R^3 represents a lower alkyl group, an alicyclic alkyl group having 5 to 7 carbon atoms, an aryl group which may have a substituent group, or an aralkyl group which may have a substituent group; and m and n each represents an integer of 0 or 1.

5,736,285
ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER

Katsumi Nukada; Masahiro Iwasaki, and Toru Ishii, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

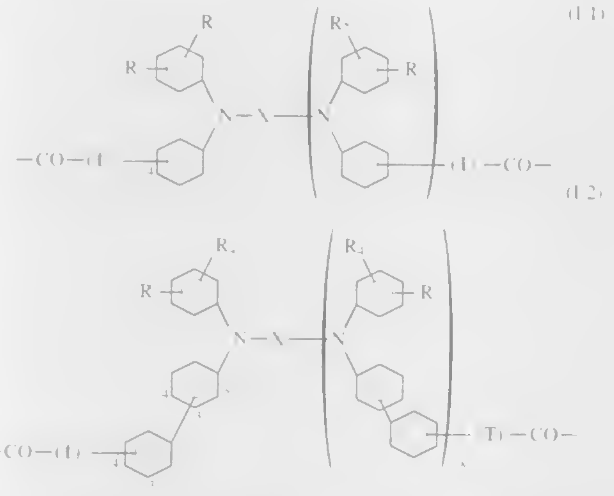
Continuation-in-part of Ser. No. 461,432, Jun. 5, 1995, Pat. No. 5,604,064. This application Sep. 5, 1996, Ser. No. 708,416

Claims priority, application Japan, Sep. 11, 1995, 7-232761

Int. Cl.⁶ G03G *5/06*

U.S. Cl. 430—83 **20 Claims**

1. An electrophotographic photosensitive member comprising:
a photosensitive layer on a conductive substrate thereof, wherein said photosensitive layer contains a charge transport polyester resin containing at least one of structures represented by the following general formulas (I-1) and (I-2) as a partial structure of repeated units; and at least one bisazo pigment represented by the following general formula (A):



wherein R_1 to R_4 are each independently, a hydrogen atom, an alkyl group, an alkoxy group, a substituted amino group, halogen or a substituted or a non-substituted aryl group, X is a substituted or a non-substituted bivalent aromatic group, k and l are each an integer of 0 or 1 and T is a hydrocarbon radical having 1 to 10 carbon atoms and permitted to be branched.

$$Cp-N=N-G-N=N-Cp' \qquad (A)$$

wherein Cp and Cp' are each a coupler having aromatic characteristics, Cp and Cp' may be the same or different from each other and G is a bivalent group in which each of carbon atoms, to which the azo group is bonded, is a sp^2-type carbon atom, which forms a double bond

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5,736,286
METHOD FOR RECYCLING IMAGE-DEPOSITED RECORDING MATERIAL AND LIQUID COMPOSITION FOR USE WITH THE RECYCLING METHOD

Tetsuya Kaneko, Yokohama; Kakuji Murakami, Kamakura, and Kiyofumi Nagai, Machida, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 15, 1995, Ser. No. 441,615

Claims priority, application Japan, May 16, 1994, 6-125710; Jun. 21, 1994, 6-162856

Int. Cl.⁶ G03G *13/00*

U.S. Cl. 430—97 **6 Claims**

1. A method for recycling an image-deposited recording material comprising a surface portion which swells in contact with a water-containing liquid composition and bears thereon deposited images comprising an image-constituting thermoplastic or thermofusible material, comprising the steps of
  (a) applying a water-containing image removal promoting liquid composition to said image-deposited surface portion of said recording material to cause said surface portion of said recording material to swell more than said image-constituting material, thereby weakening the adhesion between said deposited images and said recording material; and
  (b) removing said deposited images from said recording material by using image release means;
said image removal promoting liquid comprising a wetting agent which exhibits an equilibrium moisture content of 10% or more under the ambient conditions of 60% relative humidity and 25° C., wherein said wetting agent is selected from the group consisting of a nitrogen-containing heterocyclic compound selected from the group consisting of N-methyl-2-pyrrolidone and 2-pyrrolidone and a polyhydric alcohol selected from the group consisting of ethylene glycol, diethylene glycol and glycerin

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5,736,287
DEVELOPMENT METHOD

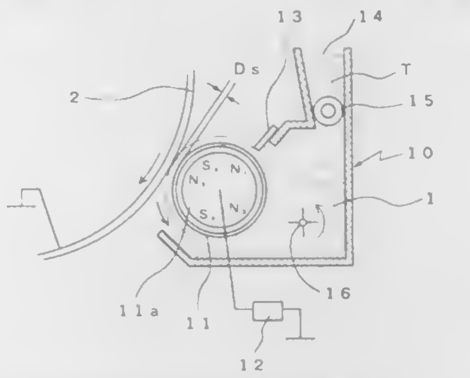
Makoto Kobayashi, Kobe; Hideaki Yasunaga, Sakai; Tomoharu Nishikawa, Hirakata, and Koichi Takenaka, Itami, all of Japan, assignors to Minolta Co., Ltd.

Filed Mar. 14, 1997, Ser. No. 818,517

Claims priority, application Japan, Mar. 14, 1996, 8-087642; Mar. 14, 1996, 8-087643

Int. Cl.⁶ G03G *13/09*

U.S. Cl. 430—102 **20 Claims**



1. A development method comprising the steps of:
forming a layer of a developer comprising a negative-charge toner and a magnetic carrier on a developer transporting member containing a magnet therein by means of a developer regulating member, said carrier comprising a magnetic powder dispersed in a binder resin possessing an acid value of 0 to 20 KOHmg/g, and having 5 to 30 wt % of magnetic powder present on the surface of thereof,
transporting the developer layer, as carried on the developer transporting member, to a development region wherein said developer transporting member opposes an image bearing member, and
applying an oscillating electric field to said development region for supplying the toner from the developer layer to said image bearing member, thereby developing an image

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5,736,288
TONER FOR DEVELOPING ELECTROSTATIC IMAGES, PROCESS CARTRIDGE, AND IMAGE FORMING METHOD

Takashige Kasuya, Soka; Hiroyuki Suematsu; Koichi Tomiyama, both of Yokohama; Hiroshi Yusa, Machida; Takakuni Kohori, Kawasaki, and Masaichiro Katada, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 15, 1995, Ser. No. 440,935

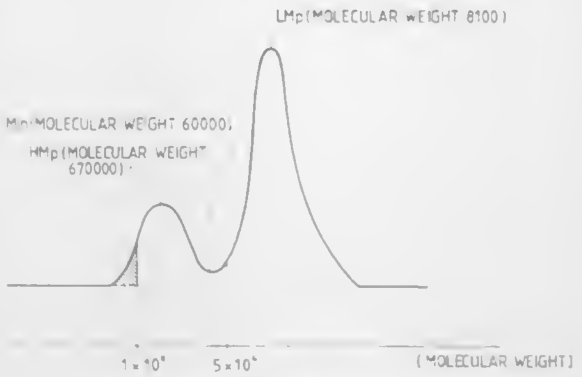
Claims priority, application Japan, May 13, 1994, 6-123302; Jul. 29, 1994, 6-196211; Jan. 20, 1995, 7-007424; Jan. 27, 1995, 7-011697

Int. Cl.⁶ G03G *9/087*

U.S. Cl. 430—106.6 **50 Claims**

1. A toner for developing electrostatic images, comprising a composition containing at least a polymer component (A) and a charge control agent, wherein;
said polymer component (A);
  a) contains substantially no tetrahydrofuran-insoluble matter;
  b) in a chromatogram in gel permeation chromatography for tetrahydrofuran-soluble matter of said polymer component (A), has a main peak in the region of molecular weight of from 3,000 to 30,000 and a subpeak or a shoulder in the region of molecular weight of from 100,000 to 3,000,000; and
  c) has a low-molecular weight polymer component (L) corresponding to the region of molecular weight less than 50,000 in a chromatogram in gel permeation chromatography, having an acid value A_{VL} of from 21 mg·KOH/g to 35 mg·KOH/g, and a high molecular weight polymer component (H) corresponding to the region of molecular weight not less than 50,000 in the chromatogram in gel permeation chromatography, having an acid value A_{VH} of from 0.5 mg·KOH/g to 11 g KOH/g;
said acid values having a difference of

$$10 \le (A_{VL} - A_{VH}) \le 27$$



5,736,289
TONER FOR DEVELOPING ELECTROSTATIC IMAGES

Kazuaki Sukata, Kyoto, and Shun-ichiro Yamanaka, Osaka, both of Japan, assignors to Orient Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 10, 1997, Ser. No. 833,885

Claims priority, application Japan, Apr. 11, 1996, 8-115526

Int. Cl.⁶ G03G *9/097*

U.S. Cl. 430—110 **13 Claims**

1. A toner for developing electrostatic images that comprises a binder resin, a coloring agent and a calixarene compound as a charge control agent, wherein some of the phenolic OH groups of said calixarene compound are metallized with alkali metal or alkaline earth metal.

5,736,290
NON-AZEOTROPIC SOLVENT COMPOSITION AND METHOD OF USING SAME FOR VAPOR-FREEZING IMAGES FORMED OF POWDER TONER ON A RECORDING CARRIER

Jeff Zillmer, 10818 Graeloch Rd., Laurel, Md. 20723

Filed Apr. 1, 1996, Ser. No. 625,301

Int. Cl.⁶ G03G *13/20*

U.S. Cl. 430—124 **6 Claims**

1. In the method for vapor fixing of toner onto a medium, comprising the steps of:
  generating an image by transferring toner to selected areas of the medium;
  forming a vapor cloud from a solvent composition;
  transporting the medium through the vapor cloud to fuse the toner to the medium in a fixing zone; and
  transporting the medium through a cooling zone to condense the vapors of the vapor cloud leaving the fixing zone and thereby preventing escape of the vapors into the environment,
  the improvement wherein said solvent composition consists essentially of:
    70 to 95% by volume of a hydrochlorofluorocarbon selected from the group consisting of 1,1-dichloro-1 fluoroethane, 2,2-dichloro-1,1,1-trifluoroethane, and mixtures thereof having a Kauri-Butanol number in the range of about 75 to 85,
    2.5 to 15% by volume of a solvent having a boiling point in the range of about 100° F to 147° F and selected from the group consisting of methylene chloride, acetone, and mixtures thereof, wherein said solvent in combination with said hydrochlorofluorocarbon provides an overall Kauri-Butanol

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number for the non-azeotropic solvent composition in the range of about 75–95, and

2.5 to 15% by volume of alkanol selected from the group consisting of methanol, ethanol, and mixtures thereof.

5,736,291

PROCESS FOR THE PREPARATION OF COLORED TONER AND DEVELOPER COMPOSITIONS

Edul N. Dalal, Webster; Sue E. Blaszak, Penfield; Kristen M. Natale-Hoffman, Rochester; Jacques C. Bertrand, Ontario; Roger N. Ciccarelli, Rochester, and Denise R. Bayley, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 9, 1996, Ser. No. 728,385

Int. Cl.^{6} G03G *9/09*

U.S. Cl. 430—137 **5 Claims**

1. A process for the preparation of a combination of five toners wherein the five toners are comprised of a cyan toner, a magenta toner, a yellow toner, an orange toner, and a black toner, each of said toners being comprised of resin and pigment, and wherein the pigment for the cyan toner is a β copper phthalocyanine, the pigment for the magenta toner is a xanthene silicomolybdic acid salt of Rhodamine 6G basic dye, the pigment for the yellow toner is a diazo benzidine a monoazo, or a benzimidazolone, the pigment for the orange toner is Orange 13, Orange 34, Orange 5, Orange 16, Orange 36, Orange 46, Orange 67, or Orange 69, and the pigment for the black toner is carbon black, which process comprises dispersing each of said cyan, magenta, orange, and yellow pigments by flushing said cyan, magenta, or orange, and yellow pigment into said toner resin, and wherein the water is substantially removed to generate pigmented resin containing from about 25 to about 50 weight percent of pigment based on the weight percent of said toner resin and said pigment; and wherein each of the resulting pigmented resin concentrate product is mixed and diluted with additional toner resin to generate cyan, magenta, orange, and yellow toners containing each of said cyan, magenta, orange, and yellow pigments, respectively, in an amount of from about 2 to about 20 weight percent based on the weight percent of resin and pigment, and wherein each of said cyan, magenta, orange, and yellow pigments have a particle diameter size or agglomerate diameter size of from about 0.01 micron to about 3 microns, and wherein the resin for each toner is a linear polyester, a crosslinked polyester, a gel containing polyester, or mixtures thereof, and said black pigment possesses a particle size diameter of about 0.001 micron.

5,736,292

RADIATION-SENSITIVE POSITIVE RESIST COMPOSITION COMPRISING AN ALKALI SOLUBLE RESIN MADE FROM M-CRESOL, 2,3,5-TRIMETHYL PHENOL AND OPTIONALLY P-CRESOL AND A POLYPHENOL COMPOUND HAVING ALKYL OR ALKOXY SIDE GROUPS

Ayako Ida, Hyogo; Haruyoshi Osaki, Osaka; Takeshi Hioki, Osaka; Yasunori Doi, Osaka; Yasunori Uetani, Osaka, and Ryotaro Hanawa, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

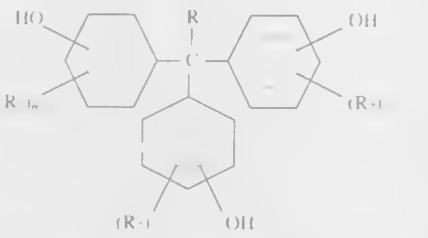
Continuation of Ser. No. 60,725, May 13, 1993, abandoned, which is a continuation of Ser. No. 569,915, Aug. 20, 1990, abandoned. This application Jun. 14, 1995, Ser. No. 490,511

Claims priority, application Japan, Aug. 24, 1989, 1-219194; Aug. 25, 1989, 1-219089; Sep. 8, 1989, 1-234380; Oct. 5, 1989, 1-261375; Oct. 6, 1989, 1-262712; Oct. 6, 1989, 1-262713; Dec. 27, 1989, 1-341457; Dec. 27, 1989, 1-341458; Dec. 27, 1989, 1-341459

Int. Cl.^{6} G03F *7/023*

U.S. Cl. 430—191 **1 Claim**

1. A positive resist composition comprising an admixture of a 1,2-quinonediazide compound, an alkali-soluble resin (I) obtainable through a condensation reaction of a mixture of m-cresol, 2,3,5-trimethylphenol and optionally p-cresol with an aldehyde selected from the group consisting of formaldehyde, paraformaldehyde, acetaldehyde and glyoxal, and a compound of the general formula (III):



(III)

wherein R$_1$, R$_2$ and R$_3$ are respectively a C$_1$–C$_5$ alkyl group or a C$_1$–C$_5$ alkoxy group; l and n are each 2, and m is zero, and R' is a hydrogen atom or a C$_1$–C$_3$ alkyl group and wherein said compound of formula (III) is obtainable through a condensation reaction of a phenol compound with a carbonyl compound selected from the group consisting of o-hydroxybenzaldehyde, m-hydroxybenzaldehyde, p-hydroxybenzaldehyde and 3-methoxy-4-hydroxybenzaldehyde in the presence of an acid catalyst.

5,736,293

IMAGE FORMING METHOD

Hiroyuki Hirai; Michio Ono, and Takashi Nakamura, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 25, 1996, Ser. No. 736,205

Claims priority, application Japan, Oct. 26, 1995, 7-279210

Int. Cl.^{6} G03C *8/40; 8/06; 5/30*

U.S. Cl. 430—203 **3 Claims**

1. An image forming method comprising the steps of:

(a) superposing a heat development photosensitive material on a sheet after or simultaneously with imagewise exposing the heat development photosensitive material, wherein the photosensitive material comprises a support having thereon at least a photosensitive silver halide, a hydrophilic binder and a slightly water-soluble basic metal compound, and the sheet comprises a support having thereon at least a compound which forms a complex with the metal ion constituting the basic metal compound, a solvent for a silver halide and a physical development nucleus; and

(b) heat developing the laminate in the presence of a reducing agent and water to form an image on either or both of the photosensitive material and the sheet,

wherein the reducing agent comprises a 1-phenyl-3-pyrazolidone compound and a dihydroxybenzene compound having an inorganic value of not less than 215 and an organic value of from 120 to 400, and the molar ratio of the 1-phenyl-3-pyrazolidone compound to the dihydroxybenzene compound is from 60:40 to 95:5.

5,736,294

REAGENTS AND METHODS FOR MODULATING GENE EXPRESSION THROUGH RNA MIMICRY

David J. Ecker, Leucadia; Thomas W. Bruice, Carlsbad, and Timothy A. Vickers, Oceanside, all of Calif., assignors to ISIS Pharmaceuticals, Inc., Carlsbad, Calif.

Continuation-in-part of Ser. No. 497,090, Mar. 21, 1990, abandoned. This application Jun. 27, 1991, Ser. No. 724,500

Int. Cl.^{6} C12N *5/08;* **C07H** *21/02*

U.S. Cl. 435—240.2 **14 Claims**

1. A method for interfering in vitro with an essential viral function for replication of a Human Immunodeficiency Virus comprising contacting said virus or a medium or a cell containing said virus with an oligonucleotide or oligonucleotide analog comprising the sequence:

5' CU GGG A 3'

5,736,295

PHOTOGRAPHIC HIGH CONTRAST SILVER HALIDE MATERIAL

Allison Hazel Caroline Dale, and Roger Hugh Piggin, both of Rickmansworth, England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 8, 1996, Ser. No. 694,354

Claims priority, application United Kingdom, Aug. 10, 1995, 9516369

Int. Cl.^{6} G03C *1/12, 1/295*

U.S. Cl. 430—264 **10 Claims**

1. A high contrast photographic material comprising a support bearing a silver halide emulsion layer and optionally an adjacent hydrophilic colloid layer, which material is free from nucleating agents and has a silver:gelatin ratio above 1,

said emulsion layer comprising both silver halide grains that are spectrally sensitized and silver halide grains that are not spectrally sensitized, and

said material containing a density enhancing amine compound in said emulsion layer or an adjacent hydrophilic colloid layer.

5,736,296

POSITIVE RESIST COMPOSITION COMPRISING A MIXTURE OF TWO POLYHYDROXYSTYRENES HAVING DIFFERENT ACID CLEAVABLE GROUPS AND AN ACID GENERATING COMPOUND

Mitsuru Sato, Yokohama; Kazuyuki Nitta, Kanagawa; Akiyoshi Yamazaki, Yokohama; Etsuko Iguchi, Machida; Yoshika Sakai, Atsugi; Kazufumi Sato, Sagamihara, and Toshimasa Nakayama, Chigasaki, all of Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Kawasaki, Japan

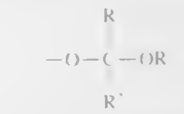
Continuation-in-part of Ser. No. 422,950, Apr. 17, 1995, abandoned, and a continuation-in-part of Ser. No. 498,185, Jul. 5, 1995, abandoned, which is a continuation-in-part of Ser. No. 422,950. This application Apr. 1, 1996, Ser. No. 625,931

Claims priority, application Japan, Apr. 25, 1994, 6-107492; May 24, 1994, 6-132449; Oct. 27, 1994, 6-286168; Oct. 27, 1994, 6-286169; Jan. 26, 1995, 7-28925

Int. Cl.^{6} G03F *7/039, 7/004*

U.S. Cl. 430—270.1 **24 Claims**

1. A positive resist composition comprising a mixture of (A) a resin component whose solubility in an alkaline aqueous solution is increased by the action of acids, and (B) a compound which generates an acid when exposed to radiations, in which said resin component (A) is a mixture comprising from 30 to 90% by weight of (a) a polyhydroxystyrene where from 10 to 60 mol % of the hydroxyl groups have been substituted by residues of a general formula (I),

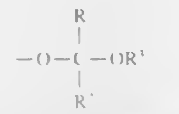


$$-O-\overset{R^1}{\underset{R^2}{C}}-OR^3 \qquad (I)$$

wherein R^1 represents a hydrogen atom or a methyl group, R^2 represents a methyl group or an ethyl group, and R^3 represents a lower alkyl group having 1 to 4 carbon atoms,

and from 10 to 70% by weight of (b) a polyhydroxystyrene where from 10 to 60 mol % of the hydroxyl groups have been substituted by tert-butoxycarbonyloxy groups.

10. A positive resist composition comprising a mixture of (A) a resin component whose solubility in an alkaline aqueous solution is increased by the action of acids, (B) a compound which generates an acid when exposed to radiations, and (C) an organic carboxylic acid compound, in which said resin component (A) is a mixture comprising from 30 to 90% by weight of (a) a polyhydroxystyrene where from 10 to 60 mol % of the hydroxyl groups have been substituted by residues of a general formula (I)



$$-O-\overset{R^1}{\underset{R^2}{C}}-OR^3 \qquad (I)$$

wherein R^1 represents a hydrogen atom or a methyl group, R^2 represents a methyl group or an ethyl group, and R^3 represents a lower alkyl group having 1 to 4 carbon atoms,

and from 10 to 70% by weight (b) a polyhydroxystyrene where from 10 to 60 mol % of the hydroxyl groups have been substituted by tert-butoxycarbonyloxy groups.

5,736,297

POSITIVE-WORKING RADIATION-SENSITIVE MIXTURE AND RECORDING MATERIAL PRODUCED THEREWITH

Horst Roeschert, Ober-Hilbersheim, and Georg Pawloski, Wiesbaden, both of Germany, assignors to Clariant GmbH, Frankfurt, Germany

Continuation of Ser. No. 195,425, Feb. 14, 1994, abandoned. This application Jul. 22, 1996, Ser. No. 681,081

Claims priority, application Germany, Feb. 27, 1993, 43 06 152.4

Int. Cl.^{6} G03C *1/73*

U.S. Cl. 430—270.1 **26 Claims**

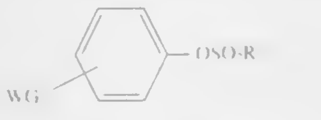
1. A positive-working radiation-sensitive mixture consisting essentially of:

a) a compound which forms acid when exposed to actinic radiation,

b) a compound containing at least one C—O—C or C—O—Si bond which can be cleaved by said acid, and

c) a water-insoluble polymeric binder which is soluble, or at least swellable, in aqueous alkaline solutions,

wherein the compound (a) comprises the structure of the formula I



(I)

in which

EWG is an electron-withdrawing group selected from the group consisting of fluorine, chlorine or bromine atom, a cyano, formyl, 2,2,2-trifluoroethyl, 2,2,2-trifluoro-1-hydroxyl-1-trifluoromethylethyl, —C(CF$_3$)$_2$OH, perfluoro(C$_1$–C$_{12}$)alkyl, perfluoro(C$_1$–C$_{12}$)alkoxy, dicyanomethyl, 2,2-dicyanovinyl groups or a group of the formula —SO$_2$—R^2, —CO—R^3 and —O—CO—R^4, in which

R^2 and R^3 are (C$_1$–C$_{20}$)alkyl, (C$_3$–C$_7$)cycloalkyl, (C$_6$–C$_{14}$)aryl or (C$_7$–C$_{20}$)aralkyl, and

R^4 is one of the radicals specified for R^3 or (C$_1$–C$_{12}$)alkoxy,

R^1 is an unsubstituted or substituted acyclic, isocyclic or heterocyclic radical containing 1 to 20 carbon atoms selected from methyl, ethyl, propyl, isopropyl, butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, octyl, cyclohexyl, phenyl benzyl, phenethyl, 3-phenylpropyl, 1-naphthyl, 2-naphthyl, 1,2 furyl, 3 furyl, 2-thienyl or 3 thienyl, 1 pyrrolyl, 2 pyrrolyl or 3-pyrrolyl, pyridyl pyrimidinyl, pyrazinyl, benzofuryl, isobenzofuryl, benzo[b]thienyl benzo[d][1,3]thiazol, benzo[c][1,2,5]oxadiazolyl (= benzofurazanyl) indolyl, and further substituted R^1 groups wherein the further substituents are selected from methyl, ethyl propyl, isopropyl butyl sec-butyl, isobutyl, tert butyl, trifluoromethyl, perfluorobutyl (C$_1$–C$_8$)alkoxy, (C$_1$–C$_4$)alkoxy(C$_1$–C$_4$)alkoxy (C$_1$–C$_4$)alkanoyl, (C$_1$–C$_4$)alkanoyloxy, (C$_1$–C$_4$)alkanoylamino, (C$_6$–C$_{10}$)aryl, (C$_6$–C$_{10}$)aryloxy, (C$_6$–C$_{10}$)aryl(C$_1$–C$_4$)alkoxy, (C$_6$–C$_{10}$)aroylamino, (C$_6$–C$_{10}$)aroylamino(C$_1$–C$_4$)alkyl, cyano, halogen phenyl and phenyl radical substituted by (C$_1$–C$_8$)alkyl, (C$_1$–C$_8$)perfluoroalkyl and halogen and x is an integer from 1 to 5

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5,736,298

WATER DEVELOPABLE PHOTOSENSITIVE RESIN COMPOSITION

Katsuo Koshimura, Yokkaichi, Japan; Takayoshi Tanabe, Bowling Green, Ohio; Hozumi Sato, Yokkaichi, Japan; Noboru Ohshima, Suzuka, Japan, and Takashi Nishioka, Yokkaichi, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 130,835, Oct. 4, 1993, abandoned. This application Oct. 2, 1995, Ser. No. 536,494

Claims priority, application Japan, Oct. 2, 1992, 4-287165

Int. Cl.^{6} G03C *1/73*

U.S. Cl. 430—287.1 **10 Claims**

1. A water-developable photo-sensitive resin composition consisting essentially of,

- (1) 100 parts by weight of a particulate polymer of a carboxy-group-containing-diene having a cross-linked structure and an average particle diameter of from 20–1,000 nm, which is prepared by emulsion or suspension polymerization of a monomer mixture, comprising (i) 10–95 mol % of at least one aliphatic conjugated diene monomer, (ii) 0.1–30 mol % of at least one unsaturated monomer containing a carboxyl group, (iii) 0.01–20 mol % of at least one monomer containing at least two polymerizable unsaturated groups, and (iv) 0–70 mol % of a further copolymerizable monomer or mixture of copolymerizable monomers, provided that the total of (i), (ii), (iii), and (iv) is 100 mol %,
- (2) 0.1–30 parts by weight of an oligomer consisting of a polyetherdiol, having a (meth)acryloyl group via a urethane bond at both terminals of the molecular chain and having a number average molecular weight of from 2,000–5,000,
- (3) 5–1,000 parts by weight of a photo-polymerizable unsaturated monomer,
- (4) a compound containing at least one primary, secondary or tertiary amino group in an amount of 0.1–5 mol for 1 mol of the carboxyl group present in said polymer (1), and
- (5) 0.1–20 parts by weight of a photo-polymerization initiator.

5,736,299

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL COMPRISING A MAGENTA OR CYAN COUPLER AND A HYDRAZINE COMPOUND

Toshiyuki Watanabe; Hiroshi Fukuzawa; Michio Ono, and Takashi Nakamura, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

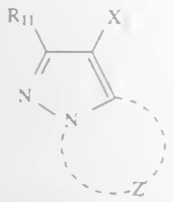
Filed Jan. 23, 1996, Ser. No. 590,323

Claims priority, application Japan, Jan. 23, 1995, 7-025810; Jan. 25, 1995, 7-027753

Int. Cl.^{6} G03C *7/32*

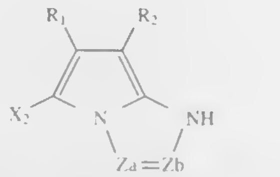
U.S. Cl. 430—379 **20 Claims**

1. A silver halide color photographic material comprising a support having thereon one or more constituent layers including at least one silver halide emulsion layer, wherein at least one hydrophilic colloid layer of said constituent layers contains a coupler represented by the following formula (M) or formula (I) and at least one hydrophilic colloid layer of said constituent layers contains a compound represented by the following formula (H):



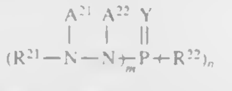
(M)

wherein R_{11} represents a hydrogen atom or a substituent; Z represents a non-metallic atomic group necessary to form a 5-membered azole ring containing from 2 to 4 nitrogen atoms, and said azole ring may have a substituent; and X_1 represents a hydrogen atom or a group capable of being eliminated upon a coupling reaction with the oxidized product of a developing agent;



(I)

wherein Za represents —C(R_3)= or —N=, when Za represents —N=, Zb represents —C(R_3)= and when Za represents —C(R_3)=, Zb represents —N=; R_1 and R_2 each represents an electron attractive group having a Hammett's substitution constant σ_p value of from 0.20 to 1.0; R_3 represents a substituent; and X_2 represents a hydrogen atom or a group capable of being eliminated upon a coupling reaction with an oxidized product of a color developing agent;

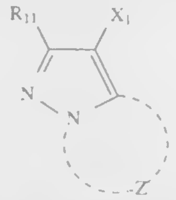


(H)

$$\left(R^{21}-\overset{A^{21}}{\overset{|}{N}}-\overset{A^{22}}{\overset{|}{N}}\right)_{m}\overset{Y}{\overset{\|}{P}}\left(R^{22}\right)_{n}$$

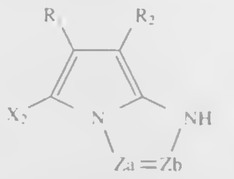
wherein R^{21} represents an aryl group or a heterocyclic group; R^{22} represents an alkyl group, a cycloalkyl group, an aryl group, an alkoxyl group or an aryloxy group; A^{21} and A^{22} each represents a hydrogen atom or a group being eliminated by alkali, m represents 1, 2 or 3; n represents 0, 1 or 2, the total of m and n is 3, when n represents 2, two groups represented by R^{22} may be the same or different, and they may be bonded to each other to form a cyclic structure containing a phosphorus atom; and Y represents a sulfur atom or an oxygen atom, which may form a dimer or more polymer by bonding at R^{21} or R^{22}, provided that R^{21} is not a phenyl group substituted with an acylamino group at the p-position, and when R^{22} represents an unsubstituted phenoxy group, R^{21} is not a phenyl group substituted at the p-position with a substituted or unsubstituted benzenesulfonamido group or a hydroxyl group.

19. A process for processing an imagewise exposed silver halide color photographic material comprising color developing the silver halide color photographic material and then black-and-white developing, wherein the silver halide color photographic material comprises a support having thereon one or more constituent layers including at least one silver halide emulsion layer, in which at least one hydrophilic colloid layer of said constituent layers contains a coupler represented by the following formula (M) or formula (I) and at least one hydrophilic colloid layer of said constituent layers contains a compound represented by the following formula (H):



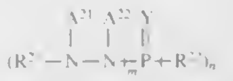
(M)

wherein R_{11} represents a hydrogen atom or a substituent; Z represents a non-metallic atomic group necessary to form a 5-membered azole ring containing from 2 to 4 nitrogen atoms, and said azole ring may have a substituent; and X_1 represents a hydrogen atom or a group capable of being eliminated upon a coupling reaction with the oxidized product of a developing agent;



(I)

wherein Za represents —C(R_3)= or —N=, when Za represents —N=, Zb represents —C(R_3)= and when Za represents —C(R_3)=, Zb represents —N=; R_1 and R_2 each represents an electron attractive group having a Hammett's substitution constant σ_p value of from 0.20 to 1.0; R_3 represents a substituent; and X_2 represents a hydrogen atom or a group capable of being eliminated upon a coupling reaction with an oxidized product of a color developing agent.



(H)

$$\left(R^{21}-\overset{A^{21}}{\overset{|}{N}}-\overset{A^{22}}{\overset{|}{N}}\right)_{m}\overset{Y}{\overset{\|}{P}}\left(R^{22}\right)_{n}$$

wherein R^{21} represents an aryl group or a heterocyclic group; R^{22} represents an alkyl group, a cycloalkyl group, an aryl group, an alkoxyl group or an aryloxy group; A^{21} and A^{22} each represents a hydrogen atom or a group being eliminated by alkali; m represents 1, 2 or 3; n represents 0, 1 or 2, the total of m and n is 3, when n represents 2, two groups represented by R^{22} may be the same or different, and they may be bonded to each other to form a cyclic structure containing a phosphorus atom; and Y represents a sulfur atom or an oxygen atom, which may form a dimer or more polymer by bonding at R^{21} or R^{22}, provided that R^{21} is not a phenyl group substituted with an acylamino group at the p-position, and when R^{22} represents an unsubstituted phenoxy group, R^{21} is not a phenyl group substituted at the p-position with a substituted or unsubstituted benzenesulfonamido group or a hydroxyl group.

5,736,300

MANUFACTURING METHOD OR AN EXPOSING METHOD FOR A SEMICONDUCTOR DEVICE OR A SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND A MASK USED THEREFOR

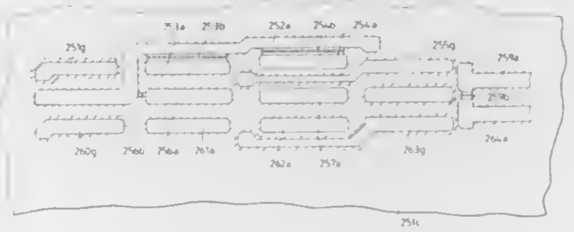
Fumio Mizuno, Tokorozawa; Noboru Moriuchi, Ohme; Seiichiro Shirai, Hamura, and Masayuki Morita, Fussa, all of Japan, assignors to Hitachi, Ltd., and Hitachi VLSI Engineering Corp., both of Tokyo, Japan

Continuation of Ser. No. 443,431, May 18, 1995, Pat. No. 5,578,422, which is a continuation of Ser. No. 912,511, Jul. 13, 1992, Pat. No. 5,436,095. This application Aug. 8, 1996, Ser. No. 694,263

Claims priority, application Japan, Jul. 11, 1991, 3-170946

Int. Cl.^{6} G03C *5/00*

U.S. Cl. 430—313 **25 Claims**



1. An integrated circuit device fabrication method, comprising the steps of:

- (i) irradiating a coherent or partially coherent ultraviolet or deep ultraviolet exposure light beam to a first major surface of a phase shift mask having an enlarged mask pattern;
- (ii) projecting light transmitted through the mask and forming a reduced pattern image corresponding to the enlarged mask pattern onto a photoresist film overlying a first major surface of an integrated circuit wafer by an optical reduction projection exposure apparatus; and
- (iii) transferring a reduced pattern corresponding to the enlarged mask pattern onto the first major surface of the integrated circuit wafer, said phase shift mask comprising:
  - (a) a light shielding region;
  - (b) a plurality of first hole mask opening groups corresponding to first hole patterns disposed at substantially regular intervals and adjacent to each other on the wafer, each of said first hole mask opening groups having a first real opening and a first auxiliary opening group having a plurality of first auxiliary openings in the light shielding region, said first auxiliary openings respectively being disposed and oriented along four sides of their adjacent first real opening and isolated therefrom with the light shielding region, the first auxiliary openings extending in lengthwise directions along the four sides of their adjacent first real opening, the first auxiliary openings being inverted in phase with respect to their adjacent first real opening;
  - (c) a second hole mask opening group corresponding to second hole patterns disposed at substantially regular intervals and adjacent to each other on the wafer, said second hole mask opening group having a plurality of second hole real openings in the light shielding region, said second hole real openings being of substantially a same shape, same dimensions, and same phase;
  - (d) a common auxiliary opening group having a plurality of common auxiliary openings in the light shielding region, said common auxiliary openings being disposed one by one between adjacent pairs of second hole real openings, each of said common auxiliary openings being isolated by the light shielding region from its adjacent second hole real opening and substantially inverted in phase with respect thereto; and
  - (e) a second peripheral auxiliary opening group having a plurality of second peripheral auxiliary openings in the light shielding region, said second peripheral auxiliary openings being disposed and oriented one by one along a periphery of the second hole real openings so that a respective second peripheral auxiliary opening directly faces its adjacent second hole real opening, each of said second peripheral auxiliary openings being isolated by the light shielding region from its adjacent second hole real opening and substantially inverted in phase with respect thereto.

5,736,301

METHOD FOR PATTERNING A PHOTORESIST MATERIAL WHEREIN AN ANTI-REFLECTIVE COATING COMPRISING A COPOLYMER OF BISPHENOL A AND BENZOPHENONE IS USED

James Thomas Fahey; Brian Wayne Herbst, both of Dutchess County; Leo Lawrence Linehan, Orange County; Wayne Martin Moreau; Gary Thomas Spinillo, both of Dutchess County, all of N.Y.; Kevin Michael Welsh, Hennepin County, Minn., and Robert Lavin Wood, Dutchess County, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 281,398, Jul. 27, 1994, Pat. No. 5,607,824. This application Oct. 1, 1996, Ser. No. 724,275

Int. Cl.^{6} G03F *7/30;* **G03C** *1/825*

U.S. Cl. 430—325 **3 Claims**

1. A method of patterning a photoresist material with deep ultraviolet radiation, comprising the steps of:

applying a co-polymer comprised of bisphenol A monomers and benzophenone monomers to a surface of a substrate;

applying a photoresist over said co-polymer; and

patterning said photoresist with deep ultraviolet radiation, said co-polymer reducing reflected deep ultraviolet radiation from said surface of said substrate.

5,736,302

PHOTOGRAPHIC REVERSAL BATH CONCENTRATE AND METHOD OF PREPARING SAME

Jean M. Buongiorne, Brockport, and Michael J. Haight, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 12, 1997, Ser. No. 820,323

Int. Cl.^{6} G03C *7/407*

U.S. Cl. 430—379 **20 Claims**

1. A ready-to-use photographic reversal bath concentrate having a pH of from about 5.0 to about 5.5, and comprising:

- A) stannous chloride at a concentration of at least about 29 g/l,
- B) a quaternary ammonium compound as a sole biocide at a concentration of at least about 1 g/l, and
- C) an alkali metal salt of an organic phosphonic or phosphinic acid chelating agent at a concentration of at least about 150 g/l,

said concentrate being free of propionic acid.

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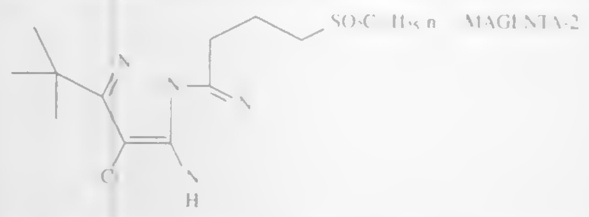
5,736,303
COLOR PHOTOGRAPHIC PAPER WITH REDUCED INTERLAYER EFFECTS
Gary John McSweeney, Hilton; Alphonse Dominic Camp, Rochester, and Vincent James Flow, Brockport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 7, 1996, Ser. No. 657,569
Int. Cl.^{6} G03C *7/46*

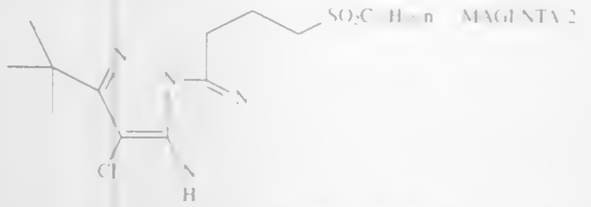
U.S. Cl. 430—380 **4 Claims**

1. A photographic element comprising at least one layer comprising at least one substituted hydroquinone and adjacent said at least one layer comprising substituted hydroquinone, at least one layer comprising dibutyl phthalate and Magenta Coupler 2



wherein the ratio of gelatin to organic component in said layer comprising magenta 2 is between 1.1 and 2.0, wherein said at least one layer comprising substituted hydroquinone comprises a ratio of gelatin to organic component is between 1.5 and 3, wherein said element comprises a ratio of gelatin to organic component of between 1.25 and 2.0, wherein dibutyl phthalate to coupler in said at least one layer comprising Magenta-2 coupler have a ratio of between 0.5 and 1.5, and wherein said hydroquinone comprises ditertiary octyl hydroquinone in an amount of between 0.1 and 0.4 g/m^2

3. A method of forming a photographic image comprising providing a photographic element comprising at least one layer comprising at least one substituted hydroquinone and adjacent said at least one layer comprising substituted hydroquinone, at least one layer comprising dibutyl phthalate and Magenta Coupler 2



wherein the ratio of gelatin to organic component in said layer comprising magenta 2 between 1.1 and 2.0, wherein said at least one layer comprising substituted hydroquinone comprises a ratio of gelatin to organic component is between 1.5 and 3, wherein said element comprises a ratio of gelatin to organic component of between 1.25 and 2.0, exposing said element and developing said element utilizing a developer that comprises an amplification system, wherein dibutyl phthalate to coupler in said at least one layer comprising Magenta-2 coupler halve a ratio of between 0.5 and 1.5, and wherein said hydroquinone comprises ditertiary octyl hydroquinone in an amount of between 0.1 and 0.4 g/m^2

5,736,304
METHOD OF PROCESSING BLACK-AND-WHITE PHOTOGRAPHIC MATERIALS
Christopher Barrie Rider, New Malden, England; Mark Joseph Devaney, Jr., Rochester, N.Y.; Paul W. Wagner, Holley, N.Y., and Andrew Michael Wyner, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed May 3, 1996, Ser. No. 642,747
Int. Cl.^{6} G03C *5/395*

U.S. Cl. 430—398 **10 Claims**

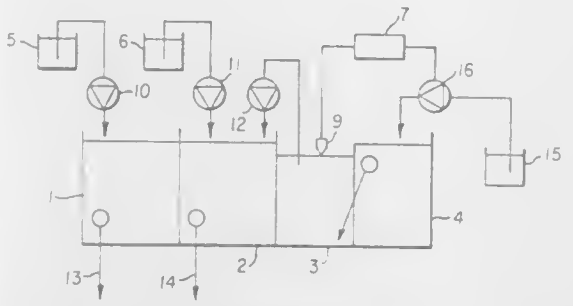
1. A method of processing silver halide black and-white photographic material in a processing machine which transports the material to be processed, through several processing tanks including, at least one tank with fixing ability and at least one tank which is either a wash or stabilizer tank characterised in that:

i) the wash or stabilizer tank furthest from the fixer tank(s) is replenished with wash or stabilizer solution,

ii) outflow from the wash tank or stabilizer tank nearest the fixer tank(s) is passed to the nearest fixer tank together with a fixer replenishment solution to maintain the fixer's working composition,

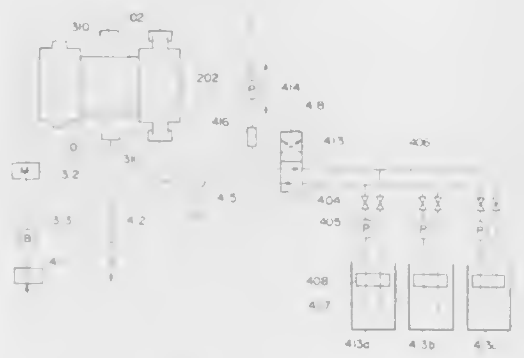
iii) the total submersion time in the tank(s) having fixing ability is less than 25 seconds, and

iv) the concentration of silver in at least one of the tanks with fixing ability is greater than 10 g/l



5,736,305
PROCESSING METHOD FOR SILVER HALIDE PHOTOSENSITIVE MATERIALS AND PROCESSOR FOR THE SAME
Hideaki Nomura, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jan. 21, 1997, Ser. No. 781,350
Claims priority, application Japan, Jan. 23, 1996, 8-009038
Int. Cl.^{6} G03C *5/26*

U.S. Cl. 430—403 **16 Claims**



1. A method for processing a silver halide photosensitive material for photographing, comprising the steps of, pulling out the photosensitive material from a housing container and introducing the photosensitive material into a processing container; introducing a processing solution into the processing container for processing a silver halide photosensitive material for photographing, which has a support and at least one photosensitive silver halide emulsion layer and a magnetic recording layer containing magnetic particles on the support, without separating the photosensitive material from the housing container for photographic, wherein the solution is introduced into a gap formed between the photosensitive surface of the photosensitive material and the reverse surface of the photosensitive material, or between the photosensitive surface of the photosensitive material and a member; replacing, before a single step of processing is completed, the processing solution in a volume equivalent to or greater than a volume of the space of the gap through use of a supply mechanism for supplying the replacing solution, the gap being substantially fixedly retained, to thereby subject the photosensitive material to color development, desilvering, and washing and/or stabilization; and returning the processed photosensitive material back into the housing container.

5,736,306
PHOTOGRAPHIC SILVER HALIDE MATERIAL HAVING IMPROVED SPECTRAL CHARACTERISTICS
Gareth Bryn Evans, Potten End; John Kenneth Charles Kempster, Stanmore, and Danuta Gibson, Garston, all of United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 21, 1995, Ser. No. 576,727
Claims priority, application United Kingdom, Dec. 24, 1994, 94/26275
Int. Cl.^{6} G03C *1/46*

U.S. Cl. 430—505 **16 Claims**

1. A photographic silver halide color print material comprising a support and yellow, magenta and cyan dye image forming layer units comprising at least one silver halide emulsion layer and at least one dye image forming coupler, which material contains a total silver halide coating weight of less than 150 mg/m^2 (as silver), and wherein each image forming layer unit has a dye image-forming efficiency (E) of above 30 where:

$$E = \frac{\text{Dye image } D_{max}}{\text{Silver coverage (g/m}^2\text{)}}$$

characterised in that

(1) the dye(s) formed in the magenta dye image forming unit have, when tested in monochrome coatings with a cubic silver chloride emulsion of average edge length 0.29 μm and a silver coverage of 21.5 mg/m^2, an unwanted absorption in the blue of less than 0.35 density units and an unwanted absorption in the red of less than 0.19 density units, and/or

(2) the dye(s) formed in the yellow dye image forming unit have, when tested in monochrome coatings with a cubic silver chloride emulsion of average edge length 0.4 μm and a silver coverage of 27 mg/m^2, an unwanted absorption in the green of less than 0.19 density units, and/or

(3) the dye(s) formed in the cyan dye image forming unit have, when tested in monochrome coatings with a cubic silver chloride emulsion of average edge length 0.29 μm and a silver coverage of 18 mg/m^2, an unwanted absorption in the green of less than 0.28 density units,

wherein the above densities are measured above stain densities using Status A densitometry at densities of 1.0 above stain in the appropriate main absorption band, the coatings having been processed using a redox development/amplification step in accordance with Example 1

5,736,307
SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS HAVING IMPROVED IMAGE QUALITY
Massimo Bertoldi, Fossano; Antonio Poggi, Quiliano, and Enzo Coraluppi, Carcare, all of Italy, assignors to Imation Corp. Oakdale, Minn.
Filed Apr. 8, 1996, Ser. No. 629,302
Claims priority, application European Pat. Off., Jun. 6, 1995, 95108590
Int. Cl.^{6} G03C *1/46*

U.S. Cl. 430—505 **10 Claims**

1. A multilayer color photographic element comprising a support having coated thereon red-, green-, and blue-sensitive silver halide emulsion layers comprising, respectively, cyan, magenta and yellow dye-forming couplers, wherein at least one silver halide emulsion layer comprises a yellow dye-forming DIR coupler having a 1,2,4-triazolyl group attached to the coupling position, said 1,2,4-triazolyl group comprising a benzythio group in the 3 position of said 1,2,4-triazolyl group, wherein the carbon atom in the para position relative to the carbon atom in the beta position with respect to the sulfur atom of said benzythio group contains a hydrolyzable alkoxy-or aryloxy carbonyl group.

5,736,308
COLOR PHOTOGRAPHIC SILVER HALIDE MATERIAL
Arno Schmuck, Leichlingen, and Jörg Hagemann, Köln, both of Germany, assignors to Agfa-Gevaert AG, Germany
Filed Apr. 1, 1997, Ser. No. 831,293
Claims priority, application Germany, Apr. 9, 1996, 196 13 992.9
Int. Cl.^{6} G03C *1/835*

U.S. Cl. 430—512 **12 Claims**

1. A color photographic silver halide material which comprises in one layer a titanium dioxide pigment containing iron oxide having an average primary particle diameter of 1 to 100 nm and an iron oxide content of 0.01 to 20 wt. %.

5,736,309
PHOTOGRAPHIC SUPPORT AND A METHOD OF MANUFACTRING THE SAME
Fumio Kawamoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Continuation of Ser. No. 520,393, Aug. 29, 1995, abandoned. This application Jul. 10, 1997, Ser. No. 891,078
Claims priority, application Japan, Aug. 29, 1994, 6-203757
Int. Cl.^{6} G03C *1/76*

U.S. Cl. 430—533 **5 Claims**

1. A method of manufacturing a photographic polyester film comprising subjecting polyester pellets, whose ratio of surface area (mm^2) to volume (mm^3) is not less than 0.5, to heat treatment at a temperature in the range of from the Tg+10° C. to the Tm−20° C. and forming an unstretched film controlling: each of the temperature of the inlet of a melt extruder, in the range of from the melting point of the polyester (Tm)−10° C. to the Tm+15° C., the temperature of the central part of a screw, in the range of from the Tm to the Tm+30° C., and the temperature of the outlet thereof, in the range of from the Tm+10° C. to the Tm+35° C., followed by biaxially stretching and heat-setting, wherein the polyester is (i) a blend of polyethylene naphthalate and polyethylene terephthalate, or (ii) a polyester produced by polymerizing monomers consisting essentially of terephthalic acid, 2,6-naphthalene dicarboxylic acid and of ethylene glycol, wherein a molar ratio of terephthalic acid to 2,6-naphthalene dicarboxylic acid is in the range of from about 0.5:0.5 to about 0.1:0.

5,736,310
CUBICAL GRAIN SILVER IODOCHLORIDE EMULSIONS AND PROCESSES FOR THEIR PREPARATION
Benjamin Teh-Kung Chen, Penfield; James Lawrence Edwards; Roger Lok, both of Rochester, and Sanford Howard Ehrlich, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation-in-part of Ser. No. 362,283, Dec. 22, 1994, abandoned. This application May 17, 1996, Ser. No. 651,193
Int. Cl.^{7} G03C *1/005; 1/035; 1/09*

U.S. Cl. 430—567 **23 Claims**

1. A radiation sensitive emulsion comprised of a dispersing medium and silver iodochloride grains

WHEREIN the silver iodochloride grains

are comprised of three pairs of equidistantly spaced parallel {100} crystal faces and

contain from 0.05 to 3 mole percent iodide, based on total silver, in a controlled, non-uniform iodide distribution forming

a core containing at least 50 percent of total silver,

surface shell, and

a sub-surface shell that contains a maximum iodide concentration and provides, when the emulsion is exposed to 390 nm electromagnetic radiation at 10° K., stimulated fluorescent emissions in the range of from 450 to 470 nm and at 500 nm, the stimulated fluorescent emission in the range of

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from 450 to 470 nm having a peak intensity more than twice the stimulated fluorescent emission intensity at 500 nm.

5,736,311
SILVER HALIDE PHOTOGRAPHIC EMULSION CONTAINING TABULAR GRAINS WITH DISLOCATIONS AND METHOD OF PREPARING THE SAME

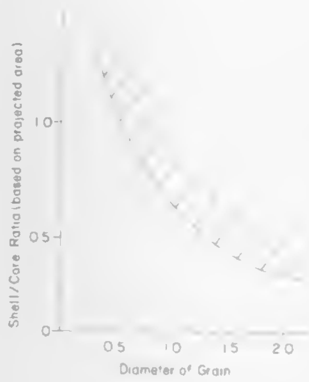
Shigeharu Urabe, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 13, 1996, Ser. No. 600,871

Claims priority, application Japan, Feb. 15, 1995, 7-049267

Int. Cl.^{6} G03C *1/035,1/015;1/07*

U.S. Cl. 430—569 **2 Claims**



1. A method of preparing a silver halide photographic emulsion comprising tabular silver halide grains having a diameter/thickness ratio of at least 2 and (111) faces as parallel main planes, each of said grains being constituted of a core and a shell; wherein at least 30%, on a projected area basis, of the total silver halide grains are tabular grains which contain in their individual shells at least 15 dislocation lines reaching to the grain edges from the interface of the core and the shell and have the ratio of the shell part containing dislocation lines to the core, on a projected area basis, in the range shown as the shaded part in FIG. 1, and wherein the shell containing dislocations is grown in the presence of a crystal habit controlling agent.

5,736,312
PROCESS FOR THE PREPARATION OF SILVER HALIDE EMULSIONS HAVING IODIDE CONTAINING GRAINS

Seshadri Jagannathan; Harold G. Judd, both of Rochester; Samuel Chen, Penfield; David E. Fenton, Fairport; Allen K. Tsaur, and Kenneth J. Reed, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 20, 1996, Ser. No. 753,073

Int. Cl.^{6} G03C *1/035;1/015*

U.S. Cl. 430—569 **14 Claims**

1. A process for preparing a photographically useful emulsion comprised of a dispersing medium and radiation-sensitive silver iodohalide grains comprised of the following steps:

(1) providing an aqueous dispersing medium including a peptizer for the silver iodohalide grains,

(2) precipitating silver halide grains having a face centered cubic rock salt crystal lattice structure, and

(3) introducing into the crystal lattice structure iodide ions released from IO_3^-.

5,736,313
METHOD OF LYOPHILIZING PLATELETS BY INCUBATION WITH HIGH CARBOHYDRATE CONCENTRATIONS AND SUPERCOOLING PRIOR TO FREEZING

Barry J. Spargo, Baltimore; Alan S. Rudolph, Potomac, both of Md.; Richard G. Emler, Iowa City, Iowa, and Thomas R. Groel, II, Manassas, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 20, 1995, Ser. No. 546,464

Int. Cl.^{6} A01N *1/02;63/00*

U.S. Cl. 435—2 **16 Claims**

1. A process for storing a composition consisting essentially of platelets comprising the steps of:

preincubating the platelets in a preincubation buffer comprising carbohydrate selected from the group consisting of monosaccharides and disaccharides, in a concentration of about 10 mM to 150 mM which is capable of inducing a Cl^- shift which results in increased concentrations of ATP and 2,3-DPG in the platelets;

loading the platelets with carbohydrate by incubating the platelets in a second buffer having a higher concentration of carbohydrate than the preincubation buffer and comprising carbohydrate selected from the group consisting of monosaccharides and disaccharides, in a concentration of about 100–1500 mM for a time sufficient to increase the carbohydrate concentration of the platelets, thus forming carbohydrate-loaded platelets;

suspending the carbohydrate-loaded platelets in a lyophilization buffer comprising a carbohydrate selected from the group consisting of monosaccharides and disaccharides, in a concentration of about 10 mM to 150 mM, and a biocompatible polymer having a molecular weight of about 50–500 kDa, in a concentration of about 10–30% w/v;

supercooling the suspended platelets to a temperature of about −5° to about −25° C. and maintaining the temperature for a time sufficient to allow temperature equilibration of the suspension, thus forming a supercooled suspension of platelets;

cooling said supercooled suspension of platelets to below its glass transition temperature, thus forming a frozen suspension of platelets;

removing water from said frozen suspension of platelets by placing said frozen suspension under 10–100 mTorr of pressure while maintaining the suspension below its glass transition temperature, thus forming a dehydrated platelet composition;

raising the temperature of the dehydrated platelet composition to about −5° to −25° C. while maintaining 10–100 mTorr of pressure, thus forming lyophilized platelets having a moisture content of less than about 15% by weight.

5,736,314
INLINE THERMO-CYCLER

Donald J. Hayes, Plano; David B. Wallace, Dallas, and Christopher J. Frederickson, Little Elm, all of Tex., assignors to MicroFab Technologies, Inc., Plano, Tex.

Filed Nov. 16, 1995, Ser. No. 558,986

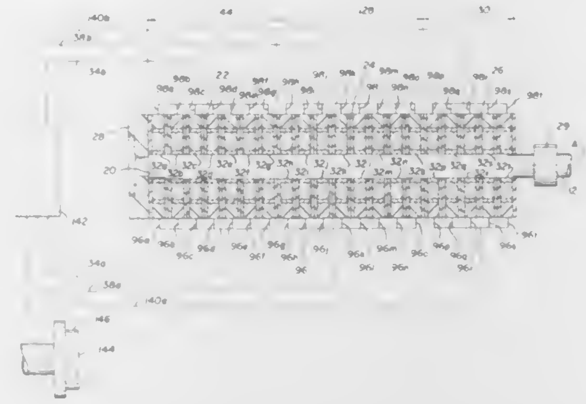
Int. Cl.^{6} C12M *3/00*

U.S. Cl. 435—4 **14 Claims**

9. A method for thermo-cycling fluid biological material comprising the steps of:

(a) providing a fluid channel having an inlet at one end, an outlet at an opposite end and a plurality of temperature control elements positioned in thermal contact with said channel between said one end and said opposite end,

(b) providing power to each temperature control element to maintain the portion of the channel adjacent each temperature control element at a predetermined temperature which varies from one control element to the next; and



(c) introducing a fluid biological material into the channel at the inlet; and

(d) flowing the fluid through the channel.

5,736,315
METHODS AND COMPOSITIONS FOR DETECTING ANTI-HEPATITIS E VIRUS ACTIVITY

Howard A. Fields, Marietta; Michael O. Favorov, and Yuri E. Khudyakov, both of Atlanta, all of Ga., assignors to National Institute of Health, Bethesda, Md.

Filed Oct. 21, 1992, Ser. No. 965,667

Int. Cl.^{6} C12Q *1/70;* **G01N** *33/576;* **C07K** *14/08*

U.S. Cl. 435—5 **19 Claims**

1. An antigenic peptide having a sequence consisting of the amino acids contained in the amino acid sequence defined in the Sequence Listing by SEQ ID NO:1.

5,736,316
HBV CAPTURE AND AMPLIFIERS PROBES FOR USE IN SOLUTION PHASE SANDWICH HYBRIDIZATION ASSAYS

Bruce D. Irvine, Concord; Janice A. Kolberg, Hercules; Joyce A. Running, Concord, and Michael S. Urdea, Alamo, all of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Continuation of Ser. No. 813,586, Dec. 23, 1991, abandoned. This application Jan. 24, 1994, Ser. No. 186,229

Int. Cl.^{6} C12Q *1/70;1/68;* **C07H** *21/02*

U.S. Cl. 435—5 **14 Claims**

1. A set of synthetic oligonucleotides useful as amplifier probes in a sandwich hybridization assay for HBV, comprising at least two different oligonucleotide probes, wherein each oligonucleotide probe consists of:

a first segment having a minimum length of 25 nucleotides and a maximum length of 100 nucleotides which segment is at least 90% complementary to a segment of HBV nucleic acid, wherein said first segment comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS. 6–44; and

a second segment consisting of a nucleotide sequence which is at least 90% complementary to an oligonucleotide segment of a nucleic acid multimer wherein said second segment and said multimer are not complementary to HBV nucleic acid;

and optionally one or more noncomplementary segments each consisting of a nucleotide sequence that is not complementary to HBV nucleic acid.

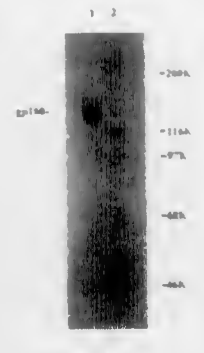
5,736,317
HUMAN T-CELL LINE INFECTED WITH HIV-2 WHICH SECRETES A PROTEIN CORRESPONDING TO NATIVE HIV-2 GP160 IN AN EXTRACELLULAR MEDIUM

Mangalasseril G. Sarngadharan, McLean, Va.; Vaniambadi S. Kalyanaraman, Germantown, and Irene LaRue-Kalisz, Frederick, both of Md., assignors to Akzo Nobel N.V., Arnhem, Netherlands

Filed Mar. 7, 1995, Ser. No. 402,481

Int. Cl.^{6} C12Q *1/70;* **C12N** *7/00*

U.S. Cl. 435—5 **5 Claims**



1. HIV 2NIHZ gp160
2. Molecular weight standards

1. A HUT78 T-cell line infected with HIV-2_{NIHZ} which secretes a protein corresponding to native HIV-2 gp 160.

5,736,318
METHOD AND KIT FOR EVALUATING HUMAN PAPILLOMAVIRUS TRANSFORMED CELLS

Karl Münger, Brookline, and D. Leanne Jones, Somerville, both of Mass., assignors to President and Fellows of Harvard College, and Harvard University, Office of Technology Transfer, both of Cambridge, Mass.

Filed Mar. 17, 1995, Ser. No. 406,248

Int. Cl.^{6} C12Q *1/70;* **C12N** *9/00;* **A61K** *39/12;* **C07K** *1/00*

U.S. Cl. 435—5 **1 Claim**

1. A method of evaluating the proliferative state of a human papillomavirus transformed cell which comprises:

a. isolating cyclin/cyclin-dependent kinase complexes comprising the $p21^{CIP1}$ protein from the cell, and dividing said complexes into a plurality of aliquots;

b. adding human papilloma virus E7 oncoprotein to at least one aliquot from step a, wherein E7 oncoprotein interacts with the $p21^{CIP1}$ protein in the complexes of step a;

c. isolating an untransformed cell which is substantially homogeneic with the transformed cell;

d. isolating cyclin/cyclin-dependent kinase complexes from the untransformed cell of step c, and dividing said complexes into a plurality of aliquots;

e. adding human papilloma virus E7 oncoprotein to at least one aliquot from step d, wherein E7 oncoprotein interacts with the $p21^{CIP1}$ protein in the complexes of step d; and

f. measuring the kinase activities of the respective aliquots,

wherein a proliferating transformed cell is characterized by a greater kinase activity in comparison to the kinase activity of the substantially homogeneic untransformed cell.

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5,736,319

ATTENUATED GENTICALLY-ENGINEERED PSEUDORABIES VIRUS S-PRV-155 AND USES THEREOF

Mark D. Cochran, Carlsbad, Calif., assignor to Syntro Corporation, Lenexa, Kans.

Continuation of Ser. No. 55,530, Apr. 30, 1993, Pat. No. 5,451,499, which is a division of Ser. No. 663,413, Mar. 1, 1991, Pat. No. 5,240,703. This application Jun. 1, 1995, Ser. No. 456,509

Int. Cl.^{6} C12Q *1/70;* **G01N** *33/53;33/567*

U.S. Cl. 435—5 **9 Claims**

1. A method of distinguishing an animal vaccinated with a vaccine, said vaccine comprising an attenuated, genetically-engineered pseudorabies virus designated S-PRV-155 (ATCC Accession No. VR 2311), from an animal infected with a naturally-occurring, wild-type pseudorabies virus which comprises:

detecting the presence of pseudorabies glycoprotein X in a serum of the animal; and

detecting the presence of a pseudorabies virus antigen other than glycoprotein X or glycoprotein I, wherein the antigen is normally expressed in an animal infected by a naturally-occurring, wild-type pseudorabies virus, the presence of the antigen and the absence of the glycoprotein X in the serum being indicative of the animal vaccinated with the vaccine and not infected with a naturally-occurring, wild-type pseudorabies virus.

5,736,320

METHOD OF DETECTING SUBSTANCES BY CHEMILUMINESCENCE

Thomas Schlederer, 21 Dragonerweg, A-1220 Vienna, and Peter Gerald Fritz, 76 D Hammerauerstrasse, A-6020 Salzburg, both of Austria

Continuation of Ser. No. 96,818, Jul. 29, 1993, abandoned. This application Sep. 5, 1995, Ser. No. 522,530

Claims priority, application Austria, May 12, 1993, 936/93

Int. Cl.^{6} G01N *33/535;* **C12Q** *1/70*

U.S. Cl. 435—5 **40 Claims**

1. A method of detecting a substance by chemiluminescence in an aqueous solvent system wherein the solvent system further comprises a solvent in addition to water which is compatible with the peroxyoxalate chemiluminescent reaction, wherein a luminophore is raised from its non-excited state into an excited state by electron transfer and subsequently the radiation emitted by the luminophore when falling back into its non-excited state is measured, comprising the steps of

(a) employing a redox-sensitive luminophore in said aqueous solvent system wherein the luminophore is released from a substrate by an enzyme, wherein the enzyme is the substance being detected or is bound to a binding partner of the substance being detected;

(b) adding an oxidant and an optionally substituted oxalate or an oxamide to the reaction wherein in a chemiluminescent reaction said luminophore is raised from a non-excited state into an excited state by electron transfer due to the oxidative decomposition of the optionally substituted oxalate or oxamide, said luminophore thereby emitting radiation when falling back into its non-excited state, wherein said emitted radiation has a longer wavelength than nonspecific background radiation.

(c) quenching the nonspecific background radiation of said chemiluminescent reaction at about 350 nm to 540 nm with a suitable wavelength selection unit, and

(d) measuring the amount of radiation emitted by the luminophore, thereby detecting as low as about 10^{-11} mol/l of the substance being detected.

5,736,321

PEPTIDES EFFECTIVE FOR DIAGNOSIS AND DETECTION OF HEPATITIS C INFECTION

Barbara Helen Hosein, New York, and Chang Yi Wang, Cold Spring Harbor, both of N.Y., assignors to United Biomedical, Inc., Hauppauge, N.Y.

Continuation-in-part of Ser. No. 333,573, Nov. 1, 1994, abandoned. This application Sep. 19, 1995, Ser. No. 530,550

Int. Cl.^{6} G01N *33/576;* **G07K** *14/18*

U.S. Cl. 435—5 **25 Claims**

1. A peptide composition comprising Mixture E wherein Mixture E consists essentially of Peptides 19, 37, 43, 45, 46 and 47 (SEQ ID NOS:19, 37, 43, 45, 46 and 47).

5,736,322

SYNTHETIC ORAL FLUID STANDARD

Andrew S. Goldstein, Portland, Oreg., assignor to Epitope, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 480,790, Jun. 7, 1995. This application Feb. 28, 1996, Ser. No. 608,431

The portion of the term of this patent subsequent to Jun. 7, 2015, has been disclaimed.

Int. Cl.^{6} C12Q *1/70;* **A61K** *38/47;7/28;* **A01N** *59/08*

U.S. Cl. 435—5 **36 Claims**

1. An oral fluid standard comprising an aqueous solution of a mucin, and a protease inhibitor.

5,736,323

AGENTS AND PROCEDURES FOR THE STUDY OF THE GENETIC POLYMORPHISM OF THE ANGIOTENSIN I CONVERTING ENZYME

Florent Soubrier, Paris; Christine Hubert, Sevres, and Pierre Corvol, Paris, all of France, assignors to Institut National de la Sante et de la Recherche Medicale, Paris, France

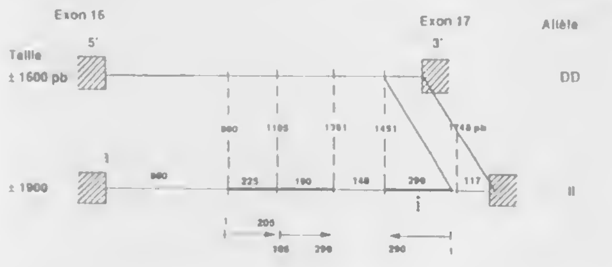
PCT No. PCT/FR92/00574, § 371 Date Jan. 24, 1994, § 102(e) Date Jan. 24, 1994, PCT Pub. No. WO93/00360, PCT Pub. Date Jan. 7, 1993

PCT Filed Jun. 24, 1992, Ser. No. 157,171

Claims priority, application France, Jun. 27, 1992, 91 08020

Int. Cl.^{6} C12Q *1/68;* **C12P** *19/34;* **C07H** *21/04;21/02*

U.S. Cl. 435—6 **25 Claims**



1. A DNA fragment consisting of at least about 8 to about 1856 consecutive nucleotides of a sequence of intron 16 (SEQ ID NO.3) of a human angiotensin converting enzyme gene

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5,736,324

Patent Not Issued For This Number

5,736,325

MARKER FOR INDIVIDUALS SUSCEPTIBLE TO ALCOHOLISM

Paul Manowitz, East Brunswick; Ronald D. Poretz, Marlboro, both of N.J.; David Park, New York, N.Y., and Michael Ricketts, Somerset, N.J., assignors to Algene LLC, East Brunswick, N.J.

Filed Aug. 31, 1994, Ser. No. 299,187

Int. Cl.^{6} C12Q *1/68;* **G01N** *33/573;* **C07H** *21/04;* **C12N** *15/00*

U.S. Cl. 435—6 **44 Claims**

1. A method for identifying an individual who may be susceptible to alcoholism or to the pathological effects of alcohol consumption comprising detecting the presence or absence of a mutation that leads to a pseudodeficiency (PD) phenotype in each allele of an arylsulfatase A (ASA) gene of an individual, and identifying whether the individual is homozygous, heterozygous, or normal for the PD mutation of the ASA gene, wherein homozygosity for the PD mutation of the ASA gene indicates that the individual may be susceptible to alcoholism or to the pathological effects of alcohol consumption.

5,736,326

METHOD OF DETECTING RESISTANCE TO CHEMO THERAPEUTIC AGENTS IN CANCER PATIENTS

Kevin J. Scanlon, Pasadena, Calif., assignor to City of Hope, Duarte, Calif.

Continuation of Ser. No. 234,096, Aug. 19, 1988, abandoned, which is a continuation-in-part of Ser. No. 46,127, May 5, 1987, abandoned. This application Aug. 31, 1994, Ser. No. 299,332

Int. Cl.^{6} C12P *19/34;* **C12Q** *1/68*

U.S. Cl. 435—6 **14 Claims**

1. A process for detecting human cancer cells which have acquired resistance to a chemotherapeutic agent which process comprises assaying RNA from said cells to determine whether there has been an increase in the expression of H-ras or c-fos oncogene in comparison to a control, said assaying including the steps of

(i) measuring the expression of the mRNA H-ras or c-fos oncogene and of a control gene, and

(ii) comparing the amount of said expression of H-ras or c-fos mRNA with the amount of mRNA expression of said control gene

wherein an increase in the amount of the expression of H-ras or c-fos mRNA as compared with the amount of the mRNA expression of said control gene is indicative that said human cancer cells have acquired resistance to a chemotherapeutic agent

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5,736,327

DISCONTINUOUS PROBE DESIGN USING HYBRITOPE MAPPING

Mark L. Collins, Walnut Creek, Calif., assignor to Chiron Corporation, Emeryville, Calif.

Continuation of Ser. No. 349,316, Dec. 5, 1994. This application May 5, 1995, Ser. No. 435,809

Int. Cl.^{6} C12Q *1/68,* **C12P** *19/34*

U.S. Cl. 435—6 **9 Claims**

1. A method of detecting or determining a binding oligonucleotide comprising a nucleotide sequence which binds within a known nucleotide sequence of a target nucleic acid, the method comprising the steps of

(a) obtaining a plurality of oligonucleotides, each of the oligonucleotides comprising a first nucleotide sequence which is complementary to a sequence within the known nucleotide sequence, and the oligonucleotides having overlapping first nucleotide sequences wherein the first sequence of each of the oligonucleotides in the plurality of oligonucleotides overlaps the first sequence of another oligonucleotide in the plurality of oligonucleotides by from one to four nucleotides,

(b) contacting each of the oligonucleotides with the target nucleic acid under conditions permitting specific hybridization of oligonucleotides to the target, and

(c) detecting or determining the presence or absence of specific oligonucleotide-target binding between each of the oligonucleotides and the target nucleic acid to indicate whether each oligonucleotide binds within the known nucleotide sequence, thereby determining or detecting one or more binding oligonucleotides

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5,736,328

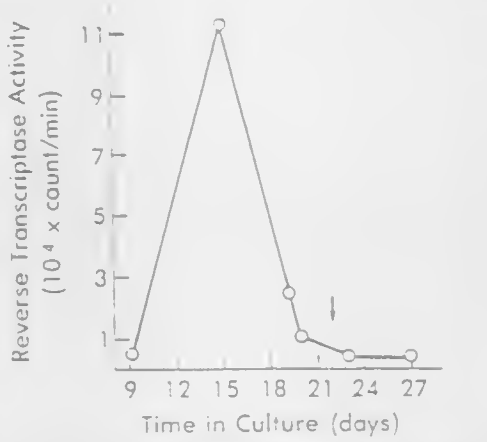
HYBRIDIZATION ASSAYS FOR DETECTING THE PRESENCE OF AN AIDS-ASSOCIATED VIRUS

Jay A. Levy, San Francisco, Calif., assignor to Regents of the University of California, Alameda, Calif.

Division of Ser. No. 956,682, Oct. 5, 1992, abandoned, which is a continuation of Ser. No. 628,500, Dec. 17, 1990, abandoned, which is a continuation of Ser. No. 433,393, Nov. 7, 1989, abandoned, which is a continuation of Ser. No. 80,635, Jul. 31, 1987, abandoned, which is a continuation of Ser. No. 641,167, Aug. 15, 1984, Pat. No. 4,716,102. This application May 31, 1995, Ser. No. 443,892

Int. Cl.^{6} C12Q *1/70;1/68,* **C07H** *21/02;21/04;21/00*

U.S. Cl. 435—6 **5 Claims**



1. A polynucleotide hybridization assay for determining the presence of an AIDS-associated virus having the identifying characteristics of the AIDS associated virus found in the HUT-78 cell line having an ATCC accession no. of CRL 8578 in a patient comprising:

(a) liberating polynucleic acids from a sample of leukocytes from a patient and rendering the liberated polynucleic acids single-stranded, if necessary;

(b) transferring the liberated polynucleic acids to a solid support under conditions that immobilize them on the support.

(c) hybridizing the immobilized liberated polynucleic acids with a labeled single stranded reverse transcribed DNA of the genomic RNA of said AIDS-related virus or a labeled fragment of said DNA.

(d) detecting the presence of immobilized labeled polynucleic acids duplexes on the support; and

(e) relating said present of said immobilized labeled polynucleic acids duplexes to the presence of said AIDS related virus

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5,736,329

METHOD FOR TESTING FOR THE PRESENCE OF ALZHEIMER'S DISEASE

Henri Tiedge, 1249 Park Ave., and Jurgen Brosius, 1212 Fifth Ave., both of New York, N.Y. 10029

Division of Ser. No. 438,500, May 10, 1995, Pat. No. 5,670,318, which is a continuation of Ser. No. 68,659, May 28, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 477,442

Int. Cl.^{6} C12Q *1/68,* **C12P** *19/34*

U.S. Cl. 435—6 **7 Claims**

1. A method of testing human brain tissue for the presence of Alzheimer's Disease comprising the steps of

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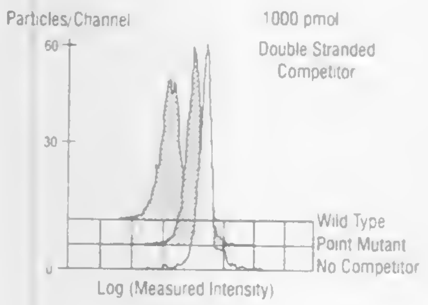
(a) obtaining a test sample of human brain tissue from a patient;
(b) preparing the test sample such that RNA in the test sample is capable of reacting with a detection reagent, wherein the detection reagent is an oligonucleotide probe which specifically hybridizes to a human BC200 RNA molecule in a region having the sequence set forth for residues 156–185 of SEQUENCE ID NO:1 but which does not hybridize to a human Alu element;
(c) combining the test sample with the detection reagent under conditions that produce a detectable reaction product if BC200 RNA is present in the test sample such that the amount of detectable reaction product is an indicator of the amount of BC200 RNA product;
(d) quantitating the amount of detectable reaction product produced; and
(e) comparing the amount of detectable reaction product with an amount of detectable reaction product produced from a control sample of normal brain tissue;

wherein an increased amount of detectable reaction product in the test sample relative to the control sample has a positive correlation with the presence of Alzheimer's Disease in the patient.

5,736,330
METHOD AND COMPOSITIONS FOR FLOW CYTOMETRIC DETERMINATION OF DNA SEQUENCES
R. Jerrold Fulton, Cedar Hill, Tex., assignor to Luminex Corporation, Austin, Tex.
Filed Oct. 11, 1995, Ser. No. 542,401
Int. Cl.^{6} C12P *1/68;19/34,* C12Q *1/70;* C07H *21/04*
U.S. Cl. 435—6 **20 Claims**



1. A method for flow cytometric analysis to detect a genetic mutation in a PCR product amplilied from a nucleic acid sample containing a target gene of interest, said method comprising the steps of:
(a) obtaining beads coupled to an oligonucleotide molecule, said oligonucleotide molecule including a polymorphic site, said polymorphic site including said genetic mutation or the wild type sequence found at the analogous position of said genetic mutation in a wild type target gene;
(b) forming a mixture by mixing said beads, said PCR product, and a fluorescently labeled nucleic acid probe, said fluorescently labeled nucleic acid probe being:
  (i) complementary to said oligonucleotide molecule; and
  (ii) capable of being competitively inhibited from binding to said oligonucleotide molecule by said PCR product,
(c) forming a reacted sample by incubating said mixture under conditions wherein if said PCR product includes said polymorphic site, said PCR product competitively inhibits binding of said fluorescently labeled nueleic acid probe to said oligonucleotide molecule;
(d) analyzing said reacted sample by flow cytometry to determine the fluorescence of each bead analyzed; and
(e) detecting the genetic mutation or absence thereof as a result of the degree of fluorescence on the beads.

5,736,331
METHOD FOR IDENTIFYING NUCLEIC ACIDS ENCODING C-FOS PROMOTER ACTIVATING PROTEINS
Stanley Li Lin, Rumson, and Marnie Lynn Rothofsky, Union, both of N.J., assignors to Schering Corporation, Kenilworth, N.J.
Continuation-in-part of Ser. No. 272,412, Jul. 8, 1995, abandoned. This application Oct. 18, 1995, Ser. No. 544,900
Int. Cl.^{6} C12Q *1/68;* C12N *5/10;* C07K *14/47*
U.S. Cl. 435—6 **19 Claims**

1. A mammalian cell line, the cells of which comprise:
(a) a recombinant vector comprising an inducible or tissue specific promoter operatively linked to a nucleic acid encoding polyomavirus large T antigen, which nucleic acid has been modified to eliminate the expression of middle T antigen; and
(b) a recombinant expression vector comprising a polyomavirus origin of replication and a nucleic acid to be assayed for encoding an activating protein of said promoter.

5,736,332
METHOD OF DETERMINING THE SEQUENCE OF NUCLEIC ACIDS EMPLOYING SOLID-PHASE PARTICLES CARRYING TRANSPONDERS
Wlodek Mandecki, 516 Hemlock La., Libertyville, Ill. 60048
Filed Nov. 30, 1995, Ser. No. 564,860
Int. Cl.^{6} C12Q *1/68;* C12P *19/34;* C07H *21/04;* G01N *33/00*
U.S. Cl. 435—6 **11 Claims**

1. A method of determining the sequence of a target nucleic acid sequence in a sample, comprising the steps of:
(a) providing a solid phase comprising particles having transponders, the particles having an oligonucleotide probe attached to a surface of the solid phase particles, the transponders having memory elements and an index number indicating sequence of the probe encoded on the transponders;
(c) contacting the solid phase with a sample to form a sample mixture;
(d) denaturing nucleic acids in the sample mixture,
(e) hybridizing the nucleic acids in the sample mixture, whereby target nucleic acid sequences hybridize to complementary probes;
(f) analyzing the solid phase to detect the presence of a label indicative of binding target nucleic acid to probes;
(g) decoding the data encoded on transponders using the dedicated read/write scanner to identify the sequence of the probes to which target nucleic acids are bound.

5,736,333
PASSIVE INTERNAL REFERENCES FOR THE DETECTION OF NUCLEIC ACID AMPLIFICATION PRODUCTS
Kenneth J. Livak, San Jose, and Lincoln J. McBride, Belmont, both of Calif., assignors to The Perkin-Elmer Corporation, Foster City, Calif.
Filed Jun. 4, 1996, Ser. No. 657,989
Int. Cl.^{6} C12Q *1/68;* C12P *19/34,* C07H *21/04*
U.S. Cl. 435—6 **21 Claims**

1. A reagent composition, said composition comprising:
a nucleic acid amplification buffer, and
an internal reference molecule, said internal reference molecule comprising
  a first fluorophore,
  a second fluorophore, and
  a backbone connector that does not hybridize in a sequence specific manner to a polynucleotide for amplification under nucleic acid amplification conditions, wherein the backbone connector joins the first and second fluorophores so as to permit the transfer of energy from the first fluorophore to the second fluorophore.

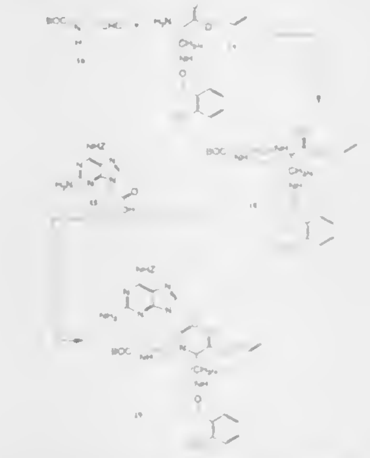
5,736,334
NUCLEOTIDE SEQUENCES AND PROCESS FOR AMPLIFYING AND DETECTION OF HEPATITIS B VIRAL DNA
Uwe Spies, Limburg, Germany, assignor to Abbott Laboratories, Abbott Park, Ill.
Continuation of Ser. No. 422,018, Apr. 12, 1993, abandoned, which is a continuation of Ser. No. 90,755, Jul. 13, 1993, abandoned. This application Nov. 27, 1996, Ser. No. 758,626
Int. Cl.^{6} C12Q *1/68,* C07H *21/04*
U.S. Cl. 435—6 **12 Claims**

6. A composition for detecting hepatitis B virus DNA present in a test sample, said composition comprising a first oligonucleotide probe and a second oligonucleotide probe, wherein said first and second probes are selected from the group consisting of:
(a) SEQ. ID. Nos. 1 and 3;
(b) SEQ. ID. Nos. 5 and 8,
(c) SEQ. ID. Nos. 9 and 11, and
(d) SEQ. ID. Nos. 9 and 32.

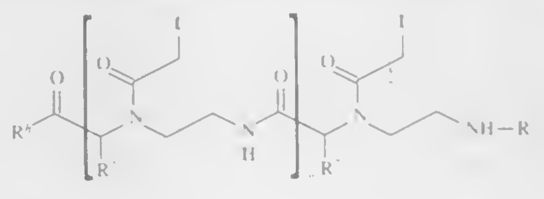
5,736,335
DRY ELEMENTS, TEST DEVICES, TEST KITS AND METHODS FOR CHEMILUMINESCENT DETECTION OF ANALYTES USING PEROXIDASE-LABELED REAGENTS
Robert Edwin Emmons, Victor; John Charles Mauck, Rochester, both of N.Y.; Paul James Heaney, Branford; Dietmar Karl Freund, Glendale, both of Conn.; David Brewer LaTart, Rochester, N.Y.; Richard George Chubet, Middletown, and Douglas Lincoln Vizard, Cheshire, both of Conn., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 589,129, Jan. 22, 1996, Pat. No. 5,641,635, which is a continuation of Ser. No. 153,141, Nov. 12, 1993, abandoned. This application Jan. 14, 1997, Ser. No. 783,049
Int. Cl.^{6} C12Q *1/68*
U.S. Cl. 435—6 **14 Claims**

1. A test kit for the determination of one or more analytes comprising:
a) a dry, removable analytical element for producing a chemiluminescent signal in response to the catalytic action of a peroxidase,
said element comprising a transparent, nonporous support having disposed thereon, in order
  one or more reagent layers buffered to a pH of from about 7.5 to about 11 and containing one or more hydrophilic binders, and
  a non-tacky, water-soluble or water-permeable cover layer comprising from about 0.6 to about 2 g/m^2 of polyvinylpyrrolidone
  the element further comprising:
    (a) a chemiluminescent composition that produces chemiluminescence in the presence of peroxidase,
    (b) an enhancer for said chemiluminescent composition,
    (c) a micelle forming material for said chemiluminescent composition,
    (d) from about 300 to about 40,000 I.U./m^2 of an oxidase, and
    (e) at least about 1 g/m^2 of a substrate for said oxidase,
  said components (a)–(e) being located in any of said layers provided that said oxidase and said oxidase substrate are in separate layers, and
b) one or more separately packaged components selected from the group consisting of
  i) a buffered salt solution comprising tris(hydroxymethyl)aminomethane and an inorganic salt,
  ii) a buffered blocking solution comprising from about 0.5 to about 5 weight % of casein,
  iii) a peroxidase-labeled specific binding reagent,
  iv) an oligonucleotide labeled directly or indirectly with a peroxidase,
  v) a transblotting membrane,
  vi) a gel plate, and
  vii) a photosensitive element

5,736,336
PEPTIDE NUCLEIC ACIDS HAVING ENHANCED BINDING AFFINITY, SEQUENCE SPECIFICITY AND SOLUBILITY
Ole Buchardt, deceased, late of Værløse, Denmark; by Dorte Buchardt, representative, Søndergårdsvej 73, 3500 Vårløse, Denmark; Michael Egholm, 1231 Lexington Ridge Dr., Lexington, Mass. 02173; Peter Eigil Nielsen, Hjortevænget 509, 2980 Kokkedal, Denmark, and Rolf Henrik Berg, Strandvaenget 6, DK 2960 Rungsted Kyst, Denmark
Division of Ser. No. 686,116, Jul. 24, 1996, which is a continuation-in-part of Ser. No. 108,591, Nov. 22, 1993. This application May 1, 1997, Ser. No. 847,108
Claims priority, application Denmark, May 24, 1991, DK 0986/91; May 24, 1991, DK 0987/91; Apr. 15, 1992, DK 0510/92
Int. Cl.^{6} C12Q *1/68,* C07K *5/00*
U.S. Cl. 435—6 **20 Claims**



1. A method for enhancing the DNA or RNA sequence specificity of a peptide nucleic acid by incorporating C_1–C_6 akylamine side chain in said peptide nucleic acid having formula.



wherein
  each L is independently selected from a group consisting of naturally-occurring nucleobases and non naturally-occurring nucleobases,
  each R^7 is independently hydrogen or C_1–C_6 alkylamine, provided that at least one R is C_1–C_6 alkylamine;
  R^h is OH, NH_2 or $NHLysNH_2$;
  R is H, $COCH_3$ or t-butoxycarbonyl, and
  n is an integer from 1 to 30

5,736,337
INHIBITING PROTEIN INTERACTIONS
Joseph Avruch, Brookline; Xian-feng Zhang, Cambridge, both of Mass., and Mark S. Marshall, Carmel, Ind., assignors to The General Hospital Corporation, Boston, Mass., and Indiana University Foundation, Bloomington, Ind.
Continuation-in-part of Ser. No. 77,256, Jun. 11, 1993, Pat. No. 5,582,995. This application Jun. 10, 1994, Ser. No. 259,672
Int. Cl.^{6} G01N *33/53*
U.S. Cl. 435—7.1 **18 Claims**

1. A method of evaluating an anti proliferative compound comprising contacting said compound with an amino terminal, non-catalytic Ras binding fragment of Raf and determining the ability of said compound to bind to said fragment, wherein said binding

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ability of said compound is an indication that said compound inhibits cell proliferation

5,736,338

METHOD OF DIAGNOSING NEOPLASTIC DISEASE BY DETECTING INCREASED EXPRESSION OF HUMAN MDM2 PROTEIN

Marilee Burrell, Cambridge; David E. Hill, Arlington, both of Mass.; Kenneth W. Kinzler, and Bert Vogelstein, both of Baltimore, Md., assignors to The Johns Hopkins University, Baltimore, Md.

Division of Ser. No. 44,619, Apr. 7, 1993, Pat. No. 5,420,263, which is a continuation-in-part of Ser. No. 903,103, Jun. 23, 1992, Pat. No. 5,411,860, which is a continuation-in-part of Ser. No. 867,840, Apr. 7, 1992, abandoned. This application Feb. 17, 1995, Ser. No. 390,517

Int. Cl.^{6} G01N *33/53, 33/574;* **C12N** *5/00;* **C07K** *16/00*

U.S. Cl. 435—7.1 **11 Claims**

1. A method of diagnosing a neoplastic disease caused by overexpression of MDM2 protein in a human comprising:

detecting an elevated amount of human MDM2 protein in cells isolated from a human, wherein an elevated amount of human MDM2 protein is indicative of neoplasia.

5,736,339

METHOD UTILIZING PURIFIED GP IIB-IIIA TO DETECT THE PRESENCE OF PLATELET AGGREGATION INHIBITORS

Robert M. Scarborough, Belmont; David Lawrence Wolf, Palo Alto, and Israel F. Charo, Lafayette, all of Calif., assignors to COR Therapeutics, Inc., South San Francisco, Calif.

Continuation of Ser. No. 67,139, May 24, 1993, Pat. No. 5,496,724, which is a continuation of Ser. No. 483,229, Feb. 20, 1990, Pat. No. 5,318,899, which is a continuation-in-part of Ser. No. 418,028, Oct. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 367,509, Jun. 16, 1989, abandoned. This application Jun. 5, 1995, Ser. No. 463,986

Int. Cl.^{6} G01N *33/68, 33/86;* **C07K** *14/745; 14/75*

U.S. Cl. 435—7.1 **1 Claim**

1. A method to determine the presence or absence of platelet aggregation inhibitor (PAI) activity in a biological fluid, which method comprises:

contacting a sample of said fluid with a solid support coated with purified platelet GP IIb-IIIa in the presence of a solution of fibrinogen (Fg) or von Willebrand Factor (vWF) under conditions wherein Fg or vWF binds to said GP IIb-IIIa, and

detecting the decrease or lack of decrease in the binding of Fg or vWF to GP IIb-IIIa in comparison to the binding of Fg or vWF to GP IIb-IIIa in a control which does not contain biological fluid.

5,736,340

SECRETED MAC-2-BINDING GLYCOPROTEIN

Kirston E. Koths, El Cerrito; Robert F. Halenbeck, San Rafael; Eric W. Taylor, Berkeley; Alice M. Wang, Lafayette, and Clayton L. Casipit, Hayward, all of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 316,714, Sep. 29, 1994, which is a continuation of Ser. No. 961,404, Oct. 15, 1992, abandoned, which is a continuation-in-part of Ser. No. 777,121, Oct. 16, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 473,791

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.1 **2 Claims**

1. A method of measuring the concentration of glycoprotein complexes in a sample of human milk, said glycoprotein complexes comprising a plurality of glycoprotein subunits, wherein said glycoprotein complexes have (i) an apparent molecular weight of over 1200 kD and a sucrose velocity gradient sedimentation value of about 25S, and (ii) the ability to interfere with PHA-dependent activation of lymphocytes, and wherein said glycoprotein subunits are about 85–97 kD on reducing SDS polyacrylamide gel electrophoresis, said method comprising the steps of:

a) contacting a sample of human milk with an antibody which binds said gp85-97 subunits to form a mixture; and

b) determining the concentration of said gp85-97 subunits in said mixture.

5,736,341

METHODS AND TEST KITS FOR SPECIFIC AND SENSITIVE DIAGNOSING OF PERIODONTAL DISEASES

Timo Arto Sorsa; Sari Hannele Tikanoja, both of Helsinki, and Leila Christina Lundqvist, Espoo, all of Finland, assignors to Oy Medix Biochemica AB, Kauniainen, Finland

Filed Jun. 7, 1995, Ser. No. 487,656

Claims priority, application Finland, Aug. 26, 1994, 943939

Int. Cl.^{6} G01N *33/53; 33/537; 33/543; 33/554; 33/551; 33/546,* **C07K** *16/00;* **C12P** *21/08*

U.S. Cl. 435—7.1 **24 Claims**

16. A method for diagnosing periodontal disease, periimplantitis or HIV(+)-infection/AIDS-disease related periodontal diseases, wherein the detection is performed as an immunological assay comprising the steps of:

(a) collecting a gingival crevicular fluid sample with a sampling device,

(b) contacting said sample with at least one monoclonal antibody, which recognizes a tissue destructive active form of mammalian matrix metalloproteinase-8 in gingival crevicular fluid, saliva or mouthrinse samples, said monoclonal antibodies being directed against a part of said MMP-8 which is exposed during activation of said MMP-8 from the proenzyme form; and

(c) detecting the presence of said active mammalian matrix metalloproteinase-8, wherein an increased level of MMP 8 indicates periodontal disease

5,736,342

BIOSENSOR FOR DETECTING THE PRESENCE OF CHOSEN ANALYTES

Bernard J. Van Wie; William C. Davis; David F. Moffett; Alan R. Koch, all of Pullman, Wash.; Moris Silber, Moscow, Id.; Steven R. Reiken, Medford, Mass., and Himawan Sutisna, Bandung, Indonesia, assignors to Washington State University Research Foundation, Pullman, Wash.

Continuation of Ser. No. 124,914, Sep. 21, 1993, abandoned. This application Nov. 8, 1995, Ser. No. 555,347

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.2 **18 Claims**

1. A biosensor for use in a non-competitive immunoassay for detecting the presence of a chosen analyte in solution which comprises:

a) an ion channel receptor immobilized in a suspended lipid film which film is in contact with an ion-containing solution on each side thereof,

b) a ligand, conjugated to the receptor, said ligand which specifically binds to the analyte in solution, and, which, upon binding to the analyte in solution, causes an inhibition in ion flow through the ion channel; and

c) means to detect the inhibition of ion flow through the ion channel in response to the binding of conjugated ligand and analyte

5,736,343

DETECTION OF ORGANIC COMPOUNDS THROUGH REGULATION OF ANTIBODY-CATALYZED REACTIONS

Donald Landry, 29 Chremount Apt. 2 South, New York, N.Y. 10027

Filed Aug. 16, 1996, Ser. No. 698,812

Int. Cl.^{6} C12Q *1/25*

U.S. Cl. 475—7.6 **25 Claims**

1. A method for determining the presence or absence of a target organic molecule in a sample which comprises:

a. adding a substrate molecule to the sample,

b. adding a catalytic monoclonal antibody to the sample which
  (i) recognizes and binds the target organic molecule when the target organic molecule is present in the sample, or
  (ii) recognizes, binds, and transforms the substrate molecule when the target organic molecule is not present in the sample; and

c. detecting a change in the sample signifying the absence of the target organic molecule, the change being the production of a reporter molecule by an antibody-catalyzed reaction of the substrate molecule and thereby determining the presence or absence of the target organic molecule in the sample

5,736,344

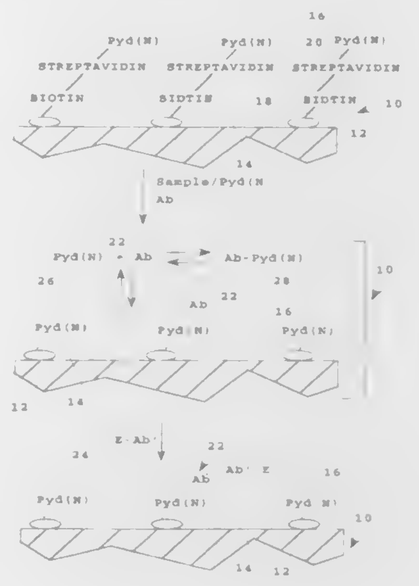
SERUM PYRIDINIUM CROSSLINKS ASSAY

Viola T. Kung, Menlo Park, and Baltazar Gomez, Jr., Fremont, both of Calif., assignors to Metra Biosystems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 140,284, Oct. 20, 1993, abandoned, and a continuation-in-part of Ser. No. 209,924, Mar. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 992,936, Dec. 17, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 482,109

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.9 **20 Claims**



1. A method of assaying bone collagen breakdown levels in a human subject, the method comprising

reacting a non-hydrolyzed blood fluid sample from a human subject with an antibody which is specific for native peptide free pyridinium crosslinks selected from the group consisting of native peptide-free pyridinoline (N-Pyd), native peptide-free deoxypyridinoline (N-Dpd), or both N Pyd and N-Dpd, wherein said antibody is produced by immunizing an animal with hydrolyzed pyridinoline or hydrolyzed hydroxypridinoline and said antibody has a ratio of reactivity toward said selected pyridinium crosslinks and urinary pyridinium peptides larger than 1,000 daltons in molecular weight, of greater than about 5:1,

by said reacting, forming an immunocomplex between the antibody and such native peptide-free pyridinium crosslinks in the sample,

measuring the amount of immunocomplex formed, and by said measuring, determining the concentration of such selected native peptide-free pyridinium crosslinks in the sample,

wherein a determined concentration that is above (i) 5 nM N-Pyd, (ii) 1 nM N-Dpd, or (iii) 6 nM combined N-Pyd and N-Dpd indicates the presence of an above-normal level of collagen breakdown in the subject.

5,736,345

ASSAY FOR GROWTH PROMOTING FACTORS UTILIZING MAMMALIAN LUNG CELL LINES

Jennie P. Mather, and Penelope E. Roberts, both of Millbrae, Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 910,260, Jul. 16, 1992, which is a continuation-in-part of Ser. No. 479,130, Feb. 9, 1990, abandoned. This application May 31, 1995, Ser. No. 455,755

Int. Cl.^{6} C12N *15/01;* **C12Q** *1/68,* **G01N** *33/483*

U.S. Cl. 435—7.21 **11 Claims**

1. A method for the assay of a growth promoting substance comprising:

(a) incubating an established normal mammalian bronchial or bronchiolar epithelial lung cell line in a medium containing said growth promoting substance; and

(b) quantifying a growth indicating property of said bronchial or bronchiolar epithelial lung cell line,

wherein said bronchial or bronchiolar epithelial lung cell line is derived from lung cells isolated by incubating the lung cells in serum free medium 11F, wherein said bronchial or bronchiolar epithelial lung cell line is not established by transformation with vital DNA, and wherein said bronchial or bronchiolar epithelial lung cell line is able to be maintained for multiple passages in the absence of serum without undergoing senescence.

5,736,346

INDUCTION OF THE ACROSOME REACTION TO EVALUATE THE FERTILIZATION CAPABILITY OF MAMMALIAN SPERM USING A DENDRIMER SUGAR CONJUGATE

Jorge Guillermo Tezon, Buenos Aires, Argentina, and Adriano Brandelli, Porto Alegre, Brazil, assignors to Fundacion Instituto de Biologia y Medicina Experimental, Argentina

Continuation of Ser. No. 213,195, Mar. 14, 1994, abandoned. This application Nov. 1, 1996, Ser. No. 742,867

Int. Cl.^{6} G01N *33/567*

U.S. Cl. 435—7.21 **19 Claims**

1. A method for evaluating the fertilization capability of mammalian sperm cells, comprising the steps of

capacitating s mammalian sperm cell sample,

incubating the thus-capacitated sperm cells with a conjugate of a dendrimer and a glycosidic derivative of a sugar under conditions suitable to induce an acrosome reaction in the capacitated sperm cells; and

calculating the extent of the acrosome reaction in the thus-incubated sperm cells relative to a positive and a negative control, and evaluating the fertilization capability of the sperm cells as a function of the calculation.

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NUCLEIC ACIDS OF *ROCHALIMAEA HENSELAE* AND METHODS AND COMPOSITIONS FOR DIAGNOSING *ROCHALIMAEA HENSELAE* AND *ROCHALIMAEA QUINTANA* INFECTION

Burt E. Anderson, Valrico, Fla., and Russell L. Regnery, Tucker, Ga., assignors to The United States of America as represented by the Department of Health and Human Resources, Washington, D.C.

Continuation-in-part of Ser. No. 245,294, May 18, 1994, Pat. No. 5,644,047, which is a continuation-in-part of Ser. No. 822,539, Jan. 17, 1992, Pat. No. 5,399,485. This application Sep. 16, 1994, Ser. No. 307,279

Int. Cl.⁶ G01N *33/554* **C12Q** *1/68;* **C07K** *16/00*

U.S. Cl. 435—7.32 **7 Claims**

1. A method of diagnosing current or previous cat scratch disease in a subject by detecting the presence of an antibody that specifically binds *Rochalimaea henselae,* wherein the detecting step comprises the steps of contacting an antibody-containing fluid or tissue sample from the subject with an amount of the purified polypeptide set forth in the Sequence Listing as SEQ ID NO:11 or an immunogenic fragment thereof which binds to the antibody, detecting the binding of the purified polypeptide or immunogenic fragment thereof to the antibody, and correlating the presence of an antibody that specifically binds to the purified polypeptide or immunogenic fragment thereof with cat scratch disease in the subject.

5,736,348

METHOD FOR THE IMMUNOLOGICAL DIAGNOSIS OF CHAGAS' DISEASE USING RECOMBINANT ANTIGENS

Samuel Goldenberg; Marco Aurélio Krieger, and Elza Carmen Cerqueira De Almeida, all of Rio De Janeiro, Brazil, assignors to Fundacao Oswaldo Cruz (Fiocruz), Rio de Janeiro, Brazil

Continuation of Ser. No. 916,073, Jun. 23, 1992, abandoned. This application Feb. 22, 1995, Ser. No. 392,623

Claims priority, application Brazil, Nov. 28, 1990, 9006039

Int. Cl.⁶ G01N *33/535;33/569,33/543*

U.S. Cl. 435—7.92 **4 Claims**

1. A method for the immunological diagnosis of Chagas' disease comprising the following steps:

(i) sensitizing a support of a material selected from the group consisting of polycarbonate, polyallomer, polypropylene, polyvinyl, nylon or nitrocellulose with a 50 mM carbonate buffer containing 0.01 to 1.0 mg/ml of a mixture of the Antigen #1 (SEQ ID NO:1) and Antigen #2 (SEQ ID NO:2);

(ii) washing the sensitized support with a washing buffer of a phosphate buffered saline (PBS) pH 7.0 with 0.3% of detergent;

(iii) adding to the ensemble of the step (ii) the serum to be tested and incubating the ensemble for a sufficient time to permit the specific binding between the antigens Antigen #1 (SEQ ID NO:1) and Antigen #2 (SEQ ID NO:2), and antibodies to *Trypanosoma cruzi:*

(iv) washing the ensemble which contains the serum with the same buffer solution used in the step (ii);

(v) preparing a solution comprising enzyme-conjugated Antigen #1 (SEQ ID NO:1) and enzyme-conjugated Antigen #2 (SEQ ID NO:2), said enzymes having an enzymatic activity;

(vi) diluting the solution comprising enzyme-conjugated Antigen #1 (SEQ ID NO:1) and enzyme-conjugated Antigen #2 (SEQ ID NO:2) to block nonspecific binding sites, said diluting solution consisting of the washing buffer which contains 5% of bovine sera;

(vii) adding to the ensemble of step (iv) the solution of the step (vi) and incubating for a sufficient time to permit the interaction between the antibodies to *Trypanosoma cruzi* and the antigens having an enzymatic activity;

(viii) effecting the development of immunocomplex by adding to the ensemble of step (vii) the substrate solution and then incubating for a sufficient time to permit the interaction between the enzyme and the substrate;

(ix) blocking the enzymatic activity by addition of a stop solution; and

(x) evaluating the results of the enzymatic activity in relation to a standard serum.

5,736,349

MAGNETIC PARTICLE AND IMMUNOASSAY USING THE SAME

Motohiro Sasaki; Masahiko Matsukawa, both of Kanagawa-ken; Katsuaki Yoshioka, Tokyo; Makoto Anan, Chiba ken; Mitsuo Isomura, Tokyo; Yoshihiro Ashihara, Tokyo, and Masahisa Okada, Tokyo, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka-fu, and Fujirebio Inc. (Fujirebio Kabushiki Kaisha), Tokyo, both of Japan

Continuation of Ser. No. 111,678, Aug. 25, 1993, abandoned, which is a continuation-in-part of Ser. No. 965,612, Oct. 22, 1992, Pat. No. 5,320,944, which is a continuation of Ser. No. 590,834, Sep. 28, 1990, abandoned. This application May 12, 1995, Ser. No. 440,175

Claims priority, application Japan, Sep. 29, 1989, 1-252051; Aug. 31, 1992, 4-253455

Int. Cl.⁶ G01N *33/553;* **C07K** *17/14*

U.S. Cl. 435—7.94 **15 Claims**

1. A magnetic particle for an immunoassay method, which comprises a core and a coating layer formed on the surface of the core wherein said core comprises an organic polymer matrix and said coating layer comprises a mixed crystal ferrite represented by the formula:

$$M_xFe_{(3-x)}O_4$$

wherein M represents at least one metal selected from the group consisting of manganese, nickel, zinc, cobalt, copper, magnesium, tin, calcium and cadmium, and x is a number satisfying the relation:

$$0<x<3,$$

and an antigen or an antibody is bound onto the surface of the coating layer and wherein said particle has a particle size of 0.03 to 10 μm.

5,736,350

Patent Not Issued For This Number

5,736,351

METHOD FOR DETECTION OF CONTAMINANTS

C. David Miller, Greenbelt, and Lawrence Loomis, Columbia, both of Md., assignors to New Horizons Diagnostics Corporation, Columbia, Md.

Continuation-in-part of Ser. No. 370,093, Jan. 9, 1995, Pat. No. 5,624,810. This application Jan. 15, 1997, Ser. No. 785,833

Int. Cl.⁶ C12Q *1/66*

U.S. Cl. 435—8 **24 Claims**

1. A method for determining the presence and quantity of an analyte, comprising the steps of:

a) collecting a liquid sample of said analyte;

b) placing said liquid sample on a disposable test device with permeable filter means, said disposable test device being a membrane ticket, said membrane ticket comprising:

a hinged two side support having a top section and a bottom section,

an absorbent pad positioned on top of an inner side of said top section,

a filter membrane, on top of said absorbent pad, a rigid layer holding said filter membrane in place;

a rigid layer positioned over the filter membrane;

a hole in said rigid layer positoned over said filter membrane;

a hole in the bottom section of the membrane ticket;

a membrane disk fitted in said hole of said membrane ticket;

an illumination solution immobilized on said membrane disk;

a transparent window on an outer side of said bottom section under said membrane disk,

wherein said sample is applied through a hole in the rigid layer onto the surface of the filter membrane;

c) applying a somatic cell releasing agent to the surface of the filter membrane;

d) applying a bacterial releasing agent to the surface of the membrane disk positioned on the inner side of the bottom section of the membrane ticket;

e) compressing the top section and bottom section of the membrane ticket;

f) sliding the membrane ticket in a photometer by means of a draw slide; and

g) measuring the light emission resulting from said luminescent reaction with a photometer comprising a photodetector means and a light tight chamber for said disposable test device and a means to measure light passing through said transparent wall of said membrane ticket; and

h) causing the said photometer means to output a signal indicative to the presence and amount of analyte.

5,736,352

METHOD AND APPARATUS FOR DETERMINATION OF THE ACTIVITY OF CHOLESTEROL OXIDASE AND METHOD AND APPARATUS FOR EVALUATION OF THE TOXICITY OF CHEMICAL SUBSTANCES

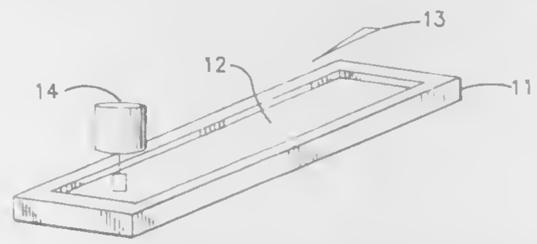
Toru Murakami, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,776

Claims priority, application Japan, Feb. 17, 1995, 7-29167

Int. Cl.⁶ C12Q *1/60;1/26;1/00;* **G01N** *33/92*

U.S. Cl. 435—11 **9 Claims**



1. A method for evaluation of toxicity of a chemical substance which has an ability to reduce activity of a cholesterol oxidase, comprising the steps of:

forming a monomolecule film comprising a sterol and a phospholipid on a surface of a cholesterol oxidase solution added with a chemical substance;

measuring a surface pressure of said monomolecule film in order to find a rate of increase in said surface pressure of said monomolecule film where a magnitude of said activity of said cholesterol oxidase is defined by said rate of increase in said surface pressure; and

comparing said rate of increase in said surface pressure measured to a reference rate wherein said reference rate has previously been found by measuring a surface pressure of said monomolecule film formed on a surface of said cholesterol oxidase solution free of said chemical substance.

5,736,353

ASSAY REAGENTS

Elizabeth Anne Weavers, Aylesbury, United Kingdom, and Michael Joseph Powell, Gaithersburg, Md., assignors to Alusuisse Holdings A.G., Neuhausen am Rheinfall, Switzerland

Continuation of Ser. No. 115,666, Sep. 2, 1993, abandoned, which is a continuation of Ser. No. 928,638, Aug. 14, 1992, abandoned, which is a continuation of Ser. No. 724,518, Jun. 28, 1991, abandoned, which is a continuation of Ser. No. 494,960, Mar. 15, 1990, abandoned, which is a continuation of Ser. No. 334,799, Apr. 3, 1989, abandoned, which is a continuation of Ser. No. 156,580, Feb. 17, 1988, abandoned, which is a continuation of Ser. No. 937,061, Nov. 6, 1986, abandoned. This application Jun. 14, 1994, Ser. No. 261,007

Claims priority, application United Kingdom, Mar. 7, 1985, 8505899; WIPO, Mar. 7, 1986, PCT/GB86/00129

Int. Cl.⁶ C12Q *1/28*

U.S. Cl. 435—28 **6 Claims**

1. A peroxidase-containing reagent comprising a buffered aqueous solution comprising a peroxidase conjugate and a specific substrate for the peroxidase, in the absence of peroxide.

5,736,354

DETERMINATION OF TOXICITY

Peter Robert Fielden, Bury, and Richard David Snook, Congleton, both of United Kingdom, assignors to Yorkshire Water plc, United Kingdom

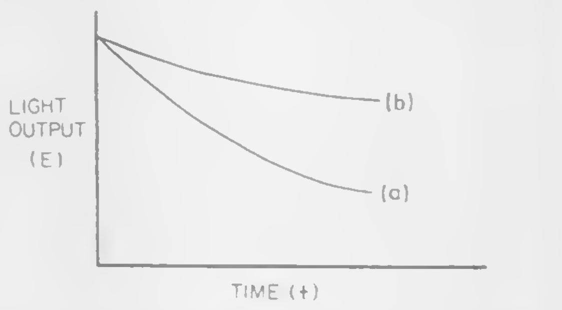
PCT No. PCT/GB93/02603, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO95/00834, PCT Pub. Date Jan. 5, 1994

PCT Filed Dec. 20, 1993, Ser. No. 553,466

Claims priority, application United Kingdom, Jun. 18, 1993, 9312627

Int. Cl.⁶ C12Q *1/02;1/04;* **G01N** *21/00*

U.S. Cl. 435—29 **7 Claims**



1. A method of determining the toxicity of a fluid sample comprising the steps of

(i) mixing the sample with a suspension of light emitting micro organisms;

(ii) monitoring the light output (E) of the mixture continually over a period of time $(t-t_n)$ using a photodetector device sensitive to the wavelength of the emitted light, and

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(iii) determining the differential d(log E)/dt to give a measure of toxicity concentration.

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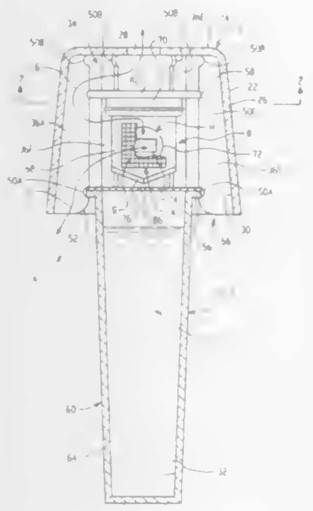
SELF CONTAINED BIOLOGICAL INDICATOR

Denis G. Dyke, Lake Bluff, Ill.; Paul S. Malchesky, Painesville Twp., Ohio; Raymond C. Kralovic, Willoughby, Ohio; Donna M. Richardson, Bratenahl, Ohio, and Joseph J. Switka, Willoughby, Ohio, assignors to Steris Corporation, Mentor, Ohio

Filed May 13, 1996, Ser. No. 645,259

Int. Cl.^{6} C12Q *1/22*; C12M *1/34*

U.S. Cl. 435—31 **14 Claims**



1. A method of determining effectiveness of a microbial decontamination process, the method comprising:

trapping a plurality of challenge microorganisms within a chamber, the chamber being permeable to a decontamination fluid such that the fluid comes into contact with the microorganisms;

passing a microbial decontamination fluid used in the microbial decontamination process into the chamber holding the plurality of challenge microorganisms;

lodging the chamber in a first set of detents in a cap and lodging a vial in a second set of detents in the cap, the vial containing a growth medium;

dislodging the chamber and the vial in any order from their respective detents in the cap;

lodging the chamber and vial together in a third set of detents in the cap such that the microorganism vial is opened and the chamber and the microorganisms are immersed in the growth medium; and,

monitoring the growth medium to determine if the microorganisms grow.

2. A self-contained biological indicator system for indicating the effectiveness of a decontamination fluid, the self-contained indicator system comprising:

a biological indicator storage assembly having a microorganism storage chamber for holding live challenge microorganisms;

a media housing for holding a growth media supporting the growth of any live challenge microorganisms introduced into the growth media by the biological indicator storage assembly;

a cap having a cavity therein for holding the biological indicator storage assembly and for selectively receiving the media housing, the cap including a plurality of fins, each fin including a plurality of detents, the plurality of detents including a rim engaging detent for engaging a rim on the biological indicator storage assembly, a flange engaging detent for engaging a flange on the media housing, and a combination receiving detent for engaging both the rim and the flange when the rim and flange are brought into contact; and,

a microporous membrane covering the microorganism storage chamber in the biological indicator storage assembly, the membrane having pores which are sufficiently small that the challenge microorganisms are trapped in the microorganisms storage chamber of the biological indicator storage assembly while being sufficiently large that microbial decontamination fluid passes through

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5,736,356

TRANSGLUTAMINASE ORIGINATING FROM *CRASSOSTREA GIGAS*

Kohichiro Sano; Yoshiyuki Kumazawa; Hisashi Yasueda; Katsuya Seguro, and Masao Motoki, all of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

PCT No. PCT/JP95/00117, § 371 Date Sep. 28, 1995, § 102(e) Date Sep. 28, 1995, PCT Pub. No. WO95/20662, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 30, 1995, Ser. No. 525,654

Claims priority, application Japan, Jan. 28, 1994, 6-008283; Jan. 13, 1995, 7-003876

Int. Cl.^{6} C12N *15/54;1/19;1/21;1/00;15/63;9/12;5/10;* C12P *21/00*

U.S. Cl. 435—68.1 **22 Claims**

1. A transglutaminase enzyme originating from *Crassostrea gigas* having the following characteristics:

a) substrate specificity in which said enzyme catalyzes the transfer of an acyl group between primary amines and γ-carboxyamide groups of accessible glutamine residues present in a protein or a polypeptide chain;

b) molecular weight as determined by SDS-PAGE is about 83,000 to 95,000 Da;

c) optimal temperature range of 30° C. to 50°;

d) optimal pH range of about 7.5 to 9.5;

e) activation by calcium ions with further enhancement of activity by NaCl or KCl; and

f) inhibition by N-ethylmaleimide, monoiodo acetic acid, p-chloromercuribenzoic acid or Cu^{2+}.

5,736,357

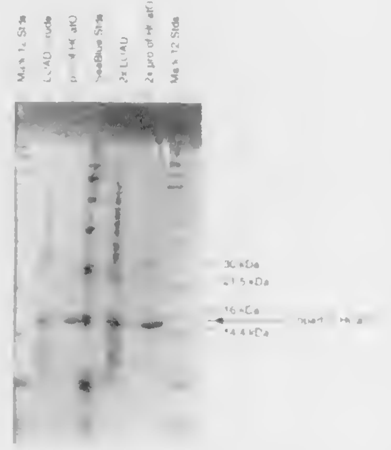
CATHESPIN O PROTEASE

Dieter Brömme, San Bruno, and Kathleen Okamoto, Mountain View, both of Calif., assignors to Arris Pharmaceutical, South San Francisco, Calif.

Filed Oct. 27, 1994, Ser. No. 330,121

Int. Cl.^{6} C12N *1/21;15/15;15/63;* C12P *21/02*

U.S. Cl. 435—69.1 **6 Claims**



1. A recombinant nucleic acid consisting of a nucleic acid encoding amino acids −99 to −1 as set forth in FIG. 1 (amino acids 16–114 of SEQ ID NO 2).

5,736,358

DICTYOSTELID EXPRESSION VECTOR AND METHOD FOR EXPRESSING A DESIRED PROTEIN

Nicolas Joseph Fasel, Epalinges, and Christophe Dominique Reymond, Prilly, both of Switzerland, assignors to RMF Dictagene S.A., Switzerland

Continuation of Ser. No. 965,273, Jan. 15, 1993, abandoned. This application May 26, 1995, Ser. No. 451,405

Claims priority, application Netherlands, May 17, 1991, 9100869

Int. Cl.^{6} C12P *21/06;* C12N *15/80;1/15,* C07H *21/04*

U.S. Cl. 435—69.1 **27 Claims**

1. A recombinant DNA molecule suitable for the expression of a desired polypeptide in a dictyostelid host, wherein the recombinant DNA molecule comprises a *Dictyostelium discoideum* homologous promoter region, a Dictyostelium homologous sequence encoding an amino acid sequence functioning as a leader peptide positioned upstream of a heterologous sequence encoding the desired polypeptide in proper reading frame therewith, and a *Dictyostelium discoideum* homologous termination region, said leader peptide having an amino acid sequence of SEQ ID NO: 3 and being encoded by the *Dictyostelium discoideum* Contact Site A gene, said heterologous DNA sequence being positioned downstream from the promoter region and said termination region being positioned downstream from the heterologous DNA sequence

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5,736,359

ISOLATED DNA MOLECULES FOR INTEGRATION SITE INDEPENDENT GENE EXPRESSION IN MAMMALIAN HOST CELLS

Franklin Grosveld, and Dimitris Kioussis, both of London, Great Britain, assignors to Medical Research Council, London, United Kingdom

Division of Ser. No. 312,498, Sep. 26, 1994, Pat. No. 5,532,143, which is a continuation of Ser. No. 920,536, Jul. 28, 1992, abandoned, which is a continuation of Ser. No. 346,996, May 11, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 478,497

Claims priority, application United Kingdom, Aug. 7, 1987, 8718779

Int. Cl.^{6} C12N *5/10 15/63, 15/67 15/85*

U.S. Cl. 435—69.1 **24 Claims**

1. An isolated DNA molecule, comprising

(i) a dominant activator sequence that is specific for a particular mammalian cell type,

(ii) a promoter that is functional in said particular mammalian cell type, and

(iii) a heterologous gene operatively linked to said promoter, wherein the region in said DNA consisting of (i), (ii) and (iii) and DNA therebetween has a nucleotide sequence different from that of naturally occurring DNA, and

said dominant activator sequence being characterized in that in naturally occurring DNA,

(I) it is associated with a naturally occurring gene that is expressed in a tissue specific manner, and

(II) it is locatable in naturally occurring DNA by association with a DNase I super hypersensitive site;

wherein said dominant activator sequence is characterized in that it stimulates expression of said heterologous gene when said DNA molecule is integrated into a genome of a host cell of said mammalian cell type such that said expression:

(a) is dependent on the number of copies of said gene that are integrated into said genome in that said expression increases as said number of copies of said gene increases; and

(b) is independent of the integration site of said DNA molecule in said genome.

5,736,360

ENDOTHELIAL CELL TROPIC COMPOSITIONS AND METHODS OF MAKING AND USING THE SAME

Glen Gaulton, Havertown, and Ben Ho Park, Philadelphia, both of Pa., assignors to The Trustees of the University of Pennsylvania, Philadelphia, Pa.

PCT No. PCT/US94/10088, § 371 Date Jun. 30, 1996, § 102(e) Date Jun. 30, 1996, PCT Pub. No. WO95/07360, PCT Pub. Date Mar. 16, 1995

Continuation-in-part of Ser. No. 121,051, Sep. 10, 1993, abandoned. This PCT application Sep. 9, 1994, Ser. No. 612,890

Int. Cl.^{6} C12P *21/02, 15/63, 15/85*

U.S. Cl. 435—69.1 **26 Claims**

1. An isolated nucleic acid molecule comprising a modified Murine Leukemia Virus Long Terminal Repeat which comprises SEQ ID NO:4

5,736,361

PRODUCTION OF GONORRHEAL PI PROTEINS

Nicholas H. Carbonetti, and P. Frederick Sparling, both of Chapel Hill, N.C., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Continuation of Ser. No. 689,663, Apr. 23, 1991, abandoned, which is a continuation of Ser. No. 242,758, Sep. 9, 1988, abandoned, which is a continuation-in-part of Ser. No. 124,727, Nov. 24, 1987, abandoned. This application Dec. 1, 1992, Ser. No. 983,995

Int. Cl.^{6} C12N *15/31 15/70, 1/21* C12P *21/02*

U.S. Cl. 435—69.3 **19 Claims**

1. A substantially purified nucleic acid molecule encoding all or a fragment of the amino acid sequence of Protein IA of *Neisseria gonorrhoea* in which said fragment is able to be bound by an antibody directed to Protein IA

5,736,362

RYEGRASS POLLEN ALLERGEN

Mohan Bir Singh, Templestowe; Robert Bruce Knox, North Balwyn; Penelope Smith, North Fitzroy; Asil Avjioglu, Doncaster; Piyada Theerakulpisut, Carlton; Terryn Hough, Mordialloc; Cenk Suphioglu, Greensborough, and Eng Kok Ong, South Yarra, all of Australia, assignors to The University of Melbourne, Australia

Division of Ser. No. 930,060, Aug. 14, 1992, abandoned, which is a continuation-in-part of Ser. No. 746,702, Aug. 16, 1991, abandoned, which is a continuation-in-part of Ser. No. 585,086, Oct. 26, 1990, abandoned. This application Dec. 29, 1993, Ser. No. 174,745

Int. Cl.^{6} A61K *39/36*

U.S. Cl. 435—69.3 **13 Claims**

1. An isolated nucleic acid comprising a nucleotide sequence encoding amino acids 25-276 of the ryegrass pollen protein shown in SEQ ID NO 2

5,736,363

IGF-II ANALOGUES

Richard Mark Edwards, and Lindsay Bawden, both of Oxford, England, assignors to British Bio-technology Limited, England

PCT No. PCT/GB92/01389, § 371 Date Feb. 28, 1994, § 102(e) Date Feb. 28, 1994, PCT Pub. No. WO93/03152, PCT Pub. Date Feb. 18, 1993

PCT Filed Jul. 27, 1992, Ser. No. 190,029

Claims priority, application United Kingdom, Jul. 29, 1991, 9116325; Feb. 5, 1992, 9202401

Int. Cl.^{6} C12P *21/06* A61K *38/30* C07K *14/65*

U.S. Cl. 435—69.4 **9 Claims**

1. An insulin-like Growth Factor II (IGF-II) analogue in which at least one of R^{37} and R^{38}, wherein R^{37} represents the natural

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arginine residue at position 37 and R38 represents the natural arginine residue at position 38 of SEQ ID NO. 1, is replaced with another amino acid residue

5,736,364
FACTOR VIIA INHIBITORS

Robert F. Kelley, San Bruno; Robert A. Lazarus, Millbrae, and Geoffrey F. Lee, Pacifica, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Filed Dec. 4, 1995, Ser. No. 566,800

Int. Cl.^{6} C12P *21/06;* **C12N** *15/00;* **C07K** *14/00,* **C07H** *21/04*

U.S. Cl. 435—69.7 **21 Claims**

1 A fusion protein comprising
- a) a Factor VIIa ("FVIIa") active site inhibitor domain;
- b) a linker domain; and
- c) a tissue factor ("TF") domain.

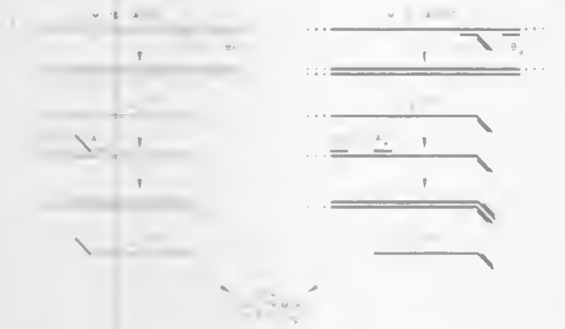
5,736,365
MULTIPLEX NUCLEIC ACID AMPLIFICATION

George Terrance Walker; James G. Nadeau, both of Chapel Hill; Patricia Anne Spears; Colleen M. Nycz, both of Raleigh; Daryl Dee Shank, Durham; James L. Schram, Nightdale, and Stewart Russel Jurgensen, Raleigh, all of N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 398,305, Mar. 3, 1995, Pat. No. 5,561,044, which is a continuation of Ser. No. 111,076, Aug. 24, 1993, Pat. No. 5,470,723, which is a continuatinn-in-part of Ser. No. 73,197, Jun. 4, 1993, Pat. No. 5,422,252, Ser. No. 58,648, May 5, 1993, Pat. No. 5,457,027, and Ser. No. 60,842, May 11, 1993, abandoned. This application Aug. 29, 1996, Ser. No. 705,225

Int. Cl.^{6} C12P *19/34;* **C12Q** *1/70;* **C07H** *21/04*

U.S. Cl. 435—91.2 **8 Claims**



1 A method for simultaneously amplifying multiple target sequences and an internal control sequence in a sample comprising:
- a) adding a single internal control sequence to the sample, the internal control sequence comprising a first amplification primer binding site complementary to a target binding sequence of a first amplification primer and a second amplification primer binding site identical to a target binding sequence of a second amplification primer;
- b) specifically hybridizing the first amplification primer to a first target sequence, extending the first amplification primer with polymerase to produce a first extension product and displacing the first extension product;
- c) specifically hybridizing a first adapter primer to the first extension product, extending the first adapter primer to produce a second extension product and displacing the second extension product.
- d) specifically hybridizing the second amplification primer to a second target sequence, extending the second amplification primer with polymerase to produce a third extension product and displacing the third extension product;
- e) specifically hybridizing a second adapter primer to the third extension product, extending the second adapter primer with polymerase to produce a fourth extension product and displacing the fourth extension product, and;
- f) simultaneously amplifying the second and fourth extension products and the internal control sequence in a Strand Displacement Amplification reaction using the first and second amplification primers.

5,736,366
PROCESS FOR OBTAINING 10-DEACETYLBACCATIN III

Rodolphe Margraff, Viry Chatillon, France, assignor to Rhone-Poulenc Rorer S.A., Antony, France

Continuation of Ser. No. 122,630, Sep. 17, 1993, abandoned, which is a continuation of Ser. No. 10,084, Jan. 27, 1993, Pat. No. 5,393,896. This application Jun. 7, 1995, Ser. No. 481,208

Claims priority, application France, Oct. 5, 1992, 92 11745

Int. Cl.^{6} C12P *17/02,* **C07D** *305/00*

U.S. Cl. 435—123 **30 Claims**

30 A process comprising the step of obtaining 10-deacetylbaccatin III from an aqueous extract of at least one plant part selected from the bark, trunk, roots, or foliage of the yew (Taxus sp.).

5,736,367
VECTORS AND PROKARYOTES WHICH AUTOCATALYTICALLY DELETE ANTIBIOTIC RESISTANCE

Shirley L. Haun, Gaithersburg, Md.; Charles K. Stover, Mercer Island, Wash.; Graham Hatfull, Pittsburgh, Pa.; Mark S. Hanson, Columbia, Md., and William R. Jacobs, City Island, N.Y., assignors to MedImmune, Inc., Gaithersburg, Md.

Continuation-in-part of Ser. No. 861,002, Mar. 31, 1992. This application Apr. 20, 1995, Ser. No. 425,380

Int. Cl.^{6} C12N *15/00;1/20;15/09;15/63*

U.S. Cl. 435—172.3 **14 Claims**

1 A vector comprising a nucleotide sequence encoding an antibiotic resistance phenotype flanked by res sites.

5,736,368
SELF ASSEMBLED DEFECTIVE NON-SELF PROPAGATING LENTIVIRAL PARTICLES

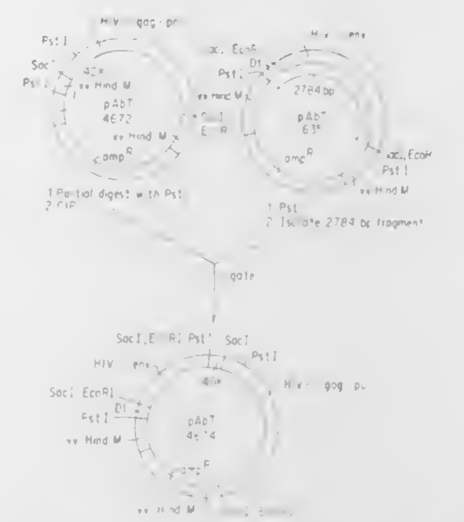
Gail P. Mazzara, Winchester; Bryan Roberts, Cambridge; Dennis L. Panicali, Acton, all of Mass.; Virginia Stallard, Seattle, Wash., and Linda R. Gritz, Somerville, Mass., assignors to Therion Biologics Corporation, Cambridge, Mass.

Division of Ser. No. 995,923, Dec. 21, 1992, Pat. No. 5,614,404, which is a continuation-in-part of Ser. No. 360,027, Jun. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 205,454, Jun. 10, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 480,779

Int. Cl.^{6} C12N *15/00,7/02·1/20;* **A61K** *39/21*

U.S. Cl. 435—172.3 **7 Claims**

1 An isolated eukaryotic host cell transformed by a pox virus having inserted therein, at least two DNA sequences from a single species of lentivirus DNA sequences wherein one of the lentivirus DNA sequences is selected from the group consisting of the gag gene, gag-pol and portions thereof, such that the lentivirus DNA sequences express gag, gag-pol proteins, or portions thereof, referred to as said first lentivirus DNA sequence and a second lentivirus DNA sequence encoding another lentiviral protein, wherein the lentivirus proteins or portions thereof, self-assemble into defective, non-self-propagating lentivirus particles.



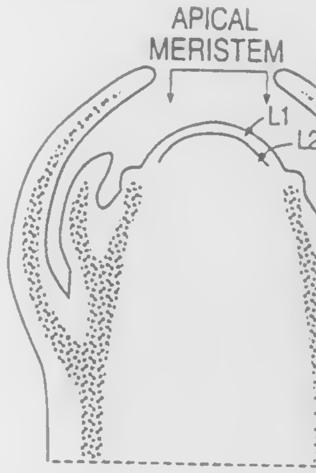
5,736,369
METHOD FOR PRODUCING TRANSGENIC CEREAL PLANTS

Benjamin A. Bowen, Des Moines; Keith Lowe, Johnston; Margit C. Ross; Gary A. Sandahl, both of West Des Moines; Dwight T. Tomes, Cumming; William J. Gordon-Kamm, and David D. Songstad, both of Urbandale, all of Iowa, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Continuation of Ser. No. 282,270, Jul. 29, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 483,091

Int. Cl.^{6} C12N *15/00;15/05·* **A01H** *4/00*

U.S. Cl. 435—172.3 **17 Claims**



1 A method for producing transgenic cereal plants that will transmit introduced DNA to progeny, comprising the steps of
- (A) introducing foreign DNA into target cells selected from the group consisting of (i) cells of a meristem that is not enclosed by primordial sheathing leaves and (ii) cells that contribute to said meristem; then
- (B) inducing reorganization of said meristem to increase transgenic sector size, whereby the likelihood that a transgenic sector will contribute to germline transmission is increased, wherein said reorganization is effected through at least one manipulation selected from the group consisting of (i) imposition of a nonlethal selective pressure on said meristem, (ii) mechanically-induced meristem reorganization, and (iii) hormonally-induced shoot multiplication combined with nonlethal selective pressure; and thereafter
- (C) exposing said meristem to conditions under which it differentiates to form a plantlet, wherein said plantlet contains said transgenic sector or is homogeneously transformed by said foreign DNA, such that said plantlet can be grown into a transformed cereal plant that will transmit said foreign DNA to progeny

5,736,370
COMPUTER SYSTEM FOR CONTROLLING VALUES OF OPERATIONAL PARAMETERS DURING AN OPERATION

Xi Zhao, 16336 W. La Chiquita Ave., Los Gatos, Calif. 95032, and Guobing Jin, 3317 Onslow Way, San Jose, Calif. 95132

Filed Oct. 25, 1995, Ser. No. 548,145

Int. Cl.^{6} C12N *13/00*

U.S. Cl. 435—173.6 **8 Claims**

1 A method for using a computer system to control a cell transfer operation, the method comprising the steps of
- delivering a first pulse output to a solution during a first cell transfer operation, wherein the first pulse output has a first magnitude determined by a plurality of operational parameters that includes at least two of the following digital parameters: number of cycles in a pulse output, number of pulses within a cycle, amplitude of individual pulses in each cycle, pulse voltage, pulse time of individual pulses in each cycle, a burst time of a cycle, wherein the burst time comprises the sum of action time and relaxation time, and distance between an electronic pulse delivery device and a solution, wherein said plurality of digital parameters affects magnitude of said first pulse output,
- causing said computer system to modify at least two of said plurality of operational parameters after delivering said first pulse output and prior to delivering a second pulse output; and
- delivering said second pulse output to said solution during said first cell transfer operation, wherein the second pulse output has a second magnitude determined by said modified plurality of operational parameters, wherein the second magnitude is different from the first magnitude and wherein said first pulse output and said second pulse output are capable of inducing an alteration of a cell membrane to facilitate said first cell transfer operation.

5 A method for using a computer system to control a cell transfer operation, the method comprising the steps of
- a) receiving input from a user indicating a selected pulse group shape;
- b) delivering a pulse group having said selected pulse group shape to a solution by
  - b1) causing said computer system to set at least two parameters of a plurality of digital parameters based on said selected pulse group shape, said plurality of parameters includes at least two of the following parameters: number of cycles in a pulse output, number of pulses within a cycle, amplitude of individual pulses in each cycle, pulse voltage, pulse time of individual pulses in each cycle, a burst time of a cycle, wherein the burst time comprises the sum of action time and relaxation time, and distance between an electronic pulse delivery device and a solution, wherein said plurality of digital parameters affects magnitude of said pulse output, which in turn affects said selected pulse group shape,
  - b2) delivering said pulse output to said solution, wherein said pulse output has a magnitude determined by said plurality of distal parameters and said pulse output is capable of inducing an alteration of a cell membrane to facilitate said cell transfer operation; and
  - b3) repeating steps b1) and b2) for a certain number of pulse outputs.

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5,736,371

BIODEGRADABLE PARTICULATE VECTOR FOR TRANSPORTING MOLECULES HAVING BIOLOGICAL ACTIVITY

Daniel Samain; Ignacio De Miguel; Jaouad Meniali; Karim Ioualalen; Li Ding; Monique Cervilla, all of Toulouse; Valérie Rieumajou, Astaffort; Pascal Delrieu, and Laurent Imbertie, both of Toulouse, all of France, assignors to A et S Biovecteurs, Ramonville-Saint-Agne, France

Continuation of Ser. No. 978,686, Apr. 2, 1993, abandoned.
This application May 16, 1994, Ser. No. 243,079
Claims priority, application France, Jun. 4, 1991, 91 06743
Int. Cl.^{6} C12N *11/12;11/10;* **A61K** *38/43;* **C07K** *17/12*

U.S. Cl. 435—179 **25 Claims**

1. A method of synthesizing a biodegradable particulate vector, said method comprising the steps of:

a) preparing a matrix by cross-linking a biodegradable polysaccharide or oligosaccharide,
b) reacting the matrix from a) with a dicarboxylic acid monochloride dissolved in an aqueous medium to graft the dicarboxylic acid onto the matrix to obtain a nucleus of the vector,
c) subjecting the nucleus to grinding to reduce it to a size between 10 nm and 10 μm,
d) drying the nucleus,
e) chemically coupling fatty acid compound to reactive functional groups at the surface of the nucleus to form a first layer of the vector, and
f) hydrophobically bonding amphiphilic compounds wherein said amphiphilic compounds are phospholipids, by bringing them into contact with the first layer to form a second layer of the vector.

22. A particle consisting of a cross-linked polysaccharide or oligosaccharide matrix, onto which ionic ligands are grafted with a uniform distribution, having a size of between 10 nm and 10 μm, which particle is obtained by a method comprising the steps of:

a) preparing a matrix by cross-linking a biodegradable polysaccharide or oligosaccharide,
b) reacting the matrix from a) with a dicarboxylic acid monochloride dissolved in an aqueous medium to graft the dicarboxylic acid onto the matrix to obtain a nucleus of the vector, and
c) subjecting the nucleus to grinding to reduce it to a size between 10 nm and 10 μm.

5,736,372

BIODEGRADABLE SYNTHETIC POLYMERIC FIBROUS MATRIX CONTAINING CHONDROCYTE FOR IN VIVO PRODUCTION OF A CARTILAGINOUS STRUCTURE

Joseph P. Vacanti, Winchester; Charles A. Vacanti, Lexington, and Robert S. Langer, Newton, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, and Children's Medical Center Corporation, Boston, both of Mass.

Continuation-in-part of Ser. No. 339,155, Apr. 17, 1989, Pat. No. 5,041,138, which is a continuation-in-part of Ser. No. 123,579, Nov. 20, 1987, abandoned, which is a continuation-in-part of Ser. No. 933,018, Nov. 20, 1986, abandoned. This application Apr. 16, 1990, Ser. No. 509,952
Int. Cl.^{6} C12N *11/08,5/00;* **A61F** *2/28;2/18*

U.S. Cl. 435—180 **15 Claims**

1. A cell-scaffold composition for growing cells to produce a functional cartilaginous structure in vivo, comprising:

a fibrous three-dimensional scaffold composed of fibers of a biocompatible, biodegradable, synthetic polymer, and
cartilage-producing cells attached to the surface of the fibers of the scaffold uniformly throughout the scaffold;
wherein the fibers of the scaffold are spaced apart such that the average interfiber distance is between approximately 100 and 300 microns,
wherein the fibers of the scaffold provide sufficient surface area to permit attachment of a density of cells effective to produce the functional cartilaginous structure in vivo, and
wherein the diffusion in the scaffold provides free exchange of nutrients, gases and waste to and from the cells uniformly attached to the fibers and proliferating throughout the scaffold in an amount effective to maintain cell viability throughout the scaffold prior to the formation of the functional cartilage in vivo.

5,736,373

THERMOSTABLE DNA POLYMERASE FROM *BACILLUS PALLIDUS*

Paul T. Hamilton, Cary, N.C., assignor to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 23, 1996, Ser. No. 717,515
Int. Cl.^{6} C12N *9/12;15/54;15/62*

U.S. Cl. 435—194 **21 Claims**

1. An isolated nucleic acid sequence selected from the group consisting of nucleic acid sequences encoding SEQ ID NO:4, nucleic acid sequences encoding amino acids 192–876 of SEQ ID NO:4, SEQ ID NO:3, nucleotides 574–2628 of SEQ ID NO:3, SEQ ID NO:5, nucleotides 1–3237 of SEQ ID NO:5, nucleic acid sequences encoding amino acids 1–1078 of SEQ ID NO:6, SEQ ID NO:7, nucleotides 1–3810 of SEQ ID NO:7, and nucleic acid sequences encoding amino acids 1–1270 of SEQ ID NO:8.

5,736,374

INCREASED PRODUCTION OF β-GALACTOSIDASE IN ASPERGILLUS ORYZAE

Randy M. Berka, Davis; John A. Hucul, Union City, and Michael Ward, San Francisco, all of Calif., assignors to Genencor International, Inc., Rochester, N.Y.

Continuation of Ser. No. 267,631, Jun. 29, 1994, abandoned.
This application Feb. 5, 1996, Ser. No. 596,985
Int. Cl.^{6} C12N *9/38;1/14;15/00;* **C07H** *21/04*

U.S. Cl. 435—207 **10 Claims**

1. A DNA fragment encoding a protein having lactose hydrolytic activity isolated from *Aspergillus oryzae* comprising the sequence shown in Seq ID No 1

5,736,375

EXPRESSION SYSTEM FOR NOVEL PULLULANASE

Philippe Deweer, Aalst, and Antoine Amory, Rixensart, both of Belgium, assignors to Genencor International, Inc., Rochester, N.Y.

Division of Ser. No. 174,893, Dec. 28, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 474,545
Claims priority, application Belgium, Dec. 28, 1992, 09201156; Jul. 15, 1993, 09300744; Nov. 19, 1993, 09301278
Int. Cl.^{6} C12N *9/44;1/20,15/00;* **C07H** *21/04*

U.S. Cl. 435—210 **22 Claims**

1. Process for the preparation of isolated *Bacillus deramificans* pullulanase having N-terminal SEQ ID NO: 1 or a modified sequence derived therefrom that catalyzes hydrolysis of α-1,6-glucosidic bonds, comprising isolation of a DNA fragment which codes for the pullulanase, insertion of this DNA fragment into a suitable vector, introduction of this vector into a suitable host or introduction of this DNA fragment into the chromosome of a suitable host, culture of this host, expression of the pullulanase and harvesting of the pullulanase

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5,736,376

RECOMBINANT ENDOTHELIN CONVERTING ENZYME-2 AND ITS USE IN ECE INHIBITOR SCREENING

Masashi Yanagisawa, Dallas, Tex., assignor to Board of Regents, The University of Texas System, Austin, Tex.

Filed Dec. 19, 1995, Ser. No. 574,763
Int. Cl.^{6} C12N *9/48;* **C12P** *21/06;19/34;* **C07H** *21/04*

U.S. Cl. 435—212 **7 Claims**

1. A composition comprising a partially purified endothelin converting enzyme-2 (ECE-2) polypeptide, having an activity of at least about 275 fmol/30 min/20 μg at pH 5.6–5.6.

5,736,377

NES-1 POLYPEPTIDES, DNA, AND RELATED MOLECULES AND METHODS

Vimla Band, Natick, Mass., assignor to New England Medical Center Hospitals, Inc., Boston, Mass.

Filed Jun. 6, 1995, Ser. No. 467,155
Int. Cl.^{6} C12N *9/50*

U.S. Cl. 435—219 **2 Claims**

1. A substantially pure Normal Epithelial Specific (NES1) polypeptide, said NES1 polypeptide having the amino acid sequence shown in FIG. 10 (SEQ ID NO:1).

5,736,378

MOLECULAR CLONING AND CHARACTERIZATION OF THE FELINE IMMUNODEFICIENCY VIRUS ISOLATE PPR

John H. Elder, Encinitas, and Randy L. Talbott, San Diego, both of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Continuation of Ser. No. 759,570, Sep. 12, 1991, abandoned.
This application Oct. 18, 1994, Ser. No. 325,547
Int. Cl.^{6} C12N *7/00;7/01,1/20;* **C12P** *19/34*

U.S. Cl. 435—235.1 **5 Claims**

4. An isolated and purified feline immunodeficiency virus designated FIV_{PPR} containing the nucleotide sequence of SEQ ID NO: 10.

5,736,379

DNA SEQUENCES EXPRESSING MAMMALIAN α_1 ANTITRYPSIN

Earl W. Davie, Bellevue; Kotoku Kurachi, Seattle, both of Wash.; Savio L. C. Woo, and Chandra Thirumalachary, both of Houston, Tex., assignors to Washington Research Foundation, Seattle, Wash.

Continuation of Ser. No. 361,689, Dec. 12, 1994, abandoned, which is a continuation of Ser. No. 86,442, Jul. 2, 1993, Pat. No. 5,399,684, which is a continuation of Ser. No. 979,556, Nov. 18, 1992, abandoned, which is a continuation of Ser. No. 666,450, Mar. 11, 1991, abandoned, which is a continuation of Ser. No. 398,288, Aug. 22, 1989, abandoned, which is a continuation of Ser. No. 246,912, Sep. 16, 1988, abandoned, which is a continuation of Ser. No. 133,190, Dec. 15, 1987, abandoned, which is a continuation of Ser. No. 22,543, Mar. 3, 1987, abandoned, which is a continuation of Ser. No. 638,980, Feb. 7, 1984, abandoned, which is a continuation of Ser. No. 380,310, May 20, 1982, abandoned. This application Jun. 7, 1995, Ser. No. 479,545
Int. Cl.^{6} C12N *15/00;15/12*

U.S. Cl. 435—252.3 **5 Claims**

1. An isolated nucleic acid which hybridizes to the human α_1 antitrypsin cDNA shown in the FIGS. 1A-1K and which encodes a polypeptide exhibiting α_1-antitrypsin activity

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5,736,380

MALTOSE-TREHALOSE CONVERTING ENZYME, AND PREPARATION AND USES THEREOF

Tomoyuki Nishimoto; Hiroto Chaen; Toshiyuki Sugimoto, and Toshio Miyake, all of Okayama, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan

Division of Ser. No. 277,007, Jul. 19, 1994, Pat. No. 5,538,883.
This application Jun. 7, 1995, Ser. No. 485,181
Claims priority, application Japan, Jul. 20, 1993, 5-199971; Jun. 3, 1994, 6-144092
Int. Cl.^{6} C12N *1/20*

U.S. Cl. 435—253.3 **15 Claims**

1. A process for preparing an enzyme which converts maltose into trehalose and vice versa, but does not act on a system containing glucose and α-glucose 1-phosphate or β-glucose 1-phosphate, substantially forms only trehalose and glucose when acting on maltose, substantially forms only maltose and glucose when acting on trehalose, and has following physicochemical properties,

(1) Molecular weight
About 57,000–120,000 daltons on sodium dodecylsulfate polyacrylamide gel electrophoresis (SDS-PAGE);
(2) Isoelectric point (pI)
About 3.8–5.1 on isoelectrophoresis using ampholyte, and
(3) Inhibition of activity
Inhibited by one mM Cu^{++}, 50 mM Tris HCl buffer,

said process comprising

(a) culturing in a nutrient culture medium a microorganism capable of producing the enzyme to form the enzyme, said microorganism being one of those of the genera Pimelobacter, Pseudomonas and Thermus, and
(b) recovering the enzyme from the resultant culture.

5,736,381

CYTOKINE-, STRESS-, AND ONCOPROTEIN-ACTIVATED HUMAN PROTEIN KINASE KINASES

Roger J. Davis, 53 Hickory Dr., Princeton, Mass. 01541; Shashi Gupta, 807 Franklin St., Worcester, Mass. 01604; Joel Raingeaud, Sainte Marie, 85390 Bazoges en Pareds, and Benoit Derijard, 36 Rue de l'aiguillette, Bat. C1, 13012 Marseille, both of France

Continuation-in-part of Ser. No. 446,083, May 19, 1995. This application Sep. 19, 1995, Ser. No. 530,950
Int. Cl.^{6} C12N *1/20,15/00;* **C07H** *21/04;* **C12P** *21/06*

U.S. Cl. 435—252.3 **20 Claims**

1. An isolated and purified polynucleotide sequence encoding a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2.

5,736,382

BACILLUS CEREUS STRAIN DGA34

Jo Handelsman; Lynn M. Jacobson, and Eric V. Stabb, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 6, 1995, Ser. No. 470,800
Int. Cl.^{6} C12N *1/20;* **C12P** *13/00*

U.S. Cl. 435—252.5 **4 Claims**

1. A biologically pure culture of *Bacillus cereus* having all of the identifying characteristics of *B. cereus* strain DGA34, ATCC 55608

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5,736,383
PREPARATION OF *PICHIA METHANOLICA* AUXOTROPHIC MUTANTS

Christopher K. Raymond, Seattle, Wash., assignor to ZymoGenetics, Inc., Seattle, Wash.

Filed Aug. 26, 1996, Ser. No. 703,808

Int. Cl.^{6} C12N *1/16;15/01*

U.S. Cl. 435—255.7 **8 Claims**

1. A method for preparing *Pichia methanolica* cells auxotrophic for adenine comprising:

- (a) exposing *P. methanolica* cells to mutagenizing conditions;
- (b) culturing the cells from step (a) in a rich medium to allow mutations to become established and replicated in at least a portion of said cells;
- (c) culturing the cells from step (b) in a culture medium deficient in assimilable nitrogen to deplete cellular nitrogen stores,
- (d) culturing the cells from step (c) in a defined culture medium comprising an inorganic nitrogen source and an amount of nystatin sufficient to kill growing *P. methanolica* cells to select for cells auxotrophic for adenine; and
- (e) culturing the selected cells from step (d) in a rich culture medium

5,736,384
THERMOSTABLE XYLANASE

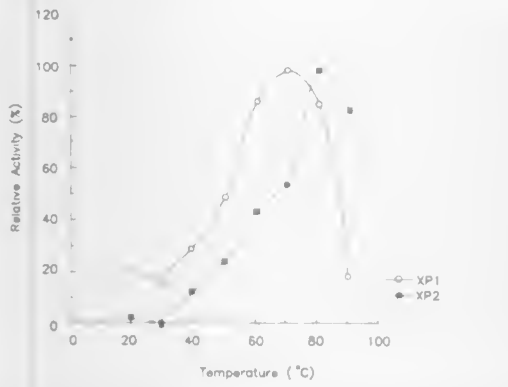
Nobuyuki Fukunaga; Yuji Iwasaki, both of Tokyo; Satoko Kono, Saitama; Yukio Kita, and Yoshiya Izumi, both of Tokyo, all of Japan, assignors to New Oji Paper Company Ltd., Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,964

Claims priority, application Japan, Dec. 21, 1994, 6-318450; Nov. 30, 1995, 7-313081

Int. Cl.^{6} C12N *9/24;* **C12S** *3/00;3/08*

U.S. Cl. 435—278 **6 Claims**



1. A thermostable xylanase selected from thermostable xylanase XP1 or XP2 having the following physicochemical properties:

- (1) Thermostable xylanase XP1 having the following physicochemical properties:
  - i) Action: hydrolyzing the 1,4-β-D-xyloside bond of xylan to thereby produce reducing sugars of xylooligosaccharides.
  - ii) Substrate specificity: acting on prepared xylans including birch xylan and oat spelt xylan, as well as xylan-containing materials including hardwood kraft pulp and oat spelt bran
  - iii) Optimum pH and stable pH ranges: optimum pH for reaction ranging from 5 to 8 and the pH at which said xylanase is stable ranging from 3 to 9
  - iv) Appropriate temperature range for action: 50° to 80° C.
  - v) Thermostability: retaining about 90% or more enzyme activity after a 30 min treatment at 50° C. and exhibiting a residual activity of about 50% or more even after a 30 min treatment at 60° C.
  - vi) Isoelectric point: around 8.1
  - vii) Molecular weight: approximately 22,500 as determined by SDS polyacrylamide gel electrophoresis
  - viii) Inhibition: weakly inhibited by iodoacetic acid and EDTA and strongly inhibited by Hg^{2+} and SDS
- (2) Thermostable xylanase XP2 having the following physicochemical properties:
  - i) Action: hydrolyzing the 1,4-β-D-xyloside bond of xylan to thereby produce reducing sugars of xylose and xylooligasaccharides
  - ii) Substrate specificity: acting on prepared xylans including birch xylan and oat spelt xylan, as well as xylan-containing materials including hardwood kraft pulp and oat spelt bran
  - iii) Optimum pH and stable pH ranges: optimum pH for reaction ranging from 5 to 8 and the pH at which said xylanase is stable ranging from 4.5 to 9
  - iv) Appropriate temperature range for action: 60° to 90° C.
  - v) Thermostability, exhibiting a residual activity of about 90% or more after a 30 min treatment at 70° C.
  - vi) Isoelectric point: around 8.5
  - vii) Molecular weight: approximately 32,000 as determined by SDS polyacrylamide gel electrophoresis
  - viii) Inhibition: weakly inhibited by Mn^{2+}, Co^{2+}, Cu^{2+}, EDTA and iodoacetic acid and strongly inhibited by Hg^{2+} and SDS.

5,736,385
METHOD FOR PRODUCING OPTICALLY ACTIVE α-HYDROXY ACID OR α-HYDROXYAMIDE USING A CYANO ION DETECTOR AND SUBSTRATE CONCENTRATION REGULATOR

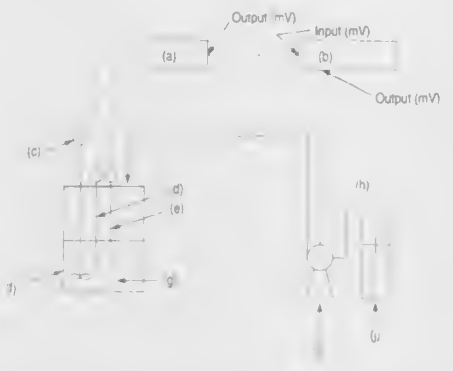
Koji Tamura, Yokohama, Japan, assignor to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 9, 1995, Ser. No. 556,085

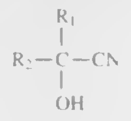
Claims priority, application Japan, Nov. 11, 1994, 6-299109

Int. Cl.^{6} C12P *41/00;13/02;11/00;7/40*

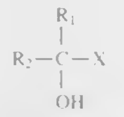
U.S. Cl. 435—280 **12 Claims**



1. A method for producing an optically active α-hydroxy acid or α-hydroxyamide comprising treating a cyanohydrin represented by formula (I) with a microorganism, which may have been treated, having a nitrilase or nitrile hydratase activity to convert said cyanohydrin into an optically active α-hydroxy acid or α-hydroxyamide represented by formula (II),



$$\begin{array}{c} R_1 \\ | \\ R_2-C-CN \\ | \\ OH \end{array} \qquad (I)$$



$$\begin{array}{c} R_1 \\ | \\ R_2-C-X \\ | \\ OH \end{array} \qquad (II)$$

wherein R_1 represents a hydrogen atom or a methyl group; R_2 represents a substituted or unsubstituted alkyl group in which R_2 is not a methyl group when R_1 is a methyl group, a subsituted or unsubstituted alkenyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, or a substituted or unsubstituted, saturated or unsaturated heterocyclic group; and X represents a carboxyl group or an amide group;

wherein an automatic cyanohydrin controller comprising a cyano ion detector, a regulator and a cyanohydrin supplier linked thereto is furnished for performing the reaction while automatically controlling the cyanohydrin concentration.

5,736,386

Patent Not Issued For This Number

5,736,387
ENVELOPE FUSION VECTORS FOR USE IN GENE DELIVERY

Ralph W. Paul, and Robert Overell, both of Seattle, Wash., assignors to Targeted Genetics Corporation, Seattle, Wash.

PCT No. PCT/US94/06128, § 371 Date Jun. 1, 1994, § 102(e) Date Jun. 1, 1994, PCT Pub. No. WO94/27643, PCT Pub. Date Dec. 8, 1994

Continuation-in-part of Ser. No. 70,117, Jun. 1, 1993, abandoned. This PCT application Jun. 1, 1995, Ser. No. 244,469

Int. Cl.^{6} C12N *15/63*

U.S. Cl. 435—320.1 **27 Claims**

1. A chimeric targeting protein for cell targeting of a retroviral vector, wherein the chimeric targeting protein comprises a ligand moiety which binds to a receptor on a target cell, wherein the ligand moiety is a cytokine or an analog thereof which contains at least that portion of a cytokine polypeptide required for binding to receptors for the cytokine on the surface of mammalian cells, and an uptake moiety which mediates entry of said vector into the target cell, wherein the uptake moiety is a viral envelope protein or an analog thereof which contains at least that portion of a viral envelope protein required for anchoring the viral envelope protein to the virus surface.

24. A method of preparing a polynucleotide encoding a chimeric targeting protein, said method comprising providing a first polynucleotide comprising a nucleic acid sequence encoding a ligand moiety consisting of a cytokine or analog thereof, and providing a second polynucleotide comprising a nucleic acid sequence encoding an uptake moiety consisting of a viral envelope protein or analog thereof, and ligating said first polynucleotide to said second polynucleotide such that said ligation results in a polynucleotide encoding a chimeric targeting protein, wherein the chimeric targeting protein comprises a ligand moiety which binds to a receptor on a target cell, wherein the ligand moiety is a cytokine or an analog thereof which contains at least that portion of a cytokine polypeptide required for binding to receptors for the cytokine on the surface of mammalian cells, and an uptake moiety which mediates entry of said vector into the target cell, wherein the uptake moiety is a viral envelope protein or an analog thereof which contains at least that portion of a viral envelope protein required for anchoring the viral envelope protein to the virus surface.

5,736,388
BACTERIOPHAGE-MEDIATED GENE TRANSFER SYSTEMS CAPABLE OF TRANSFECTING EUKARYOTIC CELLS

Sunil Chada, 1542 Enchantment Ave., Vista, Calif. 92083, and Thomas W. Dubensky, Jr., 12729 via Felino, Del Mar, Calif. 92014

Filed Dec. 30, 1994, Ser. No. 366,522

Int. Cl.^{6} C12N *15/85;15/88;* **A61K** *48/00*

U.S. Cl. 435—320.1 **4 Claims**

1. A bacteriophage lambda particle comprising bacteriophage lambda structural proteins and a nucleic acid molecule comprising a nucleotide sequence exogenous to bacteriophage lambda wherein said bacteriophage structural proteins comprise a modified gpJ tail fiber protein which can bind to the membrane of an animal cell thereby causing said bacteriophage particle to bind said animal cell, and wherein said nucleic acid molecule is taken into said animal cell.

5,736,389
EB1 NUCLEIC ACIDS

Bert Vogelstein, Baltimore, and Kenneth W. Kinzler, BelAir, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.

Filed May 22, 1995, Ser. No. 446,919

Int. Cl.^{6} C12N *15/11;15/12;15/63*

U.S. Cl. 435—320.1 **6 Claims**

1. An isolated and purified nucleic acid molecule comprising the EB1 set forth in SEQ ID NO:1.

5,736,390
BCRF1 PROTEINS AS INHIBITORS OF INTERFERON-γ

Kevin W. Moore, Palo Alto, and Robert A. Kastelein, Redwood City, both of Calif., assignors to Schering Corporation, Kenilworth, N.J.

Division of Ser. No. 450,749, May 26, 1995, Pat. No. 5,627,155, which is a continuation of Ser. No. 343,297, Nov. 22, 1994, abandoned, which is a continuation of Ser. No. 132,679, Oct. 6, 1993, abandoned, which is a continuation of Ser. No. 16,175, Jan. 19, 1993, abandoned, which is a continuation of Ser. No. 830,763, Feb. 4, 1992, abandoned, which is a continuation of Ser. Nn. 453,931, Dec. 20, 1989, abandoned.

This application Jun. 6, 1995, Ser. No. 466,950

Int. Cl.^{6} C12N *15/63;15/71;15/85;15/38,15/79*

U.S. Cl. 435—320.1 **20 Claims**

1. An expression vector comprising a heterologous regulatory sequence operably associated with a sequence encoding an EBV BCRF1 protein.

5,736,391
HIV GP41 MUTANTS

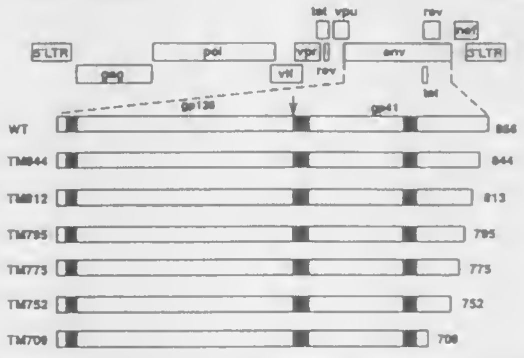
Myron E. Essex, Sharon; Xiaofang Yu, Jamaica Plain, and Tun-Hou Lee, Newton, all of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Continuation of Ser. No. 979,975, Nov. 23, 1992, abandoned.

This applicatinn Jun. 6, 1995, Ser. No. 467,933

Int. Cl.^{6} C12N *15/49;15/79;* **C07H** *21/04,* **A61K** *48/00*

U.S. Cl. 435—320.1 **5 Claims**



1. A nucleic acid encoding a mutant gp41 polypeptide containing a deletion of any one of the following regions of wild type gp41:

- amino acids 844 to 856;
- amino acids 796 to 856,
- amino acids 776 to 856;
- amino acids 753 to 856; or
- amino acids 710 to 856, said deletions being effective to either disrupt viral replication of HIV or disrupt the assembly of viral Env proteins in an HIV infected cell

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5,736,392

PEPTIDE-ENHANCED CATIONIC LIPID TRANSFECTIONS

Pamela Hawley-Nelson, Silver Spring; Jianqing Lan, Germantown; PoJen Shih, Columbia; Joel A. Jessee, Mt. Airy, and Kevin P. Schifferli, Germantown, all of Md., assignors to Life Technologies, Inc., Rockville, Md.

Continuation-in-part of Ser. No. 477,354, Jun. 7, 1995, abandoned. This application Jun. 4, 1996, Ser. No. 658,130

Int. Cl.^{6} C12N *15/00;* **C07K** *14/005;* **G01N** *33/92*

U.S. Cl. 435—320.1 **34 Claims**

14 A composition for transfecting a eukaryotic cell which comprises a peptide-nucleic acid complex, wherein said peptide is conjugated to a DNA binding group, and a cationic lipid capable of aggregating said peptide-nucleic acid complex.

5,736,393

Patent Not Issued For This Number

5,736,394

CELLULAR UPTAKE OF MODIFIED PEPTIDES

Peter S. Coleman, Beverly Farms, Mass., and Katherine Sheldon, Nashua, N.H., assignors to Boston Biomedical Research Institute, Boston, Mass.

Filed May 3, 1996, Ser. No. 642,493

Int. Cl.^{6} C12N *5/00;* **C07K** *5/00;7/00;17/00*

U.S. Cl. 435—325 **24 Claims**

1 A biological cell containing an intracellular peptide, the amino terminus of the N-terminal amino acid residue of the peptide being modified by the addition of an aryl ketone group which, when contacted with an electron donating substrate, and exposed to light having a wavelength of about 330 nm or greater, results in the covalent bonding of the peptide to the substrate.

5,736,395

AMPHIPHILIC IMIDAZOLINIUM DERIVATIVES

Timothy D. Heath, and Igor Solodin, both of Madison, Wis., assignors to Megabios Corporation, Burlingame, Calif.

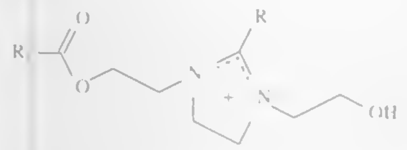
Division of Ser. No. 247,963, May 24, 1994, which is a continuation-in-part of Ser. No. 157,727, Nov. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 991,935, Dec. 17, 1992, abandoned. This application May 19, 1997, Ser. No. 858,571

Int. Cl.^{6} C12N *1/00;1/20;15/00*

U.S. Cl. 435—326 **2 Claims**

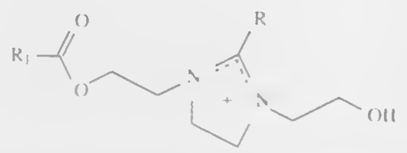
1. A method of transforming cells in a mammal, comprising:

contacting said cells with a plurality of complexes comprising an expression cassette and a nitrogen-containing amphiphile of formula



wherein each R and R_1 independently is a straight-chain, aliphatic hydrocarbyl group of about 11 to about 29 carbon atoms inclusive, and wherein said complexes provide for transmission of cells in at least one tissue of said mammal and are susceptible to endogenous enzymatic cleavage to non-toxic products.

2. A method of transfecting a mammalian cell comprising contacting said cell with a complex comprising a transcription cassette or an expression cassette and a nitrogen-containing amphiphile of formula



wherein each R and R_1 independently is a straight-chain, aliphatic hydrocarbyl group of about 11 to about 29 carbon atoms inclusive.

5,736,396

LINEAGE-DIRECTED INDUCTION OF HUMAN MESENCHYMAL STEM CELL DIFFERENTIATION

Scott P. Bruder, Moreland Hills; Arnold I. Caplan, and Stephen E. Haynesworth, both of Cleveland Heights, all of Ohio, assignors to Case Western Reserve University, Cleveland, Ohio

Filed Jan. 24, 1995, Ser. No. 377,461

Int. Cl.^{6} C12N *5/00;5/02*

U.S. Cl. 435—366 **38 Claims**

1 A method of inducing ex vivo lineage-directed differentiation of isolated human mesenchymal stem cells which comprises contacting the mesenchymal stem cells with a bioactive factor so as to thereby induce ex vivo differentiation thereof into a single particular mesenchymal lineage.

5,736,397

METHOD OF USE FOR SEMI-SOLID SHIPPING MEDIUM FOR ORGAN-DERIVED CELLS

David B. Garcia, and Enrique Chacon, both of 8609 Cross Park Dr., Austin, Tex. 78754

Division of Ser. No. 350,963, Dec. 7, 1994, Pat. No. 5,635,344. This application Jan. 15, 1997, Ser. No. 783,265

Int. Cl.^{6} A01N *1/02*

U.S. Cl. 435—374 **16 Claims**

1. A method for shipping organ-derived cells, which method comprises the steps of: selecting organ-derived cells to be shipped; selecting a biological matrix for the shipment of organ-derived cells, which biological matrix comprises cell preservation medium for preserving organ-derived cells and further comprises a congealing substance in an amount sufficient to cause said biological matrix to be in a substantially fluid state when the temperature of said matrix is about 40° C., to be in a congealed state when the temperature of said matrix is lowered to about 5° C. and to return to a substantially fluid state when the temperature of said matrix is raised to about 40° C.; warming said biological matrix until said biological matrix is in at least a substantially fluid state; covering said selected organ-derived cells with said biological matrix when said biological matrix is in at least a substantially fluid state; and

cooling said biological matrix containing said selected organ derived cells until said biological matrix is in at least a substantially congealed state

5,736,398

GAS PERMEABLE POUCHES FOR GROWING CULTURES

Troy A. Giambernardi, San Antonio, and Robert J. Klebe, Helotes, both of Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

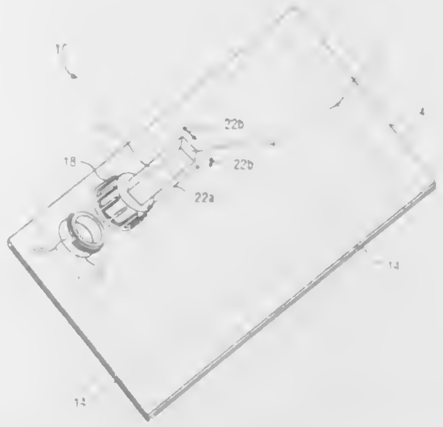
Filed Jan. 16, 1997, Ser. No. 784,452

Int. Cl.^{6} C12N *5/00;* **C12M** *3/00*

U.S. Cl. 435—383 **26 Claims**

16 A method for growing cultures, comprising the steps of:

providing an apparatus for growing cultures, the apparatus comprising:



a pouch having one or more surfaces defining a pouch interior and a pouch exterior, at least one of the surfaces being gas permeable;

at least one port defined in a surface of the pouch, the port extending from the pouch exterior to the pouch interior,

at least one observation or measurement device disposed in communication with the interior of the pouch;

introducing cells into the pouch,

exposing the pouch exterior to a gas, and

allowing the cells to grow within the pouch

5,736,399

MEDIUM-PENETRATING CELL CULTURE CARRIER, A CULTURING METHOD AND A DEVICE USING THIS CARRIER

Toshiaki Takezawa, and Katsutoshi Yoshizato, both of Hiroshima, Japan, assignors to Research Development Corporation of Japan, Saitama, Japan

Filed Mar. 9, 1995, Ser. No. 401,255

Claims priority, application Japan, Mar. 9, 1994, 6-038878; Dec. 29, 1994, 6-339979

Int. Cl.^{6} C12M *3/00;* **C12N** *5/00*

U.S. Cl. 435—399 **17 Claims**

1 A cell culture device, comprising

a medium-penetrating cell culture carrier comprising a plurality of natural or synthetic threads or a woven body thereof, and

a means for feeding a culture medium to said medium penetrating cell culture carrier,

wherein said medium penetrating cell culture carrier is physically connected to said means for feeding the culture medium and

wherein (1) said means for feeding the culture medium is a pipette, or (2) said means for feeding the culture medium is physically connected to said medium penetrating cell culture carrier by a natural or synthetic thread of said carrier or by a suture, or (3) said means for feeding the culture medium is physically connected to said medium penetrating cell culture carrier by a tube

16 A method for culturing cells using the cell culture device according to claim 1, which comprises

contacting said medium-penetrating cell culture carrier with a solution containing cells to be cultured,

feeding medium to the medium penetrating cell culture carrier using said means for feeding the culture medium and

culturing the cells under conditions suitable for growth

5,736,400

METHOD FOR MODIFYING, DIAGNOSING AND SCREENING FOR IGF-I SENSITIVE CELL BARRIERS

Alan C. Moses, 470 Quinobequin Rd., Waban, Mass. 02168; Linda A. Morrow, 11 Rice St., Newton, Mass. 02159, and Jeffrey S. Flier, 14 Sylvan Ave., West Newton, Mass. 02165

Continuation of Ser. No. 436,934, May 8, 1995, abandoned, which is a division of Ser. No. 279,831, Jul. 25, 1994, Pat. No. 5,686,408, which is a continuation of Ser. No. 8,461, Jan. 25, 1993, abandoned. This application Dec. 2, 1996, Ser. No. 759,264

Int. Cl.^{6} G01N *33/50*

U.S. Cl. 435—7.21 **4 Claims**

1 A method of identifying an rhIGF-I sensitive chronically modifiable cell barrier property in a cell comprising

(a) quantifying a native state cell barrier property in a cell

(b) exposing the cell to a modification-effective amount of rhIGF-I for at least about 7 days, and

(c) quantifying the cell barrier property in the exposed cell to determine whether a chronic modification in the cell barrier property quantified in step (a) has occurred wherein said chronic modification is one which persists for at least one week after concluding said exposing.

5,736,401

STABILIZED STANDARDS AND CALIBRATORS CONTAINING RAPAMYCIN AND TACTROLIMUS BOUND TO FK BINDING PROTEINS

Frank Grenier; Thomas F. Holzman, both of Libertyville; Allan H. Smith, Zion, and Alan C. Tsurutani, Chicago, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 474,589, Jun. 7, 1995, Pat. No. 5,635,406. This application Sep. 27, 1996, Ser. No. 723,203

Int. Cl.^{6} G01N *33/536;31/00;* **C07K** *16/14*

U.S. Cl. 436—8 **32 Claims**

1 A method for calibrating a sample to be analyzed in an immunoassay to detect the presence or amount of rapamycin in said sample, which comprises

a) adding to said sample a calibrator composition of rapamycin bound to FK binding proteins in amounts sufficient to stabilize rapamycin, and

b) extracting said rapamycin from said FK binding proteins using an extraction reagent prior to said immunoassay,

c) performing said immunoassay on said calibrator composition and

d) creating a calibration curve based on the results of said immunoassay for use as a standard in an immunoassay for rapamycin in a patient sample

2 A method for calibrating a sample to be analyzed in an immunoassay to detect the presence or amount of tacrolimus in said sample, which comprises

a) adding to said sample a calibrator composition of tacrolimus bound to FK binding proteins in amounts sufficient to stabilize tacrolimus, and

b) extracting said tacrolimus from said FK binding proteins using an extraction reagent prior to said immunoassay

c) performing said immunoassay on said calibrator composition, and

d) creating a calibration curve based on the results of said immunoassay for use as a standard in an immunoassay for tacrolimus in a patient sample

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5,736,402
RETICULOCYTE ASSAY CONTROL

Ralph T. Francis, Richfield, and Alan M. Johnson, New Brighton, both of Minn., assignors to Research & Diagnostics Systems, Inc., Minneapolis, Minn.

Continuation of Ser. No. 321,801, Oct. 12, 1994, abandoned. This application Aug. 12, 1996, Ser. No. 695,515

Int. Cl.^{6} G01N *33/49*

U.S. Cl. 436—10 **12 Claims**

1. A reticulocyte control composition comprising stabilized, maturation-arrested porcine reticulocytes in a red blood cell base, wherein the red blood cell base comprises detectable, mature erythrocytes.

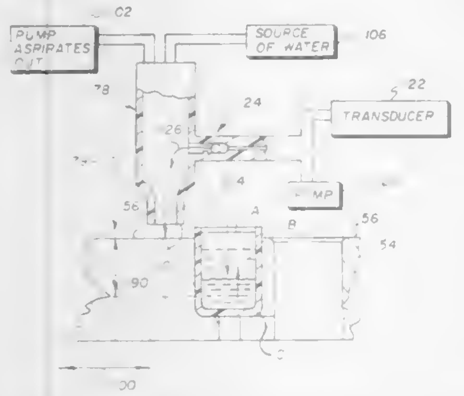
5,736,403
DETERMINING HEIGHT VARIATIONS AROUND A ROTOR

James Daniel Riall, Pittsford, and David Donald Hyde, Ontario, both of N.Y., assignors to Johnson & Johnson Clinical Diagnostics, Inc., Rochester, N.Y.

Filed Nov. 13, 1996, Ser. No. 747,878

Int. Cl.^{6} G01N *35/02*

U.S. Cl. 436—47 **5 Claims**



1. A method of verifying a vertical location of a plurality of reaction vessels held spaced-apart in a rotatable support that is subject to vertical deviations as it rotates, the method comprising the steps of

- a) positioning the vessels in a plurality of spaced-apart, held locations in such a support;
- b) rotating said support so as to position one of the vessels at a location of a station critical to the processing of liquid added to the vessel;
- c) ejecting air under pressure from a nozzle down towards a reference surface of the vessel adjacent to or coincident with said one vessel while moving said nozzle towards said surface;
- d) while carrying out said step c), monitoring the pressure at said nozzle so as to detect any pressure build-up;
- e) upon detection of pressure build-up during step d) that exceeds a threshold value, ceasing said moving of said nozzle and recording the distance said nozzle moved as a measure of the vertical positioning of the vessel; and
- f) repeating said steps b)–e) for each of said vessels.

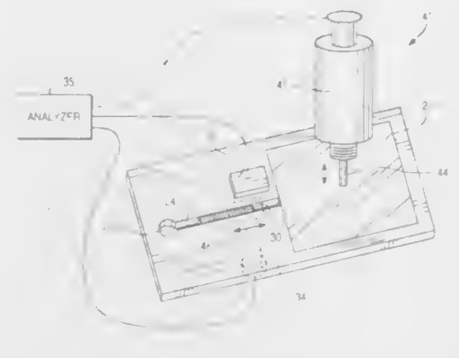
5,736,404
FLOW DETECTION APPARTUS AND METHOD

Zia Yassinzadeh, 11240 Mount Hamilton Rd., San Jose, Calif. 95140, and Paul J. Lingane, Belmont, Calif., assignors to Zia Yassinzadeh, San Jose, Calif.

Filed Dec. 27, 1995, Ser. No. 579,367

Int. Cl.^{6} G01N *33/86; 21/03*

U.S. Cl. 436—52 **9 Claims**



1. A method for determining coagulation time of a blood sample comprising the following steps.

- drawing a blood sample into a fluid passageway, the blood sample having a boundary surface along said passageway;
- applying positive and negative pressures to the blood sample by varying the volume in a pressure chamber fluidly coupled to said passageway to reciprocate the boundary surface of the blood sample back and forth along said fluid passageway;
- initiating blood coagulation;
- continuously monitoring the location of the boundary surface to obtain continuous boundary position data; and
- analyzing the boundary position data to determine the blood coagulation time.

5,736,405
MONITORING BOILER INTERNAL TREATMENT WITH FLUORESCENT-TAGGED POLYMERS

Joseph C. Alfano, Lisle; Martin R. Godfrey, Elburn; Radhakrishnan Selvarajan, Downers Grove, and Mary C. Uhing, Chicago, all of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Mar. 21, 1996, Ser. No. 621,152

Int. Cl.^{6} G01N *33/18; 33/44*

U.S. Cl. 436—55 **18 Claims**

1. A method of determining boiler cycles of concentration in a boiler water system containing an anionically charged water soluble boiler water treatment polymer, there being a source of a feedwater stream to the system as a first system parameter, a source of a blowdown stream from the system as a second system parameter, as well as a source of the soluble polymer in the boiler water as a third system parameter, and wherein the soluble polymer undergoes a hydrothermal reaction at boiler water system operating conditions, and the soluble polymer contains at least 0.01% mer units of spectrophotometrically emitting moieties bound to the polymer chain, the method comprising the steps of:

- a. adding the soluble polymer to a feedwater stream entering the boiler water system;
- b. measuring at least one spectrophotometric characteristic of the soluble polymer contained in a sample of the feedwater stream,
- c. allowing at least a portion of the soluble polymer to hydrothermally react into a reaction product as the soluble polymer passes through the boiler water system;
- d. measuring at least one spectrophotometric characteristic of the remaining soluble polymer and measuring at least one spectrophotometric characteristic of the reaction product contained in a sample of the blowdown stream;
- e. converting each of the measured characteristics to electrical signals corresponding the concentration of the soluble polymer in the feedwater stream, the concentration of the remaining soluble polymer in the blowdown stream, and the concentration of the reaction product in the blowdown stream, respectively; and,
- f. using the concentration of the soluble polymer in the feedwater stream, the concentration of the remaining soluble polymer in the blowdown stream and the concentration of the reaction product in the blowdown stream to determine the boiler cycles of concentration of the boiler system.

5,736,406
METHOD OF DETERMINING THE AMOUNT OF CHOLESTEROL IN A HIGH-DENSITY LIPOPROTEIN

Kazuhito Miyauchi, Shizuoka; Norihiko Kayahara, Kawasaki; Toshio Tatano, Numazu; Eiko Shutoh, Ohita; Hiroyuki Sugiuchi; Tetsumi Irie, both of Kumamoto; Kaneto Uekama, Kumamoto, and Susumu Ohsawa, Yotsukaido, all of Japan, assignors to Kyowa Medex Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00379, § 371 Date Nov. 2, 1995, § 102(e) Date Nov. 2, 1995, PCT Pub. No. WO95/24647, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 8, 1995, Ser. No. 545,725

Claims priority, application Japan, Mar. 8, 1994, 6-37329; Apr. 27, 1994, 6-89431

Int. Cl.^{6} G01N *33/50*

U.S. Cl. 436—71 **8 Claims**

1. A method of determining the amount of cholesterol in high-density lipoprotein (HDL), which comprises mixing a sample with a sugar compound and a protein solubilizing agent, measuring the amount of cholesterol in low-density lipoprotein (LDL), very-low-density lipoprotein (VLDL) and chylomicron (CM) in the sample in the presence of the sugar compound and the protein solubilizing agent, and calculating a difference between the amount of cholesterol in LDL, VLDL and CM and the total amount of cholesterol in the sample.

5,736,407
PROCESS FOR DETERMINING THE THICKENING EFFECT OF SILICON DIOXIDE

Thomas Henning, Gelnhausen; Guenther Michael, Karlstein, and Guenter Stadtmueller, Alzenau, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Germany

Continuation-in-part of Ser. No. 364,192, Dec. 27, 1994, abandoned. This application Jan. 8, 1997, Ser. No. 780,450

Claims priority, application Germany, Jan. 5, 1994, 44 00 170.3

Int. Cl.^{6} G01N *21/49*

U.S. Cl. 436—72 **9 Claims**

1. A process for determining the thickening effect of a silicon dioxide, which has been produced by flame hydrolysis comprising

- taking a known quantity of a flame hydrolysis produced silicon dioxide;
- forming a sample dispersion thereof from said known quantity of said silicon dioxide in an inert liquid medium,
- obtaining a turbidity measurement of said sample dispersion,
- corresponding said turbidity measurement of said sample dispersion with a previously prepared standard;
- said previously prepared standard being a correlation of a series of turbidity measurements as a function of thickening effect using dispersions of different silicas, each of said dispersions of different silicas having the same concentration; and
- said sample dispersion having the same concentration of silica as each of said dispersions of different silicas.

5,736,408
METHOD FOR THE DETECTION OF UROBILINOGEN IN URINE ON AN AUTOMATED ANALYZER

Jesse M. Carter, 910 S. Rome Ave., Tampa, Fla. 33606, and Jack V. Smith, 8505 42nd Ave. N., St. Pertersburg, Fla. 33709

Continuation-in-part of Ser. No. 347,122, Nov. 23, 1994, abandoned. This application Feb. 14, 1996, Ser. No. 599,988

Int. Cl.^{6} G01N *33/00*

U.S. Cl. 436—97 **6 Claims**

1. A method for detecting urobilinogen in a patient's urine comprising the steps of.

- A.) placing aliquots of a patient's urine and a standard to be tested in automated analyzer sampling cups,
- B.) placing the cups in a sampling tray within an automated analyzer, transferring the aliquots of urine and standard to cuvettes mounted within the automated analyzer, injecting a first and a second reagent composition in an aqueous medium into the cuvettes, the first reagent composition containing chelators or other compounds that remove substances in urine that cause interference with colorimetric photometry and that act as a base which helps to activate urobilinogen, wherein said first reagent composition comprises R1 which is combined with the aliquots of urine and standard first, and is followed by the addition of a second reagent composition, wherein said second reagent composition comprises R2 and contains a buffer to adjust the pH of the urine to an acidic value, an activating compound, a surfactant to decrease surface tension and promote mixing on a molecular level, a color developer consisting of an indicator salt capable of a coupling reaction with urobilinogen or compounds that will give a detectable response in the presence of urobilinogen, an amount of an acid sufficient for the reaction of urobilinogen with the color developer, and a stabilizing agent to prevent color development and stabilize the indicator salt without the presence of urobilinogen in urine, and
- C.) reading absorbance values for the aliquots of urine and standard at specified intervals, in accordance with a preprogrammed code introduced into the automated analyzer, at a preprogrammed monochromatically specified wavelength, to compare absorbance of the first and second reagent composition plus the patient's urine with that of the first and second reagent composition plus the standard containing a known reference concentration of urobilinogen and thereby determining the presence or absence of urobilinogen in the patient's urine.

5,736,409
METHOD OF TESTING INERT, DISPLACEABLE DILUENTS USED IN FORMING SHAPED HYDROGEL ARTICLES

Ivan M. Nunez, Jacksonville; Frank F. Molock, Orange Park; Laura D. Elliott, Jacksonville, and James D. Ford, Orange Park, all of Fla., assignors to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

Division of Ser. No. 410,025, Mar. 25, 1995, Pat. No. 5,684,058, which is a division of Ser. No. 96,145, Jul. 22, 1993, Pat. No. 5,457,140. This application May 14, 1996, Ser. No. 645,999

Int. Cl.^{6} G01N *25/20;* **B29D** *11/00*

U.S. Cl. 436—147 **2 Claims**

1. A test to determine the utility of a composition for use as an inert, displaceable diluent in a process for producing a contact lens, which process comprises molding or casting in a predetermined shape a polymerization mixture comprising:

- (a) a monomer mixture comprising a major proportion of one or more hydrophilic monomers, and one or more cross-linking monomers; and
- (b) an inert, displaceable, non-aqueous diluent under conditions to polymerize said monomer mixture to produce a gel of a copolymer of said monomers and said diluent;

which test comprises carrying out the polymerization of said monomers in said polymerization mixture in a photo differential scanning calorimeter wherein said polymerization is induced by ultraviolet irradiation at a light intensity of from about 2.5 to 3 mW/cm^2, determining the time to maximum exotherm of said polymerization and comparing said time with a standard time of from about 0.2 to about 3.5 minutes, and determining the percent conversion of said monomer mixture to polymer and comparing said percent conversion with a standard of at least 40 percent

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wherein if said time and said percent conversion are within said standards, then said gel will be optically clear.

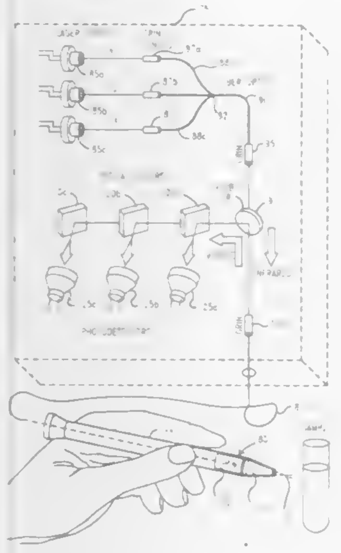
5,736,410
UP-CONVERTING REPORTERS FOR BIOLOGICAL AND OTHER ASSAYS USING LASER EXCITATION TECHNIQUES

David A. Zarling, Menlo Park, Calif.; Michel J. Rossi, Lausanne, Switzerland; Norman A. Peppers, Belmont, Calif.; James Kane, Lawrenceville, N.J.; Gregory W. Faris, Menlo Park, Calif.; Mark J. Dyer, San Jose, Calif.; Steve Y. Ng, San Francisco, Calif., and Luke V. Schneider, Half Moon Bay, Calif., assignors to SRI International, Menlo Park, Calif.

Continuation-in-part of Ser. No. 416,023, Mar. 30, 1995, which is a continuation-in-part of Ser. No. 381,006, Jan. 30, 1995, abandoned, which is a continuation of Ser. No. 946,068, Sep. 14, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 486,393

Int. Cl.^{6} G01N *21/64;21/62;21/01*

U.S. Cl. 436—172 **23 Claims**



1. An apparatus for performing diagnostics on a sample possibly containing an up-converting inorganic phospher comprising at least one rare earth element in a host material and characterized by an excitation band in a first range of wavelengths and an emission band in a second range of wavelengths that are shorter than the wavelengths in the first range, the apparatus comprising

at least one source capable of emitting light in a range of wavelengths that overlaps with at least a portion of the excitation band of the up-converting inorganic phosphor;

at least one means for energizing said source;

at least one detector capable of detecting light in a range of wavelengths that overlaps with at least a portion of the emission band of the up-converting inorganic phosphor;

at least one first means for directing at least a portion of the light emitted by said source to a location at the sample, including light in the first range of wavelengths and excluding light in the second range of wavelengths;

at least one second means for directing at least a portion of the light emanating from said location at the sample to said detector, including light in the second range of wavelengths, and

wherein said first or second means for directing contocally directs said light

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5,736,411
CHIRAL SHIFT REAGENT FOR NMR COMPRISING SACCHARIDE DERIVATIVE

Yoshio Okamoto; Eiji Yashima, both of Aichi, and Kazuma Oguni, Hyogo, all of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 464,888, Jun. 9, 1995, abandoned. This application Oct. 22, 1996, Ser. No. 735,355

Claims priority, application Japan, Nov. 26, 1993, 5-296318; Nov. 15, 1994, 6-280153

Int. Cl.^{6} G01N *24/00*

U.S. Cl. 436—173 **14 Claims**

1. A method for analyzing the mixing ratio of optical isomers in an optical isomer mixture or the optical purity and absolute configuration of an optically active substance, said method comprising the steps of forming a resultant mixture containing the optical isomer mixture or the optically active substance, an organic solvent and a saccharide derivative chiral shift reagent and measuring an NMR spectrum of the resultant mixture to determine the mixing ratio of the optical isomers or the optical purity and absolute configuration of the optically active substance, the saccharide derivative being obtained by substituting at least one group selected from the groups consisting of an alkyl group, an aryl group, a nitro group, an alkenyl group, an acyl group and a carbamoyl group for at least one of the hydrogen atoms of the hydroxyl groups or amino groups of the saccharide.

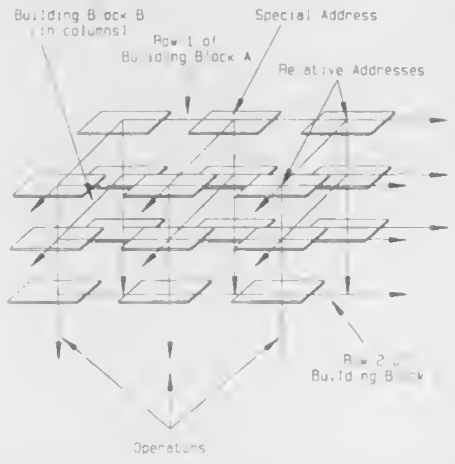
5,736,412
METHOD OF GENERATING A PLURALITY OF CHEMICAL COMPOUNDS IN A SPATIALLY ARRANGED ARRAY

Robert Zambias, Lexington, Mass.; David A. Bolten, Tinton Falls, N.J.; Joseph C. Hogan, Belmont, Mass.; Paul Furth, Waltham, Mass.; David Casebier, Hudson, Mass., and Cheng Tu, Cambridge, Mass., assignors to ArQule, Inc., Medford, Mass.

Division of Ser. No. 375,838, Jan. 20, 1995. This application May 17, 1996, Ser. No. 649,371

Int. Cl.^{6} G01N *33/543*

U.S. Cl. 436—518 **40 Claims**



1. A method of optimizing the ability of a first chemical compound to bind to a reaction site by selecting from a group of compounds the one having the greatest reactivity to the reaction site comprising the steps of:

a) ascertaining the three dimensional and electrostatic configuration of the reaction site;

b) selecting a scaffold backbone of a chemical molecule comprising a linear, branched or cyclic organic compound having at least three atoms of carbon, nitrogen, sulfur, phosphorus or combinations thereof, and at least one location on the molecule capable of undergoing reaction with other molecules for attachment of at least one structural diversity element that is complementary to the reaction site;

c) forming an n×m array of different chemical compounds, wherein each chemical compound comprises said scaffold and at least one structural diversity element; and

d) simultaneously screening each of the compounds in the n×m array against the reaction site to determine the chemical compound having the most reactivity to the reaction site.

5,736,413
IMMUNODIAGNOSTIC REAGENT FOR CARRYING OUT A MULTI-STAGE IMMUNOASSAY OF AT LEAST ONE BIOLOGICAL SUBSTANCE IN A PLURALITY OF BIOLOGICAL SAMPLES

Michel Uzan, Les Pavillons Sous Bois; Thierry Gicquel, Jouy le Moutier; Edouard Lentwojt, Saint Leu D'Esserent, and Dario Marminio, Louvres, all of France, assignors to Laboratoires Merck Clevenot, Nogent-Sur-Marne, France

Division of Ser. No. 179,543, Jan. 10, 1994, Pat. No. 5,559,002, which is a continuation of Ser. No. 721,520, Aug. 26, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 463,812

Claims priority, application France, Nov. 17, 1989, 89 15095

Int. Cl.^{6} G01H *33/553*

U.S. Cl. 436—526 **6 Claims**

1. An immunodiagnostic reagent for use in an automatic analytical apparatus for performing solid-phase immunoassays on samples, said immunodiagnostic reagent including magnetic balls covered with a substance binding specifically to another substance to be detected, in suspension in a suitable liquid, wherein said balls comprise an organic matrix enclosing a magnetic charge, the balls having a magnetizable material mass/nonmagnetizable material mass ratio of between 60 and 70%;

wherein said automatic analytical apparatus comprises

(1) a sample module A consisting of a plurality of holders for tubes Te which receive the samples;

(2) a reaction module C in which an immunological incubation takes place and consisting of

(i) a plurality of holders for test tubes Tr intended to receive successively an aliquot quantity of said samples and an aliquot quantity of said immunodiagnostic reagent; and

(ii) a plurality of sequentially located processing positions of said test tubes, for an analysis cycle;

(3) a reagent module E consisting of a plurality of holders for tubes containing a plurality of reagents appropriate for different assays to be carried out, one of said reagents consisting of said magnetic balls covered with said substance which specifically binds to another substance to be detected, in suspension in a suitable liquid;

(4) means to stepwise position the test tubes Tr in sequence to several processing positions for an analysis cycle;

(5) means for collection and distribution of samples and reagents, respectively, from said sample module A to said test tubes Tr and from said reagent module E to said test tubes;

(6) a decontamination means for the decontamination of the means for collection and distribution of the samples and the reagents;

(7) a means for reading an enzymatic reaction effected in each test tube Tr of the reaction module,

wherein the reaction module C is connected to a control microprocessor and includes a washing device of said magnetic balls consisting of a block fixed along its horizontal axis and comprising:

(i) four means for application of a magnetic field to the lower part of said test tubes Tr containing the sample to be analyzed and one or more reagents appropriate to the assays to be carried out, one of said reagents consisting of said magnetic balls covered with said substance which specifically binds to another substance to be detected, in suspension in a suitable liquid, wherein said balls consist of an organic matrix enclosing a magnetic charge and each of said means preferably consists of a pair of magnets arranged face to face and on both sides of two consecutive test tubes, each pair of magnets being connected to a metallic armature for channelling said magnets' magnetic flux lines, and

(ii) a washing head L comprising on a means holder four means for suction of the liquid contained in said test tubes Tr, three means for distribution of a washing liquid to said test tubes Tr, and one means for distribution of an enzyme substrate, said means being arranged on said means holder in the following defined order, from one end to the other end of said means holder: first means of suction, first means of distribution, second means of suction, second means of distribution, third meads of suction, third means of distribution, fourth means of suction and means for distribution of a substrate, the first means of suction being necessarily used first when starting the assay;

wherein means B for collection and distribution of the samples from said sample module A to test tubes Tr of said reaction module and means D for collection and distribution of the reagents from said reagent module E to the tubes of said reaction module are separate means, and

wherein all the modules and means are controlled by an information system permitting the carrying out of a succession of analysis cycles, wherein a test tube stays in one processing position (stoppage time) between approximately 5 to 20 seconds, each of the analysis cycle comprising compulsorily the use of said washing device and allowing the immunological incubation to be of the same duration, regardless of the substance to be determined.

5,736,414
METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE

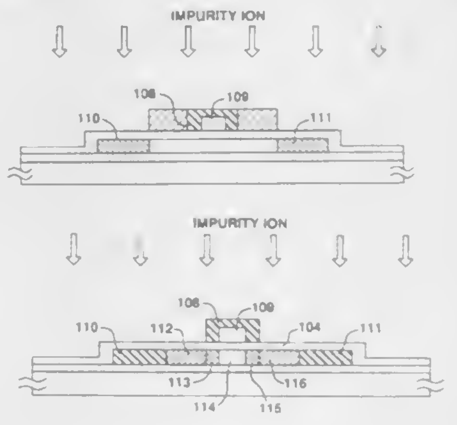
Naoaki Yamaguchi, Kanagawa, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Filed Jul. 12, 1995, Ser. No. 501,297

Claims priority, application Japan, Jul. 14, 1994, 6-186263

Int. Cl.^{6} H01L *21/265*

U.S. Cl. 437—21 **11 Claims**



1. A method for manufacturing a semiconductor device comprising the steps of

forming a semiconductor layer over a substrate;

forming an insulating layer on said semiconductor layer,

forming a gate electrode comprising an anodizable material on said insulating film;

forming an anodic oxide film on side surfaces of said gate electrode by oxidizing the side surfaces,

introducing an impurity into said semiconductor layer with said anodic oxide film used as a mask at a first concentration to form a pair of heavily doped regions within said semiconductor layer;

removing said anodic oxide film after the formation of said heavily doped regions, and then

introducing said impurity into said semiconductor layer with said gate electrode used as a mask at a second concentration to form a pair of lightly doped regions adjacent to said heavily

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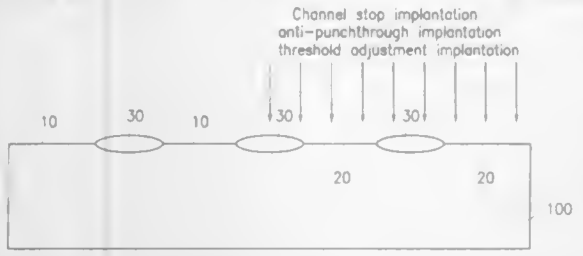
doped regions, whereby a channel region is defined between said lightly doped regions within said semiconductor layer, wherein said channel region extends beyond the side edges of said gate electrode to provide a pair of offset regions.

5,736,415
METHOD FOR MANUFACTURING INPUT/OUTPUT PORT DEVICES HAVING LOW BODY EFFECT
Ming-Chien Chang, Hsinchu, and Wuu-Larng Laih, Chiai Hsien, both of Taiwan, assignors to Vanguard International Semiconductor, Corporation, Hsinchu, Taiwan
Filed Mar. 4, 1997, Ser. No. 810,075
Claims priority, application Taiwan, May 11, 1996, 85113488
Int. Cl.^{6} H01L *21/265*
U.S. Cl. 437—27 **10 Claims**


Channel stop implantation
anti–punchthrough implantation
threshold adjustment implantation
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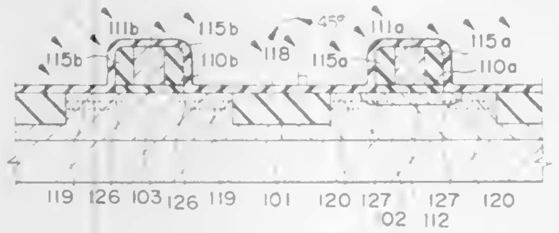
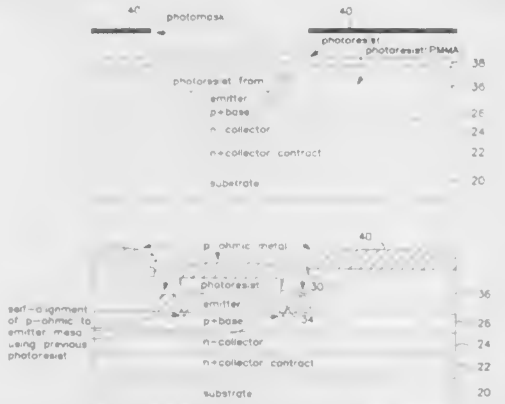
1. A method for manufacturing the input/output port devices of a semiconductor circuit having low body effect, suitable for use on a semiconductor substrate on which a plurality of pull-up device regions and pull-down device regions are formed, comprising:
masking said pull-up device regions of a first conductivity type on said semiconductor substrate and then executing a channel stop implantation;
masking said pull-up device regions on said semiconductor substrate and then executing a anti-punchthrough implantation;
masking said pull-up device regions on said semiconductor substrate and then executing a threshold adjustment implantation; and
exposing said pull-up device regions on said semiconductor substrate and then executing a cell implantation.

5,736,416
FABRICATION PROCESS FOR MOSFET USING OBLIQUE ROTATION ION IMPLANTATION
Lars Johansson, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Dec. 22, 1995, Ser. No. 577,335
Claims priority, application Japan, Dec. 28, 1994, 6-327910
Int. Cl.^{6} H01L *21/265*
U.S. Cl. 437—29 **6 Claims**



1. A fabrication process of a MOSFET which has an impurity region of one conductivity type comprising the steps of:
forming a gate electrode above said impurity region of one conductivity type;
forming a side wall spacer made of an insulation layer, on a side surface of said gate electrode;
performing oblique rotation ion implantation of said one conductivity type impurity using said gate electrode and said side wall spacer as masks to form an ion implanted layer of said one conductivity type which has an impurity concentration higher than that of said impurity region of said one conductivity type, and has a first depth from the surface of said impurity region of said one conductivity type;
performing ion implantation of the opposite conductivity type impurity using said gate electrode and said side wall spacer as masks, in a direction perpendicular to said impurity region of said one conductivity type to form an ion implanted layer of the opposite conductivity type which has an impurity concentration higher than that of said ion implanted layer of said one conductivity type, and has a second depth from the surface of said impurity region of said one conductivity type, the second depth being deeper than said first depth; and
activating said ion implanted layer of said one conductivity type and said ion implanted layer of the opposite conductivity type by heat treatment.

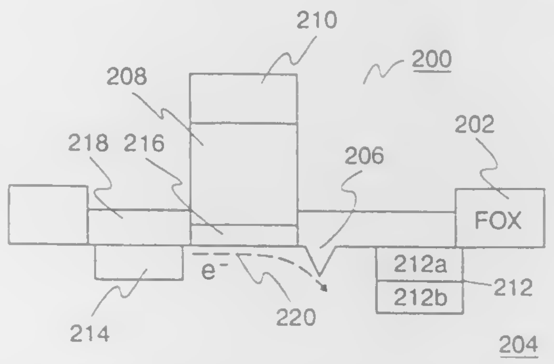
5,736,417
METHOD OF FABRICATING DOUBLE PHOTORESIST LAYER SELF-ALIGNED HETEROJUNCTION BIPOLAR TRANSISTOR
Aaron K. Oki, Torrance; Donald K. Umemoto, Manhattan Beach; Liem T. Tran, Torrance, and Dwight C. Streit, Seal Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed May 13, 1996, Ser. No. 647,609
Int. Cl.^{6} H01L *21/265*
U.S. Cl. 437—31 **10 Claims**



1. A method for making a heterojunction bipolar transistor (HBT) comprising the steps of:
a) providing a structure with a vertically integrated profile having a substrate layer, a collector contact layer, a collector layer, a base layer and an emitter layer;
b) covering a portion of said emitter layer with a first photoresist;
c) creating a first photomask to define an emitter mesa, as well as to provide access to said base layer;
d) exposing and developing said first photoresist through said first photomask;
e) etching said emitter layer beneath said first photoresist to form an emitter mesa, as well as exposing a portion of said base layer so that a remaining part of said first photoresist overhangs said emitter mesa and defines an overhang;
f) applying a second photoresist over said exposed area of said base layer and said first photoresist;
g) applying a third photoresist over said second photoresist;
h) providing a second photomask to enable a portion of said third photoresist to be removed, said second photomask for patterning the second photoresist layer above and laterally extending beyond said overhang defining emitter mesa to base metal spacing and lateral alignment;
i) exposing said third photoresist through said second photomask,
j) descumining all three photoresist layers to expose emitter mesa and part of said base layer, said exposed part of said base layer and said overhang defining the base metal to emitter mesa spacing,

k) depositing a predetermined metal on said structure so as to form base metal contacts, said base metal contacts being self-aligned and spaced away from said emitter mesa, as well as coating said remaining part of said first photoresist and a remaining part of said third photoresist, and
l) removing said first and third photoresists, as well as said metal coating thereon.

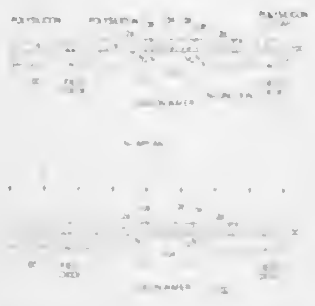
5,736,418
METHOD FOR FABRICATING A FIELD EFFECT TRANSISTOR USING MICROTRENCHES TO CONTROL HOT ELECTRON EFFECTS
Nicholas F. Pasch, Pacifica, and Ana Ley, Sunnyvale, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.
Filed Jun. 7, 1996, Ser. No. 659,860
Int. Cl.^{6} H01L *21/86*
U.S. Cl. 437—41 **10 Claims**



1. A method for fabricating a field effect transistor having reduced hot electron effects, the method comprising:
disposing a gate oxide layer on a semiconductor substrate;
disposing a gate material on the gate oxide layer;
masking a portion of the gate material;
anisotropically etching the gate material into a gate structure such that a trench having a V-shape and a depth extending between about 50A and less than 500A is formed in a first portion of the semiconductor substrate adjacent to the gate structure; and
implanting ion impurities into the semiconductor substrate to form a drain structure in a second portion of the semiconductor device, wherein the drain structure is spaced apart from the gate structure by said trench, and wherein the drain structure has a first doping region superjacent a second doping region, the second doping region being lightly doped relative to the first region.

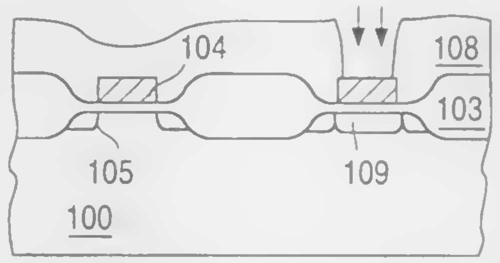
5,736,419
METHOD OF FABRICATING A RAISED SOURCE/DRAIN MOSFET USING SELF-ALIGNED $POCL_3$ FOR DOPING GATE/SOURCE/DRAIN REGIONS
Abdalla Aly Naem, Sunnyvale, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Nov. 12, 1996, Ser. No. 747,447
Int. Cl.^{6} H01L *21/265;21/44*
U.S. Cl. 437—44 **6 Claims**

1. A method of fabricating a MOSFET device structure in a silicon substrate using self-aligned source for doping the gate, source and drain regions of the structure, the silicon substrate having a first conductivity type, the fabrication method comprising:
formed spaced-apart field oxide isolation regions in the substrate to define an active device substrate region therebetween;
forming a polysilicon gate over the active device substrate region and separated from the active device substrate region by an underlying layer of gate oxide;



forming first and second spaced-apart lightly doped regions having a second conductivity type opposite the first conductivity type in the active device substrate region to define a substrate channel region therebetween such that the polysilicon gate is formed over the substrate channel region,
forming oxide sidewall spacers on sidewalls of the polysilicon gate and gate oxide;
forming a layer of polysilicon over the structure resulting from the above-recited steps,
performing a chemical mechanical polishing (CMP) step to substantially planarize an upper surface of the structure resulting from the step of forming a layer of polysilicon to define a polysilicon gate region and first and second raised polysilicon regions formed over the first and second lightly doped regions, respectively, and formed partially over adjacent field oxide;
forming a layer of a dopant source that includes dopant of the second conductivity type on the substantially planarized upper surface;
thermally driving dopant from the dopant source layer into the underlying polysilicon gate region and first and second raised polysilicon regions,
performing a rapid thermal anneal step to outdiffuse dopant from the first and second raised polysilicon regions into the underlying first and second lightly doped regions, respectively, and
removing the dopant source layer

5,736,420
PROCESS FOR FABRICATING READ ONLY MEMORIES, WITH PROGRAMMING STEP PERFORMED MIDWAY THROUGH THE FABRICATION PROCESS
Heikyung Chun Min, Palo Alto, Calif., and Jeffrey Kent Whitney, Salt Lake City, Utah, assignors to National Semiconductor Corporation, Santa Clara, Calif.
Continuation of Ser. No. 336,554, Nov. 9, 1994, abandoned, which is a continuation of Ser. No. 110,054, Aug. 20, 1993, abandoned. This application Apr. 26, 1996, Ser. No. 638,688
Int. Cl.^{6} H01L *21/8246*
U.S. Cl. 437—45 **19 Claims**



1. A method for fabricating a semiconductor device comprising the steps of:
defining active regions in a semiconductor substrate,
forming a patterned layer of conductive material on a surface of said substrate but separated from said surface by dielectric material, serving as gate electrodes of a plurality of transistors within said active regions;
forming source/drain regions within said active regions adjacent said gate electrodes, with portions of said active region

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beneath said gate electrodes serving as channel regions of said plurality of transistors;
implanting dopants into selected ones of said channel regions through associated gate electrodes to selectively program said plurality of transistors to a desired logical state;
after said step of implanting dopants, forming a gettering layer on substantially the entire surface of the structure thus formed;
gettering said structure at a sufficiently high temperature such that said gettering layer traps undesired mobile ions and substantially all of said dopants are activated;
forming a stress reduction layer on said gettering layer; and
after said step of forming a stress reduction layer forming a layer of metalization on said stress reduction layer.

5,736,421
SEMICONDUCTOR DEVICE AND ASSOCIATED FABRICATION METHOD

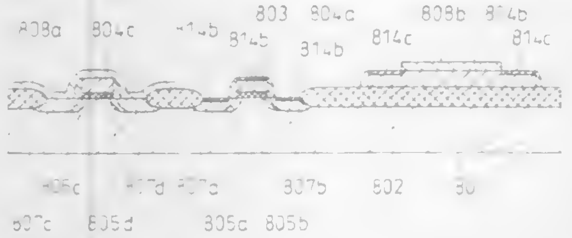
Hiroshi Shimomura, Osaka; Kiyoyuki Morita, Kyoto; Takashi Nakabayashi, Osaka; Takashi Uehara, Osaka; Mitsuo Yasuhira, Osaka; Mizuki Segawa, Osaka, and Takehiro Hirai, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 348,205, Nov. 28, 1994, abandoned. This application Jan. 23, 1996, Ser. No. 589,897

Claims priority, application Japan, Nov. 29, 1993, 5-298050; Dec. 28, 1993, 5-337725; Jul. 28, 1994, 6-176652

Int. Cl.^{6} H01L *21/70*

U.S. Cl. 437—52 **6 Claims**



1. A method of fabricating a semiconductor device comprising:
a first fabrication step of forming a transistor having a gate electrode on a semiconductor substrate while at the same time forming a capacitor lower electrode on said semiconductor substrate,
a second fabrication step of depositing an insulating layer on said gate electrode and on said lower electrode,
a third fabrication step of forming a resist pattern on said insulating layer in such a way as to mask said lower electrode
a fourth fabrication step of anisotropically etching said insulating layer using said resist pattern as a mask to form a sidewall insulating layer on a sidewall of said gate electrode while at the same time forming a capacitance insulating layer of said capacitor on said lower electrode.
a fifth fabrication step of forming an upper electrode of said capacitor on said capacitance insulating layer.

5,736,422
METHOD FOR DEPOSITING A PLATINUM LAYER ON A SILICON WAFER

Dong Su Lee; Dong i. Chun; Dong Yeon Park; Jo Woong Ha; Eui Joon Yoon; Min Hong Kim, and Hyun Jung Woo, all of Seoul, Rep. of Korea, assignors to Dong Yang Cement Corporation, Rep. of Korea

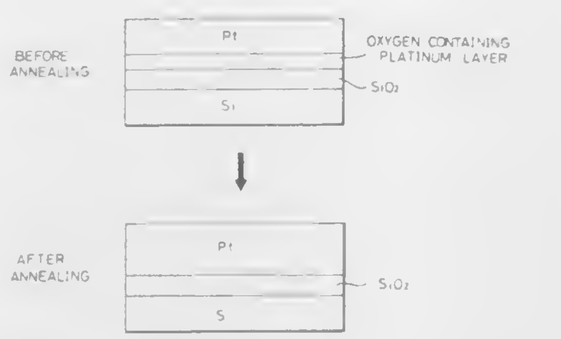
Filed Nov. 22, 1995, Ser. No. 562,371

Claims priority, application Rep. of Korea, Nov. 26, 1994, 1994-31618; Nov. 9, 1995, 1995-40450

Int. Cl.^{6} H01L *1/28*

U.S. Cl. 437—201 **13 Claims**

1. A method for depositing a platinum film on a silicon wafer comprising the steps of:



i) providing a silicon wafer;
ii) forming an insulating oxide layer on a surface of the silicon wafer;
iii) depositing a platinum layer on the insulating oxide layer under an oxidation atmosphere to form a mixture film consisting of platinum grains, platinum oxide grains and oxygen adhered to those grains hereinafter, "the mixture film" to be referred as "oxygen containing platinum film");
vi) depositing an additional platinum film to a thickness on the oxygen containing platinum film under a complete inert atmosphere; and
v) annealing the silicon substrate at a temperature of 400° to 1,300° C. in order to remove oxygen present in independent form or in platinum oxide form within the oxygen containing platinum film and to stablize the entire platinum film;
whereby, after the step v), the oxygen containing platinum layer formed at the step iii) is changed into a platinum layer substantially free of oxygen.

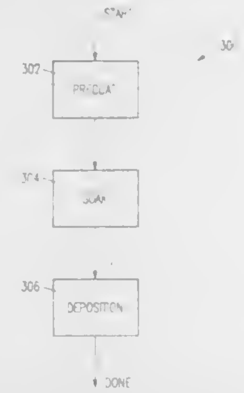
5,736,423
METHOD FOR DEPOSITING VERY THIN PECVD SiO_2 IN 0.5 MICRON AND 0.35 MICRON TECHNOLOGIES

Minh Van Ngo, Union City, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Nov. 16, 1995, Ser. No. 558,367

Int. Cl.^{6} H01L *21/02; 21/77*

U.S. Cl. 437—238 **21 Claims**



6. A method of depositing a thin PECVD SiO_2 layer using a PECVD reactor comprising the steps of:
precoating the PECVD reactor for a time duration greater than or equal to 285 seconds,
wafer temperature soaking a semiconductor wafer for a time duration greater than or equal to 17 seconds; and
applying reactant gases to the semiconductor wafer under pressure in a range from 1.4 torr to 1.7 torr and RF power in a range from 480 watts to 520 watts, the reactant gases including
a silicon source reactant gas at a flow rate in a range from 65 sccm to 105 sccm,
nitrous oxide (N_2O) at a flow rate in a range from 3900 sccm to 6600 sccm, and nitrogen (N_2) at a flow rate in a range from 2000 sccm to 3300 sccm.

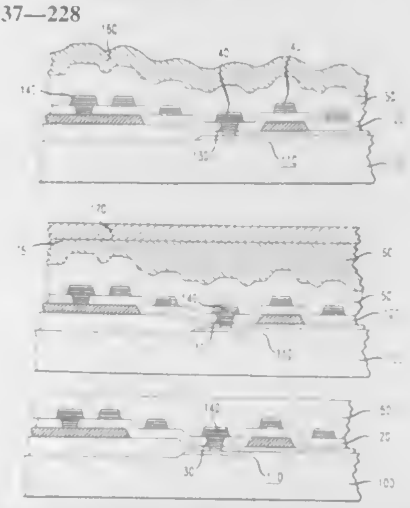
5,736,424
DEVICE FABRICATION INVOLVING PLANARIZATION

Judith Ann Prybyla, Edison, and Gary Newton Taylor, Bridgewater, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 245,279, May 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 593,362, Oct. 1, 1990, which is a continuation of Ser. No. 349,975, May 8, 1989, abandoned, which is a continuation of Ser. No. 20,332, Feb. 27, 1987, abandoned. This application Aug. 1, 1996, Ser. No. 695,181

Int. Cl.^{6} H01L *21/311*

U.S. Cl. 437—228 **11 Claims**



1. A process for fabricating a semiconductor device comprising:
forming a planarization material region on a topographic substrate surface wherein the planarization material has a preplanarization viscosity of about 20 cp to about 1000 cp;
contacting the planarization material region having said viscosity with a flat surface of an object with a force sufficient to substantially transfer the surface flatness from the flat surface to the material;
hardening the material while in contact with the flat surface wherein the material undergoes a reduction in volume of less than about 10%; and
separating the flat surface from contact with the material.

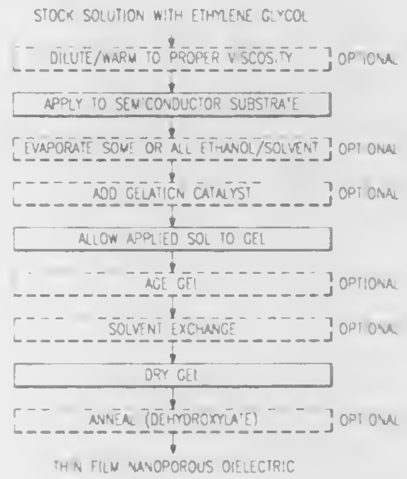
5,736,425
GLYCOL-BASED METHOD FOR FORMING A THIN-FILM NANOPOROUS DIELECTRIC

Douglas M. Smith, and William C. Ackerman, both of Albuquerque, N. Mex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 14, 1996, Ser. No. 748,925

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—778 **53 Claims**


STOCK SOLUTION WITH ETHYLENE GLYCOL
DILUTE/WARM TO PROPER VISCOSITY
OPTIONAL
APPLY TO SEMICONDUCTOR SUBSTRATE
EVAPORATE SOME OR ALL ETHANOL/SOLVENT
OPTIONAL
ADD GELATION CATALYST
OPTIONAL
ALLOW APPLIED SOL TO GEL
AGE GEL
OPTIONAL
SOLVENT EXCHANGE
OPTIONAL
DRY GEL
ANNEAL (DEHYDROXYLATE)
OPTIONAL
THIN FILM NANOPOROUS DIELECTRIC

1. A method for forming a thin film nanoporous dielectric on a semiconductor substrate, the method comprising the steps of:
a) providing a semiconductor substrate;
b) depositing an aerogel precursor sol upon said substrate; wherein said aerogel precursor sol comprises
a metal-based aerogel precursor reactant, and
a first solvent selected from the group consisting of ethylene glycol, 1,4-butylene glycol, 1,5-pentanediol, and combinations thereof; wherein,
the molar ratio of said first solvent molecules to the metal atoms in said reactant is at least 1:16
c) allowing said deposited sol to create a gel, wherein said gel comprises a porous solid and a pore fluid, and
d) forming a dry, nanoporous dielectric by removing said pore fluid.

5,736,426
PROCESS FOR ARRANGING PRINTED CONDUCTORS ON THE SURFACE OF SEMICONDUCTOR COMPONENTS

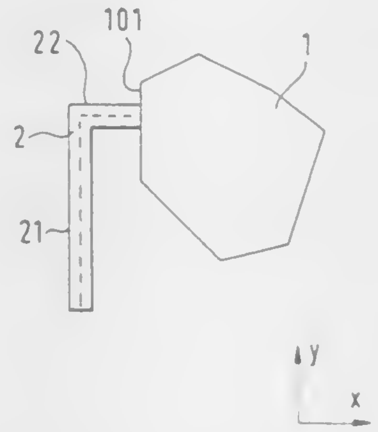
Carsten Roedel, Reutlingen, and Juergen Scheible, Sonnenbuehl, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 13, 1996, Ser. No. 696,291

Claims priority, application Germany, Aug. 23, 1995, 195 30 951.0

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—6 **8 Claims**



1. A process for arranging at least one printed conductor on a surface of a semiconductor component in a rectangular coordinate system having two coordinate axes, the surface of the semiconductor component supporting a plurality of wire ranges each wire range having the shape of a polygon, the polygon having a plurality of sides the sides including a plurality of edge points, the process comprising the steps of:
assigning, to at least one edge point of the plurality of edge points, a status selected from the group including "connectable in parallel", "diagonally connectable" and "not connectable";
connecting the at least one printed conductor to the at least one edge point so that the at least one printed conductor is arranged approximately parallel to one of the coordinate axes, only if the status of the at least one edge point is "connectable in parallel"; and
connecting the at least one printed conductor to the at least one edge point so that the at least one printed conductor is arranged at an angle of approximately 45° relative to one of the coordinate axes, only if the status of the at least one edge point is "diagonally connectable";
wherein, when the status of the at least one edge point is "not connectable", the at least one printed conductor is not connected to the at least one edge point.

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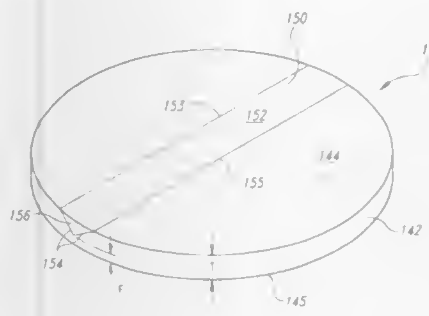
5,736,427
POLISHING PAD CONTOUR INDICATOR FOR MECHANICAL OR CHEMICAL-MECHANICAL PLANARIZATION

Gary O. Henderson, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 8, 1996, Ser. No. 727,021
Int. Cl.⁶ H01L *21/00*
U.S. Cl. 438—14 **46 Claims**



36. A method for detecting a contour of a planarizing surface of a polishing pad used in mechanical or chemical-mechanical planarization of a substrate, the method comprising the steps of:

providing a polishing body and a visually distinctive contour indicator embedded in the polishing body so that a top surface of the contour indicator is substantially coplanar with a planarizing surface of the polishing body and a bottom surface of the contour indicator extends to at least an intermediate depth within the polishing body, wherein the contour indicator has a cross section with a contour indicating dimension that changes with increasing depth within the pad in a manner in which a shape of an exposed surface of the contour indicator indicates the contour of the planarizing surface; and

detecting a shape of a conditioned surface of the contour indicator to determine a relative contour of the planarizing surface of the polishing pad.

5,736,428
PROCESS FOR MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A STEPPED ENCAPSULATED PACKAGE

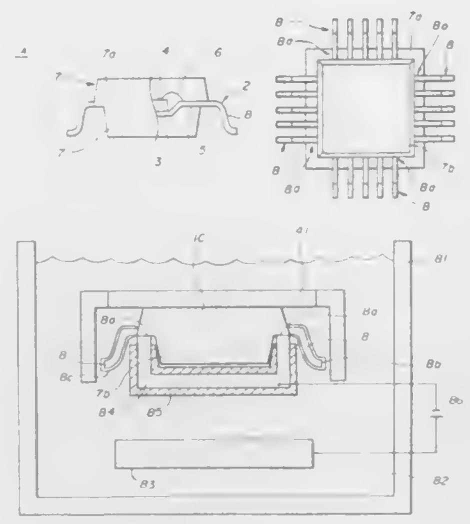
Junichi Kasai; Kazuto Tsuji; Norio Taniguchi; Takashi Mashiko; Masao Sakuma, all of Kawasaki; Yukio Saigo, Satsuma-gun; Yoshiyuki Yoneda, and Masashi Takenaka, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki; Kyushu Fujitsu Electronics Limited, Satsuma-gu, and Fujitsu Automation Limited, Kawasaki, all of Japan

Division of Ser. No. 441,462, May 15, 1995, Pat. No. 5,666,064, which is a division of Ser. No. 961,161, Oct. 16, 1992, Pat. No. 5,475,259. This application Jan. 27, 1997, Ser. No. 789,661

Claims priority, application Japan, Oct. 17, 1991, 3-269645; Feb. 12, 1992, 4-25399; May 22, 1992, 4-130900; Jun. 12, 1992, 4-153842

Int. Cl.⁶ H01L *21/56;21/58;21/60;21/66*
U.S. Cl. 438—15 **8 Claims**

1. A method of producing a semiconductor device which comprises a plurality of leads respectively made up of an inner lead and an outer lead, a semiconductor chip electrically connected to the inner leads, and a substantially rectangular package encapsulating at least the inner leads and the semiconductor chip, wherein the outer leads extend outwardly of the package, said package having an upper part and a lower part which have mutually different sizes such that a stepped part is formed between the upper and lower parts due to the different sizes, each of said outer leads having a part which is exposed at the stepped part of the package, said method comprising the steps of:



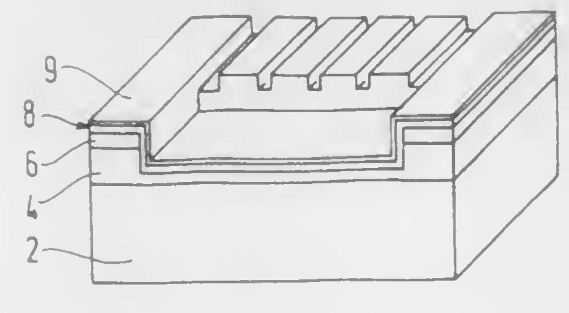
(a) placing the semiconductor device on a support, wherein the semiconductor device is supported by the stepped part and one of the upper and lower parts of the package having a smaller size; and

(b) plating a metal on the outer leads.

5,736,429
METHOD OF FORMING A LAYER OF SILICA TO BE ELIMINATED SUBSEQUENTLY AND METHOD FOR MOUNTING AN INTEGRATED OPTICAL COMPONENT

Denis Tregoat, Gif Sur Yvette; Claude Artigue, Bourg La Reine; Frédéric Pommereau, Bretigny Sur Orge, and Estelle Derouin, Palaiseau, all of France, assignors to Alcatel N.V., Rijswijk, Netherlands

Filed Dec. 1, 1995, Ser. No. 566,122
Claims priority, application France, Dec. 5, 1994, 94 14582
Int. Cl.⁶ G02B *6/12;6/42*
U.S. Cl. 438—31 **6 Claims**



1. Method of forming an upper layer of silica on a substrate to be eliminated subsequently

by a silica etching treatment capable of eliminating said upper layer of silica but not a barrier layer of silicon, said method comprising the following steps:

depositing a silicon barrier layer onto a base structure,

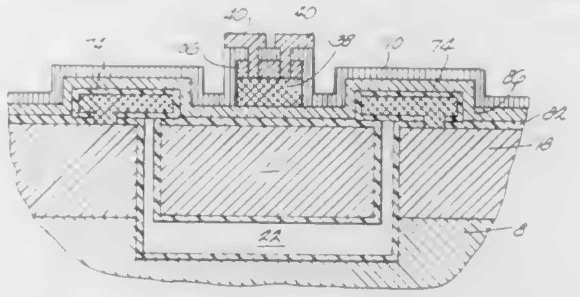
forming a protective silica layer on said barrier layer at a temperature lower than that required for flame hydrolysis deposition of silica, and

flame hydrolysis depositing said upper silica layer on said protective silica layer, so that said silica etching treatment can subsequently eliminate said upper silica layer at least locally without damaging said base structure.

5,736,430
TRANSDUCER HAVING A SILICON DIAPHRAGM AND METHOD FOR FORMING SAME

James D. Seefeldt, DeForest, and Michael F. Mattes, Janesville, both of Wis., assignors to SSI Technologies, Inc., Janesville, Wis.

Filed Jun. 7, 1995, Ser. No. 480,267
Int. Cl.⁶ H01L *21/465*
U.S. Cl. 438—53 **6 Claims**



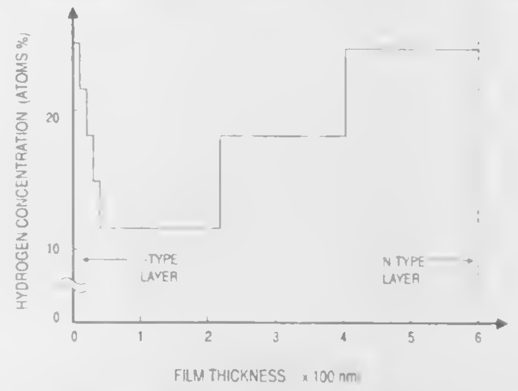
1. A method of forming apparatus including a force transducer on a silicon substrate having an upper surface, the silicon substrate including a p-type dopant, the force transducer including a cavity having spaced side walls and a diaphragm supported in the cavity, the diaphragm extending between the side walls of the cavity, said method comprising the steps of:

a. implant a p-type layer in the p-type substrate;
b. deposit an epitaxial n-type layer on the upper surface of the substrate;
c. implant spaced p-type sinkers through the epitaxial n-type layer and into connection with the p-type layer;
d. form porous silicon of the p-type layer and the p-type sinkers by anodization;
e. oxidize the porous silicon to form silicon dioxide;
f. deposit a polysilicon cover layer over the sinkers; and then
g. etch the silicon dioxide to form open etch channels, the cavity and the diaphragm;
h. sealing the cavity by forming SiO_2 layers within the etch channels to substantially close the etch channels;
i. depositing a second polysilicon layer on the diaphragm;
j. implanting a p-type dopant in the second polysilicon layer; and
k. etching the second polysilicon layer to form a piezoresistor.

5,736,431
METHOD FOR PRODUCING THIN FILM SOLAR BATTERY

Hisato Shinohara, Yamanashi, and Yasuyuki Arai, Kanagawa, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, and TDK Corporation, Tokyo, both of Japan

Filed Feb. 28, 1996, Ser. No. 608,543
Claims priority, application Japan, Feb. 28, 1995, 7-066928
Int. Cl.⁶ H01L *31/20*
U.S. Cl. 438—96 **4 Claims**



1. A solar battery producing method, comprising the step of forming a substantially intrinsic I-type layer of a solar battery by glow discharge decomposition while transporting a substrate along a desired direction, the solar battery which is formed on the substrate having at least one PIN junction formed in a photoelectric conversion layer comprising alloy layers including hydrogenated amorphous silicon,

wherein the substrate temperature is changed along the desired direction in which the substrate is transported so that the substrate temperature is higher when forming a part of the substantially intrinsic I-type layer on which light is to be incident than when forming a part of the substantially intrinsic I-type layer positioned at a side opposite to the part of the substantially intrinsic I-type layer on which said light is to be incident

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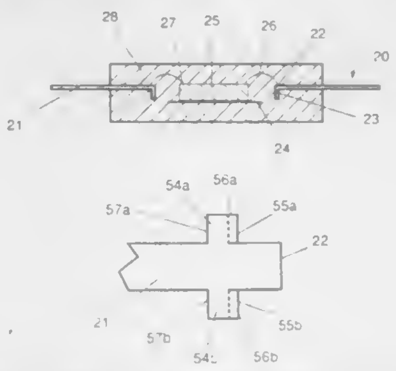
5,736,432
LEAD FRAME WITH LEAD FINGER LOCKING FEATURE AND METHOD FOR MAKING SAME

Owen Michael Mackessy, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sep. 20, 1996, Ser. No. 717,481
Int. Cl.⁶ H01L *21/60*
U.S. Cl. 438—123 **10 Claims**



1. A method of forming a lead frame for use in a packaged semiconductor device, the method including the steps of

forming a plurality of leads from a conductive strip, each lead including a lead tip portion and a body portion, the plurality of leads being oriented in a substantially planar manner to define a lead frame plane, wherein a selected one of the leads includes an integral tab extending from a side of the lead body portion substantially within the lead frame plane; and

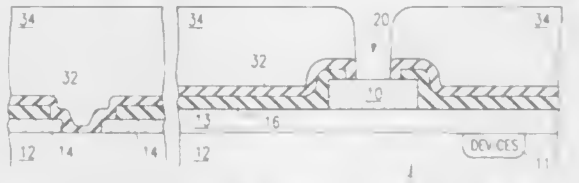
bending a portion of the integral tab on the selected lead to form a finger integrally extending transversely relative to the lead frame plane to create an integral locking mechanism.

5,736,433
DOUBLE MASK HERMETIC PASSIVATION METHOD PROVIDING ENHANCED RESISTANCE TO MOISTURE

Frank R. Bryant, Denton; Abha R. Singh, Garland, both of Tex., and James A. Cunningham, Saratoga, Calif., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Continuation-in-part of Ser. No. 738,738, Oct. 28, 1996, which is a division of Ser. No. 651,618, May 22, 1996. This application Dec. 31, 1996, Ser. No. 778,021

Int. Cl.⁶ H01L *21/70*
U.S. Cl. 438—130 **22 Claims**



1. A method of forming a passivation structure over an integrated circuit of a type comprising pads and linking structures, the method comprising the steps of

forming a first passivation layer over the integrated circuit.

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- removing portions of the first passivation layer overlying the pads and linking structures of the integrated circuit so that edge portions of the first passivation layer are exposed at the pads;
- testing the integrated circuit by probing the exposed pads;
- altering the condition of one or more of the linking structures based upon the testing, such that one or more of the linking structures are in a disconnected state;
- forming a second passivation layer over the entire surface of the integrated circuit;
- without using a pattern mask and etching the second passivation layer, forming a protective overcoat over the second passivation layer;
- removing portions of the protective overcoat adjacent the pads, thereby exposing portions of the second passivation layer;
- removing the exposed portions of the second passivation layer, and while leaving edge portions of the second passivation layer overlapping the exposed edge portions of the first passivation layer at the pads; and
- retaining patterned protective overcoat on the integrated circuit after exposing and etching the second passivation layer.

5,736,434
METHOD FOR MANUFACTURING A SEMICONDUCTOR DEVICE UTILIZING AN ANODIC OXIDATION

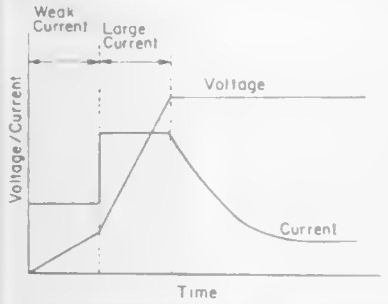
Toshimitsu Konuma; Akira Sugawara, and Yukiko Uehara, all of Kanagawa, Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Division of Ser. No. 401,698, Mar. 10, 1995, Pat. No. 5,595,638. This application Jun. 7, 1995, Ser. No. 473,951

Claims priority, application Japan, Mar. 17, 1994, 6-74024

Int. Cl.^{6} H01L *21/84;21/326;21/479*

U.S. Cl. 438—151 **11 Claims**



8. A method of manufacturing a semiconductor device having at least source, drain and channel regions, and a gate electrode adjacent to the channel region, said method comprising the steps of:

- forming the gate electrode on an insulating film, said gate electrode comprising an anodizable material;
- applying a voltage between said gate electrode and a cathode through an electrolyte therebetween, with said gate electrode used as an anode;
- increasing monotonically a current applied between the gate electrode and the cathode until the voltage therebetween reaches a first value; and then
- maintaining said voltage at said first value for a first duration.

5,736,435
PROCESS FOR FABRICATING A FULLY SELF-ALIGNED SOI MOSFET

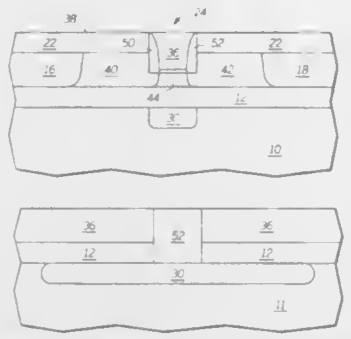
Suresh Venkatesan; Stephen Poon; Jeffrey Lutze, and Sergio Ajuria, all of Austin, Tex., assignors to Motorola, Inc., Schuamburg, Ill.

Filed Jul. 3, 1995, Ser. No. 497,317

Int. Cl.^{6} H01L *21/00;21/84 21/336,21/3205*

U.S. Cl. 438—151 **12 Claims**

1. A process for fabricating a MOSFET device comprising the steps of:



- providing a single crystal silicon body having an insulating layer thereon, and a silicon layer overlying the insulating layer;
- forming first and second isolation regions in the silicon layer defining an active region therebetween;
- planarizing the first and second isolation regions and the active region to form a planar surface;
- forming a masking layer on the planar surface, the masking layer having an opening therein exposing a portion of the planar surface at the active region;
- forming a recess in the active region;
- forming a first gate electrode in the single crystal silicon body;
- forming a gate dielectric layer in the recess;
- depositing a gate electrode forming material to fill the recess;
- planarizing the gate electrode forming material to form a second gate electrode overlying the gate dielectric layer;
- forming an opening through the second gate electrode and the insulating layer;
- forming a refractory-metal plug in the opening through the second gate electrode and the insulating layer to electrically couple the first gate electrode to the second gate electrode; and
- forming source and drain regions in the active region on either side of the second gate electrode defining a channel region therebetween, wherein the first gate electrode is separated from the channel region by the insulating layer.

5,736,436
METHOD OF MAKING A THIN FILM TRANSISTOR PANEL

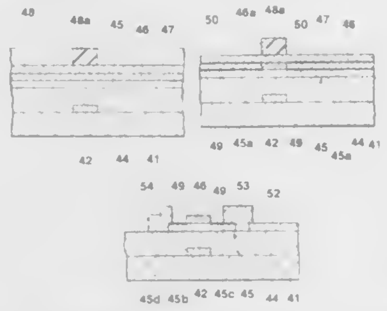
Hiroshi Matsumoto, Hachioji; Haruo Wakai, Tokyo, and Hiroyasu Joubettou, Hachioji, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Division of Ser. No. 425,894, Apr. 21, 1995, Pat. No. 5,545,576. This application Nov. 20, 1995, Ser. No. 561,045

Claims priority, application Japan, Apr. 28, 1994, 6-111881; Apr. 28, 1994, 6-111882

Int. Cl.^{6} H01L *21/00;21/84;21/44*

U.S. Cl. 438—157 **8 Claims**



1. A method of making a semiconductor device comprising:

- providing a substrate,
- forming a semiconductor thin film on the substrate,
- forming a thin metal layer capable of silicification on the semiconductor thin film, and
- implanting ions containing hydrogen and either donor or acceptor impurities into the semiconductor thin film through the thin metal layer,

thereby forming a metal silicide layer between the thin metal layer and the semiconductor thin film, and injecting either donor or acceptor impurities in the semiconductor thin film.

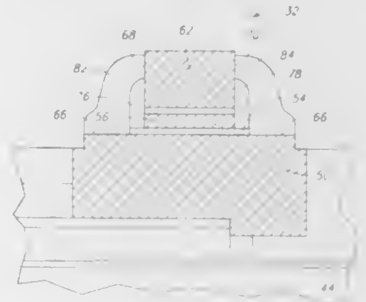
5,736,437
METHOD OF FABRICATING A BOTTOM AND TOP GATED THIN FILM TRANSISTOR HAVING AN ELECTRICAL SIDEWALL CONNECTION

Charles H. Dennison, Meridian, and Monte Manning, Kuna, both of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 561,105, Nov. 21, 1995, Pat. No. 5,650,655, which is a continuation of Ser. No. 236,486, Apr. 28, 1994, Pat. No. 5,493,130, which is a division of Ser. No. 75,035, Jun. 10, 1993, Pat. No. 5,348,899, which is a continuation-in-part of Ser. No. 61,402, May 12, 1993, abandoned. This application Dec. 20, 1996, Ser. No. 771,437

Int. Cl.^{6} H01L *21/00*

U.S. Cl. 438—157 **15 Claims**



15. A method of fabricating a bottom and top gated thin film transistor comprising the following steps:

- forming a thin film transistor body layer between a bottom gate layer and a top gate layer, the transistor body layer comprising a body sidewall;
- providing a first dielectric layer between the top gate layer and the thin film transistor body layer;
- providing a second dielectric layer between the bottom gate layer and the thin film transistor body layer,
- forming an insulating sidewall spacer over the body sidewall; and
- forming an electrically conductive sidewall link over the sidewall spacer and electrically interconnecting the top gate layer and the bottom gate layer.

5,736,438
FIELD EFFECT THIN-FILM TRANSISTOR AND METHOD OF MANUFACTURING THE SAME AS WELL AS SEMICONDUCTOR DEVICE PROVIDED WITH THE SAME

Hisayuki Nishimura; Kazuyuki Sugahara; Shigenobu Maeda; Takashi Ipposhi; Yasuo Inoue; Toshiaki Iwamatsu; Mikio Ikeda; Tatsuya Kunikiyo; Junji Tateishi, and Tadaharu Minato, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Ryoden Semiconductor System Engineering Corporation, Hyogo, both of Japan

Division of Ser. No. 142,564, Oct. 28, 1993, Pat. No. 5,514,880. This application Jun. 7, 1995, Ser. No. 483,411

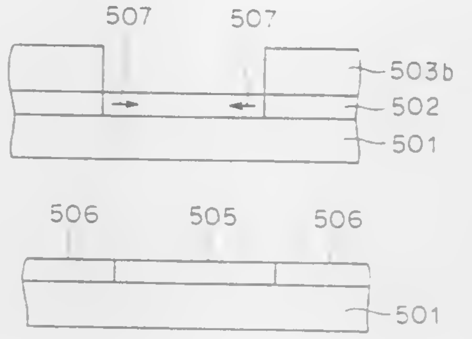
Claims priority, application Japan, Oct. 28, 1992, 4-290293

Int. Cl.^{6} H01L *21/84*

U.S. Cl. 438—166 **4 Claims**

1. A method of manufacturing a field effect thin-film transistor, having a channel region, formed on an insulator, comprising the steps of:

- forming a polycrystalline semiconductor film;
- implanting ions selectively into said polycrystalline semiconductor film at an implanting rate to form an amorphous semiconductor film controlled to include a region in which the number of generated crystal nucleus is one or less;



- thermally processing said amorphous semiconductor film to form a crystalline semiconductor thin film including a region made of monocrystal;
- forming a gate insulating film on said region;
- forming a gate electrode on said gate insulating film; and
- introducing impurity into two regions located at opposite sides of said region in said crystalline semiconductor thin film to form source and drain regions, wherein a region rendered amorphous by ion implantation and monocrystalized by thermal processing includes the channel region.

5,736,439
METHOD FOR FORMING A SEMICONDUCTOR DEVICE IN WHICH THE INSULATING LAYER IS HEATED TO CONTRACT AFTER CRYSTALLIZATION OF THE SEMICONDUCTOR LAYER

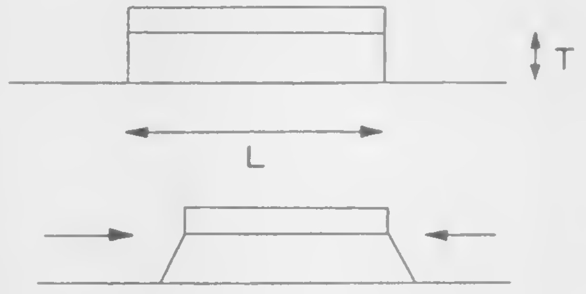
Shunpei Yamazaki, Tokyo, and Yasuhiko Takemura, Kanagawa, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Division of Ser. No. 273,923, Jul. 12, 1994, Pat. No. 5,559,042, which is a division of Ser. No. 858,883, Mar. 27, 1992, Pat. No. 5,365,081. This application Jun. 20, 1996, Ser. No. 666,930

Claims priority, application Japan, Mar. 27, 1991, 3-87778

Int. Cl.^{6} H01L *21/336;21/324*

U.S. Cl. 438—166 **18 Claims**



1. A method of manufacturing a semiconductor device comprising the steps of:

- depositing an insulating film on a substrate,
- depositing a semiconductor film on said insulating film,
- first heating said insulating film and said semiconductor film at a first temperature to crystallize said semiconductor film, and
- second heating said insulating film and said semiconductor film at a second temperature which is higher than said first temperature whereby said insulating film contracts,
- wherein said insulating film is deposited at a temperature not higher than room temperature

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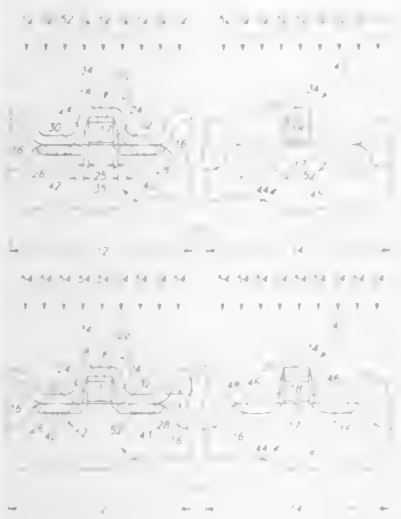
SEMICONDUCTOR PROCESSING METHOD OF FORMING COMPLEMENTARY NMOS AND PMOS FIELD EFFECT TRANSISTORS ON A SUBSTRATE

Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Nov. 27, 1995, Ser. No. 562,806

Int. Cl.^{6} H01L *21/8238*

U.S. Cl. 438—232 **48 Claims**



1. A semiconductor processing method of forming complementary NMOS and PMOS field effect transistors on a substrate, and of forming graded junction regions between the active diffusion area of the NMOS transistor and the substrate, the method comprising the following steps:

providing an NMOS region and a PMOS region of a semiconductor substrate;
providing a transistor gate over the NMOS region;
providing a transistor gate over the PMOS region;
providing NMOS source and drain regions within the substrate operatively adjacent the NMOS gate;
providing an implant masking layer over the NMOS gate, the NMOS source region and the NMOS drain region;
blanket ion implanting phosphorus into the NMOS region through the implant masking layer and into the PMOS region to define graded junction regions for the NMOS field effect transistor and to define phosphorus halo implant regions for the PMOS field effect transistor; and
ion implanting p-type material into the PMOS region of the substrate operatively adjacent the PMOS gate at a selected implant energy level; the selected implant energy level being sufficiently low to effectively use the implant masking layer as a mask to p-type implanting into the NMOS source and drain regions.

5,736,441

HIGH-CAPACITANCE DYNAMIC RANDOM ACCESS MEMORY CELL AND METHOD FOR FABRICATING THE SAME

Anchor Chen, Pingtung, Taiwan, assignor to United Microelectronics Corporation, Taiwan

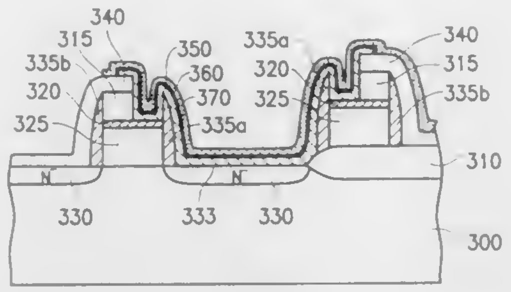
Filed Mar. 15, 1996, Ser. No. 616,960

Int. Cl.^{6} H01L *21/8242*

U.S. Cl. 438—255 **17 Claims**

1. A method for fabricating a DRAM cell, comprising the steps of

(1) forming a transistor having a gate layer and a source/drain region, on a silicon substrate;
(2) forming a silicon nitride layer over the gate layer and a thick oxide layer over the silicon nitride layer;
(3) forming at least a silicon nitride spacer on a lateral side of the gate layer, the silicon nitride layer, and the thick oxide layer, wherein the at least a silicon nitride spacer is formed adjacent to a contact surface of the source/drain region;
(4) forming an insulating layer over at least the silicon nitride spacer, the thick oxide layer and the source/drain region;
(5) etching away part of the insulating layer and part of the thick oxide layer so as to expose the silicon nitride spacer, the contact surface and part of the silicon nitride layer, and such that the silicon nitride spacer adjacent to the contact surface is separated from a remaining part of the thick oxide layer and forms a pointed protrusion, and a jagged surface is thus formed on the exposed silicon nitride layer, the contact surface and the silicon nitride spacer; and
(6) forming over the jagged surface a capacitor structure including a first conductive layer, a dielectric layer over the first conductive layer, and a second conductive layer over the dielectric layer.



5,736,442

METHOD OF MANUFACTURING A SEMICONDUCTOR MEMORY DEVICE

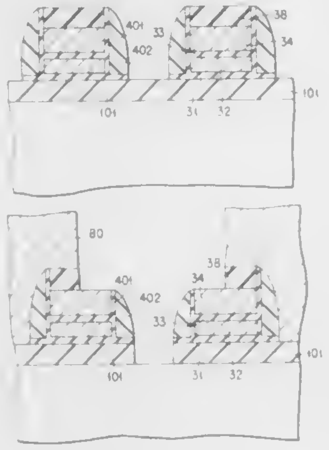
Seiichi Mori, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 13, 1996, Ser. No. 710,243

Claims priority, application Japan, Sep. 14, 1995, 7-236339

Int. Cl.^{6} H01L *21/824*

U.S. Cl. 438—257 **14 Claims**



6. A method of forming a semiconductor memory device, the method comprising the steps of:

forming spaced apart insulative strips extending in a first direction on a surface of a semiconductor substrate;
forming spaced apart stacked-gate structures extending in a second direction perpendicular to the first direction on the surface of said semiconductor substrate, said stacked-gate structures each including stacked gates and an insulative cap layer;
forming source and drain regions by implanting impurities into the surface of said semiconductor substrate using said insulative strips and said stacked-gate structures as a mask;
forming an insulating film on the side walls of the stacked gates and the insulative cap layers of said stacked-gate structures;

forming a mask layer and patterning said mask layer so as to remain in the spaces between alternate pairs of said stacked-gate structures;
etching the exposed portions of said insulative strips using said patterned mask layer as a mask, wherein said insulating film protects the stacked gates of said stacked-gate structures during the etching; and
forming source interconnection regions by implanting impurities into portions of the surface of said semiconductor substrate from which the exposed portions of said insulative strips have been etched.

5,736,443

FLASH EEPROM CELL AND METHOD OF MANUFACTURING THE SAME

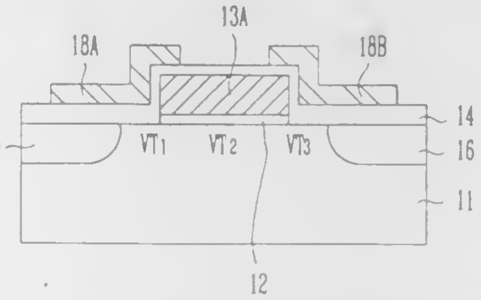
Sung Bin Park; Shin Kuk Lee, both of Seoul, and Suk Tae Hyun, Kyungki-Do, all of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Mar. 11, 1997, Ser. No. 815,483

Claims priority, application Rep. of Korea, Mar. 11, 1996, 96-6340

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—257 **4 Claims**



1. A method of manufacturing a flash EEPROM cell comprising the steps of:

sequentially forming a tunnel oxide layer and a floating gate on a selected portion of a silicon substrate;
forming source and drain regions in said silicon substrate under side portions of said floating gate;
forming a dielectric layer on said source and drain regions and said floating gate after forming said source and drain regions;
forming first and second control gates on said dielectric layer so that said first and second control gates are isolated from each other and surrounds a portion of said floating gate, respectively.

5,736,444

METHODS OF FORMING NON-VOLATILE MEMORY ARRAYS

Ralph Kauffman, and Roger Lee, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

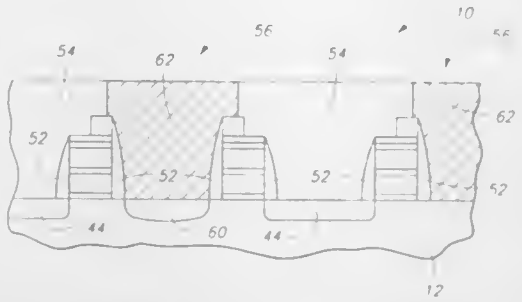
Continuation of Ser. No. 444,859, May 19, 1995, Pat. No. 5,661,054. This application Mar. 20, 1997, Ser. No. 821,244

Int. Cl.^{6} H01L *21/8247*

U.S. Cl. 438—257 **14 Claims**

1. A method of forming a non-volatile memory array comprising the following steps:

forming at least two adjacent laterally spaced apart word lines having floating gates over a semiconductor material substrate, the word lines having respective lateral width dimensions,
forming an insulating material over the word lines, the insulating material effectively completely covering individual word line tops,
forming masking material over the insulating material to overlie less than all of each word line's lateral width dimension, and
etching the insulating material to a degree sufficient to leave discrete insulating blocks over only a portion of the respective word lines' lateral width dimensions which include the laterally closest portions of the two word lines.



5,736,445

METHOD FOR PRODUCING AT LEAST TWO TRANSSISTORS IN A SEMICONDUCTOR BODY

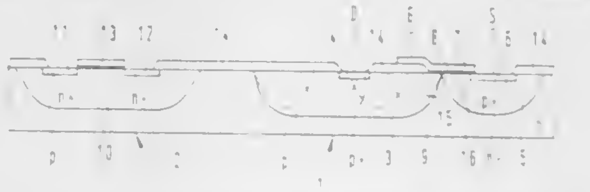
Frank Pfirsch, München, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Jul. 18, 1996, Ser. No. 683,301

Claims priority, application Germany, Jul. 18, 1995, 195 26 183.6

Int. Cl.^{6} H01L *21/8234*

U.S. Cl. 438—275 **8 Claims**



1. A method for producing at least two transistors in one semiconductor body, which comprises:

defining in a doping mask a first well doping region and a second well doping region, the second well doping region including dopant-permeable regions and dopant-impermeable regions,
placing, with the doping mask, a p-conductive first well doping region for receiving an n-channel MOS transistor in an n-conductive semiconductor substrate and a p-conductive second well doping region serving as a charge carrier sink region for a p-channel MOS transistor, and subsequently heat treating the semiconductor body;
placing an n-conductive further well doping region in the semiconductor body next to the second well doping region as a channel region, and placing a p-conductive region in the further well doping region; and
contacting the p-conductive region as a source of the p-channel MOS transistor, and contacting the second well doping region as a drain of the p-channel MOS transistor

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5,736,446

METHOD OF FABRICATING A MOS DEVICE HAVING A GATE-SIDE AIR-GAP STRUCTURE

Shye-Lin Wu, Hsinchu Hsien, Taiwan, assignor to Powerchip Semiconductor Corp., Hsin-Chu, Taiwan

Filed May 21, 1997, Ser. No. 859,753

Int. Cl.^{6} H01L *21/8234*

U.S. Cl. 438—305 **14 Claims**

1. A method for fabricating a NOS device having a gate side air-gap structure, comprising:

patterning a polysilicon gate structure on a semiconductor substrate;
applying a first ion implantation into the semiconductor substrate to form a lightly doped source region and a lightly

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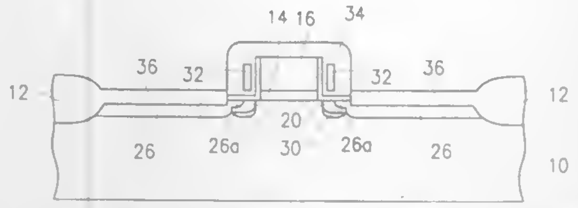


doped drain region embedded in the semiconductor substrate on opposite sides of the polysilicon gate structure;
forming a nitride spacer adjacent to the polysilicon gate structure on the semiconductor substrate;
forming an amorphous silicon spacer adjacent to the nitride spacer on the semiconductor substrate;
applying a second ion implantation into the semiconductor substrate, the polysilicon gate structure and the amorphous silicon spacer;
annealing the semiconductor substrate to form a heavily doped source region and a heavily doped drain region embedded in the semiconductor substrate;
removing the nitride spacer; and
oxidizing the amorphous silicon spacer by a wet oxidation process to form a doped oxide spacer with an air gap and extended doped regions embedded in the semiconductor substrate beneath the doped oxide spacer.

5,736,447
METHOD FOR MANUFACTURING A BIPOLAR JUNCTION TRANSISTOR HAVING A POLYSILICON EMITTER

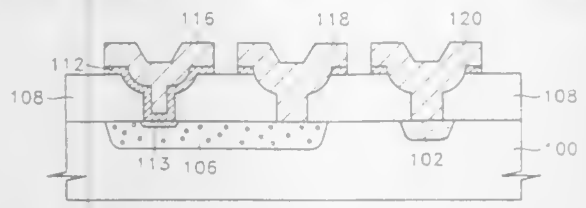
Jung-dal Choi; Byeung-chul Kim, and Dong-soo Chang, all of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation of Ser. No. 453,708, May 30, 1995, abandoned. This application Jul. 26, 1996, Ser. No. 686,411

Claims priority, application Rep. of Korea, Jun. 13, 1994, 94-13259

Int. Cl.^{6} H01L *21/331*

U.S. Cl. 438—365 **17 Claims**



1. A method for manufacturing a bipolar junction transistor, comprising the steps of:
forming spaced-apart base and collector regions in a surface region of a semiconductor substrate;
forming a first insulating film on said semiconductor substrate;
forming an emitter contact hole in said first insulating film, to thereby expose a first portion of said base region;
forming a first conductive layer on said first insulating film and said exposed first portion of said base region, said first conductive layer being comprised of a first conductive material;
ion-implanting impurities into said first conductive layer;
forming base and collector contact holes in a first resultant structure by sequentially etching said first conductive layer and said first insulating film in a continuous etching process to thereby expose a second portion of said base region spaced-apart from said first portion of said base region and a portion of said collector region, respectively;
forming a second conductive layer on a second resultant structure obtained by the preceding steps, said second conductive layer being comprised of a second conductive material, and
patterning a third resultant structure comprised of said first and second conductive layers in such a manner as to form an emitter comprised of said first conductive material, an emitter contact in contact with said emitter, a base contact in contact with said exposed second portion of said base region, and a collector contact in contact with said exposed portion of said collector region, said emitter, base and collector contacts being comprised of said second conductive material and being spaced-apart from one another.

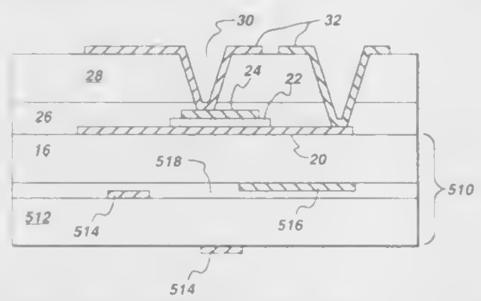
5,736,448
FABRICATION METHOD FOR THIN FILM CAPACITORS

Richard Joseph Saia, Schenectady; Kevin Matthew Durocher, Waterford, and Bernard Gorowitz, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1995, Ser. No. 566,616

Int. Cl.^{6} H01L *21/20*

U.S. Cl. 438—393 **7 Claims**



1. A method for fabricating a capacitor on a base surface comprising:
applying a first pattern of electrical conductors over the base surface, an outer surface of the first pattern of electrical conductors comprising molybdenum, the first pattern of electrical conductors comprising a first capacitor plate;
depositing a first hard portion of a capacitor dielectric layer comprising amorphous hydrogenated carbon over the first capacitor plate and the base surface;
depositing a soft portion of the capacitor dielectric layer over the first hard portion;
depositing a second hard portion of the capacitor dielectric layer over the soft portion, the step of depositing the soft portion occurring at a lower bias voltage than the steps of depositing the first and second hard portions;
applying a second pattern of electrical conductors over the capacitor dielectric layer, the second pattern of electrical conductors comprising a second capacitor plate;
patterning the capacitor dielectric layer;
applying a polymer layer over the first and second capacitor plates;
forming two vias, a first via extending to the first capacitor plate and a second via extending to the second capacitor plate; and
applying an electrode-coupling pattern of electrical conductors over the polymer layer, a first portion of the electrode-coupling pattern of electrical conductors extending into the first via and a second portion of the electrode-coupling pattern of electrical conductors extending into the second via.

5,736,449
SEMICONDUCTOR MEMORY DEVICE HAVING IMPROVED ISOLATION BETWEEN ELECTRODES, AND PROCESS FOR FABRICATING THE SAME

Hiroshi Miki, Kokubunji; Yuzuru Ohji, Hinode-machi, and Shinichi Tachi, Sayama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

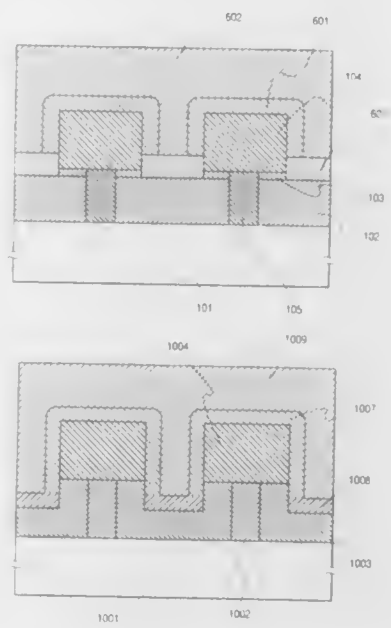
Division of Ser. No. 281,568, Jul. 28, 1994, Pat. No. 5,499,207. This application Jan. 26, 1996, Ser. No. 592,464

Claims priority, application Japan, Aug. 6, 1993, 5-195829; Nov. 12, 1993, 5-283047

Int. Cl.^{6} H01L *21/20*

U.S. Cl. 438—396 **8 Claims**

1. A process for fabricating a semiconductor memory device, comprising the steps of



forming an insulator over a surface of a semiconductor layer formed with a device for driving a capacitor;
forming a conductive layer over said insulator;
forming a bottom electrode of the capacitor, said bottom electrode having a desired shape by eliminating an unnecessary portion of said conductive layer to provide an exposed portion and etching a desired depth of the exposed portion of said insulator;
modifying the exposed region of said insulator;
forming a layer over the exposed region of said modified insulator, which layer has a lower crystallinity and dielectric constant than the crystallinity and dielectric constant of a crystalline insulator formed over said bottom electrode, said layer being formed by depositing said crystalline insulator; and forming an upper electrode of said capacitor.

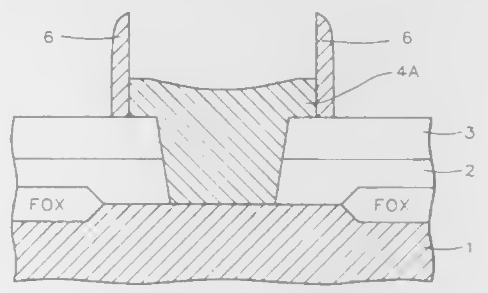
5,736,450
METHOD FOR FORMING A CYLINDRICAL CAPACITOR

Julie Huang, and Eric Wang, both of Chinchu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Filed Jun. 18, 1997, Ser. No. 877,984

Int. Cl.^{6} H01L *21/20*

U.S. Cl. 438—396 **19 Claims**



1. A method for forming a cylindrical capacitor, comprising the sequential steps of:
(a) providing a silicon substrate, including areas of field oxide;
(b) depositing a first insulating layer on said silicon substrate and field oxide;
(c) depositing a second insulating layer, of BPTEOS, on said first insulating layer;
(d) etching a contact hole, in a region between said areas of field oxide, extending through the first and second insulating layers to the level of the silicon substrate;
(e) depositing a first layer of polysilicon to a thickness sufficient to overfill said contact hole whereby a portion of said first polysilicon layer covers said layer of BPTEOS;
(f) depositing a layer of O_3TEOS over said first layer of polysilicon;
(g) protecting part of said layer of O_3TEOS with a patterned layer of photoresist and then etching said layer of O_3TEOS and said first layer of polysilicon, using an etchant which etches the layer of O_3TEOS about 10 times faster than said layer of BPTEOS, thereby allowing etching to be terminated after removal of only a small amount of BPTEOS and forming a cylindrical pedestal, having vertical sides, that projects away from the layer of BPTEOS;
(h) removing the photoresist;
(i) depositing and then etching a second polysilicon layer on said pedestal so as to coat only said vertical sides, and
(j) removing the layer of O_3TEOS thereby forming a hollow cylinder suitable for use as a capacitor electrode

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5,736,451
METHOD OF FORMING PLANAR ISOLATION IN INTEGRATED CIRCUITS

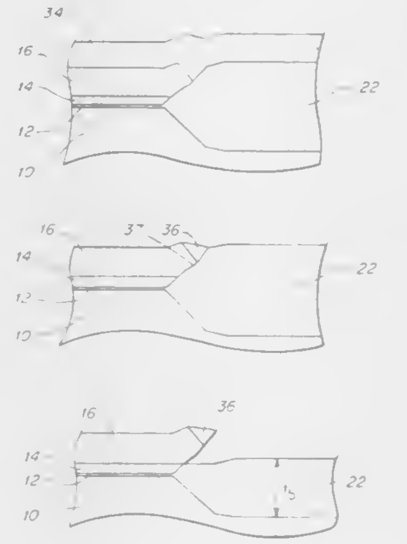
Philippe Gayet, Saint Vincent de Mercuze, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed May 17, 1996, Ser. No. 649,248

Claims priority, application France, May 19, 1995, 95 06266

Int. Cl.^{6} H01L *21/76*

U.S. Cl. 438—443 **11 Claims**



1. A method for producing an isolation region on an upper surface of a semiconductor substrate comprising the steps of
forming a masking layer over the upper surface of the semiconductor substrate;
defining an active region and a field region by patterning of the masking layer, the active region being covered with the masking layer;
forming an isolating layer having upper and lower limits on the field region such that the lower limit of the isolating layer lies below the upper surface of the semiconductor substrate, and that a notch exists between an edge of the masking layer and the upper limit of the isolating layer;
conformally depositing a filling layer over the masking layer and the isolating layer, such that it completely fills the notch, this filling layer being selectively etchable with respect to the isolating layer;

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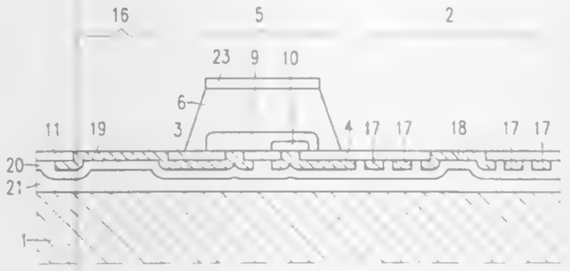
selectively etching the filling layer with respect to the isolating layer to expose the upper limit of the isolating layer, the notch remaining filled with a portion of the filling layer;
partially removing the isolating layer from its upper limit until this upper limit is substantially coplanar with the upper surface of the semiconductor substrate, after the selectively etching the filling layer step; and
removing the masking layer.

5,736,452
METHOD OF MANUFACTURING A HYBRID INTEGRATED CIRCUIT
Ronald Dekker; Henricus G. R. Maas; Wilhelmus T. A. J. Van Den Einden, and Maria H. W. A. Van Deurzen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 12, 1997, Ser. No. 815,245
Claims priority, application European Pat. Off., Mar. 12, 1996, 96200674
Int. Cl.⁶ H01L *21/306*
U.S. Cl. 438—455 **6 Claims**

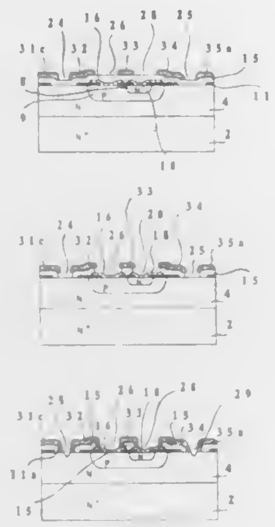


1. A method of manufacturing a semiconductor device with a substrate provided with a passive element, a pattern of conductors, and a semiconductor element which is formed in a small slice of semiconductor material, characterized in that the passive element, the pattern of conductors, and the semiconductor element are formed at a first side of a wafer of semiconductor material, whereupon said wafer is glued with this first side to the substrate and the semiconductor material of the wafer is removed from the second side, except at the area of the semiconductor element.

5,736,453
METHOD FOR DIVIDING PLURAL SEMICONDUCTOR DEVICES FORMED ON SINGLE WAFER INTO INDIVIDUAL SEMICONDUCTOR DEVICES
Hiroshi Kadonishi, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan
Filed Oct. 31, 1995, Ser. No. 550,883
Claims priority, application Japan, Oct. 31, 1994, 6-266904
Int. Cl.⁶ H01L *21/304*
U.S. Cl. 438—460 **14 Claims**

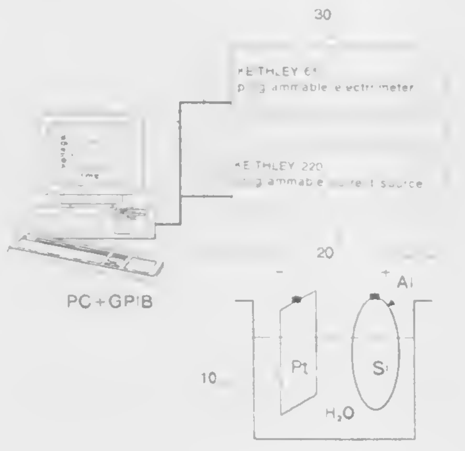
8. A method for dividing a plural number of semiconductor devices formed on a single wafer into individual semiconductor devices utilizing a dicing saw, the plural number of semiconductor devices being sectioned at a scribing recess formed to a desired depth in the wafer, the wafer being cut by the dicing saw utilizing the recess as a guide, the method comprising the steps of

A) forming the plural number of semiconductor devices on the wafer and a protection layer for the semiconductor devices thereon,
B) forming a resist pattern with a resist layer on the protection layer,
C) forming at least one opening for the scribing recess by carrying out isotropic etching so that an etching edge at least partially reaches through the protection layer to a depth before the desired depth in the wafer,



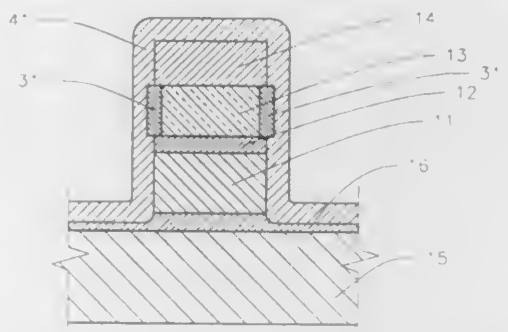
D) transforming the resist pattern with heat treatment so as to cover side walls of each opening for the scribing recess with the resist layer,
E) carrying out further isotropic etching to the desired depth in the wafer, and
F) cutting the wafer along the scribing recess.

5,736,454
METHOD FOR MAKING A SILICON DIOXIDE LAYER ON A SILICON SUBSTRATE BY PURE WATER ANODIZATION FOLLOWED BY RAPID THERMAL DENSIFICATION
Jenn-Gwo Hwu, and Ming-Jer Jeng, both of Taipei, Taiwan, assignors to National Science Council, Taipei, Taiwan
Filed Mar. 20, 1997, Ser. No. 822,593
Int. Cl.⁶ H01L *21/316*
U.S. Cl. 438—585 **4 Claims**



1. A method for forming a silicon dioxide layer on a silicon substrate comprising conducting an electrolytic reaction at a room temperature such that a silicon dioxide layer is formed on a silicon substrate acting as an anode, in which pure water is used as an electrolyte, and said electrolytic reaction is carried out with a current density ranging between 1 and 100 μA/cm^2; removing said silicon substrate from said electrolyte; and heating said silicon substrate in an inert gas atmosphere and at a temperature of 700°–1000° C. for a period of time such that said silicon dioxide formed on said silicon substrate is densified.

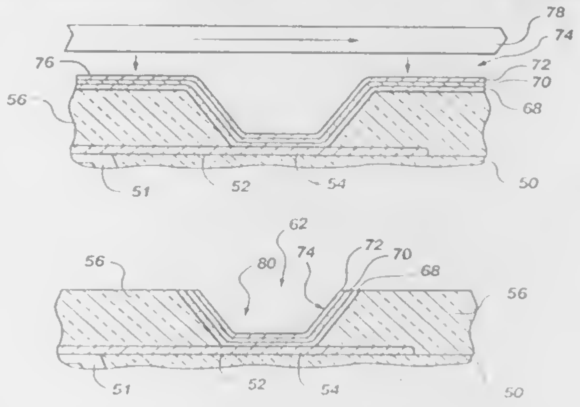
5,736,455
METHOD FOR PASSIVATING THE SIDEWALLS OF A TUNGSTEN WORD LINE
Ravi Iyer, and Pai Hong Pan, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Dec. 22, 1995, Ser. No. 577,856
Int. Cl.⁶ H01L *21/283;21/336*
U.S. Cl. 138—592 **27 Claims**



12. A method of fabricating a passivated word line stack on a silicon substrate, said method comprising the steps of:

(a) oxidizing the substrate to form a gate dielectric layer on an upper surface of the substrate;
(b) depositing a silicon layer on the gate dielectric layer;
(c) forming a barrier layer on the polycrystalline silicon layer, said barrier layer being impermeable to both silicon and metal atoms,
(d) depositing a metal layer on the barrier layer;
(e) depositing a dielectric capping layer on the metal layer;
(f) patterning the deposited layers and barrier layer to form an unpassivated word line stack, said stack having sidewalls formed from an edge of each of the constituent layers;
(g) depositing a polycrystalline silicon film on the sidewalls of the stack; and
(h) converting metal atoms on the edge of the metal layer to a metal silicide.

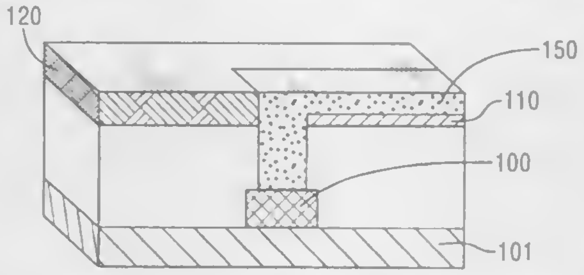
5,736,456
METHOD OF FORMING CONDUCTIVE BUMPS ON DIE FOR FLIP CHIP APPLICATIONS
Salman Akram, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.
Continuation-in-part of Ser. No. 612,059, Mar. 7, 1996. This application Jul. 17, 1996, Ser. No. 682,141
Int. Cl.⁶ H01L *21/44*
U.S. Cl. 438—614 **41 Claims**



1. A method of fabricating under bump metallization on a semiconductor substrate, comprising:

providing a semiconductor substrate including integrated circuitry on at least one surface thereof, and at least one passivation layer having a thickness and disposed thereover;
providing access to said semiconductor integrated circuitry for external contact by forming at least one via extending through said at least one passivation layer,
forming a substantially conformal metal layer of a thickness substantially less than the passivation layer thickness over said at least one passivation layer with a portion of said metal layer extending into said at least one via to made electrical contact with said semiconductor integrated circuitry; and
removing said metal layer only above said at least one passivation layer by abrasive contact.

5,736,457
METHOD OF MAKING A DAMASCENE METALLIZATION
Bin Zhao, Austin, Tex., assignor to Sematech, Austin, Tex.
Continuation of Ser. No. 352,578, Dec. 9, 1994, abandoned. This application Mar. 5, 1997, Ser. No. 811,954
Int. Cl.⁶ H01L *21/4763*
U.S. Cl. 438—624 **20 Claims**



1. A method of forming an in-laid conductor in a conductor wiring pattern on a semiconductor substrate during a semiconductor fabrication process, comprising:

forming a first dielectric layer on said substrate,
forming an etch stop layer above said first dielectric layer;
removing a portion of said etch stop layer by etching said etch stop layer, at least a portion of a remaining region of said etch stop layer corresponding to said conductor wiring pattern;
forming a second dielectric layer, said second dielectric layer formed over said etch stop layer after said etch stop layer is etched;
etching said first dielectric layer to form a via region;
etching a conductor region corresponding to said conductor wiring pattern in said second dielectric layer, stopping at least a portion of said etching of said conductor region on said etch stop layer;
filling said via region with a conductive material; and
filling said conductor region with said in-laid conductor

5,736,458
METHOD FOR IMPROVED ALUMINIUM-COPPER DEPOSITION AND ROBUST VIA CONTACT RESISTANCE
Ming-Chang Teng, Hsin-Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan
Continuation of Ser. No. 595,704, Feb. 2, 1996, abandoned. This application Apr. 14, 1997, Ser. No. 839,416
Int. Cl.⁶ H01L *21/283*
U.S. Cl. 438—627 **13 Claims**

1. A method of post-treatment in a via metal deposition process on a semiconductor substrate comprising the steps of:

providing a silicon substrate over which via holes are formed through an insulating layer onto a first upper metal layer,
performing a pre-sputter-clean etch of said via holes,
sputter depositing in vacuum a barrier layer in said via holes,
performing said post-treatment of said barrier layer in nitrogen gas followed by a vacuum break whereby said barrier layer is exposed to atmospheric pressure;

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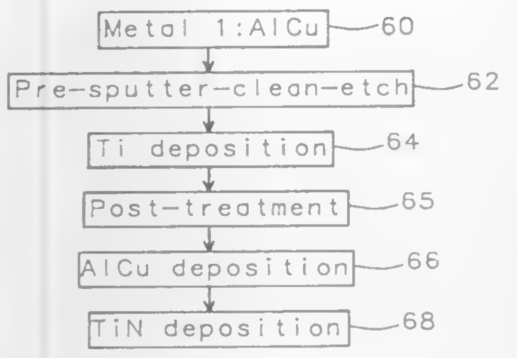

depositing second upper metal layer over said barrier layer; and
depositing an anti-reflective coating (ARC) onto said second upper metal layer

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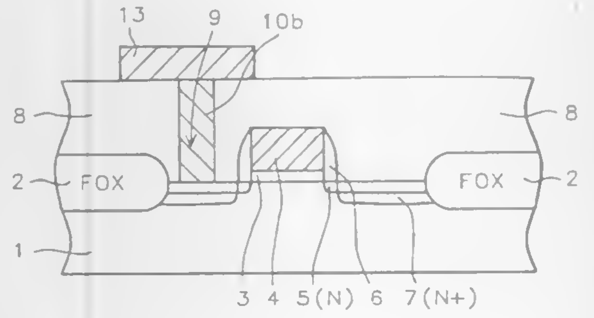
5,736,459
METHOD TO FABRICATE A POLYSILICON STUD USING AN OXYGEN ION IMPLANTATION PROCEDURE
Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation

Filed May 15, 1997, Ser. No. 856,778

Int. Cl.^{6} H01L *21/283, 21/3213*

U.S. Cl. 438—629 **19 Claims**



1 A method of fabricating a MOSFET device on a semiconductor substrate using a conductive stud to provide electrical contact between an active device region, in the substrate, and an overlying metal interconnect structure, comprising the steps of,

providing said active device region, in said semiconductor substrate;
depositing a first insulator layer on said semiconductor substrate, including deposition on said active device region.
opening a contact hole in said first insulator layer, exposing top surface of said active device region, in said semiconductor substrate;
depositing a conductive layer on top surface of said first insulator layer, and completely filling said contact hole.
ion implanting oxygen ions into a region of said conductive layer that overlays the top surface of said first insulator layer, and overlays said conductive layer in said contact hole, creating a region of an oxygen containing conductive layer:
annealing to completely convert said oxygen containing conductive layer, to a second insulator layer, leaving said conductive layer, in said contact hole, unconverted,
removing said second insulator layer, leaving said conductive stud in said contact hole, and
creating a interconnect metal structure, contacting the top surface of said conductive stud.

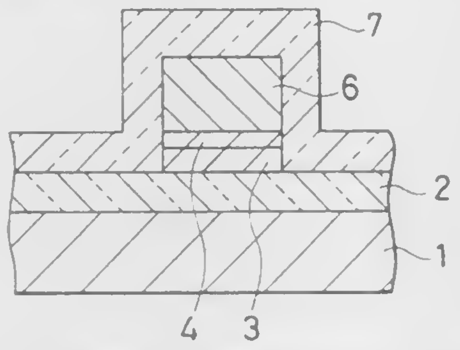
5,736,460
METHOD OF FABRICATING SEMICONDUCTOR DEVICE INCLUDING GOLD INTERCONNECTIONS WHERE THE GOLD GRAIN SIZE IS A FUNCTION OF THE WIDTH OF THE INTERCONNECTIONS
Hirosi Kato, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 441,224, May 15, 1995, abandnned, which is a division of Ser. No. 227,384, Apr. 14, 1994, abandoned. This application Jun. 11, 1997, Ser. No. 873,111

Claims priority, application Japan, Apr. 14, 1993, 5-86608

Int. Cl.^{6} H01L *21/288*

U.S. Cl. 438—650 **4 Claims**



1 A method of fabricating a semiconductor device comprising the steps of,

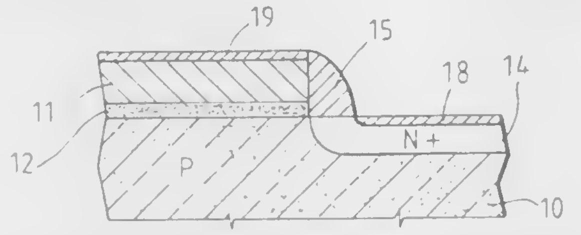
forming an insulation layer on a semiconductor substrate;
forming a metal layer on said insulation layer,
forming a photoresist on said metal layer to outline patterns on said metal layer:
setting a value for mean time to failure time;
forming gold interconnections between said patterns of said photoresist by plating in which said metal layer serves as an electrical path, each of said gold interconnections having a width equal to spacing between patterns of said photoresist. said gold interconnections being formed to have gold grains having an average dimension which is determined to obtain said value of said mean time to failure:
removing said photoresist:
removing said metal layer from said insulation layer in areas except the area located beneath said gold interconnections; and
coating an insulation layer over said insulation layer formed on said substrate and over said gold interconnections.

5,736,461
SELF-ALIGNED COBALT SILICIDE ON MOS INTEGRATED CIRCUITS
Antonio Carlo Berti, and Stephen Philip Baranowski, both of Marlborough, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 487,573, Jun. 7, 1995, Pat. No. 5,567,651, which is a continuation of Ser. No. 372,852, Jan. 13, 1995, abandoned, which is a continuation of Ser. No. 240,603, May 1, 1994, abandoned, which is a continuation of Ser. No. 844,233, Mar. 2, 1992, abandoned. This application Sep. 11, 1996, Ser. No. 713,570

Int. Cl.^{6} H01L *21/44*

U.S. Cl. 438—651 **6 Claims**



1 A method of providing cobalt disilicide contacts over a semiconductor body comprising the steps of,

applying a first layer comprising cobalt to exposed areas of a semiconductor body comprising silicon;
applying a second layer including titanium nitride over said first layer; and
heating said semiconductor body to cause formation of cobalt disilicide by reaction of said first layer with silicon of said semiconductor body in exposed areas thereof.

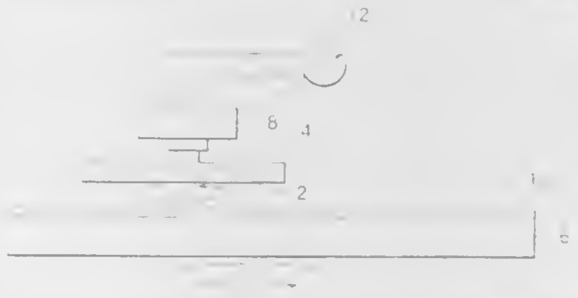
5,736,462
METHOD OF ETCHING BACK LAYER ON SUBSTRATE
Hiroshi Takahashi; Kazuhiko Tokunaga, and Shunichi Yoshigoe, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,205

Claims priority, application Japan, May 15, 1995, 7-116069; Nov. 22, 1995, 7-304408

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—692 **15 Claims**



1 A method of producing a semiconductor device comprising:
forming an intermediate layer on a semiconductor substrate;
forming a projecting portion of a step difference on said substrate, said projecting portion having said intermediate layer thereon;
forming an insulating film to be polished having a slower polishing rate than said intermediate layer, said film covering the intermediate layer and filling a recessed portion of said step difference; and
polishing said film to expose said intermediate layer.

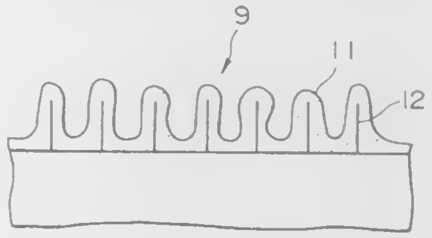
5,736,463
METHOD AND APPARATUS FOR CHEMICAL/MECHANICAL POLISHING
Junichi Sato, Tokyo, Japan, assignor to Sony Corporation, Japan

Filed May 20, 1996, Ser. No. 650,309

Claims priority, application Japan, May 30, 1995, 7-155226

Int. Cl.^{6} B24D *17/00;* **H01L** *21/00*

U.S. Cl. 438—692 **18 Claims**



1 A method for chemical/mechanical polishing comprising the steps of:

supplying a slurry to an object to be polished;
pressing a polishing pad on said object; and
rotating said polishing pad relative to said object,
wherein said polishing pad contains structures made of a shape memory material wherein the structures have an upright state relative to said polishing pad before being used for polishing and a fatigue state after being used for polishing, wherein upon cessation of polishing, said structures made of a shape memory material return to said upright state.

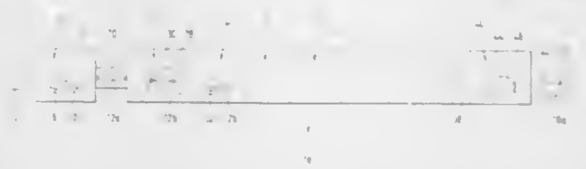
5,736,464
PROCESS AND APPARATUS FOR PRODUCING A FUNCTIONAL STRUCTURE OF A SEMICONDUCTOR COMPONENT
Hans Opower, Krailling, Germany, assignor to Deutsche Forschungsanstalt fuer Luft-und Raumfahrt e.V., Bonn, Germany

Division of Ser. No. 112,785, Aug. 26, 1993, abandoned. This application May 25, 1995, Ser. No. 450,106

Claims priority, application Germany, Sep. 3, 1992, 42 29 399.5

Int. Cl.^{6} H01L *21/268*

U.S. Cl. 438—707 **30 Claims**



1 A method for producing a semiconductor device having its functionality determined by a plurality of layers provided on a substrate, said method using solely physical processes to produce said layers without any substances other than the materials from which said layers are formed, comprising the steps of:

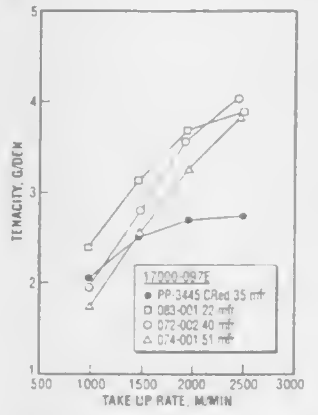
producing at least one of said layers of said semiconductor device using laser radiation comprising laser pulses with a duration of less than approximately 100 picoseconds, said laser pulses acting on a target material to generate a plasma of said target material for depositing a controlled portion of the target material; and
structuring at least one of the layers of said semiconductor device after that layer has been deposited using laser radiation comprising laser pulses with a duration of less than approximately 100 picoseconds, said laser pulses acting thereon to remove a portion of the layer in a controlled manner to achieve a desired structure:
wherein all of the layers contributing to the functionality of said semiconductor device, including said structured layer(s), are produced exclusively by at least one of said depositing and structuring steps without requiring environmentally burdensome chemicals.

5,736,465
POLYOLEFIN FIBERS AND THEIR FABRICS
Glenn Allan Stahl, Humble, and James John McAlpin, Houston, both of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Division of Ser. No. 385,401, Feb. 7, 1995, which is a continuation of Ser. No. 164,520, Dec. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 66,737, May 25, 1993, abandoned. This application May 11, 1995, Ser. No. 438,722

Int. Cl.^{6} B32B *5/06*

U.S. Cl. 428—298 **9 Claims**



1 A fabric comprising fiber, the fiber comprising isotactic polypropylene polymer produced by single-site catalysis wherein the fiber has a diameter of less than 50 μm.

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5,736,466

COATING COMPOSITIONS FOR PRODUCING WATERTIGHT, VAPOR-PERMEABLE AND FLAME-RETARDANT COATINGS

Konrad Wierer, Sengkofen, Germany, and Franco Seralini, Lendelange, Luxembourg, assignors to Wacker-Chemie GmbH, Munich, Germany

Division of Ser. No. 517,807, Aug. 22, 1995, which is a continuation of Ser. No. 209,192, Mar. 10, 1994, abandoned, which is a division of Ser. No. 919,177, Jul. 23, 1992, Pat. No. 5,314,530. This application Aug. 8, 1996, Ser. No. 695,084

Claims priority, application Germany, Jul. 24, 1991, 41 24 560.1

Int. Cl.^{6} B32B *27/00*

U.S. Cl. 442—67 **21 Claims**

1. A support material coated on at least one side by a process which comprises.

(1) forming a foam, by mechanical means, of a coating composition comprised of

A) an aqueous dispersion having a solids content of from 30 to 70% by weight of i) a vinyl chloride copolymer with from 20 to 90% by weight of vinyl chloride, based on the total weight of the copolymer, from 10 to 80% by weight, based on the total weight of the copolymer of at least one comonomers from the group consisting of the (meth) acrylic esters of alcohols of from 1 to 10 carbon atoms, the vinyl esters of saturated aliphatic carboxylic acids of from 2 to 10 carbon atoms, and the α-olefins, and from 0 to 10% by weight, based on the total weight of the copolymer, of one or more ethylenically unsaturated functional comonomers, or ii) an aqueous dispersion having a solids content of from 30 to 70% by weight of a vinyl acetate ethylene copolymer with from 10 to 40% by weight of ethylene, based on the total weight of the copolymer, and from 0 to 10% by weight, based on the total weight of the copolymer, of at least one ethylenically unsaturated functional comonomer.

B) from 5 to 70% by weight, based on the solids content of the copolymer dispersion of a flameproofing agent selected from the group consisting of the antimony oxides, phosphoric esters, zinc borates, metallic oxide hydrates, metal hydroxides and chloroparaffins.

C) from 0 to 20% by weight based on the solids content of the copolymer dispersion, of a crosslinker,

D) from 0.5 to 20% by weight, based on the solids content of the copolymer dispersion, of a foam stabilizer,

E) from 0 to 10% by weight, based on the solids content of the copolymer dispersion, of a thickener;

(2) applying the foam to form a foam layer on at least one side of a support material selected from the group consisting of woven, knitted, and nonwoven support material, to form a coated support material, and

(3) drying the coated support material at a temperature of from 60° C. to 180° C.

5,736,467

WATERPROOF, VAPOR-PERMEABLE FABRIC AND METHOD FOR GENERATING SAME

Aaron Oken, 1704 N. Park Dr., #613, Wilmington, Del. 19806

Filed Mar. 20, 1996, Ser. No. 618,846

Int. Cl.^{6} B32B *7/00*

U.S. Cl. 442—26 **8 Claims**

1. A waterproof, vapor permeable coated fabric comprising:

A. a fabric and, coated thereon,

B. a polyvinylacetal which is an acid-catalyzed reaction product of polyvinyl alcohol and at least one aldehyde, ketone, or combinations thereof, wherein each aldehyde contains 1 to 18 carbon atoms and each ketone contains 3 to 16 carbon atoms, and wherein about 1% to about 40% of hydroxyl groups on the polyvinyl alcohol are converted to acetal structures.

5,736,468

STAIN RESISTANT POLYAMIDE SUBSTRATE TREATED WITH SULFONATED PHOSPHATED RESOL RESIN

Yassin M. Elgarhy, Laval, Canada, assignor to Trichromatic Carpet Inc., St-Eustache, Canada

Continuation-in-part of Ser. No. 728,779, Oct. 9, 1996, which is a continuation-in-part of Ser. No. 190,637, Feb. 2, 1994, abandoned. This application Jan. 21, 1997, Ser. No. 786,214

Int. Cl.^{6} B32B *27/30; 27/34; 27/42*

U.S. Cl. 442—93 **20 Claims**

1. A fibrous polyamide substrate having durable resistance to staining by acid colorants, the substrate having applied thereto a treating solution comprising a sulfonated, phosphated resol resin and a methacrylic polymer or copolymer having a number average molecular weight in the range of 20,000 to 40,000.

5,736,469

ANTI-STATIC CLEANROOM PRODUCTS AND METHODS AND METHODS OF MAKING SAME

Himansu R. Bhattacharjee, Randolph, and Edward Paley, Saddle River, both of N.J., assignors to The Texwipe Company LLC, Upper Saddle River, N.J.

Filed Mar. 15, 1996, Ser. No. 616,249

Int. Cl.^{6} H01B *1/00*; A47L *13/16*

U.S. Cl. 442—110 **67 Claims**

1. An anti-static cleanroom product comprising a cleanroom substrate material having a discontinuous conductive polymeric particulate coating on a surface of the substrate, wherein said anti-static cleanroom product has a particle count less than 30 million per square meter.

5,736,470

PRESSURE SENSITIVE ADHESIVE ARTICLE AND METHOD OF MAKING

Gary E. Schneberger, Ocala; Patrick J. Lamb, and Edward H. Ransom, both of Tarpon Springs, all of Fla., assignors to Omega Research, Inc., Tarpon Springs, Fla.

Filed Jun. 25, 1996, Ser. No. 668,341

Int. Cl.^{6} C09J 7/02

U.S. Cl. 442—151 **19 Claims**

1. A pressure activated adhesive article, comprising

a pressure activated adhesive layer having a backing layer supporting an adhesive adapted to extrude under pressure; and

a deformable porous layer overlying said adhesive layer opposite said baking layer and covering said adhesive; said porous layer having a predetermined thickness to prevent said adhesive from contacting surfaces in contact with said porous layer such that a portion of said thickness furthest from said adhesive is not filled with said adhesive;

said porous layer including pores sized to permit extrusion of said adhesive therethrough, whereby pressure applied to the article causes deformation of said porous layer and extrusion of said adhesive through said pores to render the article adhesive

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5,736,471

PAPERMAKING MACHINE FABRICS, FILTERS AND REINFORCING LAYERS FOR ELASTOMERS COMPRISING MONOFILAMENTS COMPRISING SPECIFIC COPOLYESTERS, STABILIZED COPOLYESTERS AND USE OF COPOLYESTERS FOR MANUFACTURING PAPERMAKING MACHINE FABRICS, FILTERS AND REINFORCING LA

Ralph Thielemann, Kriftel; Peter Klein, Wiesbaden; Rex Delker, Wehringen, and Hans Wagner, Bobingen, all of Germany, assignors to Hoechst Trevira GmbH & Co KG, Germany

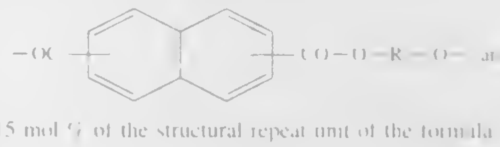
Filed Jul. 17, 1996, Ser. No. 682,431

Claims priority, application Germany, Jul. 17, 1995, 195 25 629.8

Int. Cl.^{6} D02G *3/00*; B32B *27/34*; D03D *23/00*; C08G *63/00*

U.S. Cl. 442—220 **15 Claims**

1. A papermaking machine fabric comprising woven monofilaments made from a copolymer having 85 to 99 mol % of the structural repeat unit of the formula I



(I)

1 to 15 mol % of the structural repeat unit of the formula II

$$-OC-R^{2}-CO-O-R^{3}-O- \qquad (II)$$

where

R¹ is a radical of a dihydric aliphatic or cycloaliphatic alcohol or is derived from a mixture of such alcohols,

R² is a radical of an aliphatic, cycloaliphatic or monocyclic aromatic dicarboxylic acid or is derived from a mixture of such dicarboxylic acids,

R³ assumes one of the definitions for R¹, and the quantitative data are based on the total amount of the polymer

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5,736,472

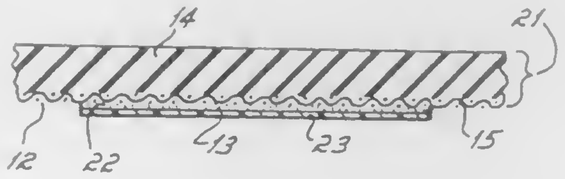
MARKING SBR AND NATURAL RUBBER PRODUCTS

John Mahn, Jr., Cincinnati, and John Mahn, Sr., Hamilton, both of Ohio, assignors to Specialty Adhesive Film Co., Cleves, Ohio

Filed Mar. 29, 1995, Ser. No. 412,723

Int. Cl.^{6} B32B *25/00*

U.S. Cl. 442—293 **8 Claims**



1. A mud flap having a cured rubber body said rubber selected from the group consisting of SBR rubber and natural rubber, said mud flap having a surface,

fabric having a first surface and a second surface, said first surface partially embedded within said surface of said mud flap, and said second surface exposed from said mud flap,

indicia bonded to said second surface of said fabric, said indicia having an adhesive layer bonded to said second surface

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5,736,473

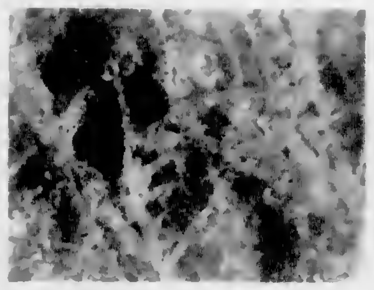
FIBROUS COMPOSITE STRUCTURE INCLUDING PARTICULATES

Bernard Cohen, Berkeley Lake; Judith Katherine Faass, Dawsonville; Lamar Heath Gipson, Acworth, and Lee Kirby Jameson, Roswell, all of Ga., assignors to Kimberly-Clark Corp., Neenah, Wis.

Division of Ser. No. 306,034, Sep. 14, 1994, abandoned. This application May 23, 1995, Ser. No. 447,473

Int. Cl.^{6} B32B *5/16*

U.S. Cl. 442—239 **19 Claims**



1. A fibrous composite structure comprising

a matrix of fibrous material having individual exposed surfaces and

a relatively uniform distribution of particulate material attached to individual exposed surfaces of the fibrous material by substantially non-transient bonding, the relatively uniform distribution of particulate material generally corresponding to a substantially uniform distribution of charged sites present at individual exposed surfaces during attachment of the particulate material

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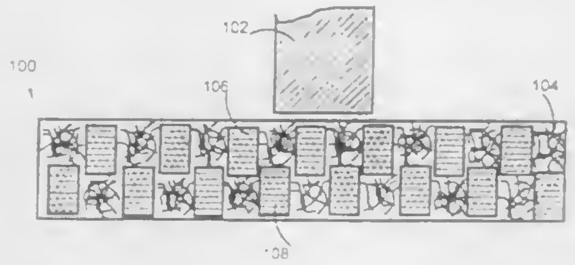
5,736,474

MULTI-STRUCTURE BALLISTIC MATERIAL

Howard L. Thomas, 1032 Crestwood St., Auburn, Ala. 36830

Continuation-in-part of Ser. No. 36,668, Mar. 25, 1993. This application Mar. 6, 1996, Ser. No. 610,542

U.S. Cl. 442—388 **20 Claims**



1. A ballistic resistant multi structure material having multiple layers, each of said multiple layers comprising at least one sub layer, wherein

at least one of said multiple layers is a ballistic needlepunched nonwoven combination of at least two types of fibers wherein one of said types of fibers is capable of undergoing a phase change in the presence of ballistic energy and the other of said types of fibers is capable of undergoing fibrillation in the presence of ballistic energy, and

at least one of said multiple layers is a sheet of ballistic resistant nonwoven material comprising at least one layer of a plurality of shape deflection means each of said deflection means having a ballistic reflecting geometric shape and being embedded proximate to one another within said sheet in sufficient numbers to substantially cover the area of said sheet

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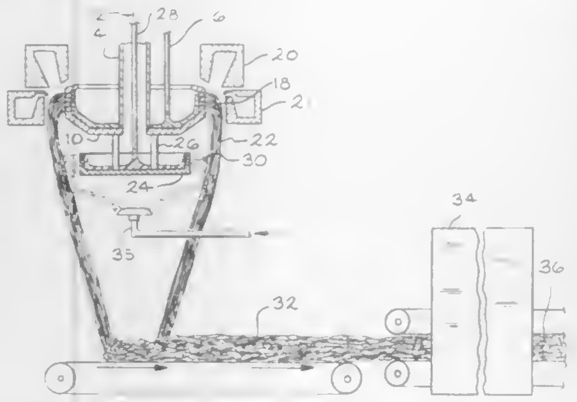
5,736,475
MINERAL FIBER PRODUCT CONTAINING POLYMERIC MATERIAL

Shiv K. Bakhshi, Columbus; Steven H. Williams, Alexandria; James W. Scott, Newark; Randall M. Haines, Frazeysburg, and Ralph D. McGrath, Granville, all of Ohio, assignors to Owens Corning Fiberglas Technology, Inc., Summit, Ill.

Continuation of Ser. No. 481,029, Jun. 7, 1995, abandoned, which is a division of Ser. No. 79,413, Jun. 21, 1993, Pat. No. 5,490,961. This application Apr. 9, 1997, Ser. No. 835,277

Int. Cl.⁶ C03B *37/02;37/04*

U.S. Cl. 442—415 **12 Claims**



1. A mineral fiber product comprising fibers composed of a polymeric material intermingled with mineral fibers which have non-fibrous particles of said polymeric material attached thereto, where the product is a uniform blend of mineral and polymeric fibers, and where the mineral fiber product is made by the process comprising:

a. forming mineral fibers from molten mineral material;
b. establishing a stream of the mineral fibers;
c. directing fibers of said polymeric material toward the stream of mineral fibers to cause intermingling of said polymeric material and the mineral fibers;
d. applying heat from an annular burner to the polymeric fibers so that some of them become softened to the extent that they lose their fibrous form and become attached to the mineral fibers as polymeric, non-fibrous particles of said polymeric material, whereas some of the polymeric fibers retain their fibrous form, and,
e. collecting the intermingled mineral fibers having non-fibrous particles of said polymeric material attached thereto and fibers of said polymeric material to form the mineral fiber product.

5,736,476
BOROSILICATE GLASS OF HIGH CHEMICAL RESISTANCE AND LOW VISCOSITY WHICH CONTAINS ZIRCONIUM OXIDE AND LITHIUM OXIDE

Eckhart Watzke; Andrea Kämpfer, both of Jena; Peter Brix, Mainz, and Franz Ott, Mitterteich, all of Germany, assignors to Schott Rohrglas GmbH, Bayreuth, Germany

Filed Sep. 30, 1996, Ser. No. 722,668

Claims priority, application Germany, Sep. 30, 1995, 195 36 708.1

Int. Cl.⁶ C03C *3/093*

U.S. Cl. 501—67 **6 Claims**

1. A borosilicate glass composition of high chemical resistance and low viscosity which contains zirconium oxide and lithium oxide, said glass composition comprising in percent by weight on oxide basis:

-continued

SiO_2	73.0–75.0
B_2O_3	7.0–10.0
Al_2O_3	5.0–7.0
ZrO_2	1.0–3.0
Li_2O	0.5–1.5
Na_2O	0–10.0
K_2O	0–10.0
MgO	0–3.0
CaO	0–3.0
BaO	0–3.0
SrO	0–3.0
ZnO	0–3.0
fluorides	0–3.0
with	
SiO_2/B_2O_3	>7.5
$\Sigma\ SiO_2 + Al_2O_3 + ZrO_2$	80.0–83.0
$\Sigma\ MgO + CaO + BaO + SrO + ZnO$	<3.0

5,736,477
INORGANIC OXIDE RESINS FOR INTERNAL OXIDATION INHIBITION OF CARBON-CARBON COMPOSITES

Amy M. Blough, Wilmington, and John N. Kostas, Claymont, both of Del., assignors to Hercules Incorporated, Wilmington, Del.

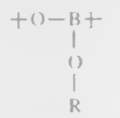
Filed May 22, 1989, Ser. No. 355,216

Int. Cl.⁶ C04B *35/563*

U.S. Cl. 501—99 **6 Claims**

1. A process for the internal oxidation inhibition of a carbon/carbon composite, said process comprising

(a) impregnating a carbonaceous material with a mixture of a carbon source, a liquid borate ester resin comprising the units



$$\left[O-\underset{\substack{|\\ O\\ |\\ R}}{B}\right]$$

where R is derived from an unsaturated diol or triol, and a suitable curing catalyst for the borate ester resin,

(b) heating to a temperature sufficient to cure the borate ester resin,
(c) heating under pressure in an inert atmosphere to a temperature sufficient to carbonize the carbon source, and
(d) heating in an inert atmosphere at atmospheric pressure to a temperature of from about 1500° to about 2300° C. to convert the borate ester resin to a ceramic material and graphitize the carbon source.

5. An oxidation inhibited carbon/carbon composite prepared by the process of claim 1.

5,736,478
CATALYST TO DEHYDROGENATE PARAFFIN HYDROCARBONS

Randy D. Cortright, Madison, and James A. Dumesic, Verona, both of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Continuation-in-part of Ser. No. 410,230, Mar. 24, 1995, abandoned. This application Oct. 2, 1996, Ser. No. 724,944

Int. Cl.⁶ B01J *21/00*

U.S. Cl. 502—74 **13 Claims**

1. A catalyst for catalyzing the dehydrogenation of paraffin hydrocarbons, consisting essentially of:

a type L zeolite, containing from 0.05% to 3.0% by weight of a Group VIII metal selected from the group consisting of platinum, nickel and palladium, from 0.05% to 6.0% by weight of a Group IVA metal selected from the group consisting of tin, germanium and lead, from 10.0% to 17.0% by weight of a Group IA metal selected from the group consisting of potassium, lithium, sodium, rubidium and cesium; wherein an atomic ratio of said Group IVA metal to said Group VIII metal

is greater than 1:1, and wherein an atomic ratio of said Group IA metal to said Group VIII metal is greater than 1:1, and wherein said catalyst is produced by the steps of impregnating from 0.05% to 6.0% by weight of a Group IVA metal into a potassium type L zeolite to form a Group IVA metal zeolite support before adding any Group VIII metal and in the absence of any halide,

calcining the Group IVA metal zeolite support, and

impregnating from 0.05% to 3.0% by weight of a Group VIII metal into the Group IVA zeolite support to form a Group IVA/Group VIII-zeolite support.

5,736,479
OXIDATION CATALYSTS

Rainer Schodel, Halle; Peter Birke, Langenbogen; Reinhard Geyer, Halle; Peter Kraak, Leipzig; Willibald Muller; Hans-Dieter Neubauer, both of Merseburg; Rolf Pester, Bad Dürrenberg; Fritz Vogt, Halle, and Klaus-Peter Wendlandt, Merseburg, all of Germany, assignors to Leuna-Katalysatoren GmbH, Leuna, Germany

PCT No. PCT/DE93/01117, § 371 Date May 24, 1995, § 102(e) Date May 24, 1995, PCT Pub. No. WO94/12277, PCT Pub. Date Jun. 9, 1994

PCT Filed Nov. 24, 1993, Ser. No. 436,409

Claims priority, application Germany, Dec. 3, 1992, 42 40 692.7; Dec. 3, 1992, 42 40 693.5; Dec. 3, 1992, 42 40 691.9; Dec. 3, 1992, 42 40 698.6

Int. Cl.⁶ B01J *29/40*

U.S. Cl. 502—77 **23 Claims**

1. An oxidation catalyst consisting of titanium silicalite with a MFI-structure crystallized in situ and carried on metal oxide selected from the group consisting of Al_2O_3, SiO_2, TiO_2, ZrO_2, Al_2O_3-SiO_2 and mixtures of these oxides, the oxidation catalyst having a titanium silicalite content of 1 to 90% by mass and a Si:Ti atomic ratio in the carried phase of 10 to 100.

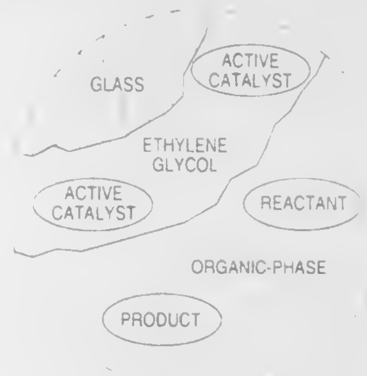
5,736,480
SUPPORTED PHASE CHIRAL SULFONATED BINAP CATALYST SOLUBILIZED IN ALCOHOL AND METHOD OF ASYMMETRIC HYDROGENATION

Mark E. Davis, and Kam To Wan, both of Pasadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 199,086, Feb. 22, 1994, abandoned. This application Jan. 12, 1995, Ser. No. 371,880

Int. Cl.⁶ B01J *31/00;* **C07C** *63/36;63/04;53/134*

U.S. Cl. 502—155 **17 Claims**



1. A supported phase catalyst including an organometallic compound which comprises metal and chiral 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl solubilized in a solvent having two alcohol groups,

wherein each phenyl group of the binaphthyl is at least monosulfonated, and

wherein the degree to which the 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl is sulfonated is selected from the group consisting of tetrasulfonated, pentasulfonated, and hexasulfonated.

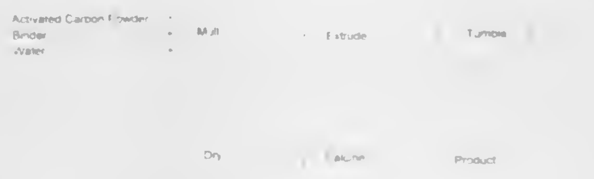
5,736,481
SHAPED LIGNOCELLULOSIC-BASED ACTIVATED CARBON

James R. Miller, Mt. Pleasant, S.C., assignor to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 609,632, Mar. 12, 1996. This application Sep. 19, 1996, Ser. No. 716,105

Int. Cl.⁶ B01J *21/18;20/02*

U.S. Cl. 502—174 **15 Claims**



1. A process for preparing an active carbon pellet comprising the steps of:

(a) grinding granular activated lignocellulosic based carbon to a powder;
(b) mixing a greater amount of the activated lignocellulosic based carbon powder with a lesser amount of an organic binder material selected from the group consisting of natural and synthetic resins in the presence of water;
(c) extruding the mixture to produce an extrudate which is cut to form green pellets that are characterized by 50–70% moisture content, by weight;
(d) subjecting the green pellets to a tumbling operation for from about 1 to about 30 minutes;
(e) subjecting the pellets to sufficient heat for a sufficient time to remove the moisture therefrom to produce dried pellets, and
(f) heat treating the dried pellets at from about 700° F. to about 1800° F. in an inert atmosphere for a period of about 0.1 to about 1.0 hours, wherein the final dried, heat-treated active carbon pellets are characterized by a dust attrition rate less than 0.75 mg/100 cc/minute, in the absence of an applied coating on the pellet.

5,736,482
CATALYSTS FOR REDUCING NITROGEN OXIDES TO MOLECULAR NITROGEN IN A SUPERSTOICHIOMETRIC MEDIUM OF OXIDIZING COMPOUNDS, PROCESS FOR PREPARATION, AND USES

Daniel Durand, Rueil Malmaison; Gil Mabilon, Carrieres sur Seine, and Paul Mouchot, Lyons, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Feb. 5, 1996, Ser. No. 598,828

Claims priority, application France, Feb. 3, 1995, 95 01364

Int. Cl.⁶ B01J *23/00;8/00;23/02*

U.S. Cl. 502—303 **34 Claims**

1. A catalyst that is active and selective for the reduction of nitrogen oxides to molecular nitrogen in a superstoichiometric medium of oxidizing compounds, comprising:

at least one refractory inorganic oxide containing alumina;
at least one rare earth element (A);
at least one group VIB, VIIB, VIII or IB transition metal element (B);
at least one precious metal element (C) which is platinum, rhodium, ruthenium, iridium, or osmium;
and optionally at least one group IIa alkaline-earth element (D),

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at least one portion of element (A) being combined with a portion of alumina to form on the surface of the latter a microlayer of rare earth aluminate.

* * *

5,736,483

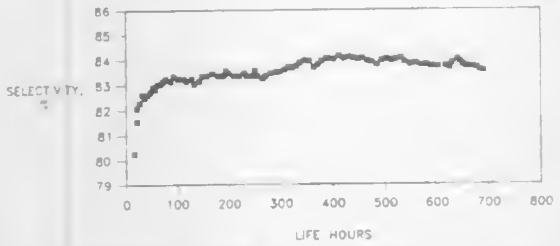
NIOBIUM OR TANTALUM PROMOTED SILVER CATALYST

Nabil Rizkalla, Riverdale, N.J., assignor to Scientific Design Co., Inc., Little Ferry, N.J.

Filed Oct. 25, 1996, Ser. No. 736,997

Int. Cl.^{6} B01J *23/50;23/20;27/02;* **C07B** *301/10*

U.S. Cl. 502—347 **4 Claims**



1. A rhenium free catalyst for the oxidation of ethylene to ethylene oxide comprised of silver on a solid support and containing a promoter combination consisting of (1) an alkali metal component and (2) a niobium or tantalum component, a sulfur component, and optionally a fluorine component.

* * *

5,736,484

NICKEL-CONTAINING HYDROGENATION CATALYSTS

Peter Polanek, Weinheim; Harald Schwahn, Wiesloch; Matthias Irgang, Heidelberg, and Cristina Freire Erdbrügger, Bobenheim-Roxheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/00809, § 371 Date Sep. 12, 1996, § 102(e) Date Sep. 12, 1996, PCT Pub. No. WO95/24964, PCT Pub. Date Sep. 21, 1995

PCT Filed Mar. 4, 1995, Ser. No. 704,508

Claims priority, application European Pat. Off., Mar. 15, 1994, 94103955

Int. Cl.^{6} B01J *23/72;* **C07C** *27/00;* **C10G** *19/00;45/00*

U.S. Cl. 502—349 **12 Claims**

1. A catalyst suitable for hydrogenating organic compounds, containing from 65 to 80 wt % of nickel, calculated as nickel oxide, from 10 to 25 wt % of silicon, calculated as silicon dioxide, from 2 to 10 wt % of zirconium, calculated as zirconium oxide, from 0 to 10 wt % of aluminum, calculated as aluminum oxide, with the proviso that the sum of the content of silicon dioxide and aluminum oxide is at least 15 wt %, obtained by addition of an acidic aqueous solution of nickel, zirconium and, optionally, aluminum salts to a basic aqueous solution or suspension of silicon compounds and, optionally, aluminum compounds, the pH of the mixture thus obtained being decreased to at least 6.5 and then adjusted to from 7 to 8 by addition of further basic solution, isolation of the solid thus precipitated, drying, shaping and calcining.

* * *

5,736,485

SHAPED LIGNOCELLULOSIC-BASED ACTIVATED CARBON

James R. Miller, Mt. Pleasant, S.C., assignor to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 613,270, Mar. 8, 1996, Pat. No. 5,691,270. This application Sep. 19, 1996, Ser. No. 716,106

Int. Cl.^{6} B01J *20/02;20/26;21/18*

U.S. Cl. 502—429 **6 Claims**

1. A composition of an active carbon pellet prepared by sequentially extruding activated lignocellulosic-based carbon particles with an organic binder material and subjecting the extruded pellet to a mechanical tumbling treatment prior to calcination temperatures, wherein the active carbon pellet is characterized by a dust attrition rate of less than 0.75 mg/100 cc/minute, in the absence of an applied coating on the pellet.

* * *

5,736,486

HERBICIDAL MIXTURE OF ANILOFOS AND PROPANIL

Thalia Pappas-Fader, Landenberg, Pa.; Daniel Carl Leep, Newark; Marc Ruggiero, Wilmington, both of Del.; William Francis Smith, III, Elkton, Md., and Alexander Yung-Shing Yang, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 412,396, Mar. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 334,720, Nov. 4, 1994, abandoned. This application Oct. 27, 1995, Ser. No. 549,107

Int. Cl.^{6} A01N *37/22;57/06*

U.S. Cl. 504—127 **4 Claims**

1. A herbicidally effective mixture of anilofos (Formula I) with propanil (Formula IIa).

* * *

5,736,487

ANILINE DERIVATIVES HAVING HERBICIDAL ACTIVITY, THEIR PREPARATION AND THEIR USE

Soji Sugai, Ohtsu; Hiroyuki Komai, Ohmihachiman; Noriaki Kudo, Shiga-ken; Kazuo Sato, Hikone; Toyokuni Honma; Junji Kadotani, both of Shiga-ken; Kiyoshi Koi, Moriyama, and Mitsuru Ito, Shiga-ken, all of Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

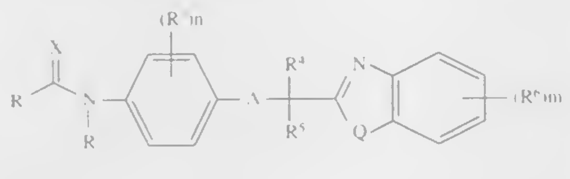
Filed Mar. 7, 1997, Ser. No. 813,174

Claims priority, application Japan, Mar. 11, 1996, 8-052689; Sep. 13, 1996, 8-243335

Int. Cl.^{6} C07D *263/56;277/64;* **A01N** *43/76;43/78*

U.S. Cl. 504—267 **163 Claims**

1. A compound of formula (I):



wherein,

R^1 represents:
- an alkyl group having from 1 to 6 carbon atoms, said alkyl group being unsubstituted or being substituted by an alkoxy group having from 1 to 6 carbon atoms or by from 1 to 4 halogen atoms;
- a cycloalkyl group having from 3 to 6 carbon atoms;
- an alkoxy group having from 1 to 6 carbon atoms, said alkoxy group being unsubstituted or being substituted by from 1 to 4 halogen atoms; or
- an alkylthio group having from 1 to 6 carbon atoms, said alkylthio group being unsubstituted or being substituted by from 1 to 4 halogen atoms;

R^2 represents:
- a hydrogen atom;
- an alkyl group having from 1 to 6 carbon atoms, said alkyl group being unsubstituted or being substituted by a hydroxy group or by from 1 to 4 halogen atoms;
- a cycloalkyl group having from 3 to 6 carbon atoms;
- an alkenyl group having from 2 to 6 carbon atoms, said alkenyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkynyl group having from 2 to 6 carbon atoms, said alkynyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms; or
- a group represented by the formula —YR^7;

R^3 represents:
- an alkyl group having from 1 to 6 carbon atoms, said alkyl group being unsubstituted or being substituted by an alkoxy group having from 1 to 6 carbon atoms or by from 1 to 4 halogen atoms;
- a cycloalkyl group having from 3 to 6 carbon atoms;
- an alkoxy group having from 1 to 6 carbon atoms, said alkoxy group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkenyl group having from 2 to 6 carbon atoms, said alkenyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkynyl group having from 2 to 6 carbon atoms, said alkynyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- a halogen atom;
- a nitro group; or
- a group of formula —COR^8, wherein R^8 represents a hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms or an alkoxy group having from 1 to 6 carbon atoms;

R^4 and R^5 are the same or different and each represents a hydrogen atom or an alkyl group having from 1 to 6 carbon atoms;

R^6 represents:
- an alkyl group having from 1 to 6 carbon atoms, said alkyl group being unsubstituted or being substituted by an alkoxy group having from 1 to 6 carbon atoms or by from 1 to 4 halogen atoms;
- a cycloalkyl group having from 3 to 6 carbon atoms;
- an alkoxy group having from 1 to 6 carbon atoms, said alkoxy group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkenyl group having from 2 to 6 carbon atoms, said alkenyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkynyl group having from 2 to 6 carbon atoms, said alkynyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- a halogen atom;
- a nitro group; or
- a group of formula —COR^8, wherein R^8 represents a hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms or an alkoxy group having from 1 to 6 carbon atoms;

A represents an oxygen atom or a sulfur atom;

X represents an oxygen atom or a sulfur atom;

Y represents a group selected from the group consisting of the groups of formulae: —O—, —COO—, —CH_2O—, —CH_2S—, —$CH(CH_3)O$—, —$CH(CH_3)S$—, —CH_2CO—, —CH_2COO—, —CH(Me)COO—, —$CH(CH_3)CO$—, —CH_2OCO—, —CH_2OCOO— and —$CH(CH_3)OCO$—;

R^7 represents:
- an alkyl group having from 1 to 6 carbon atoms, said alkyl group being unsubstituted or being substituted by an alkoxy group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms or by from 1 to 4 halogen atoms;
- a cycloalkyl group having from 3 to 6 carbon atoms;
- an alkenyl group having from 2 to 6 carbon atoms, said alkenyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- an alkynyl group having from 2 to 6 carbon atoms, said alkynyl group being unsubstituted or being substituted by from 1 to 4 halogen atoms;
- a carbocyclic aryl group having from 6 to 10 ring carbon atoms, said aryl group being unsubstituted or being substituted by at least one substituent selected from the group consisting of alkyl groups having from 1 to 6 carbon atoms, alkoxy groups having from 1 to 6 carbon atoms and halogen atoms;
- an aralkyl group wherein the aryl moiety is a carbocyclic aryl group having from 6 to 10 ring carbon atoms which is unsubstituted or is substituted by from 1 to 4 halogen atoms, and the alkyl moiety has from 1 to 6 carbon atoms; or
- a heterocyclic group having from 4 to 10 ring atoms including at least one ring heteroatom selected from the group consisting of oxygen atoms, sulfur atoms and nitrogen atoms, said heterocyclic group being fully unsaturated, partly unsaturated or saturated and being either unsubstituted, substituted by at least one substituent selected from alkyl groups having from 1 to 6 carbon atoms, alkoxy groups having from 1 to 6 carbon atoms and halogen atoms, or fused with a carbocyclic aryl group having from 6 to 10 ring carbon atoms;

Q represents an oxygen atom or a sulfur atom;

m represents an integer from 0 to 4 and, where m is an integer from 2 to 4, each R^6 may be the same or different; and

n represents an integer from 0 to 4 and, where n is an integer from 2 to 4, each R^3 may be the same or different;

and herbicidally acceptable addition salts thereof.

* * *

5,736,488

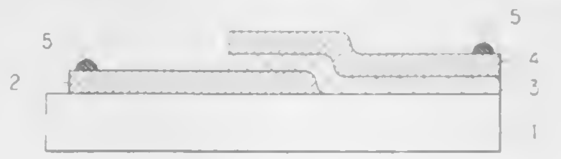
MULTILAYERED COMPOSITES AND PROCESS OF MANUFACTURE

Dean Willett Face, Wilmington, Del., and Kirsten Elizabeth Myers, Philadelphia, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 323,560, Oct. 17, 1994, abandoned. This application Jan. 26, 1996, Ser. No. 592,242

Int. Cl.^{6} H01L *39/22*

U.S. Cl. 505—238 **7 Claims**



1. An improved multilayer composite article comprising in order: 1) a substrate, 2) a first superconductive layer comprising a thallium containing oxide, 3) at least one intermediate layer wherein each said at least one intermediate layer consists of a normal conductive layer comprising a thallium containing oxide and 4) a second superconductive layer comprising a thallium containing oxide.

* * *

5,736,489

METHOD OF PRODUCING MELT-PROCESSED POLYCRYSTALLINE $YBA_2CU_3O_x$ (123) SUPERCONDUCTORS

Gregory Kozlowski, Centerville, Ohio, assignor to Wright State University, Dayton, Ohio

Filed Feb. 7, 1997, Ser. No. 797,600

Int. Cl.^{6} B32B *9/00;* **H01L** *39/24*

U.S. Cl. 505—239 **14 Claims**

1. A method of producing a melt-processed polycrystalline $YBa_2Cu_3O_x$ superconductor with randomly oriented grains comprising the steps of:
- providing a Y_2BaCuO_5 (211) substrate;
- densifying said 211 substrate by sintering said substrate at a temperature less than the second peritectic transition temperature of $YBa_2Cu_3O_x$ (123);
- cooling said 211 substrate;
- placing a 123 superconducting material on said sintered 211 substrate;
- heating said 123 material and said 211 substrate to a temperature to initiate peritectic melting of said 123 superconducting material;
- cooling said 211 substrate and 123 material to initiate recrystallization; and

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further cooling said 211 substrate and 123 material to room temperature.

5,736,490
AUTOMOTIVE WHITE-OIL BASED LUBRICANT COMPOSITION

Alain Gabriel Bouffet, and Marcel Alphonse Ostyn, both of Bois Guillaume, France, assignors to Exxon Research and Engineering Company, Florham Park, N.J.

PCT No. PCT/EP94/02829, § 371 Date Apr. 24, 1996, § 102(e) Date Apr. 24, 1996, PCT Pub. No. WO95/06701, PCT Pub. Date Mar. 9, 1995

PCT Filed Aug. 26, 1994, Ser. No. 604,931

Claims priority, application France, Sep. 3, 1993, 93 10536

Int. Cl.^{6} C10M *169/04*

U.S. Cl. 508—272 **11 Claims**

1. An automotive lubricant oil composition or automotive fluid composition for use in an automotive engine or automotive gear box or automotive automatic transmission, said composition consisting essentially of the following components:

(a) a basestock comprising at least 30 wt. % of white oil.

(b) as an anti-oxidant, from 5 to 50 wt. % of polyisoalkylene having a molecular weight in the range of from 400 to 30,000;

(c) from 0.1 to 5 wt % of another engine oil, gear oil or automotive transmission anti-oxidant selected from aminic anti-oxidants, hindered phenols, sulphurised phenols, phosphosulphurised alkyl phenols, dithiophosphates, dimercaptodithiadiazoles, alkyl phenol sulphides, alkyl thiocarbamates and copper-based anti-oxidants; and

(d) one or more additional engine oil, gear oil or automotive transmission fluid additives selected from the group consisting of detergents, dispersants, anti wear agents, extreme-pressure agents, anti-corrosion agents, pour point depressants, anti foam agents, friction modifiers, anti squawk agents and viscosity improvers,

the automotive oil composition or automotive fluid composition having a and viscosity in the range of from 4 to 50 mm²/s at 100° C. and a viscosity index in the range of from 80 to 200.

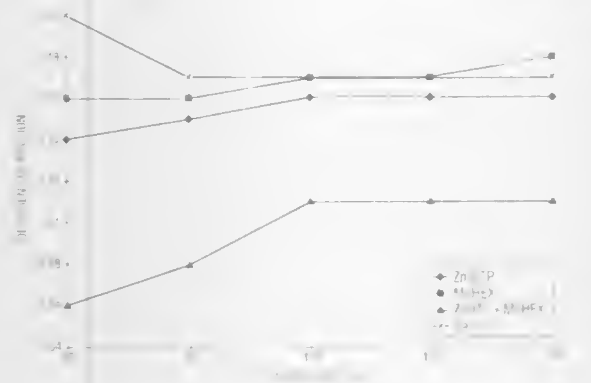
5,736,491
METHOD OF IMPROVING THE FUEL ECONOMY CHARACTERISTICS OF A LUBRICANT BY FRICTION REDUCTION AND COMPOSITIONS USEFUL THEREIN

Jitendra A. Patel; Arthur J. Stipanovic, both of Wappingers Falls, and Jeffrey P. Schoonmaker, Wallkill, all of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 30, 1997, Ser. No. 790,420

Int. Cl.^{6} C10M *141/02 141/12*

U.S. Cl. 508—365 **22 Claims**



1. A method of improving the fuel economy characteristics of a lubricant by friction reduction, comprising mixing the lubricant with a C_5 to C_{12} aliphatic carboxylate salt of molybdenum and a zinc dialkyldithiophosphate wherein the alkyl group of the zinc dialkyldithiophosphate is selected so that the zinc dialkyldithiophosphate exchanges ligands with the aliphatic carboxylate salt of molybdenum.

5,736,492
ALKENYL-SUBSTITUTED DICARBOXYLIC DERIVATIVES

Michael Thomas Clark, Chester, and Hendrik Tijmen Verkouw, Kent, both of Great Britain, assignors to Shell Oil Company, Houston, Tex.

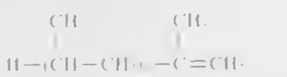
Filed Aug. 2, 1996, Ser. No. 693,575

Claims priority, application European Pat. Off., Sep. 8, 1995, 95306300

Int. Cl.^{6} C10M *145/00*

U.S. Cl. 508—485 **18 Claims**

1. An alkenyl-substituted dicarboxylic acid ester derivative having (a) an alkenyl group derived from an atactic propylene oligomer substantially of the formula:



$$H-(\underset{}{\overset{CH_3}{\overset{|}{C}H}}-CH_2)_n-\overset{CH_3}{\overset{|}{C}}=CH_2 \qquad (I)$$

where n is in the range 15 to 120, having number average molecular weight (M_n) in the range 700 to 5000, and molar ratio dicarboxylic acid to atactic propylene oligomer in the range 1:1 to 1.5:1 and (b) having an ester group derived from a polyol.

5,736,493
BIODEGRADABLE LUBRICANT COMPOSITION FROM TRIGLYCERIDES AND OIL SOLUBLE COPPER

William W. Garmier, Hartville, Ohio, assignor to Renewable Lubricants, Inc., Hartville, Ohio

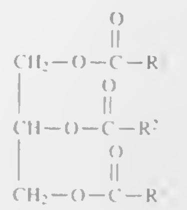
Filed May 15, 1996, Ser. No. 644,964

Int. Cl.^{6} C10M *105/38*

U.S. Cl. 508—491 **24 Claims**

1. A lubricant composition comprising:

a) a lubricant including at least 20 volume percent based on the volume of said lubricant composition of at least one vegetable oil triglyceride of the formula



$$\begin{array}{l} CH_2-O-\overset{O}{\overset{\|}{C}}-R^1 \\ | \\ CH-O-\overset{O}{\overset{\|}{C}}-R^2 \\ | \\ CH_2-O-\overset{O}{\overset{\|}{C}}-R^3 \end{array}$$

wherein R^1, R^2 and R^3 are independently, aliphatic hydrocarbyl groups of from 7 to 23 carbon atoms, said hydrocarbyl groups of said at least one triglyceride being at least 20 mole % monounsaturated, and

b) from about 50 to about 3000 ppm of copper based upon the weight of the lubricant composition, said copper being in an oil soluble form.

5,736,494
FLOWABLE NON-BORAX CONTAINING POWDER CARPET CLEANING COMPOSITIONS CONTAINING ANIONIC AND NONIONIC SURFACTANTS

Andrew F. Colurciello, Newburgh, N.Y., and Jeanne M. Weller, Glen Rock, N.J., assignors to Reckitt & Colman Inc., Montvale, N.J.

Filed Jan. 7, 1997, Ser. No. 781,033

Claims priority, application United Kingdom, Jan. 11, 1996, 9600547

Int. Cl.^{6} C11D *7/12;17/06;3/382*

U.S. Cl. 510—278 **22 Claims**

1. A powdered carpet cleaning composition comprising:

A) from 25 to 40% by weight of a cellulose absorbent,

B) from 0 to 7% by weight of a zeolite or amorphous silica;

C) from 12 to 20% by weight of an inorganic salt system comprising (a) an alkali metal carbonate; (b) an alkali metal bicarbonate; and (c) an alkali metal sesquicarbonate, wherein the weight percentage ratios of (a):(b):(c) are 1:0.5–2.5:0.5–2.5;

D) from 0.1 to 10% by weight of an organic solvent;

E) from 0 to 5% by weight of an acid;

F) from 0.01 to 3% by weight of an anionic surfactant,

G) from 0.01 to 5% by weight of a nonionic surfactant; and

H) the remaining weight % balance to 100% by weight of water,

with the proviso that the compositions do not comprise borax or boric acid.

5,736,495
AQUEOUS METAL CLEANER HAVING AN ANTICORROSION SYSTEM

Steven A. Bolkan, Hopewell, and Steve Dunn, Hillsborough, both of N.J., assignors to Church & Dwight Co., Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 609,895, Mar. 4, 1996, Pat. No. 5,650,385, which is a continuation of Ser. No. 311,254, Sep. 23, 1994, abandoned. This application Oct. 16, 1995, Ser. No. 543,830

Int. Cl.^{6} C11D *7/04;7/32*

U.S. Cl. 510—202 **49 Claims**

1. A metal cleaner-anticorrosion composition comprising an alkaline metal salt, whereby the alkaline metal salt is not a borate, a surfactant, and an anticorrosion agent comprising a triazole compound in combination with an alkali metal borate, wherein a pH of the composition in aqueous solution is from 7.5 to less than 10.

5,736,496
LIQUID CLEANING COMPOSITIONS COMPRISING A NEGATIVELY CHARGED COMPLEX COMPRISING AN ANIONIC SURFACTANT AND AN ALKYLENE CARBONATE

Patrick Durbut, Verviers; Anne-Marie Misselyn, Villers-l'eveque, and Guy Broze, Grace-Hollngne, all of Belgium, assignors to Colgate-Palmolive Co., Piscataway, N.J.

Filed Jul. 9, 1996, Ser. No. 677,182

Int. Cl.^{6} C11D *1/12 1/37;3/10;3/50*

U.S. Cl. 510—235 **12 Claims**

1. A cleaning composition comprising

(a) about 3.0 wt. % to about 40 wt. % of a negatively charged complex comprising

  (i) at least one anionic surfactant selected from the group consisting of alkali metal salts of sulfonates, alkali metal salts of sulfates, alkaline earth metal salts of sulfonates and alkaline earth metal salts of sulfates, and

  (ii) an alkylene carbonate being complexed with said anionic surfactant wherein the alkylene group contains from 4 to 14 carbon atoms;

(b) 0.5% to 15% of a cosurfactant,

(c) 0.4% to 8% of a water insoluble hydrocarbon or a perfume,

(d) 0.5% to 10% of a Lewis base, neutral polymer, and

(e) the balance being water, wherein the composition does not contain an ethoxylated nonionic surfactant.

5,736,497
PHOSPHORUS FREE STABILIZED ALKALINE PEROXYGEN SOLUTIONS

Norbert N. Steiner, Upper Saddle River, N.J., assignor to Degussa Corporation, Ridgefield Park, N.J.

Continuation-in-part of Ser. No. 435,963, May 5, 1995, abandoned. This application Mar. 29, 1996, Ser. No. 624,218

Int. Cl.^{6} C11D *3/39;3/395;7/08*

U.S. Cl. 510—303 **23 Claims**

1. A phosphorus-free and boron-free, storage stable cleaning composition comprising phosphorus free aqueous solution containing a sufficient amount of an active ingredient to function as a cleaning composition, said active ingredient comprising hydrogen peroxide or a compound capable of releasing hydrogen peroxide under the conditions prevailing in use of said composition from about 10 to about 1000 parts per million of at least one organic tetravalent tin complexed with dicarboxylic acid, hydroxy carboxylic acid, or tricarboxylic acid present in an amount sufficient to stabilize an alkaline solution of hydrogen peroxide; said aqueous solution having an alkaline pH.

5,736,498
THICKENED AQUEOUS HYDROGEN PEROXIDE COMPOSITIONS AND METHODS OF MAKING SAME

Andrew Kevin Gray, Cheshire, United Kingdom, assignor to Solvay Interox Limited, Warrington, England

PCT No. PCT/GB94/02069, § 371 Date Mar. 19, 1996, § 102(e) Date Mar. 19, 1996, PCT Pub. No. WO95/09226, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 23, 1994, Ser. No. 617,887

Claims priority, application United Kingdom, Sep. 28, 1993, 9319943

Int. Cl.^{6} C11D *3/39;3/37;1/83*

U.S. Cl. 510—372 **40 Claims**

1. A neutral or alkaline thickened aqueous hydrogen peroxide composition comprising at least 1% by weight hydrogen peroxide, water and a thickening system comprising

i. a polymer comprising a polyethylene backbone with pendant carboxylate groups and pendant groups having the general chemical formula: $-(OCH_2CH_2)_m(OCHXCHY)_n-O-R$ where m is a positive integer, n is zero or a positive integer, X and Y are independently selected from hydrogen atoms,

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methyl and ethyl groups and R is a hydrophobic group comprising 8 or more carbon atoms; and

ii. one or more surfactants selected from the group consisting of alcohol ethoxylates, alkylbenzenesulphonates comprising 10 or more carbon atoms, alkysulphates comprising 6 or more carbon atoms, alcohol ether sulphates, alpha-sulphoesters and alkyglucosides,

the weight ratio of said polymer to said surfactant being from 0.1 to 1 to 10:1, said thickening system being present in an amount sufficient to impart to the composition a viscosity of greater than 50 cPs.

5,736,499

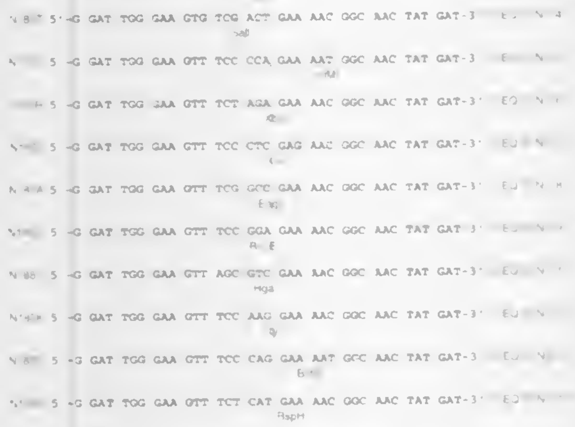
MUTANT A-AMYLASE

Colin Mitchinson, Half Moon Bay; Carol Ann Requadt, Tiburon; Traci Helen Ropp, San Francisco, all of Calif., and Leif P. Solheim, Clinton, Iowa, assignors to Genencor International, Inc., Rochester, N.Y.

Filed Jun. 6, 1995, Ser. No. 468,700

Int. Cl.^{6} C11D *3/386*

U.S. Cl. 510—392 **25 Claims**


5'-G GAT TGG GAA GTG TCG ACT GAA AAC GGC AAC TAT GAT-3
SalI
5'-G GAT TGG GAA GTT TCC CCA GAA AAT GGC AAC TAT GAT-3
5'-G GAT TGG GAA GTT TCT AGA GAA AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT TCC CTC GAG AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT TCG GCC GAA AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT TCC GGA GAA AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT AGC GTC GAA AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT TCC AAG GAA AAC GGC AAC TAT GAT-3'
5'-G GAT TGG GAA GTT TCC CAG GAA AAT GCC AAC TAT GAT-3
5'-G GAT TGG GAA GTT TCT CAT GAA AAC GGC AAC TAT GAT-3'
BspH

1. An α-amylase derived from Bacillus in that it is the expression product of a mutated Bacillus DNA, sequence encoding an α-amylase, the mutated DNA said α-amylase comprising the deletion or substitution of a residue corresponding to N188 in *Bacillus licheniformis*.

5,736,500

AQUEOUS MICROEMULSIONS COMPRISING ALKOXYLATED ALCOHOL NONIONIC SURFACTANT IN SUBSTAINIALLY WATER-INSOLUBLE SOLVENT AND OIL

Donald Michael Farnworth, Merseyside, and Alexander Martin, Cheshire, both of United Kingdom, assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Mar. 29, 1995, Ser. No. 413,069

Claims priority, application United Kingdom, Mar. 31, 1994, 9406459; Jul. 6, 1994, 9413653

Int. Cl.^{6} C11D *17/00; 1/72; 3/43; 3/44*

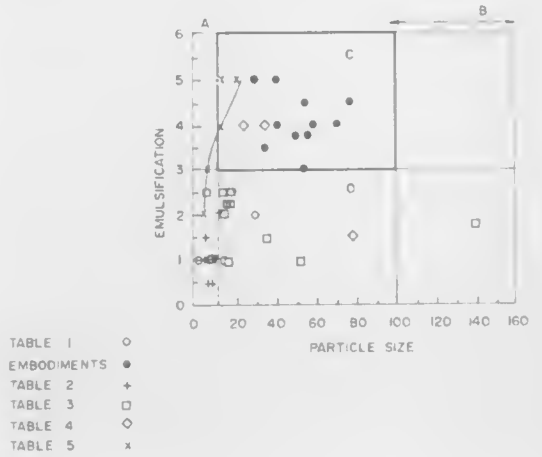
U.S. Cl. 510—417 **5 Claims**

1. A liquid, aqueous cleaning composition in the form of a stable emulsion having a dispersed phase diameter of 10–100 nanometers comprising:

a) at least 30 wt. % water;

b) 1 to 24 wt. % ethoxylated nonionic surfactant selected from the group consisting of condensation products of ethylene oxide with aliphatic alcohols having from 8 to 22 carbon atoms in either straight or branched chain configuration,

c) 2.0 to 16 wt. % of a solvent selected from the group consisting of n-butanol, iso-butanol, n-butoxy propanol, di propylene glycol monobutyl ether and mixtures thereof,



d) at least 0.2 but less than 10 wt. % of an oil selected from the group consisting of limonene, para-cymene, di-butyl ether, butyl butyrate, amyl acetate and mixtures thereof, and

wherein said composition comprises not more than 10 wt. % anionic surfactant based on the weight of total ethoxylated nonionic surfactant present.

5,736,501

METHOD FOR PRODUCING NONIONIC DETERGENT GRANULES

Hiroyuki Yamashita; Koji Toyoda; Masaaki Sakane; Yasuji Yamada; Teruo Kubota, and Hiroshi Kogurusu, all of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Jul. 24, 1995, Ser. No. 505,898

Claims priority, application Japan, Aug. 12, 1994, 6-211929

Int. Cl.^{6} C11D *11/00*

U.S. Cl. 510—444 **29 Claims**

1. A method for producing nonionic detergent granules comprising the steps of:

(I) blending the following (i) to (iii):

(i) at least one of a nonionic surfactant and an aqueous nonionic surfactant solution;

(ii) an acid precursor of an anionic surfactant capable of having a lamellar orientation selected from the group consisting of saturated or unsaturated fatty acids having 10 to 22 carbon atoms, alkylsulfuric acids having 10 to 22 carbon atoms, α-sulfonated fatty acids having 10 to 22 carbon atoms, and polyoxyethylene alkyl ether sulfuric acids whose alkyl moieties have 10 to 22 carbon atoms and whose ethylene oxide moieties have an average molar number of from 0.2 to 2.0;

(iii) at least one of an alkali builder and an alkali, porous oil-absorbing carrier, said acid precursor of an anionic surfactant is present in an amount of 5 to 60 parts by weight based on 100 parts by weight of at least one of the nonionic surfactant and the aqueous nonionic surfactant solution to give a mixture of detergent starting materials containing the nonionic surfactant as a main surfactant component; and

(II) heating the mixture obtained in step (I) at least to either (a) a temperature of not less than a melting point of the obtained mixture of components (i) and (ii) in step (I) or (b) a temperature not less than a melting point of a component having the highest melting point of components (i) and (ii) in step (I) capable of neutralizing said acid precursor of the anionic surfactant in an agitating mixture thereby forming a gelled product containing said nonionic surfactant, and granulating said gelled product which acts as a binder while tumbling the agitating mixture at either of said temperatures thereby increasing a bulk density, to give nonionic detergent granules having a bulk density of from 0.6 to 1.2 g/ml.

5,736,502

PROCESS FOR PREPARING DETERGENT COMPOSITIONS

Carole Patricia Denise Wilkinson, Ixelles, Belgium, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 5, 1996, Ser. No. 605,127

Claims priority, application European Pat. Off., Sep. 7, 1993, 93202607

Int. Cl.^{6} C11D *11/00*

U.S. Cl. 510—444 **17 Claims**

1. A process for preparing a granular detergent composition having a bulk density of at least 650 g/l which process comprises the steps of:

a) providing a spray dried mixture comprising water and dry detergent ingredients selected from the group consisting of surfactants, detergent builders and mixtures thereof

b) mixing the spray dried mixture for a first period of time in a mixer having a mixing chamber containing a rotatable shaft on which a plurality of mixing elements are mounted and wherein the shaft rotates at a speed of from 600 to 2500 rpm during the first period of time;

c) mixing the spray dried mixture for a second period of time in a mixer having a mixing chamber containing a rotatable shaft on which a plurality of mixing elements are mounted, wherein the shaft rotates at a speed of from 40 to not greater than 200 rpm during the second period of time, and adding to the mixture before the completion of the second period of time, water and a hydratable compound selected from the group consisting of alkali metal salts of carbonate, bicarbonate, phosphate, polyphosphate citrate, sulfate, and mixtures thereof, wherein the amount of water added is from 2% to 25% by weight of the dry detergent ingredients and the hydratable compound is a fine powder having a mean particle size of from 0.1 to 250 μm, and

d) subjecting the composition resulting from step c) to at least one of drying and cooling

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5,736,503

HIGH SUDSING DETERGENT COMPOSITIONS WITH SPECIALLY SELECTED SOAPS

Phillip Kyle Vinson, Fairfield, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

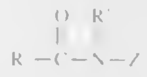
Continuation of Ser. No. 466,941, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 112,164, Aug. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 984,074, Nov. 30, 1992, abandoned. This application Jan. 3, 1997, Ser. No. 774,712

Int. Cl.^{6} C11D *3/32; 17/00*

U.S. Cl. 510—481 **7 Claims**

1. A liquid detergent composition comprising from about 25% to 65% by weight of a mixed nonionic/anionic soap surfactant system which comprises:

a) a polyhydroxy fatty acid amide of the formula



$$R^2-\overset{\overset{\displaystyle O}{\|}}{C}-\overset{\overset{\displaystyle R^1}{|}}{N}-Z$$

wherein R^1 is H, C_1-C_4 hydrocarbyl, 2-hydroxyethyl, 2-hydroxypropyl, or a mixture thereof; R^2 is C_5-C_{31} hydrocarbyl, and Z is a polyhydroxyhydrocarbyl moiety having a linear hydrocarbyl chain with at least two hydroxyls directly connected to the chain, and

b) an anionic surfactant which is a member or mixtures thereof selected from the group consisting of primary and secondary alkyl and alkenyl sulfates, α-sulfonated fatty acid methyl esters, alkyl benzene sulfonates, alkyl ethoxy sulfates, alkyl ethoxy carboxylates, and sulfated polyhydroxy fatty acid amides, at a weight ratio of (a):(b) of from about 10:1 to about 1:10; and

c) as a replacement for conventional soap material, secondary C_{12}-C_{13} soap material selected from the group consisting of water soluble salts of 2-methyl-1-undecanoic acid, 2-ethyl-1-decanoic acid, 2-propyl-1-nonanoic acid, 2-butyl-1-octanoic acid, 2-pentyl-1-heptanoic acid, 2-methyl-1-dodecanoic acid, 2-ethyl-1-undecanoic acid, 2-propyl-1-decanoic acid, 2-butyl-1-nonanoic acid, 2-pentyl-1-octanoic acid and mixtures thereof,

wherein said detergent composition is in a liquid state

5,736,504

PERFUME COMPOSITION

Xiao Guang Duan, Falkirk, Great Britain; Eric Jacques P. C. Dumas, Utrecht, and Johannes Helmond, Gouda, both of Netherlands, assignors to Unichema Chemie B.V., Gouda, Netherlands

PCT No. PCT/EP95/00556, § 371 Date Dec. 24, 1996, § 102(e) Date Dec. 24, 1996, PCT Pub. No. WO95/23842, PCT Pub. Date Sep. 8, 1995

PCT Filed Feb. 15, 1995, Ser. No. 702,481

Claims priority, application European Pat. Off., Mar. 2, 1994, 94200524

Int. Cl.^{6} A61K *7/46*

U.S. Cl. 512—1 **3 Claims**

1. A perfume or fragrance composition to be incorporated into translucent or transparent soap, characterized in that the composition comprises an effective amount of iso-stearic acid

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5,736,505

NON-ALCOHOLIC PERFUME OR COLOGNE

Robert P. Manzo, Goshen, N.Y., and Diane M. Kennedy, Bayonne, N.J., assignors to Dragoco, Inc., Totowa, N.J.

Filed Aug. 30, 1996, Ser. No. 706,119

Int. Cl.^{6} A61K *7/46*

U.S. Cl. 512—2 **20 Claims**

1. A non-alcoholic transparent fragrant composition comprising

(a) a hydrophobic perfume base,

(b) water,

(c) a non-ionic surfactant and

(d) glycereth-7 triacetate

17. A transparent, non-tacky, cationic surfactant free, non-alcoholic, water based pharmaceutical composition comprising:

(a) one or more hydrophobic topical pharmaceutically active compounds,

(b) water,

(c) a non-ionic surfactant, and

(d) glycereth-7-triacetate

5,736,506

METHOD OF INHIBITING THE DEGRADATION OF HEPATOCYTE GROWTH FACTOR

Daiji Naka, Yokohama, Japan, assignor to Mitsubishi Kasei Corporation, Tokyo, Japan

Division of Ser. No. 292,051, Aug. 19, 1994, Pat. No. 5,545,722, which is a continuation of Ser. No. 892,180, Jun. 20, 1992, abandoned. This application May 7, 1996, Ser. No. 646,145

Claims priority, application Japan, Jun. 3, 1991, 3-131271; Feb. 25, 1992, 4-038122

Int. Cl.^{6} A01N *37/18*

U.S. Cl. 514—2 **4 Claims**

1. A method for inhibiting the degradation of a hepatocyte growth factor (HGF) which comprises combining a HGF

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degradation inhibiting amount of at least one polysaccharide with said hepatocyte-growth factor.

5,736,507

PEPTIDES DERIVED FROM AUTOANTIGEN FOR USE IN IMMUNOTHERAPY OF AUTOIMMUE DISEASES

Anna Maria Helena Boots, Verlengde Torenstraat, and Gijsbertus Franciscus Maria Verheijden, Heischouw, both of Netherlands, assignors to Akzo Nobel N.V., Arnhem, Netherlands

PCT No. PCT/EP95/04201, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO96/13517, PCT Pub. Date May 9, 1996

PCT Filed Oct. 25, 1995, Ser. No. 619,645

Claims priority, application European Pat. Off., Oct. 27, 1994, 94203128; Apr. 7, 1995, 95200886

Int. Cl.^{6} A61K *38/03,38/17;* **C07K** *4/00;14/435*

U.S. Cl. 514—2 **10 Claims**

1. A peptide of HC (human cartilage) gp-39, said peptide having 9–55 amino acid residues and comprising one or more of the amino acid sequences FGRSFTLAS (SEQ ID NO:1), FTLASSETG (SEQ ID NO:2), YDDQESVKS (SEQ ID NO:3) FSKIASNTQ (SEQ ID NO:4), PTFGRSFTLASSE SEQ ID NO:5), RSFTLASSETGVG (SEQ ID NO:6), VGYDDQESVKSKV (SEQ ID NO:7) and SQRFSKIASNTQSR (SEQ ID NO:8), wherein said peptide will stimulate autoreactive T cells found in the blood of rheumatoid arthritis patients which are reactive with HC gp-39.

5,736,508

METHODS FOR TREATMENT OF SCAR TISSUE

John McMichael, Delanson, N.Y., assignor to Milkhaus Laboratory, Inc., Delanson, N.Y.

Filed Mar. 4, 1997, Ser. No. 811,347

Int. Cl.^{6} A61K *38/00*

U.S. Cl. 514—2 **12 Claims**

1. A method for reducing the appearance of scar tissue in a subject comprising the step of

administering to said subject an effective amount of streptolysin O in a pharmaceutically acceptable vehicle.

5,736,509

CYCLIC PEPTIDE SURFACE FEATURE MIMICS OF ENDOTHELIN

Vitukudi Narayanaiyengar Balaji, Encinitas, and Ming Fai Chan, San Diego, both of Calif., assignors to Texas Biotechnology Corporation, Houston, Tex.

Continuation-in-part of Ser. No. 223,513, Apr. 5, 1994, and a continuation-in-part of Ser. No. 900,623, Jun. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 628,111, Dec. 14, 1990, Pat. No. 5,331,573. This application Nov. 10, 1994, Ser. No. 410,955

Int. Cl.^{6} A61K *38/00;* **C07K** *5/00*

U.S. Cl. 514—9 **41 Claims**

1. A substantially pure peptide of formula (III):

$$\text{cyclo}(X^1\ X^2\ X^3\ X^4\text{-L Trp}) \qquad \text{(III)}$$

or a pharmaceutically acceptable salt thereof, wherein:

X^1 is D-Leu, D-Val, D-Ile, D-Ala, Gly, Aib, D-Nva, D-Nle or D-Alle; X^2 is L Val, L-Ile, L Leu, L-Ala, L-Gln, L Gly, Aib, L-Nva, L-Nlle or L-Alle; X^3 is D-Pro, D-Hyp, D-Ala, D-Val, D-Ile, Gly, Aib, D-Nva, D-Nle or D-Alle; and X^4 is L-Asp, L-Glu, L Tyr, L-Ser, L-Thr, L-Cys($O_3{}^H$) or L-Pen(O_3H).

5,736,510

ANTIBIOTICS 10381V, W, X,Y, Z1, Z2, PRE-B AND T

Charles Peter Cornell; Stephen Howard Grode, both of Portage, and Heinz F. Meyer, Kalamazoo, all of Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

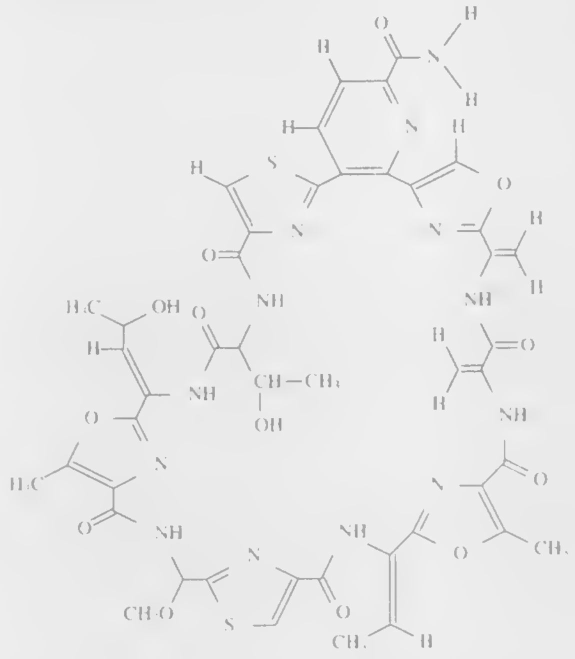
PCT No. PCT/US94/09647, § 371 Date Mar. 7, 1996, § 102(e) Date Mar. 7, 1996, PCT Pub. No. WO95/07292, PCT Pub. Date Mar. 16, 1995

Continuation-in-part of Ser. No. 119,434, Sep. 10, 1993, abandoned. This PCT application Sep. 6, 1994, Ser. No. 615,209

Int. Cl.^{6} A61K *37/02;35/74;* **C07K** *7/54;* **C12P** *21/00*

U.S. Cl. 514—9 **12 Claims**

1. An isolated and purified compound of the formula I, II, III, IV, V, VI, VII, or IX: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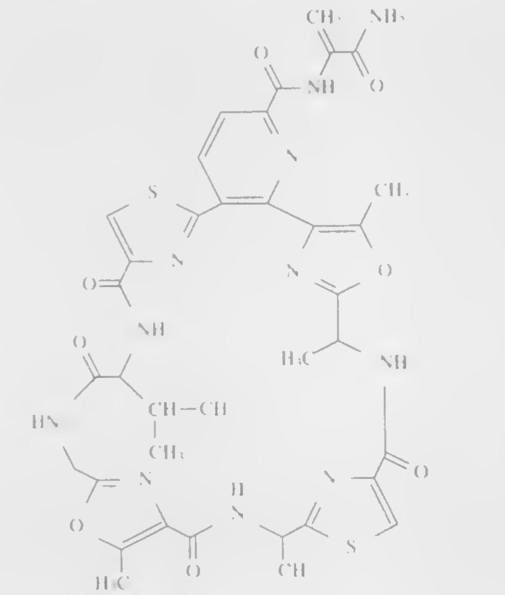
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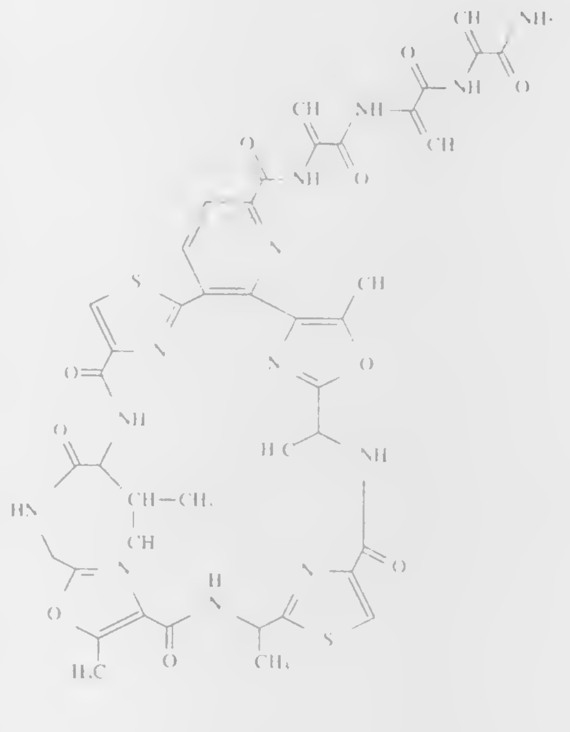
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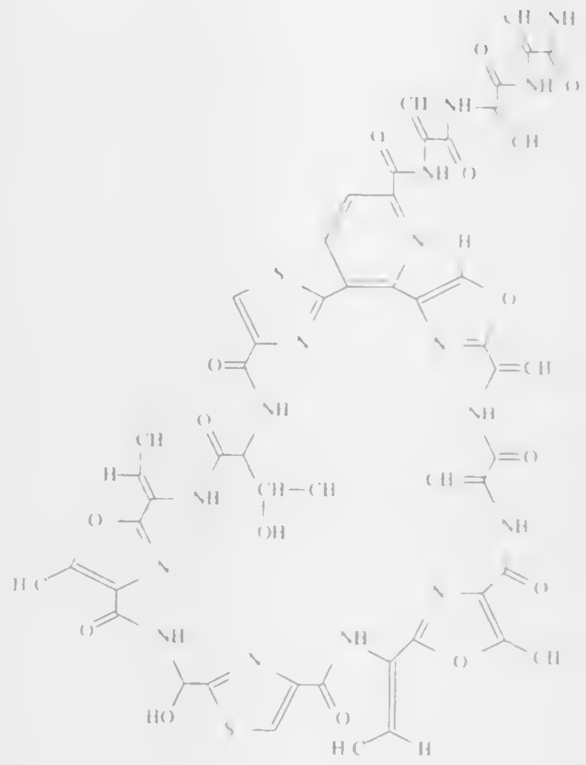
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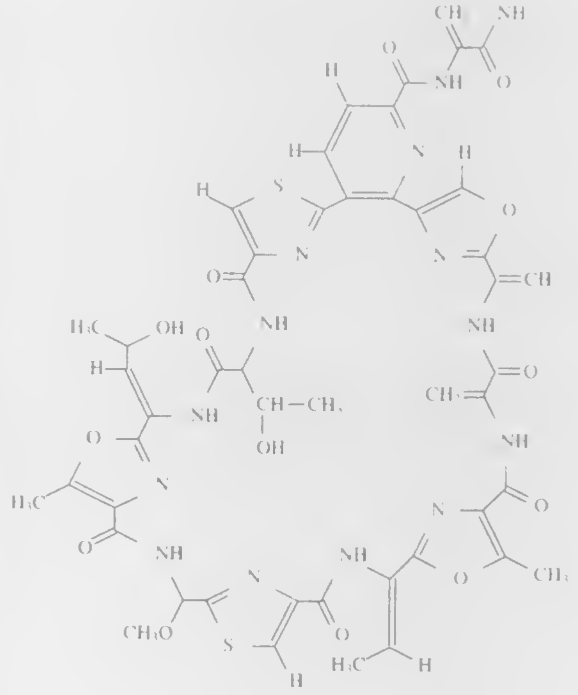
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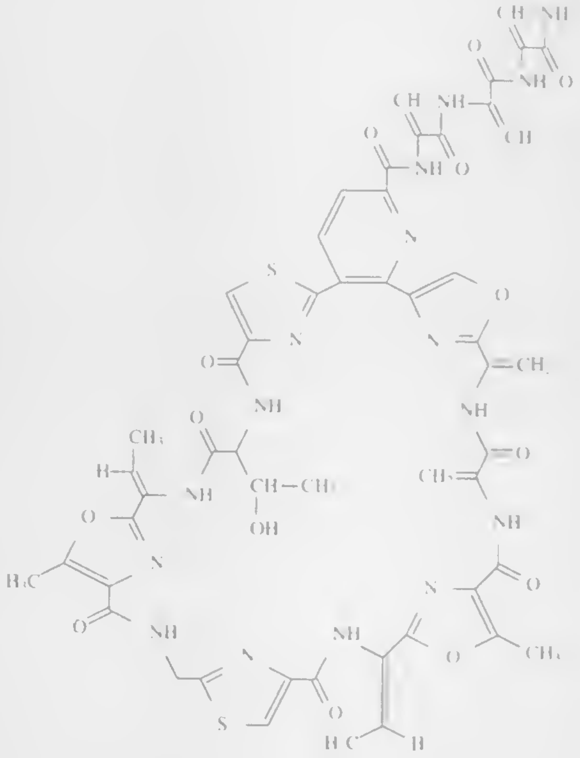
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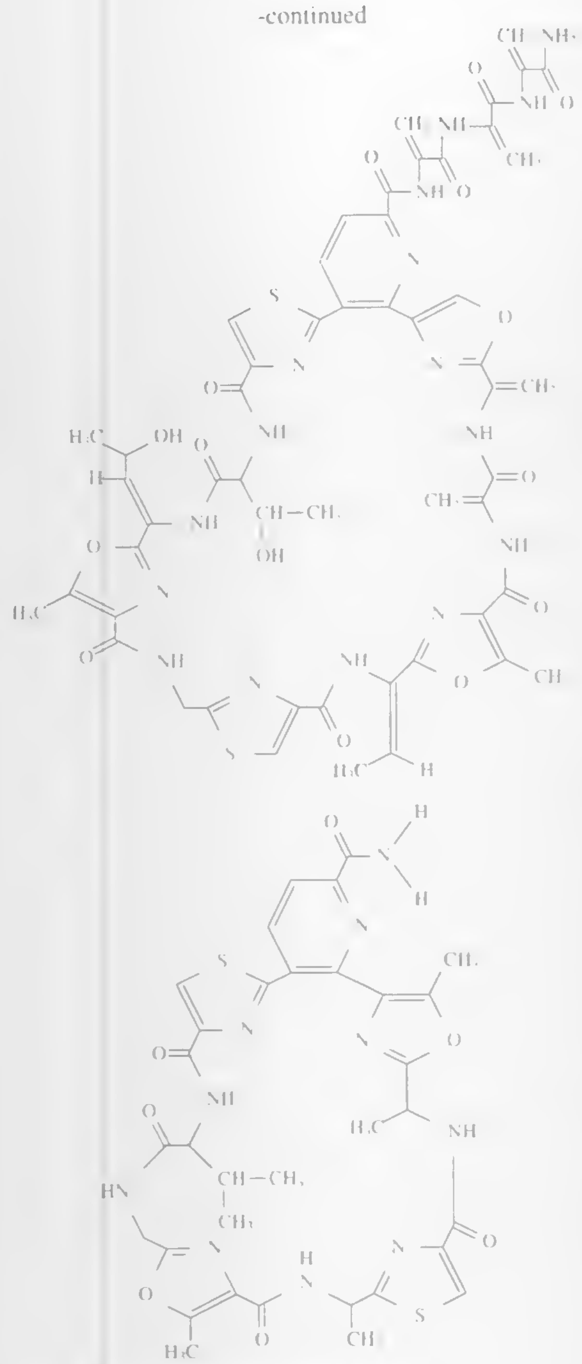


IX

or pharmaceutically acceptable salts thereof

5,736,511

METHODS FOR TREATMENT USING ACID-LABILE SUBUNIT (ALS) OF INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN COMPLEX

Robert Charles Baxter, Glebe, Australia, assignor to Genentech, Inc., So. San Francisco, Calif.

Division of Ser. No. 213,402, Mar. 14, 1994, Pat. No. 5,561,046, which is a division of Ser. No. 989,962, Dec. 11, 1992, Pat. No. 5,324,820, which is a continuation of Ser. No. 646,779, Jan. 18, 1991, abandoned. This application Jun. 2, 1995, Ser. No. 459,888

Claims priority, application Australia, Jul. 15, 1988, PL9314/88; Mar. 23, 1989, PJ3350/89

Int. Cl.⁶ A61K *38/00*; **C07K** *3/00;5/00;7/00*

U.S. Cl. 514—12 9 Claims

1. A method for the treatment of wounds in animals or humans comprising applying to the wound or the area adjacent the wound, or administering to the animal or human, a therapeutically effective amount of a composition comprising the acid-labile subunit of insulin-like growth factor binding-protein complex (ALS) and a pharmaceutically acceptable carrier, said ALS being purified to the extent necessary to obtain the following partial N-terminal amino acid sequence. Gly

AspProGlyThrProGlyGluAlaGluGlyProAlaCysProAlaAlaCys-Ala

wherein said first amino acid may be Gly or Ala (Seq. ID Nos. 1 and 2, respectively, with Seq. ID No. 1 starting with Gly and Seq. ID No. 2 starting with Ala), and characterized by its inability to bind to uncomplexed insulin-like growth factor-I, insulin-like growth factor II, or acid-stable insulin-like growth factor binding protein and its ability to bind to the acid-stable insulin-like growth factor binding protein when complexed with insulin-like growth factor-I.

5,736,512

SERINE PROTEASE VARIANTS HAVING PEPTIDE LIGASE ACTIVITY

Lars Abrahmsen, Stockholm, Sweden; John Burnier, Pacifica, Calif.; James A. Wells, Burlingame, Calif., and David T. Jackson, San Mateo, Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 386,000, Feb. 9, 1995, Pat. No. 5,629,173, which is a division of Ser. No. 218,873, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 13,445, Feb. 4, 1993, abandoned, which is a continuation-in-part of Ser. No. 566,026, Aug. 9, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 475,640

Int. Cl.⁶ A61K *38/00*; **C12P** *21/06*; **C07K** *1/17*

U.S. Cl. 514—12 12 Claims

1. A first ligation substrate capable of specifically binding to a serine protease variant having peptide ligase activity and catalytically reacting with a second ligation substrate to form a ligation product, said first ligation substrate comprising at least one amino acid residue having its carboxy-terminus esterified with a 2-hydroxy carboxylic acid and said serine protease variant having a catalytic triad consisting of aspartate, histidine and serine.

5,736,513

NON-HEMOLYTIC MOSQUITOCIDAL MICROORGANISMS

Armelle Delecluse, Thiers Sur Theve; Andre Klier, Neuilly S/Marne, and Georges Rapoport, Paris, all of France, assignors to Institut Pasteur, Paris, France

Division of Ser. No. 760,075, Sep. 13, 1991, Pat. No. 5,304,484. This application Nov. 10, 1993, Ser. No. 149,950

Int. Cl.⁶ A01N *63/02*; **C12N** *15/32*; **C07K** *14/325*

U.S. Cl. 514—12 8 Claims

1. A composition consisting essentially of purified mosquitocidal crystals produced by the organism *Bacillus thuringiensis israelensis*, wherein said crystals are devoid of the 28 kDa hemolytic polypeptide and have mosquitocidal activity and lack hemolytic activity, wherein said crystals further contain a 125 kD polypeptide and a 135 kD polypeptide.

5,736,514

BACILLUS STRAIN AND HARMFUL ORGANISM CONTROLLING AGENTS

Toshihiko Iizuka, Sapporo; Michito Tagawa, Saitama-ken; Satoshi Arai, Saitama-ken; Masatsugu Niizeki, Saitama-ken, and Toshiro Miyake, Saitama-ken, all of Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Oct. 13, 1995, Ser. No. 542,921

Claims priority, application Japan, Oct. 14, 1994, 6-276082

Int. Cl.⁶ C07H *14/325*; **A01N** *37/18*

U.S. Cl. 514—12 4 Claims

1. An insecticidal crystal protein produced by *Bacillus thuringiensis* var. *japonensis strain* N141 having the amino acid sequence of SEQ ID NO.2

5,736,515

USE OF GROWTH HORMONE FOR INCREASEMENT OF CONCENTRATION OF GH, IGF-I AND IGFBP-3 IN CEREBROSPINAL FLUID

Bengt-Ake Bengtsson; Olle G. P. Isaksson, and Jan-Ove Johansson, all of Göteborg, Sweden, assignors to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden

PCT No. PCT/SE94/00875, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/08345, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 21, 1994, Ser. No. 602,728

Claims priority, application Sweden, Sep. 21, 1993, 9303068

Int. Cl.⁶ A61K *38/00; 38/27*

U.S. Cl. 514—12 8 Claims

1. Method for treatment of a patient for obtaining an increased concentration of a factor selected from the group consisting of growth hormone, insulin-like growth factor I(IGF-I) and IGFBP-3 in cerebrospinal fluid by administration of growth hormone or analogues thereof to a patient in need of said treatment.

5,736,516

METHODS FOR TREATING PHOTORECEPTORS USING GLIAL CELL LINE-DERIVED NEUROTROPHIC FACTOR (GDNF) PROTEIN PROTEIN

Jean-Claude Louis, Thousand Oaks, Calif., assignor to Amgen Inc., Thousand Oaks, Calif.

Continuation of Ser. No. 564,833, Nov. 29, 1995, Pat. No. 5,641,750. This application Feb. 6, 1997, Ser. No. 795,628

Int. Cl.⁶ A61F *2/00*; **A61K** *47/00; 31/685*

U.S. Cl. 514—12 7 Claims

1. A composition comprising photoreceptor cells and a glial cell line derived neurotrophic factor (GDNF) protein product comprising the amino acid sequence of SEQ ID NO:1 or a variant or a derivative thereof, wherein said GDNF protein product promotes the survival of said photoreceptor cells.

5,736,517

TREATMENT OF CANCER WITH PEPTIDES

Arthur E. Bogden, Hopedale, and Jacques-Pierre Moreau, Upton, both of Mass., assignors to Biomeasure, Inc., Milford, Mass.

Continuation-in-part of Ser. No. 520,225, May 9, 1990, Pat. No. 5,217,955, which is a continuation-in-part of Ser. No. 440,039, Nov. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 408,125, Sep. 15, 1989, abandoned. This application Jun. 8, 1993, Ser. No. 73,771

Int. Cl.⁶ A61K *38/00*; **C07K** *5/00; 7/00; 17/00*

U.S. Cl. 514—14 5 Claims

1. A method of treating colon, prostate or breast cancer in a mammal by administering to said mammal an amount of a peptide of the following formula effective to treat said cancer:

D-F_5-phe-His-Trp-Ala-Val-D-Ala-His-D-Ticψ(CH_2N)Tic-NH_2,

D-F_5-phe-His-Trp-Ala-Val-D-Ala-His-D-Proψ(CH_2N)Pro-NH_2,

D-F_5-phe-His-Trp-Ala-Val-D-Ala-His-D-Pro-OCH_3,

D-F_5-phe-His-Trp-Ala-Val-D-Ala-His-D-Proψ(CH_2N)Tic-NH_2,

D-F_5-phe-His-Trp-Ala-Val-D-Ala-His-D-Ticψ(CH_2NH)Phe-NH_2,

D-Tyr-His-Trp-Ala-Val-D-Ala-His-D-Proψ(CH_2NH)Phe-NH_2, or

D-phe-His-Trp-Ala-Val-D-Ala-His-D-Proψ(CH_2NH)Phe-NH_2.

5,736,518

PEPTIDE COMPOUNDS OF (L) AMINO ACIDS AND RING MOLECULES, AND THERAPEUTICAL APPLICATIONS THEREOF

Vincenzo Politi; Giovanni Di Stazio; Andrea Margonelli, and Giovanna De Luca, all of Rome, Italy, assignors to Polifarma S.p.A., Rome, Italy

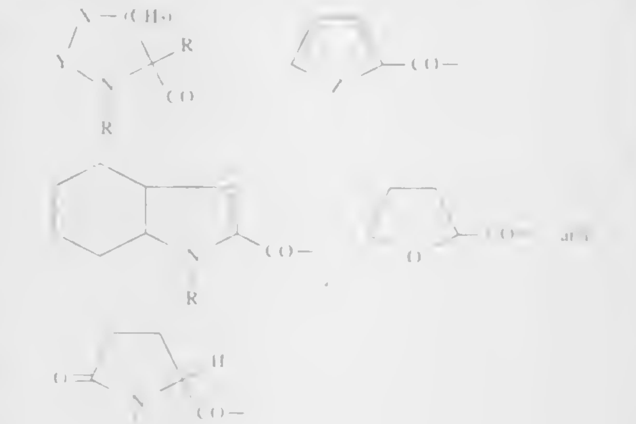
Continuation of Ser. No. 311,449, Sep. 26, 1994, Pat. No. 5,504,071, which is a continuation of Ser. No. 867,231, Jun. 2, 1992, abandoned. This application Dec. 15, 1995, Ser. No. 573,399

Claims priority, application Italy, Oct. 3, 1990, 48335/90

Int. Cl.⁶ A61K *38/00; 38/06*

U.S. Cl. 514—18 22 Claims

1. Compounds of general formula A-B-C in which A is a monovalent radical of a ring molecule selected from the group consisting of



in which:

X can be CH_2, S or CHOH

n can be 0, 1, or 2

R^1 can be H or CH_3

R can be H, CH_3 or a generic nitrogen blocking group used in the synthesis of peptides selected from the group consisting of CBZ, BOC, Fmoc and acetyl

Y can be CH_2 or CO

Z can be NH, NCH_3, O or S,

B is a bivalent radical of an neutral (L) α-amino acid selected from the group consisting of glycine, leucine, alanine and valine, and

C is the monovalent radical of a (L)-aromatic amino acid selected from the group consisting of

MeCytOMe, MeCytOH, CytOMe, CytOH, CypOMe, TrpOMe, PhgOMe, wherein CBZ is carbobenzoxy, MeCytOMe is methyl-1-methyl-(S)-1,2,3,4-tetrahydro-9H-pyrido[3,4-b]indole-3-carboxylate or MeCytOMe is methyl-9-methyl-(S)- 1,2,3,4-tetrahydro-9H-pyrido[3,4-b]indole-3-carboxylate, or MeCytOMe is methyl-(S)-methyl-(S)-1,2,3,4-tetrahydro-9H-pyrido[3,4-b]indole-3-carboxylate, MeCytOH is the free acid form of MeCytOMe, CytOMe is methyl-(S)-1,2,3,4-tetrahydro-9H-pyrido[3,4-b]indole-3-carboxylate, CytOH is the free acid form of CytOMe, CypOMe is (L)-1,2,3,4-tetrahydro-3-isoquinoline methyl ester, TrpOMe is tryptophan methyl ester, PhgOMe is phenyl glycine methyl ester and salts, esters and amides thereof, wherein the compound of formula A-B-C is not

N-CBZ-Pro-Leu-CytOEt,

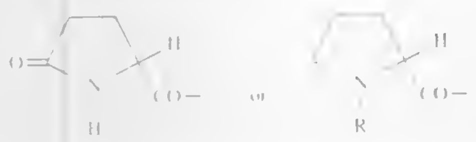
N-CBZ-Pro-Ala-PhgOMe,

2-Fur-Leu-TrpOMe.

VOL
209
SS
1
AP
7
998
UMI

2-Tiol-Leu-TrpOMe,
2-Pyrrolyl-Leu-TrpOMe,
N-Me-Pro-Ala-CytOMe,
N-CBZ-Pip-Leu-TrpOMe,
Pyr-Leu-Cyt, or
2-Fur-Leu-CytOMe,

with the proviso that when A is



in which R has the meaning previously indicated, with the exclusion of CH,

then C cannot be either a residue of trytophan or of phenylalanine.

5,736,519

PEPTIDE, A METHOD FOR ITS PREPARATION AND A PHARMACEUTICAL COMPOSITION CONTAINING THE PEPTIDE

Vladislav I. Deigin, 42 Fenn Avenue, North York Ontario, Canada, M2L 1M8, and Andrei Marxovich Korotkov, c/o Can-Bramar Limited, 1300 Don Mills Road, 2nd Floor, West Entrance, Toronto Ontario, Canada, M3B 2W6

Filed Jun. 7, 1996, Ser. No. 657,888

Int. Cl. A61K *38/00, 38/04, 38/06;* **C04K** *5/00*

U.S. Cl. 514—18 **6 Claims**

1. A peptide of the formula I

X-A-D-Trp-Y (I)

wherein X is selected from the group consisting of hydrogen, glycine, alanine, leucine, isoleucine, valine, N-valine, proline, tyrosine, phenylalanine, tryptophan, D-alanine, D-leucine, D-isoleucine, D-valine, D-N-valine, D-proline, D-tyrosine, D-phenylalanine, D-tryptophan, α-aminobutyric acid, and ξ-aminocaproic acid; A is selected from the group consisting of D-glutamic acid and (D-glutamic acid, and Y is selected from the group consisting of glycine, alanine, leucine, isoleucine, valine, N-valine, proline, tyrosine, phenylalanine, tryptophan, D-alanine, D-leucine, D-isoleucine, D-valine, D-N-valine, D-proline, D-tyrosine, D-phenylalanine, D-tyrptophan, α-aminobutyric acid, ξ-aminocaproic acid, hydroxyl and C to C substituted amide.

5,736,520

PEPTIDASE INHIBITORS

Philippe Bey; Michael R. Angelastro, and Shujaath Mehdi, all of Cincinnati, Ohio, assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio

Division of Ser. No. 214,991, Mar. 21, 1994, which is a continuation of Ser. No. 861,775, Apr. 1, 1992, abandoned, which is a continuation-in-part of Ser. No. 750,439, Aug. 20, 1991, abandoned, which is a continuation of Ser. No. 454,803, Dec. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 439,201, Nov. 20, 1989, abandoned, which is a continuation-in-part of Ser. No. 416,817, Oct. 4, 1989, abandoned, which is a continuation-in-part of Ser. No. 254,762, Oct. 7, 1988, abandoned. This application May 4, 1995, Ser. No. 434,959

Int. Cl. **A61K** *38/05*

U.S. Cl. 514—19 **1 Claim**

1. A method for inhibiting calpain in a patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of the formula

Pg-Val-NHCH(R [illegible]) [illegible] H

a hydrate or a pharmaceutically acceptable salt thereof, wherein Pg is Cbz and R is the side chain of the α-amino acid Phe.

5,736,521

METHOD OF TREATMENT AND PROPHYLAXIS OF ARTERIAL THROMBOSIS

Ruth Elvy Bylund, Västra Frölunda, and Ann-Catrine Elisabet Teger-Nilsson, Mölndal, both of Sweden, assignors to Astra Aktiebolag, Sodertalje, Sweden

Continuation of Ser. No. 984,884, Dec. 2, 1992, Pat. No. 5,614,499. This application Jun. 7, 1995, Ser. No. 481,810

Claims priority, application Sweden, Dec. 4, 1991, 9103612

Int. Cl. **A61K** *38/05*

U.S. Cl. 514—19 **3 Claims**

1. A method of treatment or prophylaxis of arterial thrombosis in a mammal in need of such treatment or prophylaxis, which comprises administering to the mammal a therapeutically effective amount of HOOC-CH₂-(R)Cha-Pic-Nag or a stereoisomer thereof or a physiologically acceptable salt thereof.

5,736,522

ESCULETIN DERIVATIVES AND METHOD FOR MANUFACTURE THEREOF, USE THEREOF, AND PHARMACEUTICAL COMPOSITION

Koju Watanabe; Koichi Niimura, both of Saitama, and Junko Miyagawa, Chiba, all of Japan, assignors to Kureha Chemical Industry Co., Ltd., Tokyo, Japan

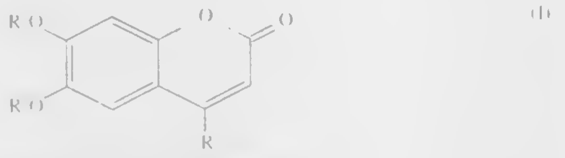
Filed Nov. 15, 1994, Ser. No. 340,421

Claims priority, application Japan, Nov. 15, 1993, 5-308779

Int. Cl. **A61K** *31/70,* **C07H** *1/00-15/00*

U.S. Cl. 514—25 **8 Claims**

8. A method for treating arthropathy, in mammals, comprising administering a chondroprotective amount of a compound of the formula (I)



(I)

wherein R and R are, independently,

i) a hydrogen atom,
ii) a monosaccharide residue,
iii) a protected monosaccharide residue or
iv) a protecting group for hydroxyl group,

but at least one of R and R is a monosaccharide residue or a protected monosaccharide residue, and R is

i) a hydrogen atom,
ii) a hydroxyl group
iii) an alkyl group having 1-4 carbon atoms,
iv) an aryl group having 6-12 carbon atoms,
v) an aralkyl group consisting of an alkyl group having 1-4 carbon atoms substituted with an aryl group having 6-12 carbon atoms

with the proviso that

1) when R and R^2 are glucose residues at the same time, R is not a hydrogen atom,
2) when R is a hydrogen atom or a benzyl group and R^2 is a glucose residue, an acetylated glucose residue, or acetalized glucose residue, R is not a hydrogen atom, or
3) when R is a glucose residue and R is a hydrogen atom, R is not a hydrogen atom,

or a pharmaceutically acceptable salt thereof, said arthropathy being rheumatoid arthritis, osteoarthritis, periarthritis, humeroscapularis, shoulder arm-neck syndrome, or lumbago.

5,736,523

ANTINEOPLASTIC HETERONAPTHOQUINONES

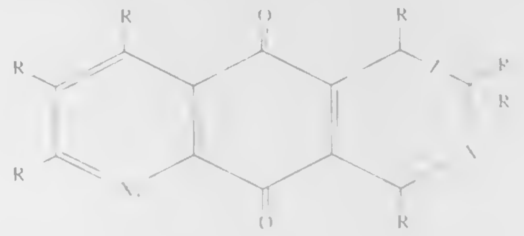
Giorgio Attardo, Laval; Tibor Breining, St-Laurent; Marc Courchesne, Laval-des-Rapides; Serge Lamothe, Boisbriand; Jean-François Lavallée, Laval; Dien Nguyen, Chomedey; Rabindra Rej; Yves St-Denis, both of Montreal; Wuyi Wang, St-Laurent, all of Canada; Yao-Chang Xu, Indianapolis, Ind.; France Barbeau, St-Thérèse, Canada; Elaine Lebeau, Kamloops, Canada, and Jean Louis Kraus, Marseille, France, assignors to Biochem Pharma Inc., Laval, Canada

Continuation-in-part of Ser. No. 148,251, Nov. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,233, Nov. 9, 1992, abandoned. This application Mar. 10, 1995, Ser. No. 401,493

Int. Cl. **A01K** *31/70,* **C07H** *15/24*

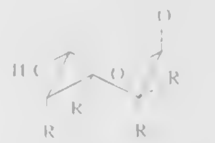
U.S. Cl. 514—27 **9 Claims**

1. A tricyclic compound of formula (I)



wherein,

X is selected from the group consisting of O, S and SO
X is selected from the group consisting of C Q, nitrogen, and NO,
Z is a single or a double bond with the proviso that if Z is a double bond only one of R_6 or R is present,
R, R, R and Q are each independently selected from the group consisting of hydrogen; hydroxy, CN, NO₂; C alkyl, C alkenyl; C alkynyl, C alkoxy, C aryl, C aralkyl C aryloxy; C alkoxyalkyl, C acyl, amine; amido; sulfono, C acyloxy and halogen
R_6 is selected from the group consisting of hydrogen; CN, NO₂; C alkyl, C alkenyl, C alkynyl, C alkoxy, C aryl, C aralkyl; C aryloxy, C acyl, amine; sulfono, C ester, phosphono; and halogen
R is selected from the group consisting of hydrogen, hydroxy, CN, NO₂, C alkyl, C alkoxy, C acyl, amine, sulfono, C ester; thiol; and halogen,
R is a saccharide W of formula (30)



(30)

wherein

R and R are independently selected from the group consisting of hydrogen; hydroxy, NH, C alkyl, C alkoxy, amino, amido, C ester and halogen
R is selected from the group consisting of hydrogen, hydroxy, NH, C alkoxy, amine, amido, C ester, sulfono, thiol, azido, and halogen; and
R is selected from the group consisting of hydrogen, hydroxy, NH, C alkoxy, amino, amido, C acyl, C aryl, C ester, sulfono, saccharide of the formula W as defined above; and halogen;
R is selected from the group consisting of hydrogen, hydroxy, C alkyl; C alkoxy, C acyl, amino, amido, sulfono, C ester, azide, phosphono, halogen, and morpholino, or a geometric or optical isomer thereof, a mixture of said isomers or a pharmaceutically acceptable acid addition salt thereof

with the provisos that

1) when Z is a single bond, X is not O, R, R, R, Q, R and R are not H, R is not OH or OCH, R is not CH
2) when Z is a single bond, X is not O, R, R, R and R are not H, R is not OH or OCH, Q is not OH, R is not OH, R is not CH
3) when Z is a double bond, X is not O, R, R, R, R and R are not H, R is not OH or OCH, Q is not OH or OCH, R is not CH, and
4) when Z is a single bond, X is not O, R, R, R, Q, R and R are not H, R is not OH or OCH, R is not CH

5,736,524

POLYNUCLEOTIDE TUBERCULOSIS VACCINE

Jean Content, Rhode-Saint-Genese; Kris Huygen, Brussels, both of Belgium; Margaret A. Liu, Rosemont, Pa.; Donna Montgomery, and Jeffrey Ulmer, both of Chalfont, Pa., assignors to Merck & Co., Inc., Rahway, N.J., and N. V. Innogenetics S.A., Ghent, Belgium

Filed Nov. 14, 1994, Ser. No. 338,992

Int. Cl. **A61K** *48/00,* **C07H** *21/00,* **C12N** *15/79-15/63*

U.S. Cl. 514—44 **17 Claims**

1. A DNA vaccine comprising a plasmid vector comprising a nucleotide sequence encoding an antigen 85A mature protein operably linked to transcription regulatory elements wherein upon administration into a mammal free from infection with *Mycobacterium tuberculosis* or *Mycobacterium bovis* said mammal is protected from infection by *Mycobacterium tuberculosis* or *Mycobacterium bovis*.

11. A method for immunization of a mammal against infection by *Mycobacterium tuberculosis* or *Mycobacterium bovis* comprising the administration of a DNA vaccine comprising a plasmid vector, said plasmid vector comprising a nucleotide sequence encoding an antigen 85A mature protein operably linked to transcription regulatory elements, wherein upon administration into a mammal free from infection with *Mycobacterium tuberculosis* or *Mycobacterium bovis* said mammal is protected from infection by *Mycobacterium tuberculosis* or *Mycobacterium bovis*.

5,736,525

COMPLEXES OF POLYADENYLIC ACID WITH POLYURIDYLIC ACID

Ara G. Hovanessian, Bourg la Reine, and Evelyne Deschamps de Paillette, Paris, both of France, assignors to Societe de Conseils de Recherches et d'Applications Scientifiques (S.C.R.A.S.), France

Division of Ser. No. 582,658, Jan. 4, 1996, which is a continuation of Ser. No. 437,219, May 8, 1995, abandoned, which is a continuation of Ser. No. 218,850, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 99,048, Jul. 28, 1993, abandoned, which is a continuation of Ser. No. 866,435, Apr. 10, 1992, abandoned. This application Mar. 13, 1997, Ser. No. 816,643

Claims priority, application United Kingdom, Apr. 16, 1991, 91-08085

Int. Cl. **A61K** *48/00*

U.S. Cl. 514—44 **13 Claims**

1. A therapeutic composition for the treatment of Acquired Immuno Deficiency Syndrome (AIDS), said composition comprising as an active ingredient of a complex of Poly(A)·Poly(U) and anti-AIDS coagent which acts on the HIV according to a different mechanism from that of the complex of Poly(A)·Poly(U) and pharmaceutically acceptable diluents or carriers.

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5,736,526

MIXTURES OF DDI AND D4T WITH HYDROXYCARBAMIDE FOR INHIBITING RETROVIRAL REPLICATION

Serge D. Malley, Villeurbanne, and Jorge R. Vila, Lyons, both of France, assignors to Compagnie de Development Aguettant S.A., France

Division of Ser. No. 401,488, Mar. 8, 1995, which is a continuation-in-part of Ser. No. 378,219, Jan. 25, 1995, abandoned, which is a continuation-in-part of Ser. No. 169,253, Dec. 20, 1993, Pat. No. 5,521,161. This application Dec. 22, 1995, Ser. No. 577,322

Int. Cl.⁶ A61K *31/70,31/17*

U.S. Cl. 514—45 **16 Claims**

1. A method of inhibiting retroviral replication in cells comprising administration to a host in need thereof a combination of hydroxycarbamide and the dideoxynucleosides 2',3'-dideoxyinosine (ddI) and 2',3'-didehydro-3'-deoxythymidine (d4T).

9. A composition useful for inhibiting retroviral replication comprising hydroxycarbamide and the dideoxynucleosides 2',3'-dideoxyinosine (ddI) and 2',3'-didehydro-3'-deoxythymidine (d4T).

5,736,527

METHOD OF TREATING HIV IN HUMANS BY ADMINISTRATION OF DDI AND HYDROXYCARBAMIDE

Serge D. Malley, Villeurbanne, and Jorge R. Vila, Lyon, both of France, assignors to Compagnie de Developpment Aguettant S.A., Lyon, France

Continuation of Ser. No. 169,253, Dec. 20, 1993, Pat. No. 5,521,161. This application Mar. 18, 1996, Ser. No. 617,421

Int. Cl.⁶ A61K *31/70*

U.S. Cl. 514—45 **3 Claims**

1. A method of treating an HIV infected human comprising administering to said human a dosage of hydroxycarbamide (HC) to yield an in vivo blood plasma concentration of about 0.15 mM and a dosage of 2',3'-dideoxyinosine (ddI) to produce an in vivo blood plasma concentration in the range of about 5–10 μM.

2. A method of treating an HIV infected human comprising administering to said human a dosage of hydroxycarbamide (HC) to yield an in vivo blood plasma concentration of about 0.15 mM and a dosage of 2',3'-dideoxyinosine (ddI) to produce an in vivo blood plasma concentration of about 5 μM.

3. A method of treating an HIV infected human comprising administering to said human a dosage of hydroxycarbamide (HC) to yield an in vivo blood plasma concentration of about 0.15 mM and a dosage of 2',3'-dideoxyinosine (ddI) to produce an in vivo blood plasma concentration of about 10 μM.

5,736,528

N^6-(EPOXYNORBORN-2-YL) ADENOSINES AS A_1 ADENOSINE RECEPTOR AGONISTS

Luiz Belardinelli, Gainesville; Ray Olsson, Tampa; Stephen Baker, Gainesville, all of Fla.; Peter J. Scammells, Highton, Australia; Peter G. Milner, and Jurg R. Pfister, both of Los Altos, Calif., assignors to University of Florida Research Foundation, Inc., Gainesville, Fla.

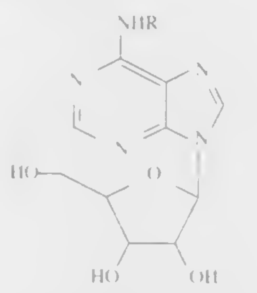
Continuation-in-part of Ser. No. 330,640, Oct. 28, 1994, Pat. No. 5,631,260, which is a continuation-in-part of Ser. No. 144,459, Oct. 28, 1993, Pat. No. 5,446,046. This application Dec. 29, 1995, Ser. No. 581,655

Int. Cl.⁶ A61K *31/70*; **C07H** *19/16*

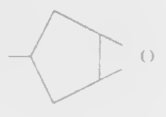
U.S. Cl. 514—46 **10 Claims**

1. An adenosine epoxide compound which selectively and specifically binds an A_1 adenosine receptor to act as an agonist of said receptor, wherein said compound is an N^6-(epoxycycloalkyl) adenosine.

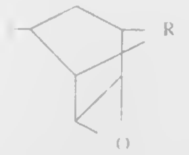
2. The compound according to claim 1, wherein said compound has the formula



wherein R



or



wherein R = alkyl of 1–4 carbons.

5,736,529

USE OF NAD-RELATED COMPOUNDS IN THE TREATMENT OF NEURAL TRAUMA TO INHIBIT NEURODEGENERATION

James David Adams, La Crescenta; Lori Kathleen Klaidman, Santa Monica, and Suman Kumar Mukherjee, Los Angeles, all of Calif., assignors to Neurocal International Inc., Mountain View, Calif.

Filed Mar. 22, 1996, Ser. No. 624,291

Int. Cl.⁶ A61K *31/455*

U.S. Cl. 514—46 **10 Claims**

1. A method for reducing the degree of neural apoptosis in a mammal due to a stroke which method comprises administering to the mammal an effective amount of a pharmaceutical composition consisting essentially of an NAD related compound wherein the pharmaceutical composition administered reduces the degree of apoptosis.

5,736,530

GUANYLIC ACID DERIVATIVES AND THEIR USE AS DRUGS

Dat Xuong Nguyen, Antony; Jean Rapin, Paris; Patrick Lambropoulos, Marseilles, and Jean Daver, Saix, all of France, assignors to Societe de Recherche Auvergnate pour l'Innovation en Oligotherapie-Inoligo-, Chamalieres, France

PCT No. PCT/FR95/00806, § 371 Date Jan. 29, 1997, § 102(e) Date Jan. 29, 1997, PCT Pub. No. WO95/35305, PCT Pub. Date Dec. 28, 1995

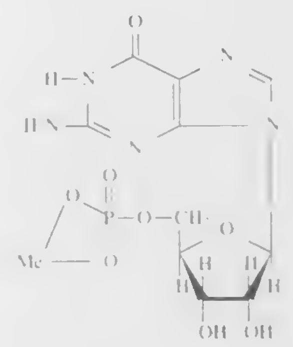
PCT Filed Jun. 16, 1995, Ser. No. 750,477

Claims priority, application France, Jun. 17, 1994, 94 07490

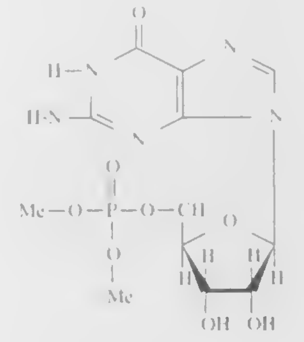
Int. Cl.⁶ A61K *31/70*; **C07H** *19/167*

U.S. Cl. 514—48 **10 Claims**

1. Guanylic acid derivatives according to either of the following general formulae (I) and (II)



(I)



(II)

in which Me is a metal trace element involved in the enzymatic activity of physiological processes.

5,736,531

COMPOSITIONS OF CHEMOTHERAPEUTIC AGENT OR ANTIVIRAL AGENT WITH ACYLATED PYRIMIDINE NUCLEOSIDES

Reid W. von Borstel, and Michael K. Bamat, both of Potomac, Md., assignors to Pro-Neuron, Inc., Rockville, Md.

Continuation-in-part of Ser. No. 61,381, May 14, 1993, abandoned, which is a continuation-in-part of Ser. No. 903,107, Jun. 25, 1992, abandoned, which is a continuation-in-part of Ser. No. 724,340, Jul. 5, 1991, abandoned, which is a continuation-in-part of Ser. No. 438,493, Jun. 27, 1989, abandoned, which is a continuation-in-part of Ser. No. 115,929, Oct. 27, 1987, abandoned, said Ser. No. 724,340 is a continuation-in-part of Ser. No. 487,984, Feb. 5, 1990, abandoned, which is a continuation-in-part of Ser. No. 115,923, Oct. 28, 1987, abandoned. This application Dec. 30, 1993, Ser. No. 176,485

Int. Cl.⁶ C07H *19/06;19/067;19/073;19/09*

U.S. Cl. 514—50 **13 Claims**

1. A composition comprising: an acyl derivative of uridine or cytidine; and an antineoplastic pyrimidine nucleoside analog, pyrimidine analog or inhibitor of pyrimidine biosynthesis.

5,736,532

MULTIFUNCTIONAL FAT ABSORPTION AND BLOOD CHOLESTEROL REDUCING FORMULATION COMPRISING CHITOSAN

Ivan Furda, 16664 Meadowbrook La., Wayzata, Minn. 55391

Filed Feb. 14, 1996, Ser. No. 601,388

Int. Cl.⁶ A61K *31/73*

U.S. Cl. 514—55 **11 Claims**

1. A cholesterol reduction formulation comprising chitosan and nicotinic acid, said chitosan being present in a weight amount relative to the nicotinic acid of between 0.67 and 360.

5,736,533

BACTERIAL INHIBITION WITH AN OLIGOSACCHARIDE COMPOUND

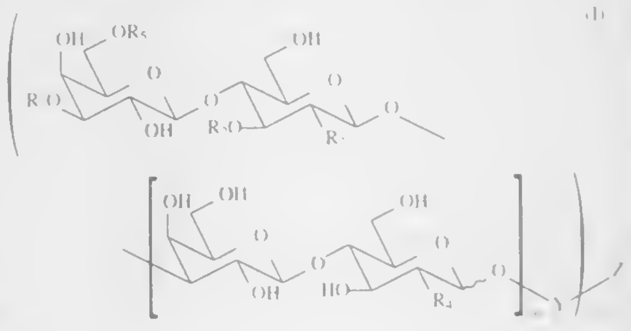
Paul M. Simon, Wilmington, Del.; David Zopf, Strafford, Pa.; Roger A. Barthelson, Kintnersville, Pa., and Karl F. Johnson, Willow Grove, Pa., assignors to Neose Technologies, Inc., Horsham, Pa.

Filed Jun. 7, 1995, Ser. No. 488,053

Int. Cl.⁶ A61K *31/70;31/715*

U.S. Cl. 514—61 **16 Claims**

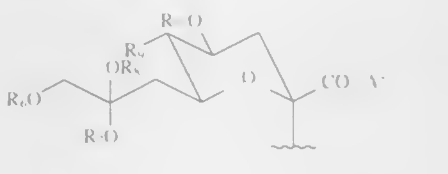
1. A method of inhibiting colonization of a bacteria selected from the group consisting of *S. pneumoniae*, *H. influenzae*, *H. parainfluenzae*, *Burkholderia* (Pseudomonas) *cepacia*, and a mixture thereof, by administering a binding inhibiting effective amount of the compound of Formula I.



(I)

where

R_1 is H, (β-1)GalNAc—, SO_3B (where B is H or a cation) or a sialic acid of Formula II.



(II)

where

R_6, R_7, R_8, and R_{10} are each independently H, C_{1-6} acyl, lactyl, C_{1-6} alkyl, sulfate, phosphate, anhydro, a sialic acid of Formula II, (α-1)Fuc, (β-1)Glc or (β-1)Gal,

R_9 is NH—C_{1-6} acyl, glycolylamido, amino or hydroxyl, and A is H or a cation;

R_2 is H or (α-1)Fuc—;

R_3 and R_4 are each independently OH or NHAc,

R_5 is H, SO_3B (where B is H or a cation) or a sialic acid of Formula II as defined above, and

Y is a chemical bond or a linking group;

Z is H or a multivalent support;

m is 0 or 1; and

p is an integer of 1 to 1,000, with the proviso that the compound is not Galβ1-4 GlcNAcβ1-3-Galβ1-4 Glc

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5,736,534

4-HETEROCYCLYL-SUBSTITUTED QUINAZOLINE DERIVATIVES, PROCESSES FOR THEIR PREPARATION AND THEIR USE AS ANTI-CANCER AGENTS

Lee D. Arnold, Westborough, Mass., assignor to Pfizer Inc., New York, N.Y.

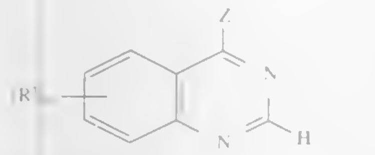
PCT No. PCT/IB95/00061, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO95/23141, PCT Pub. Date Aug. 31, 1995

Continuation-in-part of Ser. No. 200,259, Feb. 23, 1994, abandoned. This PCT application Jan. 27, 1995, Ser. No. 682,565

Int. Cl.^{6} C07D *403/02; 402/14;* **A61K** *31/535; 31/54*

U.S. Cl. 514—63 **20 Claims**

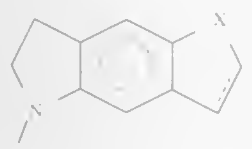
1. A compound of Formula I



Formula I

and the pharmaceutically acceptable salts and stereoisomers thereof wherein

Z is



X is —N(H)—,

R^1 for each occurrence is substituted independently in the 6 and/or 7 position,

R for each occurrence is independently hydroxy, (C_1-C_4)alkoxy, hydroxy(C_2-C_4)alkoxy, amino(C_2-C_4)alkyl, amino(C_2-C_4)alkoxy, (C_1-C_4)alkoxy(C_2-C_4)alkoxy, (C_1-C_4)alkylenedioxy, hydroxy(C_1-C_4)alkyl(C_1-C_4)alkylenedioxy, (C_1-C_4)alkoxy(C_1-C_4)alkyl(C_1-C_4)alkylenedioxy, mono-N- or di-N,N-(C_1-C_4)alkylamino(C_2-C_4)alkoxy, 3- or 4-(C_1-C_4)alkoxy-(2-hydroxy)-(C_1-C_4)alkoxy, carboxy(C_1-C_4)alkoxy, morpholino(C_2-C_4)alkoxy, imidazol-1-yl(C_2-C_4)alkoxy, 4(C_1-C_4)alkylpiperazin-1-yl-(C_2-C_4)alkoxy, (C_1-C_4)alkoxy$(C-C_4)$alkanoyloxy, nitro, hydroxylamino, amino, mono-N- or di-N,N-(C_1-C_4)alkylamino, (C_1-C_4)alkanoylamino, hydroxy(C_2-C_4)alkylamino, (C_1-C_4)alkoxy(C_2-C_4)alkylamino, (C_1-C_4)alkylsulfonamido, morpholino, (C_1-C_4)alkylpiperazin-1-yl, bis(C_1-C_4)alkanesulfonamido, di(C_1-C_4)alkylamino(C_2-C_4)alkylamino, (C_1-C_4)alkylamino(C_2-C_4)alkylamino, imidazol-1-yl, piperidin-1-yl, pyrrolidin-1-yl, (C_1-C_4)alkoxy(C_1-C_4)alkylcarbonylamino, N-(C_1-C_4)alkyl N-(C_1-C_4)alkanoyl-amino, carboxy, (C_1-C_4)alkoxycarbonyl, (C_1-C_4)alkoxycarbonyl(C_1-C_4)alkoxy, amido, mono-N- or di-N,N-(C_1-C_4)alkylaminocarbonyl, mono-N- or di-N,N-(hydroxy (C_2-C_4)alkyl)aminocarbonyl, (C_1-C_4)alkyl, hydroxy(C_1-C_4)alkyl, mono-N- or di-N,N-((C_1-C_4)alkoxy (C_1-C_4)alkyl)amino(C_1-C_4)alkyl, mono-N- or di-N,N-(C_1-C_4)alkylamino(C_1-C_4)alkyl, (C_1-C_4)alkanoylamino(C_1-C_4)alkyl, (C_1-C_4)alkoxy(C_2-C_4)alkoxy(C_1-C_4)alkyl, (C_1-C_4)alkylthio, (C_1-C_4)alkoxy(C_2-C_4)alkylthio or hydroxy (C_2-C_4)alkylthio; and

m is 0, 1 or 2

5,736,535

1-PYRIMIDINYLACETAMIDE COMPOUNDS WHICH ARE INHIBITORS OF HUMAN LEUKOCYTE ELASTASE

Peter Robert Bernstein, Wallingford; Philip Duke Edwards, Kennet Square; Andrew Shaw, Kennett Square, all of Pa.; Ashokkumar Bhikkappa Shenvi, Wilmington, Del.; Royston Martin Thomas, Macclesfield, England; Chris Allan Veale, Newark, Del.; Peter Warner, Macclesfield, England, and Donald John Wolanin, Orange, Conn., assignors to Zeneca Limited, United Kingdom

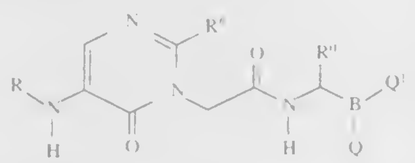
Continuation of Ser. No. 44,855, Apr. 8, 1993, abandoned. This application Jan. 19, 1995, Ser. No. 375,136

Claims priority, application United Kingdom, Apr. 16, 1992, 9208382; Aug. 14, 1992, 9217301

Int. Cl.^{6} A61K *31/69;* **C07F** *5/02; 5/04*

U.S. Cl. 514—64 **11 Claims**

1. A compound of Formula I wherein



I

R^0 is (1–5C)alkyl;

R^6 is (a) phenyl which may optionally bear one or more substituents selected from halogeno, (1–6C)alkyl, lower alkoxy, and amino;

(b)(1-5C)alkyl which has no tertiary carbon; or

(c) thienyl;

R is (a) hydrogen;

(b) an acyl group of the formula A. X. CJ where J is oxygen; X is oxy or a direct bond; and A is (1–6C)alkyl, benzyl, phenyl or pyridyl(1–3C)alkyl which may optionally bear one or more methyl groups; or

(c) a sulfonyl group of the formula D. W. SO$_2$ wherein D is (1–6C) alkyl or (3–6C)cycloalkyl and W is a direct bond or imino;

Q^1 and Q^2, which may be the same or different, is each hydroxy or OR^7, or when taken together form a moiety derived from a physiologically acceptable dihydroxy compound wherein said moiety is the residue derived from 2,3-butanediol, 2,3-dimethyl-2,3-butanediol, 1,3-propanediol, diethanolamine, catechol, (1R,2R,3S,5R)-(−)-pinanediol, (1S,2S,3R,5S-(+)-pinanediol, or 2,5-dimethylhexan-3,4-diol, wherein R^7 is (1–10C)alkyl, (3–10C)cycloalkyl, benzyl or phenyl in which benzyl or phenyl the ring may bear one or more halogeno, lower alkyl or lower alkoxy substituents;

or pharmaceutically acceptable salt thereof.

8. A compound selected from 2-(5-amino-6-oxo-2-phenyl-1,6-dihydro-1 pyrimidinyl)-N-[2-methyl-1-(4,4,5,5-tetramethyl-1,3,2-dioxaborolidin-2-yl)propyl]acetamide, 2-[5-cyclohexylaminosulfonylamino-2-(4-fluorophenyl)-6-oxo-1,6-dihydro-1-pyrimidinyl]-N-[2-methyl-1-(4,4,5,5-tetramethyl-1,3,2-dioxaborolidin-2-yl)propyl]acetamide, 2-(5-cyclohexylaminosulfonylamino-2-phenyl-6-oxo-1,6-dihydro-1-pyrimidinyl)-N-[2-methyl-1-(4,4,5,5-tetramethyl-1,3,2-dioxaborolidin-2-yl)propyl]acetamide, and 2-[2-(4-aminophenyl)-5-cyclohexylaminosulfonylamino-6-oxo-1,6-dihydro-1 pyrimidinyl]-N-[2-methyl-1-(4,4,5,5-tetramethyl-1,3,2-dioxaborolidin-2-yl)propyl]acetamide, or a pharmaceutically acceptable salt thereof

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5,736,536

METHOD FOR TREATING VASCULAR LEAK SYNDROME

Clay Siegall, and Dana Chace, both of Seattle, Wash., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Division of Ser. No. 293,351, Aug. 19, 1994. This application Feb. 6, 1997, Ser. No. 795,751

Int. Cl.^{6} A61K *31/60; 61/54; 31/54*

U.S. Cl. 514—165 **9 Claims**

1. A method for preventing vascular leak syndrome comprising administering to a mammalian species in need thereof a therapeutically effective amount of a non-steroidal antiinflammatory agent selected from the group consisting of indomethacin, piroxicam, meclofenanate, naproxen, ibuprofen and aspirin.

5,736,537

DEHYDROEPIANDROSTERONE SAILCYLATE USEFUL AGAINST SKIN ATROPHY

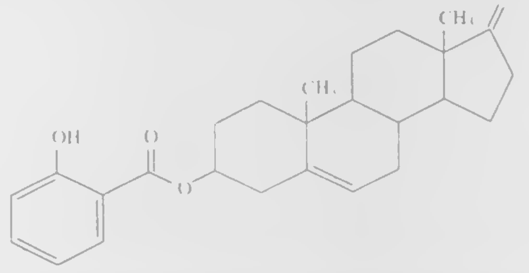
Joseph Gubernick, New York, and Daniel H. Maes, Huntington, both of N.Y., assignors to Estee Lauder, Inc., New York, N.Y.

Filed Sep. 12, 1995, Ser. No. 527,145

Int. Cl.^{6} C07J *1/00;* **A61K** *31/565*

U.S. Cl. 514—178 **3 Claims**

1. A method for regulating skin atrophy in a patient which comprises topically administering to the area of atrophied skin of the patient a composition comprising a pharmaceutically or cosmetically acceptable vehicle and a compound having the structure



III

or a pharmaceutically or cosmetically acceptable salt thereof

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5,736,538

TRICYCLIC BENZAZEPINE VASOPRESSIN ANTAGONISTS

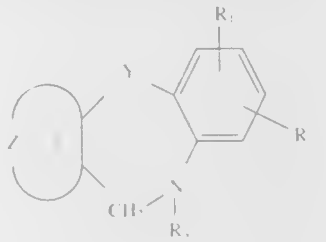
Jay Donald Albright, Nanuet, and Xuemei Du, Valley Cottage, both of N.Y., assignors to American Cyanamid Company, Madison, N.J.

Continuation-in-part of Ser. No. 254,823, Jun. 13, 1994, Pat. No. 5,512,563, which is a continuation-in-part of Ser. No. 100,003, Jul. 29, 1993, abandoned. This application Apr. 25, 1996, Ser. No. 638,059

Int. Cl.^{6} A61K *31/55;* **C07D** *223/00; 223/14*

U.S. Cl. 514—215 **55 Claims**

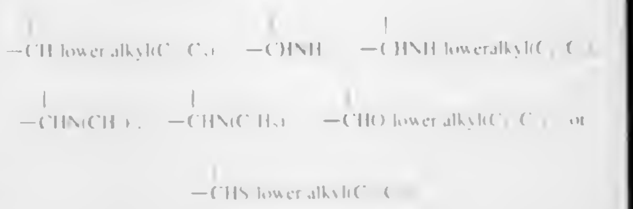
1. A compound selected from Formula I



Formula I

wherein:

Y is selected from —CH$_2$—,



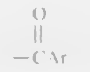
$-\overset{|}{C}H\,\text{lower alkyl}(C_1-C_3)$, $-\overset{|}{C}HNH_2$, $-\overset{|}{C}HNH\,\text{loweralkyl}(C_1-C_3)$, $-\overset{|}{C}HN(CH_3)_2$, $-\overset{|}{C}HN(C_2H_5)_2$, $-\overset{|}{C}HO\,\text{lower alkyl}(C_1-C_3)$ or $-\overset{|}{C}HS\,\text{lower alkyl}(C_1-C_3)$

R$_1$ is H, halogen (chlorine, fluorine, bromine, iodine), OH, —S lower alkyl (C_1-C_3), —SH, —SO lower alkyl (C_1-C_3), —SO$_2$ lower alkyl (C_1-C_3), —CO lower alkyl (C_1-C_3), —CF$_3$, lower alkyl (C_1-C_3), —O lower alkyl (C_1-C_3), —NO$_2$, —NH$_2$, —NHCO lower alkyl (C_1-C_3), —N-[lower alkyl (C_1-C_3)]$_2$, SO$_2$NH$_2$, —SO$_2$NH lower alkyl (C_1-C_3), or —SO$_2$N [lower alkyl (C_1-C_3)]$_2$;

R$_2$ is H, Cl, Br, I, F, —OH, lower alkyl (C_1-C_3), —O lower alkyl (C_1-C_3); or

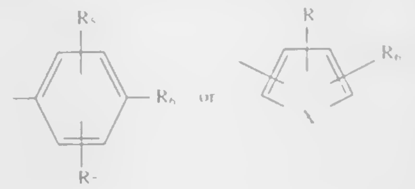
R$_1$ and R$_2$ taken together are methylenedioxy or ethylenedioxy;

R$_3$ is the moiety



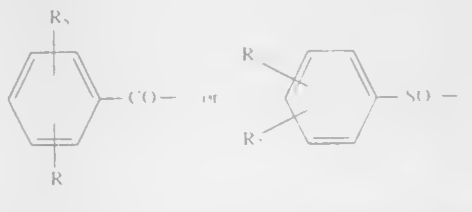
$$-\overset{\overset{O}{\|}}{C}Ar$$

wherein Ar is a moiety selected from the group



and X is selected from O, S, —NCH$_3$, or —N—COCH$_3$,

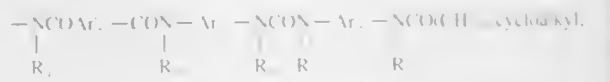
R$_4$ is selected from H, lower alkyl (C_1-C_3), —CO lower alkyl (C_1-C_3), SO$_2$ lower alkyl (C_1-C_3), and the moieties of the formulae:



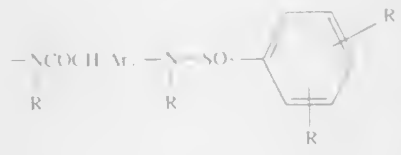
R$_5$ is H, —CH$_3$, —C$_2$H$_5$, Cl, Br, F, —O—CH$_3$ or —O—C$_2$H$_5$,

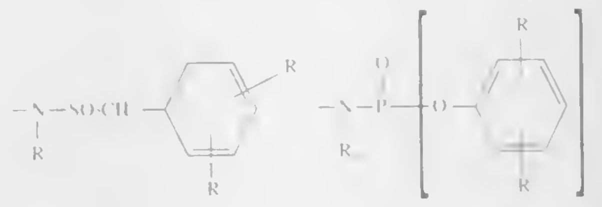
R$_6$ is selected from:

(a) moieties of the formula



$-\underset{R_1}{\underset{|}{N}}COAr$, $-CO\underset{R_{...}}{\underset{|}{N}}-Ar$, $-\underset{R_{...}}{\underset{|}{N}}CO\underset{R}{\underset{|}{N}}-Ar$, $-\underset{R}{\underset{|}{N}}COCH_2$-cycloalkyl,





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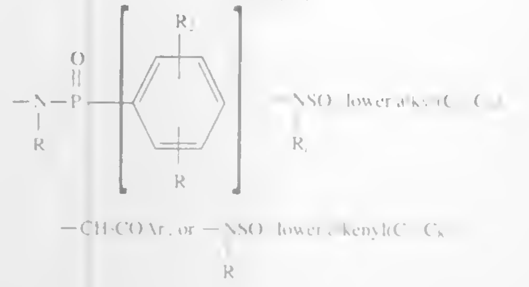


wherein

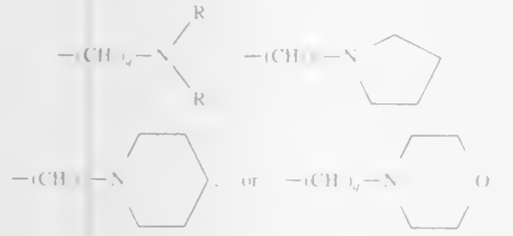
cycloalkyl is defined as C–C cycloalkyl, cyclohexenyl or cyclopentenyl,

R_2 is as hereinbefore defined,

n is 0–2,

R_3 is H, $-CH_3$, $-C_2H_5$, Cl, Br, F, $-OCH_3$, $-OC_2H_5$ or $-CF_3$,

R_4 is hydrogen, CH_3, C_2H_5, moieties of the formulae

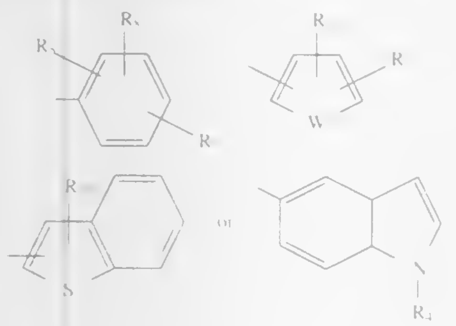


$(CH_2)_2$–O-lower alkyl (C_1-C_3) or $-CH_2CH_2OH$,

q is one or two;

R_b is hydrogen, $-CH_3$ or $-C_2H_5$,

Ar' is selected from the group:



wherein

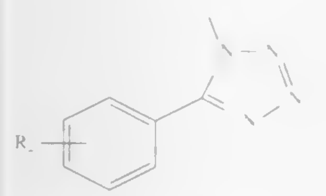
R_3, R_5 are as hereinbefore defined,

R_8 and R_9 are independently hydrogen, lower alkyl (C_1–C_3), -O-lower alkyl (C_1–C_3), S-lower alkyl (C_1–C_3), $-CF_3$, CN, OH, $-SCF_3$, OCF_3, halogen, NO_2, amino, or NH-lower alkyl (C_1–C_3),

R_{10} is selected from halogen, hydrogen, or lower alkyl (C_1–C_3),

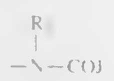
W' is selected from O, S, NH, N-lower alkyl (C_1–C_3), $-NCO$-lower alkyl (C_1–C_3), or NSO_2-lower alkyl (C_1–C_3); or

(b) a moiety of the formula

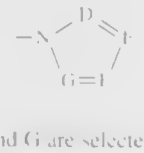


where R_2 is as hereinbefore defined,

(c) a moiety of the formula:

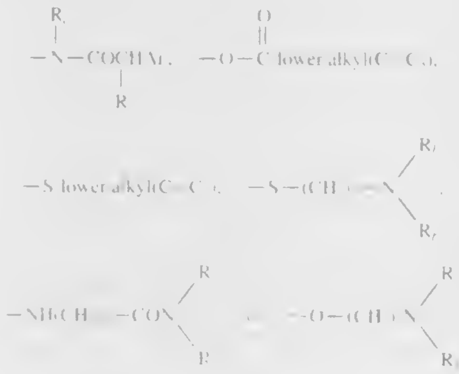


wherein J is R_b, lower alkyl (C_1–C_8) branched or unbranched, lower alkenyl (C_2–C_8) branched or unbranched, O-lower alkyl (C_1–C_8) branched or unbranched, –O-lower alkenyl (C_2–C_8) branched or unbranched, tetrahydrofuran, tetrahydrothiophene, or $-CH_2-K$ wherein K is halogen, –OH, tetrahydrofuran tetrahydrothiophene or the heterocyclic ring moiety



wherein D, E, F and G are selected from carbon or nitrogen and wherein the carbon atoms may be optionally substituted with halogen, (C_1–C_3)lower alkyl, hydroxy, –CO-lower alkyl (C_1–C_3), CHO, (C_1-C_3)lower alkoxy, or $-CO_2$-lower alkyl (C_1–C_3), and R_a and R_b are as hereinbefore defined;

(d) a moiety selected from those of the formulae:



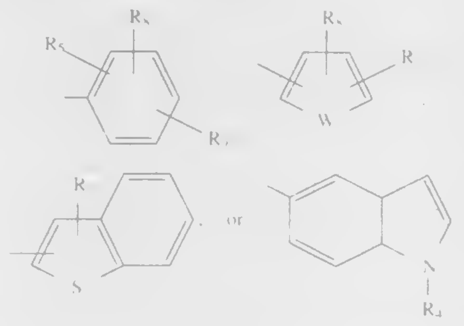
wherein

R_c is selected from halogen, (C_1-C_3) lower alkyl, –O-lower alkyl (C_1-C_3) or OH;

R_b is as hereinbefore defined;

q is 1 or 2;

wherein Ar' is selected from the group



R_5 is hydrogen, $-CH_3$, $-C_2H_5$, Cl, Br, F, $-OCH_3$, $-OC_2H_5$, or $-CF_3$,

R_8 and R_9 are independently hydrogen, lower alkyl (C_1–C_3), O-lower alkyl (C_1–C_3), S lower alkyl (C_1–C_3), $-CF_3$, –CN, –OH, $-SCF_3$, $-OCF_3$, halogen, NO_2, amino, or –NH lower alkyl (C_1–C_3);

R_{10} is selected from the group of halogen, hydrogen, or lower alkyl (C_1-C_3),

W' is selected from O, S, NH, N-lower alkyl (C_1–C_3), –NCO lower alkyl (C_1-C_3), or NSO_2-lower alkyl (C_1–C_3).

the moiety

represents a fused thiophene ring or fused substituted thiophene ring optionally substituted by one or two substituents selected from (C_1-C_3) lower alkyl, halogen, or (C_1-C_3) lower alkoxy;

or a pharmaceutically acceptable salt, ester or prodrug thereof.

5,736,539

INHIBITORS OF FARNESYL-PROTEIN TRANSFERASE

Samuel L. Graham, Schwenksville, and Theresa M. Williams, Harleysville, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

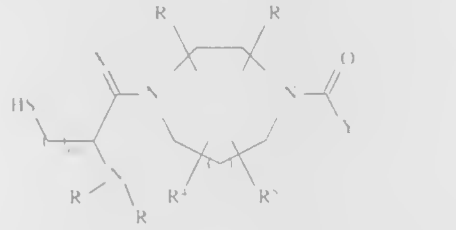
PCT No. PCT/US94/05634, § 371 Date Nov. 16, 1995, § 102(e) Date Nov. 16, 1995, PCT Pub. No. WO95/00497, PCT Pub. Date Jan. 5, 1995

PCT Filed May 19, 1994, Ser. No. 549,829

Int. Cl.⁶ A61K *31/495; 31/55;* **C07D** *243/08, 401/00*

U.S. Cl. 514—218 **19 Claims**

1. A compound which inhibits farnesyl-protein transferase of the formula A:



wherein:

X is O or H_2;

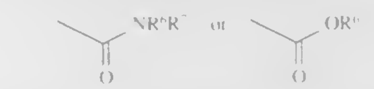
m is 1 or 2;

n is 0 or 1;

t is 1 to 4;

R and R^1 are independently selected from H, C_{1-4} alkyl, or aralkyl,

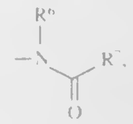
R^2, R^3, R^4, and R^5 are independently selected from, H, C_{1-8} alkyl, alkenyl, alkynyl, aryl, heterocycle,



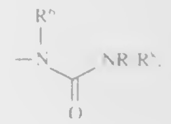
unsubstituted or substituted with one or more of

1) aryl or heterocycle, unsubstituted or substituted with:
    a. C1 1-4 alkyl,
    b. $(CH_2)_tOR^6$,
    c. $(CH_2)_tNR^6R^7$,
    d. halogen,
2) C_{3-6} cycloalkyl,
3) OR^6,
4) SR^6, $S(O)R^6$, SO_2R^6,
5) $-NR^6R^7$

6)



7)



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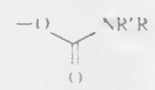
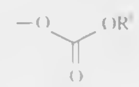
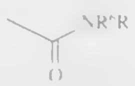
8)



9)

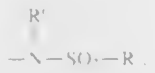


10)



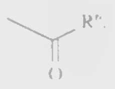
11) $-SO_2-NR^6R^7$,

12)



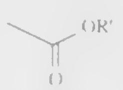
$$-\overset{R^6}{\underset{|}{N}}-SO_2-R^7,$$

13)



or

14)

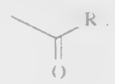


and any two of R^2, R^3, R^4, and R^5 are optionally attached to the same carbon atom;

Y is aryl, heterocycle, unsubstituted or substituted with one or more of

1) C_{1-4} alkyl, unsubstituted or substituted with
    a. C_{1-4} alkoxy,
    b. NR^6R^7,
    c. C_{3-6} cycloalkyl,
    d. aryl or heterocycle,
    e. HO,
2) aryl or heterocycle,
3) halogen,
4) OR^6,
5) NR^6R^7,
6) CN,
7) NO_2, or
7) CF_3;

R^6, R^7 and R^8 are independently selected from H, C_{1-4} alkyl, C_{3-6} cycloalkyl, heterocycle, aryl, aroyl, heteroaroyl, arylsulfonyl, heteroarylsulfonyl, unsubstituted or substituted with
    a) C_{1-4} alkoxy,
    b) aryl or heterocycle,
    c) halogen,
    d) HO,
    e)



    f) $-SO_2R^9$, or
    g) NRR^1, wherein

R^6 and R^7 may be joined to form a piperidinyl ring;

R^9 is C_{1-4} alkyl or aralkyl;

heteroaryl is independently selected from, benzimidazolyl, benzisoxazolyl, benzofurazanyl, benzofuryl, benzothiazolyl, benzothienyl, benzoxazolyl, furyl, imidazolyl, indolyl, isoquinolinyl, isothiazolyl, naphthyridinyl, pyridyl, pyrazinyl, pyrazolyl, pyrimidinyl, pyrrolyl, quinazolinyl, quinolinyl, thiazolyl, thienofuryl, thienothienyl, and thienyl, and

heteroaroyl is $-C(=O)$-heteroaryl;

or a optical isomer, disulfide or pharmaceutically acceptable salt thereof.

VOL
209
SS
1
AP
7
998
UMI

5,736,540

TRICYCLIC DIAZEPINE VASOPRESSIN ANTAGONISTS AND OXYTOCIN ANTAGONISTS

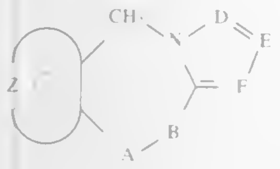
Jay Donald Albright, Nanuet; Marvin Fred Reich, Suffern; Fuk-Wah Sum, Pomona, and Efren Guillermo Delos Santos, Nanuet, all of N.Y., assignors to American Cyanamid Company, Madison, N.J.

Continuation-in-part of Ser. No. 468,737, Jun. 6, 1995, Pat. No. 5,624,923, which is a division of Ser. No. 254,822, Jun. 13, 1994, Pat. No. 5,516,774, which is a continuation-in-part of Ser. No. 100,004, Jul. 29, 1993, abandoned. This application May 8, 1996, Ser. No. 646,841

Int. Cl.^{6} A61K *31/55;* **C07D** *223/00;495/00*

U.S. Cl. 514—220 **64 Claims**

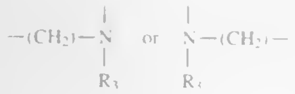
1. A compound selected from Formula I:



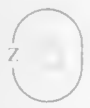
Formula I

wherein:

A—B is

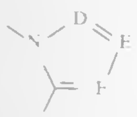

$$-(CH_2)-\underset{R_3}{\overset{|}{N}}\quad\text{or}\quad\underset{R_3}{\overset{|}{N}}-(CH_2)-$$

the moiety

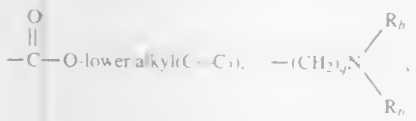


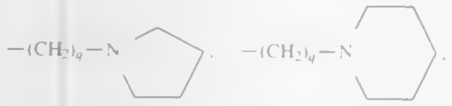
represents a fused thiophene or fused substituted thiophene optionally substituted by one or two substituents selected from (C_1–C_3) lower alkyl, halogen, or (C_1–C_3) lower alkoxy;

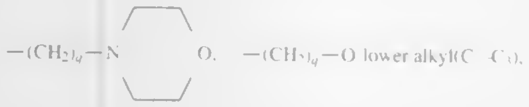
the moiety:

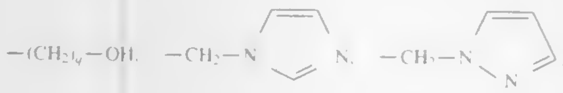


is a five-membered aromatic (unsaturated) fused nitrogen-containing heterocyclic ring wherein D is carbon or nitrogen, E, and F are carbon and wherein the carbon atoms may be optionally substituted by a substituent selected from halogen, (C_1–C_3) lower alkyl, hydroxy, $COCCl_3$, $COCF_3$,


$$-\overset{O}{\overset{\|}{C}}-O\text{-lower alkyl}(C_1–C_3),\quad -(CH_2)_qN\begin{smallmatrix}R_b\\R_b\end{smallmatrix},$$







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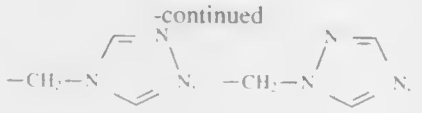
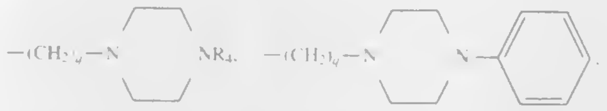


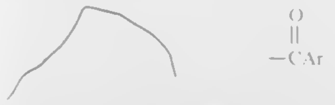


—CHO, amino, (C_1–C_3) lower alkoxy, (C_1–C_3) lower alkylamino, CONH (C_1–C_3) lower alkyl, or-CON[lower alkyl (C_1–C_3)]$_2$,

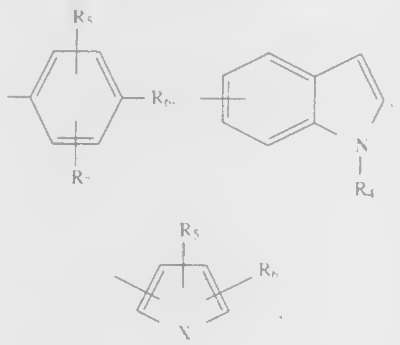
R_b is independently selected from H, —CH_3, or —C_2H_5;

q is 1 or 2;

R_3 is the moiety

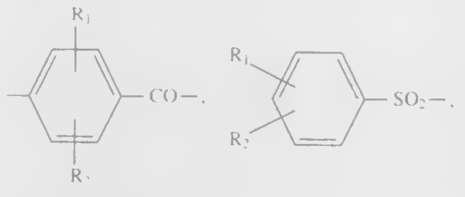


wherein Ar is a moiety selected from the group



and X is selected from O, S, NH, —NCH_3, or —N—$COCH_3$;

R_4 is selected from H, lower alkyl (C_1–C_3), —CO-lower alkyl (C_1–C_3), SO_2 lower alkyl (C_1–C_3), or the moieties of the formulae:

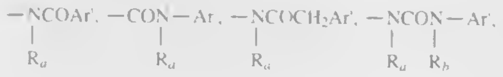


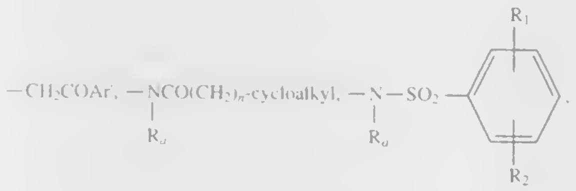
R_1 and R_2 are, independently, H, (C_1–C_3) lower alkyl, (C_1–C_3) lower alkoxy, or halogen;

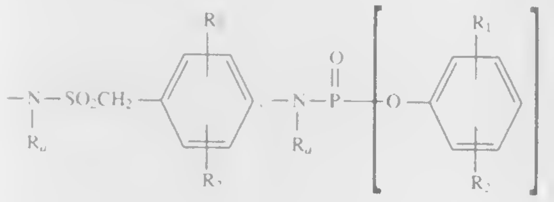
R_5 is H, (C_1–C_3) lower alkyl, (C_1–C_3) lower alkoxy or halogen;

R_6=is selected from:

(a) moieties of the formula:


$$-\underset{R_a}{\underset{|}{N}}COAr',\ -CO\underset{R_a}{\underset{|}{N}}-Ar',\ -\underset{R_a}{\underset{|}{N}}COCH_2Ar',\ -\underset{R_a}{\underset{|}{N}}CO\underset{R_b}{\underset{|}{N}}-Ar',$$





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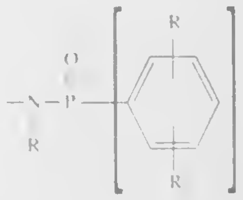
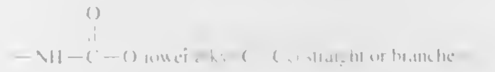
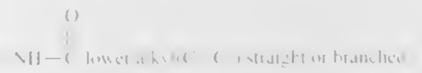
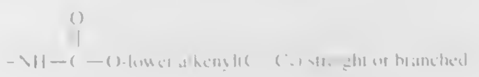
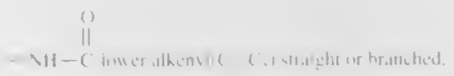



$$-NH-\overset{O}{\overset{\|}{C}}-O\ \text{lower alkyl}(C_1–C_6)\ \text{straight or branched}$$


$$-NH-\overset{O}{\overset{\|}{C}}\ \text{lower alkyl}(C_1–C_6)\ \text{straight or branched}$$

—$NHSO_2$ lower alkyl(C_1–C_6) straight or branched,


$$-NH-\overset{O}{\overset{\|}{C}}-O\text{-lower alkenyl}(C_3–C_8)\ \text{straight or branched}$$

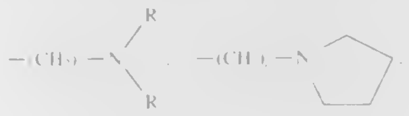

$$-NH-\overset{O}{\overset{\|}{C}}\ \text{lower alkenyl}(C_3–C_8)\ \text{straight or branched,}$$

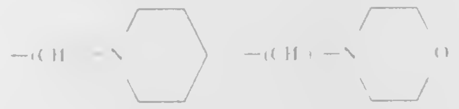
—$NHSO_2$ lower alkenyl(C_3–C_8) straight or branched

wherein cycloalkyl is defined as C_3 to C_6 cycloalkyl, cyclohexenyl or cyclopentenyl;

n is 0–2;

R_b is independently selected from H, —CH_3, —C_2H_5,



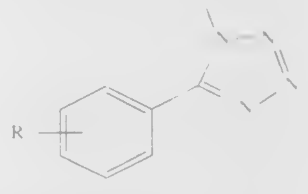


—$(CH_2)_q$Olower alkyl (C_1–C_3), or —CH_2CH_2OH;

R_b is as hereinbefore defined.

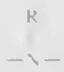
q is 1 or 2;

(b) a moiety of the formula

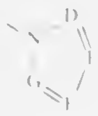


where R_7 is as hereinbefore defined.

(c) a moiety of the formula:

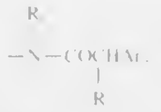

$$-\overset{R_a}{\overset{|}{N}}-COJ$$

wherein J is R_a, lower alkyl (C_1–C_8) branched or unbranched, lower alkenyl (C_2–C_8) branched or unbranched, —O lower alkyl (C_1–C_8) branched or unbranched, —O lower alkenyl (C_2–C_8) branched or unbranched, tetrahydrofuran, tetrahydrothiophene, or —CH_2—K wherein K is halogen, (C_1–C_3) lower alkoxy, tetrahydrofuran, tetrahydrothiophene or the heterocyclic ring moiety

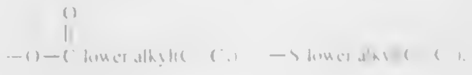


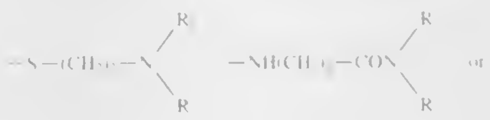
wherein D, E, F and G are selected from carbon or nitrogen and wherein the carbon atoms may be optionally substituted with halogen, (C_1–C_3) lower alkyl, hydroxy, —CO-lower alkyl (C_1–C_3), CHO, (C_1–C_3) lower alkoxy, or —CO_2 lower alkyl (C_1–C_3), and R_a and R_b are as hereinbefore defined.

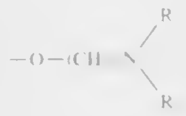
(d) a moiety selected from those of the formulae


$$-\overset{R_a}{\overset{|}{N}}-CO\underset{R_c}{\underset{|}{CH}}Ar',$$

wherein R_c is selected from halogen, (C_1–C_3) lower alkyl, —O lower alkyl (C_1–C_3), OH,


$$-O-\overset{O}{\overset{\|}{C}}\ \text{lower alkyl}(C_1–C_3),\quad -S\ \text{lower alkyl}(C_1–C_3),$$

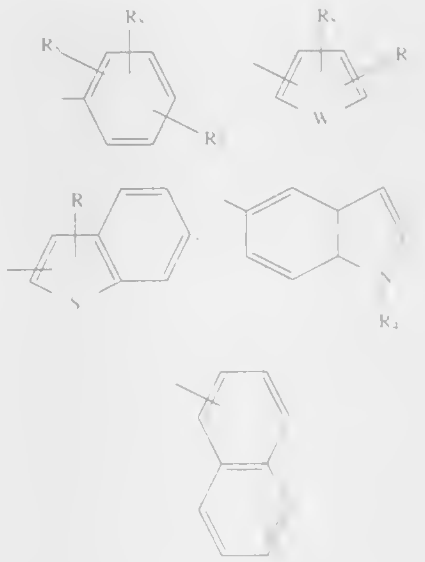




q is 1 or 2;

R_a and R_b are as hereinbefore defined,

wherein Ar' is selected from the group



wherein

W is selected from O, S, NH, N-lower alkyl (C_1–C_3), —NHCO-lower alkyl (C_1–C_3), or NSO_2-lower alkyl (C_1–C_3);

R_7 is selected from H, lower alkyl (C_1–C_3), halogen, —O lower alkyl (C_1–C_3), or CF_3;

R_8 and R_9 are independently selected from hydrogen, lower alkyl (C_1–C_3), S lower alkyl (C_1–C_3), halogen, —NH-lower alkyl (C_1–C_3), —OCF_3, —CN, —OH, —S—CF_3, —NO_2, —NH_2, or —O lower alkyl (C_1–C_3)

VOL 209 ISS 1 AP 7 1998 UMI

R is H, halogen, or lower alkyl (C_1–C_4).
and the pharmaceutically acceptable salts, esters and pro-drug forms thereof.

5,736,541
OLANZAPINE POLYMORPH CRYSTAL FORM

Charles Arthur Bunnell, Lafayette, Ind.; Barry Arnold Hendriksen, Guildford, United Kingdom, and Samuel Dean Larsen, West Lafayette, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., and Eli Lilly and Company, Basingstoke, England

Continuation-in-part of Ser. No. 409,566, Mar. 24, 1995, abandoned. This application Jul. 25, 1996, Ser. No. 686,989

Int. Cl.⁶ A01N *43/62*, C07D *243/10*

U.S. Cl. 514—220 **25 Claims**

1. Form II olanzapine polymorph having a typical x-ray powder diffraction pattern as represented by the following interplanar spacings:

d (Å)
10.2689
8.577
7.4721
7.125
6.1459
6.071
5.4849
5.2181
5.1251
4.9874
4.7665
4.7158
4.4787
4.3307
4.2294
4.141
3.9873
3.7206
3.5645
3.5366
3.3828
3.2516
3.134
3.0848
3.0638
3.0111
2.8739
2.8102
2.7217
2.6432
2.6007

5,736,542
PHARMACEUTICAL COMPOSITIONS CONTAINING A STAUROSPORINE

Roy Lindsay Allen Henry, and Graham Paul Matthews, both of Horsham, England, assignors to Novartis Corporation, Summit, N.J.

Filed Nov. 22, 1994, Ser. No. 343,404

Claims priority, application United Kingdom, Dec. 11, 1993, 9325395

Int. Cl.⁶ A61K *31/55*

U.S. Cl. 514—211 **20 Claims**

1. An orally administrable pharmaceutical composition comprising a solution or dispersion of a staurosporine active ingredient in a solid saturated polyalkylene glycol glyceride.

5,736,543
BENZOXAZINES FOR ENHANCING SYNAPTIC RESPONSE

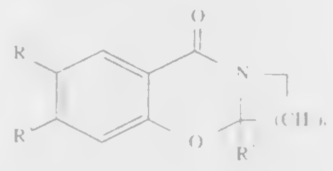
Gary A. Rogers, Santa Barbara, and Gary S. Lynch, Irvine, both of Calif., assignors to The Regents of the University of California, Oakland, and Cortex Pharmaceuticals, Inc., Irvine, both of Calif.

Filed Apr. 3, 1996, Ser. No. 624,335

Int. Cl.⁶ C07D *265/12*, A61K *31/535*

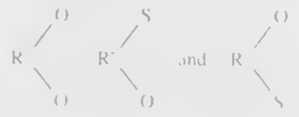
U.S. Cl. 514—229.5 **22 Claims**

1. A compound having the formula



in which:

R^1 and R^2 together form a single divalent moiety selected from the group consisting of



in which:

R^3 is a member selected from the group consisting of $C(R^8)_2$, $C(R^8)_2C(R^8)_2$ and $CR^8{=}CR^8$, in which the R^8's are members selected from the group consisting of H, halogen, C_1–C_6 alkyl and halo-substituted C_1–C_6 alkyl and are either the same or different in any R^3;

R is a member selected from the group consisting of H, C_1–C_6 alkyl and halo substituted C_1–C_6 alkyl; and

n is 1, 2, 3 or 4.

5,736,544
NAPHTHYL PIPERAZINYL COMPOUNDS USEFUL FOR TREATING 5HT$_{2B}$ RECEPTOR MEDIATED CONDITIONS

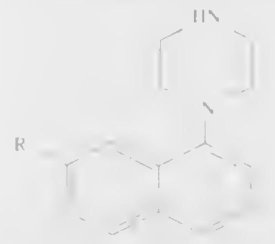
James E. Audia, Indianapolis; Marlene L. Cohen, Carmel; Jaswant S. Gidda, Carmel, and David L. G. Nelson, Carmel, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 380,566, Feb. 6, 1995, which is a continuation-in-part of Ser. No. 212,622, Mar. 11, 1994, abandoned. This application Mar. 25, 1996, Ser. No. 621,408

Int. Cl.⁶ A01N *43/58*

U.S. Cl. 514—247 **7 Claims**

1. A method for treating a mammal suffering from or susceptible to a condition associated with abnormal or dysfunctional 5-HT$_{2B}$ receptor stimulation comprising administering to the mammal a compound of formula VIII wherein R^{10} is hydroxy or methoxy



VIII

or a pharmaceutically acceptable salt or solvate of the compound in an amount that interacts with the 5-HT$_{2B}$ receptor.

5,736,545
AZOLYL PIPERAZINYL PHENYL OXAZOLIDINONE ANTIMICROBIALS

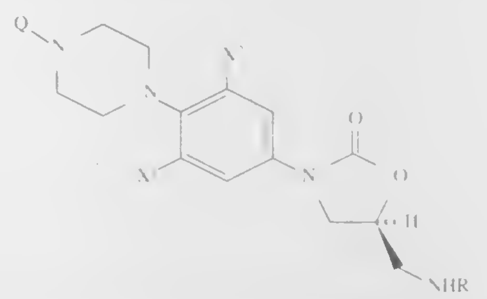
Robert C. Gadwood; Michael Robert Barbachyn; Dana Scott Toops; Herman Walden Smith, and Valerie Ann Vaillancourt, all of Kalamazoo, Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

Filed Feb. 20, 1997, Ser. No. 803,469

Int. Cl.⁶ A61K *31/495*, C07D *413/14*; *417/14*; *419/14*

U.S. Cl. 514—252 **8 Claims**

1. A compound of structural Formula I



I

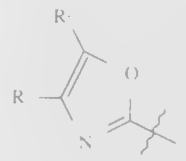
or pharmaceutically acceptable salts thereof wherein:

R is (a) —CHO,
(b) —$COCH_3$,
(c) —$COCHCl_2$,
(d) —$COCHF_2$,
(e) —CO_2CH_3,
(f) —SO_2CH_3, or
(g) —$COCH_2OH$,

X^1 and X^2 are independently H, F, or Cl,

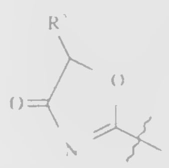
Q is selected from

(a) oxazole



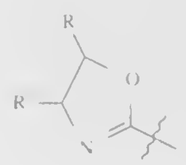
II

(b) oxazol-4-one



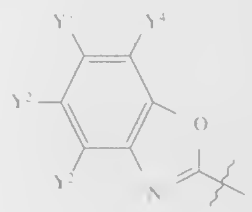
III

(c) 4,5-dihydrooxazole



IV

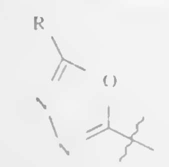
(d) benzoxazole



V

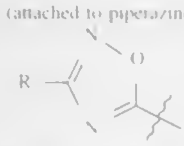
-continued

(e) 1,3,4 oxadiazole



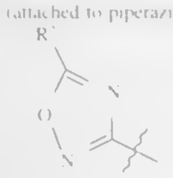
VI

(f) 1,2,4 oxadiazole (attached to piperazine at C5)



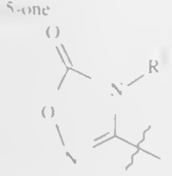
VII

(g) 1,2,4 oxadiazole (attached to piperazine at C3)



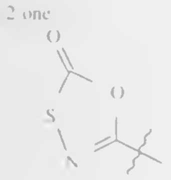
VIII

(h) 1,2,4 oxadiazol 5-one



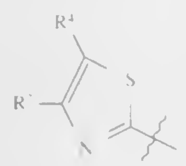
IX

(i) 1,3,4 oxathiazol 2 one



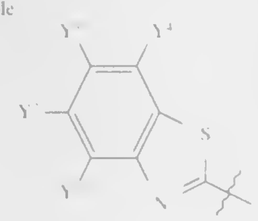
X

(j) thiazole



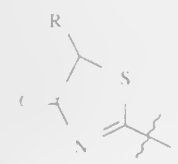
XI

(k) benzothiazole



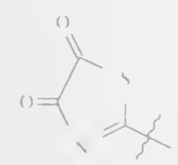
XII

(l) thiazol 4-one



XIII

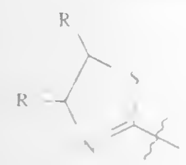
(m) thiazoledione



XIV

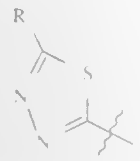
-continued

(n) thiazoline



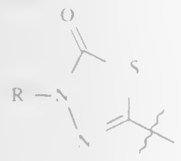
XV

(o) 1,3,4-thiadiazole



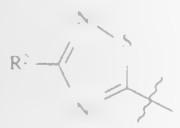
XVI

(p) 1,3,4-thiadiazol-2-one



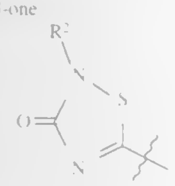
XVII

(q) 1,2,4-thiadiazole



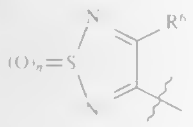
XVIII

(r) 1,2,4-thiadiazol-3-one



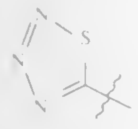
XIX

(s) 1,2,5-thiadiazole



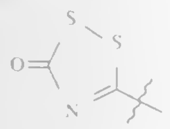
XX

(t) 1,2,3,4-thiatriazole



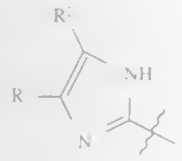
XXI

(u) 1,2,4-dithiazolone



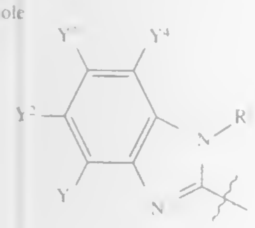
XXII

(v) imidazole



XXIII

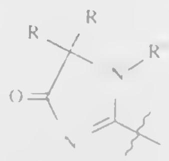
(w) benzimidazole



XXIV

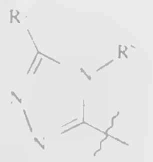
-continued

(x) imidazol-4-one



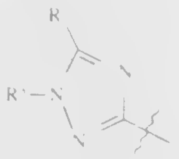
XXV

(y) 1,2,4-triazole (Type 1)



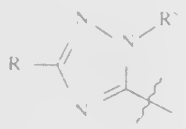
XXVI

(z) 1,2,4-triazole (Type 2)



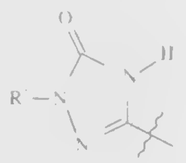
XXVII

(aa) 1,2,4-triazole (Type 3)



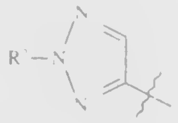
XXVIII

(bb) 1,2,4-triazolone



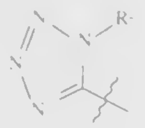
XXIX

(cc) 1,2,3-triazole



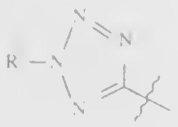
XXX

(dd) tetrazole (Type 1):



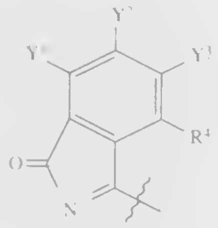
XXXI

(ee) tetrazole (Type 2):



XXXII

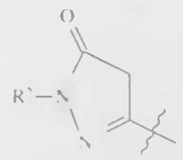
(ff) isoindol-7-ones



XXXIII

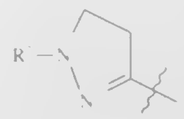
-continued

(gg) pyrazol-3-one



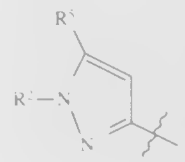
XXXIV

(hh) pyrazoline.



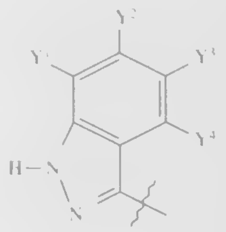
XXXV

(ii) pyrazole:



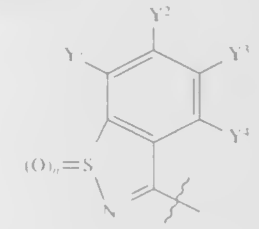
XXXVI

(jj) indazole:



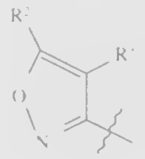
XXXVII

(kk) benzoisothiazole



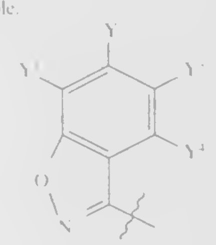
XXXVIII

(ll) isoxazole.



XXXIX

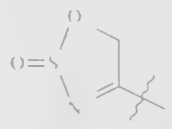
(mm) benzisoxazole.



XL

or

(nn) 1,2,3-oxathiazole-1-oxide



XLI

wherein R^2 and R^3 are independently
- (a) H— (except where Q is formula XXXI or XXXII).
- (b) (C$_1$-C$_8$)alkyl-,
- (c) (C$_3$-C$_5$ cycloalkyl)—, or
- (d) phenyl.

or R^2 and R^3 taken together are —CH$_2$—(CH$_2$)$_n$—,
wherein R^4 is
- (a) H—,
- (b) (C$_1$-C$_8$ alkyl)—,
- (c) (C$_3$-C$_5$ cycloalkyl)—,
- (d) phenyl-,
- (e) O$_2$N—, or
- (f) CH$_3$CH$_2$OC(O)—,

or R^2 and R^4 taken together are —CH$_2$—(CH$_2$)$_m$—
wherein R^5 is
- (a) H—,
- (b) (C$_1$-C$_8$ alkyl)—,
- (c) (C$_3$-C$_5$ cycloalkyl)—, or
- (d) phenyl-;

wherein R^6 is
- (a) H—,
- (b) (C$_1$-C$_8$ alkyl)—,
- (c) (C$_3$-C$_5$ cycloalkyl)—,
- (d) phenyl-, or
- (e) OR^2;

wherein R^7 is
- (a) H—,
- (b) (C$_1$-C$_8$ alkyl)—,
- (c) (C$_3$-C$_5$ cycloalkyl)—,
- (d) phenyl-,
- (e) H$_2$N—,
- (f) H$_2$NCO—,
- (g) R$_5$OCO—,
- (h) NC—,
- (i) R$_5$S—,
- (j) R$_5$O—, or
- (k) CF$_3$;

with the following provisos.
where Q is XXV, R^2 and R^3 is H, R^5 is other than methyl.
where Q is XVIII, R^2 is other than phenyl;
wherein m is zero (0) to five (5), inclusive.
wherein n is zero (0) to two (2), inclusive;
wherein Y^1, Y^2, Y^3, and Y^4 are independently
- (a) H,
- (b) NO$_2$, or
- (c) F, Cl, or Br.

5,736,546

1,4-(DIPHENYLALKYL) PIPERAZINE DERIVATIVES

Yoichi Kawashima, Kyoto; Junzo Matsumoto, Ashiya; Kiyoshi Matsuno, Toyonaka; Toshihiko Senda, Kishiwada, and Keiko Hirano, Nara, all of Japan, assignors to Santen Pharmaceutical Co., Ltd., Osaka, Japan

PCT No. PCT/JP94/01220, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/04050, PCT Pub. Date Feb. 9, 1995

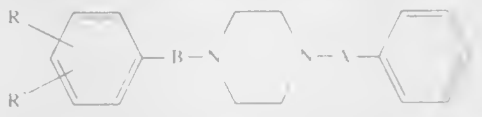
PCT Filed Jul. 25, 1994, Ser. No. 586,661

Claims priority, application Japan, Jul. 28, 1993, 5-185839

Int. Cl.^{6} C07D 295/096, A61K 31/495

U.S. Cl. 514—255 **22 Claims**

1. A compound represented by the formula [I] or a salt thereof.



[I]

wherein R^1 and R^2 are the same or different and each represents a lower alkoxy group, A and B are the same or different and each represents a C$_1$-C$_4$ alkylene group

VOL
209
SS
1
AP
7
998
UMI

5,736,547
DERIVATIVES OF PYRIDO [2,3-D] AND [3,2-D] PYRIMIDINE AND QUINAZOLINE AND METHOD OF USING THESE DERIVATIVES

Aleem Gangjee, Allison Park, Pa., assignor to Duquesne University of the Holy Ghost, Pittsburgh, Pa.

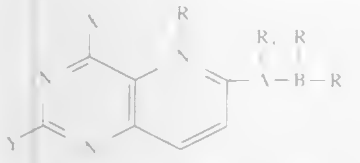
Division of Ser. No. 304,044, Sep. 12, 1994, Pat. No. 5,508,281, which is a continuation-in-part of Ser. No. 950,982, Sep. 23, 1992, Pat. No. 5,346,900, which is a continuation of Ser. No. 829,519, Jan. 31, 1992, abandoned, which is a continuation of Ser. No. 682,043, Apr. 8, 1991, abandoned. This application Aug. 15, 1995, Ser. No. 515,491

The portion of the term of this patent subsequent to Sep. 12, 2014, has been disclaimed.

Int. Cl.⁶ A61K *31/505*, **C07D** *471/04*

U.S. Cl. 514—258 **16 Claims**

1. A compound and pharmaceutically acceptable salts having the species formula (4)



(4)

wherein X and Y may be the same or different and are selected from the group consisting of OH and NH_2, wherein A is selected from the group consisting of nitrogen, CH and sulfur and B equals CH when A is selected from the group consisting of sulfur, CH and nitrogen or B equals nitrogen when A equals CH or B equals sulfur when A equals CH wherein R_4 is zero; wherein R_4 is one of either a hydrogen or a first lower alkyl group except where A equals sulfur wherein R_4 equals zero, wherein R_5 is selected from the group consisting of hydrogen, a nitroso group, a formyl group, a second lower alkyl group which is the same or different than the first lower alkyl group except when B is equal to sulfur, wherein R_5 is equal to zero; and wherein R_6 is selected from the group consisting of a third lower alkyl group which is the same or different than the first lower alkyl group and the second lower alkyl group, an aryl group, an alkylaryl group, a substituted aryl group, a substituted alkylaryl group, a diaryl group, a triaryl group, an alkyldiaryl group, an alicyclic hydrocarbon group, an alkyltriaryl group, a substituted diaryl group, and a substituted triaryl group, and each substituent of the substituted aryl group, diaryl group, triaryl group, or the substituted alkylaryl group, alkyldiaryl group, alkyltriaryl group is the same or different and is selected from the group consisting of a fourth lower alkyl group which is the same as or different than the first lower alkyl group, the second lower alkyl group, the third lower alkyl group, an alkoxy, a substituted alkoxyaryloxy group and a halogen.

5,736,548
6-ARYL PYRAZOLO[3,4-D] PYRIMIDIN-4-ONES AND COMPOSITIONS AND METHOD OF USE THEREOF

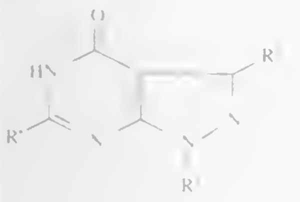
Edward R. Bacon, Audubon, and Baldev Singh, Collegeville, both of Pa., assignors to Sanofi, Paris, France

Continuation of Ser. No. 402,261, Mar. 10, 1995, abandoned. This application Jan. 22, 1997, Ser. No. 788,893

Int. Cl.⁶ C07D *487/04*, *498/04*; **A61K** *31/505*

U.S. Cl. 514—258 **24 Claims**

1. A compound of the formula



wherein:

- R^1 is cyclopentyl;
- R^3 is lower alkyl or phenyl-lower alkyl, and
- R^6 is phenyl substituted by from one to three, the same or different, substituents selected from the group consisting of hydroxy, 1-imidazolyl, lower-alkenyloxy, dilower-alkylamino-lower-alkoxy, 4-morpholinyl-lower-alkoxy, lower-alkoxycarbonyl-lower-alkoxy, carboxylower-alkoxy, trifluoromethyl, 1-piperidinyl-lower-alkoxy, 1-pyrrolidinyl-lower-alkoxy, nitro, amino, $-(CH_2)_5O-$, lower-alkylsulfonylamino, lower-alkoxy-lower-alkoxy, lower-alkenyl, dilower-alkylamino, $-OCH(CH_3)CH_2-$, 4-morpholinylcarbonyl-lower-alkoxy, 4-thiomorpholinyl-lower-alkoxy, pyridinyl-lower-alkoxy, 1-lower-alkyl-3-hexahydroazepinyloxy, and 1-lower-alkyl-4-piperidinyl-oxy, or a pharmaceutically acceptable acid-addition salt and/or hydrate thereof.

5,736,549
HYPOXANTHINE AND GUANINE COMPOUNDS

Steven Colin Beasley; Alan Findlay Haughan; John Montana, and Robert John Watson, all of Cambridge, United Kingdom, assignors to Chiroscience Limited, Cambridge, United Kingdom

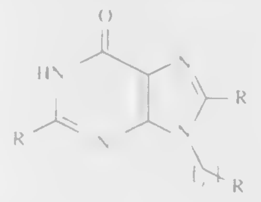
Filed Oct. 5, 1995, Ser. No. 539,568

Claims priority, application United Kingdom, Oct. 5, 1994, 9420045; Oct. 5, 1994, 9420093; Oct. 5, 1994, 9420127

Int. Cl.⁶ C07D *473/18*, *473/30*; **A61K** *31/52*

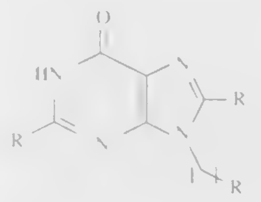
U.S. Cl. 514—262 **17 Claims**

1. A compound of formula (I)



wherein:

- n=0–2
- R^1 is NH_2 or halogen;
- R^2 is H or NH_2;
- R^3 is any of the four groups



(I)

where

- m=0 or 1
- X is O, NR^7 or $S(O)_{0-2}$ and, in group (b), the X's may be the same or different;
- R^4 is H or one or more groups independently selected from C_{1-6} alkyl-R^6 and aryl-R^6;
- R^5 is H, C_{1-6} alkyl-R^6, C_{2-6} alkenyl, aryl, -aryl-C_{1-6} alkyl, C_{1-6} alkyl-aryl, $-C_{1-6}$ alkyl-hetero(C_{1-6})alkyl, CO_2-C_{1-6} alkyl-R^6, $CONH-C_{1-6}$ alkyl-R^6, $CO-C_{1-6}$ alkyl-R^6 or SO_2-C_{1-6} alkyl-R^6;
- R^6 is H, CO_2H, CO_2-C_{1-6} alkyl, $CONH_2$, $CON(C_{1-6}$ alkyl$)_2$, $CONH(C_{1-6}$ alkyl$)$, $CO-C_{1-6}$ alkyl, CO-aryl, CO-heteroaryl, tetrazolyl, $NHSO_2CF_3$, SO_2NH-C_{1-6} alkyl, $SO_2N(C_{1-6}$ alkyl$)_2$, SO_2NH-aryl, $NHCO-C_{1-6}$ alkyl, $NHCONH-C_{1-6}$ alkyl, NHCONH aryl, $NHSO_2-C_{1-6}$ alkyl, $NHSO_2$-aryl, CN, NH_2, OH, $O-C_{1-6}$ alkyl or O-aryl,

in any tautomeric, salt, solvate and/or hydrate form.

5,736,550
PYRIMIDINE DERIVATIVES

Haruhiko Kikuchi; Hiroaki Satoh; Ruta Fukutomi; Kohei Inomata; Masashi Suzuki; Koichiro Hagihara; Takeo Arai; Setsuko Mino, and Haruko Eguchi, all of Ohimachi, Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00937, § 371 Date Nov. 15, 1996, § 102(e) Date Nov. 15, 1996, PCT Pub. No. WO95/31442, PCT Pub. Date Nov. 23, 1995

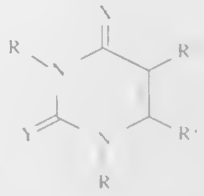
PCT Filed May 17, 1995, Ser. No. 737,335

Claims priority, application Japan, May 18, 1994, 6-127161

Int. Cl.⁶ C07D *239/02*, *239/00*, *241/02*; **A01N** *43/54*

U.S. Cl. 514—261 **9 Claims**

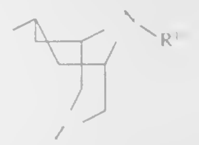
1. A compound represented by the formula (I)



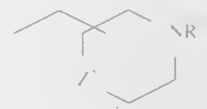
(I)

wherein

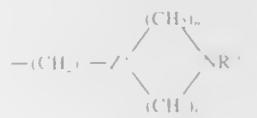
- X is O or NR^5, wherein R^5 is hydrogen, C_1–C_6 alkyl, C_1–C_6 alkylcarbonyl, phenyl group, phenyl C_1–C_6 alkyl, phenylaminocarbonyl, phenyl C_1–C_4 alkylaminocarbonyl or C_1–C_6 alkylaminocarbonyl;
- Y is S;
- R^1 and R^2 are each independently the same or different and each is hydrogen, C_1–C_7 alkyl, C_3–C_6 cycloalkyl, phenyl, naphthyl, C_3–C_6 cycloalkyl C_1–C_4 alkyl, or phenyl C_1–C_4 alkyl;
- R^3 is CN or $COOR^6$, wherein R^6 is C_1–C_6 alkyl, C_3–C_7 cycloalkyl, phenyl, or phenyl C_1–C_4 alkyl;
- R^4 is $-NR^8R^9$;
- R^8 is C_1–C_4 alkyl, phenyl C_1–C_4 alkyl, naphthyl C_1–C_4 alkyl, pyridyl C_1–C_4 alkyl, phenoxy C_2–C_4 alkyl, 1H-indol-3-yl C_1–C_4 alkyl, in which the phenyl, phenoxy, naphthyl and 1H-indol-3-yl moieties are unsubstituted or mono- to tri-substituted with halogen, C_1–C_6 alkyl, halo C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkoxycarbonyl or phenyl, or R^8 represents a group of a formulae (II)–(IX)



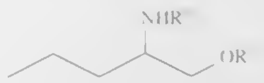
(II)



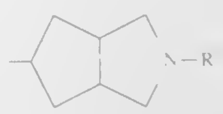
(III)



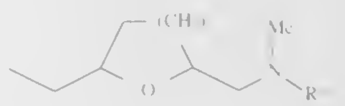
(IV)



(V)



(VI)



(VII)

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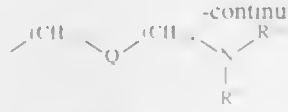
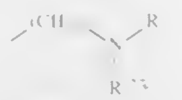


(VIII)



(IX)

wherein R^{10} is C_1–C_6 alkyl, phenyl C_1–C_4 alkyl, naphthyl C_1–C_4 alkyl, pyridyl C_1–C_4 alkyl, phenoxy C_2–C_4 alkyl, pyrrolidinylcarbonyl C_1–C_4 alkyl, in which the phenyl, phenoxy and naphthyl moieties are unsubstituted or mono- to tri-substituted with halogen, C_1–C_6 alkyl, halo C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkoxycarbonyl or phenyl, R^{11} is hydrogen, C_1–C_6 alkyl, phenyl C_1–C_4 alkyl, phenyl or naphthyl, Z^1 is O, S, N(C_1–C_6 alkyl) or CH_2, Z^2 is O, N(C_1–C_6 alkyl) or CH_2, Z^3 is N or CH, l is 0–2, n is 4, when m is 0; n is 1 or 3, when m is 1, and n is 2, when m is 2, p is 1–2, j is 0–3, k is 0–3, a sum of j and k is 1–6, h is 1–6, Q is O, NR^{13}, $CHOR^{13}$ or OCH_2CH_2O, R^{12} and R^{13} is each independently the same or different and is hydrogen, C_1–C_6 alkyl or C_1–C_4 alkoxy C_2–C_4 alkyl; R^{14} is hydrogen or C_1–C_6 alkyl; R^{15} is hydrogen, C_1–C_6 alkyl or C_1–C_6 alkoxy C_2–C_4 alkyl,

or a pharmacologically acceptable salt thereof.

5,736,551
FUNGICIDAL COMPOSITIONS

Stefan Dutzmann, Hilden; Heinz-Wilhelm Dehne, Monheim; Karl-Heinz Kuck, Langenfeld; Wilhelm Brandes, Leichlingen, and Wolfgang Krämer, Burscheid, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 646,788, May 21, 1996, Pat. No. 5,639,744, which is a division of Ser. No. 432,741, May 2, 1995, Pat. No. 5,569,656, which is a division of Ser. No. 249,511, May 26, 1994, Pat. No. 5,439,926. This application Jan. 22, 1997, Ser. No. 787,599

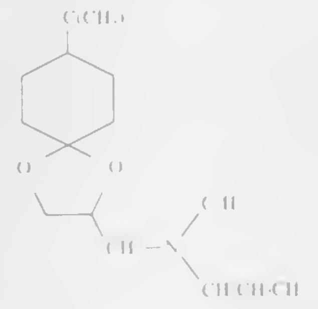
Claims priority, application Germany, Jun. 2, 1993, 43 18 285.2

Int. Cl.⁶ A01N *43/26*, *43/54*

U.S. Cl. 514—269 **2 Claims**

1. A fungicidal composition comprising a synergistic fungicidally effective amount of a combination of

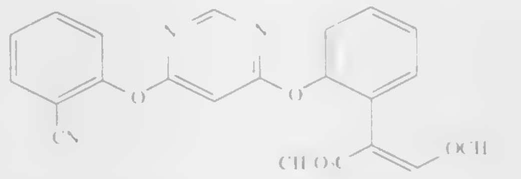
(A) 8-t-butyl-2-(N-ethyl-N-n-propylamino) methyl-1,4-dioxaspiro[4.5]-decane of the formula



(I)

and

(B) the compound of the formula



(X)

wherein the weight ratio of (A):(B) is about 1:1.

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5,736,552

Patent Not Issued For This Number

5,736,553

TOPICAL FORMULATIONS AND TRANSDERMAL DELIVERY SYSTEMS CONTAINING 1-ISOBUTYL-1H-IMIDAZO[4,5-C]QUINOLIN-4-AMINE

Steven M. Wick, Mahtomedi; Helen Jensen Schultz, Falcon Heights; Gregory R. Nelson, Hudson; Amit K. Mitra, Woodbury, and Stephen M. Berge, Shoreview, all of Minn., assignors to Riker Laboratories, Inc., St. Paul, Minn.

Continuation of Ser. No. 67,705, May 26, 1993, which is a continuation-in-part of Ser. No. 284,933, Dec. 15, 1988, abandoned. This application May 31, 1995, Ser. No. 471,440

Int. Cl.^{6} A61K *31/44;9/70*

U.S. Cl. 514—293 **18 Claims**

1. A substantially non-irritating pharmaceutical formulation for topical and/or transdermal administration of 1 -isobutyl-1H-imidazo[4,5 -c]quinolin-4-amine, which formulation comprises:

(a) a therapeutically effective amount of 1-isobutyl-1H-imidazo[4,5-c]quinolin-4-amine;

(b) a pharmaceutically acceptable vehicle for said 1-isobutyl-1H-imidazo[4,5c]quinolin-4-amine, which vehicle comprises a fatty acid selected from the group consisting of isostearic acid, oleic acid and a mixture thereof in a total amount of about 3 percent to about 45 percent by weight based on the total weight of said formulation; and

(c) a pressure-sensitive acrylic adhesive copolymer comprising, as a major constituent, a hydrophobic monomeric acrylic or methacrylic acid ester of an alkyl alcohol, the alkyl alcohol containing 4 to 10 carbon atoms, said copolymer being present in an amount of about 55 percent to about 85 percent by weight based on the total weight of said formulation;

said formulation being further characterized in that, when tested according to the hairless mouse skin model the formulation provides a penetration of the agent of at least about 10 percent of the total amount of the agent contained in the formulation in 24 hours.

5,736,554

COMPOUNDS HAVING ANTIHYPERTENSIVE, CARDIOPROTECTIVE, ANTI-ISCHEMIC AND ANTILIPOLYTIC PROPERTIES

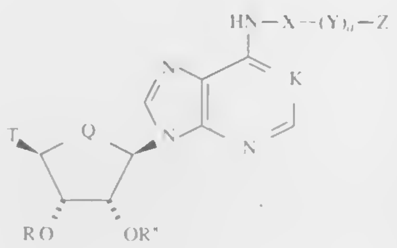
Alfred P. Spada, Lansdale, Pa.; Cynthia A. Fink, Lebanon, N.J., and Michael R. Myers, Reading, Pa., assignors to Rhone-Poulenc Rorer Pharmaceuticals Inc., Collegeville, Pa.

Continuation of Ser. No. 316,761, Oct. 3, 1994, Pat. No. 5,561,134, which is a continuation-in-part of Ser. No. 229,882, Apr. 19, 1994, abandoned, which is a continuation-in-part of Ser. No. 955,783, Oct. 2, 1992, Pat. No. 5,364,862, which is a continuation-in-part of Ser. No. 587,884, Sep. 19, 1990, abandoned. This application May 31, 1995, Ser. No. 455,361

Int. Cl.^{6} A61K *31/44;* **C07D** *471/04*

U.S. Cl. 514—303 **8 Claims**

1. A method for ameliorating in a patient ischemic injury or myocardial infarct size consequent to myocardial ischemia comprising administering to said patient an effective cardioprotective amount of a compound of the formula

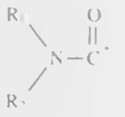


wherein:

K is CH;

Q is CH_2 or O;

T is



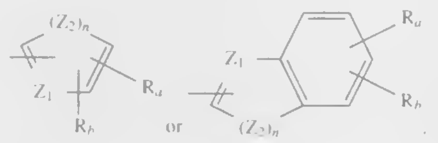
or $R_3O—CH_2$,

X is a straight or branched chain alkylene, cycloalkylene or cycloalkenylene group, each of which is optionally substituted by at least one CH_3, CH_3CH_2, Cl, F, CF_3 or $CH_3$0;

Y is NR_4, O or S,

a=0 or 1;

Z is of the formula



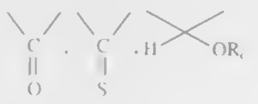
Z_1 is N, CR_5, $(CH)_m—CR_5$ or $(CH)_m—N$, m being 1 or 2,

Z2 is N, NR_6, O or S, n being 0, or 1;

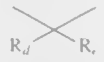
R_1, R_2, R_3, R_4, R_5 and R_6 are independently H, alkyl, aryl or heterocyclyl;

R_a and R_b are independently H, OH, alkyl, hydroxyalkyl, alkyl mercaptyl, thioalkyl, alkoxy, alkyoxyalkyl, amino, alkyl amino, carboxyl, acyl, halogen, carbamoyl, alkyl carbamoyl, aryl or heterocyclyl; and

R' and R" are independently hydrogen, alkyl, aralkyl, carbamoyl, alkyl carbamoyl, dialkylcarbamoyl, acyl, alkoxycarbonyl, aralkoxycarbonyl, aryloxycarbonyl, or R' and R" together may form



where R_c is hydrogen or alkyl,



where R_d and R_e are independently hydrogen, alkyl, or together with the carbon atom to which they are attached may form a 1,1-cycloalkyl group,

provided that when X is straight chain alkylene and Q is oxygen, then Z represents a heterocyclyl including at least two heteroatoms;

or a pharmaceutically acceptable salt thereof.

5,736,555

HETEROCYCLIC COMPOUNDS AND THEIR USE AS ANGIOTENSIN ANTAGONISTS

Takehiko Naka, Kobe, and Yoshiyuki Inada, Kawanishi, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

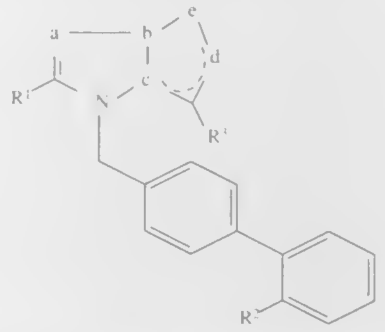
Division of Ser. No. 291,435, Aug. 16, 1994, Pat. No. 5,583,141, which is a division of Ser. No. 80,259, Jun. 23, 1993, Pat. No. 5,354,766, which is a division of Ser. No. 904,452, Jun. 25, 1992, Pat. No. 5,243,054. This application Jul. 22, 1996, Ser. No. 685,012

Claims priority, application Japan, Jun. 27, 1991, 3-157194; Jul. 29, 1991, 3-188882; Jul. 31, 1991, 3-192054; Aug. 12, 1991, 3-288217; Sep. 19, 1991, 3-239764; Dec. 24, 1991, 3-341107

Int. Cl.^{6} A61K *31/435;31/42;* **C07D** *471/04;285/08*

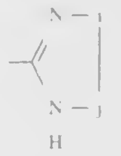
U.S. Cl. 514—303 **25 Claims**

1. A compound or a salt thereof of the formula



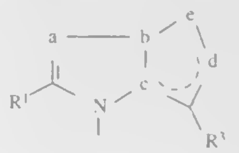
wherein R^1 is an optionally substituted hydrocarbon residue which is optionally bound through a hetero-atom;

R^2 is a group of the formula:

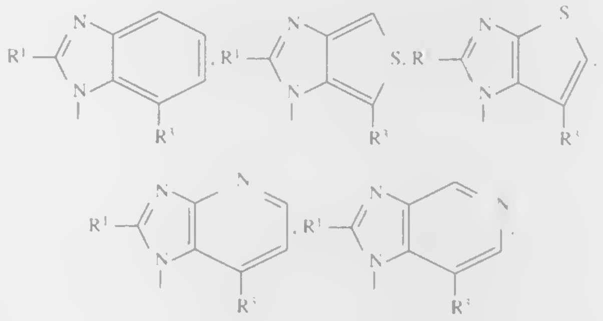


wherein i is —O— or —S— and j is >c=O or >c=S;

R^3 is optionally esterified or amidated carboxyl, tetrazolyl, trifluoromethanesulfonic amide, phosphoric acid or sulfonic acid, which may be protected with optionally substituted lower alkyl or acyl and the group of the formula



has a structure selected from the group consisting of



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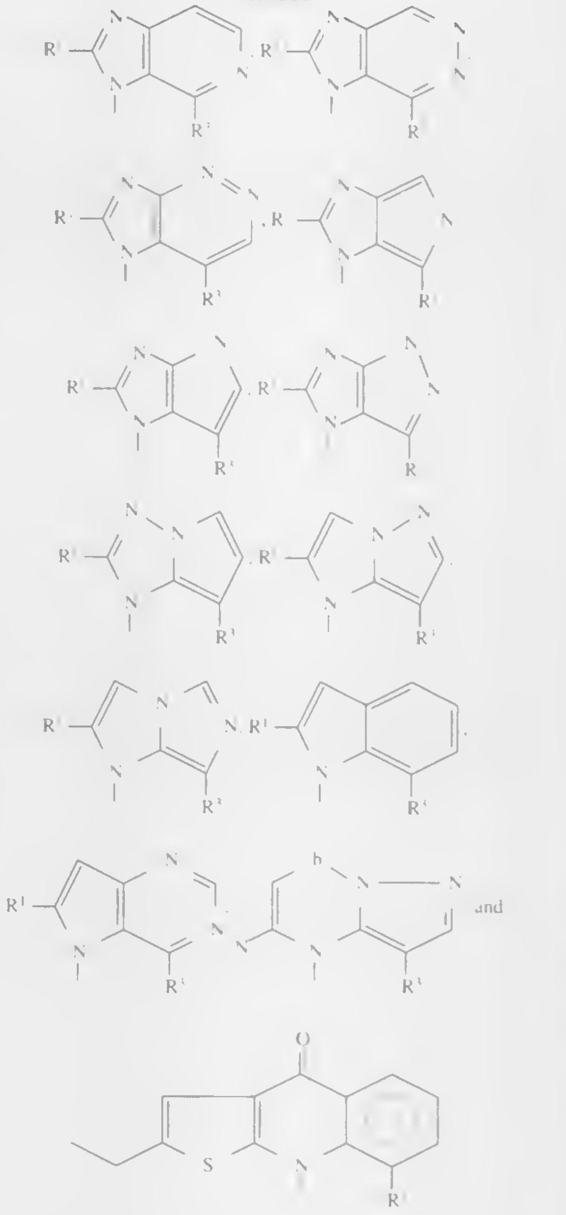

wherein in addition to R^1 and R^3, a substituent selected from the group consisting of halogen, nitro, cyano, an optionally substituted amino group, groups represented by the formula $-U-R^6$, wherein U stands for a bond, —O—, —S— or —CO—, and R^6 stands for hydrogen or an optionally substituted lower alkyl group, groups represented by the formula $-(CH_2)_l-CO-D'$, wherein D' stands for hydrogen, hydroxyl group, optionally substituted amino, or optionally substituted alkoxy or groups represented by the formula $-OCH(R^7)OCO^8$, wherein R^7 stands for hydrogen, 1–6C straight-chain or branched lower alkyl group or a 5–7C cycloalkyl group, and R^8 stands for a 1–6C straight-chain or branched lower alkyl group, a 2–8C lower alkenyl group, a 5–7C cycloalkyl group, a 1–3C lower alkyl group substituted with a 5–7C cycloalkyl group or an aryl group, a 2–3C lower alkenyl group substituted with 5–7C cycloalkyl or an aryl group, an optionally substituted aryl group, a 1–6C straight-chain or branched lower alkoxy group, a 2–8C straight-chain or branched lower alkenyloxy group, a 5–7C cycloalkyloxy group, a 1–3C lower alkoxy group substituted with 5–7C cycloalkyl or an aryl group, a 2–3C alkenyloxy group substituted with 5–7C cycloalkyl or an optionally substituted aryl group, or an aryloxy group, and l denotes 0 or 1; and tetrazolyl, trifluoromethanesulfonic acid amide, phosphoric acid or sulfonic acid, each optionally protected with alkyl or acyl, may be provided, wherein one or more of these substituents may optionally be substituted simultaneously on optional positions of the ring;

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wherein when two or more of these substituents exist they may be bonded to each other to form a 5- to 6-membered optionally substituted aromatic hydrocarbon residue or a heterocyclic residue optionally containing hetero atom, taken together with the two ring-forming atoms, and wherein these rings may further be substituted with any of the above-described substituents, and

wherein h is CH_2, C=O, C=S, $S-(O)_m$, $-NR^7-$ or $-O-$ wherein m denotes an integer of 0-2 and R^7 is hydrogen or lower (1-4C) alkyl, and excluding the compound 2 ethoxy-1((2 -(2,5-dihydro-5-oxo 1,2,4-oxadiazol 3-yl)biphenyl-4-yl)methyl) benzimidazole 7-carboxylic acid and its physiologically acceptable salts.

* * *

5,736,556
TROPANE-2-ALDOXIME DERIVATIVES AS NEURO TRANSMITTER REUPTAKE INHIBITORS

Peter Moldt, Humlebaek; Frank Wätjen, Herlev, and Jorgen Scheel-Krüger, Glostrup, all of Denmark, assignors to NeuroSearch A/S, Glostrup, Denmark

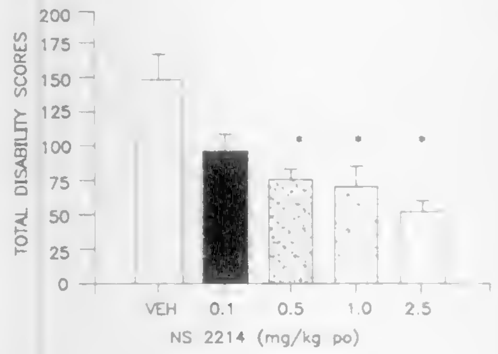
PCT No. PCT/EP95/01358, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO95/28401, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 12, 1995, Ser. No. 722,010

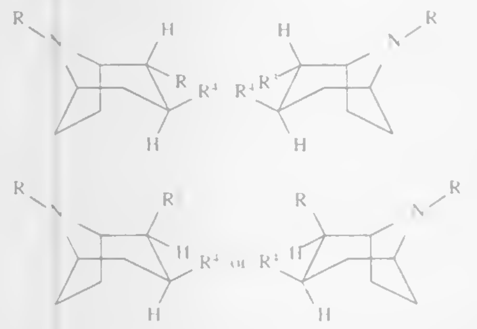
Claims priority, application Denmark, Apr. 19, 1994, 0447/94; Nov. 24, 1994, 1338/94

Int. Cl.^{6} A61K *31/44*, **C07D** *451/02;451/10*

U.S. Cl. 514—304 **22 Claims**



1. A compound having the formula:



any mixture thereof, or a pharmaceutically acceptable salt thereof, wherein

R is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, or 2-hydroxyethyl;

R^3 is CH=NOR', wherein R' is hydrogen or alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, aryl, or alkyl, all of which may be substituted with COOH, COO-alkyl, COO cycloalkyl, or phenyl which may be substituted one or more times with substituents selected from the group consisting of halogen, CF_3, CN, alkoxy, cycloalkoxy, alkyl, cycloalkyl, alkenyl alkynyl, amino, and nitro; and

R^4 is

phenyl which may be substituted one or more times with substituents selected from the group consisting of halogen, CF_3, CN, alkoxy cycloalkoxy alkyl, cycloalkyl, alkenyl, alkynyl, amino, nitro, heteroaryl and aryl,

3,4-methylenedioxyphenyl,

benzyl which may be substituted one or more times with substituents selected from the group consisting of halogen, CF_3, CN, alkoxy cycloalkoxy, alkyl, cycloalkyl, alkenyl, alkynyl, amino, nitro, heteroaryl, and aryl;

naphthyl which may be substituted one or more times with substituents selected from the group consisting of halogen, CF_3, CN, alkoxy, cycloalkoxy, alkyl, cycloalkyl, alkenyl, alkynyl, amino, nitro, heteroaryl, and aryl.

* * *

5,736,557
N,N-BIS (QUINOLIN-4-YL)-DIAMINE DERIVATIVES, THEIR PREPARATION AND THEIR USE AS ANTIMALARIALS

Werner Hofheinz, Bottmingen, and Werner Leupin, Liestal, both of Switzerland, assignors to Hoffman-La Roche, Inc., Nutley, N.J.

PCT No. PCT/EP95/02123, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/35287, PCT Pub. Date Dec. 28, 1995

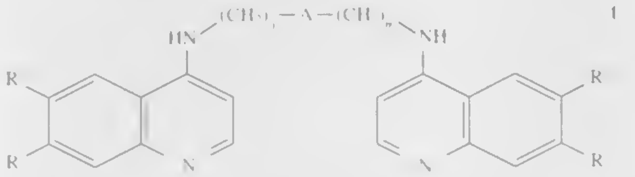
PCT Filed Jun. 3, 1995, Ser. No. 765,751

Claims priority, application Switzerland, Jun. 17, 1994, 1928/94

Int. Cl.^{6} A61K *31/47*, **C07D** *215/46*

U.S. Cl. 514—313 **10 Claims**

1. Compounds of the formula,



I

wherein R^1 is halogen or trifluoromethyl; R^2 is hydrogen or halogen; A is selected from the group consisting of cyclohexane-1,3-diyl, 2 methyl-cyclohexane-1,3,-diyl, cyclohexane-1,4-diyl, dicyclohexylmethane-4,4'-diyl, cyclopentane-1,3-diyl, phenylene-1,4, phenylene-1,3 and phenylene 1,2; n is 1 or 2; m is 1 or 2, and pharmaceutically acceptable acid addition salts.

* * *

5,736,558
4-(6-FLUORO-1,2-BENZISOXAZOLYL)-1 PIPERIDINYL-PROPOXY-CHROMEN-4-ONE-ONE-DERIVATIVES, THEIR PREPARATION AND THEIR USE IN THE TREATMENT OF PSYCHOSIS, SCHIZOPHRENIA AND ANXIETY

Rafael Foguet; Lluis Anglada; Jordi Bolos; Aurelio Sacristan; Josep M. Castello, and Jose A. Ortiz, all of Barcelona, Spain, assignors to Ferrer Internacional, S.A., Barcelona, Spain

PCT No. PCT/EP96/01551, § 371 Date Mar. 14, 1997, § 102(e) Date Mar. 14, 1997, PCT Pub. No. WO96/32389, PCT Pub. Date Oct. 17, 1996

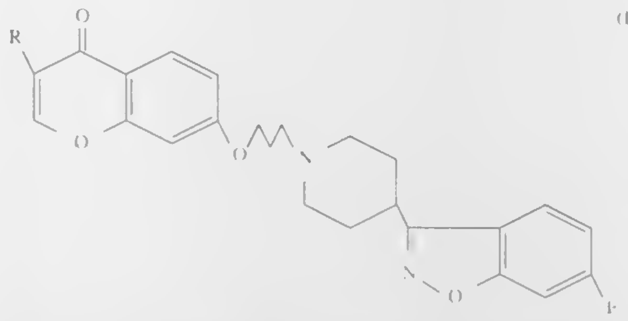
PCT Filed Apr. 11, 1996, Ser. No. 750,790

Claims priority, application Spain, Apr. 12, 1995, 9500737; Feb. 9, 1996, 9600323

Int. Cl.^{6} A61K *31/445*; **C07D** *401/14*

U.S. Cl. 514—321 **7 Claims**

1. 4-(6-fluoro-1,2 benzisoxazolyl)-1 piperidinyl propoxy chromen-4 one derivatives of formula (I).



(I)

wherein R is hydrogen or alkyl having 1 to 4 carbon atoms optionally substituted by hydroxyl, or a pharmaceutically acceptable addition salt thereof.

* * *

5,736,559
BIPHENYL DERIVATIVES, PHARMACEUTICAL COMPOSITIONS CONTAINING THESE COMPOUNDS AND PROCESSES FOR PREPARING THEM

Frank Himmelsbach, Mittelbiberach; Helmut Pieper; Volkhard Austel, both of Biberach; Günter Linz, Mittelbiberach; Thomas Müller, Biberach; Wolfgang Eisert, Biberach, and Johannes Weisenberger, Biberach, all of Germany, assignors to Karl Thomae GmbH, Biberach, Germany

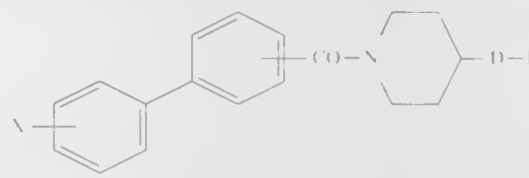
Division of Ser. No. 257,759, May 16, 1994, Pat. No. 5,597,825, which is a continuation of Ser. No. 825,246, Jan. 24, 1992, abandoned. This application Aug. 1, 1996, Ser. No. 691,107

Claims priority, application Germany, Jan. 24, 1991, 41 02 024.3

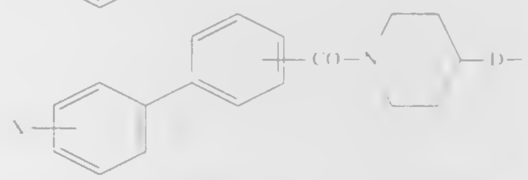
Int. Cl.^{6} A61K *31/445,31/40,31/495*, **C07D** *211/06;295/385*

U.S. Cl. 514—330 **10 Claims**

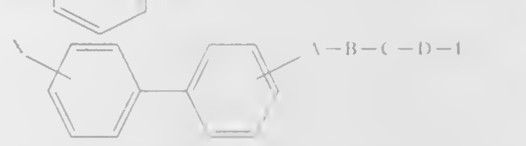
1. A biphenyl compound of formula



(I)



(I)



(I)

wherein one of the rings of the biphenyl moiety can be mono- or disubstituted by R_1 and the other can be mono- or disubstituted by R_2, wherein

R_1 and R_2, which may be identical or different, represent halogen atoms, alkyl, hydroxy trifluoromethyl, amino, nitro, alkoxy, alkylsulphenyl, alkylsulphinyl, alkylsulphonyl, alkyl carbonylamino, N alkyl alkylcarbonylamino, arylcarbonylamino, N alkyl-arylcarbonylamino, alkylsulphonylamino N-alkyl alkylsulphonylamino, arylsulphonylamino or N-alkyl-arylsulphonylamino groups, wherein the aryl moiety is a phenyl ring which can be mono-, di- or trisubstituted by halogen atoms, hydroxy, amino, alkyl, alkoxy alkylsulphenyl alkylsulphinyl, alkylsulphonyl alkylcarbonylamino and alkyl sulphonylamino groups and each alkyl moiety has 1 to 3 carbon atoms, or R_1 and R_2 each represent a naphthyl ring,

X represents an amino (C_{1-4} alkyl) or amidino group, wherein one of the hydrogen atoms at one of the nitrogen atoms in the above-mentioned groups can be replaced by a C_{1-4} alkyl C_{2-6} (alkoxycarbonyl) or phenyl(C_{2-6} alkoxy)carbonyl group wherein the above-mentioned phenyl groups can be mono- or disubstituted by the above-mentioned groups R_1 and R_2,

D represents a straight-chained or branched C_{1-4}-alkylene group which can be mono- or polyunsaturated, and

E represents a carboxy group or a C_{2-6}(alkoxycarbonyl) group wherein the alkoxy moiety can be substituted in the 1-, 2- or 3-position by a phenyl group (which can be mono- or disubstituted by the above-mentioned groups R_1 and R_2),

a stereoisomer thereof, including a mixture or a pharmaceutically acceptable salt thereof with an inorganic or a organic acid or base

* * *

5,736,560
SUBSTITUTED PYRIDINES USEFUL AS MODULATORS OF ACETYLCHOLINE RECEPTORS

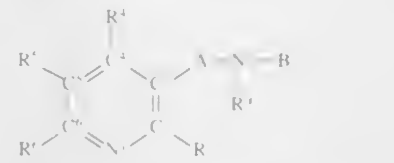
Nicholas D. Cosford, La Jolla, and Jean-Michel Vernier, San Diego, both of Calif., assignors to SIBIA Neurosciences, Inc., La Jolla, Calif.

Division of Ser. No. 419,597, Apr. 7, 1995, Pat. No. 5,585,388. This application Jun. 7, 1995, Ser. No. 488,122

Int. Cl.^{6} C07D *401/02*, **A61K** *31/44*

U.S. Cl. 514—343 **19 Claims**

1. A compound having the structure:



I

wherein

A is a 2, 3, 4, 5 or 6 atom bridging species linking C^3 of the pyriadine ring with N",

wherein A is selected from a —O—, —C(O)—, —C(S)—, —S—, —S(O)— and/or $-S(O)_2$-containing alkylene moiety, provided, however, that the heteroatom contained in A is separated from N" by at least two carbon atoms, and further provided that when A is a —C(O)— or —C(S)— containing alkylene moiety, at least one methylene unit intervenes between the —C(O)— or —C(S)— moiety of A and N";

B and R" combine to form a monocyclic ring containing B, R" and N", wherein B and R" combined form a 2, 3 or 4 atom bridging species selected from a straight chain or branched chain alkylene moiety having up to four atoms in the backbone thereof, or a substituted alkylene moiety, a straight chain or branched chain alkenylene moiety having up to four atoms in the backbone thereof, or a substituted alkenylene moiety, an alkynylene moiety having up to four atoms in the backbone thereof, or a substituted alkynylene moiety, —O—, —C(O)—, —C(S)—, $-N^3(R^8)-$, —S—, —S(O)— and/or $-S(O)_2$-containing alkylene moiety, wherein R^8 is hydrogen or a lower alkyl moiety provided, however, that any heteroatom contained in B is separated from N" by at least 2 carbon atoms, and further provided that when B is a —C(O)— or —C(S)— containing alakylene moiety at least one methylene unit intervenes between the —C(O)— or —C(S)— moiety and N" and further provided that N" is not conjugated with an alkenyl or alkynyl moiety, and

R^2, R^4, R^5 and R^6 are each independently selected from hydrogen, alkyl, substituted alkyl cycloalkyl substituted cycloalakyl, alkenyl, substituted alakenyl alkynyl, substituted alkynyl aryl substituted aryl alkylaryl substituted alkylaryl arylalkyl, substituted arylalkyl, arylalkenyl, substituted arylalkenyl, arylalkynyl, substituted arylalkynyl, heterocyclic substituted heterocyclic, trifluoromethyl halogen, cyano, nitro —S(O)R', $-S(O)_2R'$, $-S(O)_2OR'$ or $-S(O)_2NHR'$ wherein each R' is independently hydrogen lower alkyl, alkenyl alkynyl or aryl, provided however that when R^2, R^4, R^5 or R^6 is —S(O)R', R' is not hydrogen, and further provided that when R' is alkenyl or alkynyl the site of unsaturation is not conjugated with a heteroatom.

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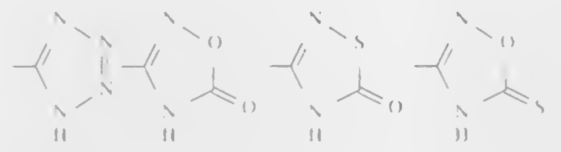
—C(O)R″, wherein R″ is selected from hydrogen, alkyl, substituted alkyl, alkoxy, alkylamino, alkenyl, substituted alkenyl, alkynyl substituted alkynyl, aryl, substituted aryl, aryloxy, arylamino, alkylaryl, substituted alkylaryl, arylalkyl substituted arylalkyl, arylalkenyl, substituted alkenyl, arylalkynyl, substituted arylalkynyl, heterocyclic, substituted heterocyclic or trifluoromethyl, provided, however, that the carbonyl functionality is not conjugated with an alkenyl or alkynyl functionality;

—OR‴ or —NR‴$_2$, wherein each R‴ is independently selected from hydrogen, alkyl, substituted alkyal, cycloalkyl, substituted cycloaalkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl substituted aryl, alkylaryl substituted alkylaryl, arylalkyl, substituted arylalkyl, arylalkenyl, substituted arylalkenyl, aryalalkynyl, substituted arylalkynyl aroyl, substituted aroyal, heterocyclic, substituted heterocyclic, acyl, trifluoromethyl, alkylsulfonyl or arylsulfonyl, provided, however, that the —OR‴ or —NR‴$_2$ functionality is not conjugated with an alkenyl or alkynyl functionality;

—SR⁗, wherein R⁗ is selected from hydrogen, alkyl, substituted alkyl alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl, substituted aryl, alkylaryl, substituted alkylaryl, arylalkyl, substituted arylalkyl, arylalkenyl, substituted arylalkenyl, arylalkynyl substituted alkynyl heterocyclic, substituted heterocyclic or trifluoromethyl, provided however, that the —SR⁗ functionality is not conjugated with an alkenyl or alkynyl functionality; or

—SiR⁗$_3$, wherein R⁗ is selected from alkyl or aryl.

R′ is one of the following



and n is 1 or 2

5,736,561
VASCULAR HYPERTROPHY SUPPRESSOR

Kohei Nishikawa, Kyoto, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

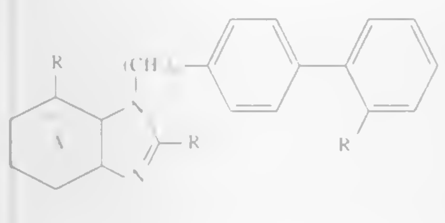
Division of Ser. No. 201,122, Feb. 24, 1994, Pat. No. 5,508,297. This application Jan. 18, 1996, Ser. No. 588,240

Claims priority, application Japan, Feb. 25, 1993, 5-036630

Int. Cl.⁶ A61K *31/41*; C07D *271/06*

U.S. Cl. 514—364 21 Claims

1. A method for the prophylaxis or treatment of vascular hypertrophy in a mammal by administering thereto a pharmaceutically effective amount of a compound of the following formula (I), or a salt thereof



wherein,

A is a substituted or unsubstituted benzene ring having the substituent R .

R is alkyl, alkenyl, alkynyl or cycloalkyl which binds through a group of the formula: —N(R)— wherein R′ is hydrogen or lower (C) alkyl, —O— or —S(O)$_m$— wherein m is an integer of 0 to 2 and which may be substituted with hydroxy, optionally substituted amino, halogen, lower (C) alkoxy or lower (C) alkylthio; or

R is aryl or aralkyl which may bind through a group of the formula —N(R′)— wherein R′ is hydrogen or lower (C) alkyl, —O— or —S(O)$_m$— wherein m is an integer of 0 to 2 and which may be substituted with halogen, nitro, optionally substituted amino lower (C) alkoxy, lower (C) alkylthio or lower (C) alkyl;

R is optionally esterified or amidated carboxyl, tetrazolyl, trifluoromethanesulfonic amide, phosphoric acid or sulfonic acid, which may be protected with optionally substituted lower alkyl or acyl.

5,736,562
6-HETEROCYCLIC-4-AMINO-1,3,4,5-TETRAHYDROBENZ[CD] INDOLES

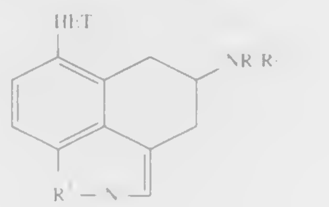
Richard N. Booher, Indianapolis; David E. Lawhorn, Greenfield; Charles J. Paget, Jr., Indianapolis, and John M. Schaus, Zionsville, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 299,175, Aug. 31, 1994, Pat. No. 5,594,019, which is a division of Ser. No. 954,105, Sep. 30, 1992, Pat. No. 5,364,856, which is a continuation-in-part of Ser. No. 677,016, Mar. 28, 1991, Pat. No. 5,244,912. This application May 31, 1995, Ser. No. 455,431

Int. Cl.⁶ C07D *403/04*, A61K *31/40*

U.S. Cl. 514—372 9 Claims

1. A compound of the formula



wherein,

R is hydrogen, C_1-C_4 alkyl, C_3-C_4 alkenyl, cyclopropylmethyl, phenyl (C_1-C_4 alkyl), naphthyl (C_1-C_4 alkyl), phenyl (C_1-C_4 alkyl) substituted with one or two substituents selected from the group consisting of C_1-C_3 alkoxy, halo, hydroxy, C_1-C_3 thioalkyl, nitro, C -C_4 alkyl or trifluoromethyl, naphthyl (C_1-C_4 alkyl) substituted with one or two substituents selected from the group consisting of C_1-C_3 alkoxy, halo, hydroxy, C_1-C_3 thioalkyl, nitro, C -C_4 alkyl or trifluoromethyl, —(CH$_2$)$_n$S(C -C_4 alkyl), —C(O)R^4, or —(CH$_2$)$_n$C(O)NR^{5}R^6,

R is hydrogen, C_1-C_4 alkyl, cyclopropylmethyl or C -C_4 alkenyl;

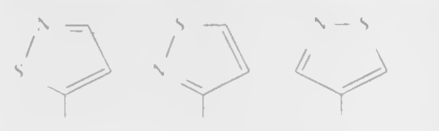
R is hydrogen C -C_4 alkyl or an amino blocking group;

n is 1–4,

R^4 is hydrogen, C_1-C_4 alkyl, C -C_4 haloalkyl, C_1-C_4 alkoxy or phenyl;

R and R^6 are independently hydrogen, C_1-C_4 alkyl, or C_5-C_8 cycloalkyl with the proviso that when one of R^5 or R^6 is a cycloalkyl the other is hydrogen;

HET is a heterocyclic ring selected from the group consisting of



wherein one carbon atom in the ring is optionally substituted with one substituent selected from the group consisting of C_1-C_3 alkyl, halogen, hydroxy C_1-C_3 alkoxy, C_1-C_3 thioalkyl, NH , CN and phenyl, or pharmaceutically acceptable salts thereof

5,736,563
TRANSCUTANEOUS IN VIVO ACTIVATION OF PHOTOSENSITIVE AGENTS IN BLOOD

Anna M. Richter, Vancouver, Canada, assignor to Quadra Logic Technologies, Inc., Vancouver, Canada

Continuation of Ser. No. 384,440, Feb. 2, 1995, Pat. No. 5,484,803, which is a continuation of Ser. No. 948,113, Sep. 21, 1992, abandoned. This application Nov. 8, 1995, Ser. No. 555,235

Int. Cl.⁶ A61K *31/41*

U.S. Cl. 514—410 8 Claims

1. A method to destroy or impair target cells in the bloodstream of a subject, which method comprises

(a) administering to said subject a photosensitizing agent in an amount sufficient to produce a concentration of photosensitizing agent or, if the photosensitizing agent is a prodrug, a concentration of the photosensitizing agent product of the prodrug within the subject's bloodstream, of about 0.01 to 100 μg/ml;

(b) allowing to elapse a post injection time sufficient to allow homing of the photosensitizing agent to the target cells while still maintaining said photosensitizing agent concentration in the bloodstream; and

(c) irradiating at least a portion of said subject with light of a wavelength absorbed by said photosensitizing agent or, if the photosensitizing agent is a prodrug, by the product thereof, wherein said irradiating is conducted transcutaneously;

and wherein the concentration of photosensitizing agent in the bloodstream of the animal, the post injection time, the intensity of the light, and the duration of said irradiating step, are all such that the target cells in the bloodstream are selectively impaired or destroyed while skin photosensitivity is substantially avoided

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5,736,564
ENDOTHELIN RECEPTOR ANTAGONISTS

John Duncan Elliott, Wayne; Robert Gene Franz, Plymouth Meeting; M. Amparo Lago, Audubon, and Aiming Gao, Chester Springs, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

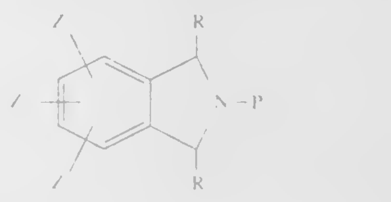
PCT No. PCT/US95/07193, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO95/35107, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 6, 1995, Ser. No. 464,761

Int. Cl.⁶ A61K *31/40*, C07D *209/08*

U.S. Cl. 514—414 6 Claims

1. A compound of Formula (I):



I

wherein

R_1 is —X(CH$_2$)$_n$Ar

R is hydrogen Ar or C alkyl,

P is tetrazole, SO$_2$NR R , CONR SO$_2$R or (CH$_2$)R ,

R and R are independently hydrogen R , OH C alkoxy, S(O)$_q$R , N(R$_6$)$_2$, Br, F, I, Cl, CF$_3$, NHCOR$_6$, R CO R , —X—R$_9$—Y or —X(CH$_2$)R$_8$ wherein each methylene group within —X(CH$_2$)R$_8$ may be unsubstituted or substituted by one or two —(CH$_2$)$_n$Ar groups,

R_4 is hydrogen, R , OH, C alkoxy S(O)$_q$R , N(R$_6$)$_2$, —X(R), Br, F, I, Cl or NHCOR, wherein the C alkoxy may be unsubstituted or substituted by OH, methoxy or halogen,

R_6 is independently hydrogen or C alkyl

R is independently hydrogen, C alkyl, C alkenyl or C alkynyl, all of which may be unsubstituted or substituted by one or more OH, N(R$_6$)$_2$, CO R , halogen or XC alkyl, or R is (CH$_2$)$_n$Ar,

R_8 is hydrogen, R , CO R , CO C(R)O(CO)NR , PO R , SO NR R , NR SO R , CONR SO R , SO R , SO R , P(O)(OR)R , CN , CO (CH)$_n$C(O)N(R$_6$)$_2$, C(R)N(R)$_2$, C(O)N(R$_6$)$_2$, or tetrazole

R_9 is (CH$_2$) , C alkylene, C alkenylene or phenylenyl all of which may be unsubstituted or substituted by one or more OH, N(R$_6$)$_2$, COOH, halogen, or R is C=O or XC alkyl,

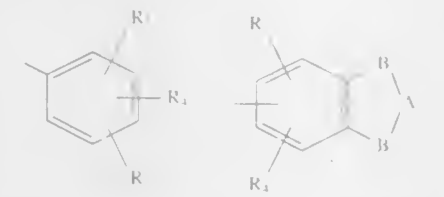
R is hydrogen Ar, C alkylene C alkenylene C alkynylene, all of which may be unsubstituted or substituted by one or more OH, CH OH, N(R$_6$)$_2$ or halogen

R 12 is hydrogen, C alkyl, C alkenyl or C alkynyl,

X is (CH$_2$)$_n$, O or NR$_6$;

Y is CH or X(CH$_2$)$_n$Ar,

Ar is,



naphthyl, indolyl pyridyl, thienyl, oxazolidinyl, oxazolyl, thiazolyl, isothiazolyl, pyrazolyl, triazolyl, tetrazolyl, imidazolyl, imidazolidinyl, thiazolidinyl, isoxazolyl, oxadiazolyl, thiadiazolyl, morpholinyl, piperidinyl, piperazinyl, pyrrolyl, or pyrimidyl all of which may be unsubstituted or substituted by one or more R or R_4 groups;

A is C=O, or [C(R$_6$)$_2$]$_m$;

B is —CH$_2$— or —O—;

Z and Z_2 are independently hydrogen, C alkyl, C_2 alkenyl, C_2 alkynyl, OH, C_1 alkoxy, S(O)$_q$C alkyl, N(R$_6$)$_2$, Br, F, I, Cl, NHCOR$_6$, —X—R$_9$-Y, —X(CH$_2$)$_n$R$_8$, phenyl, benzyl or C cycloalkyl wherein the C alkyl, C_2 alkenyl or C alkynyl may be optionally substituted by COOH, OH, CO(CH$_2$)CH , CO(CH$_2$)$_n$CH N(R$_6$)$_2$, or halogen, or Z and Z together may be —O—A—O— on contiguous carbons

Z_3 is Z or —X—R$_9$—Y,

q is zero one or two,

n is an integer from 0 to six,

s is an integer from one to six,

m is 1, 2 or 3, and the dotted line indicates the optional presence of a double bond, provided P is not (CH$_2$) NH , and further provided Z and Z^2 and Z^3 are not all hydrogen, or a pharmaceutically acceptable salt thereof

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5,736,565
THERAPEUTIC COMPOUNDS SUITABLE FOR THE TREATMENT OF DISEASES CONNECTED WITH GLUTATHIONE DEFICIENCY, PROCESS FOR THEIR PREPARATION, AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Lorenzo Ferrari, Montecarlo, Monaco, assignor to Prospa B.V., Netherlands

PCT No. PCT/EP93/03354, § 371 Date May 24, 1995, § 102(e) Date May 24, 1995, PCT Pub. No. WO94/12527, PCT Pub. Date Jun. 9, 1994

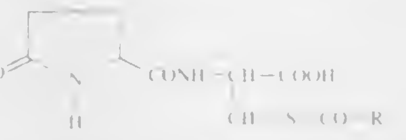
PCT Filed May 24, 1995, Ser. No. 449,802

Claims priority, application Italy, Nov. 30, 1992, MI92A2742

Int. Cl.⁶ A61K *31/40*; C07D *207/12*

U.S. Cl. 514—423 37 Claims

1. An acyl derivative of L-pyroglutamyl-L-cysteine of formula (I)



(I)

where R is a linear or branched alkyl group containing from to 6 carbon atoms, or their pharmaceutically acceptable salts

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HETEROAROMATIC COMPOUNDS AND CROP PROTECTION AGENTS CONTAINING THEM

Bernd Mueller, Frankenthal; Hubert Sauter; Horst Wingert, both of Mannheim; Hartmann Koenig, Limbrugerhof; Franz Roehl, Schifferstadt; Eberhard Ammermann, Heppenheim, and Gisela Lorenz, Neustadt, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigsbafen, Germany

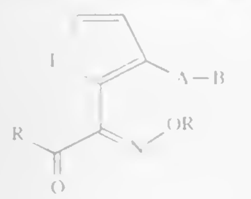
Continuation of Ser. No. 500,138, Jul. 10, 1995, abandoned, which is a continuation of Ser. No. 91,265, Jul. 15, 1993, abandoned. This application Jul. 7, 1997, Ser. No. 888,899

Claims priority, application Germany, Jul. 16, 1992, 42 23 357.7

Int. Cl.⁶ A61K *31/38 31/34* **C07D** *333/22 307/02*

U.S. Cl. 514—438 **18 Claims**

1. A heteroaromatic compound of the formula



wherein

T denotes oxygen or sulfur,

R denotes C_1–C_6-alkoxy,

R^2 denotes C_1–C_6 alkyl,

A denotes oxygen, sulfur unsubstituted or substituted alkylene, alkenylene or alkynylene; $(CHR^4)_nO$, $(CHR^4)_nS$, $(CHR^4)_nNH$, $(CHR^4)_nNR^5$, $(CHR^4)_nS(=O)$, $(CHR^4)_nS(=O)_2$, $(CHR^4)_nOS(=O)$, $(CHR^4)_nS(=O)-O$, $(CHR^4)_n-C(=O)$, $(CHR^4)_n-C(=O)O$, $(CHR^4)_nOS(=O)_2$, $(CHR^4)_nS(=O)_2-O$, $(CHR^4)_n-O-C(=O)$, $(CHR^4)n-CR^5=NO-$, $(CHR^4)-CR^5=N-N=CR^6-$ or $(CHR^4)_nn-O-N=CR-$;

n is 1, 2, 3 or 4;

R^4, R^5 and R^6 independently of one another are each hydrogen or unsubstituted or substituted C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6-alkynyl or aryl,

R^7 is hydrogen, cyano; unsubstituted or substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, heterocyclyl, aryl, hetaryl; unsubstituted or substituted alkoxy, alkenyloxy, alkynyloxy, cycloalkoxy, cycloalkenyloxy, cycloalkynyloxy, heterocyclyloxy, aryloxy, or hetaryloxy; and

B denotes unsubstituted or substituted cycloalkyl, cycloalkenyl, cycloalkynyl, heterocyclyl, aryl or hetaryl, and its plant tolerated acid addition products and base addition products

5,736,567
STABLE COMPOSITION CONTAINING ASCORBIC ACID

Hervé Cantin, Morangis; Eric Quemin, Villepinte; Didier Gagnebien, Chatillon, and Isabelle Afriat, Paris, all of France, assignors to L'Oreal, Paris, France

Filed Jul. 24, 1996, Ser. No. 685,600

Claims priority, application France, Jul. 25, 1995, 95 09026

Int. Cl.⁶ A61K *31/34*

U.S. Cl. 514—474 **23 Claims**

1. A composition, comprising ascorbic acid dissolved in water and at least one polyol forming an aqueous phase, wherein said polyol is present in a quantity that is effective for obtaining a water activity value of the composition which is lower than or equal to 0.85, the quantity of water in the composition being less than that of the polyol, and said composition comprises at least one structuring agent which is an oil present in a quantity ranging from 5 to 60% by weight, relative to the total weight of the composition.

16. A composition, comprising ascorbic acid dissolved in water and at least one polyol forming an aqueous phase, wherein said polyol is present in a quantity that is effective for obtaining a water activity value of the composition which is lower than or equal to 0.85, the quantity of water in the composition being less than that of the polyol, and said composition comprises at least one structuring agent which is a polymer selected from the group consisting of homopolymers and copolymers of acrylic and methacrylic acid and homopolymers and copolymers of esters of acrylic and methacrylic acid.

5,736,568
2-(AMINOALKOXY) PHENYLALKYLAMINES WITH ANTIINFLAMMATORY ACTIVITY

Paul Rafferty, and Gerald Bernard Tometzki, both of Nottingham, Great Britain, assignors to Knoll Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/00626, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO95/23127, PCT Pub. Date Aug. 31, 1995

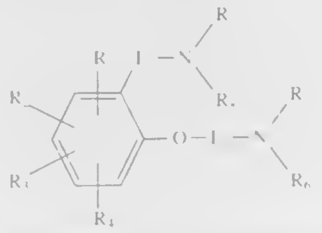
PCT Filed Feb. 20, 1995, Ser. No. 687,584

Claims priority, application United Kingdom, Feb. 25, 1994, 9403639

Int. Cl.⁶ A61K *31/135 31/445* **C07C** *217/14; 217/18*

U.S. Cl. 514—524 **12 Claims**

1. Compounds of formula I



I

including pharmaceutically acceptable salts thereof in which

R_1, R_2, R_3, and R_4 independently represent hydrogen, hydroxy, halo, a halogenated C_{1-4} alkyl group, a halogenated C_{1-4} alkoxy group, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, cyano, a carbamoyl group of formula $CONR_AR_B$ (in which R_A and R_B independently represent hydrogen or a C_{1-4} alkyl group), a (C_{1-6} alkoxy)carbonyl group, or R_1 and R_2 together with the phenyl ring to which they are attached represent a naphthalene ring which is optionally substituted by one or more of the following: a C_{1-6} alkyl group, a C_{1-6} alkoxy group or halo,

L_1 represents a C_{2-6} alkylene chain optionally substituted by one or more C_{1-4} alkyl groups;

R_5 represents hydrogen or a C_{1-6} alkyl group;

R_6 represents hydrogen or a C_{1-6} alkyl group, a phenyl C_{1-6} alkyl chain (in which the alkyl chain is optionally substituted by one or more C_{1-6} alkyl groups and the phenyl ring is optionally substituted by one or more of the following, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, halo, hydroxy, cyano or a carbamoyl group of formula $CONR_cR_d$ in which R_c and R_d independently represent hydrogen or a C_{1-4} alkyl group), or R_5 and R_6 together with the nitrogen atom to which they are attached represent a saturated 3–7 membered heterocyclic ring, optionally containing sulphur, oxygen or an additional nitrogen atom, wherein the ring is optionally substituted by one or more C_{1-4} alkyl groups,

L_2 represents a C_{1-6} alkylene chain optionally substituted by one or more C_{1-4} alkyl groups; and

R_7 and R_8 independently represent hydrogen or a C_{1-6} alkyl group or R_7 and R_8 together with the nitrogen atom to which they are attached represent a saturated 3–7 membered heterocyclic ring, optionally containing sulphur, oxygen or an additional nitrogen atom, wherein the ring is optionally substituted by one or more C_{1-4} alkyl groups;

excluding the following compounds:

1) 2-(4-aminobutoxy)-N,N-dimethylbenzylamine;

2) N-isopropyl-2-[2-(isopropylamino)ethoxy]-α-methylbenzylamine; and

3) α-methyl-N-propyl-2-[2-(propylamino)ethoxy] benzylamine,

and with the proviso that, when

a) R_1, R_2 and R_3 each represent hydrogen and R_4 is hydrogen or alkoxy

b) L_1 represents a C_{2-6} alkylene chain

c) the group NR_5R_6 is amino, alkylamino, dialkylamino or a nitrogen containing heterocyclic group and

d) L_2 represents methylene then the group NR_7R_8 does not represent amino, alkylamino or piperidino

5,736,569

Patent Not Issued For This Number

5,736,570
IMMUNOTHERAPEUTIC ARYL AMIDES

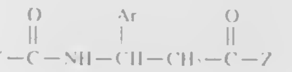
George W. Muller, Bridgewater; Mary Shire, North Plainfield, and David I. Stirling, Branchburg, all of N.J., assignors to Celgene Corporation, Warren, N.J.

Division of Ser. No. 366,618, Dec. 30, 1994. This application Oct. 15, 1996, Ser. No. 729,847

Int. Cl.⁶ A61K *31/235; 31/165*

U.S. Cl. 514—532 **12 Claims**

1. The method of reducing levels of TNFα in a mammal which comprises administering thereto an effect amount of a compound of the formula:



$$\begin{array}{c} \quad O \qquad\quad Ar \qquad\quad O \\ \quad \| \qquad\quad\; | \qquad\quad\; \| \\ Y-C-NH-CH-CH_2-C-Z \end{array}$$

where

Ar is 3,4-disubstituted phenyl where each substituent is selected independently of the other from the group consisting of nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxy, carboxy, hydroxy, amino, alkyl of 1 to 10 carbon atoms, alkoxy of 1 to 10 carbon atoms, and halo,

Z is alkoxy of 1 to 10 carbon atoms, benzyloxy, amino, or alkylamino of 1 to 10 carbon atoms; and

Y is (i) a phenyl, unsubstituted or substituted with one or more substituents each selected, independently one from the other, from the group consisting of nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxy, carboxy, hydroxy, amino, alkyl of 1 to 10 carbon atoms, alkoxy of 1 to 10 carbon atoms, and halo, or (ii) naphthyl.

5,736,571
GUERBET MEADOWFOAM ESTERS IN PERSONAL CARE

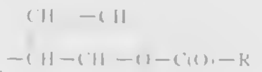
Anthony J. O'Lenick, Jr., Lilburn, Ga., assignor to Fan Tech Ltd, Chicago, Ill., and Lambent Technologies Inc., Norcross, Ga.

Continuation-in-part of Ser. No. 516,138, Aug. 17, 1995, Pat. No. 5,646,321. This application Sep. 19, 1996, Ser. No. 715,742

Int. Cl.⁶ A01N *37/06*

U.S. Cl. 514—549 **9 Claims**

1. A process for conditioning skin which comprises contacting the skin with an effective conditioning amount of an ester conforming to the following structure,



$$\begin{array}{c} CH_3-(CH_2) \\ | \\ CH_3-(CH_2)-CH-CH_2-O-C(O)-R \end{array}$$

wherein

R is,

60–65% by weight $(CH_2)_7-CH=CH-(CH_2)_{13}-CH_3$

12–20% by weight a mixture of

$(CH_2)_3-CH=CH-(CH_2)_{15}-CH_3$

and

$(CH_2)_{11}-CH=CH-(CH_2)_7-CH_3$

and

15–28% by weight

$(CH_2)_3-CH=CH-(CH_2)_6-CH=CH-(CH_2)_6-CH_3$

a, and b are independently integers ranging from 4 to 20

5,736,572

Patent Not Issued For This Number

5,736,573
LIPID AND WATER SOLUBLE DERIVATIVES OF DRUGS

Alexander Galat, 126 Buckingham Rd., Yonkers, N.Y. 10701

Filed Jul. 31, 1996, Ser. No. 688,515

Int. Cl.⁶ A01N *37/00*

U.S. Cl. 514—560 **8 Claims**

1. An amine derivative compound for transdermal delivery to humans exhibiting solubility in both oils and water, the compound comprising a free base amine moiety chemically bonded with a natural oil-soluble, long chain aliphatic acid which is non-toxic to humans, wherein the amine moiety comprises one of phenylpropanolamine, fenfluramine, and 17-(cyclopropylmethyl)-4,5-epoxy-3,14dihydroxymorphinan-6-one.

5,736,574
PHARMACCEUTICAL/COSMETIC COMPOSITIONS COMPRISING SYNERGISTIC ANTIMICROBIAL ADMIXTURE

Véronique Burnier, Chatellerault, and Jean Pierre Brissonnet, Poitiers, both of France, assignors to La Roche Posay Laboratoire Pharmaceutique, La Roche Posay, France

Filed May 17, 1996, Ser. No. 649,192

Claims priority, application France, May 17, 1995, 95 05866

Int. Cl.⁶ A61K *31/195, 31/08*

U.S. Cl. 514—568 **21 Claims**

1. Combinatory antimicrobial immixture active against gram-negative bacteria comprising at least one antimicrobial hydrolipid and/or lipid and an antimicrobially synergistically effective amount of at least one glyceryl monoalkyl ether.

5,736,575
EXCITEMENT ACCELERATING AGENT

Takami Kakuda; Takanobu Takihara; Iwao Sakane, and Ayumu Nozawa, all of Shizuoka, Japan, assignors to Ito En Ltd., Tokyo, Japan

Filed Sep. 25, 1996, Ser. No. 720,198

Claims priority, application Japan, Oct. 3, 1995, 7-256615

Int. Cl.⁶ A61K *31/195*

U.S. Cl. 514—563 **7 Claims**

1. A method for accelerating excitement comprising administering theanine to a mammal at a dose of about 0.17 to 2.8 mg/kg body weight.

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5,736,576

METHOD OF TREATING MALIGNANT TUMORS WITH THYROXINE ANALOGUES HAVING NO SIGNIFICANT HORMONAL ACTIVITY

Ernest Kun, Mill Valley, and Jerome Mendeleyev, Tiburon, both of Calif., assignors to Octamer, Inc., Mill Valley, Calif.
Filed Jun. 4, 1996, Ser. No. 655,267
Int. Cl.⁶ A61K *31/19;* C07C *69/76*
U.S. Cl. 514—570 3 Claims

1. A method for treating a malignant tumor in a mammal comprising the step of administering an amount of methyl 3,5-diiodo-4-(4'-methoxyphenoxy) benzoate sufficient to depress growth of the malignant tumor.

5,736,577

METHODS AND COMPOSITIONS FOR TREATING URINARY INCONTINENCE USING OPTICALLY PURE (S)-OXYBUTYNIN

Gunnar Aberg, Sarasota, Fla., and John R. McCullough, Worcester, Mass., assignors to Sepracor, Inc., Marlborough, Mass.
Continuation-in-part of Ser. No. 381,542, Jan. 31, 1995, Pat. No. 5,532,278. This application Jun. 28, 1996, Ser. No. 671,976
Int. Cl.⁶ A61K *31/165;9/70,9/66;9/46*
U.S. Cl. 514—617 13 Claims

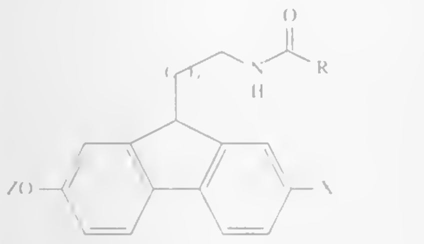
1. A method for treating urinary incontinence which comprises administering to a human in need thereof a therapeutically effective amount of (S)-oxybutynin, or a pharmaceutically acceptable salt thereof, substantially free of (R)-oxybutynin, wherein the amount of (S)-oxybutynin, or a pharmaceutically acceptable salt thereof, administered is from about 0.1 mg to about 1 gram per day.

5,736,578

ETHYLAMIDO FLUORENES AND IMPROVED METHOD OF MAKING SAME

Brett T. Watson, Verloese, Denmark; Katherine S. Takaki, Middletown, Conn.; Joseph P. Yevich, Southington, Conn.; James R. Epperson, Cromwell, Conn.; George N. Karageorge, Meriden, Conn., and Karen L. Leboulluec, Durham, Conn., assignors to Bristol-Myers Squibb Company, Princeton, N.J.
Continuation-in-part of Ser. No. 486,153, Jun. 6, 1995, abandoned. This application May 10, 1996, Ser. No. 644,510
Int. Cl.⁶ A61K *31/16,* C07C *233/05*
U.S. Cl. 514—630 20 Claims

1. A compound of Formula I or a pharmaceutically acceptable solvate thereof:

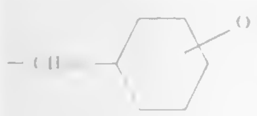


(I)

wherein

X=H, halogen, OH or OZ

$Z=C_{1-6}$ alkyl, $-(CH_2)_m-CF_3$ (m=0–2); CD_3 or



(m = 1–3)

n=1 or 2; and

$R=C_{1-6}$ alkyl, C_{3-6} cycloalkyl, C_{2-4} alkenyl, halogen substituted C_{1-6} alkyl, or C_{1-6} alkoxy substituted C_{1-6} alkyl

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5,736,579

SUBSTITUTED SPIRO COMPOUNDS FOR THE TREATMENT OF INFLAMMATION

David B. Reitz, Chesterfield; Robert E. Manning, St. Louis; Horng-Chi Huang, and Jinglin Li, both of Chesterfield, all of Mo., assignors to G.D. Searle & Co., Skokie, Ill.
Continuation of Ser. No. 194,762, Feb. 10, 1994, Pat. No. 5,393,790. This application Nov. 18, 1994, Ser. No. 341,734
Int. Cl.⁶ A61K *31/44;31/18,31/10*
U.S. Cl. 514—709 35 Claims

1. A compound selected from compounds, and their pharmaceutically-acceptable salts, of the group consisting of

5-(3-bromo-4-methoxyphenyl)-6-[4-(methylsulfonyl)phenyl]spiro[2.4]hept-5-ene;
4-[6-(3-bromo-4-methoxyphenyl)spiro[2.4]hept-5-en-5-yl]benzenesulfonamide;
5-(3,5-dichloro-4-methoxyphenyl)-6-[4-(methylsulfonyl)phenyl]spiro[2.4]hept-5-ene; and
4-[6-(3,5-dichloro-4-methoxyphenyl)spiro[2.4]hept-5-en-5-yl]benzenesulfonamide.

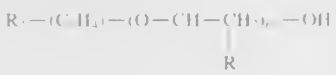
5,736,580

COMPOSITION, DEVICE, AND METHOD FOR ELECTROTRANSPORT AGENT DELIVERY

James A. Huntington, Chicago, and Michel Cormier, Mountain View, both of Calif., assignors to Alza Croporation, Palo Alto, Calif.
Filed Nov. 14, 1994, Ser. No. 338,924
Int. Cl.⁶ A61K *31/08*
U.S. Cl. 514—772 6 Claims

1. A method of increasing electrotransport flux of an agent through a body surface comprising:

contacting a body surface with a hydrated reservoir containing a beneficial agent to be delivered through the body surface and a permeation enhancer in an amount which is effective to increase the electrotransport of the agent, and applying an electric current across the reservoir and the body surface whereby the agent fluxes across the body surface at an enhanced flux compared with the flux in the absence of the enhancer, said permeation enhancer being selected from the group consisting of i) and ii) wherein i) is selected from the group consisting of dodecanol, 1,2-dodecane diol, octyl-N,N,-dimethyldodecylamino salts, 1-methyl-4-imidazoline 2-one 3-propylenedodecanoate, N,N-dimethyldodecylamine, a dodecylpyridinium salt, and mixtures thereof, and ii) is compounds having the chemical formula.



$$R_1-(C_2H_4)-(O-\underset{\displaystyle R}{CH}-CH_2)_{n1}-OH$$

wherein

R_1 is a saturated C–C hydrocarbon,

n1 is an integer from 1 to 50; and

R_2 is H or CH_3

5,736,581

POLYGLYCEROL POLYRICINOLEATES

Achim Ansmann, Erkrath; Rolf Kawa, Monheim; Helga Gondek; Gabriele Strauss, both of Duesseldorf, and Rainer Von Kries, Illertissen, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany
PCT No. PCT/EP95/00915, § 371 Date Sep. 23, 1996, § 102(e) Date Sep. 23, 1996, PCT Pub. No. WO95/25502, PCT Pub. Date Sep. 28, 1995
PCT Filed Sep. 23, 1996, Ser. No. 718,449
Claims priority, application Germany, Mar. 21, 1994, 44 09 569.4
Int. Cl.⁶ A61K *7/48;47/14*
U.S. Cl. 514—785 3 Claims

1. A polyglycerol polyricinoleate made by the process which comprises reacting polyricinoleic acid having a degree of autocondensation of 2 to 10 with a polyglycerol mixture comprised of (a) from about 5 to about 35% by weight of glycerol, (b) from about 15 to about 40% by weight of diglycerol., (c) from about 10 to about 30% by weight of triglycerol, (d) from about 8 to about 20% by weight tetraglycerol, (e) from about 3 to 10% by weight pentaglycerol and, (f) the remainder oligoglycerol

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5,736,582

METHOD AND COMPOSITION FOR CONTROLLED DELIVERY OF NASCENT OXYGEN FROM HYDROGEN PEROXIDE SOURCE FOR SKIN TREATMENT

Richard L. Devillez, 2220 Cr 467, Hondo, Tex. 78861
Filed Oct. 10, 1996, Ser. No. 729,279
Int. Cl.⁶ A61K *31/19,33/40*
U.S. Cl. 514—859 3 Claims

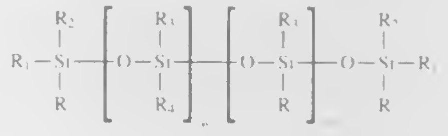
1. A composition for treatment of acne consisting essentially of:
8 to 23 percent by weight of hydrogen peroxide,
0.5 to 1.5 percent by weight of salicylic acid,
8 to 12 percent by weight of dimethyl isosorbide, and
the balance water.

5,736,583

FUNCTIONAL SILICONE FLUIDS CONTAINING A CARBOXYL FUNCTIONAL GROUP THEREON

Abe Berger, Summit, and Dennis L. Fost, Ridgewood, both of N.J., assignors to Mona Industries, Inc., Paterson, N.J.
Continuation-in-part of Ser. No. 420,746, Apr. 12, 1995, Pat. No. 5,596,061. This application Jan. 16, 1997, Ser. No. 784,308
Int. Cl.⁶ C08G *77/04*
U.S. Cl. 528—26 19 Claims

1. A polysiloxane composition having the formula

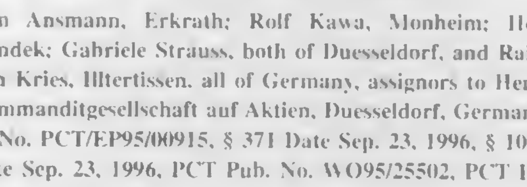


$$R_1-\underset{R}{\overset{R_2}{Si}}-\left[O-\underset{R_4}{\overset{R_3}{Si}}\right]_a-\left[O-\underset{R}{\overset{R_1}{Si}}\right]_b-O-\underset{R}{\overset{R_2}{Si}}-R_1$$

wherein:

R is selected from R_2 or $-OR_6$, wherein R_6 is hydrogen or alkyl, with the proviso that at least one of the R groups is $-OR_6$.

R_1, which can be the same or different, is selected from R_2, an amine containing group of the formula $-(CH_2)_n-F_{n1}-B_{n2}-F-NH_2$ or a pyrrolidone-containing functional carboxyl group of the general formula



wherein at least one R_1 is the pyrrolidone containing functional carboxyl group or derivative thereof as shown, R_2 is as defined below, R_5 is hydrogen, lower alkyl (C_{1-6}) or alkali metal; F which can be the same or different, is linear or branched alkylene of 1–12 carbon atoms, B is $-NR_6$, oxygen or sulfur wherein R_6 is hydrogen or lower alkyl (C_{1-6}), n is zero or 2; n^1 is zero or 1, an n^2 is zero or 1 with the proviso that when n is zero and n^2 is 1, n^1 is 1, when n is 2 and n^2 is 1, n^1 is zero or 1 and when n is 2 and n^2 is zero, n^1 is zero.

R_2 can be the same or different and is selected from alkyl, aryl, alkenyl or alkynyl

R_3 and R_4, which may be the same or different are selected from alkyl, aryl, capped or uncapped polyoxyalkylene, alkaryl, aralkylene, alkenyl or alkynyl,

a is an integer from 0 to 50,000; and

b is an integer from 0 to 100.

5,736,584

INSECT REPELLANT COMPRISING PRICKLY PEAR CACTUS EXTRACT

Dick Kunkel, 8505 Directors Row, Dallas, Tex. 75247
Filed Oct. 21, 1996, Ser. No. 734,529
Int. Cl.⁶ A01N *65/00;* A61K *35/78*
U.S. Cl. 514—919 8 Claims

1. A repellant composition for repelling insects from a surface, the composition comprising

as an active ingredient, an insect repelling amount of cactus extract of between about 20 to 60% by weight of the composition; and

a carrier, excipient or diluent suitable for application to the surface, and

an amount of d-limonene.

5,736,585

MOLDINGS FOR PACKAGING, AND PROCESS FOR THE PRODUCTION THEREOF

Harald Meyer, Bickenbach; Hans Bössler, and Josef Scherer, both of Worms, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany
PCT No. PCT/EP96/02621, § 371 Date Feb. 27, 1997, § 102(e) Date Feb. 27, 1997, PCT Pub. No. WO97/01425, PCT Pub. Date Jan. 16, 1997
PCT Filed Jun. 18, 1996, Ser. No. 793,696
Claims priority, application Germany, Jun. 29, 1995, 195 23 629.7
Int. Cl.⁶ C08J *9/232 9/24 9/33 9/35*
U.S. Cl. 521—47 12 Claims

1. A process for the production of polyethylene and/or polypropylene foam moldings which comprises fusing in a mold polyethylene and/or polypropylene foam beads wherein more than 50% of

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said beads are recycled polyethylene and/or polypropylene foam beads.

5,736,586
BIODEGRADABLE FOAMED PLASTIC MATERIALS

Catia Bastioli, Novara; Vittorio Bellotti, d'Agogna; Gianfranco Del Tredici, Sesto Calende; Alessandro Montino, Robbio Lomelliana, and Roberto Ponti, Oleggio, all of Italy, assignors to Novamont S.p.A., Novara, Italy

Filed Aug. 8, 1995, Ser. No. 512,673

Claims priority, application Italy, Aug. 8, 1994, MI94A1725

Int. Cl.^{6} C08J *9/12*

U.S. Cl. 521—84.1 **14 Claims**

1. Biodegradable foamed plastic material having a bulk density value comprised within the range of from 5 to 13 kg/m^3, and a corresponding specific density equal or lower than 32 kg/m^3, comprising:

from 30 to 99.5% by weight of a polysaccharide containing a level higher than 50%, of thermoplastic starch or starch complexed with natural or synthetic polymeric structures, wherein said starch has:
  an intrinsic viscosity lower than 1.3 dl/g;
  an ethanol soluble fraction at 25° C. lower than 20% by weight;
from 0.5 to 70% by weight of one or more thermoplastic polymers, wherein at least 10% of this fraction is constituted by a thermoplastic polymer (A) which is soluble in starch, or (B) is capable of complexing starch; and
from 0 to 20% by weight of water.

5,736,587
PROCESS FOR THE PRODUCTION OF MOLDED POLYURETHANE PRODUCTS

Craig M. Sungail, Venetia, and Kenneth R. Riddle, Leetsdale, both of Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 312,375, Sep. 26, 1994, abandoned. This application May 30, 1995, Ser. No. 454,489

Int. Cl.^{6} C08G *18/30*

U.S. Cl. 521—125 **7 Claims**

1. In a process for the preparation of a molded product comprising:

a) introducing a polyurethane foam forming mixture into a mold, said reaction mixture comprising,
  1) one or more relatively high molecular weight polyether polyols,
  2) water, in an amount of from 0.75 to 3.5% by weight based upon the weight of all isocyanate-reactive materials,
  3) one or more catalysts, and
  4) one or more polyisocyanates, with the amounts of reactants being such that the isocyanate to hydroxyl group equivalent ratio is from 0.4:1 to 1.3:1,
b) allowing said reaction mixture to fully react, and
c) removing the resultant product from the mold, the improvement wherein said catalyst comprises a catalytic amount of a metal carboxylate salt of an amino acid, wherein said amino acid is selected from the group consisting of glycine, alanine, valine, leucine, isoleucine, serine, threonine, cysteine, cystine, methionine, lysine, arginine, phenylalanine, tyrosine, proline, hydroxyproline, histidine tryptophan, aspartic acid, asparagine, glutamine, thryoxine, o-aminobenzoic, m-aminobenzoic, p-aminobenzoic and glutamic acids.

5,736,588
PROCESS FOR PREPARING RIGID POLYURETHANE FOAMS

Norbert Eisen, Köln; Walter Klän, Leverkusen; Frank Otto, Hilden, all of Germany, and James Thompson-Colon, Edo. Mexico, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP94/03688, § 371 Date May 15, 1996, § 102(e) Date May 15, 1996, PCT Pub. No. WO95/14730, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 9, 1994, Ser. No. 646,319

Claims priority, application Germany, Nov. 22, 1993, 43 39 702.6

Int. Cl.^{6} C08J *9/14*

U.S. Cl. 521—155 **5 Claims**

1. A process for preparing rigid foams which possess urethane groups, comprising reacting

a) polyisocyanates with
b) compounds which possess at least two active hydrogen atoms which are reactive towards isocyanate groups, with molecular weights of 92 to 10,000 in the presence of
c) water and alkanes as blowing agent and
d) solution promoters wherein said solution promoter, which is used, is at least one compound with a polar group, selected from the group consisting of diethyl carbonate, a reaction product of a total of two moles of tall oil fatty acid and a total of one mole of 3-dimethylaminopropyl-amine-1, and methyltrioctylammonium chloride.

5,736,589
ABSORBABLE POLYALKYLENE DIGLYCOLATES

Kevin Cooper, Warren, and Angelo Scopelianos, Whitehouse Station, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Continuation of Ser. No. 505,498, Jul. 21, 1995, abandoned, which is a division of Ser. No. 375,020, Jan. 19, 1995, abandoned. This application Jul. 30, 1996, Ser. No. 690,374

Int. Cl.^{6} C08G *63/91;63/21;63/12*

U.S. Cl. 522—43 **2 Claims**

1. An absorbable, biocompatible poly(alkylene diglycolate) comprising the reaction product of:

an acid or ester of diglycolic acid; and,
an alcohol selected from the group consisting of glycerol, pentaerythitol, trimethylolpropane, hydroxyl terminated poly(ethylene glycol)s, ethylene glycol, 1,2-propanediol, 1,3-propanediol, 1,4-butylene glycol, dipropylene glycol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, and 1,8-octanediol,
wherein the poly(alkylene diglycolate) comprises about 10 mole percent to about 90 mole percent of repeating units with tri-, tetra-alcohols, and hydroxyl terminated poly(ethylene glycol)s, and wherein the balance of the poly(alkylene diglycolate) comprises repeating units with diol alcohols and
wherein the poly(alkylene diglycolate) polymer additionally comprises pendant acrylate groups.

5,736,590
PROCESS FOR PRODUCING AN ELECTRICALLY DRIVEN MECHANOCHEMICAL ACTUATOR

Lenore Rasmussen, 206 Columbia Common, Somerville, N.J. 08876

Filed Nov. 7, 1995, Ser. No. 551,858

Int. Cl.^{6} A61F *2/48;* **C08J** *3/06*

U.S. Cl. 523—113 **5 Claims**

1. A process for producing an electrically driven mechanochemical actuator comprising

(a) immersing a soft, flexible, oxygen permeable, hydrophilic mixture of poly(2-hydroxethyl methacrylate) and poly-(methacrylic acid) crosslinked with 1,1,1-trimethylol propane trimethacrylate and ethylene glycol dimethacrylate into an aqueous polyelectrolyte solution to form a hydrogel;
(b) applying an electrical field to the hydrogel sufficient to provide buckling, rippling, and contraction of the hydrogel;
(c) terminating application of the electrical field and allowing the hydrogel to relax and return to its original shape;
(d) reapplying the electrical field to the hydrogel sufficient to provide buckling, rippling, and contraction of the hydrogel.

5,736,591
LATEX WITH RESISTANCE TO BACTERIAL GROWTH

Edwin Reed Dunn, Rocky Face, Ga., assignor to The GoodYear Tire & Rubber Co., Akron, Ohio

Filed Mar. 1, 1996, Ser. No. 609,405

Int. Cl.^{6} C08K *3/10;* **A01N** *59/16;59/20*

U.S. Cl. 523—122 **20 Claims**

1. A method of inhibiting the growth of bacteria in latex which comprises incorporating into the latex so as to contact said bacteria, at least a bactericidally effective amount of ions of a metal from Group Ib of the Periodic Chart and an organic chemical bactericide.

5,736,592
PROCESS FOR INTRAMOLECULARLY CONDENSING A NON-LINEAR OPTICAL POLYAMIC ACID COMPOSITION

Mark Thomas DeMeuse, Robbinsville; Diana Marie Applegate, Toms River; Kwan-Yue Alex Jen, Old Bridge, all of N.J., and John Thomas Kenney, Palo Alto, Calif., assignors to Enichem S.p.A., Italy

Filed Feb. 15, 1995, Ser. No. 389,114

Int. Cl.^{6} C08G *69/26;73/10;* **B32B** *27/08*

U.S. Cl. 523—137 **29 Claims**

1. A process for intramolecularly condensing a polyamic acid composition containing a nonlinear optical (NLO) compound to form a polyimide host matrix composition containing as a guest the NLO compound, wherein said NLO compound has the structure:

D—R—A

wherein D, R and A form a non centrosymmetric electron delocalized resonance configuration in which R is a pi-conjugated electron delocalized aromatic ring-containing moiety, A is an electron withdrawing moiety substituted on a ring of R, and D is an electron donating moiety substituted on a ring of R, which process comprises the step of:

irradiating said polyamic acid composition with electromagnetic radiation in the microwave or radio frequency range, in the absence of a solvent or a diluent, so that said polyamic acid composition is uniformly heated to a temperature at which said intramolecular condensation will occur without thermal degradation of said NLO compound, and the temperature differential within said polyamic acid is below that which will produce localized thermal degradation temperatures, until said intramolecular condensation of said polyamic acid composition to said polyimide host matrix composition is substantially complete.

5,736,593
TERNARY BLEND OF POLYISOPRENE, EPOXIDIZED NATURAL RUBBER AND CHLOROSULFONATED POLYETHYLENE

Paul Harry Sandstrom, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 23, 1997, Ser. No. 787,804

Int. Cl.^{6} C08L *9/00;15/00;* **C08K** *3/36;5/36*

U.S. Cl. 523—437 **11 Claims**

1. A ternary polymer blend comprising, based on 100 parts by weight of ternary polymer blend an intimate mixture of

(a) 76 to 94 parts by weight of polyisoprene having up to 15 percent trans-1,4 structure;
(b) 3 to 12 parts by weight of a chlorosulfonated polyethylene having (1) a chlorine content of 25 to 50 percent, (2) a sulfur content of 0.7 to 3 percent and (3) a raw polymer viscosity of 30 to 66 (ML-4 at 212° F.); and
(c) 3 to 12 parts by, weight of epoxidized natural rubber having an epoxidized modification in a range of from 20 to 50 mole percent.

5,736,594
CEMENTING COMPOSITIONS AND METHODS USING RECYCLED EXPANDED POLYSTYRENE

Joel L. Boles, and Jeffrey B. Boles, both of Spring, Tex., assignors to B J Services Company, Tomhall, Tex.

Filed Mar. 28, 1996, Ser. No. 623,212

Int. Cl.^{6} C08J *11/00,* **C08K** *3/00,* **C04B** *16/08*

U.S. Cl. 524—2 **1 Claim**

1. A method of cementing a well bore, comprising the steps of:

mixing together Class H cement, about 2% calcium chloride by weight of the cement, from about 1% to about 15% ground-up recycled expanded polystyrene particles by weight of the cement, and water in an amount sufficient to produce a pumpable cement slurry,
pumping said cement slurry to the desired location in said well bore; and
allowing said cement slurry to harden to a solid mass.

5,736,595
POLYMER COMPOSITION, ABSORBENT MATERIAL COMPOSITION, THEIR PRODUCTION AND THEIR USE

Uwe Günther, Tönisvorst; Helmut Klimmek, Krefeld, and Helmut Brüggemann, Duisburg, all of Germany, assignors to Chemische Fabrik Stockhausen GmbH, Krefeld, Germany

PCT No. PCT/EP93/01062, § 371 Date Nov. 3, 1995, § 102(e) Date Nov. 3, 1995, PCT Pub. No. WO94/25521, PCT Pub. Date Nov. 10, 1994

PCT Filed May 3, 1993, Ser. No. 535,070

Int. Cl.^{6} C08L *1/26;3/08;5/00*

U.S. Cl. 524—45 **38 Claims**

1. An absorbent polymer composition comprising

(A) 70-99.99% wt. of component A, wherein said component A is a water-soluble or water-swellable polysaccharide or a polysaccharide derivative selected from the group consisting of carboxymethyl guar, hydroxyethylcellulose, hydroxypropylcellulose, carboxymethylcellulose and carboxymethyl starch, which polysaccharide or polysaccharide derivative may optionally be modified by cross-linkage, and
(B) 0.01-30% wt. of component B, wherein said component B is a water-swellable, synthetic polymer or copolymer of polymeric subunits selected from the group consisting of (meth-)acrylic acid, (meth-)acrylonitrile, (meth-)acrylamide, vinyl acetate, vinyl pyrrolidone, vinyl pyridine, maleic acid or anhydride, itaconic acid or anhydride, fumaric acid, vinyl sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid and the amides, the N-alkyl derivatives, the N,N-dialkyl derivatives, the hydroxyl group-containing esters and the amino group-containing esters of said subunits.

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wherein 0-98%-wt. of any acid groups may be neutralized, and wherein said polymer or copolymer is cross-linked by an at least bifunctional compound,

wherein the recited weight percentages of said components A and B are based on the total weight of components A and B, and

(C) 0.1-30%-wt., relative to said polymer components A and B, of an organic matrix material having a melting or softening point, respectively, of below 180° C., wherein said matrix material prevents separation and gel blocking of said absorbent polymer composition, and

(D) 0.001 to 10%-wt., relative to said two polymer components A and B, of an ionic or covalent cross-linking agent, wherein said cross-linking agent cross-links said components A and B with each other, and

(E) 0-50%-wt., relative to said polymer components A and B, of at least one anti-blocking agent,

wherein said absorbent polymer composition is made by a process comprising the steps of:

bringing said component B together with said component A in an aqueous medium, subsequently drying and grinding the resulting mixture, adding said matrix material (C) and said anti-blocking agent (E), mixing the resulting mixture to homogeneity, carrying out a first heat treatment, adding said cross-linking agent (D), and optionally carrying out a second heat treatment

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5,736,596
USE OF THERMOPLASTIC ELECTROLUMINESCENT MATERIALS WHICH ARE STABLE FOR AN EXTENDED PERIOD

Thomas Heitz, Dannstadt-Schauernheim; Sylke Haremza, Neckargemünd, and Andreas Greiner, Marburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 518,716, Aug. 24, 1995, abandoned. This application Sep. 16, 1996, Ser. No. 714,491

Claims priority, application Germany, Aug. 26, 1994, 44 30 288.6

Int. Cl.⁶ C09K *11/02*; H05B *33/14*

U.S. Cl. 524—90 6 Claims

1. A process for the production of an electroluminescent molding, fiber or film, which comprises forming a binary mixture which consists essentially of a fluorescent dye containing a perylene group and a thermoplastic polymer having a degree of crystallinity of less than 10%, and then forming a molding, fiber or film from this binary mixture; and then applying an electrical voltage to the molding fiber or film until the molding, fiber or film fluoresces.

5,736,597
STABILIZED ORGANIC MATERIAL

Jean-Luc Birbaum, Fribourg; Jean Rody, Riehen; Mario Slongo, Tafers, all of Switzerland; Andreas Valet, Eimeldingen, Germany, and Roland A. E. Winter, Armonk, N.Y., assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 978,064, Nov. 18, 1992, abandoned, which is a continuation of Ser. No. 611,207, Nov. 8, 1990, abandoned, which is a continuation-in-part of Ser. No. 446,369, Dec. 5, 1989, abandoned. This application Oct. 26, 1993, Ser. No. 143,525

Int. Cl.⁷ C08K *5/34*

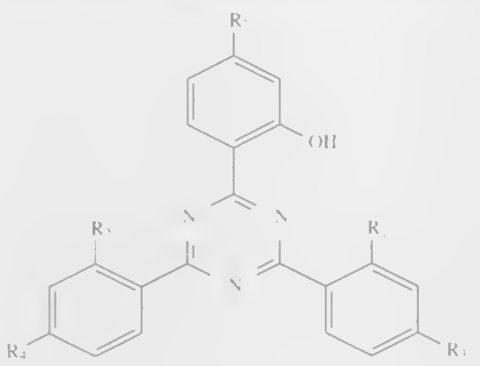
U.S. Cl. 524—100 19 Claims

1. A composition comprising

(a) an organic material selected from the group consisting of organic polymers, fats, waxes, oils, cosmetics, and photographic material, which organic material is stabilized against damage caused by light, heat, and oxygen by the presence of

(b) at least one sterically hindered amine of the polyalkylpiperidine type, and

(c) at least one o-hydroxyphenyl-s-triazine of the formula:



wherein:

R1 is alkyl of 1 to 12 carbon atoms;

R2 is alkyl of 1 to 12 carbon atoms;

R3 is alkyl of 1 to 12 carbon atoms;

R4 is alkyl of 1 to 12 carbon atoms; and

R7 is

(i) alkoxy of 1 to 12 carbon atoms substituted with hydroxy; or

(ii) alkoxy of 1 to 12 carbon atoms which is substituted with alkoxy of 1-18 carbon atoms and hydroxy.

5,736,598
ANTISTATIC COLORED THERMOPLASTIC MOLDING MATERIALS

Wolfgang Fischer, Ludwigshafen; Karl Hennig, Hessheim; Norbert Mosbach, Maxdorf; Rainer Neumann, Mutterstadt, and Bernd Niedermaier, Ludwigshafen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jan. 23, 1996, Ser. No. 590,457

Claims priority, application Germany, Jan. 23, 1995, 195 01 907.5

Int. Cl.⁶ C08K *5/17*; *5/3445*

U.S. Cl. 524—106 5 Claims

1. A thermoplastic molding material comprising a thermoplastic polymer and

A) a dye which is soluble in the polymer, and

B) a N,N-bis(2-hydroxyethyl)-C_6-C_{22}-alkylamine or N,N-bis(2-hydroxyethyl)-C_6-C_{22}-alkenylamine, this compound having a Hazen color number as specified in German Standards Specification DIN 53409 of below 300.

5,736,599
DIPHOSPHITES

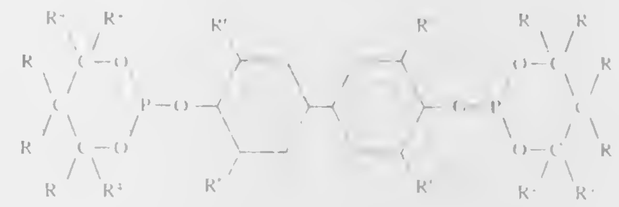
James A. Mahood, Parkersburg, W. Va., assignor to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 539,657, Oct. 5, 1995, Pat. No. 5,618,962, which is a continuation of Ser. No. 96,107, Jul. 22, 1993, Pat. No. 5,523,448. This application Dec. 31, 1996, Ser. No. 775,432

Int. Cl.⁶ C08K *5/15*

U.S. Cl. 524—108 17 Claims

1. A thermoplastic composition comprising a thermoplastic polymer and a phosphite of the formula



wherein each R^1 is hydrogen each R is independently selected from the group consisting of alkyl radicals of one to six carbon atoms each R'' is tertiary butyl radicals and wherein said phosphite is present in an amount effective to enhance the thermal oxidative stability of said composition.

5,736,600
MORTAR ADMIXTURES AND METHOD OF PREPARING SAME

Milind V. Karkare, Newton; Chia-Chih Ou, Lexington; Craig T. Walloch, Arlington, and Ara A. Jeknavorian, Chelmsford, all of Mass., assignors to W.R. Grace & Co.-Conn., New York, N.Y.

Filed Aug. 7, 1996, Ser. No. 693,769

Int. Cl.⁶ C08K *5/09*; C04B *14/34*

U.S. Cl. 524—400 18 Claims

1. A composition for improving water repellency and flexural bond strength in mortar, comprising: (a) calcium stearate; and (b) at least one masonry bond strength enhancing material comprising a copolymer having a carbon-containing backbone to which are attached cement-anchoring members and oxyalkylene groups attached by linkages selected from the group consisting of an amide, an imide, and an ester.

5,736,601
GRINDING AND/OR DISPERSING AGENT CONTAINING POLYMERS AND/OR COPOLYMERS PARTIALLY NEUTRALIZED BY MAGNESIUM FOR AQUEOUS SUSPENSIONS OF MINERAL SUBSTANCES, TO BE USED IN PIGMENTARY APPLICATIONS

Jean-Bernard Egraz, Ecully; Jacques Mongoin, Champagne-Au-Mont-d'Or; Georges Ravet, Saint-Genis-les-Ollieres, and Jean-Marc Suau, Lyons, all of France, assignors to Coatex S.A., Genay, France

Continuation of Ser. No. 383,991, Feb. 6, 1995, Pat. No. 5,569,702, which is a continuation of Ser. No. 974,271, Nov. 10, 1992, Pat. No. 5,432,238. This application Apr. 24, 1996, Ser. No. 637,301

Claims priority, application France, Nov. 12, 1991, 91 14137; Nov. 12, 1991, 91 14140

Int. Cl.⁶ C08F *8/42*

U.S. Cl. 524—425 20 Claims

1. An agent for grinding or dispersing comprising: a polymer selected from the group consisting of acrylic polymers, vinyl polymers, acrylic and vinyl copolymers, and a mixture thereof

wherein said polymer contains acid groups which are partially or completely neutralized and is obtained by treatment, using one or several polar solvents according to static or dynamic procedures, and by the selection of the fraction of having the desired molecular weight,

wherein the active acid sites of said polymer are completely or partially neutralized with ions comprising both magnesium and sodium such that the percentage of said active acid sites neutralized by magnesium ions ranges between 40 and 60%, including terminals, and such that up to 60% of said active acid sites of said agent are neutralized by sodium ions.

5,736,602
RETROREFLECTIVE COATING COMPOSITION FOR COIL COATING APPLICATION, METHOD FOR APPLICATION, AND ARTICLES PRODUCED THEREFROM

George L. Crocker, 3103 Lakestone Dr., Tampa, Fla. 33618, and Rickey L. Beam, 4672 Alabama State Hwy. #67, Holly Pond, Ala. 35083

Filed Apr. 9, 1996, Ser. No. 629,788

Int. Cl.⁶ C08K *3/00*

U.S. Cl. 524—494 17 Claims

1. A liquid retroreflective coating composition for coil coating application, comprising

(a) 45 to 60% of a resin binder system, and

(b) 55 to 40% of reflective transparent glass microspheres having a refractive index of 2.1 to 2.5 and a diameter of 20 to 60 microns,

said resin binder system (a) comprising

(c) thermosetting ethyl acrylate-styrene copolymer,

(d) cross-linking resin,

(e) aromatic volatile solvent,

(f) anti-gelling stabilizer,

(g) colloidal suspending agent,

(h) dibasic ester acetate, and

(i) cross-linking accelerator,

wherein said resin binder system has a refractive index of 1.5 to 1.9, and wherein said retroreflective coating composition forms a retroreflective film when applied by coil coating.

5,736,603
ELECTRICALLY CONDUCTIVE THERMOPLASTIC COMPOSITE MATERIALS AND A PROCESS FOR THEIR PREPARATION

Bernhard Pfeiffer, Kelkheim; Joachim Heydweiller, Rüsselsheim, and Josefa Risch, Liederbach, all of Germany, assignors to Hoechst AG, Frankfurt, Germany

Filed Aug. 14, 1995, Ser. No. 514,946

Claims priority, application Germany, Aug. 16, 1994, 44 29 028.4

Int. Cl.⁶ C08J *5/10*; C08K *3/04*; C08L *75/04*

U.S. Cl. 524—495 26 Claims

1. An electrically conductive thermoplastic composite material having a specific volume resistance of less than [illegible] ohm cm comprising 0.1 to 70% by volume of electrically conductive fibers having a fiber diameter and a fiber length, wherein said fibers are impregnated with a thermoplastic elastomer wherein the electrically conductive fibers are selected from the group consisting of metal fibers, metallized glass fibers and carbon fibers.

5,736,604
AQUEOUS, TWO-COMPONENT POLYUREA COATING COMPOSITIONS

Sanjay Luthra, Eagan, Minn., assignor to Bayer Corporation, Pittsburgh, Pa.

Filed Dec. 17, 1996, Ser. No. 766,136

Int. Cl.⁶ C08J *3/00*; C08K *5/20*; C08L [illegible]

U.S. Cl. 524—591 20 Claims

1. An aqueous coating composition having [illegible] content of 2[illegible] to 96% by weight and comprising

a) a polyisocyanate which is dispersible in water and has an average NCO functionality of 2 to 6 and

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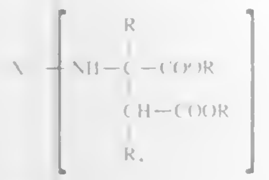
b) a polyaspartate corresponding to the formula



(I)

$$X\left[NH-\begin{array}{l} \;\;R_3 \\ \;\;| \\ C-COOR_1 \\ | \\ CH-COOR_2 \\ | \\ R_4 \end{array}\right]_n$$

wherein

X represents an organic group which has a valency of n and is inert towards isocyanate groups at a temperature of 100° C. or less

R$_1$ and R$_2$ may be the same or different and represent organic groups which are inert towards isocyanate groups at a temperature of 100° C. or less or R$_1$ and R$_2$ together with the β carbon atom form a cycloaliphatic or heterocyclic ring

R$_3$ and R$_4$ may be identical or different and represent hydrogen or organic groups which are inert towards isocyanate groups at a temperature of 100° C. or less and

n has a value of 2 to 6, and

c) water, which is present in an amount of at least 4% by weight based on the solids content of components a) and b),

wherein components a) and b) are present in an amount sufficient to provide an equivalent ratio of isocyanate groups to amino groups of at least 0.9:1.

5,736,605

VINYL CHLORIDE RESIN COMPOSITION

Masabumi Oshima, Nagoya, Japan, assignor to Mitsubishi Chemical MKV Company, Tokyo, Japan

Filed Jun. 12, 1996, Ser. No. 661,963

Claims priority, application Japan, Jun. 14, 1995, 7-147295

Int. Cl.^{6} C08L *27/06;33/12;9/02,19/00*

U.S. Cl. 524—521 **6 Claims**

1. A vinyl chloride resin composition comprising 100 parts by weight of a vinyl chloride resin, from 20 to 200 parts by weight of a plasticizer, from 10 to 250 parts by weight of a rubber material containing from 20 to 95 wt % of a gel content insoluble in tetrahydrofuran, and from 0.5 to 30 parts by weight of an acrylic resin obtained by copolymerizing from 20 to 50 wt % of methyl methacrylate with from 80 to 45 wt % of at least one monomer selected from the group consisting of an acrylate, a methacrylate (other than methyl methacrylate) and styrene.

5,736,606

AQUEOUS INK OF PIGMENT TYPE

Hideki Yanagi; Shigemi Wakabayashi, and Kenji Kaida, all of Tochigi-ken, Japan, assignors to Kao Corporation, Tokyo, Japan

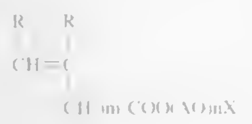
Filed Dec. 30, 1996, Ser. No. 775,185

Claims priority, application Japan, Dec. 28, 1995, 7-343032

Int. Cl.^{6} C08L *41/00*

U.S. Cl. 524—547 **26 Claims**

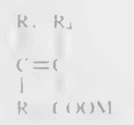
1. An aqueous pigment ink comprising a pigment, a dispersant, water and a water soluble solvent, wherein the dispersant comprises a copolymer of a monomer (a) represented by formula (A), and one or more monomers (b) selected from the group consisting of compounds represented by formulae (B) and (C):



(A)

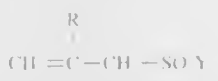
$$\begin{array}{ll} R_1 & R_2 \\ | & | \\ CH= & C \\ & | \\ & (CH_2)_mCOO(AO)_nX \end{array}$$

wherein R$_1$ and R$_2$, which may be the same or different, each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, m represents an integer of 0 to 2, AO represents an oxyalkylene group having 2 to 4 carbon atoms, n represents an integer of 1 to 300, and X represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms,



(B)

$$\begin{array}{ll} R_3 & R_4 \\ | & | \\ C= & C \\ | & | \\ R_5 & COOM_1 \end{array}$$



(C)

$$\begin{array}{l} \qquad\quad R_6 \\ \qquad\quad | \\ CH_2=C-CH_2-SO_3Y \end{array}$$

wherein R$_3$, R$_4$ and R$_5$, which may be the same or different, each independently represent a hydrogen atom, an alkyl group having 1 to 3 carbon atoms or $(CH_2)_{m_1}COOM_2$, R$_6$ represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, M$_1$, M$_2$ and Y, which may be the same or different, each independently represent a hydrogen atom, an alkaline metal, an alkaline earth metal, an ammonium, an alkylammonium or a substituted alkylammonium, m$_1$ represents an integer of 0 to 2, with the compounds represented by formula (B) including acid anhydrides thereof.

5,736,607

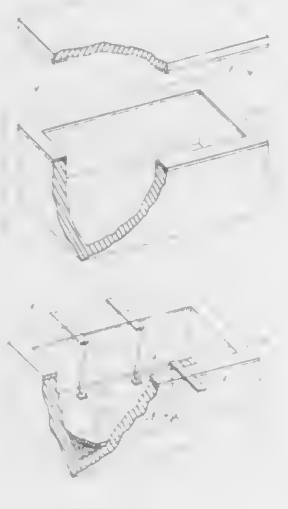
HERMETICALLY SEALED DIES AND DIE ATTACH MATERIALS

John R. Martin, Foxborough, and Peter W. Farrell, Acton, both of Mass., assignors to Analog Devices, Inc., Norwood, Mass.

Filed Jun. 5, 1995, Ser. No. 464,320

Int. Cl.^{6} H01L *21/60;* **C08L** *81/00*

U.S. Cl. 524—609 **14 Claims**



1. A method comprising:

dissolving a non-standard polysulfone material with a solvent,

adding a thixotropic agent to produce a paste;

providing the paste in a container; and

positioning a die on the paste.

5,736,608

PROCESS FOR THE MANUFACTURE OF POLYMERIC MATERIALS WITH A HIGH CHEMICAL AND MECHANICAL RESISTANCE AND POLYMERIC MATERIALS WITH A HIGH CHEMICAL AND MECHANICAL RESISTANCE

Marceli Cyrkiewicz, ul. Narubowicza 139 PL-90 146, Lodz, Poland; Erwin Herling, 817 Fifth Ave., New York City, N.Y. 10021, and Jacek Kleszczewski, ul. Falista 157 - 94 115, Lodz, Poland

PCT No. PCT/PL95/00005, § 371 Date Apr. 17, 1996, § 102(e) Date Apr. 17, 1996, PCT Pub. No. WO95/28440, PCT Pub. Date Oct. 26, 1995

PCT Filed Mar. 15, 1995, Ser. No. 564,203

Claims priority, application Poland, Apr. 19, 1994, 303058

Int. Cl.^{6} C08K *3/30*

U.S. Cl. 524—779 **13 Claims**

1. A process for the manufacture of a material by polymerization of a synthetic vinylester resin with inorganic filler in an anhydrous medium in the presence of known accelerants and initiators of polymerization, wherein:

per each 100 parts by volume of vinylester resin, treated with 0.85–1.47 parts by volume of an accelerant in the form of cobalt naphthenate in styrene, on continuous stirring, an inorganic filler in the form of waste phosphogypsum is added in a quantity of 50–900 parts by volume at least in two batches;

said waste phosphogypsum having a bulk density of 0.7–0.93 kg/dm^3 and a particle size of 30 μm at most, previously roasted at a temperature not lower than 470 K;

then on further stirring for a period of at least 0.1 hour, if necessary, addition of at least one material of the group consisting of:

up to 60 parts by volume of styrene, an unsaturated polyester resin, and up to 0.2 parts by volume of dimethylaniline,

after which 6.3–7.3 parts by volume of a known polymerization initiator such as an organic peroxide is added to the whole composition.

5,736,609

SULFUR-CONTAINING URETHANE-BASED RESIN COMPOSITION, ITS RESIN, AND OPTICAL ELEMENT AND LENS COMPRISING RESIN

Yoshihiro Irizato, Kanagawa-ken; Shinichi Umeda, Fukuoka-ken; Yoshinobu Kanemura, Fukuoka-ken, and Teruyuki Nagata, Fukuoka-ken, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

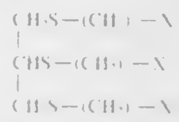
Filed Jun. 14, 1996, Ser. No. 663,734

Claims priority, application Japan, Jun. 30, 1995, 7-165284

Int. Cl.^{6} C08G *18/62*

U.S. Cl. 525—131 **36 Claims**

1. A sulfur-containing urethane resin composition which comprises a polythiol compound represented by formula (1)



(1)

$$\begin{array}{l} CH_2S-(CH_2)_x-X_1 \\ | \\ CHS-(CH_2)_y-X_2 \\ | \\ CH_2S-(CH_2)_z-X_3 \end{array}$$

wherein X$_1$, X$_2$ and X$_3$ each is a hydrogen atom or a mercapto group, x, y and z each is an integer of 0 to 8, and in their combinations, formula (1) has at least two mercapto groups, a polyiso(thio)cyanate compound, and a compound having two or more reactive unsaturated groups and neither a hydroxyl group nor a mercapto group in an amount of 30 to 70% by weight based on the total weight of the composition.

5,736,610

ADHESIVE FLUORINE-CONTAINING POLYMER AND LAMINATE EMPLOYING IT

Eiichi Nishi; Kazutoshi Sugitani, both of Kawasaki; Seitoku Kaya, Tokyo; Masayuki Saito, and Haruhisa Miyake, both of Yokohama, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Continuation of Ser. No. 330,869, Oct. 28, 1994, abandoned. This application May 19, 1997, Ser. No. 858,620

Claims priority, application Japan, Oct. 28, 1993, 5-270771; Oct. 28, 1993, 5-270772; Oct. 28, 1993, 5-270773

Int. Cl.^{6} C08F *8/00*

U.S. Cl. 525—276 **12 Claims**

1. An adhesive fluorine-containing polymer comprising a tetrafluoroethylene-ethylene copolymer as a fluorine-containing polymer having hydrogen atoms bonded to carbon atoms of its main chain, and a grafting compound having a linking group capable of grafting to the fluorine-containing polymer and a functional group capable of providing an adhesive property, grafted to the fluorine-containing polymer by the use of a radical forming agent, at a radical-forming temperature, wherein the grafting compound is a compound having a linking group selected from the group consisting of an organic group having an α,β-unsaturated double bond at its terminal, a peroxy group and an amino group, and at least one functional group selected from the group consisting of a carboxyl group, a carboxylic anhydride residue, an epoxy group and a hydrolyzable group containing a silyl group.

5,736,611

SULFUR-VULCANIZED RUBBER COMPOUND HAVING IMPROVED REVERSION RESISTANCE

Edward John Blok, Wadsworth; Paul Harry Sandstrom, Tallmadge; Edward Roy Terrill, Akron; David John Zanzig, Uniontown, and Jennifer Ann McDougal, Cuyahoga Falls, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 12, 1997, Ser. No. 798,838

Int. Cl.^{6} C08K *3/30;5/11*

U.S. Cl. 525—305 **12 Claims**

1. A sulfur-vulcanizable rubber compound comprising

(a) 100 parts by weight of an uncrosslinked rubber selected from the group consisting of natural rubber, synthetic cis 1,4-polyisoprene, polybutadiene, copolymers of isoprene and butadiene, copolymers of acrylonitrile and butadiene, copolymers of acrylonitrile and isoprene, terpolymers of styrene, butadiene and isoprene, copolymers of styrene and butadiene and blends thereof;

(b) from 0.25 to 10 phr of a free acrylate compound which is intimately dispersed throughout said rubber and said acrylate being selected from the group consisting of trimethyl propane triacrylate, trimethyl propane trimethacrylate, glycerol triacrylate, glycerol trimethacrylate, trimethyl ethane triacrylate, trimethyl ethane triacrylate, pentaerythritol tetraacrylate, pentaerythritol tetramethacrylate, dipentaerythritol pentaacrylate and mixtures thereof,

(c) from 0.5 to 6 phr of a sulfur vulcanizing agent selected from the group consisting of elemental sulfur, an amine disulfide, polymeric polysulfide, sulfur olefin adducts and mixtures thereof.

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wherein said rubber compound is free from any peroxide curative.

5,736,612
PROCESS FOR MANUFACTURING ISOPRENE CONTAINING BLOCK COPOLYMERS

Arie Van Dongen; Helmuth Einberger, and Jeroen Van Westrenen, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Aug. 19, 1996, Ser. No. 590,712

Claims priority, application European Pat. Off., Jan. 24, 1995, 95300424

Int. Cl.^{6} C08F *297/04*

U.S. Cl. 525—314 **13 Claims**

1. A process for manufacturing block copolymers derived from predominantly styrene and predominantly isoprene, said process comprising the steps of:

polymerizing predominantly styrene monomer in an inert non aromatic hydrocarbon solvent in the presence of a monofunctional organolithium initiator until substantially complete conversion;

adding predominantly isoprene monomer in the form of pretreated isoprene concentrate to the polymerization mixture and allowing said predominantly isoprene monomer to polymerize until substantially complete conversion, the pretreated isoprene concentrate being obtained by removal of piperylene from a gasoline pyrrolysis fraction of hydrocarbons having 5 carbon atoms, contacting the isoprene concentrate with finely dispersed alkali metal or alkaline earth metal, and separating the isoprene concentrate from the free and bound metal;

either adding a coupling agent to couple a predominant part of the living diblock copolymer, or adding a second portion of predominantly styrene monomer and allowing said styrene monomer to polymerize until complete conversion, and

adding a terminating agent.

5,736,613
HIGHLY RIGID PROPYLENIC RESIN AND BLOW MOLDED ARTICLE MADE THEREFROM

Masato Kijima; Masayuki Shinohara; Minoru Sugawara, and Koki Hirano, all of Ichihara, Japan, assignors to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01406, § 371 Date Mar. 18, 1996, § 102(e) Date Mar. 18, 1996, PCT Pub. No. WO96/02381, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 14, 1995, Ser. No. 605,133

Claims priority, application Japan, Jul. 15, 1994, 6-164111

Int. Cl.^{7} C08F *297/08*

U.S. Cl. 525—322 **8 Claims**

1. A blow molded article which comprises a rigid propylenic resin, wherein said resin has a melt index (MI) from 0.1 to 1.2 g/10 minutes determined at a temperature of 230° C. and a load of 2,160 g and satisfying a relationship between said melt index and the elongational viscosity (Y (Pa·s)), wherein said relationship is represented by the equation

$$2.0\times10\cdot MI^{-0.68} \leq Y \leq 8.0\times10\cdot MI^{-0.68}$$

5,736,614
PERFLUORO UNSATURATED NITRILE COMPOUND AND PROCESS FOR PRODUCING THE SAME

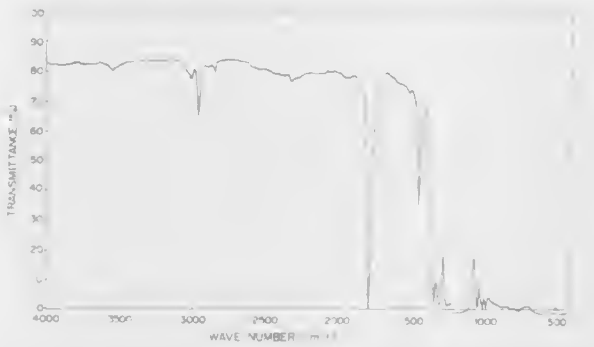
Satoru Saito; Riichi Iwa; Haruyoshi Tatsu, all of Ibaraki, Japan; Rondarev Dmitrii Stefanovich; Sokolov Sergey Vasilyevich, both of Saint Petersburg, Russian Federation, and Berenblit Vsevolod Vulfovich, Leningradskaya oblast, Russian Federation, assignors to Nippon Mektron Limited, Tokyo, Japan, and The Central Synthetic Rubbers Research Institute, Saint Petersburg, Russian Federation

Division of Ser. No. 544,198, Oct. 17, 1995, abandoned. This application Oct. 18, 1996, Ser. No. 732,132

Claims priority, application Japan, Nov. 4, 1994, 6-295548

Int. Cl.^{6} C08F *120/42;214/20;* C07C *255/10;255/11*

U.S. Cl. 525—326.4 **8 Claims**



1. A process for producing a perfluoro unsaturated nitrile compound represented by the following general formula:

$$CF_2{=}CFO(CF_2)_nOCF(CF_3)CN$$

where n is an integer of 2, 3, 4 or 5, which process comprises subjecting a halogenated perfluoro saturated carboxylic acid amide compound represented by the following general formula:

$$CF_2XCFXO(CF_2)_nOCF(CF_3)CONH_2$$

where X is a chlorine atom or a bromine atom and n has the same meaning as defined above to a dehydration reaction, thereby forming a nitrile group and to a dehalogenation reaction, thereby forming a vinyl group, in any desired sequence.

5,736,615
RUBBER VULCANIZATION COMPOSITION

Richard Michael D'Sidocky, Ravenna, and Neil Arthur Maly, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 6, 1992, Ser. No. 863,891

Int. Cl.^{6} C08C *19/20*

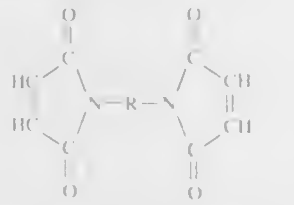
U.S. Cl. 525—329.3 **6 Claims**

1. A rubber stock comprising:

(a) a rubber selected from the group consisting of natural rubber a rubber derived from a diene monomer and mixtures thereof,

(b) from about 0.10 to about 0.75 phr of tetrabenzylthiuram disulfide,

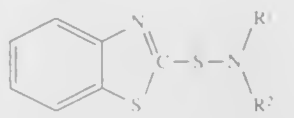
(c) from about 0.5 to about 3 phr of a bismaleimide compound of the general formula:



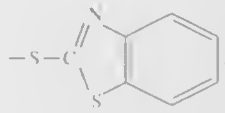
(I)

wherein R is a divalent acyclic aliphatic group having from about 2 to 16 carbon atoms, cyclic aliphatic group having from about 5 to 20 carbon atoms, aromatic group having from about 6 to 18 carbon atoms, or alkylaromatic group having from about 7 to 24 carbon atoms and wherein these divalent groups may contain a hetero atom selected from O, N and S,

(d) from about 0.5 phr to about 3 phr of a sulfenamide compound of the general formula:



wherein R^1 is hydrogen, an acyclic aliphatic group having from about 1 to 10 carbon atoms, or a cyclic aliphatic group having from about 5 to 10 carbon atoms, and R^2 is hydrogen, a cyclic aliphatic group having from about 5 to 10 carbon atoms or a mercaptobenzothiazolyl group of the formula



, and

(e) from about 0.5 to about 6 phr of sulfur, a sulfur donor and mixtures thereof.

5,736,616
COMPOSITIONS HAVING ETHYLENIC BACKBONE AND BENZYLIC ALLYLIC OR ETHER-CONTAINING SIDE-CHAINS OXYGEN SCAVENGING COMPOSITIONS CONTAINING SAME AND PROCESS FOR MAKING THESE COMPOSITIONS BY ESTERIFICATION OR TRANSESTERIFICATION OF A POLYMER MELT

Ta Yen Ching, Novato; Kiyoshi Katsumoto, El Cerrito; Steven P. Current, Novato, all of Calif., and Leslie P. Theard, Houston, Tex., assignors to Chevron Chemical Company, San Ramon, Calif.

Continuation of Ser. No. 377,872, Jan. 25, 1995, abandoned, which is a continuation-in-part of Ser. No. 275,056, Jul. 13, 1994, abandoned, and Ser. No. 275,058, Jul. 13, 1994, abandoned, each which is a continuation-in-part of Ser. No. 91,120, Jul. 13, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 475,917

Int. Cl.^{6} C08F *8/14*

U.S. Cl. 525—330.3 **12 Claims**

1. A polymer composition prepared by reacting an ethylene alkyl acrylate copolymer with a benzylic alcohol,

wherein the composition contains more than 5 mole percent benzyl ester radicals, and

wherein the benzyl ester radicals contain a carbon atom that forms a resonance stabilized free radical under oxygen-scavenging conditions.

5,736,617
POLYMERS, ELASTOMERIC COMPOUNDS, AND PRODUCTS THEREOF, TERMINATED WITH NOVEL AMINE COMPOUNDS CONTAINING SIDE-CHAIN ORGANOHALIDE REACTIVE MOIETIES

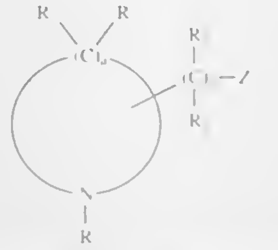
Michael L. Kerns, Elyria; William L. Hergenrother, Akron, and David F. Lawson, Uniontown, all of Ohio, assignors to Bridgestone Corporation, Chuo-ku, Japan

Filed Dec. 31, 1996, Ser. No. 775,228

Int. Cl.^{6} C08F *8/30*

U.S. Cl. 525—354.2 **6 Claims**

1. A method of terminating a living polymer comprising the step of reacting with a living polymer a terminator defined according to formula (I)



(I)

where Z is a halogen atom; R_1 is selected from the group consisting of organic groups containing from 1 to about 12 carbon atoms and a bridging bond; each R_2 is independently selected from the group consisting of hydrogen, organic groups containing from 1 to about 12 carbon atoms, and a bridging bond; each R_3 is independently selected from the group consisting of hydrogen and organic groups containing from 1 to about 12 carbon atoms, a is an integer from 4 to about 16; and b is an integer from 0 to about 12, and optionally including a bridge, formed by the selection of two of said bridging bonds, the bridge having 0 to about 6 carbon atoms between the bridging ring members.

5,736,618
HIGH DENSITY POLYETHYLENE WITH IMPROVED THERMOFORMING CHARACTERISTICS

Anthony Poloso, 1078 Randolph Dr., Yardley, Pa. 19067

Filed May 5, 1995, Ser. No. 435,916

Int. Cl.^{6} C08F *8/00*

U.S. Cl. 525—387 **8 Claims**

1. A process for molding sheets of a high density polyethylene in a mold having at least one cavity, wherein the process comprises

contacting an uncrosslinked high density polyethylene with a peroxide to form a treated product,

whereby the contacted uncrosslinked high density polyethylene is altered to exhibit an increased viscosity and increased elasticity compared to the low shear viscosity and the elasticity of an uncrosslinked high density polyethylene, heating,

extruding the altered high density polyethylene into an extruded sheet of 5 to 500 mils thickness;

heating the extruded sheet to a temperature above the melting point of the high density polyethylene at which temperature the uncrosslinked high density polyethylene sags but at which temperature the extruded sheet becomes plastic without sag,

advancing the heated, plastic, extruded sheet to a mold, and conforming the heated, plastic, extruded sheet to the mold to form an article comprising a resin which consists of high density polyethylene.

5,736,619
PHENOLIC RESIN COMPOSITIONS WITH IMPROVED IMPACT RESISTANCE

John F. Kane, Woodland Hills, and Norman R. Mowrer, La Habra, both of Calif., assignors to Ameron International Corporation, Pasadena, Calif.

Filed Apr. 21, 1995, Ser. No. 426,245

Int. Cl.^{7} C08L *83/02*

U.S. Cl. 525—393 **50 Claims**

1. A phenolic siloxane composition comprising an IPN of a phenolic polymer having Si—O groups in its backbone and a siloxane polymer.

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5,736,620

GLYCIDYL ETHER COMPOUNDS CONTAINING MESOGENIC MOIETIES

Jimmy D. Earls; Robert E. Hefner, Jr., and Paul M. Puckett, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

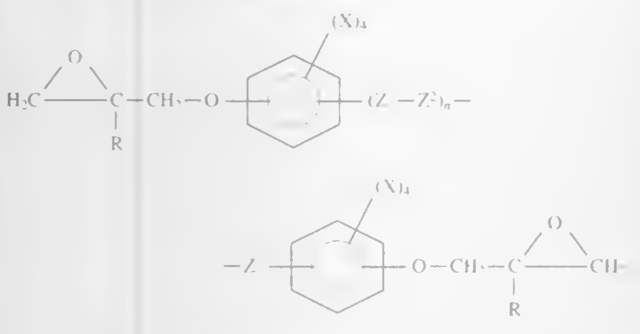
Division of Ser. No. 252,811, Jun. 2, 1994, Pat. No. 5,463,091, which is a continuation-in-part of Ser. No. 99,812, Jul. 29, 1993, abandoned, which is a division of Ser. No. 919,791, Jul. 27, 1992, Pat. No. 5,270,405, which is a continuation-in-part of Ser. No. 616,539, Nov. 21, 1990, abandoned, which is a continuation-in-part of Ser. No. 553,492, Jul. 13, 1990, abandoned, which is a continuation-in-part of Ser. No. 298,431, Jan. 17, 1989, abandoned. This application May 25, 1995, Ser. No. 452,559

Int. Cl.^{6} C08G *59/06;* **C08L** *63/02;* **C07D** *407/00;407/10*

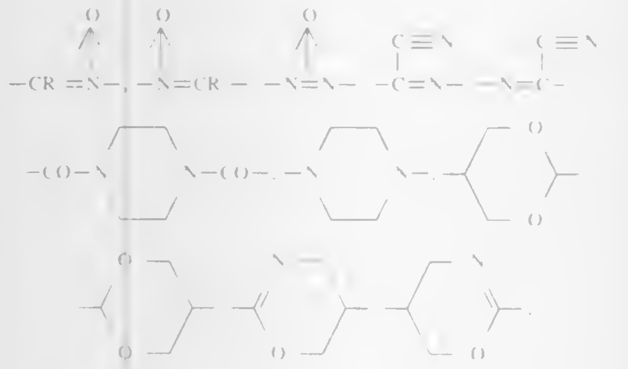
U.S. Cl. 525—524 **5 Claims**

1. A composition comprising

(A) an epoxy resin containing one or more rodlike mesogenic moieties represented by the following Formulas I or II or any combination of any two or more epoxy resins represented by either or both of Formulas I and/or II



wherein at least about 80 percent of the —(Z^1–Z^2)$_n$—Z^1— linkages and the glycidyl ether groups are in the para position with respect to each other; each R and R^1 is independently hydrogen or an aliphatic hydrocarbon group having from 1 to about 4 carbon atoms; each X is independently hydrogen, a hydrocarbyl or hydrocarbyloxy group having suitably from 1 to about 12 carbon atoms, a halogen atom, —NO$_2$ or —C≡N; each Z^1 is independently —CR^1=N—, —N=CR^1—, —CR^1=CR^1—, —CR^1=CR^1—CR^1=CR^1—, —CR^1=N—N=CR^1—, —CR^1=CR^1—CO—O—CH$_2$—, —CR^1=CR^1—CO—O—CH$_2$—CH$_2$—, —CH$_2$—O—CO—CR^1=CR^1—, —CR^1=CR^1—CO—O—CH$_2$—CH$_2$—, —CR^1=CR^1—CO—O—, —O—CO—CR^1=CR^1—, —CO—NR^1—, —NR^1—CO—, —CO—NR^1—NR^1—CO—, —C≡C—, —C≡C—C≡C—, —CR^1=CR^1—O—CO—CH$_2$—, —CH$_2$—CO—O—CR^1=CR^1—, —CR^1=CR^1—O—CO—CH$_2$—CH$_2$—, —CH$_2$—CH$_2$—CO—O—CR^1=CR^1—, —CH$_2$—CH$_2$—CO—O—, —O—CO—CH$_2$—CH$_2$—, —CO—O—CR^1=CR^1—, —CR^1=CR^1—O—CO—,



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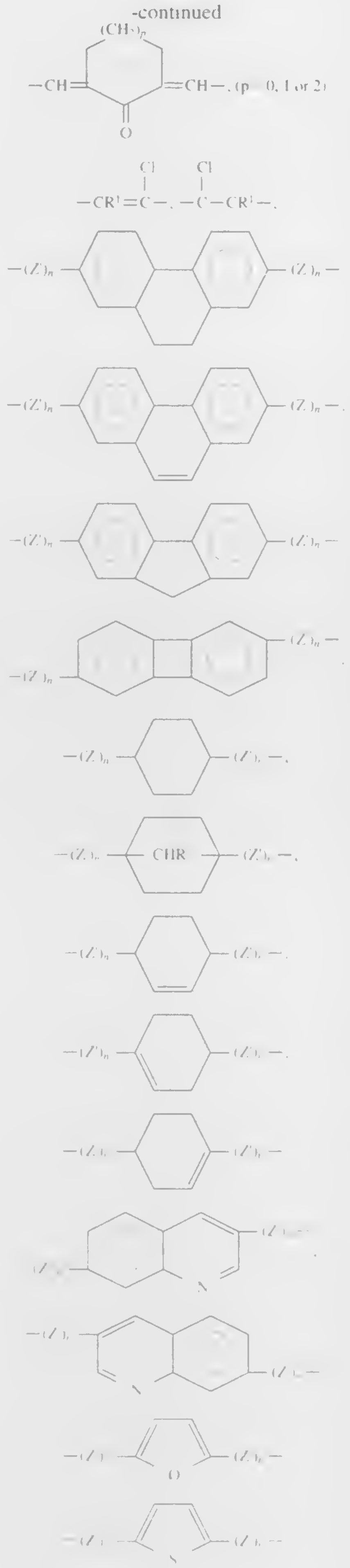

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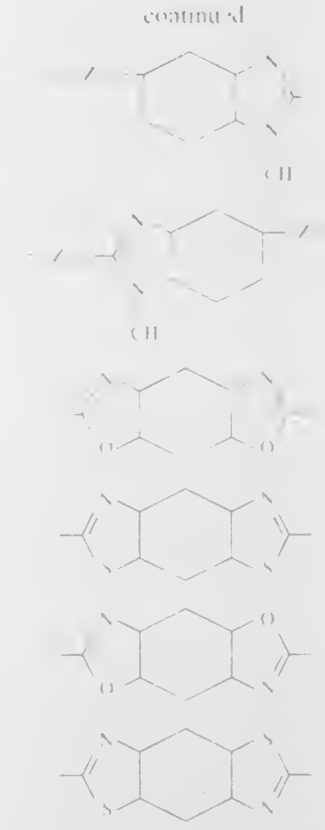


Z^2 is a group represented by a cyclic or bicyclic ring system containing from 5 to about 12 carbon atoms and may be cycloaliphatic, polycycloaliphatic, aromatic or a combination thereof; n is 0 to 2; each Z is independently a —CO—, —O—CO—, —CO—O—, —CO—NR^1—, or —NR^1—CO— group and each n independently has a value of zero or one;

with the proviso that

(a) both of the R^1 groups in the —CR^1=CR^1— group cannot simultaneously be a hydrogen atom;

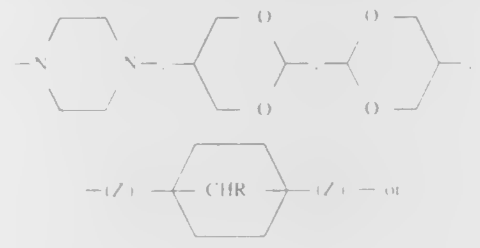
(b) each Z^1 can also independently be

$$\begin{array}{cc} \text{C}\equiv\text{N} & \text{C}\equiv\text{N} \\ | & | \\ -\text{CR}^1{=}\text{C}- & -\text{C}{=}\text{CR}^1- \end{array}$$

—CR^1=N—, —N=CR^1—, —CO—CR^1=CR^1— or —CR^1=CR^1—CO— when Z^2 is not a benzene ring and n is not equal to zero;

(c) R^1 in the —CR^1=N— and —N=CR^1— groups is other than hydrogen;

(d) when n = 1, either one of Z^1 can also be selected from the group consisting of —CH=CH—, —N=N—, —CO—S—, —S—CO—, —CH=N—, —N=CH—, —O—CO—, —CO—O— and a direct single bond provided that the other Z^1 group is not selected from this same group or is not selected from a group selected from the group consisting of



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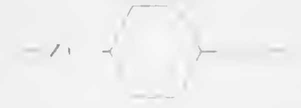
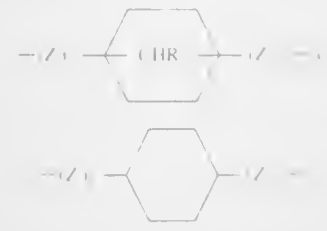


when (i) each n is zero; or

(ii) when one n' zero and one n 1 with Z being —O—CO— or —CO—O— and R^1 is a group having only one carbon atom.

(e) when n 2, one or two of the Z^1 groups can also independently be selected from the group consisting of —CH=CH—, —N=N—, —CO—S—, —S—CO—, —CH=N—, —N=CH—, —O—CO—, —CO—O— and a direct single bond, provided that the remaining Z^1 groups are not selected from this group.

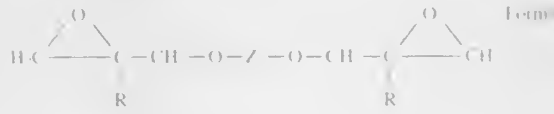
(f) when one Z^2 is



wherein

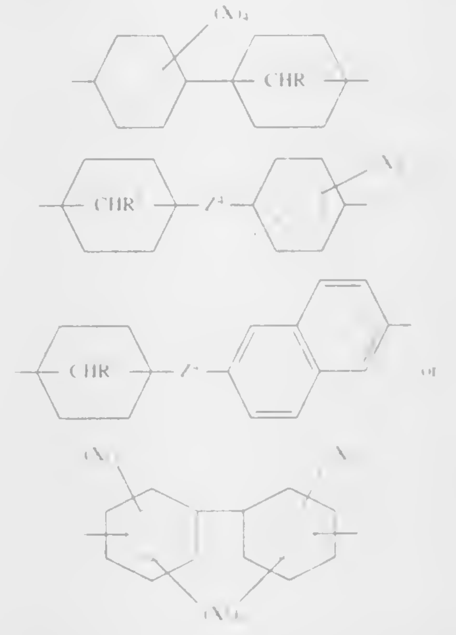
(i) when each n 1 with each Z being —O—CO— or —CO—O—, or

(ii) when one n 1 with Z being —O—CO— or —CO—O— and the other n zero resulting in the other Z being a direct bond and R^1 is a group having only one carbon atom then n must have a value of 1 or 2 and R^1 is a group having only one carbon atom.



Formula II

wherein Z^3 is



and Z^4 is —CO—O—, —O—CO—, —NR^1—CO— or —CO—NR^1—; X^1 is a divalent hydrocarbyl group having from 1 to about 10 carbon atoms which can contain one or more heteroatoms selected from N, O or S and may be saturated or unsaturated; each R and R^1 is independently hydrogen or an aliphatic hydrocarbon group having from 1

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to about 4 carbon atoms, each X is independently hydrogen, a hydrocarbyl or hydrocarbyloxy group having from 1 to about 12 carbon atoms, a halogen atom, $-NO_2$, or $-C{\equiv}N$, and n is zero or one, and with the proviso that Z^1 is not —CO—O— or —O—CO— when R is a group having only one carbon atom, and

(B) optionally, one or more polyepoxides which are substantially free of rodlike mesogenic moieties, and

wherein said composition is optionally oriented by subjecting said composition to an electric field, magnetic field, drawing and/or shear flow

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5,736,621
PROCESS FOR THE PREPARATION OF POLYESTERS AND COPOLYESTERS, THE PRODUCTS PREPARED BY THIS PROCESS AND THEIR USE

Peter Simon, Eppstein; Andree Henze, Hofheim, and Karsten Blatter, Eppstein, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Jun. 27, 1996, Ser. No. 670,549

Claims priority, application Germany, Jun. 27, 1995, 195 23 261.5

Int. Cl.^{6} C08G *63/00*

U.S. Cl. 528—271 **44 Claims**

1. A process for the preparation of a polyester or copolyester in powder form, comprising:

polycondensing, in a reaction mixture, reactants comprising an oligomeric dicarboxylic acid-diol precondensate at elevated temperature in a liquid heat transfer medium in the presence of a catalytic amount of a polycondensation catalyst, wherein said liquid heat transfer medium is inert toward the reactants and essentially free of aromatic structural groups and has a boiling point in the range from 200° to 320° C., and wherein the weight ratio of dicarboxylic acid-diol precondensate to liquid heat transfer medium is in the range from 20:80 to 80:20, and wherein the polycondensing step is carried out in the reaction mixture at 200° to 320° C., in the presence of a dispersion stabilizer

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5,736,622
COLLECTOR INTENDED TO BE USED IN DEINKING OF WASTE PAPER ACCORDING TO THE FLOTATION PROCESS

Peter Wållberg, Lerum, and Enn Päärt, Partille, both of Sweden, assignors to Bim Kemi AB, Sweden

PCT No. PCT/SE94/00547, § 371 Date Dec. 22, 1995, § 102(e) Date Dec. 22, 1995, PCT Pub. No. WO95/00699, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 6, 1994, Ser. No. 564,364

Claims priority, application Sweden, Jun. 23, 1993, 9302174

Int. Cl.^{6} C08G *63/48*

U.S. Cl. 528—295.5 **11 Claims**

1. A composition for deinking waste paper according to the flotation process, the composition comprising a polyester obtained through reaction of (1) a polyalkylene glycol, (2) a dicarboxylic acid, a tricarboxylic acid, an anhydride of a dicarboxylic acid, an anhydride of a tricarboxylic acid, and combinations thereof, and (3) a saturated fatty acid having from about 12 to about 18 carbon atoms, the polyester having a molecular weight of from about 3,000 to about 10,000 daltons

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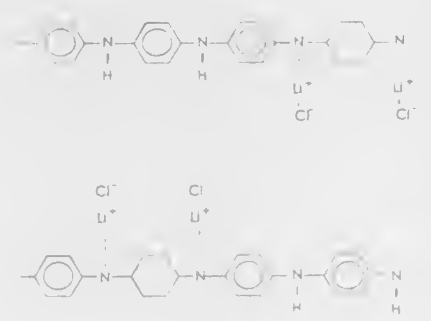
5,736,623
METHODS OF FABRICATION OF DEAGGREGATED ELECTRICALLY CONDUCTIVE POLYMERS AND PRECURSORS THEREOF

Marie Angelopoulos, Cortlandt Manor, and Bruce K. Furman, Beacon, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 370,128, Jan. 9, 1995. This application May 30, 1995, Ser. No. 452,360

Int. Cl.^{6} C08G *73/00*

U.S. Cl. 528—422 **19 Claims**



1. A method comprising:

providing aniline molecules,

oxidatively polymerizing said aniline molecules in an acid solution in the presence of a deaggregating agent to result in deaggregated polyaniline molecules,

neutralizing said polyaniline molecules in the presence of said deaggregating agent to a polyaniline salt

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5,736,624
PHOSPHATASE ACTIVATED CROSSLINKING, CONJUGATING AND REDUCING AGENTS; METHODS OF USING SUCH AGENTS; AND REAGENTS COMPRISING PHOSPHATASE ACTIVATED CROSSLINKING AND CONJUGATING AGENTS

Christopher Bieniarz, Highland Park; Douglas F. Young, Grayslake; Michael J. Cornwell, Chicago, and Mazhar Husain, Libertyville, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Dec. 2, 1994, Ser. No. 349,167

Int. Cl.^{6} C07K *16/26, 17/00;* **C12N** *9/96, 11/08*

U.S. Cl. 530—391.1 **12 Claims**

1. A conjugate comprising: at least one binding member and at least one detectable intramolecularly crosslinked and stabilized moiety bound to an activated Q—(S—)$_n$ residue, said residue being derived from a compound of the formula (I):

$$Q-(S-PO_3)_n \qquad (I)$$

wherein n is at least 2 and Q is a straight or branched polymer or oligomer having an average molecular weight between about 1000 and about 1,000,000 and wherein Q comprises at least 1 additional reactive functionality

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5,736,625
METHOD FOR STABILIZING PROTEINS WITH SACCHARIDE LINKED PROTEIN POLYMER CONJUGATES

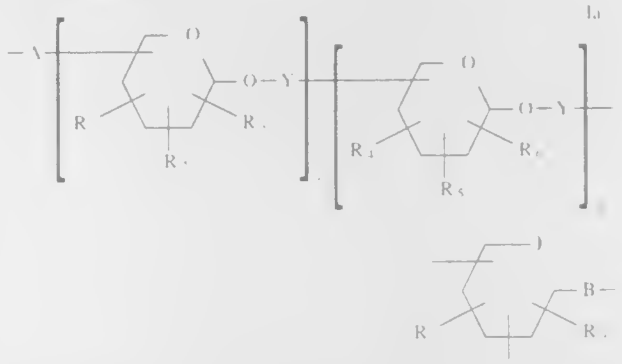
Matthew R. Callstrom, Columbus, Ohio; Mark D. Bednarski, Berkeley, Calif., and Patrick R. Gruber, St. Paul, Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Division of Ser. No. 791,915, Nov. 13, 1991, Pat. No. 5,492,821, which is a continuation-in-part of Ser. No. 613,224, Nov. 14, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 468,970

Int. Cl.^{6} C07K *1/00;* **C12N** *1/06, 9/96;* **G01N** *33/536*

U.S. Cl. 530—402 **17 Claims**

1. A method for stabilizing a protein in its native state to retain a functional property of the native protein in a hostile environment which without said stabilization would reduce said functional property, the method comprising covalently bonding the protein to a polymer to form a water soluble protein polymer conjugate, wherein the polymer is selected from the group consisting of a polyvinyl polymer, a polyester polymer, a polyamide polymer and mixtures thereof, the polymer having a main chain molecular weight of at least 5,000, and wherein three or more linker groups covalently bond both the protein and polymer and said linking groups have at least three hydroxyl groups and not more than 60 carbon atoms, each of said linker groups being selected from the group consisting of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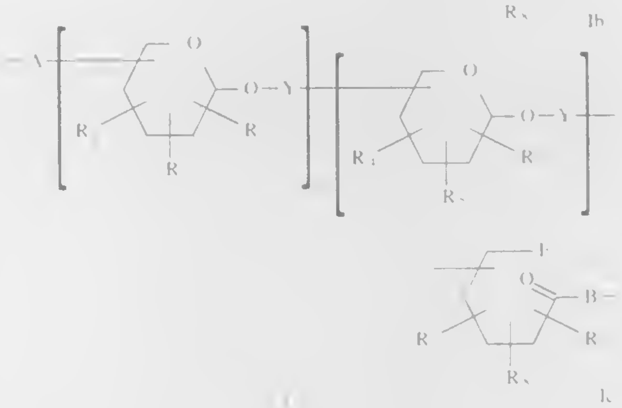
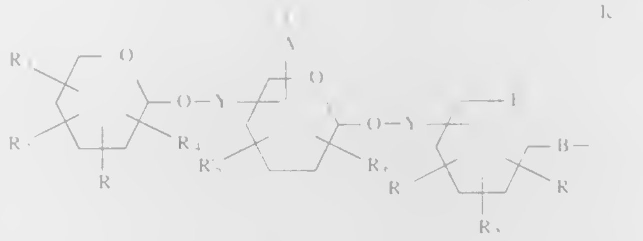

Ib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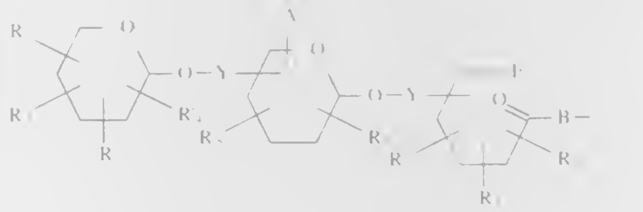
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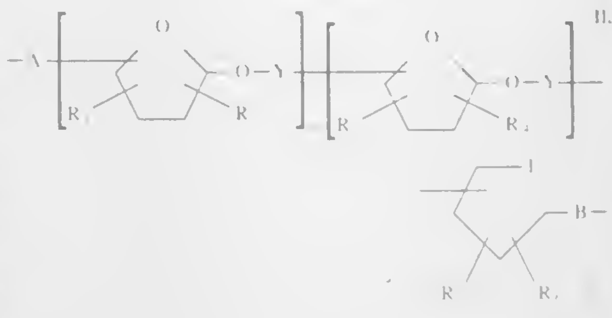
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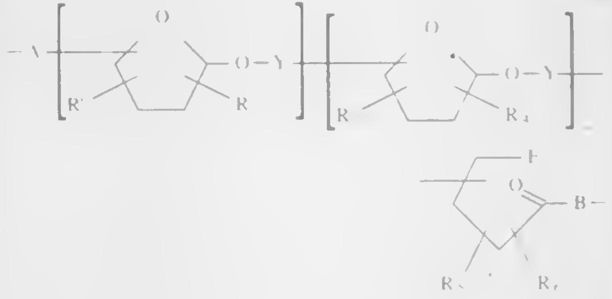
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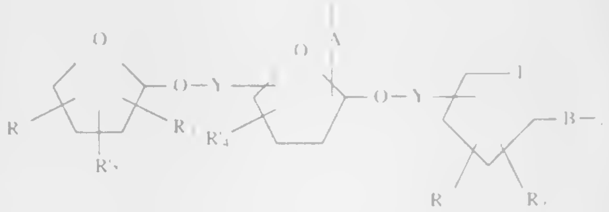
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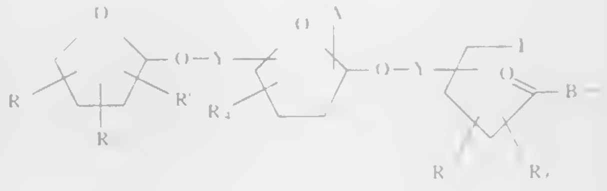
and


IId

wherein

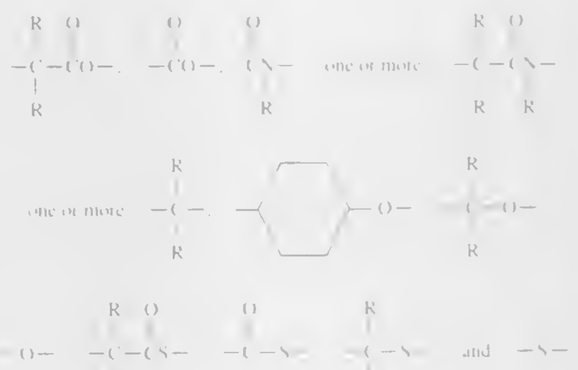
E = —OH or —SH;

n=0 or 1;

W=0 or 1; and

Y=bond or $-CH_2-$;

wherein A is bonded to the polymer and is selected from the group consisting of



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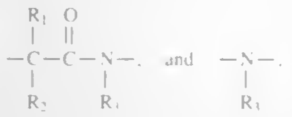
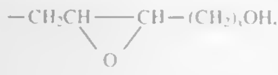
B is bonded to the protein and is selected from the group consisting of

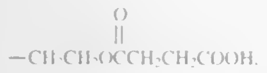


$-\overset{R_1}{\underset{R_2}{C}}-\overset{O}{\overset{\|}{C}}-\underset{R_3}{N}-$, and $-\underset{R_3}{N}-$,

wherein R_1 and R_2 are each selected from the group consisting of H, OH, acetoxy, alkoxy, phenylene, straight chain alkyl or branched chain alkyl having 1 to 12 carbons,



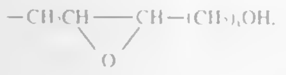
wherein x=2 to 7,



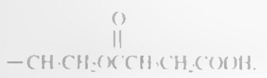
$-CH_2CH_2O\overset{O}{\overset{\|}{C}}CH_2CH_2COOH,$

2-hydroxy ethyl, 3-chloro-2 -hydroxypropyl, 2-hydroxy-1-methylethyl, 2-hydroxypropyl, 3 -hydroxypropyl, 2,3-dihydroxypropyl, 2 hydroxybutyl, 4 -hydroxybutyl, diethyleneglycol, 5-hydroxypentryl, 6 -hydroxyhexyl, triethyleneglycol, 7-hydroxyheptyl, 3,4 -dihydroxybutyl, 5-hydroxypentyl, 6-hydroxyhexyl, 2,3 -dimethyl-3-hydroxybutyl, 5,6-dihydroxyhexyl, 7-hydroxyheptyl, a residue of a mono-, di-, and trisaccharide;

wherein R_3 selected from the group consisting of H, straight chain alkyl or branched chain alkyl having 1 to 12 carbons,



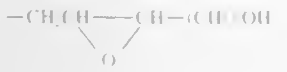
wherein x=2 to 7,



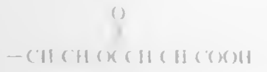
$-CH_2CH_2O\overset{O}{\overset{\|}{C}}CH_2CH_2COOH,$

2-hydroxy ethyl, 3-chloro-2 -hydroxypropyl, 2-hydroxy-1-methylethyl, 2-hydroxypropyl, 3 -hydroxypropyl, 2,3 dihydroxypropyl, 2 hydroxybutyl, 4 -hydroxybutyl, diethylene glycol, 5-hydroxypentryl, 6 -hydroxyhexyl, triethyleneglycol, 7-hydroxyheptyl, 3,4 -dihydroxybutyl, 5-hydroxypentyl, 6-hydroxyhexyl, 2,3 -dimethyl-3-hydroxybutyl, 5,6-dihydroxyhexyl, 7 hydroxyheptyl a residue of a mono-, di-, and trisaccharide, and

R'_1, R_2, R_3, R'_4, R_5, R_6, R_7, R_8, and R_9 each selected from the group consisting of H, OH, acetoxy, alkoxy, halogen and phosphate, straight chain alkyl or branched chain alkyl having 1 to 12 carbons,



wherein x=2 to 7,



$-CH_2CH_2O\overset{O}{\overset{\|}{C}}CH_2CH_2COOH$

2-hydroxy ethyl, 3 chloro 2 hydroxypropyl 2 hydroxy 1 methylethyl, 2-hydroxypropyl 3 hydroxypropyl, 2,3 dihydroxypropyl, 2 hydroxybutyl, 4 hydroxybutyl, diethylene glycol, 5-hydroxypentryl, 6 hydroxyhexyl, triethyleneglycol, 7-hydroxyheptyl, 3,4-dihydroxybutyl, 5 hydroxypentyl, 6-hydroxyhexyl, 2,3-dimethyl 3-hydroxybutyl, 5,6-dihydroxyhexyl, 7 hydroxyheptyl, a residue of a mono-, di-, and trisaccharide

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5,736,626

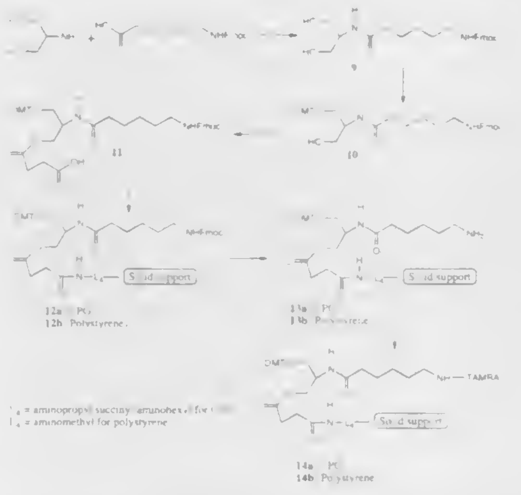
SOLID SUPPORT REAGENTS FOR THE DIRECT SYNTHESIS OF 3'-LABELED POLYNUCLEOTIDES

Khairuzzaman Bashar Mullah, Union City, and William A. Andrus, San Francisco, both of Calif., assignors to The Perkin-Elmer Corporation, Foster City, Calif.

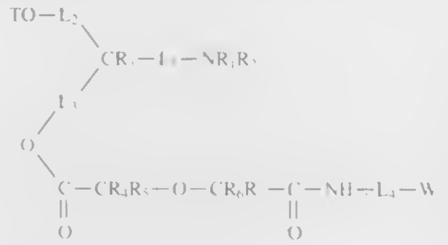
Filed Jan. 29, 1996, Ser. No. 593,031

Int. Cl.⁶ C07H *21/00*

U.S. Cl. 536—25.3 16 Claims



1. A synthesis support for the synthesis of 3'-labeled polynucleotides comprising a compound of the formula:



where

T is an acid-cleavable hydroxyl protecting group;

L_1 is a linker for connecting a 3'-terminal nitrogen to carbon;

L_2 and L_3 are linkers for connecting oxygen and carbon;

W is a solid support;

L_4 is a linker for connecting the solid support to nitrogen;

R_1 and R_2 are nitrogen substituents individually selected from the group consisting of hydrogen, lower alkyl, nitrogen protecting group, or label; and

R_3 through R_7 are carbon substituents individually selected from the group consisting of hydrogen or lower alkyl.

5,736,627

VIRUS RESISTANT PLANTS HAVING COAT PROTEIN

L. Sue Loesch-Fries, Shorewood Hills; Nancy P. Jarvis, and Donald J. Merlo, both of Madison, all of Wis., assignors to Pioneer Hi-Bred International, Inc., Johnston, Iowa

Continuation-in-part of Ser. No. 847,434, Apr. 2, 1986, abandoned. This application Mar. 29, 1988, Ser. No. 174,829

Int. Cl.⁶ A01H *5/00;* **C12N** *15/40; 15/82; 15/84*

U.S. Cl. 800—205 25 Claims

1. A DNA molecule comprising a plant expressible promoter region upstream from a coat protein structural gene of a plant virus having a single stranded, plus-stranded, tripartite RNA genome, wherein the promoter region causes transcription of a coat protein-encoding RNA, and wherein said DNA molecule does not encode additional genes of said plant virus

5. A plant, that is uninfected by a virus and that comprises plant cells comprising the DNA of claim 1, whereby said plant is resistant to infection by said virus.

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BENZENESULFONYLUREA DERIVATIVES

Dae-Whang Kim; Young Kwan Ko; Jin-Seog Kim, and Dong Whan Ku, all of Daejeon, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Daejeon, Rep. of Korea

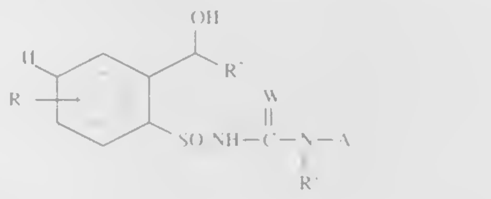
Division of Ser. No. 117,076, Dec. 9, 1993, Pat. No. 5,461,025. This application Jun. 7, 1995, Ser. No. 477,737

Claims priority, application Rep. of Korea, Mar. 8, 1991, 1991-3704

Int. Cl. C07D *251/46, 251/52*

U.S. Cl. 544—211 6 Claims

1. A compound of benzenesulfonylurea derivatives having the following general formula (I)



(I)

wherein,

R^1 is H, C_1 C_3 alkyl, C_1 C_3 haloalkyl, halogen, CN, NO_2, C_1 C_3 alkoxy, C_1 C_3 haloalkoxy, $SO_2NR'R''$, C_1-C_3 alkylthio, C_1-C_3 alkylsulfinyl, C_1-C_3 alkylsulfonyl, SCH_2F, NH_2, $NHCH_3$, $N(Me)_2$, C_1 C_2 alkyl substituted with C_1 C_2 alkoxy, C_1 C_2 haloalkoxy, SH, SCH_3, CN or OH, or CO_2R'''; and then R' is H, C_1 C_4 alkyl, C_2 C_3 cyanoalkyl, methoxy or ethoxy; R'' is H, C_1-C_4 alkyl, C_3-C_4 alkenyl, or when taken together connecting R' and R'', $-(CH_2)_3-$, $-(CH_2)_4-$, $-(CH_2)_5-$ or $-CH_2CH_2OCH_2CH_2-$, may be formed,

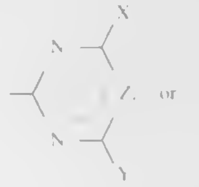
R''' is C_1 C_4 alkyl, C_3 C_4 alkenyl, C_3 C_4 alkynyl, C_1 C_4 alkyl substituted with 1-3 halogens or cyano groups, C_5 C_6 cycloalkyl, C_4 C_7 cycloalkylalkyl or C_2 C_4 alkoxyalkyl;

R^2 is C_1 C_6 alkyl substituted with 1-3 halogens;

R^3 is H or CH_3;

W is O or S;

A is



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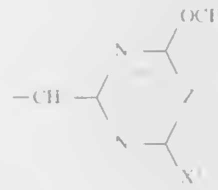
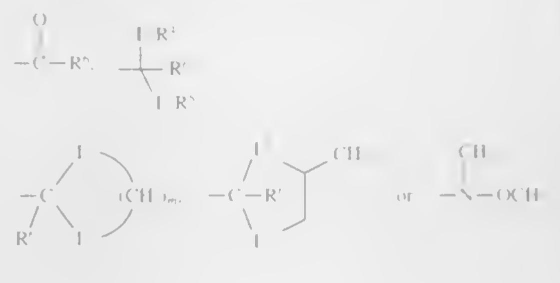


A6

wherein,

X is H, C_1 C_4alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 haloalkyl, C_1 C_4 haloalkylthio, C_1 C_4 alkylthio, halogen, C_2 C_5 alkoxyalkyl, C_2 C_5 alkoxyalkoxy amino, C_1 C_3 alkylamino, di(C_1-C_3 alkyl)amino or C_3-C_5 cycloalkyl,

Y is H, C_1 C_4 alkyl, C_1 C_4 alkoxy, C_1 C_4 haloalkoxy, C_1-C_4 haloakylthio, C_1- C_4 alkylthio, C_2-C_5 alkoxyalkyl, C_2 C_5 alkoxyalkoxy, amino, C_1 C_3 alkylamino, di(C_1 C_3 alkyl)amino, C_3 C_4 alkenyloxy, C_3 C_4 alkynyloxy, C_2 C_5 alkylthioalkyl, C_2 C_4 haloalkyl, C_2-C_4 alkynyl, azido, cyano, C_2 C_5 alkylsulfinylalkyl C_2 C_5 alkylsulfonylalkyl, CH_2OH C_3-C_5 cycloalkyl, C_3 C_5 cycloalkoxy,



m is 2 or 3,

L^1 and L^2 are independently O or S,

R^4 and R^5 are independently C_1-C_2 alkyl

R^6 is H, or CH_3;

X^3 is CH_3 or OCH_3,

or the agriculturally suitable salt thereof

5,736,629

HERBICIDE RESISTANT RICE

Timothy P. Croughan, Crowley, La., assignor to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.

Continuation of Ser. No. 639,793, Apr. 29, 1996. This application Apr. 23, 1997, Ser. No. 842,034

Int. Cl.⁶ A01H *5/00; 4/00*

U.S. Cl. 800—235 20 Claims

1. A rice plant wherein:

(a) the growth of said plant is resistant to inhibition by one or more of the following herbicides, at levels of herbicide that would normally inhibit the growth of a rice plant imazethapyr, imazaquin, primisulfuron, nicosulfuron, sulfometuron, imazapyr, imazameth, imazamox, or a derivative of any of these herbicides, and

(b) said plant is a derivative of the plant with ATCC accession number 75295;

(c) said plant has the herbicide resistance characteristics of the plant with ATCC accession number 75295, and

(d) said plant expresses a mutant acetohydroxyacid synthase that is resistant to inhibition by one or more of the following herbicides, at levels of herbicide that would inhibit a wild-type acetohydroxyacid synthase: imazethapyr, imazaquin, primisulfuron, nicosulfuron, sulfometuron, imazapyr, imazameth, imazamox, or a derivative of any of these herbicides.

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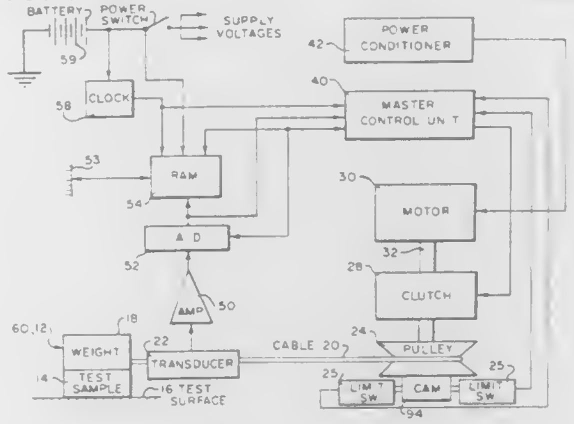
SLIP FRICTION MEASUREMENT AND RECORDING APPARATUS

Jerome M. Welner, 1156 8th St., Manhattan Beach, Calif. 90266

Filed Feb. 11, 1997, Ser. No. 798,883

Int. Cl.^{6} G01N *19/02*

U.S. Cl. 73—9 **17 Claims**



1. An apparatus for measuring coefficients of static and sliding friction between (1) a test surface, and (2) a removable and interchangeable selected test sample and comprising in combination:

(a) a friction foot assembly whose total dead weight applies an essentially pure and separate normal force to said test surface; said friction foot assembly further comprising a removable and interchangeable weight, a structural frame that holds said weight plus said test sample, and further includes (1) an internal containment chamber that serves as a mechanical guide for a central block and (2) guides for a plurality of retractable feet, said friction foot assembly further comprising means for both applying and removing said test sample with respect to said test surface;

(b) means for applying and measuring an essentially pure and separate lateral force to said friction foot assembly comprising a cable means disposed essentially parallel to said test surface, the first end of said cable means is attached to said friction foot assembly and the second end of which is circumferentially attached to a pulley means by which said lateral force is applied to said cable means; inserted within the length of said cable is a force transducer that provides an electrical output proportional to tension in said cable, which is a measure of lateral force; wherein said force transducer can also be used measure the dead weight of said friction foot assembly to make the said apparatus self-calibrating with respect to applied normal force;

(c) a combined electronic and mechanical means for controlling measuring, and recording said lateral force comprising a programmable,electro-mechanical clutch means that can turn said pulley means and that is driven by an electric motor, that in turn is controlled by an electronic power conditioner means that in turn is controlled by an electronic master control means;

(d) said combined electronic and mechanical means further comprising an electronic amplifier that receives the output from said force transducer, the output of said amplifier is sent to an analog to digital converter, whose output is in turn delivered to a random access memory (RAM); wherein in the said RAM are stored and contained in digital form all amplified and processed original data from the said force transducer, normal force as pre-determined by the same force transducer, and results for coefficient of friction computed by the said electronic master control means, through an output connector, said processed original data and results are available on demand for subsequent recording and computer analysis.

(e) said combined electronic and mechanical means further comprising an electronic clock that provides chronological data (both time and date) that are sent to said random access memory and to said master control means, plus a battery to supply power;

(f) a cabinet means comprising said amplifier, said analog-to-digital converter, said random access memory, said master control means, said power conditioner means, said battery, said clock, plus control and activation buttons available to the operator

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5,736,631

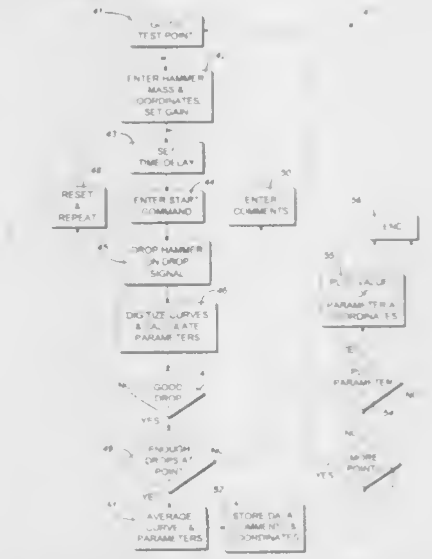
TURF IMPACT ANALYSIS SYSTEM

Charles R. Dixon, Olathe, and Stephen B. McWilliams, Leawood, both of Kans., assignors to Turf Diagnostics & Design, Inc., Olathe, Kans.

Filed Mar. 11, 1996, Ser. No. 613,356

Int. Cl.^{6} G01N *3/30*; G01M *7/00*

U.S. Cl. 73—12.06 **4 Claims**



1. A method for impact analysis of a soil surface of a plurality of divisions of a substantial ground area and comprising the steps of

(a) dividing said ground area into an array of a plurality of location divisions;

(b) assigning each of said location divisions a set of location coordinates;

(c) at each of said location divisions, impacting said soil surface with an impact body having a selected mass, dropped from a selected height, and having an accelerometer mechanically coupled thereto which generates an analog signal corresponding to a deceleration curve which represents deceleration of said impact body over time upon impact with said soil surface at said location division.

(d) digitizing said analog signal at said location division to derive a digital representation of said analog signal using an analog to digital converter circuit.

(e) calculating a plurality of selected impact parameters including a severity index from said digital representation at said location division using a portable computer having a mass storage device and a computer display and having said analog to digital converter circuit interfaced thereto.

(f) digitally recording said digital representation, said selected impact parameters, and said location coordinates at said location division within said mass storage device of said computer

(g) displaying said selected impact parameters and said deceleration curve on said computer display.

(h) repeating steps (c) through (h) at each location division until an acceptable set of said selected impact parameter and said deceleration curve are obtained for said location division and

(i) graphically mapping a corresponding one of said acceptable set of said selected impact parameters for each location division on a graphical representation of said ground area to display at least a two dimensional representation of a varia

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tion of said one of said selected impact parameters over said location divisions of said ground area.

5,736,632
APPARATUS FOR MEASURING AIR PERMEABILITY OF MOLDING SAND

Tadashi Nishida, Toyokawa, and Kunio Asakura, Toyohashi, both of Japan, assignors to Sintokogio, Ltd., Nagoya, Japan

Filed Apr. 26, 1996, Ser. No. 639,356

Claims priority, application Japan, Apr. 28, 1995, 7-129493

Int. Cl.^{6} G01N *15/08; 33/24*

U.S. Cl. 73—38 **4 Claims**

1. An apparatus for measuring air permeability of molding sand, said apparatus comprising:

a hollow testing cylinder having an open upper end, a tapered lower end having an inner surface, and a side wall having an inner diameter, wherein the side wall separates an interior region within the testing cylinder from an exterior region outside the testing cylinder, said testing cylinder extending vertically and having an air take-in aperture and a detecting aperture formed in said side wall, the lower end of said testing cylinder defining an open aperture having a diameter smaller than the inner diameter of the side wall,

a squeezing head horizontally movable to close said open upper end of the testing cylinder; and

a press cylinder disposed below said test cylinder, the press cylinder including a rod and a press body connected to the rod such that the press body slides vertically in the testing cylinder, wherein the press body opens the air take-in aperture and the detecting aperture when said press body is in a lowered position at the tapered lower end closing the open aperture, wherein the press body allows the interior region to communicate with the exterior region when said press body is in the lowered position, wherein the press body can be in an upper position relative to the testing cylinder when said press body starts to press mold a quantity of the sand fed into the testing cylinder, and wherein the press body closes the air take-in aperture and the detecting aperture when said press body is in the upper position.

5,736,633
METHOD AND SYSTEM FOR DECODING OF VCT/CID SENSOR WHEEL

Stephen William Magner, Lincoln Park; Christopher Cyril Mann, Northville, and Kenneth Roy Butts, Grosse Pointe Woods, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 16, 1997, Ser. No. 784,882

Int. Cl.^{6} G01M *15/00*

U.S. Cl. 73—116 **16 Claims**

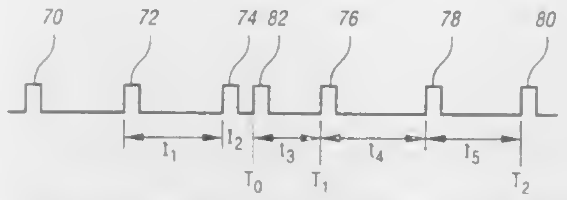
1. A method for distinguishing a cylinder identification signal pulse from a plurality of camshaft timing signal pulses in a variable cam timing engine having a plurality of engine combustion events, the method comprising:

generating a plurality of signal pulses, including a signal pulse which identifies an engine cylinder and a signal pulse for each one of the plurality of engine combustion events, wherein generating a plurality of signal pulses includes providing a single sensor wheel having a plurality of tabs including a tab which identifies an engine cylinder and a tab for each one of the plurality of engine combustion events, the cylinder identification tab positioned between adjacent first and second engine combustion event tabs, the cylinder identification tab having a first distance to the first engine combustion event tab and a second distance to the second engine combustion event tab, the second distance being greater than the first distance;

measuring a first time period between a first signal pulse and a second signal pulse;

measuring a second time period between the second signal pulse and a third signal pulse; and

determining that the third signal pulse is the cylinder identification signal pulse if a product of the second time period and a scaling factor fails to exceed the first time period.



5,736,634
APPARATUS AND METHOD FOR DETECTING COMBUSTION CONDITIONS OF AN INTERNAL COMBUSTION ENGINE

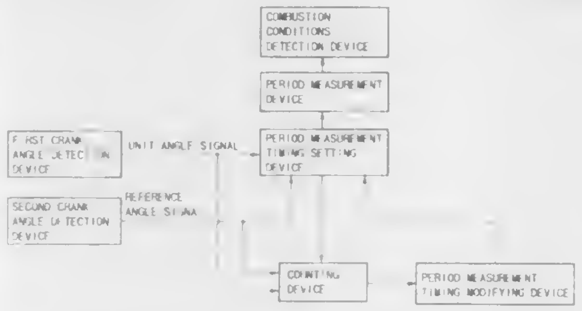
Kenichi Machida, Atsugi, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan

Filed May 7, 1996, Ser. No. 643,916

Claims priority, application Japan, May 10, 1995, 7-111642

Int. Cl.^{6} G01M *15/00*

U.S. Cl. 73—117.3 **20 Claims**


COMBUSTION CONDITIONS DETECTION DEVICE
PERIOD MEASUREMENT DEVICE
FIRST CRANK ANGLE DETECTION DEVICE
UNIT ANGLE SIGNAL
PERIOD MEASUREMENT TIMING SETTING DEVICE
SECOND CRANK ANGLE DETECTION DEVICE
REFERENCE ANGLE SIGNAL
COUNTING DEVICE
PERIOD MEASUREMENT TIMING MODIFYING DEVICE

1. An apparatus for detecting combustion conditions of an internal combustion engine comprising

first crank angle detection means for taking out from a crank shaft, a unit angle signal for each unit crank angle,

second crank angle detection means for taking out from a cam shaft, a reference angle signal for each reference piston position,

period measurement timing setting means for setting one measurement timing period for each generation interval of said reference angle signal, by counting a predetermined number of said unit angle signals with said reference angle signal as a reference,

period measurement means for measuring the generation period of said period measurement timing,

combustion condition detection means for detecting the combustion conditions of the engine based on the period measured by said period measurement means,

counting means for counting a generation number of said unit angle signals occurring from after said reference angle signal until the period measurement timing set following the subsequent reference angle signal, and

period measurement timing modifying means for modifying the count number of said unit angle signals used for setting the period measurement timing in the period measurement timing setting means, corresponding to a difference between the number of unit angle signals counted by said counting means and a reference value; and

wherein said period measurement timing modifying means adds the results of subtracting a reference value from the number of the unit angle signals counted by said counting means, to the count number of said unit angle signals in said period measurement timing setting means.

5,736,635
POSITION SENSOR

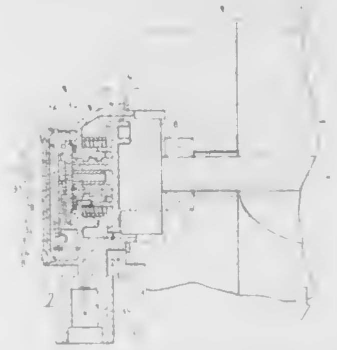
Ichiro Onodera, Miyagi-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 16, 1996, Ser. No. 767,269

Claims priority, application Japan, Dec. 22, 1995, 7-335128

Int. Cl.^{6} G01M *15/00*

U.S. Cl. 73—118.2 **4 Claims**



1. A position sensor for a device having a main body, the main body including an opening and a drive shaft extending from the main body into the opening, the position sensor comprising:

a housing including a partition wall defining a central opening, the housing defining an attachment chamber on a first side of the partition wall, and an accommodating chamber on a second side of the partition wall, each of said attachment chamber and said accommodating chamber including an opening communicating with an exterior of the housing, wherein when said housing is attached to said main body, the opening of said attachment chamber is connected over the opening of the main body, thereby closing the opening of the attachment chamber;

a driven shaft connected to said drive shaft, said driven shaft being disposed in said attachment chamber and rotatably supported on said partition wall,

a sliding-element receiver connected through the central opening in said partitioning wall to said driven shaft, said sliding element receiver being located within said accommodating chamber, wherein the driven shaft and the sliding-element receiver cooperate to close the central opening of the partition wall;

an insulating substrate disposed adjacent to said sliding-element receiver within said accommodating chamber;

a cover mounted over the opening of said accommodating chamber and attached to the housing with thermosetting resin, thereby sealing the opening of said accommodating chamber, and

a communicating hole provided in said partition wall of said housing and connecting said accommodating chamber with said attachment chamber.

5,736,636
PROBE FOR RADIOLOGICALLY DETERMINING THE DENSITY OF ROCK IN A DRILLED WELL

Alexander Alexeevich Mozelev; Vladimir Ivanovich Kravtsov, both of Moscow, Russian Federation; Michael Maurer, Biederitz, Germany; Wolfgang Voigt, Gommern, Germany; Jaanus Krahi, and Andreas Schaale, both of Berlin, Germany, assignors to BBI Gesellschaft für Brunnen u. Bohrlochinspektion mbH, Gommern, Germany

Filed Jun. 10, 1996, Ser. No. 661,082

Claims priority, application Germany, Jul. 3, 1995, 195 24 119.3

Int. Cl. E21B *49/00*

U.S. Cl. 73—152.05 **17 Claims**

1. A probe for radiologically determining the density of material constituting the wall of a wellhole, comprising

means including an impulse electron accelerator for selectively generating gamma radiation,

means for emitting said gamma radiation toward said wall,

means for detecting a portion of said emitted gamma radiation and for producing a first signal representative thereof,

means for detecting a portion of gamma radiation scattered from said wall and for producing a second signal representative thereof;

means for deriving a quotient of said first and second signals.

5,736,637
DOWNHOLE MULTIPHASE FLOW SENSOR

John T. Evans; Stanislav Forgang, and Gregory B. Itskovich, all of Houston, Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed May 15, 1996, Ser. No. 647,631

Int. Cl.^{6} E21B *49/00*

U.S. Cl. 73—152.31 **10 Claims**

1. An apparatus for evaluating multiphase flow of a fluid downhole in a borehole, comprising

a housing insertable in the borehole at a desired downhole position;

a flow space within said housing for permitting movement of the fluid through said flow space.

an array of first and second dielectric permittivity electrodes in contact with the fluid in said flow space for producing a capacitance output signal.

an array of first and second conductivity electrodes in contact with the fluid in said flow space for producing a conductivity output signal.

an electric power source engaged with said dielectric permittivity electrodes and with said conductivity electrodes, and

a controller for receiving said capacitance output signal and said conductivity output signal

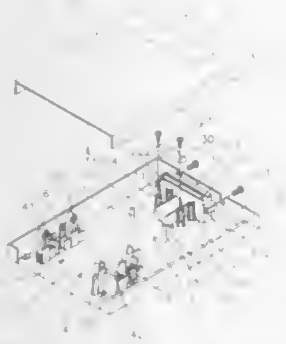
5,736,638
SCANNER HOUSING STRUCTURE

Oliver Wang, and Hwang Chyi Lee, both of Taipei Hsien, Taiwan, assignors to Primax Electronics Ltd., Taiwan

Filed Oct. 4, 1995, Ser. No. 539,031

Int. Cl.⁶ G01D *11/24*

U.S. Cl. 73—431 **12 Claims**



1 A scanner housing structure having an internal space for installing therein a charge-coupled device (CCD), a lens, a light gate piece and a reflecting mirror, comprising

a housing floor having two through holes thereon

a housing roof having a window thereon.

a first positioning device integrally formed on a surface of said housing floor, including a positioning frame for receiving said CCD and two threaded holes each of which is located at one side of said positioning frame and which receives therein a screw respectively for holding said CCD within said frame and adjusting a position of said CCD in said first positioning device; and

a second positioning device integrally formed on said surface of said housing floor for positioning said lens

5,736,639
TESTING DEVICE FOR BALE TYING

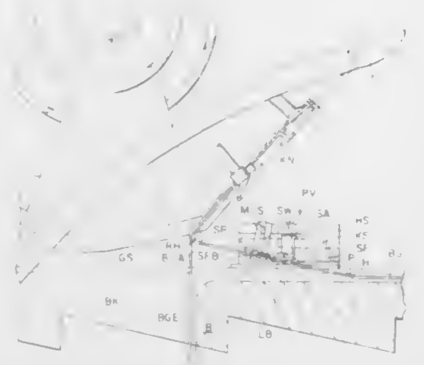
Alois Neukotter, Beelen, Germany, assignor to Claas KGaA, Harsewinkel, Germany

Filed May 28, 1996, Ser. No. 654,379

Claims priority, application Germany, Jun. 7, 1995, 195 20 762.9

Int. Cl.⁶ A01D *59/04*

U.S. Cl. 73—432.1 **27 Claims**



1 A testing device for tying a yarn loop on an agricultural bale forming machine having a bale forming chamber, comprising a sensor finger extendable transversely into a first passageway of an initial portion of a loop before a knotting step and also into a second passageway of a finished loop after the knotting step and holding the initial portion of the loop and the loop differently in different directions an electrical switch movable to a switching over position when said sensor finger is actuated so as to deviate by the loop because of a bale ejecting movement said sensor finger is formed as an end region of a spring which holds a passage of the initial portion of the loop deviatingly and during deviation of said electrical switch is at least indirectly switchingly actuated by the loop

5,736,640
DEVICE AND METHOD FOR MEASURING AN ANGULAR SPEED

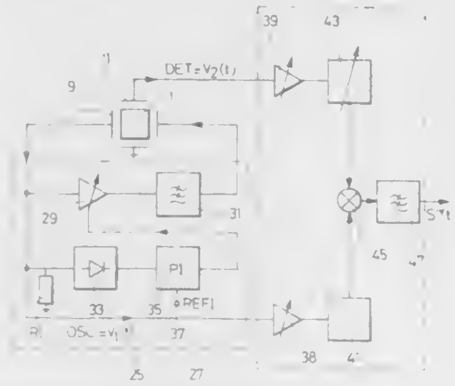
Pierre-André Farine, Neuchâtel; Jean-Daniel Etienne, Les Geneveys s/Coffrane, and Silvio Dalla Piazza, Saint-Imier, all of Switzerland, assignors to Asulab S.A., Bienne, Switzerland

Filed Jun. 13, 1996, Ser. No. 661,322

Claims priority, application France, Jun. 21, 1995, 95 07416

Int. Cl.⁶ G01P *9/00*

U.S. Cl. 73—504.12 **11 Claims**



1 An angular speed measuring device comprising.

a transducer rotatable at said angular speed:

means for generating a mechanical vibration of said transducer in response to an excitation signal, this mechanical vibration comprising a parasite component and at least one useful component having an amplitude which is representative of said angular speed

means for producing an electric detection signal representative of said mechanical vibration and also comprising a parasite component and at least one useful component having an amplitude which is representative of said angular speed

wherein the device further comprises processing means for obtaining from said electric detection signal, an analog measurement signal whose amplitude only depends on said useful component of the electric detection signal, the parasite component of the electric detection signal being eliminated, said processing means comprising means for mixing the detection signal with the excitation signal and comprising phase shifting means connected to the input of said means for mixing for rendering the analog measurement signal independent of an initial phase-shift between the excitation signal and the detection signal in such a way that the amplitude of the resulting measurement signal presents a value which is proportional to said angular speed

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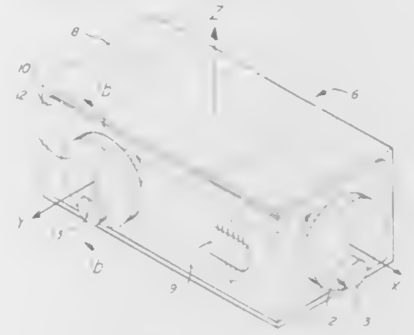
5,736,641
CAPACITANCE DECODED ACCELEROMETER

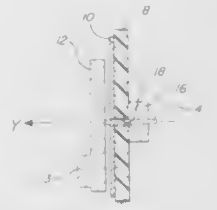
Ronald Kenneth Selby, Burton; Michael John Sehnars, Clarkston; Jerry Alan Gohl, Flushing; James Edward Nelson, North Branch, and Raymond Lippmann, Ann Arbor, all of Mich., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 16, 1996, Ser. No. 714,735

Int. Cl.⁶ G01P *15/125*

U.S. Cl. 73—514.32 **13 Claims**





1 An accelerometer comprising

a housing.

a rotor mounted on the housing for rotation about a nominally horizontal axis;

the rotor being eccentrically weighted to assume an angular position in response to acceleration of the housing.

a capacitor plate displaced by the rotor: and

a capacitive sensor including the capacitor plate displaced by the rotor.

the capacitive sensor being responsive to the angular position of the rotor for producing an output related to the angular position

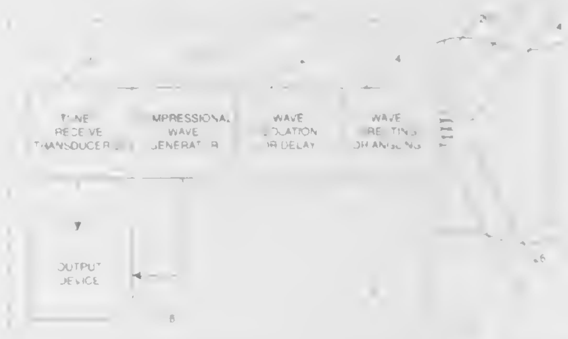
5,736,642
NONLINEAR ULTRASONIC SCANNING TO DETECT MATERIAL DEFECTS

William T. Yost, Newport News, and John H. Cantrell, Yorktown, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 8, 1997, Ser. No. 778,066

Int. Cl.⁷ G01N *29/06, 29/26*

U.S. Cl. 73—602 **20 Claims**



1 A method of detecting defects in a material, comprising the steps of.

mixing waves of a first frequency with waves of a second frequency at an interaction zone in said material to generate at least one of a difference wave and a sum wave in said interaction zone, said difference wave occurring at said first frequency minus said second frequency and said sum wave occurring at said first frequency plus said second frequency.

measuring the amplitude of at least one of said difference wave and said sum wave and

computing a value defined as the amplitude of at least one of said difference wave and said sum wave divided by the product of the amplitude of the waves of said first frequency and the amplitude of the waves of said second frequency, wherein said value is an indication of defects in said interaction zone.

5,736,643
MONITORING SYSTEM FOR REPRESENTING VIBRATION CONDITIONS OF A MULTIPLICITY OF BLADES ON A ROTATING DISC

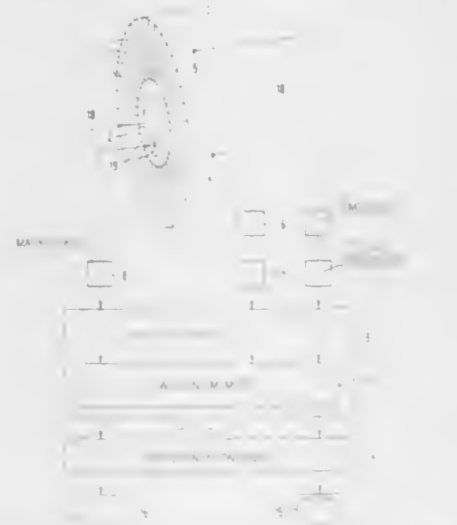
Hans-Jochen Böres; Meinrad Gloger, both of Mülheim an der Ruhr, and Michael Jung, Essen, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 22, 1996, Ser. No. 589,399

Claims priority, application European Pat. Off., Jul. 20, 1993, 93111618

Int. Cl.⁶ G01H *1/00*

U.S. Cl. 73—660 **17 Claims**



1 A monitoring system for representing vibration conditions of a multiplicity of blades on a rotating disc, comprising

a) a stationary sensor device having at least one sensor associated with the rotating disc and a pulse generator connected to said at least one sensor for generating a sequence of sensor pulses, with each sensor pulse of the sequence marking an instant at which a blade on the rotating disc passes said at least one sensor.

b) a mark pick up associated with the disc for generating a sequence of mark pulses, with each mark pulse being generated when the disc is in a given zero position.

c) an analysis device having an allocation module for receiving the sensor pulses and the mark pulses, for allocating each sensor pulse to the respective blade having caused the sensor pulse while taking the mark pulses into account, and for converting the sensor pulse of each blade into a multiplicity of vibration data characterizing a vibration condition of said each blade, said analysis device having a working memory for receiving the multiplicity of vibration data for each blade in time sequence, said analysis device having a memory module for accessing said working memory, said working memory storing the vibration data for all of the blades being supplied to said memory module, and said memory module operating said working memory as a shift register for shifting older vibration data having already been stored in the register and overwriting the oldest vibration data with new vibration data when the working memory has filled up, and

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d) a representation device having a representation medium for representing the vibration data currently stored in said working memory.

5,736,644

Patent Not Issued For This Number

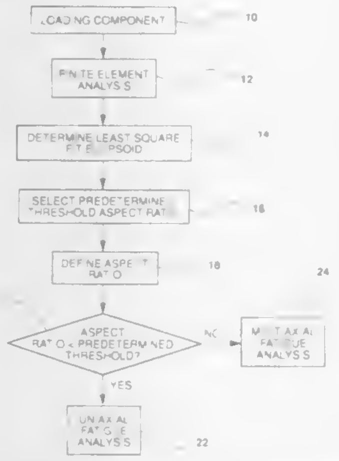
5,736,645
METHOD OF PREDICTING CRACK INITIATION BASED FATIGUE LIFE

Chu Chin-Chan, Ann Arbor, and Angela Hubner, Dearborn, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 16, 1997, Ser. No. 783,723

Int. Cl.^{6} G01N *19/08;29/04*

U.S. Cl. 73—799 **14 Claims**


LOADING COMPONENT
10
FINITE ELEMENT ANALYSIS
12
DETERMINE LEAST SQUARE FIT ELLIPSOID
14
SELECT PREDETERMINED THRESHOLD ASPECT RATIO
16
DEFINE ASPECT RATIO
18
24
20
ASPECT RATIO < PREDETERMINED THRESHOLD?
NO
MULTIAXIAL FATIGUE ANALYSIS
YES
UNIAXIAL FATIGUE ANALYSIS
22

1. A method of predicting crack initiation based fatigue life, said method including the steps of:

plotting elastic finite element stress states of a stress history for a given component at a predetermined location in a stress space,

determining a least square fit ellipsoid of the stress states by a straight line through a center of gravity,

defining an aspect ratio λ_2/λ_1, where λ_1 and λ_2 are the two largest eigen values of an eigen system of matrix M which defines the least square fit ellipsoid and where $\lambda_1 \geq \lambda_2$, and

performing a multiaxial fatigue analysis where the aspect ratio λ_2/λ_1 exceeds a predetermined value

5,736,646
CIRCUIT BOARD ASSEMBLY TORSION TESTER AND METHOD

Gerard Truman Dickinson, Owego, N.Y.; James Lee McGinniss, Jr., Friendsville, Pa.; Ronald Francis Tokarz, Maine, and Aleksander Zubelewicz, Binghamton, both of N.Y., assignors to International Business Machines Corporation, Endicott, N.Y.

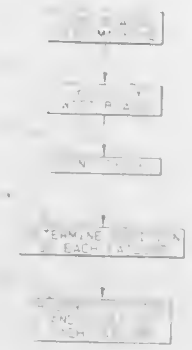
Continuation of Ser. No. 452,361, May 30, 1995, abandoned, which is a continuation-in-part of Ser. No. 208,774, Mar. 9, 1994, Pat. No. 5,567,884. This application Sep. 9, 1996, Ser. No. 709,292

Int. Cl.^{6} G01N *[illegible]/20*

U.S. Cl. 73—814 **14 Claims**

1. A device for generating digital signals for programming a computer of a test machine to control the test machine, comprising:

means for automatically controlling a maximum angle of twist or maximum torque cyclicly applied to a circuit board edge clamp during torsion testing;



means for automatically counting the number of cycles during the torsion test;

means for receiving data for a multitude of failures for a circuit board;

means for relating the failure data to the cycle count when receiving the data; and

means for storing the failure data and related cycle counts for later access.

5,736,647
VORTEX FLOW METER DETECTOR AND VORTEX FLOW METER

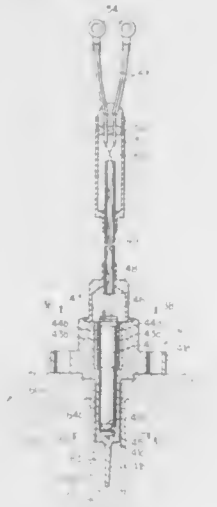
Naoki Matsubara, Saitama; Jun Tanimoto, Kanagawa; Kenichi Takai, Tokyo, and Shinsuke Imai, Kanagawa, all of Japan, assignors to Oval Corporation, Tokyo, Japan

Filed Jul. 31, 1996, Ser. No. 690,523

Claims priority, application Japan, Aug. 7, 1995, 7-200619; Nov. 1, 1995, 7-284802

Int. Cl.^{6} G01F *1/32*

U.S. Cl. 73—861.22 **6 Claims**



1. A vortex flowmeter detector for detecting an alternating pressure produced by a Karman vortex in a vortex flow meter having a cylindrical flow tube through which a fluid flows, the cylindrical flow tube having a vortex generation body fixed within the cylindrical flow tube at right angles with respect to the flow of the fluid, said vortex generation body having a measuring chamber which is open at one end of the vortex generation body in an axial direction thereof, said vortex flowmeter detector comprising:

an oscillation tube having a closed bottom, said oscillation tube being inserted into said measuring chamber and supported watertightly at said open one end of said measuring chamber:

an elastic base material member supported at least at two points inside said oscillation tube in an axial direction thereof,

said elastic base material member having a spring plate fixed at a first end thereof and oriented perpendicular to said axial direction of said oscillation tube, said spring plate having radial notches in a periphery thereof, and said spring plate detachably engaging inside surfaces of said oscillation tube, proximate said closed bottom, under compression to provide one of said at least two points of support for said elastic base material member, and

said elastic base material member having oscillation detector elements fixed thereto at another one of said two points of support, wherein oscillation caused by said alternating pressure acting upon said oscillation tube is detected by said oscillation detection elements.

5,736,648

Patent Not Issued For This Number

5,736,649
VORTEX FLOWMETER

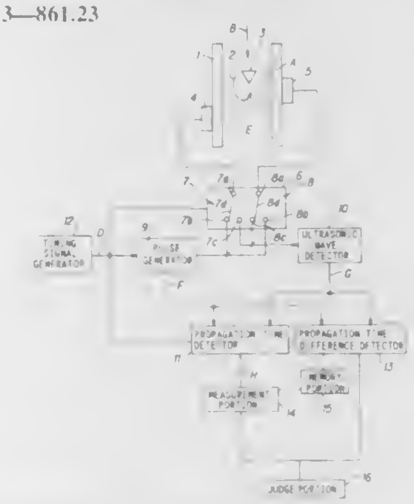
Kazumasa Kawasaki; Yutaka Inada, both of Kanagawa-ken, and Koichi Tashiro, Chiba-ken, all of Japan, assignors to Tokico Ltd., Kanagawa-ken, Japan

Filed Aug. 22, 1996, Ser. No. 701,447

Claims priority, application Japan, Aug. 23, 1995, 7-237749; Jan. 19, 1996, 8-007919

Int. Cl.^{6} G01F *1/32*

U.S. Cl. 73—861.23 **11 Claims**



1. A vortex flowmeter comprising:

a vortex shedder provided in a flow path,

an ultrasonic transmitter and an ultrasonic receiver disposed on both sides of said flow path in a portion downstream of said vortex shedder and spaced apart from said vortex shedder by a predetermined distance, said transmitter and receiver being offset from each other along a flow direction of said flow path and said transmitter emits ultrasonic waves as consecutive pulses of a regular interval;

a memory means for storing first data representative of a relation between generation frequency of Karman vortices generated by said vortex shedder and a flow rate of fluid flowing in said flow path and second data representative of a relation between (a) a difference of an ultrasonic wave propagation time relative to the reference propagation time when the flow rate of fluid flowing in said flow path is substantially zero, and (b) the flow rate of the fluid flowing in said flow path;

a first calculation means for determining the generation frequency of the Karman vortices on the basis of a detection signal obtained from said ultrasonic receiver and for determining the flow rate on the basis of the first data;

a second calculation means for measuring the ultrasonic wave propagation time between said ultrasonic transmitter and said ultrasonic receiver, for determining a difference between the ultrasonic wave propagation time when the flow rate of the fluid is substantially zero and the measured ultrasonic wave propagation tie and for determining the flow rate of the fluid flowing in said flow path from the difference between the ultrasonic wave propagation times on the basis of the second data; and

an output switching means for switching an output so that when the flow rate of the fluid is greater than a predetermined value the flow rate of the fluid determined by said first calculation means is outputted and, when the flow rate of the fluid is smaller than the predetermined value, the flow rate of the fluid determined by said second calculation means is outputted

5,736,650
VENTURI FLOW METER FOR MEASUREMENT IN A FLUID FLOW PASSAGE

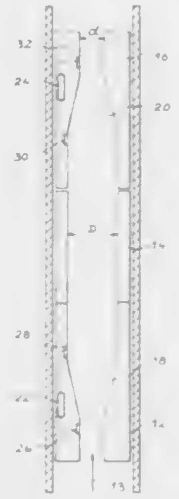
Stephane Hiron; Eric Donzier, both of Paris, and Fachel Rezgui, Sceaux, all of France, assignors to Schlumberger Technology Corp., Houston, Tex.

Filed Jun. 13, 1996, Ser. No. 663,342

Claims priority, application France, Jun. 15, 1995, 95 07152

Int. Cl.^{6} G01F *1/44*

U.S. Cl. 73—861.63 **20 Claims**



1. A device for measuring the flow rate Q of a fluid in a fluid passage, in a well, the device comprising a first venturi section and first means responsive to a pressure difference ΔP_1 across the first venturi section between two points that are separate from each other in the flow direction, and a second venturi section and second means responsive to a pressure difference ΔP_2 across the second venturi section between two points that are separate in the flow direction, the two venturi sections being disposed relative to each other in such a manner that for a given direction of fluid flow the diameter of one of them increases whereas the diameter of the other one of them decreases, said venturi sections being further arranged in such a way that the static pressure components present in said pressure differences ΔP_1 and ΔP_2 can be cancelled out

5,736,651
HIGH TEMPERATURE GAS FLOW SENSING ELEMENT

James R. Bowers, 19615 Lake Rd., Rocky River, Ohio 44116

Filed May 23, 1996, Ser. No. 653,749

Int. Cl.^{6} G01F *1/46*

U.S. Cl. 73—861.66 **20 Claims**

1. A high temperature gas flow sensing element for use within a fluid conduit, said flow sensing element comprising

an annular housing with the same internal dimensions as the fluid conduit having an inlet, an outlet, and forming a hollow interior cross sectional area,

a total pressure sensing pitot tube array affixed within said housing traversing the interior cross sectional area of flow element for sensing the impact pressure of fluid flowing into the flow element

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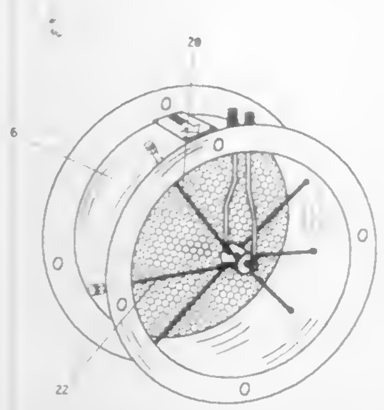


a static pressure sensing pitot tube array affixed within said housing and traversing the interior cross sectional area of the flow element for sensing the average static pressure within the flow element; and

exterior instrument taps for connection of each array respectively to a differential pressure instrument for indicating flow rate and/or transmitting a flow rate signal;

wherein said total pressure sensing pitot tube array further comprises

a total pressure manifold;

a plurality of linearly elongated pitot tubes each said pitot tube having two ends, a first end in fluid communication with said housing and second end in fluid communication with said total pressure manifold;

a plurality of sensing ports penetrating each said pitot tube and directed to face directly toward said inlet, thereby providing free fluid communication between the impacting fluid flowing into said flow element through said pitot tube, and to said total pressure manifold; and

a high-temperature tubing connection for affixing one of said two ends of each pitot tube, said high temperature tubing connection comprising a compression fitting seated around a ribbon packing or packing ring made of any pliable material resistant to high temperatures.

5,736,652
MASS FLOW METERING DEVICE

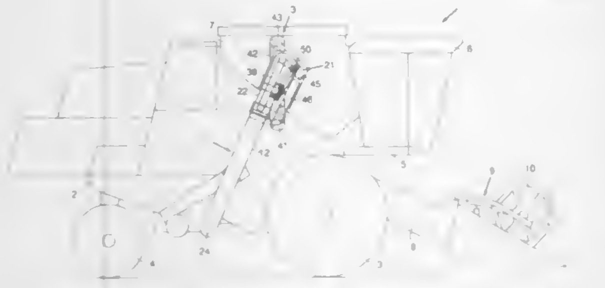
Gilbert Julien Irénée Strubbe, Loppem, Belgium, assignor to New Holland North America, Inc., New Holland, Pa.

Filed Jul. 12, 1996, Ser. No. 678,913

Claims priority, application United Kingdom, Jul. 14, 1995, 9514444

Int. Cl.^{6} G01F *1/30*

U.S. Cl. 73—861.73 **21 Claims**



1. A mass flow metering device (**21**) for metering the mass flow rate of a flow of bulk material, said metering device comprising:

feeder means (**12**, **212**) for providing a flow of bulk material and inducing an outlet speed thereto in a predetermined direction at an outlet (**28**) of said feeder means (**12**);

a sensor member (**51**, **251**), comprising a flow deflecting surface (**53**, **253**) having:

an inlet portion (**54**; **254**) disposed in flow receiving relationship behind said outlet (**28**) of said feeder means (**12**) and oriented in an inlet direction substantially parallel to said predetermined direction of material flow at the outlet (**28**) of said feeder means (**12**);

a concave middle portion (**55**, **255**) along which said material flow is guided in a generally arcuate path, and

an outlet portion (**56**) for discharging said material flow in an outlet direction different from said inlet direction;

said sensing means being mounted such that the flow deflecting surface (**53**, **253**) is subject to a force (F) and a moment (M) resulting from the combination of the centrifugal, gravity and friction forces from said material flow;

said metering device (**21**) further comprising:

means (**52**; **252**) for sensing a component (F_{α}) of the resulting force (F) on said surface (**53**) in a predetermined direction (α) or a resulting moment (M) of said force about a predetermined point (P) and generating a signal proportional to said force or moment (M); and

signal processing means coupled to said sensing means for generating an indication of the mass rate of said material flow,

said metering device (**21**) being characterized in that

said sensing means sense a force component (F_{α}) or a moment (M) which remains substantially constant when the mass rate is kept constant and the material flow at said outlet (**28**) of said feeder means (**12**; **212**) and/or along said crop deflecting surface (**53**; **253**) varies as a result of variations of the friction coefficient (μ) between the bulk material and the surface of the feeder means (**12**, **212**) and said crop deflecting surface (**53**, **53**).

5,736,653
CORIOLIS-TYPE MASS FLOW METER WITH AT LEAST ONE MEASURING TUBE

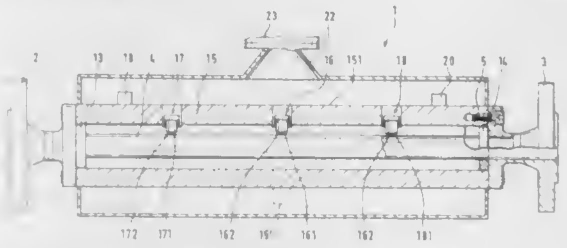
Wolfgang Drahm, Zwingen, Switzerland, and Alfred Rieder, Ergolding, Germany, assignors to Endress + Hauser Flowtec AG, Reinach, Switzerland

Filed Jun. 7, 1996, Ser. No. 659,859

Claims priority, application European Pat. Off., Jul. 21, 1995, 95810474

Int. Cl.^{6} G01F *1/84*

U.S. Cl. 73—861.356 **5 Claims**



1. A Coriolis-type mass flow meter

which can be installed by means of flanges, in a conduit of a given diameter so as to be axially aligned with said conduit, through which flows a fluid to be measured,

with at least one measuring tube extending between and fixed to the flanges and traversed by the fluid,

with a support tube having its ends fixed to the respective flanges,

with means for exciting the measuring tube or measuring tubes into resonance vibrations,

with a first velocity sensor and a second velocity sensor positioned along the measuring tube or measuring tubes for measuring the vibrations of the measuring tube or measuring tubes,

with a first acceleration sensor and a second acceleration sensor positioned on the support tube along a line of intersection with that plane in which Coriolis forces act during operation of the mass flow meter, and

with means for processing signals from the velocity sensors and signals from the acceleration sensors into a mass flow signal which is substantially free from interference.

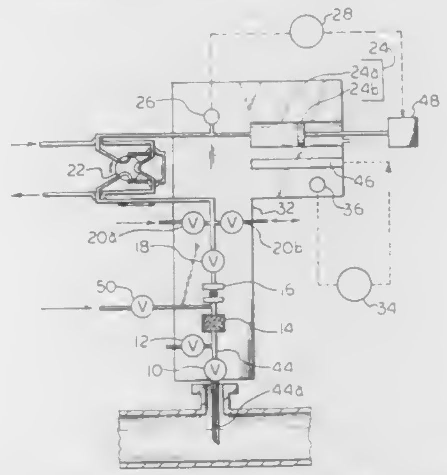
5,736,654
SELF-CONTAINED ON-LINE SAMPLING APPARATUS

Robert N. Dubois, Sherwood Park, Canada, assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 15, 1996, Ser. No. 751,009

Int. Cl.^{6} G01N *1/14*

U.S. Cl. 73—863.84 **7 Claims**



1. A self-contained on-line sampling apparatus comprising:

a) an isolation valve;

b) a block valve;

c) a sampling valve; and

d) a variable volume device having a chamber and a reciprocating piston;

wherein the isolation valve, the block valve, the sampling valve, and the variable volume device are all connected in series and in fluid communication with one another by a fluid communicating means, the apparatus further comprising:

e) a pressure sensor which is in fluid communication with elements a to d;

f) a pressure controller in operative communication with the pressure sensor and the variable volume device; and

g) a flow-through filter in fluid communication with the isolation valve, the block valve, the sampling valve, the variable volume device, and the pressure sensor, the flow-through filter being situated between the isolation valve and the block valve.

5,736,655
METHOD FOR EVALUATING A REMAINING LIFE OF A ROTATING MACHINE COIL

Shinobu Sekito; Yukio Kanazawa, both of Yokohama; Norikazu Arima, Sagamihara; Hiromichi Ito, Tokyo; Susumu Nagano, Yokohama; Makoto Tari, Kawasaki, and Takeshi Tanii, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 11, 1996, Ser. No. 660,591

Claims priority, application Japan, Jul. 14, 1995, 7-178992; Jan. 29, 1996, 8-012715

Int. Cl.^{6} H02H *7/08*

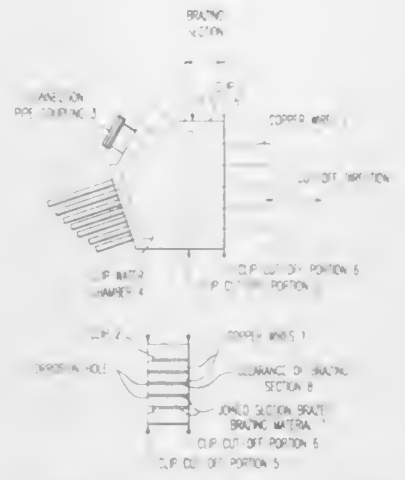
U.S. Cl. 73—865.9 **8 Claims**

1. A method for evaluating a remaining life of a rotating machine coil, comprising the steps of:

obtaining effective sealing lengths on the basis of measured cut faces of brazing sections;

predicting short effective length of all clips of a rotating-machine stator coil, by statistical processing, on the basis of the effective sealing length of each cut face; and

predicting a remaining life of the brazing sections resulting from galvanic corrosion of different kinds of metals on the basis of



the shortest effective sealing length and initially found galvanic corrosion development rate of such metals.

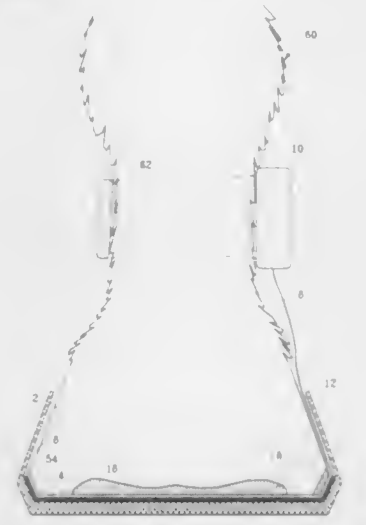
5,736,656
APPARATUS AND METHOD FOR MEASURING THE MAGNITUDE AND DISTRIBUTION OF FORCES ON THE FOOT OF A QUADRUPED

Jeryl G. Fullen, Salina, Kans., and George R. Fullen, Littleton, Colo., assignors to Fullen Systems, Inc., Littleton, Colo.

Filed May 22, 1996, Ser. No. 652,279

Int. Cl.^{6} A61B *5/103*

U.S. Cl. 73—865.4 **14 Claims**



1. An apparatus for measuring the magnitude, distribution and timing of forces exerted against a foot of a quadruped, comprising:

(a) a plurality of individual force sensing elements interconnected to a wrinkle resistant substrate having a plurality of individual cutouts and positioned substantially coextensive with the bottom of the entire foot of said quadruped to measure the magnitude, distribution and timing of forces applied against said foot, said foot comprising a hard hoof and other soft tissue;

(b) attachment means for holding said plurality of force sensing elements in an operable position below said foot of said quadruped, wherein said attachment means comprises a boot which fits substantially around the entire foot of the quadraped;

(c) signal receiving means for receiving signals from said plurality of individual force sensing elements which are indicative of the magnitude, distribution and timing of forces applied against said foot and sensed by said plurality of individual force sensing elements;

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(d) securement means for holding said signal receiving means in a non-motion-altering position on a leg of said quadruped. and

(e) interconnection means for transferring one or more signals related to the magnitude, distribution and timing of forces from said plurality of force sensing elements to said signal receiving means.

5,736,657

SPUTTERING TARGET

Yukio Ide, Mishima; Hiroko Iwasaki, Machida; Yoshiyuki Kageyama, Yokohama; Yujiro Kaneko, Tokyo; Katsuyuki Yamada, Mishima; Michiaki Shinotsuka; Makoto Harigaya, both of Hiratsuka, and Hiroshi Deguchi, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 622,681

Claims priority, application Japan, Mar. 31, 1995, 7-100078; May 12, 1995, 7-138636; Aug. 14, 1995, 7-228589; Jan. 26, 1996, 8-032892

Int. Cl.⁶ C22C *29/00*

U.S. Cl. 75—230 **2 Claims**

1. A sputtering target which comprises a target material comprising as constituent elements Ag, In, Te and Sb with the respective atomic percents (atom. %) of α, β, γ and δ thereof being in the relationship of.

$0.5 \leqq \alpha < 8$,
$5 \leqq \beta \leqq 23$,
$17 \leqq \gamma \leqq 38$,
$32 \leqq \delta \leqq 73$,
$\alpha \leqq \beta$, and
$\alpha+\beta+\gamma+\delta=100$,

wherein said target material comprises Sb, and AgInTe$_2$ with a stoichiometric composition and/or a nearly stoichiometric composition having a chalcopyrite structure and/or zinchlende structure.

5,736,658

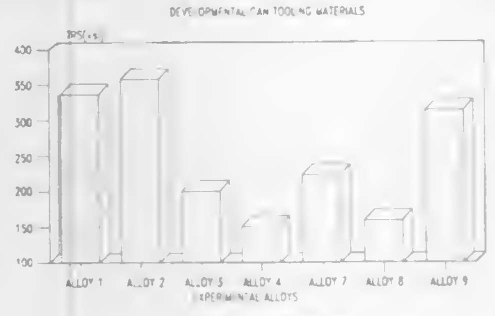
LOW DENSITY, NONMAGNETIC AND CORROSION RESISTANT CEMENTED CARBIDES

Prakash K. Mirchandani, Allison Park, Pa., and Les Kastura, Detroit, Mich., assignors to Valenite Inc., Madison Heights, Mich.

Continuation-in-part of Ser. No. 315,419, Sep. 30, 1994, abandoned. This application Jul. 12, 1995, Ser. No. 501,485

Int. Cl.⁶ C22C *29/02*

U.S. Cl. 75—236 **22 Claims**



TRANSVERSE RUPTURE STRENGTH OF EXPERIMENTAL MATERIALS

1. A nickel-bonded carbide composition comprising: from 10–40% by compositional weight of a binder phase which, in turn, contains from 5–25% Cr, from 5 25% W, from 2 10% selected from other transition elements belonging to groups IVB, VB, VIB of the periodic table and the balance of the binder phase containing Ni; and from 60–90% by compositional weight of a carbide phase which, in turn, contains 20–80% of a TiC cubic phase, from 20–50% WC present either as an individual phase or dissolved in the TiC phase, with the balance of the carbide phase being selected from the group consisting essentially of V, Cr, Zr, Mo, Hf and Ta, present either as individual phases or dissolved in the TiC phase.

5,736,659

MUSICAL ROTATING CAKE PLATE

Richard Kyle, Jr., 8941 Elberta Ct., Jonesboro, Ga. 30236

Filed Oct. 10, 1996, Ser. No. 728,562

Int. Cl.⁶ G10F *1/06*

U.S. Cl. 84—95.2 **3 Claims**

1. A rotating musical serving plate (**10**) comprising:

A) a serving plate (**12**) comprises a top (**12A**), the top (**12A**) comprises a serving plate bearing base (**12AB**) which is securely attached at a serving plate (**12**) lower side, a serving plate spindle socket (**12AA**) is securely attached centrally to the underside of the serving plate (**12**);

B) a support (**14**) comprises a base (**14A**) which is securely attached to a lower distal end of a pedestal (**14B**), the upper distal end of the pedestal (**14B**) is securely attached to a bearing ring (**14C**), the bearing ring (**14C**) comprises a plurality of bearing retainers (**14CA**) functioning to rotatably restrain a plurality of bearings (**14CB**), the plurality of bearings (**14CB**) are in rollable contact with the serving plate bearing base (**12AB**), the serving plate bearing base (**12AB**) functions as a surface for the plurality of bearings (**14CB**);

C) a drive means (**16**) comprises plurality of mounting lugs (**16AA**) securely attached around an outside lower distal portion of a perimeter of a drive means housing (**16A**), the drive means (**16**) is securely attached to the base (**14A**) at plurality of mounting lugs (**16AA**) by a fastening means, an upper distal end of the drive means housing (**16A**) is securely attached to a drive means cover (**16B**), the drive means cover (**16B**) at a central portion is securely attached to a drive means spindle bearing (**16D**) functioning to rotatably restrain a drive means spindle (**16C**), the drive means spindle (**16C**) at one distal end functions to securely and removably engage the serving plate spindle socket (**12AA**) with a drive means fluted adapter (**16E**), the drive means spindle (**16C**) is connected at the opposite distal end to the drive means (**16**), the drive means spindle (**16C**) transmits rotational energy from the drive means (**16**) to the serving plate (**12**), the serving plate spindle socket (**12AA**) cooperates with the drive means fluted adapter (**16E**) to securely removably attach the serving plate spindle socket (**12AA**) thereto, the drive means (**16**) functions to rotate the serving plate (**12**);

D) an audio device (**18**) comprises a case (**18A**) which is securely attached to the base (**14A**) by a second fastening means, the case (**18A**) comprises an ON/OFF switch (**18B**) which function to control the audio device (**18**), the case (**18A**) further comprises a speaker (**18C**) which functions to transmit acoustical energy, the audio device (**18**) functions to emit speech, music and sounds appropriate to the product displayed on the serving plate (**12**); and

E) a power means (**20**) comprises a battery holder (**20A**) which constrains a plurality of batteries (**20AA**), the power means (**20**) functions to provide electricity to the drive means (**16**) and audio device (**18**) by a plurality of power leads (**20AB**) and audio device power leads (**20C**), when a user activates the ON/OFF switch (**20B**) electricity is sent to the audio device (**18**) and the drive means (**16**) which activates sound and rotation.

5,736,660

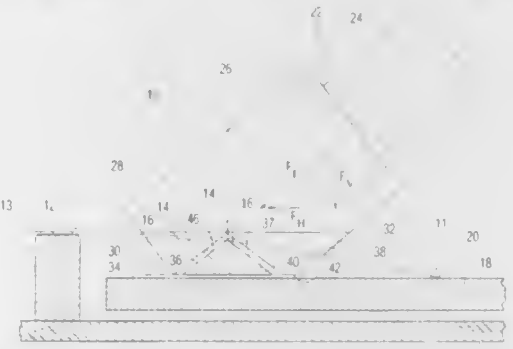
METHOD OF ADJUSTING LENGTH OF DUPLEX SCALE PORTION OF PIANO STRINGS

Daniel T. Frankel, 181 Avenue B, New York, N.Y. 10009

Filed Jun. 19, 1996, Ser. No. 666,130

Int. Cl.⁶ G10C *3/10*

U.S. Cl. 84—200 **14 Claims**



1. In an acoustic piano having a fretbase on which at least one fret node is supported by a fret and an adjacent node spaced from said fret node; selected piano strings pressing downwardly upon said nodes and defining between said nodes a duplex scale portion of said piano strings; a plate beneath said fretbase and upon which said fretbase is pressed downwardly by said strings; the method of moving said fretbase portion relative to said plate in a direction parallel to said piano strings, comprising the steps of:

(a) providing a force-applying tool including a mandrel portion, and a force-transmitting head having a force-transmitting surface and a surface for sliding on said plate;

(b) orienting said tool so that a main axis of said mandrel portion angles downwardly towards a plane of said piano strings, with said force-transmitting surface abutting a force-receiving surface of said fretbase, and with said sliding surface abutting said plate;

(c) applying an impulse force along said main axis having a downward component orthogonal to said plane and a component horizontal to said plane; and

(d) directing a sufficient amount of said downward component of force into said plate through said sliding surface so as to substantially reduce impulse force-caused friction between said fretbase and said plate.

5,736,661

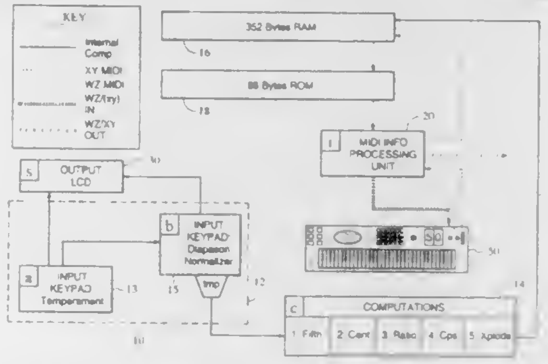
SYSTEM AND METHOD FOR TUNING AN INSTRUMENT TO A MEANTONE TEMPERAMENT

Paul R. Armstrong, 275 S. Drummond St., Bourbonnais, Ill. 60914

Filed Mar. 12, 1996, Ser. No. 615,153

Int. Cl.⁶ G10G *7/02*

U.S. Cl. 84—454 **16 Claims**



1. A system for tuning a musical instrument to a meantone temperament comprising:

an input key pad for providing a desired meantone temperament indication;

a computation means for receiving the desired temperament indication and for calculating and transmitting exploded digital data representative of a desired meantone temperament;

a memory means for receiving the exploded data from the computation means; and

a processing unit coupled to the memory means and the musical instrument for processing, relaying and routing the exploded data to and from the musical instrument.

5,736,662

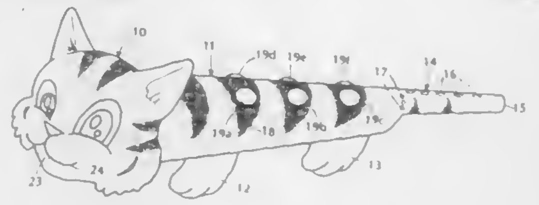
HYBRID ELECTRONIC AND ACOUSTIC MUSICAL INSTRUMENT

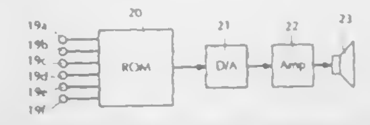
Donald Spector, 380 Mountain Rd., Union City, N.J. 07080

Filed Dec. 30, 1996, Ser. No. 777,457

Int. Cl.⁶ G10H *7/00*

U.S. Cl. 84—600 **8 Claims**





1. A hybrid electronic and acoustic musical instrument comprising:

A. a main section and a hollow tail section extending therefrom terminating in a mouthpiece and provided with a series of finger holes to define an acoustic recorder playable by a player who blows into the mouthpiece and fingres the holes; and

B. an electronic instrument incorporated in the main section, including a series of push-button switches operable by fingers of the player, a read-out memory having digitally stored therein a like series of different sound effects, and means associated with the switches to extract particular digitally stored sound effects from the memory when a particular switch is operated by the player and to convert the extracted sound effects to an analog signal which is amplified and reproduced to provide audible sound effects, whereby by selectively fingering the finger holes of the recorder and the push-button switches of the electronic instrument, the player can combine the tones of the recorder with the sound effects, the main section having the shape of an animal provided with a head and body, and the tail section extending from the body.

5,736,663

METHOD AND DEVICE FOR AUTOMATIC MUSIC COMPOSITION EMPLOYING MUSIC TEMPLATE INFORMATION

Eiichiro Aoki, and Toshio Sugiura, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Filed Aug. 7, 1996, Ser. No. 693,462

Claims priority, application Japan, Aug. 7, 1995, 7-221051

Int. Cl.⁶ A63H *5/00;* **G04B** *13/00;* **G10H** *7/00*

U.S. Cl. 84—609 **29 Claims**

1. An automatic music composing device comprising:

supply means for supplying music template information including at least information indicative of a tendency relating to a number of notes in each of a plurality of sections forming a music piece;

input means for, in response to an operation of a user, inputting information indicative of a tendency relating to a number of notes contained in each of sections of a music piece to be composed, and

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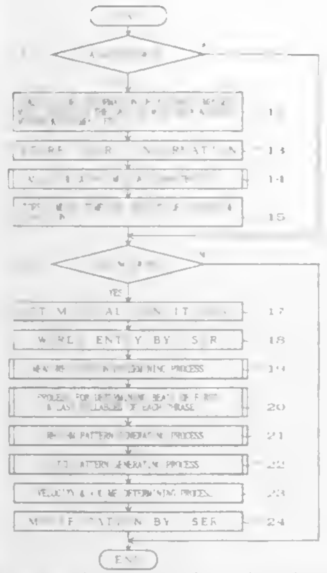
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PROCESS FOR DETERMINING BEATS OF FIRST & LAST SYLLABLES OF EACH PHRASE
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RHYTHM PATTERN GENERATING PROCESS
21
PATTERN GENERATING PROCESS
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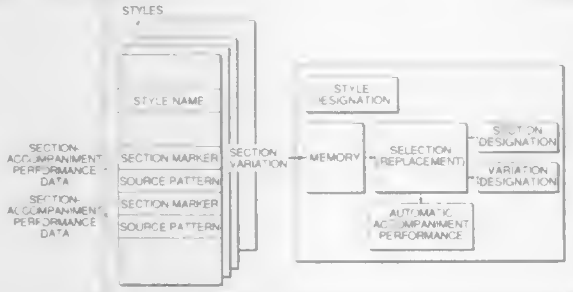
determination means for determining a length and pitch of each note to be contained in each of the sections of the music piece to be composed, on the basis of said music template information supplied by said supply means and said information indicative of a tendency relating to a number of notes in each of the sections inputted by said input means.

5,736,664
AUTOMATIC ACCOMPANIMENT DATA-PROCESSING METHOD AND APPARATUS AND APPARATUS WITH ACCOMPANIMENT SECTION SELECTION

Shinichi Ito; Masao Kondo, and Keiji Kawakami, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Filed Apr. 3, 1996, Ser. No. 627,082
Claims priority, application Japan, Apr. 3, 1995, 7-077505
Int. Cl.^{6} G09B *15/02;* G10H *1/36*
U.S. Cl. 84—634 **23 Claims**



1. A method of processing automatic accompaniment performance data, comprising the steps of:

storing automatic accompaniment performance data for a plurality of accompaniment sections of a musical piece in a memory;

designating a selected accompaniment section;

determining if said selected accompaniment section corresponds to one of said plurality of accompaniment sections stored in said memory;

reading automatic accompaniment performance data for said one accompaniment section that corresponds to said selected accompaniment section from said memory to play an automatic accompaniment performance when a correspondence is found;

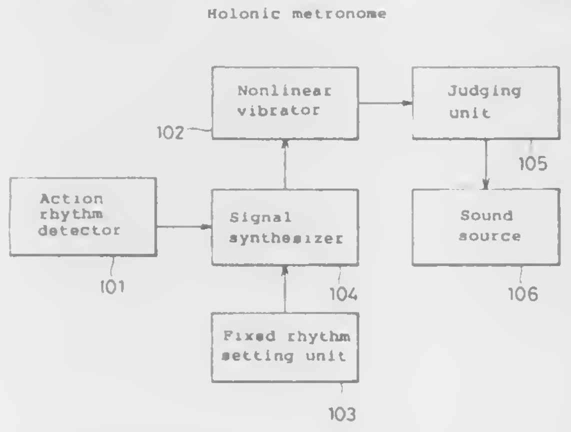
selecting a replacement accompaniment section from said plurality of accompaniment sections stored in said memory when a correspondence is not found, and

reading automatic accompaniment performance data for said replacement accompaniment section to play an automatic accompaniment performance when a correspondence is not found.

5,736,665
HOLONIC RHYTHM GENERATOR FOR GENERATING A RHYTHMIC VIBRATION STATE DESCRIBED BY A NONLINEAR VIBRATION EQUATION

Akira Fukumoto; Takahiro Yamada, both of Hirakata, and Hiroyoshi Komobuchi, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 8, 1996, Ser. No. 629,107
Claims priority, application Japan, Apr. 7, 1995, 7-082244
Int. Cl.^{6} G01H *1/40;5/00*
U.S. Cl. 84—667 **18 Claims**



1. A holonic rhythm generator comprising:

a fixed rhythm setting unit for generating a fixed rhythm signal,

an action rhythm detector for generating an action rhythm signal

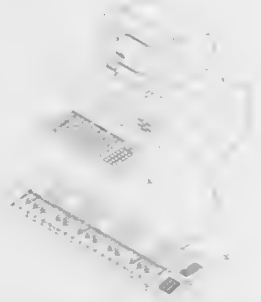
a signal synthesizer for receiving the fixed rhythm signal from the fixed rhythm setting unit and the action rhythm signal from the action rhythm detector and generating a synthesized signal, and

a rhythm generator for receiving the synthesized signal from the signal synthesizer and generating a rhythmic vibration state described by a nonlinear vibration equation.

5,736,666
MUSIC COMPOSITION

Rodney M. Goodman, Altadena, and Randall R. Spangler, Pasadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Mar. 20, 1996, Ser. No. 618,906
Int. Cl.^{6} G10H *1/00;1/38;1/12*
U.S. Cl. 84—669 **41 Claims**



1. A method of composing music, comprising:

receiving a first series of musical notes defining a first melody having a first harmony;

analyzing the first harmony within the first melody, by forming examples from the first series of musical notes, and deriving, in real-time, at least first and second rules relating to the first melody, the second rule conflicting with the first rule, and each of said first and second rules including a weight associated therewith;

receiving additional notes of said melody and forming additional examples from said additional notes;

determining ones of said additional examples that agree with said first rule and increasing a weight of said first rule when an example agrees with said first rule, and determining ones of said additional examples that agree with said second rule and increasing a weight of said second rule when an example agrees with said second rule;

receiving another melody to which a harmony is to be formed;

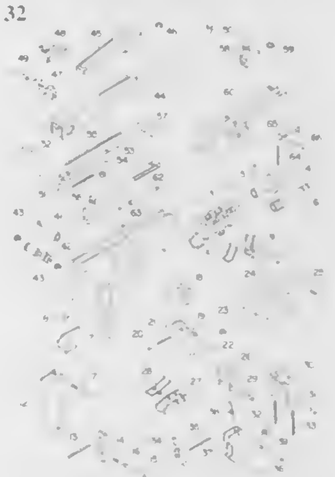
evaluating said another melody using both of said first and second rules, and

when both said first and second rules each apply to said another melody, applying the one of said rules which has the higher weight to said melody, in real-time.

5,736,667
AUTOMATIC FIREARM ARRANGED FOR HIGH SAFETY AND RAPID DISMANTLING

Luis Eduardo Hernandez Munostes, Errazuriz 563, Playa Ancha, Valparaiso, and Abraham Wurman Shapiro, San Isidro 1065, Santiago, both of Chile

Filed May 6, 1996, Ser. No. 643,542
Int. Cl.^{6} F41F *1/00*
U.S. Cl. 89—132 **35 Claims**



1. A portable firearm comprising:

a frame,

a barrel assembly supported on said frame and having an axis, a muzzle and a breech;

an upper mechanism including a bolt and a sliding hammer,

a sear means for projecting above the axis of said barrel assembly and restraining said upper mechanism; and

trigger means having a reciprocatable member coupled to said sear means for selectively operating said sear means automatically or semi-automatically.

5,736,668
INFLATOR FOR AN INFLATABLE VEHICLE OCCUPANT PROTECTION DEVICE

Homer W. Fogle, Jr., Mesa, and Daniel R. Hake, Scottsdale, both of Ariz., assignors to TRW Inc., Lyndhurst, Ohio

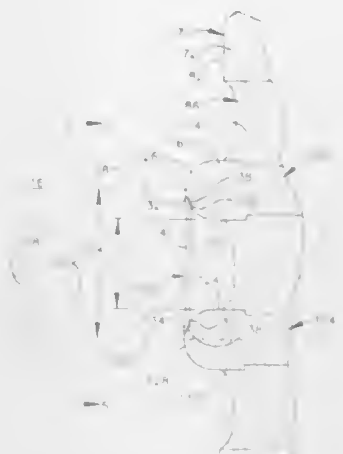
Filed May 28, 1996, Ser. No. 653,800
Int. Cl.^{6} F42C *19/12*
U.S. Cl. 102—202.5 **11 Claims**

4. Apparatus comprising:

combustible fluid;

a pair of electrode pins having central axes, cylindrical side surfaces centered on said axes, and terminal end surfaces extending across said axes, said terminal end surfaces of said electrode pins being spaced from each other across an electrode gap and having arcuate contours facing oppositely across said gap; and

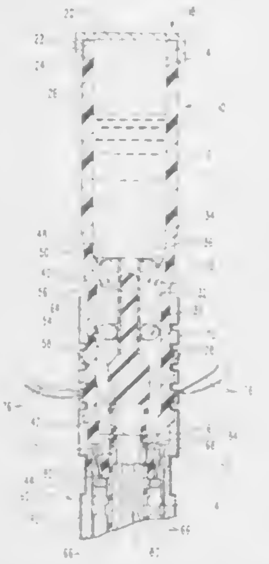
an ohmic heating element immersed in said combustible fluid, said heating element bridging said gap in an ignitable heat transferring relationship with said combustible fluid and having a pair of opposite end portions which are mounted on and bonded directly to said terminal end surfaces of said electrode pins.



5,736,669
SYSTEMS FOR BIOREMEDIATING EXPLOSIVES

Ronald D. Thomas, Woodland Hills; Lyman G. Bahr, Payson, both of Utah; Walter B. Dunning, Sonora, Calif., and Dean F. Richards, Pleasant Grove, Utah, assignors to The Ensign-Bickford Company, Simsbury, Conn.

Continuation-in-part of Ser. No. 560,074, Nov. 17, 1995, abandoned. This application Jun. 4, 1996, Ser. No. 658,142
Int. Cl.^{6} F42C *3/02*
U.S. Cl. 102—293 **69 Claims**



1. A system for in situ remediating of an explosive, if the explosive fails to detonate, the system comprising

a. a bioremediation apparatus comprising

   i. reservoir means for releasably containing a solution for mixing with microorganisms;

   ii. storage means for releasably containing at least one type of microorganism capable of bioremediating an explosive material, the storage means being positioned below the reservoir means and being in communication with the reservoir means,

   iii. first valve means for releasing the solution from the reservoir means into the storage means to hydrate the microorganisms in the storage means when the first valve means is opened, the first valve means being at least partially disposed within the reservoir means,

   iv. second valve means for releasing the microorganisms and the solution from the storage means when the second valve means is opened, the second valve means being connected

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to the first valve means and being at least partially disposed within the storage means; and

b. an explosive apparatus configured for coupling to the bioremediation apparatus, said explosive apparatus comprising:
  i. a shell having an open end;
  ii. a quantity of an explosive material contained in the shell;
  iii. a capwell positioned in the open end of the shell and having a bioremediation portal formed therethrough communicating with the explosive material in the shell; and
  iv. actuation means on the capwell for opening the first valve means and the second valve means when the explosive apparatus is coupled to the bioremediation apparatus, thereby to release the microorganisms and the solution from the storage means for passage through the bioremediating portal to the explosive material.

5,736,670

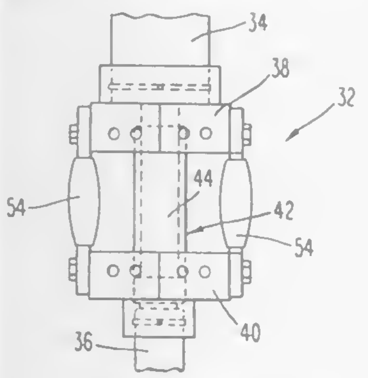
FLEXIBLE GAS TIGHT ELECTRICAL CONNECTION FOR GENERATORS

Luis Enrique Carbonell, Deltona; Lorenzo Ramirez, Oviedo, and Donald Leroy Mills, Deltona, all of Fla., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sep. 28, 1994, Ser. No. 314,155

Int. Cl.^{6} H01B *7/34*

U.S. Cl. 174—15.6 **9 Claims**



1. A flexible, gas tight electrical coupling for a gas cooled electrodynamic system comprising:
  a first connector element, said first connector element being in communication with a first combined coolant and electrical path and having a first passage defined therein for a coolant;
  a second connector element, said second connector element being in communication with a second combined coolant and electrical path and having a second passage defined therein for a coolant;
  a flexible tube for communicating said first passage in said first connector element with said second passage in said second connector element, said flexible tube having an inside surface for conducting a fluid therealong and having an outside surface;
  sealing means for sealing substantially the entire outside surface of said flexible tube to said first and second connector elements, whereby coolant is prevented from leaking from said connector elements and from said flexible tube; and
  electrical connection means disposed externally to said flexible tube for electrically connecting said first connector element to said second connector element.

5,736,671

DOOR STRUCTURE OF A MAGNETICALLY-SHIELDED ROOM

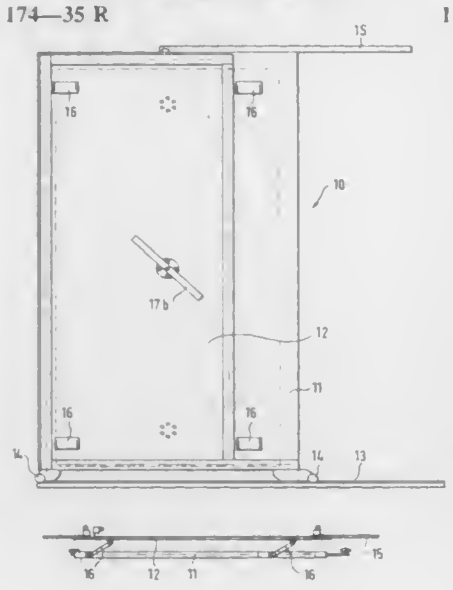
Martti Perälä, and Lasse Sohlström, both of Eura, Finland, assignors to Euroshield Oy, Eura, Finland

Filed Dec. 26, 1995, Ser. No. 578,011

Claims priority, application Finland, Dec. 27, 1994, 946100

Int. Cl.^{6} H05K *9/00;* **E05D** *15/10*

U.S. Cl. 174—35 R **17 Claims**



1. A door structure for a magnetically-shielded room for sealing an aperture of the room and for engaging with shielding wall structure of the room including a sheet of μ metal exposed at portions thereof, comprising
  a door leaf having a sheet of μ metal with exposed portions at edge areas of said door leaf,
  a door leaf support structure for supporting said door leaf, said door leaf and said door leaf support structure being movable between a first position in which said door leaf and said door leaf support structure are in front of the aperture of the room and a second position in which said door leaf and said door leaf support structure are away from the aperture of the room,
  hinge means for hingedly connecting said door leaf to said door leaf support structure such that said door leaf is movable in a direction perpendicular to and away from said door leaf support structure into the aperture of the room when said door leaf and said door leaf support structure are in said first position, and
  pressing means for pressing said edge areas of said door leaf against the shielding wall structure of the room when said door leaf is in the aperture of the room such that said exposed μ metal sheet portions at said edge areas engage with the exposed μ metal sheet portions of the shielding wall structure.

5,736,672

MAGNETIC NOISE ELIMINATOR

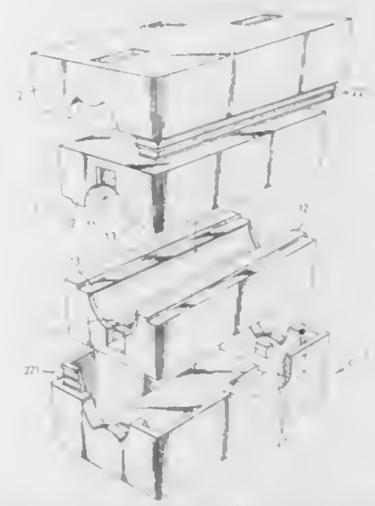
Yi-Chung Huang, 463 Kang-Ning Street, Hsi-Che, Taipei Hsien, Taiwan

Filed Jan. 29, 1996, Ser. No. 593,357

Int. Cl.^{6} H05K *9/00*

U.S. Cl. 174—35 R **3 Claims**

1. A magnetic noise eliminator for fitting around a signal line comprising:
  a cover formed by two identical cover shells in engagement with each other,
  two identical magnetic blocks in engagement with each other and disposed within said two cover shells;
  each of said two cover shells having:



  a plurality of teeth vertically spaced from each other and extending longitudinally along one edge of said each cover shell and spaced inwardly and downwardly from said one edge, and
  a plurality of grooves extending longitudinally along an inner wall of said each cover shell adjacent an edge of said each cover shell opposite the one edge having said teeth,
  said plurality of spaced teeth of one of said cover shell extending into and engaging said grooves of the other of said cover shell and forming said cover,
each of said two magnetic blocks having:
  a trough longitudinally extending therethrough,
  a flange longitudinally extending along one edge of said each magnetic block, and
  a recess longitudinally extending along an edge of said trough opposite said flange, with said flange of said each magnetic block in contact with the recess on the other respective magnetic block,
whereby said troughs of said two magnetic blocks form a passageway longitudinally extending through said engaged magnetic blocks for the signal line to be held therein,
said two cover shells encompassing said two magnetic blocks and holding said two symmetrical magnetic blocks in engagement with each other.

5,736,673

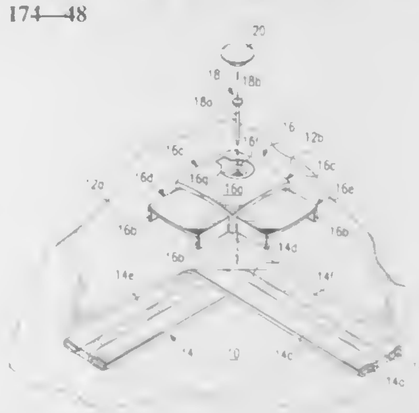
CABLE AND MOUNTING BRACKET ASSEMBLY AND METHOD

Noel Lee, Daly City, Calif., assignor to Monster Cable International, Ltd., Bermuda

Filed May 18, 1995, Ser. No. 443,786

Int. Cl.^{6} H02G *3/10*

U.S. Cl. 174—48 **13 Claims**



1. An assembly for making an electrical connection from at least one electrical device in a room or cabinet, said assembly comprising a cable connected to said device and comprising at least two electrical conductors and an insulative housing surrounding said conductors, the cross-sectional dimensions of said cable being such that said cable can be folded over itself to form a folded cable portion in a manner so that two sections of the cable extend from said folded cable portion at an angle to each other; and a mounting bracket extending over a portion of said cable to secure said cable sections in said angular relationship, said bracket having an opening extending therethrough and comprising a first bracket portion for extending over said folded cable portion, a second bracket portion for extending over a portion of one of said cable sections, and a third bracket portion for extending over a portion of the other cable section; and a nail extending through said opening for fastening said bracket, and securing the folded cable portion, to a flat structure in said room or cabinet, said opening being located in a manner to allow said nail to clear said folded cable portion.

5,736,674

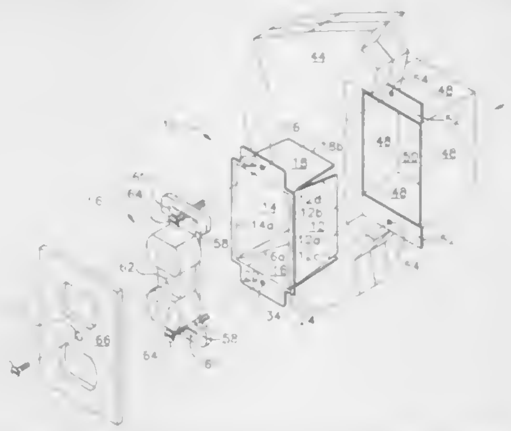
ELECTRIC BOX EXTENDER

Thomas J. Gretz, Clarks Summit, Pa., assignor to Arlington Industries, Inc., Scranton, Pa.

Continuation-in-part of Ser. No. 667,083, Jun. 20, 1996, abandoned. This application Dec. 27, 1996, Ser. No. 773,413

Int. Cl.^{6} H02G *3/08*

U.S. Cl. 174—50 **15 Claims**



1. A plastic electrical box extender for extending existing electrical boxe so that the extended electrical box is flush with a surface comprising:
  a face member having an outward side and an inward side and an axis through the center of said face member;
  at least two flanges extending from and coplanar with said face member;
  a plurality of inwardly extending flat wings each having a base and with a base edge, an inward edge opposite said base edge, and two side edges opposite one another with said wings extending from the inward side of said face, said wings symmetrically disposed about said axis through the center of said face member, said wings and said face forming a generally tubular body portion sized to receive an electrical device, said wings capable of flexing about said base toward said axis through said face thereby allowing said tubular body portion to be received within existing electrical box, and
  apertures through at least two of said flanges, said apertures capable of passing screws therethrough for securing said electrical box extender to said existing electrical box

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5,736,675

APPARATUS FOR PROVIDING A HERMETICALLY SEALED ENVIRONMENT

Donald L. Michaels, Robins, Iowa, assignor to Rockwell International Corporation, Costa Mesa, Calif.

Filed Sep. 11, 1995, Ser. No. 526,348

Int. Cl.^{6} H01J *5/00*

U.S. Cl. 174—50.5 **8 Claims**

1. A hermetic sealed canister comprising:

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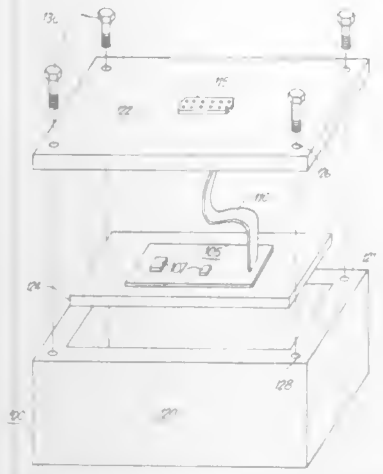


a multiwalled encasement structure having an external surface and an opening for receiving a component to be enclosed therein;

a lid element having an external surface and complementary in dimension to the multiwalled encasement structure opening, thereby forming a complete enclosure for the component;

electrical connectors attached to one or more walls of the multiwalled encasement structure;

an indium gasket disposed between the lid element and the multiwalled encasement structure thereby forming a tin and indium interface, and

a plurality of fasteners for rigidly engaging the lid onto the multiwalled encasement structure, wherein the external surfaces of the lid and the multiwalled encasement structure are tin plated; and wherein the complete enclosure is subjected to sustained heating at a predetermined temperature and time such that the tin and indium interface is structurally transformed into a metallurgical intermetallic bond layer that is highly impermeable to potential environmental contaminants.

5,736,676

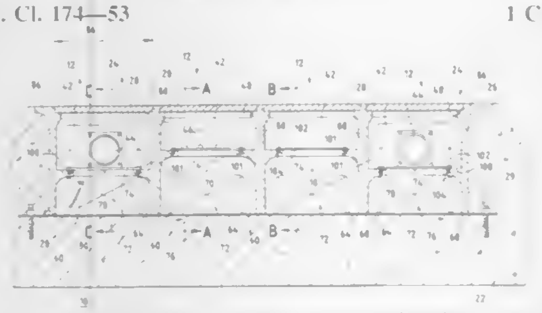
FLOOR STRUCTURE ELECTRICAL JUNCTION APPARATUS

Michael S. Stelter, 335 Meadowlake Blvd., Aurora, Ill. 60504, and Joseph C. Marino, 1410 Russell Ct., Arlington Heights, Ill. 60005

Filed Jul. 13, 1995, Ser. No. 502,000

Int. Cl.⁶ H01H *9/02*

U.S. Cl. 174—53 **1 Claim**



1 An electrical junction apparatus mounted within a structural slab for providing electrical power connections and communication connections to a user, the apparatus comprising:

a load bearing chassis having at least one generally rectangular aperture, a top portion having a vertically recessed lip portion circumscribing inwardly facing peripheral edges of each aperture;

at least one generally rectangular receptacle module constructed to fit within each aperture, each said receptacle module providing at least one of a plurality of electrical power connectors and communication connectors within an interior portion defining a user access space.

at least two upstanding support members depending from the top portion, said support members resting upon a cut-away portion of the structural slab;

the support members having flanges horizontally projecting towards a central portion of each aperture, said flanges disposed below the recessed lip portion for supporting a bottom portion of each receptacle module;

a raceway portion defined between the bottom portion of each receptacle module and the a bottom of the structural slab to provide under-floor electrical wiring access to the receptacle module; and

a load bearing cover plate to cover each aperture configured to communicate with the recessed lip portion along said peripheral edges such that the cover plate is flush with the top portion of the chassis and flush with a top surface of the structural slab;

the load bearing chassis wherein said at least one aperture is four generally rectangular apertures, each aperture configured to receive one of the at least one receptacle module such that the support members between adjacent apertures have the horizontally projecting flanges protecting from opposite sides of the support members to provide support for the receptacle modules dis-posed in adjacent apertures; and

the horizontal projecting flanges from said support members disposed between adjacent apertures being vertically displaced relative to each other such that the receptacle modules are alternately displaced in height relative to the raceway portion

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5,736,677

SILENCER-EQUIPPED GROMMET AND STRUCTURE FOR MOUNTING THE GROMMET

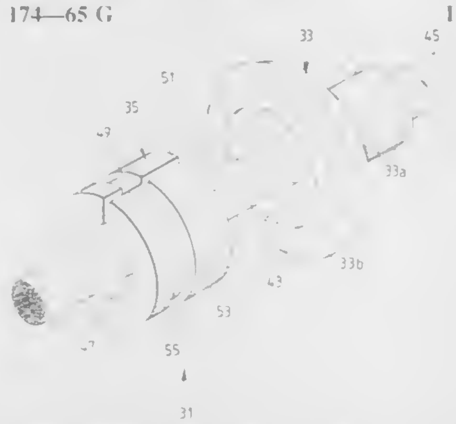
Hidetoshi Sato, and Shinichi Akiyama, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Dec. 6, 1996, Ser. No. 759,671

Claims priority, application Japan, Dec. 6, 1995, 7-318156

Int. Cl.⁶ H02G *3/18*

U.S. Cl. 174—65 G **13 Claims**



1 A grommet passable through and retainable by a hole formed in a panel, said grommet comprising:

a grommet portion made of an elastic material, said grommet portion having a large diameter portion having a rib portion and a small diameter portion, and said grommet portion having an opening penetrating said large diameter portion and said small diameter portion; and

a silencer including:

- a noise insulating portion made of a hard noise insulating material, a front end portion of said noise insulating portion insertable into said opening in said large diameter portion;
- a recess portion, for engaging said rib portion, formed on said noise insulating portion;
- a noise absorbing portion made of a soft noise absorbing material,

wherein said noise insulating portion and said noise absorbing portion are integrally formed; and

a wire insertion hole which penetrates said noise insulating portion and said noise absorbing portion.

5,736,678

TERMINAL FOR HIGH-VOLTAGE RESISTANT ELECTRICAL WIRE

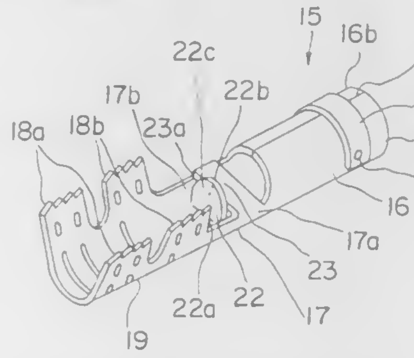
Yoshinao Kobayashi, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Dec. 12, 1994, Ser. No. 354,506

Claims priority, application Japan, Dec. 10, 1993, 5-066007 U

Int. Cl.⁶ H02G *3/06*; H01R *4/18*

U.S. Cl. 174—84 C **14 Claims**



1 A terminal for an electrically conductive wire comprising a conductor surrounded by an insulating coating, an end section of said wire including an exposed part of said conductor, said terminal comprising

a barrel for securing said end section of said wire, a connecting portion adapted to receive an electrode, and

an intermediate part between said barrel and said connecting portion, said intermediate part having a base and a first lateral wall and a second lateral wall extending therefrom, upper ends of said first lateral wall being opposed to and spaced apart from said second lateral wall,

a stopper, upstanding from said base between said lateral walls, and in contact with said exposed part, said stopper having a barrel side, facing said barrel, and a connecting side, facing said connecting portion, a support between said lateral walls and in substantial contact with one of said barrel side and said connecting side and spaced apart from said base, thereby supporting said stopper,

said stopper comprising a lifted cut portion of said base which is arched or semirectangular in shape, said cut portion extending from said base at its proximal portion and having its distal portion, remote from said proximal portion, bent toward said connecting portion and in engagement with said support

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5,736,679

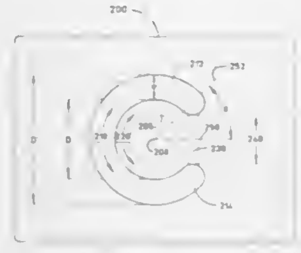
DEFORMABLE INTERCONNECT STRUCTURE FOR CONNECTING AN INTERNAL PLANE TO A THROUGH-HOLE IN A MULTILAYER CIRCUIT BOARD

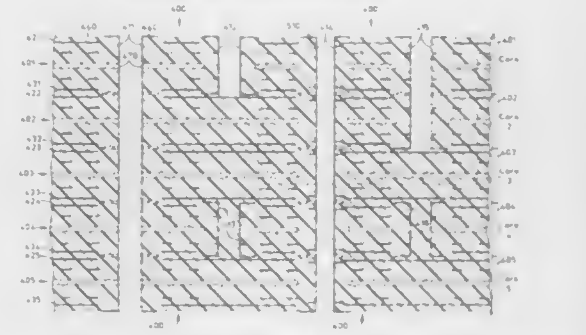
John Steven Kresge, Binghamton, N.Y.; David Noel Light, Friendsville, Pa., and James Robert Wilcox, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1995, Ser. No. 579,618

Int. Cl.⁶ H05K *1/00*

U.S. Cl. 174—250 **14 Claims**





7. A circuit board comprising

at least one plated through-hole formed in said circuit board,

a plane conductor having a main body that is substantially planar, a deformed hinge connected thereto and an interconnect area that electrically couples the deformed hinge and the through-hole, said interconnect area including a conductive pad connected to said through-hole and said hinge and an etched area surrounding said conductive pad, said hinge being deformed to position the interconnect area substantially outside of the plane defined by the main body of the plane conductor.

5,736,680

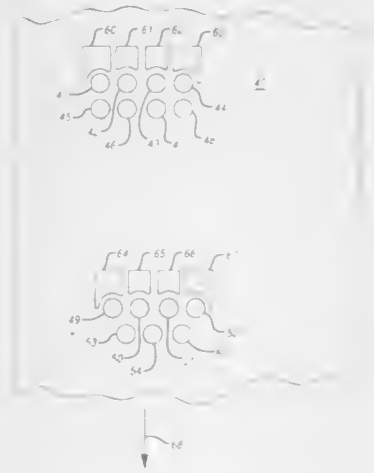
POLYMORPHIC RECTILINEAR THIEVING PAD

Barry E. Caldwell, Whitewater, and Raymond S. Rowhuff, Valley Center, both of Kans., assignors to Symbios Logic Inc., Fort Collins, Colo.

Continuation of Ser. No. 469,293, Jun. 6, 1995, abandoned. This application Jan. 6, 1997, Ser. No. 781,992

Int. Cl.⁶ H05K *1/00*

U.S. Cl. 174—250 **28 Claims**



1. A printed circuit board defining an array of holes comprising:

a pad associated with a hole in the array of holes, the pad having sides wherein one of the sides is a curved side which extends less than halfway around the hole and is closer to the hole than any of the other sides, the concavity of said curved side facing the hole

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5,736,681
PRINTED WIRING BOARD HAVING AN INTERCONNECTION PENETRATING AN INSULATING LAYER

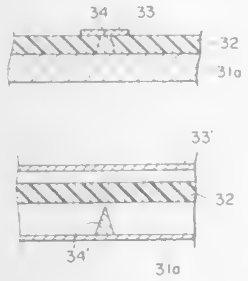
Yuichi Yamamoto; Yoshizumi Sato; Tomohisa Motomura; Hiroshi Hamano, all of Tokyo, and Yasushi Arai, Fujisawa, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kenagawa-ken, Japan

Filed Aug. 31, 1994, Ser. No. 297,954

Claims priority, application Japan, Sep. 3, 1993, 5-219751; Sep. 9, 1993, 5-224785; Sep. 10, 1993, 5-226106

Int. Cl.^{6} H05K *1/02*

U.S. Cl. 174—265 **22 Claims**



1. A printed wiring board comprising:

an insulating resin sheet;

an interconnection which is press-fitted and embedded in said insulating resin sheet in a direction perpendicular to a surface of said insulating resin sheet; and

a printed wiring pattern formed on said insulating resin sheet and connected to said interconnection,

said interconnection being formed of conductive bumps having tips that penetrate through the insulating resin sheet and plastically deform against said printed wiring pattern to electrically connect the conductive bumps to the printed wiring pattern.

5,736,682
METHOD OF AND APPARATUS FOR ASCERTAINING THE MASS OF ROD-SHAPED ARTICLES OF THE TOBACCO PROCESSING INDUSTRY

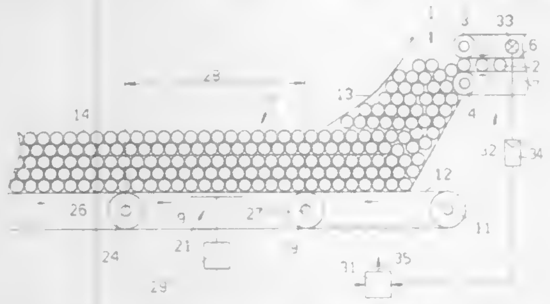
Uwe Heitmann, Hamburg, and Torsten Mörke, Dissau, both of Germany, assignors to Hauni Machinenbau AG, Hamburg, Germany

Filed Mar. 22, 1996, Ser. No. 620,598

Claims priority, application Germany, Apr. 7, 1995, 195 13 130.4; Nov. 29, 1995, 195 44 464.7

Int. Cl.^{6} G01G *11/14*; A24C *1/14*

U.S. Cl. 177—16 **26 Claims**



1. A method of ascertaining the mass of rod-shaped articles of the tobacco processing industry, comprising the steps of advancing a multi-layer mass flow of rod-shaped articles in a predtermined direction along a predetermined path; weighing at least twice successive increments of the mass flow in at least one predetermined portion of said path; generating a succession of signals denoting the weight of successive increments of the mass flow and the mass of articles in the respective increments, including forming a succession of at least two signals each with each succession of at least two signals denoting the weight of the respective increments, and processing said succession of said at least two signals each into processed signals denoting the combined mass of articles in the respective increments of the mass flow.

5,736,683
MULTIPLE HOPPER WEIGHING AND TRANSFER SYSTEM

W. Stamps Howard, Lilburn, Ga., assignor to Kliklok Corporation, Decatur, Ga.

Filed Mar. 15, 1996, Ser. No. 617,511

Int. Cl.^{6} G01G *13/00*

U.S. Cl. 177—25.18 **20 Claims**

1. A multiple in-series hopper system for receiving a stream of solid, flowing product to form and transfer as a batch, comprising.

a batch forming and weighing hopper to directly receive the product of said stream and form said batch;

a scale to determine the weight of product in said batch in said weighing hopper;

means for discharging the batch of product from said weighing hopper;

a transfer hopper for receiving said batch from said forming/weighing hopper for later discharge;

a holding hopper for receiving said batch from said transfer hopper for later discharge;

a computer for sensing said batch weight from said scale and assigning in sequence the weight first to said transfer hopper and second to said holding hopper;

said computer being operative to select one or both said transfer and holding hoppers for discharge;

whereby said forming/weighing hopper is available for batch forming and weighing at all times during selection of one or both of said transfer and holding hoppers.

5,736,684
COMBINATIONAL WEIGHING OR COUNTING APPARATUS

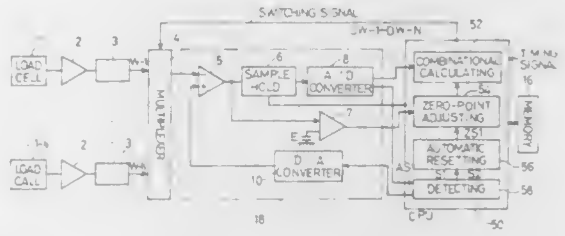
Yugo Fujitani, Kurita-gun, Japan, assignor to Ishida Co., Ltd., Kyoto, Japan

Filed Aug. 2, 1996, Ser. No. 691,599

Claims priority, application Japan, Aug. 9, 1995, 7-225815

Int. Cl.^{6} G01G *13/00*

U.S. Cl. 177—25.18 **6 Claims**



1. A combinational weighing or counting apparatus including a plurality of weighing hoppers, and a plurality of weight detecting means associated with the weighing hoppers, respectively, for detecting a weight of articles to be weighed which have been supplied into the respective weighing hopper, and operable to select a combination of a plurality of articles which falls within an acceptable range of total value with respect to a target value by combining respective weights or numbers of the articles, said apparatus comprising:

a detecting means for detecting a remounting of at least one of the weighing hoppers which has once been removed;

a zero-point adjusting means for updating stored information with a zero-point represented by the weight of the weighing hopper which has been remounted and is empty; and

an automatic resetting means for allowing the weight of the articles supplied into the remounted weighing hopper to participate in weight calculation or number counting when the detecting means detects the remounting of the weighing hopper and after the weight of the remounted weighing hopper when empty has been zero-point adjusted by the zero-point adjusting means.

5,736,685
CONVEYOR-MOUNTED WEIGHING APPARATUS

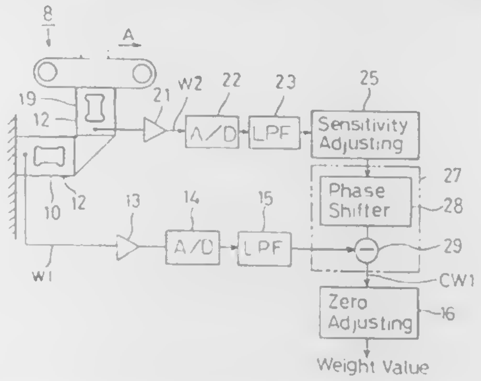
Masayoshi Nakajima, Shiga, Japan, assignor to Ishida Co., Ltd., Kyoto, Japan

Filed Nov. 9, 1995, Ser. No. 554,895

Claims priority, application Japan, Nov. 10, 1994, 6-302983

Int. Cl.^{6} G01G *19/03*

U.S. Cl. 177—145 **6 Claims**



1. A conveyor-mounted weighing apparatus which comprises:

a conveyor means including a plurality of rotating rollers for transporting an article to be weighed;

a first load detector for detecting a weight of the article to be weighed then being transported by said conveyor means by measuring a vertical load on the conveyor means and for outputting a first load signal;

a second load detector for detecting a horizontally acting load imposed on the conveyor means and for outputting a second load signal; and

a calculating means for shifting a phase of the second load signal outputted from the second load detector and subtracting the phase-shifted second load signal from the first load signal outputted from the first load detector to thereby eliminate a noise component brought about the conveyor means.

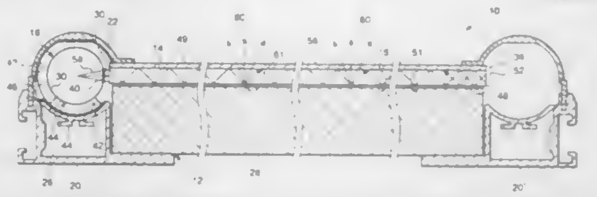
5,736,686
ILLUMINATION APPARATUS FOR A DIGITIZER TABLET WITH IMPROVED LIGHT PANEL

Joseph F. Perret, Jr., Silver Spring; Donald A. Ice, Ellicott City, and William J. Kautter, Columbia, all of Md., assignors to GTCO Corporation, Columbia, Md.

Filed Mar. 1, 1995, Ser. No. 396,617

Int. Cl.^{6} G08C *21/00*; G09G *3/02*

U.S. Cl. 178—18 **23 Claims**



1. An illumination apparatus for a digitizer tablet, the apparatus comprising:

a support structure;

a solid sheet optical light guide positioned above said support structure and having first and second opposing surfaces and a plurality of edges;

at least one light source carried by said support structure and positioned to direct light into at least one light-receiving edge of said light guide; and

reflecting structure disposed adjacent said first surface of said light guide,

a predetermined non-uniform pattern of surface disturbances associated with said first surface of said light guide, said pattern being structured and arranged in accordance with distance from said at least one light source.

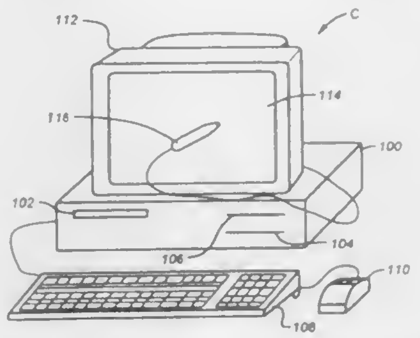
5,736,687
DIGITIZER UTILIZING HEAT SOURCE DETECTION TO RECEIVE INPUT INFORMATION

Charles A. Sellers, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Aug. 21, 1996, Ser. No. 700,802

Int. Cl.^{6} G08C *21/00*; G09G *3/02*

U.S. Cl. 178—18 **28 Claims**



1. A heat sensing digitizer input system for receiving input information from a user through detection of a heat source, comprising:

an input area;

a first heat sensor located at a first position fixed relative to said input area, said first heat sensor providing a signal representing a first intensity received from the heat source;

a second heat sensor located at a second position fixed relative to said input area, said second heat sensor providing a signal representing a second intensity received from the heat source; and

detection electronics coupled to said first heat sensor and said second heat sensor and receiving the first signal and the second signal for providing data representing the location of the heat source relative to the input area.

5,736,688

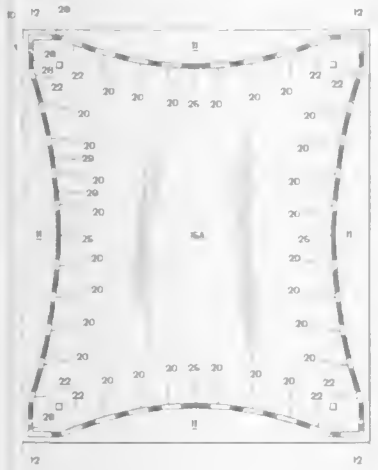
CURVILINEAR LINEARIZATION DEVICE FOR TOUCH SYSTEMS

Gary L. Barrett, Austin, Tex., and Andrew L. Wolfe, Lawrenceville, N.J., assignors to The Graphics Technology Company, Inc., Austin, Tex.

Filed Aug. 2, 1995, Ser. No. 510,440

Int. Cl.^{6} G08C *21/00*

U.S. Cl. 178—20 **23 Claims**



1 An edge linearization device which comprises

a surface having a substantially uniform resistivity and defining a substantially rectangular area with four sides and four corners:

a plurality of first conductive segments on each side of said surface, wherein said first conductive segments are located on and electrically connected to said surface and wherein said first conductive segments follow a path that is inwardly disposed into the area of said surface from the sides:

a generally T-shaped conductive segment on each side of said surface, wherein said T-shaped segment is located substantially at the midpoint of each side, wherein said first conductive segments to the left of said T-shaped segment on each side are generally z-shaped, having a center, a top bar portion and a bottom bar portion, and said first conductive segments to the left of said T-shaped segment are located so that at least a portion of the top bar of each said first conductive segments overlaps at least a portion of the bottom bar of the adjacent one of said first conductive segments, and wherein said first conductive segments to the right of said T-shaped segment on each side are generally of an inverted z-shape and have a center, a top bar portion and a bottom bar portion, and said first conductive segments to the right of the T-shaped segment are located so that at least a portion of the top bar of each said first conductive segments, overlaps at least a portion of the bottom bar of the adjacent one of said first conductive segments;

a plurality of conductive corner connectors located on and electrically connected to said resistive surface, wherein said corner connectors form corners between adjoining sides; and

wherein the resistivity of said surface in the spaces between said corner connectors and said first conductive segments, and between said first conductive segments and said T-shaped segment defines resistances therebetween such that, when a voltage is applied across said surface, the voltage is substantially linear across an active area of said surface

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5,736,689

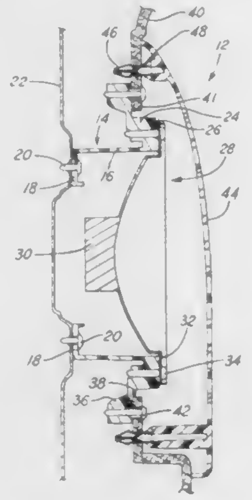
AUDIO SPEAKER MOUNTING SYSTEM WITH IMPROVED MOUNTING AND SOUND ISOLATION FEATURES

James E. Van Hout, 676 Briarvale Dr., Auburn Hills, Mich. 48326; Zdzislaw J. Skorupa, 2400 N. Fairview La., Rochester Hills, Mich. 48306; Paul C. Pellerito, 257 Stock Rd., Metamora, Mich. 48455; Frank R. Piatt, 5147 Buckingham Pl.; Thomas D. Mihelich, 2068 Harned, both of Troy, Mich. 48098, and Richard Kleinhoffer, 15805 Aspen, Macomb Twp., Mich. 48044

Continuation-in-part of Ser. No. 298,720, Aug. 31, 1994, abandoned. This application May 3, 1996, Ser. No. 646,741

Int. Cl.^{6} H05K *5/00*

U.S. Cl. 181—141 **16 Claims**



1 A system for mounting an audio speaker that comprises:

support means,

a bridge mounted on and extending from said support means, said bridge having an integral platform that surrounds an opening spaced from said support means

an audio speaker having a body received in said opening, and mounting means radially extending from said body and removably secured to said platform,

trim means overlying said support means and removably secured to said bridge radially outwardly of said speaker and independently of said speaker mounting means such that said trim means and said speaker are removable from said bridge independently of each other, and

a grill removably secured to said trim means overlying said speaker and said bridge.

5,736,690

MUFFLER WITH CATALYTIC CONVERTER

Egon Karlsson, Jonkoping, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

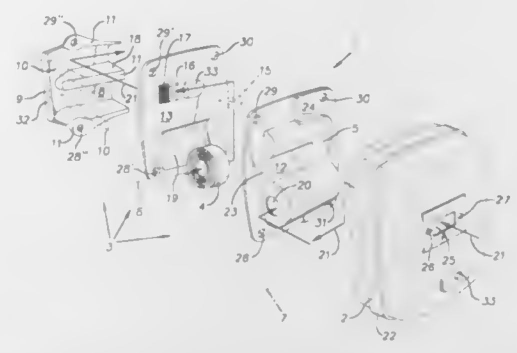
Filed Jan. 17, 1997, Ser. No. 785,035

Claims priority, application Sweden, Jul. 18, 1994, 9402506; Jan. 17, 1996, 9600204

Int. Cl.^{6} F01N *3/02*

U.S. Cl. 181—230 **15 Claims**

1 A muffler for an engine having a crankshaft, said muffler comprising a muffler housing (**2**), a lid (**3**) closing the muffler housing to form an sealed space within the housing, said lid having an inlet (**20**) in fluid-flow communication with the sealed space and an exit (**16**) in fluid flow communication with ambient, wherein said lid includes an exhaust gas pipe (**5**) communicating said inlet of said lid with said exit of said lid and located within the lid, and a catalytic converter element (**4**) within said lid and along said exhaust gas pipe, whereby exhaust gases are released from the housing via the lid (**3**) through the exhaust gas pipe and catalytic converter element



5,736,691

ACOUSTIC BARRIER FOR MOBILE MACHINERY

Stephen L. Batog, Coal Valley, and Robert T. Peterson, Gladstone, both of Ill., assignors to Case Corporation, Racine, Wis.

Filed Jul. 3, 1995, Ser. No. 498,034

Int. Cl.^{6} E04B *9/00,* **B62D** *25/20,* **G05G** *1/00*

U.S. Cl. 181—284 **10 Claims**

1. A sound-inhibiting barrier for a machine having plural control levers, the barrier including first and second blocks which are stationary with respect to one another and wherein:

each block includes a notch between plural tooth shaped projections;

one of the projections of the first block wedge-fits into the notch of the second block;

each of the blocks defines a separate, lever receiving clearance opening around each of a respective pair of control levers, and

the blocks are made of foam acoustic material for sound attenuation.

5,736,692

REMOTE CONTROLLER LINKAGE TO AN ELEVATOR SYSTEM

Jorma Lumme, Rixenart, Belgium; Asko Juntunen, and Matti Kujala, both of Hyvinkää , Finland, assignors to Kone Oy, Helsinki, Finland

Division of Ser. No. 412,850, Mar. 29, 1995, Pat. No. 5,554,832, which is a continuation of Ser. No. 171,440, Dec. 22, 1993, abandoned. This application Apr. 29, 1996, Ser. No. 639,796

Claims priority, application Finland, Dec. 22, 1992, 925843

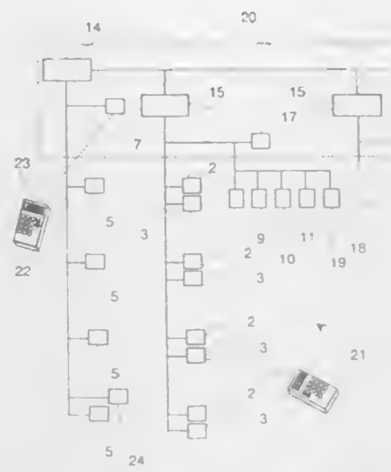
Int. Cl.^{6} B66B *1/28*

U.S. Cl. 187—247 **22 Claims**

1. An elevator system responsive to remote control operations comprising:

a data transmission network including at least one serial communication bus:

a plurality of function control units, connected to said serial communication bus, for locally performing distinct elevator functions; and



at least one receiver means for receiving remote messages originating from a remote controller and transmitting through said at least one serial communication bus a control message including at least one first control command and the bus address of the receiver means which transmitted the control message;

a controller connected to said at least one communication bus for receiving control messages from said receiver means and determining whether action requested by a received control message must be performed by said controller, and if so, then issuing a second control command;

at least one of said function control units receiving the control messages and, if the action requested by the control message is relevant to the function of a particular function control unit, then the particular function control unit directly performs the requested action

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5,736,693

ELEVATOR DOOR DRIVE USING DUAL SECONDARY LINEAR INDUCTION MOTOR

Zhigniew Piech, East Hampton; Jerome F. Jaminet, South Windsor; Thomas M. Kowalczyk, Farmington, all of Conn.; Edward E. Ahigian, Arlington Heights, Ill.; Richard E. Kulak, Bristol, Conn.; Thomas M. McHugh, Farmington, Conn.; Thomas He, Unionville, Conn.; Richard E. Peruggi, Glastonbury, Conn., and David W. Barrett, East Hartland, Conn., assignors to Otis Elevator Company, Farmington, Conn.

Filed Sep. 25, 1995, Ser. No. 533,595

Int. Cl.^{6} B66B *13/14*

U.S. Cl. 187—316 **3 Claims**

1 A linear induction motor for driving an elevator door of an elevator car, comprising

a double-sided primary having a plurality of slots and teeth on two sides thereof, for mounting on said car:

a plurality of coils wound in said slots for connection to each other in a selected electrical configuration, said double-sided primary having said coils energized by a source of power,

a two sided backiron part for mounting on said car opposite each of said two sides of said double-sided primary; and

a conductive sheet part having two legs for insertion in gaps on either side of said double sided primary between said two-sided backiron and said double-sided primary, wherein said dual sided conductive sheet is for mounting on said elevator door for moving therewith, said conductive sheet part having a first side and a second side, said first side being disposed opposite said backiron part, said second side being disposed opposite said primary, said conductive sheet part comprising a single material in cross-section

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5,736,694

METHOD FOR PROVIDING A PHONE ALARM CALL IN AN ELEVATOR SYSTEM

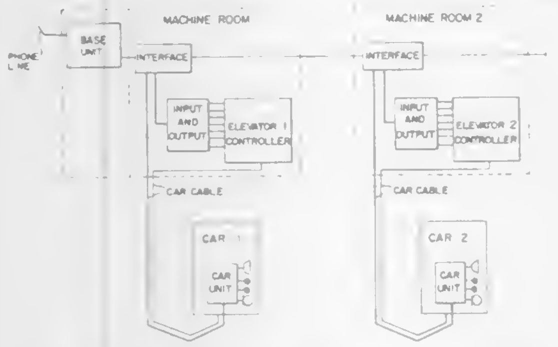
Seppo Ketoviita, Hyvinkää , Finland, assignor to Kone Oy, Helsinki, Finland

Continuation-in-part of Ser. No. 165,597, Dec. 13, 1993, Pat. No. 5,445,245. This application Aug. 16, 1995, Ser. No. 515,969

Claims priority, application Finland, Dec. 22, 1992, 925842

Int. Cl.^{6} B66B *1/34*

U.S. Cl. 187—391 **7 Claims**



7. In an elevator system in a building that includes a plurality of elevator cars or a base unit for controlling the plurality of elevator cars and a separate service center a method for providing an alarm phone call indicating an alarm or malfunction occurrence of the elevator system the method comprising the steps of:

providing for each elevator car or the base unit a phone alarm number for receiving a call;

providing for each elevator car or the base unit at least one reserve number stored in the service center;

calling in a predetermined way the phone alarm number in response to the alarm or malfunction occurrence; and

transferring the phone alarm call to the at least one reserve number by the service center if an audible connection is not made by using the phone alarm number.

5,736,695

DEVICE FOR DETECTING POSITION

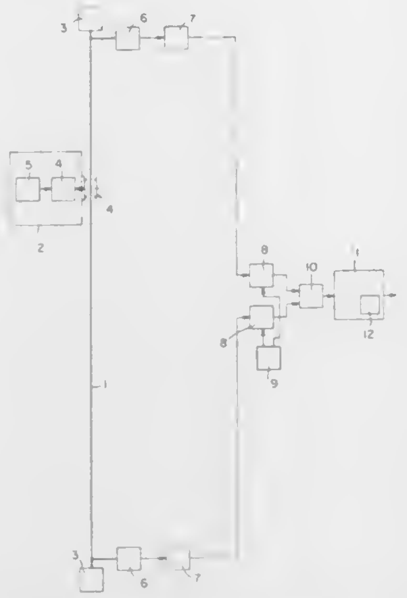
Hermann Hoepken, Sprockhovel, Germany, assignor to K.A. Schmersal GmbH & Co., Wuppertal, Germany

Filed Jul. 26, 1995, Ser. No. 507,574

Claims priority, application Germany, Jul. 28, 1994, 44 26 793.2

Int. Cl.^{6} B66B *1/34*

U.S. Cl. 187—394 **20 Claims**



1. Apparatus for providing an indication of the instantaneous position of an object which is caused to move along a prescribed path, the path having a pair of displaced opposite ends, said apparatus comprising:

an acoustic signal conductor extending along said path, said acoustic signal conductor being characterized by the velocity of propagation of sound therein being uniform and constant under normal operating conditions;

first transducer means associated with said acoustic signal conductor for generating an electrical signal in response to the sensing of an acoustic signal propagated along said conductor, said first transducer means being located in proximity to a first end of said path;

second transducer means associated with said acoustic signal conductor for generating an electrical signal in response to the sensing of an acoustic signal propagated along said conductor, said second transducer means being located in proximity to the second end of said path;

means for generating clock pulses at a first preselected frequency;

means mounted on the object for periodically generating acoustic signals and coupling said signals into said conductor, said acoustic signal generating means including an electrical signal generator for generating electrical signals, said acoustic signal generating means operating independently of said transducer means and said clock pulse generating means, the interval between consecutive of said generated acoustic signals being greater than the propagation time of an acoustic signal from one end of said path to the other, said acoustic signals being propagated simultaneously towards both ends of said path from the object whereby said acoustic signals will be received at said first and second transducer means;

first counter means responsive to said clock pulses and to said electrical signals generated by said first transducer means, said first counter means operating independently of said electrical signals generated by said electrical signal generator, counting said clock pulses and providing an output commensurate with the count stored therein;

said counter means responsive to said clock pulses and to said electrical signals generated by said second transducer means, said second counter means operating independently of said electrical signals generated by said electrical signal generator, counting said clock pulses and providing an output commensurate with the count stored therein;

subtraction means connected to said counter means and receiving said outputs provided thereby, said subtraction circuit means providing an output signal having a value which is commensurate with the difference in the time of receipt by said transducer means of an acoustic signal propagated along said conductor from the object; and

means responsive to the magnitude and sign of the output signal provided by said subtraction circuit means for providing an indication of the instantaneous position of the object along said path.

5,736,696

COMBINED AUTOMOTIVE LIGHT SWITCH

Vittorio Del Rosso, Wollstein, Germany, assignor to Eaton Corporation, Cleveland, Ohio

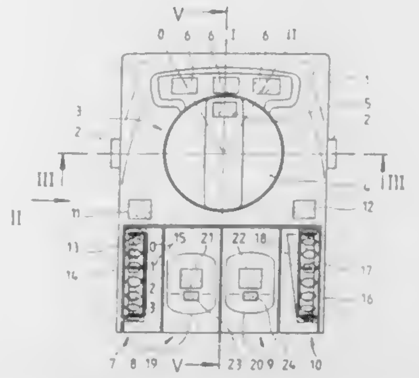
PCT No. PCT/DE94/00640, § 371 Date May 9, 1996, § 102(e) Date May 9, 1996, PCT Pub. No. WO94/29890, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 6, 1994, Ser. No. 491,961

Claims priority, application Germany, Jun. 12, 1993, 43 19 543.1

Int. Cl.^{6} H01H *9/26*

U.S. Cl. 200—5 R **18 Claims**



1. An automotive light switch assembly with a rotary/pull switch (3) accommodated in a casing (1), for the parking lights, headlights and the interior lighting, characterized in that the casing (1) accommodates additionally a rotary actuated control switch (7) for the illuminated distance, a push actuated on/off switch (8) for the fog light, a push actuated on/off switch (9) for the fog taillight, and a rotary actuated control switch (10) for the dashboard illumination; wherein the rotary actuated switches are each rotatable about an axis at generally right angles to the axis of rotation of said rotary/pull switch.

5,736,697

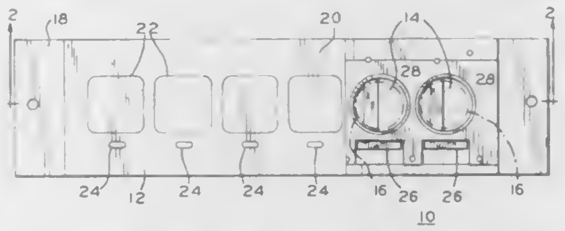
MECHANICALLY ACTUATED INDICATOR FOR A PUSHBUTTON SWITCH

Kennett R. Fuller; Lyle J. Bush, both of Morrison, and Sean A. Hicks, Lyndon, all of Ill., assignors to General Electric Company, Fort Wayne, Ind.

Continuation of Ser. No. 382,271, Feb. 1, 1995, abandoned. This application Nov. 12, 1996, Ser. No. 748,072

Int. Cl.^{6} H01H *9/16*

U.S. Cl. 200—5 R **14 Claims**



1. A mechanical indicator for indicating the status of a pushbutton switch, the pushbutton switch having a switching mechanism, a pushbutton and a shaft extending from said pushbutton to said mechanism, the indicator comprising:

a housing attachable to said switch and having a cavity portion thereof encompassing at least a portion of said pushbutton and said shaft, said pushbutton being actuatable from one side of said housing and said shaft extending from said pushbutton out of said cavity portion and into said switch;

a lever arm having first and second ends and extending across said cavity portion of said housing, said first end being attached to said housing at a first side thereof;

a pivotable member coupled to a second side of said housing opposite said first side, said pivotable member engaging said second end of said lever arm whereby flexure of said second end of said lever arm affects pivotable movement of said pivotable member between first and second positions;

means on said shaft for engaging said lever arm for affecting flexure thereof in response to actuation of said pushbutton switch; and

a view port in said housing aligned with said pivotable member such that said pivotable member is visible in said view port when said pivotable member is in one of said first and second positions.

5,736,698

SWITCH FOR CONTROLLING ELECTRICAL EQUIPMENT

Harri Mattlar, Vasa, and Matti Pussinen, Laihia, both of Finland, assignors to ABB Control OY, Vaasa, Finland

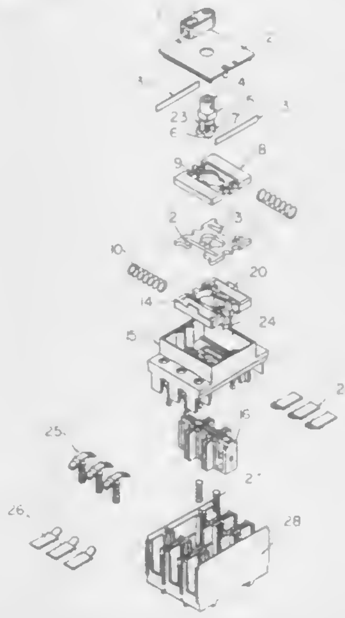
PCT No. PCT/FI94/00328, § 371 Date Feb. 13, 1996, § 102(e) Date Feb. 13, 1996, PCT Pub. No. WO95/05673, PCT Pub. Date Feb. 23, 1995

PCT Filed Jul. 20, 1994, Ser. No. 596,169

Claims priority, application Finland, Aug. 13, 1993, 933597

Int. Cl.^{6} H01H *21/84*

U.S. Cl. 200—16 R **5 Claims**



1. A switch device for the control of electrical equipment, said device comprising:

a housing provided with stationary contacts for forming an electric contact,

a body piece attached to said housing,

a switch operating shaft operatively communicating with said body piece so as to be rotatable about its longitudinal axis, and

moving contacts adapted to make a physical contact with the stationary contacts for forming an electric contact, wherein

at least one slide member operatively communicates with said body piece said slide member being linearly movable relative to said body piece so that the moving contacts make electric contact with the stationary contacts by virtue of the movement of said slide member,

at least one power-spring-arming plate operatively communicating with said body piece is transferrable by the rotation of the switch operating shaft in a parallel direction with said slide member, and

at least one spring-type member connecting the power-spring-arming plate to said slide member transmits the movement of said power-spring-arming plate

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5,736,699

ELECRO-MECHANICAL PROGRAMMER/TIMER

Michael R. Furlan, Des Plaines; George D. Georgacakis, Stokie, and Norman A. Schutzkus, S. Elgin, all of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed May 3, 1996, Ser. No. 642,366

Int. Cl.^{6} H01H *43/10*

U.S. Cl. 200—38 R **8 Claims**

1 An electro-mechanical programmer/timer comprising:

(a) base or frame means having motor means thereon,

(b) program cam means mounted on said base means for rotary timed advancement through a program cycle.

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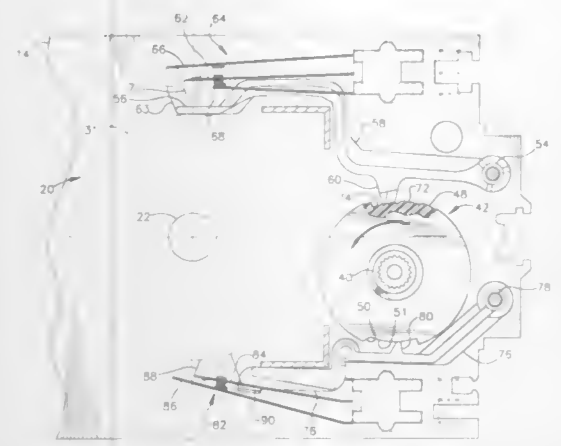


(c) advance means connected to said motor means and operative to effect timed advancement of said program cam means.

(d) sub-interval cam means connected to said motor means and operatively advanced through a full cycle in a sub-interval or fraction of the cycle interval of said program cam.

(e) a single pole double-throw switch having a first side contact blade thereof having a cam follower responsive to said program cam, a center contact blade and a second side contact blade having cam follower responsive to said program cam; and.

(f) a sub-interval cam follower contacting said sub-interval cam means and operative to move said center contact blade to a predetermined position for a predetermined sub-interval period.

5,736,700

VEHICLE KNOB SWITCH APPARATUS

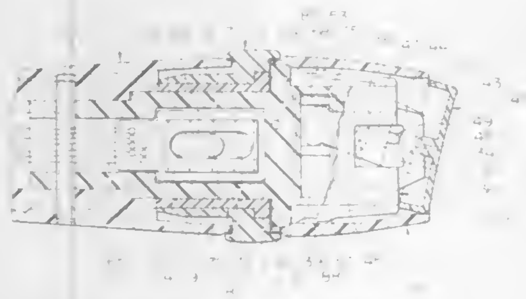
Atsuo Takahashi, and Takuya Maeda, both of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Feb. 14, 1997, Ser. No. 799,952

Claims priority, application Japan, Feb. 20, 1996, 8-032053

Int. Cl.^{6} H01H *3/16*

U.S. Cl. 200—61.54 **4 Claims**



1 A vehicle knob switch apparatus comprising:

an operating lever.

a cylindrical holder disposed at an end of said operating lever:

a plurality of changeover switch portions accommodated in an interior of said holder.

a first operating knob, mounted to said holder so as to be rotatable substantially coaxially with an axial line of said operating lever and not movable in an axial direction, for operating one of said plurality of changeover switch portions; and

a second operating knob, swingably mounted to an end of said holder, for operating an other one of said plurality of changeover switch portions.

5,736,701

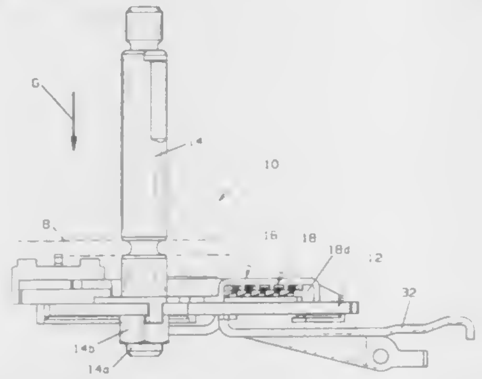
ELECTRICAL SWITCH APPARATUS RESPONSIVE TO GEAR SELECTION OF VEHICULAR TRANSMISSION AND METHOD OF ASSEMBLY THEREOF

Edward F. O'Brien, West Warwick; Gary A. Baker, North Scituate, both of R.I., and Carleton M. Cobb, III, East Walpole, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 16, 1996, Ser. No. 648,781

Int. Cl.^{6} H01H *9/06*

U.S. Cl. 200—61.88 **12 Claims**



1 An electrical switch system for use with a motor vehicle transmission having a detent lever with opposed first and second face surfaces and a plurality of detents on a peripheral edge thereof, said plurality of detents adapted to cooperate with and receive a roller of a transmission assembly of said motor vehicle transmission for indicating a specific transmission gear selection, the detent lever being mounted on and rotatable with a manual shaft pivotable about a longitudinal axis of the manual shaft, a plurality of movable electrically conductive contact elements mounted on said first face surface of the detent lever, a housing formed of electrically insulative material having a face surface overlying the first face surface of the detent lever, the housing having a circular bore with an axis to receive the manual shaft and a pair of aligning prongs projecting outwardly from the housing to receive the roller to maintain a selected angular orientation of the housing relative to a transmission housing, a plurality of elongated arc-shaped stationary electrically conductive contact segments mounted on the face surface of the housing the stationary contact segments extending a selected distance from the face surface of the housing and being separated from one another by respective arc-shaped ribs of electrically insulative material extending a distance from the face of the housing greater than the selected distance, each movable contact element movable into and out of engagement with a respective stationary contact segment upon a selected degree of rotation of the manual shaft.

5,736,702

PNEUMATIC SWITCH FOR PATIENT CALL SYSTEM HAVING MULTIPLE-POSITION HOUSING ASSEMBLY

George A. Roberts, Orlando, and Bert W. Wechtenheiser, Ponte Vedra Beach, both of Fla., assignors to Dwyer Precision, Inc., Jacksonville, Fla.

Filed Jun. 14, 1996, Ser. No. 663,623

Int. Cl.^{6} H01H *35/24*

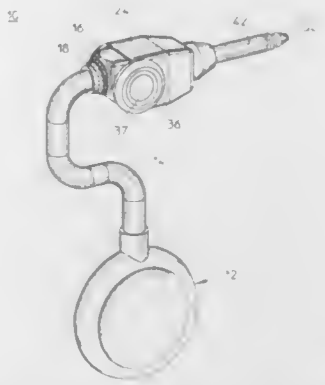
U.S. Cl. 200—81 H **14 Claims**

1 A pneumatically actuated switch for a patient call system, the switch including.

(a) means for generating and discharging a quantity of pressurized air;

(b) tubing having a first end connected to said means for generating and an opposite second end;

(c) a connector having a first end connected to the second end of said tubing and an opposite second end having a surface, said connector having an internal passage extending through said connector between said ends;



(d) a housing having a cavity formed in a first end for enclosing at least a portion of the second end of said connector and an opposite second end, the housing including a surface which is capable of interfitting with the surface of the second end of said connector, the surface of said housing including a recessed portion for forming a chamber communicating with the internal passage of said connector upon interfacing contact between the surfaces, the housing further including an internal opening having a first end communicating with the recessed portion and an opposite second end;

(e) means at least partially contained within said internal opening in said housing for creating a momentary electrical connection in response to said pressurized air; and

(f) means connecting said connector to said housing for maintaining the interfacing contact between the surfaces

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5,736,703

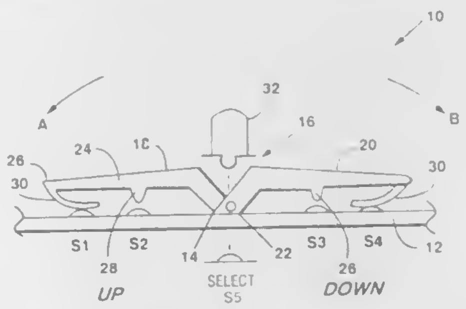
VARIABLE SPEED SELECT KEY AND METHOD

Seung K. Kim, Chapel Hill, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Sep. 24, 1996, Ser. No. 717,804

Int. Cl.^{6} H01H *9/00*

U.S. Cl. 200—1 B **21 Claims**



20 A method of operating a variable speed function select key including a rocking lever and a plurality of key switches selectively actuated in accordance with a position of the rocking lever, the method comprising:

(a) pivoting the rocking lever to one of a forward step position, a forward medium position, a forward fast position, a reverse step position, a reverse medium position and a reverse fast position;

(b) sensing the rocking lever position in accordance with the key switches; and

(c) scrolling a device function list at one of a step speed, a medium speed and a fast speed and one of a forward direction and reverse direction in accordance the rocking lever position sensed in step (b).

5,736,704

CIRCUIT-BREAKER WITH GROUNDED METAL ENCLOSURE

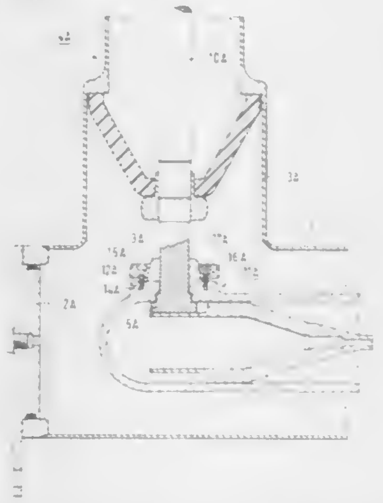
Luc Asselin, and Olivier Rouilhac, both of Lyons, France, assignors to GEC Alsthom T & D SA, Paris, France

Filed Jan. 31, 1997, Ser. No. 797,664

Claims priority, application France, Feb. 2, 1996, 96 01280

Int. Cl.^{6} H01H *33/70*

U.S. Cl. 218—68 **4 Claims**



1 A grounded metal enclosure circuit breaker comprising, for each pole, a metal enclosure having two insulative bushings, said enclosure and said bushings filled with insulative gas, said enclosure containing first and second metal supports and a set of fixed contacts and a set of mobile contacts respectively supported by said first and second metal supports, said bushings each comprising a metal conductor surrounded by an insulative covering, each of said first and second metal supports having fixed to it a metal part having an annular portion surmounted by a deformable conical portion, said metal part having an axial bore into which said bushing conductor is inserted, a ring having a conical interior surface complementary to that of said conical portion being screwed onto said annular portion

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5,736,705

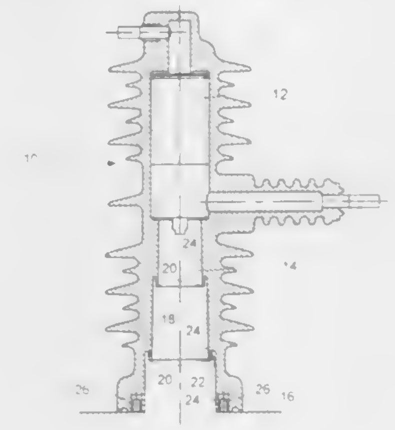
GRADING RING INSERT ASSEMBLY

E. Fred Bestel, West Allis, and Paul Newcomb Stoving, South Milwaukee, both of Wis., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Sep. 13, 1996, Ser. No. 713,865

Int. Cl.^{6} H01H *33/00*

U.S. Cl. 218—155 **15 Claims**



1 An encapsulation for an interrupter, comprising

a main body that includes an internal cavity:

said internal cavity including a space at a first end thereof for the interrupter:

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a second end of said main body including a surface for mounting said encapsulation;

an insert assembly embedded within said second end for facilitating mounting the encapsulation;

said insert assembly including a rigid connector and a plurality of fasteners fixed to said rigid connector.

5,736,706

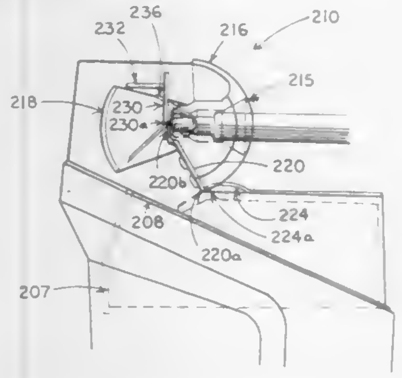
METHOD AND APPARATUS FOR ELECTRICALLY DESTROYING A SYRINGE NEEDLE

William F. Butler, Marietta, Ga., assignor to Q Care International, LLC, Marietta, Ga.

Filed Sep. 10, 1996, Ser. No. 707,923

Int. Cl.^{6} B23K *11/22*

U.S. Cl. 219—68 **20 Claims**



1. An apparatus for removing the needle portion of a syringe comprising:

a housing;

a needle carriage for receiving a needle in a loading position, said needle carriage being rotatably connected to the housing from the loading position to a cut-off position;

a first contact blade connected to the needle carriage; and

a second contact blade secured within the housing;

wherein said needle carriage and said contact blades are oriented such that when said needle carriage is rotated from the loading position to the cut-off position, the first and second contact blade each contact the needle.

5,736,707

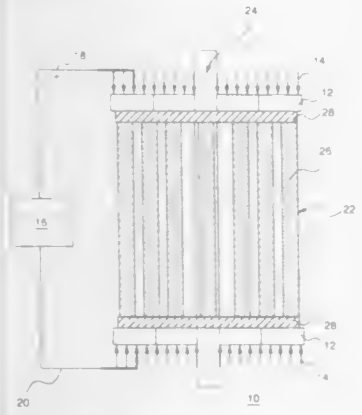
ELECTRIC RESISTANCE WELDING OF ELECTRIC MOTOR CAGE ROTOR ASSEMBLIES

Herman Arthur Nied, Ballston Lake, and Robert Elmer Sundell, Clifton Park, both of N.Y., assignors tn General Electric Company, Schenectady, N.Y.

Filed Apr. 17, 1996, Ser. No. 632,810

Int. Cl.^{6} B23K *11/00;* H02H *15/02*

U.S. Cl. 219—117.1 **6 Claims**



1. A method of electric resistance welding of an electric motor cage rotor assembly comprises the steps of:

providing a plurality of copper conductor bars and a pair of copper end rings,

machine toughening a first predetermined geometrical pattern on the ends of the copper conductor bars,

machine toughening a second predetermined pattern on a first surface of each end ring,

aligning the copper conductor bars in a cylindrical array and circumferentially spaced apart between the first surfaces of the copper end rings such that the first and second patterns are substantially contacting each other along their entire patterns,

applying high current, low voltage pulses to the copper end rings thereby heating simultaneously the bar and end ring interfaces to welding heat, and

applying rapidly an axial force to the end rings producing an upset weld between the bars and the rings.

5,736,708

PLASMA TORCH HEAD WITH NOZZLE PROVIDING AN IMPROVED CUT AND PLASMA TORCH INCLUDING THE SAME

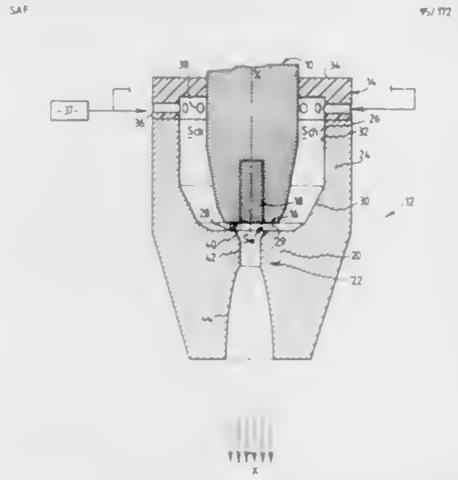
Michel Delzenne, Franconville, France, assignor to La Soudure Autogene Francaise, Paris Cedex, France

Filed Jun. 19, 1996, Ser. No. 665,987

Claims priority, application France, Jun. 23, 1995, 95 07608

Int. Cl.^{6} B23K *10/00*

U.S. Cl. 219—121.51 **11 Claims**



1. A plasma torch head, comprising an axial electrode with a flat end surface within a peripheral cup-shaped nozzle whose bottom comprises an axial conduit for ejection of a plasma jet and whose side wall surrounds the electrode and delimits with the latter a substantially annular supply space, and means for the supply of a plasmagenic gas in the annular supply space in a substantially axial direction, the end surface of the electrode delimiting with the bottom of the nozzle an annular lamination space for flow of the plasmagenic gas, wherein a cross sectional area (S_e) of the cylindrical section of the gas passage in the annular lamination space, measured at the inlet of the axial ejection conduit, is less than one third of a cross sectional area ($S_{e,h}$) of the section for passage of the gas in the annular supply space surrounding the electrode, measured at a widest part of the electrode within a widest part of the annular supply space.

5,736,709

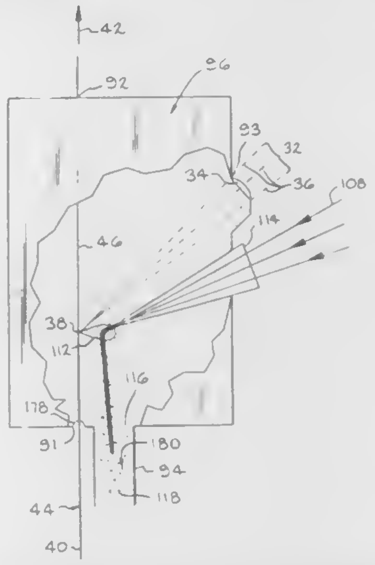
DESCALING METAL WITH A LASER HAVING A VERY SHORT PULSE WIDTH AND HIGH AVERAGE POWER

Gary L. Neiheisel, Cincinnati, Ohio, assignor to Armco Inc., Middletown, Ohio

Filed Aug. 12, 1996, Ser. No. 695,930

Int. Cl.^{6} B23K *26/12*

U.S. Cl. 219—121.61 **18 Claims**



1. An apparatus for removing oxide from a surface of metal strip, comprising: a laser for producing electromagnetic radiation having a very short pulse width, a very high pulse repetition rate and a very high average power, at least one optical element for focusing the radiation into an incident beam having a surface power density of at least about 5 MW/cm^2 at a point of contact with the metal strip and a sealed interaction chamber for removing oxide from the metal strip, the chamber containing a non-oxidizing gas and a slotted entry for receiving a traveling metal strip having a surface covered with an oxide, a slotted exit for passage of the metal strip having the oxide removed from the surface, at least one elongated window for receiving the radiation into the chamber whereby the radiation can be transversely completely passed across the oxide covered surface to remove the oxide by vaporization.

5,736,710

METHOD AND APPARATUS FOR SEALING PIEZOELECTRIC RESONATOR VIA LASER WELDING

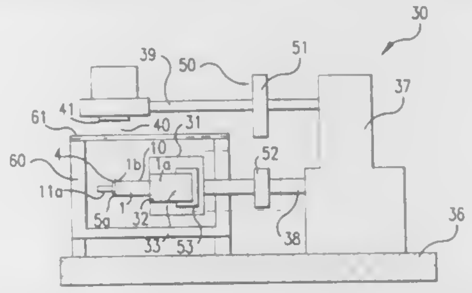
Tatsuo Ikeda; Eiji Karaki, and Takuo Kuwahara, all of Nagano-ken, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Feb. 1, 1996, Ser. No. 595,070

Claims priority, application Japan, Jul. 25, 1994, 6-172686; May 11, 1995, 7-112979

Int. Cl.^{6} B23K *26/02*

U.S. Cl. 219—121.63 **13 Claims**



7. A production apparatus of a piezoelectric resonator, the piezoelectric resonator including a hermetic terminal having an insertion unit and a flange extending from the insertion unit, the production apparatus comprising.

a chuck for holding the piezoelectric resonator, the hermetic terminal inserted in an open edge of a hollow case having a flattened cross section to house a piezoelectric vibrator, the flange extending from an insertion unit of the hermetic terminal, the flange and the open edge being nearly in contact;

a laser head to irradiate a laser beam to laser weld a welding area extending over the open edge and the flange;

a first driving mechanism for rotating the piezoelectric resonator relative to the laser head; and

a second driving mechanism positioned substantially in the chuck, the second driving mechanism linearly moving the piezoelectric resonator relative to the laser head, wherein the linear moving operation interlocks the rotation operation.

5,736,711

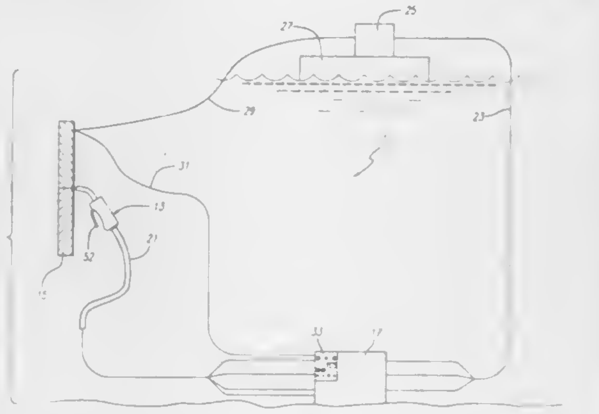
UNDERWATER ARC-WELDING APPARATUS

Thomas C. Joos, Ontario, and Taner Bayrak, Westminster, both of Calif., assignors to Broco, Inc., Rancho Cucamonga, Calif.

Filed Jan. 12, 1996, Ser. No. 587,242

Int. Cl.^{6} B23K *9/10*

U.S. Cl. 219—132 **15 Claims**



8. An underwater arc-welding apparatus, comprising.

a handheld welding torch assembly that delivers electrical power, a pressurized gas, and a consumable wire electrode to a workpiece, the torch assembly including a control switch that produces an ON/OFF signal;

a contactor that receives electrical power and delivers such electrical power to the torch assembly;

a gas solenoid that receives a pressurized gas and delivers such pressurized gas to the torch assembly;

a wire deliver device that delivers the consumable wire electrode to the torch assembly;

a first control circuit connected to the wire delivery device, for controlling the delivery rate of the consumable wire electrode, the first control circuit being responsive to the ON/OFF control signal and including a manually actuatable control device for selecting the desired wire delivery rate; and

a second control circuit connected to the contactor and configured to control the delivery of electrical power through the contactor to the torch assembly;

a third control circuit connected to the gas solenoid and configured to control the duration of the flow of pressurized gas through the gas solenoid to the torch assembly; and

a non-watertight housing having an interior space in which are located the wire delivery device and at least a portion of the first control circuit;

wherein the torch assembly delivers the electrical power, the pressurized gas, and the consumable wire electrode to the workpiece to be welded;

wherein the housing is configured to allow the entry of water into its interior space when the apparatus is submerged in water;

and wherein the contactor, the gas solenoid, the first control circuit, the second control circuit, the third control circuit, and

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at least a portion of the wire delivery device are each housed within the housing and are each sealed individually from water when the housing is submerged in water

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5,736,712

ARC WELDING TORCH

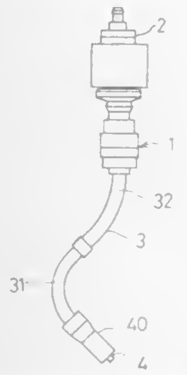
Hitoshi Matsui, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jun. 26, 1996, Ser. No. 672,031

Claims priority, application Japan, Jul. 20, 1995, 7-183850

Int. Cl.⁶ B23K *9/12*

U.S. Cl. 219—137.2 **2 Claims**



1 An arc welding torch which is connected to a flexible wire guide conduit at one end, and provided with a current feed chip at the other end, and has a wire guide passage on the inside which welding wire penetrates, wherein:

said wire guide passage has a plurality of curves which are taken first in one direction and then in another direction along said passage, and curvature radius and curve angle of each of said curves are designed so that minimum torque T1 which is necessary for said welding wire to turn in said guide passage is greater than torque T2 which causes torsional yielding of said welding wire.

5,736,713

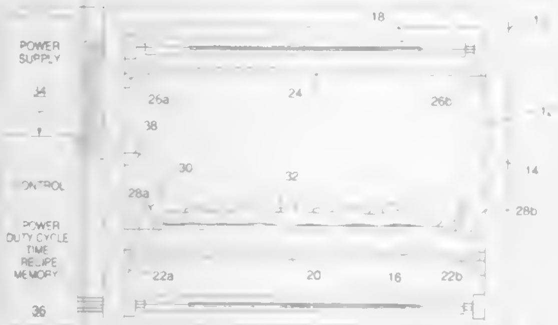
METHOD AND APPARATUS OF COOKING FOOD IN A LIGHTWAVE OVEN

Eugene Westerberg, Palo Alto, Calif., assignor to Quadlux, Inc., Fremont, Calif.

Division of Ser. No. 146,415, Nov. 1, 1993, Pat. No. 5,665,259, which is a continuation-in-part of Ser. No. 738,207, Jul. 30, 1991, abandoned, which is a continuation-in-part of Ser. No. 350,024, May 12, 1989, Pat. No. 5,036,179, and Ser. No. 769,340, Oct. 1, 1991, abandoned, which is a continuation of Ser. No. 664,494, Mar. 5, 1991, abandoned, which is a continuation of Ser. No. 195,967, May 19, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 476,885

Int. Cl.⁶ A21B *1/22,2/00,* H05B *3/68*

U.S. Cl. 219—411 **3 Claims**



1. The method of cooking food in a lightwave oven having a plurality of high power lamps providing radiant energy in the electromagnetic spectrum including a significant portion in the near-visible and visible ranges comprising the steps of:

irradiating the food by applying power to at least one of said lamps without vaporizing all the surface water on the food for avoiding browning in the surface thereby enabling deep penetration of the food by irradiation in the near-visible and visible ranges

sensing the generation of steam and then the reducation of steam below a pre-determined level,

then terminating irradiation of the food and

then applying reduced irradiation to the food.

5,736,714

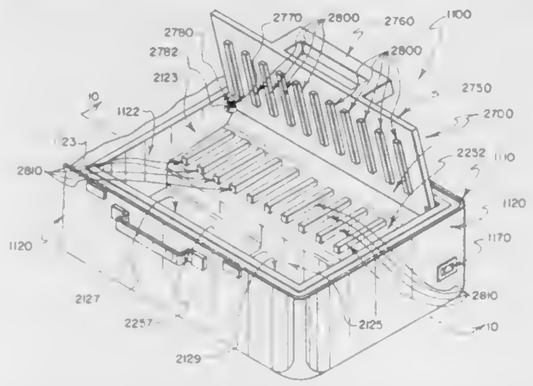
PORTABLE TOWEL HEATING APPLIANCE WITH ACCESSORIES

Joseph A. Bechtold, Jr., 3890 Salisbury Rd., South Euclid, Ohio 44121

Continuation-in-part of Ser. No. 981,067, Nov. 24, 1992, Pat. No. 5,397,875. This application Mar. 10, 1995, Ser. No. 402,185

Int. Cl.⁶ H05B *3/00;* B65D *69/00*

U.S. Cl. 219—521 **28 Claims**



1 A portable heating appliance having a housing that, when "closed," can be stored and transported with substantially the ease and convenience of a suitcase, and when "open" provides access to a plurality of compartments including plural heating compartments for heating substantially concurrently but in separate heating compartments a quantity of towels and a quantity of liquid such as body oil for use in concert with the administration of a massage, comprising:

a) housing means having at least two housing members including a base member and a lid member that are connected for movement relative to each other between "closed" and "open" positions, with the housing means functioning:

i) to define an array of compartments for cooperating when the housing members are "closed" 1) to receive and protectively enclose such components of the appliance as may be removed from the housing means during use of the appliance in concert with the administration of a massage, and 2) to house such supplies as are utilized in conjunction with use of appliance including a quantity of towels for being heated by the appliance, and at least one container enclosing a quantity of liquid such as body oil for being heated by the appliance; and,

ii) to define, when "open," exterior structure that can be supported atop a horizontal surface for supporting at least the base member to extend substantially horizontally, and

interior structure that defines within the interior of the housing means compartments that include 1) main heating compartment means for receiving and heating a plurality of towels, and 2) auxiliary heating compartment means for receiving at least one container enclosing a quantity of liquid such as body oil and for heating the quantity of liquid contained therein;

b) electrical heating means for being operated when the housing means is "open" to substantially concurrently heat 1) at least a plurality of towels that are contained within the main heating compartment means, and 2) a quantity of liquid that is contained within a container that is nested within the auxiliary heating compartment means, whereby liquid is heated so that it can be dispensed from the container substantially simultaneously with the provision of a supply of heated towels that can be withdrawn from the main heating compartment means for use in concert with the administration of a massage; and,

c) wringer means connected to the housing means for being transported within the housing means when the housing means is "closed," and for being operated substantially adjacent the main heating compartment means when the housing means is "open" to compress at least one moisture-laden towel that has been "wet" heated within the main heating compartment means to extract moisture therefrom, and for draining into the main heating compartment means moisture extracted from a towel that is compressed during operation of the wringer means.

5,736,715

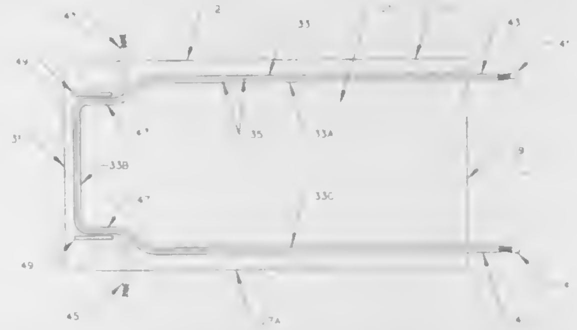
METHOD OF FORMING PRESSURE TESTABLE JOINT BETWEEN INSULATED PIPES USING SPLIT SLEEVE ARRANGEMENT

Thomas Joseph Keyes, Fort Worth, Tex., assignor to Thermacor Process, Inc., Ft. Worth, Tex.

Filed Mar. 19, 1996, Ser. No. 618,128

Int. Cl.⁶ H05B *3/58*

U.S. Cl. 219—535 **8 Claims**



1 A method of joining together first and second thermoplastic jackets of insulated piping, comprising the steps of:

a) providing a split thermoplastic sleeve that has first circumferential edge portion and a second circumferential edge portion, and also having first and second end portions that extend between the first and second circumferential edge portions with a welding rod arrangement extending along the first circumferential edge portion, the second end portion and the second circumferential edge portion, with the welding rod arrangement that is located along the first circumferential edge portion extending beyond the first end portion so as to form a first stub and with the welding rod arrangement that is located along the second circumferential edge portion extending beyond the first end portion so as to form a second stub, the welding rod arrangement comprising two side by side welding rods, with each of the welding rods comprising a solid core of thermoplastic material with a plurality of wires embedded in the core and located in close proximity to a surface of the core;

b) wrapping the split sleeve around the first and second jackets such that the first circumferential edge portion is located around the first jacket and the second circumferential edge portion is located around the second jacket and the first and second end portions are overlapping, with the welding rod arrangement that extends along the first circumferential edge portion being interposed between the first circumferential edge portion and the first jacket and with the welding rod arrangement that extends along the second circumferential edge portion being interposed between the second circumferential edge portion and the second jacket and with the welding rod arrangement that extends along the second end portion being interposed between the first and second end portions, and with the first stub being adjacent to a portion of the welding rod arrangement that extends along the first circumferential edge portion and that is located near the second end portion, locating a nonconductive thermoplastic core between the first stub and the welding rod arrangement that extends along the first circumferential edge portion and that is located near the second end portion, the second stub being adjacent to a portion of the welding rod arrangement that extends along the second circumferential edge portion and that is located near the second end portion, locating another nonconductive thermoplastic core between the second stub and the welding rod arrangement that extends along the second circumferential edge portion and that is located near the second end portion,

c) providing electrical current to the wires in the welding rods thereby heating the cores of the welding rods and welding the first circumferential edge portion to the first jacket, the second circumferential edge portion to the second jacket and the first end portion to the second end portion

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5,736,716

METHOD OF CONTROLLING THE OPERATION OF MICROWAVE OVEN HAVING A ROTARY, VERTICALLY RAISABLE FOOD TRAY

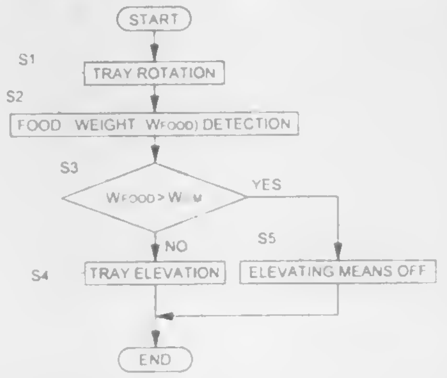
Kwang-Keun Kim, and Seok-Weon Hong, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Feb. 13, 1997, Ser. No. 800,032

Claims priority, application Rep. of Korea, Feb. 23, 1996, 96-4363

Int. Cl.⁶ H05B *6/68,6/78*

U.S. Cl. 219—708 **4 Claims**



1. A method of controlling the operation of a microwave oven utilizing a tray disposed in a cooking chamber, elevation means for elevating the tray, and rotation means for rotating the tray, the method comprising the steps of:

A) rotating said tray by actuating said rotation means when an operation initiating signal is received;

B) detecting the weight of food carried by said tray,

C) comparing the detected weight of the food with a predetermined elevation weight limit,

D) actuating said elevation means for elevating said tray to a predetermined height when the detected weight of the food is less than the elevation weight limit, and

E) keeping said elevation means deactuated when the detected weight of the food is greater than the elevation weight limit

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MICROWAVE OVEN WITH VAPOR SENSOR AND AUDIBLE COOKING STATE INDICATOR

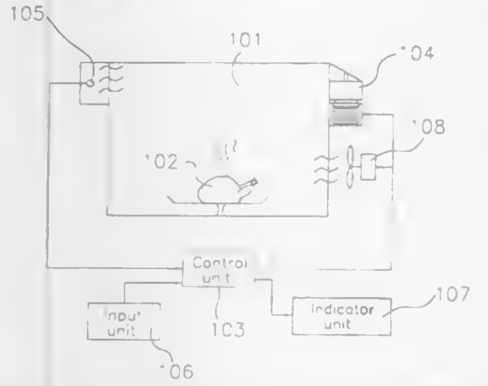
Seung Koo Lee, and Hyong Tack Lim, both of Seoul, Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Oct. 30, 1996, Ser. No. 739,601

Claims priority, application Rep. of Korea, Oct. 30, 1995, 1995-38247

Int. Cl.^{6} H05B *6/68*

U.S. Cl. 219—720 **12 Claims**



1. Microwave oven with a vapor sensor and an audible cooking state indicator, comprising:

a chamber for heating a substance therein:

oscillating means for generating microwave within said chamber

sensing means for sensing a level of vapor generated from the substance during the heating of the substance and successively outputting a plurality of voltage signals according to the level of vapor sensed;

controlling means for driving said oscillating means and successively outputting a plurality of control signals in accordance with the voltage signals input from said sensing means;

switching means connected to said controlling means and being switched by the plurality of control signals from said controlling means; and

a buzzer for continuously generating a plurality of sounds in accordance with the plurality of control signals input from said controlling means, wherein the plurality of sounds vary depending on frequencies of the voltage signals.

5,736,718

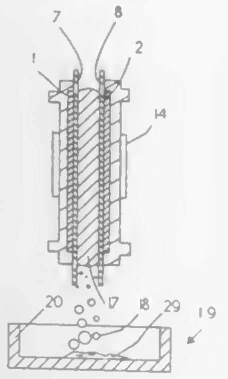
MICROWAVE OVEN, COOKING KIT AND METHODS FOR ITS USE

Melvin L. Levinson, 8 Stratford Cir., Edison, N.J. 08820-1830

Filed Apr. 17, 1995, Ser. No. 422,942

Int. Cl.^{6} H05B *6/80*

U.S. Cl. 219—729 **9 Claims**



1. A method to edge-heat and crust bread slices, in a microwave oven, that includes the steps of

placing, at least one, slice of bread between a first, microwave-reflective member that has a first, food-contacting surface to shield the full top of said bread slice in contact therewith and a second, microwave-reflective member that has a second food-contacting surface to shield the full bottom surface of said bread slice in contact therewith, and

exposing the assembly to microwave energy in said microwave oven for a predetermined time.

5,736,719

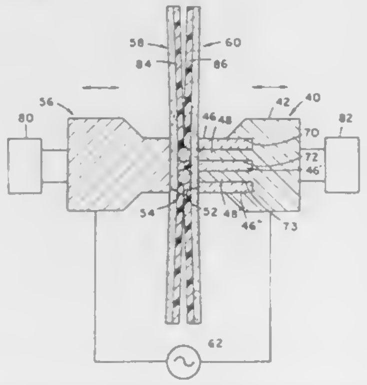
METHOD AND APPARATUS FOR HEAT SEALING OF PACKAGING MATERIALS EMPLOYING RF ELECTRIC ENERGY

Douglas K. Lawson, Chapel Hill, N.C., and Charles J. Kimmel, West Chester, Ohio, assignors to International Paper Company, Purchase, N.Y.

Filed Aug. 29, 1996, Ser. No. 705,185

Int. Cl.^{6} H05B *6/54;* **B23K** *13/00*

U.S. Cl. 219—769 **11 Claims**



1. Apparatus employing radio frequency electric energy for heat sealing overlying layers of a laminated packaging material that include respective contiguous layers of a heat sealable thermoplastic material disposed in facing relationship to one another, and at least one layer having a susceptibility to radio frequency electric energy sufficient to generate heat suitable to melt the thermoplastic material of the facing contiguous layers thereof comprising

first and second seal jaws receiving therebetween the overlying layers of laminated packaging material,

means for moving said first and second seal jaws toward and away from one another to selectively cause the working surfaces of the first and second seal jaws to engage the overlying layers of packaging material disposed therebetween and exert a preselected contact pressure against the overlying layers of packaging materials when the jaws are moved toward one another and release the pressure when the jaws are moved away from one another,

said first seal jaw including a plurality of alternating layers of electrically conductive and electrically nonconductive materials defining a plurality of respective faces which cooperatively define a working surface of said first seal jaw suitable for engaging one surface of the overlying layers of packaging materials intended to be heat sealed,

said electrically nonconductive layers being substantially incompressible at the contact pressure exerted by said seal jaws when moved toward one another,

said second seal jaw being electrically conductive and having a working surface defined thereon which is oriented in facing relationship to an opposite surface of the overlying layers of laminated packaging materials disposed between said first and second seal jaws,

a source of radio frequency electric energy,

said electrically conductive layers and said second seal jaw being connected in an electrical circuit with said source of radio frequency electric energy to apply radio frequency electric energy across said circuit and transmission of said electric energy through the layers of packaging materials disposed between each electrically conductive layer of said first seal jaw and said second seal jaw at an energy level sufficient to effect melting of that volume of thermoplastic material disposed between the face of each layer of electrically conductive material of the first seal jaw and the working surface of the second seal jaw and thereby reduce the resistance to the contact pressure afforded by the thermoplastic materials in the melted volume thereof and permit the applied pressure to be assumed by the volume of packaging material disposed between each of the faces of the electrically nonconductive layers and the working surface of the second seal jaw to effect limited additional movement of said seal jaws toward one another upon the melting of the thermoplastic material.

5,736,720

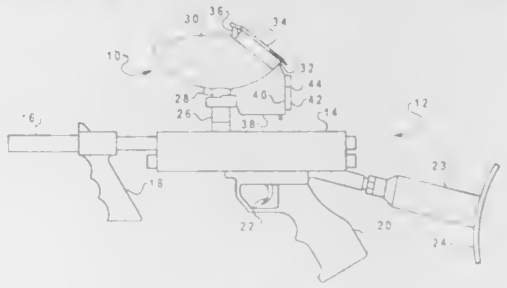
LOADER MOUNTED PAINTBALL GAME SCOREKEEPER AND AN ASSOCIATED PAINTBALL GAME PLAYING SYSTEM

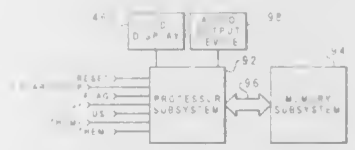
Roderick L. Bell, and David W. Bell, both of Mesquite, Tex., assignors to CM Support, Inc., Dallas, Tex.

Filed Aug. 29, 1996, Ser. No. 705,220

Int. Cl.^{6} H01H *9/00;45/00*

U.S. Cl. 235—1 B **22 Claims**





1 A paintball game playing system, comprising:

a paintball gun;

a bulk loader for holding a plurality of paintballs, said bulk loader operatively connected to said paintball gun, said paintball gun firing paintballs supplied thereto by said bulk loader; and

a paintball game scorekeeper mounted on said bulk loader, said paintball game scorekeeper maintaining information regarding an on-going game of paintball

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5,736,721

ARRANGEMENT FOR AND METHOD OF EXPEDITING COMMERICAL PRODUCT TRANSACTIONS AT A POINT-OF-SALE SITE

Jerome Swartz, Old Field, N.Y., assignor to Symbol Technologies, Inc., Holtsville, N.Y.

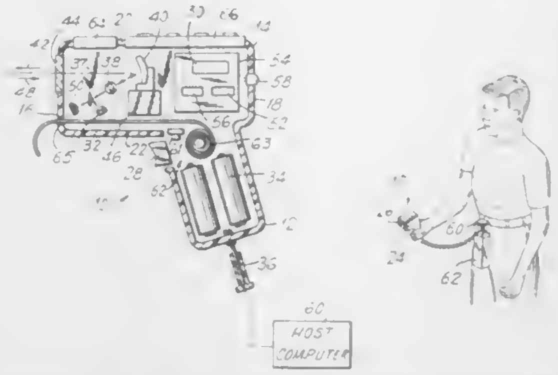
Division of Ser. No. 292,584, Aug. 18, 1994, Pat. No. 5,448,046, which is a continuation-in-part of Ser. No. 921,414, Jul. 27, 1992, abandoned, which is a continuation of Ser. No. 553,559, Jul. 16, 1990, abandoned, which is a continuation-in-part of Ser. No. 392,207, Aug. 10, 1989, abandoned, which is a continuation-in-part of Ser. No. 138,563, Dec. 28, 1987, Pat. No. 4,871,904. This application Jun. 1, 1995, Ser. No. 457,507

Int. Cl.^{6} G06K *7/10,15/00*

U.S. Cl. 235—383 **12 Claims**

1. A method of advising a customer of the prices of products offered at a self-service store prior to checkout, comprising the steps of:

a) storing product identity information and data including price attributes of each product in a common data base of a host computer;



b) situating a tag bearing coded indicia having parts of different light reflectivity adjacent to each of the products, each coded indicia representing the identity of a respective product,

c) providing the customer with a single portable trigger-actuated self-scanning electro-optical reader having an on-board trigger, and a printer unit both entirely supported by the customer;

d) electro-optically automatically and repetitively scanning and reading the coded indicia on the tag situated with a product visually selected by the customer by aiming the reader relative to, and at a distance away from, the coded indicia to position thereon a light beam emitted exteriorly of the reader, and by actuating the trigger to move said light beam relative to the reader across the coded indicia to automatically identify the product selected by the customer to the host computer;

e) automatically accessing the data base upon product identification to automatically retrieve the stored data corresponding to the price attributes of the product selected.

f) automatically printing upon data retrieval human-readable data representing the retrieved price data on a label with the unit; and

g) said accessing and printing steps being automatically performed on a real-time basis subsequent to said reading step while the reader and the unit are supported by the customer.

5,736,722

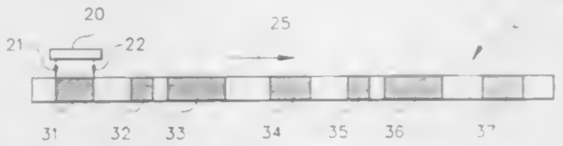
DUAL SENSOR DECODER

Frederick Rockwell Chamberlain, IV, Vista, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 8, 1996, Ser. No. 598,780

Int. Cl.^{6} G06K *7/08*

U.S. Cl. 235—449 **5 Claims**



1. An information system comprising:

a medium having an information pattern encoded as changes in two values of a medium characteristic, including start and end key patterns which have characteristic value changes spaced a fixed distance apart, and including intermediate characteristic value changes spaced apart distances which are greater or less than said fixed distance and spaced apart distances which are greater or less than said fixed distance and which with said key patterns encode information;

two sensors spaced from each other said fixed distance for sensing said medium characteristic value changes as said medium and said sensors are moved relatively to each other, in a direction of movement, said sensors being spaced apart in said direction of movement and for producing signals representative thereof, and

circuitry for processing said signals from said sensors to produce an information signal the start and end pattern signals delineating an information block.

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5,736,723

METHOD AND APPARATUS FOR IDENTIFYING THE ORIENTATION OF A DOT MATRIX CODE MARKING OF AN ARTICLE

Michael A. N. Clarke, and Christopher R. Booth, both of Derby, England, assignors to Rolls-Polce plc, London, England

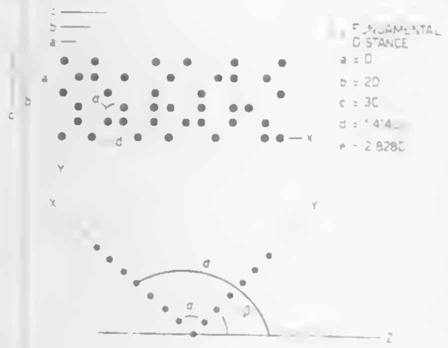
PCT No. PCT/GB95/00572, § 371 Date Nov. 3, 1995, § 102(e) Date Nov. 3, 1995, PCT Pub. No. WO95/26010, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 16, 1995, Ser. No. 545,704

Claims priority, application United Kingdom, Mar. 18, 1994, 9405337

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—456 16 Claims



1. The method of identifying the orientation of a dot matrix code marking of an article relative to a datum (Z), the dot matrix code marking having a plurality of rows and columns on which dots comprising the code marking are located, the method comprising:

(a) producing a digitized image of the dot matrix code,
(b) measuring the distances between each dot located in the digitised image, and every other dot located in the digitised image,
(c) determining the fundamental inter dot spacing wherein dots separated by the fundamental inter dot spacing are located in the same row or column,
(d) determining the angle between a line joining the dots in one of the rows and the datum (Z),
(e) determining the angle between a line joining the dots in one of the columns and the datum (Z),
(f) determining the orientation of the dot matrix code marking of the article from the said angles.

5,736,724

OBLIQUE ACCESS TO IMAGE DATA FOR READING DATAFORMS

Paul P. Ju, and Ynjiun P. Wang, both of Fort Myers, Fla., assignors to Metanetics Corporation, Fort Myers, Fla.

Continuation-in-part of Ser. No. 258,428, Jun. 10, 1994, abandoned. This application May 10, 1995, Ser. No. 438,889

Int. Cl.⁶ G06K *7/10*

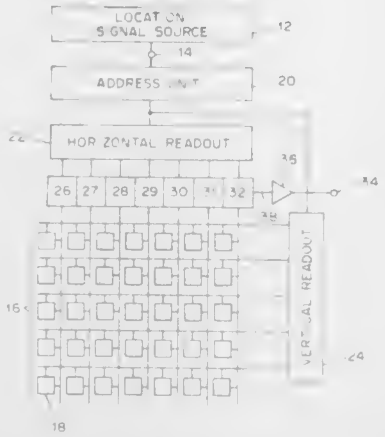
U.S. Cl. 235—462 26 Claims

1. An oblique access system, enabling access to dataform image data via an oblique line component of an image portion containing an image of said dataform, comprising:

a two-dimensional array of image sensor cells positioned in rows and columns and arranged to provide image data representative of an image area including said image portion containing said dataform image;

an address unit arranged to provide address signals effective to identify a stepped pixel pattern of sensor cells representative of said oblique line component, said oblique line component positioned obliquely to said rows and columns and said address signals usable to access image data originating from sensor cells comprising said pattern; and

a data access arrangement responsive to said address signals to select image data from sensor cells positioned in said stepped pixel pattern, said image data comprising signals thereby representative of said oblique line component of the image portion containing said dataform image.



5,736,725

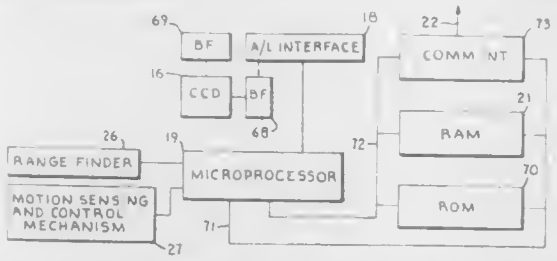
PORTABLE OPTICAL READER WITH MOTION SENSING SYSTEM AND METHOD

Arvin D. Danielson, Solon, Iowa, assignor to Norand Corporation, Cedar-Rapids, Iowa

Continuation of Ser. No. 311,483, Sep. 23, 1994, Pat. No. 5,534,684, which is a continuation-in-part of Ser. No. 303,333, Sep. 9, 1994, abandoned, which is a continuation-in-part of Ser. No. 298,257, Aug. 30, 1994, abandoned, and Ser. No. 300,178, Sep. 2, 1994, abandoned. This application Jul. 9, 1996, Ser. No. 677,155

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—462 5 Claims



5. A method for imaging optical indicia contained on a target surface, comprising the steps of:

a) determining an optimal focus location for an optical reader having a known depth of field and an optimal focus length,
b) determining the distance to the target surface;
c) determining whether the distance to the target surface is changing; and
d) permitting activation of the optical reader, to capture an image of the target surface, if it is determined that a target surface is moving away from the optimal focus location and that the target surface is within the optical reader's depth of field.

5,736,726

PORTABLE DATA COLLECTION DEVICE HAVING REMOVABLE HANDLE AND BATTERY

David B. VanHorn, Columbia Station, and Gary Kochis, Uniontown, both of Ohio, assignors to Telxon Corporation, Akron, Ohio

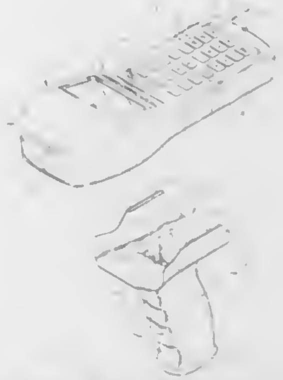
Filed Mar. 29, 1996, Ser. No. 623,886

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—472 10 Claims

1 A portable data collection device comprising:

a) a housing for encasing electronic circuitry of the device, the electronic circuitry including circuitry for reading a bar code dataform and power source selection circuitry for selecting between a plurality of power sources electrically coupled to the power source selection circuitry to supply power to the electronic circuitry, the housing supporting a dataform reading actuator, the actuator being selectively actuated to cause the circuitry for reading a bar code dataform to initiate a dataform reading operation;
b) a housing power source supported by the housing, the housing power source being electrically coupled to the power source selection circuitry and being selectable by the power source selection circuitry to supply power to the electronic circuitry;
c) a handle removably attached to the housing, said handle including a handle power source;
d) a trigger movably attached to said handle, said trigger selectively moved to a predetermined position with respect to the handle to cause the circuitry for reading a bar code dataform to initiate a dataform reading operation; and
e) the electronic circuitry including interfacing circuitry for electrically coupling the handle power source to the power source selection circuitry, the handle power source being selectable by the power source selection circuitry to supply power to the electronic circuitry, the electronic circuitry further including optical trigger detection circuitry for determining when said trigger is moved to the predetermined position with respect to the handle to cause the circuitry for reading a bar code dataform to initiate a dataform reading read operation.



5,736,727

IC COMMUNICATION CARD

Eiichi Nakata, 336-13 Miwa-chou, Machida-shi Tokyo, and Masahiro Hirayama, Koshahaimu 2-902, 1-2 Komatsugawa Edogawa-ku, both of Japan

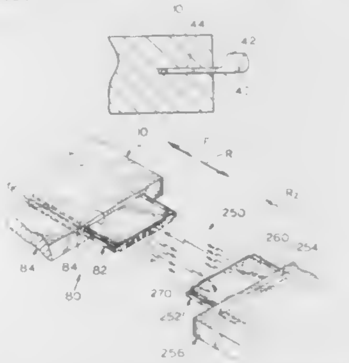
PCT No. PCT/US95/00215, § 371 Date Nov. 22, 1995, § 102(e) Date Nov. 22, 1995, PCT Pub. No. WO95/19015, PCT Pub. Date Jul. 13, 1995

PCT Filed Jan. 6, 1995, Ser. No. 553,340

Claims priority, application Japan, Jan. 11, 1994, 6-012247

Int. Cl.⁶ G06K *7/00;19/00;19/06*

U.S. Cl. 235—487 8 Claims



1. A combination of an electronic device which has walls forming a slot constructed to receive a first IC card constructed in accordance with JEIDA and PCMCIA standards wherein the first IC card has a card width of about 54 mm and a card thickness of about 5 mm, with said electronic device having a device connector at a front end of said slot, and an IC card having a front portion lying in said slot and having a rigid frame that is fixed in position and orientation on said slot walls and having a front connector mounted on said frame and mated with said device connector, characterized by:

said card has a rear portion which faces rearwardly out of said slot, and said card has a primarily rearwardly facing infrared transmitter supported in position and orientation on said frame

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5,736,728

NON CONTACT IC CARD AND A NON CONTACT IC CARD SYSTEM

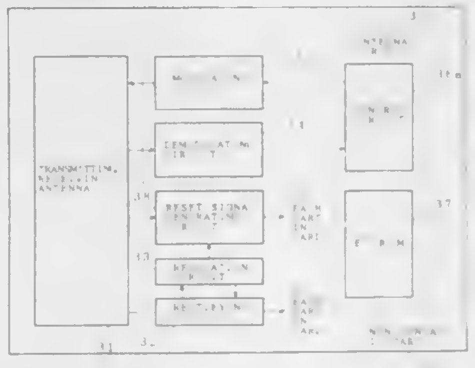
Toshiyuki Matsubara, Hyogo, Japan, assignor to Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

Filed Dec. 19, 1995, Ser. No. 575,044

Claims priority, application Japan, Aug. 25, 1995, 7-217189

Int. Cl.⁶ G06K *19/06;5/00*

U.S. Cl. 235—492 9 Claims


TRANSMITTING RECEIVING ANTENNA
RESET SIGNAL GENERATING CIRCUIT
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1 A non contact IC card comprising:

a rectifying circuit for rectifying a power signal received via wireless communication, the rectifying circuit outputting a power supply voltage;

internal circuitry operated by the power supply voltage, and

a reset signal generating circuit for resetting said internal circuitry during a period from a time when the power supply voltage begins to rise to a time when the power supply voltage reaches a predetermined operating voltage, and during a period when the power supply voltage begins to decrease below a minimum voltage of voltages which ensure a normal operation of said internal circuitry to a time when the power supply voltage reaches zero, and for releasing the reset during a period other than the period during which the reset is being effected.

5,736,729

DATA TRANSMISSION CARD AND HOLDING CASING

Tauno Seppänen, Solnantie 35 A, FIN-00330, Helsinki, Finland

PCT No. PCT/FI93/00496, § 371 Date Sep. 26, 1996, § 102(e) Date Sep. 26, 1996, PCT Pub. No. WO95/14980, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 24, 1993, Ser. No. 649,600

Int. Cl.⁶ G06K *19/067*

U.S. Cl. 235—492 5 Claims

1 A data transmission device configured for remote communication with a reading device, comprising.

(a) an identification card provided with identifying information about a user of said identification card; and
(b) a holding casing removably attached to said identification card, said holding casing including:

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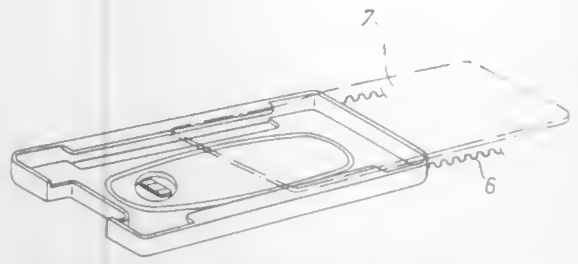


(i) recording means for storing recorded data; and

(ii) transmission and receiving means communicatively coupled with said recording means for remotely communicating the recorded data to the reading device.

5,736,730
DEVICE FOR RECEIVING ELECTROMAGNETIC SIGNALS WITH AN ENERGY CORRECTION MEANS

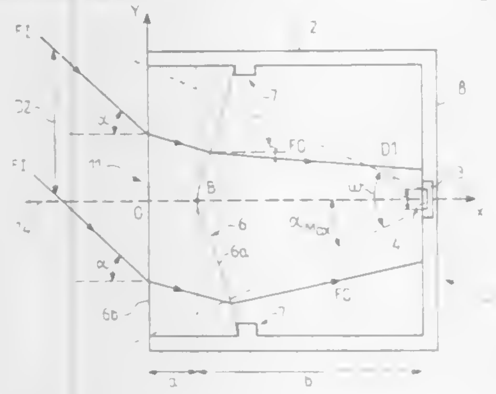
Pierre Nicole, Saint Cloud, France, assignor to Dassault Electronique, Saint Cloud Cedex, France

Filed Jan. 31, 1996, Ser. No. 595,004

Claims priority, application France, Feb. 9, 1995, 95 01510

Int. Cl.^{6} G01J *1/20*

U.S. Cl. 250—203.1 **8 Claims**



1. A device for receiving electromagnetic signals intended to detect an entry beam of electromagnetic signals of a known geometry arriving at a variable incident entry angle, the device comprising:

a detector having a sensitive detection area and a main detection axis serving as reference for the incident entry angle, the detector being a quadratic detector of the energy of an incident beam on a given sensitive detection area; and

means for transmitting to the detector, in a specified angular range, the incident beam which is derived from the entry beam, the means for transmitting comprising means for correcting the geometry of the entry beam chosen according to a correction formula, the correction formula depends on the incident entry angle of the entry beam, the means for correcting forms the incident beam and transmits it to the sensitive detection area so as to reduce energy deviations of the received energy of the incident beam, whereby the signal to noise ratio of the electromagnetic signal is substantially constant regardless of the incident entry angle.

5,736,731
PHOTOMULTIPLIER TUBE COMPRISING A SECOND DYNODE HAVING A SATURATED SECONDARY ELECTRON EMISSION RATIO

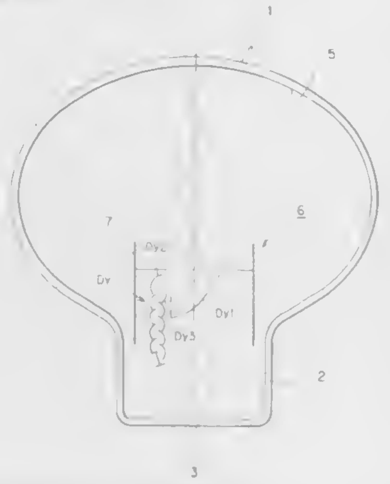
Hiroyuki Kyushima; Takayuki Omura; Kimitsugu Nakamura; Suenori Kimura; Yousuke Oohashi, and Masuo Ito, all of Hamamatsu, Japan, assignors to Hamamatsu Photonics K.K., Shizuoka-ken, Japan

Filed Jul. 19, 1996, Ser. No. 684,140

Claims priority, application Japan, Jul. 20, 1995, 7-184022

Int. Cl.^{6} H01J *43/18*

U.S. Cl. 250—207 **13 Claims**



1. A photomultiplier tube comprising:

a photocathode for emitting photoelectrons upon receiving incident light; and

an electron multiplication portion for multiplying photoelectrons supplied from the photocathode in a cascade manner, the electron multiplication portion including:

a first dynode for receiving photoelectrons supplied from the photocathode; and

a second dynode for receiving electrons supplied from the first dynode, the second dynode having a secondary electron emission ratio which is substantially saturated with respect to an electric voltage applied thereto.

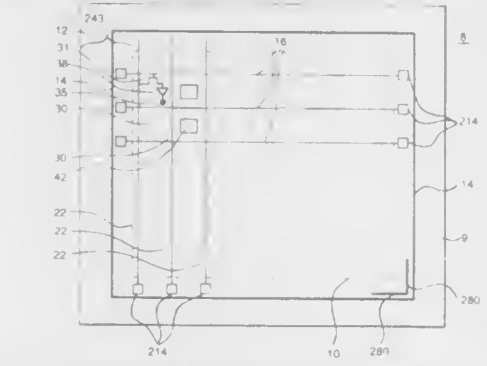
5,736,732
INDUCED CHARGE PREVENTION IN SEMICONDUCTOR IMAGING DEVICES

George Edward Possin, Niskayuna; Douglas Albagli, Clifton Park; Robert Forrest Kwasnick, Niskayuna, all of N.Y.; Rowland Frederick Saunders, Hartland, and Habib Vafi, Waukesha, both of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 23, 1996, Ser. No. 772,641

Int. Cl.^{6} H01J *40/14*

U.S. Cl. 250—208.1 **21 Claims**



1. An X-Y-addressed solid state radiation imager protected from static charge buildup during periods of operation and non-operation, said imager comprising:

a photosensor array comprising a plurality of address lines disposed in respective rows and columns, a plurality of radiation sensitive elements disposed in a matrix arrangement and coupled to respective ones of said address lines, a common electrode structure disposed over said address lines and said radiation sensitive elements so as to be electrically insulated from said address lines and coupled to said radiation sensitive elements;

a ground ring disposed around the periphery of said matrix arrangement of said radiation sensitive elements; and

a coupling circuit electrically coupled between said ground conductor and said common electrode so as to provide an electrical connection to selectively equilibrate voltage potential between said common electrode and said ground ring.

5,736,733
LIGHT SENSOR CIRCUIT HAVING A PLURALITY OF SWITCHES FOR SELECTIVE CONNECTION BETWEEN A DETECTOR AND AN OUTPUT TERMINAL IN ALL COMBINATIONS OF A PLURALITY OF DETECTORS AND A PLURALITY OF OUTPUT TERMINALS

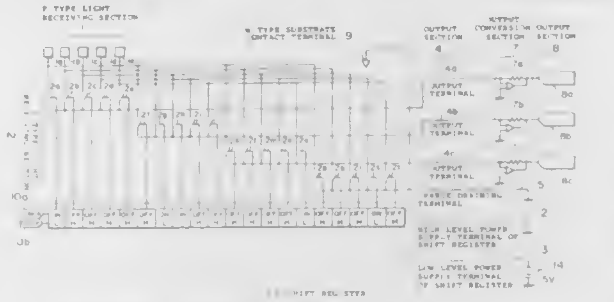
Toru Shima; Taiichiroh Fukuda, both of Kanagawa, and Toshikazu Yoneyama, Tsurugashima, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jun. 25, 1996, Ser. No. 670,003

Claims priority, application Japan, Sep. 25, 1995, 7-271844; Sep. 25, 1995, 7-271845; Feb. 14, 1996, 8-052410

Int. Cl.^{6} H01J *40/14*

U.S. Cl. 250—208.2 **16 Claims**


P TYPE LIGHT RECEIVING SECTION
N TYPE SUBSTRATE CONTACT TERMINAL 9
OUTPUT SECTION 4
OUTPUT CONVERSION SECTION 7
OUTPUT SECTION 8
OUTPUT TERMINAL
OUTPUT TERMINAL
OUTPUT TERMINAL
HIGH LEVEL POWER SUPPLY TERMINAL OF SHIFT REGISTER
LOW LEVEL POWER SUPPLY TERMINAL OF SHIFT REGISTER
SHIFT REGISTER
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1. A photosensor circuit comprising:

a plurality of light receiving elements for detecting incident light;

a plurality of output terminals for outputting photocurrents generated in said plurality of light receiving elements,

a plurality of switches for selecting connection between said light receiving element and said output terminal in all combinations of said plurality of light receiving elements and said plurality of output terminals; and

a shift register comprised of a plurality of nodes each controlling on/off of said plurality of switches.

5,736,734
LIQUID PLATEN FINGERPRINT IMAGE ENHANCEMENT

Daniel H. Marcus, New City; Hakan I. Pekcan, Brooklyn; William Chilcott, Ossining, and Arthur Schlang, Coram, all of N.Y., assignors to Fingermatrix, Inc., Dobbs Ferry, N.Y.

Filed Aug. 12, 1996, Ser. No. 696,009

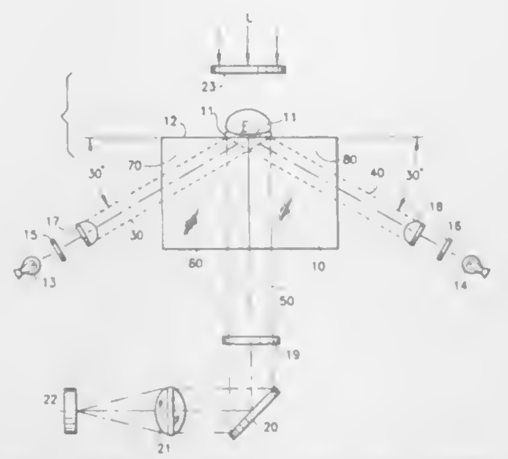
Int. Cl.^{6} G02F *1/01;* **G06K** *9/74;* **B42D** *15/00*

U.S. Cl. 250—225 **16 Claims**

1. An optical fingerprint imaging system comprising in combination:

a platen having a finger-touching surface to which a liquid layer may be applied;

means for providing two interrogating light beams, one on each side of and below the finger position on the platen and positioned to illuminate and provide a modulated light beam



from the ridges and valleys of the finger surface when immersed in the liquid layer and placed on the finger-touching surface of the platen;

the two interrogating light beams each being collimated and the projections of each beam into a horizontal plane assuming an angle of approximately forty-five degrees with the longitudinal axis of the finger when place on the finger-touching surface;

imaging means;

a mirror for reflecting the visible modulated light beam from the finger ridges and valleys to the imaging means, and,

a first polarizing filter positioned between the platen and the mirror to intercept the visible modulated light prior to reflection from the mirror

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5,736,735
OPTICAL SCANNING DEVICE AND FOREIGN MATTER INSPECTION APPARATUS

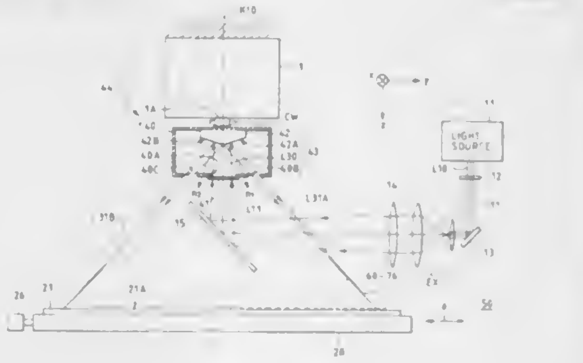
Tsuneyuki Hagiwara, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Sep. 18, 1996, Ser. No. 715,638

Claims priority, application Japan, Sep. 21, 1995, 7-267741; Nov. 10, 1995, 7-317130

Int. Cl.^{6} G02F *1/01*

U.S. Cl. 250—225 **15 Claims**



1. An optical scanning device comprising

light deflection means for deflecting a light beam emitted by a light source to be incident on an object to be irradiated,

polarization state adjusting means for adjusting a polarization state of the light beam, so that the light beam to be incident on the object to be irradiated has a predetermined polarization state with respect to the object to be irradiated; and

rotary driving means for rotating said light deflection means and said polarization state adjusting means together so that the light beam deflected by said light deflection means scans the object to be irradiated

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5,736,736
FLEXIBLE GUIDE ASSEMBLY FOR FACILITATING PLACEMENT OF AN ELONGATE PLASTIC INSERT WITHIN AN EXISTING PIPE

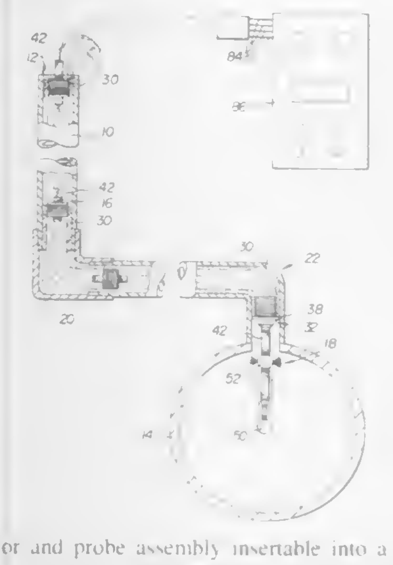
Dudley Trevor Dickson, Whitely Bay, and Mohammed Yunis Aziz, Newcastle upon Tyne, both of Great Britain, assignors to British Gas plc, England

Filed Apr. 21, 1995, Ser. No. 427,079

Claims priority, application United Kingdom, Feb. 23, 1995, 95 03678

Int. Cl.^{6} G01B *11/26*

U.S. Cl. 250—227.11 **17 Claims**



1. A sensor and probe assembly insertable into a pipeline for passage to a main pipe, said assembly comprising an elongate flexible member incorporating a source of light at a first end, light detector means for detecting the reflected light and detector circuit means for detecting when the assembly reaches the main pipe.

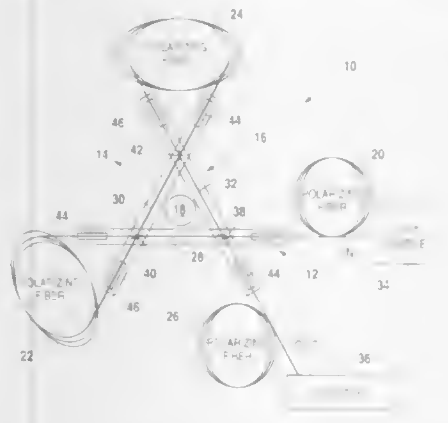
5,736,737
CONCATENATED MAGNETO-OPTIC FIELD SENSORS

Jay W. Dawson, and Trevor W. MacDougall, both of P.O. Box 33427, St. Paul, Minn. 55133-3427

Filed Nov. 22, 1995, Ser. No. 561,810

Int. Cl.^{6} H01J *5/16;* **G01J** *4/00*

U.S. Cl. 250—227.17 **20 Claims**



1. A device for sensing electrical current flowing through a conductor, the device comprising:
- a light source;
- a first Faraday effect sensing element having an input and an output;
- first means for coupling said light source to said input of said first sensing element
- a second Faraday effect sensing element having an input and an output;
- second means for coupling said output of said first sensing element to said input of said second sensing element, said second means comprising a polarizing fiber having first and second ends;
- an optical detector; and
- third means for coupling said output of said second sensing element to said optical detector.

5,736,738
APPARATUS FOR SECURING CCD BOARD AT A FIXED POSITION WITHIN A RANGE OF MOTION

Abdolreza Movaghar; Josephine del Rosario; Mark Diel, and David J. Schmeling, all of San Diego, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 22, 1996, Ser. No. 701,619

Int. Cl.^{6} A47G *29/02;* **E04G** *3/08,* **E06B** *7/28*

U.S. Cl. 250—239 **13 Claims**

1. Apparatus for securing an optical apparatus at a fixed relative location within a range of motion, comprising:
- a first housing member holding the optical apparatus;
- first bracket member fabricated of a UV transparent material;
- compliant apparatus for holding the first housing member and the first bracket member loosely together, while permitting relative motion between the first housing and the first bracket member through a range of motion,
- a curable bonding element applied between areas of the first housing member and the first bracket member for bonding the first housing member and the first bracket member together in a fixed position within the range of movement, the bonding element applied while in a liquid state to permit said relative motion, said bonding element including an adhesive which is cured to a solid state by exposure to ultraviolet light, wherein the first housing member and said first bracket member are fixed in said relative position

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5,736,739
RECIRCULATING FILTRATION SYSTEM FOR USE WITH A TRANSPORTABLE ION MOBILITY SPECTROMETER IN GAS CHROMATOGRAPHY APPLICATIONS

Robert E. Uber, Allison Park; Viktor Kouznetsov; Alexander Tarassov, both of Mars; Byron L. Carnahan, Pittsburgh, and Charles W. Pipich, Monroeville, all of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 628,147, Apr. 4, 1996. This application Oct. 8, 1996, Ser. No. 726,843

Int. Cl.^{6} H01J *49/40;49/04*

U.S. Cl. 250—287 **27 Claims**

1. A fluid filtration system for use with an ion mobility spectrometer in gas chromatography applications, comprising:

- A. a pump in communication with both an outlet and a carrier stream inlet of the ion mobility spectrometer for recirculating ion mobility spectrometer outlet fluid flow into the carrier stream inlet;
- B. at least one filter in communication with the pump for removing impurities from the recirculated flow; and
- C. an exhaust for removing a portion of the outlet fluid flow from the system, wherein the amount of fluid removed is equal to the amount of fluid entering a sample stream inlet of the ion mobility spectrometer.

5,736,740
METHOD AND DEVICE FOR TRANSPORT OF IONS IN GAS THROUGH A CAPILLARY

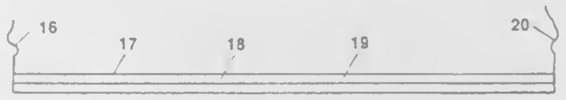
Jochen Franzen, Bremen, Germany, assignor to Bruker-Franzen Analytik GmbH, Bremen, Germany

Filed Mar. 29, 1996, Ser. No. 622,893

Claims priority, application Germany, Apr. 25, 1995, 195 15 271.9

Int. Cl.^{6} B01D *59/44;* **H01J** *49/00*

U.S. Cl. 250—288 **10 Claims**



6. Apparatus for the transport of ions by a flowing gas against a potential difference from a region of higher pressure into the vacuum system of a mass spectrometer, comprising:
- a capillary having a weakly conductive inner surface; and
- a voltage source applying a voltage potential between the two ends of the capillary

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5,736,741
IONIZATION CHAMBER AND MASS SPECTROMETRY SYSTEM CONTAINING AN EASILY REMOVABLE AND REPLACEABLE CAPILLARY

James L. Bertsch, Palo Alto, and Kent D. Henry, Newark, both of Calif., assignors to Hewlett Packard Company, Palo Alto, Calif.

Filed Jul. 30, 1996, Ser. No. 688,586

Int. Cl.^{6} H01J *49/04*

U.S. Cl. 250—288 **19 Claims**

1. A mass spectrometry system comprising
- (a) a housing;
- (b) at least one ionization region,
- (c) a capillary assembly, wherein the capillary assembly provides a means of communication between the ionization region and a lower pressure region,
- (d) a capillary receptacle;
- (e) means of sealing the capillary assembly within the capillary receptacle; and
- (f) means of supplying an electrical potential to the capillary,

wherein the capillary assembly is self-positioning and is sealing engaged within the capillary receptacle such that under tension an axial sliding or lateral movement is enabled which disconnects the means of supplying an electrical potential to the capillary assembly and removes the capillary assembly from the capillary receptacle without using tools.

5,736,742
OBJECTIVE LENS AND CHARGED PARTICLE BEAM SYSTEM

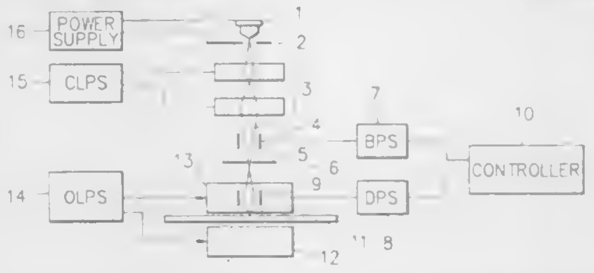
Yukinori Ochiai, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Oct. 3, 1996, Ser. No. 729,670

Claims priority, application Japan, Oct. 5, 1995, 7-258702

Int. Cl.^{6} H01J *37/20*

U.S. Cl. 250—396 R **8 Claims**



1. A lens assembly for use in a charged particle beam lithography system comprising an objective lens divided substantially perpendicularly to a beam direction into an upper part and a lower part; and a semiconductor wafer inserted between said upper and lower parts.

5,736,743
METHOD AND APPARATUS FOR ION BEAM FORMATION IN AN ION IMPLANTER

Victor M. Benveniste, Gloucester, Mass., assignor to Eaton Corporation, Cleveland, Ohio

Continuation of Ser. No. 545,135, Oct. 19, 1995, Pat. No. 5,554,857. This application Aug. 13, 1996, Ser. No. 696,122

Int. Cl.^{6} H01J *37/317; 49/30*

U.S. Cl. 250—492.21 **46 Claims**

1. A method for filtering particles from an ion beam, the method comprising the steps of
- a) moving the ion beam through a magnetic field region;
- b) energizing at least one dipole field generating coil to generate a dipole magnetic field in the magnetic field region,
- c) energizing at least one quadrupole field generating coil to generate a quadrupole magnetic field superimposed on the dipole magnetic field in the magnetic field region; and
- d) controlling the energization of the at least one dipole field generating coil and the at least one quadrupole field generating coil to filter particles from the ion beam as the ion beam moves through the magnetic field region

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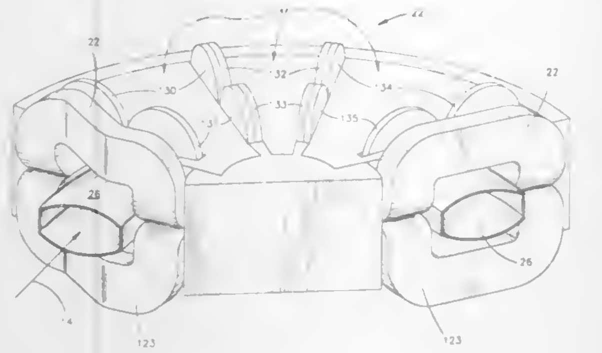


5,736,744

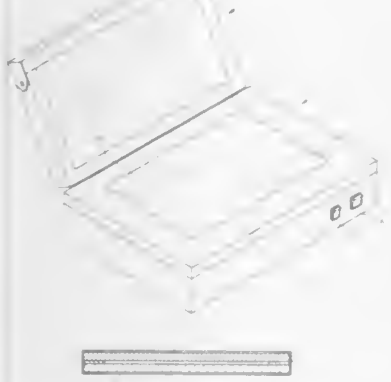
WAVELENGTH SHIFTING FILTER

James W. Johannsen, Burbank; Alexander Waluszko, Pasadena, and Ronald A. Meyer, San Dimas, all of Calif., assignors to UVP, Inc., Upland, Calif.

Filed Mar. 27, 1996, Ser. No. 622,209

Int. Cl.^{6} H05B *35/00*

U.S. Cl. 250—505.1 **9 Claims**



1. A wavelength shifting filter for use with UV radiation, comprising

a first sheet of material transparent to UV radiation;

a second sheet of material adjacent to the first sheet, the second sheet being white; and

a phosphor coating between the first sheet and the second sheet, the second sheet being transparent to a range of electromagnetic radiation, the phosphor coating radiating electromagnetic energy in at least the range to which the second sheet is transparent when the phosphor coating is radiated with the UV radiation.

5,736,745

CONTAMINATION EVALUATING APPARATUS

Makiko Nagashima, and Tadashi Nishioka, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Ryoden Semiconductor System Engineering Corporation, Hyogo, both of Japan

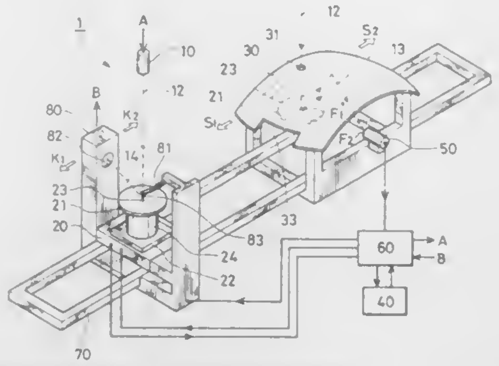
Filed Apr. 4, 1996, Ser. No. 627,655

Claims priority, application Japan, Jul. 6, 1995, 7-170909

Int. Cl.^{6} G01B *11/00*

U.S. Cl. 250—559.41 **12 Claims**

1. A contamination evaluating apparatus for detecting the number, locations and types of contaminants sticking to the surface of a sample, comprising



a guide extending in a horizontal direction;

a sample placement portion fixed to said guide and having said sample placed thereon;

a measurement portion attached slidably to said guide for measuring the number and locations of said contaminants by moving onto said sample placement portion; and

an analyzing portion attached slidably to said guide for analyzing the types of said contaminants by moving onto said sample placement portion.

5,736,746

RADIATION IMAGE READ-OUT APPARATUS

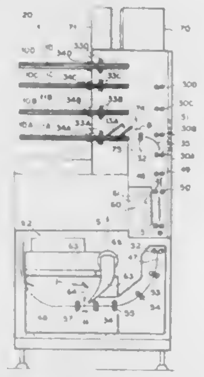
Takashi Furutoh, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co.,Ltd., Kanagwa, Japan

Filed Sep. 3, 1996, Ser. No. 711,324

Claims priority, application Japan, Aug. 31, 1995, 7-223329; Aug. 31, 1995, 7-223330; Sep. 13, 1995, 7-235137

Int. Cl.^{6} G03B *42/02*

U.S. Cl. 250—589 **3 Claims**



1. A radiation image read-out apparatus comprising:

a radiation image read-out section which reads out a radiation image stored on a stimulable phosphor sheet,

an erasing section which erases residual image information remaining on the stimulable phosphor sheet after read-out,

a cassette holding section in which a plurality of cassettes each containing therein a stimulable phosphor sheet are loaded, and

a sheet transfer means which takes out the stimulable phosphor sheet from an arbitrary one of the cassettes, transfers the stimulable phosphor sheet in a forward direction along a transfer path to the radiation image read-out section and the erasing section and always returns the stimulable phosphor sheet in a reverse direction along said transfer path to the same cassette from which the stimulable phosphor sheet was taken out.

5,736,747

ORGANIC COMPOUNDS SUITABLE AS REACTIVE DILUENTS, AND BINDER PRECURSOR COMPOSITIONS INCLUDING SAME

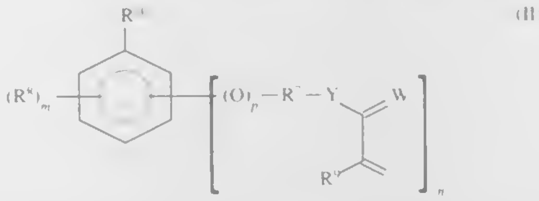
Ernest L. Thurber, Ramsey; Eric G. Larson, Washington; Alan R. Kirk, Washington, and Gregg D. Dahlke, Ramsey, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 334,817, Nov. 4, 1994, Pat. No. 5,523,152, which is a continuation-in-part of Ser. No. 143,824, Oct. 27, 1993, abandoned. This application Feb. 23, 1996, Ser. No. 606,512

Int. Cl.^{6} C07C *327/04;273/04*

U.S. Cl. 252—182.12 **28 Claims**

1. Organic compounds having at least one ethylenically-unsaturated group and being suitable for use as reactive diluents, said compounds being aromatic compounds of formula (II):



(II)

wherein:

R^7 is selected from the group consisting of $-C_xH_{2x}-$ and $-(C_yH_{2y})-O-(C_{y'}H_{2y'})$, wherein x is an integer ranging from 1 to 12 inclusive and y and y' are independently an integer ranging from 1 to 6 inclusive;

R^8 is an amino group;

R^9 is H;

R^{10} is selected from the group consisting of $-O-C(=O)-C(R^9)=CH_2$ and $-NR^{11}-C(=O)-C(R^9)=CH_2$;

R^{11} is selected from the group consisting of H, $-C_xH_{2x+1}-$ wherein x is an integer ranging from 1 to 12 inclusive, $-C(=O)-C(R^9)=CH_2$, and $-R^7-O-C(=O)-C(R^9)=CH_2$;

W is selected from the group consisting of O, S, NR^9; Y is selected from the group consisting of O, S, NR^{11};

m is an integer ranging from 0 to 2,

n is 1 or 2; and

p is 0 or 1, with the proviso that when p=0 and R^7 is $-CH_2-$, Y cannot be NR^{11}.

5,736,748

POLYOLS HAVING REDUCED TERMINAL UNSATURATION AND A PROCESS FOR PRODUCING SAME

Zenon Lysenko, and Ritchie A. Wessling, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 10, 1996, Ser. No. 677,749

Int. Cl.^{6} C09K *3/08*

U.S. Cl. 252—182.26 **15 Claims**

1. A composition comprising (a) a polyol of the formula:

$$I((CH_2-CH(R)-O)_n-H)_m$$

wherein I is an initiator remnant, R is hydrogen or alkyl, in each occurrence, n is an integer from 1 to 200;and m is an integer from 2 to 8 and (b) a polyol having an isoxazoline group.

5,736,749

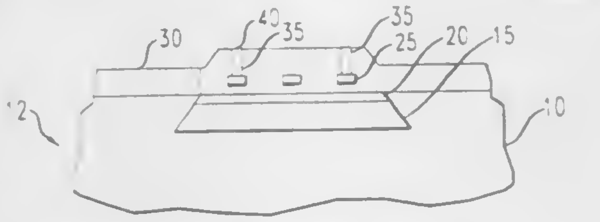
INTEGRATED CIRCUIT DEVICE WITH INDUCTOR INCORPORATED THEREIN

Ya-Hong Xie, Flemington, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 19, 1996, Ser. No. 751,472

Int. Cl.^{6} H01L *29/00*

U.S. Cl. 257—3 **5 Claims**



1. A semiconductor device comprising:

a silicon substrate;

a region of porous silicon formed in the substrate, wherein the region of porous silicon is essentially unoxidized; and

an inductor formed on the porous silicon region wherein the position of the inductor on the silicon substrate is within the boundaries of the region of porous silicon.

5,736,750

MIS SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE SAME

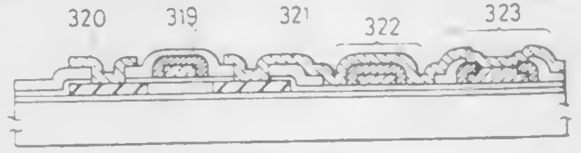
Shunpei Yamazaki, Tokyo, and Yasuhiko Takemura, Kanagawa, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, Japan

Continuation of Ser. No. 419,704, Apr. 11, 1995, abandoned, which is a division of Ser. No. 181,906, Jan. 18, 1994, Pat. No. 5,523,257. This application May 28, 1996, Ser. No. 654,052

Claims priority, application Japan, Jan. 18, 1993, 5-23286; Jan. 18, 1993, 5-23288

Int. Cl.^{6} H01L *27/02;29/04*

U.S. Cl. 257—59 **17 Claims**



1. A semiconductor device comprising:

a substrate having an insulating surface,

a first lead comprising an anodizable material formed over said insulating surface;

an anodic oxide film of said anodizable material formed on said first lead;

an interlayer insulator formed on said anodic oxide film, and

a second lead extending over said first lead with said anodic oxide film and said interlayer insulator interposed therebetween, said second lead electrically contacting with said first lead through a contact hole formed within said anodic oxide film and said interlayer insulator,

said contact hole having a diameter within said anodic oxide film and said interlayer insulator, wherein the diameter of said contact hold formed within said anodic oxide film is smaller than the diameter of said contact hole formed within said interlayer insulator and said contact hole has a stepped shape so that an upper surface of said anodic oxide film in said contact hole is in contact with said second lead

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5,736,751
FIELD EFFECT TRANSISTOR HAVING THICK SOURCE AND DRAIN REGIONS

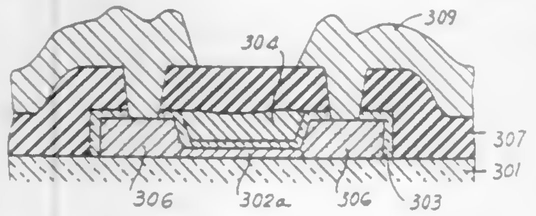
Toshihiko Mano; Toshimoto Kodaira, and Hiroyuki Oshima, all of Nagan-ken, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 320,729, Oct. 11, 1994, which is a continuation of Ser. No. 901,432, Jun. 19, 1992, abandoned, which is a continuation-in-part of Ser. No. 203,548, May 31, 1988, Pat. No. 5,124,768, which is a continuation of Ser. No. 862,151, May 12, 1986, abandoned, which is a continuation of Ser. No. 484,046, Apr. 11, 1983, abandoned. This application Mar. 30, 1995, Ser. No. 413,369

Claims priority, application Japan, Apr. 13, 1982, 57-61440; Apr. 19, 1982, 57-64892; Aug. 19, 1982, 57-143786

Int. Cl.^{6} H01L *29/76*

U.S. Cl. 257—66 **8 Claims**



1. A field effect transistor arranged over a substrate comprising:

a channel region disposed over the substrate, the channel region comprising a polycrystalline silicon layer having a thickness of less than 2500 Å;

a source region and a drain region spaced apart by the channel region;

a gate insulating film disposed on the channel region, the source region and the drain region;

a gate electrode disposed on the gate insulating film and opposing the channel region;

an interlayer disposed over the source region, the drain region and the gate electrode; and

a source electrode and a drain electrode connected to connecting portions of the source region and the drain region through contact holes formed in the gate insulating film and the interlayer, at least one of the connecting portions of the source region and the drain region having a thickness greater than a thickness of the channel region.

5,736,752
ACTIVE MATRIX ELECTROLUMINESCENT DISPLAY PIXEL ELEMENT HAVING A FIELD SHIELD MEANS BETWEEN THE PIXEL AND THE SWITCH

Fu-Lung Hseuh, Cranberry; Alfred Charles Ipri, Princeton, both of N.J.; Gary Mark Dolny, Newtown, Pa., and Roger Green Stewart, Hillsborough Township, N.J., assignors to David Sarnoff Research Center, Inc., Princeton, N.J.

Continuation of Ser. No. 295,374, Aug. 24, 1994, Pat. No. 5,587,329. This application Sep. 16, 1996, Ser. No. 710,271

Int. Cl.^{6} H01L *29/04*; **G02F** *1/1343*

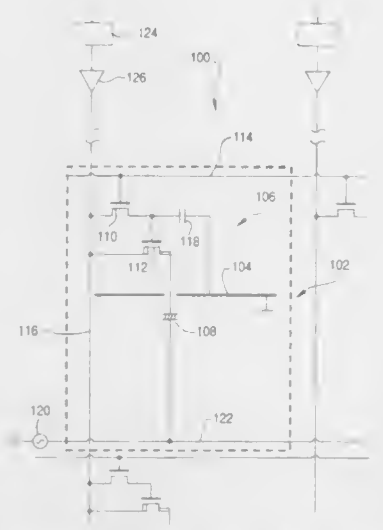
U.S. Cl. 257—72 **15 Claims**

1. In an electroluminescent display containing a plurality of pixel elements, each pixel element comprising:

a switching circuit for selectively activating an electroluminescent cell to produce electroluminescent light therefrom, said switching circuit further comprises:

a first transistor being selectable to activate said electroluminescent cell,

a second transistor, connected between said first transistor and said electroluminescent cell, for connecting high voltage to said electroluminescent cell in response to said first transistor being activated, said second transistor connected to said electroluminescent cell via a resistor; and



an electric field shield, located between said electroluminescent cell and said switching circuit, for isolating electric fields produced by said electroluminescent cell from said switching circuit.

5,736,753
SEMICONDUCTOR DEVICE FOR IMPROVED POWER CONVERSION HAVING A HEXAGONAL-SYSTEM SINGLE-CRYSTAL SILICON CARBIDE

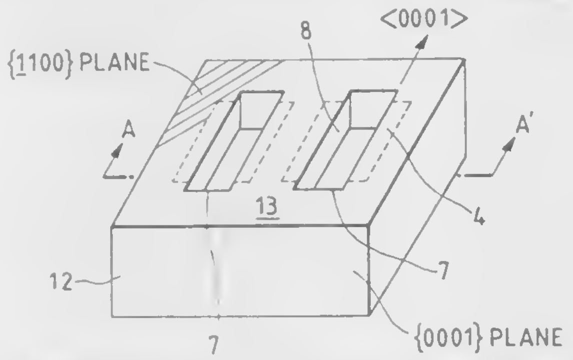
Toshiyuki Ohno, Hitachi; Yohsuke Inoue, Tokai-mura; Daisuke Kawase, Hitachi; Yuzo Kozono, Hitachioota; Takaya Suzuki, Hitachinaka, and Tsutomu Yatsuo, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 30, 1995, Ser. No. 521,548

Claims priority, application Japan, Sep. 12, 1994, 6-216930

Int. Cl.^{6} H01L *31/0312;29/74;29/861*

U.S. Cl. 257—77 **14 Claims**



1. A semiconductor device provided with current terminals on opposite surfaces of a flat hexagonal-system single-crystal silicon carbide, wherein a crystallographic <0001> direction of the single-crystal silicon carbide is parallel with a surface and a controlled current path is parallel with a crystallographic {0001} plane of the single-crystal silicon carbide.

5,736,754
FULL COLOR ORGANIC LIGHT EMITTING DIODE ARRAY

Song Q. Shi, Phoenix, and Franky So, Tempe, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

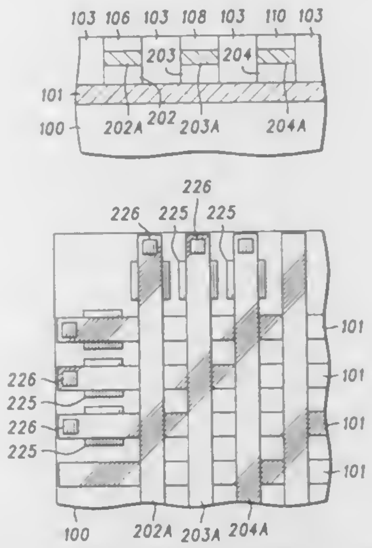
Filed Nov. 17, 1995, Ser. No. 560,457

Int. Cl.^{6} H01L *33/00*

U.S. Cl. 257—89 **17 Claims**

1. A full color organic light emitting diode array comprising:

a semiconductor substrate having a planar surface;



a plurality of laterally spaced, electrically conductive strips arranged in rows on the surface of the substrate with portions of the surface of the substrate exposed therebetween;

a layer of dielectric medium deposited over the conductive strips and the portions of the surface of the substrate;

a plurality of cavity structures defined by the dielectric medium and each cavity structure defining a sub-pixel, the pluralaty of cavity structures being positioned in rows in overlying relationship to the plurality of conductive strips with individual cavity structures positioned in overlying relationship to an associated conductive strip so as to expose a portion of the conductive strip;

three electroluminescent media, each including at least a layer of active emitter material and a layer of transparent conductive material, laterally and alternatively deposited in the cavity structures on the exposed associated conductive strip, with all cavity structures in each individual row containing only one kind of the three electroluminescent media, the transparent conductive material being connected to form a plurality of laterally spaced, parallel, metallic strips arranged in columns orthogonal to the conductive strips; and

a transparent dielectric material positioned in sealing engagement over the cavity structures.

5,736,755
VERTICAL PNP POWER DEVICE WITH DIFFERENT BALLASTIC RESISTANT VERTICAL PNP TRANSISTORS

John Rothgeb Fruth, Kokomo; John Kevin Kaszyca, Lafayette, and Mark Wendell Gose, Kokomo, all of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Continuation of Ser. No. 129,993, Sep. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,503, Nov. 9, 1992, abandoned. This application Sep. 8, 1995, Ser. No. 525,894

Int. Cl.^{6} H01L *27/082;27/102;29/70*

U.S. Cl. 257—166 **15 Claims**

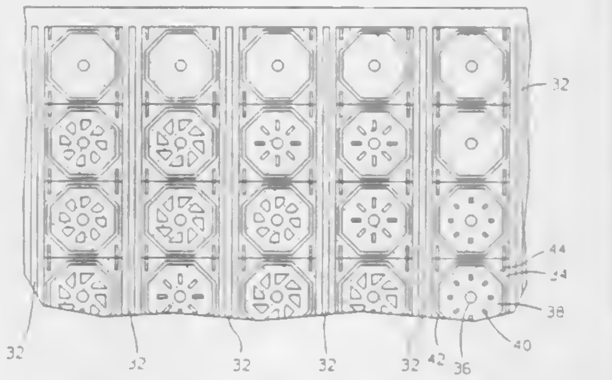
1. A PNP power device comprising a plurality of vertical PNP transistors, each of the plurality of vertical PNP transistors comprising:

a silicon material having a surface,

a collector region formed in the surface of the silicon material,

a base region formed in the surface of the silicon material such that at least a portion of the base region is laterally disposed adjacent a portion of the collector region,

an emitter diffusion in the base region such that a portion of the base region is laterally disposed between the collector region and the emitter diffusion at the surface of the silicon material, and such that a perimeter of the emitter diffusion forms a junction with the base region, the emitter diffusion having an



emitter contact located centrally therein so as to establish lateral on-current flow through the emitter diffusion between the emitter contact and the collector region, and

a plurality of holes formed in the emitter diffusion so as to be disposed in the surface of the silicon material between the emitter contact and the collector region, the plurality of holes being uniformly spaced apart in a radial pattern with respect to the emitter contact so that a resistive emitter diffusion section is defined between each pair of adjacent holes, the resistive emitter diffusion sections defining a radial pattern with respect to the emitter contact, the resistive emitter diffusion sections providing ballast resistance for the lateral on-current flow through the emitter diffusion between the emitter contact and the collector region such that the entire perimeter of the emitter diffusion is active as a source of current at the junction between the emitter diffusion and the base region,

wherein the plurality of holes of at least two of the plurality of vertical PNP transistors are of different size such that the PNP power device is characterized by at least a first vertical PNP transistor having a lesser ballast resistance than a second vertical PNP transistor.

5,736,756
SOLID-STATE IMAGE SENSING DEVICE WITH LGHT SHIELDING FILM

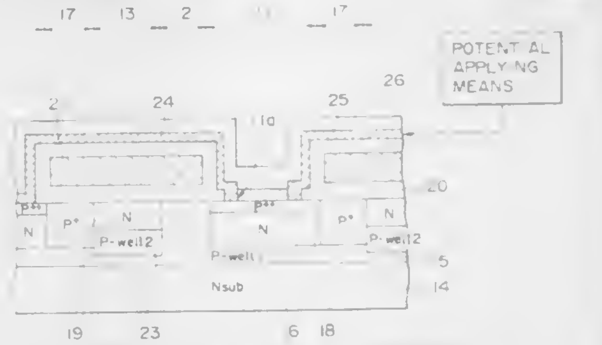
Toshiaki Wakayama, and Atsushi Asai, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 26, 1995, Ser. No. 534,248

Claims priority, application Japan, Sep. 29, 1994, 6-234816

Int. Cl.^{6} H01L *27/148,29/768,31/0232*

U.S. Cl. 257—223 **8 Claims**



1. A solid-state image sensing device comprising

a sensor region composed of a plurality of photosensor,

a charge transfer region for transferring a signal charge read out from said sensor region through a read-out gate region;

an isolation region provided opposite to at least said read-out gate region with respect to said sensor region,

a substrate in which said sensor region, said charge transfer region, and said isolation region are formed.

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- a transfer electrode formed over at least said charge transfer region and said read-out gate region through an insulating film;
- a light shielding film provided outside said transfer electrode and on at least one edge of said sensor region to prevent incidence of external light upon said charge transfer region, said light shielding film also provided on part of said isolation region, said light shielding film being in contact with said substrate over said sensor region and said isolation region such that a potential of an interface between the sensor region and the light shielding film can be controlled by adjusting a predetermined potential of the light shielding film; and
- means for applying said predetermined potential to said light shielding film, said predetermined potential being a potential lower than a surface potential of said sensor region.

5,736,757

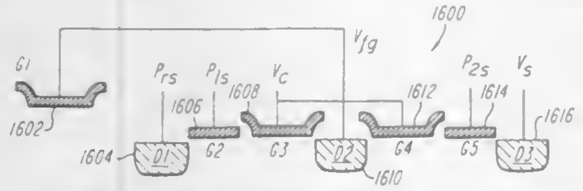
CHARGE-DOMAIN GENERATION AND REPLICATION DEVICES

Susanne A. Paul, Lexington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 271,520, Jul. 7, 1994, Pat. No. 5,579,007. This application Dec. 27, 1995, Ser. No. 580,427

Int. Cl.^{6} H01L *27/148;29/768*

U.S. Cl. 257—236 **18 Claims**



1. A charge generation device configured within a semiconductor region of a substrate, said device comprising:

- a source for providing an input charge;
- an input diffusion which receives said input charge;
- a barrier gate associated with said input diffusion which determines a selected potential of said input diffusion;
- a preset diffusion which presets said input diffusion to said selected potential;
- an output element which receives said input charge from said input diffusion;
- first coupling means for coupling said preset diffusion to said input diffusion subsequent to said output diffusion receiving said input charge during a first clock cycle, and for decoupling said preset diffusion from said input diffusion prior to said input diffusion receiving said input charge during a second clock cycle; and
- second coupling means for coupling said output element to said input diffusion, subsequent to said decoupling of said preset diffusion from said input diffusion during said second clock cycle, and for decoupling said output element from said input diffusion prior to said coupling of said preset diffusion to said input diffusion during a third clock cycle.

5,736,758

POST-FABRICATION REPAIR THIN FILM IMAGER STRUCTURE

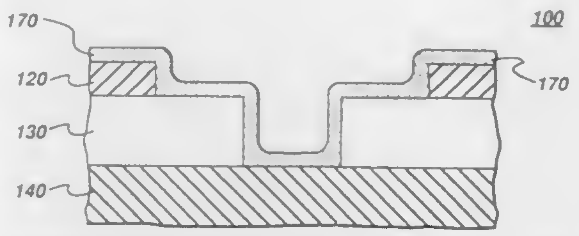
Roger Stephen Salisbury, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 280,970, Jul. 7, 1994. This application Jan. 21, 1997, Ser. No. 786,813

Int. Cl.^{6} H01L *31/062*

U.S. Cl. 257—290 **7 Claims**

1. A thin film electronic imager device in which a defect affecting conductive components disposed in respective layers in the device has been repaired, the imager device comprising:



- an upper conductive layer disposed in a first level and comprising a transparent conducting oxide material;
- an underlying conductive component disposed in a second level;
- a dielectric material layer disposed under said upper conductive layer between said underlying component in an electrically-insulated region underlying said upper conductive layer; and
- a repaired area in said electrically-insulated region of said device in which portions of said upper conductive layer and said dielectric material layer have been removed such that said upper conductive layer is electrically isolated from said underlying component in said repaired area, said repaired area having:
  - a bottom level having a surface comprising the underlying conductive component material, said bottom level having a first lateral dimension; and
  - an intermediate step level having a surface comprising the dielectric layer material, said intermediate step level having a second lateral dimension, said second lateral dimension being greater than said first lateral dimension such that said upper conductive layer is set back from a sidewall extending between the intermediate step level surface and the bottom level surface.

5,736,759

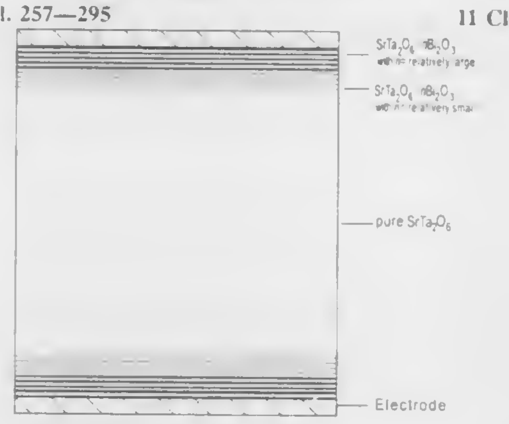
REDUCED FATIGUE FERROELECTRIC ELEMENT

Robert C. Haushalter, Little York, N.J., assignor to NEC Research Institute, Inc., Princeton, N.J.

Filed Jul. 24, 1996, Ser. No. 685,643

Int. Cl.^{6} H01L *29/06;29/12;29/76*

U.S. Cl. 257—295 **11 Claims**


$SrTa_2O_6 \cdot nBi_2O_3$ with n= relatively large
$SrTa_2O_6 \cdot nBi_2O_3$ with n= relatively small
pure $SrTa_2O_6$
Electrode

Example Intergrowths of $SrTa_2O_6 \cdot nBi_2O_3$

1. A ferroelectric device comprising a ferroelectric element having a pair of opposed surfaces and a pair of electrodes on said opposed surfaces wherein regions of the ferroelectric element that are adjacent to the electrodes are rich in doped Y_2O_3/ZrO_2, such that the mobility of oxide ions in the ferroelectric element is enhanced.

5,736,760

RANDOM ACCESS MEMORY DEVICE WITH TRENCH-TYPE ONE-TRANSISTOR MEMORY CELL STRUCTURE

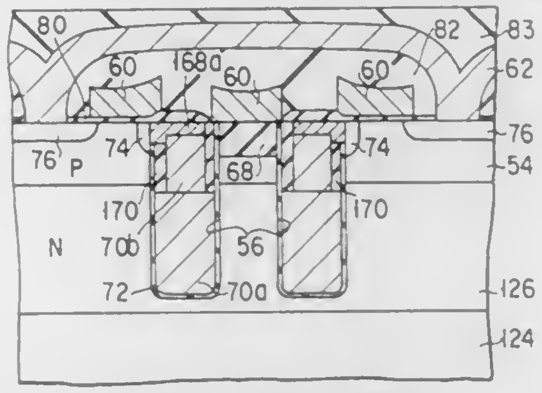
Katsuhiko Hieda, Wappingers Falls, N.Y.; Masami Aoki, Yokohama, and Takeshi Hamamoto, Kanagawa-ken, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 124,300, Sep. 20, 1993, Pat. No. 5,508,541. This application Apr. 15, 1996, Ser. No. 632,321

Claims priority, application Japan, Sep. 22, 1992, 4-278110; Sep. 30, 1992, 4-286684; Jan. 13, 1993, 003931; Aug. 13, 1993, 5-201554

Int. Cl.^{6} H01L *27/108*

U.S. Cl. 257—301 **9 Claims**



1. A semiconductor memory cell comprising.

- a semiconductor substrate having a first and a second well region which are superposed on each other and a trench extending past said first well region into said second well region, said first and second well regions having first and second conductivities respectively.
- a capacitor including a storage node portion and an insulated layer buried in the trench, said storage node portion having a double-layered structure;
- an island-shaped layer covering an upper surface of said storage node portion on said substrate, said island-shaped layer being coupled to said storage node portion on said substrate, an upper surface of the island-shaped layer being set in substantially the same level in position as an upper surface of said substrate;
- a transistor having a source and a drain defining a channel region therebetween in said substrate, and an insulated gate overlaying the channel region and extending over said island-shaped layer;
- one of the source and the drain being positioned adjacent to said trench and coupled to said island-shaped layer and the other of said source and said drain connected directly to a corresponding data-transfer line, the source and drain being formed in said first well region;
- a dielectric layer arranged inside and around said trench in said substrate, said dielectric layer being greater in depth than said first well region and less in depth than said trench.

5,736,761

DRAM CELL ARRANGEMENT AND METHOD FOR ITS MANUFACTURE

Lothar Risch, Neubiberg; Franz Hofmann; Wolfgang Roesner, both of Munich, and Wolfgang Krautschneider, Hohenthann, all of Germany, assignors to Siemens Aktiengesellschaft, Germany

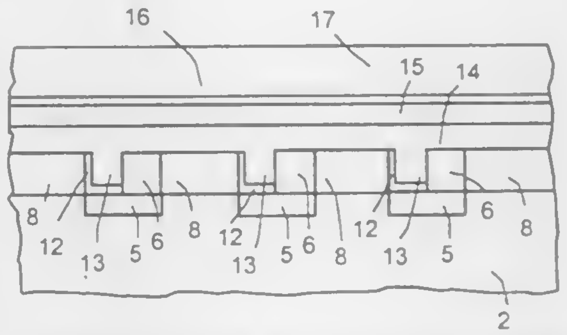
Filed May 14, 1996, Ser. No. 645,503

Claims priority, application Germany, May 24, 1995, 195 19 159.5

Int. Cl.^{6} H01L *27/108;29/76;29/94;31/119*

U.S. Cl. 257—301 **13 Claims**

1. A DRAM cell arrangement, comprising:



- a plurality of memory cells, each memory cell of the plurality of memory cells having a read-out transistor and a memory capacitor;
- said read-out transistors being formed as vertical MOS transistors integrated in a semiconductor substrate, a respective read-out transistor having a first source/drain region respectively adjoining a main surface of the semiconductor substrate, a second source/drain region respectively adjoining a respective bitline trenched in the semiconductor substrate, and a gate electrode connected to a wordline which is trenched in the semiconductor substrate and which crosses the bitlines; and
- said memory capacitors being respectively constructed from said first source/drain regions adjoining the main surface as memory nodes, from a capacitor dielectric arranged above said first source/drain regions, and from a capacitor plate arranged above said dielectric

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5,736,762

Patent Not Issued For This Number

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5,736,764

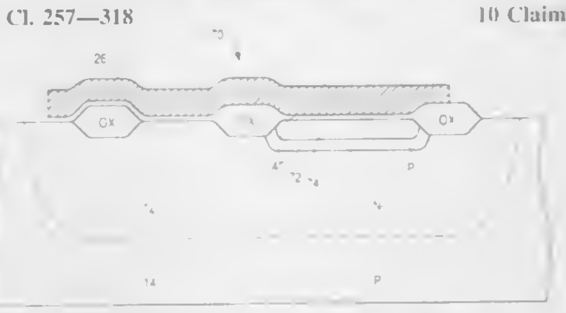
PMOS FLASH EEPROM CELL WITH SINGLE POLY

Shang-De Ted Chang, Fremont, Calif., assignor to Programmable Microelectronics Corporation, San Jose, Calif.

Filed Nov. 21, 1995, Ser. No. 560,249

Int. Cl.^{6} H01L *29/788*

U.S. Cl. 257—318 **10 Claims**



1. A P channel single poly memory cell comprising

- a P+ source and a P+ drain formed in an N-well.
- a channel extending between said source and said drain.
- a layer of tunnel oxide formed on a surface of said N-well;
- a floating gate overlying said tunnel oxide.
- a P− diffusion region formed in a portion of said N well underlying said floating gate; and
- an N diffusion region formed within said P− diffusion region, said N diffusion region serving as a control gate of said cell.

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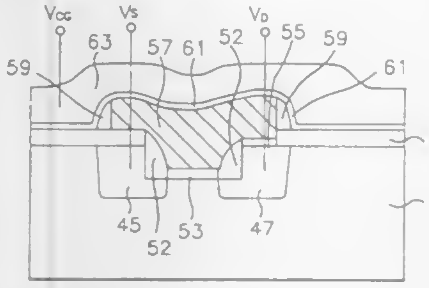
5,736,765
EEPROM CELL HAVING IMPROVED TOPOLOGY AND REDUCED LEAKAGE CURRENT

Han Su Oh, and Jang Han Kim, both of Chungcheongbuk-do, Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed May 26, 1995, Ser. No. 451,415

Int. Cl.⁶ H01L *29/76;29/788*

U.S. Cl. 257—321 **7 Claims**



1. A semiconductor device comprising:
- a substrate having a first conductivity type, said substrate having a primary surface;
- a channel region formed in said substrate;
- a trench formed in said primary surface of said substrate overlying said channel region, said trench having first and second sidewalls;
- a first spacer formed on said first sidewall and a second spacer formed on said second sidewall of said trench;
- a gate oxide film formed on a bottom portion of said trench between said first and second spacers;
- a source region having a second conductivity type formed in said substrate adjacent said first sidewall and said bottom of said trench;
- a drain region having said second conductivity type formed in said substrate adjacent said second sidewall and said bottom of said trench, a portion of said drain region extending in a direction away from said trench;
- a tunneling oxide film formed on said primary surface of said substrate overlying said portion of said drain region extending away from said trench, an edge portion of said tunneling oxide film being adjacent said trench;
- an insulation film provided on said entire substrate surface, said insulation film exposing said tunneling oxide film and said trench;
- a floating gate formed on said insulation film overlying said source region, said floating gate also overlying said gate oxide film and said tunneling oxide film, said floating gate having first and second side surfaces,
- a third spacer formed on said insulation film adjacent said first side surface;
- a fourth spacer formed on said insulation film adjacent said second side surface,
- a dielectric film formed on said floating gate and said third and fourth spacers; and
- a control gate formed on said dielectric film.

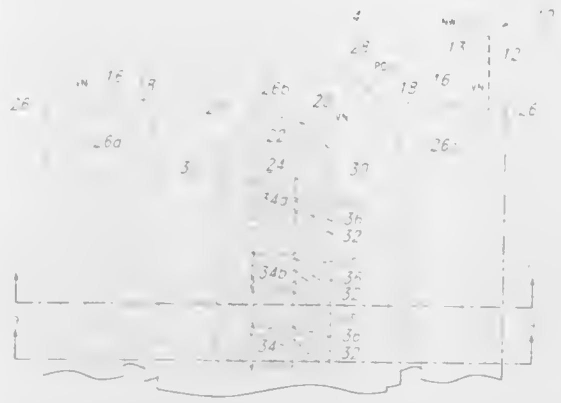
5,736,766
MEDIUM VOLTAGE LDMOS DEVICE AND METHOD OF FABRICATION

Taylor R. Efland, Richardson, and Stephen C. Kwan, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 12, 1994, Ser. No. 353,865

Int. Cl. H01L *27/02*

U.S. Cl. 257—338 **6 Claims**



1. A transistor, comprising
- a semiconductor layer having a first region of a first conductivity type, said first region having a first dopant concentration;
- a pair of second regions of said first conductivity type first formed at a face of said semiconductor layer in said first region, said second regions having a second dopant concentration greater than said first dopant concentration;
- a pair drain regions of said first conductivity type formed at a face of said semiconductor layer in said second regions, said drain regions having a third dopant concentration greater than said second dopant concentration;
- a third region of a second conductivity type opposite said first conductivity type formed at a face of said semiconductor layer in said first region, said third region formed between said pair of second regions;
- an annular source region of said first conductivity type formed at a face of said semiconductor layer in said third region, a pair of channel regions defined in said third region between an edge of each of said pair of source regions and an associated edge of said third region; and
- an annular gate extending over said pair of channel regions.

5,736,767
SEMICONDUCTOR DEVICE INCLUDING A CMOSFET OF A SINGLE-GATE

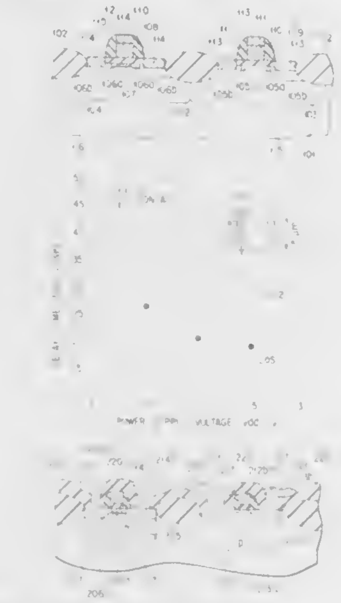
Takashi Yoshitomi, Kamakura, and Tatsuya Ohguro, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 2, 1996, Ser. No. 675,720

Claims priority, application Japan, Aug. 9, 1995, 7-203172; Mar. 18, 1996, 8-061448

Int. Cl.⁶ H01L *29/78*

U.S. Cl. 257—344 **20 Claims**



1. A semiconductor device comprising
- a semiconductor substrate having a major surface;

- a first semiconductor region of a first conductivity type selectively formed on the major surface of the semiconductor substrate;
- a second semiconductor region of a second conductivity type formed on the major surface of the semiconductor substrate and electrically isolated from the first semiconductor region; and
- a CMOSFET including a first channel type MOSFET formed in the first semiconductor region and a second channel type MOSFET formed in the second semiconductor region;

wherein,
- the first channel type MOSFET has a first gate insulating film formed on a predetermined portion of the first semiconductor region, a first gate electrode formed on the first gate insulating film, made of a first conductivity type semiconductor and having a gate length of 0.2 μm or less, first source/drain regions of the second conductivity type respectively formed in the first semiconductor region along both sides of the first gate electrode and respectively including a first lightly doped region adjacent to the gate electrode and a first heavily doped region which is adjacent to and thicker than the first lightly doped region, and a buried channel region of the second conductivity type formed in the first semiconductor region just below the first gate electrode; and
- the second channel type MOSFET has a second gate insulating film formed on a predetermined portion of the second semiconductor region, a second gate electrode formed on the second gate insulating film, made of the first conductivity type semiconductor and having a gate length of 0.2 μm or less, and second source/drain regions of the first conductivity type respectively formed in the second semiconductor region along both sides of the second gate electrode and respectively including a second lightly doped region adjacent to the gate electrode and a second heavily doped region which is adjacent to and thicker than the second lightly doped region.

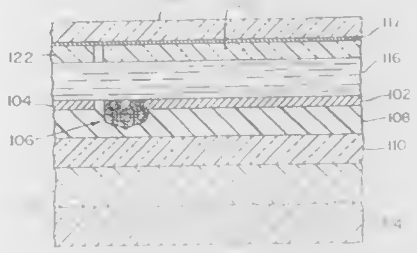
5,736,768
SINGLE CRYSTAL SILICON ARRAYED DEVICES FOR DISPLAY PANELS

Paul M. Zavracky, 25 Beech St., Norwood, Mass. 02062; John C. C. Fan, 881 W. Roxbury Pkwy., Chestnut Hill, Mass. 02167; Robert McClelland, 50 Barque Hill Dr., Norwell, Mass. 02061; Jeffrey Jacobsen, 501 Tevis Trail, Hollister, Calif. 95023, and Brenda Dingle, 5 Morgan La., Norton, Mass. 02766

Continuation of Ser. No. 281,777, Jul. 28, 1994, Pat. No. 5,528,397, which is a continuation of Ser. No. 225,091, Apr. 8, 1994, Pat. No. 5,362,671, which is a continuation of Ser. No. 85,667, Jun. 30, 1993, abandoned, which is a continuation of Ser. No. 801,966, Dec. 3, 1991, abandoned,. This application Jun. 7, 1995, Ser. No. 485,779

Int. Cl.⁶ H01L *27/01,27/12;31/0392,29/04*

U.S. Cl. 257—347 **20 Claims**



1. A semiconductor device on a substrate or a matrix display panel comprising:
- a first insulating layer,
- a thin-film layer of single crystal silicon material on a first side of the first insulating layer from which is formed an array of transistors, each transistor having source, drain and channel regions;
- a second insulating layer over each transistor;
- gate material over the second insulating layer from which is formed a gate region for each transistor;
- a third insulating layer over the gate material;
- a conductive film extending through the second and third insulating layers to form a source interconnect to each source region;
- a layer of adhesive material disposed between the third insulating layer and a substrate for attaching the array of transistors to the substrate; and
- a light transmitting material on a second side of the first insulating layer such that light from the light transmitting material forms an image on the display panel.

5,736,769
SEMICONDUCTOR APPARATUS

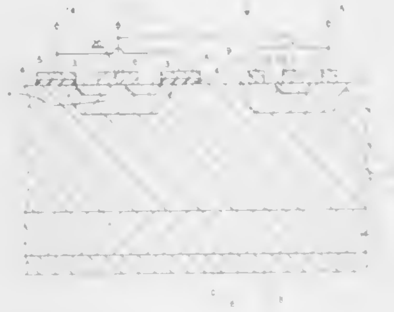
Akira Nishiura, and Tatsuhiko Fujihira, both of Nagano, Japan, assignors to Fuji Electric Co., Ltd., Tokyo, Japan

Filed May 23, 1996, Ser. No. 652,115

Claims priority, application Japan, May 23, 1995, 7-123311

Int. Cl.⁶ H01L *29/76*

U.S. Cl. 257—368 **17 Claims**



1. A semiconductor apparatus, comprising
- a semiconductor substrate of a first conductivity type;
- a well region of a second conductivity type in a first surface portion of said semiconductor substrate;
- an emitter region of said first conductivity type in said well region;
- said well region and said emitter region forming an insulated gate semiconductor device,
- an emitter electrode on said emitter region,
- an anode region of said second conductivity type in a second surface portion of said semiconductor substrate, said anode region being separated laterally from said well region,
- an anode electrode on said anode region;
- an anode terminal connected to said anode electrode, said anode terminal and said anode electrode each without electrically conductive connection to said insulated gate semiconductor device;
- a cathode region of said first conductivity type in said anode region;
- a cathode electrode on said cathode region, said cathode electrode being connected to said emitter electrode, and
- said anode region and said cathode region forming a pn diode.

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5,736,770
SEMICONDUCTOR DEVICE WITH CONDUCTIVE CONNECTING LAYER AND ABUTTING INSULATOR SECTION MADE OF OXIDE OF SAME MATERIAL

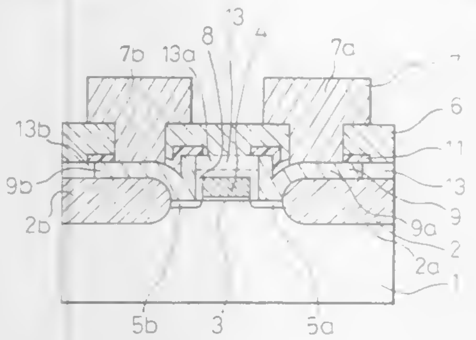
Akiyoshi Asai, Aichi; Nobuyuki Ohya, and Mitsutaka Katada, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed May 24, 1994, Ser. No. 248,002

Claims priority, applicatinn Japan, May 25, 1993, 5-122757

Int. Cl.^{6} H01L *29/78;23/48;27/02;29/34*

U.S. Cl. 257—382 **29 Claims**



1. A semiconductor device comprising:
a semiconductor substrate;
a diffused region extending from a surface of said semiconductor substrate to inside said semiconductor substrate;
a first insulating layer formed on said semiconductor substrate and having a first contact hole exposing said diffused region;
a first conductor layer formed on a portion of said first insulating layer and directly contacting said diffused region through said first contact hole; and
an insulator section made of an oxide of the substance of said first conductor layer and formed on another portion of said first insulating layer to surround said first conductor layer.

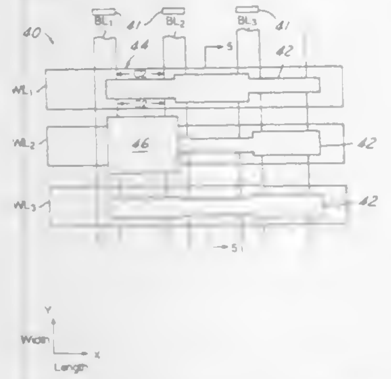
5,736,771
MASK ROM CELL STRUCTURE WITH MULTI-LEVEL DATA SELECTION BY CODE

Hon-Shen Huang, Taipei; Zon-Sheng Wu, and Kun-Lu Chen, both of Hsin Chu, all of Taiwan, assignors to United Microelectronics Corporation

Filed Feb. 7, 1996, Ser. No. 597,980

Int. Cl.^{6} H01L *29/772;* **G11C** *17/00*

U.S. Cl. 257—390 **8 Claims**



1. A multi-level memory cell structure for storing 2^n data levels where n is a positive integer greater than one, comprising:
a semiconductor substrate of a first conductivity type;
a buried bit line of a second conductivity type formed in said substrate;
a memory cell connected to the bit line;
a word line of a conductive material coupled to said transistor and being formed within a preselected width W and having a void centered therein having one of 2^n preselected discrete widths corresponding to a respective one of the 2^n data levels to define a pair of substantially parallel conduction parts; and
said memory cell having a channel formed in said substrate adjacent said bit line for carrying a preselected one of 2^n current levels corresponding to said preselected width of said void when said word line is enabled, said carried current being indicative of preselected one of the 2^n data levels.

5,736,772
BIFURCATED POLYSILICON GATE ELECTRODES AND FABRICATION METHODS

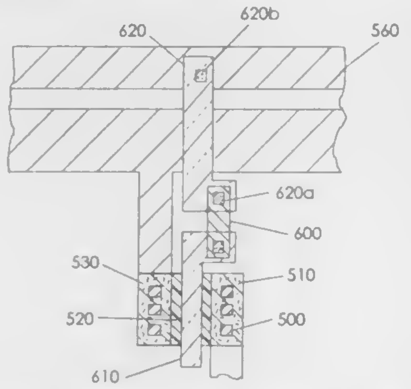
Young-Wi Ko; Yun-Jin Cho, both of Seoul; Sung-Hee Cho, and Hyong-Gon Lee, both of Kyungki-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 17, 1996, Ser. No. 633,450

Claims priority, application Rep. of Korea, Apr. 27, 1995, 1995-10174

Int. Cl.^{6} H01L *29/423*

U.S. Cl. 257—412 **11 Claims**



1. An integrated circuit field effect transistor comprising:
a semiconductor substrate, including spaced apart source and drain regions and a gate insulating region therebetween;
a bifurcated polycrystalline silicon (polysilicon) gate electrode, including a gate polysilicon portion on said gate insulating region and a bridging polysilicon portion on said semiconductor substrate outside said gate insulating region; and
linking means for electrically connecting said gate polysilicon portion and said bridging polysilicon portion, wherein said linking means comprises a metal link.

5,736,773
PHOTODIODE WITH ANTIREFLECTION COATING

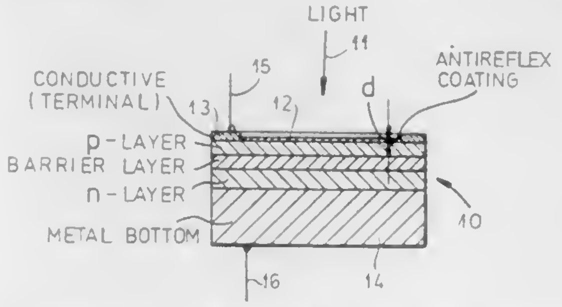
Wolfgang Schmid, Stuttgart, Germany, assignor to Wandel & Goltermann GmbH & Co. Elektronische Messtechnik, Eningen, Germany

Filed Jun. 11, 1991, Ser. No. 713,977

Claims priority, application Germany, Jun. 22, 1990, 40 19 853.7

Int. Cl.^{6} H01L *31/0232;31/075;* **G02B** *1/10*

U.S. Cl. 257—437 **1 Claim**



1. A photodiode for use in optical devices, said photodiode comprising:
a semiconductor having refractive index n_{HI} of about 3.5 and constructed to receive incident light and to convert received incident light into an electrical signal,
terminals connected to said semiconductor for delivering said signal; and
an antireflection coating in the form of a single layer of silicon dioxide on said semiconductor in a path of said incident light and of a thickness d=0.54 μm, an index of refraction n=1.5, and selected so that the photodiode has an approximately constant spectral transmission curve between a minimum wavelength λ_{min}=1 μm and a maximum wavelength λ_{max}=1.6 μm.

5,736,774
HIGH VOLTAGE INTEGRATED CIRCUIT, AND HIGH VOLTAGE LEVEL SHIFT UNIT USED FOR THE SAME

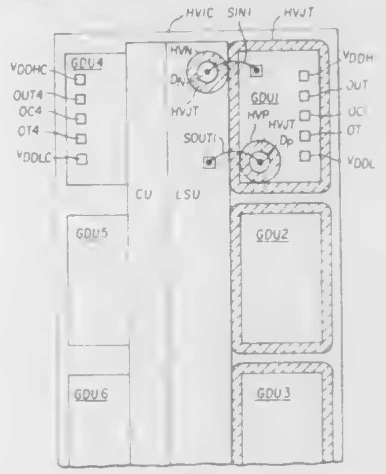
Tatsuhiko Fujihira, Nagano, Japan, assignor to Fuji Electric Co., Ltd., Japan

Filed Jun. 26, 1996, Ser. No. 670,601

Claims priority, application Japan, Jun. 28, 1995, 7-162139; Oct. 5, 1995, 7-258472

Int. Cl.^{6} H01L *29/00;29/76;29/94*

U.S. Cl. 257—500 **23 Claims**



1. A high voltage integrated circuit for driving each gate of at least one power device each having main terminals one of which is connected to a high potential side of a high voltage source, and the other of which is connected to a load, comprising:
a low potential side low voltage circuit portion to which current is supplied by a low voltage source having a reference potential point based on a low potential side of the high voltage source;
a high potential side low voltage circuit portion to which current is supplied by a low voltage source having a reference potential point based on one of said main terminals of each of said at least one power device;
a first high voltage junction terminating structure shaped like a loop, for separating said low potential side low voltage circuit portion from said high potential side low voltage circuit portion;
a high voltage n-channel transistor for shifting a level of signals from said low potential side low voltage circuit portion for transmission to said high potential side low voltage circuit portion, said high voltage n-channel transistor having at least one of a drain electrode and a collector electrode, at least one of a source electrode and an emitter electrode, and at least one of a gate electrode and a base electrode;
a second high voltage junction terminating structure shaped like a loop and provided in said high voltage n-channel transistor, said at least one of said drain electrode and said collector electrode of the high voltage n-channel transistor being located inside the loop of the second high voltage junction terminating structure, said at least one of said source electrode and said emitter electrode and said at least one of said gate electrode and said base electrode being located outside the loop of the second high voltage junction terminating structure; and
signal wiring extending from said drain electrode of said high voltage n-channel transistor to said high potential side low voltage portion, passing over said first and second high voltage junction terminating structures, said signal wiring being spaced apart from surfaces of said first and second high voltage junction terminating structures.

5,736,775
SEMICONDUCTOR DEVICE HAVING A CONCENTRATION PEAK POSITION COINCIDING WITH A CHANNEL STOPPER

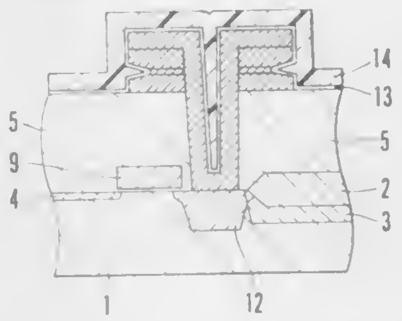
Natsuki Sato, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 11, 1996, Ser. No. 585,993

Claims priority, application Japan, Jan. 9, 1995, 7-001370

Int. Cl.^{6} H01L *29/76;29/94*

U.S. Cl. 257—509 **8 Claims**



5. A semiconductor device comprising.
an element isolation region formed on one major surface of a semiconductor substrate of a first conductivity type;
a channel stopper of the first conductivity type formed immediately below said element isolation region;
an element formation region formed to be surrounded by said element isolation region;
a first impurity region formed in said element formation region;
a contact portion formed to reach said first impurity region;
a second impurity region in a region, on said semiconductor substrate, in which said contact portion is formed;
a first conductive layer connected to said first and second impurity regions and formed in said contact portion;
a third impurity region formed by diffusing an impurity from said first conductive layer into said semiconductor substrate;
an insulating film formed on the one major surface of said semiconductor substrate;
a second conductive layer formed on said insulating film; and
a fourth impurity region formed in said second conductive layer,
wherein said first, second, and third impurity regions are adjacent to said channel stopper, an impurity profile of said second impurity region exhibits a concentration peak at substantially the same depth as that at which an impurity profile of said channel stopper exhibits a concentration peak, and a cross-section of a side wall portion of said second conductive layer has a wedge-shaped constriction shape.

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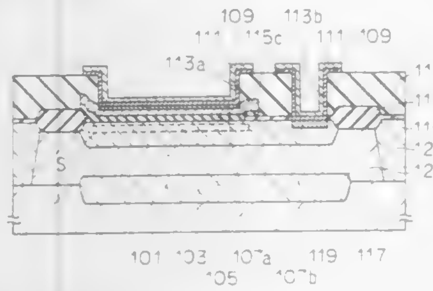
5,736,776
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME

Fumitoshi Yamamoto, and Tetsuo Higuchi, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 24, 1995, Ser. No. 393,644
Claims priority, application Japan, Mar. 1, 1994, 6-031564
Int. Cl.⁶ H01L *29/00*
U.S. Cl. 257—532 **10 Claims**



1. A semiconductor device, comprising:
- a lower electrode layer;
- a capacitor insulating layer formed on said lower electrode layer;
- an upper electrode formed on said capacitor insulating layer to be insulated from said lower electrode layer; wherein
- said upper electrode layer has a polycrystalline silicon layer which is in contact with said capacitor insulating layer, a silicide layer formed on said polycrystalline silicon layer, and said polycrystalline silicon layer contains substantially no impurities,

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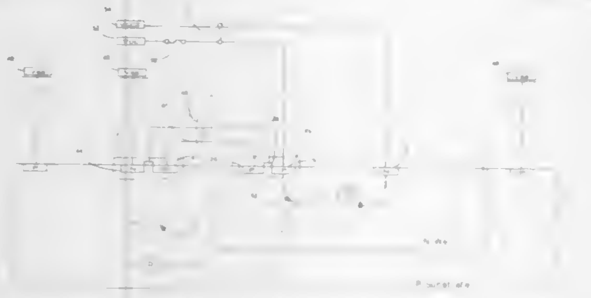
5,736,777
METHOD AND APPARATUS FOR FAST SELF-DESTRUCTION OF A CMOS INTEGRATED CIRCUIT

David J. Shield, El Dorado Hills, Calif., and Derek L. Davis, Phoenix, Ariz., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 29, 1995, Ser. No. 581,436
Int. Cl.⁶ H01L *29/00*
U.S. Cl. 257—529 **15 Claims**

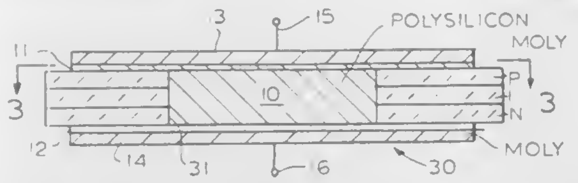


1. A method of destroying a logic element in an integrated circuit, comprising the steps of
- (a) forming a p-channel transistor disposed in a n-region of a semiconductor substrate, said p-channel transistor having a first terminal and a second terminal;
- (b) forming a n-channel transistor disposed in a p-region of said semiconductor substrate, said p-region being adjacent to said n-region;
- (c) coupling a first fusible link between said first terminal and said second terminal;
- (d) causing a first power supply having a first voltage to be coupled to said first terminal and a second power supply having a second voltage to be coupled to said second terminal, said first voltage being at a higher potential relative to said second voltage.
- (e) forward biasing a parasitic transistor developed between said first terminal and said n-region; and
- (f) causing a latchup current to flow through said p-channel transistor and destroying the logic element.

5,736,778
SILICON RESISTOR WITH EXPANSION PLATE ELECTRODE

Bruno Passerini, Balangero, and Silvestro Fimiani, Turin, both of Italy, assignors to International Rectifier Corporation, El Segundo, Calif.

Filed Nov. 15, 1996, Ser. No. 751,111
Int. Cl.⁶ H01L *29/00*
U.S. Cl. 257—536 **24 Claims**

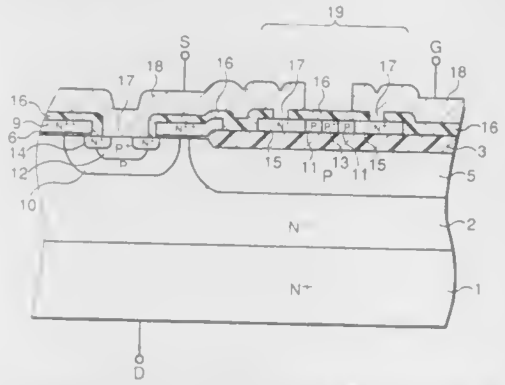


1. A resistor comprising, in combination, a thin, flat wafer of silicon which is either monocrystal or polycrystal, and which has flat parallel surfaces and having a controlled impurity concentration to impart a predetermined resistivity to said wafer, a pair of refractory metal electrodes which are substantially coextensive with and in full surface contact with respective ones of said flat parallel surfaces of said wafer; said refractory metal electrodes having a coefficient of thermal expansion which is closely matched to that of said wafer; said refractory metal electrodes being spaced from one another by the full thickness of said wafer.

5,736,779
SEMICONDUCTOR DEVICE WITH ZENER DIODE FOR GATE PROTECTION, AND METHOD FOR FABRICATING THE SAME

Kenya Kobayashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 30, 1996, Ser. No. 681,960
Claims priority, application Japan, Jul. 31, 1995, 7-194717
Int. Cl.⁶ H01L *23/62*
U.S. Cl. 257—603 **9 Claims**

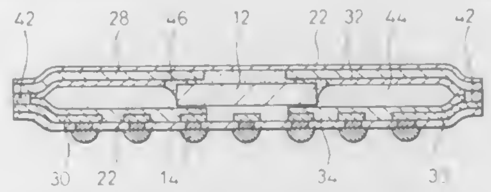


1. A semiconductor device having a Zener diode disposed between a gate and a source of a MOS type semiconductor device, said Zener diode for protecting said gate, said Zener diode comprising
- a series of semiconductor junction structures comprising regions of a first conductive type and a second conductive type, and
- a channel stopper of said first conductive type disposed in a region of said first conductive type, said channel stopper suppressing a leakage current caused by an inversion of a surface of a region of said first conductive type.

5,736,780
SEMICONDUCTOR DEVICE HAVING CIRCUIT PATTERN ALONG OUTER PERIPHERY OF SEALING RESIN AND RELATED PROCESSES

Kei Murayama, Nagano, Japan, assignor to Shinko Electric Industries Co., Ltd., Nagano, Japan

Filed Nov. 7, 1996, Ser. No. 744,994
Claims priority, application Japan, Nov. 7, 1995, 7-288284
Int. Cl.⁶ H01L *23/12;23/31*
U.S. Cl. 257—673 **20 Claims**



1. A semiconductor device, comprising:
- a flexible circuit board with an insulating flexible film having a first surface provided with first wiring patterns having first inner ends and second outer ends, the second ends extending to a peripheral area of said insulating flexible film;
- a connecting circuit board with an insulating base substrate having a first surface provided with second wiring patterns having first inner ends and second outer ends, the second ends extending to a peripheral area of said base substrate, and a second surface provided with external connecting terminals electrically connected to said first ends of the second wiring patterns by vias;
- a semiconductor element electrically connected to said first ends of the first patterns and being located between said first surfaces of the insulating flexible film and the insulating base substrate;
- a resin filling a space between said first surfaces that said semiconductor element is hermetically sealed with said resin, and
- said second ends of said first patterns and said second ends of said second patterns are electrically connected to each other, so that said semiconductor element is electrically connected to said external connecting terminals.

5,736,781
IC MODULE AND A DATA CARRIER EMPLOYING THE SAME

Shiro Atsumi, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

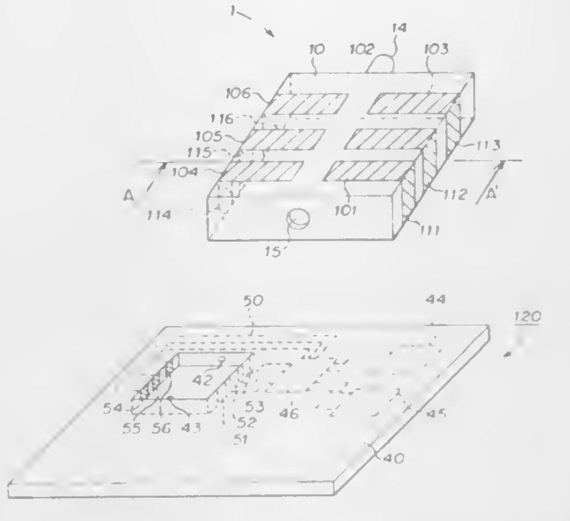
PCT No. PCT/JP94/01742, § 371 Date May 25, 1995, § 102(e) Date May 25, 1995, PCT Pub. No. WO95/11135, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 17, 1994, Ser. No. 446,640
Claims priority, application Japan, Oct. 18, 1993, 5-258788
Int. Cl.⁶ H01L *23/48;* **B42D** *15/02;* **G04K** *19/00*
U.S. Cl. 257—679 **12 Claims**

1. An IC module mounted to a data carrier for sending and receiving data between the IC module and the data carrier,

wherein the IC module comprises:
- (a) an IC chip including a data processor comprising a central processing unit and a terminal through which data is sent to and received from said data processor,
- (b) an insulator for carrying said IC chip and having a given block-shape,
- (c) contact terminals which extend from an upper surface of said insulator to particular side surfaces of said insulator and which are electrically connected to said terminal of said IC chip, and
- (d) retaining means which are formed on side surfaces of said insulator other than said particular side surfaces for detachably engaging the IC module with said data carrier, and

said data carrier comprising



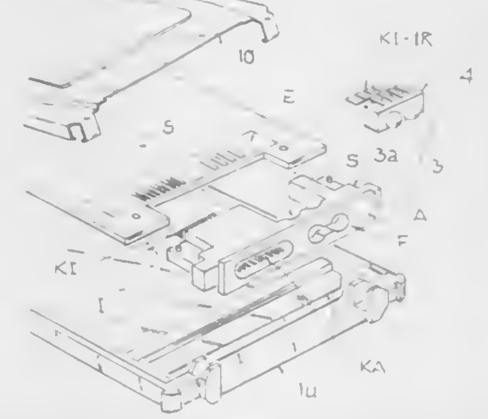
- (a) a substrate formed of an insulating member having a thickness which corresponds to that of said IC module and surface dimensions greater than that of said IC module,
- (b) a hole portion provided on said substrate and sized so that said IC module can be accommodated in said hole portion,
- (c) data processing means arranged in said substrate for sending data to and receiving data from an external device, and
- (d) internal terminals provided on inner peripheral surfaces of said hole portion and electrically connected to said data processing means so as to transfer said data between said internal terminals and said data processing means; and

a conductive member interposed between said IC module and said data carrier for electrically connecting said contact terminals of said IC module to said internal terminals of said data carrier when said IC module is engaged in said hole portion of said data carrier.

5,736,782
CHIP CARD WITH INTEGRATED IR TRANSCEIVER

Werner Schairer, Weinsberg, Germany, assignor to TEMIC Telefunken microelectronic GmbH, Heilbronn, Germany

Filed Jun. 12, 1996, Ser. No. 662,367
Claims priority, application Germany, Jun. 30, 1995, 195 23 916.4
Int. Cl.⁶ H01L *23/02,* **G06K** *19/06;7/10;* **H05K** *7/00*
U.S. Cl. 257—679 **11 Claims**



1. A chip card including a housing comprised of top side and underside, an internal connector for connecting the card to a port of a computer, an external connector for connecting peripheral devices to the card, with the external connector consisting of a connector body which locks into the top side and underside of the chip card and which has an external function surface complete with external contact elements for connection to peripheral devices and an internal function surface provided with internal contact elements for connection to a printed current board within the housing.

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and an infrared transceiver component for optical data transmission, with the infrared transceiver component being disposed within the housing and integrated into the external connector so that it extends to a window in the external function surface and is connected to the circuit board via internal contact elements.

5,736,783

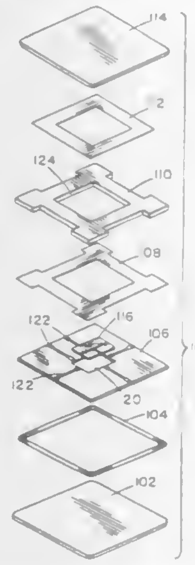
HIGH FREQUENCY MICROELECTRONICS PACKAGE

Deborah S. Wein, Phoenix, Ariz.; Paul M. Anderson; Alan W. Lindner, both of San Diego, Calif.; Martin Goetz, Los Altos, Calif.; Joseph Babiarz, San Diego, Calif., and Timothy Going, Olivenhain, Calif., assignors to Stratedge Corporation., San Diego, Calif.

Continuation-in-part of Ser. No. 526,535, Sep. 11, 1995, Pat. No. 5,692,298, which is a continuation of Ser. No. 134,269, Oct. 8, 1993, Pat. No. 5,465,008. This application May 14, 1996, Ser. No. 645,848

Int. Cl.^{6} H01L *23/52*

U.S. Cl. 257—691 **20 Claims**



1. A microelectronic package suitable for high-frequency electronic devices, comprising:
   - a base having a top and a bottom, at least a portion of each of said top and said bottom of said base being conductive;
   - an RF substrate having a top surface, a bottom surface, and a first cavity;
   - a plurality of conductive patterns deposited on said top surface of said RF substrate, each said conductive pattern having a transition segment having a predetermined constant impedance when uncovered;
   - first means for attaching said RF substrate to said top of said base;
   - a ceramic seal ring substrate having a second cavity larger than said first cavity;
   - second means for attaching said ceramic seal ring substrate to said ceramic circuit substrate, said second attaching means being non-conductive;
   - a ceramic lid attached to said ceramic seal ring substrate; and
   - third means for attaching said ceramic seal ring substrate to said ceramic lid;
   - wherein said base acts as a single ground plane and said ceramic lid is electrically isolated from said single ground plane.

5,736,784

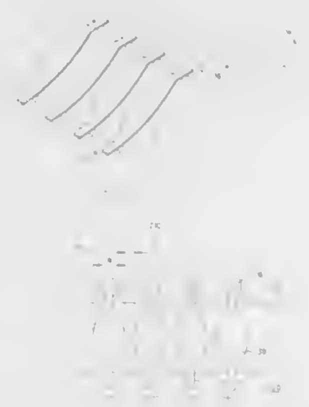
VARIABLE-WIDTH LEAD INTERCONNECTION STRUCTURE AND METHOD

Lewis R. Dove, Monument, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Filed Oct. 31, 1996, Ser. No. 740,595

Int. Cl.^{6} H01L *23/48*

U.S. Cl. 257—692 **3 Claims**



1. An edge clip structure for interconnecting a substrate package and a printed circuit board (PCB), the edge clip structure comprising:
   - a plurality of leads, each of the plurality of leads comprises a first end, a widened middle section, and a second end; and
   - the widened middle section gradually tapers to both the first and second ends.

5,736,785

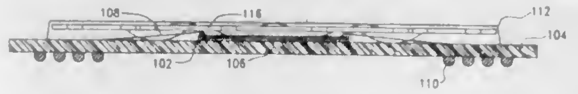
SEMICONDUCTOR PACKAGE FOR IMPROVING THE CAPABILITY OF SPREADING HEAT

Cheng Lien Chiang, Taipei; Rong Shen Lee, Hsinchu, and Hsing Seng Wang, Chung Li, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Dec. 20, 1996, Ser. No. 772,670

Int. Cl.^{6} H01L *23/34*

U.S. Cl. 257—712 **37 Claims**



1. A structure of a semiconductor package, said structure comprising:
   - a substrate having a die receiving area and a plurality of conductive traces;
   - a semiconductor die mounted to said substrate within said die receiving area for electrically coupling to said conductive traces;
   - signal transferring means for transferring an electrical signal to said die set on bottom-side surface of said substrate, said signal transferring means comprising a solder ball array;
   - heat spreading means for spreading heat mounted over said die, said heat spreading means including a plane, a recessed portion formed on a surface of said plane and having a first downset, said recessed portion contacting the die and protecting bonding wires, a plurality of first supporters formed on said plane for connecting to said substrate, and a plurality of first openings formed at edges of said plane, and
   - covering means for covering said die,
   - wherein said die and said heat spreading means are within said covering means, and said plurality of first openings are used to let a compound be filled within said covering means.

5,736,786

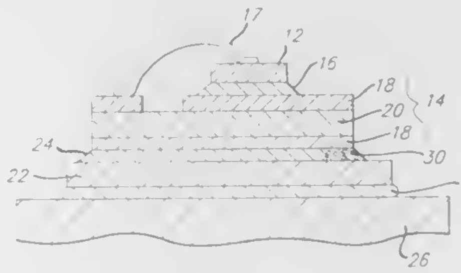
POWER MODULE WITH SILICON DICE ORIENTED FOR IMPROVED RELIABILITY

Venkateswara A. Sankaran, Farmington Hills; Xingyi Xu, Canton; Yi-Hsin Pao, Livonia, and Wen-Je Jung, Ann Arbor, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Apr. 1, 1996, Ser. No. 625,826

Int. Cl.^{6} H01L *23/34;23/48*

U.S. Cl. 257—717 **18 Claims**



1. A power module comprising:
   - a metallic base plate;
   - a substrate comprising an dielectric layer sandwiched between a first metallic layer and a second metallic layer;
   - a solder layer electrically and thermally connecting said second metallic layer to said base plate, and
   - a plurality of silicon dice connected to said first metallic layer; and
   - said solder layer having a solder void development region, said silicon dice oriented on said substrate so that said void development region does not extend beneath said dice.

5,736,787

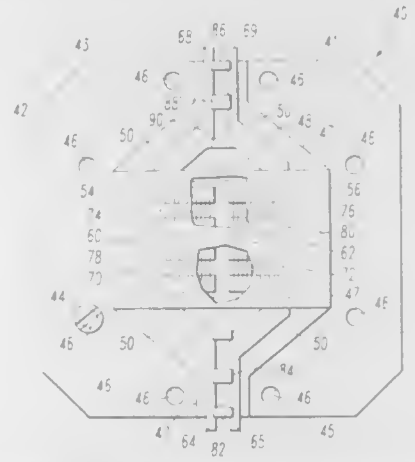
TRANSISTOR PACKAGE STRUCTURED TO PROVIDE HEAT DISSIPATION ENABLING USE OF SILICON CARBIDE TRANSISTORS AND OTHER HIGH POWER SEMICONDUCTOR DEVICES

William R. Larimer, 1287 William St., Baltimore, Md. 21230

Filed Jul. 11, 1996, Ser. No. 682,874

Int. Cl.^{6} H01L *23/12;23/02;23/52*

U.S. Cl. 257—732 **20 Claims**



1. A package for relatively high power heat generating semiconductor devices, comprising:
   - a heat conductive metal flange having a bottom side providing a ground plane contact interface having a heat transfer area for ground plane dissipation of device generated heat;
   - a dielectric substrate having a metallic upper surface; a bottom surface of the said substrate bonded to a top surface of said metal flange,
   - at least one heat generating semiconductor device located on the metallic upper surface of said substrate and generating heat over an active device surface area to be dissipated to said substrate;
   - input and output circuit means coupled to said semiconductor device; and
   - a set of ground plane mounting holes provided in said metal flange and surrounding said at least one semiconductor device, the number of said mounting holes and the ratio of the flange heat transfer area to the device active area being such that the resulting interface contact pressure caused by ground plane securing elements and the resulting interface temperature drop enable sufficient heat dissipation for the semiconductor devices to be silicon carbide transistors or other semiconductor devices substantially equivalent to such transistors in heat generation.

5,736,788

Patent Not Issued For This Number

5,736,789

BALL GRID ARRAY CASING FOR INTEGRATED CIRCUITS

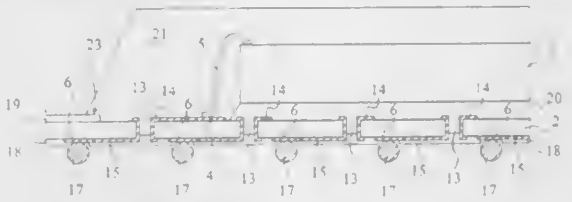
Jean-Pierre Moscicki, Saint Egreve, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Jul. 25, 1995, Ser. No. 506,656

Claims priority, application France, Jul. 26, 1994, 94 09490

Int. Cl.^{6} H01L *23/48*

U.S. Cl. 257—774 **28 Claims**



1. An integrated circuit comprising:
   - an insulating plate having metallized holes disposed therethrough, the metallized holes connected to conductive tracks, the conductive tracks of a lower surface extending to first pads designed to receive connections balls, the conductive tracks of an upper surface extending to second pads connected to terminals of an integrated circuit chip glued on the upper surface the insulating plate;
   - through holes disposed under the chip, the holes disposed under the chip being filled with glue anchoring the chip;
   - an encapsulation material embedding the chip;
   - a first insulating layer deposited on the lower surface of the plate and etched away in front of said first pads,
   - a second insulating layer deposited on the upper surface of the plate and etched away in front of said seconds pads,
   - wherein said second insulating layer is etched away at least in front of the metallized holes, said first insulating layer and said encapsulation material at least partially filling said holes.

5,736,790

SEMICONDUCTOR CHIP, PACKAGE AND SEMICONDUCTOR DEVICE

Kiyoshi Iyogi; Kaoru Koiwa; Keiichi Yano, and Hironori Asai, all of Kanagawaken, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 20, 1996, Ser. No. 710,769

Claims priority, application Japan, Sep. 21, 1995, 7-243205

Int. Cl.^{6} H01L *23/48,23/52,29/40*

U.S. Cl. 257—780 **20 Claims**

1. A bump formed on a pad which is provided on either a semiconductor chip or a package or a wiring substrate for input or output thereof, for making electric connection on the pad, comprising
   - a projection projecting from the pad;

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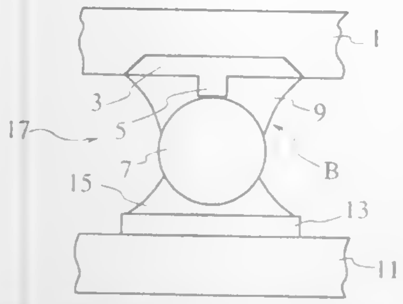


a ball having conductivity and located above the pad; and
a conductive bonding material for bonding the pad for and the ball, wherein creep strength of the ball is larger than strength of the conductive bonding material.

5,736,791

SEMICONDUCTOR DEVICE AND BONDING PAD STRUCTURE THEREFOR

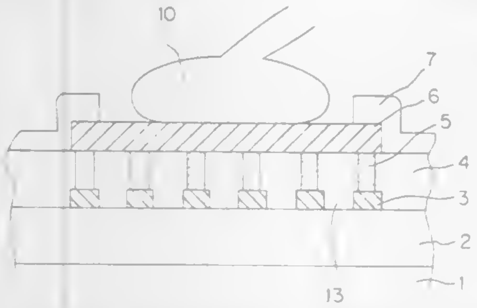
Noriaki Fujiki, and Takashi Yamashita, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 479,205

Claims priority, application Japan, Feb. 7, 1995, 7-019212

Int. Cl.^{6} H01L *23/48, 23/52, 23/40*

U.S. Cl. 257—781 14 Claims



1 A semiconductor device having a bonding pad portion of a multilayered wiring structure comprising at least first and second wiring layers and at least one interlayer insulating layer between the wiring layers which has a plurality of via holes filled with an electrically conductive component so as to electrically connect the wiring layers, characterized in that

(1) the first wiring layer has a wiring pattern including a plurality of spaced apart portions,
(2) the interlayer insulation layer is located on the first wiring layer and fills the slit portions of the wiring pattern, and the via hole contained in the interlayer insulation is located on the first wiring layer, and
(3) the second wiring layer is formed on the interlayer insulation layer so that it is electrically connected with the first wiring layer through the plurality of via holes, and functions as a pad electrode for electrical input or output with the outside of the semiconductor device, wherein each spaced apart portion of the first wiring layer is connected to the second wiring layer through a via hole

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5,736,792

METHOD OF PROTECTING BOND WIRES DURING MOLDING AND HANDLING

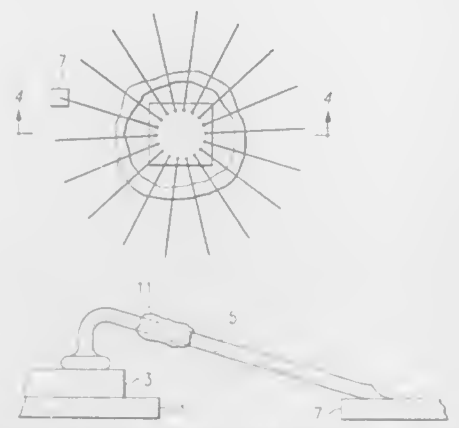
John W. Orcutt, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 28, 1996, Ser. No. 697,660

Int. Cl.^{6} H01L *23/50 23/48, 23/30-23/28*

U.S. Cl. 257—783 12 Claims

1 A semiconductor device which comprises
(a) a chip having plural bond pads thereon,



(b) a plurality of wires disposed adjacent each other, each of said wires having a first end coupled to one of said bond pads;
(c) a plurality of lead fingers, each of said wires having a second end coupled to one of said lead fingers; and
(d) a unitary mass of hardened adhesive disposed over and secured to each of said wires to provide separation of said wires from each other, the unitary mass is separated from the bond pads and the lead fingers.

5,736,793

CONTROL SYSTEM FOR ELECTRICAL COMPONENTS OF A MOTOR VEHICLE

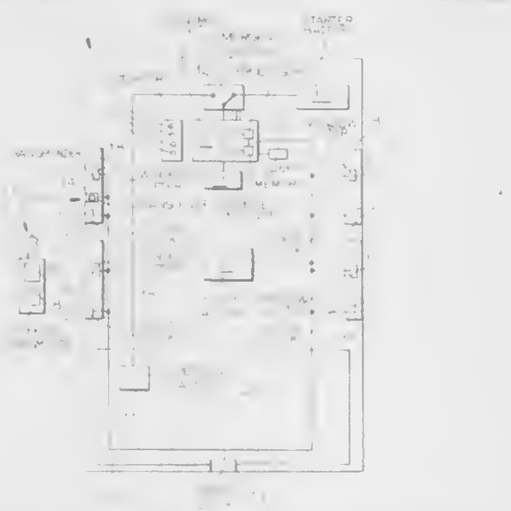
Achim Jahrsetz, Velbert; Frank Kleefeldt, Heiligenhaus; Wilfried Ostermann, Essen, and Fred Welskopf, Herne, all of Germany, assignors to Kiekert AG, Heiligenhaus, Germany

Filed Jun. 11, 1996, Ser. No. 661,485

Claims priority, application Germany, Aug. 18, 1995, 195 30 721.6

Int. Cl.^{6} B20R *25/00*

U.S. Cl. 307—10.1 8 Claims



1 A door-lock and control system for an automotive vehicle, said system comprising:

a multiplicity of electrically operated components on said automotive vehicle including a plurality of vehicle door locks, a plurality of window lifters and a theft alarm,
a central control unit on said vehicle for selectively operating said components and including at least one operator-actuatable element, said control unit additionally activating comfort functions for said automotive vehicle;
signal conductor means including at least one control line connecting said central control unit with said components for operating said components in response to operation of said at least one operator actuatable element;

a starter battery serving at least to start the vehicle and connected to said control unit and said components for normally supplying electrical energy thereto;
an emergency battery on said vehicle having at least sufficient capacity to operate said system and at least certain of said components upon disconnection of said starter battery from the system; and
an emergency circuit including means for measuring voltage of said starter battery and responsive to a voltage across said starter battery below a predetermined level for automatically disconnecting said starter battery from the system, for connecting said emergency battery to operate said control unit and certain of said components in a basic control mode, and for deactivating said comfort functions to afford reliable access to said vehicle with said door locks until the starter battery is recharged and reconnected for a substantial period of time.

5,736,794

CIRCUIT ARRANGEMENT FOR PROVIDING SIGNAL CORRECTION INCLUDING A SWITCH-ON DELAY TIME PERIOD DURING WHICH A CORRECTION SIGNAL IS DETERMINED FOR USE DURING A FOLLOWING TIME PERIOD

Robert Kern, Sasbachwalden, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

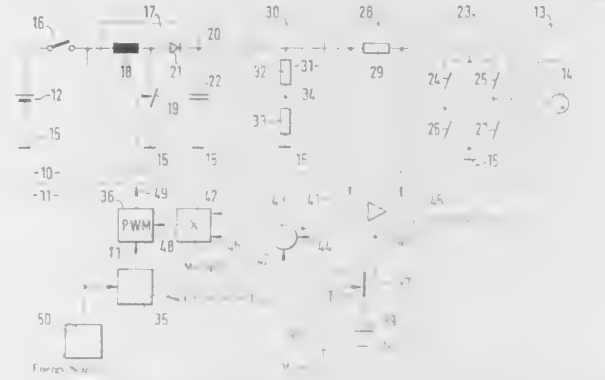
PCT No. PCT/DE94/01294, § 371 Date May 10, 1996, § 102(e) Date May 10, 1996, PCT Pub. No. WO95/13522, PCT Pub. Date May 18, 1995

PCT Filed Nov. 3, 1994, Ser. No. 646,357

Claims priority, application Germany, Nov. 12, 1993, 43 38 709.8

Int. Cl.^{6} B60L *1/14*

U.S. Cl. 307—10.8 11 Claims



1 A circuit arrangement with a first circuit section in which at least one signal to be processed occurs, and with a second circuit section containing a signal processing unit as well as a device for correcting the signal, with a memory contained in the device for signal correction which memory stores an idle level occurring at an output of the signal processing unit, and with the stored idle level being provided for correcting the processed signal, and wherein a switch-on delay unit is provided in the second circuit section which switch-on delay unit, following start up of the two circuit sections, maintains the first circuit section in the switched-off state for the time (T) predetermined by the switch-on delay unit, the memory stores the occurring idle level during the predetermined time (T), and the signal correction is provided at the end of the predetermined time (T).

5,736,795

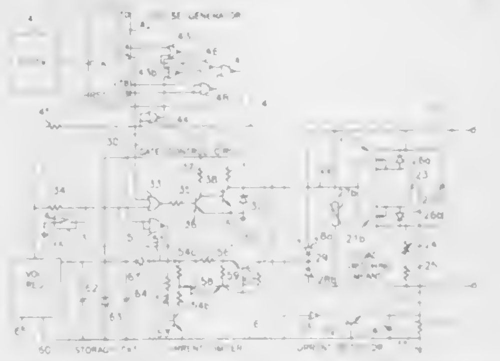
SOLID STATE AC SWITCH WITH SELF-SYNCHRONIZING MEANS FOR STEALING OPERATING POWER

Kurt G. Zuehlke, Minnetonka, and Steven H. Lein, Bloomington, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 22, 1996, Ser. No. 635,831

Int. Cl.^{6} H03K *5/153*

U.S. Cl. 307—130 16 Claims



1 In apparatus for controlling the supply of alternating electric current to a load, circuitry for stealing electric power from the supplied current comprising:

first and second power terminals between which a source of alternating current at a predetermined frequency and a load in series with the source may be connected;
switching means connected between said first and second power terminals for selectively permitting current to flow through the load in response to a control signal of at least a first voltage magnitude, said switching means having a low impedance state in which current flow is permitted and a high impedance state in which current flow is substantially blocked;
rectification means connected between said first and second power terminals for receiving alternating current and converting it to unidirectional current at a voltage of at least the first voltage magnitude for supply through first and second output terminals;
a reference potential conductor,
a current supply conductor;
a current detector connecting one of the first and second output terminals of said rectification means to one of said reference potential conductor and said current supply conductor, said current detector being operable to produce a current threshold signal indicative of whether the magnitude of the current supplied by said rectification means exceeds a predetermined threshold;
first connecting means connecting other of the first and second output terminal of said rectification means to the other of said reference potential conductor and said current supply conductor, whereby said current supply conductor is normally maintained at a voltage of at least the first voltage magnitude relative to the voltage on said reference potential conductor,
electric power storage means connected between said reference potential conductor and said current supply conductor, said electric power storage means being operable to store power when the voltage between said first and second power terminals exceeds a predetermined magnitude;
a pulse generator operable to generate a pulse train in which successive pulses occur during separate equally spaced half cycles of alternating polarity of the supplied alternating current, the timing of individual pulses within their respective associated half cycles of the supplied alternating current being variable in response to the current threshold signal such that if a current magnitude in excess of the predetermined threshold is indicated, a succeeding pulse is shifted in time away from the current peak of the supplied alternating current, and if a current magnitude less than the predetermined threshold is indicated, a succeeding pulse is shifted in time toward the current peak of the supplied alternating current.

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input means for supplying a load power signal commanding that current be supplied to the load, and

control circuitry connected to receive operating power through said current supply conductor, said control circuitry being responsive to the load power signal and the pulses produced by said pulse generator to supply control signals to said switching means such that in the presence of a load power signal said switching means is maintained in its low impedance state except during individual pulses produced by said pulse generator.

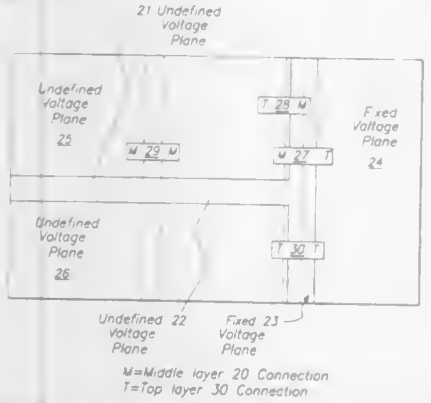
5,736,796
PRINTED CIRCUIT BOARD HAVING SPLIT VOLTAGE PLANES

Noah M. Price, Campbell; Duane M. P. Takahashi, San Jose, and David C. Buuck, Santa Clara, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 1, 1995, Ser. No. 432,233

Int. Cl.^{6} H01B *7/30;* **H05K** *1/11*

U.S. Cl. 307—151 **12 Claims**


21 Undefined Voltage Plane
Undefined Voltage Plane 25
T 28 M
Fixed Voltage Plane 24
M 29 M
M 27 T
Undefined Voltage Plane 26
T 30 T
Undefined 22 Voltage Plane
Fixed 23 Voltage Plane
M=Middle layer 20 Connection
T=Top layer 30 Connection

1. A printed circuit board for coupling and holding a circuit having at least one device, said device having a first set of power supply pins having a first voltage supply requirement and a second set of power supply pins having a second voltage supply requirement, said printed circuit board comprising.

at least a first conductive layer having a plurality of electrically isolated voltage supply plane regions including a first fixed voltage supply plane region having a fixed connection with said first set of power supply pins and being connectable to a first power supply voltage, said isolated voltage supply regions also including a second fixed voltage supply plane region having a fixed connection with said second set of power supply pins and being connectable to a second power supply voltage.

5,736,797
LINEAR OSCILLATING MOTOR

Ryo Motohashi; Masao Tanahashi; Hidetoshi Amaya; Takio Maekawa; Toyokatsu Okamoto; Yasuo Ibuki, all of Hikone, Japan; Claude Oudet, Besancon, and Daniel Prudham, Thise, both of France, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed May 31, 1996, Ser. No. 658,825

Claims priority, application Japan, May 31, 1995, 7-134441

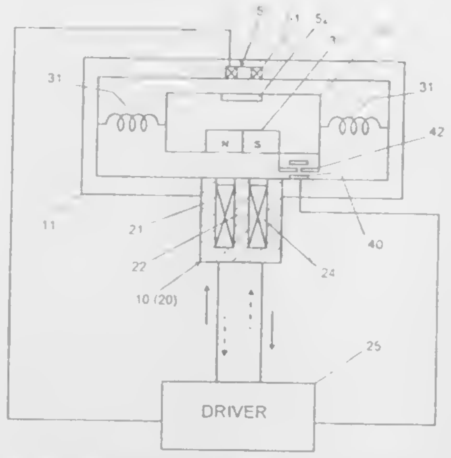
Int. Cl.^{6} H02K *33/12*

U.S. Cl. 310—36 **8 Claims**

1. A linear oscillating motor comprising:

a linear oscillator movably supported to a base frame and carrying a permanent magnet:

a stator fixed to said base frame and provided with an electromagnet, said electromagnet receiving an electric power to develop in cooperation with the permanent magnet an electromagnetic drive force of moving said oscillator in a linear direction relative to said stator;



spring means which applies a restoring force to said oscillator for reversing the linear motion, thereby providing a linear oscillating motion to said oscillator;

sensor means for sensing the linear motion of the oscillator to provide a signal indicative thereof;

a reverse-point detector which, based upon the signal from said sensor means, determines right and left reverse points of said oscillator;

a speed detector which, based upon the signal from said sensor means, derives an instantaneous speed of said oscillator;

a controller which applies the electric power to said electromagnet at right and left drive points respectively defined subsequent in time to said right and left reverse points and in an a varying amount for keeping an oscillation amplitude of the oscillator at constant,

wherein said sensor means comprises:

a photo-sensor which outputs a train of pulses appearing each time said oscillator passes its oscillation center,

and wherein

said reverse-point detector determines said reverse point based upon a time period between two preceding pulses.

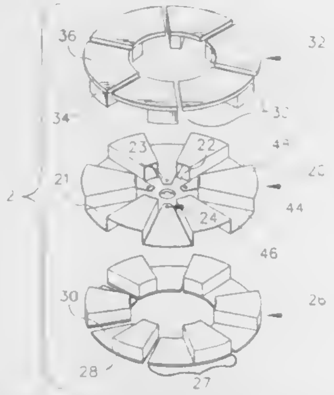
5,736,798
PASSIVE MAGNETIC DAMPER

Michael Joseph O'Brien, Rochester; Robert Cooper Bryant, Honeoye Falls, and Richard Alexander Colleluori, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 22, 1996, Ser. No. 681,001

Int. Cl.^{6} H02K *7/09*

U.S. Cl. 310—51 **8 Claims**



1. A passive magnetic damper, comprising:

a disk shaped damper vane having spaced apart vertical and horizontal portions forming a castellated shape; and

a plurality of magnets positioned between the vertical portions of said damper vane for providing magnetic fields for interacting with the vertical and horizontal portions of said damper vane.

5,736,799
MINIATURE ELECTRIC MOTOR HAVING BEARING UNIT

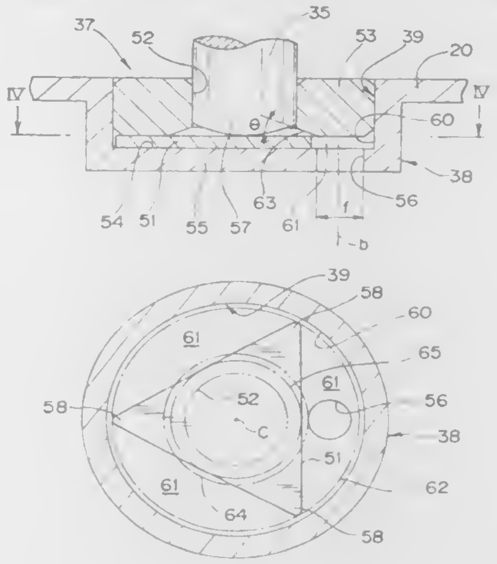
Junichi Harano; Shigeyoshi Iwamoto, and Mitsuo Kase, all of Chiba-ken, Japan, assignors to Mabuchi Motor Co., Ltd., Matsudo, Japan

Continuation of Ser. No. 344,649, Nov. 18, 1994, abandoned. This application Dec. 26, 1996, Ser. No. 780,133

Claims priority, application Japan, Apr. 6, 1994, 6-093053

Int. Cl.^{6} H02K *5/16*

U.S. Cl. 310—90 **26 Claims**



1. A miniature electric motor having a rotor arranged in a casing within which a stator is mounted, and a rotary shaft of said rotor is rotatably supported by two bearing units, each being mounted on one of opposite end portions of said casing, said one of the bearing units comprising:

a thrust receiving member for supporting an end portion of said rotary shaft in a thrust direction, said thrust receiving member being laid on a flat bottom surface of a bottomed recess formed in the casing, with a dimension equal to or smaller than that of the bottomed recess; and

a bearing securely fixed in the bottomed recess and brought into pressing contact with said thrust receiving member for supporting said rotary shaft in a rotary shaft insertion hole in a radial direction,

wherein said rotary shaft insertion hole and at least one through-hole formed in a bottom plate of the bottomed recess are in fluid communication with each other around and/or through said thrust receiving member, where said thrust receiving member has a size and peripheral shape enabling said fluid communication,

wherein said through-hole opens to the outside of the motor to allow air to pass therethrough,

wherein said thrust receiving member has a predetermined shape to cover a part of said bottom surface while always maintaining a communication passageway between said rotary shaft insertion hole and said through-hole, and

wherein said thrust receiving member has a plurality of apex portions for always allowing fluid communication between said rotary shaft insertion hole and said through-hole through a space between said thrust receiving member and an inner circumferential surface of said bottomed recess.

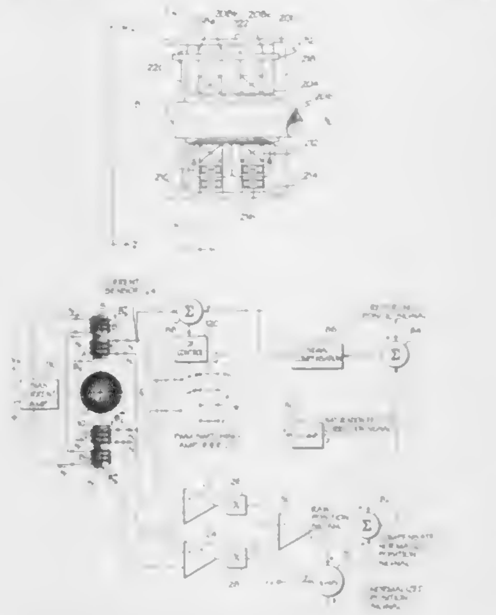
5,736,800
LIGHT WEIGHT, HIGH PERFORMANCE RADIAL ACTUATOR FOR MAGNETIC BEARING SYSTEMS

Victor Iannello, 2623 Bobwhite Dr., Roanoke, Va. 24018, and Richard M. Willis, Jr., 501 Woods Ave., SW., Roanoke, Va. 24016

Filed Oct. 18, 1994, Ser. No. 325,099

Int. Cl.^{6} H02K *7/09*

U.S. Cl. 310—90.5 **42 Claims**



1. An electromagnetic bearing, comprising

a pair of spaced-apart circular coils coaxially disposed around a longitudinal axis, to define a bore centered upon said longitudinal axis;

a first plurality of arcuately spaced-apart control coils each subtending different spaced-apart arcs centered upon said longitudinal axis, said first plurality of control coils being radially aligned with and spaced-apart from a first one of said circular coils; and

a second plurality of arcuately spaced-apart control coils each subtending different spaced-apart arcs centered upon said longitudinal axis, said second plurality of control coils being axially separated from said first plurality of control coils while being radially aligned with and spaced-apart from a second one of said circular coils.

5,736,801
FILTER CIRCUIT AND CONTROL CIRCUIT FOR CONTROLLING A ROTOR

Chikara Murakami, Tokyo, Japan, assignor to Ebara Corporation, Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,452

Claims priority, application Japan, Aug. 18, 1995, 7-233276

Int. Cl.^{6} H02K *7/09*

U.S. Cl. 310—90.5 **16 Claims**

1. An apparatus for controlling a rotor in a system for electromagnetically controlling two radial x- and y axes perpendicular to a rotational z-axis of the rotor, comprising:

displacement sensors for sensing displacements of the rotor along x- and y-axes;

a filter circuit for outputting an output signal which is obtained by multiplying the both sides of a transfer expression formula:

$$U\, F(s-j\omega)=V$$

by the denominator of F(s−jω), and connecting transfer elements of the real-number coefficient so that real and imaginary parts of the transfer expression formula are equal to each other, wherein a signal input from said displacement sensors related to the x- and y-axes (Laplace transform quantities thereof are presented by Ux,

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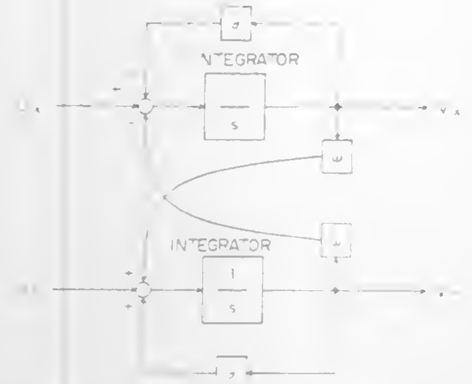

Uy) is expressed by a complex variable (U=Ux+jUy), a transfer function of a low-pass or high-pass filter having a real-number coefficient is represented by F(s), a central angular frequency, which may be either positive or negative, to be passed or rejected, is represented by ω, an imaginary number unit is represented by j, and a complex coefficient transfer function produced by replacing "s" in the transfer function F(s) with (s−jω) is represented by F(s−jω), and said output signal related to the x- and y-axes (Laplace transform quantities thereof are presented by Vx, Vy) which is generated when the input signal U passes through the complex coefficient transfer function F(s−jω) is expressed using a complex variable (V=Vx+jVy); and

electromagnets controlling the position of the rotor as a function of said output signal output by said filter circuit

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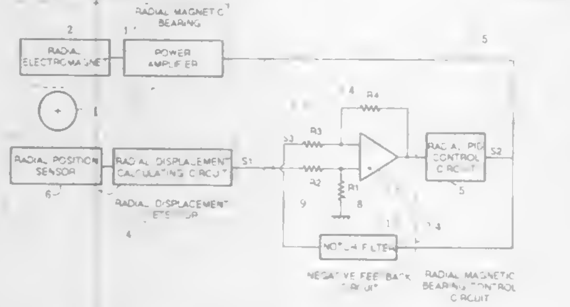
5,736,802
MAGNETIC BEARING DEVICE

Hirochika Ueyama, Osaka, and Ryoichi Takahata, Nara, both of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan
Continuation of Ser. No. 363,113, Dec. 23, 1994, abandoned. This application Apr. 10, 1997, Ser. No. 838,595
Claims priority, application Japan, Dec. 24, 1993, 5-327661
Int. Cl.⁶ H02K *7/09*
U.S. Cl. 310—90.5 **9 Claims**


RADIAL MAGNETIC BEARING
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RADIAL ELECTROMAGNET
POWER AMPLIFIER
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R4
R3
R2
R1
9
8
RADIAL POSITION SENSOR
RADIAL DISPLACEMENT CALCULATING CIRCUIT
RADIAL PID CONTROL CIRCUIT
6
4
RADIAL DISPLACEMENT DETECTOR
NOTCH FILTER
NEGATIVE FEEDBACK CIRCUIT
RADIAL MAGNETIC BEARING CONTROL CIRCUIT

1. A magnetic bearing device comprising:

a) a radial magnetic beating having a plurality of radial electromagnets for contactlessly supporting a rotary body radially thereof,

b) a radial displacement detector for detecting the radial displacement of the rotary body,

c) a radial PID control circuit for controlling drive current for the radial electromagnets based on a radial displacement signal from the radial displacement detector, and

d) negative feedback means for negatively feeding back an output signal of the radial PID control circuit to an input of the radial PID control circuit via a notch filter, the negative feedback means constituting:

d') means for improving damping of the bearing by providing a phase advance that is approximately at a frequency that corresponds to a steady-state number of revolutions per unit time

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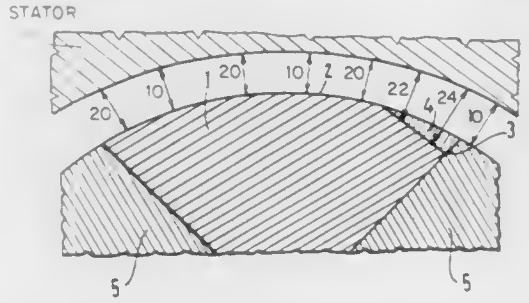
5,736,803
SYNCHRONOUS MACHINE ROTOR

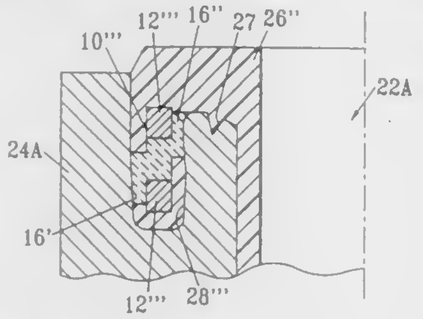
André Masson, Aulnay, France, assignor to GEC Alsthom Transport SA, Paris, France
Filed Sep. 15, 1994, Ser. No. 306,597
Claims priority, application France, Sep. 21, 1993, 93 11233
Int. Cl.⁶ H02K *21/12*
U.S. Cl. 310—156 **17 Claims**



1. A synchronous machine rotor having poles and being associated with a stator, wherein a surface of one of said poles defines a first surface and an outer surface of said rotor defines a second surface, there being a magnetic airgap between said first surface and said second surface of said stator, said magnetic airgap being progressive in a progressive magnetic airgap area of only one side of said pole, said aerodynamic airgap being constant, said progressive magnetic airgap area including a tangential edge area disposed at an edge of said pole and a centrally disposed area disposed closer to the center of said pole than said tangential edge area, and said progressive magnetic airgap being thinner at said centrally disposed area than at said tangential edge area; and having at least one amagnetic material progressive magnetic airgap area.

5,736,804
REINFORCEMENT RING FOR ROTATING BODIES AND METHOD OF PRODUCING THE SAME

Joze Potocnik; Ivan Cerin, and Boris Krzisnik, all of Idrija, Slovenia, assignors to Comtrade Handelsgesellschaft MBH, Klagenfurt, Australia
PCT No. PCT/EP95/00495, § 371 Date Dec. 4, 1995, § 102(e) Date Dec. 4, 1995, PCT Pub. No. WO95/22185, PCT Pub. Date Aug. 17, 1995
PCT Filed Feb. 10, 1995, Ser. No. 535,010
Claims priority, application WIPO, Feb. 10, 1994, PCT/EP94/00381
Int. Cl.⁶ H01R *43/06*
U.S. Cl. 310—235 **8 Claims**



1. A reinforcement ring (10''') for a rotating body such as a commutator, comprising:

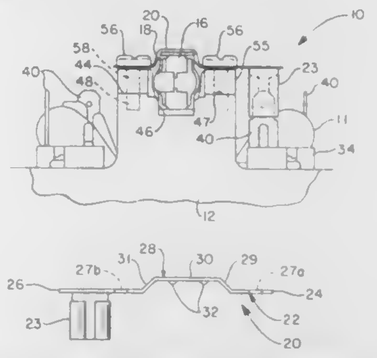
first and second metal rings (12'''), of rectangular cross-section, each having a first end surface and a radial surface; and

a fiberglass ring (14''') having first and second stepped portions that respectively receive the first and second metal rings (12'''), the first stepped portion being defined by a second end surface and a first radial overhang region (16'), and the second stepped portion being defined by a third end surface and a second radial overhang region (16''):

whereby the first metal ring (12''') is received in the first stepped portion so that the fiberglass ring (14''') and the first metal ring (12''') are joined at the first and second end surfaces, whereby the second metal ring (12''') is received in the second stepped portion so that the fiberglass ring (14''') and the second metal ring (12''') are joined at the first and third end surfaces, and whereby the first radial overhang region (16') and the second radial overhang region (16'') respectively contact less than the entire radial surfaces of the first and second metal rings (12''').

5,736,805
BRUSH RETAINING CLIP AND ELECTRICAL CONNECTION

Robert L. Hyatt, Jr., Stow, and Robert A. Ciccarelli, Jr., Kent, both of Ohio, assignors to Ametek, Inc., Kent, Ohio
Filed Feb. 16, 1996, Ser. No. 602,311
Int. Cl.⁶ H02K *13/00;15/00*
U.S. Cl. 310—249 **13 Claims**



1. A combined electrically conductive commutator brush retaining clip and electrical connector for a commutated motor having a motor housing with a stator and a rotor disposed therein, the rotor having a commutator, the combined retaining clip and electrical connector comprising:

a main body portion disposed along a first plane:

a terminal portion extending from said main body portion,

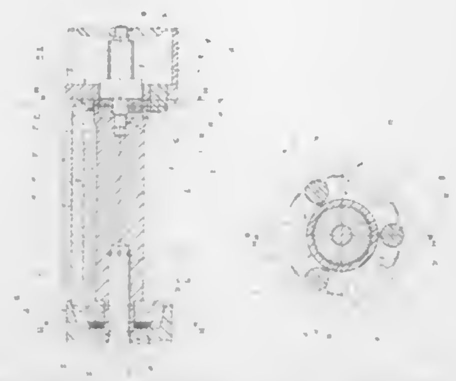
a stepped portion formed by side walls angularly extending from said main body portion and connected to each other by a top wall, wherein said top wall is substantially parallel with said first plane of said main body portion, said stepped portion being removably secured to the housing and maintaining a commutator brush and brush holder assembly adjacent the housing and also in electrical contact with the commutator, wherein the commutator brush and brush holder assembly comprises a carbon commutator brush having a pigtail wire affixed to one end thereof, and an electrically conductive brush holder sleeve for maintaining the commutator brush therein, wherein an opposite end of the pigtail wire is electrically connected to an interior surface of said brush holder; and,

said terminal portion having means for establishing an electrical connection between the brush and brush holder assembly and the stator, and wherein the electrical connection is maintainable between said terminal portion and the stator even if said main body portion releases said brush holder from the housing.

5,736,806
CYLINDRICAL ELECTROCHEMICAL TRANSDUCER

Daho Taghezout, Lausanne, Switzerland, assignor to Eta SA Fabriques d'Ebauches, Grenchen, Switzerland
Filed Dec. 20, 1994, Ser. No. 359,740
Claims priority, application France, Dec. 28, 1993, 93 15752
Int. Cl.⁶ H02K *1/12,1/27*
U.S. Cl. 310—254 **15 Claims**

1. An electromechanical transducer comprising a stator and a rotor capable of turning around a rotation axis and including a



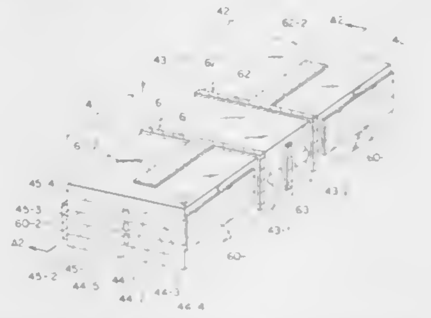
permanent magnet, said stator comprising magnetic coupling means serving to couple magnetically at least a first winding to said permanent magnet, said magnetic coupling means comprising

a first polar expansion and a second polar expansion each partially defining a stator hole traversed by said rotor, such first and second polar expansions being separated from one another by zones of high magnetic reluctance,

a first polar arm and a second polar arm each having a first end and a second end, such first and second polar arms having their said first ends respectively coupled magnetically to said first polar expansion and to said second polar expansion and having their second ends magnetically coupled to one another, said first and second polar arms being oriented in a direction substantially parallel to said rotation axis, said first winding being borne by said first polar arm, said stator furthermore comprising a mounting including an elongated central body having a longitudinal central axis substantially merged with said rotation axis of said rotor and also including an end flange integral with said central body and substantially perpendicular to said longitudinal central axis, said polar arms and said polar expansions being located below the upper surface of said flange relative to said central body, said polar expansions bearing axially against a surface of such flange.

5,736,807
PIEZOELECTRIC TRANSFORMER SUITABLE FOR GENERATING A HIGH VOLTAGE

Hiroyo Hakamata, and Takeshi Inoue, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Continuation of Ser. No. 504,671, Jul. 20, 1995, abandoned. This application Nov. 4, 1996, Ser. No. 742,700
Claims priority, application Japan, Jul. 22, 1994, 6-170607
Int. Cl.⁶ H01L *41/08*
U.S. Cl. 310—359 **5 Claims**



1. A piezoelectric transformer, driven by a longitudinal tertiary mode defined by a predetermined wave length, said transformer comprising,

a piezoelectric plate member,

first and second driving blocks which are formed at both sides of said piezoelectric plate member and which are operable in a piezoelectric transverse vibration mode to induce a longitudinal vibration in a longitudinal direction by an a.c. voltage, and

a voltage generating block formed between said first and said second driving blocks and which is operable in a piezoelectric

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longitudinal vibration mode in response to said longitudinal vibration induced by said first and second driving blocks.

each of said first and said second driving blocks comprising a plurality of thin piezoelectric layers which are stacked through a plurality of internal electrodes and which are alternatively polarized in a thickness direction of said piezoelectric plate member.

said voltage generating block comprising first and second voltage generating portions formed apart from each other to generate an output voltage by said piezoelectric longitudinal vibration mode, a primary voltage producing portion formed between said first and said second voltage generating portions and comprising a plurality of thin piezoelectric layers which are stacked through a plurality of primary internal electrodes, and first and second secondary voltage producing portions formed at both sides of said voltage generating block, each of said first and said second secondary voltage producing portions comprising a plurality of thin piezoelectric layers which are stacked through a plurality of secondary internal electrodes, said first and said second voltage generating portions being polarized in opposite directions in said longitudinal direction.

said first and said second driving blocks being supplied, in common, with said a.c. voltage through first and second input terminals, said primary and said first and said second secondary voltage producing portions delivering said output voltage through first and second output terminals, said first input terminal, said second input terminal, said first output terminal and said second output terminal being electrically insulated from each other, and each located at a node of said longitudinal vibration;

said piezoelectric plate member further comprising an inactive piezoelectric layer formed on an upper surface thereof and having upper and under surfaces and first and second side surfaces, said plurality of internal electrodes being numbered from one to n, where n represents a positive integer, and divided into odd and even number groups,

each of said first and said second driving blocks further comprising a first outer electrode which is formed on said first side and said under surfaces and a second outer electrode which is formed on said second side surface, said first outer electrode being for connecting, in common, said even number group of said plurality of internal electrodes to one of said first and said second input terminals, said second outer electrode being for connecting, in common, said odd number group of said plurality of internal electrodes to another one of said first and said second input terminals,

each of said first and said second input terminals being connected at a predetermined position spaced apart from an end surface of said piezoelectric plate member by a quarter of said predetermined wave length;

wherein said voltage generating block further comprises:

a primary outer electrode formed on said first and said second side surfaces and said under surface for connecting, in common, said plurality of primary internal electrodes to one of said first and said second output terminals;

a first secondary outer electrode formed on said upper and said under surfaces and said first and said second side surfaces for connecting, in common, said plurality of first secondary internal electrodes to another one of said first and said second output terminals; and

a second secondary outer electrode formed on said upper and said under surfaces and said first and said second side surfaces for connecting, in common, said plurality of second secondary internal electrodes to said other one of the first and the second output terminals,

each of said first and said second secondary outer electrodes comprising a strip electrode portion formed on said upper and said under surfaces and said first and said second side surfaces and a plate electrode portion formed on said upper surface so as to extend from said strip electrode portion towards said end surface along a longitudinal center axis of said piezoelectric plate member, said strip electrode portion and said plate electrode portion of each of said first and said second secondary electrodes together forming a "T" shape on said upper surface of said piezoelectric plate member;

said first output terminal being connected at a center position placed at a center of said under surface, said second output terminal being connected to said plate electrode portion at a preselected position spaced apart from said end surface of the piezoelectric plate member by said quarter of the predetermined wave length.

5,736,808

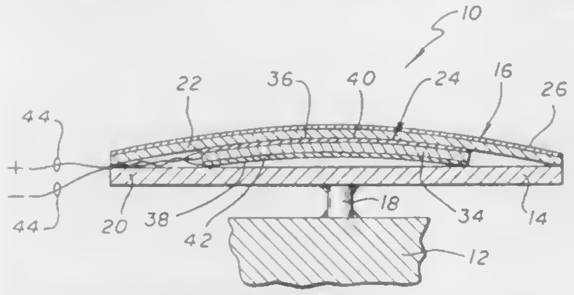
PIEZOELECTRIC SPEAKER

Andrei Szilagyi, Rancho Palos Verdes, and Michael Strugach, Calabasas, both of Calif., assignors to Aura Systems, Inc., El Segundo, Calif.

Filed Dec. 22, 1995, Ser. No. 577,279

Int. Cl.^{6} H01L *41/08;* **H04R** *17/02*

U.S. Cl. 310—322 **2 Claims**



1. A piezoelectric speaker comprising:

a bender;

a case encapsulating said bender, wherein said bender has an unbiased height and further wherein said bender is compressed to approximately fifty percent of the unbiased height when encapsulated in the ease;

a rigid structure interconnected to said case, said rigid structure being structurally distinct from said case; and

a wave guide mounted to both said rigid structure and said case and serving to interconnect said rigid structure and said case, wherein said wave guide is fabricated from a rigid material.

5,736,809

METHOD OF MAKING A SPARK PLUG INCLUDING LASER WELDING A NOBLE METAL LAYER TO A FIRING END OF ELECTRODE

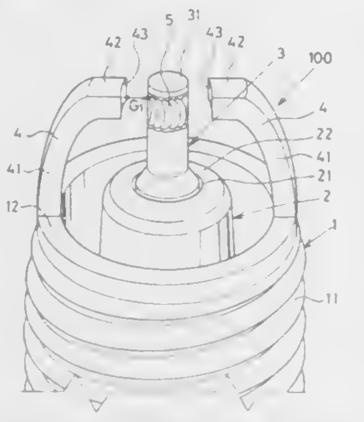
Wataru Matsutani, and Kozo Amano, both of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Division of Ser. No. 401,685, Mar. 10, 1995, abandoned. This application Jul. 8, 1996, Ser. No. 676,840

Claims priority, application Japan, Mar. 10, 1994, 6-040187

Int. Cl.^{6} H01T *21/02*

U.S. Cl. 313—141 **2 Claims**



1. A method of making a spark plug which includes a noble metal layer welded to a firing end of an electrode, said method comprising the steps of:

(a) laser welding the noble metal layer on the firing end of the electrode; and

(b) subsequently annealing the noble metal layer at 800°–1000° C. for 1–10 hours under 10^{-2}–10^{-8} Torr so as to increase a recrystallized grain size of the noble metal layer to 10 microns or more on average diameter.

5,736,810

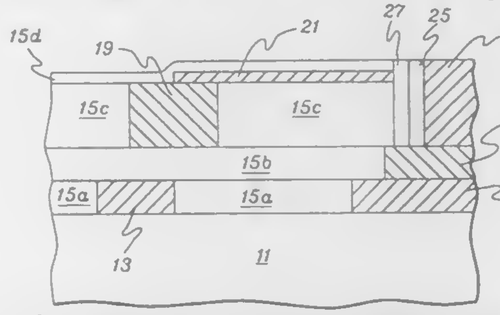
NON-EVACUATED LATERAL FED EMPLOYING EMITTER-ANODE SPACING LESS THAN MEAN FREE PATH DISTANCE OF AN ELECTRON IN AIR

Jack Allan Mandelman, Stormville, N.Y., and Michael David Potter, Grand Isle, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 331,307, Oct. 28, 1994. This application Apr. 30, 1996, Ser. No. 641,252

Int. Cl.^{6} H01J *1/16*

U.S. Cl. 313—309 **12 Claims**



1. A field emission device ("FED") for emitting electromagnetic energy comprising:

a substrate having a main surface;

an anode disposed above said main surface of said substrate, said anode having a first surface;

a phosphor layer disposed adjacent to said first surface of said anode, said phosphor layer comprising a conductive-type phosphor layer;

an emitter in spaced opposing relation to said first surface of said anode such that said emitter has a tip pointing towards the phosphor layer, wherein a voltage potential applied between the anode and the emitter causes electrons to be emitted from the tip of the emitter into the phosphor layer causing the phosphor layer to emit electromagnetic energy; and

wherein said FED includes an insulating layer disposed between and physical contacting the tip of the emitter and the conductive-type phosphor layer such that a voltage potential applied between the anode and the emitter causes electrons to pass through the insulating layer into the conductive-type phosphor layer.

5,736,811

CAPPED HIGH-PRESSURE DISCHARGE LAMP

Manfred Westemeyer, Aldenhoven; Ralf Schäfer, Aachen, both of Germany, and Leonardus U.E. Konings, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 58,607, May 6, 1993, abandoned. This application Sep. 5, 1995, Ser. No. 522,646

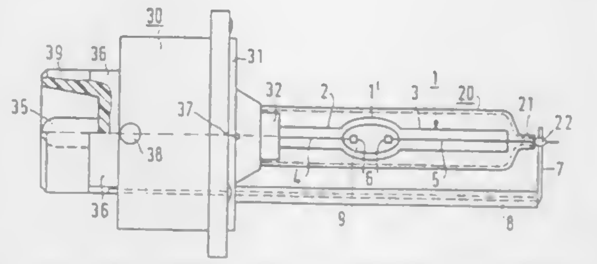
Claims priority, application European Pat. Off., May 11, 1992, 92201333

Int. Cl.^{6} H01J *5/48*

U.S. Cl. 313—318.02 **13 Claims**

1. A capped electric lamp comprising:

a light source with a lamp vessel which is closed in a gastight manner and has an ionizable filling gas and with a first and a second mutually opposed neck-shaped portion, each neck-shaped portion having a seal, through which neck-shaped portions a first and a second current supply conductor, respectively, extend to a pair of electrodes arranged in the lamp vessel;



a lamp cap of insulating material to which the lamp vessel is fixed with the first neck-shaped portion, which lamp cap has a first contact member connected to the first current supply conductor, and a second contact member;

a connection conductor running alongside the lamp vessel to the lamp cap and being connected between the second current supply conductor and the second contact member;

the lamp vessel having a substantially concentric tubular outer envelope of quartz glass having low thermal expansion which is filled with air,

characterized in that the connection conductor extends outside the outer envelope and the outer envelope is substantially cylindrical and has at least one narrowing portion which encloses the light source, said connection conductor being fixed to said second current supply conductor.

5,736,812

ELECTRON GUNS FOR COLOR PICTURE TUBE

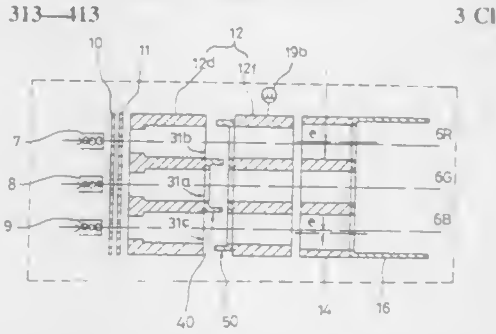
Myung Ho Park, Kyungsangbook-Do, and Soo Keun Lee, Seoul, both of Rep. of Korea, assignors to Goldstar Co., LTD., Seoul, Rep. of Korea

Continuation of Ser. No. 711,063, Sep. 9, 1996, abandoned, which is a continuation of Ser. No. 349,445, Dec. 5, 1994, abandoned. This application Jul. 9, 1997, Ser. No. 890,283

Claims priority, application Rep. of Korea, Dec. 7, 1993, 26733/1993

Int. Cl.^{6} H01J *29/58*

U.S. Cl. 313—413 **3 Claims**



1. In-line electron guns for a cathode ray tube comprising:

a uniform magnetic field deflection yoke which generates uniform magnetic fields for deflecting electron beams from a plurality of cathodes;

variable asymmetric electrostatic lenses having electrostatic deflection means, said electrostatic deflection means being placed between a first focussing electrode and a second focusing electrode, and said electrostatic deflection means including:

a first electrostatic deflection electrode electrically connected to said first focusing electrode, said first electrostatic deflection electrode having at least one beam passing opening formed in the center of a body of the first deflection electrode and having a pair of plates disposed adjacent to the opening, the plates extending toward said second focusing electrode; and

a second electrostatic deflection electrode electrically connected to said second focusing electrode, said second electrostatic deflection electrode having one or three beam passing openings formed in a body of the second deflection electrode and spaced out at regular intervals and a pair of plates extending toward the first focusing electrode.

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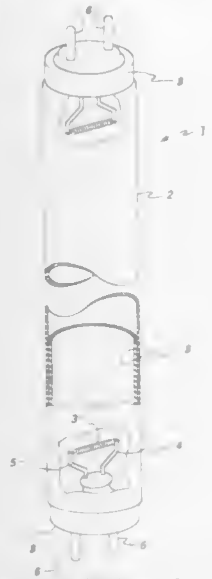
5,736,813
PH CONTROL OF LEACHABLE MERCURY IN FLUORESCENT LAMPS

Donald Franklin Foust, Scotia; Deborah Ann Haitko, and David Key Dietrich, both of Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 29, 1996, Ser. No. 764,702

Int. Cl.^{6} H01J *61/00*

U.S. Cl. 313—490 **11 Claims**



1. A low pressure mercury discharge lamp comprising an envelope of light transmitting glass, an inert gas, electrodes, elemental mercury, at least one end piece, wires which connect the end pieces to the electrodes, and an amount of about 5–15 grams pH control agent sufficient to substantially prevent formation of ferric and cupric compounds which oxidize elemental mercury to a soluble form.

5,736,814
VACUUM FLOURESCENT DISPLAY APPARATUS

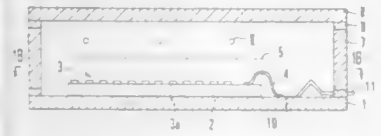
Kazuya Kinoshita, and Tadami Maeda, both of Mie, Japan, assignors to Ise Electronics Corporation, Japan

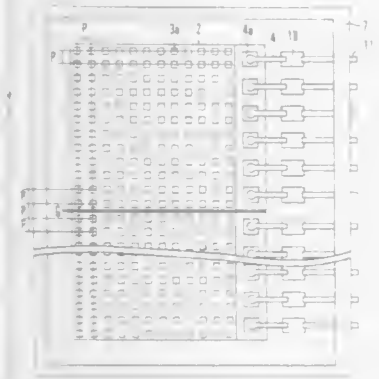
Filed Sep. 5, 1996, Ser. No. 708,501

Claims priority, application Japan, Sep. 6, 1995, 7-228852

Int. Cl.^{6} H01J *31/15*

U.S. Cl. 313—495 **3 Claims**





1. A vacuum fluorescent display apparatus comprising semiconductor chips disposed on an insulating substrate and having semiconductor integrated circuits formed thereon, and a phosphor screen comprising phosphor pixels driven by said semiconductor integrated circuits and arranged on said semiconductor integrated circuits in a matrix with the same space in horizontal and vertical directions,

wherein a space between first and second arrays of said phosphor pixels that are formed on end portions of opposing sides of first and second semiconductor chips arranged adjacent to each other is equal to a space among said phosphor pixels arranged on said semiconductor integrated circuits.

5,736,815
PLANER DISCHARGE TYPE PLASMA DISPLAY PANEL

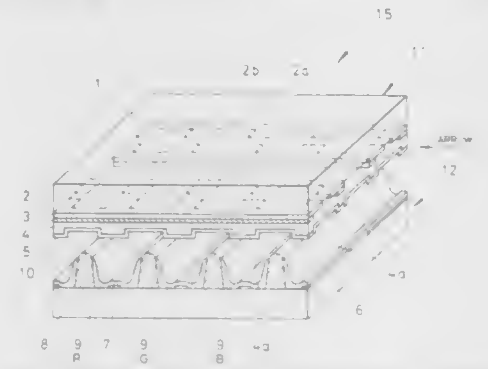
Kimio Amemiya, Koufu, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 15, 1996, Ser. No. 680,041

Claims priority, application Japan, Jul. 19, 1995, 7-205165

Int. Cl.^{6} H01J *11/02*

U.S. Cl. 313—586 **1 Claim**



1. A planer discharge type plasma display panel comprising:

a pair of substrates comprising first and second substrates each opposing a discharge space and separated thereby;

a plurality of pairs of row electrodes each provided on an internal surface of said first substrate, each row electrodes of said pairs being separated from each other by a discharge gap and extending in the horizontal direction;

a dielectric layer for covering the internal surface of said first substrate and said pairs of row electrodes;

a plurality of column electrodes each provided on an internal surface of said second substrate and extending in the vertical direction; and

a plurality of partition walls each provided on the internal surface of the second substrate between said column electrodes and partitioning said discharge space into a plurality of unit light emitting regions;

wherein a thickness of said dielectric layer from said discharging gap is larger than a thickness of said dielectric layer at a position proximate said discharging gap, to form a protruding section, and an area of the protruding section on said dielectric layer in said unit of light emitting region in the peripheral section of the panel is larger than that of the projection section on said derivative layer in said unit light emitting region in the central portion thereof

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5,736,816
AUTOMATIC ON-OFF VEHICLE HEADLIGHT SYSTEM

LeRoy M. Strenke, 414 235th Ave., and Kenneth W. Strenke, 549 21st Ave., both of Cumberland, Wis. 54829

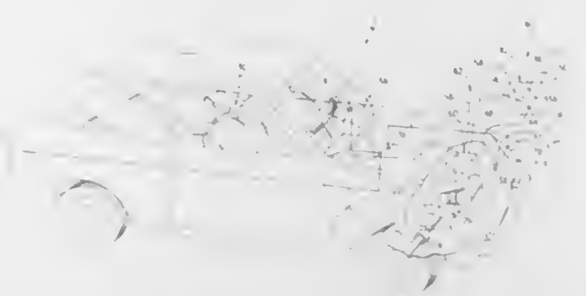
Filed Jun. 24, 1996, Ser. No. 669,177

Int. Cl.^{6} B60Q *1/02*

U.S. Cl. 315—82 **18 Claims**

1. A control system for automatically turning on and off at least the headlights of a vehicle, the vehicle having an engine for propelling the vehicle and a manually controlled control system for allowing the driver to manually turn the headlights on and off, which comprises

(a) a switch for making and breaking an electrical connection between an electrical power source carried on the vehicle and at least one of the beams of the vehicle's headlights, whereby



the switch is operated by a non-electrical force that is generated only when the engine is running such that the at least one headlight beam is automatically turned on and off when the engine of the vehicle is running or is not running, respectively, without requiring any electrical power for the actuation of the switch;

(b) wherein the switch operates independently of the manually controlled control system for turning the headlights on and off

(c) wherein the non-electrical force is provided by a source on the engine which is subject to intermittent degradation in the value or amount of the force during normal operation of the engine, and further including means interposed between the source of the non-electrical force and the switch for preventing such intermittent degradations in value from affecting the operation of the switch

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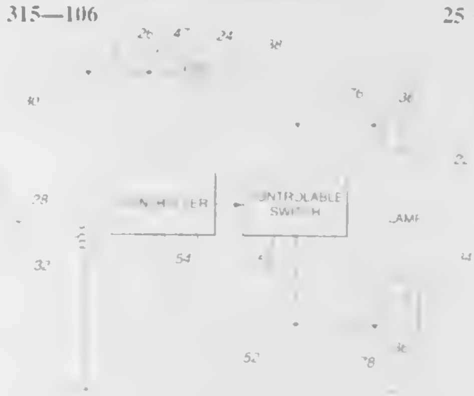
5,736,817
PREHEATING AND STARTING CIRCUIT AND METHOD FOR A FLUORESCENT LAMP

Dan E. Rothenbuhler, Meridian; Samuel A. Johnson, Eagle; Glenn A. Noble, Nampa, and Jon P. Seubert, Caldwell, all of Id., assignors to Beacon Light Products, Inc., Meridian, Id.

Filed Sep. 19, 1995, Ser. No. 530,673

Int. Cl.^{6} H05R *37/02*

U.S. Cl. 315—106 **25 Claims**



1. A preheating and ignition circuit for use with a fluorescent lamp which has cathodes and a medium which is ionizable into a conductive plasma by voltage and current applied in half-cycles from a power source through a ballast to the lamp, comprising:

a control module adapted to be connected to the cathodes of the lamp;

the control module including a controllable switch which is connected in series with the cathodes upon connection of the control module to the cathodes, the switch conducts substantially all of the current applied to the cathodes from the power source when the switch is conductive, the switch having a characteristic holding current level, the switch remaining conductive after being triggered when the current flow therethrough exceeds the holding current level, the switch commutating into a non conductive state if not triggered upon the current therethrough decreasing below the holding current level,

the control module further including a controller for controlling the conductivity of the switch relative to the current flow therethrough by supplying signals to trigger the switch,

the controller including information defining a warm-up time period of predetermined time duration of two or more complete applied half cycles during which the cathodes are heated prior to attempting to ignite the lamp,

the controller delivering a conductive interval start signal to trigger the switch into a conductive state during a predetermined conductive time interval during each applied half cycle occurring during the warm-up time period, the switch conducting current through the cathodes and thereby heating the cathodes during the conductive time interval of each applied half-cycle during the predetermined warm-up time period,

the controller causing the switch to commutate into a nonconductive state at the end of the conductive time interval occurring in the next half-cycle after the expiration of the warm up time period as a result of current conducted through the switch decreasing to below the holding current level, the commutation of the switch into the non-conductive state upon the current conducted therethrough decreasing to below the holding current level creating a change in current per change in time (di/dt) effect at the ballast which applies a high voltage ignition pulse to the cathodes; and

the controller delivering a suppression signal in addition to the interval start signal during each applied half-cycle occurring during the warm-up time period, the suppression signal triggering the switch into a conductive state prior to the end of the conductive time interval and while the current conducted through the switch reaches the holding current level during each applied half-cycle of the predetermined warm-up time period.

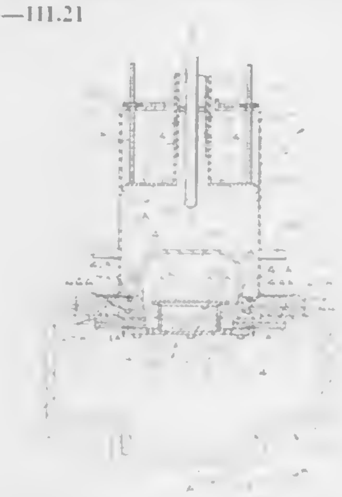
5,736,818
RESONANT RADIOFREQUENCY WAVE PLASMA GENERATING APPARATUS WITH IMPROVED STAGE

Michael J. Ulczynski, Okemos; Donnie K. Reinhard, East Lansing, and Jes Asmussen, Okemos, all of Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

Filed Mar. 15, 1996, Ser. No. 616,349

Int. Cl.^{6} H05H *1/46*

U.S. Cl. 315—111.21 **22 Claims**



1. In a plasma generating apparatus for treating a substrate including a plasma source employing a radiofrequency including UHF or microwave wave coupler means which is metallic and in the shape of a hollow cavity and which is excited in a mode of resonance in an electrically insulated chamber means mounted in the coupler means, and wherein the chamber means has a central longitudinal axis in common with the coupler means and is mounted in closely spaced and sealed relationship to an area of the coupler means with an opening from the chamber means at one end, gas supply means for providing a gas which is ionized to form the plasma in the chamber means, wherein the radiofrequency

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wave applied to the coupler means creates and maintains the plasma around the central longitudinal axis in the chamber means, and a stage means which forms part of the cavity and projects into the chamber means at the one end and provides for mounting a substrate on the chamber means, the stage means having a support surface which is in a plane around the longitudinal axis, the improvement in the stage means which comprises:

(a) an electrically conductive support plate with an upper surface for supporting the substrate and an opposed lower surface;
(b) an electrically non-conductive first tube with a first end which mounts the conductive support plate on the lower surface;
(c) a conductive disk with opposed sides with the first tube mounted on one of the opposed sides;
(d) an electrically non-conductive second tube mounted on the disk on the other of the opposed sides; and
(e) a conductive base plate which mounts the conductive second tube and having circumferentially positioned holes adjacent an outside wall of the second tube allowing flow of the gas and preventing radiofrequency waves from escaping through the holes, wherein the wave coupler means can be positioned so that the plasma is contacting the substrate and is off of the stage means except at the conductive base plate.

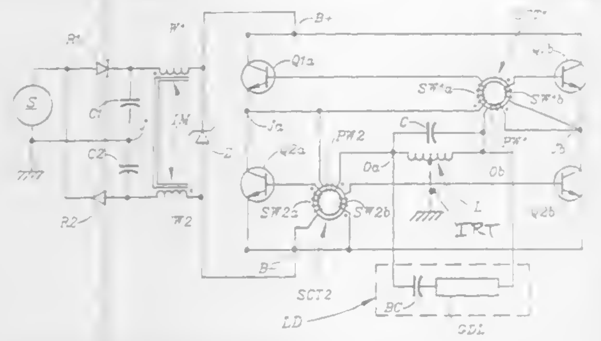
5,736,819
PARALLEL-TUNED ELECTRONIC BALLAST WITH SPECIAL OUTPUT VOLTAGE WAVEFORM

Ole K. Nilssen, 408 Caesar Dr., Barrington, Ill. 60010

Continuation of Ser. No. 196,812, Feb. 2, 1994, Pat. No. 5,432,409, which is a continuation of Ser. No. 5,381, Jan. 15, 1993, abandoned, which is a continuation of Ser. No. 840,528, Feb. 25, 1992, Pat. No. 5,189,342, which is a continuation of Ser. No. 646,497, Jan. 28, 1991, which is a continuation of Ser. No. 107,795, Oct. 13, 1987, abandoned, which is a continuation-in-part of Ser. No. 658,423, Oct. 5, 1984, abandoned, which is a continuation-in-part of Ser. No. 555,426, Nov. 23, 1983, abandoned, which is a continuation of Ser. No. 178,107, Aug. 14, 1980, abandoned, which is a continuation-in-part of Ser. No. 973,741, Dec. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 890,586, Mar. 20, 1978, Pat. No. 4,184,128. This application Mar. 14, 1995, Ser. No. 404,090

Int. Cl.^{6} H05B *37/02*

U.S. Cl. 315—209 R **20 Claims**



1. An arrangement comprising:

a DC source functional to provide a DC supply voltage between a first and a second DC supply terminal;

an inverter connected between the first and second DC supply terminals; the inverter being functional to cause a high-frequency AC inverter voltage to exist between a first and a second AC terminal; the high-frequency AC inverter voltage being of frequency several times higher than 60 Hz, any high-frequency AC voltage that might exist between the second AC terminal and one of the DC supply terminals being of very small magnitude compared with the magnitude of the high-frequency AC inverter voltage; the inverter being further characterized by including: (i) a first transistor having a first control input terminal, a first output terminal, and a first common terminal, and (ii) a second transistor having a second control input terminal, a second output terminal, and a second common terminal; the second output terminal being connected with the first common terminal, thereby to form a junction terminal; the junction terminal being connected with the first AC terminal in such manner that: (i) substantially no unidirectional voltage drop can exist between the junction terminal and the first AC terminal, and (ii) any alternating voltage existing between the junction terminal and the first AC terminal is of very small magnitude compared with the magnitude of the high-frequency AC inverter voltage; a unidirectional voltage existing between the second common terminal and the first output terminal, the average magnitude of the unidirectional voltage being substantially equal to that of the DC supply voltage; the inverter being additionally characterized by including a control circuit functional to cause the AC inverter voltage to consist of a continuous sequence of sinusoidally-shaped voltage pulses of alternating polarity; each such voltage pulse being separated from the next-following voltage pulse by a brief period during which the intantaneous magnitude of the AC inverter voltage undergoes a discontinuous change; and

a gas discharge lamp connected in circuit with the AC output terminals.

5,736,820
CAVITY ARRANGEMENTS

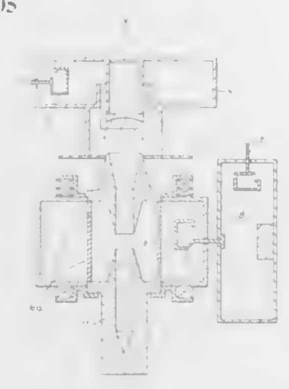
Steven Bardell, Dunmow, United Kingdom, assignor to EEV Limited, United Kingdom

Filed Aug. 23, 1995, Ser. No. 518,225

Claims priority, application United Kingdom, Sep. 7, 1994, 9418028

Int. Cl.^{6} H01J *25/10*

U.S. Cl. 315—505 **16 Claims**



1. A cavity arrangement for use with a linear electron beam tube having a vacuum envelope comprising:

a resonant cavity having first and second portions, said resonant cavity being defined by first and second walls each having an outer surface, said walls having apertures therein through which in use said tube extends, the first portion of said resonant cavity being located outside the vacuum envelope of said linear electron beam tube and the second portion of said resonant cavity being located within said vacuum envelope, and

magnetic focusing means mounted on the first portion of said resonant cavity, said magnetic focusing means including a member made of magnetic material mounted on the outer surface of at least one of said first and second walls, said magnetic focusing means being outside the vacuum envelope of said linear electron beam tube.

5,736,821
INTRAPIPE WORK ROBOT APPARATUS AND METHOD OF MEASURING POSITION OF INTRAPIPE WORK ROBOT

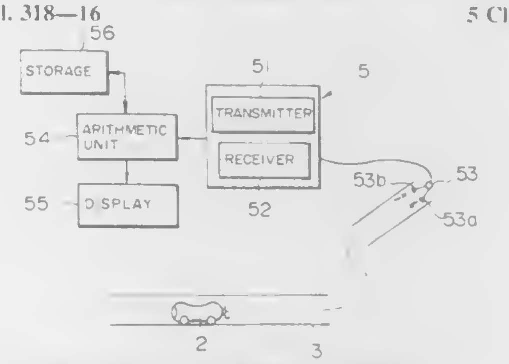
Kiichi Suyama, Kanagawa, Japan, assignor to Tokyo Gas Co., Ltd., Tokyo, Japan

Filed Apr. 28, 1995, Ser. No. 430,951

Claims priority, application Japan, Dec. 28, 1992, 4-361386; Jun. 18, 1993, 5-172232

Int. Cl.^{6} H04Q *7/00*

U.S. Cl. 318—16 **5 Claims**



1. An intrapipe work robot apparatus comprising:

(a) an intrapipe work robot inserted into a pipe so as to perform a work while performing automotive travelling in the pipe;
(b) an operation unit for designating travel and other actions of said robot externally of the pipe, in which an operation output signal is transmitted from at least said operation unit to said intrapipe work robot through radio communicating means;
(c) a movable antenna unit mounted on said intrapipe work robot which includes a circular base having an under stay and connected to a rear end of said intrapipe work robot, a first antenna mounted on said base and horizontally extending rearwards so as to receive an operation signal from said operation unit and a second antenna mounted vertically on said stay so as to transmit an image signal;
(d) a stationary antenna unit mounted on the ground on the side of said operation unit which includes a first antenna paired with the first antenna of said movable antenna unit so as to transmit the operation signal and mounted horizontally so as to extend forwards, a second antenna paired with the second antenna of said movable antenna unit so as to receive the image signal and mounted vertically; and
(e) a measuring unit for measuring a position of said intrapipe work robot.

5,736,822
VIBRATION WAVE MOTOR

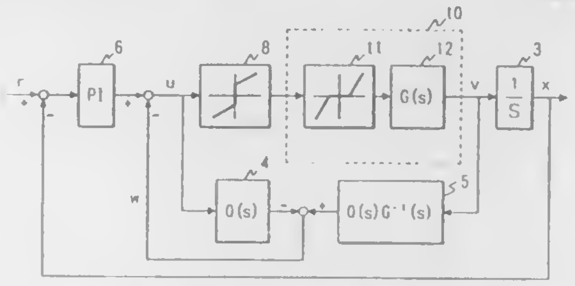
Reiji Mitarai, Hachioji; Hiroaki Takeishi, Yokohama, and Isao Iwai, Kodaira, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 253,563, Jun. 3, 1994, abandoned. This application Apr. 17, 1996, Ser. No. 635,216

Claims priority, application Japan, Jun. 4, 1993, 5-134604

Int. Cl.^{6} H01L *41/08*

U.S. Cl. 318—116 **4 Claims**



1. A vibration wave motor apparatus, which forms a vibration wave in a vibrating member by applying a frequency voltage signal to an electro-mechanical energy conversion element arranged on the vibrating member, and uses the vibration wave as a driving force, said vibration wave motor apparatus comprising:

input means for setting an input value corresponding to an operation amount of the vibration wave motor apparatus,

a driving circuit that controls a frequency or a voltage level of the frequency voltage signal applied to said electro-mechanical energy conversion element on the basis of an input value set by said input means, wherein said driving circuit determines an output characteristic value corresponding to the input value in accordance with a power transfer function;

an estimation circuit, including a conversion processing circuit having a conversion characteristic which relates to the power transfer function, that converts an actual output of the vibration wave motor apparatus to a converted value by utilizing the conversion processing circuit to estimate a disturbance component value on the basis of a difference between the converted value and the input value set by said input means, and

a disturbance suppression feedback loop that negatively feeds back the disturbance component value estimated by said estimation circuit to one of said driving circuit and said input means.

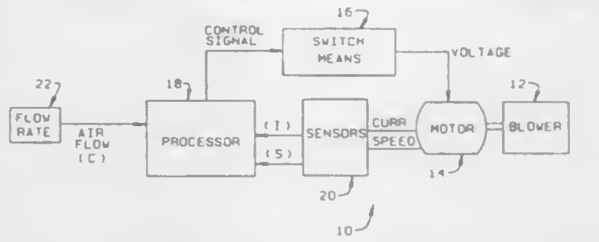
5,736,823
CONSTANT AIR FLOW CONTROL APPARATUS AND METHOD

Craig J. Nordby, Chesterfield; J. Stephen Thorn, and James L. Skinner, both of Florissant, all of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Continuation-in-part of Ser. No. 250,296, May 27, 1994, Pat. No. 5,447,414. This application May 19, 1995, Ser. No. 444,440

Int. Cl.^{6} F04B *49/06*

U.S. Cl. 318—432 **19 Claims**



1. In an air handling system for delivering air by a blower system using a blower and a blower motor running the blower, apparatus for producing a constant flow rate of air from the blower comprising:

sensing means for sensing the operating speed of the motor
sensing means for sensing the current drawn by the motor;
switch means controlling application of power to the motor;
flow control means establishing a desired air flow rate; and,
processor means responsive to inputs from the respective sensing means and the flow control means to calculate a torque to be produced by the motor for a predetermined air flow rate, the torque being determined as a function of the speed input from the sensing means and an input from the flow control means and air flow, pressure, torque, and current characteristics of the blower, the processor means combining a calculated torque value with a current input from the sensing means to produce a control signal supplied to the switch means to control application of a voltage to the motor, the voltage supplied to the motor being sufficient for the motor to produce the calculated torque

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5,736,824
MOTOR CONTROL APPARATUS

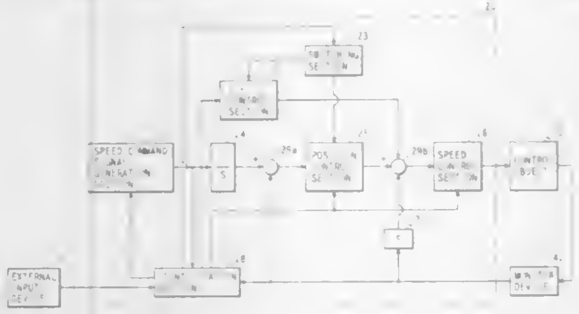
Tetsuya Sato, and Yoshio Kawamura, both of Kariya, Japan, assignors to Denso Corporation, Kariya, Japan

Filed Oct. 30, 1996, Ser. No. 741,108

Claims priority, application Japan, Oct. 30, 1995, 7-282261; Sep. 25, 1996, 8-253555

Int. Cl.^{6} G05B *13/04; 13/00*

U.S. Cl. 318—561 **5 Claims**



1. A motor control apparatus associated with a motor moving a control object having load inertia in accordance with its rotation and automatically adjusting preset control parameters based on the positional deviation between the command position of the control object and the present position of the control object, comprising:

monitor means for observing the present position of said control object;

speed command signal generating means for generating a speed command signal for accelerating or decelerating said control object in accordance with a predetermined pattern;

speed control means for giving said speed command signal generated from said speed command signal generating means to said motor as a control amount in accordance with said preset control parameters; and

identification means for identifying the load inertia of said control object based on a positional deviation signal between a command position signal of said control object obtainable from said speed command signal and a present position signal obtainable from said monitor means at the time said speed command signal generated from said speed command signal generating means becomes a predetermined speed, so that the load-inertia identification of said control object can be performed prior to the automatic adjustment of said preset control parameters.

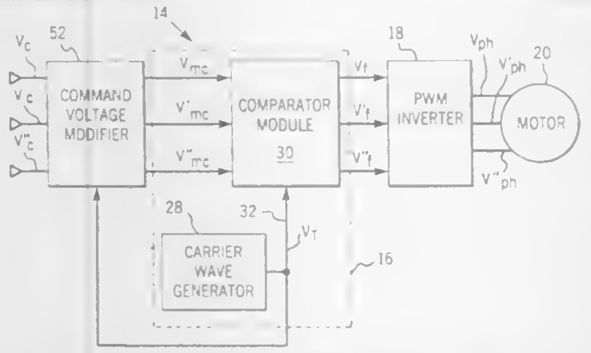
5,736,825
METHOD AND APPARATUS FOR LINEARIZING PULSE WIDTH MODULATION BY MODIFYING COMMAND VOLTGES

Vikram Kaura, Cedarburg, and Luis J. Garces, Mequon, both of Wis., assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Filed Jun. 25, 1996, Ser. No. 670,059

Int. Cl.^{6} G05B *11/28*

U.S. Cl. 318—599 **17 Claims**



1. A method to be used with a PWM inverter which receives a command signal having positive and negative half-cycles and a peak command value and a high frequency carrier signal having a peak carrier value and generates a series of high frequency voltage pulses therefrom, a fundamental component of which, over a period of a sinusoidal command, is a phase voltage, a modulation index being a ratio of the peak command value to the peak carrier value, the phase voltage being variable within a phase voltage range and being substantially linearly related to the sinusoidal command signal when the modulation index is less than unity, the method for extending the linear relationship between the sinusoidal command signal and the phase voltage to include the entire phase voltage range, the method comprising the steps of:

(a) choosing a sub-period;

(b) comparing the modulation index to unity;

(c) when the modulation index exceeds unity, during each positive half-cycle of the command signal, clamping the command signal to a positive predetermined value for a time equal to the sub-period and, during each negative half-cycle of the command signal, clamping the command signal to a negative predetermined value for a time equal to the sub-period to provide a modified command signal; and

(d) providing the modified command signal to the inverter for comparison with said carrier signal to generate a phase voltage.

5,736,826
DUAL HYSTERESIS CONTROL CIRCUIT

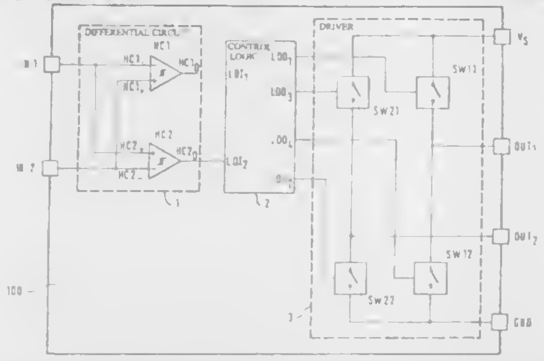
Petr Hrassky, Wasserburg am Inn, Germany, assignor to SGS-Thomson Microelectronics GmbH, Grasbrunn, Germany

Continuation of Ser. No. 335,809, Jan. 31, 1995, Pat. No. 5,559,416. This application Jul. 19, 1996, Ser. No. 656,419

Claims priority, application Germany, May 15, 1992, 42 16 203.3

Int. Cl.^{6} H02P *7/00*

U.S. Cl. 318—678 **8 Claims**



1. A control circuit for controlling a direct current motor having first and second motor terminals, the circuit having a first supply terminal coupled to a power supply, and a second supply terminal coupled to a reference voltage, first and second signal sources supplying first and second variable analog signals, respectively, the circuit comprising:

a differential input stage having first and second input terminals coupled to the first and second signal sources, respectively, and receiving a differential input signal corresponding to the difference between the first and second variable analog signals, the differential input stage further having first and second differential output terminals each generating an output signal having first and second voltage states and having a hysteresis effect wherein said first output differential terminal changes from said first voltage state to said second voltage state when said differential input signal exceeds a first predetermined threshold level and changes from said second voltage state to said first voltage state when said differential input signal is less than a second predetermined threshold level different from said first predetermined threshold level and said second differential output terminal changes from said first voltage state to said second voltage state when said differential input signal is less than a third predetermined threshold level and changes from said second voltage state to said first

voltage state when said differential input signal exceeds a fourth predetermined threshold level different from said third predetermined threshold level, said differential input stage comprising first and second hysteresis comparators, each having a positive and negative input terminal, said positive input terminal of said first hysteresis comparator and said negative input terminal of said second hysteresis comparator both being coupled to said first input terminal, and said negative input terminal of said first hysteresis comparator and said positive input terminal of said second hysteresis comparator both being coupled to said second input terminal;

a control stage having a first and second control input terminals coupled to said first and second differential output terminals, said control stage having first, second, third, and fourth control output terminals generating first, second, third, and fourth control output signals, respectively, and

a full bridge switching stage coupled to the first and second supply terminals and controlled by said first, second, third, and fourth control output signals, said full bridge switching stage having first and second motor output terminals coupled to the first and second motor terminals, respectively, and controlling the direct current motor by selectively coupling the first and second motor terminals to the power supply and the reference voltage.

5,736,827
MOTOR DRIVEN STEP SWITCH

Dieter Dohnal, Lappersdorf; Peter Okanik, and Manfred Stadelmayer, both of Regensburg, all of Germany, assignors to Maschinenfabrik Reinhausen GmbH, Regensburg, Germany

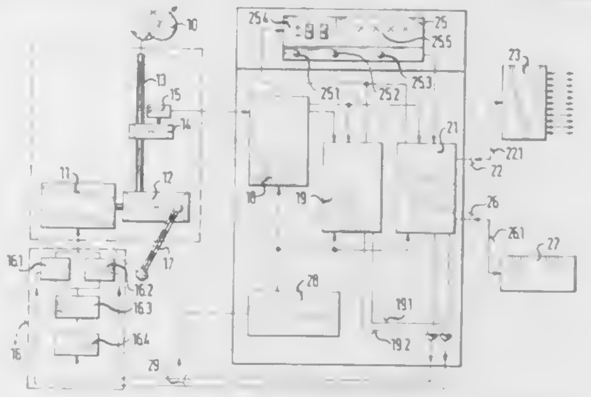
PCT No. PCT/EP93/00863, § 371 Date Sep. 27, 1994, § 102(e) Date Sep. 27, 1994, PCT Pub. No. WO93/22717, PCT Pub. Date Nov. 11, 1993

PCT Filed Apr. 7, 1993, Ser. No. 313,204

Claims priority, application Germany, Apr. 30, 1992, 42 14 431.0

Int. Cl.^{6} H02P *7/20*

U.S. Cl. 318—696 **12 Claims**



1. A motor-driven step switch for step transformers which includes

a drive motor connected to the step switch,

display means,

input means,

control means,

a controller for actuating the drive unit in accordance with rotation direction,

an information unit which obtains and transmits the step position and which is connected with the controller which delivers commands for controlling the drive motor and a switching operation, and

an electrical connection between the controller and the display means, input means, and control means wherein the information unit has

a sensor for determining the absolute value of the actual position of the step switch

nonvolatile memory means for storing the position of the step switches with a range of step positions,

means for determining an end position of the step switch,

programmable means for storing specific data about the step switches to be actuated,

electronic means for converting the stored data into serial form, and

electronic means for controlling and monitoring the switching operation, the electrical connection with the controller and the display, input, and control means being formed by a single serial data line.

5,736,828
ELECTRIC MACHINE CONTROLLER

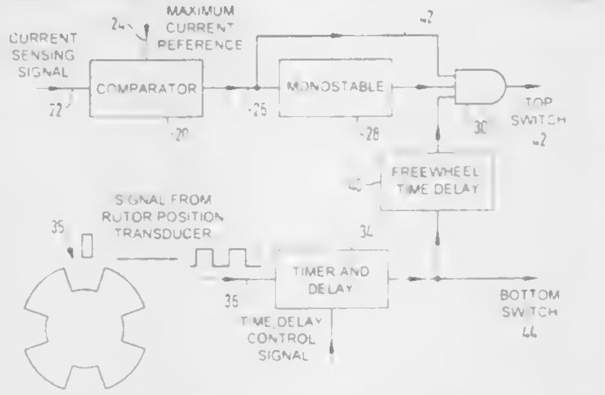
Michael J. Turner, Leeds, and Alan R. Jewell, W. Yorks, both of England, assignors to Switched Reluctance Drives, Ltd., Harrogate, United Kingdom

Filed Jul. 11, 1995, Ser. No. 499,895

Claims priority, application United Kingdom, Jul. 12, 1994, 9414005

Int. Cl.^{6} H02P *1/46*

U.S. Cl. 318—701 **17 Claims**



1. A controller for an electric machine, comprising a stator defining stator poles and having at least one phase winding, a rotor defining rotor poles, and switch means for controlling current in the winding, the controller comprising

a transducer for deriving rotor position information,

a timer operable to produce switch-on and switch-off signals to which the switch means are responsive, the timer being arranged to receive a first output from the transducer indicative of a position of one of the rotor poles relative to one of the stator poles coincident with a switch-off point in the phase inductance cycle for operating the machine in one of a motoring and a generating mode, and to produce the switch-off signal in response thereto; and

first delay means responsive to a second output from the transducer within the phase inductance cycle to generate a switch-on signal, subsequent to the switch-off signal, after a delay

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5,736,829
HIGH-SPEED CONSTANT-HORSEPOWER MOTOR

Jerry K. Goff, Doylestown, Pa., assignor to Performance Controls, Inc., Horsham, Pa.

Continuation-in-part of Ser. No. 284,234, Aug. 2, 1994, abandoned. This application Feb. 16, 1995, Ser. No. 389,570

Int. Cl.^{6} H02P *1/48*

U.S. Cl. 318—704 **14 Claims**

1. A brushless DC electric motor comprising

a) a rotor and a stator, wherein the rotor has a plurality of windings and the stator has a plurality of windings,

b) at least one electronic control signal connected to the windings of the stator, wherein the control signal applies a voltage across each winding of the stator such that the voltage across each winding has a polarity.

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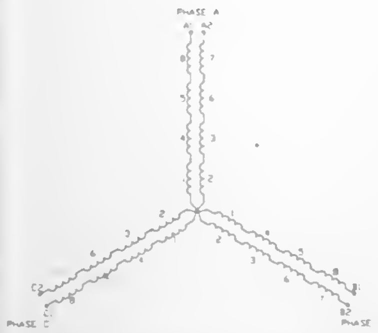

c) a source of direct current connected to the windings of the rotor, wherein the direct current produces a voltage across each winding of the rotor such that the voltage across each winding of the rotor has a polarity, and

d) means for varying said electronic control signal and said source of direct current, the varying means comprising means for reversing the polarity of the voltage across at least some of the windings of the stator, and for reversing the polarity of the voltage across at least some of the windings of the rotor,

wherein the windings of the stator and the rotor define an effective number of magnetic poles, and wherein the varying means comprises means for electronically changing the effective number of magnetic poles of the stator and of the rotor

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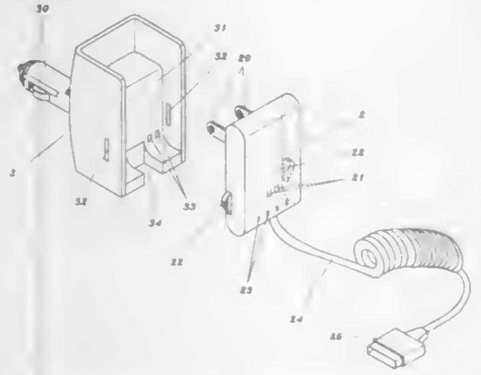
5,736,830
MOBILE TELEPHONE CHARGER

Ying-Chao Weng, P.O. Box 90, ¢Tainan 704, Taiwan
Filed Jan. 30, 1997, Ser. No. 791,357
Int. Cl.⁶ H02M ***10/44***

U.S. Cl. 320—2 **2 Claims**



1. A mobile telephone charger comprising:

a) a transformer including a terminal plug for connection to a charger base of a mobile telephone, a lamp means for indicating the amount of electricity charged to the telephone, a pair of blades for engaging an alternating current electric socket of a house, and a first pair of conductors;

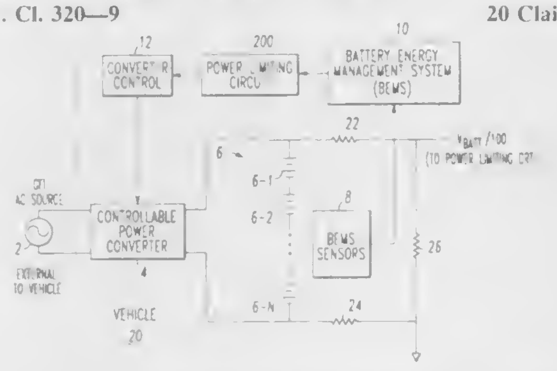
b) a transfer base including a second pair of conductors, an opening for receiving the transformer and disposing the first and second pairs of conductors into electrical contact with each other, and a plug for engaging a direct current electric socket of a car; and

c) engagement means for detachably securing the transformer to the transfer base when the transformer is received within the opening of the transfer base.

5,736,831
POWER LIMITING CIRCUIT FOR ELECTRIC VEHICLE BATTERY CHARGER

William S. Harrington, Crownsville, Md., assignor to Northrop Grumman Corpuration, Los Angeles, Calif.
Filed Aug. 22, 1996, Ser. No. 701,599
Int. Cl.⁶ H01M ***10/44;*** **H02J** ***7/04***

U.S. Cl. 320—9 **20 Claims**



1 An electric vehicle battery charging system where the batteries of an electric vehicle are charged from an external power source comprising:

a battery energy management system (BEMS) monitoring the vehicle batteries and developing a current control command representing the charging current to be supplied to the vehicle batteries;

a controllable charger having a design power limit, said controllable charger being responsive to current control command from the BEMS, the current control command representing the charging current to be supplied by the controllable charger to the vehicle batteries; and

a charger power limiting circuit limiting power supplied by the controllable charger to below the charger design power limit including,

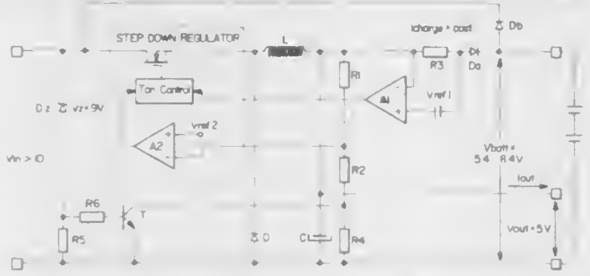
a voltage sensor measuring the voltage of the vehicle batteries, and

means for modifying the current control command to limit power to below at least an approximation of the design power limit of said charger based on the sensed battery voltage and the battery charging current, said means for modifying using the current control command from the BEMS to represent battery charging current without said controllable charger or charger power limiting circuit directly measuring charging current.

5,736,832
MULTIPLE FUNCTION BATTERY CHARGER, SELF-CONFIGURING AS SUPPLY VOLTAGE REGULATOR FOR BATTERY POWERED APPARATUSES

Giordano Seragnoli, Agrate Brianza, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy
Filed Jun. 7, 1996, Ser. No. 662,779
Claims priority, application European Pat. Off., Jun. 7, 1995, 95830239
Int. Cl.⁶ H01M ***10/44;10/46***

U.S. Cl. 320—21 **18 Claims**



1. A process for charging a battery at a constant current during at least a first phase of the charging process and at a constant voltage during a conclusive or charge maintenance phase of the charging process by means of a charging circuit employing a STEP DOWN switching regulator, the switch duty-cycle of which being controlled by a first current-mode loop and by a second voltage-mode loop, and for powering a battery load at a regulated supply voltage, wherein using the same STEP-DOWN switching regulator of the battery charger, the process comprising the steps of

producing a regulated supply voltage output, by configurably applying the battery voltage to an input node of said regulator:

disabling said first current-mode loop; and

regulating the duty-cycle of the regulator switch through said second voltage-mode loop while modifying the partition ratio of an output voltage sensing divider of the regulator by configurably connecting in series to the sensing divider a resistance which is short-circuitable via a transistor controlled by the level of the input voltage; and applying the battery voltage to the input of said regulator by connecting a diode between the relative battery pole and the input node of the regulator and reversely biasing the diode during a battery recharging phase, when on the input node is applied a recharging voltage higher than the battery voltage.

7. A battery charger device for charging a battery cell, comprising:

an external voltage supply;

a switching regulator circuit coupled to said external voltage supply;

an inductive element having a first terminal and a second terminal, said first terminal is coupled to said regulator circuit;

a comparator circuit coupled between said second terminal and an input terminal of said battery cell;

a voltage divider having an input node, an output node, and an intermediate node, said input node is coupled to said second terminal, said intermediate node is coupled to said regulator circuit, and said output node is coupled to a reference potential;

a first diode coupled between said comparator circuit and said battery cell; and

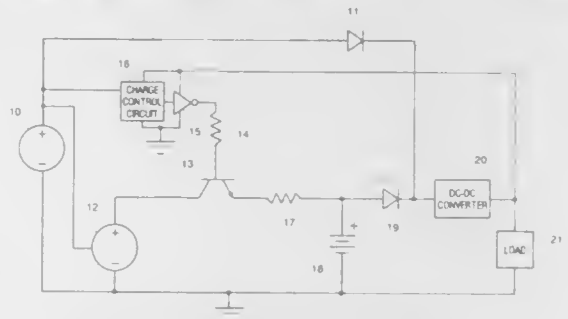
a filter element coupled between said second terminal and said reference potential and having an output coupled to said battery cell input terminal; and

a charge voltage switch coupled between said external voltage supply and said reference potential, wherein said switch activates a capping charge voltage value to said battery cell input terminal after said external voltage supply is off.

5,736,833
RAPID BATTERY CHARGING CIRCUIT WITH OVERVOLTAGE SHUNT

Richard D. Farris, Wichita, Kans., assignor to Symbios Logic Inc., Fort Collins, Colo.
Filed Jun. 28, 1996, Ser. No. 676,019
Int. Cl.⁶ H01M ***10/46***

U.S. Cl. 320—21 **14 Claims**



1. A circuit for charging a battery comprising.

a charging potential source which derives its power from a main power source potential;

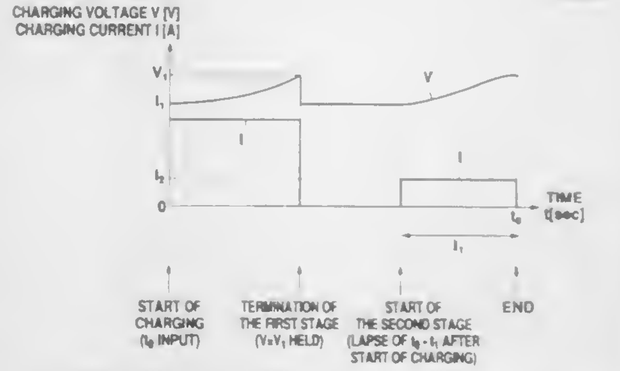
a transistor connected in series between said charging potential source and said battery, wherein said transistor is switchable between a first state in which current linearly flows through said transistor from said charging potential source and said battery and a second state in which no current flows from said charging potential source and said battery; and

a charge control device connected to said transistor to switch said transistor between said first state and said second state, wherein said charge control device derives operational power from said main power source potential when said main power source potential is above a predetermined threshold value, and wherein said charge control device derives operational power from said battery when said main power source potential is below said predetermined threshold value.

5,736,834
BATTERY CHARGER AND METHOD FOR COMPLETING CHARGING AT DESIGNATED TIME

Hiromichi Kuno, Aichi-Ken, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Dec. 11, 1996, Ser. No. 762,751
Claims priority, application Japan, Dec. 12, 1995, 7-323216
Int. Cl.⁶ H01M ***10/44;10/46***

U.S. Cl. 320—22 **6 Claims**



1. A battery charger comprising:

input means for receiving designation of a charging termination time,

first charging means for starting to charge a battery after receiving the designation of the charging termination time,

means for pausing charging by said first charging means before said battery is fully charged,

second charging means for restarting charging of said battery from a charging restart time determined on the basis of said designated charging termination time after the pause of charging by said first charging means, and

means for terminating said charging by said second charging means at a time when said battery is considered to be fully charged,

wherein the charging of the battery which generates heat at the end of a series of charging processes provided by said first and second charging means is terminated at the designated charging termination time or at a time close to said charging termination time.

6. A battery charging method comprising:

an input step of receiving designation of a charging termination time,

a first charging step of starting to charge a battery after performing the input step,

pausing charging before said battery is fully charged,

a second charging step of restarting charging of said battery from a charging restart time determined on the basis of said designated charging termination time after performing said first charging step, and

terminating said charging at a time when said battery is considered to be fully charged,

wherein, the charging of the battery which generates heat at the end of a series of charging processes provided by said first and second charging steps is terminated at the designated charging termination time or at a time close to said designated charging termination time.

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5,736,835
BATTERY PACK, A CHARGER, AND A METHOD OF DETECTING THE REMAINING CAPACITY OF SECONDARY CELLS

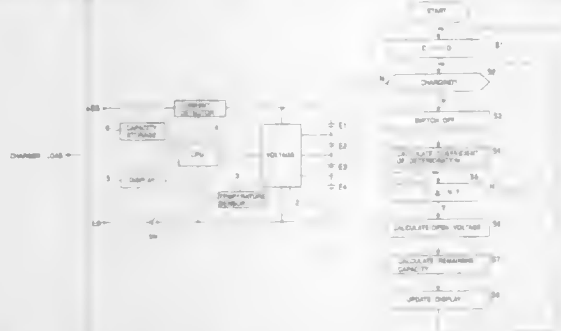
Hideki Nakajn; Takeshi Miura, and Minoru Doura, all of c/o Sony Corporation, 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, Japan

Filed Aug. 21, 1996, Ser. No. 697,200

Claims priority, application Japan, Aug. 31, 1995, 7-223449

Int. Cl.^{6} H02J *7/00*, H01M *10/48*

U.S. Cl. 320—43 **6 Claims**



6. A method of detecting the remaining capacity of the at least one secondary cell, comprising the steps of:

finding the open voltage of the at least one secondary cell, OCV, by using the following equation.

$$OCV=DV+K\times DI\times T\times F$$

where DV represents the voltage of the at least one secondary cell when used; DI, a current flowing in the at least one secondary cell; T, the temperature of the secondary cells; F, the extent of deterioration of the at least one secondary cell; and K, a predetermined proportional constant; and

calculating the remaining capacity of the at least one secondary cell, based on the open voltage of the at least one secondary cell, OCV.

5,736,836
BATTERY DISCHARGE GAS CONTROL SYSTEM

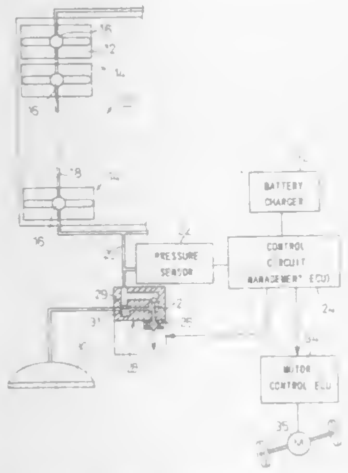
Osamu Hasegawa; Tatsurou Horie; Yasuyuki Sando; Toshihiro Sone; Kazuhiko Yagi; Yuichi Nakamura, and Hiromitsu Sato, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 8, 1997, Ser. No. 826,825

Claims priority, application Japan, Apr. 10, 1996, 8-088629

Int. Cl.^{6} H02J *7/04*; *7/00*

U.S. Cl. 320—46 **11 Claims**



1. A battery discharge gas control system, comprising:

a battery having a gas release port;

a passage connected to said gas release port,

a control valve connected to said passage,

a pressure sensor for detecting a pressure in said passage; and

a control circuit for opening said control valve to release a gas generated by said battery from said passage, depending on the pressure in said passage as detected by said pressure sensor.

5,736,837
BATTERY CHARGING DEVICE FOR BATTERY DRIVEN TOOL

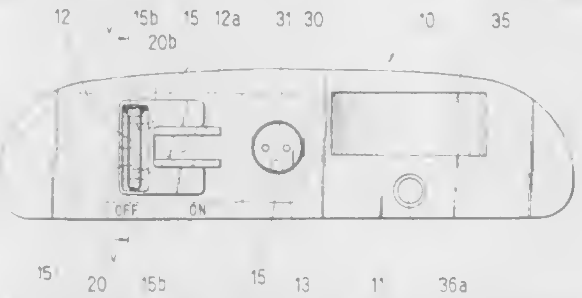
Ariya Noda, Anjo, Japan, assignor to Makita Corporation, Anjo, Japan

Filed Jan. 16, 1997, Ser. No. 784,771

Claims priority, application Japan, Jan. 18, 1996, 8-006247; Jul. 25, 1996, 8-196449

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—104 **12 Claims**



9. A battery charging device for use with a battery driven tool having a power source circuit and an interlock switch provided in the power source circuit, the battery charging device comprising:

an operation panel having an operation key insertion opening and a charging plug insertion opening formed thereon;

a slide plate movable relative to said operation panel between an ON position for turning on the interlock switch and for substantially closing said charging plug insertion opening, and an OFF position for turning the interlock switch off and for substantially opening said charging plug insertion opening; and

an operation key for connecting to said slide plate by a connecting mechanism, said operation key having a part to act on the interlock switch for turning the interlock switch on and off,

said operation key being permitted to be connected to said slide plate through said connecting mechanism only when said slide plate is in the OFF position.

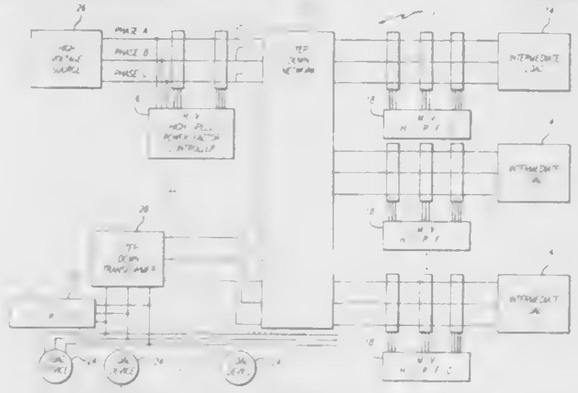
5,736,838
HIGH SPEED POWER FACTOR CONTROLLER

Donald C. Dove, 9459 E. Ave. T-8, Little Rock, Calif. 93543, and Howard D. Kent, 11635 Gerald Ave., Granada Hills, Calif. 91344

Continuation-in-part of Ser. No. 163,986, Dec. 7, 1993, Pat. No. 5,469,045. This application Jun. 4, 1996, Ser. No. 652,440

Int. Cl.^{6} G05F *1/70*

U.S. Cl. 323—211 **23 Claims**



1. A power factor correcting system, comprising:

a voltage sensor having an input coupled across first and second alternating current power lines;

a current sensor having an input coupled to one of said first and second power lines;

a digital microprocessor;

circuitry for coupling signals from said voltage sensor to said microprocessor,

circuitry for coupling signals from said current sensor to said microprocessor;

said microprocessor including programming means for determining a phase difference between a sensed voltage and a sensed current;

incrementally adjustable power factor correction circuitry absorbing current from said power line during a portion of each cycle of the alternating current and for supplying current to said power line during another portion of said cycle of the alternating current;

switching circuitry including a plurality of switching devices, coupling said power factor correction circuitry to said power line;

said microprocessor being coupled to said switching circuitry to change the state of said switching devices to change the power factor of said system toward unity;

said microprocessor supplying updated switching signals to said switching circuitry at least several times each second; and

said power factor correction circuitry being a capacitive network, including a plurality of capacitors, and said switching devices selectively coupling said capacitors to the power line, and

wherein said capacitive network is a binary ladder network.

5,736,839
THREE PHASE CONDUCTOR ARRANGEMENT

Per Pettersson, Vällingby, Sweden, assignor to Vattenfall AB, Stockholm, Sweden

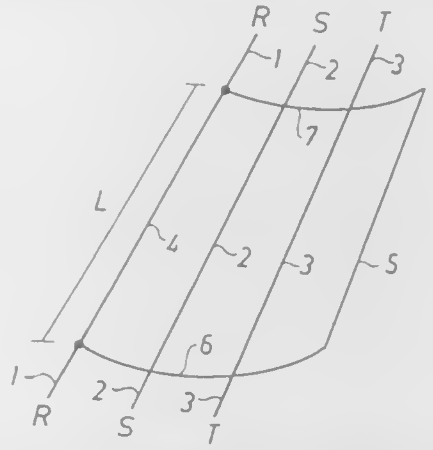
PCT No. PCT/SE95/00089, § 371 Date Jul. 5, 1996, § 102(e) Date Jul. 5, 1996, PCT Pub. No. WO95/20835, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 31, 1995, Ser. No. 666,523

Claims priority, application Sweden, Jan. 31, 1994, 9400304

Int. Cl.^{6} G05F *1/70*

U.S. Cl. 323—213 **14 Claims**



1. A method for reducing magnetic fields generated by a three phase electric conductor arrangement, said arrangement comprising first, second and third conductors, each conductor having a different phase, the method comprising the steps of:

splitting the first conductor into two conductors;

connecting the two conductors in a loop; and

positioning the second and third conductors between the two conductors.

5,736,840
PHASE SHIFTER AND COMMUNICATION SYSTEM USING THE PHASE SHIFTER

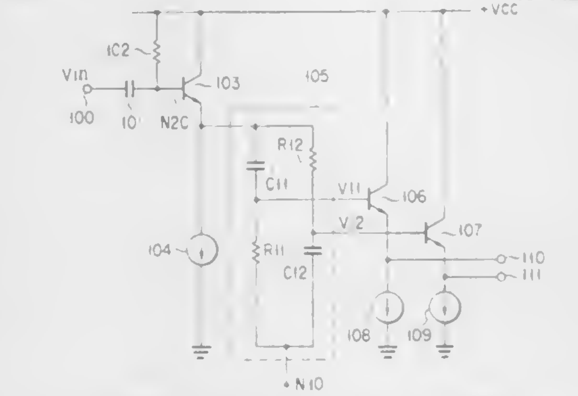
Shoji Otaka, Yokohama, and Hiroshi Tanimoto, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation-in-part of Ser. No. 303,815, Sep. 9, 1994, Pat. No. 5,650,714. This application Apr. 1, 1996, Ser. No. 625,368

Claims priority, application Japan, Sep. 9, 1993, 5-224365; Aug. 4, 1995, 7-219880

Int. Cl.^{6} G05F *3/00*

U.S. Cl. 323—217 **15 Claims**



12. An unbalanced to balanced converter comprising:

an unbalanced to balanced conversion circuit comprised of a parallel combination of first and second series-connected resonance circuits each having a capacitor and an inductor, the capacitor of one of the first and second series-connected resonance circuits and the inductor of the other of the first and second series-connected resonance circuits being connected to a power supply, the inductor of said one of the first and second series-connected resonance circuit and capacitor of said other of the first and second series-connected resonance circuit being connected to an input terminal, these capacitors and these inductors respectively having the same element values with respect to each other, and

input means including a variable current supply circuit for varying a current value in accordance with an input signal and a linear element connected at a one end side to the power supply and at an other-end side to an output terminal of the variable current supply circuit which is an input terminal of said unbalanced to balanced conversion circuit.

5,736,841
SWITCHING POWER SUPPLY ATTAINING SINUSOIDAL INPUT CURRENT AND COMPRISING SERIES COUPLED 2-TERMINAL SWITCHING BLOCK

Jeff Gucyski, P.O. Box 11633, Costa Mesa, Calif. 92627

Division of Ser. No. 486,626, Jun. 7, 1995, Pat. No. 5,637,988, which is a continuation of Ser. No. 224,136, Apr. 6, 1994, abandoned, which is a continuation of Ser. No. 975,346, Nov. 16, 1992, abandoned, which is a division of Ser. No. 393,391, Aug. 14, 1989, Pat. No. 5,164,656. This application May 1, 1996, Ser. No. 595,928

Int. Cl. H02M *3/155*

U.S. Cl. 323—222 **12 Claims**

1. Switching power supply converting an input voltage applied between an input terminal and ground into an output voltage appearing between an output terminal and ground, comprising:

a node with a node voltage appearing between the node and the input terminal,

a capacitive means having a pair of terminals with one terminal coupled to ground for storing an intermediate voltage,

a first diode means coupled to the other terminal of the capacitive means for applying the intermediate voltage to the node,

an inductive means having a pair of terminals with one terminal coupled to the node for attaining a current.

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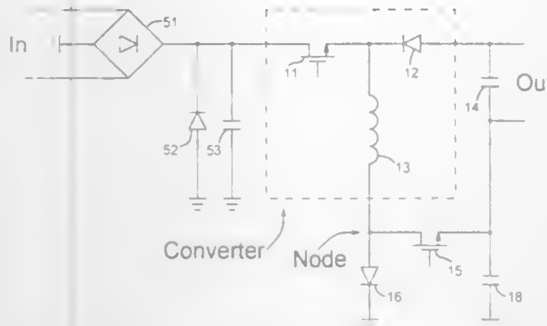


a second diode means coupled to the other terminal of the inductive means for applying the current to ground;

a switching means coupled to the other terminal of the inductive means for selectively applying the current to the other terminal of the capacitive means; and

a converter means for converting the node voltage into the output voltage.

5,736,842

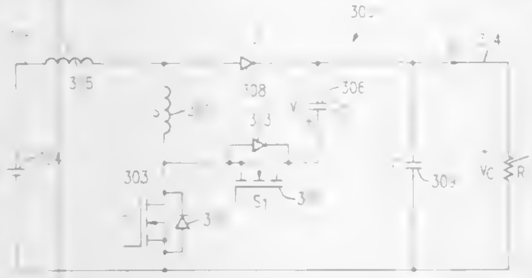
TECHNIQUE FOR REDUCING RECTIFIER REVERSE-RECOVERY-RELATED LOSSES IN HIGH-VOLTAGE HIGH POWER CONVERTERS

Milan M. Jovanovic, Blacksburg, Va., assignor to Delta Electronics, Inc., Taipei, Taiwan

Filed Jul. 11, 1996, Ser. No. 679,601

Int. Cl.^{6} G05F *1/56*; H02M *3/335*

U.S. Cl. 323—222 16 Claims



1. A power converter for driving an output load, comprising:

an input voltage source;

an output filter capacitor coupled in parallel with said output load;

a first inductor provided for storing energy from said input voltage source;

a rectifier;

a primary switch controlled by a first control signal, said primary switch coupling said energy from said input voltage source to said first inductor, when said primary switch is closed; and

an active snubber, including a second inductor, a clamping capacitor and an auxiliary switch controlled by a second control signal, wherein when said auxiliary switch is closed, said second inductor and said clamping capacitor are coupled in series, and wherein when said primary switch is closed, said second inductor controls a rate of change of current in said rectifier and, when said primary switch is open, energy in said second input is transferred through said clamping capacitor to a reference voltage source, said first and second control signals closing said primary and auxiliary switches at mutually exclusive time intervals.

5,736,843

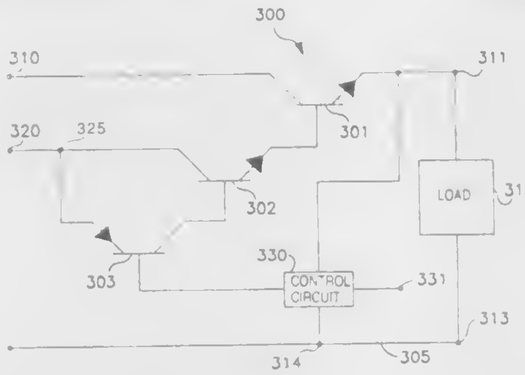
EFFICIENT ULTRA LOW DROP OUT POWER REGULATOR

Dilip A. Amin, San Jose, Calif., assignor to Silicon Graphics, Inc., Mountain View, Calif.

Filed Apr. 27, 1995, Ser. No. 431,704

Int. Cl.^{6} G05F *1/56*

U.S. Cl. 323—273 22 Claims



1. A power regulator comprising:

a first input coupled to a first input voltage;

a second input coupled to a second input voltage, said second input voltage greater than said first input voltage; and

an output stage having an output, said output stage coupled to said first input, said output stage driven by a driver coupled to said second input.

5,736,844

VOLTAGE CONTROLLED LASER DIODE DRIVE CIRCUIT

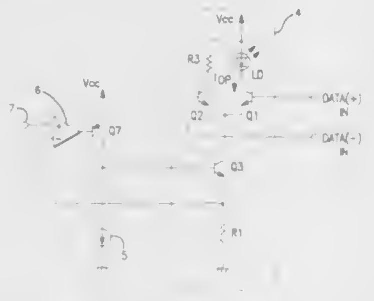
Hiroki Yanagisawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 29, 1996, Ser. No. 688,270

Claims priority, application Japan, Jul. 28, 1995, 7-193575

Int. Cl.^{6} G05F *1/40*; H01S *3/00*

U.S. Cl. 323—282 2 Claims



1. A voltage controlled laser diode drive circuit comprising:

a laser diode;

a differential amplifier circuit for driving said laser diode with pulses;

a transistor for feeding a drive current to said laser diode;

an operational amplifier having an inverting input connected to an emitter of said transistor, and an output connected to a base of said transistor via an emitter follower; and

control means for controlling a voltage to be applied to a non-inverting input of said operational amplifier.

5,736,845

SPECTRUM ANALYZER HAVING IMAGE FREQUENCY ELIMINATING DEVICE

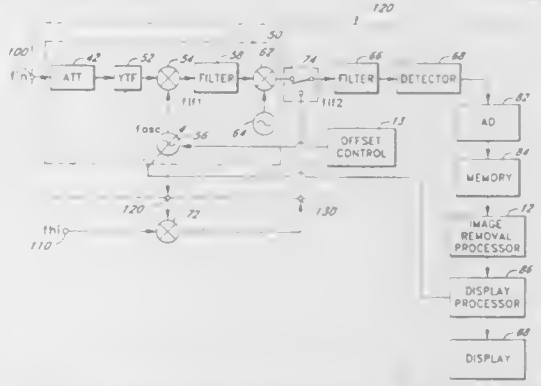
Takashi Kosuge, Kumagaya, Japan, assignor to Advantest Corp., Tokyo, Japan

Filed Nov. 9, 1995, Ser. No. 555,759

Claims priority, application Japan, Nov. 11, 1994, 6-303197

Int. Cl.^{6} G01R *13/24*

U.S. Cl. 324—76.27 10 Claims



1. A frequency spectrum analyzer for measuring frequency spectrums in an input signal, comprising:

a display for showing frequency spectrums in a power level versus frequency domain form;

a local oscillator which is driven by a sweep signal to repeatedly cause a frequency sweep of a local signal, said local oscillator and said display operate in synchronism with said sweep signal;

an intermediate frequency filter whose center frequency is an intermediate frequency for transmitting intermediate frequency signals;

a frequency mixer for mixing an input signal to be measured and said local signal and generating said intermediate frequency signals whose frequency is a difference of said input signal and fundamental and harmonic components of said local signal, said intermediate frequency signal being supplied to said intermediate frequency filter;

a detector for rectifying said intermediate frequency signal from said intermediate frequency filter, an output of said detector showing frequency spectrums of a true frequency spectrum of said input signal and image spectrums produced by said frequency mixer;

a sweep offset control for alternately causing a first sweep having no frequency shift and a second sweep having a frequency shift in said frequency sweep in said local signal, said frequency shift being equal to $f_{if2}\times 2/N$, where f_{if2} is said intermediate frequency and N is a harmonic number of said local signal to be used in said frequency mixer; and

an image removal processor for monitoring an output signal of said detector and identifying said true frequency spectrum of said input signal and said image spectrums on the basis of positional changes between said first sweep without said frequency shift and said second sweep including said frequency shift in said local signal;

wherein only said true frequency spectrum is superimposed on the same position of said frequency domain between said first and second sweeps.

5,736,846

AC CURRENT SENSOR

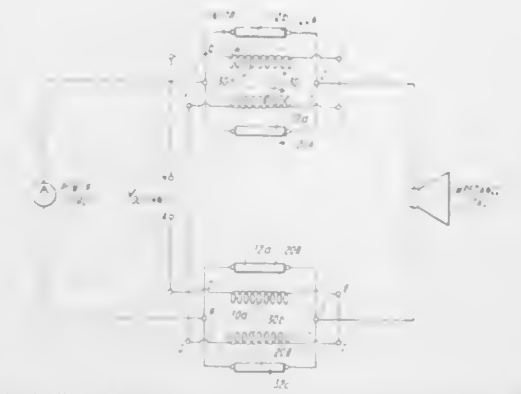
Fred Floru, Newton, and Gary K. Hebert, Shrewsbury, both of Mass., assignors to THAT Corporation, Marlborough, Mass.

Filed Oct. 6, 1995, Ser. No. 540,045

Int. Cl.^{6} G01R *11/48*; *19/00*

U.S. Cl. 324—127 17 Claims

1. A current sensor for detecting current provided to a load impedance of an electrical circuit without appreciably affecting a signal delivered to said load impedance, the circuit being of the type including a source of electrical power and a current path for conducting current between the power source and the load impedance, wherein the sensor includes:



at least one electrically conductive element, forming a part of said current path, for connecting said power source to the load impedance of the electrical circuit, serving as a primary coil of a transformer circuit;

at least one secondary coil of the transformer circuit, positioned so as to be closely magnetically coupled to said electrically conductive element; and

a pair of output terminals coupled to said secondary coil for providing an output signal representative of the current through said load impedance;

wherein the electrically conductive element is a segment of electrically-conductive material coupled in series with the source and the load impedance and constructed so as to minimize the resistance and inductance added by the sensor to said electrical circuit; and

wherein said secondary coil and said electrically conductive element are disposed on a multi-layer board including electrically conductive material defining said electrically conductive element and said secondary coil

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5,736,847

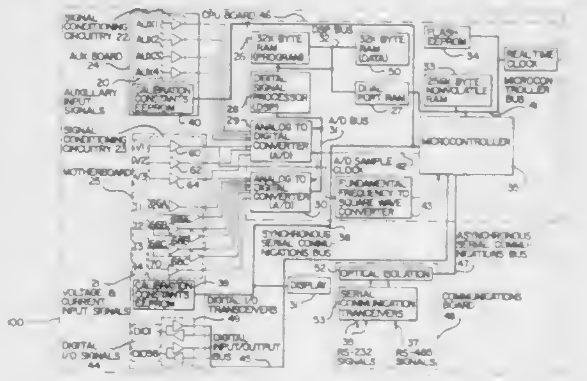
POWER METER FOR DETERMINING PARAMETERS OF MULIPHASE POWER LINES

Peter M. Van Doorn, Sidney; Simon H. Lighthody, and Chuen Shan Simon Ki, both of Victoria, all of Canada, assignors to CD Power Measurement Limited, Victoria, Canada

Filed Dec. 30, 1994, Ser. No. 367,534

Int. Cl.^{6} G01R *21/133*

U.S. Cl. 324—142 22 Claims


SIGNAL CONDITIONING CIRCUITRY 22
AUX1
AUX2
AUX3
AUX4
AUX BOARD 24
20
AUXILLARY INPUT SIGNALS
CALIBRATION CONSTANTS EEPROM
40
CPU BOARD 46
32K BYTE RAM (PROGRAM)
26
32K BYTE RAM (DATA)
50
FLASH EEPROM
34
REAL TIME CLOCK
33
256K BYTE NONVOLATILE RAM
MICROCONTROLLER BUS
DIGITAL SIGNAL PROCESSOR (DSP)
28
DUAL PORT RAM
27
29
ANALOG TO DIGITAL CONVERTER (A/D)
A/D BUS
31
SIGNAL CONDITIONING CIRCUITRY 23
V1
V2
V3
60
62
64
MICROCONTROLLER
MOTHERBOARD
25
A/D SAMPLE CLOCK
42
ANALOG TO DIGITAL CONVERTER (A/D)
FUNDAMENTAL FREQUENCY TO SQUARE WAVE CONVERTER
43
30
35
SYNCHRONOUS SERIAL COMMUNICATIONS BUS
38
ASYNCHRONOUS SERIAL COMMUNICATIONS BUS
47
52
OPTICAL ISOLATION
VOLTAGE & CURRENT INPUT SIGNALS
CALIBRATION CONSTANTS EEPROM
39
DISPLAY
DIGITAL I/O TRANSCEIVERS
49
SERIAL COMMUNICATION TRANCEIVERS
COMMUNICATIONS BOARD
48
53
100
DIGITAL I/O SIGNALS
44
DIGITAL INPUT/OUTPUT BUS 45
36
RS-232 SIGNALS
37
RS-485 SIGNALS

1. A power meter for determining power parameters for power lines having periodic 3-phase voltage and current signals distributed to a plurality of power equipment, the 3-phase voltage and current signals having a fundamental frequency, the power lines having connected thereto at least one transducer generating analog signals representing the voltage and current signals, the power meter comprising:

receiving circuitry, the receiving circuitry connectable to receive the analog signals from the at least one transducer and generate an output signal therefrom;

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an analog to digital converter operatively connected to receive the output signal from the receiving circuitry, sample said output signal at a sampling rate, and convert the voltage and current signals to digital data representing the analog signals; and
a processor operatively connected to receive the digital data, the processor including logic means comprising:
means for calculating the power parameters; and
means for compensating for errors caused by not sampling synchronous to the fundamental frequency of the signals.

5,736,848
ANALOG-TO-DIGITAL MEASUREMENT AND CALIBRATION SYSTEM FOR ELECTRICAL ENERGY

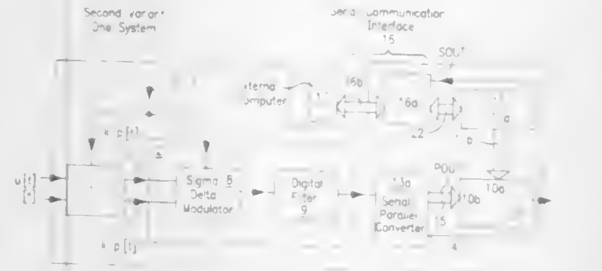
Jacob De Vries, Allenwinden; Jan Petr, Oberwil/Zug; Raul Cermeno, Cham, and Peter Hodel, Zug, all of Switzerland, assignors to Landis & Gyr Technology Innovation AG, Zug, Switzerland

Filed Aug. 29, 1995, Ser. No. 520,480

Claims priority, application Switzerland, Sep. 5, 1994, 02 698/94

Int. Cl.⁶ G01R *21/06*

U.S. Cl. 324—142 **27 Claims**



1 A system for measuring energy, said system being calibrated and comprising:
an analog power measurement circuit for receiving input signals, and for outputting analog power signals,
an analog-to-digital converter for receiving said analog output power signals from said analog power measurement circuit, and for outputting digital signals representative of said analog output power signals, said analog-to-digital converter comprising a sigma-delta modulator in series with a digital filter,
a digital quantizer for receiving said digital signals from said analog-to-digital converter at a first input, and
a non-volatile memory, having inputs for receiving data from an external computer, and for outputting a digital first calibration value to said digital quantizer at a second input,
wherein said digital quantizer accumulates said digital signals of said first input and quantizes said digital signals with respect to said digital first calibration value, such that said digital quantizer generates digitally quantized signals representative of said energy.

5,736,849
SEMICONDUCTOR DEVICE AND TEST METHOD FOR CONNECTION BETWEEN SEMICONDUCTOR DEVICES

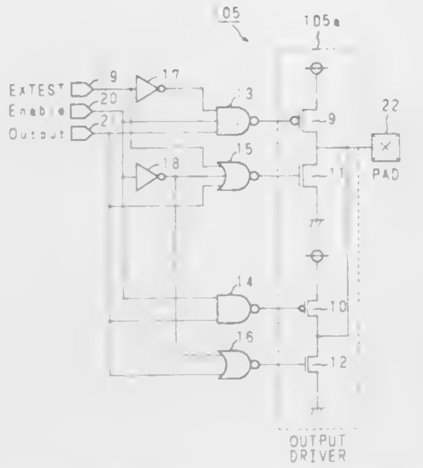
Fumihiko Terayama, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 25, 1995, Ser. No. 519,334

Claims priority, application Japan, Aug. 25, 1994, 6-201136

Int. Cl.⁶ G01R *31/28*

U.S. Cl. 324—158.1 **5 Claims**



1. A semiconductor device capable of testing for correct electrical connection with another device via a signal output terminal of said semiconductor device, comprising:
an output buffer providing an output signal, said output signal being output from said signal output terminal to the other device during said testing, said output buffer having at least two different driving power levels for driving said output signal, a first driving power level and a second driving power level, less than said first driving power level, said first and second driving power levels being a function of current flowing in constituent elements of said output buffer; and
means, responsive to a test signal, for changing said output buffer to provide said output signal at said first driving power level during normal operation and at said second driving power level during said testing for correct electrical connection.

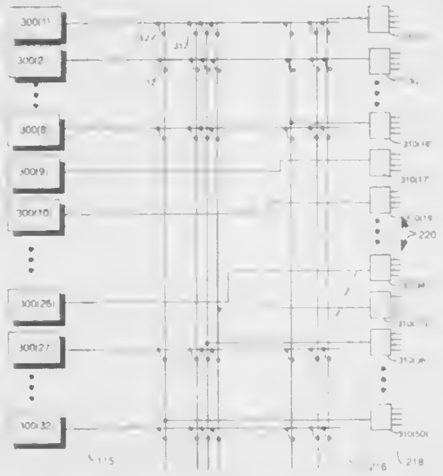
5,736,850
CONFIGURABLE PROBE CARD FOR AUTOMATIC TEST EQUIPMENT

Dennis Andrew Legal, Westlake Village, Calif., assignor to Teradyne, Inc., Boston, Mass.

Filed Sep. 11, 1995, Ser. No. 526,302

Int. Cl.⁶ G01R *31/02*

U.S. Cl. 324—158.1 **11 Claims**



1 Automatic test equipment for use in testing semiconductor components on a wafer, each wafer containing a plurality of dies disposed in a predetermined pattern, comprising:
a) a first plurality of groups of test signal circuits, each group of test signal circuits for driving and receiving test signals for one die on the wafer;
b) a contact device having a second plurality of groups of contact points, each group of contact points for contacting test points on one die on the wafer, the second plurality being larger than the first plurality, and
c) a matrix of a third plurality of switchable elements connected between the first plurality of groups of test signal circuits and the second plurality of groups of contact points, each switchable element connecting one of the groups of test signal circuits to one of the groups of contact points contacting test points on the plurality of dies disposed in the predetermined pattern.

5,736,851
RINGING PREVENTIVE CIRCUIT FOR REMOVING NOISE IN AN ELECTRONICS TRANSMISSION ON PATH OF SEMICONDUCTOR TESTING APPARATUS

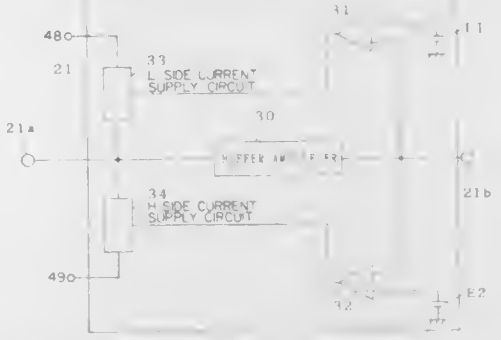
Hiroshi Noda, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 3, 1995, Ser. No. 552,870

Claims priority, application Japan, Apr. 17, 1995, 7-090860

Int. Cl.⁶ G01R *31/28*

U.S. Cl. 324—158.1 **7 Claims**



1. A ringing preventive circuit comprising:
buffer amplifier having an input terminal and an output terminal;
a first comparator having a first input terminal connected to said output terminal of said buffer amplifier, a second input terminal provided with a first reference voltage, and an output terminal, for outputting a first control signal from said output terminal in response to a result of comparison between voltages at said first and second input terminals; and
a first current supply circuit having a first terminal connected to a first power source for supplying a first voltage, a second terminal connected to said input terminal of said buffer amplifier, and a control signal input terminal connected to said output terminal of first comparator, for controlling conduction and non-conduction of a current flowing from said first terminal to said second terminal as a function of said first control signal.

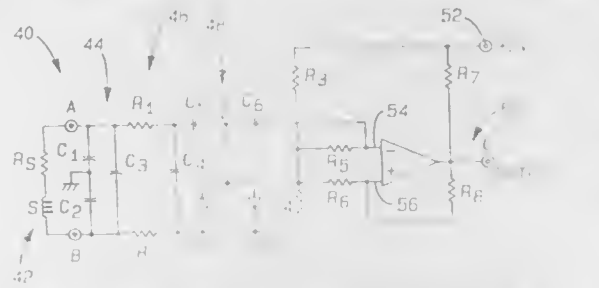
5,736,852
CIRCUIT AND METHOD FOR CONDITIONING A WHEEL SPEED SENSOR SIGNAL

Tamas Imre Pattantyus, North Olmsted, Ohio, assignor to AlliedSignal Truck Brake Systems Co., Elyria, Ohio

Filed Jun. 21, 1995, Ser. No. 493,253

Int. Cl.⁶ G01P *3/48;3/54;* **G01B** *7/00;* **G01R** *33/025*

U.S. Cl. 324—166 **23 Claims**



1. A speed sensor signal conditioning circuit, comprising:
a filter for continuously and without interruption filtering an output signal received from a speed sensor;
a peak detector, coupled to said filter, for detecting positive and negative voltage peaks of said output signal, regardless of the magnitude of said positive and negative voltage peaks and irrespective of said output signal crossing a reference voltage level; and
a comparator coupled to said peak detector for outputting a first signal when said peak detector detects said positive voltage peaks and a second signal when said peak detector detects said negative voltage peaks.

5,736,853
AXIALLY COMPACT BEARING WITH SPEED-DETECTING DEVICE

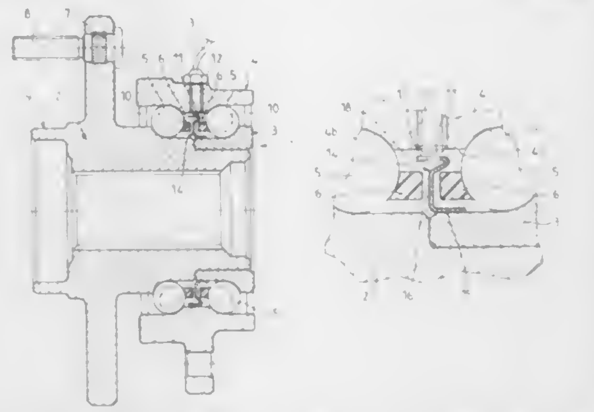
Christian Rigaux, Artannes-sur-Indre, France, assignor to SKF France, Clamart, France

Filed Mar. 13, 1996, Ser. No. 615,000

Claims priority, application France, Mar. 28, 1995, 95 03615

Int. Cl.⁶ G01P *3/488;* **F16C** *33/30*

U.S. Cl. 324—173 **9 Claims**



1 Rolling-contact bearing comprising a non-rotating race, two rotating races including raceways, two rows of rolling elements, two cages for holding said rolling elements, an axial space between the two cages, a built-in device for detecting the speed of rotation including a sensor fixed to the non-rotating race and an encoder element fixed to and rotatable with the rotating races, said encoder element moving in rotation past said sensor with a slight air gap therebetween, said encoder element being operable to produce in the sensor a periodic signal of a frequency proportional to the speed of rotation of the rotating races, said encoder element including a radial part arranged in the axial space between the cages and an active part supported by said radial part, said active part being arranged in an annular space which is located between an annular surface of the non-rotating race between the raceways and an outer surface of the cages which is situated between the two rows of rolling elements, said active part of the encoder element having an axial dimension which is greater than the axial dimension of the axial space between the two cages.

5,736,854
TUBULAR COIL UNIT OF AN INDUCTIVE TRANSDUCER FOR MEASURING DISPLACEMENTS

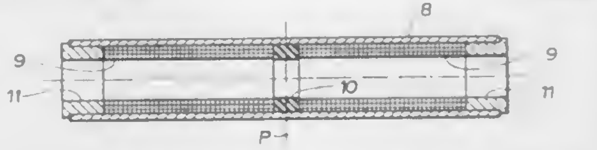
Eric Züger, Renens, Switzerland, assignor to Tesa SA, Switzerland

Filed Mar. 14, 1995, Ser. No. 404,093

Claims priority, application European Pat. Off., Mar. 21, 1994, 94104417

Int. Cl.⁶ G01B *7/14;7/00;* **G01D** *5/22,* **H01F** *21/08*

U.S. Cl. 324—207.12 **5 Claims**



1 A tubular coil unit of an inductive transducer for measuring displacements, comprising:

a tube with two end flanges;
- an alignment of elements including said two end flanges and a plurality of coils and spacers disposed within said tube, a distribution of said coils being symmetrical with respect to a longitudinal center of said unit, and
- at least one spacer of elastic material compressed between two of said elements of said alignment of elements, wherein the plurality of coils is slidably disposed within said tube and said at least one spacer is disposed so as to center said alignment of elements.

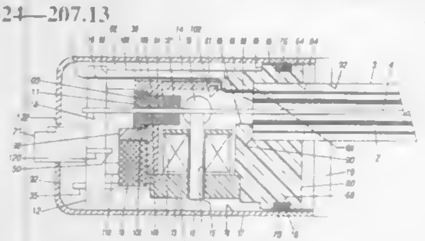
5,736,855
LOCAL BUFFER CIRCUIT FOR SONIC WAVEGUIDES

Stephen Williams Smith, 108 Pinecroft Dr., Raleigh, N.C. 27609, and Arnold Fred Sprecher, Jr., 5712 Crutchfield Rd., Raleigh, N.C. 27606

Filed Jul. 10, 1995, Ser. No. 500,004

Int. Cl.⁶ G01B *7/14*, G01F *23/30*; H04R *15/00*

U.S. Cl. 324—207.13 **30 Claims**



12. A converter for processing the initial output signal generated by a sonic wave of a magnetostrictive transducer having an outer coveting to produce a modified electrical output signal, comprising:
- a pickup coil located within the outer covering and generating the initial electrical output signal from the sonic wave, said pickup coil having at least two leads; and
- first means located within the outer covering and connected to said leads of said pickup coil and responsive to the initial electrical output signal for lowering the impedance of said pickup coil, said first means producing the modified electrical output signal.

5,736,856
METHOD AND APPARATUS FOR PERFORMING MAGNETIC FIELD MEASUREMENTS USING MAGNETO-OPTIC KERR EFFECT SENSORS

Steven A. Oliver, Dedham, and Charles A. DiMarzio, Cambridge, both of Mass., assignors to Northeastern University, Boston, Mass.

Continuation of Ser. No. 474,692, Jun. 7, 1995, Pat. No. 5,631,559, which is a continuation-in-part of Ser. No. 26,589, Mar. 5, 1993, Pat. No. 5,493,220. This application Nov. 6, 1996, Ser. No. 744,923

Int. Cl.⁶ G01R *33/032*, G02F *1/09*

U.S. Cl. 324—244.1 **68 Claims**

1. A magneto-optic Kerr effect magnetic field sensor comprising a light source;
- a magneto-optic Kerr effect magnetic field sensing element, said sensing element comprising a plurality of thin film layers disposed on a substrate, at least one of said layers being of a reflective magnetic material and having an in plane magnetization orientation, a well defined in plane uniaxial anisotropy, and known magneto-optic Kerr effect and in plane uniaxial anisotropy field values, wherein said sensing element is disposed such that an in-plane hard axis of said at least one layer of reflective magnetic material lies in a light plane of incidence and collinear to an external magnetic field to be measured, wherein said at least one reflective magnetic material layer has at least one domain having a rotatable magnetization vector that rotates in response to said external magnetic field, and said at least one layer of reflective magnetic material is disposed such that a polarization characteristic of incident light is altered upon reflectance from said sensing element;
- a first polarizing element disposed between said light source and said magneto-optic Kerr effect magnetic field sensing element wherein said light source directs a light beam to said first polarizing element and said first polarizing element transmits a first polarized light beam having a first predetermined polarization characteristic to said magneto-optic Kerr effect magnetic field sensing element;
- a second polarizing element disposed to intercept light reflected from said magneto-optic Kerr effect magnetic field sensing element and to transmit a second polarized light beam having a second predetermined polarization characteristic; and
- a detector disposed to intercept said second polarized light beam from said second polarizing element.

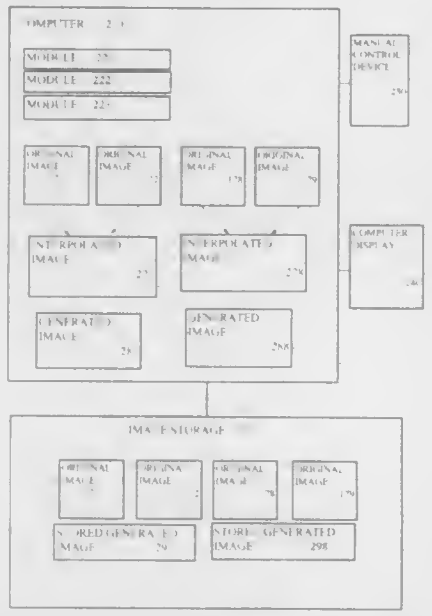
5,736,857
METHOD AND APPARATUS FOR REALISTIC PRESENTATION OF INTERPOLATED MAGNETIC RESONANCE IMAGES

Jeffrey David Taft, Cranberry Township, Pa., assignor to Micro Signal Corporation, Cranberry Township, Pa.

Filed Nov. 21, 1995, Ser. No. 561,393

Int. Cl.⁶ G01V *3/00*

U.S. Cl. 324—309 **17 Claims**



1. A method of displaying a sequence of at least two given digital images, a numerical quality function, yielding a quality value defined on the digital images, comprising the steps of
- a) generating at least one interpolated digital image from a pair of consecutive given digital images of the sequence, said pair having a first image and a second image, and
- b) transforming at least one said interpolated digital image to yield a transformed image, wherein a quality value of said transformed image is greater than or equal to a quality value of said interpolated digital image; and
- c) displaying in order said first image, said transformed image, and said second image.

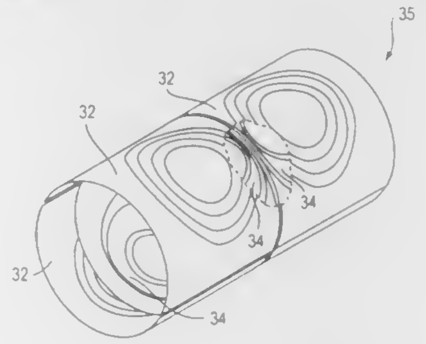
5,736,858
MODULAR WHOLE-BODY GRADIENT COIL COMPRISING FIRST AND SECOND GRADIENT COILS HAVING LINEAR GRADIENTS IN THE SAME DIRECTION

Ehud Katznelson, Ramat Yishai, and Paul R. Harvey, Ramot Hashavin, both of Israel, assignors to Elscint Ltd., Haifa, Israel

Continuation of Ser. No. 335,340, Nov. 3, 1994, abandoned. This application Oct. 29, 1996, Ser. No. 738,579

Int. Cl.⁶ G01V *3/00;3/14*

U.S. Cl. 324—318 **17 Claims**



1. A magnetic resonance imaging (MRI) system comprising:
- a magnet for supplying a large homogeneous static magnetic field to align spins in a subject that is within the interior space of the magnet,
- a radio frequency transmitter for generating radio frequency signals at Larmor frequencies,
- a radio frequency coil for transmitting the radio frequency signals to tip said aligned spins to have at least a projection on a plane normal to the static magnetic field,
- at least one modular gradient coil set for varying the static magnetic field to enable encoding free induction decay (FID) signals emitted by the tipped spins,
- said at least one modular gradient coil set comprising a single structure including a plurality of modular gradient coils that are mounted on a single gradient coil former that is fixed relative to said magnet,
- a first of said plurality of modular gradient coils providing a first region within the static magnetic field having linear gradients in a first direction for use in ultra-fast MRI,
- a second of said plurality of modular gradient coils being longer than said first of said modular gradient coils and extending beyond both flanks of said first of said modular gradient coils, to provide a second region larger than and overlapping said first region within the static magnetic field, said second region having linear gradients in said first direction for use in conventional MRI,
- switching means for selectively coupling said first and second modular gradient coils so that said first modular gradient coil is separately energized, said second modular gradient coil is separately energized or both coils are energized jointly, and
- said first and second modular gradient coils being mounted on said single gradient coil former, one of said first and second modular gradient coils being mounted on the inside of said single former and another of said first and second modular gradient coils being mounted on the outside of said single gradient coil former.

5,736,859
CRYOGENIC MRI MAGNETS

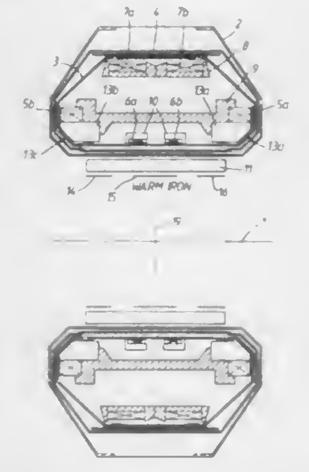
Russell Peter Gore, 197 Cothill Road, Dry Sandford, Abingdon Oxford, OX13 6JW, England

Filed Nov. 13, 1995, Ser. No. 557,796

Claims priority, application United Kingdom, Nov. 29, 1994, 9424078

Int. Cl.⁶ G01V *3/00*

U.S. Cl. 324—319 **11 Claims**



1. A superconducting electromagnet for use in an MRI apparatus comprising:
- an annular vessel,
- annular windings contained inside said annular vessel and energisable to produce a magnetic field, and
- cold iron components contained inside said annular vessel and mechanically anchored with respect to the windings,
- the cold iron components comprising a pair of iron rings positioned one at each end of the magnet in close proximity to the annular windings,
- the rings being chamfered so as to define a flared opening at each end of a cylindrical space within the magnet which, in use of the magnet for MRI purposes, is occupied by a patient

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5,736,860
INDUCTIVE LOGGING SYSTEM HAVING MULTIPLE COILS FROM WHICH ARE SELECTED A RECEIVER AND A COUNTER-RECEIVER

Jean-Jacques Chaillout, Etienne De; Marcel Locatelli, Montbonnot, and Patrice Giordano, Pertuis, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Jan. 11, 1996, Ser. No. 584,290

Claims priority, application France, Jan. 10, 1995, 95-00198

Int. Cl.⁶ G01V *3/28*

U.S. Cl. 324—339 **19 Claims**

1. Induction measuring device comprising:
- an emitting coil for inducing eddy-currents in a medium to be measured,
- n receiving coils, B_k, k=1 . . . n, with $n \geqq 3$, for measuring magnetic field produced by said eddy-currents,
- digital means, connected to said receiving coils, for selecting a pair of coils B_i, B_j from said n receiving coils where $1 \leqq i \leqq n$ and $1 \leqq j \leqq n$, each coil of said pair of receiving coils producing a signal S_i, S_j said digital means also calculating a weighted difference $r_iS_i - K_jS_j$ between said signals S_i, S_j of said two coils, whereby r_i and K_j are weighing coefficients, the inves-

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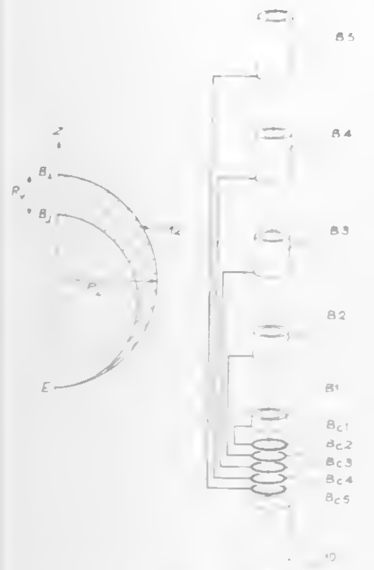


tigation depth and the vertical resolution of the device being defined by the pair B_i, B of selected receiving coils.

5,736,861

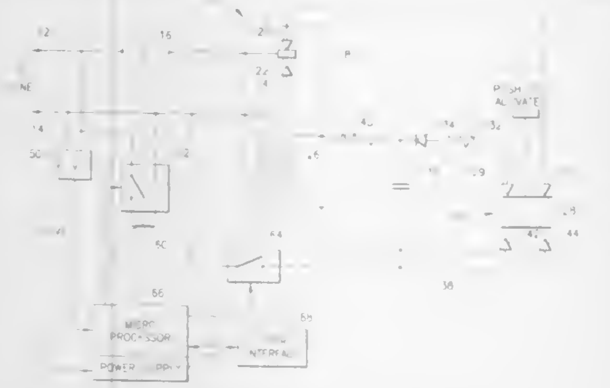
CIRCUIT BREAKER TESTER

Paul A. Keleher, 35 Barnes Rd., Berlin, Mass. 01503, and Charles D. O'Neal, III, Bolton, Mass., assignors to Paul A. Keleher, Berlin, Mass.

Filed Aug. 2, 1996, Ser. No. 691,692

Int. Cl.⁶ G01R *31/32*

U.S. Cl. 324—424 **8 Claims**



1. A circuit breaker test device for connection to a branch circuit including a circuit breaker, comprising:

first switch means for controllably short circuiting said branch circuit,

control means for causing said first switch means to short circuit said branch circuit,

timer means responsive to operation of said control means, for causing said first switch means to cease short circuiting said branch circuit; and

test means for determining an impedance value of said branch circuit and enabling operation of said control means only if said impedance value is within predetermined limits.

5,736,862

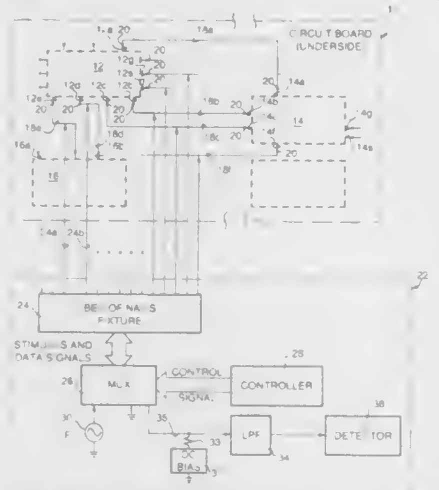
SYSTEM FOR DETECTING FAULTS IN CONNECTIONS BETWEEN INTEGRATED CIRCUITS AND CIRCUIT BOARD TRACES

Michael W. Hamblin, Stow, Mass., assignor to Genrad, Inc., Westford, Mass.

Filed Jun. 22, 1995, Ser. No. 493,399

Int. Cl.⁶ G01R *31/04*

U.S. Cl. 324—527 **11 Claims**



1. A method of detecting failures in connections between IC pins and circuit board traces to which they are nominally connected, said method comprising the steps of,

A. applying a first a-c input signal to a first circuit board trace to which a first pin of the IC is nominally connected;

B. detecting an a-c output signal, derived from said input signal, at a second circuit board trace to which a second pin of the IC is nominally connected, said output signal being present at said second pin, and

C. comparing the level of said output signal with a predetermined threshold.

5,736,863

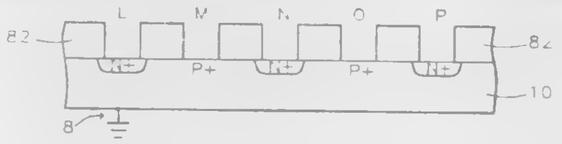
ABATEMENT OF ELECTRON BEAM CHARGING DISTORTION DURING DIMENSIONAL MEASUREMENTS OF INTEGRATED CIRCUIT PATTERNS WITH SCANNING ELECTRON MICROSCOPY BY THE UTILIZATION OF SPECIALLY DESIGNED TEST STRUCTURES

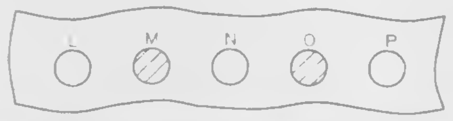
Chwen-Ming Liu, Chaiyi, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-chu, Taiwan

Filed Jun. 19, 1996, Ser. No. 666,161

Int. Cl.⁶ H01L *23/58*, G01R *31/26*

U.S. Cl. 324—765 **10 Claims**





1. A method for inspecting and measuring an opening in an insulative layer using a grounded SEM inspection and measurement device comprising

providing a silicon substrate having a grounded SEM inspection and measurement device comprising,

(i) an insulative layer over said silicon substrate;

(ii) an opening in said first insulative layer exposing a portion of said silicon substrate; and

(iii) a contact area on the back side of said silicon substrate whereby a continuous ohmic conductive path is provided entirely within said silicon substrate between said portion and said contact area;

placing said silicon substrate into the chamber of an SEM,

connecting said contact area to an electrical ground of said SEM, evacuating said chamber; and

operating said SEM thereby inspecting and measuring said opening

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5,736,864

APPARATUS FOR ASCERTAINING THE COMPLEX DIELECTRIC CONSTANT OF TOBACCO

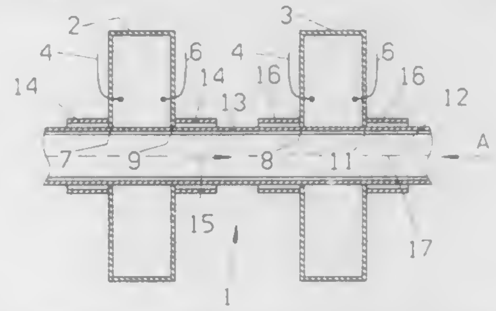
Henning Möller, Hamburg, Germany, assignor to Hauni Maschinenbau AG, Hamburg, Germany

Filed Jun. 27, 1996, Ser. No. 670,519

Claims priority, application Germany, Jul. 14, 1995, 195 25 706.5

Int. Cl.⁶ G01R *27/26*

U.S. Cl. 324—633 **11 Claims**



1. Apparatus for ascertaining the complex dielectric constant of a filler of a cigarette rod which is advanced along a predetermined path, comprising a resonator assembly including first and second high-frequency resonators respectively having first and second housings surrounding first and second portions of said path, at least one of said housings being an at least substantially rotationally symmetrical housing and each of said housings having an inlet and an outlet for the filler in the respective portion of said path, at least one of said resonators being a variable-frequency resonator and including means for varying the resonance frequency thereof; a high-frequency sender including first conductor means for the application of high-frequency fields to said resonators; a signal-evaluating regulating unit operatively connected with at least one of said resonators and said high-frequency sender; and second conductor means for the transmission of signals from said resonators to said regulating unit, said sender including means for applying to said resonators said high-frequency fields having a first frequency and said first and second resonators having different second and third resonance frequencies in the absence of a filler in said portions of said path, said first frequency being at least substantially midway between said second and third frequencies in the absence of a filler in said portions of said path, said resonator assembly being detuned when said portions of said path contain a filler and said regulating unit including means for ascertaining the complex dielectric constant of a filler in said portions of said path on the basis of a determination of amplitudes of first and second high-frequency signals respectively determined by said first and second resonators and transmitted to said regulating unit by said second conductor means, and on the basis of the processing of the sums of and differences between said first and second signals

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5,736,865

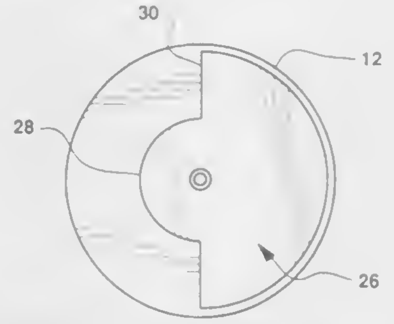
CAPACITIVE ROTARY POSITION ENCODER

James Edward Nelson, North Branch; Ronald Kenneth Selby, Burton; Raymond Lippmann, Ann Arbor, and Michael John Schnars, Clarkston, all of Mich., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 16, 1996, Ser. No. 714,740

Int. Cl.⁶ G01R *27/26*

U.S. Cl. 324—660 **7 Claims**



1. A rotary position encoder comprising:

a circuit board having at least three conductive segments in a circular array and a pickup conductor concentric with the array;

an encoder disk mounted adjacent the circuit board for rotation about an axis concentric with the array,

means for supplying a pattern of digital signals to the conductive segments, the signal patterns differing in phase for each segment,

means for selectively summing the signals as a function of rotary position of the encoder disk comprising an encoder conductor on the disk capacitively coupled with some of the segments according to the rotational position;

the encoder conductor including a region capacitively coupled with the pickup conductor so that for segments coupled to the encoder conductor the respective signals will be summed and coupled to the pickup conductor;

a detector circuit connected to the pickup conductor for producing a phase signal; and

means for determining the phase of the phase signal wherein the phase is a measure of the rotational position of the encoder disk

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5,736,866

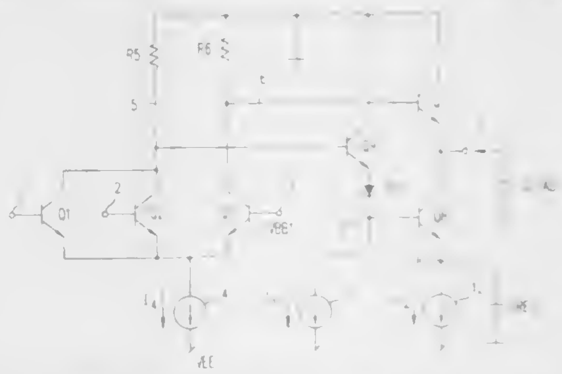
ACTIVE PULL-DOWN CIRCUIT FOR ECL USING A CAPACITIVE COUPLED CIRCUIT

Jerome D. Harr, San Jose, Calif., assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 13, 1995, Ser. No. 555,969

Int. Cl.⁶ H03K *19/013*

U.S. Cl. 326—18 **26 Claims**



1. An emitter-coupled logic (ECL) output pulldown circuit that discharges an output node based upon a reduction in voltage at a collector node, comprising:

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a pulldown transistor having a pulldown collector, a pulldown emitter, and a pulldown base;

a temporary storage capacitor having a positive capacitor terminal and a negative capacitor terminal,

a diode having a diode input and a diode output; and

a control transistor having a control collector, a control emitter, and a control base;

wherein the control collector is connected to a positive supply voltage, the control base is connected to the collector node, and the control emitter is connected to the diode input, and

wherein the pulldown collector is connected to the output node, the pulldown base is connected directly to the diode output, and the pulldown emitter is connected to the positive capacitor terminal.

5,736,867

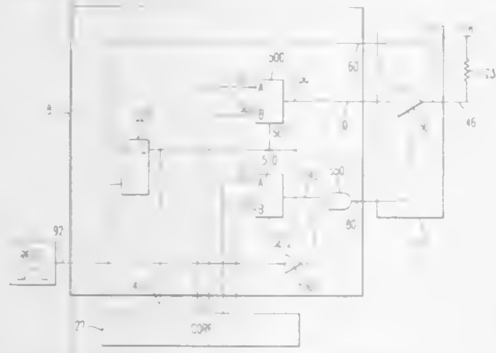
METHOD AND CIRCUIT FOR RECONFIGURING A BUFFER

Fred W. Keiser, Eagan, and Michael F. Maas, West St. Paul, both of Minn., assignors to Cypress Semiconductor Corporation, San Jose, Calif.

Filed Jun. 4, 1996, Ser. No. 658,671

Int. Cl.^{6} H03K *19/0175*

U.S. Cl. 326—38 **27 Claims**



1. A reconfigurable buffer circuit comprising:

an output buffer comprising,

means for receiving an input signal, and

means for outputting a buffered output signal corresponding to said input signal;

means for inputting a control parameter; and

a control circuit comprising,

means for receiving the control parameter input,

means for receiving at least one control signal from a control signal source,

means for storing said control parameter, and

means for producing said input signal,

wherein said buffered output signal is outputted in accordance with the stored control parameter and the at least one control signal.

5,736,868

EXCLUSIVE OR/NOR GATE CIRCUIT

Hyoung-Gon Kim; Yong-Moo Kwon, both of Seoul, and Seung-Ho Oh, Seongnam, all of Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Jul. 11, 1996, Ser. No. 678,713

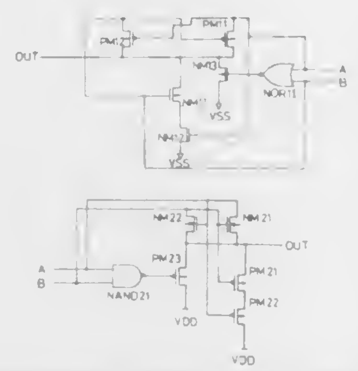
Claims priority, application Rep. of Korea, Nov. 28, 1995, 1995-44222

Int. Cl.^{6} H03K *19/094*

U.S. Cl. 326—55 **2 Claims**

1. An exclusive OR gate circuit comprising:

first and second PMOS transistors connected between an input terminal and an output terminal for respectively receiving first and second input signals;



first and second NMOS transistors the gates of which are respectively applied with the second and first input signals and which are connected in series between the output terminal and ground;

a NOR gate which NORs the first and second input signals; and a third NMOS transistor the gate of which is applied with an output signal of the NOR gate and which is connected between the output terminal and ground.

5,736,869

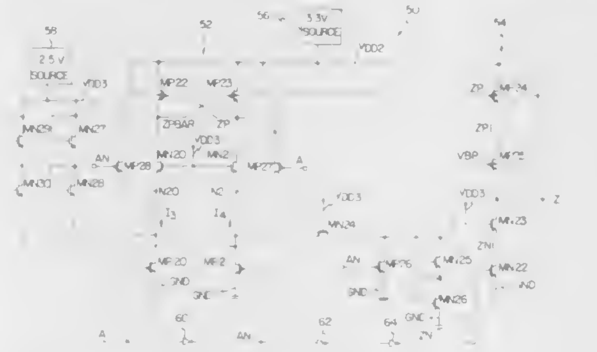
OUTPUT DRIVER WITH LEVEL SHIFTING AND VOLTAGE PROTECTION

Shuran Wei, St. Paul, Minn., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed May 16, 1996, Ser. No. 645,644

Int. Cl.^{6} H03K *19/0185*

U.S. Cl. 326—81 **13 Claims**



7. An output driver circuit comprising:

first and second voltage supply terminals;

first and second complementary data terminals;

an output terminal;

a pull-up transistor coupled between the first voltage supply terminal and the output terminal and having a first control terminal;

a pull-down transistor coupled between the second voltage supply terminal and the output terminal and having a second control terminal coupled to the second data terminal;

first and second predriver current paths;

a pull-down, p-channel differential transistor pair coupled between the second voltage supply terminal and the first and second current paths and having control terminals coupled to the first and second data terminals, respectively; and

a p-channel cross coupled transistor pair coupled in the first and second current paths between the first voltage supply terminal and the differential transistor pair and having a control output terminal coupled to the control terminal of the pull-up transistor

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5,736,870

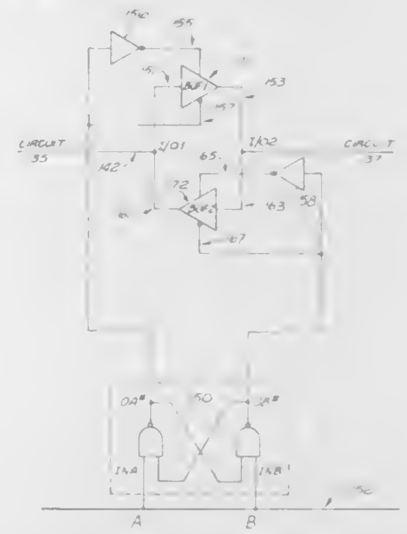
METHOD AND APPARATUS FOR BI-DIRECTIONAL BUS DRIVER

Jeffrey K. Greason, Portland, and James P. Kolousek, Gaston, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 28, 1995, Ser. No. 580,131

Int. Cl.^{6} H03K *19/0175*

U.S. Cl. 326—86 **23 Claims**



18. A method of driving a bidirectional bus line in a bidirectional bus circuit, comprising the steps of

determining the direction of a signal on said bidirectional bus line; wherein said bidirectional bus circuit includes a sense line for carrying a bus direction signal said determining performed by detecting said bus direction signal at two locations along said sense line; and

driving said bidirectional bus line in the direction of said signal

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5,736,871

DIFFERENTIAL PAIR INPUT BUFFER CIRCUIT WITH A VARIABLE CURRENT SOURCE

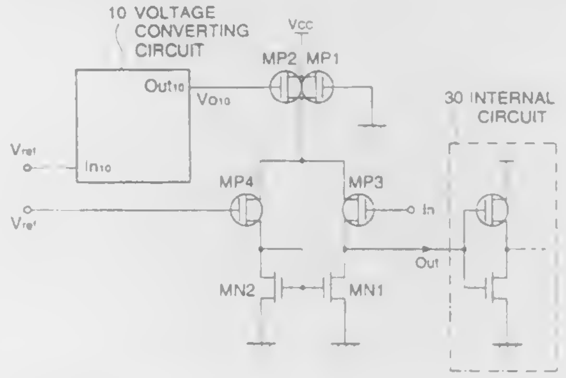
Hiroyuki Goto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,574

Claims priority, application Japan, Feb. 28, 1995, 7-040187

Int. Cl.^{6} H03K *19/0948*, H03F *3/45*

U.S. Cl. 326—115 **6 Claims**



6. An input buffer circuit for a semiconductor integrated circuit receiving an input signal having a predetermined amplitude, which is supplied from an external source of said semiconductor integrated circuit, comprising.

a differential circuit including a first transistor receiving said input signal and a second transistor receiving a reference voltage which is supplied from an external source of said semiconductor integrated circuit;

a voltage converting circuit for converting said reference voltage to a converted voltage.

a first current source connected to said differential circuit for supplying a constant current and

a second current source connected in parallel with said first current source and connected to said differential circuit to supply an additional current controlled by said converted voltage to equate an operating point of said differential circuit with said reference voltage

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5,736,872

LOW VOLTAGE HIGH SPEED PHASE FREQUENCY DETECTOR

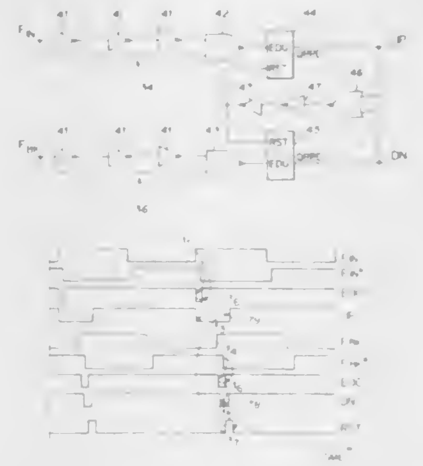
Vivek Sharma, Le Fontanil, and Davoud Samani, Saint Martin le Vinoux, both of France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

Continuation of Ser. No. 380,847, Jan. 30, 1995, abandoned. This application May 31, 1996, Ser. No. 665,007

Claims priority, application European Pat. Off., Jan. 31, 1994, 94410004

Int. Cl.^{6} H03D *13/00*

U.S. Cl. 327—3 **53 Claims**



1. A circuit for detecting a difference in phase between a first input signal and a second input signal, comprising:

first and second sub circuits, receiving the first and second input signals, and generating first and second intermediate signals, respectively, each of the first and second intermediate signals including a pulse generated in response to an edge transition of a respective one of the first and second input signals, each pulse having a short duration compared with a period of the first and second input signals;

first and second resettable pulse detection circuits, each having an input terminal receiving one of the first and second intermediate signals, respectively, and each providing an output terminal conveying an output signal, each output signal generating a first stable state responsive to an active signal being received on a reset terminal of the respective pulse detection circuit and generating a second stable state responsive to a pulse being received on the respective input terminal, and

resetting circuitry coupled to the output terminals constructed and arranged to detect when both output signals are in said second stable state, and to supply an active reset signal to the reset terminal of each of the resettable pulse detection circuits to return the first and second output signals to said first stable state

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5,736,873
POWER SAVING CONTROL CIRCUIT FOR A DISPLAY APPARATUS

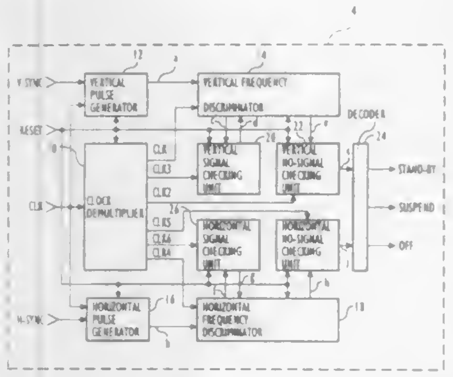
Ho-dae Hwang, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 18, 1995, Ser. No. 444,279

Claims priority, application Rep. of Korea, May 19, 1994, 94-10862

Int. Cl.^{6} H03D *13/00*

U.S. Cl. 327—41 **5 Claims**


4
V-SYNC
RESET
CLK
H-SYNC
12
VERTICAL PULSE GENERATOR
VERTICAL FREQUENCY DISCRIMINATOR
DECODER
22
20
24
CLK
CLK3
CLK2
CLOCK DEMULTIPLIER
VERTICAL SIGNAL CHECKING UNIT
VERTICAL NO-SIGNAL CHECKING UNIT
STAND-BY
SUSPEND
OFF
26
CLK5
CLK6
CLK4
HORIZONTAL SIGNAL CHECKING UNIT
HORIZONTAL NO-SIGNAL CHECKING UNIT
16
HORIZONTAL PULSE GENERATOR
HORIZONTAL FREQUENCY DISCRIMINATOR
18

1. A power control circuit for controlling a monitor by using vertical and horizontal synchronization signals, comprising:

vertical pulse generating means for supplying a first pulse whenever said vertical synchronization signal is received.

horizontal pulse generating means for supplying a second pulse whenever said horizontal synchronization signal is received.

vertical signal discriminating means comprising

vertical frequency discriminating portion for determining the frequency of said first pulse from said vertical pulse generating means using a first predetermined reference frequency as a first reference to output a first signal when the frequency of said first pulse is less than said first predetermined reference frequency, and for outputting a second signal responsive to an absence for a first predetermined time period, of the vertical synchronization signal,

a vertical signal checking portion responsive to said first signal from said vertical frequency discriminating portion for counting a second predetermined time period to control the output of said second signal, and

a vertical no-signal checking portion for delaying said signal from said vertical frequency discriminating portion for a third predetermined time period and then outputting a first delayed signal;

horizontal signal discriminating means comprising

a horizontal frequency discriminating portion for determining the frequency of said second pulse from said horizontal pulse generating means using a second predetermined reference frequency as a second reference to output a third signal when the frequency of said second pulse is less than said second predetermined reference frequency, and for outputting a fourth signal responsive to an absence for a fourth predetermined time period, of the horizontal synchronization signal input,

a horizontal signal checking portion responsive to said second signal from said horizontal frequency discriminating portion for counting a fifth predetermined time period to control the output of said fourth signal, and

a horizontal no-signal checking portion for delaying said fourth signal from said vertical frequency discriminating portion for a sixth predetermined time period and then outputting a second delayed signal, and

output means for logically combining the fast and second delayed signals from said vertical no-signal checking portion and said horizontal no-signal checking portion to thereby supply a control signal according to a power management state.

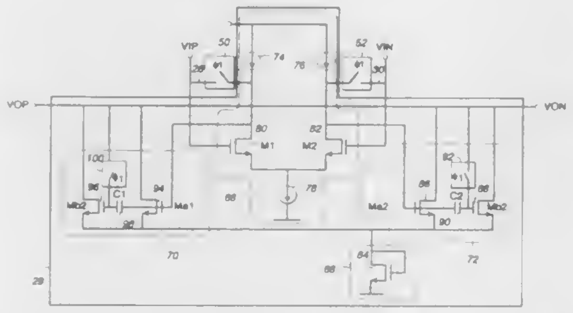
5,736,874
HIGH RESOLUTION HIGH SPEED COMPARATOR

Zhilong Tang, Allentown, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 20, 1996, Ser. No. 716,824

Int. Cl.^{6} H03K *5/22*

U.S. Cl. 327—65 **21 Claims**



1. An integrated circuit including an output stage for use in amplifying outputs of a differential amplifier, the output stage comprising.

a) a first transistor having a first terminal, a second terminal, and a third terminal;

b) a second transistor having a first terminal, a second terminal, and a third terminal; and

c) a storage element that couples said first terminal of said first transistor to said first terminal of said second transistor;

d) wherein said first terminal of said first transistor is coupled to a first output stage and to a first output of the differential amplifier, and said second terminal of said first transistor and said second terminal of said second transistor are coupled to a second output of the stage and to a second output of the differential amplifier.

5,736,875
DISCRIMINATION CIRCUIT CAPABLE OF AUTOMATICALLY OPTIMIZING DISCRIMINATION LEVEL AND DISCRIMINATION PHASE

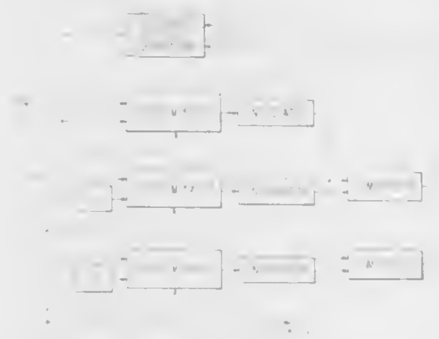
Hisaya Sakamoto; Takashi Tsuda, and Yasunori Nagakubo, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 20, 1996, Ser. No. 618,941

Claims priority, application Japan, Mar. 20, 1995, 7-061210

Int. Cl.^{6} H03K *5/153;5/22,* **H01L** *31/00*

U.S. Cl. 327—74 **23 Claims**



1. A discrimination circuit comprising.

a first discrimination section for discriminating an input signal by reference to a first discrimination criterion, and thereby regenerating a digital signal as a discrimination result;

a second discrimination section for discriminating the input signal by reference to a second discrimination criterion, which is different from the first discrimination criterion and is decided depending on the first discrimination criterion, and for outputting a discrimination result, and

a control section for optimizing the first discrimination criterion by varying the first discrimination criterion so that the discrimination result from the first discrimination section becomes equal to the discrimination result from the second discrimination section.

5,736,876
CIRCUIT FOR THE DETECTION OF VOLTAGE THRESHOLDS

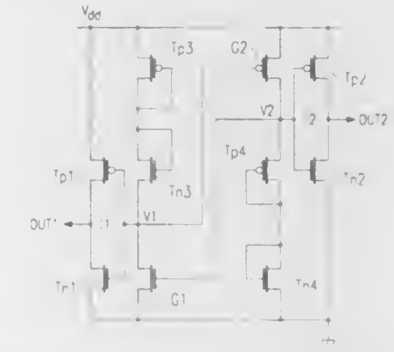
Richard Pierre Fournel, Trets, France, assignor to SGS-Thomson Microelectronics, S.A., Gentilly Cedex, France

Continuation of Ser. No. 54,939, Apr. 28, 1993, Pat. No. 5,602,500. This application Jun. 1, 1995, Ser. No. 457,967

Claims priority, application France, Apr. 30, 1992, 92 05418

Int. Cl.^{6} H03K *1/12*

U.S. Cl. 327—77 **14 Claims**



1. An integrated voltage monitoring circuit, for monitoring a positive supply voltage with respect to a ground voltage, comprising:

a basing circuit which is connected to said positive supply voltage and said ground voltage to provide a first potential which follows variation in said positive supply voltage arid a second potential which is independent of variations in said positive supply voltage:

a first output stage, including

a current source coupled to said positive supply voltage for providing a bias current which is independent of variations in said positive supply voltages, and

an N-channel field-effect drive transistor having

a source operatively connected to said ground voltage, and

a gate connected to said first potential which follows variations in said positive supply voltage, and

a drain terminal biased by said current source, and connected to provide a first output which delivers information on a crossing of a first threshold by said positive supply voltage; and

a second output stage including

a current sink coupled to said ground voltage for providing a bias current which is independent of variations in said positive supply voltage, and

a P-channel field-effect drive transistor having

a source operatively connected to said positive supply voltage, and

a gate connected to said second potential which is independent of variations in said positive supply voltage, and

a drain terminal biased by said current sink, and connected to provide a second output which delivers information on a crossing of a second threshold, which is different from said first threshold, by said positive supply voltage;

whereby outputs of said first and second output stages jointly indicate whether said positive supply voltage is below, within, or above a predetermined range.

5,736,877
CIRCUIT CONFIGURATION FOR DETECTING IDLING OF A LOAD

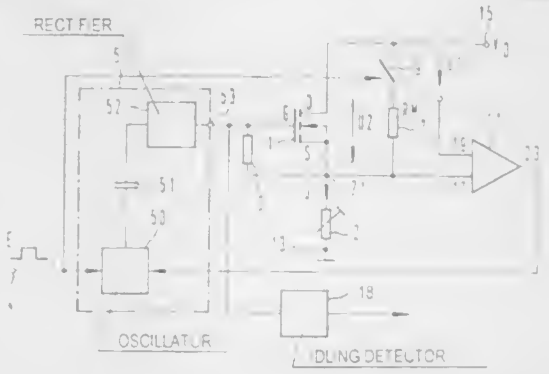
Jenoe Tihanyi, Kirchheim, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 18, 1996, Ser. No. 715,425

Claims priority, application Germany, Sep. 18, 1995, 195 34 603.3

Int. Cl.^{6} H03K *5/153,17/687*

U.S. Cl. 327—77 **11 Claims**



1. A circuit configuration for detecting idling of a load, comprising:

an electronic power switch having an ON state and a load path with an internal resistor, said power switch being connected in series with a load at a junction;

a comparator having a first input connected to said junction, a second input connected to a reference voltage being less than a voltage dropping at said power switch at rated current and greater than a voltage dropping at said power switch during idling, and an output for signaling idling of the load; and

a resistor connected parallel to the load path of said power switch only in the ON-state of said power switch, said resistor having a higher resistance than the internal resistor of the load path of said power switch in the ON state thereof.

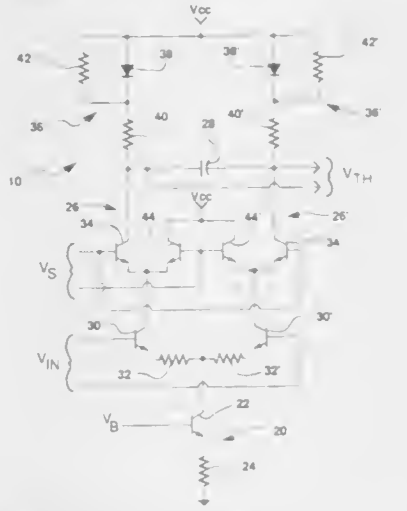
5,736,878
LOW COST, HIGH SPEED TRACK AND HOLD CIRCUIT

Scott Cameron McLeod, Oro Valley, Ariz., assignor to Delco Electronics Corporaiton, Kokomo, Ind.

Filed Jun. 21, 1996, Ser. No. 667,557

Int. Cl.^{6} G11C *27/02*

U.S. Cl. 327—94 **5 Claims**



1. A track and hold circuit comprising:

a holding capacitor;

a constant current source;

a pair of parallel charging circuits connected to opposite sides of the capacitor for charging the capacitor through the constant current source;

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each charging circuit having an input transistor including a base which comprises an input for an analog signal;

each charging circuit having an impedance path connected from the capacitor to one side of a power supply, and

switch means for alternately enabling and disabling charging through the input transistors, including a sampling transistor in series with each input transistor and controlled to on and off states by a sample control signal, and a bypass transistor in series with each input transistor and controlled by the sample control signal to on and off states opposite the states of the sampling transistor to provide an alternate current path through the input transistors and the constant current source when the sampling transistors are off;

whereby the capacitor tracks the analog signal when charging is enabled and holds a signal value present when the charging is disabled

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5,736,879

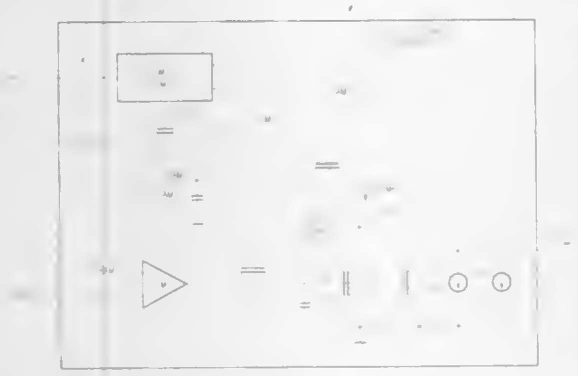
CLOSED-LOOP FREQUENCY-TO-CURRENT CONVERTER WITH INTEGRABLE CAPACITANCES

Giao Minh Pham, Milpitas, Calif., assignor to Siliconix incorporated, Santa Clara, Calif.

Filed Feb. 2, 1996, Ser. No. 594,676

Int. Cl.^{6} H03D *3/00*

U.S. Cl. 327—102 **17 Claims**



1 A frequency-to-current converter comprising

an input node for receiving an input signal having an input frequency:

a sample timer connected to the input node, the sample timer for providing a sample signal on a sample terminal and a reset signal on a reset terminal.

a ramp capacitance circuit having a ramp capacitance, the ramp capacitance including a first terminal and a second terminal the second terminal switchably connected to a first reference voltage, in response to the reset signal from the sample timer

a transconductance amplifier having an input terminal connected to the second terminal of the ramp capacitance and an output terminal the transconductance amplifier providing an output current on the amplifier output terminal.

a sample gate having a first current handling terminal connected to the amplifier output terminal, a control terminal connected to the sample terminal of the sample timer, and a second current handling terminal the sample gate providing a conductive path between the first and second current handling terminal in response to the sample signal.

a current bias capacitance having a first terminal connected to the second current-handling terminal of the sample gate and a second terminal connected to a second reference voltage, and

a voltage-to current converter having a control terminal connected to the first terminal of the current-bias capacitance, the voltage-to-current converter providing a ramp current proportional to a voltage level on the control terminal of the voltage to-current converter

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5,736,880

DIFFERENTIAL CHARGE PUMP USING SURTCHINGLY CONTROLLED CURRENT GENERATORS

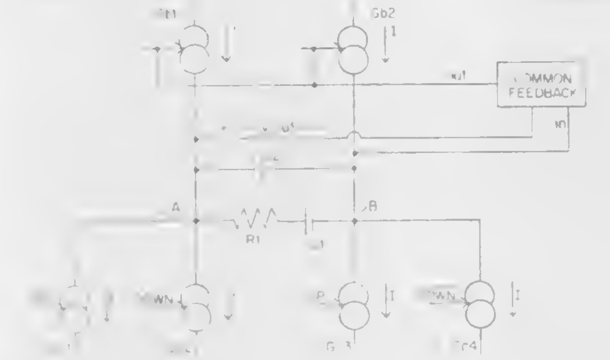
Melchiorre Bruccoleri, Genova; Gaetano Cosentino, Catania; Marco Demicheli, Binago, and Giuseppe Patti, Favara, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, and Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, both of Italy

Filed Dec. 21, 1995, Ser. No. 576,882

Claims priority, application European Pat. Off., Dec. 23, 1994, 94830586

Int. Cl.^{6} H03L *7/06*

U.S. Cl. 327—157 **7 Claims**



1 A differential charge pump circuit comprising.

a lowpass filter having a first node and a second node, the low pass filter including a resistor that is coupled in series with a first capacitor between the first and second nodes and a second capacitor that is coupled between the first and second nodes and is in parallel with the resistor and the first capacitor across the first and second nodes.

a first current generator coupled to the first node to inject a substantially continuous first current into the first node.

a second current generator coupled to the second node to inject a substantially continuous second current into the second node, the second current being equal to the first current.

first means, responsive to a first CMOS logic level control signal and an inverse of the first logic level CMOS control signal, for pulling current from the first and second nodes of the lowpass filter the first means including means for switching from pulling a current equal to the first current from the first node when the first CMOS logic level control signal is deasserted to pulling a current equal to the second current from the second node when the first CMOS logic level control signal is asserted: and

second means, responsive to a second CMOS logic level control signal and an inverse of the second CMOS logic level control signal, for pulling current from the first and second nodes of the lowpass filter, the second means including means for switching from pulling a current equal to the first current from the first node when the second CMOS logic level control signal is asserted to pulling a current equal to the second current from the second node when the second CMOS logic level control signal is deasserted.

wherein the means for switching included in the first means includes resistive means for insulating the first CMOS logic level control signal and the inverse of the first CMOS logic level control signal from a capacitance of the first means for pulling current

5,736,881

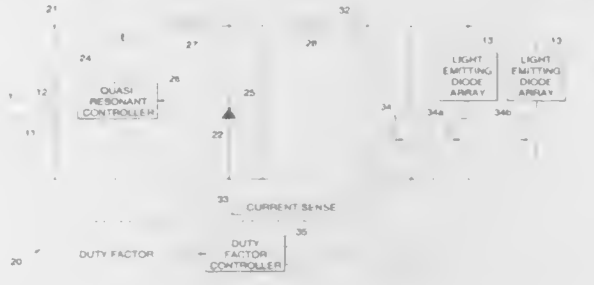
DIODE DRIVE CURRENT SOURCE

Joe A. Ortiz, Garden Grove, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Continuation of Ser. No. 349,572, Dec. 5, 1994, abandoned. This application Jun. 12, 1996, Ser. No. 662,399

Int. Cl.^{6} H03K *3/017*

U.S. Cl. 327—175 **13 Claims**



1. A current source for driving a load, the load including a plurality of laser diodes, the current source comprising:

a power source;

a constant current source coupled between the power source and the load for providing regulated current to the load;

a shunt switch coupled across the load.

a duty factor controller coupled to the shunt switch for providing a signal to the shunt switch that regulates the duty factor of the pulsed current supplied to the load; and

wherein the constant current source comprises a buck converter comprising:

a switch transistor coupled in series with the power source;

a resonant inductor coupled in series with the switch transistor;

a filter inductor coupled in series with the resonant inductor;

a resonant capacitor and a catch diode coupled in parallel across the filter inductor and the load;

current sensing means for sensing the regulated current provided to the load; and

control means coupled between the current sensing means and the switch transistor for regulating the current supplied to the load.

5,736,882

COMPLEMENTARY CLOCK SYSTEMS

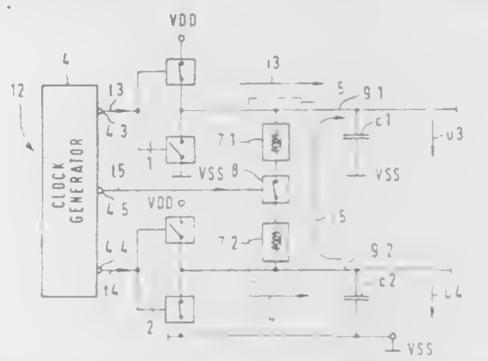
Franz-Otto Witte, Emmendingen, Germany, assignor to Deutsche ITT Industries, GmbH, Freiburg, Germany

Filed Dec. 9, 1996, Ser. No. 762,133

Claims priority, application Germany, Dec. 23, 1995, 195 48 629.3

Int. Cl.^{6} H03K *5/13*

U.S. Cl. 327—259 **19 Claims**



1. A clock circuit of the type typically including a clock generator for producing complementary clock signals (t3,t4), clock lines having associated load capacitances and driver stages for driving said load capacitances according to said clock signals (t3,t4), wherein the improvement therewith comprising

means for providing a switchable current path between said clock lines in order to provide a compensating current for partially charging and discharging said load capacitances during a transition period (tt) of said clock signals (t3,t4).

5,736,883

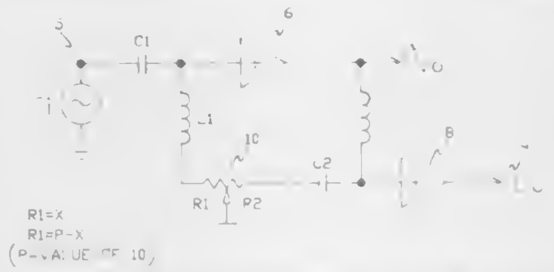
WIDE RANGE PHASE SHIFT WITH SINGLE ADJUSTMENT

Nikola Vidovich, San Jose, Calif., assignor to Pixel Instruments Corp., Los Gatos, Calif.

Continuation of Ser. No. 399,021, Mar. 6, 1995, abandoned. This application Mar. 5, 1996, Ser. No. 610,907

Int. Cl.^{6} H03H *11/26*

U.S. Cl. 327—276 **38 Claims**



1. An apparatus for adjustably shifting the phase of an input signal comprising:

a first circuit having a first set of R, L and C components and responsive to said input signal to cause a first phase shift thereto to provide a first phase shifted signal, with the amount of said first phase shift being responsive to adjustment of the value of one of said first R, L or C components,

and a second circuit having a second set of R, L and C components and responsive to said first phase shifted signal to cause a further phase shift thereto thus providing a further phase shifted signal, the amount of said further phase shift being responsive to adjustment of the value of one of said second R, L or C components,

wherein the same component of R, L or C component is adjusted for both said circuits such that when said value of one of said same components increases said value of said other one of the same components correspondingly decreases.

5,736,884

DEVICE FOR GENERATING A CONTROL SIGNAL DEPENDENT ON A VARIABLE RESISTANCE VALUE AND APPARATUS COMPRISING SUCH DEVICE

Wilhelmus G. M. Ettes; Peter S. Viet, and Johannes De Wit, all of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 15, 1996, Ser. No. 601,927

Claims priority, application European Pat. Off., Feb. 16, 1995, 95200370

Int. Cl.^{6} H02M *3/335*; H03K *5/01*

U.S. Cl. 327—304 **36 Claims**

1. A device for generating a control signal voltage (U_c) by producing a current through a variable resistor (8), the control signal voltage being dependent on the resistance value of the variable resistor (8); said device comprising

a transformer (24) having a first winding (22) and a second winding (26);

a rectifier diode (20) in series with the first winding (22);

means for connecting the variable resistor (8) in series with the first winding (22) and the rectifier diode (20) so as to form a closed loop for current flow therein in one direction.

a current generator (32) coupled to the second winding (26) to supply thereto a periodically interrupted current (I_2), each interruption thereof inducing a voltage across the first winding (22) which renders said rectifier diode (20) conductive and

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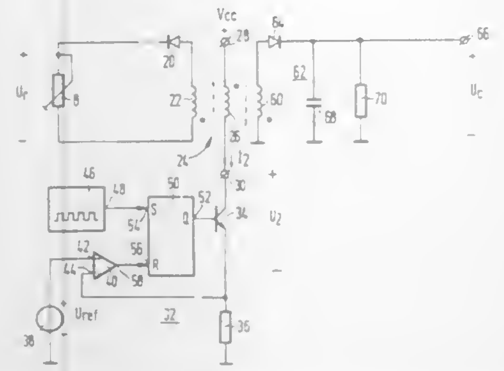


produces a current flow in said loop through the first winding (22) and the variable resistor (8), said induced voltage having a peak value dependent on the resistance value of the variable resistor (8); and

a peak detector (62) for detecting the peak value of the voltage produced across the first winding (22) upon each interruption of the current (I_2) in the second winding (26), said detected peak value constituting the control signal voltage (U'_c).

5,736,885

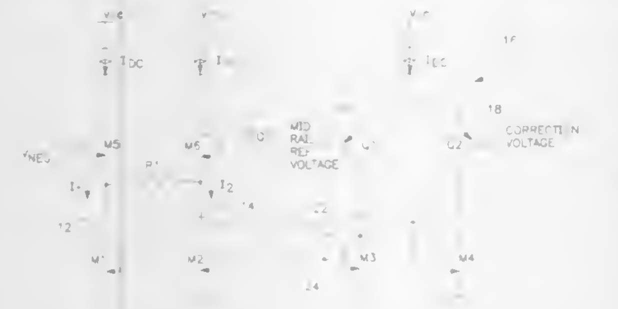
OFFSET ADJUSTMENT FOR FULLY DIFFERENTIAL AMPLIFIERS

Stanley Frank Wietecha, 5 Barher Blvd., Snuth Bound Brook, N.J. 08880; Thomas D. Housten, 86 Windy Way, Sommerville, N.J. 08876, and John A. Olmstead, 362 Dennisville Rd., Cape May Court House, N.J. 08880

Filed Jun. 26, 1995, Ser. No. 494,395

Int. Cl.⁶ H03F *3/45*

U.S. Cl. 327—307 **7 Claims**



7. A circuit for generating currents for controlling two supply transistors which are in separate supply paths of resistor coupled sources of a pair of input transistors in a fully differential amplifier, the circuit comprising.

a first pair of transistors with their emitters coupled to a current source of the fully differential amplifier, wherein one transistor of said first pair of transistors has its base connected to be controlled by a reference voltage and the other transistor of said first pair of transistors has its base connected to be controlled by a correction voltage; and

a second pair of transistors with each of their drains connected to their gates and each of said drains connected to a different one of the collectors of said first pair of transistors, each of said gates being connected to a different gate of the two supply transistors for controlling operation thereof

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5,736,886

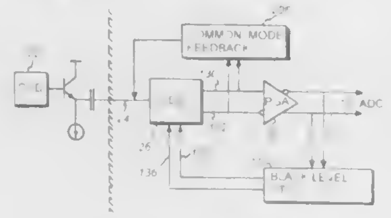
INPUT CLAMPING METHOD AND APPARATUS WITH A CORRELATED DOUBLE-SAMPLING CIRCUIT

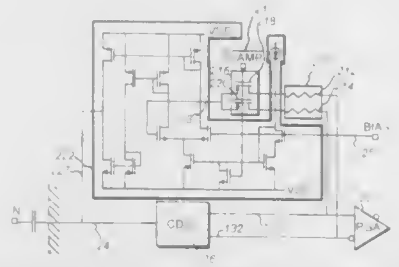
Christopher W. Mangelsdorf, Reading, and Katsufumi Nakamura, Cambridge, both of Mass., assignors to Analog Devices, Inc., Norwood, Mass.

Filed Feb. 6, 1996, Ser. No. 596,029

Int. Cl.⁶ H03K *5/08*; H04N *5/217*

U.S. Cl. 327—310 **22 Claims**





1. An input clamping circuit disposed between a differential output of a correlated double-sampling circuit and an input of the correlated double-sampling circuit, that clamps a voltage of a signal at the input of the correlated double sampling circuit to a desired value, the input clamping circuit comprising:

a dividing network having a first input terminal coupled to a first output of the differential output, a second input terminal coupled to a second output of the differential output and an output terminal, that takes an average of a differential signal at the differential output of the correlated double-sampling circuit and that provides the average to the output terminal, and

a differential amplifier having a first input coupled to the output terminal of the dividing network, a second input terminal coupled to a bias voltage, and an output coupled to the input of the correlated double-sampling circuit.

5,736,887

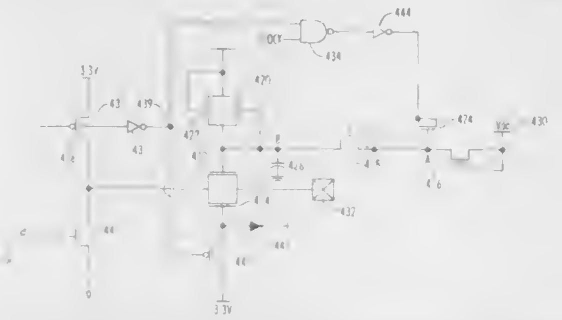
FIVE VOLT TOLERANT PROTECTION CIRCUIT

John R. Spence, Villa Park, Calif., assignor to Rockwell International Corporation, Newport Beach, Calif.

Filed Jan. 25, 1996, Ser. No. 590,382

Int. Cl.⁶ H03L *5/00*

U.S. Cl. 327—333 **13 Claims**



1. A circuit driver coupled to a first electronic component having a first component input voltage, the circuit driver enabling the first electronic component to drive a second electronic component having a second component input voltage which is higher than the first component input voltage to protect the first electronic component from the higher second electronic component input voltage, the circuit driver having a driver input and a driver output, the output being coupled to the second electronic component, the driver comprising:

a first transistor having a first source, a first gate and a first drain, the first source being coupled to a first input voltage having an associated threshold voltage necessary to be turned on;

a second transistor having a second source, a second gate and a second drain, the second source being coupled in series to the first drain of the first transistor, wherein the first and second gates of the first and second transistors, respectively, are coupled to the first electronic component;

a third transistor coupled between the intersection of the first and second transistors and the driver output, the third transistor receiving a second input voltage, and

a fourth transistor coupled in parallel to the third transistor, and receiving a third input voltage, such that the maximum voltage across the third and fourth transistors and being received by the first electronic component via the first and second transistors is less then the second component input voltage supplied to the second electronic component.

5,736,888

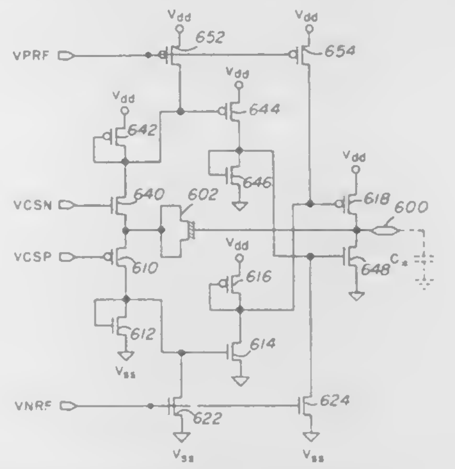
CAPACITANCE ELIMINATION CIRCUIT WHICH PROVIDES CURRENT TO A NODE IN A CIRCUIT TO ELIMINATE THE EFFECT OF PARASITIC CAPACITANCE AT THE NODE

Bradley A. Sharpe-Geisler, San Jose, Calif., assignor to Advanced Micro Devices, Inc.

Filed Dec. 20, 1995, Ser. No. 575,898

Int. Cl.⁶ H03K *17/16*

U.S. Cl. 327—382 **23 Claims**



1. A capacitance elimination circuit comprising.

a capacitor having a first terminal connected to the node in a circuit, the node having a parasitic capacitance, the capacitor further having a second terminal for providing an indication of a portion of current withdrawn from the node by the parasitic capacitance:

a first current mirror including transistors having a first channel type comprising:

- a first transistor having a source to drain path coupling the second terminal of the capacitor to a first power supply, and a gate coupled to the source to drain path; and
- a second transistor having a gate connected to the gate of the first transistor, and a source to drain path coupled on one end to the first power supply; and

a second current mirror including transistors having a second channel type comprising:

- a first transistor having a source to drain path coupled to the source to drain path of the second transistor of the first current mirror, and a gate coupled to its source to drain path; and
- a second transistor having a gate connected to the gate of the first transistor of the second current mirror and a source to drain path coupling the first terminal of the capacitor to a second power supply

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5,736,889

DUPLEXING CONTROL APPARATUS FOR USE IN A TIME DIVISION SWITCHING DEVICE

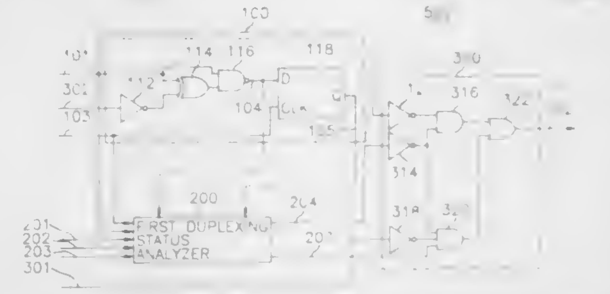
Jae-Peoung Kim, Incheon, Rep. of Korea, assignor to Daewoo Telecom, Ltd., Incheon, Rep. of Korea

Filed May 31, 1996, Ser. No. 658,921

Claims priority, application Rep. of Korea, May 31, 1995, 95-14430

Int. Cl.⁶ H04Q *9/00*, H04J *9/00*

U.S. Cl. 327—415 **6 Claims**



1. A duplexing control apparatus for controlling an operation mode of a time division switching device selected from dual time division switching devices incorporated within an electronic switching system (ESS) for reliability thereof, wherein the selected time division switching device includes a first module having a power supply and a time slot interchanging assembly (TSIA) to select and connect two assigned subscribers, which comprises:

a mode controller for receiving mode information representing whether previous operation modes of the dual time division switching devices are active or not, respectively, and generating, based on the received mode information, a first and a second mode control signals to prevent the dual time division switching devices from operating in a same inactive mode or a same active mode at the same time, wherein the first mode control signal is a first logic signal to set the operation mode of the selected time division switching device to be active when the previous operation modes of the dual time division switching devices are inactive simultaneously; and wherein the second mode control signal is a second logic signal to set the operation mode of the selected time division switching device to be inactive when the previous operation modes are active simultaneously:

a first duplexing status analyzer for analyzing operation status of the first module within the selected time division switching device and status of a power from a power supply included in a second module of the unselected time division switching device, to produce first and second module status information and power status information representing the analyzed result, and for generating an initial duplexing control signal based on the first and second module status information, the first and the second mode control signals, and the power status information; and

a second duplexing status analyzer for generating a duplexing control signal based on the first module status information, the mode information, the power status information, the initial duplexing control signal, and the second module status information from the unselected time division switching device representing the status of the second module, to provide the generated duplexing control signal to the selected time division switching device, thereby controlling the operation mode thereof to operate in an active or inactive mode

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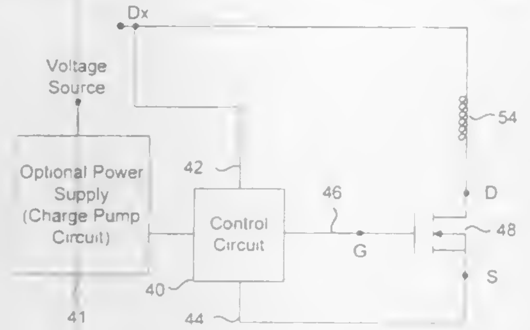
METHOD AND APPARATUS FOR CONTROLLING TRANSISTORS AS RECTIFIERS

H. P. Yee, Seattle, Wash.; Hiromi Ito, Hanno, Japan; Kenji Horiguchi, Hidaka, Japan, and Satoru Sawahata, Hanno, Japan, assignors to Semi Technnlogy Design, Inc., and Shindergen Electric Mfg. Co., Ltd, Japan

Filed Apr. 3, 1996, Ser. No. 626,856

Int. Cl.^{6} H03K *17/56*

U.S. Cl. 327—423 **30 Claims**



1. A rectifying device having a first and a second terminal across which a voltage is to be applied, comprising:

a transistor having a drain, a source connected to said second terminal, and a gate;

an inductor having a precalculated amount of inductance connected between said first terminal and said drain;

a control circuit having a first sense trace connected to said first terminal, a second sense trace connected to said second terminal, and a control trace operatively connected to said gate for applying a control voltage thereto, said control circuit being operative upon sensing a forward voltage/current characteristic between said first and second terminals to generate a first control voltage for forward biasing said transistor, said control circuit being operative upon sensing a reverse voltage/current characteristic between said first and second terminals to generate a second control voltage for reverse biasing said transistor, said inductor being operative to generate a spike voltage for detection by said control circuit when the voltage across said rectifying device is transiting between said forward and reverse voltage/current characteristics.

5,736,891
DISCHARGE CIRCUIT IN A SEMICONDUCTOR MEMORY

Taqi-Nasser Buti, Millbrook; Louis Lu-Chen Hsu, Fishkill; Jente B. Kuang; Somnuk Ratanaphanyarat, both of Poughkeepsie; Mary J. Saccamango, Poughquag, all of N.Y., and Hyun Jong Shin, Ridgefield, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 11, 1996, Ser. No. 585,336

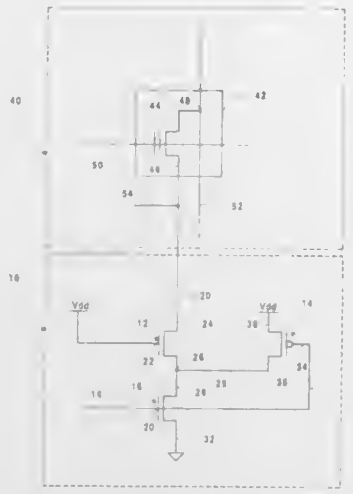
Int. Cl.^{6} H03K *17/687*

U.S. Cl. 327—434 **15 Claims**

1. A discharge circuit for a cell of a semiconductor memory, the cell including a control gate, a floating gate, a source and a drain, said discharge circuit comprising:

a circuit connected between the source of the cell and ground potential, said circuit having an input for receiving a control signal having first and second states, said circuit coupling the source of the cell to ground potential when the control signal has the first state and substantially isolating the source from ground potential when the control signal has the second state, the source of the cell having an erase voltage applied thereto when the control signal has the second state, said circuit comprising:

a first subcircuit for defining a discharge path between the source of the cell and ground potential and comprising a plurality of transistors connected in series, each transistor having a gate, a source and a drain, and



a second subcircuit for effecting predetermined gate-to-source, and drain-to-source voltages of the transistors of said first subcircuit when the control signal has the second state, the predetermined gate-to-source, and drain-to-source voltages of each transistor being less than the erase voltage.

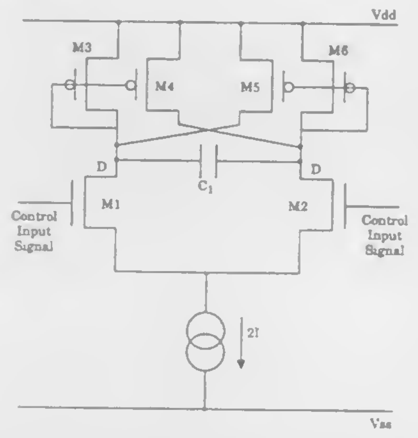
5,736,892
DIFFERENTIAL CHARGE PUMP CIRCUIT WITH HIGH DIFFERENTIAL IMPEDANCE AND LOW COMMON MODE IMPEDANCE

Thomas H. Lee, Cupertino, Calif., assignor to Rambus, Inc., Mountain View, Calif.

Continuation of Ser. No. 165,398, Dec. 10, 1993, Pat. No. 5,422,529. This application Apr. 3, 1995, Ser. No. 415,602

Int. Cl.^{6} H03K *17/56;* **H03F** *3/45*

U.S. Cl. 327—536 **17 Claims**



10. A differential charge pump circuit comprising:

first and second transistors comprising a first terminal, a second terminal, and a third terminal for controlling an amount of current flowing from said first terminal to said second terminal, said third terminal on said first and second transistors receiving control signals;

a current source having a biasing current and coupled to the second terminals of the first and second transistors;

a load element comprising:

a first circuit coupling power to said first terminal of said first transistor and to said first terminal of said second transistor, and

a second circuit coupling power to said first terminal of said second transistor and to said first terminal of said first transistor; and

at least one capacitor for generating a capacitance across said first terminal of said first transistor and said first terminal of said second transistor, wherein the first circuit has a positive differential resistance and the second circuit has a negative differential resistance for controlling leakage current of the at least one capacitor.

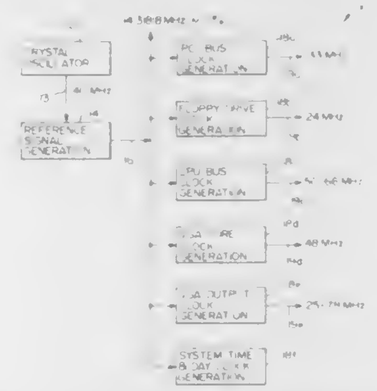
5,736,893
DIGITAL METHOD AND APPARATUS FOR REDUCING EMI EMISSIONS IN DIGITALLY-CLOCKED SYSTEMS

Robert B. E. Puckette, Corvallis, and Preston D. Brown, Eugene, both of Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 29, 1996, Ser. No. 592,975

Int. Cl.^{6} H03D *1/04*

U.S. Cl. 327—551 **21 Claims**


CRYSTAL OSCILLATOR
REFERENCE SIGNAL GENERATION
PC BUS CLOCK GENERATION
FLOPPY DRIVE CLOCK GENERATION
24 MHz
VGA OUTPUT CLOCK GENERATION
SYSTEM TIME OF DAY CLOCK GENERATION

1. A method for reducing electromagnetic interference emissions in a digital system, comprising the steps of:

digitally deriving a reference frequency signal from an unmodulated base signal having a base signal frequency and a base signal period by frequency dividing the base signal, wherein the reference frequency signal approximates a desired frequency which is not evenly divisible into the base signal frequency, and wherein the reference frequency signal dithers by having a varying period which changes between a first number of base signal periods and either one of an increment or decrement of the first number, the reference frequency signal period changing between the first number and the increment or decrement of the first number in a repeating pattern, wherein the repeating pattern is defined to have each active transition of the reference frequency signal occur at a base signal transition which most closely approximates a transition at the desired frequency;

after the step of digitally deriving, modulating the reference frequency signal to vary in a periodic manner between within a first frequency band having an upper frequency limit and a lower frequency limit to achieve a modulating reference signal; and

generating a clock signal from the modulating reference signal, wherein the clock signal has a clock signal frequency which varies within a second frequency band; and

wherein electromagnetic interference emissions of the modulating reference signal are spread over the first frequency band and wherein electromagnetic interference emissions of the generated clock signal are spread over the second frequency band.

5,736,894
SEMICONDUCTOR DEVICE AND METHOD OF ADJUSTING INTERNAL POWER SUPPLY POTENTIAL OF THE SEMICONDUCTOR DEVICE

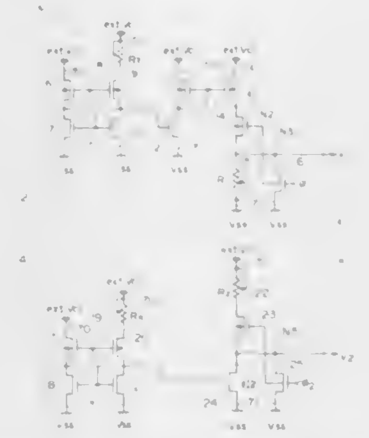
Makoto Suwa, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 559,052

Claims priority, application Japan, Apr. 26, 1995, 7-102254

Int. Cl.^{6} G05F *1/10*

U.S. Cl. 327—538 **10 Claims**



1. A semiconductor device for performing a prescribed operation and receiving an external power supply potential and a ground potential, comprising:

internal means receiving said ground potential and an internal power supply potential prepared by lowering said external power supply potential, for performing a prescribed operation,

an output adjustable first potential generating means receiving said external power supply potential and said ground potential, for outputting a first potential higher by a first prescribed voltage than said ground potential,

an output adjustable second potential generating means receiving said external power supply potential and said ground potential for outputting a second potential lower by a second prescribed voltage than said external power supply potential,

potential synthesizing means for outputting said first potential output from said first potential generating means as said internal power supply potential when said external power supply potential is within a prescribed range, and outputting said second potential output from said second potential generating means as said internal power supply potential when said external power supply potential is higher than an upper limit of said prescribed range; and

inactivating means for inactivating said second potential generating means when said external power supply potential within said prescribed range is applied to said semiconductor device to adjust the output of said first potential generating means so that said internal power supply potential has a prescribed value, and inactivating said first potential generating means when said external power supply potential, higher than the upper limit of said prescribed range, is applied to said semiconductor device to adjust the output of said second potential generating means so that said internal power supply potential has a second prescribed value.

5,736,895
BIQUADRATIC SWITCHED-CAPACITOR FILTER USING SINGLE OPERATIONAL AMPLIFIER

Chu-Chiao Yu, Taipei; Shaw-Jia Hor, Taoyuan, and Jean-Ming Lee, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jan. 16, 1996, Ser. No. 585,469

Int. Cl.^{6} H03K *5/00,* **H03M** *3/00*

U.S. Cl. 327—554 **20 Claims**

1. A biquadratic switched capacitor filter having a non inverting input terminal, an inverting input terminal, a non-inverting output

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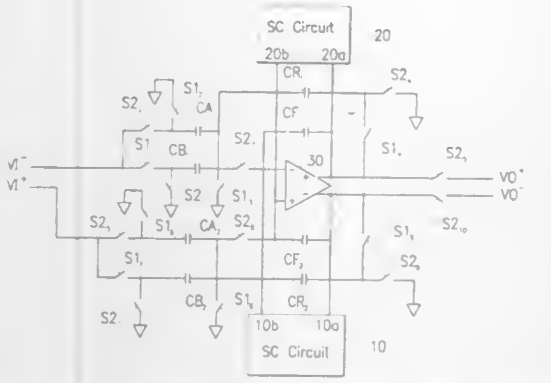

terminal, and an inverting output, terminal, the biquadratic switched-capacitor filter comprising.

an operational amplifier having a non-inverting input, an inverting input, a non-inverting output, and an inverting output;

a first switched capacitor circuit, controlled by a first clock signal and a second clock signal, coupled between the inverting input terminal of the biquadratic switched-capacitor filter and the inverting input of the operational amplifier;

a second switched-capacitor circuit, controlled by the first clock signal and the second clock signal, coupled between the inverting input terminal of the biquadratic switched-capacitor filter and the inverting input of the operational amplifier;

a third switched-capacitor circuit, controlled by the first clock signal and the second clock signal, coupled between the non inverting input terminal of the biquadratic switched-capacitor filter and the non-inverting input of the operational amplifier;

a fourth switched-capacitor circuit, controlled by the first clock signal and the second clock signal, coupled between the non-inverting input terminal of the biquadratic switched capacitor filter and the non-inverting input of the operational amplifier;

a fifth switched-capacitor circuit, controlled by the first clock signal and the second clock signal, coupled between the inverting input of the operational amplifier and the non-inverting output of the operational amplifier,

a sixth switched capacitor circuit, controlled by the first clock signal and the second clock signal, coupled between the non-inverting input of the operational amplifier and the inverting output of the operational amplifier;

a seventh switched-capacitor circuit, controlled by a third clock signal and a fourth clock signal, coupled between the inverting output of the operational amplifier and the inverting input of the operational amplifier;

an eighth switched-capacitor circuit, controlled by a fifth clock signal and a sixth clock signal, coupled between the inverting output of the operational amplifier and the inverting input of the operational amplifier;

a ninth switched-capacitor circuit, controlled by the third clock signal and the fourth clock signal, coupled between the non inverting output of the operational amplifier and the non-inverting input of the operational amplifier;

a tenth switched-capacitor circuit, controlled by the fifth clock signal and the sixth clock signal, coupled between the non inverting output of the operational amplifier and the non-inverting input of the operational amplifier;

a first feedback capacitor, coupled between the non-inverting output of the operational amplifier and the inverting input of the operational amplifier;

a second feedback capacitor, coupled between the inverting output of the operational amplifier and the non-inverting input of the operational amplifier;

a first switching device, controlled by the second clock signal, coupled between the non-inverting output of the operational amplifier and the non-inverting output terminal of the biquadratic switched-capacitor filter; and

a second switching device, controlled by the second clock signal, coupled between the inverting output of the operational amplifier and the inverting output terminal of the biquadratic switched capacitor filter,

wherein the first clock signal and the second clock signal are two-phase, complementary but non-overlapping pulse trains with a reference period, the third clock signal is a pulse train with double the reference period and coincident with the first clock signal, the fourth clock signal is a pulse train that results from delaying the third clock signal by half the reference period, the fifth clock signal is a pulse train that results from delaying the fourth clock signal by half the reference period, and the sixth clock signal is a pulse train that results from delaying the fifth clock signal by half the reference period

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5,736,896
SIGNAL PROCESSING CIRCUIT

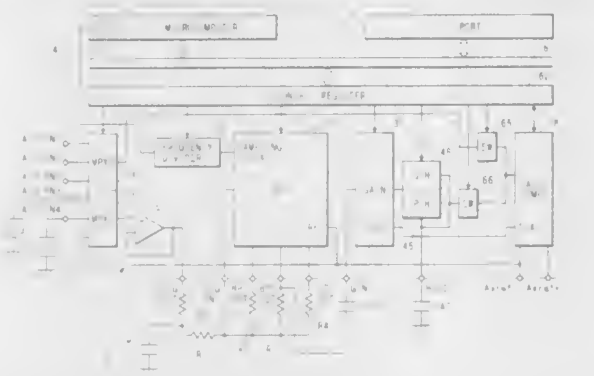
Haruyasu Sakishita, Toyohashi; Hideaki Ishihara, Okazaki, and Hirohiko Yamada, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 23, 1995, Ser. No. 551,913

Claims priority, application Japan, Oct. 21, 1994, 6-257208

Int. Cl.⁶ H03H *19/00*

U.S. Cl. 327—554 **39 Claims**



1 A signal processing circuit comprising:

signal selecting means for selecting and outputting one of plural input signals;

a filter connected to the signal selecting means and filtering the signal selected by the signal selecting means with a changeable center frequency of a pass band of the filtering, and

frequency changing means for temporarily changing the center frequency to a first value and then changing the center frequency to a second value different from the first value when the signal selected by the signal selecting means is changed from one to another, wherein the center frequency assumes a third value different from both the first and second values as the center frequency is changed from the first value to the second value

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5,736,897
LOW INPUT SIGNAL BANDWIDTH COMPRESSOR AND AMPLIFIER CONTROL CIRCUIT WITH A STATE VARIABLE PRE-AMPLIFIER

Paul R. Gagon, Garden Grove, Calif., assignor to BBE Sound Inc., Huntington Beach, Calif.

Continuation-in-part of Ser. No. 377,903, Jan. 24, 1995, Pat. No. 5,510,752. This application Apr. 22, 1996, Ser. No. 636,168

Int. Cl.⁶ H03F *3/68;* **H03G** *7/00*

U.S. Cl. 330—126 **19 Claims**

1 An amplifier circuit comprising:

a state-variable pre-amplifier responsive to a program input signal having high, low and mid-range frequency signal components for providing a compensated signal, the pre-amplifier having gain control circuitry for balancing and summing the high, low and mid-range signal components;

a filter circuit coupled to receive the compensated signal, and a control signal and to provide an output signal, the filter circuit having an adjustable bandwidth, the filter circuit being responsive to the control signal for automatically adjusting the bandwidth of the filter circuit to reduce the bandwidth of the filter circuit in response to reduced amplitude values of the control signal; and

an absolute value circuit for providing the control signal proportional to the amplitude of the compensated signal.

5,736,898
PROCESS AND DEVICE FOR LINEARIZING THE GAIN CHARACTRISTICS AND PHASE-FREQUENCY CHARACTERISTICS OF TRAVELING-WAVE TUBES AND TRANSISTOR AMPLIFIERS AT DIFFERENT POWER LEVELS

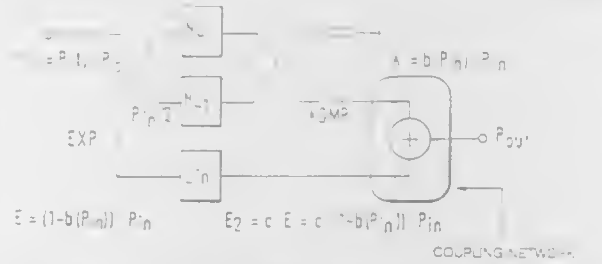
Rudolf Kohl, Steinhöring, and Gerhard Eggers, Bruckmühl, both of Germany, assignors to Daimler-Benz Aerospace AG, Ottobrun, Germany

Filed Aug. 1, 1996, Ser. No. 691,882

Claims priority, application Germany, Aug. 4, 1995, 195 28 844.0

Int. Cl.⁶ H03F *1/32*

U.S. Cl. 330—149 **8 Claims**



1 A process for linearizing different power level signal gain and phase-frequency characteristics of traveling-wave tubes and transistor amplifiers, the process comprising the steps of.

dividing the signal into two branches to generate two partial signals, each branch being connected to one of two identical nonlinear partial circuit networks with compressing gain behavior, each network being placed between two 3-dB couplers;

providing two gates (KOMP, EXP) connected to said networks and generating a gain compressed partial signal (K) and an expanded partial signal (E) at said two gates (KOMP, EXP) by reflection behavior, said compressed and expanded partial signals differing corresponding to the signal level,

raising the level of the nonlinear, gain-expanding partial signal (E) by a linear amplifier to form an additionally amplified, gain-expanded signal (E2); and

uniting the additionally amplified, gain-expanded signal (E2) and the gain-compressed signal (K) into an output signal with an adding network.

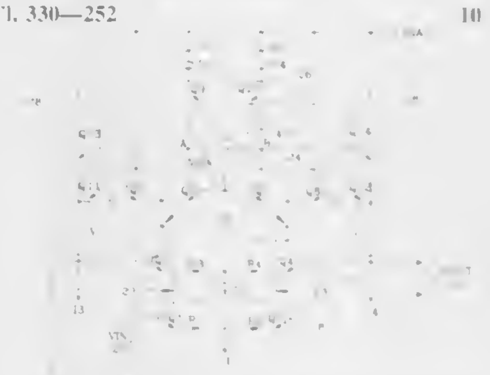
5,736,899
FULLY DIFFERENTIAL VOLTAGE CONTROLLED OPERATIONAL TRANSCONDUCTANCE AMPLIFIER

Derek F. Bowers, 1502 Harrison Ct., Sunnyvale, Calif. 94087, and James K. Waller, Jr., 174 Morgan Hill, Orion, Mich. 48360

Filed May 15, 1996, Ser. No. 647,543

Int. Cl.⁶ H03F *3/45*

U.S. Cl. 330—252 **10 Claims**



1 An operational transconductance amplifier comprising
first and second current sources,
an active load circuit having control terminals,
a bias voltage terminal,

a first resistively degenerated matched pair of bipolar transistors, each having two current conducting terminals and a control terminal, the control terminals of which form a differential amplifier input port, the respective first current conducting terminals of said pair coupled through equal valued resistors to said first current source and the respective second current conducting terminals of which are coupled through said active load circuit to a bias voltage terminal,

a second resistively degenerated matched pair of bipolar transistors, each having two current conducting terminals and a control terminal, the control terminals of which form a differential amplifier output port, the respective first current conducting terminals of said second pair coupled through equal valued resistors to said second current source and the respective second current conducting terminals of which are connected to the respective second current conducting terminals of said first resistively degenerated matched pair of bipolar transistors, and

a common mode feedback circuit connected between said differential output port and said active load control terminals to provide feedback control of said active load.

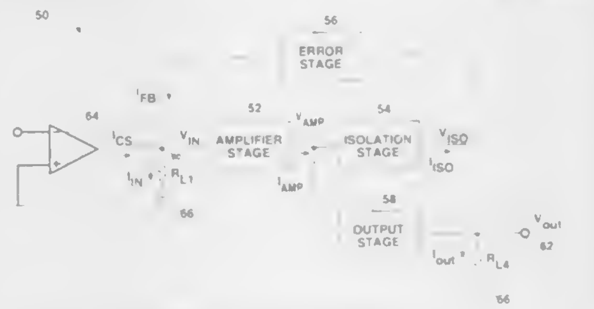
5,736,900
METHOD AND APPARATUS FOR AMPLIFYING AN ELECTRICAL SIGNAL

Douglas L. Smith, Tucson, Ariz., assignor to Maxim Integrated Products, Sunnyvale, Calif., and Gain Technology Corp., Tucson, Ariz.

Filed Jun. 19, 1996, Ser. No. 666,859

Int. Cl.⁶ H03F *1/34*

U.S. Cl. 330—265 **18 Claims**



1 A dual-output stage amplifier comprising
an amplifier stage having an input and an output.

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an error stage having an input and an output, the error stage having a gain operable to amplify an electrical signal applied at the error stage input, the error stage gain being selected from the group consisting of gains having a current gain greater than unity and gains having a voltage gain greater than unity;

a first output stage having an input and an output, the first output stage output being coupled with the output of the amplifier stage and responsive to the amplifier stage, whereby when the first output stage output is coupled to an output load the first output stage is capable of providing an output current to the output load such that a first output voltage related to an input voltage at the input of the amplifier stage is maintained across the output load; and

a second output stage having an input and an output, the second output stage input being coupled with the output of the amplifier stage in parallel with the first output stage, the second output stage output being coupled to the input of the error stage, the output of the error stage being coupled to the input of the amplifier stage, whereby the error stage is capable of providing a feedback current to the amplifier stage input such that a difference between a second output voltage generated by the second output stage and a desired second output voltage is reduced.

5,736,901
RADIO FREQUENCY AMPLIFIER WITH STABLE OPERATION AND RESTRAINED OSCILLATION AT LOW FREQUENCIES

Morio Nakamura, Katano; Masahiro Maeda, Osaka, and Yorito Ota, Kobe, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 3, 1996, Ser. No. 625,701

Claims priority, application Japan, Apr. 4, 1995, 7-078726

Int. Cl.^{6} H03F *3/60;3/16*

U.S. Cl. 330—296 22 Claims

1 A radio frequency amplifier comprising:

a transistor;

an inductor connected to an input terminal of the transistor;

a first resistor connected to the inductor.

a capacitor having one end connected to the first resistor and an other end grounded, and

a second resistor connected between a power supply terminal and the input terminal of the transistor.

5,736,902
HIGH-GAIN COMMON-EMITTER OUTPUT STAGE

Jerald G. Graeme, Tucson, Ariz., assignor to Maxim Integrated Products, Inc., Sunnyvale, Calif.

Filed Jul. 19, 1996, Ser. No. 684,193

Int. Cl.^{6} H03F *3/26*

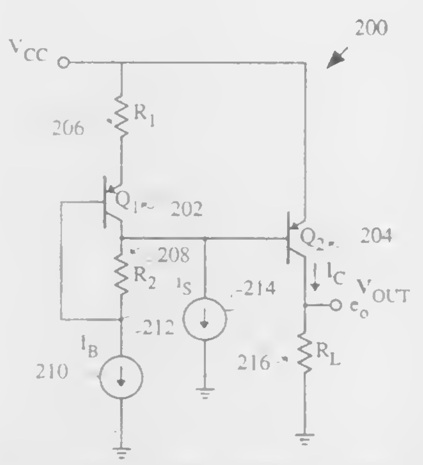
U.S. Cl. 330—296 18 Claims

1 An output stage for an amplifier circuit, comprising:

a first transistor having a base, an emitter and a collector, the emitter being connected to a first potential through a first resistor, the collector being connected to a second potential through a series connection of a second resistor and a bias current source, the base being connected at a node between the second resistor and the bias current source;

a second transistor having a base, an emitter and a collector, the emitter being connected to the first potential, the collector being connected to the second potential through a load element, the base being connected to the collector of said first transistor; and

a signal current source for supplying a current signal to be amplified.



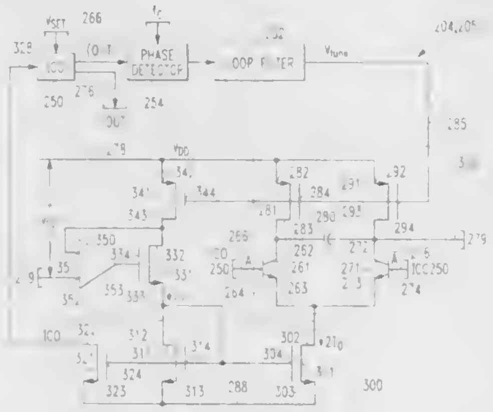
5,736,903
CARRIER BUFFER HAVING CURRENT-CONTROLLED TRACKING FILTER FOR SPURIOUS SIGNAL SUPPRESSION

Brent A. Myers, and Scott G. Bardsley, both of Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Apr. 24, 1996, Ser. No. 637,140

Int. Cl.^{6} H03L *7/093;7/16*

U.S. Cl. 331—17 16 Claims



1 A carrier frequency generator for a communication device having a frequency synthesizer employing a current-controlled oscillator, which generates an output frequency in accordance with a control current therefor, said frequency synthesizer having a phase locked loop containing said current-controlled oscillator, said carrier generator being driven by said frequency synthesizer and including a tunable tracking filter stage, operational characteristics of which are controllable in accordance with said control current, such that said tunable filter stage has a cut-off frequency that is linearly proportional to said control current, whereby said frequency of the tracking filter effectively tracks said carrier frequency

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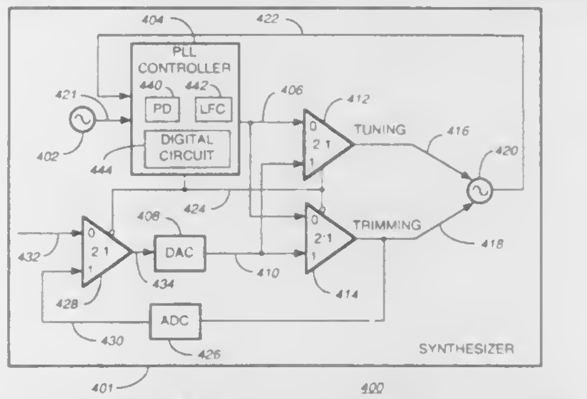
5,736,904
AUTOMATIC TRIMMING OF A CONTROLLED OSCILLATOR IN A PHASE LOCKED LOOP

Scott R. Humphreys, Boynton Beach, and Darrell E. Davis, Sunrise, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 2, 1996, Ser. No. 753,833

Int. Cl.^{6} H03L *7/08*

U.S. Cl. 331—10 13 Claims



1 For a controlled oscillator (CO) in a phase locked loop (PLL) circuit having an operational mode in which a PLL controller receives a reference frequency signal and generates an output coupled to a tuning port of the CO, and a variable voltage source is coupled to a trimming port of the CO, a method for tuning the CO, comprising:

initiating a trimming mode of the PLL circuit by coupling the trimming port to the output of the PLL controller, and coupling the tuning port to the variable voltage source;

adjusting the variable voltage source to a voltage representative of a desired operating voltage of the CO, thereby to phase lock the CO to the reference frequency signal;

measuring a voltage at the trimming port upon achieving phase lock;

switching the PLL circuit back to the operational mode; and

adjusting the variable voltage source to be substantially equal to the voltage measured.

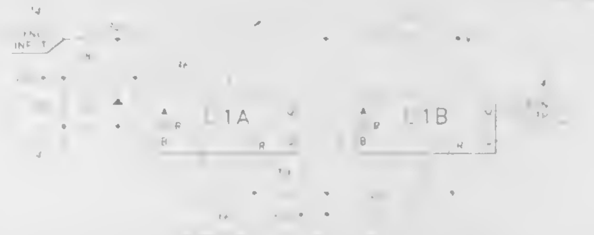
5,736,905
SYNCHRONIZABLE POWER SUPPLY OSCILLATOR

John M. Rein, Elgin, Ill., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed May 23, 1996, Ser. No. 652,221

Int. Cl.^{6} H03B *5/24*

U.S. Cl. 331—143 6 Claims



1. A free-running pulse generator circuit capable of being selectively synchronized with a master pulse train of substantially the same pulse repetition rate, comprising:

a) first and second multivibrator sections arranged to trigger each other in a free running mode to produce an output pulse train at the output of said second section;

b) a circuit input so connected to said first and second sections as to cause said sections to operate in said free-running mode when no master pulse train is applied to said input; and

c) a control circuit arranged to disable said first section, and to cause said second section to be triggered from said circuit input, when a master pulse train alternating between a first voltage and a second voltage is applied to said circuit input

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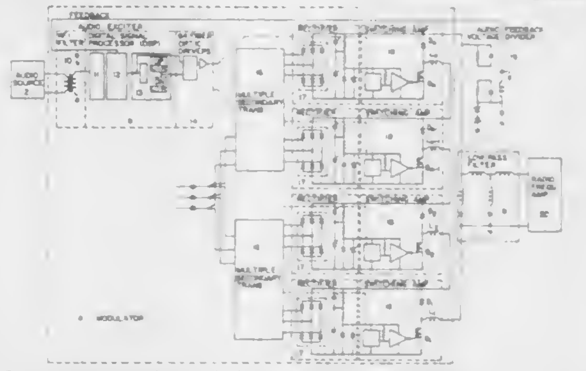
5,736,906
POWER SUPPLY MODULATOR CIRCUIT FOR TRANSMITTER

Herbert P. Jacobson, Elkhart, Ind., assignor to Crown International, Inc., Elkhart, Ind.

Continuation of Ser. No. 299,189, Aug. 31, 1994, abandoned, which is a continuation of Ser. No. 75,230, Jun. 10, 1993, Pat. No. 5,345,198. This application Apr. 30, 1996, Ser. No. 641,270

Int. Cl.^{6} H03C *1/36;* H03F *3/217*

U.S. Cl. 332—152 14 Claims


AUDIO SOURCE
AUDIO EXCITER
DIGITAL SIGNAL PROCESSOR (DSP)
AUDIO FEEDBACK VOLTAGE DIVIDER
MULTIPLE SECONDARY TRANS
MODULATOR

5. A modulator for an RF transmitter comprising

means for receiving an input signal;

a plurality of switchable voltage sources disposed in a series arrangement; and

control means for switching said voltage sources according to the input signal, said control means including buffer means for sequencing the switching of said voltage sources according to a predetermined switching sequence responsive to changes in the input signal and said buffer means including on counter means and off counter means for controlling the next one of said voltage sources to be switched on and the next one of said voltage sources to be switched off, respectively

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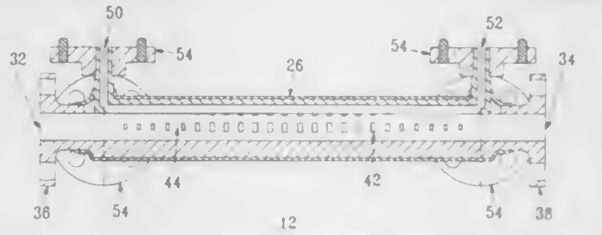
5,736,907
MULTIPLE-FREQUENCY AUTOTRACK FEED FOR WIDEBAND COMMUNICATION SYSTEMS

C. Harry Chen, Torrance; John P. Pacente, Norwalk, and George H. Simkins, Torrance, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Aug. 29, 1996, Ser. No. 709,442

Int. Cl.^{6} H01P *5/18*

U.S. Cl. 333—113 15 Claims



1. A traveling wave coupler autotracking system for controlling the pointing of an antenna aboard an orbiting satellite, the system comprising:

(a) a waveguide manifold having a predetermined propagation length for exciting circular TE_{11} and TM_{01} modes of circularly polarized microwave signals covering a wideband frequency range;

(b) a pair of coupling arm waveguides having an equal predetermined length for propagating signals having a phase velocity of TE_{10} mode that is the same as the phase velocity of TM_{01} mode in the waveguide manifold; and

(c) a pair of couplers for transforming microwave energy of the TM_{01} mode of the circularly polarized microwave signals into TE_{10} modes in the coupling arm waveguides,

whereby, the system tracks signals covering a wideband frequency range and the overall lengths of the waveguide mani-

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fold and of the coupling arm waveguides are reduced in size by the parallel functions of the coupling arm waveguides

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5,736,908

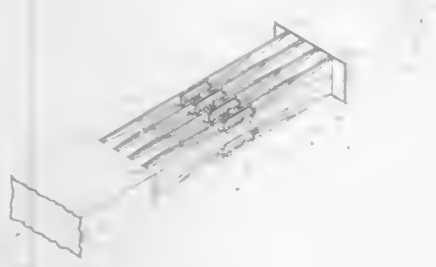
WAVEGUIDE-BASED SPATIAL POWER COMBINING ARRAY AND METHOD FOR USING THE SAME

Angelos Alexanian, Goleta, and Robert A. York, Santa Barbara, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Jun. 19, 1996, Ser. No. 666,803

Int. Cl.^{6} H01P *5/12*, **H03F** *3/60*

U.S. Cl. 333—125 **29 Claims**



1 A power combiner comprising:

a source for providing an input illumination field;

a two dimensional array of circuit elements comprising a row of slotline modules illuminated by said source, each said slotline module forming a column of said array and including at least two circuit elements, coupling said input illumination field into the circuit elements, and an output from the circuit elements being coupled to an output illumination field, and

an output disposed in said output illumination field wherein a plurality of outputs from said row of slotline modules are combined, whereby high power combination is achieved

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5,736,909

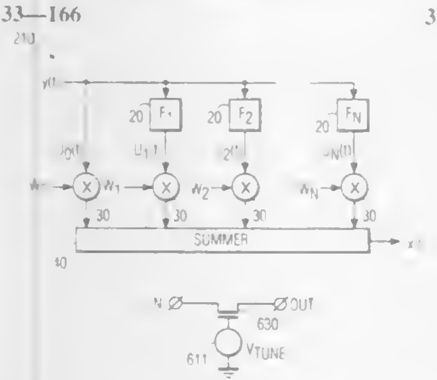
MONOLITHIC CONTINUOUS-TIME ANALOG FILTERS

Max Hauser, Sunnyvale, Calif., and Gerrit Groenewold, Valkenswaard, Netherlands, assignors to Philips Electronics North America Corporation, NY, N.Y.

Filed Feb. 2, 1996, Ser. No. 595,531

Int. Cl.^{6} H03H *7/30*

U.S. Cl. 333—166 **33 Claims**



1 A monolithic continuous-time analog filter, comprising:

a plurality of delay cells each having an input for receiving a continuous-time analog input signal, and an output for outputting a continuous-time internal signal, said delay cells each having delay parameters, said delays cells each comprising a continuum of semiconductor material between said cell input and said cell output, said continuum having a series resistance and parallel capacitance with an RC time constant determinative of the delay parameter of said each cell;

a plurality of multiplier circuits each having its input coupled to the output of a delay cell, and having a weight coefficient, said continuous time internal signals being multiplied by said weight coefficient to produce a plurality of weighted continuous-time internal signals, and

summing means being coupled to said plurality of multiplier circuits for adding the weighted continuous time internal signals to generate a continuous time output signal at its output, so that the monolithic continuous-time analog filter is responsive to the selected value of delay cell parameters and weight coefficients

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5,736,910

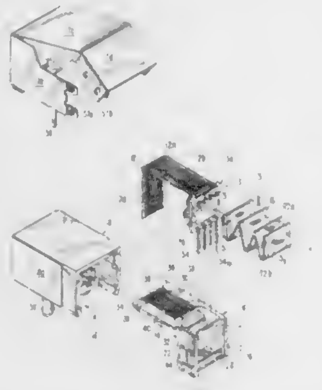
MODULAR JACK CONNECTOR WITH A FLEXIBLE LAMINATE CAPACITOR MOUNTED ON A CIRCUIT BOARD

Peter K. Townsend, Camp Hill; Ted R. Meckley, Seven Valleys; David Hatch, Glen Rock; Don McClune, and Robert J. Brennan, both of York, all of Pa., assignors to Stewart Connector Systems, Inc., Glen Rock, Pa.

Filed Nov. 22, 1995, Ser. No. 561,931

Int. Cl.^{6} H03H *7/09*

U.S. Cl. 333—181 **22 Claims**



1 A modular connector for mounting on a main printed circuit board and for receiving a plug, comprising

a housing,

a first set of contacts arranged in said housing each adapted to engage one of the contacts of the plug,

a second set of contacts at least partially arranged in said housing and adapted to engage the main printed circuit board,

a contact coupling printed circuit board for electrically coupling said first and second sets of contacts, said contact coupling printed circuit board providing a signal path between respective ones of the first and second sets of contacts,

a capacitor comprising a flexible laminate assembly including first and second flexible conductive sheet members and an intermediate insulative material, said first conductive sheet member being electrically coupled to said contact coupling printed circuit board, and

a metallic shield at least partially surrounding said housing for connecting to a grounding region on the main printed circuit board, said second conductive sheet member being electrically coupled to said metallic shield to thereby ground said first set of contacts through said capacitor.

5,736,911

PIEZOELECTRIC RESONATOR WITH A RESONANCE FREQUENCY ADJUSTING NOTCH

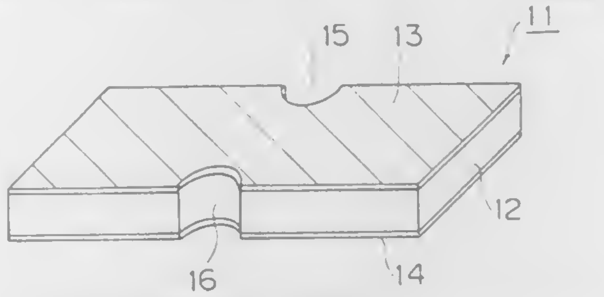
Toru Watanabe, Nagaokakyo, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 647,013, May 8, 1996, abandoned, which is a continuation of Ser. No. 429,892, Apr. 27, 1995, abandoned. This application Dec. 31, 1996, Ser. No. 777,571

Claims priority, application Japan, Apr. 27, 1994, 6-090264

Int. Cl.^{6} H03H *9/15*

U.S. Cl. 333—188 **32 Claims**



1 A piezoelectric resonator, comprising,

a rectangular parallelpiped piezoelectric plate having opposed main surfaces connected by a pair of shorter side surfaces and a pair of longer side surfaces;

resonance electrodes formed on the opposed main surfaces of the plate, the piezoelectric plate and the resonance electrodes cooperating to cause the piezoelectric plate to vibrate along a direction which is parallel to the longer side surface of the piezoelectric plate; and

a notch being provided on one of the shorter side surfaces of the piezoelectric plate at a position intermediate and removed from the two longer side surfaces of the piezoelectric plate

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5,736,912

DIELECTRIC RESONATOR FREQUENCY ADJUSTING MECHANISM WITH A RESIN LAYER

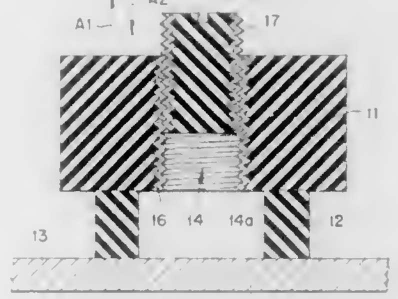
Shigeyuki Mikami, Shiga-ken; Hirotsugu Abe, Youkaiichi, and Yukio Higuchi, Ohmihachiman, all of Japan, assignors to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan

Filed Jun. 1, 1995, Ser. No. 457,140

Claims priority, application Japan, Jul. 18, 1994, 6-165525

Int. Cl.^{6} H01P *7/10*

U.S. Cl. 333—235 **20 Claims**



18. A resonating frequency adjustable dielectric resonator, comprising,

a dielectric resonator body having a hole in a portion thereof

a tuning rod of dielectric material and including a male screw thread formed on an outer surface thereof,

a female screw thread located on an inner surface of the hole of said dielectric resonator for threadingly engaging with the male screw thread of said tuning rod, and

a resin layer comprising resin material having an elasticity at all times located on at least one of a surface of said male screw thread of said tuning rod and a surface of the female screw thread of said dielectric resonator

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5,736,913

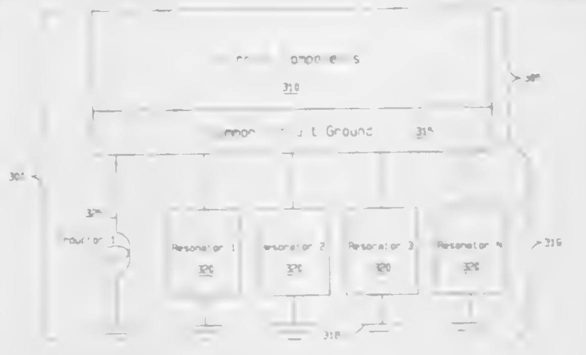
METHOD AND APPARATUS FOR PROVIDING GROUNDING TO MICROWAVE CIRCUIT BY LOW IMPEDANCE MEANS

Kenneth S. Sanyigo, Fords; Raymond M. Waugh, Phillipsburg, and John T. Bayruns, Middlesex, all of N.J., assignors to Anadigics, Inc., Warren, N.J.

Filed Feb. 14, 1996, Ser. No. 601,499

Int. Cl.^{6} H01P *1/00*

U.S. Cl. 333—246 **20 Claims**



1 A microwave device comprising:

a microwave circuit having a common circuit ground, and

means for coupling said common circuit ground to a ground potential,

said means comprising a plurality of resonators connected between said common circuit ground and said ground potential, each of said plurality of resonators being characterized by a resonant frequency at which said each of said plurality of resonators exhibits a minimum impedance, and

said plurality of resonators having resonant frequencies arranged such that they provide a low impedance band in frequency spectrum within which said means provides a low impedance coupling between said common circuit ground and said ground potential

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5,736,914

DEMAGNETIZING DEVICE FOR A CATHODE RAY TUBE

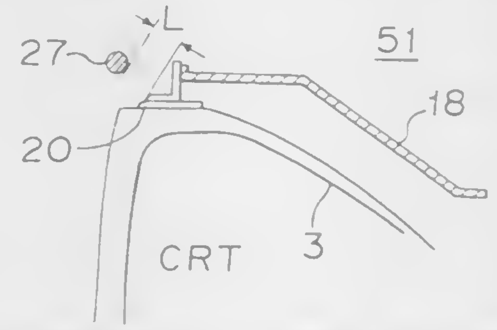
Kazunari Yamaguchi; Kouji Tanaka, and Yukitaka Hisamatsu, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 4, 1996, Ser. No. 582,886

Claims priority, application Japan, Oct. 13, 1995, 7-265427

Int. Cl.^{6} H01F *13/00*

U.S. Cl. 335—284 **4 Claims**



1 A demagnetizing device for a cathode ray tube having a screen portion and a funnel portion comprising

an outer magnetic shielding member arranged so as to surround a funnel portion of a cathode ray tube, and which is formed of a magnetic sheet, and

a demagnetizing coil arranged so as to encircle a screen portion of the cathode ray tube;

wherein the demagnetizing coil is arranged so as to be apart from the outer magnetic shielding member by not less than

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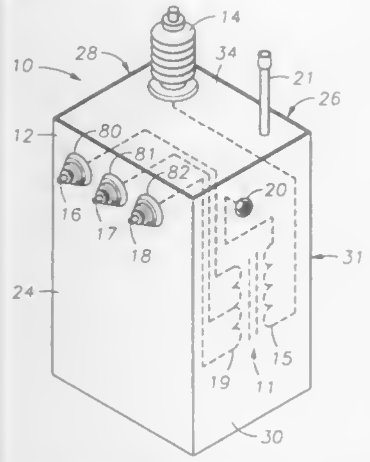
9.5 mm and not greater than 20 mm such that iron loss is reduced when a damping current flows through the demagnetizing coil.

5,736,915
HERMETICALLY SEALED, NON-VENTING ELECTRICAL APPARATUS WITH DIELECTRIC FLUID HAVING DEFINED CHEMICAL COMPOSITION

Gary L. Goedde, Racine; Gary A. Gauger; John Lapp, both of Franklin; James Vernon White, Waukesha, and Alan Paul Yerges, Muskego, all of Wis., assignors to Cooper Industries, Inc., Houston, Tex.
Filed Dec. 21, 1995, Ser. No. 576,155
Int. Cl.^{6} H01F *27/08;27/10;27/02*
U.S. Cl. 336—55 **31 Claims**

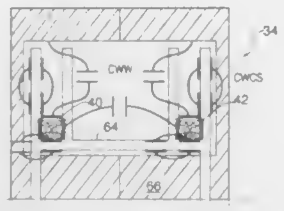


1 An electrical apparatus comprising:
- an enclosure having a hermetically sealed, expandable chamber wherein said chamber is expandable from a first volume to a second volume;
- a conductor disposed in said sealed chamber,
- a dielectric liquid surrounding said conductor and completely filling said chamber;
- wherein said liquid is sealed in said chamber at an absolute pressure that is less than one atmosphere;
- wherein said liquid comprises a fluid made of two or more compounds selected from the group consisting of alphaolefin oligomers with carbon chain lengths of C_6 to C_{12}, aromatic hydrocarbons, polyols esterified to branched alkyl groups with chain lengths of C_5 to C_{20}, and triglycerides.

5,736,916
HIGH FREQUENCY PULSE TRANSFORMER FOR AN IGBT GATE DRIVE

Saso P. Vlahu, Munster, Ind., assignor to Kollmorgen Corporation, Waltham, Mass.
Filed Jun. 6, 1995, Ser. No. 487,780
Int. Cl.^{6} H01F *15/04*
U.S. Cl. 336—69 **8 Claims**

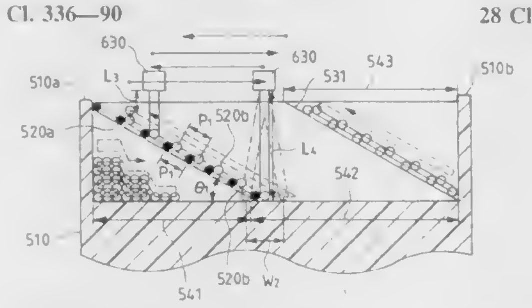
1 A high frequency, isolation pulse transformer capable of operating at a pulse rate greater than 6,000 Hertz, comprising:
- a high permeability core;
- a primary winding wound on said core,
- a secondary winding wound on said core;
- said windings being spaced apart and configured so that the capacitance between said windings is less than 5 picofarads; and



- said core being saturable so that only the leading and trailing edges of applied pulses pass through said transformer.

5,736,917
ELECTROMAGNETIC COIL AND MANUFACTURING APPARATUS FOR THE SAME

Keisuke Kawano, Kariya; Kazutoyo Oosuka, Gamagoori, and Noriyasu Inomata, Toyota, all of Japan, assignors to Nippondenso Co., LTD., Kariya, Japan
Filed Jun. 19, 1996, Ser. No. 666,817
Claims priority, application Japan, Jun. 19, 1995, 7-151950
Int. Cl.^{6} H01F *27/28*
U.S. Cl. 336—90 **28 Claims**

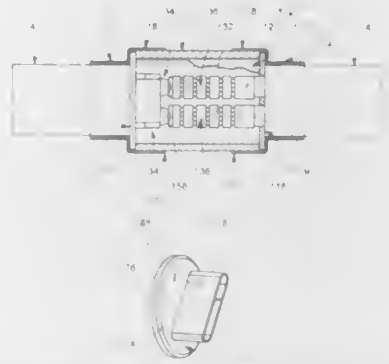


1. An electromagnetic coil comprising a wire rod wound around a coil shaft, wherein
- said wire rod is wound around said coil shaft obliquely so as to form a slant layer of said wire rod, and
- a pitch of said wire rod constituting said slant layer is equivalent to two to 10 times a diameter of said wire rod, thereby winding said wire rod around said coil shaft with a gap.

5,736,918
KNIFE BLADE FUSE HAVING AN ELECTRICALLY INSULATIVE ELEMENT OVER AN END CAP AND PLASTIC RIVET TO PLUG FILL HOLE

Robert S. Douglass, St. Louis, Mo., assignor to Cooper Industries, Inc., Houston, Tex.
Filed Jun. 27, 1996, Ser. No. 670,559
Int. Cl.^{6} H01H *85/02*
U.S. Cl. 337—186 **12 Claims**

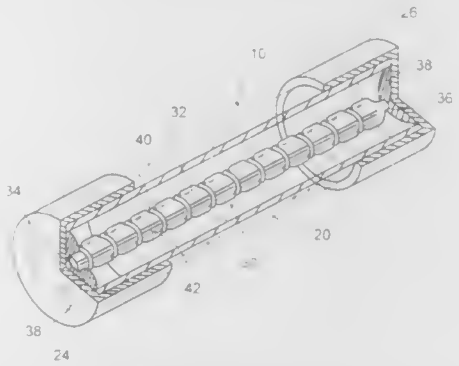
1 A current-limiting fuse comprising.
- an elongate electrically insulative tube;
- a pair of metallic blade terminals projecting axially outwardly from opposite ends of the tube;
- at least one fuse element disposed within the tube and electrically coupled between the terminals;
- a pair of axially spaced metallic reinforcing end caps extending circumferentially around respective ends of the tube; and



- a pair of electrically insulative elements arranged to electrically insulate respective ones of the end caps from the terminals.

5,736,919
SPIRAL WOUND FUSE HAVING RESILIENTLY DEFORMABLE SILICONE CORE

Conrad M. Reeder, Glencoe, Mo., assignor to Cooper Industries, Inc., Housten, Tex.
Filed Feb. 13, 1996, Ser. No. 600,363
Int. Cl.^{6} H01H *85/30;85/143*
U.S. Cl. 337—227 **12 Claims**

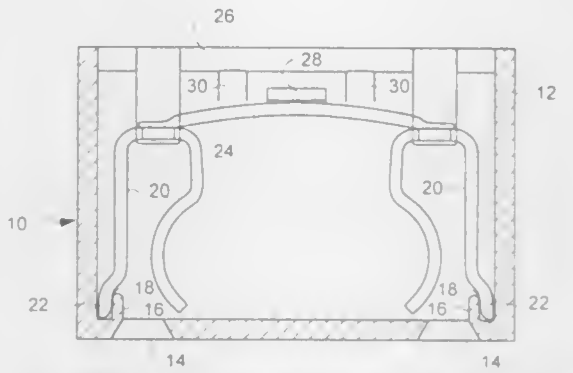


1 A spiral wound fuse, comprising
- a housing:
- a supporting substrate disposed in the housing and being formed of an electrically non conducting, resiliently deformable silicone material, and having a first end and an opposite second end,
- a fusible conductor wound around the supporting substrate substantially from the first end to the second end, the conductor being impressed into an outer surface of the supporting substrate with substantially continuous ridges of substrate material separating adjacent conductor windings and
- electrical connection means mounted to the housing and connected to the conductor at the first and second ends of the supporting substrate.

5,736,920
MINIATURE FEMALE FUSE WITH LOW MELTING TEMPERATURE FUSIBLE LINK

Terence John Evans, Ballwin; Kenneth Alfred Berkbigler, Grover, and Terry Lee Tiede, Ballwin, all of Mo., assignors to Cooper Industries, Inc., Houston, Tex.
Filed Feb. 7, 1996, Ser. No. 597,917
Int. Cl.^{6} H01H *85/02, 85/06*
U.S. Cl. 337—290 **15 Claims**

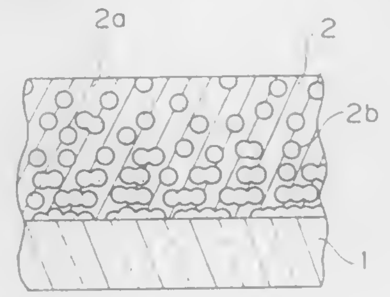
1 A miniature female fuse, comprising
- a casing having a maximum dimension no greater than approximately 12 mm,
- a pair of clips inside said casing, and



- a fusible link electrically connecting said clips, said fusible link being constructed from a low melting temperature alloy having a melt temperature no greater than approximately 278° C

5,736,921
MAGNETORESISTIVE ELEMENT

Atsushi Maeda; Satoru Oikawa, and Minoru Kume, all of Osaka, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Mar. 20, 1995, Ser. No. 406,670
Claims priority, application Japan, Mar. 23, 1994, 6-052055
Int. Cl.^{6} H01L *43/00*
U.S. Cl. 338—32 R **24 Claims**



24 A magnetoresistive element comprising
- a substrate;
- a magnetoresistive film arranged directly on and in contact with said substrate and consisting of a non-magnetic conductive metal film and grains consisting of a ferromagnetic metal atom or a ferromagnetic metal alloy dispersed in said metal film, wherein a concentration of said grains increases or decreases through a thickness of said magnetoresistive film from a first side thereof adjacent said substrate to a second side thereof opposite said substrate;
- and wherein said substrate is relatively nonconducting as compared with said magnetoresistive film, and
- a pair of electrodes arranged in contact with said magnetoresistive film

5,736,922
SELF-CONTAINED MULTIFUNCTIONAL LCD FLIGHT INDICATOR

Joseph W. Goode, III, Lawrenceville, and James E. Strickling, III, Duluth, both of Ga., assignors to Advanced Displays Corporation, Norcross, Ga.
Continuation of Ser. No. 998,943, Dec. 30, 1992, abandoned. This application May 28, 1996, Ser. No. 653,825
Int. Cl. G01C *21/00*
U.S. Cl. 340—974 **3 Claims**

1 A flight indicator for use as an HSI or an ADI, and for use in an aircraft having electrical wiring for relaying ADI signals and electrical wiring for relaying HSI signals comprising
- a display,
- a predetermined pin connection arrangement on said display having ADI pin connections and HSI pin connections and

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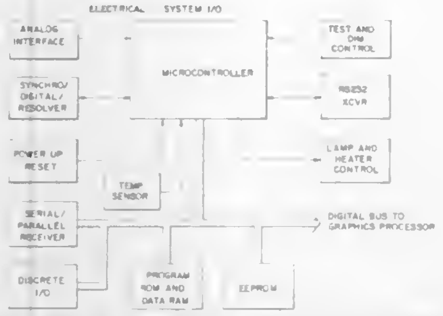


wherein said pin connection arrangement contains common pin connections for receiving signals common to both ADI and HSI signals;

a processing means in electrical communication with said ADI pin connections and said HSI pin connections, including said common pin connections, of said pin connection arrangement,

wherein said electrical wiring for relaying ADI signals is electrically connected to an ADI adapter for engaging said ADI pin connections, including said common pin connections, of said pin connection arrangement;

wherein said electrical wiring for relaying HSI signals is electrically connected to an HSI adapter for engaging said HSI pin connections, including said common pin connections, of said pin connection arrangement;

wherein said pin connection arrangement is adapted to alternatively engage said ADI adapter or said HSI adapter;

wherein said display is in electrical communication with said processing means;

wherein said processing means is adapted to recognize signals received at said pin connection arrangement as HSI signals or ADI signals; and

wherein said flight indicator functions as an ADI when said ADI adapter is engaged to said ADI pin connections, including said common pin connections, of said pin connection arrangement and wherein said flight indicator functions as a HSI when said HSI adapter is engaged to said HSI pin connections, including said common pin connections, of said pin connection arrangement.

5,736,923

APPARATUS AND METHOD FOR SENSING MOTIONLESSNESS IN A VEHICLE

Samer S. Saab, Turtle Creek, Pa., assignor to Union Switch & Signal Inc., Pittsburgh, Pa.

Filed Jul. 11, 1995, Ser. No. 500,571
Int. Cl.^{6} B60R *25/10*

U.S. Cl. 340—429 **12 Claims**

1. A method for sensing motionlessness in a land-based vehicle having inertial sensors, each of said sensors providing motion signals, comprising the steps of

(a) sensing a reference sample representative of said motion signals during a reference period.

(b) extracting a reference characteristic signal from said reference sample, said reference characteristic signal further being representative of motionlessness;

(c) sensing an operational sample representative of said motion signals during an operational period;

(d) extracting an operational characteristic signal from said operational sample, said operational characteristic signal further being representative of a current motion state;

(e) determining said current motion state from said operational characteristic signal relative to said reference characteristic signal, said motion state being one of stopped and moving, said stopped state being indicative of motionlessness;

(f) reporting said motion state to a target application in said vehicle, said target application acting in accordance therewith;

(g) if said motion state is moving, then repeating steps (c) through (h);

(h) if said motion state is stopped, then recalibrating said inertial sensors, and repeating steps (c) through (h); and

wherein said reference characteristic signal includes a first standard deviation representative of said reference sample, and said operational characteristic signal includes a second standard deviation representative of said operational sample.

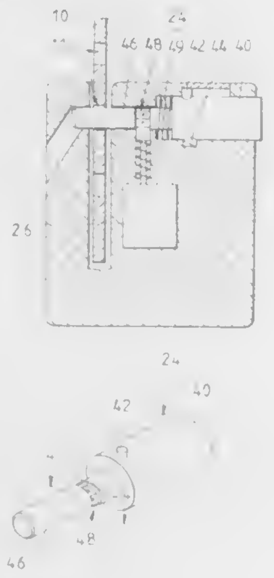
5,736,924

ALARM LOCK

Jin-Ren Shieh, No. 178, Shih Chia Rd., Taichung, Taiwan

Filed Sep. 1, 1995, Ser. No. 522,659
Int. Cl.^{6} B60R *25/10*

U.S. Cl. 340—426 **6 Claims**



1. An alarm lock comprising.

a main body having coaxially a first axial hole, a second axial hole and a locking hole:

a lock core having a body, a lock bolt, and a locating pin, said body disposed in said first axial hole such that said body is capable of moving back and forth in said first axial hole, said lock body located in said second axial hole such that said lock bolt is capable of moving back and forth in said second axial hole along with said body to permit said locating pin to engage in said locating hole to locate said lock core in said main body;

a biasing means disposed in said main body to urge said lock core; and

an alarm device disposed in said main body;

wherein said main body further comprises a third axial hole located between said alarm device and said first axial hole, or between said alarm device and said second axial hole, said third axial hole provided therein with a connection member capable of sliding in the direction of an axis of said third axial hole;

wherein said lock bolt is provided thereon with a driving section having peripherally a first driving portion, a second driving portion and a third driving portion, which are in selective

contact with said connection member and are respectively spaced from an axis of said lock bolt by different distances;

wherein said lock bolt is rotated by a key of an alarm lock so as to cause a change in a contact position between said driving section and said connection member for locking said alarm lock, with or without said alarm device being ready to trigger when said alarm lock is unlocked

5,736,925

VEHICLE WARNING SYSTEM CONTROLLER

Robert J. Knauff, Hilliard, and Terry Dawson, Westerville, both of Ohio, assignors to Weldon Technologies, Inc., Hilliard, Ohio

Filed Jun. 21, 1996, Ser. No. 666,120
Int. Cl.^{6} B60Q *1/26*

U.S. Cl. 340—468 **13 Claims**

1. A vehicle warning system controller, wherein said vehicle includes a power source and multiple arrangements of annunciator installed generally about the periphery of said vehicle, said controller comprising

an operator module having a mode selection switch in communication with said power source, wherein said mode selection switch is actuable to derive a primary and secondary mode condition;

a central control module, comprising

a processor in communication with said operator module, wherein said processor is responsive in the presence of said primary mode condition for deriving a predetermined first pattern of annunciator signals, and wherein said processor is responsive in the presence of said secondary mode condition for deriving a predetermined second pattern of annunciator signals; and

an annunciator driver in communication with said processor, wherein said annunciator driver is responsive in the presence of said predetermined first pattern of annunciator signals for activating said multiple arrangements of annunciator in accordance with a first predetermined flashing pattern, and wherein said annunciator driver is responsive in the presence of said predetermined second pattern of annunciator signals for activating said multiple arrangements of annunciator in accordance with a second predetermined flashing pattern.

wherein each annunciator is comprised of a stroboscopic and incandescent lamp pair

5,736,926

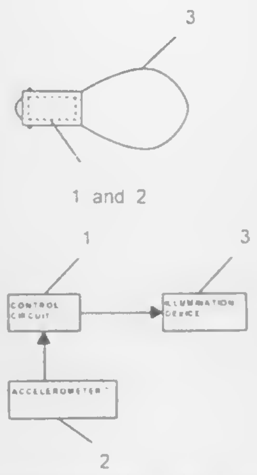
BRAKE LIGHT WARNING SYSTEM

William Stevenson Winholtz, P.O. Box 514, Blue Springs, Mo. 64014

Filed Apr. 16, 1996, Ser. No. 633,041
Int. Cl.^{6} B60Q *1/44*

U.S. Cl. 340—479 **7 Claims**

1. A vehicle brake light warning system comprising a housing with illumination device means on one end, and means on the other end of the housing to mechanically and electrically connect to a vehicle brake light receptacle where the vehicle brake light



attaches, with no modification to the vehicle, and transducer means for determining deceleration rate which is input to a control circuit which flashes the illumination device means, and where the transducer means and control circuitry are mounted inside the housing

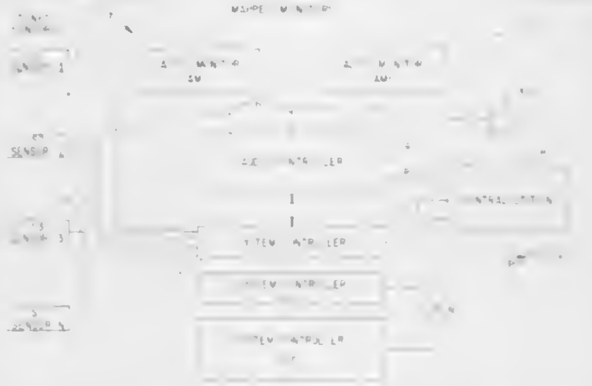
5,736,927

AUDIO LISTEN AND VOICE SECURITY SYSTEM

Kevin Stebbins, Maplewood, and Paul Severson, Hampton, both of Minn., assignors to Interactive Technologies, Inc., North St. Paul, Minn.

Continuation of Ser. No. 128,887, Sep. 29, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 472,738
Int. Cl.^{6} G08B *29/00*

U.S. Cl. 340—506 **11 Claims**



10. In a security alarm system including a central station which communicates with a subscriber premises via a telephone link, apparatus comprising:

a) a system controller coupled to a plurality of alarm sensors distributed about a subscriber premises,

b) a plurality of microphones, wherein each of said microphones is mounted in audible proximity to at least one of said plurality of alarm sensors, and

c) audio controller means coupled via a phone line to said central station for continuously monitoring each of said microphones and for periodically storing digital data compilations of the audio inputs from each of said microphones at a first address of a memory means, prior to an alarm, and for selecting and storing audio data from the microphone in closest proximity to an active alarm sensor at a second address for a predetermined period of time after the detection of an alarm, until reset, and including means for seizing said telephone link and establishing communications from said central station to the audio means in closest physical proximity to the alarm sensor reporting an alarm condition with the reporting of the alarm condition

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5,736,928

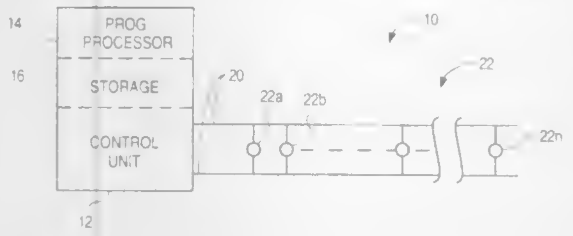
PRE-PROCESSOR APPARATUS AND METHOD

Lee D. Tice, Bartlett, and Frank Kuzhiyil, Glendale Heights, both of Ill., assignors to Pittway Corporation, Chicago, Ill.

Filed Sep. 1, 1995, Ser. No. 522,599

Int. Cl.⁶ G08B *29/00*

U.S. Cl. 340—511 **20 Claims**



1. A method of processing a time varying signal indicative of an ambient condition comprising the steps of:

(a) establishing a measurement interval;

(b) detecting a current value of an ambient condition and generating a signal indicative thereof;

(c) comparing the current value of the signal to at least one prior value of the signal;

(d) selecting one of a minimum value or a maximum value, the values having different magnitudes, as an output value as a result of the comparing step;

(e) storing the current value of the signal; and

(f) executing steps (b)-(e) during the next measurement interval.

5,736,929

SYSTEM FOR CONCEALED SERIALIZATION UTILIZING A SOFT MAGNETIC ANTITHEFT ELEMENT

Alejandro Gabriel Schrott, New York; Richard Joseph Gambino, Stony Brook, and Robert Jacob von Gutfeld, New York, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1996, Ser. No. 660,261

Int. Cl.⁶ G08B *13/187*

U.S. Cl. 340—572 **15 Claims**

1. A system for protecting an object from theft and for identifying said object comprising:

an antitheft element;

means for providing an identification code; and

means for reading said code, wherein said means for reading said code includes said antitheft element.

5,736,930

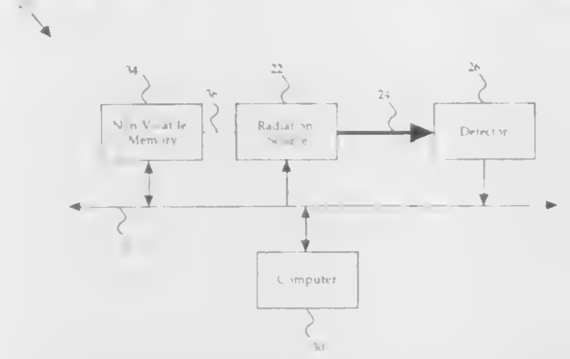
APPARATUS AND METHOD FOR RADIATION SOURCE FAILURE PREDICTION

Richard D. Cappels, San Jose, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jul. 21, 1995, Ser. No. 505,073

Int. Cl.⁶ G08B *21/00*

U.S. Cl. 340—642 **20 Claims**



4. A method for determining when an end of life of a radiation source is near, the method comprising the steps of:

collecting radiance data from the radiation source, including the steps of:

checking a non-volatile memory coupled to the radiation source for an initialization symbol,

performing the sub-steps of declaring the radiation source new, erasing the entire non-volatile memory, and writing the initialization symbol and a host serial number to the non-volatile memory, if the initialization symbol is not found,

measuring and storing an initial radiance, if the radiation source has been declared new, and

measuring and storing a periodic radiance, in a time determined by a periodic radiance interval,

determining if the radiation source's end of life is near; and

warning a user if the radiation source's end of life is near.

5,736,931

REMOTE CONTROL SYSTEM FOR ELECTRONIC DEVICES

Hitoshi Sato; Masashi Iwasaki; Tadamasa Yamanaka; Kazuyoshi Kamiyama, and Nobuhiro Ozu, all of Saitama-ken, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed May 26, 1995, Ser. No. 451,769

Claims priority, application Japan, Jun. 22, 1994, 6-140152

Int. Cl.⁶ H04Q *19/02*; H04B *10/00*; H04N *5/44*; G05B *23/02*

U.S. Cl. 340—825.25 **9 Claims**

1. A remote control system for at least two electronic devices including a master device and a slave device, each device having a remote control sensor and both devices being connected with each other by a bus, the system comprising:

command means provided on the master device for commanding the slave device to send a connection confirmation signal representing a fact that the slave device has been connected to the master device;

response means provided on the slave device for sending the connection confirmation signal to the master device representing that the slave device is connected to the master device and is remotely controllable;

means provided on the master device for making a first remote control signal received by remote control sensor of the master device ineffective when receiving the connection confirmation signal; and

control means provide on the slave device for performing a first command of a second remote control signal received by the remote control sensor of the slave device and for sending a second command to the master device if the slave device cannot operate in accordance with the second remote control signal.

5,736,932

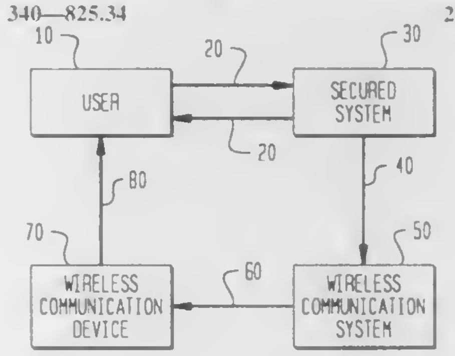
SECURITY FOR CONTROLLED ACCESS SYSTEMS

Andrew Frederick Bulfer, Mountain Lakes, N.J., and Charles Arthur Witschorik, Naperville, Ill., assignors to AT&T Corp. Middletown, N.J.

Filed Jul. 3, 1996, Ser. No. 675,029

Int. Cl.⁶ H04Q *1/00*

U.S. Cl. 340—825.34 **24 Claims**



1. A method for ensuring that a user requesting access to a secured system should be granted such access, said user having substantially unique user identifying information and a wireless communication device with a substantially unique activation number if the user is entitled to access to the secured system, said method comprising the steps of:

entering said user identifying information into said secured system, said entering step being performed by said user;

identifying the activation number of the wireless communication device which the user identified by said user identifying information should have, said identifying step being performed by said secured system;

transmitting revalidation information to the wireless communication device which the user identified by said user identifying information should have, said transmitting step being at least initiated by said secured system;

returning said revalidation information to said secured system, said returning step being performed by said user if said user has the wireless communication device which said user should have; and

detecting whether the revalidation information returned in said returning step matches the revalidation information transmitted in said transmitting step, and if so, allowing said user access to said secured system, said detecting step being performed by said secured system.

5,736,933

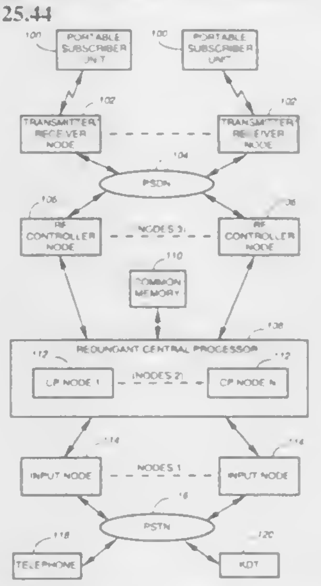
METHOD AND APPARATUS FOR PROVIDING REDUNDANCY IN A COMMUNICATION NETWORK

Niranjan Nath Segal, Arlington, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 4, 1996, Ser. No. 608,020

Int. Cl.⁶ H04J *3/16*; G06F *11/20*; H04B *7/212*, *7/00*

U.S. Cl. 340—825.44 **12 Claims**



7. A communication network having a plurality of nodes for providing redundancy, the communication network comprising:

a first node for receiving and storing a message, the first node comprising:

a first communication interface for receiving the message and for transmitting the message to a first one of a plurality of second nodes;

a first memory coupled to the first communication interface for storing the message; and

a first processor coupled to the first memory and coupled to the first communication interface for removing the message from the first memory, in response to receiving by the first communication interface an acknowledgment from the first one of the plurality of second nodes,

wherein the communication network further comprises

the first one of the plurality of second nodes, comprising

a second communication interface coupled to the first communication interface for receiving the message;

a second memory coupled to the second communication interface for storing the message; and

a second processor coupled to the second communication interface for transmitting the acknowledgment to the first node, in response to storing the message both in the second memory and in a third memory, and

wherein the communication network further comprises

the third memory coupled to the plurality of second nodes for storing the message.

5,736,934

RADIO PAGING SYSTEM

Toshihiro Nozawa, Iida; Shugo Ito, Yokohama, and Yoshiaki Hirai, Urawa, all of Japan, assignors to NTT Mobile Communications Network, Inc., Tokyo, Japan

Continuation of Ser. No. 313,022, Dec. 9, 1994, abandoned.

This application Nov. 5, 1996, Ser. No. 742,703

Claims priority, application Japan, Jan. 28, 1993, 5-012822

Int. Cl.⁶ H04Q *1/00*

U.S. Cl. 340—825.44 **10 Claims**

1. A mobile radio communication system comprising:

a plurality of pagers; and

a base station for transmitting a plurality of paging signal frames to said plurality of pagers via at least one radio channel, each

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of said plurality n of paging signal frames including a plurality n of fixed-length subframes, n being a natural number, a first of said plurality n of fixed-length subframes being closest to a synchronization signal from said base station and an n^{th} of said plurality n of fixed length subframes being farthest from said synchronization signal, each of said plurality n of fixed-length subframes containing a plurality of paging signals each having an address signal indicating a unique address corresponding to at least one of said plurality of pagers associated therewith, said base station including repeated transmitting means for transmitting a same paging signal in each of said plurality of paging signal frames, said repeated transmitting means comprising:

new paging signal inserting means for inserting a new paging signal to be transmitted by said base station for a first time into said first one of said plurality n fixed-length subframes, and

repeated paging signal inserting means for inserting a repeated paging signal to be transmitted by said base station for at least a second time into one of said n fixed-length subframes positioned according to a number of times that said repeated paging signal is to be transmitted by said base station, said repeated paging signal being positioned differently for each transmission thereof.

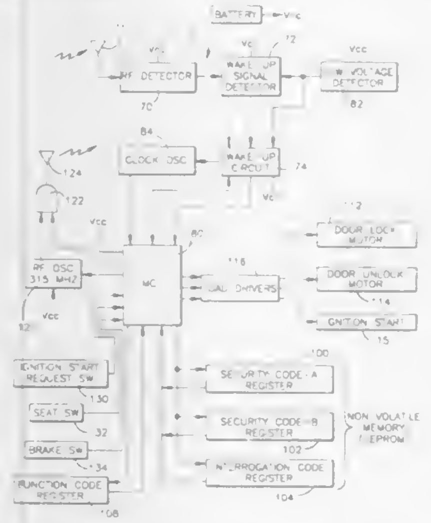
5,736,935
KEYLESS VEHICLE ENTRY AND ENGINE STARTING SYSTEM

George P. Lambropoulos, Grosse Pointe Woods, Mich., assignor to TRW Inc., Lyndhurst, Ohio

Filed Mar. 14, 1995, Ser. No. 404,165

Int. Cl.⁶ G06F *7/04;* **H04Q** *1/00;* **G08C** *19/00;* **B62D** *45/00*

U.S. Cl. 340—825.69 **10 Claims**



1. A vehicle transceiver for use in a keyless entry system and for use in starting a vehicle's engine and including,

means for providing a start engine signal representative that the vehicle's engine is to be started;

means for providing a brake signal representative that the vehicle's brake pedal has been depressed;

means for providing a seat occupied signal representative that an occupant is located in the vehicle's driver seat;

means responsive to the occurrence of said start engine signal and said brake signal and said seat occupied signal for transmitting an interrogation signal to a remote transceiver;

means for receiving a reply signal from a remote transceiver wherein said reply signal includes a security code which uniquely identifies said remote transceiver;

means for storing a prestored security code representative of said remote transceiver;

means for comparing said prestored security code and said received security code and, if a match takes place, initiating action for enabling the starting of said vehicle's engine

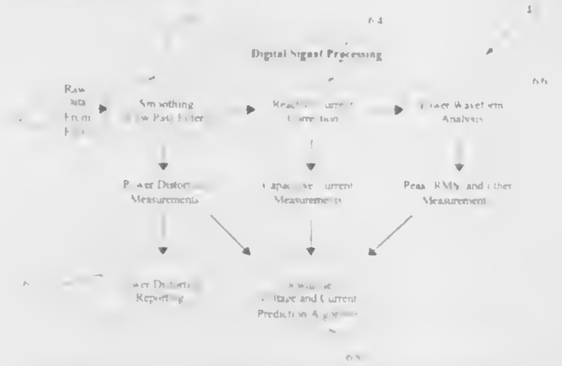
5,736,936
METHOD AND APPARATUS FOR PREDICTING PEAK VOLTAGE OF A CABLE CONVEYED TOOL

Bart J. Bombay; Marvin W. Rasmussen; Lloyd D. Clark, Jr., all of Austin; Terry L. Mayhugh; Terry L. Mayhugh, Jr., both of Round Rock; Jimmy E. Neeley, Palacios, and Guy Vachon, Austin, all of Tex., assignors to Schlumberger Technology Corporation, Austin, Tex.

Continuation of Ser. No. 285,314, Aug. 3, 1994, Pat. No. 5,483,232. This application Jan. 11, 1996, Ser. No. 585,390

Int. Cl.⁶ G01V *1/00*

U.S. Cl. 340—853.1 **18 Claims**


Digital Signal Processing
Raw Data From
Smoothing Low Pass Filter
Power Waveform Analysis
Power Distortion Measurements
Capacitive Current Measurements
Peak, RMS, and other Measurements
Reporting
Voltage and Current Prediction Algorithm

1. A method for predicting the peak voltage at the load end of a transmission cable, the cable having a load end and a power supply end, comprising the steps of:

sampling the current and voltage of an AC waveform proximate the supply end of the cable to obtain a plurality of current and voltage samples representing respective current and voltage waveforms;

approximating a current pulse width function of said current waveform at the cable power supply end; and

predicting an approximate remote end peak voltage by multiplying a supply end voltage by the current pulse width function.

5,736,937
APPARATUS FOR WIRELESS TRANSMISSION OF SHAFT POSITION INFORMATION

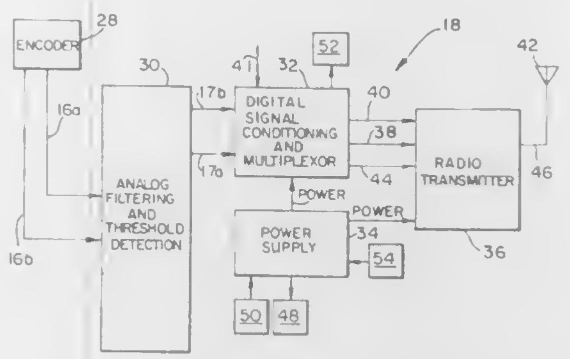
Andrew McGirr; Murray Tough; Dave Goulbourne, and Dave Jessee, all of Calgary, Canada, assignors to Beta Monitors & Controls, Ltd., and Murandi Communications Ltd., both of Calgary, Canada

Filed Sep. 12, 1995, Ser. No. 527,232

Int. Cl.⁶ G08B *21/00*

U.S. Cl. 340—870.16 **21 Claims**

1. A radio frequency (RF) apparatus for transmitting real-time shaft position information over an RF channel between at least one sensor located proximate to a rotating machine and a receiver, in the presence of high voltage electromagnetic impulses, the at least one sensor monitoring a rotating shaft of the rotating machine and generating a once per revolution analog signal and an n per degree analog signal, the apparatus comprising:



(a) a transmitter for processing and transmitting the analog signals generated by the at least one sensor, the transmitter comprising:

(i) a threshold detection circuit for converting the analog signals to corresponding digital logic signal levels;

(ii) a multiplexer for combining the once per revolution and n per degree digital signals into a single transmit data signal representing the once per revolution signal and the n per degree signal;

(iii) a modulator for modulating a reference clock with the transmit data signal.

(iv) a radio frequency synthesizer electrically connected to the modulator for generating a radio frequency carrier using the modulated reference clock; and

(v) an antenna electrically coupled to the synthesizer for radiating the modulated radio frequency carrier signal, and

(b) a receiver spaced from the transmitter comprising:

(i) an antenna for receiving the signal radiated by the transmitter;

(ii) a receiver circuit electrically coupled to the receiver antenna for selecting and demodulating the received signal; and

(iii) a signal processor for demultiplexing and reconstructing the once per revolution and n per degree digital signals from the demodulated received signal.

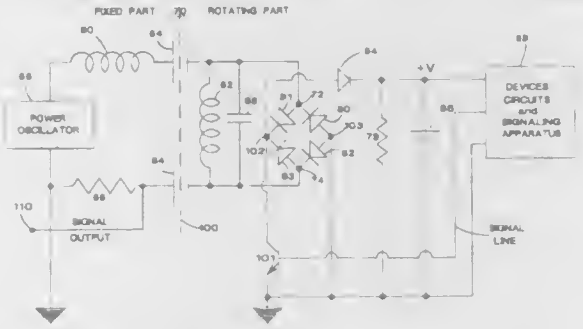
5,736,938
APPARATUS, EMPLOYING CAPACITOR COUPLING FOR MEASUREMET OF TORQUE ON A ROTATING SHAFT

Clyde L. Ruthroff, One Brook La., Holmdel, N.J. 07733

Filed May 6, 1996, Ser. No. 643,546

Int. Cl.⁶ G08C *19/10*

U.S. Cl. 340—870.37 **12 Claims**



1. A combination comprising:

utilization apparatus;

first means for transmitting electrical power from a first location towards a second location,

second means, at said second location, responsive to electrical power received from said first means, for operating said utilization apparatus;

third means coupled to said utilization apparatus for generating a signal indicative of performance thereat, and for transmitting said signal to said first means via said second means,

with said first means being stationary in operation, and with said second means being mechanically rotational in operation,

with said second means being devoid of any source of operating power thereon, and

with there being an absence of mechanical interconnection between said first means and said second means; and

wherein said first means includes a fixed electrical coil and one plate of a pair of capacitors having two plates each, and wherein said second means includes a rotating electrical coil and a second plate of said pair of capacitors

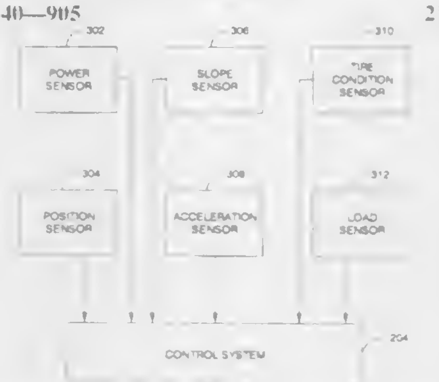
5,736,939
APPARATUS AND METHOD FOR DETERMING A CONDITION OF A ROAD

Paul T. Corcoran, Washington, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Dec. 11, 1996, Ser. No. 763,649

Int. Cl.⁶ G08G *1/09*

U.S. Cl. 340—905 **21 Claims**



1. An apparatus for determining a condition of a road traversed by at least one load hauling machine having a plurality of tires in contact with said road, comprising,

at least one parameter sensor connected to said load hauling machine, said at least one parameter sensor being adapted to sense a parameter of said load hauling machine and responsively deliver a parameter signal, and

a control system connected to said load hauling machine, said control system being adapted to monitor a condition of said tires and responsively generate a calibration signal, and to receive said parameter signal and determine a condition of said road in response to said parameter signal and said calibration signal.

5,736,940
PORTABLE TRANSIT DATA INFORMATION SYSTEM AND APPARATUS

E. C. Burgener, 55 Gibraltor Bay, Winnipeg, Canada

Continuation of Ser. No. 305,357, Sep. 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 124,973, Sep. 21, 1993, abandoned. This application Jan. 29, 1996, Ser. No. 593,294

Claims priority, application Canada, Apr. 6, 1993, 2093457

Int. Cl.⁷ G08G *1/123*

U.S. Cl. 340—994 **17 Claims**

1. An improved method of disseminating urban transit information relating to routes with a multiplicity of vehicles on them, said method utilizing the following elements

an Automated Vehicle Location system,

a Transit Central Computer,

a computer data interface between the AVL and the TCC,

one or more radio broadcast towers

a communications data interface between the TCC and the broadcast tower, and

a multiplicity of portable radio receivers comprising visual read out user input means, and computer memory and receiver computer programs.

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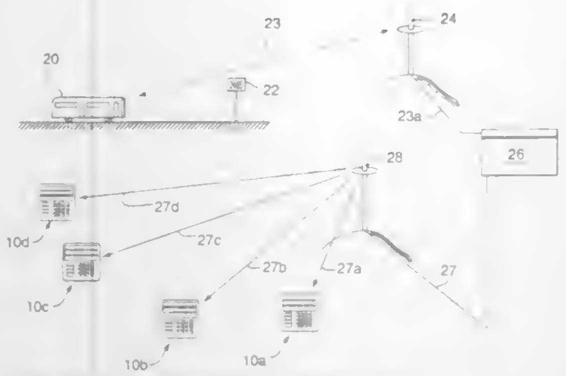


said method comprising the following steps:
- the TCC maintains a plurality of information files, herein called route files, concerning vehicle routes and schedules and users;
- the AVL collects vehicle location information, herein called location files;
- the TCC reads said location files from the AVL by means of the computer interface and combines location files with route files into three discrete data stream;
- the three data streams are processed into radio broadcast data files, and forwarded to the broadcast tower by means of the communications interface; said three streams comprising:
  - first, a vehicle location file, containing vehicle location information; said file being transmitted periodically to said receivers;
  - second, a route information file, containing route information including stop numbers, route numbers, cross-streets, and route symmetry, and periodically transmitted to and maintained by the receivers in memory until updated; and
  - third, a display information file, containing diverse information including weather information and warnings, personal messages, date and time, cross-street names, receiver identification, and prepaid fare validity, and periodically transmitted to said receivers;

the receivers having means for selective accessing the broadcast data files from one or more of said broadcast towers and utilizing said files in said receiver computer programs and processing means to compute values; and

the receivers display information chosen from said values according to requests by users through the user input means, thus providing users with a visual readout of, at least, a continuously updated time-to-arrival estimate of the next arriving transit vehicle at a user-specified stop, with said estimate being counted down to zero, and corrected as new locational data is received by radio.

5,736,941

NAVIGATION DEVICE FOR A LAND VEHICLE WITH MEANS FOR GENERATING A MULTI-ELEMENT ANTICIPATORY SPEECH MESSAGE, AND A VEHICLE COMPRISING SUCH DEVICE

Hans-Helmut Schulte; Johannes H.M. Kleijnen, and Eduardus W.M. Conijn, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 4, 1995, Ser. No. 511,504

Claims priority, application European Pat. Off., Aug. 8, 1994, 94202271

Int. Cl.^{6} G08G *1/123*

U.S. Cl. 340—995 **15 Claims**

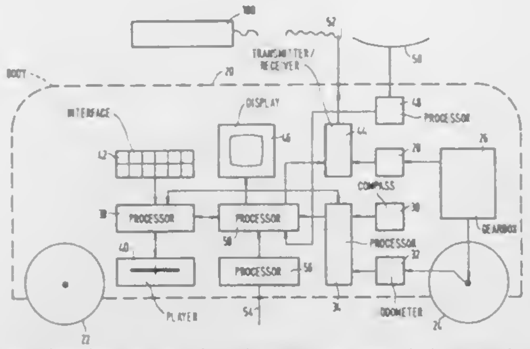
1. A motor vehicle comprising:

means for displacing said vehicle along a route; and

a navigation device having sensing means for sensing a displacement of the vehicle; storage means for storing map data:

means for matching the displacement of the vehicle to the map data stored in the storage means;

means for monitoring at least one of a position and motion of said vehicle;



route planning means for planning an intended route for said vehicle from a first position to a second position; and

anticipating means for generating an anticipatory speech message before reaching an upcoming location from a speech message directory based on at least one of said position and motion of said vehicle, said anticipatory speech message including a prefix message that identifies an upcoming location, an action message that identifies an action to be taken at or about said location and a message suffix relating to said action taken and identifies an intended location as a result of said action taken.

5,736,942

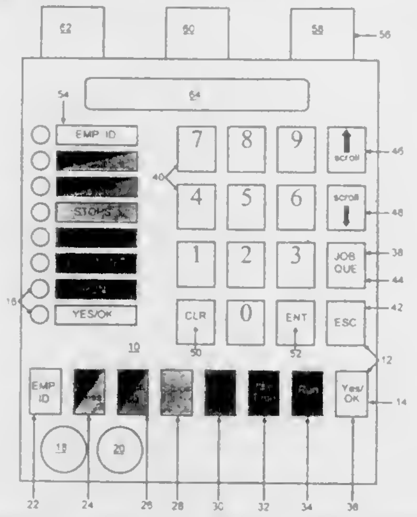
KEY PAD FOR COMMUNICATING WITH A MICROPROCESSOR

Glenn Edgar Randolph, 5234 Furman Pl., Charlotte, N.C. 28210

Filed Jul. 25, 1996, Ser. No. 686,393

Int. Cl.^{6} H03K *17/94;* **H03M** *11/00*

U.S. Cl. 341—22 **17 Claims**



1. An interface system for facilitating communication between an operator and a microprocessor used to monitor and record real time data of a paper printing production machine for performing a project, comprising:

a microprocessor for monitoring and recording time periods for each one of a plurality of predefined statuses of the machine occurring during the performance of the project;

a plurality of light guides for receiving an output signal from the microprocessor, each said output signal illuminating predetermined ones of said light guides, each said light guide being representative of one of said plurality of predefined statuses, and

a plurality of function keys each selectable by the operator for generating an input signal to the microprocessor identifying one of said plurality of predefined statuses of the machine, each said function key being individually associated with one of said light guides so that an input signal can be processed by the microprocessor only from a function key associated with an illuminated light guide,

whereby said microprocessor records the time period being monitored with the predefined status of the machine identified by the operator

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5,736,943

METHOD FOR DETERMINING THE TYPE OF CODING TO BE SELECTED FOR CODING AT LEAST TWO SIGNALS

Jürgen Herre, Buckenhof; Bernhard Grill, Lauf; Ernst Eberlein, Grossenseebach; Karlheinz Brandenburg, and Dieter Seitzer, both of Erlangen, all of Germany, assignors to Fraunhofer-Gesellschaft zur Forderung der Angewandten Forschung e.V., Munich, Germany

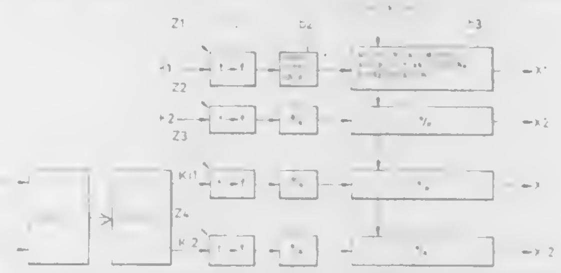
PCT No. PCT/EP94/02250, § 371 Date May 31, 1996, § 102(e) Date May 31, 1996, PCT Pub. No. WO95/08227, PCT Pub. Date Mar. 23, 1995

PCT Filed Jul. 8, 1994, Ser. No. 557,046

Claims priority, application Germany, Sep. 15, 1993, 43 31 376.0; Apr. 22, 1994, 43 45 171.3

Int. Cl.^{6} H03M *7/00*

U.S. Cl. 341—50 **9 Claims**



1. A method for determining the type of coding to be selected for coding at least two signals, in which a transformation of signals into the frequency domain is carried out and, starting from spectral values, a similarity measure is determined on the basis of which one of at least two types of coding is selected, characterized

in that for the purpose of generating at least one signal affected by coding error, at least one of the signals is coded and then decoded in that type of coding which is used in the case of determining a high similarity measure,

in that the signal affected by coding error, and the associated signal not affected by the coding error are transformed into the frequency domain,

in that, starting both from the spectral values of the signal affected by coding error and from the spectral values of the associated signal not affected by the coding error, a selection or evaluation of the respectively actually audible spectral components is undertaken using a listening threshold determined by a psychoacoustic calculation, and

in that the similarity measure is calculated on the basis of the audible spectral components, selected or evaluated in such a way, at least of the signal affected by coding error and the associated signal not affected by the coding error.

5,736,944

IMAGE DECODING APPARATUS

Kouichi Kurihara, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 11, 1996, Ser. No. 630,208

Claims priority, application Japan, Apr. 14, 1995, 7-089085

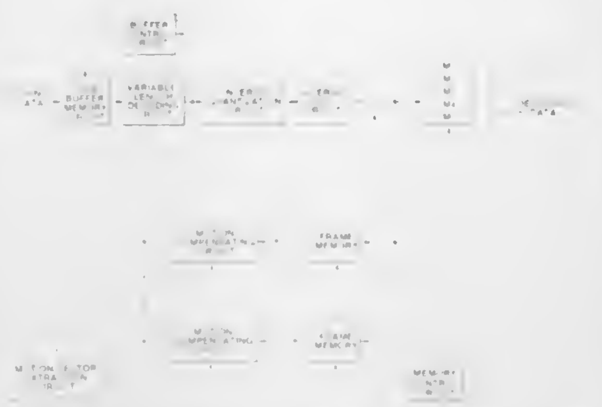
Int. Cl.^{6} H03M *7/00*

U.S. Cl. 341—50 **8 Claims**

1. An image decoding apparatus comprising:

decoding means receiving coding data, which includes bidirectional predictive coding data using forward and rearward reference images, for decoding said coding data in a predetermined block unit to output decoding data,

memory means, having a plurality of memory regions each having a capacity that corresponds to a part of a predetermined divided number of a total capacity necessary to store said decoding data for one (1) frame, receiving said decoding data in a frame arrangement which is output from said decoding means after being processed by a decoding processing with respect to said bidirectional predictive coding data, for storing said decoding data in said memory regions and for reading out said stored data in a display order to obtain an interlaced output; and



control means for dividing an image plane into divided image regions whose number is ½ of said predetermined divided number in correspondence to a position in a vertical direction, to control write and readout of said memory means for every group of divided image data that are defined by a column of said decoding data which correspond respectively to the said divided image regions of said predetermined divided number of first and second fields, said control means controlling write and readout with respect to said memory means in consideration of input and output time of said divided image data, thereby storing a plurality of said divided image data corresponding respectively to different divided image regions to a common memory region of said memory means to obtain an interlaced output from said memory means,

wherein said number that is ½ of said predetermined divided number is 4 (four), and

wherein said memory means has 5 (five) regions each having a capacity that is ⅕ of a total capacity necessary to store said decoding data for 1 (one) frame

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5,736,945

CIRCUIT FOR ZERO-RUN DEVELOPING RUN/LEVEL SETS AND METHOD FOR ZERO-RUNDEVELOPING THE SAME

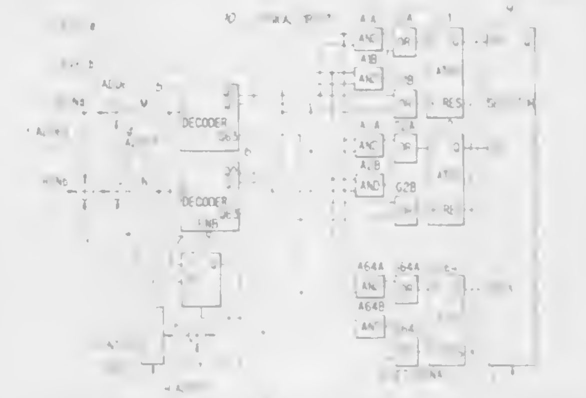
Shigenori Kinouchi, and Akira Sawada, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Feb. 21, 1996, Ser. No. 604,430

Claims priority, application Japan, Feb. 21, 1995, 7-032488

Int. Cl.^{6} H04N *11/04*

U.S. Cl. 341—63 **7 Claims**



1. A circuit for zero run developing RUN/LEVEL sets, comprising

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latch means for latching the levels of the predetermined number of the non-zero data:

first write position generating means for generating a first latch position of said latch means at which the first non-zero data is written corresponding to a first run length signal; and

second write position generating means for generating a second latch position of said latch means at which the second non-zero data is written corresponding to the first run-length signal and a second run-length signal.

5,736,946

HIGH SPEED APPARATUS AND METHOD FOR DECODING VARIABLE LENGTH CODE

Young-Seok Sohn, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Aug. 30, 1996, Ser. No. 706,163

Claims priority, application Rep. of Korea, Aug. 31, 1995, 95-28089

Int. Cl.^{6} H03M *7/40*

U.S. Cl. 341—67 **14 Claims**

1. A variable-length code decoding apparatus for decoding, based on a clock signal having a rising clock tick and a falling clock tick, at a half clock cycle rate, an input bit stream of variable-length codewords, the input bit stream being in fixed-length segments equal in their bit length to twice a longest length of the variable-length codewords, which comprises:

a first and a second cascaded bit storage means for sequentially storing consecutive fixed-length segments of bits from the input bit stream;

a shift means, connected to the first and second bit storage means and having a window, for storing bits received from the first and second bit storage means and providing a window output sequence of consecutive fixed-length segments from bits stored therein, the bit length of the first window output sequence being equal to the longest length of the variable-length codewords, the window being directly slidable across the bits stored in the shift means and the position of the window being determined during each half clock cycle by a window control signal.

a relay means for latching the window output sequence for one-half the clock cycle and producing the latched window output sequence as a decoding output sequence;

a first memory means coupled to the relay means for producing a codeword length in response to a pre_fix code which consists of high-order P bits of a variable-length codeword that begins at a first bit position of the decoding output sequence, the maximum value of P being an integer smaller than the longest length of the variable-length codewords,

a second memory means, connected to the first memory means and the shift means, for producing a fixed-length word in response to the codeword length and the window output sequence, and

an accumulation means for adding during each half clock cycle the codeword length to previously accumulated codeword lengths of variable-length codewords decoded during previous clock cycles, generating the window control signal during each half clock cycle to directly shift the window by the number of bits in the window control signal, generating a READ signal to retrieve a next fixed-length segment in the input bit stream into the second storage means and producing a CARRY signal to transfer the sequence of bits in the second storage means to the first storage means when the accumulated codeword lengths indicate that all the bits in the first storage means have been decoded.

5,736,947

DIGITAL INFORMATION ENCODING DEVICE, DIGITAL INFORMATION DECODING DEVICE, DIGITAL INFORMATION ENCODING/DECODING DEVICE, DIGITAL INFORMATION ENCODING METHOD, AND DIGITAL INFORMATION DECODING METHOD

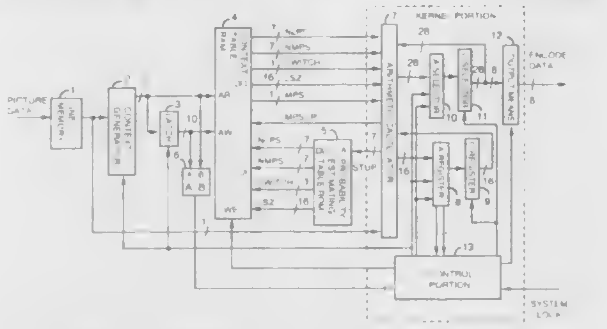
Yoshifumi Imanaka, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 12, 1996, Ser. No. 766,451

Claims priority, application Japan, May 7, 1996, 8-112660

Int. Cl.^{6} H03M *7/00*

U.S. Cl. 341—107 **36 Claims**



31. A digital information encoding method comprising:

generating, during one clock of a system clock signal when encoding processing for a target encoding pixel requires one renormalization, a context for the target encoding pixel, reading out a storing data comprising a prediction symbol and a probability estimating data which are based on the generated context, obtaining an A data indicating a width A of an effective area for the target encoding pixel and a C data indicating the trailing bits of the code stream for the target encoding pixel, according to a picture data for the target encoding pixel, the read-out storing data, an A data indicating a width A of an effective area for a pixel which immediately precedes the target encoding pixel and a C data indicating the trailing bits of the code stream for a pixel which immediately precedes the target encoding pixel, and also obtaining a renewal data of a plurality of bits having a prediction symbol and a probability estimation index; and

rewriting, during a subsequent one clock of a system clock signal, a storing data based on the context for the target encoding pixel by the renewal data, generating a context for a subsequent target encoding pixel of the target encoding pixel, reading out a storing data based on the generated context, and obtaining an A data indicating a width A of an effective area for a subsequent target encoding pixel of the target encoding pixel and a C data indicating the trailing bits of the code stream for a subsequent pixel to be encoded of the target encoding pixel, according to a picture data for a subsequent target encoding pixel of the target encoding pixel, the read-out storing data, an A data indicating a width A of an effective area for a subsequent target encoding pixel of the target encoding pixel and a C data indicating the trailing bits of the code stream for a subsequent target encoding pixel of the target encoding pixel.

5,736,948

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND CONTROL SYSTEM

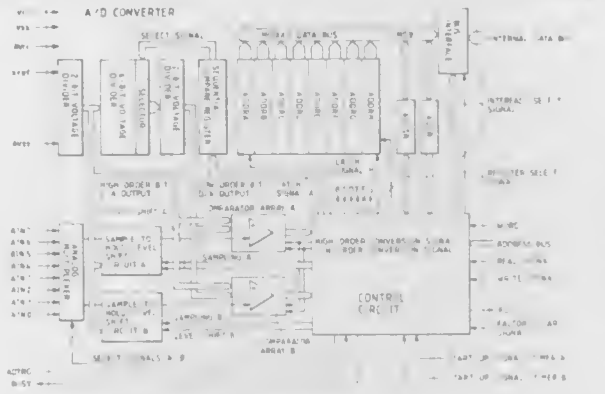
Naoki Mitsuishi, Kodaira; Hiroyuki Kobayashi, Higashimurayama; Hiroshi Saito, Koganei, and Mitsumasa Satoh, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 29, 1996, Ser. No. 592,974

Claims priority, application Japan, Mar. 20, 1995, 7-085928

Int. Cl.^{6} H03M *1/00*

U.S. Cl. 341—141 **6 Claims**



1. A motor control system comprising:

a three-phase motor having Y-connection or Δ connection windings;

an inverter circuit coupled to the three phase motor and providing drive current to the three-phase motor in response to complementary three-phase PWM signals.

a current detector detecting the drive current on first and second phases of the three-phase motor;

a single chip microcomputer providing the complementary three-phase PWM signals, the single-chip microcomputer comprising:

- at least first and second analog input terminals coupled to receive first and second outputs of the current detection circuit:
- an A/D converter including:
  - at least first and second sample-to-hold circuits receiving first and second analog input signals from the first and second analog input terminals;
  - a control circuit controlling the first and second sample-to hold circuits to perform sampling operations such that a sampling period of the first sample-to-hold circuit overlaps with a sampling period of the second sample to-hold circuit; and
  - an A/D converting unit for converting analog signals held by the first and second sample-to-hold circuits into digital signals, respectively.
- an internal bus, and
- a central processing unit coupled to the A/D converting unit through the internal bus, wherein the central processing unit reads the digital signals and calculates the drive current on a third phase of the three-phase motor, wherein the central processing unit controls the three-phase motor by controlling the complementary three-phase PWM signals.

5,736,949

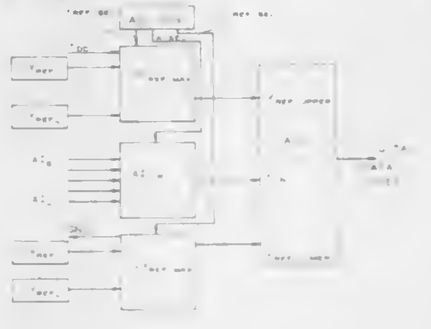
MULTIPLEXED ANALOG-TO-DIGITAL CONVERTER FOR RELATIVE AND ABSOLUTE VOLTAGE MEASUREMENTS

Eng Yue Ong; Alvin Liw Sioee Hock, and Geng Xia, all of Singapore, Singapore, assignors to Tritech Microelectronics International Pte, Ltd., Singapore, Singapore

Filed Jan. 17, 1997, Ser. No. 785,735

Int. Cl.^{6} H03M *1/34*

U.S. Cl. 341—141 **9 Claims**



1. A multiplexed analog-to-digital conversion system to accept a plurality of dissimilar analog signals and convert said analog signals to an output digital codes that represent the magnitude of each of the dissimilar analog signals as compared to a voltage difference of an upper voltage reference node and a lower voltage reference node, comprising:

a) an analog signal multiplexer having a plurality of input nodes each connected to each of the plurality of dissimilar analog signals, a plurality of signal selection nodes to receive an analog signal select code, and an output node that will contain one of the plurality of dissimilar analog signals as determined by the analog signal select code;

b) a first voltage reference multiplexer having a first output connected to the upper reference voltage node, a plurality of voltage input nodes connected to a plurality of reference voltage sources, a plurality of upper reference voltage selection nodes to receive an upper reference voltage selection code, wherein one of the plurality of reference voltage sources is coupled to said output node dependent on said upper reference voltage selection code;

c) a second voltage reference multiplexer having a second output connected to the lower reference voltage node, a plurality of voltage input nodes connected to the plurality of reference voltage sources, a plurality of lower reference voltage selection nodes to receive an lower reference voltage selection code, wherein one of the plurality of reference voltage sources is coupled to said output node dependent on said lower reference voltage selection code;

d) an analog-to-digital converter circuit connected to the upper voltage reference node, the lower reference voltage node, and the output node of the analog signal multiplexer to compare a selected analog signal of the plurality of dissimilar analog signals to the difference of the upper reference voltage node and the lowered reference voltage node to create the output digital codes; and

e) a analog-to-digital converter control means to create the analog signal select code, the upper reference voltage select code, and the lower reference voltage signal select code, wherein said analog-to-digital converter control means will associate each of the plurality of dissimilar analog signals with appropriate reference voltages from the plurality of reference voltage sources.

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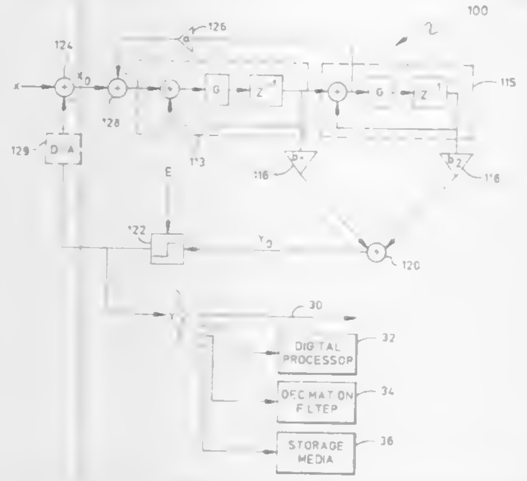
5,736,950
SIGMA-DELTA MODULATOR WITH TUNABLE SIGNAL PASSBAND

Frederick J. Harris, Lemon Grove; Robert W. Caulfield, and William H. McKnight, both of San Diego, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 31, 1995, Ser. No. 384,819

Int. Cl.^{6} H03M *3/02*

U.S. Cl. 341—143 **21 Claims**



1. An apparatus comprising a sigma-delta modulator having a tuning range, said sigma-delta modulator including a translator for tuning to a selected passband within said tuning range.

5,736,951
HIGH SPEED AND HIGH ACCURACY A/D CONVERTER

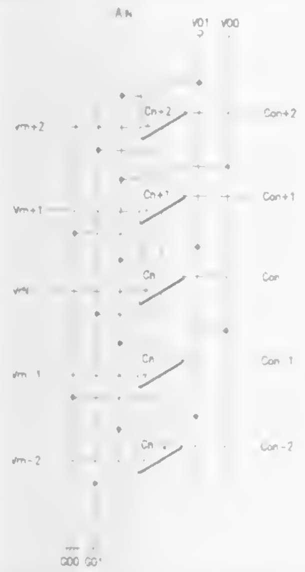
Hiroyuki Kobatake, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 14, 1996, Ser. No. 696,601

Claims priority, application Japan, Aug. 14, 1995, 7-228568

Int. Cl.^{6} H03M *1/36*

U.S. Cl. 341—159 **2 Claims**



1. An analog-to-digital converter comprising
- a reference voltage generation circuit for dividing a reference voltage into a plurality of divided reference voltages having voltage levels different from each other;
- a first pair of a first power supply line and a first ground line,
- a second pair of a second power supply line and a second ground line, said second power supply line being separated from said first power supply line, and said second ground line being separated from said first ground line;
- a plurality of comparators, each of which has a first input terminal connected to an analog input line for fetching analog signals and a second input terminal connected to said reference voltage generation circuit for fetching a corresponding one of said divided reference voltages so as to compare said analog signals with said divided reference voltage, said each of said comparators having an output terminal through which a compared digital signal is outputted; and
- a decoder circuit connected to said output terminals of said comparators for fetching said compared digital signals and decoding said compared digital signals,
- wherein said comparators are alternately connected to said first pair of said first power supply line and said first ground line and said second pair of said second power supply line and said second ground line so that no interference between said different power supply lines and between said different ground lines appears through any noise generated on any of said comparators.

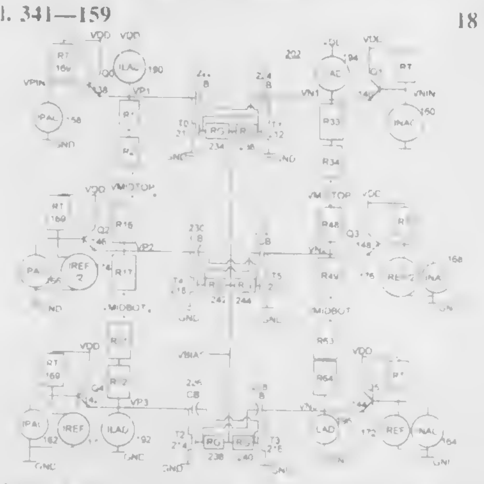
5,736,952
CURRENT BOOST FOR DIFFERENTIAL FLASH ANALOG TO DIGITAL CONVERTER DRIVER

Robert Andrew Kertis, and Joe Martin Poss, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 9, 1996, Ser. No. 728,043

Int. Cl.^{6} H03M *1/36*

U.S. Cl. 341—159 **18 Claims**



1. A driver section for a high speed differential analog to digital converter (ADC) comprising:
- a pair of series connected resistor ladders;
- a positive phase and negative phase emitter follower transistor pair connected to said pair of series connected resistor ladders; each said positive phase and negative phase emitter follower transistor having a collector connected to a supply voltage and having an emitter coupled to a respective one of said pair of series connected resistor ladders;
- a respective positive phase and negative phase AC current source driving the base of said respective positive phase and negative phase emitter follower transistor;
- a reference DC current source coupled to the base of each said positive phase and negative phase emitter follower transistors for determining a range of the ADC; and
- biasing means coupled to said emitter follower transistor pair comprising a current source transistor pair; a first transistor of said current source transistor pair for supplying current to said positive phase emitter follower transistor and a second transistor of said current source transistor pair for supplying current to said negative phase emitter follower transistor, said first transistor having a control node capacitively coupled to the emitter of said negative phase emitter follower transistor and said second transistor having a control node capacitively coupled to the emitter of said positive phase emitter follower transistor.

5,736,953
A/D CONVERTER HAVING A REDUCED RESPONSE TIME AND REDUCED POWER CONSUMPTION

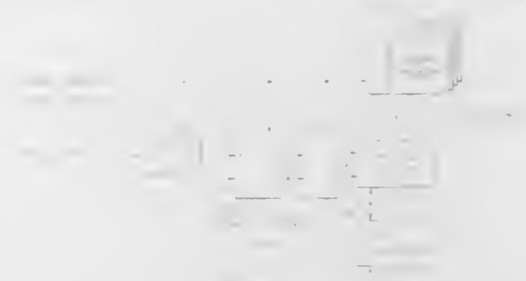
Motoi Yamaguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 15, 1996, Ser. No. 616,353

Claims priority, application Japan, Mar. 17, 1995, 7-086130

Int. Cl.^{6} H03M *1/40*

U.S. Cl. 341—163 **18 Claims**



1. An A/D converter comprising a sample-and-hold circuit for sampling-and-holding an analog input signal to generate a first signal for each conversion cycle, a comparator for periodically comparing said first signal with a sequence of second signals to thereby generate a sequence of result signals, a code generator for outputting a sequence of digital codes dependent on corresponding one of said result signals, said digital codes including an initial code and a final code during said each conversion cycle, a D/A converter for periodically converting said sequence of digital codes into a corresponding sequence of analog signals, said D/A converter supplying said corresponding sequence of analog signals as said sequence of second signals, an output section for outputting said final code as a final output of said A/D converter, a memory section for storing therein said final code for said each conversion cycle, and a control section for supplying said initial code to said code generator based on a final code of at least one previous conversion cycle stored in said memory section.

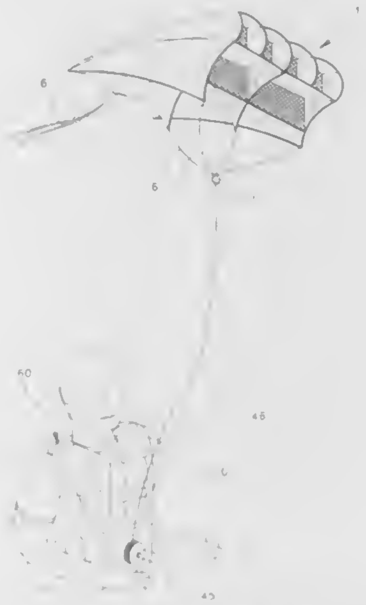
5,736,954
PARAFOIL-BORNE DISTRESS SIGNALS

Sidney E. Veazey, King George, Va., assignor to S E Ventures, Inc., King George, Va.

Division of Ser. No. 129,770, Sep. 30, 1993, Pat. No. 5,530,445. This application Mar. 4, 1996, Ser. No. 610,368

Int. Cl.^{6} H01Q *15/00;* **B63C** *9/08*

U.S. Cl. 342—8 **16 Claims**



15. A life jacket and aerial distress signal kit comprising a buoyant life jacket having a collar and sufficient compartments adapted for holding distress signal components comprising at least one parafoil with bridle and line for flying same and plurality of distress signal devices, a survival hood and a radar reflective distress flag which can be stowed in said collar, wherein said parafoil incorporates an omnidirectional radar reflector having three orthogonal surfaces, and wherein said radar reflector is incorporated in the structure of said parafoil.

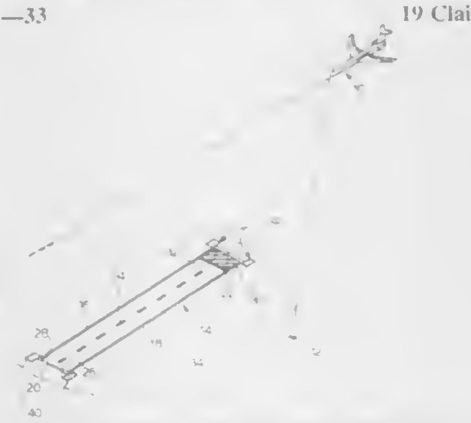
5,736,955
AIRCRAFT LANDING/TAXIING SYSTEM USING LACK OF REFLECTED RADAR SIGNALS TO DETERMINE LANDING/TAXIING AREA

Henry I. Roif, 143 NE. 3rd. Ave., Miami, Fla. 33132

Filed Apr. 10, 1996, Ser. No. 630,499

Int. Cl.^{6} G01S *13/06, 13/91*

U.S. Cl. 342—33 **19 Claims**



1. An aircraft landing/taxiing guidance system comprising:
- A) means on a ground-located landing/taxiing area for identifying certain areas of that landing/taxiing area to an aircraft, said means including means for absorbing radar signals positioned at preselected locations on the landing/taxiing area;
- B) radar signal emitting means on the aircraft for transmitting radar signals toward the landing/taxiing area during a landing/taxiing, transmitted signals incident on said means for absorbing radar signals being absorbed by said means for absorbing radar signals;
- C) signal processing means on the aircraft for receiving radar signals reflected back to the aircraft from the landing/taxiing area and translating the lack of signals associated with the signals which have been absorbed by said means for absorbing radar signals into a perspective depiction of the landing/taxiing area, said signal processing means including means for changing the perspective depiction as the position and orientation of the aircraft changes with respect to the landing/taxiing area; and
- D) display means on the aircraft connected to said signal processing means for displaying the perspective depiction.

5,736,956
UNLOCKED W-BAND RECEIVER WITH COHERENT FEATURES

Thomas A. Kennedy, Manhattan Beach; Kapriel V. Kirkorian, Agoura, and Robert A. Rosen, Agoura Hills, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Jun. 4, 1996, Ser. No. 660,654

Int. Cl.^{6} G01S *13/00*

U.S. Cl. 342—90 **6 Claims**

1. A coherent W-band radar receiver that processes pairs of sum and difference pulses reflected from a target, said receiver comprising
- a scanning antenna having a predetermined scan pattern for sequentially receiving the pairs of sum and difference pulses reflected from a target,
- an unlocked voltage controlled oscillator,
- a local oscillator,

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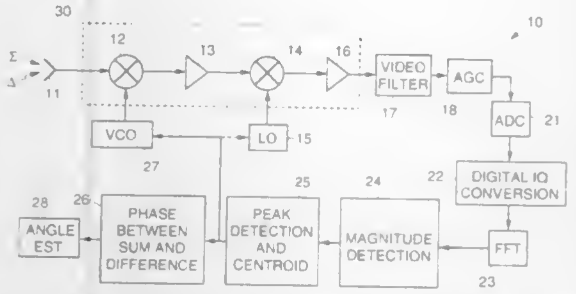
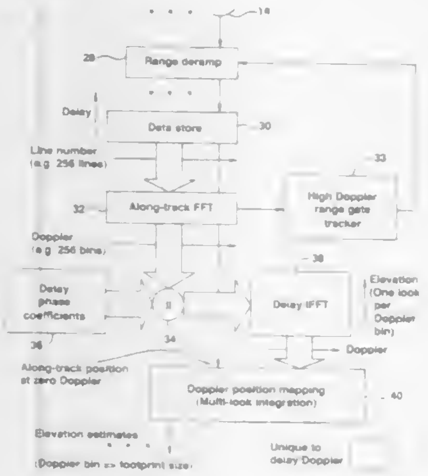


- a downconverter for downconverting the received pairs of sum and difference pulses into corresponding video signals;
- an analog-to-digital converter coupled to the automatic gain circuit for digitizing the video signals;
- a digital IQ conversion circuit coupled to the analog-to-digital converter for generating complex samples of the sum and difference channel signals;
- sum and difference fast Fourier transforms coupled to the digital IQ conversion circuit for respectively generating sum and difference output signals;
- a magnitude detector coupled to the sum and difference fast Fourier transforms for generating a voltage frequency control output signal that is selectively coupled to the unlocked voltage controlled oscillator or local oscillator and is used to control its frequency;
- a peak detection and centroid circuit coupled to the magnitude detector for determining the frequency offset of the transmitter from the bistatic unlocked voltage controlled oscillator center frequency;
- a phase determination circuit coupled to the peak detection and centroid circuit for determining the phase between the sum and difference signals; and
- an angle estimation circuit coupled to the phase determination circuit for estimating the offset of the null from the center of a scan pattern produced by the antenna using the magnitude and phase of the processed sum and difference pulses and a predetermined null location algorithm.

5,736,957
DELAY COMPENSATED DOPPLER RADAR ALTIMETER

Russell Keith Raney, Arnold, Md., assignor to The Johns Hopkins University, Baltimore, Md.

Filed May 28, 1996, Ser. No. 654,444
Int. Cl.⁶ G01S *13/08*
U.S. Cl. 342—99 **17 Claims**


14
28
Range deramp
Delay
Data store
30
Line number (e.g. 256 lines)
33
32
Along-track FFT
High Doppler range gate tracker
Doppler (e.g. 256 bins)
38
Delay phase coefficients
Delay IFFT
Elevation (One look per Doppler bin)
36
34
Doppler
Along-track position at zero Doppler
Doppler position mapping (Multi-look integration)
40
Elevation estimates
(Doppler bin => footprint size)
Unique to delay Doppler

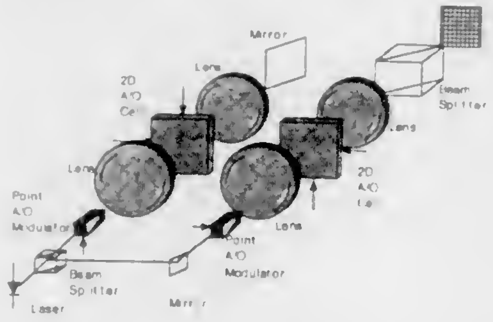
1 A delay compensated Doppler radar altimeter for determining the elevation of successive ground scatterers scanned from an above-ground moving platform having when in motion an along-track direction relative to the scatterers, said altimeter comprising.

- means for providing a downwardly directed illuminating wavefront,
- means for receiving reflected signals from the scatterers returned to the altimeter;
- means for coherently processing the returned signals;
- means for introducing a range curvature correction in said coherently processing means;
- means for converting radar range to elevation for the scatterers located within the region under illumination; and
- means for combining the ranges measured for each of the scatterers over an illumination history.

5,736,958
IMAGE SYNTHESIS USING TIME SEQUENTIAL HOLOGRAPHY

Terry M. Turpin, Columbia, Md., assignor to Essex Corporation, Columbia, Md.

Continuation of Ser. No. 376,415, Jan. 23, 1995, abandoned, which is a continuation-in-part of Ser. No. 32,696, Mar. 17, 1996, Pat. No. 5,384,573, which is a continuation of Ser. No. 811,903, Dec. 20, 1991, abandoned, which is a continuation-in-part of Ser. No. 604,255, Oct. 29, 1990, Pat. No. 5,079,555.
This application Apr. 15, 1997, Ser. No. 839,705
Int. Cl.⁶ G01S *13/89;* **A61B** *5/055;* **G06F** *3/00;15/62*
U.S. Cl. 342—179 **8 Claims**



Symetrical Mach Zehnder InSyn

1 A system for generating an image of an object, the object being defined by a plurality of basis functions, each of the plurality of basis functions comprising a plurality of measurable parameters, the system comprising:

- image synthesis means for generating a reconstructed image of the object using measured parameters of the basis functions, wherein the image synthesis means defines a frequency plane, a lens plane and an image plane, the planes being in mutually spaced, substantially parallel relationship, and wherein the image synthesis means comprises,
- beam generator means for generating a collimated beam defining an amplitude and a phase,
- beam splitting means for dividing the collimated beam into a first beam and a second beam, each beam passing through a separate modulation and deflection means comprising
- amplitude modulation means for modulating the amplitude of the first beam,
- deflection means driven with a plurality of chirp signals for deflecting the first beam in at least two substantially perpendicular directions,
- focusing lens means for focusing the deflected first beam to form a first light source image substantially at the frequency plane,
- amplitude and phase modulation means for modulating the amplitude and phase of the second beam,
- deflection means driven with a plurality of chirp signals for deflecting the second beam in at least two substantially perpendicular directions, the at least two substantially perpendicular directions of the deflected second beam being substantially opposite to the at least two substantially perpendicular directions of the deflected first beam,
- curvature lens means for focusing the phase modulated second beam to form a second light source image substantially near the frequency plane, and
- transform lens means located substantially at the lens plane for recollimating each deflected beam into a plane wave traveling at an angle determined by the deflection means,
- means for directing the beams onto the image plane, whereby the first beam and the second beam produce a plurality of interference fringes in the image plane, and photosensing means for detecting the interference fringes in the image plane

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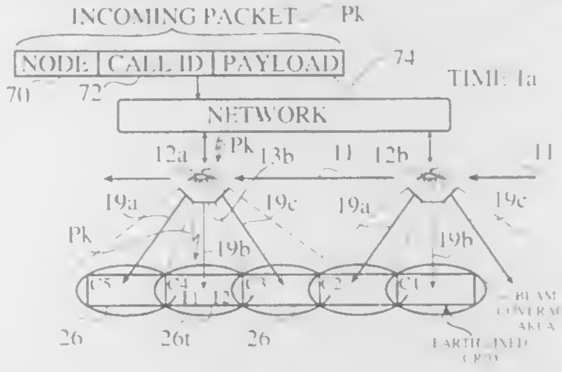
5,736,959
EARTH-FIXED CELL BEAM MANAGEMENT FOR SATELLITE COMMUNICATION SYSTEM USING DIELECTIC LENS-FOCUSED SCANNING BEAM ANTENNAS

David Palmer Patterson, Bellevue, Wash., and Mark Alan Sturza, Woodland Hills, Calif., assignors to Teledesic Corporation, Kirkland, Wash.

Continuation-in-part of Ser. No. 88,714, Jul. 8, 1993, Pat. No. 5,408,237, Ser. No. 203,140, Feb. 28, 1994, abandoned, and Ser. No. 292,148, Aug. 17, 1994, abandoned, which is a continuation-in-part of Ser. No. 88,714, which is a continuation-in-part of Ser. No. 790,318, Nov. 8, 1991, abandoned, said Ser. No. 203,140 is a continuation-in-part of Ser. No. 783,754, Oct. 28, 1991, abandoned. This application Apr. 17, 1995, Ser. No. 423,677
Int. Cl.⁶ H04B *7/185;* **H01Q** *3/22,* **H04M** *9/00*
U.S. Cl. 342—354 **11 Claims**



1 A method for allocating a plurality of beams (**19**) transmitted from and received at positions in Earth orbit for communicating with a plurality of portable (P), mobile (M) and fixed (F) terminals and gateways (G) comprising the steps of

- forming a plurality of footprints (**16**) using a plurality of electronically steered antenna elements (**13***a*, **13***b*, **13***c* & **140**) which generate said plurality of beams (**19**).
  - said plurality of antenna elements (**13***a*, **13***b*, **13***c* & **140**) being carried onboard a plurality of satellites (**12**) flying in orbits (**11**) below geosynchronous altitude:
  - one of said plurality of satellites (**12**) including a first serving satellite (**12***a*) and a second satellite (**12***b*) positioned next to said first serving satellite (**12***a*).
  - said plurality of footprints (**16**) illuminating portions of an Earth-fixed grid (**20**) with said plurality of beams (**19**);
  - said plurality of beams (**19**) being capable of conveying a plurality of packets (Pk).
  - said Earth-fixed grid (**20**) defining a plurality of Earth fixed supercells (**24**).
  - said plurality of Earth-fixed supercells (**24**) including a plurality of Earth fixed cells (**26**);
  - said plurality of Earth fixed cells (**26**) including a target Earth fixed cell (**26***t*).
- scanning electronically, by using a sequence of individual antenna elements (**13***a*, **13***b*, **13***c* & **140**), each beam (**19**) of said plurality of beams (**19**) to the centroid of an Earth-fixed cell (**26**), which said Earth fixed cell (**26**) is nearest to a nominal non scanned position of said beam (**19**).
- addressing each said Earth fixed cell (**26**) of said plurality of Earth-fixed cells (**26**) by shaping and focusing said beam (**19**) to illuminate said Earth fixed cell (**26**), said illuminated Earth fixed cell (**26**) being said target Earth-fixed cell (**26***t*).
- tracking a target Earth-fixed cell (**26***t*) by using said sequence of individual antenna elements (**13***a*, **13***b*, **13***c* & **140**) aboard said first serving satellite (**12***a*) so that said plurality of beams (**19**) are maintained over said target Earth-fixed cell (**26***t*) as long as one of said plurality of individual antenna elements (**13***a*, **13***b*, **13***c* & **140**) aboard said first serving satellite (**12***a*) is capable of serving said target Earth-fixed cell (**26***t*);
- measuring the distance from said first serving satellite (**12***a*) which is currently serving said target Earth-fixed cell (**26***t*) to the centroid of said target Earth-fixed cell (**26***t*),
- measuring the distance from said second satellite (**12***b*) which is the next closest satellite to said target Earth-fixed cell (**26***t*) compared to said first serving satellite (**1 2***a*) to the centroid of said target Earth-fixed cell (**26***t*); and
- switching responsibility for providing said plurality of beams (**19**) to said target Earth-fixed cell (**26***t*) from said first serving satellite (**12***a*) to said second next satellite (**12***b*) when the distance from said second next satellite (**12***b*) to the centroid of said target Earth-fixed cell (**26***t*) is less than the distance from said first serving satellite (**12***a*) to the centroid of said target Earth-fixed cell (**26***t*).

5,736,960
ATOMIC CLOCK AUGMENTED GLOBAL POSITIONING SYSTEM RECEIVERS AND GLOBAL POSITIONING SYSTEM INCORPORATING SAME

John H. Murphy, Churchill Boro, Pa., and Trent A. Skidmore, Athens, Ohio, assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Sep. 19, 1995, Ser. No. 530,553
Int. Cl.⁶ H04B *7/185* **G01S** *5/02*
U.S. Cl. 342—357 **14 Claims**

1 A global positioning system comprising

- a plurality of satellites each repetitively transmitting signals indicating three dimensional satellite position information and time information,
- master station means for providing an absolute time reference and position reference to said satellites
- a user station comprising a precision clock initially set by a precision time signal to a precise time relative to the absolute time reference, means for receiving said signals generated by at least three of said satellites, and processing means for repetitively generating a user position signal representing a three dimensional position of said user station using satellite position information from at least three satellites and time information from said precision clock after said precision clock is initially set, and
- synchronizing means comprising reference means at a fixed, known location generating said precision time signal from said signals transmitted by at least three of said satellites and means transmitting said precision time signal to said user station to provide the initial clock setting when the user station is located at a precisely known position relative to said fixed, known position of said synchronizing means, said user station further including means for moving from said precisely known position while said processing means continues to repetitively generate said user position signal in response to

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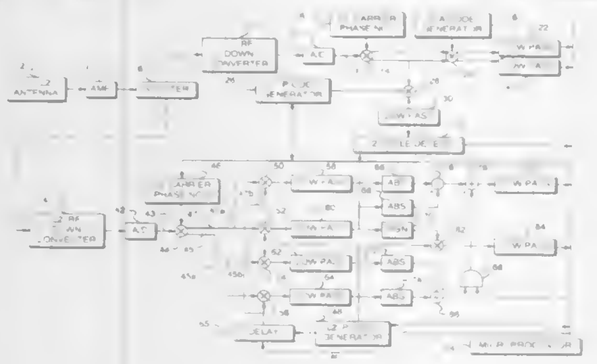
time information from the precision clock and position information from the satellites.

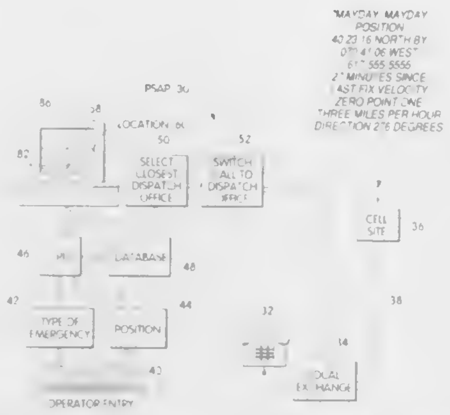
5,736,961
DUAL FREQUENCY GLOBAL POSITIONING SYSTEM
Patrick C. Fenton, and Walter D. Petersen, both of Calgary, Canada, assignors to NovAtel, Inc., Calgary, Canada
Filed Oct. 6, 1995, Ser. No. 540,076
Int. Cl.^{6} H04B *7/185;* **G01S** *5/02;3/16*
U.S. Cl. 342—357 **20 Claims**



1. A global position sensing receiver for receiving over L1 and L2 bands, respectively, L1 signals that are modulated both by a C/A-code and a P-code that is, at times, encrypted and L2 signals that are modulated by the P-code that is, at times, encrypted, the receiver including:

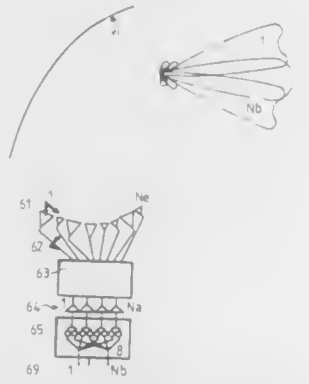
- A. means for producing a locally-generated version of the C/A code that is aligned with the C/A-code in the received L1 signal;
- B. an L1 P-code generator for producing a locally-generated version of the P-code that is phase-locked to the locally generated version of the C/A-code;
- C. an L2 carrier angle estimation means for producing an estimate of the phase angle of an L2 carrier.
- D. an L2 P-code generator for producing a locally-generated version of the P-code;
- E. a controller for controlling the operations of the L2 P-code generator, the controller receiving signals associated with a correlation between the locally-generated P-code and the received L2 signals, and adjusting the L2 P-code generator to align the locally-generated P-code with the L2 signals; and
- F. a detector for resolving a ½-cycle ambiguity in tracking the L2 P-code, the detector including:
  - i. a majority vote circuit for determining if a majority of bits of the received L2 P-code match or do not match corresponding bits of the received L1 P-code, and
  - ii. means for adjusting the carrier angle estimation means if the majority vote circuit determines that a majority of the L1 and L2 bits do not match.

5,736,962
TIME SINCE LAST FIX ANNUNCIATION SYSTEM FOR GPS-BASED WIRELESS RESCUE SYSTEM
Robert K. Tendler, Chestnut Hill, Mass., assignor to Tendler Cellular, Inc., Boston, Mass.
Filed Feb. 28, 1996, Ser. No. 608,483
Int. Cl.^{6} H04B *7/185,* **G01S** *5/02*
U.S. Cl. 342—357 **7 Claims**



1. In a wireless location system in which a wireless phone is provided with a GPS receiver for receiving GPS satellite signals and means for annunciating the position derived from said GPS receiver and for transmitting said annunciated position to a remote location by said wireless phone, means at said wireless phone for ascertaining when in time said GPS receiver acquires a position fix from said GPS satellites, means for ascertaining present time, means for calculating time since said fix, means for annunciating said time since said fix, and means for transmitting said annunciated time since said fix to said remote location with said position annunciation such that the validity of said annunciated position can be ascertained at said remote location.

5,736,963
FEED DEVICE FOR A MULTISOURCE AND MULTIBEAM ANTENNA
Antoine Roederer, Noordwijk, Netherlands, and Simon John Stirland, Hitchin, Great Britain, assignors to Agence Spatiale Europeenne, Paris, France
Filed Mar. 19, 1996, Ser. No. 616,487
Claims priority, application France, Mar. 20, 1995, 95 03202
Int. Cl.^{6} H01Q *3/22*
U.S. Cl. 342—373 **28 Claims**



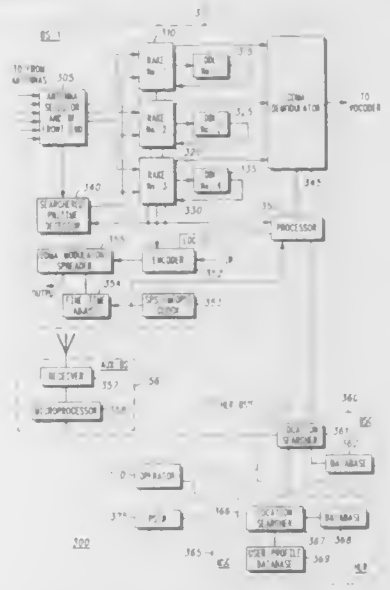
1. A feed device for a multisource semiactive antenna with multiple beams, of the type successively including:

- a) a low-level beam shaper device splitting Nb beam input signals as a function of desired coverage characteristics and combining them, after phase shifting, to form Na output signals on its Na outputs, said beam shaper device having a nonorthogonal transfer matrix,
- b) Na amplifier modules, amplifying, in transmission mode, the Na output signals,
- c) an output power splitter, arranged between the Na amplifier modules and Ne radiating elements, for receiving Na input signals having Nb distributions with Nb input excitation vectors from said Na amplifier modules and for processing the Na input signals both in power and in phase to produce Ne output signals having Nb distributions with Nb output excitation vectors, said output power splitter being configured such that each of the Ne radiating elements is capable of receiving power from each of the Na input signals, said output power splitter defining an orthogonal transfer matrix

wherein Nb≦Na≦Ne, and wherein the orthogonal transfer function of the power splitter is such that said power splitter transforms the Nb distributions at the input of the power splitter, in which the amplitude of the Na input signals is substantially equal for each of the Nb distributions, and in

which the phase of the Na input signals satisfies at least the condition of equality of products, taken in pairs, of the Nb excitation vectors at the input of the power splitter, and of scalar products, taken in pairs, of the corresponding Nb excitation vectors at the output of said power splitter, into the Nb distributions at the output of said power splitter.

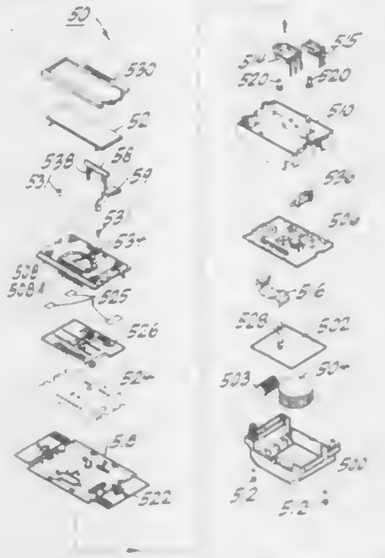
5,736,964
METHOD AND APPARATUS FOR LOCATION FINDING IN A CDMA SYSTEM
Amitava Ghosh, Fort Worth; John Douglas Reed, Arlington; Walter Joseph Rozanski, Jr., Hurst, all of Tex., and Kevin Andrew Buford, Wheaton, Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 436,760, May 8, 1995, Pat. No. 5,508,708. This application Feb. 16, 1996, Ser. No. 601,315
Int. Cl.^{6} G01S *3/02*
U.S. Cl. 342—457 **15 Claims**



1. A method for determining the location of a subscriber unit in a wireless communication system, the method comprising the steps of:

- sending a first signal including a location request from a first base station to the subscriber unit;
- receiving a second signal including a response message from the subscriber unit, the response message comprising a receive time of the first signal and a transmit time of the second signal;
- receiving a predetermined symbol associated with the second signal at the first base station and a second base station and determining a first and a second receive time of the predetermined symbol at the first and second base station, respectively; and
- determining a location of the subscriber unit from the receive time of the first signal by the subscriber unit, the transmit time of the second signal by the subscriber unit, the first and second receive times of the predetermined symbol, and from predetermined information about the first and second base stations.

5,736,965
COMPACT RADIO FREQUENCY TRANSMITTING AND RECEIVING ANTENNA AND CONTROL DEVICE EMPLOYING SAME
Donald R. Mosebrook, Bethlehem, Pa.; Richard C. Compton, Ithaca, N.Y., and Joel S. Spira, Coopersburg, Pa., assignors to Lutron Electronics Co. Inc., Coopersburg, Pa.
Filed Feb. 7, 1996, Ser. No. 598,239
Int. Cl.^{6} H01Q *1/24*
U.S. Cl. 343—702 **20 Claims**



1. A radio frequency antenna for use with a wall mounted transmitter and/or receiver for receiving and/or transmitting signals adapted to control a control device and/or indicate status of the control device, the antenna comprising:

- an insulating substrate sized to fit within an area defined by a faceplate sized to cover an outwardly facing opening of an electrical wallbox, the substrate having sides and edges,
- conductors disposed on both sides of the substrate forming a capacitive component,
- at least one of the conductors adapted to radiate radio frequency energy into the environment, said one conductor being electrically coupled to the other conductor, said one conductor having a pattern such that the conductor is absent in areas so as to provide the antenna with an inductive component,
- the at least one conductor further providing a connection to the transmitter and/or receiver, and
- the antenna providing a near field which is substantially at the edges and which provides insubstantial electromagnetic field coupling to an electronic circuit disposed adjacent the antenna connected to the antenna and further providing a radiated field substantially isotropic in a far field.

5,736,966
ADJUSTABLE MICROWAVE ANTENNA
Bernard Jozef Reits, Hengelo, Netherlands, assignor to Hollandse Signaalapparaten B.V., Hengelo, Netherlands
Continuation of Ser. No. 425,644, Apr. 20, 1995, Pat. No. 5,585,812. This application Aug. 1, 1996, Ser. No. 690,947
Claims priority, application Netherlands, Apr. 29, 1994, 9400700; May 26, 1994, 9400863
Int. Cl.^{6} H01Q *15/02, 15/23*
U.S. Cl. 343—910 **11 Claims**

1. A microwave antenna which generates in reflection an antenna beam with adjustable parameters, comprising:

- an active microwave radiation source,
- a first plate comprising a semiconductor material,
- first display means for writing a first set of Fresnel zones into the first plate,
- a second plate comprising a semiconducting material, and

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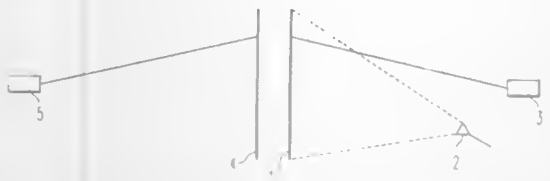


second display means for writing a second set of Fresnel zones into the second plate, wherein the second set of Fresnel zones is at least substantially complementary to the first set of Fresnel zones, and respective Fresnel zones in said second set are written with a width that is in a range of 60% to 80% of a calculated width based on a distance between the microwave radiation source and the second plate in which said second set of Fresnel zones is written.

5,736,967

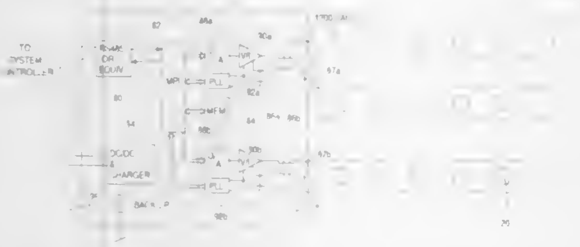
ARTICLE-INFORMATION DISPLAY SYSTEM USING ELECTRONICALLY CONTROLLED TAGS

Kenneth W. Kayser, St. Charles, and W. Richard Frederick, Mundelein, both of Ill., assignors to Kayser Ventures, Ltd., Geneva, Ill.

Continuation-in-part of Ser. No. 309,934, Sep. 21, 1994, which is a continuation-in-part of Ser. No. 116,468, Sep. 3, 1993, Pat. No. 5,537,126. This application Mar. 3, 1995, Ser. No. 398,297

Int. Cl.⁶ G09G *5/00*

U.S. Cl. 345—1 **34 Claims**



1. A product information display system associated with a product display or storage establishment having multiple product display or storage shelves, comprising:

a plurality of electronic display tags mounted adjacent said product display or storage areas;

a controller circuit for providing information signals for a multiplicity of the electronic display tags;

an electrical power supply connected to said controller circuit for supplying a-c power for a multiplicity of the electronic display tags;

a modulator connected to said controller circuit receiving the power signal and the information signals for modulating the power signal with the information signals into an information/power signal.

a main distribution loop connected to said modulator for carrying the information/power signal;

multiple branch distribution loops magnetically coupled to said main distribution loop for supplying the information/power signal to said branch distribution loops, at least a portion of each of said branch distribution loops including an electrical conductor separate from the shelf and extending along the front edge of the shelf in close proximity to a selected group of said electronic display tags for supplying the information/power signal to those electronic display tags.

a pick-up coil in each electronic display tag inductively coupled to said branch distribution loop for receiving the information/power signal.

a demodulator in each electronic display tag for demodulating the information/power signal into its power signal and information signals components; and

a display circuit in each electronic display tag for generating a display in response to the information signals derived from the demodulator, said display circuit powered by the power signal derived from the demodulator.

5,736,968

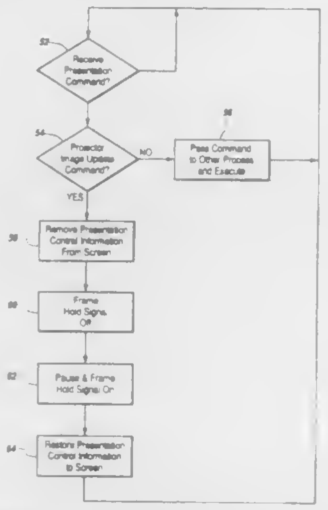
COMPUTER CONTROLLED PRESENTATION SYSTEM

Alexander L. Tsakiris, Dallas, Tex., assignor to Mind Path Technologies, Inc., Dallas, Tex.

Filed Feb. 3, 1995, Ser. No. 385,997

Int. Cl.⁶ G09G *5/00*

U.S. Cl. 345—2 **9 Claims**


52
Receive Presentation Command?
54
Projector Image Update Command?
NO
56
Pass Command to Other Process and Execute
YES
58
Remove Presentation Control Information From Screen
60
Frame Hold Signal Off
62
Pause & Frame Hold Signal On
64
Restore Presentation Control Information to Screen

1. An apparatus for controlling presentation of visual graphics to an audience comprising:

a video cable for connection to a video output port of a computer for transmitting a first video signal generated by the computer;

a data communications cable for connection to an external data communications port of the computer;

a video buffer connected to the video cable for converting and storing a frame of an image carried by the video signal on the cable, the video buffer adapted to capture and hold the image frame in response to receiving a predetermined control signal on the data communications cable from the computer;

means for converting the image frame stored by the buffer to a second video signal.

means for removing from the first video signal presentation control information in response to an update command signal receiving from a presenter.

means for generating the predetermined control signal for transmission to the video buffer to holding in the video buffer a next frame transmitted on the first video signal; and

means for restoring to the first video signal the presentation control information after the video buffer captures and hold the next frame

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5,736,969

THREE-DIMENSIONAL IMAGE REPRODUCING APPARATUS

Kaeko Kuga, and Takuzo Uemura, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Nov. 29, 1994, Ser. No. 350,002

Claims priority, application Japan, Nov. 30, 1993, 5-299290

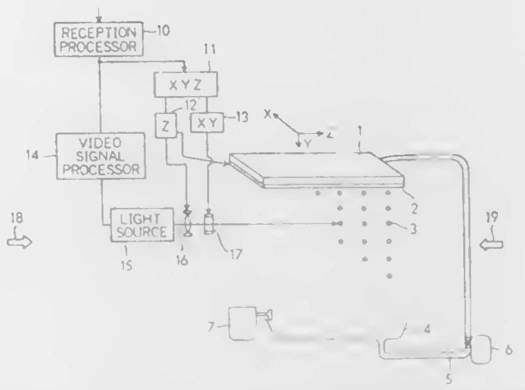
Int. Cl.⁶ G09G *5/00*

U.S. Cl. 345—6 **3 Claims**

1. A three-dimensional image reproducing apparatus comprising:

signal processing means for receiving and processing a video signal including three-dimensional information including X information and Y information constituting a plane and Z information constituting a depth;

particle releasing means for releasing a particle such that said particle falls down with respect to one line;



particle fall controlling means for changing a line, from which the particle falls, in a Z direction based on the Z information of the three-dimensional information;

light beam generating means for generating a light beam toward the falling particle based on a video signal;

scanning means for scanning the generated light beam in an X direction and in a Y direction; and

focal point controlling means for controlling a focal point of the light beam to move in the Z direction in synchronism with the change of the line from which the particle falls.

5,736,970

ACCELEROMETER METHOD AND APPARATUS FOR INTEGRAL DISPLAY AND CONTROL FUNCTIONS

Richard J. Bozeman, Jr., Dickinson, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 901,626, Jun. 19, 1992, Pat. No. 5,517,183. This application Nov. 16, 1994, Ser. No. 342,453

Int. Cl.⁶ G09G *3/04*

U.S. Cl. 345—35 **9 Claims**

1. Display apparatus responsive to a transducer for detecting mechanical vibration and outputting an analog signal in response thereto, said display apparatus comprising:

a transducer electrical output connection for receiving a transducer signal;

a display driver for generating digital signals and applying said digital signals to a plurality of output lines, said digital signals being responsive to the amplitude of said analog transducer signal;

a bar graph display connected to said plurality of output lines, said bar graph display having a plurality of optical display segments which are activatable in response to said digital signals;

an output connector having a digital trip point signal contact;

a plurality of switches for selectively interconnecting said output connector and said display driver, at least one of said switches having a first contact in common with said output connector digital trip point signal contact, said at least one of said switches having a second contract in common with a corresponding one of said plurality of output lines of said display driver, said at least one of said switches including means for selectively connecting said first and second contacts in common with each other; and

means for optically and electrically isolating said trip point control signal.

5,736,971

METHOD AND APPARATUS FOR INCREASING RESOLUTION OF A COMPUTER GRAPHICS DISPLAY

Satoru Shirai, Nagoya, Japan, assignor to Melco Inc., Nagoya, Japan

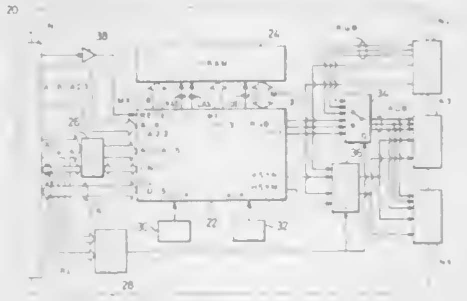
PCT No. PCT/JP94/00707, § 371 Date Dec. 22, 1994, § 102(e) Date Dec. 22, 1994, PCT Pub. No. WO94/25953, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 4, 1994, Ser. No. 360,826

Claims priority, application Japan, Apr. 27, 1993, 5-125440

Int. Cl.⁶ E09G *1/16*

U.S. Cl. 345—127 **9 Claims**



1. A graphic display controller device for increasing the apparent resolution of an external display device having a designated resolution having a designated number of lines and a designated number of pixels per line associated therewith, the graphic display controller device being arranged to output a video signal containing display information for a number of pixels, a horizontal synchronizing signal and a vertical synchronizing signal to the external display device wherein the number of pixels of display information in the video signal is larger than a number of designated pixels in said external display device, said graphics display controller device comprising:

an initial frequency presetting means for presetting a frequency of one of said horizontal synchronizing signal and said vertical synchronizing signal to a initial value which corresponds to the designated number of lines or the designated number of pixels per line wherein the initial frequency presetting means synchronizes said external display device in at initial display state; and

a preset frequency modification means for gradually modifying said preset frequency to a target value corresponding to a number of lines or pixels per line which is larger than the designated number of lines or the designated number of pixels per line associated with said external display device.

5,736,972

LIQUID CRYSTAL DISPLAY APPARATUS CAPABLE OF DISPLAYING A COMPLETE PICTURE IN RESPONSE TO AN INSUFFICIENT VIDEO SIGNAL

Hirohisa Kitagishi, and Kazunori Kodama, both of Osaka, Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 11, 1995, Ser. No. 500,755

Claims priority, application Japan, Jul. 15, 1994, 6-163827; Jul. 15, 1994, 6-163828

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—99 **5 Claims**

1. A liquid crystal display apparatus for displaying a picture on a liquid crystal panel in response to a video signal having a prescribed number of data in one period of a synchronizing signal, comprising:

storage means for storing data of said video signal therein, and

read signal generating means for supplying, to said storage means, a read clock signal for reading data from said storage

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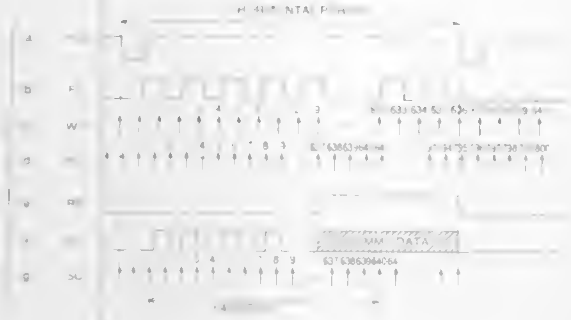
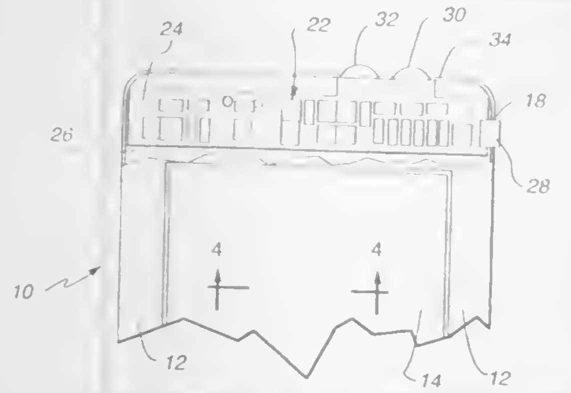


means for said one period, and a control signal for reading dummy data from said storage means from a time when the number of data read from said storage means for said one period exceeds the number of data of said video signal in said one period until said one period is completed.

5,736,973
INTEGRATED BACKLIGHT DISPLAY SYSTEM FOR A PERSONAL DIGITAL ASSISTANT

Tim Godfrey, Overland Park, and David C. Hughes, Jr., Lawrence, both of Kans., assignors to Digital Ocean, Inc., Lenexa, Kans.

Filed Nov. 1, 1995, Ser. No. 551,476
Int. Cl.⁶ G09G *3/28*
U.S. Cl. 345—102 **20 Claims**



1. A backlighting system for use in a personal digital assistant (PDA) of the type having a liquid crystal display (LCD) touch and display screen and providing an elongated interior space within the PDA to contain a stylus normally used for touching the display screen, comprising:

a backlight driver circuit constructed on a printed circuit board (PCB) having a predetermined shape to fit within the elongated space normally occupied by the stylus; and

an electroluminescent film energized by the backlight driver circuit and adapted to be connected to the screen.

5,736,974
METHOD AND APPARATUS FOR IMPROVING VISIBILITY AND SELECTABILITY OF ICONS

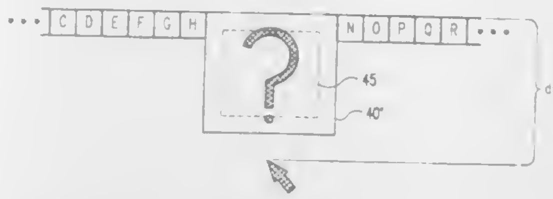
Edwin Joseph Selker, Palo Alto, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 390,323, Feb. 17, 1995, Pat. No. 5,565,888. This application Apr. 1, 1996, Ser. No. 625,829
Int. Cl.⁶ G09G *5/08*
U.S. Cl. 345—146 **17 Claims**

1. A method for enhancing a visual feature of a display of a menu item in an inverse relation to a distance between the menu item and a cursor image, including the steps of:

establishing a location of said menu item on a display,

detecting a location of the cursor image on the display.



detecting a distance between said location of said menu item and said location of said cursor image;

assigning a value to an attribute data representing said visual feature, said assigned value being from a group of at least three different values, said assigned value being in a generally inverse relation to said detected distance;

displaying a menu item in accordance with said attribute data value assigned by said assigning step, so that the visual feature of the displayed menu item corresponding to said attribute is displayed in a manner selected from a group of at least three manners, each of said at least three manners corresponding to one of said group of at least three different values

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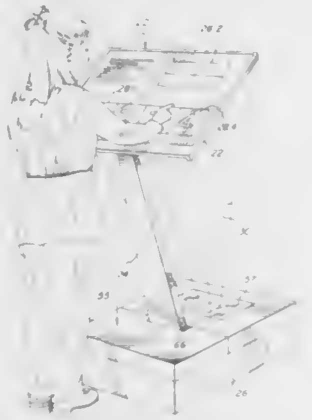
5,736,975
INTERACTIVE VIDEO DISPLAY

Donald M. Lunetta, Chappaqua, N.Y., assignor to Interactive Sales System, Peekskill, N.Y.

Filed Feb. 2, 1996, Ser. No. 595,741
Int. Cl.⁶ G09G *5/00*
U.S. Cl. 345—156 **7 Claims**



1. In an interactive display system having an electronic scale to generate touch signals representative of the occurrence and location of a person's touch of a display screen mounted on the touch position sensor and wherein a playback device produces video signals for display on the display screen in response to the touch signals, the improvement comprising:

a housing having an optical opening, with said touch position sensor being mounted to said housing,

projection means, mounted to the housing, and responsive to the video signals for producing an optical beam representative of the video signals, with the optical beam directed to extend upwardly through the optical opening in the housing;

a pedestal mounted on the touch position sensor and extending upwardly therefrom;

a rear projection screen having a rear and front surface; said rear projection screen being mounted on the pedestal with said rear surface thereof in the path of said upwardly directed optical beam emanating from the housing opening, and with the pedestal height selected to enable a person to touch said front surface to cause the generation of said touch signals from the touch position sensor

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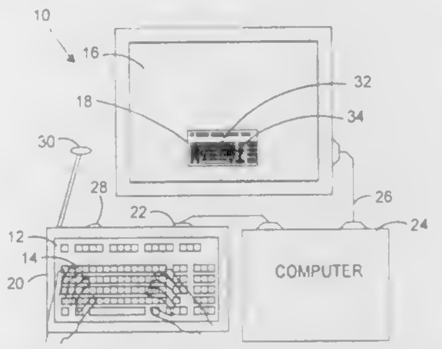
5,736,976
COMPUTER DATA ENTRY APPARATUS WITH HAND MOTION SENSING AND MONITORING

Nina T. Cheung, P.O. Box 20461, San Jose, Calif. 95160

Filed Feb. 13, 1995, Ser. No. 389,931
Int. Cl.⁶ G09G *3/03*
U.S. Cl. 345—168 **18 Claims**



1. A keyboard apparatus for data entry to a computer or data processor, said keyboard apparatus comprising:

a keyboard includes a case, an assembly of character keys having a keypad and key caps with designated symbols and organized in a preset keypad layout pattern, a controller circuit including codes and encodement means for generating key stroke signals and coded data in response to manual operator actuation of said keys for data entry to the computer;

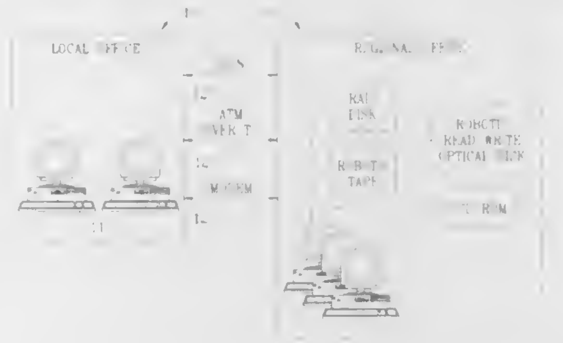
at least one data interface interconnecting the keyboard and the computer;

means for monitoring of hand motion including lateral motion and position of the operator's fingers on top of said keys and each individual key cap determines the operator's finger position related to each key cap and decodes it by detecting a change in field intensity in a field path to indicate which key it is, said monitoring means including means for indicating of said hand motion and position relative to a top surface of said keys for assisting of the operator to locate said keys before manual actuation.

5,736,977
VIDEO REAL ESTATE INFORMATION SERVICE

Robert Lee Hughes, Rowlett, Tex., assignor to E-Systems, Inc., Dallas, Tex.

Filed Apr. 26, 1995, Ser. No. 427,847
Int. Cl.⁶ G09B *3/00*
U.S. Cl. 345—326 **13 Claims**



1. A method for storing, viewing, and manipulating descriptions and visual images of commercial or residential real estate, comprising the steps of:

generating a plurality of digitized video images of selected real estate, each digitized video image depicting a view of a specified area of a real estate property with two or more of the digitized video images sequentially arranged to simulate a visual walkthrough of the property;

generating a verbal description of the features and characteristics for each area within and surrounding the real estate;

storing the digitized video images and the verbal descriptions in a computer data base;

displaying on a single display of a computer monitor the sequential digitized video images;

presenting the verbal descriptions simultaneously with the display of the digitized video images, and

manipulation by a user the verbal descriptions and the digitized video images to simulate a visual walkthrough

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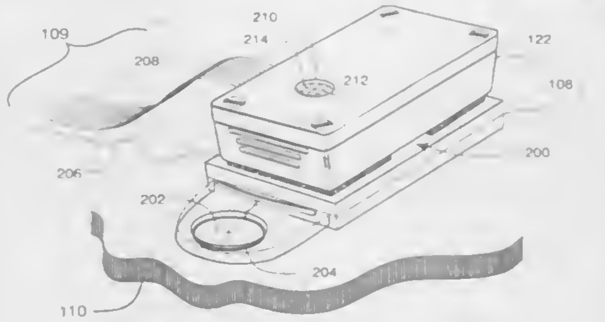
5,736,978
TACTILE GRAPHICS DISPLAY

Christopher J. Hasser, Darien, Conn., and Marvin R. Roark, St. Paris, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 26, 1995, Ser. No. 451,593
Int. Cl.⁶ G09G *5/00;* **G09B** *21/00*
U.S. Cl. 345—173 **20 Claims**



1. A computer lookthrough and virtual surface inclusive tactile method for communicating multi-dimensional graphic data to a sight impaired and hearing impaired human operator, said method comprising the steps of:

combining a computer data input function of a planar absolute position sensor assembly physically with a computer data output function of an operator finger-engageable, electrically energizable, unitary character, multiple pinned tactile display array to form a portable, bi-directional communication, data transducer device having operator provided mobility over an absolute position-determining-digitizer pad surface;

storing a bit map representation of said multi-dimensional graphic data in a computer memory having a memory location relating to each pixel point of said absolute position-determining digitizer pad surface according to a selected virtual surface-defining relationship.

accessing said computer bit map data representation in said computer memory data in response to operator induced absolute position changes of said portable, bi-directional communication, data transducer device across said absolute position-determining digitizer pad surface and said virtual surface, and

energizing accessed memory data-determined pixel elements of said multiple pinned tactile character display array, in graphic data-detailed tactile communication with said human operator, and in synchronism with movement and absolute positioning of said portable, bi-directional communication, data transducer device to absolute position-determining digitizer pad surface and virtual surface locations of graphic data presence in said memory.

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5,736,979

COORDINATE INPUT APPARATUS

Katsuyuki Kobayashi, Yokohama; Atsushi Tanaka, Kawasaki; Yuichiro Yoshimura, Kamakura; Kiyoshi Kaneko, and Masaki Tokioka, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

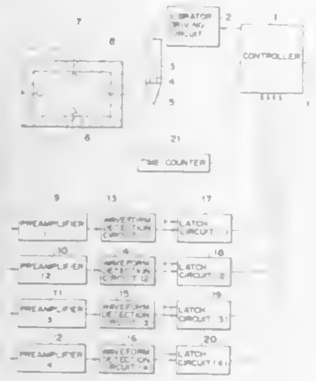
Continuation of Ser. No. 923,481, Aug. 3, 1992, abandoned.

This application Dec. 13, 1994, Ser. No. 355,437

Claims priority, application Japan, Aug. 5, 1991, 3-195181

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—177 **8 Claims**



1. A coordinate input apparatus comprising:

vibration generating means for generating vibration;

a vibration transferring member for transferring the vibration as a Lamb wave generated by said vibration generating means contacting the vibration transferring member;

vibration detecting means arranged in said vibration transferring member for detecting the Lamb wave transferred to said vibration transferring means;

measuring means for measuring an arrival time based only on phase velocity until the Lamb wave transferred to said vibration transferring member is detected by said vibration detecting means;

storing means for storing the arrival time measured by said measuring means;

distance deriving means for deriving a distance between said vibration generating means and said vibration detecting means on the basis of the arrival time measured by said measuring means and the phase velocity;

distance calculating means for add/subtracting a wavelength of the Lamb wave multiplied by an integer n to/from the distance derived by said distance deriving means;

position deriving means for deriving a coordinate position of said vibration generating means on the basis of the derived distance from said distance calculating means,

distance reverse calculating means for deriving the distance between said vibration generating means and said vibration detecting means by operating reverse calculations on the basis of the derived coordinate position from said position deriving means;

comparing means for comparing the distance derived from said distance calculating means with the distance derived from said distance reverse calculating means,

modifying means for modifying the distance derived from said distance calculating means by changing said integer n on the basis of the comparative result of said comparing means and modifying the distance with the arrival time stored in said storing means if the comparison result by said comparing means is incorrect; and

position re-deriving means for deriving the coordinate position of said vibration generating means again by said position deriving means on the basis of the modified distance by said modifying means.

5,736,980

COORDINATE INPUTTING APPARATUS WITH SHARED LINE COMBINATIONS OF POWER, POSITION AND SWITCH SIGNALS

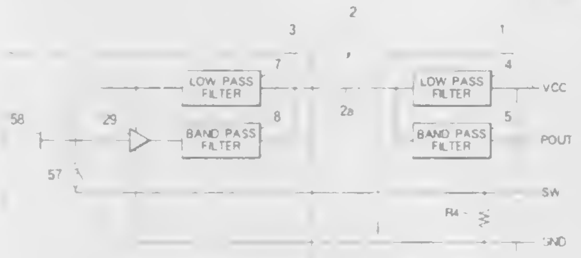
Shigeki Iguchi, Ikoma-gun; Katsumi Hirano, Tenri; Tomohiko Nishimura, Yamato-Koriyama; Kunio Hiromoto, Yamato-Koriyama, and Kazuyoshi Nomiya, Yamato-Koriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 13, 1995, Ser. No. 421,358

Claims priority, application Japan, Apr. 28, 1994, 6-092137; Apr. 28, 1994, 6-092312; May 23, 1994, 6-108174; Jul. 8, 1994, 6-157015

Int. Cl.^{6} G06F *3/033*

U.S. Cl. 345—179 **6 Claims**



1. A coordinate inputting apparatus comprising:

liquid crystal panel having a liquid crystal layer interposed between plural segment electrodes and plural common electrodes, said plural segment electrodes and plural common electrodes arranged perpendicular to each other;

a position indicator electrostatically coupled to said segment electrodes and said common electrodes in an indicated position for outputting a position information signal on a first signal line;

a switch arranged in the vicinity of an end tip of said position indicator and turned on and off by making the switch come in contact with said liquid crystal panel and separating this switch from said liquid crystal panel for outputting a signal indicating the state of said switch on said first signal line supplying power for said position indicator and said switch;

coordinate detector for detecting coordinates in said indicated position on the basis of an induced voltage induced in said position indicator and application timing of a scanning voltage applied to said segment electrodes and said common electrodes, including a separating circuit for separating each of said position information signal and said signal indicating the state of said switch from said first signal line; and

a cable for connecting said position indicator with said coordinate detector including signal lines of said first signal line and a second signal line connected to the ground.

5,736,981

DISPLAY CONTROL APPARATUS

Toshiyuki Nobutani, Yokohama; Masami Shimakura, Tokyo; Junichi Tanahashi, Yokohama; Kenichiro Ono, Kawasaki; Hajime Morimoto, Tokyo; Tatsuya Sakashita, Yokohama, and Eiichi Matsuzaki, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 115,029, Sep. 2, 1993, abandoned.

This application Sep. 6, 1996, Ser. No. 711,459

Claims priority, application Japan, Sep. 4, 1992, 4-237209; Sep. 7, 1992, 4-238427

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—185 **20 Claims**

1. A display control apparatus for a display device capable of updating a display state for a display element subjected to a change in display, comprising:

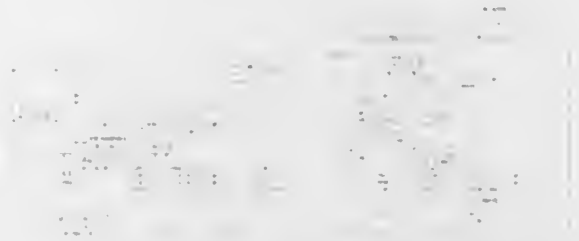
display data memory means for storing display data and a specific pattern in different memory areas;

a display controller capable of sequentially reading out the display data stored in said display data memory means and transferring the readout display data to the display device at a predetermined period and performing a partial rewrite operation of the display data stored in said display data memory means,

rewrite detecting means for detecting an address for accessing said display data memory means to cause said display controller to perform the partial rewrite operation;

specific pattern rewrite detecting means for detecting a rewrite operation of the specific pattern stored in said display data memory means; and

address generating means for, when said rewrite detecting means detects the address for accessing said display data memory means, generating a reading address of said display data memory means corresponding to the detected address, and when said specific pattern rewrite detecting means detects the rewrite operation of the specific pattern, generating a reading address of said display data memory means corresponding to a size of the specific pattern.



5,736,982

VIRTUAL SPACE APPARATUS WITH AVATARS AND SPEECH

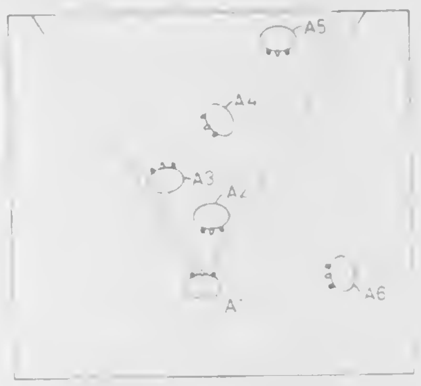
Gen Suzuki, Fujisawa; Shohei Sugawara, Yokosuka; Hiroya Tanigawa, Miura; Machio Moriuchi, Yokohama; Yoshio Nagashima; Yasuhiro Nakajima, both of Yokosuka; Hiroyuki Arita, Tokyo, and Yumi Murakami, Yokosuka, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 509,091

Claims priority, application Japan, Aug. 3, 1994, 6-182058; Dec. 27, 1994, 6-325858; Jan. 13, 1995, 7-004235; Jun. 16, 1995, 7-150501; Jul. 5, 1995, 7-169919

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—330 **61 Claims**



1. A virtual space sharing apparatus which has a plurality of terminals connected to a communication network and sharing a predetermined common virtual space and generates a displays a visual field image which changes as an avatar representing a user of each terminal moves in said virtual space at said each terminal, said each terminal comprising:

control means which generates signals for selectively specifying its position and direction of eyes in said virtual space

visual field image generating means which generates a visual field image in said direction of eyes in said virtual space from said position as a viewing point

position information sending and receiving means which sends said position and said direction of eyes as position information to said communication network and receives therefrom position information sent from other terminals,

avatar image forming means which forms avatar images representative of users of said other terminals in said visual field at positions corresponding to said received position information;

display means which displays a combined image containing said visual field image and said avatar images; and

server means connected to said each terminal via said communication network, said each terminal comprising speech sending and receiving means for sending speech data of its user to said server means via said communication network and for receiving speech data of said users of said other terminals from said server means and speech output means for outputting said received speech data as speech,

said server means comprising

select means which calculates, from position information received from said terminals, the distances between said avatar of the user of said each terminal and other avatars and selects those of said other avatars which have said distance within a predetermined threshold value, and

mixer means which, in a group consisting of any one of said avatars and said avatars selected by said select means relative thereto, mixes speech data from the terminals corresponding to said avatars except each particular one and sends said mixed speech data to the terminal corresponding to said each particular avatar

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5,736,983

SHELL EXTENSIONS FOR AN OPERATING SYSTEM

Satoshi Nakajima, Bellevue, and Christopher J. Guzak, Kirkland, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 477,535, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 355,410, Dec. 13, 1994.

This application Nov. 21, 1995, Ser. No. 561,431

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—335 **7 Claims**

1. In a data processing system having an input device, an operating system, and a video display that displays a representation of a source object and a representation of a target object, a method comprising the step of:

providing a data object extension handler on a per object class basis for a predetermined class of objects for customizing the source object such that the data object extension handler determines a format for data to be transferred when a drag-and-drop operation is performed on the source object in response to a user using the input device.

in response to the user using the input device, initiating a drag-and-drop operation on the source object such that the representation of the source object is dragged to be positioned over the representation of the target object;
invoking the data object extension handler to determine the format for the data to be transferred from the source object when the drag-and-drop operation is performed on an object of the predetermined class; and
in response to the user using the input device, dropping the representation of the source object on the representation of the target object to complete the drag-and-drop operation.

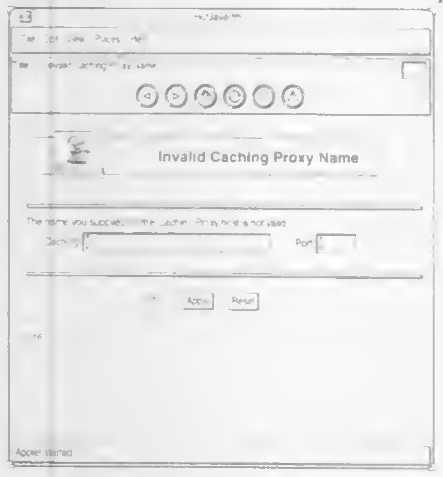
5,736,984

METHOD AND SYSTEM FOR EMBEDDED FEEDBACK MESSAGE AND GRAPHICAL PROCESSING ELEMENT

Herb Jellinek, Santa Cruz; Steve Byrne, San Jose, and Annette Wagner, Mountain View, all of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 3, 1996, Ser. No. 675,333
Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—338 **18 Claims**



1. A computer implemented method for processing user defined input on a graphical user interface (GUI) comprising the steps of:
receiving a first user defined input value in a first graphical processing element;
determining within said first graphical processing element if said first user defined input value is a valid input;
embedding said first graphical processing element and a feed back message in a second graphical processing element when said first user defined input value is determined to be an invalid input value; and
displaying said second graphical processing element

5,736,985

GUI PUSHBUTTON WITH MULTI-FUNCTION MINI-BUTTON

David Bruce Lection, Raleigh, and Mark Edward Molander, Cary, both of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jul. 2, 1996, Ser. No. 674,373
Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—354 **14 Claims**

1. A method of providing a computer graphical user interface, utilizing a screen interface and a pointing device controlling a pointer, to a plurality of related functions comprising:
selecting a first displayed pushbutton, representing a first function, through the appropriate positioning of the pointer by way of said pointing device;
determining whether a mini-button exists within said first displayed pushbutton,

selecting one of a plurality of second functions available for said mini-button by using said pointing device;
invoking said first function and said selected second function sequentially by causing the pointing device to generate a selection signal while the pointer is positioned within either the pushbutton or the mini-button.

5,736,986

VIRTUAL REALITY MENTAL CONDITIONING MEDIUM

Frank Sever, Jr., 2220 N. Columbus St., Arlington, Va. 22207
Continuation-in-part of Ser. No. 502,362, Jul. 14, 1995. This application Apr. 26, 1996, Ser. No. 639,933
Int. Cl.^{6} A63B *24/00*

U.S. Cl. 345—419 **17 Claims**

1. A method comprising:
providing a virtual reality device;
providing a medium with a program imprinted thereon designed for achieving a goal desired by a subject, operable with the device for presenting to at least the visual senses of the subject; said program including:
(a) a portion for preconditioning the mind of said subject to a precondition receptive to a dynamic scenario; and,
(b) said dynamic scenario, that is designed to communicate in chronological order:
(i.) a condition which requires a remedy;
(ii.) a mode for effecting the remedy;
(iii.) the performance of the mode so as to effect the remedy; and,
(iv.) rectification of the condition through the performance of the mode;
for causing mental visualization within the mind of the subject sufficient to enable the subject to achieve the desired goal,
wherein the goal is selected from the group consisting of: physical training, mental training, physical healing, mental healing and combinations thereof;
operatively interfacing the medium with the device and mounting the device on the subject; and,
running the program.

5,736,987

COMPRESSION OF GRAPHIC DATA NORMALS

Steven M. Drucker, Bellevue, and Donald P. Mitchell, Redmond, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Mar. 19, 1996, Ser. No. 618,194
Int. Cl.^{6} G06T *15/00*

U.S. Cl. 345—420 **26 Claims**

1. A method for compressing geometric data that represent a surface as a mesh of connected polygons, comprising the steps of:
(a) loading the geometric data into a computer memory for processing, said geometric data indicating the polygons connected to form the mesh, coordinates for vertices of each polygon, and continuity data specifying whether transitions between pairs of adjacent polygons are continuous or discontinuous;

(b) determining a dihedral angle between each pair of adjacent polygons and associating the dihedral angle for each pair of adjacent polygons with the continuity data for said pair of adjacent polygons;
(c) selecting an optimal dihedral angle for use in predicting whether the transition between each pair of adjacent polygons is continuous or discontinuous, said optimal dihedral angle being selected so as to minimize exceptions;
(d) using the optimal dihedral angle, generating predicted corner normals for each pair of adjacent polygons that indicate whether transitions between the pair of adjacent polygons should be continuous or discontinuous;
(e) comparing the predicted corner normals for each pair of adjacent polygons to the continuity data for the pair of adjacent polygons to determine exception data that indicate the predicted corner normal for the pair of adjacent polygons is incorrect;
(f) producing compressed data that include the polygons, the vertices, the optimal dihedral angle, and the exception data; and
(g) transmitting or storing the compressed data.

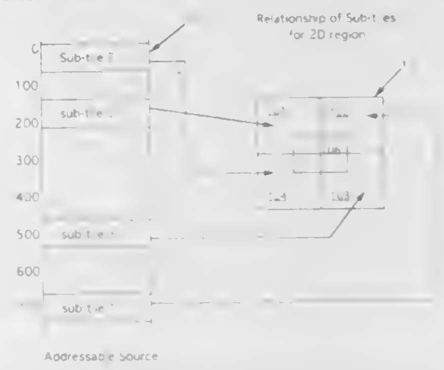
5,736,988

APPARATUS AND METHOD FOR ACCELERATED TILED DATA RETRIEVAL

Robert Allen Shaw, Los Altos; Peter R. Birch, San Francisco; John C. Lin, Cupertino, and Michael B. Nagy, San Ramon, all of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Dec. 4, 1995, Ser. No. 567,083
Int. Cl.^{6} G06T *17/30*

U.S. Cl. 345—423 **19 Claims**



1. A method for retrieving a region of data stored in memory in a tiled format, the method comprising the steps of:
specifying a number of tiles containing the data.
loading parameters corresponding to a portion of data contained within the region, wherein the portion is comprised of a plurality of rows and the rows are comprised of a plurality of segments.
calculating addresses of the segments based on the parameters that were loaded;
retrieving one row of data by retrieving the segments corresponding to that row.
retrieving the portion of data by retrieving all rows corresponding to that portion.
retrieving the region of data by retrieving all portions corresponding to that region.

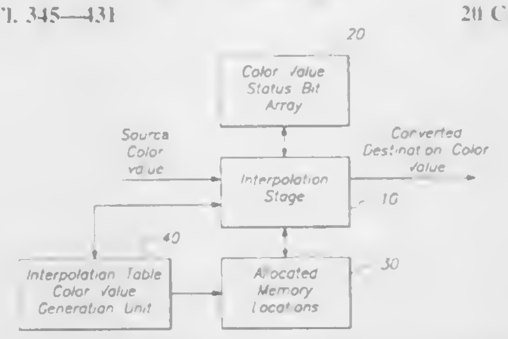
5,736,989

SYSTEM AND METHOD FOR MINIMIZING COLOR INTERPOLATION TABLES

Vladimir Lhotak, Santa Clara, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jan. 11, 1996, Ser. No. 587,851
Int. Cl.^{6} G06T *1/60*

U.S. Cl. 345—431 **20 Claims**


20
Color Value Status Bit Array
Source Color Value
Converted Destination Color Value
Interpolation Stage
10
40
Interpolation Table Color Value Generation Unit
Allocated Memory Locations
30

1. A method for performing color conversion of a set of source device color values corresponding to an image into a set of destination device color values, said method using an interpolation table having a predetermined number of associated interpolation color values, said method comprising the steps of:
allocating said predetermined number of memory locations for storing said associated interpolation color values;
establishing a status bit array wherein each bit in said array corresponds to one of said allocated memory locations and each bit indicates the validity of said associated interpolation color value stored in said corresponding allocated memory location.
processing each image source color value through the following steps
a) determining which of said allocated memory locations store interpolation color values required to perform interpolation calculations on said each image source color value.
b) evaluating a corresponding status bit in said status bit array for each determined allocated memory location.
c) generating an interpolation color value for said each determined memory location when said corresponding status bit indicates invalid data.
d) storing said generated interpolation color value into said each determined memory location and setting said corresponding status bit to indicate valid data.
e) accessing said required interpolation color values stored in said each determined memory location to perform said interpolation calculations on said each image source device color value to generate a corresponding destination device color value when said corresponding status bit for said each determined memory location indicates valid data

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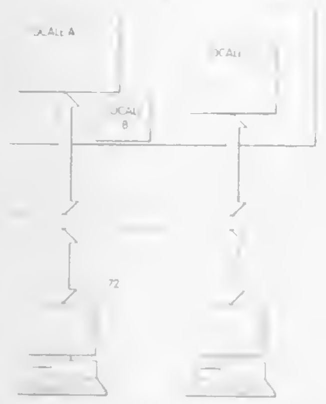
5,736,990
SYSTEM FOR DESIGNING A VIRTUAL ENVIRONMENT UTILIZING LOCALES

John W. Barrus, Lexington, and Richard C. Waters, Concord, both of Mass., assignors to Mitsubishi Electric Information Technology Center America, Inc., Cambridge, Mass.

Filed Aug. 28, 1995, Ser. No. 520,099

Int. Cl.⁶ G06T *1/00*

U.S. Cl. 345—433 **14 Claims**



1. A system for generating a virtual environment in which graphical objects are to be depicted within required accuracy regardless of location within said virtual environment and so as to avoid the use of a global coordinate system for said virtual environment, comprising:

- means for generating a number of locales each having a predetermined boundary and origin, each of said locales defining a subdivision of said virtual environment;
- means for locating a graphical object in a locale based on positions measured from the origin thereof, such that location and movement of a graphical object can be made with the required precision due to the utilization of a local origin within a locale as opposed to using a single point within said virtual environment, whereby the problems of providing a global coordinate system and positional inaccuracies associated with graphical objects located at large distances from a single origin are eliminated; and
- a network having multiple work stations to accommodate multiple designers for said virtual environment, each designer responsible for a different locale, and means for ascertaining when two of said locales overlap and for automatically indicating to said designers to the existence of overlapping regions of said locales, whereby multiple designers can work independently to create different locales within said virtual environment while at the same time being given means for resolving conflicts due to overlap of locales.

5,736,991
ANIMATION EDITING APPARATUS

Atsuko Tada, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 194,493, Feb. 10, 1994, abandoned. This application Apr. 5, 1996, Ser. No. 630,932

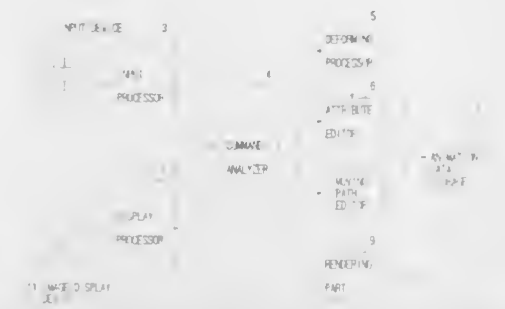
Claims priority, application Japan, Mar. 17, 1993, 5-057530; Oct. 13, 1993, 5-256012

Int. Cl.⁶ G06T *15/70*

U.S. Cl. 345—474 **13 Claims**

1. An animation editing apparatus for editing an animation based on shape data related to a shape of a three-dimensional object, said animation editing apparatus comprising:

- deforming process means for deforming the object based on an input instruction which specifies deformation of the object;
- first attribute editing means for editing at least an attribute of the object;
- moving path editing means for editing a moving path of the object;



- storage means for storing data which describe changing content of the attribute depending on the deformation of the object and are categorized for each type of object; and
- second attribute editing means for automatically determining an attribute of a deformed object based on deformed shape data received from said deforming process means, said deformed shape data describing the shape of the deformed object, said second attribute editing means determining the attribute depending upon the shape and type of the object after the deformation when the object is deformed, based upon the data stored in the storage means.

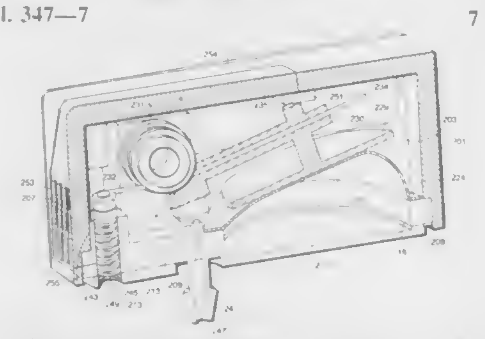
5,736,992
PRESSURE REGULATED FREE-INK INK-JET PEN

Norman E. Pawlowski, Jr., Corvallis, Oreg., assignor to Hewlett-Packard, Palo Alto, Calif.

Continuation-in-part of Ser. No. 331,453, Oct. 31, 1994, Pat. No. 5,583,545. This application Aug. 24, 1995, Ser. No. 518,847

Int. Cl.⁶ B41J *2/195*

U.S. Cl. 347—7 **7 Claims**



1. An ink jet pen apparatus, adapted for use with an ink reservoir having a mechanism for supplying ink from said ink reservoir to said ink jet pen apparatus at a predetermined feed pressure, said ink-jet pen apparatus comprising:

- a pen body having an ink containment chamber;
- an ink-jet printhead mechanism coupled to said pen body and in fluidic communication with said ink containment chamber;
- coupling means for coupling said ink containment chamber to said ink reservoir; and
- regulating means, mounted within said ink containment chamber and coupled to said coupling means, for regulating flow of ink into said ink containment chamber from said ink reservoir and for maintaining a predetermined, substantially constant, back-pressure set point at said ink-jet printhead during varying ink flow rates from said ink reservoir into said ink containment chamber via said coupling means, wherein said regulating means further includes valve means for varying ink flow rate and shutting off ink flow from said ink reservoir into said ink containment chamber, biasing means, having a substantially constant bias force during varying ink flow rates from said ink reservoir into said ink containment chamber, coupled to said valve means, for biasing said valve means toward a closed condition, means for opening and closing said valve means in response to a pressure differential between ambient atmospheric pressure and said predetermined back-pressure set point, including a valve seat for opening and closing said valve means, a valve seat mount, having said valve seat mounted thereon, wherein said biasing means is coupled to said valve seat mount, holding said valve seat in a position closing said valve means until the biasing force is overcome by ambient atmospheric pressure and wherein said biasing means further includes a spring having a substantially constant spring force, and at least one inflatable bag member mounted on said valve seat mount and coupled to ambient atmospheric, pressure such that said bag member inflates and deflates in response to the pressure differential between ambient atmospheric pressure and said predetermined back-pressure set point.

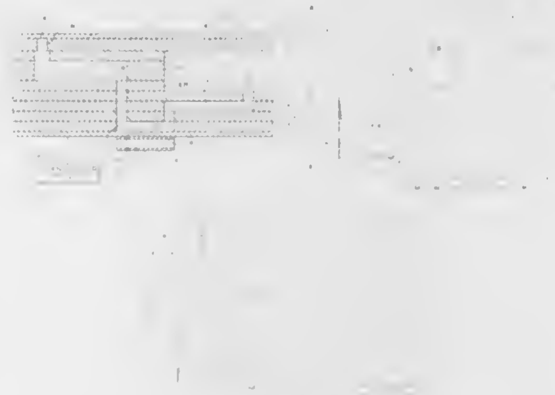
5,736,993
ENHANCED PERFORMANCE DROP-ON-DEMAND INK JET HEAD APPARATUS AND METHOD

Laurent A. Regimbal, Boise, Id., and Ronald F. Burr, Wilsonville, Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Continuation of Ser. No. 139,349, Oct. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 100,504, Jul. 30, 1993, Pat. No. 5,495,272. This application Oct. 12, 1995, Ser. No. 542,237

Int. Cl.⁶ B41H *2/45*

U.S. Cl. 347—11 **16 Claims**



1. In an apparatus for ejecting from an orifice drops of a fluid having a substantially constant ejection velocity over a range of drop ejection repetition rates, the apparatus conveying the fluid from a fluid manifold through an inlet channel to a pressure chamber and from the pressure chamber through a combined outlet channel to the orifice, the inlet channel having a first length and a first acoustic resonant frequency and the combined outlet channel having a second length and a second acoustic resonant frequency, an improvement for increasing the range of drop ejection rates comprising in combination

- a transducer driver generating an electrical waveform that repeats over a range of drop ejection repetition rates ranging from about 1 kilohertz to about 15 kilohertz, each repetition of the electrical waveform having a predetermined spectral energy distribution that includes a peak of the spectral energy around a dominant resonant frequency of the fluid in the orifice and at least a 30 decibel reduction below the peak of the spectral energy around the first and second acoustic resonant frequencies, which are determined respectively by dividing a speed of sound in the fluid by two times the first length and four times the second length; and
- a piezoelectric transducer coupling each repetition of the electrical waveform to the pressure chamber to eject a drop of the fluid from the orifice at the substantially constant ejection velocity.

5,736,994
INK-JET APPARATUS AND DRIVING METHOD THEREOF

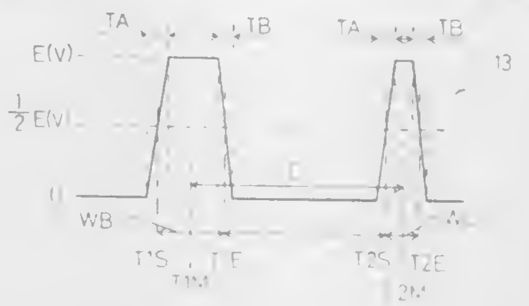
Yoshikazu Yakahashi, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jun. 18, 1996, Ser. No. 664,430

Claims priority, application Japan, Aug. 9, 1995, 7-203175

Int. Cl.⁶ B41J *2/01*

U.S. Cl. 347—11 **20 Claims**



1. A method of driving an ink-jet apparatus including an ink chamber filled with ink, an actuator for changing a volume of said ink chamber, and a control unit which causes a pressure wave to develop in said ink chamber by applying a first pulse signal to said actuator so as to increase the volume of said ink chamber, and causes the volume of said ink chamber to be decreased from the increased state to the original state after the lapse of a time T during which the pressure wave uni-directionally travels along the inside of said ink chamber, so that the ink in said ink chamber is pressurized and eventually ejected, the method comprising:

- causing the ink to be ejected from the ink chamber by applying said first pulse signal from said control unit to said actuator if an ambient temperature is at a predetermined temperature or less; and
- causing the ink to be ejected from the ink chamber by applying a second pulse signal, which has a different pulse width but a same peak value compared with said first pulse signal from said control unit to said actuator if the ambient temperature is in excess of the ambient temperature, and thereafter applying a third pulse signal, which has a pulse width 0.3 to 0.7 times or 1.3 to 1.7 times the uni-directional propagation time T and has the same peak value as said second pulse signal, to said actuator, the third pulse signal having a center time T2M between a time T2S at which the third pulse signal rises and a time T2E at which the third pulse signal falls being delayed by 2.75 to 3.25 times the uni-directional propagation time T with regard to center time T1M between a time T1S at which the second pulse signal rises and a time T1E at which the second pulse signal falls.

5,736,995
TEMPERATURE CONTROL OF THERMAL INKJET PRINTHEADS BY USING SYNCHRONOUS NON-NUCLEATING PULSES

Jaime H. Bohorquez, Escondido, Calif.; George H. Corrigan, Corvallis, Oreg., and King-Wah W. Yeung, Cupertino, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 144,069, Oct. 27, 1993, abandoned, which is a continuation-in-part of Ser. No. 983,009, Nov. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 694,185, May 1, 1991, Pat. No. 5,168,284. This application Aug. 28, 1995, Ser. No. 520,225

Int. Cl.⁶ B41J *2/05*

U.S. Cl. 347—14 **18 Claims**

1. A method for controlling print quality in an inkjet printer that includes a printhead having a printhead substrate and ink firing resistors disposed on the printhead substrate, comprising the steps of

- selecting a reference temperature,
- measuring a temperature of the printhead substrate,

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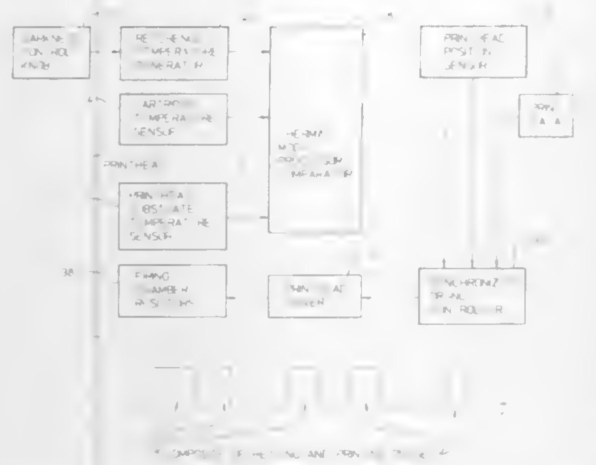


comparing the printhead substrate temperature with the reference temperature to determine if the substrate temperature is below the reference temperature; and if so, then

heating the printhead substrate to the reference temperature periodically during print firing operations by delivering synchronized heating pulses or printing pulses to the ink firing resistors during selected print firing periods wherein either said heating pulses or said printing pulses, but not both, occur during such a selected print firing period.

5,736,996

IMAGE READING APPARATUS WITH A FUNCTION FOR CORRECTING NONUNIFORMITY IN RECORDING DENSITY

Yoshihiro Takada, Kawasaki; Akio Suzuki, Yokohama; Toshimitsu Danzuka, Tokyo; Haruhiko Moriguchi, Yokohama; Hisashi Fukushima, Yokohama; Masami Izumizaki, Yokohama, and Yasushi Miura, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 19,704, Feb. 19, 1993, abandoned, which is a division of Ser. No. 684,339, Apr. 12, 1991, abandoned. This application May 1, 1995, Ser. No. 432,008

Claims priority, application Japan, Apr. 13, 1990, 2-96574; May 30, 1990, 2-142897; May 11, 1990, 2-119952; May 11, 1990, 2-119953; May 11, 1990, 2-119958; May 31, 1990, 2-143727

Int. Cl.^{6} B41J *2/05*

U.S. Cl. 347—19 **65 Claims**

1. An image recording apparatus comprising:

a recording head comprising a plurality of recording elements arranged to form an image on a recording medium in accordance with image data;

image density reading means for reading a density of a test pattern formed on the recording medium by said recording head;

calculating means for obtaining correction data for correcting an uneven image density, in accordance with a result of reading by said image density reading means;

memory means adapted for updating every time said calculating means obtains the correction data, the correction data stored therein to store the updated data; and

correction means for correcting driving conditions for driving said plurality of recording elements in accordance with the newest correction data stored in said memory means to make uniform a density of the image in recording the image or the test pattern,

wherein in recording the test pattern, said plurality of recording elements of said recording head are driven on the driving conditions corrected by said correction means to record the test pattern on the recording medium.

5,736,997

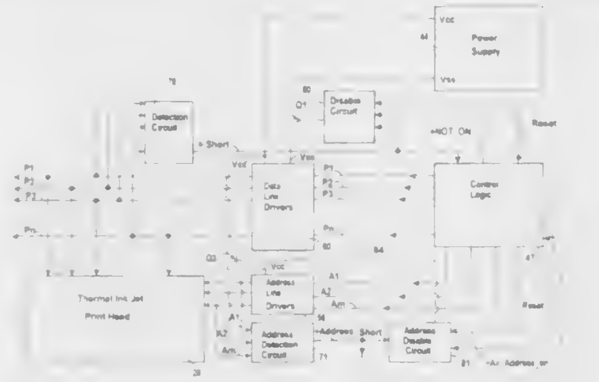
THERMAL INK JET PRINTHEAD DRIVER OVERCURRENT PROTECTION SCHEME

John Philip Bolash, and Mark Joseph Edwards, both of Lexington, Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Apr. 29, 1996, Ser. No. 639,385

Int. Cl.^{6} B41J *29/393*

U.S. Cl. 347—19 **19 Claims**



14. An ink jet printer, comprising:

a power supply;

a printhead having a plurality of thermally activated print nozzles thereon for ink ejection upon thermal agitation of the ink within the nozzle;

active element line drivers for driving data and address drive lines, said data and address drive lines being connected to nozzle heater active elements associated with each of said nozzles for effecting current flow through heater elements associated with each of said nozzles upon selection by associated address and data line activation, and said active element line drivers being connected to said power supply;

a first circuit that energizes at least one of a data line and address line associated with at least one thermal ink jet nozzle on said printhead;

a second circuit to detect a lower than normal impedance on the energized line; and,

a third circuit that inhibits further energization of at least one of said data and address line drivers.

5,736,998

INKJET CARTRIDGE DESIGN FOR FACILITATING THE ADHESIVE SEALING OF A PRINTHEAD TO AN INK RESERVOIR

Michael P. Caren, Palo Alto; Max Stephen Gunther, and John C. Nadworny, both of San Diego, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 6, 1995, Ser. No. 398,849

Int. Cl.^{6} B41J *2/135*

U.S. Cl. 347—45 **24 Claims**

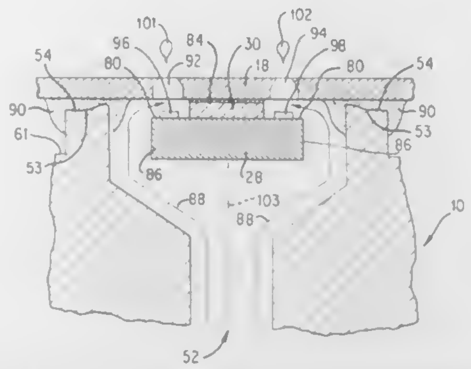
1. An ink cartridge for an inkjet printer comprising:

a nozzle member having a plurality of ink orifices formed therein;

a substrate containing a plurality of heating elements and associated ink ejection chambers, said substrate mounted on a back surface of said nozzle member, each heating element being located proximate to an associated ink orifice, said back surface of said nozzle member extending over two or more outer edges of said substrate;

a headland portion located proximate to the back surface of said nozzle member and including an inner raised wall circumscribing an inlet slot and having wall openings therein, said wall openings having a support surface with peninsulas extending therefrom toward the inlet slot, and

an adhesive layer located between the back surface of said nozzle member and the inner raised wall to affix said nozzle member to said headland.



5,736,999

LASER PROCESSING METHOD TO FORM AN INK JET NOZZLE PLATE

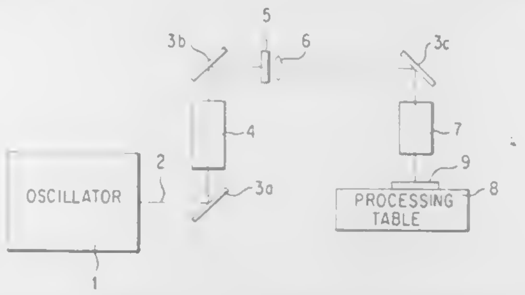
Hikoharu Aoki, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jul. 25, 1995, Ser. No. 507,669

Claims priority, application Japan, Sep. 7, 1994, 6-240640

Int. Cl.^{6} B41J *2/16*

U.S. Cl. 347—47 **19 Claims**



1. A laser processing method for forming a nozzle plate of an ink jet device, comprising selecting a nozzle plate polymer sheet that absorbs an excimer laser beam and is substantially free of lubricants that reflect ultraviolet ray wavelengths of 50 to 300 nm, and irradiating an excimer laser beam at a surface of the nozzle plate polymer sheet so as to form one or more nozzle orifices in the nozzle plate polymer sheet.

5,737,000

INK JET HEAD WITH POLYCRYSTALLINE METAL ELECTRODES

Hiroshi Shibata; Shin-ichiro Kaneko; Takashi Kuhara, all of Fukuoka; Seishi Tomari, Onojo; Naoto Yoshida, Fukuoka, and Hirofumi Kama, Kurume, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

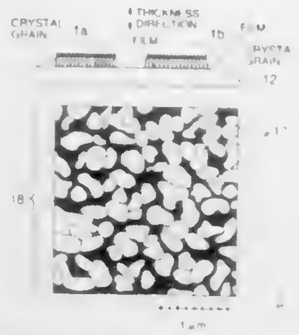
Filed May 17, 1995, Ser. No. 443,023

Claims priority, application Japan, May 20, 1994, 6-106570

Int. Cl.^{6} B41J *2/05*

U.S. Cl. 347—62 **39 Claims**

1. An ink-jet head for injecting ink into a work piece, comprising:



an ink passage for receiving the ink, and

a plurality of electrodes disposed in the ink passage for heating electrically and vaporizing thermally the ink to generate an ink-jet toward the work piece, wherein

each of the plurality of electrodes includes a polycrystalline metal disposed to face the ink to electrically energize the ink, and a crystal grain diameter of the polycrystalline metal is not less than 0.1 μm.

5,737,001

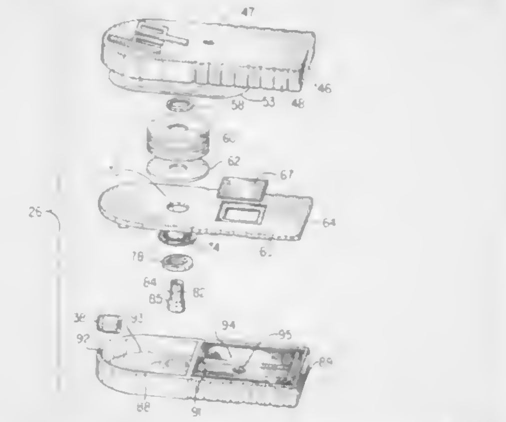
PRESSURE REGULATING APPARATUS FOR INK DELIVERED TO AN INK-JET PRINT HEAD

John L. Taylor, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 2, 1996, Ser. No. 674,522

Int. Cl.^{6} B41J *2/175*, **F16K** *31/12*

U.S. Cl. 347—85 **14 Claims**



6. A pressure regulated ink-jet cartridge apparatus fluidically coupled to a supply of ink, comprising:

a print cartridge;

an ink-jet print head mounted to said print cartridge,

a pressure regulator within said print cartridge for delivering ink to the ink jet print head at a delivery pressure, said regulator having

a valve mechanism including a valve head and a complementary valve seat, wherein said valve seat is mounted for moving with respect to the valve head from a valve open position to a valve shut position, and thereby regulating the ink delivery pressure,

a plurality of co-axially mounted coned disk springs mounted to the valve seat to urge the valve seat toward the shut position, and

a bladder, mounted on said valve mechanism and coupled to said springs such that said bladder is actuated by balancing atmospheric pressure against pressure of ink being delivered to the ink-jet print head, such that the valve seat moves out of and into contact with the valve head and thereby between the valve open position and the valve shut position based upon a

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pressure differential between said atmospheric pressure and said delivery pressure and thereby regulating the pressure of ink delivered to said ink-jet print head to maintain a predetermined back pressure at the print head, and

the ink jet print head having a generally planer shape with a length "l" and a width "," where "l" is larger than "w," said print cartridge containing both the print head and the pressure regulator and having a height "H" approximately equal to the width "w" of the print head measure orthogonally to a major planar surface of the print head.

5,737,002

TWO MATERIAL FRAME HAVING DISSIMILAR PROPERTIES FOR THERMAL INK-JET CARTRIDGE

David W. Swanson, Escondido; Mindy A. Hamlin, and James G. Salter, both of San Diego, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 994,807, Dec. 22, 1992, Pat. No. 5,515,092, which is a continuation-in-part of Ser. No. 853,372, Mar. 18, 1992, Pat. No. 5,464,578. This application May 1, 1996, Ser. No. 641,408

Int. Cl.⁶ B41J *2/175*

U.S. Cl. 347—86 **21 Claims**

1. A printer ink cartridge including an ink reservoir, comprising

a frame structure comprising an external frame structural member fabricated from a first rigid plastic material and an interior frame member fabricated from a second plastic material, said interior frame member being attached to said external frame structural member, and wherein said first plastic material and said second plastic material are different plastic materials.

first and second impervious membranes formed of a third plastic material, said membranes joined to said interior frame member to form, with said frame structure, said ink reservoir

wherein said second plastic material is compatible with said third plastic material to permit a leak proof joinder of said membranes to said interior frame member, and

an ink jet printhead connected to said ink reservoir by an ink flow path

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5,737,003

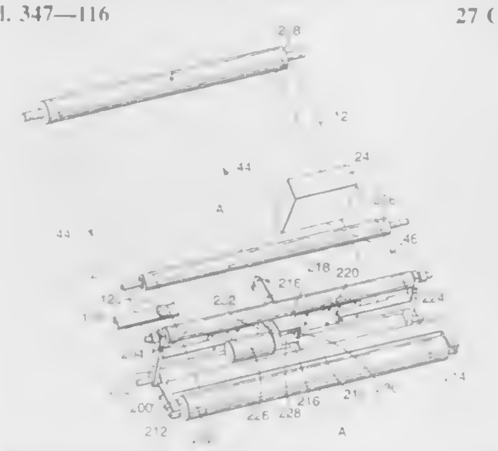
SYSTEM FOR REGISTRATION OF COLOR SEPARATION IMAGES ON A PHOTOCONDUCTOR BELT

Edward J. Moe, St. Paul, Minn.; William D. Edwards, Houlton, Wis.; Truman F. Kellie, Lakeland, and Michael R. Bury, White Bear Lake, both of Minn., assignors to Imation Corp., Saint Paul, Minn.

Continuation of Ser. No. 560,330, Nov. 17, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 808,711

Int. Cl.⁶ G03G *15/00;15/04;* H04N *1/04*

U.S. Cl. 347—116 **27 Claims**



23. A system for steering a photoconductor belt, the system comprising

a photoconductor belt mounted about a plurality of rollers

a drive mechanism for driving the photoconductor belt to move about the rollers in a continuous path, wherein the photoconductor belt tends to deviate from the continuous path in a direction substantially perpendicular to the continuous path.

a photodetector disposed to overlap an edge of the photoconductor belt

a scanner for scanning a laser beam across at least a portion of the moving photoconductor belt and across the photodetector, the photodetector generating a belt edge detection signal when the laser beam is scanned across the photodetector.

a belt steering mechanism for moving the photoconductor belt in the direction substantially perpendicular to the continuous path; and

a belt steering controller for controlling the belt steering mechanism based on the belt edge detection signal to reduce deviation of the photoconductor belt from the continuous path

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5,737,004

PROCESS AND DEVICE FOR DEVELOPING AN ELECTROSTATIC LATENT IMAGE

Anton Rodi, Leimen, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Dec. 11, 1996, Ser. No. 763,905

Claims priority, application Germany, Dec. 12, 1995, 195 46 248.3

Int. Cl.⁶ G01D *15/06*

U.S. Cl. 347—151 **17 Claims**

1. A method of developing an electrostatic latent image produced on a surface of a movable intermediate carrier by electrically charged dielectric color particles which are transported through a gap between the surface of the intermediate carrier and a surface of a developing device, which comprises loosely filling most of the gap with color particles, and successively producing along the transport path of the color particles through the gap, the following voltage differences between the surface of the developing device and non-image regions on the surface of the intermediate carrier:

a first voltage difference substantially equal to zero, so that the color particles are not electrostatically attracted or repelled, in substance, by the surface of the developing device and by the non-image regions, respectively;

a second voltage difference providing an electric field between the surface of the developing device and the non-image regions, the color particles in the non-image regions being completely separated from the surface of the intermediate carrier by the electric field; and

a third voltage difference smaller than the second voltage difference and providing an electric field between the surface of the developing device and the non-image regions, the color particles situated opposite the surface of the intermediate carrier in the non-image regions remaining spaced from the latter surface.

5,737,005

METHOD AND APPARATUS FOR THERMAL RECORDING AND THERMAL TRANSFER RECORDING IN MULTICOLOR SYSTEM

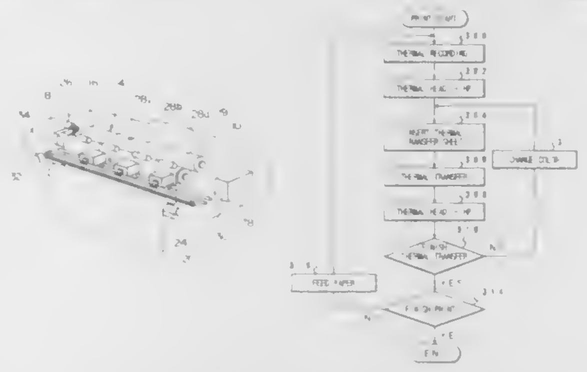
Yukio Sawano; Souhei Shibasaki, both of Tokyo; Shuzo Hanaoka, and Masaaki Hashizume, both of Nagano, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, and Nagano Japan Radio Co., Ltd., Nagano, both of Japan

Filed Mar. 25, 1996, Ser. No. 621,454

Claims priority, application Japan, Mar. 24, 1995, 7-90080; Mar. 24, 1995, 7-90081; Mar. 24, 1995, 7-90082

Int. Cl.⁶ G01D *15/00;15/10;* B41J *15/00;17/00*

U.S. Cl. 347—172 **13 Claims**



1. A method for thermal recording and thermal transfer recording in a multicolor system, in which multicolor recording is performed on a thermal recording sheet composed of a support and a thermal recording layer thereon by using both the thermal recording and the thermal transfer recording in combination, comprising the steps of

(a) performing thermal recording in a recording region on said thermal recording sheet by a thermal head,

(b) arranging a thermal transfer donor sheet for thermal transfer recording on said recording region of said thermal recording sheet, the thermal transfer donor sheet having a thermal transfer layer containing a desensitizer for suppressing a coloring reaction in said thermal recording layer; and

(c) contacting said thermal head with the face of the thermal transfer donor sheet so that the thermal transfer recording can be performed in said recording region thermally recorded already.

5,737,006

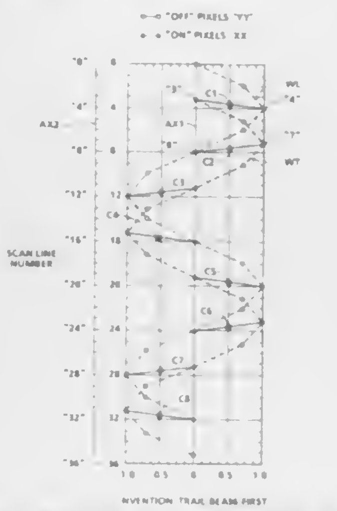
SCANNING METHOD AND APPARATUS FOR BANDING SUPPRESSION

Lam F. Wong, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 24, 1995, Ser. No. 427,359

Int. Cl.⁶ B41J *2/47;2/435*

U.S. Cl. 347—235 **18 Claims**



1. A raster output scanning, ROS, apparatus for forming within an imaging area of a charged surface, and without a significant banding effect from wobble of the ROS apparatus, an array of image scan lines including a start-of-image scan line, and an end-of-image scan line spaced in a slow scan direction from the start-of-image scan line, the ROS apparatus comprising:

(a) at least one light source for generating two light beams;

(b) a rotatable polygon assembly for deflecting said two light beams to create two corresponding scanning beams for simultaneously forming two image scan lines, said two corresponding scanning beams including a first scanning beam, and a second scanning beam spaced in the slow scan direction from said first scanning beam; and

(c) control means connected to said light source and to said rotatable polygon assembly for controlling said light source and said rotatable polygon assembly (i) to initiate forming of the array of image scan lines by creating only one of said two scanning beams for forming, in an initial scanning pass, only one image scan line within the imaging area of the charged surface, and (ii) such that during scanning passes subsequent to said initial scanning pass said two light beams are deflected by said rotatable polygon assembly to create said two corresponding scanning beams including said first scanning beam, and said second scanning beam spaced a beam separation distance "d" of greater than 1 pixel from said first scanning beam for forming interlaced image scan lines within the imaging area.

5,737,007

STRUCTURE OF A LASER BEAM SCANNER FOR A PHOTOSENSITIVE PRINTING DEVICE

Hiroyuki Kashima, Nagoya, and Tsuyoshi Ohashi, Hashima, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed May 2, 1995, Ser. No. 433,936

Claims priority, application Japan, May 23, 1994, 6-133782

Int. Cl.⁶ B41J *2/47*

U.S. Cl. 347—250 **24 Claims**

1. A laser scanner device, comprising

a laser diode for emitting a laser beam.

a polygon mirror for reflecting the laser beam emitted from said laser diode in a main scan direction over a predetermined angle on the basis of a scan reference phase for producing a horizontal synchronizing signal while being rotated, thereby forming a latent image on a photosensitive drum.

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at least one lens for focusing the laser beam reflected from said polygon mirror onto said photosensitive drum: and

a horizontal synchronizing signal generating element which is provided on a diode substrate on which said laser diode is mounted and receives the laser beam to generate a horizontal synchronizing signal when the phase thereof is coincident with the scan reference phase, wherein said laser diode is upstream of said horizontal synchronizing signal generating element relative to a rotational direction of said polygon mirror.

5,737,008
ELECTROPHOTOGRAPHIC IMAGE RECORDING APPARATUS WITH PHOTORECEPTOR EXPOSURE CONTROL

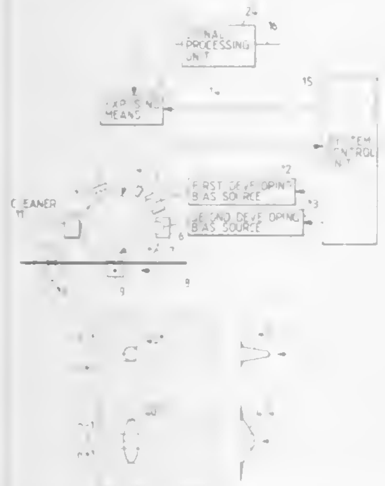
Shinya Kobayashi; Kunio Sato; Seiji Maruo, and Susumu Saito, all of Ibaraki, Japan, assignors to Hitachi Koki Co., Ltd., and Hitachi, Ltd., both of Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 698,160

Claims priority, application Japan, Aug. 29, 1995, 7-220627

Int. Cl.⁶ H04N *1/21*; B41J *2/47*

U.S. Cl. 347—253 **5 Claims**



1. An electrophotographic image recording apparatus, comprising:

a photoreceptor:

means for uniformly charging the surface of said photoreceptor:

light beam generating means for generating a beam spot of a light beam according to image information, and for varying an amount of light beam and a light intensity distribution pattern of the beam spot on the surface of said photoreceptor;

means for scanning the surface of said photoreceptor, which is uniformly charged by said charging means, with the beam spot of the light beam generated by said light beam generating means to discharge the surface of said photoreceptor up to a medium potential;

intensity distribution pattern control means for controlling said light beam generating means according to the image information of peripheral pixels, to vary the intensity distribution pattern of the beam spot on the surface of said photoreceptor; and

light beam output control means for controlling said light beam generating means to maintain the exposure energy on pixels, exposed to the beam spots of intensity distribution patterns, at a predetermined value.

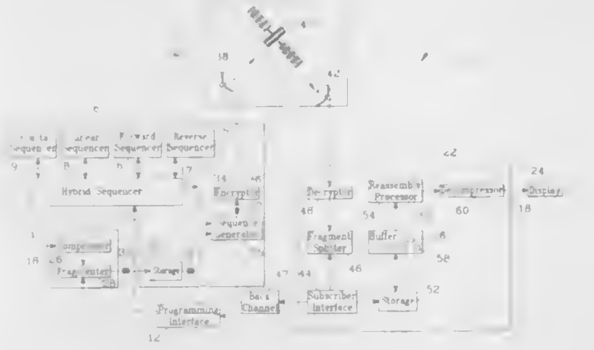
5,737,009
ON-DEMAND DIGITAL INFORMATION DELIVERY SYSTEM AND METHOD USING SIGNAL FRAGMENTATION AND LINEAR/FRACTAL SEQUENCING.

David W. Payton, Woodland Hills, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Apr. 4, 1996, Ser. No. 627,628

Int. Cl.⁶ H04N *7/173*

U.S. Cl. 348—7 **39 Claims**



1. A system for delivering near on-demand digital information to a plurality of local subscribers, comprising:

a fragmentation unit that fragments a digital item into a sequence of N numbered fragments:

a sequencing processor that responds to a subscriber request for the digital item by generating a sequencing pattern having average and peak bandwidths, said sequencing processor selectively adding and deleting fragments from the sequencing pattern based upon the incidence of requests for the digital item such that the average bandwidth required to service requests occurring with an incidence less than a threshold is set at a low value and the peak bandwidth required to service requests occurring with an incidence greater than the threshold is bounded by an upper bound:

a sequence generator that sequences the fragments into a multi-channel data stream in accordance with the sequencing pattern:

a digital transport system that continuously broadcasts the multi channel data stream over a plurality of channels at successive time intervals to the local subscribers; and

a plurality of local servers for extracting the fragments from the multi-channel data stream, seamlessly integrating the fragments and delivering them to a plurality of playback devices.

5,737,010
SYSTEM FOR CONNECTION AND DISCONNECTION IN MULTIPOINT CONFERENCE SYSTEM OF CASCADE CONFIGURATION

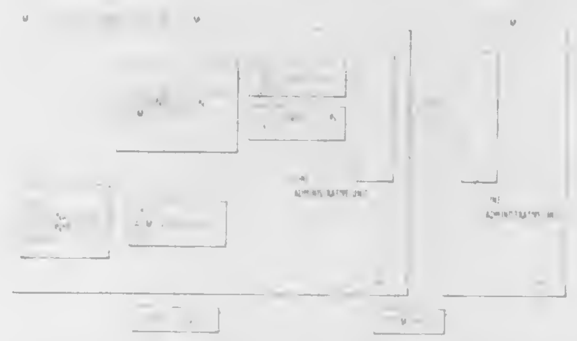
Takako Yachi; Nobuyuki Tamura, both of Kanazawa; Kazuto Ban, and Tohru Andoh, both of Ishikawa, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 2, 1994, Ser. No. 333,507

Claims priority, application Japan, Mar. 18, 1994, 6-049592

Int. Cl.⁶ H04N *7/15*

U.S. Cl. 348—15 **9 Claims**



1. A system for connection and disconnection in a multipoint conference system of a cascade configuration, in which television conference terminals are connected through lines to multipoint connection units (MCU's) and a plurality of MCUs are connected through lines, wherein

an MCU provided with an input unit prepares a call origination/disconnection table comprised of the numbers of the lines which an input administrative unit instructs to connect in accordance with the content of a list of line numbers of MCUs and terminals to engage in the conference from the input unit,

a call origination/disconnection administrative unit is activated when the call origination/disconnection table is prepared, reads the call origination/disconnection table, drives a line administrative unit to call up and connect to the terminals of its MCU and other MCU's adjoining its MCU, and

sends the call origination/disconnection table to the other MCUs when the lines to the other MCUs are established, and

the other MCUs, receiving the call origination/disconnection table, call and connect the terminals under them and the unconnected adjoining MCUs based on the call origination/disconnection table.

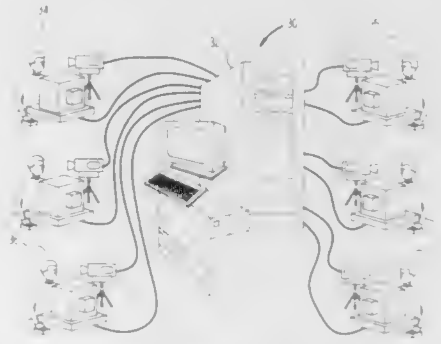
5,737,011
INFINITELY EXPANDABLE REAL-TIME VIDEO CONFERENCING SYSTEM

Michael Edward Lukacs, Ocean Township, Monmouth County, N.J., assignor to Bell Communications Research, Inc., Morristown, N.J.

Filed May 3, 1995, Ser. No. 434,083

Int. Cl.⁶ H04N *7/14*

U.S. Cl. 348—15 **9 Claims**



1. A video conferencing system comprising

a plurality of user stations, at least some of said user stations being equipped with a video camera and a video display device,

a video composing unit in electronic communication with said video cameras and said video display devices for combining a plurality of video signal streams from respective user stations into a combined signal stream and sending the combined signal stream to a respective user station,

said video composing unit comprising a plurality of switches, each receiving video signal streams from individual ones of said use stations and

a video composing chain associated with each of said switches, each video composing chain comprising a plurality of video composing modules each having a first and a second input and an output, the first and second inputs of the first video composing module in the chain receiving video signal streams from the associated switch, the first input of succeeding video composing modules in the chain being connected to the output of the preceding video composing module in the chain, the second input of the succeeding modules receiving video signal streams from the associated switch, and the output of the last video composing module in the chain providing the output video signal stream to a user stations, and

a control unit in electronic communication with said video composing unit and said user stations, said control unit providing control signals to said video composing unit responsive to command signals received from said user stations, and said video composing unit altering the combined signal streams responsive to said control signals, and

wherein each of said video signal streams includes a priority signal portion and a video signal portion, and each of said video composing modules includes a priority driven multiplexing unit for combining two of said video signal streams into a single combined video stream having portions of said two video signal streams with the highest priority.

5,737,012
HEAD MOUNTED IMAGE DISPLAY APPARATUS AND IMAGE FORMING APPARATUS RELATED THERETO

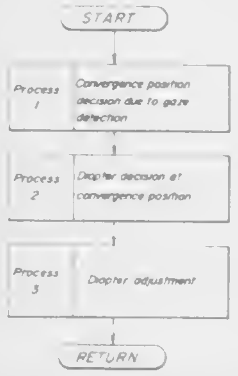
Seiichiro Tahata, Hino, and Yoichi Iha, Hachioji, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1995, Ser. No. 564,711

Claims priority, application Japan, Dec. 1, 1994, 6-298178

Int. Cl.⁶ H04N *13/04*

U.S. Cl. 348—53 **25 Claims**


START
Process 1
Convergence position decision due to gaze detection
Process 2
Diopter decision at convergence position
Process 3
Diopter adjustment
RETURN

1. A head mounted image display apparatus capable of performing a stereoscopical viewing, having first and second image display sections and displaying first and second images each having parallax on these first and second image display sections,

characterized by comprising,

a position of convergence deciding means for deciding diopter adjusting signals corresponding to parallax or convergence angle of the position of convergence of a viewer by detecting the line of sight direction of at least one eye of the both right and left eyes to decide the position of convergence of the viewer in a viewing region;

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a diopter adjusting mechanism adapted to receive the diopter adjusting signal for adjusting the diopter of the first and second image display sections; and

the position of convergence deciding means including a diopter adjusting signal selecting means for selecting the diopter adjusting signal out of a plurality of diopter adjusting signals or the signals corresponding thereto, based on the position of convergence.

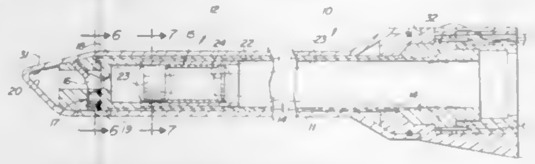
5,737,013
DENTAL VIDEO CAMERA WITH AN ADJUSTABLE IRIS

Ronald R. Williams, 24872 Sea Aire, Dana Point, Calif. 92629; Steve Wright, 2621 Costebelle Dr., La Jola, Calif. 92039, and Fred G. Kinley, 21432 La Capilla, Mission Viejo, Calif. 92691

Continuation-in-part of Ser. No. 303,019, Sep. 8, 1994, Pat. No. 5,523,782, which is a continuation-in-part of Ser. No. 943,716, Sep. 11, 1992. This application Apr. 20, 1995, Ser. No. 426,119

Int. Cl.^{6} H04N *5/225*

U.S. Cl. 348—66 **17 Claims**



1. A dental video camera comprising:

a. a housing having an elongated cavity with a distal end and a proximal end;

b. an adjustably focusing lens and CCD camera system disposed within said elongated cavity of said housing whereby said adjustably focusing lens and CCD camera system provides a focusing adjustment between a near field of focus and a far field of focus;

c. a fixed focusing lens system optically coupled to said adjustably focusing lens and CCD camera system and disposed in said elongated cavity of said housing adjacent to said distal end thereof; and

d. an adjustable iris optically and mechanically coupled to said adjustably focusing lens and CCD camera system whereby said adjustable iris is adjusted between a nearly closed opening and a wide open opening in response to said focusing adjustment between said near field of focus and said far field of focus.

5,737,014
ELECTRONIC CAMERA WITH DETACHABLE BUFFER MEMORY

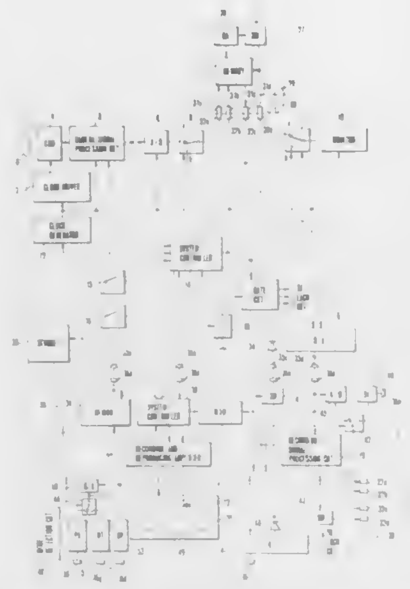
Akihiko Tojo, Kanagawa-ken; Takao Kinoshita, Tokyo; Takemi Tanno, Kanagawa-ken; Nobuo Tezuka, Kanagawa-ken; Shinji Sakai, Kanagawa-ken; Yasutomo Suzuki, Kanagawa-ken, and Seiichi Ozaki, Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 125,289, Sep. 22, 1993, abandoned, which is a continuation of Ser. No. 908,449, Jun. 30, 1992, abandoned, which is a continuation of Ser. No. 660,222, Feb. 20, 1991, abandoned, which is a continuation of Ser. No. 418,699, Oct. 2, 1989, abandoned, which is a continuation of Ser. No. 131,824, Dec. 11, 1987, abandoned. This application Mar. 16, 1995, Ser. No. 413,780

Claims priority, application Japan, Dec. 18, 1986, 61-302215

Int. Cl.^{6} H04N *5/225*

U.S. Cl. 348—220 **28 Claims**



1. An image pickup apparatus having a body comprising:

(a) image pickup means for converting an optical image into an electrical image signal;

(b) signal processing means for processing said electrical image signal to display said electrical image signal;

(c) a recess having a plurality of direct signal terminals therein for transmitting said electrical image signal to a detachable buffer memory unit when said buffer memory unit is directly inserted into said recess;

(d) switch means for switching between a first mode for supplying said electrical image signal generated by said image pickup means to said signal processing means through said buffer memory unit when said buffer memory unit is directly inserted into said recess and a second mode for supplying said electrical image signal generated by said image pickup means to said signal processing means bypassing said buffer memory unit.

5,737,015
IMAGING DEVICE EQUIPPED WITH MULTIPLE OUTPUT CHANNEL IMAGING ELEMENT

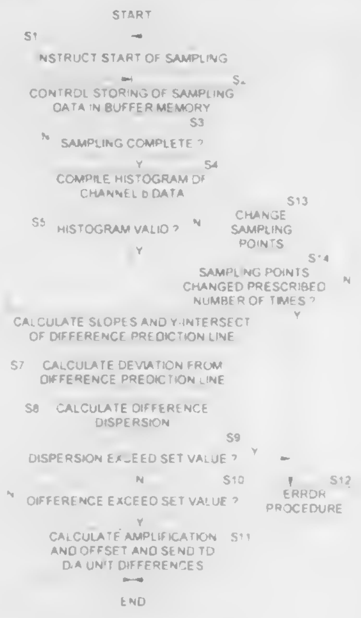
Masahiro Juen, Kanagawa, Japan, assignor to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 264,161, Jun. 22, 1994, abandoned. This application Sep. 5, 1995, Ser. No. 523,592

Claims priority, application Japan, Jun. 25, 1993, 5-155683

Int. Cl.^{6} H04N *5/235;5/335;3/14;5/202*

U.S. Cl. 348—230 **39 Claims**


START
S1
INSTRUCT START OF SAMPLING
S2
CONTROL STORING OF SAMPLING DATA IN BUFFER MEMORY
S3
N
SAMPLING COMPLETE ?
Y
S4
COMPILE HISTOGRAM OF CHANNEL b DATA
S13
S5
HISTOGRAM VALID ?
N
CHANGE SAMPLING POINTS
Y
S14
SAMPLING POINTS CHANGED PRESCRIBED NUMBER OF TIMES ?
N
Y
CALCULATE SLOPES AND Y-INTERSECT OF DIFFERENCE PREDICTION LINE
S7
CALCULATE DEVIATION FROM DIFFERENCE PREDICTION LINE
S8
CALCULATE DIFFERENCE DISPERSION
S9
DISPERSION EXCEED SET VALUE ?
Y
N
S10
S12
N
DIFFERENCE EXCEED SET VALUE ?
ERROR PROCEDURE
Y
CALCULATE AMPLIFICATION AND OFFSET AND SEND TO D/A UNIT DIFFERENCES
S11
END

1. An imaging device comprising:

imaging means for converting a light image to an electric signal output, said imaging means having multiple output channels;

direct current voltage regulating means for adjusting a direct current voltage level of a signal on each output channel from said imaging means;

amplifying means for amplifying the signal on each output channel from said imaging means;

extracting means for extracting data from at least a portion of the signal data on each output channel from said imaging means;

reliability determining means for determining whether a reliability of said extracted data exceeded a predetermined value based on a distribution of said extracted data without a fixed reference standard;

calculation means for calculating an offset amount and an amplification amount based on data of each output channel, said calculation means calculating said offset amount and amplifying amount when said reliability determining means determines that said reliability of the data of each output channel exceeds said predetermined value;

said direct current voltage regulating means adjusting said direct current voltage level of the signal on each output channel based on the offset amount calculated by said calculation means; and

said amplifying means amplifying the signal on each output channel based on the amplification amount calculated by said calculation means.

5,737,016
SOLID STATE IMAGE PICKUP APPARATUS FOR REDUCING NOISE

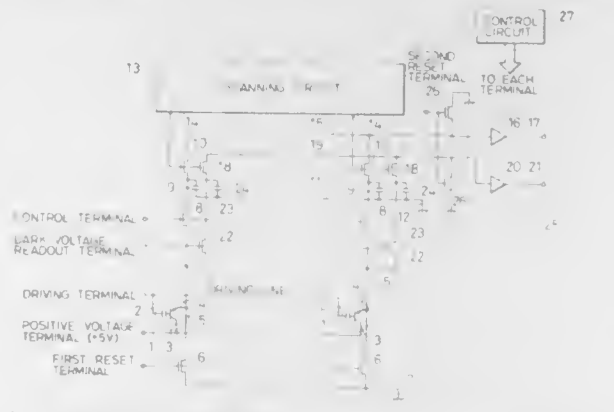
Hayao Ohzu, Fuchu; Toshiji Suzuki, Machida; Akira Ishizaki; Seiji Hashimoto, both of Yokohama; Tadanori Harada, and Tsuneo Suzuki, both of Hiratsuka, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 237,046, Jul. 15, 1994, abandoned, which is a continuation of Ser. No. 547,996, Jun. 13, 1990, Pat. No. 5,331,421, which is a continuation-in-part of Ser. No. 314,275, Feb. 23, 1989, abandoned, which is a continuation of Ser. No. 929,892, Nov. 13, 1986, abandoned, and a continuation of Ser. No. 460,012, Jan. 2, 1990, abandoned, which is a continuation of Ser. No. 96,534, Sep. 14, 1987, Pat. No. 4,914,519. This application Aug. 7, 1995, Ser. No. 512,017

Claims priority, application Japan, Nov. 15, 1985, 60-255027; Nov. 29, 1985, 60-260882; Sep. 19, 1986, 61-219666; Sep. 20, 1986, 61-229625; Oct. 8, 1986, 61-238017; Dec. 16, 1986, 61-300802; Dec. 16, 1986, 61-300803

Int. Cl.^{6} H04N *5/335*

U.S. Cl. 348—241 **17 Claims**



1. An apparatus comprising:

(a) a plurality of photoelectric transducer elements for converting an incident light into electrical signals, each of said plurality of photoelectric transducer elements having a fluctuation;

(b) control means having a first mode for reading out from each said element a first signal corresponding to a signal component and a noise component caused by said fluctuation, and a second mode for reading out from each said corresponding to the noise component caused by said fluctuation, said first and second signals being read out in the same manner from each said element;

(c) amplification means for amplifying said first and second signals, said amplification means including a plurality of amplifiers, each amplifier being coupled to a respective one of said plurality of photoelectric transducer elements, and

(d) operating means for processing said first and second signals from said plurality of elements, wherein said operating means includes a common capacitor, first switch means for selectively connecting said first signal and said second signal to an input side of said common capacitor, and second switch means for selectively connecting an output side of said common capacitor to a fixed level and a floating level

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5,737,017
COLOR IMAGE PICKUP APPARATUS HAVING A PLURALITY OF COLOR FILTERS

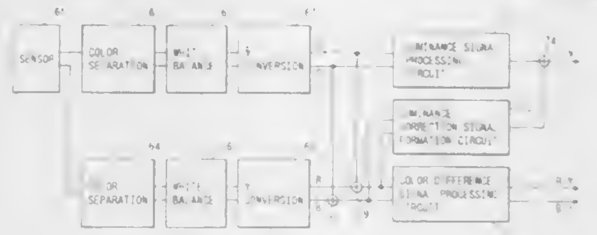
Yoshiro Udagawa, Saitama-ken; Akihiko Shiraishi, Kawasaki, and Akira Mamiya, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 133,214, Oct. 7, 1993, Pat. No. 5,541,648. This application May 10, 1996, Ser. No. 644,251

Claims priority, application Japan, Oct. 9, 1992, 4-297727; Oct. 16, 1992, 4-304974; Dec. 28, 1992, 4-360131

Int. Cl.^{6} H04N *9/07*

U.S. Cl. 348—280 **4 Claims**


SENSOR
COLOR SEPARATION
WHITE BALANCE
γ CONVERSION
LUMINANCE SIGNAL PROCESSING CIRCUIT
LUMINANCE CORRECTION SIGNAL FORMATION CIRCUIT
COLOR SEPARATION
WHITE BALANCE
γ CONVERSION
COLOR DIFFERENCE SIGNAL PROCESSING CIRCUIT
R
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9

1. A color image pickup apparatus comprising an image pickup element having a plurality of pixels two-dimensionally arranged in horizontal and vertical directions,

wherein horizontal lines twice as many as a number of horizontal lines required to obtain a desired image are arranged in said image pickup element,

the horizontal lines comprising first and second horizontal lines which are alternately arranged such that first color filters are arranged on each first horizontal line and second and third color filters are arranged for every other pixel on each second horizontal line,

a first difference signal being formed by calculating a difference between a signal output from a given pixel for which the second color filter is arranged and a signal output from a pixel which is on a same column as the given pixel and for which the first color filter is arranged,

a second difference signal being formed by calculating a difference between a signal output from a given pixel for which the third color filter is arranged and a signal from a pixel which is on the same column as the given pixel and for which the first color filter is arranged, and

color difference signals being formed on the basis of the first and second difference signals

wherein a luminance signal is formed by synthesizing a signal output from a pixel for which the first color filter is arranged and the first and second difference signals

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5,737,018
EXPOSURE APPARATUS AND METHOD FOR VIBRATION CONTROL SYSTEM

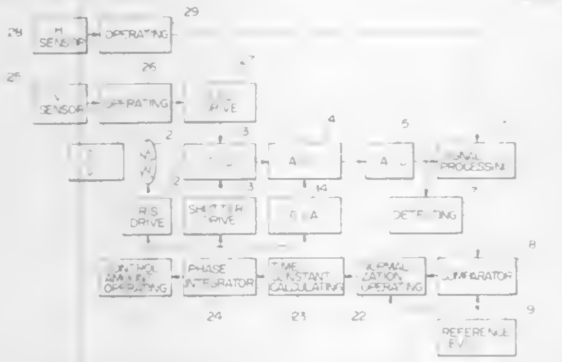
Shuji Shimizu, Kanagawa; Osamu Kuroda, Tokyo; Yasutaka Ito, and Yoshikazu Takahashi, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 260,381, Jun. 14, 1994, Pat. No. 5,473,374. This application May 16, 1995, Ser. No. 442,204

Claims priority, application Japan, Jun. 17, 1993, 5-171135; Jul. 12, 1993, 5-195218

Int. Cl.^{6} H04N 5/238

U.S. Cl. 348—363 5 Claims



1. Exposure apparatus for a video camera having means operable to correct hand vibration, comprising:

iris control means for setting a gain of an iris,

AGC amplifier control means for setting a gain of an AGC amplifier;

shutter control means for setting a gain of an electronic shutter; and

control means for controlling the gain set by said iris control means in a first range indicative of an object illuminance when the hand vibration correcting means is operated, for controlling the gain set by said AGC amplifier control means in a second range indicative of the object illuminance, and for controlling the gain set by said shutter control means in a third range indicative of the object illuminance

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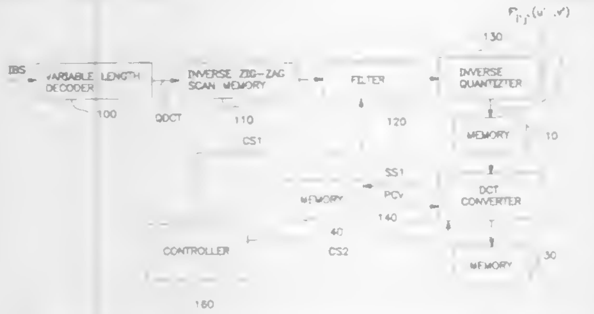
5,737,019
METHOD AND APPARATUS FOR CHANGING RESOLUTION BY DIRECT DCT MAPPING

Hee-Yong Kim, Plainsboro, N.J., assignor to Matsushita Electric Corporation of America, Secaucus, N.J.

Filed Jan. 29, 1996, Ser. No. 593,672

Int. Cl.^{6} H04N 7/30

U.S. Cl. 348—390 15 Claims



1. An apparatus for transforming the resolution of an image from a first resolution to a second resolution where a first plurality spatial frequency coefficient (SFC) values correspond to the image at the first resolution and a second plurality of SFC values correspond to the image at the second resolution, the apparatus comprising

memory means for storing a plurality of pre-computed values where the pre-computed values determine the change in the resolution of the image from the first resolution to the second resolution; and

converter means for directly converting the resolution of the image by mapping the first plurality of SFC values to the second plurality of SPC values in the spatial frequency domain, the converter means including:

(a) means for combining the pre-computed values with the first plurality of SPC values to produce processed values; and

(b) means for combining ones of the processed values to produce at least one of the second plurality of SFC values.

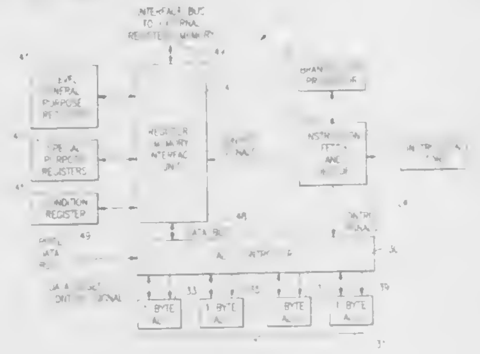
5,737,020
ADAPTIVE FIELD/FRAME ENCODING OF DISCRETE COSINE TRANSFORM

Barbara Ann Hall; Agnes Yee Ngai, both of Endwell, and John Michael Sutton, Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 411,126, Mar. 27, 1995, abandoned. This application Jan. 7, 1997, Ser. No. 779,541

Int. Cl.^{6} H04N 7/30

U.S. Cl. 348—403 1 Claim



1. In a method of discrete cosine transform compression of a digital video image, the improvement comprising compressing the digital video image in a processor having four parallel ALU's for carrying out four calculations in one cycle, and further comprising the steps of:

(a) calculating field variance and frame variance of a macroblock, where

(1) the field variance is the summation of field1 variance and field2 variance, where

(i) the field1 variance is the summation of the absolute differences between all pairs of 2n+1 and 2n+3 lines in a frame structure calculated by subtract absolute and add accumulator instructions, wherein n is an even positive integer and

(ii) the field2 variance is the summation of the absolute differences between all pairs of 2m+2 and 2m+4 lines in the frame structure calculated by subtract absolute and add accumulator instructions, wherein m is an even positive integer; and

the processor either

(i) first addresses two vertically adjacent pixels on consecutive odd field lines and then switches to consecutive even field lines, or

(ii) first addresses two vertically adjacent pixels on consecutive even field lines and then switches to consecutive odd field lines,

(2) the frame variance is calculated by summation of the absolute differences between adjacent lines in the frame structure calculated by subtract absolute and add accumulator instructions, individual pixels thereof being addressed by the processor as two vertically adjacent pixels on consecutive odd and even field lines in the macroblock,

(b) performing field discrete cosine transform compression of the macroblock when the field variance of the macroblock is less than the frame variance of the macroblock; and

(c) performing frame discrete cosine transform compression of the macroblock when the frame variance of the macroblock is less than the field variance of the macroblock.

5,737,021
TRANSFORM COEFFICIENT SELECTION METHOD AND APPARATUS FOR A TRANSFORM CODING SYSTEM

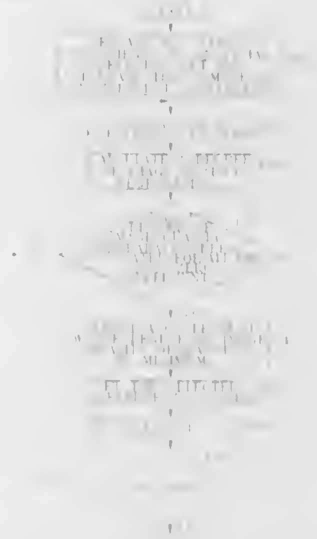
Kang-wook Chun, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jan. 6, 1997, Ser. No. 778,751

Claims priority, application Rep. of Korea, Jan. 6, 1996, 96-165

Int. Cl.^{6} H04N 7/50

U.S. Cl. 348—408 10 Claims



1. A coefficient selection apparatus in a transform coding system, the system including a transform unit for producing transform coefficients for an input image signal divided into blocks, each block having a predetermined size, the coefficient selection apparatus comprising.

bit amount calculation means for calculating a quantity of bits of the transform coefficients;

local decoding means for inverse transforming the transform coefficients and producing a restored block, and

a controller for receiving an input block of the input image signal and selecting a predetermined number of the transform coefficients taking into account a) a degree of block variation due to an error between the restored block output from said local decoding means and the input block for each transform coefficient, and b) an amount of bit variation associated with selection of each transform coefficient.

5,737,022
MOTION PICTURE ERROR CONCEALMENT USING SIMPLIFIED MOTION COMPENSATION

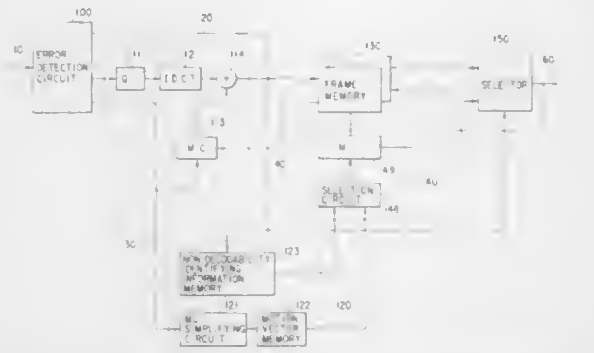
Noboru Yamaguchi, Yashio, and Hideyuki Ueno, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation-in-part of Ser. No. 202,269, Feb. 25, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 488,051

Claims priority, application Japan, Feb. 26, 1993, 5-037233; Dec. 14, 1993, 5-313405

Int. Cl.^{6} H04N 7/32

U.S. Cl. 348—416 4 Claims



1. A motion picture receiving apparatus for receiving information obtained by coding a motion picture signal in the block unit by use of the motion compensation and for decoding the received data in the block unit, comprising:

error detection means for detecting an error of the coded data received and outputting an error detection signal,

identifying means for identifying a block being made non-decodable by the error;

a motion compensation memory for storing data of an identification result of the identifying means and a motion compensation method, and having means for simplifying data of the motion compensation method, and means for storing the motion compensation method simplified by said simplifying means;

a generating section for generating data of the motion compensation method applied to the block being identified to be non-decodable, said generating section comprising means for generating data of the motion compensation method applied to the block being identified to be non-decodable from data of the motion compensation method simplified by said simplifying means by said identifying means from data of a plurality of decodable blocks lying near the block identified to be non-decodable; and

correction means for correcting the block identified to be non-decodable by said identifying means by said motion compensation method by use of data of said motion compensation method generated by said generating section, said correction means comprising means for correcting the block identified to be non-decodable by said identifying means by the motion compensation by use of data of the simplified compensation method generated by said generating section

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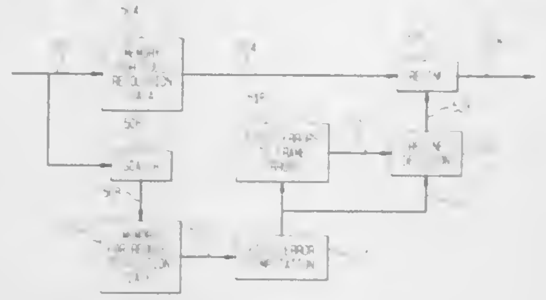
5,737,023
HIERARCHICAL MOTION ESTIMATION FOR INTERLACED VIDEO

Elliot Neil Linzer, Bronx, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 5, 1996, Ser. No. 596,933

Int. Cl.^{6} H04N 7/36

U.S. Cl. 348—416 14 Claims



1. A motion estimation unit, comprising.

a scalar, for performing field-based scaling of a full resolution input video in at least one of the horizontal and vertical directions to form a reduced resolution video;

a field error computation unit, coupled to the scalar, for computing field errors between regions in each field of a reduced resolution current frame and regions in each field of a reduced resolution reference frame,

a field errors to frame errors unit, coupled to the field errors computation unit, for computing frame errors between regions in the reduced resolution current frame and regions in the reduced resolution reference frame;

a refine decision unit, coupled to the field error computation unit and the field errors to frame errors computation unit, for selecting coarse vectors to refine, and

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a refine unit, coupled to the refine decision unit, for refining the coarse vectors selected by the refine decision unit using regions of the full resolution input video defined by said coarse vectors.

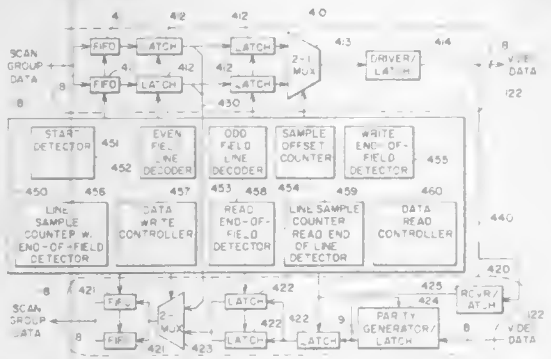
5,737,024
SYSTEM FOR STORING COMPUTER DATA USING A VIDEO TAPE RECORDER

Masakazu Chikira, Louisville, Colo., assignor to Storage Technology Corporation, Louisville, Colo.

Filed Mar. 23, 1995, Ser. No. 409,153

Int. Cl.⁶ H04N *7/01*

U.S. Cl. 348—441 **15 Claims**



1. A system for converting user data between computer data format scan groups and National Television Systems Committee format video fields, comprising:

first receiving means for receiving scan groups and for converting said scan groups from computer data format to National Television Systems Committee format video fields, said first receiving means including

first converting means for converting data words of each scan group into data bytes, and

first synchronizing means for synchronizing said data bytes with timing requirements of a video tape recorder; and

second receiving means for receiving said National Television Systems Committee format video fields and for converting said National Television Systems Committee format video fields to said scan groups in Computer data format, said second receiving means including

second converting means for converting data bytes of each video field into data words; and

second synchronizing means for synchronizing said data words with timing requirements of a page buffer memory.

5,737,025
CO-CHANNEL TRANSMISSION OF PROGRAM SIGNALS AND ANCILLARY SIGNALS

Robert A. Dougherty, Ozona; David A. Kiewit, Palm Harbor; Daozheng Lu, Dunedin, and Henry B. Wheeler, St. Petersburg, all of Fla., assignors to Nielsen Media Research, Inc., New York, N.Y.

Filed Feb. 28, 1995, Ser. No. 395,789

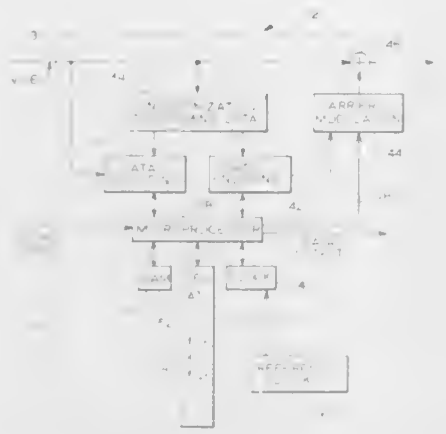
Int. Cl.⁶ H04N *7/08*

U.S. Cl. 348—473 **34 Claims**

1. A system for transmitting data in the same communication channel as a composite video signal, wherein the composite video signal is transmitted in a frequency band and the composite video signal has a horizontal sync period, the system comprising:

selecting means for selecting a carrier having a carrier frequency within the frequency band at the beginning of each of a plurality of frequency stepping periods, each frequency stepping period having a duration equal to, or an integer multiple of, the horizontal sync period;

modulating means for modulating the data onto the selected carrier to produce a modulated data signal; and



combining means for combining the modulated data signal with the composite video signal.

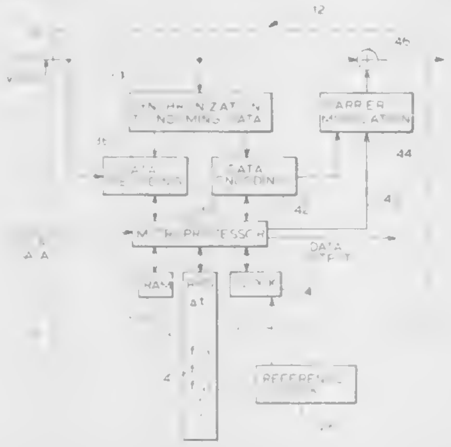
5,737,026
VIDEO AND DATA CO-CHANNEL COMMUNICATION SYSTEM

Daozheng Lu, Dunedin; Henry B. Wheeler, St. Petersburg; Edgar W. Aust, Palm Harbor, and Robert A. Dougherty, Ozona, all of Fla., assignors to Nielsen Media Research, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 395,789, Feb. 28, 1995. This application Jun. 7, 1995, Ser. No. 482,820

Int. Cl.⁶ H04N *7/08*

U.S. Cl. 348—473 **39 Claims**



1. A system for transmitting ancillary data in the same communication channel as a video signal, wherein the video signal has a frequency band and an overscan region, the system comprising:

selecting means for selecting a carrier having a carrier frequency within a low energy density portion of the frequency band;

modulating means for modulating ancillary data onto the selected carrier to produce a modulated carrier; and,

adding means for adding the modulated carrier to the overscan region of the video signal.

5,737,027
PIXEL INTERLACING APPARATUS AND METHOD

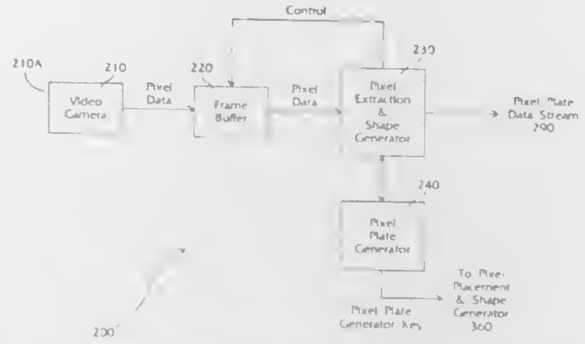
Gary Demos, Culver City, Calif., assignor to DemoGraFX, Culver City, Calif.

Continuation of Ser. No. 659,227, Feb. 22, 1991, Pat. No. 5,465,119. This application Dec. 27, 1994, Ser. No. 365,555

Int. Cl.⁶ H04N *7/08, 7/087*

U.S. Cl. 348—474 **22 Claims**

1. An image capturing system, comprising:


Control
210A
210
Video Camera
Pixel Data
220
Frame Buffer
Pixel Data
230
Pixel Extraction & Shape Generator
Pixel Plate Data Stream 290
240
Pixel Plate Generator
Pixel Plate Generator Key
To Pixel Placement & Shape Generator 360
200

(a) an image signal source for providing pixel data related to an original image;

(b) a buffer coupled to the image signal source for storing the pixel data;

(c) a pixel set generator for determining pseudo-random pixel sets; and

(d) an extraction circuit, coupled to the buffer and the pixel set generator, for extracting a plurality of non-viewable pixel groups from the pixel data in the buffer, each pixel group comprising a plurality of picture plates corresponding to the pseudo-random pixel sets;

wherein a viewable image representing the original image can be formed upon accumulating at least two of the non-viewable pixel groups.

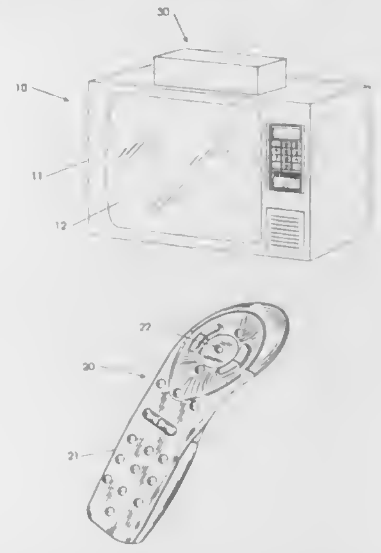
5,737,028
PREVIOUS CHANNEL LISTING WITH CURSOR CONTROLLED USER INTERFACE FOR TELEVISION VIDEO DISPLAYS

Randall Lee Bertram, Raleigh, N.C., and Herbert S. Steelman, Lawrenceburg, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 1, 1995, Ser. No. 548,363

Int. Cl.⁶ H04N *5/445*

U.S. Cl. 348—563 **4 Claims**



4. An intelligent television receiver comprising:

a remote control device usable at some distance of separation from said television receiver and having:

a housing sized to be held in the hand of a human observer;

a manually engageable input device mounted in said housing for manipulation by the human observer, and

control transmitter circuitry mounted in said housing and coupled to said input device for transmitting at a frequency which is outside direct sensing by the human observer command signals coordinated in a predetermined manner to manipulation of said input device by the human observer;

a video display device having a predetermined screen area for displaying visual images to the human observer;

video reception circuitry coupled to said video display device for receiving video signal streams emitted from a plurality of sources and in a plurality of frequency bands which are outside direct sensing by the human observer and for delivering to said video display device video signals which drive said video display device to display said visual images;

command receiver circuitry for receiving said command signals from said control transmitter circuitry and for deriving from said received command signals image directing signals directing modification of said visual images; and

a microcontroller coupled to said command receiver circuitry and to said video reception circuitry

(a) for receiving said image directing signals,

(b) for generating a cursor image signal for overlay of a cursor image onto said visual images, and

(c) for modifying said visual images as directed by manipulation of said remote control device by the human observer,

memory devices coupled to said microcontroller for receiving and storing and delivering digitally encoded data used by said microcontroller in executing control programs; and

digitally encoded control program data stored in said memory devices accessibly to said microcontroller and effective on execution by said microcontroller for modifying said video signals in predetermined manners in response to predetermined image directing signals, said program data

(1) executing a list procedure as directed by manipulation of said remote control device,

(2) storing in said memory devices data identifying the source and frequency band of a video signal stream source delivering images then being displayed to a the human observer,

(3) displaying a list of video signal stream sources for which identifying data has been stored, and

(4) selecting a listed source from the list for display by cursor position and manipulation of said remote control device.

5,737,029
IMAGE RECEPTION CONTROLLER AND METHOD WITH ORDERED DISPLAY OF PREVIOUSLY VIEWED CHANNELS

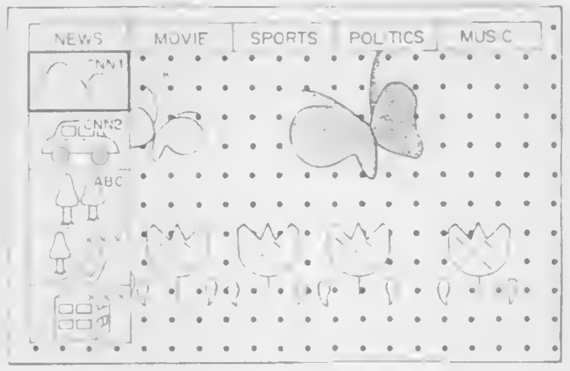
Yukiko Ohkura; Kazumasa Okumura, both of Tokyo; Akira Yamazaki, Chiba, and Tomoko Shudo, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 3, 1995, Ser. No. 552,868

Claims priority, application Japan, Nov. 11, 1994, 6-277301

Int. Cl.⁶ H04N *5/445*

U.S. Cl. 348—564 **8 Claims**



1. An image reception controller, comprising:

reception means for receiving a specified broadcasting channel,

memory means for storing a record of reception of a plurality of broadcasting channels, inclusive of at least programming categories of said plurality of broadcasting channels received by said reception means in a prescribed period in the past,

reception control means for controlling said reception means to receive broadcasting channels of said plurality of broadcast-

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ing channels that belong to a category of said plurality of programming categories stored in the memory means in response to an external command of a selected operational mode; and

display control means for displaying labels of said plurality of programming categories along one of the horizontal axis and vertical axis of the display screen and displaying pictures of the broadcasting channels of the category in small frames along the other of said horizontal axis and vertical axis in decreasing order of frequency of reception as indicated in said stored record of reception

5,737,030

ELECTRONIC PROGRAM GUIDE DEVICE

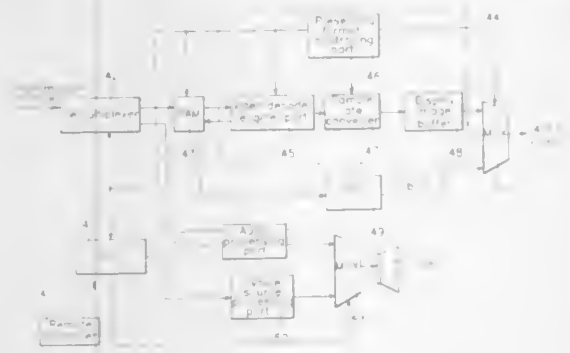
Seong Wook Hong, and Taeg Il Cho, both of Seoul, Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Oct. 15, 1996, Ser. No. 731,430

Claims priority, application Rep. of Korea, Oct. 16, 1995, 35703/1995; Dec. 21, 1995, 53435/1995

Int. Cl.^{6} H04N *5/445*

U.S. Cl. 348—564 **9 Claims**



1 An electronic program guide device comprising

a demultiplexer for filtering a multiplexed bit stream transmitted through a transmission channel with respect to a selected channel and separating the filtered multiplexed bit stream into a video stream and an audio stream;

a controlling part coupled to the demultiplexer for extracting electronic program guide information from the multiplexed bit stream and storing the extracted electronic program guide information in a memory.

a video processing part coupled to the demultiplexer and the controlling part for decompressing the video stream from the demultiplexer to restore an original image, synthesizing the original image and the electronic program guide information, and displaying the synthesized original image and the electronic program guide information on a display;

an audio processing part coupled to the demultiplexer for decompressing the audio stream from the demultiplexer;

a voice source processing part coupled to the controlling part for vocally synthesizing the electronic program guide information received from the controlling part; and

a selecting part coupled to the audio processing part and the voice source processing part for selecting an output from the audio processing part and the voice source processing part, and sending the output to a speaker

5,737,031

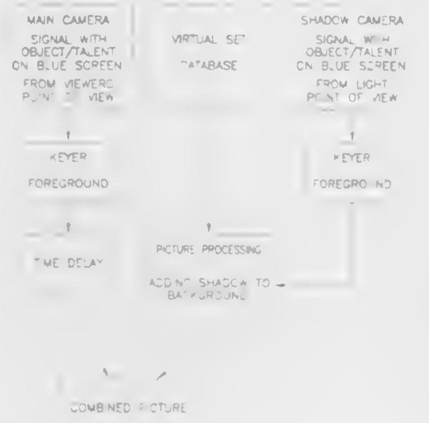
SYSTEM FOR PRODUCING A SHADOW OF AN OBJECT IN A CHROMA KEY ENVIRONMENT

Aviv Tzidon, Azur, and Dekel Tzidon, Ramat Hagolan, both of Israel, assignors to RT-SET, Herzelia, Ill.

Filed Jul. 30, 1996, Ser. No. 688,300

Int. Cl.^{6} H04N *9/75*

U.S. Cl. 348—587 **18 Claims**


MAIN CAMERA SIGNAL WITH OBJECT/TALENT ON BLUE SCREEN FROM VIEWERS POINT OF VIEW
VIRTUAL SET DATABASE
SHADOW CAMERA SIGNAL WITH OBJECT/TALENT ON BLUE SCREEN FROM LIGHT POINT OF VIEW
KEYER FOREGROUND
KEYER FOREGROUND
TIME DELAY
PICTURE PROCESSING
ADDING SHADOW TO BACKGROUND
COMBINED PICTURE

1. A system for producing a shadow of an object in a chroma key environment, comprising:

a computer having a background image stored therein;

a video camera positioned as a light source, the video camera producing an output signal of the object and a colored background screen, and

a first processor for generating a shadow corresponding to the object, and producing an output image containing the background image and the shadow

5,737,032

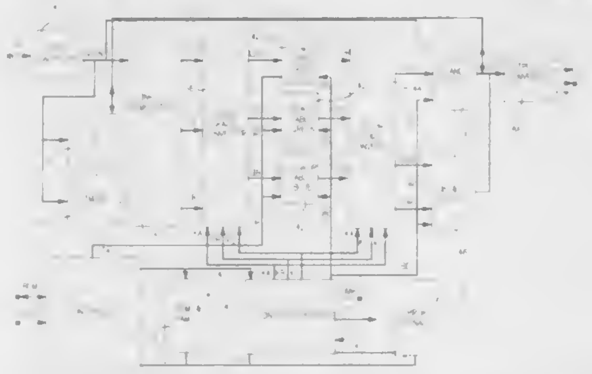
SERIAL DIGITAL VIDEO PROCESSING WITH CONCURRENT ADJUSTMENT IN RGB AND LUMINANCE/COLOR DIFFERENCE

Robert E. Stenzel, Phoenixville, and Donald E. Groff, Hatfield, both of Pa., assignors to Videotek, Inc., Pottstown, Pa.

Filed Sep. 5, 1995, Ser. No. 523,269

Int. Cl.^{6} H04N *9/64*

U.S. Cl. 348—649 **15 Claims**



1 A digital converter for an input video data signal having successive samples of at least three data values representing luminance and hue information defining the samples according to a first color space definition, the converter comprising:

at least two color space converters in cascade along a data path between a data input and a data output, a first said color space converter being operable to convert successive sets of the data values from the first color space definition to a second color space definition, the first color space converter being operable to perform a numeric function on the successive sets of the data values using first factors applicable to the data values, and a second said color space converter being operable to convert successive sets of the data back to the first color space definition, the second color space converter being operable to perform a numeric function on the successive sets of the data values using second factors applicable to the data values,

at least one value adjustment circuit operable to perform a numeric function on the successive sets of the data values using third factors applicable to the data values, the adjustment circuit being coupled to at least one of the two color space converters for performing the numeric function using the third factors to correct the data values in at least one of the color space definitions, and,

a controller in data communication with the at least one value adjustment circuit, the first and second color space converters and an input, the controller being responsive to signals on the input to control the numeric function effected by the adjustment circuit for altering the luminance and color difference information contained in the data values, and wherein the data values have a gain and an offset and the controller is operable to adjust at least one of the first, second and third factors in order to adjust at least one of the gain and offset of the data values as the successive samples pass through the converter.

5,737,033

AGC APPARATUS CONCURRENTLY SATISFYING SUFFICIENT IMPEDANCE MATCHING CHARACTERISTIC AND LINEAR AGC CHARACTERISTIC

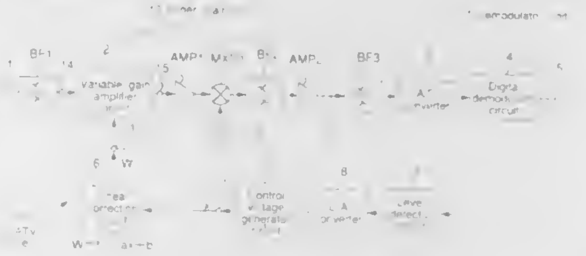
Sigeto Masuda, Osaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 30, 1995, Ser. No. 550,538

Claims priority, application Japan, Sep. 27, 1995, 7-249424

Int. Cl.^{6} H04N *5/52*

U.S. Cl. 348—678 **19 Claims**



1 An AGC apparatus comprising:

variable gain amplification means for amplifying an analog input signal with a gain according to a level of an analog control signal to provide an analog output signal.

signal processing means for receiving the analog output signal of said variable gain amplification means and outputting a digital signal;

D/A conversion means for receiving the digital signal outputted from said signal processing means and outputting an analog signal; and

linear correction means, coupled to receive the analog signal outputted from said D/A conversion means, for correcting the analog signal and outputting the corrected analog signal to said variable gain amplification means as the analog control signal so that a relation of the gain of said variable gain amplification means with respect to the analog signal is expressed by at least one straight line.

5,737,034

RADIO FREQUENCY MODULATOR HAVING AN AUDIO MULTIPLEX BROADCASTING FUNCTION

Nam-hyuk Rhee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jul. 31, 1996, Ser. No. 690,147

Claims priority, application Rep. of Korea, Jul. 31, 1995, 1995-23465

Int. Cl.^{6} H04N *5/60*

U.S. Cl. 348—738 **22 Claims**

1. A radio frequency (RF) modulation apparatus for modulating an input video signal and an input audio signal into a television broadcast signal, comprising:

a memory device which stores said input audio signal as a stored audio signal;

a decoder which inputs said stored audio signal from said memory device and decodes said stored audio signal to produce a decoded audio signal;

switching means for inputting said stored audio signal and said decoded audio signal and for selectively outputting either said stored audio signal or said decoded audio signal as a selected audio signal, wherein said switching means outputs said stored audio signal as said selected audio signal if said input audio signal corresponds to a first audio signal and wherein said switching means outputs said decoded audio signal as said selected audio signal if said input audio signal corresponds to a second audio signal; and

an RF modulator which modulates said selected audio signal and outputs said television broadcast signal

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5,737,035

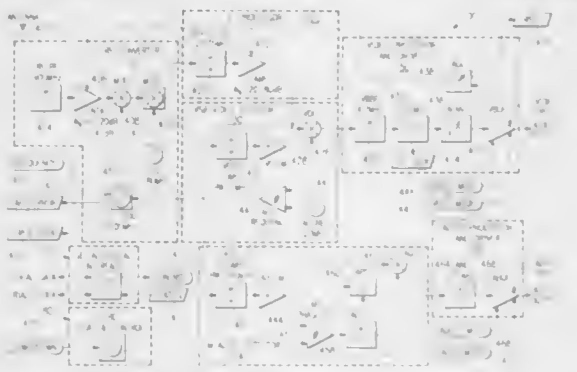
HIGHLY INTEGRATED TELEVISION TUNER ON A SINGLE MICROCIRCUIT

Robert Rudolf Rotzoll, Allen, Tex., assignor to Microtune, Inc., Plano, Tex.

Filed Apr. 21, 1995, Ser. No. 426,080

Int. Cl.^{6} H04N *5/44*

U.S. Cl. 348—725 **128 Claims**



1 A television receiver comprising

a receiver input coupled to an RF signal source.

a first reference signal having a first operating frequency.

a first mixer having a first input coupled to said receiver input and a second input coupled to said first reference signal.

a second reference signal having a second operating frequency. and

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a second mixer having a first input coupled directly to an output of said first mixer and a second input coupled to said second reference signal, wherein said second mixer is an image rejection mixer

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5,737,036

COLOR IMAGE DISPLAY APPARATUS

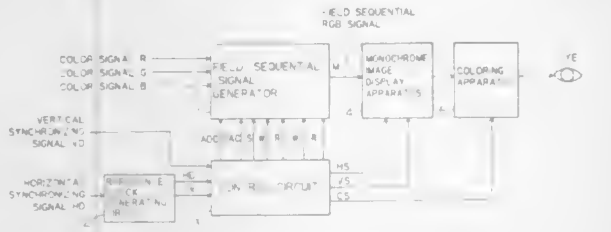
Akira Kanai; Masaki Yamakawa, and Junya Takahashi, all of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 31, 1995, Ser. No. 522,100

Claims priority, application Japan, Feb. 22, 1995, 7-033831

Int. Cl.^{6} H04N *9/31*

U.S. Cl. 348—742 **12 Claims**


FIELD SEQUENTIAL RGB SIGNAL
COLOR SIGNAL R
COLOR SIGNAL G
COLOR SIGNAL B
FIELD SEQUENTIAL SIGNAL GENERATOR
MONOCHROME IMAGE DISPLAY APPARATUS
COLORING APPARATUS
EYE
VERTICAL SYNCHRONIZING SIGNAL VD
HORIZONTAL SYNCHRONIZING SIGNAL HD
REFERENCE CLOCK GENERATING
CONTROL CIRCUIT
HS
VS
CS

1. A color image display apparatus, comprising:

field sequential signal generating means including a memory device for storing one field of each one of a plurality of primary color signals which form a color image signal, said field sequential signal generating means receiving the plurality of primary color signals and reading the plurality of primary color signals which are stored in said memory device at a speed which is n times faster than a speed at which the plurality of primary color signals are stored in said memory device to convert the plurality of primary color signals into a field sequential signal;

image displaying means for sequentially displaying the field sequential signal which is output from said field sequential signal generating means;

coloring means, disposed to face a display screen of said image displaying means, in synchronization with the field sequential signal which is sequentially displayed by said image displaying means, said coloring means coloring the field sequential signal in a color which corresponds to each one of the plurality of primary color signals which form the field sequential signal,

reference clock generating means for generating a reference clock signal having a predetermined frequency in accordance with a horizontal synchronizing signal of the color image signal; and

control means for controlling said field sequential signal generating means, said image displaying means and said coloring means in accordance with the horizontal synchronizing signal of the color image signal and a vertical synchronizing signal of the color image signal and in accordance with the reference clock signal which is outputted from said reference clock generating means so that said field sequential signal generating means, said image displaying means and said coloring means each operate at predetermined timing, wherein

said control means controls said field sequential signal generating means so that a horizontal synchronizing signal of the field sequential signal which is outputted from said field sequential signal generating means, appears continuously in a constant cycle.

5,737,037

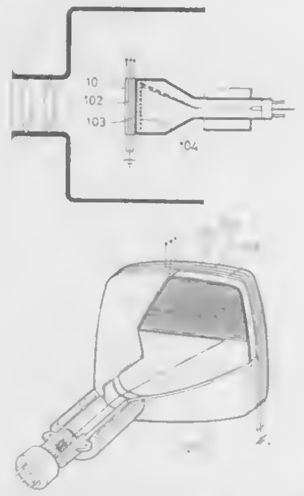
SYNTHETIC COLOR TELEVISION SYSTEM HAVING DISPLAY USING AN INTEGRAL OVERLAPPING COLOR FILTER ASSEMBLY

Tai-Her Yang, No. 32 Lane 29, Taipin St., Si-Hu Town, Dzan-Hwa, Taiwan

Continuation of Ser. No. 192,618, Feb. 7, 1994. This application Oct. 10, 1995, Ser. No. 541,585

Int. Cl.^{6} H04N *9/16*

U.S. Cl. 348—742 **1 Claim**



1. A synthetic color television system comprising:

a) a camera including a light sensitive medium, means for scanning the light sensitive medium to detect an intensity of light reaching the medium, and an integral first color-filtering assembly comprising three color-filtering screens arranged to overlay one another so as to be serially superimposed between an image source and the scanning means, said screens being individually activatable to filter light of a respective one of three colors according to a sequence;

b) means for synchronizing activation of respective said screens and scanning of the light sensitive medium;

c) means for transmitting an image together with horizontal and vertical synchronization signals, and filter activation signals indicative of the sequence of activation of said color-filtering screens;

d) means for receiving said images and said scanning synchronization signals; and

e) a display including a picture tube and an integral second color-filtering assembly including integral individually activatable screens corresponding to said color filtering screens of the camera and arranged to overlay one another and thereby be superimposed between the picture tube and a viewer, and means for causing said screens of the display to be activated in response to said filter activation signals according to said sequence in synchronism with said vertical and horizontal synchronization signals,

wherein said second color-filtering assembly is fixed to said picture tube and said first color-filtering assembly is fixed with respect to said medium.

5,737,038

COLOR DISPLAY SYSTEM WITH SPATIAL LIGHT MODULATOR(S) HAVING COLOR-TO-COLOR VARIATIONS IN THE DATA BIT WEIGHT SEQUENCE

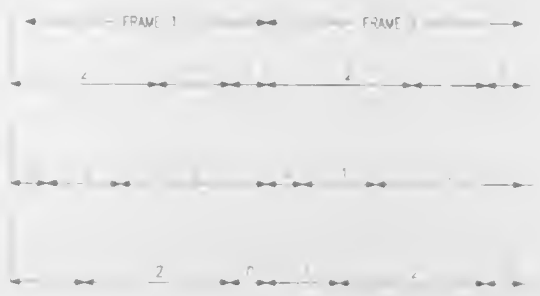
Richard O. Gale, Richardson; Gerhard P. Deffner, and Vishal Markandey, both of Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 429,387, Apr. 26, 1995. This application Feb. 3, 1997, Ser. No. 790,877

Int. Cl.^{6} G09G *3/34*

U.S. Cl. 348—759 **12 Claims**

1. A method of reducing artifacts in an image display system having multiple spatial light modulators (SLMs), each SLM concurrently displaying images based on data representing a different color, comprising the steps of:



determining a display sequence for data to be delivered to a first SLM, wherein said display sequence represents the order of display of different bit-weights during each frame period;

repeating said determining step for data for each said SLM, such that each said SLM will receive data having a different display sequence;

delivering said data of each color to the corresponding SLM; and

displaying said data of each color.

5,737,039

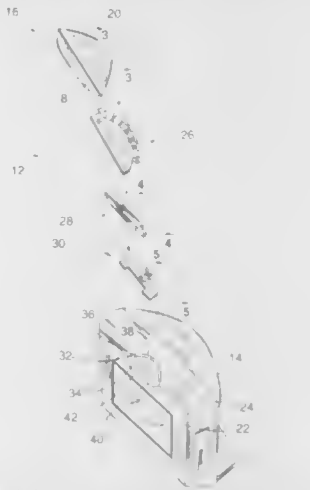
CONTROL PANEL FOR A TELEVISION

Michael Andrew Lopez; Satoshi Miyajima, both of San Diego, and Anthony John Gangitano, Esconido, all of Calif., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Aug. 13, 1996, Ser. No. 696,421

Int. Cl.^{6} H04N *5/64;* **H05K** *5/00*

U.S. Cl. 348—836 **15 Claims**



11. A control panel for a monitor having a cabinet, comprising:

a cover having a top flange and a front flange, said top flange including a plurality of apertures and first resilient clips and said front flange including a plurality of second resilient clips and a translucent section adapted for transmitting infrared light;

a button module having resilient buttons and a plurality of third resilient clips, each of said buttons extending through an associated aperture and being adapted to enable operation of selected functions of said monitor;

an emitter having light emitting elements for emitting infrared light, said emitter being removably secured to said top cover by said third resilient clips such that said light emitting elements are positioned adjacent said translucent section;

a printed circuit board having circuitry for operation of said monitor, said printed circuit board being removably secured to said top flange by said first resilient clips and wherein said button module is removably secured between said printed circuit board and said top flange, and

an assembly area located in an opening formed in first and second surfaces of said cabinet, wherein said top cover is removably secured to said assembly area by said second resilient clips to conceal said assembly area and wherein said top flange further includes a plurality of first ribs and said assembly area includes a second rib associated with each of said first ribs, each said second rib being positioned in contact between its associated first rib and said front flange to position said front flange flush with said first surface and to inhibit displacement of said front flange relative to said first surface and wherein said assembly area further includes third ribs and said top flange includes fourth ribs, said third ribs being positioned in contact with said second resilient clips and said fourth ribs being positioned in contact with a back surface of said assembly area to inhibit removal of said top cover upon the application of a force to the front flange.

5,737,040

LIQUID CRYSTAL DISPLAY APPARATUS AND LIQUID CRYSTAL PROJECTION DISPLAY APPARATUS WHICH EMPLOY HOLOGRAM COLOR FILTER

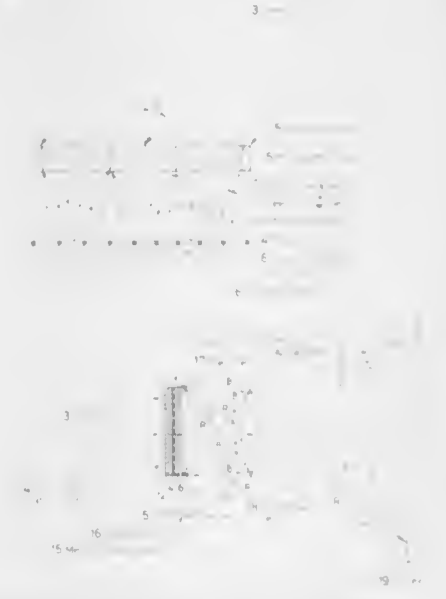
Nobuhiko Ichikawa, and Tsuyoshi Hotta, both of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan

Filed Jul. 11, 1995, Ser. No. 500,757

Claims priority, application Japan, Jul. 12, 1994, 6-159767; Jan. 12, 1995, 7-003050; Jan. 12, 1995, 7-003051

Int. Cl.^{6} G02F *1/1335;* **G02B** *5/32*

U.S. Cl. 349—9 **2 Claims**



1. A liquid crystal display apparatus comprising:

a liquid crystal panel in which liquid crystal cells for displaying pixel information of different colors are periodically arranged, and in which transmission condition of each liquid crystal cell is controlled independently of each other, and

a color filter which is integrally bonded to an illuminating light entrance side of said liquid crystal panel,

said color filter comprising a hologram array in which each hologram defractively disperses incident illuminating light so that light rays of different wavelength regions enter respective liquid crystal cells of corresponding colors,

said liquid crystal display apparatus further comprising a polarizing element for converting illuminating light into linearly polarized light, said polarizing element being provided on an illuminating light entrance side of said hologram color filter selected so that said linearly polarized light is s-polarized light with respect to an illuminating light entrance surface of said hologram color filter.

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5,737,041
TFT, METHOD OF MAKING AND MATRIX DISPLAYS INCORPORATING THE TFT

Scott H. Holmberg, Pleasanton, and Ronald L. Huff, San Ramon, both of Calif., assignors to Image Quest Technologies, Inc., Fremont, Calif.

Filed Jul. 31, 1995, Ser. No. 497,371

Int. Cl.^{6} G09G 3/36

U.S. Cl. 349—43 **38 Claims**

28. An improved active matrix display, including a plurality of thin film transistors, each transistor coupling a pixel to a row and a column line in the display, the improvement comprising:

each transistor including an interdigitated source and drain including a closed opening in said source, at least two fingers extending from said source toward said drain, one finger adjacent opposite sides of said opening and at least one finger on said drain extending from said drain between said two source fingers, spaced therefrom.

30. The improvement as defined in claim **28** including said source and drain of each transistor formed over a redundant gate insulator, said gate insulator formed by a first anodized gate metal layer forming an insulative layer and a second deposited insulator formed over said anodized first insulative layer.

5,737,042
IMAGE DISPLAY DEVICE WITH OPTICAL LOW-PASS FILTER

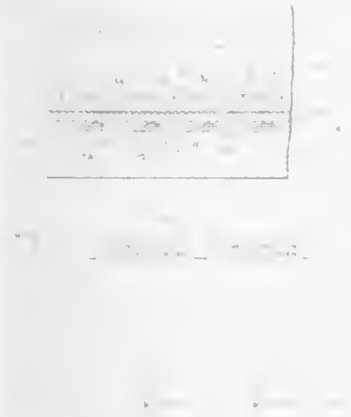
Masayuki Shinohara, Takatsuki, and Shigeru Aoyama, Kyoto, both of Japan, assignors to Omron Corporation, Kyoto, Japan

Filed Aug. 30, 1995, Ser. No. 521,477

Claims priority, application Japan, Aug. 31, 1994, 6-229084

Int. Cl.^{6} G02F 1/1335; G02B 27/46; G09F 9/00

U.S. Cl. 349—57 **21 Claims**



1. An image display device comprising:

an image display body having a plurality of pixels arranged periodically in two dimensions; and

an optical low-pass filter placed on or above a front surface of said image display body,

one of two cut-off spatial frequencies in at least one direction of said optical low-pass filter being set within a range of values greater than ¼ and less than ¾ of a specific sampling frequency among sampling frequencies determined by a pixel arrangement of said image display body, and the other of the two cut-off spatial frequencies being set within a range of values greater than ¾ and less than [illegible] of the specific sampling frequency, where said specific sampling frequency is taken as being 1.

5,737,043
LIQUID CRYSTAL DISPLAY PANEL HOLDING METAL FIXTURE

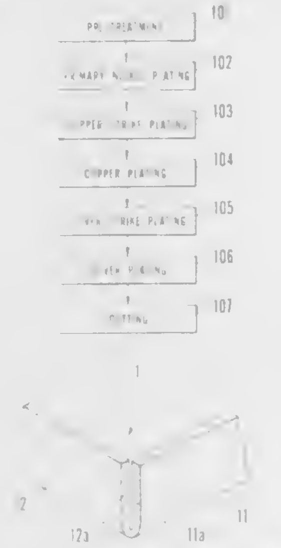
Kei Takaya, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 25, 1996, Ser. No. 637,472

Claims priority, application Japan, Apr. 28, 1995, 7-105391

Int. Cl.^{6} G02F 1/1333, 1/13; H01S 4/00

U.S. Cl. 349—58 **4 Claims**



1. A liquid crystal display panel holding metal fixture which is for holding a liquid crystal display panel and which is to be soldered to a printed circuit board, said liquid crystal display panel holding metal fixture having bottom and side surfaces that are formed by bending a metal plate cut into a predetermined shape, said bottom surface having a corner portion where cut surfaces of said metal plate that form said side surfaces are close to each other, wherein:

said metal plate comprising a material having poor solder wettability and plating thereon for imparting solder wettability to said metal plate, and wherein the material having poor solder wettability is exposed at said cut surfaces.

3. A method of manufacturing a liquid crystal display panel holding metal fixture, comprising the steps of:

plating a metal plate made of a material having poor solder wettability to impart solder wettability thereto,

cutting said plated metal plate into a predetermined shape, and

forming bottom and side surfaces by bending predetermined sides of said cut metal plate.

5,737,044
ILLUMINATION SYSTEM USING A BROADBAND CHOLESTERIC POLARIZER HAVING ITS SURFACE OF MAXIMUM HELIX PITCH FACE THE RADIATION SOURCE

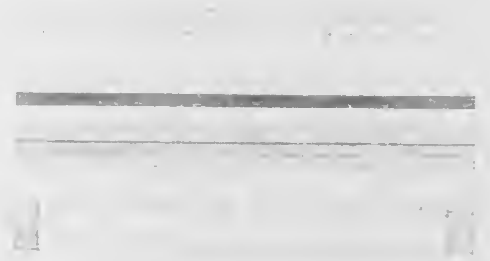
Johannes A. M. M. Van Haaren, and Dirk J. Broer, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 12, 1995, Ser. No. 501,330

Claims priority, application European Pat. Off., Jul. 12, 1994, 94202006

Int. Cl.^{6} G02F 1/1335

U.S. Cl. 349—61 **18 Claims**



1. An illumination system comprising a radiation source and a broadband, cholesteric polarizer with a layer of a polymeric material having a cholesteric ordering, said material being ordered such that the axis of the molecular helix is oriented transversely to the layer, and the pitch of the molecular helix increasing from a minimum value at a first surface of the cholesteric layer to a maximum value at the second surface of the layer, and the polarizer being positioned in the illumination system in such a manner that the cholesteric layer faces the radiation source with the second surface.

5,737,045
LCD WITH NOTCH FILTER

Adiel Abileah, Farmington Hills, Mich., assignor to OIS Optical Imaging Systems, Inc., Northville, Mich.

Filed Sep. 22, 1995, Ser. No. 532,099

Int. Cl.^{6} G02F 1/1335

U.S. Cl. 349—104 **7 Claims**

1. A color liquid crystal display, having a backlight, for providing a color image to a viewer, the liquid crystal display comprising:

a display panel including a liquid crystal layer and first, second, and third different color filters therein, said panel including a plurality of pixel electrodes which correspond to color filters on a one to one basis;

said backlight including: (i) a fluorescent light source (**51**, **53**) for emitting fluorescent light rays having both desirable red, green, and blue peaks and an undesirable blue-green peak having light from at least 490–495 nm, toward said display panel, (ii) a collimating faceted layer (**55**) for collimating the light emitted from said source as it heads away from said source toward said display panel, and (iii) a 475–510 nm notch filter disposed between said color filters and said light source, said notch filter for substantially preventing said undesirable peak from reaching said color filters thereby improving the color saturation characteristics of the image reaching the viewer; and

wherein said color filters are from 1.20–1.30 μm thick and said first color filter has a thickness less than said second and third color filters.

5,737,046
BIREFRINGENCE CONTROL TYPE LIQUID CRYSTAL DISPLAY DEVICE

Hiroyuki Moriwaki; Manabu Abiru; Koji Yabuta, all of Nara, and Nobuhiro Kasai, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 12, 1996, Ser. No. 695,420

Claims priority, application Japan, Oct. 13, 1995, 7-265378; Mar. 1, 1996, 8-044563

Int. Cl.^{6} G02F 1/1335

U.S. Cl. 349—117 **8 Claims**

1. A birefringence control type liquid crystal display device comprising:

a liquid crystal cell having an STN type liquid crystal sandwiched by two substrates;

a pair of polarizers disposed so as to sandwich the liquid crystal cell; and

a phase difference plate disposed between the pair of polarizers,

wherein the phase difference plate is made of a high polymer film, and a product Δnd of a refractive index anisotropy Δn of the STN type liquid crystal and a cell gap d of the liquid crystal cell is in a range of 1700 nm to 1950 nm.

5,737,047
COLOR LIQUID CRYSTAL DISPLAY DEVICE WITH OPTICAL AXES OF RETARDATION POLARIZATION PLATES SET IN AN OPPOSITE DIRECTION OF TWIST DIRECTION OF LC MOLECULES

Katsuhito Sakamoto, Sagamihara; Zenta Kikuchi, Hamura, and Satoru Shimoda, Fussa, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Mar. 25, 1996, Ser. No. 618,019

Claims priority, application Japan, Mar. 27, 1995, 7-067557; Mar. 27, 1995, 7-067558; Mar. 27, 1995, 7-067559; Mar. 27, 1995, 7-067560; Oct. 24, 1995, 7-275594

Int. Cl.^{6} G02F 1/1335

U.S. Cl. 349—119 **22 Claims**

1. A color liquid crystal display device comprising:

a liquid crystal cell having liquid crystal held between a pair of substrates on which electrodes are formed, molecules of said liquid crystal being twisted from one substrate side to the

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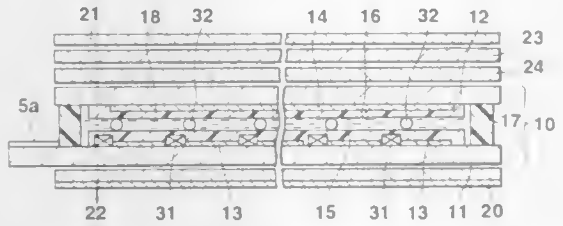

other substrate side in a predetermined direction at a twist angle of substantially 90°,

a pair of polarization plates arranged with said liquid crystal cell held in between; and

two retardation plates located between one of said pair of polarization plates and said liquid crystal cell,

wherein a value of a product Δn.d of a refractive anisotropy Δn of liquid crystal of said liquid crystal cell and a liquid crystal layer thickness d, values of retardations of said two retardation plates, directions of optical axes of said pair of polarization plates and optical axes of said two retardation plates are set in such a manner that colors of outgoing light, when incident light is white change at least to red, green, blue, black and white in accordance with a voltage to be applied between said electrodes of both substrates of said liquid crystal cell,

wherein when an alignment direction of said liquid crystal molecules with respect to one of said substrates of said liquid crystal cell is set to a direction of 0°, said optical axis of one of said pair of polarization plates extends in a direction of 110° to 140° with respect to said direction of 0° in an opposite direction to said twist direction of said liquid crystal molecules of said liquid crystal cell, and said optical axis of the other polarization plate extends in a direction of 127° to 170° with respect to said direction of 0° in an opposite direction to said twist direction

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5,737,048

LIQUID CRYSTAL DISPLAY HAVING HIGH CONTRAST VIEWING ZONE CENTERED IN POSITIVE OR NEGATIVE VERTICAL REGION WITH RETARDER'S RETARDATION EQUAL TO 100-250 NANOMETERS

Adiel Abileah, Farmington Hills, and Gang Xu, Royal Oak, both of Mich., assignors to OIS Optical Imaging Systems, Inc., Troy, Mich.

Continuation of Ser. No. 255,971, Jun. 8, 1994, Pat. No. 5,576,861, which is a continuation-in-part of Ser. No. 235,691, Apr. 29, 1994, Pat. No. 5,594,568, and Ser. No. 167,652, Dec. 15, 1993, Pat. No. 5,570,214. This application Nov. 12, 1996, Ser. No. 747,671

Int. Cl.⁶ G02F *1/1335*

U.S. Cl. 349—121 3 Claims

1. A normally white liquid crystal display capable of displaying an image to a viewer, the display comprising:

a pair of electrodes sandwiching a twisted nematic liquid crsytal layer therebetween, said pair of electrodes for applying a voltage across said liquid crystal layer;

first and second orientation means disposed on opposite sides of said liquid crystal layer for orienting liquid crystal molecules of said liquid crystal layer, said first orientation means defining a first direction and said second orientation means defining a second direction;

a positively birefringent uniaxial retardation film disposed on the same side of said liquid crystal layer as said first orientation means, said retardation film being oriented such that its optical axis is in one dimension substantially parallel plus or minus up to about 25° relative to said second direction thereby enabling the display to display to the viewer an image with improved contrast ratios and reduced inversion; and

wherein said retardation film is oriented relative to said first and second directions so that the display achieves a white light contrast ratio of at least about 10:1 over a horizontal angular span of at least about 100° and over a vertical angular span of greater than about 50° and wherein said retardation film has a retardation value of d·Δn in the range of from about 100-250 nm where "d" is the thickness of said film and Δn is its birefringent value.

5,737,049

LIQUID CRYSTAL DISPLAY DEVICE HAVING STORAGE CAPACITORS OF INCREASED CAPACITANCE AND FABRICATION METHOD THEREFOR

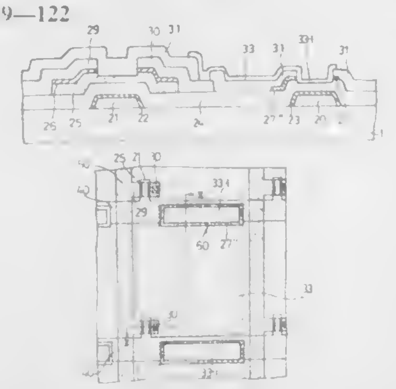
Woo Sup Shin, Kyongki-do, and In Duk Song, Seoul, both of Rep. of Korea, assignors to LG Electronics, Inc., Seoul, Rep. of Korea

Filed Aug. 25, 1995, Ser. No. 519,250

Claims priority, application Rep. of Korea, May 9, 1995, 95-11261

Int. Cl.⁶ G02F *1/1333;1/1343*

U.S. Cl. 349—122 24 Claims



1. A method for forming a storage capacitor in a liquid crystal display (LCD) device, said device having a pixel electrode situated on a protective layer, comprising the steps of:

first forming a first capacitor electrode upon a substrate;

second forming, in sequence, an insulating layer, an amorphous silicon layer and the protective layer above said first capacitor electrode, said amorphous silicon layer being an etch stop layer;

etching said protective and amorphous silicon layers so as to form etched layers; and

third forming a conductive layer, over said etched layers, as a second capacitor electrode so as to form the storage capacitor and connecting the second capacitor electrode to the pixel electrode.

5,737,050

LIGHT VALVE HAVING REDUCED REFLECTED LIGHT, HIGH BRIGHTNESS AND HIGH CONTRAST

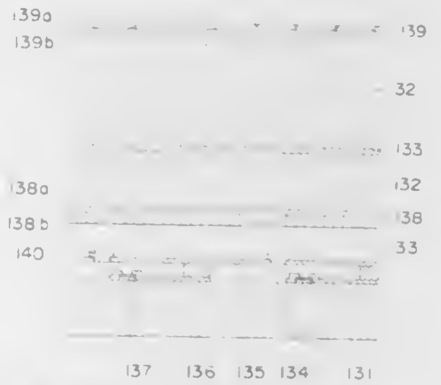
Hiroshi Takahara, Neyagawa, and Hideki Ohmae, Suita, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 101,717, Aug. 4, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 586,421

Claims priority, application Japan, Aug. 25, 1992, 4-224483; Aug. 25, 1992, 4-224484

Int. Cl.⁶ G02F *1/1333*

U.S. Cl. 349—122 41 Claims



1. A light valve apparatus comprising:

a first transparent substrate on which a counter electrode is formed;

a second substrate having electrodes formed on the surface of the second substrate;

a third transparent substrate, wherein said first and third transparent substrates comprise a non-image forming portion that is adapted to be substantially free from light for forming an image being transmitted therethrough;

a first optical-coupling layer coupling the first and third substrates optically;

an optical modulation layer interposed between the first and second substrates, said optical modulation layer forming an image according to a change in optical scattering state;

a first light-absorbing member formed on a side of at least one of the first and third substrates, wherein said first light absorbing member is located at said non-image forming portion; and

a first anti-reflection member formed on a surface of the first transparent substrate facing said optical modulation layer

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5,737,051

LIQUID CRYSTAL DISPLAY DEVICE

Katsumi Kondo, Katsuta; Hiromu Terao, Mito; Hidetoshi Abe; Masuyuki Ohta, both of Katsuta, all of Japan; Kenkichi Suzuki, Oxford, United Kingdom; Tohru Sasaki; Genshiro Kawachi, both of Hitachi, Japan, and Junichi Ohwada, Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 123,472, Sep. 20, 1993, Pat. No. 5,598,285. This application Nov. 6, 1996, Ser. No. 744,451

Claims priority, application Japan, Sep. 18, 1992, 4-249938; Jan. 20, 1993, 5-007355

Int. Cl.⁶ G02F *1/1343;1/136*

U.S. Cl. 349—141 13 Claims

11. A liquid crystal display device comprising:

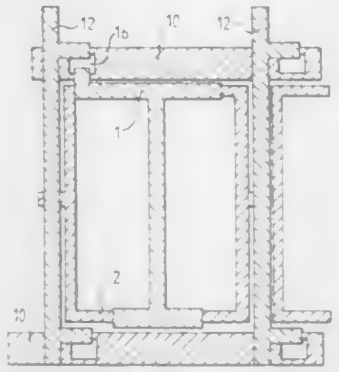
a pair of substrates;

a liquid crystal layer interposed between said pair of substrates,

signal electrode lines and scanning electrode lines formed on one of said pair of substrates and crossing each other in a matrix form, wherein a plurality of pixels are formed by adjoining said signal electrode lines and said scanning electrode lines,

wherein each pixel of said pixels comprises:

a semiconductor switching element formed proximate to a crossing point between a corresponding signal electrode line and a scanning electrode line,



at least one common electrode line of a plurality of common electrode lines formed on said one substrate and having a connection portion connecting one of said plurality of common electrode lines to another of said plurality of over more than one of said plurality of pixels, and

at least one pixel electrode line formed on said one substrate, said at least one pixel electrode line being connected to said semiconductor switching element and disposed between said plurality of common electrode lines,

wherein at least one of said plurality of common electrode lines is disposed closer to one of said signal electrode lines than to said at least one pixel electrode line within said pixel so that said one of said signal electrode lines is disposed between two of said plurality of common electrode lines

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5,737,052

LIQUID CRYSTAL DISPLAY AND MANUFACTURING PROCESS THEREOF WITH DRIVE CIRCUIT AND ACTIVE MATRIX CONNECTED VIA THROUGH HOLE

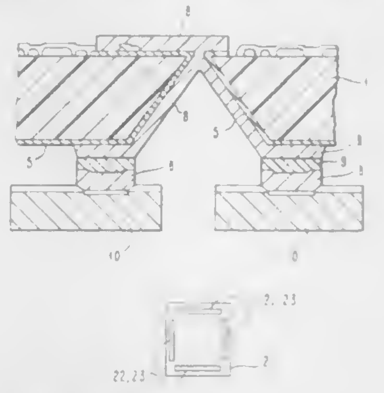
Atsuo Kimura, Ohtsu, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 7, 1995, Ser. No. 568,454

Claims priority, application Japan, Dec. 7, 1994, 6-303728

Int. Cl.⁶ G03F *1/1345*; H01L *29/40*

U.S. Cl. 349—149 4 Claims



1. A liquid crystal display, comprising:

a liquid crystal pixel board comprising a silicon substrate having first and second opposed surfaces and a liquid crystal pixel array disposed on the first surface of the substrate,

at least one via through hole connecting the first and second surfaces of the substrate; and

at least one driver element for addressing the liquid crystal pixel array, the at least one driver element being bonded to the second surface of the substrate and being connected electrically to the liquid crystal pixel array by a conducting layer formed on said at least one via through hole.

4. A method of forming a liquid crystal display, comprising the steps of:

forming a liquid crystal pixel board comprising a silicon substrate having first and second opposed surfaces and a liquid crystal pixel array disposed on the first surface of the substrate;

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forming at least one via through hole in the substrate connecting the first and second surfaces thereof,
forming at least one driver element for addressing the liquid crystal pixel array, the at least one driver element being formed as an integrated circuit separately from the liquid crystal pixel array, and
bonding the at least one driver element to the second surface of the substrate and electrically connecting the liquid crystal pixel array to the at least one driver element by a conducting layer formed on the at least one via through hole.

5,737,053
WIRE SUBSTRATE HAVING BRANCH LINES PERPENDICULAR TO THE MAIN LINES IN WHICH THE BRANCH LINES CONNECT TO DRIVING CIRCUITS ON A DISPLAY DEVICE

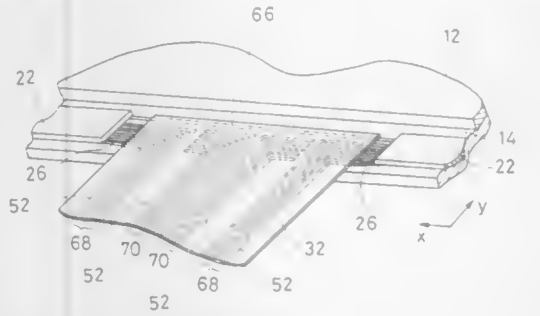
Yoshikazu Yomogihara, and Ikue Yoshida, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 5, 1996, Ser. No. 658,267

Claims priority, application Japan, Jun. 5, 1995, 07-137756; Apr. 2, 1996, 08-80074

Int. Cl.^{6} G02F *1/1345* **H05K** *1/00* **H01R** *9/09*

U.S. Cl. 349—149 **18 Claims**



11. A display device comprising
a display panel;
a first driving circuit portion provided along one side of said display panel,
a second driving circuit portion provided along another side of said display panel adjacent to said side, and
a wiring substrate for supplying a drive signal to each of said first and second driving circuit portions, said wiring substrate including:
- a first main region extending along the said one side of the display panel,
- a second main region extending along said another side,
- a first branch region extending from said first main region in a direction substantially perpendicular to said one side and electrically connecting with said first driving circuit portion; and
- a second branch region extending from said second main region in a direction substantially perpendicular to said another side and electrically connecting with said second driving circuit portion.

5,737,054
AUXILIARY LENSES FOR EYEGLASSES

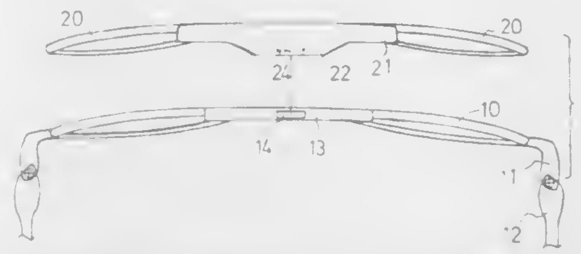
Richard Chao, No. 43-4, Yi Hsin Tsuen, Shui San Hsiang, Chia Yi Hsien, Taiwan

Filed Dec. 13, 1996, Ser. No. 766,327

Int. Cl.^{6} G02C *9/00; 7/08*

U.S. Cl. 351—47 **4 Claims**

1. An eyeglass device comprising:
a primary spectacle frame for supporting primary lenses therein, said primary spectacle frame including a middle bridge portion,



a first magnetic member secured in said middle bridge portion of said primary spectacle frame,
an auxiliary spectacle frame for supporting auxiliary lenses therein, said auxiliary spectacle frame including a middle bridge portion having a projection extended therefrom for extending over and for engaging with said middle bridge portion of said primary spectacle frame, and
a second magnetic member secured to said projection of said auxiliary spectacle frame for engaging with said first magnetic member of said primary spectacle frame and for allowing said auxiliary spectacle frame to be attached to said primary spectacle frame with only one hand by a user.

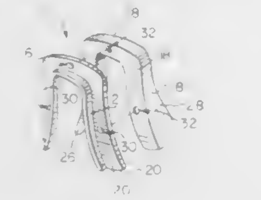
5,737,055
NOSEPIECE FOR EYEWEAR

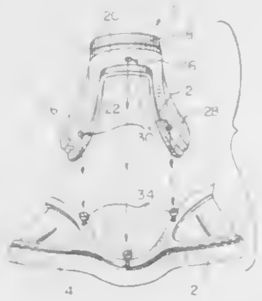
Paul Dittmeier, San Francisco, Calif., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Aug. 22, 1996, Ser. No. 701,289

Int. Cl.^{6} G02C *5/12*

U.S. Cl. 351—138 **9 Claims**





1. A nosepiece for attaching to an eyewear front having opposite forward and rearward facing surfaces, said nosepiece comprising:
a) a front half of generally U-shaped configuration, said front half having a first wall portion having opposite front and back wall surfaces and an inside edge, said front half further including a second wall portion which extends generally perpendicularly to said first wall portion along said inside edge thereof, said second wall portion having having a front edge;
b) a back half of generally U-shaped configuration having opposite front and back wall surfaces, said back half front surface being fixedly attached in overlying, aligned relation to said front halfback surface, said front half and said back half being formed from materials having different hardness values with said front half being harder than said back half, and
c) means for releasably attaching said nosepiece to said eyewear front with said front half front wall abutting said rearward facing surface of said eyewear front and said front edge of said second wall portion lying substantially flush with said forward facing surface of said eyewear front whereby only

said front edge of said second wall portion is visible at said forward facing surface of said eyewear front.

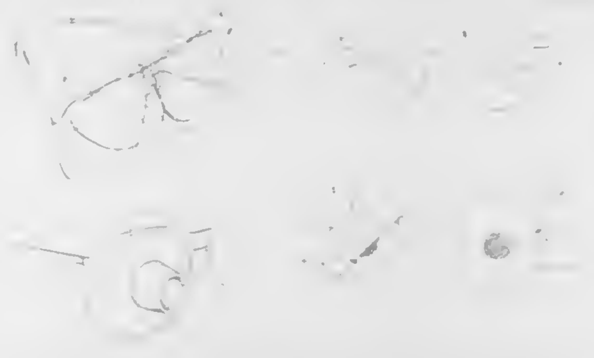
5,737,056
METHOD FOR SIMULATION OF VISUAL DISABILITIES

Neil F. Martin, Potomac; Terese W. Robinson, and Howard N. Robinson, both of Lutherville, all of Md., assignors to Bloom & Kreten, Towson, Md., 14; a part interest

Continuation-in-part of Ser. No. 331,029, Oct. 27, 1994, Pat. No. 5,495,305. This application Jan. 30, 1996, Ser. No. 593,879

Int. Cl.^{6} G02C *7/10; 7/02*

U.S. Cl. 351—177 **4 Claims**



1. A method for obtaining informed consent from a patient prior to ophthalmologic surgery comprising fitting over eyeglasses worn by said patient a lens or lenses whose field of vision has been modified to simulate a visual anomaly which may occur as a result of said surgery and then obtaining informed consent from said patient.

5,737,057
OCULAR LENS FABRICATION METHOD AND OCULAR LENS FABRICATION APPARATUS

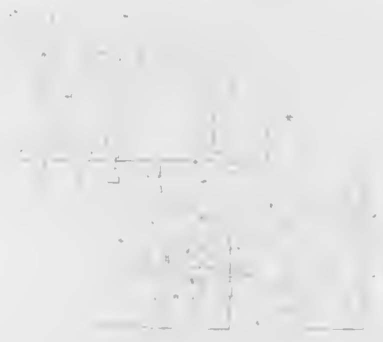
Iosio Kojima; Kazumi Aikyo, and Chikai Kosaka, all of Gifu, Japan, assignors to Menicon Co., Ltd., Nagoya, Japan

Filed Mar. 15, 1996, Ser. No. 617,935

Claims priority, application Japan, Mar. 16, 1995, 7-057048

Int. Cl.^{6} G02C *7/04* **B24B** *[illegible]*

U.S. Cl. 351—177 **8 Claims**



1. An ocular lens fabrication method comprising steps of [illegible] overlapping [illegible] machined lens surface of a lens material [illegible] curved surface of a support body to be attached to [illegible] spindle of a second machining device and bonding the machined lens surface of the lens material to the curved surface of the support body using a predetermined adhesive after one lens surface of the lens material has been machined with the lens material being supported by a rotary spindle of a first machining device, the second machining device [illegible] other lens surface of the lens material;
overlapping the curved surface of the support body upon the machined lens surface of the lens material through the predetermined adhesive with the lens material being supported by the rotary spindle of the first machining device, and
the lens material is aligned with the support body by rotating the lens material and the support body relative to each other while rotating the rotary spindle of the first machining device with the support body being allowed to move in directions orthogonal to a rotary shaft of the rotary spindle of the first machining device.

5,737,058
EYE EXAMINATION APPARATUS USING ULTRASONIC WAVE RADIATION

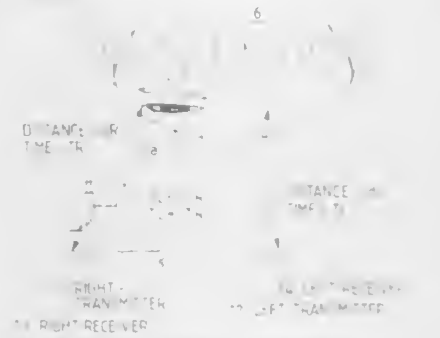
Izumi Umemura, Hiratsuka; Nobuyuki Miyake, Yokohama; Seiho Yamashita, and Yoichi Iki, both of Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jan. 22, 1996, Ser. No. 589,632

Claims priority, application Japan, Jan. 23, 1995, 7-008377; Aug. 17, 1995, 7-209807

Int. Cl.^{6} A61B *[illegible]*

U.S. Cl. 351—208 **4 Claims**



1. An eye examination apparatus, comprising:
an ultrasonic transmitter for transmitting ultrasonic wave radiation to an area around an eye to be examined;
an ultrasonic receiver for receiving reflected radiation of said ultrasonic wave radiation; and
a judging device for judging whether said eye to be examined is the right eye or the left eye based on the reflected radiation received by said ultrasonic receiver;
wherein said ultrasonic transmitter has at least two transmitting portions for transmitting said ultrasonic wave radiation, and a drive circuit for driving said transmitting portions differently.

5,737,059
APPARATUS FOR MEASURING THE REFRACTIVE POWER OF AN OPTICAL SYSTEM USING FOURIER-TRANSFORM

Takumi Tanaka, Hiratsuka, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Apr. 30, 1996, Ser. No. 640,191

Claims priority, application Japan, May 10, 1995, 7-112025

Int. Cl.^{6} A61B *[illegible]*

U.S. Cl. 351—214 **7 Claims**

1. An apparatus for measuring refractive power of an optical system comprising:
a scan optical device for scanning [illegible] light beams at predetermined frequencies;

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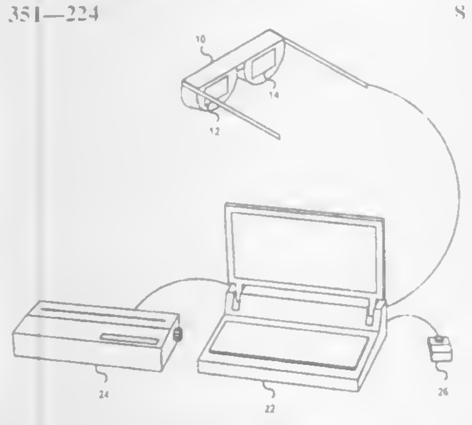
- a measuring optical device for taking in slit light beams reflected from said optical system.
- a plurality of light receivers for detecting the slit light beams taken in by the measuring optical device; and
- a calculator for obtaining Fourier spectrums by performing a Fourier-transform on detection signals of said plurality of light receivers and thus calculating the refractive power of said optical system based on components of said Fourier spectrums corresponding to said predetermined frequencies.

5,737,060
VISUAL FIELD PERIMETRY USING VIRTUAL REALITY GLASSES

John R. Kasha, Jr., 9617 Great Hills Trail, Apt. 1012, Austin, Tex. 78759

Filed Aug. 16, 1996, Ser. No. 696,580
Int. Cl. A61B *3/02*

U.S. Cl. 351—224 **8 Claims**



1. A visual field perimeter, comprising:
- (a) virtual reality glasses,
- (b) means for displaying a fixation point and sequential discrete targets to each eye separately on said virtual reality glasses,
- (c) input means operable by a patient so as to record whether or not said patient sees each of said discrete targets, and
- (d) means for recording the relative locations of said discrete targets and whether or not said discrete targets were seen by said patient.

5,737,061
METHODS FOR DIAGNOSING BOVINE SPONGIFORM ENCEPHALOPATHY

Robert Sinclair, Mendham, N.J., and Leonard Scinto, Cambridge, Mass., assignors to Applied Science Group, Inc., Bedford, Mass.

Filed Jun. 7, 1996, Ser. No. 658,813
Int. Cl. A61B *3/00,* **A01N** *15/04*

U.S. Cl. 351—246 **2 Claims**

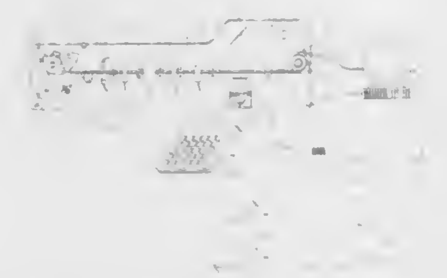
1. A method for diagnosing the presence or absence of bovine spongiform encephalopathy in a subject cow comprising:
- (a) administering to an eye of said subject cow a dose of a mydriatic agent, said dose being insufficient to cause substantial pupil dilation when administered to a cow that is not afflicted with bovine spongiform encephalopathy,
- (b) measuring the dilation the pupil of an eye of said subject cow to establish a baseline dilation,
- (c) after sufficient time has elapsed for said dosage of said mydriatic agent to cause a change in pupil dilation, measuring the dilation of the pupil of said eye to which said mydriatic agent was administered,
- (d) diagnosing the presence or absence of bovine spongiform encephalopathy in said subject cow based on the presence or absence of a change in pupil dilation from said baseline which is characteristic of bovine spongiform encephalopathy.

5,737,062
MONITORING APPARATUS OF FILM WITH MAGNETIC RECORDING PORTION IN CARTRIDGE

Tohru Yoshikawa, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Umehara-Wakayama, Japan

Filed Apr. 11, 1995, Ser. No. 419,934
Claims priority, application Japan, Apr. 13, 1994, 6-074820
Int. Cl. G03B *27/32 27/52*

U.S. Cl. 355—40 **13 Claims**



1. A monitoring apparatus of film with a magnetic recording portion, in a cartridge comprising:
- a film loading and unloading mechanism for sending out a film from a cartridge in which the film with a magnetic recording portion is contained and for rewinding the film;
- a magnetic data reading and writing mechanism for reading magnetic data recorded in the magnetic recording portion of the film and writing magnetic data information in the magnetic recording portion;
- an image reading mechanism for reading image information recorded in the film; and
- an image device for displaying magnetic data read by said magnetic data reading and writing mechanism and for displaying image information read by said image reading mechanism on a screen; wherein
- said image device displays the magnetic data and the image information simultaneously on the screen.

5,737,063
PROJECTION EXPOSURE APPARATUS

Takashi Miyachi, Kounosu, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Mar. 25, 1996, Ser. No. 620,530
Claims priority, application Japan, Jul. 11, 1995, 7-198180
Int. Cl.^{6} G03B *27/53*

U.S. Cl. 355—53 **11 Claims**

1. A projection exposure apparatus for exposing a pattern formed on a mask to the surface of a photosensitive substrate placed on a substrate table by illuminating the mask to project part of the pattern image of the mask onto an exposure field of the photosensitive substrate through a projection optical system as scanning the mask and the substrate in synchronism with each other relative to the projection optical system, comprising:
- a first detecting section for detecting a position in the exposure field on the photosensitive substrate surface in a direction of an optical axis of the projection optical system;

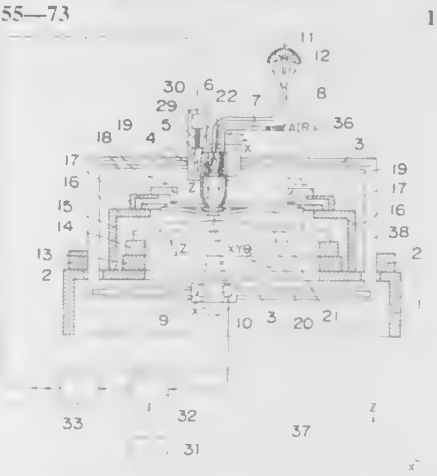
- an adjusting section for adjusting the position in the optical-axis direction and a tilt of the photosensitive substrate surface with respect to the optical-axis direction;
- a calculating section for calculating a first position of the exposure field on the photosensitive substrate in the optical axis direction and a first tilt of the exposure field relative to a plane perpendicular to the optical axis, based on the detected information from said first detecting section;
- a target data-outputting section for outputting a target position of the exposure field on the photosensitive substrate in the optical-axis direction and a target tilt of the exposure field relative to a plane perpendicular to the optical axis;
- a determining section for determining whether an amount based on at least one of the difference between the first position and the target position and the difference between the first tilt and the target tilt of the exposure field on the photosensitive substrate surface falls within a controllable range of the adjusting section; and
- a controlling section for controlling said adjusting section in such a manner that while said determining section is making affirmative judgment, the exposure field on the photosensitive substrate surface is made to correspond with the focal plane of the projection optical system based on the target position and the target tilt as well as the first position and the first tilt, and while said determining section is making negative judgment, the position of the exposure field in the optical-axis direction is made to correspond with the center position of the focal plane of the projection optical system in the optical-axis direction based on the target tilt position and the first position, with the photosensitive substrate surface being kept at a fixed tilt.

5,737,064
EXPOSURE APPARATUS FOR TRANSFERRING A MASK PATTERN ONTO A SUBSTRATE

Takashi Inoue, Sakai; Hiroyuki Nagano, Katano, and Yoshimichi Ishii, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 404,768, Mar. 15, 1995, Pat. No. 5,573,877. This application Aug. 20, 1996, Ser. No. 699,787
Claims priority, application Japan, Mar. 15, 1994, 6-44050; Mar. 15, 1994, 6-44051
Int. Cl.^{6} G03B *27/60*

U.S. Cl. 355—73 **10 Claims**



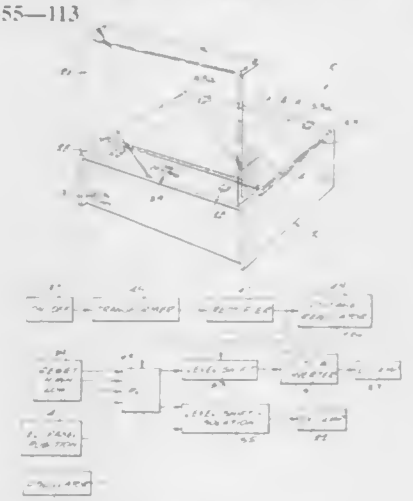
1. An exposure apparatus for irradiating a mask from above the mask held in proximity to a substrate to transfer a mask pattern of the mask to the substrate by exposing the substrate to a light beam, comprising:
- a locally-irradiating means, for scanning the mask from above the mask, having a mask-deforming means for flexing the mask locally by a static pressure so as to cause the mask and the substrate to each other,
- a gap-measuring means for measuring a gap between the mask and the substrate at a portion of the mask irradiated by the locally irradiating means and at a portion of the substrate irradiated thereby, and
- a control means for controlling the mask-deforming means based on a value measured by the gap-measuring means and a preset value.

5,737,065
DUAL LIGHT SOURCE TRANSILLUMINATOR AND METHOD OF TRANSILLUMINATION

Michael E. Hansen, Waukesha, Wis., assignor to Fotodyne Incorporated, Hartland, Wis.

Filed May 17, 1995, Ser. No. 443,249
Int. Cl.^{6} G03B *27/04*

U.S. Cl. 355—113 **27 Claims**



1. A transilluminator comprising:
- a housing having therein a window,
- a first light source supported within said housing for transmitting light through said window and illuminating a sample adjacent said window, and
- a second light source which is mounted outside said housing and which is movable between a first position wherein said second light source is removed from said window, and a second position wherein said second light source overlies said window for transmitting light onto a sample adjacent said second light source, and wherein said second light source is between the sample and said window.

5,737,066

Patent Not Issued For This Number

5,737,067
LENGTH AND ELONGATION SENSOR

Louis E. Sansone, Brooklyn, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 18, 1996, Ser. No. 637,000
Int. Cl.^{6} G01C *3/08,* **G01B** *11/16, 11/02*

U.S. Cl. 356—5.01 **6 Claims**

1. A length and elongation sensor comprising:
- an optical wave guide comprising an elastomeric outer cladding and a transparent semi-liquid core, said optical wave guide having first and second ends,
- a transparent window hermetically sealed to said first end of said optical wave guide,
- a reflective mirror hermetically sealed to said second end of said optical wave guide,
- means for attaching said first end of said optical wave guide to a unit to be measured.

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means for attaching said second end of said optical wave guide to said unit to be measured;

means for propagating a light pulse through said core of said optical wave guide so as to reflect off said mirror at said second end; and

means for measuring the round trip propagation time of said light pulse through said optical wave guide.

5,737,068

ELECTRONIC DISTANCE MEASURING DEVICE USING A PHASE DIFFERENCE DETECTION METHOD

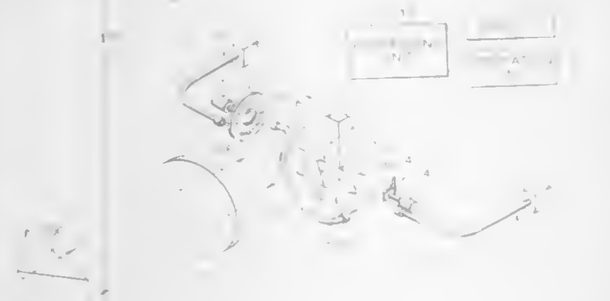
Atsumi Kaneko, and Kiyoshi Yamamoto, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1996, Ser. No. 597,899

Claims priority, application Japan, Feb. 8, 1995, 7-043404

Int. Cl. G01C 3/08

U.S. Cl. 356—5.13 **12 Claims**



1. An electronic distance measuring device, comprising:

a radiation source which emits frequency modulated radiation along one of two paths;

a device for switching the emitted radiation from one of said two paths to the other of said two paths;

a detector for detecting the radiation emitted along said two paths;

a device for determining a difference in phase between said emitted radiation and said detected radiation, wherein said determination of said phase difference is performed twice between the period of two consecutive switchings of said paths; and

a device for calculating a distance of said electronic distance measuring device from an objective station in accordance with said detected phase difference.

5,737,069

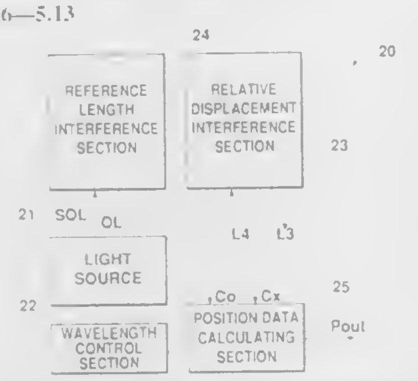
POSITION DETECTING APPARATUS OF OPTICAL INTERFEROMETRY

Masayuki Nashiki, and Atsushi Ieki, both of Aichi, Japan, assignors to Okuma Corporation, Aichi, Japan

Filed Jun. 3, 1996, Ser. No. 657,100

Int. Cl. G01C 03/08

U.S. Cl. 356—5.13 **9 Claims**



24
20
REFERENCE LENGTH INTERFERENCE SECTION
RELATIVE DISPLACEMENT INTERFERENCE SECTION
23
21
SOL
OL
L4
L3
LIGHT SOURCE
22
Co
Cx
25
WAVELENGTH CONTROL SECTION
POSITION DATA CALCULATING SECTION
Pout

1. A position detecting apparatus utilizing optical interferometry, comprising:

a light source capable of emitting a light beam having an interference capability;

a wavelength control section capable of varying a wavelength of the light beam emitted from the light source;

a relative displacement interference section capable of bringing reference light and measurement light together so as to output interference light for relative displacement, said reference light having been separated from the light beam at a separation plane and reflected from a reference plane, said measurement light having been separated from the light beam and reflected from a measurement plane defined on an object;

a reference length interference section capable of bringing rays of light together so as to output interference light for reference length on the basis of a reference length light beam separated from the light beam, said rays of light having a fixed difference in optical length corresponding to a predetermined reference length; and

a position data determining section capable of determining position data of the object on the basis of the predetermined reference length and variation in optical intensities of the interference light for relative displacement and reference length when the wavelength control section varies the wavelength of the light beam.

5,737,070

DISPLACEMENT INFORMATION MEASURING APPARATUS

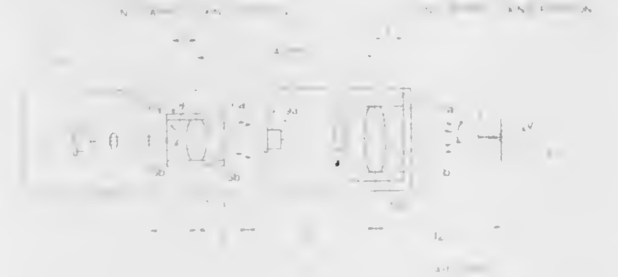
Shigeki Kato, Utsunomiya, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 3, 1996, Ser. No. 642,511

Claims priority, application Japan, May 12, 1995, 7-138429

Int. Cl. G01P 03/36

U.S. Cl. 356—28.5 **11 Claims**



1. An apparatus for measuring information about displacement of an object to be measured, comprising:

a light source emitting a light beam, wherein a wavelength of the light beam emitted from said light source is varied by a temperature change;

a diffraction grating for diffracting the light beam from said light source;

an optical system for deflecting the diffracted light beam from said diffraction grating and applying it to the object to be measured, said optical system having a first lens system and a second lens system;

a photodetector element for detecting scattered light subjected to a Doppler shift from the object to be measured to which the diffracted light beam is applied by said optical system, the information about the displacement of the object to be measured being measured on the basis of a Doppler signal obtained by the detection of the scattered light by said photodetector element; and

a mounting mechanism for restricting the positional relation between said first lens system and said second lens system, said mounting mechanism varying the spacing between said first lens system and said second lens system by a temperature change, the coefficient of thermal expansion of at least some member of said mounting mechanism being set so that a variation in the spacing between said first lens system and said second lens system caused by a temperature change may substantially offset a variation in the Doppler signal attributable to the wavelength of the emitted light beam from said light source varied with the same temperature change.

5,737,071

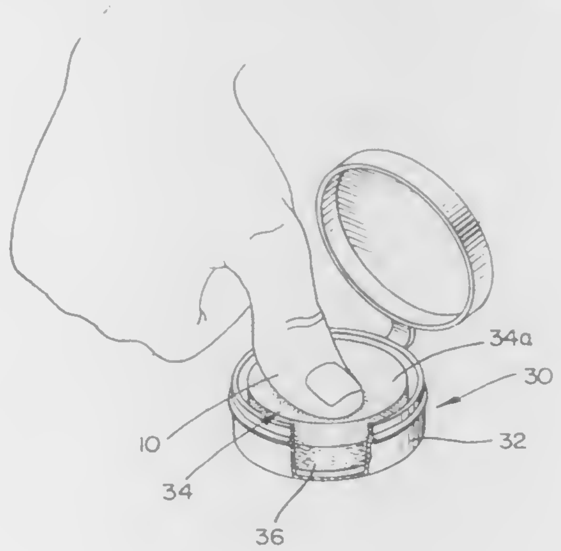
METHOD AND APPARATUS FOR ENHANCING LIVE-SCAN FINGERPRINT READER IMAGES

Douglas C. Arndt, Ventura, Calif., assignor to Identicator Corporation, San Bruno, Calif.

Filed Aug. 16, 1996, Ser. No. 689,925

Int. Cl. G06K 9/00

U.S. Cl. 356—71 **11 Claims**



1. A combination dispensing pad and chemical reagent for applying a chemical composition to the fingerprint area of a person's fingers prior to the placement thereof on the imaging platen of a live scan electro optical fingerprint imaging apparatus to provide a clear optical boundary between the ridges defining the person's fingerprint and the surface of the platen comprising:

a substantially noncompressible microporous pad formed from a ceramic or polyethylene material and having a pore volume within the range of about 10 to 50% and a pore diameter within the range of about 0.1 to 10 microns, and

a liquid chemical composition disposed within the pad, the composition consisting of one or more materials selected from the group of nonvolatile oils, nonvolatile oil complexes, fatty alcohols and fatty acid esters.

5,737,072

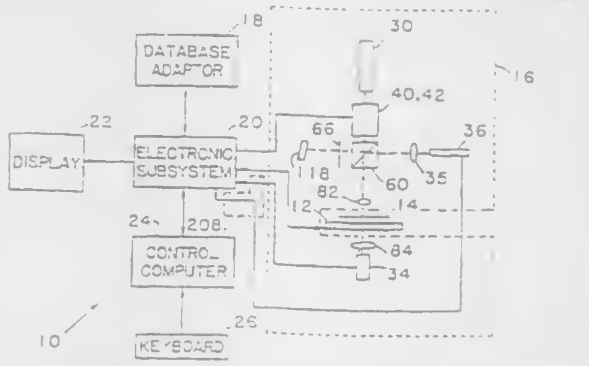
AUTOMATED PHOTOMASK INSPECTION APPARATUS AND METHOD

David Garth Emery, San Jose; Zain Kahuna Saidin, Sunnyvale; Mark J. Wihl, Tracy; Tao-Yi Fu, Fremont; Marek Zywno, San Jose, all of Calif.; Damon F. Kvamme, Ann Arbor, Mich., and Michael E. Fein, Mountain View, Calif., assignors to KLA Instruments Corporation, San Jose, Calif.

Continuation of Ser. No. 274,310, Jul. 13, 1994, Pat. No. 5,563,702, which is a continuation-in-part of Ser. No. 202,868, Feb. 25, 1994, Pat. No. 5,572,598, which is a continuation of Ser. No. 748,984, Aug. 22, 1991, abandoned. This application Oct. 4, 1996, Ser. No. 726,291

Int. Cl. G01N 21/88

U.S. Cl. 356—73 **41 Claims**



1. An inspection system to inspect a substrate for unwanted particles and features, said substrate having a patterned and an unpatterned surface with a pattern of opaque material on said patterned surface, said inspection system comprising:

an illumination system to provide an illumination beam through a path to a point on said patterned surface of said substrate and said pattern thereon with said patterned surface of said substrate closest to said illumination system;

a transmission detector aligned with said path to detect a transmitted portion of said illumination beam through said substrate from an illuminated point on said patterned surface of said substrate and to provide a signal representative of said detected transmitted portion of said illumination beam;

a reflection detector to detect a portion of said illumination beam reflected from said illuminated point on said substrate and said pattern thereon along said path of said illumination beam and to provide a signal representative of said detected reflected portion of said illumination beam;

a comparator to compare said signals with each other from said transmission and reflection detectors developed by illumination of the same point on said patterned surface of said substrate and said pattern thereon to provide a comparison value of those signals;

a first memory to store expected values of comparison values from said comparator; and

a processor coupled to said comparator and said first memory to determine if said comparison value is an expected value and to generate a report when an unexpected value is determined.

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5,737,073

DEVICE AND PROCESS FOR MEASURING THE POSITION OF A FIRST AXIS IN RELATION TO A SECOND AXIS, IN PARTICULAR FOR MEASURING A STEERING AXIS

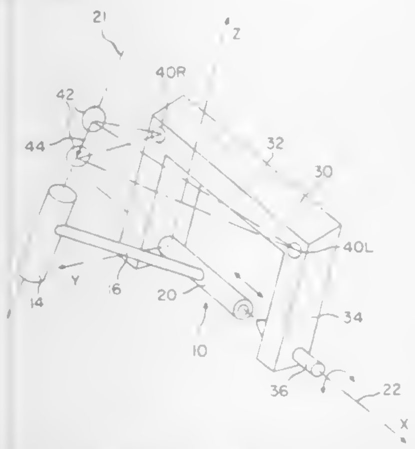
Holger Wente, Braunschweig; Bernd Scheibner, Cremlingen; Ullrich Thiedig, and Bernd Koester, both of Brauschweig, all of Germany, assignors to Schiebner Messtechnik, Braunschweig, Germany

Filed Sep. 15, 1995, Ser. No. 528,880

Claims priority, application Germany, Sep. 15, 1994, 44 32 828.1

Int. Cl.^{6} G01B *11/26, 5/24*

U.S. Cl. 356—139.09 **21 Claims**



1. A device for measuring the position of a first axis in relation to a second axis, in particular for measuring a bicycle frame, the first axis lying in a main plane of symmetry, and the second axis running at right angles to the main plane of symmetry, said device comprising:

at least two measuring bodies each fitted to an object to be measured in a fixed spatial relationship to the first axis;

at least two image recording devices each adapted to generate an image signal;

a positioning member for positioning said at least two image recording devices in a fixed spatial relationship to each other and to the second axis so that said at least two measuring bodies are located in an image range of said at least two image recording devices; and

a data processor for determining from the image signals, using photogrammetric calculation methods, the spatial coordinates of said at least two measuring bodies and, from said spatial coordinates of said at least two measuring bodies, the position of the first axis.

5,737,074

SURFACE INSPECTION METHOD AND APPARATUS

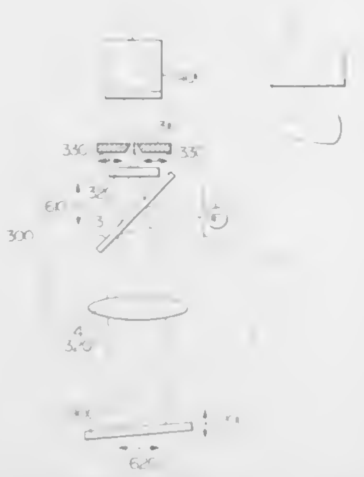
Kazumi Haga, and Motoshi Sakai, both of Komae, Japan, assignors to New Creation Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1996, Ser. No. 760,603

Claims priority, application Japan, Dec. 5, 1995, 7-316511

Int. Cl.^{6} G01N *21/00*

U.S. Cl. 356—237 **20 Claims**



1. A surface inspection method for inspecting a surface condition of an objective region to be measured by irradiating the objective region with an illuminating light of an approximately parallel beam, comprising the steps of:

setting an object-side angular aperture such that whole reflecting light beams from a surface perpendicular to an incident direction of an illuminating light just enters into a light limiting member;

irradiating an objective region to be measured with an illuminating light in an oblique direction thereto;

forming an image of reflected light from the objective region by one system selected from the group consisting of an object-side telecentric optical system and an image object-side telecentric optical system, which has an optical axis coinciding with an incident direction of the illuminating light to the objective region, the formed image of reflected light having points with luminance corresponding to the incident angle of the illuminating light at respective points on the objective region;

picking up the formed image to collect luminance data of the respective points in the objective region; and

processing the luminance data to recognize bright and dark portions and thereby determining the presence or absence of an irregular portion and a shape of the irregular portion, in the objective region.

5,737,075

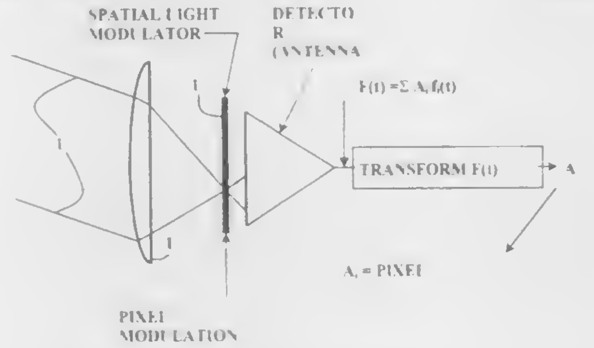
ELECTRONIC IMAGING BY ENCODED IMAGE DETECTION

Mark E. Koch, 13040 Pennystone, Farmers Branch, Tex. 75244, and William E. Case, 3105 Canongate, Arlington, Tex. 76015

Filed Dec. 13, 1994, Ser. No. 354,669

Int. Cl.^{6} G01J *3/04*

U.S. Cl. 356—310 **3 Claims**



1. An electronic imaging system comprising:

a spatial light modulator composed of a planar linear array of stripe modulators;

a linear array of stripe detectors positioned in tandem with, and orthogonal to said linear array of stripe modulators;

means for imaging scene radiation onto the said spatial light modulator and said stripe detector array;

means for driving each said stripe of the said modulator array with a specific time varying function with the result of encoding the radiation impinging on each said stripe;

means for applying an appropriate transform to the detected signal from each stripe detector with the result of decoding said signals and deriving the intensity at each pixel of the image by correlation with respective modulator and detector stripes.

5,737,076

METHOD AND APPARATUS FOR DETERMINING SUBSTANCES AND/OR THE PROPERTIES THEREOF

Ulrich Walter Glaus, Grossensteinstr. 1, CH-8620 Wetzikon; Martin Labhart, Guldistudst. 29, CH-8630 Tann-Ruti, and Heinz Wagner, Kleinalbisstr. 33, CH-8045 Zurich, all of Switzerland

Continuation of Ser. No. 159,129, Nov. 30, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 473,743

Claims priority, application Switzerland, Dec. 1, 1992, 3704/92; Mar. 18, 1993, 829/93

Int. Cl.^{6} G01N *21/27*

U.S. Cl. 356—310 **29 Claims**

1. A method for monitoring the presence of a predetermined substance and/or a predetermined property in a sample comprising:

generating radiation in a predetermined spectral band from said sample;

monitoring a spectral distribution of said generated radiation with at least one measuring channel including a transmitting filter having a predetermined spectral transmission characteristic throughout said predetermined spectral band;

multiplying with said transmitting filter a signal dependent on said spectral distribution of said generated radiation and a numerical spectral function specific to said predetermined substance and/or property of said sample to generate a signal dependent on said spectral distribution multiplied by said numerical spectral function;

optoelectrically converting said radiation transmitted by the transmitting filter to generate an electric output signal representing energy transmitted by the transmitting filter of said at least one measuring channel; and wherein

said electric output signal is dependent on said spectral distribution multiplied by said numerical spectral function, is integrated over said predetermined spectral band and is directly related to said predetermined substance and/or property of said sample.

5,737,077

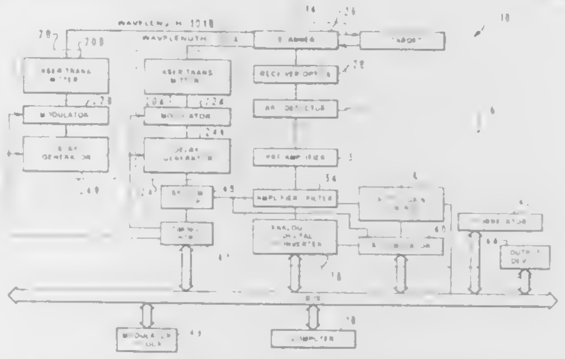
APPARATUS AND METHOD FOR TIME RESOLVED SPECTROSCOPY

Hyo Sang Lee, Silver Spring, and Anthony Notari, Laurel, both of Md., assignors to Recon Exploration, Dallas, Tex., and Science & Engineering Services, Inc., Burtonsville, Md.

Continuation of Ser. No. 251,325, May 31, 1994, Pat. No. 5,565,982. This application Aug. 26, 1996, Ser. No. 702,931

Int. Cl.^{6} G01J *3/457*

U.S. Cl. 356—317 **4 Claims**



1. A method of performing time resolved measurement of fluorescent response or scattering response of an object, comprising:

propagating a light wave generated by a light source, said light wave having an amplitude which is modulated with pseudo random code of N cycles per second having a first time resolution, wherein N is an integer greater than one;

transmitting said modulated light wave to an object;

detecting a return signal from said object in response to said transmitted modulated light wave;

digitizing said detected return signal at a rate of N·M per second, wherein M is the number of cycles of said pseudo random code in said modulated light wave, to form a digitized detected signal, wherein M is an integer greater than one;

processing said digitized detected signal further comprising the step of:

calculating a correlation value between said digitized detected signal and said pseudo random code to obtain a correlation function with a second time resolution which is increased over said first time resolution.

5,737,078

CYTOANALYZER USING SEPARATE SENSING PORTIONS ON A DECTECTOR AND METHOD FOR ALIGNING THE SAME

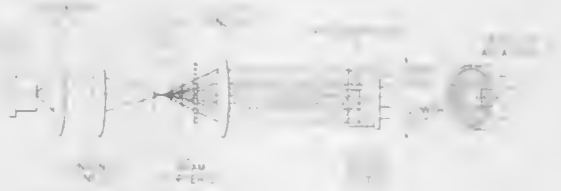
Kaoru Takarada, Miki; Takashi Sakata, Kakogawa; Yoshihiro Hyosa, Kobe, and Chihiro Kouzuki, Kasai, all of Japan, assignors to TOA Medical Electronics Co., Ltd., Hyogo, Japan

Filed Aug. 8, 1995, Ser. No. 512,647

Claims priority, application Japan, Aug. 8, 1994, 6-186148

Int. Cl.^{6} G01N *21/00*; **G01J** *1/42*

U.S. Cl. 356—338 **19 Claims**



1. A cytoanalyzer comprising:

a flow cell for aligning cells and permitting the same to pass therethrough;

light emitting means for emitting a laser beam to the cells passing through the flow cell, and

light-detecting means having at least two separate photosensing portions sensing two types of light coming from each of the cells, said light detecting means including a first photosensing portion having a single light detecting surface, a second photosensing portion having two light-detecting surfaces disposed symmetrically with respect to a first axis with the first photosensing portion interposed therebetween, and a third photosensing portion having two-light detecting surfaces disposed symmetrically with respect to a second axis extending perpendicular to the first axis with the first photosensing portion interposed therebetween, said first axis and second axis intersecting at an optical axis of the cytoanalyzer when said light detecting means is properly centered.

5,737,079

SYSTEM AND METHOD FOR INTERFEROMETRIC MEASUREMENT OF ASPHERIC SURFACES UTILIZING TEST PLATE PROVIDED WITH COMPUTER-GENERATED HOLOGRAM

James H. Burge, and David S. Anderson, both of Tucson, Ariz., assignors to Rayleigh Optical Corporation, Tucson, Ariz.

Continuation of Ser. No. 336,740, Nov. 7, 1994, abandoned. This application Jul. 17, 1996, Ser. No. 682,387

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—348 **25 Claims**

1. An interferometer apparatus, said apparatus comprising

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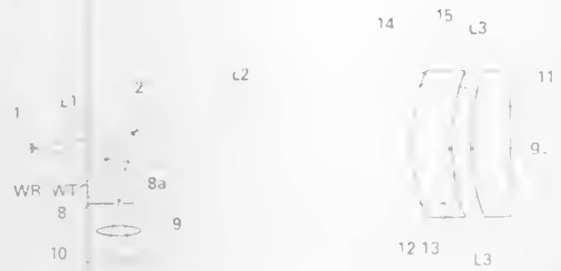

(a) a test piece having an aspheric test surface upon which incident light reflects, thereby forming a test wavefront beam,

(b) a test plate member, said test plate member having a reference surface selected from the group consisting of a spherical surface and a planar surface, and

(c) a single computer-generated hologram pattern written on said reference surface for producing a reference wavefront beam said single computer generated hologram pattern having a shape that provides a null test configuration, said interferometer apparatus configured such that said test wavefront beam travels along a same path as said reference wavefront beam

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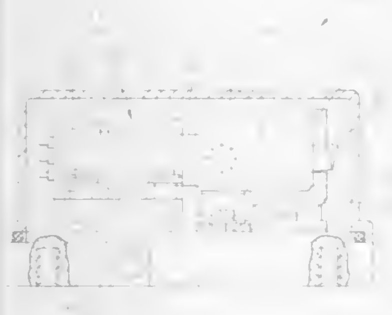
5,737,080
SOLID STATE NONPLANAR LASER GYROSCOPE

Seong-Hyun Son, Seoul; Sang-Keun Gil, Kwangmyung-Shi; Jung-Mi Hong, Seoul; Jae-Cheul Lee, Kwangmyung-Shi, all of Rep. of Korea; Andrey L. Livintsev, and Valentin G. Dmitriev, both of Moscow, Russian Federation, assignors to Institute for Advanced Engineering, Seoul, Rep. of Korea

Filed Dec. 13, 1996, Ser. No. 766,739

Int. Cl. G01C *19/64*

U.S. Cl. 356—350 **5 Claims**



1. A solid state ring type nonplanar laser gyroscope capable of utilizing a self-modulation regime to determine an angle of rotation, the gyroscope comprising:

a base which is arbitrarily divided into first and second portions,

a laser pumping source located on the first portion of the base, wherein the laser pumping source is a laser diode capable of emitting a laser beam;

an active medium having a sensitive axis of rotation, located on the second portion of the base and facing the laser pumping source, wherein two counterpropagating waves are established inside the active medium, each of the counterpropagating waves being self modulated, having a frequency thereof,

a magnet located on top of the active medium, wherein the magnet is used to distinguish a direction of rotation,

a focussing unit for focussing the laser beam from the laser pumping source into the active medium, and

means, located between the laser pumping source and the active medium, for detecting the self-modulation frequency of one or both of the counterpropagating waves

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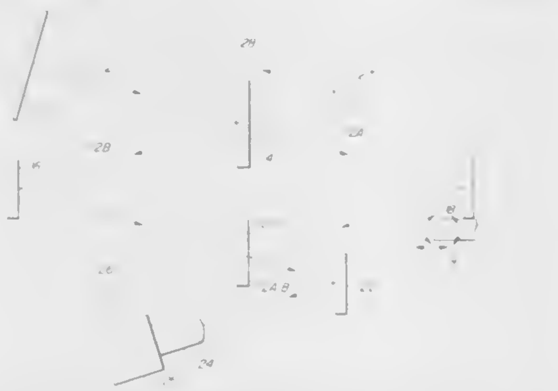
5,737,081
EXTENDED-SOURCE LOW COHERENCE INTERFEROMETER FOR FLATNESS TESTING

Klaus R. Freischlad, Tucson, Ariz., assignor to Phase Shift Technology, Inc., Tucson, Ariz.

Continuation-in-part of Ser. No. 400,921, Mar. 9, 1995, abandoned. This application Dec. 6, 1996, Ser. No. 761,632

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—360 **16 Claims**



1. An interferometer system including in combination:

an extended spatially non-coherent light source producing a spatially non-coherent, non-collimated beam of light,

a first beam splitter angularly oriented to receive said non collimated beam of light from said light source to split said beam of light from said light source into first and second spatially non coherent divergent wavefronts,

a reference surface located to reflect said first spatially non-coherent wavefront,

a surface under test located to reflect said second spatially non coherent wavefront,

a second beam splitter located to receive and combine said first and second reflected spatially non-coherent wavefronts, and

an imaging lens and interference detector located to receive said first and second reflected spatially non coherent wavefronts after combination thereof by said second beam splitter

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5,737,082
METHOD OF ELECTRO-OPTICAL MEASUREMENT FOR VECTOR COMPONENTS OF ELECTRIC FIELDS AND AN APPARATUS THEREOF

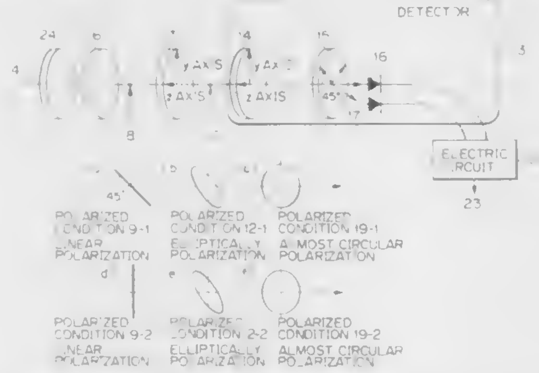
Taro Itatani; Tadashi Nakagawa; Yoshinobu Sugiyama, all of Tsukuba, and Kimihiro Ohta, Kashiwa, all of Japan, assignors to NTT Mobile Communications Network, Inc., Japan

Filed Jul. 24, 1995, Ser. No. 506,385

Claims priority, application Japan, Nov. 28, 1994, 6-291884

Int. Cl.^{6} G01J *4/00*

U.S. Cl. 356—364 **13 Claims**



1. A method of electro-optical measurement for vector components of an electric field by a detection of a potential between two points in an electric circuit or an electric field generated by said electric circuit, in which variations in optical characteristics of an

electrooptic crystal adjacent to said electric circuit are used for said detection, said method comprising steps of:

introducing an optical pulse having a predetermined polarized condition as an incident light into said electrooptic crystal in a direction parallel to one of optic major axes of said electrooptic crystal under a condition that an electric field is not applied on said electrooptic crystal,

modulating said predetermined polarized condition of said incident light into two different polarized conditions by passing said incident light through a half wave plate and a polarizer without mechanically displacing said electrooptic crystal,

converting optical outputs from said electrooptic crystal into electric signals with respect to said two different polarized conditions, respectively,

measuring magnitudes of said electric signals respectively, and

determining two of three components of a vector of said electric field in said electrooptic crystal by performing an arithmetic operation on results of said measurement

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5,737,083
MULTIPLE-BEAM OPTICAL POSITION SENSOR FOR AUTOMOTIVE OCCUPANT DETECTION

Yuri Owechko, Newbury Park, and K. Wojtek Przytula, Malibu, both of Calif., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Feb. 11, 1997, Ser. No. 797,705

Int. Cl.^{6} G01B *11/24*

U.S. Cl. 356—375 **7 Claims**

1. A multiple beam optical position sensor system for measuring the approximate three-dimensional profile and position of an object, said system comprising:

a light emitting diode array projector comprising a plurality of light emitting diodes for generating a set of time multiplexed optical beams that illuminate the object, wherein only one light emitting diode is turned on at any one time, and wherein such beams have different deflection angles which results in arbitrary two-dimensional arrangements of illumination spots on the object;

a two dimensional transverse effect photodiode having a first pair of photocurrent outputs for outputting x and y current values that are indicative of x and y locations of reflected spots formed on the photodiode produced by the plurality of beams;

imaging optics for imaging the set of time multiplexed optical beams onto the two dimensional transverse effect photodiode to produce the reflected spots on the photodiode; and

processing means coupled between the two dimensional transverse effect photodiode and the plurality of light emitting diodes of the light emitting diode array projector for turning on each light emitting diode sequentially in time to generate the set of time multiplexed optical beams and for processing signals derived from a pair of photocurrent outputs from the two dimensional transverse effect photodiode to determine the x and y location of each imaged spot on the two dimensional transverse effect photodiode and the range to the object along each beam direction, and wherein the x and y locations and range provide an approximate measure of the three dimensional profile and position of the object

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5,737,084
THREE-DIMENSIONAL SHAPE MEASURING APPARATUS

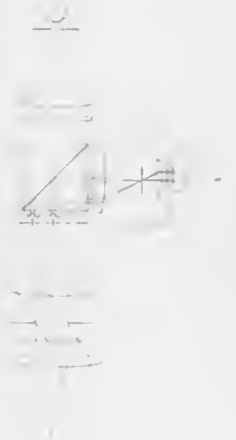
Mitsuhiro Ishihara, Aichi-ken, Japan, assignor to Takaoka Electric Mfg. Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1996, Ser. No. 721,051

Claims priority, application Japan, Sep. 29, 1995, 7-275060; Nov. 2, 1995, 7-308587; Mar. 26, 1996, 8-094682

Int. Cl.^{6} G01B *11/24*

U.S. Cl. 356—376 **7 Claims**



1. A three dimensional shape measuring apparatus using an arrayed confocal imaging system comprising:

an arrayed confocal imaging system,

means for changing the relative distance in the Z direction between an object and the object position in focus, and

an image processor which calculates the three dimensional shape of the object from confocal images acquired at different relative distances in the Z direction between an object and the object position in focus by the arrayed confocal imaging system and the means for changing the relative distance in the Z direction between an object and the object position in focus,

characterized in that said arrayed confocal imaging system comprises:

a light source which emits illuminating light,

a light path diverging optical element which causes the path of the illuminating light and the path of the reflected light to diverge,

a microlens array provided with a large number of two dimensionally arranged microlenses each of which converges the illuminating light coming out from the light path diverging optical element into a small spot,

a pinhole array provided with a large number of pinholes which are disposed at the focal points of the corresponding microlenses of the microlens array,

an objective lens which converges the illuminating light that passes through the pinholes of the pinhole array onto an object and converges the reflected light from the object toward the pinhole array,

a two dimensional photoelectric sensor which receives the reflected light that passes through the pinholes of the pinhole array and then through the corresponding microlenses of the microlens array and is deflected thereto by the light path diverging optical element, and converts the received light into electricity of an amount proportional to the intensity of the received light, and

an image forming section which is disposed between the light path diverging optical element and the two dimensional photoelectric sensor to form an image of the microlenses of the microlens array on the corresponding elements of the two dimensional photoelectric sensor

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5,737,085

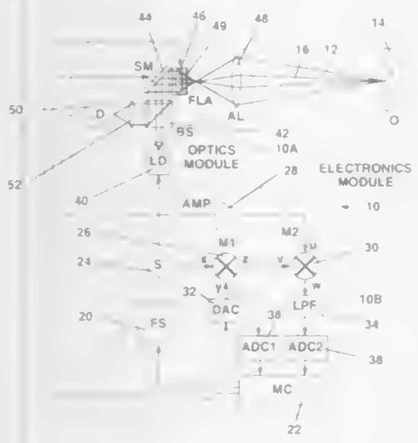
PRECISION OPTICAL DISPLACEMENT MEASUREMENT SYSTEM

Byron G. Zollars; Robert C. Chin; Gary B. McMillian, all of Austin; Tommy C. Cruce, Leander, and William H. Hallidy, Austin, all of Tex., assignors to Systems & Processes Engineering Corporation, Austin, Tex.

Filed Mar. 19, 1997, Ser. No. 822,556

Int. Cl.⁶ G01B 11/24

U.S. Cl. 356—376 16 Claims



1. Apparatus for measuring a difference in distance between a selected reference location on the apparatus and a plurality of areas of a remote surface, comprising:

a source of outgoing light capable of being modulated in amplitude at RF frequencies;

a source of an electrical waveform;

an electrical signal splitter for delivering a first split electrical signal from the source of an electrical waveform to amplitude-modulate the source of outgoing light and a second split electrical signal from the source of an electrical waveform to a first mixer;

a light separator for separating the outgoing light and an incoming light, delivering the outgoing light to a scanning mirror and the incoming light to a light detector;

means for moving the mirror so as to direct light to and receive light from a plurality of areas of the surface;

an optical system for focusing the outgoing light from the scanning mirror onto the remote surface and receiving the incoming light from the surface;

a lens for collecting and directing onto the light detector the incoming light from the light separator;

an amplifier for amplifying an electrical signal from the light detector;

a second mixer configured as a phase detector for converting the signal from the amplifier to an oscillating signal having an amplitude proportional to the cosine of the phase difference between an electrical signal from the first mixer and the signal from the amplifier;

a low pass filter to filter a signal from the second mixer;

a digital to analog converter for supplying an analog signal to the first mixer and to a first analog to digital converter for producing a first digital signal to a microcontroller;

a second analog to digital converter for receiving a signal from the low-pass filter and supplying a second digital signal to the microcontroller;

a processor for processing the first and second digital signals in the microcontroller; and

an output device for outputting the difference in measured distances.

5,737,086

APPARATUS AND METHOD FOR SPECTROSCOPIC MEASUREMENT AS A DEFLECTION OF A BIMORPH CARRYING A SAMPLE THAT IS HEATED BY RADIATION

Christoph Gerber, Richterswil; James Kazimierz Gimzewski, Rueschlikon; Bruno Reihl, Wilen, and Räto Rudolf Schlittler, Schoenenberg, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

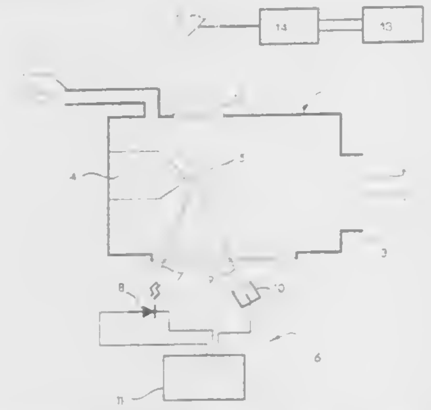
PCT No. PCT/EP94/00224, § 371 Date Apr. 24, 1996, § 102(e) Date Apr. 24, 1996, PCT Pub. No. WO95/02170, PCT Pub. Date Jan. 19, 1995

PCT Filed Jan. 27, 1994, Ser. No. 571,868

Claims priority, application European Pat. Off., Jul. 6, 1993, 93/01742

Int. Cl.⁶ G01N 25/34

U.S. Cl. 356—432 9 Claims



1. A spectrometer with at least one source of electromagnetic radiation, monochromator means for selecting a defined wavelength or wavelength range of said electromagnetic radiation, a flexible element having a sample of interest on or within said flexible element, means for irradiating said sample with said selected electromagnetic radiation, said sample and flexible element being heated by absorption of said selected electromagnetic radiation by said sample, and means for measuring a deflection of said flexible element, said flexible element having at least two layers of materials with different thermal expansion coefficients so that said flexible element deflects when heated by absorption of said selected electromagnetic radiation by said sample, said measured deflection of said flexible element being a measurement of the absorption of said selected electromagnetic radiation by said sample.

5,737,087

MOTION-BASED HARD COPY IMAGING

Roger Roy Morton, Penfield, and Stephen Gulick, Jr., Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 11, 1995, Ser. No. 570,259

Int. Cl.⁶ H04N 1/21, 5/225; G03B 25/02

U.S. Cl. 358—296 15 Claims

1. A method of forming a hard copy motion image from a video motion sequence recorded on a video recording means which sequence contains views from a source, comprising the steps of:

a) playing the recorded video, viewing the views, and selecting a series of motion containing views, wherein each of the views corresponds to a distinct image at a specific period of time;

b) storing the selected motion containing views; and

c) printing an integral image on a printing medium such that the selected motion containing views can be viewed in sequence

by altering an angle between a viewer's eye and a lenticular or barrier screen located on the printing medium.

5,737,088

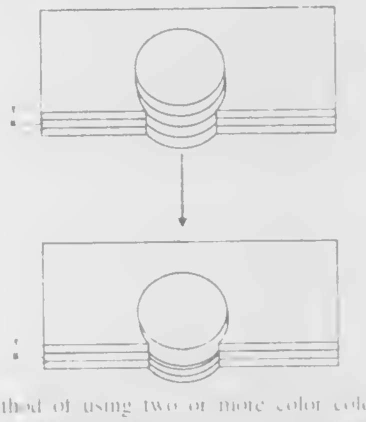
NON UNIFORM MODIFICATION OF PROCESS BLACK COLORANTS TO ACHIEVE CONFLICTING QUALITY REQUIREMENTS

Robert M. Coleman, Altadena, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed May 24, 1996, Ser. No. 653,180

Int. Cl.⁶ H04N 1/23, 1/46; G03F 3/08

U.S. Cl. 358—296 6 Claims



1. In a method of using two or more color colorants having different luminosities to print a process black area on a page, and where the amount of the colorants for the process black area is to be reduced, the improvement comprising:

reducing the amount of the colorant having the higher luminosity by a greater percentage.

5,737,089

IMAGE FORMING APPARATUS WITH A PLOTTER COVER WHICH ROTATABLY SUPPORTS A PLATEN ROLLER

Kenji Kameyama, Isehara, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 359,538, Dec. 20, 1994. This application Jul. 29, 1996, Ser. No. 688,104

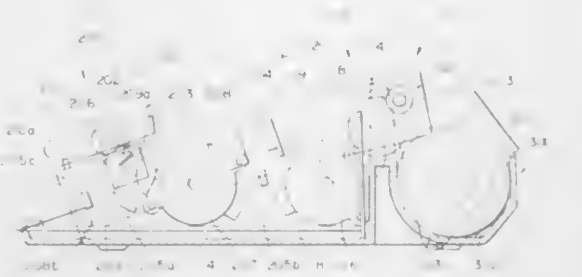
Claims priority, application Japan, Dec. 20, 1993, 5-319666; Dec. 20, 1993, 5-319667; May 9, 1994, 6-094596; Sep. 1, 1994, 6-208296

Int. Cl.⁶ H04N 1/04; B41J 11/02, 29/38; G01D 15/10

U.S. Cl. 358—296 13 Claims

1. An image forming apparatus comprising:

a base having a paper holder for holding a paper formed integrally therewith;



a platen roller comprising at least a gear on an end thereof to be driven via said gear;

a record head facing said platen roller with the intermediary of the paper; and

a plotter cover rotatably supporting said platen roller and for selectively covering or uncovering said paper holder such that said platen roller moves toward or away from said record head;

said plotter cover being formed with a pair of aligned holes for removably mounting said platen roller when said platen roller is moved in an axial direction thereof;

said plotter cover and said platen roller comprising respective abutments abutting against each other when said platen roller is moved to one side in the axial direction;

one of said plotter cover and said platen roller comprising a deformable locking portion engaging, when said platen roller is moved to said one side, with the other of said plotter cover and said platen roller and deforming in a direction perpendicular to the axial direction of said platen roller, said deformable locking portion being, when said abutments abut against each other, elastically restored to thereby restrict a movement of said platen roller to the other side in the axial direction.

5,737,090

SYSTEM AND METHOD FOR FOCUSING, IMAGING AND MEASURING AREAS ON A WORKPIECE ENGRAVED BY AN ENGRAVER

Michael Duane Christopher; David Flannery, both of Dayton; David R. Setiz, Vandalia; Eric J. Serenius, Springboro, and Wei Zhao, Cincinnati, all of Ohio, assignors to Ohio Electronic Engravers, Inc., Dayton, Ohio

Continuation-in-part of Ser. No. 125,938, Sep. 23, 1993, Pat. No. 5,440,398, and a continuation-in-part of Ser. No. 242,012, May 12, 1994, Pat. No. 5,492,057, said Ser. No. 125,938 is a continuation-in-part of Ser. No. 38,679, Mar. 26, 1993, Pat. No. 5,438,422, which is a continuation-in-part of Ser. No. 22,127, Feb. 25, 1993, Pat. No. 5,424,845. This application Apr. 3, 1995, Ser. No. 415,638

Int. Cl.⁶ B41C 1/04

U.S. Cl. 358—299 55 Claims

1. A system for imaging an area of a cylinder in an engraver and system, comprising:

an imager for capturing an image of a surface of the cylinder; and an illuminator capable of automatically illuminating said surface to a plurality of light intensity levels.

5,737,091
ERROR DETECTION APPARATUS AND METHOD FOR USE WITH ENGRAVERS

Paul L. Holowko, Spring Valley; David R. Seitz, Vandalia, and Curtis Woods, Centerville, all of Ohio, assignors to Ohio Electronics Engravers, Inc., Dayton, Ohio

Continuation of Ser. No. 125,938, Sep. 23, 1993, Pat. No. 5,440,398, which is a continuation-in-part of Ser. No. 38,679, Mar. 26, 1993, Pat. No. 5,438,422, which is a continuation-in-part of Ser. No. 22,127, Feb. 25, 1993, Pat. No. 5,424,845.

This application Jun. 7, 1995, Ser. No. 476,093

Int. Cl. B41C *1/04*

U.S. Cl. 358—299 24 Claims

1. A gravure engraver comprising means for oscillating a stylus into engraving contact with a rotating printing cylinder, a video camera for generating an image signal representing images of cells which have been engraved by said stylus, video processing means for processing said image signal and generating a feedback signal indicating the sizes of cells which have been engraved by said stylus, and computing means responsive to said feedback signal for adjusting the operation of said stylus.

5,737,092
IMAGE PROCESSING APPARATUS FOR PRINTING DATA RECEIVED FROM A PLURALITY OF DATA OUTPUT DEVICE

Takehito Utsunomiya, Yokohama; Kunio Yoshihara, Sagamihara; Yoshinobu Aiba, and Hideto Kohtani, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 372,871, Jan. 13, 1995, which is a continuation of Ser. No. 970,829, Nov. 3, 1992, abandoned.

This application Mar. 10, 1997, Ser. No. 814,006

Claims priority, application Japan, Nov. 7, 1991, 3-291450

Int. Cl.^{6} H04N *1/00, 1/40, 1/32*

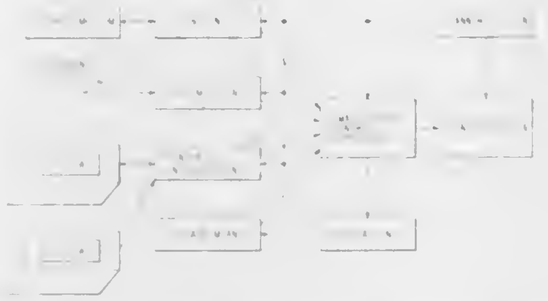
U.S. Cl. 358—407 16 Claims

1. An image processing apparatus that receives print data described in a page description language from a data output device, comprising:

memory means having a capacity to store a plurality of pages of dot data; and

means for generating pages of dot data on the basis of respective portions of the received print data and for writing the pages of generated dot data into said memory means,

wherein said generating means secures a plurality of areas in said memory means and executes a respective dot data generating operation on the respective portion of the print data to generate and store each respective page of dot data in a respective one of said areas, the dot data generating operations being performed in parallel by means of time-sharing conversion processes.



5,737,093
RECORDING DATA GENERATING DEVICE HAVING OUTPUT ALLOWANCE/PREVENTION MODE

Yasuo Shimada, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed May 15, 1995, Ser. No. 440,925

Claims priority, application Japan, May 13, 1994, 6-124422

Int. Cl.^{6} H04N *1/415*

U.S. Cl. 358—433 18 Claims

1. A recording data generating device comprising:

data storing means for storing a plurality of lines' worth of dot line data and for dividing the plurality of lines' worth of dot line data into M by N dot matrix data, the dot line data being representative of dots arranged in columns of a dot line extending in a main scanning direction;

a data buffer for receiving M line's worth of dot line data from said data storing means and storing each of the M by N dot matrix data as separate unitary data wherein N represents a number of columns to be framed on the dot line and M represents a number of dot lines to be framed in an auxiliary scanning direction perpendicular to the main scanning direction, wherein M is 2 or 3 and N is 2 or 3;

data reading means for sequentially reading each of the unitary data from said data buffer while shifting the framed columns in the main scanning direction;

data conversion means for converting each of the unitary data to recording data for printing in positions corresponding to framed columns and framed dot lines; and

output prevention means for preventing the recording data from being outputted with regard to only one or two of the framed dot lines when M is 3 and one of the framed dot lines when M is 2.

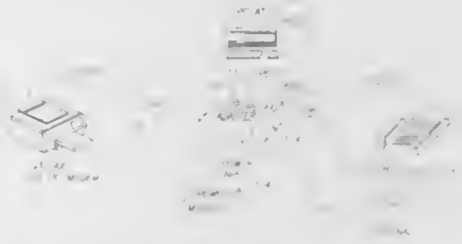
5,737,094
SECURE FAX ADAPTER METHOD AND APPARATUS

James S. Hui, Mountain View, Calif., assignor to Ricoh Company, Ltd., Tokyo, Japan, and Ricoh Corporation, San Jose, Calif.

Filed Aug. 9, 1995, Ser. No. 513,015

Int. Cl.^{6} H04N *1/00, 1/32*

U.S. Cl. 358—442 10 Claims



1. A Data Access Arrangement (DAA) apparatus for a fax adapter having a fax communication circuit, a controller and a plurality of external device ports including a fax port and a telephone port, the DAA apparatus comprising:

an off-hook detection circuit having an input coupled to the fax communication circuit and having an output coupled to the controller;

a ring detection circuit having an input and having an output coupled to the fax communication circuit;

a ring generation circuit having an input coupled to the controller and an output; and

a relay circuit having a plurality of control inputs coupled to the controller, the relay circuit further comprising:

a first relay having a first port coupled to the fax communication circuit and a second port coupled to the off-hook detection circuit for selectively coupling the fax communication circuit to the off-hook detection circuit responsive to at least one of the plurality of control inputs;

a second relay having a first port, a second port and a third port coupled to the ring generation circuit, the second relay for selectively coupling the first port to the second port and to the ring generation circuit responsive to at least one of the plurality of control inputs;

a third relay having a first port coupled to the fax port, a second port coupled to a first port on the second relay, and a third port, the third relay for selectively coupling the ring generation circuit to the fax port responsive to at least one of the plurality of control inputs;

a fourth relay having a first port, a second port coupled to the third port on the third relay and a third port coupled to the telephone port; and

a fifth relay having a first port coupled to the fax communication circuit, a second port coupled to the second port on the second relay and a third port coupled to the first port on the fourth relay for selectively coupling the fax communication circuit to the telephone port.

5,737,095
IMAGE READING APPARATUS AND METHOD INCLUDING AN ILLUMINATING CONTROLLER

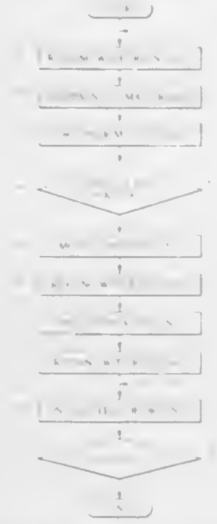
Shoji Kikuchi, Yokohama, and Mineo Nozaki, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 606,948

Claims priority, application Japan, Mar. 2, 1995, 7-043010

Int. Cl.^{6} H04N *1/04; 1/46; 1/38;* F21V *00/00*

U.S. Cl. 358—475 18 Claims



1. An image reading apparatus, comprising:

a) a plurality of illuminating means for illuminating an original;

b) photoelectric conversion means for converting light from the original illuminated by each of said plurality of illuminating means into image signals and outputting the image signals;

c) discriminating means for discriminating whether or not any image exists on the original, based on the image signals output from said photoelectric conversion means at least when the original is illuminated with light from one of said plurality of illuminating means possessing spectral characteristics including green; and

d) control means for effecting control so that, when said discriminating means has discriminated that no image exists on the original, the manner of image reading with the illuminating means other than the one illuminating means employed in the discrimination performed by said discriminating means is changed from the manner of image reading with the one illuminating means employed in the discrimination.

5,737,096
LIGHT ILLUMINATION ASSEMBLY HAVING A TAPERED LIGHT GUIDE PLATE FOR AN OPTICAL READING UNIT

Masaru Takeuchi, Handa; Yasuhito Bandai, Nagoya; Akira Kobayashi, Anjou, and Katsutoshi Seguchi, Nishikamo-gun, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Mar. 26, 1996, Ser. No. 621,610

Claims priority, application Japan, Mar. 27, 1995, 7-094475

Int. Cl.^{6} H04N *1/10*

U.S. Cl. 358—475 12 Claims

1. An optical guide system comprising:

a light source emitting light;

a light guide plate made from a material into which the light emitted from said light source passes, said light guide plate having a top surface and a bottom surface with a thickness of said guide plate being defined as the perpendicular distance between said top and bottom surfaces, a longitudinal axis, a first side face perpendicular to the longitudinal axis, and a second side face opposite to the first side face, wherein said light source is disposed in confrontation with the first side face to allow the light emitted from said light source to

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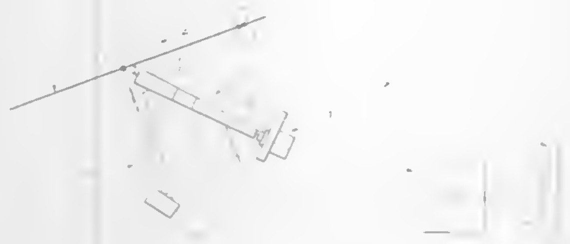


incident thereon and a document carrying an image to be optically read is disposed to face the second side face so that the light emerged from the second side face is projected thereonto, and said light guide plate having a cross section taken along the longitudinal axis in the direction of said thickness with a tapered shape having a side slanted with respect to the longitudinal axis, and the thickness of said light guide plate increases toward the second side face

5,737,097
INFORMATION COMMUNICATION APPARATUS

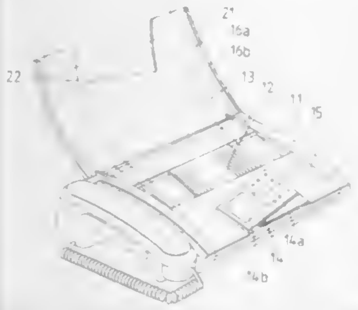
Munenori Fujimoto, Tokyo, Japan, assignor to Matsushita Graphic Communication Systems, Inc., Tokyo, Japan

Continuation of Ser. No. 229,987, Apr. 19, 1994, which is a continuation of Ser. No. 888,717, May 27, 1992, Pat. No. 5,317,422. This application Apr. 8, 1996, Ser. No. 629,324

Claims priority, application Japan, May 28, 1991, 3-123486; May 28, 1991, 3-123488

Int. Cl.^{6} H04N *1/00*

U.S. Cl. 358—476 **13 Claims**



1. An information communication apparatus associated with a facsimile machine comprising:

an apparatus main body;

an operation panel portion provided on an upper surface of said apparatus main body,

a display unit provided within a region of said operation panel portion, substantially at a central portion of said apparatus main body,

a manuscript inlet opening provided on the upper surface of said apparatus main body;

a curved plate member with a concave inside surface, serving as a cover and a manuscript holder, said plate member being hingedly supported on said apparatus main body so as to be opened or closed between an opened position where said plate member extends rearward and obliquely upward to hold both ends of a manuscript and guide the manuscript along said concave inside surface to said manuscript inlet opening so as to serve as said manuscript holder, and a closed position where said plate member covers said upper surface of the apparatus main body,

a baring portion formed at a center of said plate member so as to expose said display unit of said operation panel portion when said plate member is located at said closed position where the plate member covers the upper surface of said apparatus main body, and

operation keys provided within a remaining region of said upper surface of said apparatus main body other than a region of said operation panel portion exposed by said baring portion so that said operation keys are concealed by said plate member when said plate member is located at said closed position, said operation keys being manipulated to transmit said manuscript to a communication partner through said facsimile machine

5,737,098
ELECTRONIC COLOR SNAPSHOT TECHNIQUE AND STRUCTURE USING VERY HIGH RESOLUTION MONOCHROME FULL FRAME CCD IMAGERS

Michel Sayag, Mt. View, Calif., assignor to Loral Fairchild Corporation, Syosset, N.Y.

Continuation of Ser. No. 994,875, Dec. 23, 1992, abandoned. This application Nov. 15, 1995, Ser. No. 559,510

Int. Cl.^{6} H04L *1/04* **H04N** *3/14 5/335*

U.S. Cl. 358—483 **2 Claims**

1. A method for shifting charge in a charge-coupled device, the charge coupled device comprising a plurality of photosensitive semiconductor storage cells for storing individual charge packets, each semiconductor storage cell being controlled by at least one gate electrode, the photosensitive semiconductor storage cells configured in an array comprising horizontal rows, the method comprising the step of moving charge packets stored in a first set of horizontal rows of photosensitive semiconductor storage cells into a second set of horizontal rows of photosensitive semiconductor storage cells by manipulating a plurality of sets of clock signals applied to the gate electrodes, each of every three adjacent horizontal rows being controlled by a different set of clock signals, each set of clock signals being distinct and separately controllable

5,737,099
FILM IMAGE INPUT SYSTEM HAVING IMPROVED FOCUSING AND REDUCED SIZE

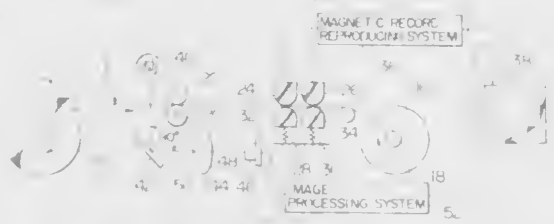
Makoto Nakazawa, and Masaaki Orimoto, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 385,166, Feb. 7, 1995, abandoned. This application Jan. 24, 1997, Ser. No. 788,203

Claims priority, application Japan, Feb. 7, 1994, 6-013661

Int. Cl.^{6} H04N *1/04*

U.S. Cl. 358—487 **10 Claims**



1. A film image input system comprising

film supply means for conveying a roll of developed photographic film wound in a film cartridge out of said film cartridge,

winding means for winding said developed photographic film conveyed out of said film cartridge by said film supply means,

a light source for illuminating said developed photographic film with illumination light,

a mirror for reflecting the illumination light which has passed through said developed photographic film; and

an image sensor for receiving through a taking lens the illumination light reflected by said mirror and for outputting image signals in accordance with the received illumination light,

said mirror, said taking lens and said image sensor being arranged in a space between said film supply means and said winding means and being separated away from said developed photographic film, in a direction perpendicular to a conveying direction of said developed photographic film, by a distance not greater than a diameter of said film supply means and said winding means

5,737,100
IMAGE PROCESSING APPARATUS WHICH ADDS IDENTIFICATION DATA TO IMAGES

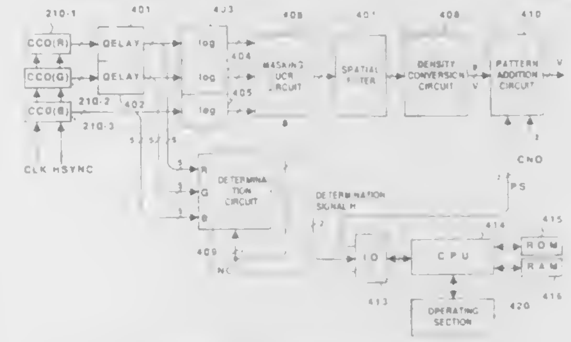
Masahiro Funada, Yokohama; Toshiyuki Kitamura; Mitsuhiro Yamamoto, both of Kawasaki, and Eiji Ohta, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 85,088, Jul. 1, 1993, Pat. No. 5,465,161, which is a division of Ser. No. 856,996, Mar. 24, 1992, Pat. No. 5,257,119. This application May 31, 1995, Ser. No. 454,682

Claims priority, application Japan, Mar. 25, 1991, 3-060248; May 8, 1991, 3-102354; May 29, 1991, 3-124345; Jul. 1, 1991, 3-160560

Int. Cl.^{6} H01L *1/23; 1/44 1/50*

U.S. Cl. 358—501 **19 Claims**



1. An image processing apparatus comprising

input means for inputting image data;

composition means for combining a predetermined pattern with the image data input by said input means,

output means for outputting the image data obtained by said composition means, and

control means for selecting execution/non-execution of the operation of said composition means according to an image processing model

wherein said composition means combines the predetermined pattern such that the pattern is difficult to discriminate with human eyes when an image represented by the image data output by said output means is reproduced.

7. An image processing apparatus comprising

input means for inputting image data;

processing means for processing the image data input by said input means, and for outputting reproduction data for reproducing the image represented by the image data,

first means for determining whether or not an image represented by the image data input by said input means is a predetermined image; and

second means for adding information for identifying the apparatus, with which the image is processed, to the image represented by the reproduction data

5,737,101
INTERPOLATING OPERATION METHOD AND APPARATUS FOR IMAGE SIGNALS

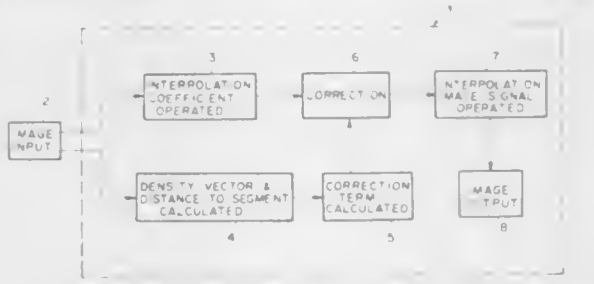
Wataru Ito, Kanagawa-ken, Japan, assignor to Fuji Photo Film., Ltd., Kanagawa, Japan

Filed Jul. 25, 1996, Ser. No. 686,030

Claims priority, application Japan, Aug. 9, 1995, 7-203207

Int. Cl.^{6} H04N *1/46, 1/41*

U.S. Cl. 358—525 **2 Claims**


1
3
6
7
2
IMAGE INPUT
INTERPOLATION COEFFICIENT OPERATED
CORRECTION
INTERPOLATION IMAGE SIGNAL OPERATED
DENSITY VECTOR & DISTANCE TO SEGMENT CALCULATED
CORRECTION TERM CALCULATED
IMAGE OUTPUT
4
5
8

1. A method of an interpolating operation for obtaining an interpolation image signal from an original image signal representing an original image which is carried out on original image signal components which make up the original image signal and respectively represent values of original picture elements arranged in a grid pattern at predetermined intervals in vertical and horizontal directions to obtain interpolation image signal components which make up the interpolation image signal and represent values of interpolation picture elements arranged in a grid pattern at intervals different from those of the original picture elements, the interpolation image signal component for each of the interpolation picture elements being operated by multiplying the image signal components for a plurality of adjacent original picture elements adjacent to the interpolation picture element by respective interpolation coefficients which are calculated from the image signal components for the adjacent original picture elements, wherein the improvement comprising the steps of

calculating the density vector at the interpolation picture element on the original image represented by the original image signal,

calculating distances of the respective adjacent original picture elements from a straight segment perpendicular to the density vector,

correcting the interpolation coefficient for each of the adjacent original picture elements to be smaller as the density vector and/or the distance of the adjacent original picturer element from the straight segment perpendicular to the density vector becomes larger, and

carrying out the interpolating operation on the basis of the corrected interpolation coefficient

5,737,102
METHOD OF MAKING AN OPTICALLY NONLINEAR SWITCHED OPTICAL DEVICE AND RELATED DEVICES

Sanford A. Asher, Pittsburgh, Pa., assignor to University of Pittsburgh of the Commonwealth System of Higher Education, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 999,487, Dec. 30, 1992, Pat. No. 5,452,123. This application Sep. 18, 1995, Ser. No. 529,490

Int. Cl.^{6} G06E *1/00*

U.S. Cl. 359—107 **84 Claims**

1. A method of making a nonlinear optical device which becomes opaque to undesired radiation transmission, including the steps of

selecting charged particles having a first refractive index, and selecting a medium having said first refractive index such that said optical device is transmitive of incident radiation which is below a predetermined radiation intensity at a predetermined wavelength,

incorporating into at least one of (a) said particles or (b) said medium, a quantity of quantum-sized inclusions such that said quantum-sized inclusions, when exposed to radiation at a

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predetermined wavelength and said predetermined wavelength and intensity, cause a divergence between the refractive index of said particles and the refractive index of said medium such that radiation transmission of a specific wavelength is substantially entirely resisted by said optical device,

introducing said particles into said medium

forming an ordered array of said particles within said medium, and

employing said nonlinear optical device in an optical computer

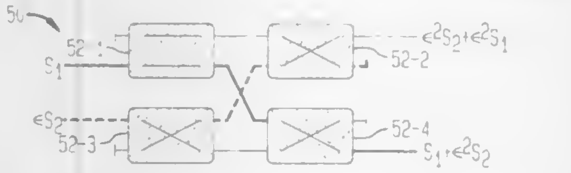
5,737,103
REDUCING CROSSTALK IN OPTICAL CROSS-CONNECTS BY APPROPRIATE CONFIGURATION UNUSED SWITCH ELEMENTS

Janet Lehr Jackel, Holmdel, N.J., assignor to Bell Communications Research, Inc., Morristown, N.J.

Filed Jan. 16, 1996, Ser. No. 587,909

Int. Cl.⁶ H04B *10/18*

U.S. Cl. 359—117 **6 Claims**



1. A method of reducing crosstalk in an optical cross connect circuit including a plurality of asymmetrically dilated 2×2 switches each having four switching elements connected between one or more inputs and one or more outputs, said method comprising the step of

configuring unused cross-connect switch elements in each of said asymmetrically dilated 2×2 switches and which are not part of a desired optical signal path through the cross connect circuit such that the unused switch elements in a given asymmetrically dilated 2×2 switch are configured in a common switch state

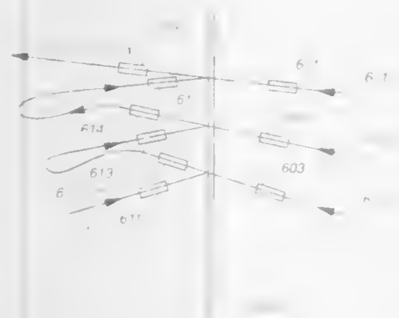
5,737,104
WAVELENGTH DIVISION MULTIPLEXER AND DEMULTIPLEXER

Ho-Shang Lee, El Sobrante; Gerry Pesavento, Kensington, and David Polinsky, San Francisco, all of Calif., assignors to Dicon Fiberoptics, Berkeley, Calif.

Filed Dec. 18, 1995, Ser. No. 574,263

Int. Cl.⁶ H04J *14/02*

U.S. Cl. 359—124 **30 Claims**



16. An apparatus for demultiplexing light of a plurality of wavelengths including at least three wavelengths in an input beam, said apparatus comprising

a filter having a characteristic property that the filter passes incident light of wavelengths within a characteristic wavelength band and reflect incident light of wavelengths outside said first characteristic wavelength band, wherein said characteristic wavelength band varies with the angle of incidence of said incident light to the normal direction to the filter,

a first optical channel directing and collimating said input beam towards the filter at a first incident angle so that light of one of the at least three wavelengths is reflected and light of another of the at least three wavelengths is passed by the filter;

a second optical channel directing and collimating said light substantially reflected or passed by the filter towards the filter at a second incident angle different from the first incident angle, the first and second incident angles being such that the selective passage and reflection of light of different wavelengths by the filter separates the input beam into three output beams, each output beam containing light of one of the at least three wavelengths

5,737,105
OPTICAL REPEATER

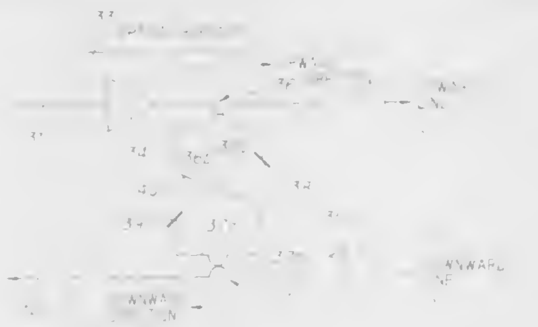
Kenji Ohta, and Mitsuo Kitamura, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 18, 1996, Ser. No. 617,399

Claims priority, application Japan, Jun. 27, 1995, 7-160502

Int. Cl.⁶ H04B *10/17*

U.S. Cl. 359—179 **5 Claims**



1. An optical repeater provided between terminal stations for amplifying optical signals that have entered via respective ones of an optical fiber in an upward direction and an optical fiber in a downward direction and outputting the amplified optical signals to optical fibers in the respective directions, comprising:

a first photocoupler, which has a prescribed optical coupling loss characteristic, provided in an optical fiber on an output side of an optical amplifier of an upward direction

a first reflector, which has a prescribed reflection loss characteristic, obtained by subjecting one end of a branch path of said first photocoupler to a reflective treatment,

a second photocoupler, which has a prescribed optical coupling loss characteristic, provided in an optical fiber on an output side of an optical amplifier in a downward direction;

a second reflector, which has a prescribed reflection loss characteristic, obtained by subjecting one end of a branch path of said second photocoupler to a reflective treatment, and

an optical path for coupling another end of the branch path of said first photocoupler and another end of the branch path of said second photocoupler.

5,737,106
WAVELENGTH SELECTIVE OPTICAL DELAY LINE

Pierre Sansonetti, Palaiseau; Jean-Michel Gabriagues, Asnieres, and Isabelle Riant, Palaiseau, all of France, assignors to Alcatel N.V., Rijswijk, Netherlands

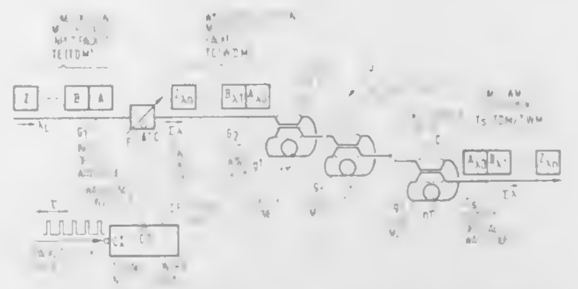
Filed Oct. 10, 1995, Ser. No. 540,449

Claims priority, application France, Oct. 11, 1994, 94 12113

Int. Cl.⁶ H04J *14/08*

U.S. Cl. 359—140 **12 Claims**

1. An all-optical time slot interchange device comprising



a guide structure including at least two wavelength selective delay lines disposed in series, each of said wavelength selective delay lines comprising

a delay line for delaying the propagation of an input optical signal at a given wavelength which represents given packet time slot within said optical signal, by increasing the length of the optical path said input optical signal at said given wavelength travels, and

extraction and re-injection means for extracting said optical signal at said given wavelength from said guide structure and re-injecting said optical signal at said given wavelength into said guide structure via said delay line so as to apply a time-delay to said optical signal at said given wavelength such that said time delay produces an interchange of packet time slots within said input optical signal, which may then be output as a packet time slot interchanged optical signal.

5,737,107
INFORMATION TRANSMITTING APPARATUS

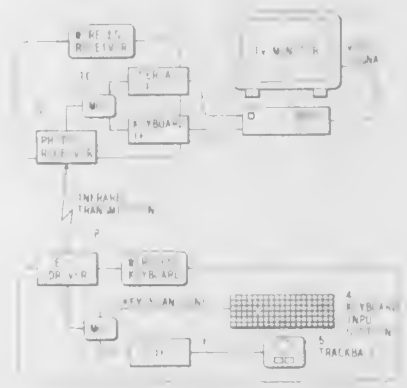
Yuichi Umeda, Fukushima-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Apr. 17, 1996, Ser. No. 633,987

Claims priority, application Japan, Apr. 21, 1995, 7-096894

Int. Cl.⁶ H04B *10/00*

U.S. Cl. 359—146 **5 Claims**



1. An information transmitting apparatus comprising

plurality of transmitting means for sending input information by wireless means;

receiving means for receiving said input information coming from said plurality of transmitting means to process the received input information, and

host controlling means connected to said receiving means for accepting the processed information from said receiving means;

wherein said plurality of transmitting means selectively send first-format information containing no device identifier and second-format information containing a device identifier and said receiving means determines a type of one of said plurality of transmitting means that has sent said input information from said device identifier contained in the received second format information to perform information processing according to the determined type of one of said plurality of transmitting means.

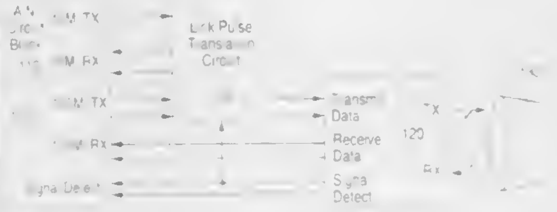
5,737,108
CIRCUIT FOR AUTO-NEGOTIATION OVER FIBER-OPTIC MEDIA

William S. Bunch, Sunnyvale, Calif., and Todd S. Valiades, West Buxton, Me., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sep. 8, 1995, Ser. No. 525,829

Int. Cl.⁶ H04J *14/08*, H04B *10/26*

U.S. Cl. 359—152 **8 Claims**



2. A link pulse translation circuit comprising

transmit portion circuitry that receives a first link pulse signal, having a first level, from a physical layer device and that translates the first link pulse signal into a second link pulse signal that has a second level suitable for driving transmit portion circuitry of an optical transceiver,

receive portion circuitry that receives a signal detect signal from receive portion circuitry of an optical transceiver, wherein the receive portion circuitry of the optical transceiver asserts the signal detect signal in response to an optical pulse signal being provided on an optical medium to which the receive portion circuitry of the optical transceiver is coupled, and that provides a third link pulse signal, having the first level to the physical layer device,

wherein the transmit portion circuitry includes

pulse stretching circuitry that receives the first link pulse signal wherein the first link pulse signal includes a first plurality of link pulses having a first duration and provides a stretched link pulse signal comprising a second plurality of link pulses having a second duration greater than the first duration, and

level setting circuitry that receives the stretched link pulse signal and that provides the second link pulse signal, having the second level and including a third plurality of link pulses having the second duration, in response thereto

5,737,109
THERMAL DOWN-MIXING IN DIODE LASER TRANSMITTERS TO SUPPRESS STIMULATED BRILLOUIN SCATTERING

John Charles Goodwin, Nepean, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jan. 16, 1996, Ser. No. 587,046

Int. Cl.⁶ H04B *10/00*

U.S. Cl. 359—161 **20 Claims**

1. An optical transmission system for transmitting an analog signal over an optical fiber cable comprising

a semiconductor laser for providing an optical carrier, said laser having a natural linewidth at high power of the same order as the SBS linewidth or less,

a dither generator for generating a dither signal having a first spectral component at a first frequency f_1 and a second spectral component at a second frequency f_2, said first frequency being at least twice the maximum frequency of said analog signal and said second frequency being separated from said first frequency by a frequency difference f_d which thermally modulates said laser with a thermal modulation component having said frequency difference, and

counterbalancing unit for detecting in said optical carrier a residual modulation with a frequency equal to said frequency difference and substantially removing said residual modulation from said optical carrier

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5,737,110

OPTICAL COMMUNICATION SYSTEM USING DARK SOLITON LIGHTWAVE

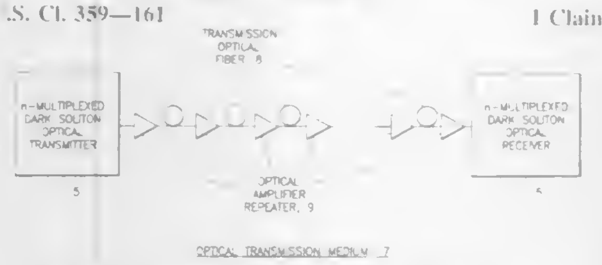
Masatoshi Suzuki, Kawashima-Machi; Noboru Edagawa, Tokyo; Hidenori Taga, Sakado; Shu Yamamoto, Shiki, and Shigeyuki Akiba, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 372,668, Jan. 13, 1995, Pat. No. 5,625,479. This application Dec. 20, 1996, Ser. No. 770,454

Claims priority, application Japan, Jan. 27, 1994, 6-23554

Int. Cl.^{6} H04B *10/00*

U.S. Cl. 359—161 **1 Claim**


TRANSMISSION OPTICAL FIBER 8
n-MULTIPLEXED DARK SOLITON OPTICAL TRANSMITTER
5
OPTICAL AMPLIFIER REPEATER, 9
n-MULTIPLEXED DARK SOLITON OPTICAL RECEIVER
6
OPTICAL TRANSMISSION MEDIUM 7

1. An optical communication system comprising

a transmission optical fiber line;

an optical transmitter for generating and transmitting, to said transmission optical fiber line, a dark soliton lightwave carrying digital information obtained by reversing ON-OFF states of a bright soliton lightwave of return-to-zero optical pulses, said dark soliton lightwave having a phase shift smaller than π at the minimum timing of its optical intensity;

an optical receiver for receiving said dark soliton lightwave from said transmission optical fiber line to detect said return to zero optical pulses by reversing ON-OFF states of said dark soliton lightwave; and

a plurality of optical amplifier repeaters provided in appropriate intervals on said transmission optical fiber line for compensating for a loss of said dark soliton lightwave in said transmission optical fiber line;

at the wavelength of said dark soliton lightwave, said transmission optical fiber line having a negative average value of wavelength dispersion over the entire length of said transmission optical fiber line, the average value of the wavelength dispersion of said transmission optical fiber line and each output light intensity of said optical amplifier repeaters having values so that a non-linear optical effect and a wavelength dispersion effect, exerted on said transmission lightwave, are balanced with each other.

5,737,111

OPTICAL RECEIVING APPARATUS

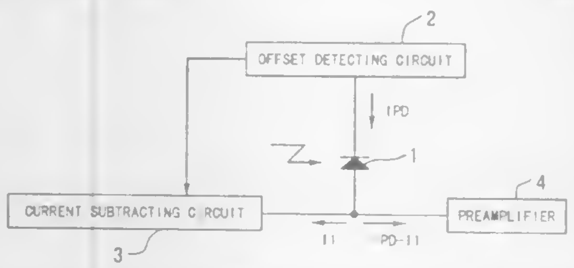
Kazuyuki Mori, and Kohei Shibata, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 31, 1996, Ser. No. 777,647

Claims priority, application Japan, Jul. 2, 1996, 8-172219

Int. Cl.^{6} H04B *10/06*

U.S. Cl. 359—194 **8 Claims**



1. An optical receiving apparatus for receiving an optical signal and converting the received signal to an electrical signal, comprising:

a light-receiving device for converting an input optical signal to a current quantity,

an offset detecting circuit for detecting a quantity of electricity indicative of an offset current quantity which corresponds to a zero level of the optical signal within the current quantity output from said light-receiving device; and

a current subtracting circuit for reproducing the offset current quantity based on the quantity of electricity detected by said offset detecting circuit, and subtracting the reproduced offset current quantity from the current quantity output from said light receiving device

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5,737,112

SCANNING OPTICAL SYSTEMS

Takashi Iizuka, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 7, 1995, Ser. No. 499,730

Claims priority, application Japan, Jul. 7, 1994, 6-156219; Jul. 7, 1994, 6-156220; Jul. 15, 1994, 6-163697; Jul. 15, 1994, 6-163698; Nov. 17, 1994, 6-283812; May 30, 1995, 7-132456

Int. Cl.^{6} G02B *26/08*

U.S. Cl. 359—205 **23 Claims**

1. A scanning optical system, comprising:

a light source for emitting a beam of light;

a light deflector for deflecting said beam of light in a main scanning direction, and

a scanning lens system which receives said beam of light deflected by said light deflector for focusing said deflected beam of light onto a scanning surface,

wherein at least one surface of a lens in said scanning lens system is formed as a sub-scanning-plane aspherical surface having a cross-sectional shape of a non-circular arc to correct a spherical aberration in a sub-scanning plane extending in a sub-scanning direction perpendicular to said main scanning direction.

5,737,113

OPTICAL MODULATORS AND COLOR IMAGE DISPLAY DEVICE EMPLOYING THE SAME

Junko Kuramochi, Yokohama; Michitaka Setani, Kawasaki; Takehiko Nakai, Kawasaki, and Saburo Sugawara, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 1, 1996, Ser. No. 690,870

Claims priority, application Japan, Aug. 4, 1995, 7-199513; Aug. 4, 1995, 7-199514; Aug. 4, 1995, 7-199666; Aug. 4, 1995, 7-199667; Oct. 12, 1995, 7-264229

Int. Cl.^{6} G02F *1/03*

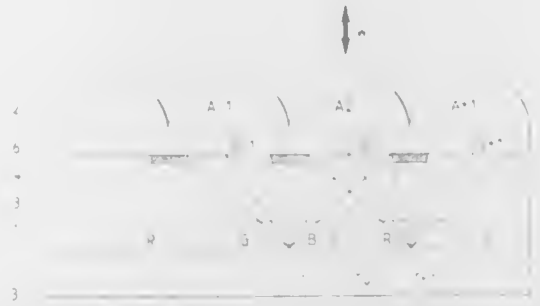
U.S. Cl. 359—259 **56 Claims**

1. An optical modulator comprising:

a first diffraction grating for separating a light flux of a wide wavelength band into light fluxes by each of given wavelength bands,

an optical modulation element for modulating said separated light fluxes by each of corresponding picture elements, respectively, and outputting them, and

a second diffraction grating for synthesizing said modulated light fluxes outputted from said optical modulation element,



wherein said first diffraction grating, said optical modulation element and said second diffraction grating are integrally structured

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5,737,114

LABEL HAVING AN INCORPORATED ELECTROCHROMIC STATE-OF-CHARGE INDICATOR FOR AN ELECTROCHEMICAL CELL

John C. Bailey, Columbia Station, Ohio, assignor to Eveready Battery Company, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 396,505, Nov. 8, 1994, which is a continuation-in-part of Ser. No. 246,926, May 20, 1994, Pat. No. 5,458,992, which is a continuation of Ser. No. 648,080, Jan. 31, 1991, abandoned. This application May 30, 1995, Ser. No. 453,700

Int. Cl.^{6} G02F *1/153*

U.S. Cl. 359—268 **41 Claims**

1. A label having an incorporated state of charge indicator for an electrochemical cell, said electrochemical cell having a first terminal and a second terminal of opposite polarity, said indicator comprising a first electrically conductive electrode adapted to electrically contact said first terminal, said first electrically conductive electrode being comprised of an electrochromic material to form an electrically conductive electrochromic electrode, a second electrically conductive electrode adapted to electrically contact said second terminal, and an ionically conductive electrolyte disposed between and in contact with said first and second electrically conductive electrodes, wherein said electrochromic material will undergo a visible change as a result of current being supplied from the electrochemical cell

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5,737,115

ADDITIVE COLOR TRISTATE LIGHT VALVE TWISTING BALL DISPLAY

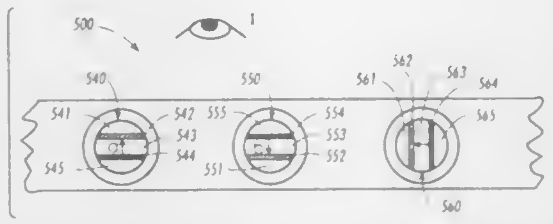
Jock D. Mackinlay, Palo Alto, and Maureen C. Stone, Los Altos, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 15, 1995, Ser. No. 573,922

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—296 **20 Claims**

1. A spheroidal ball comprising a plurality of segments arrayed substantially parallel to one another, each segment being adjacent to at least one other segment and to no more than two other segments, each segment adjacent to exactly one other segment



being an exterior segment and each segment adjacent to exactly two other segments being an interior segment, adjacent segments being adjoined to one another at substantially planar interfaces, the segments including

a first segment, the first segment being an interior segment having a first optical modulation characteristic, the first optical modulation characteristic being such that the first segment is nontransparent,

a second segment, the second segment being an exterior segment adjacent to the first segment, the second segment having a second optical modulation characteristic, the second optical modulation characteristic being such that the second segment is transparent,

a third segment, the third segment being an interior segment having a third optical modulation characteristic, the third optical modulation characteristic being such that the third segment is nontransparent, and

a fourth segment, the fourth segment being an exterior segment adjacent to the third segment, the fourth segment having an optical modulation characteristic such that the fourth segment is transparent,

the ball having an anisotropy for providing an electrical dipole moment, the electrical dipole moment rendering the ball electrically responsive such that when the ball is rotatably disposed in a nonoscillating electric field while the electrical dipole moment of the ball is provided, the ball tends to rotate to an orientation in which the electrical dipole moment aligns with the field

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5,737,116

FREQUENCY SHIFTER AND OPTICAL DISPLACEMENT MEASURING APPARATUS USING THE SAME

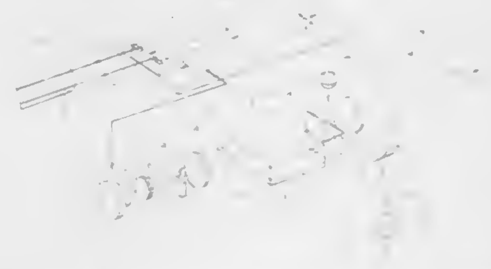
Hidejiro Kadowaki, Yokohama; Makoto Takamiya, Tokyo, and Shigeki Kato, Utsunomiya, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 30, 1996, Ser. No. 640,111

Claims priority, application Japan, May 12, 1995, 7-114566

Int. Cl.^{6} G02F *1/35*

U.S. Cl. 359—359 **11 Claims**



1. A frequency shifter for modulating a phase of luminous flux comprising

an electrooptical element for receiving the luminous flux

a plurality of electrode components provided on said electrooptical element,

a voltage generating circuit for generating a voltage to be applied to said electrooptical element via said plurality of electrode components, a level of the voltage being variable in order to shift a frequency of the luminous flux received by said electrooptical element, thereby modulating the phase of the luminous flux, and

a shield for shielding both said voltage generating circuit and said electrooptical element

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5,737,117
SECOND HARMONIC GENERATION ELEMENT AND A PROCESS FOR PRODUCING THE SAME

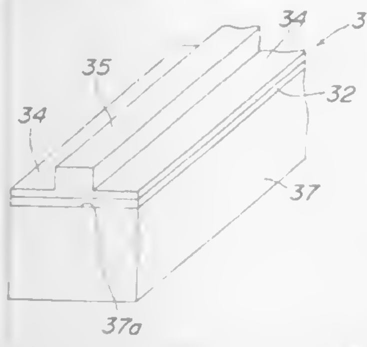
Minoru Imaeda; Katsuhiro Imai; Tatsuo Kawaguchi; Takashi Yoshino, and Akihiko Honda, all of Nagoya, Japan, assignors to NGK Insulators, Ltd., Japan

Filed Apr. 5, 1996, Ser. No. 628,252

Claims priority, application Japan, Apr. 10, 1995, 7-083938; Feb. 16, 1996, 8-029207

Int. Cl.⁶ G02F *1/37*

U.S. Cl. 359—332 **32 Claims**



1. A second harmonic generation element comprising a single crystal substrate having a fundamental composition of $K_3Li_{2-2x}(Nb_{1-y}Ta_y)_{5+x}O_{15+2x}$ and an optical waveguide made of an epitaxial film with a fundamental composition of $K_3Li_{2-2x}(Nb_{1-y}Ta_y)_{5+x}O_{15+2x}$ and refractive index different from that of the single crystal substrate, wherein:

0.5[illegible] a x 0.625

0 b x 0.5

[illegible]

5,737,118
OPTICAL AMPLIFYING APPARATUS

Yasushi Sugaya; Susumu Kinoshita; Hiroshi Onaka, and Terumi Chikama, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 14, 1996, Ser. No. 601,244

Claims priority, application Japan, May 8, 1995, 7-109694

Int. Cl.⁶ H01S *3/00*

U.S. Cl. 359—341 **12 Claims**

1. An optical amplifying apparatus comprising:

an optical amplifying unit which includes an optical amplifying medium and amplifies an input optical signal, and outputs the amplified optical signal, and

an optical amplifying control unit controlling the amplification of said optical signal in the aforesaid optical amplifying unit under control of a computer,

said optical amplifying control unit constituted by:

a status monitoring means for monitoring a status in an internal portion of said optical amplifying control unit or an external portion thereof,

an optical output control means for controlling the amplification at said optical amplifying unit in accordance with the result of monitoring of status by said status monitoring means, and

a status restoring means for initializing the control status of said optical output control means by initializing said computer when detecting an occurrence of an abnormal status by the result of monitoring of status by said status monitoring means and restoring said optical output control means to the control status before occurrence of the related abnormal status within a relaxation time inherent in said optical amplifying medium occurring along with said initialization.

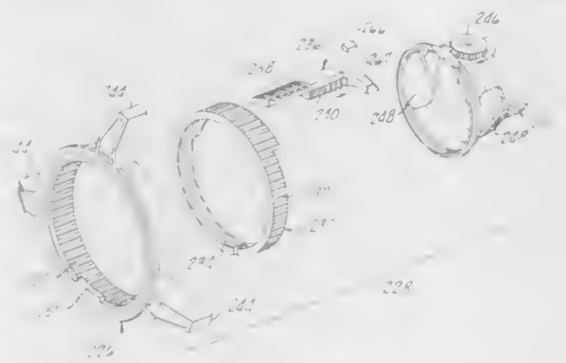
5,737,119
THERMAL IMAGING DEVICE

Gary Mladjan, Torrance, Calif., and Peter Menard, Penetanguishene, Canada, assignors to Hughes Electronics, Los Angeles, Calif.

Filed Sep. 6, 1995, Ser. No. 524,448

Int. Cl.⁶ G02B *15/14, 23/00; 15/22, 26/10*

U.S. Cl. 359—353 **16 Claims**



1. A thermal imaging device including a housing having an optical aperture for receiving thermal infrared radiation from a scene and responsively providing a visible image replicating the scene, said thermal imaging device comprising: a telescopic variable power lens assembly cooperable with said imaging device at said optical aperture for conducting thermal infrared radiation from the scene to said thermal imaging device, said lens assembly including a lens housing passing the thermal infrared radiation from the scene along an optical axis to said imaging device, a movable member mounted within said lens housing, said movable member carrying at least one lens, in a first position of said movable member said at least one lens being in said optical axis so that the thermal infrared radiation passing to said imaging device passes through said at least one lens, and said movable member in a second position disposing said at least one lens out of said optical axis;

wherein said relatively movable member is configured as a tumbler member pivotally supported within said lens housing;

wherein said lens assembly includes a field of view ring rotatable about said optical axis of said lens housing, and actuating linkage structure extending between said field of view ring and said tumbler member for effecting pivoting movement of said tumbler member between first and second positions in response to respective opposite rotations of said field of view ring, said tumbler member aligning said first and second optical axes thereof with said optical axis of said lens housing in respective ones of said first and second positions.

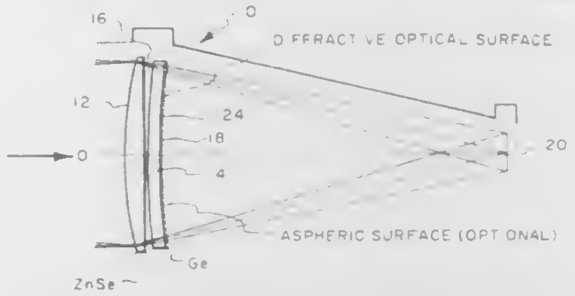
5,737,120
LOW WEIGHT, ACHROMATIC, ATHERMAL, LONG WAVE INFRARED OBJECTIVE LENS

Edmund W. Arriola, Westminster, Calif., assignor to Corning Incorporated, Corning, N.Y.

Filed Mar. 14, 1995, Ser. No. 403,419

Int. Cl.⁶ G02B *5/32, 5/18, 13/14*

U.S. Cl. 359—356 **4 Claims**



1. A low weight, athermal, color corrected objective lens for use in any portion of the 8 to 12 um spectral band generated by an IR source and consisting of:

a first optical lens element having positive optical power nearest the source,

a second optical lens element having negative optical power between the first optical lens element and its focal plane,

the lens material of said second optical lens element having a higher thermo-optic coefficient than the thermo-optic coefficient of the lens material of said first optical lens element and,

a diffractive surface generated on one surface of one of said lens elements for color correction so that the entire spectral band of 8 to 12 um is in focus at said focal plane.

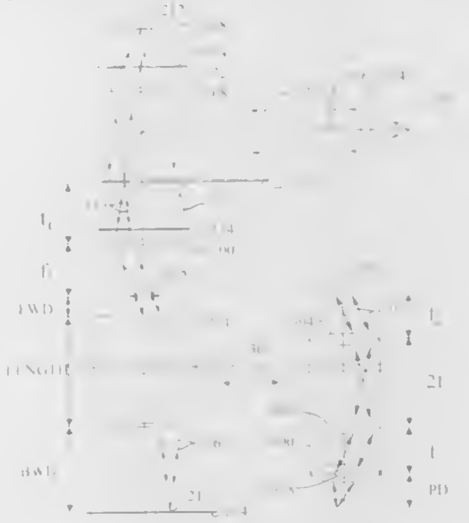
5,737,121
REAL TIME SCANNING OPTICAL MACROSCOPE

A. E. Dixon, 601 Stonebury Crescent, Waterloo, Ontario, Canada, N2K 3R2

Division of Ser. No. 117,797, Sep. 8, 1993, Pat. No. 5,532,873. This application Jul. 1, 1996, Ser. No. 674,145

Int. Cl.⁶ G02B *21/06, 21/00*

U.S. Cl. 359—388 **5 Claims**



1. A real-time scanning optical macroscope or imaging system comprising:

means for supporting a specimen to be observed and measured,

an illumination source for producing a light beam directed toward a rotating Nipkow disk, said Nipkow disk containing pinholes, said pinholes causing said beam to become a plurality of expanding beams that are directed toward said specimen, said specimen being located on a side of said Nipkow disk opposite to said source;

a scan lens with a focusing lens rigidly mounted a distance equal to its focal length above an entrance pupil of said scan lens and further placed such that said focusing lens is a distance equal to its focal length below said Nipkow disk, such that said focusing lens and said scan lens in combination focus the expanding beams from said Nipkow disk to diffraction limited spots in a prescribed specimen plane,

means for focusing the light returning through said Nipkow disk from said diffraction-limited spots in said specimen plane to produce a real image, and

means for at least one of detecting and viewing said real image.

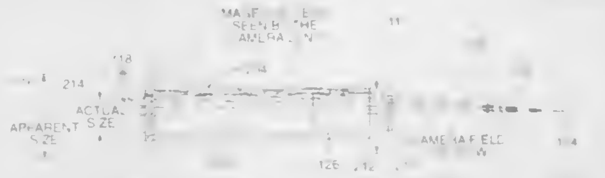
5,737,122
ILLUMINATION SYSTEM FOR OCR OF INDICIA ON A SUBSTRATE

Donald R. Wilt, Lexington, and Richard S. Sidell, Needham, both of Mass., assignors to Electro Scientific Industries, Inc., Portland, Oreg.

Continuation-in-part of Ser. No. 98,136, Jul. 26, 1993, Pat. No. 5,469,294, which is a continuation-in-part of Ser. No. 877,843, May 1, 1992, Pat. No. 5,231,536. This application Nov. 20, 1995, Ser. No. 561,181

Int. Cl.⁶ G02B *27/02*

U.S. Cl. 359—436 **27 Claims**



1. An illumination system for illuminating indicia on the surface of a substrate, comprising:

a first light system of a first type for illuminating indicia of a first type on the surface of a substrate, the first light system defining a first optical path from the first light system to the substrate and having a source width that is normal to the first optical path, the source width having an actual size,

a second light system of a second type for illuminating indicia of a second type, the second light system defining a second optical path from the second light system to the substrate; and

a first side mirror disposed along a portion of the first and second optical paths between the first light system and the substrate and between the second light system and the substrate, respectively, to direct a portion of the light from the first and second light systems toward the substrate, the side mirror creating an apparent size for the source width that is greater than the actual size.

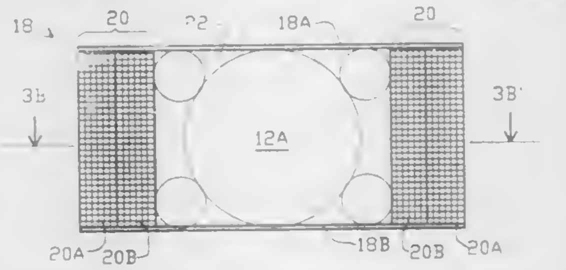
5,737,123
ADJUSTABLE-ASPECT VIDEO PROJECTION SCREEN

Vincent Donohoe, 4 Coolshanagh Road, Monaghan, Ireland

Filed Sep. 17, 1996, Ser. No. 715,153

Int. Cl.⁶ H04N *5/64*

U.S. Cl. 359—450 **8 Claims**



1. An adjustable-aspect screen assembly for viewing a projected picture image originating from an associated projection means, comprising:

a substantially rectangular projection screen constructed and arranged to display a visual image in a substantially vertical

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plane said screen extending between a pair of opposed vertical side edges defining a horizontally elongated rectangular shape of said screen having a predetermined width and height defining a first aspect ratio, and

a matching pair of substantially rectangular movable side panels, disposed symmetrically at the opposed vertical side edges of said screen in a vertical plane adjacent to and parallel with said screen, each panel being dimensioned to have a predetermined width and to have a height approximating that of said screen said movable side panels being constructed and arranged to be movable horizontally in a range between a first display mode wherein each panel extends outwardly from a respective one of the side edges of said screen thus exposing said screen in full width and thus at the first aspect ratio corresponding to a wide screen display format and a second display mode wherein said movable side panels having been shifted toward each other each extend inwardly from the corresponding side edge of said screen so as to conceal a predetermined vertically elongated side margin region and thus define a second aspect ratio corresponding to a relatively narrower screen display format.

5,737,124
POLARIZING SPLITTER DEVICE AND APPLICATION TO A SYSTEM FOR ILLUMINATING A LIQUID-CRYSTAL SCREEN

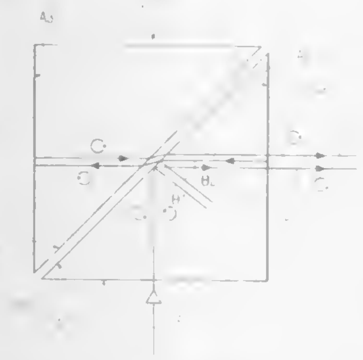
Khaled Sarayeddine, Schillighelm, France, assignor to Thomson Multimedia S.A., Courbevoie, France

Filed Apr. 16, 1996, Ser. No. 633,243

Claims priority, application France, Apr. 28, 1995, 95 05114

Int. Cl.^{6} G02B *5/30; 27/14; 5/04*

U.S. Cl. 359—487 **25 Claims**



1 Polarizing splitter device, comprising

a double prism constituted by a first prism and a second prism facing faces and a polarizing splitter, said first prism having an entry face for receiving an unpolarized light beam,

said polarizing splitter transmitting the polarized light in a first polarization direction and reflecting the polarized light in a second polarization direction,

the second prism having a reflection face provided with a mirror receiving the light polarized in the second polarization direction, said second prism having a reflection face provided with a mirror receiving the light polarized in the second polarization direction reflected by the polarizing splitter the first prism and the second prism being mutually positioned to operate on the principle of total internal reflection and having an exit face transmitting the light transmitted by the polarizing splitter and the light reflected by the mirror.

5,737,125
DIFFRACTIVE OPTICAL ELEMENT AND OPTICAL SYSTEM INCLUDING THE SAME

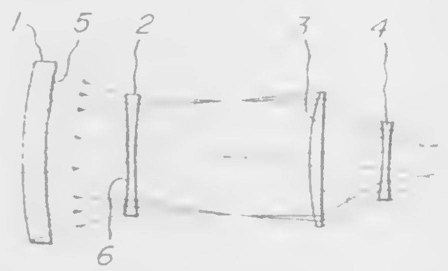
Hitoshi Ohashi, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 141,909, Oct. 27, 1993, abandoned. This application Oct. 31, 1995, Ser. No. 555,222

Claims priority, application Japan, Oct. 27, 1992, 4-288977; Dec. 24, 1992, 4-344671

Int. Cl. G02B *5/18; 5/22; 13/14*

U.S. Cl. 359—565 **7 Claims**



1 An optical system for use in a predetermined wavelength range said optical system comprising

at least one diffractive optical element having a given wavelength dependency of diffraction efficiency so as to have a first spectral transmittance, and

at least one optical element having a second spectral transmittance characteristics which, together with said first spectral transmittance, provides a desired overall spectral transmittance which is flatter over said predetermined wavelength range than either said first spectral transmittance or said second spectral transmittance.

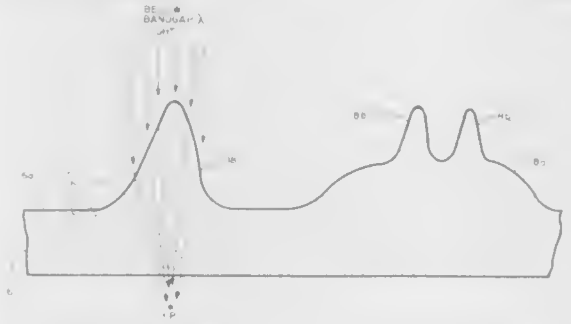
5,737,126
MICROLENSES AND OTHER OPTICAL ELEMENTS FABRICATED BY LASER HEATING OF SEMICONDUCTOR DOPED AND OTHER ABSORBING GLASSES

Nabil M. Lawandy, Providence, R.I., assignor to Brown University Research Foundation, Providence, R.I.

Division of Ser. No. 400,835, Mar. 8, 1995, Pat. No. 5,604,635. This application Feb. 5, 1997, Ser. No. 796,083

Int. Cl.^{6} G02B *27/10*

U.S. Cl. 359—620 **7 Claims**



1 A method for fabricating a microlens comprising the steps of providing a substrate comprised of a material that is substantially transparent at wavelengths within a first range of wavelengths, the material comprising a wavelength-selective absorber of electromagnetic radiation; and

irradiating a portion of a surface of the substrate with electromagnetic radiation having wavelengths within a second range of wavelengths that are absorbed by the wavelength selective absorber such that a portion of the electromagnetic radiation is absorbed for heating and melting the material adjacent to the surface region, whereby the melted material rises up above the surface to form, when re-solidified, the microlens.

5,737,127
SYSTEM OF FOCUSING ZOOM LENS

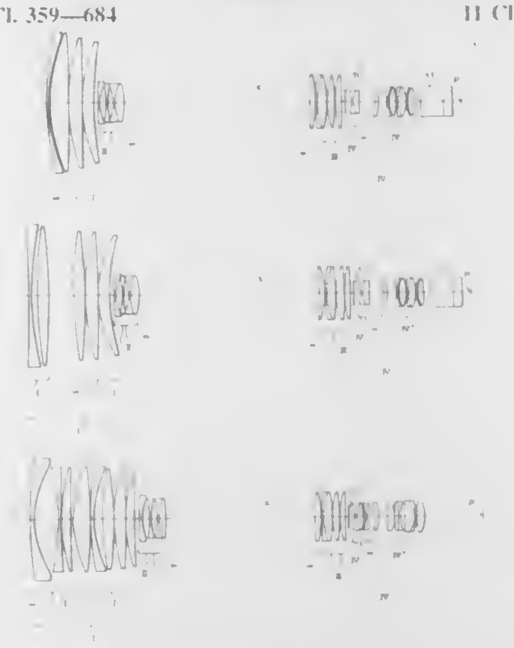
Katsuhisa Tsutsumi, Saitama-ken, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama-ken, Japan

Filed Oct. 17, 1995, Ser. No. 544,002

Claims priority, application Japan, Oct. 18, 1994, 6-251818

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—684 **11 Claims**



1 A zoom lens focusing system for focusing a zoom lens of a type including a front lens group at an object side of the lens, a zooming lens group which moves to accomplish zooming, and a relay lens group arranged in this order from the object side along an optical axis, comprising means for focusing the zoom lens by moving at least a part of the front lens group and a part of the relay lens group in the direction of the optical axis, wherein the relay lens group consists of first and second sets of lenses in this order from the object side, where the first set of lenses moves for focusing and the second set of lenses is fixed.

5,737,128
ZOOM LENS DEVICE WITH INNER FOCUSING METHOD

Fumiaki Usui, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 17, 1996, Ser. No. 665,234

Claims priority, application Japan, Jun. 22, 1995, 7-156141

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—686 **20 Claims**

1 A zoom lens comprising in order from object side to image side of said zoom lens

a first lens unit having a positive refractive power;

a second lens unit for changing magnification and having a negative refractive power;

a third lens unit for correcting changes in an image plane which occur as the magnification changes, and

a fourth lens unit for forming an image,

wherein said first lens unit comprises (i) a front lens subunit which is stationary during focusing and (ii) a rear lens subunit which is movable for focusing,

said front lens subunit comprising a negative lens and a positive lens, and

said rear lens subunit comprising a negative lens, being the closest or second closest of all lenses of said rear lens subunit to the object side of said rear lens subunit, and at least two positive lenses positioned on the image side of said negative lens.

5,737,129
WIDE-ANGLE ZOOM LENS

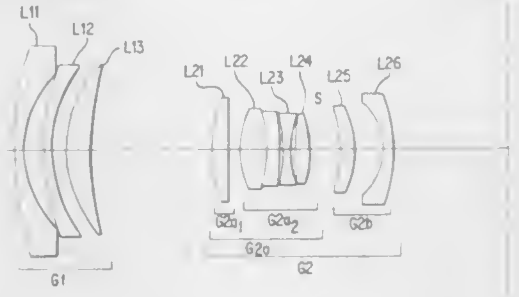
Motoyuki Ohtake, Kanagawa, and Akihiko Obama, Toshima-ku, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Dec. 22, 1995, Ser. No. 577,119

Claims priority, application Japan, Dec. 26, 1994, 6-337342; Dec. 26, 1994, 6-337343

Int. Cl.^{6} G02B *15/14*

U.S. Cl. 359—691 **16 Claims**



1 A wide-angle zoom lens system having a plurality of lens groups positioned along an optical axis from an object side to an image side, the zoom lens system comprising

a first lens group of negative refractive power nearest the object side of the zoom lens system; and

a second lens group of positive refractive power adjacent the first lens group on the image side, the second lens group comprising,

a first lens subgroup of positive refractive power nearest the object side of the second lens group, and

a second lens subgroup of negative refractive power on the image side of the first lens subgroup,

wherein each lens group moves during zooming from the maximum wide-angle state to a maximum telephoto state so that a distance between the first lens group and the second lens group decreases and the zoom lens system satisfies the conditions,

$$0.2<Btw/fw<0.75,$$

$$0.6<|f1|/(fw\cdot ft)^{1/2}<0.95$$

and

$$0.4<f2a/|f2b|<0.85,$$

where:

Btw is a back focus at a maximum wide angle state

fw is a focal length of the entire zoom lens system at a maximum wide-angle state,

f1 is a focal length of the first lens group,

ft is a focal length of the entire zoom lens system at a maximum telephoto state,

f2*a* is a focal length of the first lens subgroup, and

f2*b* is a focal length of the second lens subgroup

5,737,130

Patent Not Issued For This Number

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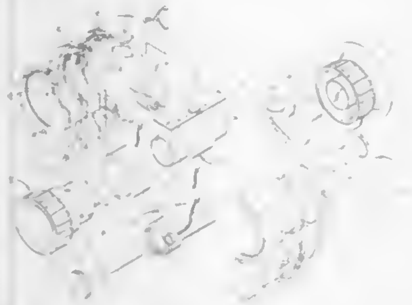
5,737,131
NIGHT VISION MONOCULAR

Gary Lynn Palmer, Vinton, Va., assignor to ITT Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 152,193, Nov. 12, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 472,677

Int. Cl. G02B 7/02, 23/00

U.S. Cl. 359—819 12 Claims



1. A night vision apparatus, comprising:

an objective lens subassembly containing a first plurality of lenses therein;

an image intensifier tube for producing a visible image from energy directed into said image intensifier tube through said objective lens subassembly;

a collimator subassembly containing a second plurality of lenses therein, said collimator subassembly collimating the visible image emanating from said image intensifier tube to produce a collimated image;

means for directing and viewing said collimated image; and

a housing having first and second opposed interior surfaces, each of said surfaces including a plurality of partitions extending therefrom for engaging and supporting said objective lens subassembly, said image intensifier tube and said collimator subassembly in a predetermined optical relationship relative to each other and said means for directing and viewing said collimated image.

5,737,132
FLIP-TYPE MIRROR MOUNT

Francis S. Luecke, San Jose, Calif., and David M. Rines, Groton, Mass., assignors to New Focus, Inc., Santa Clara, Calif.

Filed May 6, 1996, Ser. No. 646,683

Int. Cl.^{6} G02B 7/02

U.S. Cl. 359—819 10 Claims

1. A mount for positioning an optical element on an optical bench comprising:

a. a movable holder having retention means for holding an optical element;

b. said movable holder positionable to move an optical element between a first active position and a second inactive position;

c. a base member fixedly mounted with respect to an optical system;

d. first and second pivot ball members;

e. said base member having first and second retention pockets for respective engagement with said first and second balls;

f. said movable holder having first and second retention pockets for respective engagement with said first and second balls;

g. each of said retention pockets having a conical surface portion which engages said balls;

h. said movable holder having an arm portion extending outwardly from the pivot axis defined by said first and second balls;

i. said base member having a limit surface;

j. said arm portion having a third ball retained therein for abutting engagement with a limit surface of said base member; and,

k. coil spring means positioned in the region between said first and second balls and being affixed to said movable holder and said base member at first and second points on opposite sides of the axis of rotation defined by said first and second balls whereby said spring member is in tension when said movable holder is in said first position to hold said movable element against the first and second balls and force said third ball against said limit surface, said spring member extend to accommodate rotational movement of said movable holder between said first and second positions, said spring member being further in tension in said second position to retain said holder in engagement with said first and second balls and a rest surface of said base member.

5,737,133
MODULE FOR OPTICAL FIBER RECEPTACLE USED IN A SCANNING DEVICE

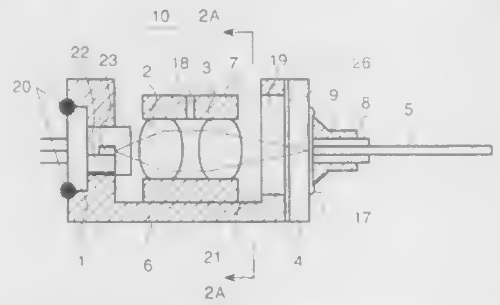
Masazumi Ouchi; Yasuyuki Shibayama, and Keiji Kataoka, all of Hitachinaka, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1996, Ser. No. 691,141

Claims priority, application Japan, Aug. 11, 1995, 7-205844; Apr. 17, 1996, 8-095306

Int. Cl.^{6} G02B 7/02, 6/36

U.S. Cl. 359—819 6 Claims



1. A module for an optical fiber receptacle used in a scanning device which comprises:

a module holder having a semiconductor laser for generating a laser beam, a lens for condensing the laser beam emitted from the semiconductor laser and a lens holder for holding the lens;

a flat glass plate arranged on the optical path of said laser beam and fixed in said module holder; and

an optical fiber fixed onto a surface of said flat glass plate opposite to the surface facing the semiconductor laser using a photo-curing resin,

said flat glass plate, said photo-curing resin and said optical fiber being made of materials having approximately equal refractive indexes.

5,737,134
REVOLVER CONTROL DEVICE

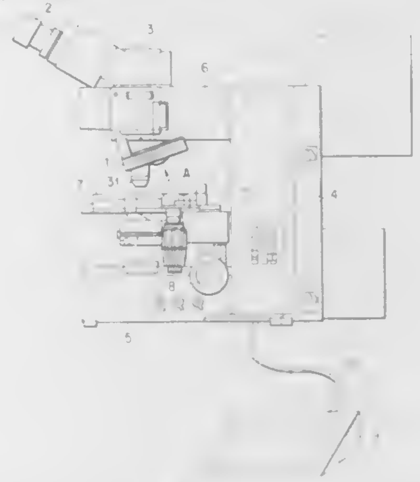
Akira Watanabe, Hanno, and Shuji Nakagawa, Hamura, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 10, 1996, Ser. No. 662,449

Claims priority, application Japan, Jun. 12, 1995, 7-144648; Jun. 12, 1995, 7-170260

Int. Cl.^{6} G02B 7/16, 21/00

U.S. Cl. 359—821 11 Claims



1. A revolver control device comprising:

a) a rotatable revolver having a plurality of mounting holes in which a plurality of objectives including a specified objective having a highest magnification are respectively mounted, one of said mounting holes being a specified mounting hole corresponding to the specified objective;

b) a recognition arrangement for recognizing at least one of
  i) one of said plurality of objectives, and
  ii) one of said plurality of mounting holes which lies on an observation optical axis;

c) a revolver drive for rotating said revolver to move one of said plurality of objectives onto the observation optical axis; and

d) a controller for controlling said revolver drive to prevent at least one of
  i) said specified objective mounted on said revolver, and
  ii) said specified mounting hole from being passed through the observation optical axis by rotation of said revolver when at least one of the objective and mounting hole recognized by said recognition arrangement is replaced by at least one of said plurality of objectives and mounting holes which is used as one of a target objective and a target mounting hole, respectively.

5,737,135
OPTO-MECHANICAL APPARATUS FOR MOVING AND SCANNING IN AN OPTICAL SYSTEM

Chien-Chin Chan, Hsin-Chu Hsien, Taiwan, assignor to Umax Data Systems Inc., Hsinchu, Taiwan

Filed Dec. 18, 1996, Ser. No. 769,066

Int. Cl. G02B 7/02

U.S. Cl. 359—822 10 Claims

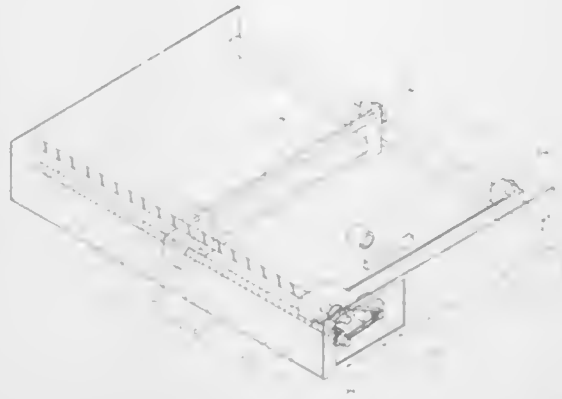
1. An opto-mechanical apparatus for moving and scanning in an optical system comprising:

a first lead screw having a spiral thread forming a first lead path, said first lead screw having a first gear fastened on one end;

a first optical assembly being carried and led by said first lead screw;

a second lead screw having a spiral thread forming a second lead path, said second lead screw having a second gear fastened on one end, said first and second gears having identical radii and the same number of cogs, and said second lead path being twice as long as said first lead path;

a second optical assembly being carried and led by said second lead screw;



a chassis whereon said first and second lead screws are mounted near a first side of said chassis, said lead screws being mounted along a direction in parallel with the scanning direction of said optical system and said first and second gears being near each other;

a step motor having a rotation axis and cogs formed on the outer surface of said axis, said motor being mounted on said chassis, and a timing belt connecting said rotation axis and said first and second gears, said timing belt having cogs formed on its inner surface;

wherein the cogs of said timing belt, said rotation axis and said gears are all matched for coupling the rotation of said step motor to said first and second gears, and said first optical assembly is moved by said first lead screw twice as fast as said second optical assembly is moved by said second lead screw.

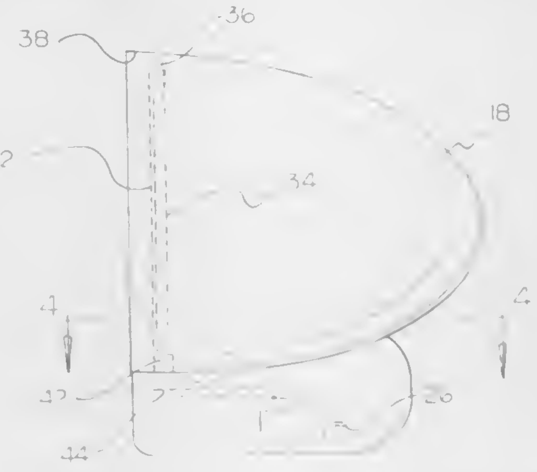
5,737,136
OSCILLATING SIDE VIEW MIRROR

Eugene Boggiatto, 11779 Cypress St., Castorville, Calif. 95012

Filed Mar. 4, 1996, Ser. No. 608,009

Int. Cl.^{6} G02B 5/08, 7/182; B60R 1/06

U.S. Cl. 359—843 6 Claims



1. An oscillating side view mirror for safer lane changing of a vehicle comprising in combination:

a mirror housing having a generally bullet shape being supported on a side of a vehicle by a generally rectangular support arm, the support arm and the mirror housing each having a hollow interior;

a motor being mounted within the hollow interior of the support arm, the motor having a drive wheel positionable on an upper side thereof, the motor having a pair of contact wires projecting from one side thereof, the pair of contact wires capable of being in electrical communication with a turn signal of the vehicle by a relay.

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a mirror being positionable within the mirror housing for viewing objects to the side and rear of the vehicle, the mirror being supported within the housing by a backing plate with a rotation rod extending therethrough, the rotation rod being attached at an upper end to the housing, the rotation rod being attached at a lower end to a semi circular oscillating member; and

a generally rectangular arm being attached to the drive wheel of the motor by a rear pivot pin, the arm being attached near a rear of the oscillating member with a front pivot pin, the arm being capable of causing the mirror to rotate back and forth within the mirror housing, the arm's movement being cause by the motor being activated by the turn signal of the vehicle, whereby, when the turn signal being switched on the relay will send an electrical current through the wires to the motor of the mirror on the side of the vehicle corresponding to the direction of the turn signal, the motor receiving the current will cause the mirror to oscillate back and forth for reduction of a particular blind spot.

5,737,137

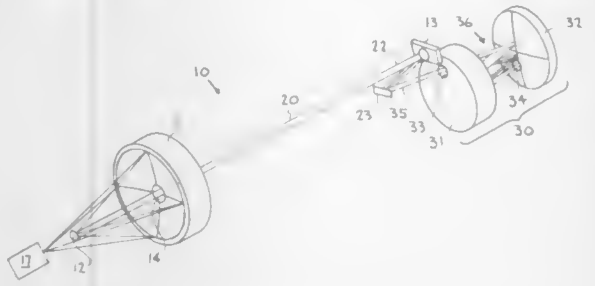
CRITICAL ILLUMINATION CONDENSER FOR X-RAY LITHOGRAPHY

Simon J. Cohen, Pleasanton, and Lynn G. Seppala, Livermore, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Apr. 1, 1996, Ser. No. 617,719

Int. Cl.^{6} G02B *5/10, 17/00;* **G21K** *1/06; 5/00*

U.S. Cl. 359—859 **11 Claims**



1. A critical illumination condenser, comprising

a first spherical mirror having a concave reflective surface and a central hole;

a second spherical mirror having a convex reflective surface, wherein said second spherical mirror together with said central hole of said first spherical mirror define an optical axis, and

a third spherical mirror having a concave surface, wherein said third spherical mirror is located on said optical axis on an opposite side of said first spherical mirror from said second spherical mirror, wherein said third spherical mirror is tilted with respect to said optical axis,

wherein energy from a light source is collected by said first spherical mirror and is reflected from said first spherical mirror onto said second spherical mirror, wherein said second spherical mirror reflects said energy through said central hole onto said third spherical mirror, wherein said tilt of said third spherical mirror reflects said energy from said second spherical mirror onto a lithographic mask.

5,737,138

OPTICAL WAVEGUIDE DEVICE AND METHOD OF MAKING THE SAME

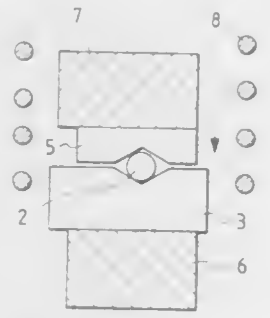
Yoshihiro Someno, Miyagi-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jul. 19, 1996, Ser. No. 684,362

Claims priority, application Japan, Aug. 16, 1995, 7-208786

Int. Cl.^{6} G02B *6/36*

U.S. Cl. 359—900 **3 Claims**



1. A method of making an optical waveguide device, comprising the steps of:

forming V grooves on a glass substrate by hot pressing;

disposing an optical fiber in one of said V grooves such that an end face of the optical fiber is aligned with and an end face an optical waveguide; and

hot pressing a glass lock plate onto said glass substrate to fix the optical fiber in said one of said V grooves.

5,737,139

DIGEST VARIABLE SPEED REPRODUCING APPARATUS FOR A VIDEO CASSETTE RECORDER AND METHOD THEREFOR

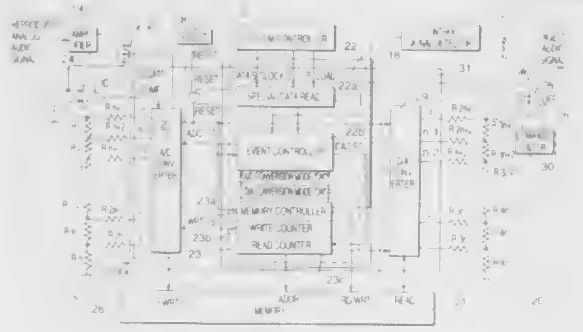
Jae Wan Park, Kyungki-do, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Continuation of Ser. No. 362,274, Dec. 22, 1994, abandoned. This application Jul. 29, 1996, Ser. No. 688,679

Claims priority, application Rep. of Korea, Dec. 22, 1993, 29111/1993

Int. Cl.^{6} G11B *5/00*

U.S. Cl. 360—8 **2 Claims**



1. A digest variable speed reproducing method for a video cassette recorder (VCR), wherein certain audio portions of a VCR tape are not stored during a digest variable speed reproduction, comprising the steps of:

providing a desired variable speed data by a system controller;

detecting either a presence or absence of a first analog audio signal in response to respective presence or absence of a control signal on the VCR tape;

providing an A/D conversion execution signal to an A/D converter and a D/A conversion execution signal to a D/A converter in response to the detected presence of the control signal, and not supplying the A/D conversion execution signal to the A/D converter and the D/A conversion execution signal to the D/A converter in response to the detected absence of the control signal;

converting the first analog audio signal from the VCR tape into a digital audio signal with a sampling rate corresponding to the desired variable speed data in response to the A/D conversion execution signal;

storing said digital audio signal in a memory at a speed corresponding to the desired variable speed data in response to the detected presence of the control signal, and not storing the digital audio signal in response to the detected absence of the control signal;

converting the stored digital audio signal into a second analog audio signal in response to the D/A conversion execution signal; and

reading the second analog audio signal from said memory at a normal speed while a video signal is output at a speed corresponding to the desired variable speed data.

5,737,140

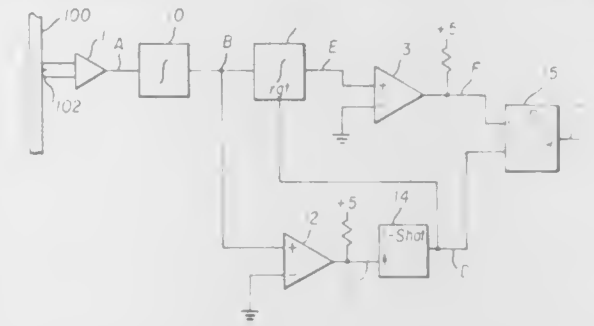
SIMPLE PULSE POSITION MODULATION CHANNEL/DECODER

Thomas Daniel Carr, Leucadia, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 7, 1996, Ser. No. 660,385

Int. Cl.^{6} G11B *5/02; 5/09*

U.S. Cl. 360—29 **3 Claims**



1. In a magnetic recording reproducing apparatus, a detecting and decoding circuit comprising:

a first integrator having an input for receiving a pulse position modulated (PPM) encoded signal reproduced from magnetic media, and having an output;

a second integrator having an input coupled to said output of said first integrator and having an output;

a first comparator having a noninverting input connected to the output of said first integrator, an inverting input connected to ground, and an output;

a reset pulse circuit having an input connected to the output of said first comparator and an output connected to a reset terminal of said second integrator;

a second comparator having a noninverting input connected to the output of said second integrator, an inverting input connected to ground, and an output, and

a D flip-flop, having a data input connected to the output of said second comparator, a clock input connected to the output of said reset pulse circuit, and an output which outputs a decoded data signal of said received PPM encoded signal

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5,737,141

RETRIEVING DATA RECORDED AT DIFFERENT BIT DENSITIES

John Patrick Hardwick, Bristol, England, and Christopher Huw Williams, Chepstow, United Kingdom, assignors to Hewlett-Packard Company, Palo Alto, Calif.

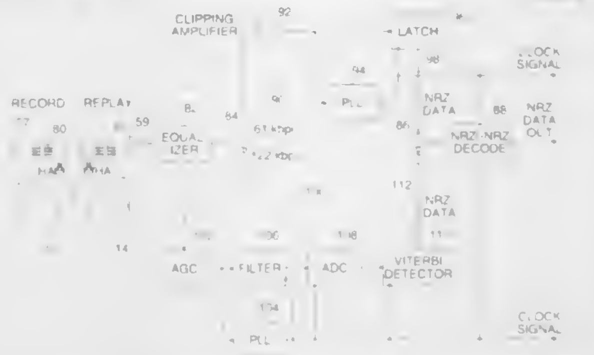
PCT No. PCT/GB94/02664, § 371 Date Aug. 19, 1996, § 102(e) Date Aug. 19, 1996, PCT Pub. No. WO95/15551, PCT Pub. Date Jun. 8, 1995

PCT Filed Dec. 5, 1994, Ser. No. 646,241

Claims priority, application United Kingdom, Dec. 4, 1993, 9324918

Int. Cl.^{6} G11B *5/09*

U.S. Cl. 360—45 **8 Claims**



1. A method for retrieving data from a magnetic medium, said data being stored at a first or a second bit density on said medium, said second density being higher than said first density, comprising the steps of

deriving signals corresponding to magnetic field patterns stored on the magnetic medium, by means of a gapped magnetic head, said head being used to derive signals for data stored at either said first or said second density,

decoding said signals using a first decoder for data stored at said first density, to retrieve data represented by said signals,

decoding said signals using a second decoder for data stored at said second density, to retrieve data represented by said signals, said second decoder incorporating a PR-1 partial-response maximum-likelihood decoding operation, and

selecting said first or said second decoder for use in accordance with the bit density of data stored on said medium

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5,737,142

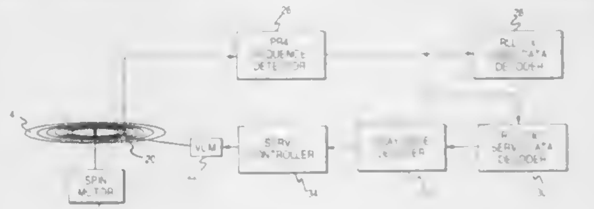
SERVO TRACK ADDRESS CHANNEL CODE FOR PR4 MAGNETIC RECORDING

Christopher P. Zook, Longmont, Colo., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Mar. 31, 1995, Ser. No. 414,690

Int. Cl.^{6} H03M *7/00, 7/04;* **G11B** *5/09*

U.S. Cl. 360—49 **7 Claims**



1. In a PR4 read channel for reading data stored on a magnetic medium by detecting digital data from a sequence of discrete time sample values generated by sampling pulses in an analog signal from a magnetic read head positioned over the magnetic medium, wherein a PR4 sequence detector responsive to the discrete time sample values detects a plurality of codewords representing recorded servo track addresses, a servo data decoder for decoding the plurality of codewords into corresponding decoded track addresses wherein

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(a) codewords representing adjacent track addresses differ by only two adjacent bits.

(b) the plurality of codewords does not contain complements, and

(c) a ratio m/n of a number of bits m in a decoded track address to a number of bits n in a corresponding codeword is greater than 1/3.

5,737,143
APPARATUS FOR MOVABLY MOUNTING A FULL ERASE HEAD FOR USE IN A VIDEO CASSETTE RECORDER

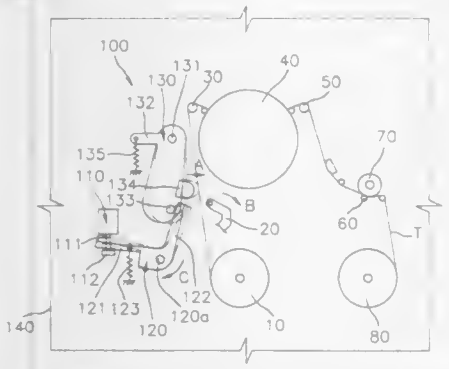
Chang-Ho Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Seoul, Rep. of Korea

Filed Jan. 11, 1996, Ser. No. 584,639

Claims priority, applicatinn Rep. nf Korea, May 30, 1995, 1995/13829

Int. Cl.^{6} G11B *21/02*

U.S. Cl. 360—75 **11 Claims**



1. A video cassette recorder having an apparatus for erasing a video tape, said apparatus comprising:

a solenoid selectively movable between a disengaged and an engaged position,

a first lever operatively connected to said solenoid, said first lever being rotatably mounted on a deck of said video cassette recorder and movable between a disengaged position and an engaged position upon actuation of said solenoid between its corresponding disengaged and engaged positions, respectively;

a second lever operatively connected to said first lever, said second lever rotatably mounted on said deck and moveable between a disengaged position and an engaged position upon actuation of said first lever between its corresponding disengaged and engaged positions, respectively;

a full erase head fixedly mounted on a portion of said second lever and movable between a disengaged position in which the full erase head is spaced apart from said tape, and an engaged position in which the full erase head comes into contact with said video tape,

wherein

said solenoid is moved from its disengaged position to its engaged position when said video cassette recorder is placed in a fast forward/rewind mode, thereby causing said full erase head to come into contact with said tape, and

wherein said video cassette recorder further comprises a head drum having a recording/reproducing head arranged to come into contact with said tape, said recording/reproducing head and said full erase head being brought into contact with said tape independent of one another

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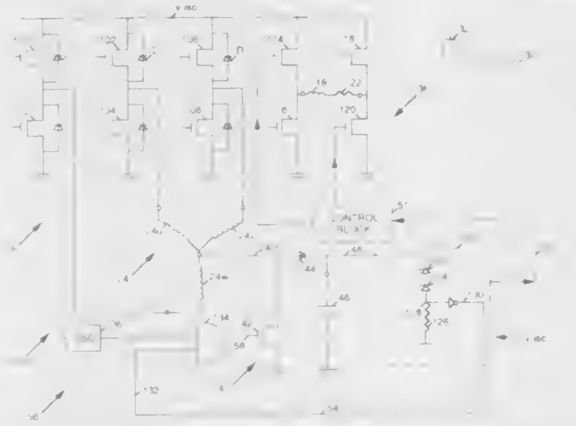
5,737,144
SWITCHED BOOST VOLTAGE GENERATOR FOR ACTUATOR RETRACT IN DISK DRIVE

Mehran Ataee, Cupertino, and Sassan Mortazavi, San Jose, both of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Filed Jun. 5, 1996, Ser. No. 658,417

Int. Cl.^{6} G11B *21/02*

U.S. Cl. 360—75 **11 Claims**



1. In a hard disk drive including at least one rotating data storage disk, a poly-phase DC brushless spindle motor having a rotor directly coupled to rotate the disk during operational intervals when operating power is supplied to a motor driver circuit from a power supply external to the disk, the poly-phase motor having plural phases connected in common to a center-tap node, a method for generating a boost voltage during a power-down interval when operating power supplied from the external power supply is removed, comprising the steps of:

periodically switching the center-tap node to a ground return path to create boosted voltage pulses from the poly-phase windings of the rotating spindle motor,

passing the boosted voltage pulses unidirectionally to a storage capacitor, and

storing the voltage pulses as a boosted voltage in the capacitor as a boosted voltage supply during the power-down interval

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5,737,145
METHOD FOR GENERATING INDEX PULSE WITH INDEX PATTERN

Kwang-Jo Jung, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 4, 1996, Ser. No. 658,099

Int. Cl.^{6} G06F *12/00*

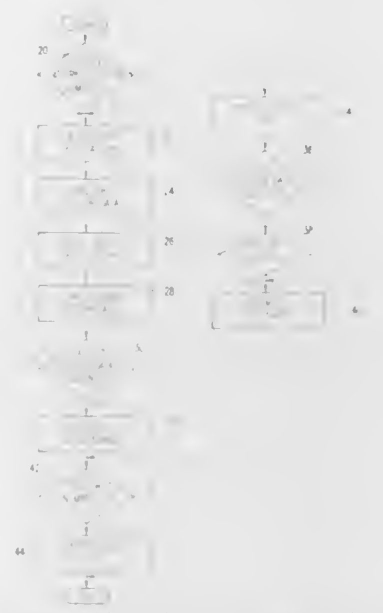
U.S. Cl. 360—77.08 **10 Claims**

1. A method for generating an index pulse with an index pattern in a hard disk drive, said method comprising the steps of:

(a) reading out and searching for a plurality of index patterns from a magnetic disk which previously stores patterns of sequential correlations in an index pattern domain of a servo domain of one sector;

(b) detecting whether the plurality of index patterns read and searched in said step (a) are sequential;

(c) detecting whether said index pattern is for a first sector, using the sequential correlation of said sectors, if said index patterns are sequential in said step (b), and



(d) transmitting an index pulse generating signal to a gate array to thereby generate an index pulse, if the first sector is detected in said step (c)

5,737,146
DATA RECORDING AND PLAYBACK APPARATUS USING A HELICAL SCAN SYSTEM WITH MAGNETIC HEAD FOR RECORDING AND PLAYING BACK PATTERN SIGNAL FOR TRACKING IN TRACKING AREA WITHIN HELICAL TRACK

Toshiro Aizawa, Ebina, and Shigemitsu Higuchi, Fujisawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 70,625, Jun. 2, 1993, Pat. No. 5,488,520. This application Oct. 13, 1995, Ser. No. 542,725

Claims priority, application Japan, Jun. 2, 1992, 4-141745

Int. Cl.^{6} G11B *5/584*

U.S. Cl. 360—77.15 **16 Claims**

1. A data recording and playback apparatus using a helical scan system for recording and playing back data on a magnetic tape with a rotary head cylinder, said apparatus comprising:

a magnetic head on the rotary head cylinder for scanning tracks on said magnetic tape, and

means for using said magnetic head for playing back helical reference tracks on which a specific pattern has been recorded on said magnetic tape before target data is recorded or played back, said means being responsive to a playback state of said helical reference tracks for adjusting tracking of tracks on said magnetic tape other than said helical reference tracks before target data is recorded or played back.

5,737,147
TAPE TRANSPORT SYSTEM UTILIZING A COMPLIANT FRICTIONAL DRIVE ROLLER

Gregory A. Standiford, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 374,355, Jan. 18, 1995, abandoned. This applicatinn Sep. 17, 1996, Ser. No. 714,973

Int. Cl.^{6} G11B *15/32, 15/675*

U.S. Cl. 360—96.3 **8 Claims**

1. A tape drive for driving magnetic tape in a cartridge of the type having an internal cartridge capstan with an exposed edge surface and a plurality of latching notches, comprising:

a cartridge docking bay mounted in a rigidly fixed position within a tape drive housing, said cartridge docking bay comprising a pair of guide rails for guiding the cartridge upon insertion into the cartridge docking bay and a plurality of spring-loaded rollers strategically placed to fit into said plurality of latching notches of said cartridge and to lock the cartridge into a rigidly fixed position when the cartridge is fully inserted into the docking bay,

a motor driven drive roller shaft mounted in a spatially fixed relationship with said cartridge docking bay, and

a compliant frictional drive roller mounted on said drive roller shaft for solely providing sufficient frictional force to drivingly engage said exposed edge surface of said internal cartridge capstan when said cartridge is mounted in said docking bay, said compliant frictional drive roller comprising an inner core mounted on said drive roller shaft and an outer compliant frictional tire connected peripherally around said inner core, and said outer compliant frictional tire comprising a hollow inner cavity which spaces a lower portion of said outer compliant frictional tire from said inner core, wherein said hollow inner cavity permits said lower portion of said compliant frictional tire to deflect away from said magnetic tape upon engagement of said outer compliant frictional tire with said internal cartridge capstan to prevent engagement of said outer compliant frictional tire with said magnetic tape

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5,737,148
CASSETTE HOUSING GUIDE APPARATUS OF TAPE RECORDER IN WHICH BOTH SIDES OF HOUSING LOCK INTO PLACE

Phil-hong Lee, and Young-ho Cho, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed May 15, 1996, Ser. No. 649,765

Claims priority, application Rep. of Korea, Oct. 16, 1995, 1995-35667

Int. Cl.^{6} G11B *15/675*

U.S. Cl. 360—96.5 **6 Claims**

1. A cassette housing guide apparatus of a tape recorder comprising:

a deck member having reel tables installed thereon;

a housing supported on said deck member and movable up and down with respect to said deck member, said housing being operative to receive a tape cassette, said housing defining a first side and a second side;

a pair of arm members installed at each of said first and second sides of said housing and which support said housing on said deck member

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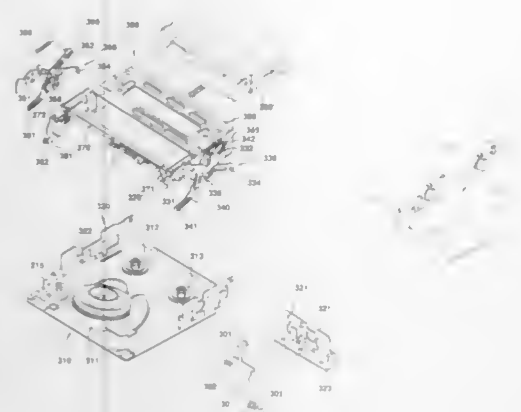

a locking unit which locks said first side of said housing to one side of said deck member; and

means for guiding said second side of said housing and keeping said second side of said housing in place while said first side of said housing is locked by said locking unit, wherein said guiding means includes a fixed protrusion formed on a leading end portion of said housing and extending in a direction of insertion of the tape cassette, and an operationally fixed guide member, operationally fixed on said deck member, which guides said protrusion thereunder

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5,737,149

FLOPPY DISK DRIVE HAVING A DRIVE LEVER FOR DRIVING A DISK

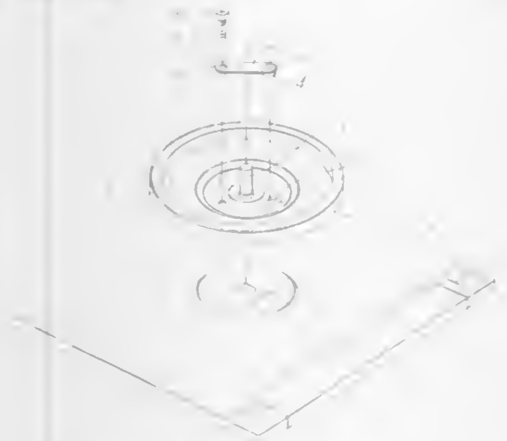
Seong Ho Shin, Kyunggi-do, Rep. of Korea, assignor to Samsung Electro-Mechanics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 6, 1996, Ser. No. 692,730

Claims priority, application Rep. of Korea, Mar. 28, 1996, 1996-6135

Int. Cl.^{6} G11B *17/02*

U.S. Cl. 360—99.04 **4 Claims**



1. Drive apparatus for a floppy disk comprising

a rotor case,

a drive lever secured to said rotor case, said drive lever having opposite ends, a driving pin secured at one of said ends of the drive lever to protrude through an opening provided in said rotor case for drivingly engaging in an engagement hole in a floppy disk, and

means for securing said drive lever to said rotor case at the other of said ends of the drive lever while providing resilience for said driving pin longitudinally thereof, said means comprising a screw secured to said rotor case and supporting said drive lever at said other of the ends thereof and a coil spring surrounding said screw and acting on said drive lever to urge the drive lever against the rotor case, said drive lever being made as a non-elastic plate and said resilience for the driving pin being provided substantially entirely by said coil spring

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5,737,150

MAGNETIC DISK UNIT WITH AN IMPACT FORCE APPLYING MECHANISM

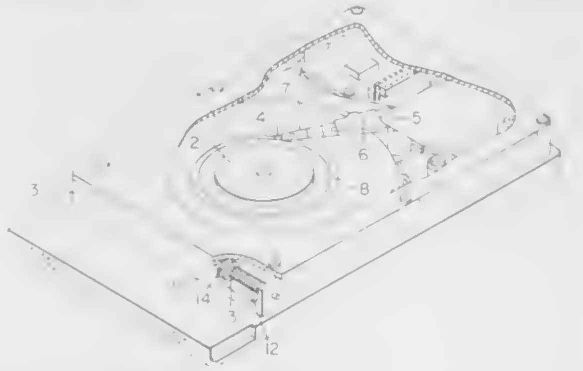
Hiroaki Ohta, Hiratsuka; Yusuke Miyamoto; Koji Kodama, both of Odawara; Atsushi Ito, Ashigarakami-gun; Hiroshi Nishida, Naka-gun; Tomoyuki Ohno, Hiratsuka, and Kojiro Hayashi, Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 11, 1996, Ser. No. 661,543

Claims priority, application Japan, Jun. 14, 1995, 7-147078

Int. Cl.^{6} G11B *21/22*

U.S. Cl. 360—103 **18 Claims**



11. A magnetic disk unit, comprising:

a housing in which is enclosed,

a magnetic disk medium;

a spindle and a spindle motor for driving said magnetic medium in rotation,

a magnetic head for writing and reading information with respect to said magnetic disk medium;

a slider for supporting said magnetic head; and

an actuator for positioning said magnetic head,

an impact force applying mechanism mounted adjacent said housing that applies an impact force to said housing to overcome a sticking-phenomenon between said slider and said medium, the mechanism being hermetically isolated from said magnetic disk medium, wherein the mechanism includes,

a resilient member having opposite ends, one end of which is secured to the housing and the other end of which is positioned close to said housing in a normal position and the resilient member giving an impact on said housing after being displaced from said normal position, and

an electronic circuit for controlling read and write of data with respect to said magnetic disk medium

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5,737,151

ROLL INSENSITIVE AIR BEARING SLIDER

Sanford Anthony Bolasna, and Devendra Singh Chhabra, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 585,088, Jan. 16, 1996, abandoned, which is a continuation of Ser. No. 310,002, Sep. 20, 1994, abandoned, which is a continuation-in-part of Ser. No. 69,059, May 28, 1993, Pat. No. 5,396,386. This application Dec. 30, 1996, Ser. No. 775,471

Int. Cl.^{6} G11B *21/21, 17/32; 5/60*

U.S. Cl. 360—103 **29 Claims**

29. A data storage device comprising

a rotatable storage medium, including an inner diameter and an outer diameter,

a transducer positionable with respect to the storage medium for writing and reading information on the medium; and

a slider for supporting the transducer in close proximity to the storage medium, the slider comprising,

a slider body having a leading edge, a trailing edge, a first side edge and a second side edge, a first side rail substantially adjacent to said first side edge and extending from said

leading edge to said trailing edge, said first side rail providing an air bearing first surface area and capable of supporting said transducer,

a second side rail substantially adjacent to said second side edge and extending from said leading edge toward said trailing edge without extending to said trailing edge, said second side rail providing an air bearing second surface area that is larger than said air bearing first surface area, and

a cross rail extending between said first and second side rails

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5,737,152

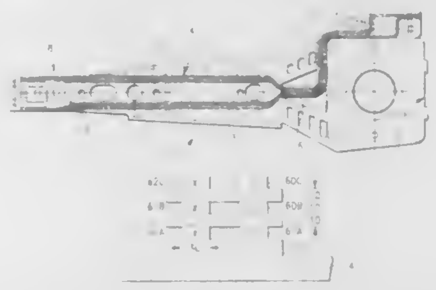
SUSPENSION WITH MULTI-LAYERED INTEGRATED CONDUCTOR TRACE ARRAY FOR OPTIMIZED ELECTRICAL PARAMETERS

Arun Balakrishnan, Fremont, Calif., assignor to Quantum Corporation, Milpitas, Calif.

Filed Oct. 3, 1996, Ser. No. 720,833

Int. Cl.^{6} G11B *5/48*

U.S. Cl. 360—104 **11 Claims**



7. An integrated load beam assembly for supporting a read/write head/slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry, the load beam assembly comprising

a generally planar base member extending to proximity of the read/write head/slider assembly,

a plurality of first electrical ground traces disposed in a laterally spaced apart relation on the generally planar base member

a first electrical insulation layer being disposed on the plurality of first electrical ground traces

at least two electrical signal trace paths being disposed on the first electrical insulation layer in laterally spaced apart relationship with respect to each other and with respect to the plurality of first electrical ground traces

a plurality of second layer electrical ground traces disposed on the first electrical insulation layer on each side of the at least two electrical signal trace paths

a second electrical insulation layer disposed on the at least two electrical signal trace paths and the plurality of second layer electrical ground traces, and

a plurality of third layer electrical ground traces disposed on the third electrical insulation layer, the third layer electrical ground traces being aligned laterally relative to the at least two electrical signal trace paths in order to control at least one of inductance, capacitance and resistance of the integrated load beam assembly

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5,737,153

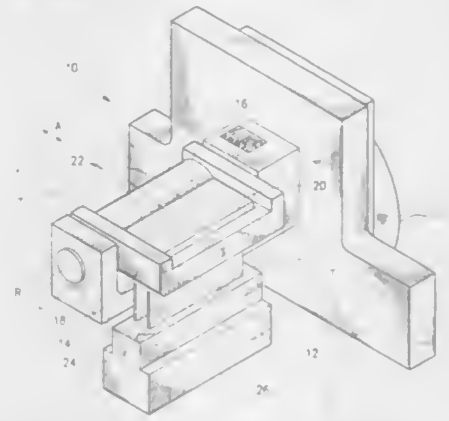
POSITIONING ASSEMBLY FOR RECORDING HEADS IN ELECTRONIC RECORDING DEVICES

Stephen E. Gavit, 11480 W. Bear Creek Dr., Lakewood, Colo. 80227

Filed Jan. 19, 1996, Ser. No. 588,211

Int. Cl.^{6} G11B *5/55; 21/08*

U.S. Cl. 360—106 **17 Claims**



1. A positioning mechanism operative to selectively position a transducer along a linear axis relative to a support structure which supports said transducer, comprising:

(a) a movable mount operative to secure said transducer relative to said support structure for reciprocal movement thereon along the linear axis between first and second locations,

(b) a rotatable cam element oriented transversely of the linear axis, said cam element having a camming structure including a wheel that is provided with a plurality of angularly spaced openings around the rotational axis and a plurality of spherical balls respectively disposed in said openings, at least some of said balls having different diameters;

(c) a biasing element operative to apply a force that biases said movable mount into contact with said camming structure such that, as said cam element is rotated, said balls operate to move said movable mount along the linear axis, and

(d) a rotatable drive operative to selectively rotate said cam element about a rotation axis

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5,737,154

ROTARY MAGNETIC HEAD APPARATUS

Seiji Kumagai, Miyagi; Masatoshi Hayakawa, Kanagawa; Hiroshi Morita, Miyagi; Norikatsu Fujisawa, Miyagi; Junichi Honda, Miyagi, and Yuji Nakano, Miyagi, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 18, 1996, Ser. No. 666,652

Claims priority, application Japan, Jun. 21, 1995, 7-178248

Int. Cl.^{6} G11B *5/52*

U.S. Cl. 360—108 **10 Claims**

1. A rotary magnetic head apparatus for reproducing information from a tape like recording medium by a helical scanning method said rotary magnetic head apparatus comprising

a fixed drum,

a rotary drum which is rotatable with respect to the fixed drum

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a magnetoresistive element reproducing head disposed on the rotary drum, for reproducing information from the tape like recording medium;

a constant current circuit disposed on the rotary drum for supplying a constant current for driving the head to an active type reproducing head state;

noncontact signal transmission means for transmitting and output signal which is output by the head when the active type reproducing head of the rotary drum reproduces information from the tape like recording medium to outside of the rotery drum, and

sliding-type contact means for supplying an external DC power signal to the constant current circuit of the rotary drum

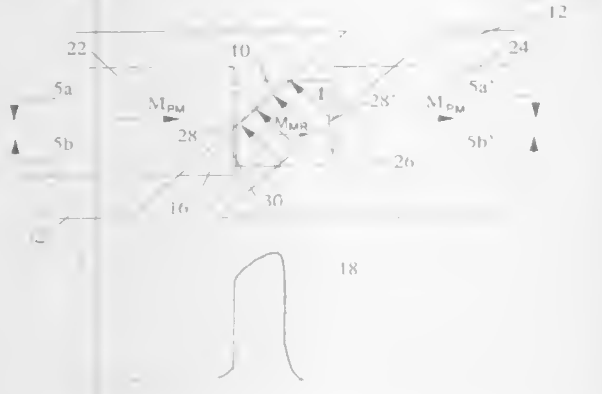
5,737,155
READ SENSITIVITY MR HEAD USING PERMANENT MAGNET LONGITUDINAL STABILIZATION

Peter Kurt George, Bloomington, Minn., and Garrett Aquilla Garrettson, Los Altos, Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 936,185, Aug. 25, 1992, abandoned. This application Apr. 10, 1995, Ser. No. 420,450

Int. Cl.⁶ G11B 5/39

U.S. Cl. 360—113 **15 Claims**



12. A magnetoresistive sensor for sensing data on a magnetic medium, comprising:

a substrate;

a magnetoresistive element on the substrate, the magnetoresistive element having a magnetization vector, first and second bias edges, and a front surface for confronting the magnetic medium, wherein the magnetoresistive element has a thickness t$_1$ at the first bias edge and the magnetization vector has a magnitude M$_{MR}$ and an angle theta$_{MR}$ relative to the first bias edge;

first and second permanent magnets on the substrate, the first permanent magnet being adjacent the first bias edge and the second permanent magnet being adjacent the second bias edge, the first permanent magnet having a thickness t$_2$ adjacent to the first bias edge and a magnetization vector of magnitude M$_{PM}$ and an angle theta$_{PM}$ relative to the first bias edge, wherein the thicknesses t$_1$ and t$_2$, magnitudes M$_{MR}$ and M$_{PM}$, and angles theta$_{MR}$ and theta$_{PM}$ are characterized by

$$M_{MR} t_1 \text{ sine theta}_{MR} = M_{PM} t_2 \text{ sine theta}_{PM},$$

thereby optimally reducing Barkhausen noise without substantially reducing read sensitivity;

first and second electrical insulators on the substrate, the first insulator between the first permanent magnet and the first bias edge and the second insulator between the second permanent magnet and the second bias edge; and

first and second current contacts having respective first and second contact edges contacting the magnetoresistive element and respectively intersecting the first and second bias edges such that the first and second contact edges inhibit current flow in a portion of the magnetoresistive element and thereby define an active sensing region having a substantially symmetric read sensitivity function.

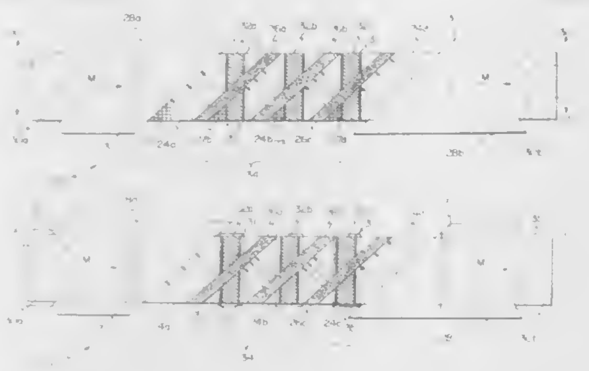
5,737,156
BARBERPOLE MR SENSOR HAVING INTERLEAVED PERMANENT MAGNET AND MAGNETORESISTIVE SEGMENTS

Peter I. Bonyhard, Edina, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 402,548, Mar. 13, 1995, abandoned, which is a continuation of Ser. No. 148,890, Nov. 8, 1993, abandoned. This application Jun. 20, 1996, Ser. No. 667,276

Int. Cl.⁶ G11B 5/39

U.S. Cl. 360—113 **19 Claims**



1. A magnetoresistive sensor for sensing magnetic fields based on a sensing current conducted therethrough, comprising:

three spaced apart magnetoresistive regions so disposed and arranged that magnetoresistive material forms no conduction paths between the magnetoresistive regions, the regions exhibiting a magnetization in the presence of magnetic fields;

a plurality of conductive strips, with each conductive strip electrically connecting two of the magnetoresistive regions to define a conduction path for the sensing current; and

a plurality of permanent magnet strips, with each permanent magnet strip positioned between two of the magnetoresistive regions for biasing the magnetization toward a predetermined angle relative the conduction path, wherein the plurality of permanent magnet strips are formed at least partially within a plan of the three spaced apart magnetoresistive regions such that the conductive strips each respectively overlie and bridge across respective permanent magnet such that the conductive strips conduct current from one magnetoresistive region to the next.

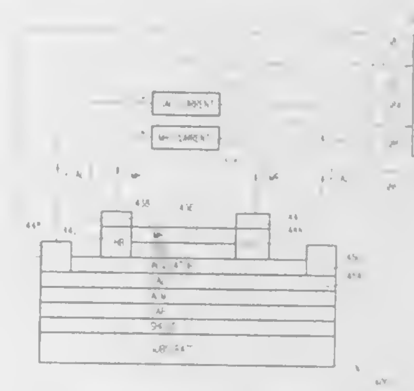
5,737,157
DISK DRIVE WITH A THERMAL ASPERITY REDUCTION CIRCUITRY USING A MAGNETORESISTIVE SENSOR

Hardayal Singh Gill, Portola Valley, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 9, 1996, Ser. No. 729,218

Int. Cl.⁶ G11B 5/39

U.S. Cl. 360—113 **13 Claims**



1. A magnetoresistive (MR) sensor, comprising:

an MR layer;

first and second hard bias layers separated from each other by said MR layer, said first and second hard bias layers forming a contiguous junction with said MR layer;

an electrical insulator;

a soft adjacent layer (SAL) separated from said MR layer and said hard bias layers by said electrical insulator;

first and second MR leads disposed over said first and second hard bias layers for providing sense current to said MR layer; and

first and second SAL leads disposed over said SAL for providing SAL current to said SAL.

5,737,158
MAGNETIC HEAD DEVICE WITH TAPE GUIDE SECONDARY PORTIONS MOLDED ONTO TAPE GUIDE PRIMARY PORTIONS OF DIFFERING MATERIAL

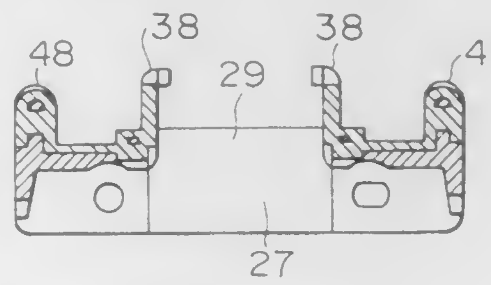
Shigeru Tanaka, Niigata-ken, and Haruhiko Yoshida, Fukushima-ken, both of Japan, assignors to Alpse Electric Co., Ltd., Tokyo, Japan

Filed Nov. 15, 1995, Ser. No. 559,515

Claims priority, application Japan, Nov. 15, 1994, 6-305652; Jun. 21, 1995, 7-178150

Int. Cl.⁶ G11B 15/60, 5/105; 5/49

U.S. Cl. 360—130.21 **17 Claims**



1. A magnetic head device comprising:

a magnetic head;

a mount on which said magnetic head is provided; and

tape guides which are provided on said mount,

wherein each of said tape guides comprises a primary portion unitarily formed with said mount from a first material and including a hole, and a secondary portion formed from a second material different from said first material, said second material being molded onto the primary portion such that the secondary portion includes a portion disposed in the hole.

5,737,159
MAGNETIC DISK AND ITS MANUFACTURING METHOD

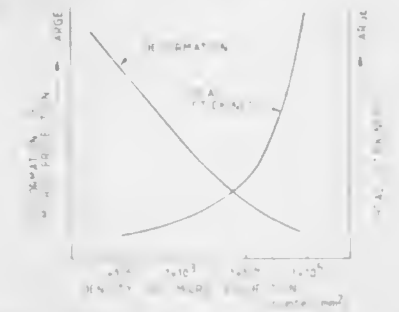
Takao Nakamura, Yokohama; Takaaki Shirakura, Chigasaki, and Hiroyuki Kataoka, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 472,457, Jun. 7, 1995, abandoned, which is a division of Ser. No. 933,893, Aug. 24, 1992, which is a continuation of Ser. No. 224,360, Jul. 26, 1988, abandoned. This application Jul. 1, 1996, Ser. No. 673,470

Claims priority, application Japan, Jul. 29, 1987, 62-187657; Nov. 26, 1987, 62-296016

Int. Cl.⁶ G11B 5/82

U.S. Cl. 360—135 **5 Claims**



1. A magnetic disk comprising a substrate coated with a magnetic film, a surface of the magnetic disk having micro projections with a bearing ratio curve providing a bearing ratio of 0.1 to 10% at a depth of 5 nm from a highest peak of the micro projections, a relation between a height H of a peak of the micro projections from a central line of a surface roughness curve of the surface and a depth V of a groove from the central line of the surface roughness curve being H/V < 0.5.

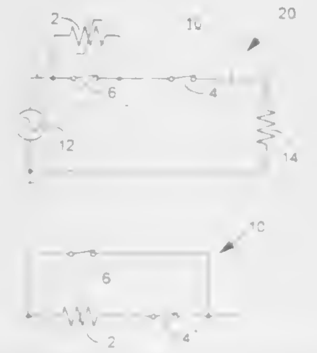
5,737,160
ELECTRICAL SWITCHES COMPRISING ARRANGEMENT OF MECHANICAL SWITCHES AND PCT DEVICE

Hugh Duffy, Cupertino, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Nov. 29, 1995, Ser. No. 564,495

Int. Cl.⁶ H02H 3/00

U.S. Cl. 361—3 **17 Claims**



1. An electrical switch arrangement which comprises

(1) a first mechanical switch

(2) a second mechanical switch, and

(3) a PTC device,

with

(a) the PTC device and second switch connected in parallel and the parallel combination connected in series with the first switch, or

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(b) the PTC device and first switch connected in series and the series combination connected in parallel with the second switch.

the arrangement, when rated by a defined procedure in which both switches are operated simultaneously to interrupt a current at a voltage V_{SWITCH}, having a rated current I_{SWITCH},

at least one of

(A) the first switch, when rated on its own by the same procedure at the voltage V_{SWITCH}, having a rated current I_{FIRST} which is at most j times I_{SWITCH}, where j is 0.8, and

(B) the second switch, when rated on its own by the same procedure at a voltage V_{SECOND} which is at most k times V_{SWITCH}, where k is 0.8, having a rated current I_{SECOND} which is at most I_{SWITCH}; and the PTC device, when tested on its own in a test circuit whose open circuit voltage across the terminals to which the PTC device is connected, were the PTC device to be removed from the test circuit; would be V_{SWITCH}, requiring a current, I_{PTC}, through it of no more than m times I_{SWITCH}, where m is 0.1, to cause its resistance to increase by a factor of at least 100, in a resistance increase time of at most 16 milliseconds.

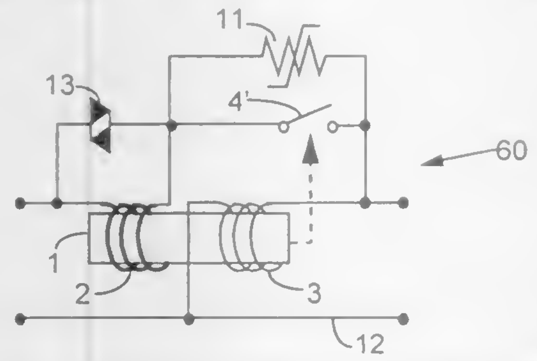
5,737,161
OVERCURRENT PROTECTION DEVICE AND ARRANGEMENT

Brian Thomas, San Francisco, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Nov. 25, 1996, Ser. No. 758,110

Int. Cl.⁶ H01H *47/28*

U.S. Cl. 361—7 **19 Claims**



1. An electrical protection system which can be coupled between an electrical power supply and an electrical load to form an operating circuit, and which when so coupled protects the circuit from overcurrents, which system comprises:

a. a circuit interruption element which
  (1) has a normal state which permits the flow of a normal circuit current, I_{NORMAL}, to pass through the system, and
  (2) has a fault state which permits the flow of at most a reduced current, $I_{REDUCED}$, substantially less than I_{NORMAL};

b. a first control element which
  (1) in use, is coupled in series between the power supply and the load, and
  (2) is functionally linked to the circuit interruption element so that when the current through the first control element increases from I_{NORMAL} to a relatively high current, I_{FAULT}, the first control element can convert the circuit interruption element into the fault state, and

c. a second control element which
  (1) is coupled in parallel with the circuit interruption element, and
  (2) is functionally linked to the circuit interruption element so that if the circuit interruption element is converted to the fault state, the second control element can cause the circuit interruption element to remain in the fault state as long as the current through the second control element is at least $I_{REDUCED}$,

with the parallel combination of the circuit interruption element and second control element coupled in series with the first control element

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5,737,162
CIRCUIT BREAKING DEVICE

Hiroki Ito; Takashi Moriyama; Kenji Kamei; Suenobu Hamano; Etsuo Nitta; Kazubiko Arai, all of Tokyo; Naoaki Takeji, Osaka; Koji Takahata, Kagawa, and Masayuki Hatano, Tokyo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo; The Kansai Electric Power Co., Inc., Osaka; Shikoku Electric Power Co., Inc., Takamatsu, and Electric Power Development Co., Ltd., Tokyo, all of Japan

Filed Aug. 6, 1996, Ser. No. 693,351

Claims priority, application Japan, Aug. 8, 1995, 7-202156

Int. Cl.⁶ H02H *3/00*

U.S. Cl. 361—8 **10 Claims**

1. A DC circuit breaking device comprising:

a main DC circuit breaker for interrupting the transmission of direct currents to an electric power system;

at least one DC circuit breaker that is connected in series to the main DC circuit breaker and which is smaller than said main DC circuit breaker;

a commutation circuit that is connected in parallel to the series circuit comprising said main and small DC circuit breakers and which comprises a reactor and a condenser; and

a surge absorber connected in parallel across said commutation circuit for absorbing a surged voltage applied to said condenser.

5,737,163
DC-AC CONVERTER PROTECTION

Trevor Newlin, Livingstun, Scotland, assignor to Burr-Brown Corporation, Tucson, Ariz.

Filed Jun. 17, 1996, Ser. No. 665,260

Int. Cl.⁶ H02H *7/122*

U.S. Cl. 361—18 **21 Claims**

1. An apparatus for protecting a DC-AC converter having a transformer, the apparatus comprising:

(a) an oscillator means for generating a periodic signal having a frequency;

(b) a switching means for switching an input voltage across a first winding of the transformer in accordance with the periodic signal; and

(c) a watchdog means for disabling the switching means if the frequency falls below a threshold frequency, the watchdog means comprising
  (1) a frequency to voltage converter means for converting the frequency to a voltage;
  (2) a comparator means for comparing the voltage to a reference voltage corresponding to the threshold frequency; and
  (3) means for disabling the switching means if the voltage rises above the threshold voltage.

5,737,164
SWITCHED RELUCTANCE MACHINE CAPABLE OF IMPROVED FAULT OPERATION

Caio Alexandre Ferreira, Rockford, and James Aaron Buerosse, Cherry Valley, both of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Jul. 11, 1996, Ser. No. 680,305

Int. Cl.⁶ H02H *5/04*

U.S. Cl. 361—31 **4 Claims**

1. In a switched reluctance machine having a rotor with r poles and a stator with s poles, where r is an integer and s is an integer larger than r, each stator pole having a phase winding wound thereon, means connecting the phase windings of radially opposite ones of said stator poles in circuit, means for sensing the angular position of said rotor, and means responsive to the sensed angular position of said rotor for controlling current through said phase windings, the improvement comprising:

control means responsive to a fault in one of said phase windings for preventing current flow through the phase windings of all stator poles that are aligned with a rotor pole at the time the stator pole having the phase winding with the fault therein is aligned with a rotor pole

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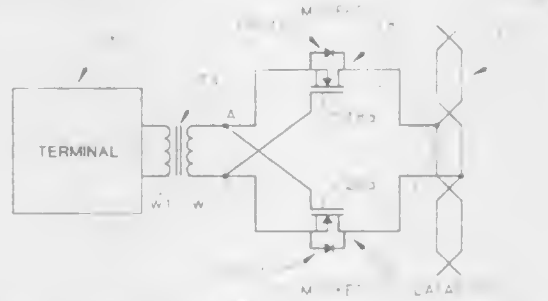
5,737,165
APPARATUS FOR DATABUS FAULT ISOLATION

Barry E. Becker, Smithtown, N.Y., assignor to ILC Data Device Corporation, Bohemia, N.Y.

Filed Feb. 8, 1996, Ser. No. 598,357

Int. Cl.⁶ H02H *9/00*

U.S. Cl. 361—58 **24 Claims**



1. Fault isolation means for use between a terminal and a databus and which eliminates the need for fault isolation resistors in a transmit path, comprising

transformer means coupled between said terminal and said databus;

first and second active semiconductor means coupled between said databus and said transformer means, and

said semiconductor means each having a control electrode, each control electrode being coupled to a winding of said transformer means whereby both of said semiconductor means are turned off when a voltage across said winding is below a threshold level and is thus insufficient to render the semiconductor means conductive to isolate said terminal from said databus and for selectively causing only one of the semiconductor means to conduct when the voltage across said winding is equal to or greater than said threshold level thereby establishing a conductive path between said terminal and said databus, the voltage drop across a semiconductor means when conducting being significantly lower than a voltage drop developed across a fault isolation resistor typically employed to provide isolation between said terminal and said databus

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5,737,166
PROTECTIVE EQUIPMENT IN A BIPOLAR HVDC STATION

Ingvar Hagman, Ludvika, Sweden, assignor to Asea Brown Boveri AB, Västerås, Sweden

Filed Apr. 1, 1996, Ser. No. 626,027

Claims priority, application Sweden, Apr. 7, 1995, 9501296

Int. Cl.⁶ H02H *3/00*

U.S. Cl. 361—78 **10 Claims**

1. Protective equipment for avoiding permanent fault in a bipolar converter station of a high voltage direct current power transmission installation comprising,

main circuits on the dc side of the station having two separate pole parts, one part for each one of the two poles of the station and a bipole part that is common to both poles,

measuring means in the station forming measurement signals corresponding to operating quantities of the station,

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pole protective means for each pole part and a bipole protective means for protection of the bipole part.

the bipole protective means has two parts that are independent of each other, each of which is assigned to one of the two pole parts of the station, one to each pole part;

the measuring means, for each one of a group of operating quantities of the bipole part, generates two redundant measurement signals, each of which is supplied to one of the independent parts of the bipole protective means, and wherein

the part of the bipole protective means that is assigned to a certain pole part, as a protective measure which, based on predetermined algorithms and said measurement signals, interrupts the operation of the pole part, interrupts the operation of only that pole part to which it is assigned.

5,737,167

RESIDUAL CURRENT SAFETY SWITCH

Hubert Bachl, Vienna, Austria, assignor to EH SCHRACK Energietechnik GmbH, Vienna, Austria

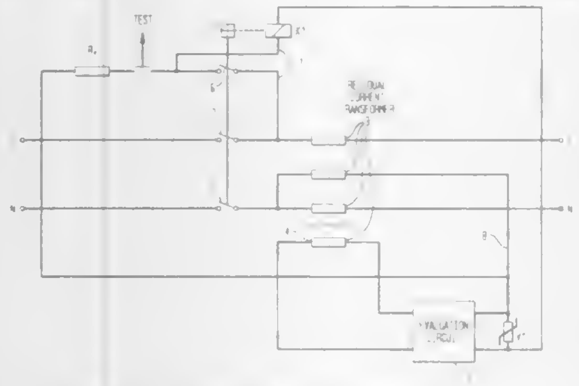
PCT No. PCT/AT95/00012, § 371 Date Sep. 5, 1996, § 102(e) Date Sep. 5, 1996, PCT Pub. No. WO95/20257, PCT Pub. Date Jul. 27, 1995

PCT Filed Jan. 24, 1995, Ser. No. 682,581

Claims priority, application Austria, Jan. 24, 1994, 126/94

Int. Cl.^{6} H02H *3/18*

U.S. Cl. 361—79 **2 Claims**



1. A residual current safety switch, comprising:

a residual current transformer (3);

an evaluation circuit (5) connected to the transformer and controlling an electromagnetic trigger device (K1) for actuation of switching contacts (1, 2); and

an overvoltage protection circuit (V1),

wherein at least one element selected from the group consisting of the evaluation circuit (5) and the overvoltage protection circuit (V1) is connected to power outlets (L, N) when the switching contacts (1, 2) are closed for providing a voltage supply, with the connection between the at least one element and the power outlets being effected by lines (7, 8), with one line extending through the residual current transformer (3) and the other line being guided outside the residual current transformer (3), wherein the supply current and/or the current that flows through the overvoltage protection circuit (V1) is lower than the triggering current when the nominal voltage is applied.

5,737,168

ELECTRICAL POWER MANAGEMENT SYSTEM

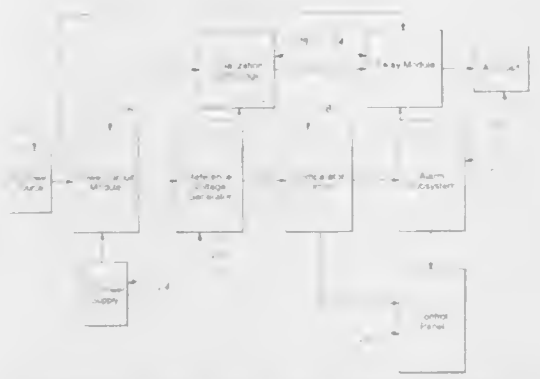
George T. Baker, 510 Hackberry Dr., Fairview, Tex. 75069

Filed May 4, 1995, Ser. No. 434,662

Int. Cl.^{6} H02H *3/20*

U.S. Cl. 361—90 **17 Claims**

1. A control system for automatically and continuously controlling a connection of AC power between an AC load and an AC power source having at least one output voltage, the control system comprising:



a) a polarization error circuit to detect a wiring polarization error in the connections of the AC power source to the AC load, the connections including at least one power connection, a neutral connection and a ground connection;

b) a comparator circuit to detect a fault condition when at least one output voltage of the AC power source is outside a predetermined AC voltage operating window; and

c) a relay connected to the polarization error circuit and the comparator circuit, the relay activated to disconnect power from the AC load when the comparator circuit detects the fault condition or the polarization error circuit detects the wiring polarization error.

5,737,169

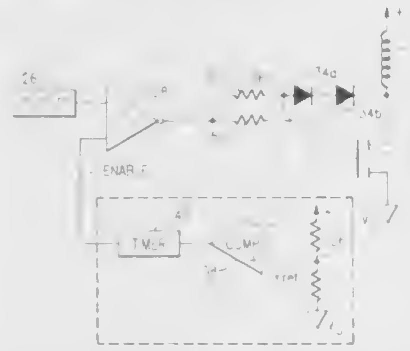
INTRINSIC ELEMENT SENSING INTEGRATED SOA PROTECTION FOR POWER MOSFET SWITCHES

Jeff C. Sellers, Palmyra, N.Y., assignor to ENI, A Division of Astec America, Inc., Rochester, N.Y.

Filed Feb. 28, 1996, Ser. No. 608,409

Int. Cl.^{6} H02H *3/00*

U.S. Cl. 361—98 **6 Claims**



1. Protective arrangement for a power field effect transistor of the type having a source electrode and a drain electrode, a channel between said source and drain electrodes that provides a conduction path for a load current, and a gate electrode coupled to a gating signal source, such that said conduction path has a low resistance value when a high gate voltage is applied from said gating signal source to said gate electrode and is shut off when a low gate voltage is applied to said gate electrode; comprising

a gate resistor disposed between said gate signal source and said gate electrode;

drain-source voltage pickup means including a resistor coupled to said gating signal source, a diode in series with said resistor and connected to said drain electrode, the resistor and diode defining a junction therebetween providing a pickup voltage,

threshold detecting means having one input coupled to receive said pickup voltage from said junction of the drain-source voltage pickup means, another input coupled to a reference voltage that is offset a predetermined amount relative to said source electrode, and a threshold output that is high when said pickup voltage exceeds said reference voltage and is low otherwise; and

cutoff circuit means having an input coupled to said threshold output for disabling said gate electrode for a preset delay period in response to a high level at the output of said threshold detecting means;

wherein said gate resistor, said drain-source voltage pickup means, said threshold detecting means, and said cutoff circuit means are configured as a circuit module coupled to said gate signal source, said gate, said source and said drain electrodes of said transistor

5,737,170

THERMAL SHUTDOWN CIRCUIT USING A PAIR OF SCALED TRANSISTORS

James C. Moyer, San Jose, Calif., assignor to Micrel, Inc., San Jose, Calif.

Filed Sep. 27, 1994, Ser. No. 313,480

, Int. Cl.^{6} H02H *5/04*

U.S. Cl. 361—103 **12 Claims**

1. An integrated circuit, comprising:

a current source having an output terminal, said current source supplying a current onto said output terminal which increases substantially proportionally to an increasing absolute temperature;

a first resistor having a first terminal and a second terminal, said first terminal of said first resistor being coupled to said output terminal of said current source;

a thermal shutdown transistor having an emitter, a base, and a collector, said base being connected to said first terminal of said first resistor, said emitter being connected to said second terminal of said first resistor; and

a hysteresis circuit which changes the resistance of said first resistor after said thermal shutdown transistor turns on in a thermal shutdown condition

5,737,171

SWITCHED MANAGEMENT OF THERMAL IMPEDENCE TO REDUCE TEMPERATURE EXCURSIONS

Marvin Lawrence Buller, Austin; Gary Dale Carpenter, Pflugerville, and Binh Thai Hoang, Round Rock, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 15, 1996, Ser. No. 680,451

Int. Cl.^{6} H02H *5/04*

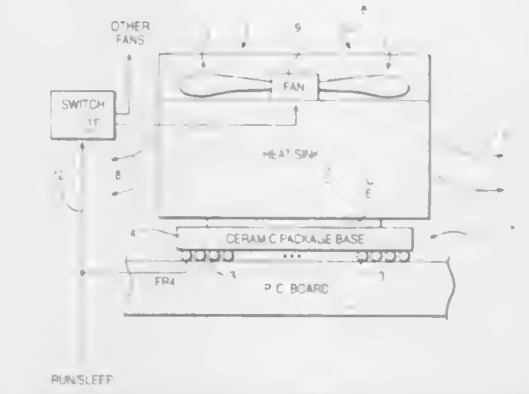
U.S. Cl. 361—103 **8 Claims**

1. In a computer system utilizing convection cooling to constrain integrated circuit package temperatures, apparatus limiting temperature excursions, comprising:

a selectively operable first fan providing convective cooling to a selected packaged integrated circuit,

power management resources in the packaged integrated circuit indicating by state signal high and low operating power states of the packaged integrated circuit, and

means for enabling the operation of the first fan responsive to an indication of a high power state and disabling the operation of



the first fan responsive to an indication of a low power state, without regard to the packaged integrated circuit temperature

5,737,172

ELECTROMAGNETIC CONTACTOR AND A METHOD OF CONTROLLING THE SAME

Shigeharu Ohtsuka, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Electric Engineering Co., Ltd., both of Tokyo, Japan

Filed Jul. 14, 1995, Ser. No. 502,666

Claims priority, application Japan, Jul. 15, 1994, 6-164015

Int. Cl.^{6} H01H *47/04*

U.S. Cl. 361—154 **56 Claims**

1. An electromagnetic contactor, to which an input voltage is loaded and having a coil, comprising

detector means for detecting a peak voltage value of said input voltage and for detecting an average value of said input voltage, wherein said input voltage is one of a full wave rectified alternating current and a DC voltage

switching means, responsive to an operating signal, for controlling operation of said electromagnetic contactor, and

a controller for generating said operating signal and for stabilizing input power supplied to said coil at a constant level by controlling a pulse width of said operating signal based on said peak voltage value and said average value of said input voltage detected by said detector means

5,737,173

RAILROAD TRACK CIRCUIT VITAL RELAY CONTROL

Daniel T. Ross, Sunnyvale; Brian D. Holt, Alta Loma, both of Calif., and James E. Moe, Circle Pines, Minn., assignors to Safetran Systems Corporation, Minneapolis, Minn.

Continuation-in-part of Ser. No. 235,485, Apr. 29, 1994, abandoned. This application Jun. 3, 1996, Ser. No. 655,700

Int. Cl.^{6} H03K *17/8*

U.S. Cl. 361—160 **26 Claims**

1. A railroad vital relay control circuit including:

a first input for receiving a reference alternating current signal of a selected frequency

a second input for receiving a track alternating current signal having the selected frequency of the reference signal and a predetermined phase and magnitude relationship therewith

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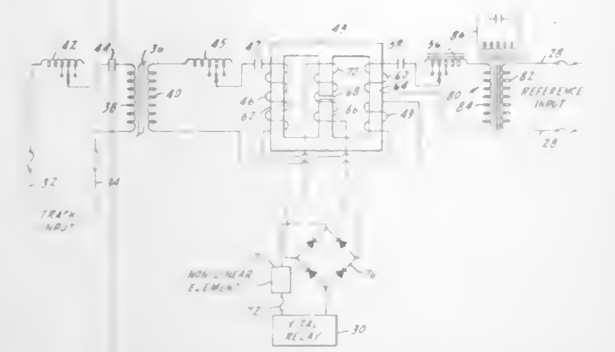


a magnetic core having two input arms and an intermediate output arm, a first input winding on a first input arm and a second input winding on a second input arm, an output winding on said output arm,

a frequency tuned voltage limiting ferroresonant transformer connecting said first input and said first input winding,

said second input including a saturable transformer with the secondary winding thereof being connected to the second input winding of said magnetic core,

said output winding being connected to a vital relay, said first and second input windings being connected to produce flux in the same direction in said output arm, in phase signals of the selected frequency at said magnetic core input windings providing sufficient flux in said output arm to induce a signal in the output winding to hold the vital relay in an operated position.

5,737,174
ARC SUPPRESSOR FOR SYSTEMS SUPPLYING ELECTRICALLY CONDUCTIVE COATING MATERIALS

Ronald D. Konieczynski, North Royalton, Ohio, assignor to Nordson Corporation, Westlake, Ohio

Filed Apr. 19, 1996, Ser. No. 634,942

Int. Cl.⁶ H02H *9/06*

U.S. Cl. 361—220 **23 Claims**

1. Apparatus for use with a voltage block device having a grounded filling station and an electrostatically charged transfer shuttle movable toward and away from the filling station, said apparatus comprising:

an outer housing having a first end, a second end and a hollow interior;

an electrode mounted at said first end of said housing;

a hollow sleeve concentrically disposed within said outer housing with a space therebetween;

a cushioning element located in said space between said outer housing and said sleeve;

a cylinder mounted to said second end of said outer housing, said cylinder having a piston head mounted to a piston rod, said piston head being movable within said sleeve in a direction toward and away from said first electrode upon extension and retraction of said piston rod;

a first wire electrically connected to said electrode and being adapted to connect to the filling station of the voltage block device, and a second wire electrically connected to said cylinder and being adapted to connect to the transfer shuttle of the voltage block device.

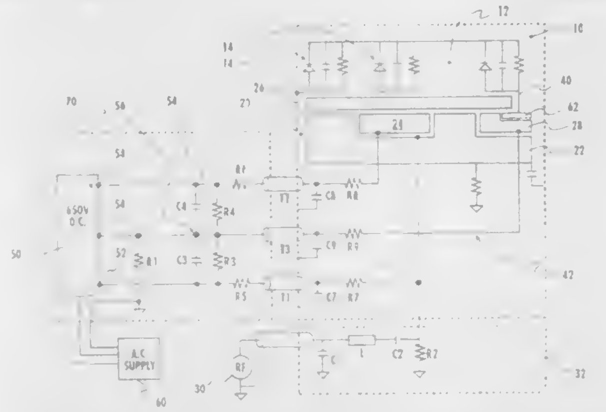
5,737,175
BIAS-TRACKING D.C. POWER CIRCUIT FOR AN ELECTROSTATIC CHUCK

Paul F. Grosshart, Billerica, Mass.; Ralph C. Kerns, San Carlos, Calif., and Peter P. Laquidara, Andover, Mass., assignors to Lam Research Corporation, Freemont, Calif.

Filed Jun. 19, 1996, Ser. No. 667,031

Int. Cl.⁶ H02N *13/00*

U.S. Cl. 361—234 **13 Claims**



1. A power circuit for a guard ring electrostatic chuck, said guard ring electrostatic chuck having first and second chuck electrodes for clamping a workpiece to said chuck, an RF signal source electrically connected to said chuck for selectively energizing a plasma associated with said chuck, said power circuit comprising:

a differential voltage DC power source having a reference input, a first voltage output and a second voltage output, a voltage difference between said first voltage output and said second voltage output being evenly balanced about a reference potential at said reference input, said DC power source being electrically shielded from said RF signal source;

a sensor electrode for measuring a bias voltage of said plasma, said sensor electrode embedded in the guard ring of said electrostatic chuck,

a first electrical connection between said first voltage output and said first electrode,

a second electrical connection between said second voltage output and said second electrode, said first and second electrical connections providing a differential voltage to respective said first and second electrodes to clamp said workpiece to said chuck, and

a third electrical connection between said sensor electrode and said reference input such that said reference potential tracks said bias voltage of said plasma.

5,737,176
DEVICE FOR NEUTRALIZING ELECTROSTATIC CHARGES

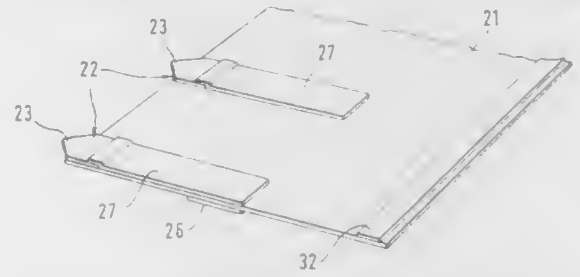
Edwin Muz, Reutlingen, Germany, assignor to Haug GmbH & Co. KG, Leinfelden-Echterdingen, Germany

Filed Jan. 15, 1997, Ser. No. 783,990

Claims priority, application Germany, Jan. 25, 1996, 196 02 510.9

Int. Cl.⁶ H01T *19/04*

U.S. Cl. 361—220 **7 Claims**



1. Device for neutralizing electrostatic charges by way of corona discharge comprising a flexible carrier consisting of dielectric material, a row of individual discharge electrodes applied to one side of the carrier galvanically separated from one another in the form of thin, electrically conductive layers, and a thin, axially continuous, electrically conductive coating arranged on the other side of the carrier opposite to the discharge electrodes, said coating being connected to an alternating high voltage source and the discharge electrodes being coupled capacitively to this voltage source via said coating, wherein the carrier is a flexible plastic film, the discharge electrodes, the conductive coating and a counterelectrode being applied to said film in a thin layer, and the layer construction is formable by bending or folding in axial direction such that the plastic film, the discharge electrodes, the conductive coating and the counterelectrode are adapted to be brought into their final relative positions.

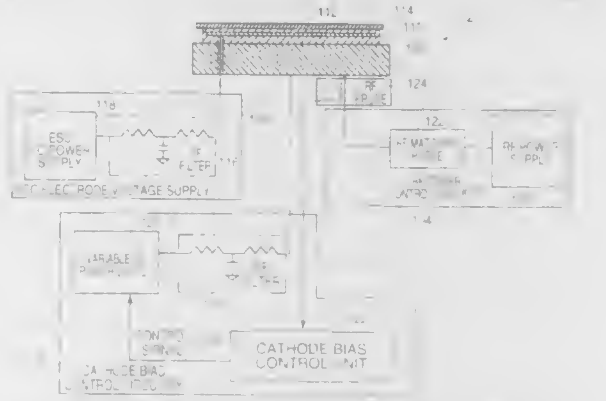
5,737,177
APPARATUS AND METHOD FOR ACTIVELY CONTROLLING THE DC POTENTIAL OF A CATHODE PEDESTAL

Richard Raymond Mett, Santa Clara; Mahmoud Dahimene, Sunnyvale; Paul E. Luscher, Sunnyvale; Siamak Salimian, Sunnyvale, and Mark Steven Contreras, Sunnyvale, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Oct. 17, 1996, Ser. No. 730,885

Int. Cl.⁶ H02N *13/00*

U.S. Cl. 361—234 **13 Claims**



1. Apparatus for controlling a DC potential on a cathode pedestal used to support a workpiece, comprising:

a variable DC power supply coupled to said cathode pedestal;

a cathode bias control unit, coupled to said variable DC power supply, for generating a control signal that causes said DC power supply to produce a particular DC voltage, said control signal being generated in response to indicia of average potential between said workpiece and said cathode pedestal.

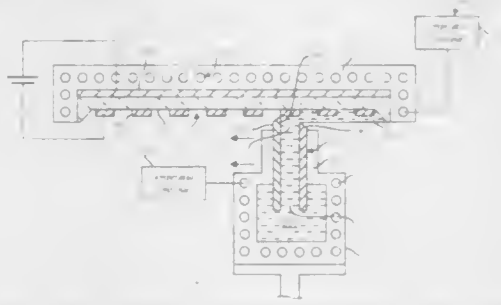
5,737,178
MONOCRYSTALLINE CERAMIC COATING HAVING INTEGRAL BONDING INTERCONNECTS FOR ELECTROSTATIC CHUCKS

Harald Herchen, San Jose, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Mar. 6, 1997, Ser. No. 812,194

Int. Cl.⁶ H02N *13/00*

U.S. Cl. 361—234 **58 Claims**



1. An erosion resistant electrostatic chuck for holding substrates in a process chamber, the chuck comprising:

(a) at least one mesh electrode on an underlying dielectric layer, the mesh electrode having apertures therethrough; and

(b) a monocrystalline ceramic covering the mesh electrode, the monocrystalline ceramic comprising:

(i) a layer of large crystals substantially oriented to one another, the layer of crystals having a resistivity sufficiently high to electrically insulate the mesh electrode; and

(ii) integral bonding interconnects that form a unitary structure with the layer of large crystals, the bonding interconnects extending through the apertures in the mesh electrode to bond directly to the underlying dielectric layer.

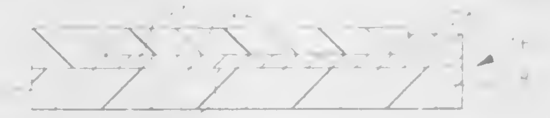
5,737,179
METALLIZED FILM CAPACITOR

David G. Shaw, Tucson, Ariz., and Paul Le Gonidec, Douarnenez, France, assignors to Catalina Coatings, Inc., Tucson, Ariz.

Filed Feb. 7, 1996, Ser. No. 598,049

Int. Cl.⁶ H01G *4/32; 4/30; 4/22; 4/005*

U.S. Cl. 361—301.5 **14 Claims**



1. A capacitor comprising:

a first sheet of capacitive material wound into a cylinder, the first sheet comprising:

an electrically nonconductive substrate;

an electrically conductive material disposed on a major portion of a surface of the substrate; and

an electrically nonconductive material disposed on a major portion of a surface of the electrically conductive material, the electrically nonconductive material including an anti-stick component;

a second sheet of capacitive material constructed in the same manner as the first sheet and wound in the cylinder with the first sheet of capacitive material;

wherein the electrically conductive material of each first and second sheet of capacitive material is thicker at one lengthwise edge of a respective sheet than at remaining portions of the same sheet.

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5,737,180
FERROELECTRIC CAPACITOR STRUCTURE

In-kyung Yoo, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Oct. 10, 1995, Ser. No. 541,772

Claims priority, application Rep. of Korea, Aug. 1, 1995, 95-23705

Int. Cl. H01G *4/06; 4/228; 4/008; 4/005*

U.S. Cl. 361—313 **6 Claims**

1. A ferroelectric capacitor structure comprising a ceramic lower electrode, a ferroelectric, a ceramic upper electrode, an insert layer and a metal upper electrode which are laminated, the ceramic lower electrode and the ceramic upper electrode being connected to a writing terminal, the ceramic lower electrode and the metal upper electrode being connected to a reading terminal.

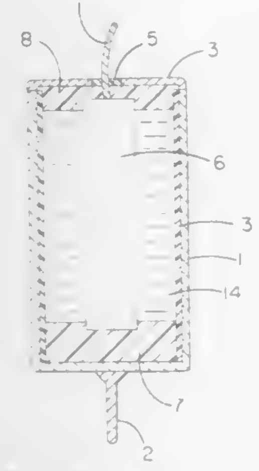
5,737,181
CAPACITOR

David A. Evans, Seekonk, Mass., assignor to Evans Capacitor Company, Incorporated, East Providence, R.I.

Division of Ser. No. 514,145, Aug. 11, 1995, Pat. No. 5,559,667, which is a division of Ser. No. 282,229, Jul. 29, 1994, Pat. No. 5,469,325, which is a continuation-in-part of Ser. No. 35,224, Mar. 22, 1993, Pat. No. 5,369,547. This application Apr. 22, 1996, Ser. No. 635,696

Int. Cl.^{6} H01G *9/02; 9/025; 9/05*

U.S. Cl. 361—504 **14 Claims**



1. A capacitor comprising:

a cathode comprising a porous coating including an oxide of at least one metal selected from the group consisting of ruthenium, iridium, nickel, rhodium, platinum, palladium, and osmium;

an anode spaced from the porous coating and including a metal selected from the group consisting of tantalum, aluminum, niobium, zirconium, and titanium; and

a solid electrolyte disposed between and in contact with the porous coating and the anode and selected from the group consisting of polypyrrole, a polymer containing ion-permeable channels, polyaniline, and a gel of an aqueous electrolyte and silica wherein the cathode comprises two opposed electrically conducting plates, each plate including the porous coating, the porous coatings facing each other, the anode is disposed between and spaced from each of the porous coatings, and the electrolyte is in contact with each of the porous coatings.

5,737,182

Patent Not Issued For This Number

5,737,183
COMPACT PORTABLE COMPUTER HAVING A RISER THAT FORMS WHEN A COVER IS OPENED

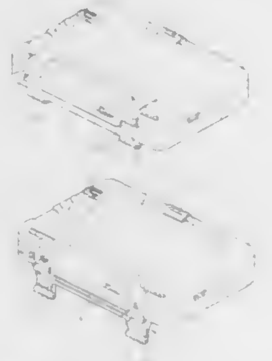
Makoto Kobayashi, Machida, and Yasutaka Koga, Kawasaki, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 13, 1996, Ser. No. 645,389

Claims priority, application Japan, May 12, 1995, 7-114763

Int. Cl.^{6} G06F *1/16;* **H05K** *5/03;* **E05D** *3/06;* **B65D** *25/24*

U.S. Cl. 361—683 **10 Claims**



1. A portable computer comprising:

a main body having an upper side and a bottom side;

a display disposed on the upper side of said main body for display data;

a cover which covers said display when closed and which opens rotatably to a position where an upper side of said cover touches the bottom side of said main body;

a riser for raising one side of said main body when said cover is opened and when supported by a flat surface to position the main body at an angle relative to the flat surface, and for stabilizing the portable computer when supported on an operator's palm and forearm, wherein

said cover has a convex shaped portion and said main body has a concave shaped portion formed on the bottom side of the main body corresponding to said convex shaped portion.

4. A portable computer comprising:

a main body with an upper side a bottom side, and a side surface that is between said upper side and said bottom side;

a display disposed on the upper side of said main body for displaying data;

a cover means for covering said display with a first portion thereof when said cover means is closed and for rotatably opening said cover means to a position where an upper side of said cover means touches the bottom side of said main body, said cover means comprising an edge portion configured to cover a portion of said side surface when said cover means is closed;

means for raising one side of said main body when said cover means is opened and supported by a flat surface so as to position the main body at a predetermined angle relative to the flat surface, said means for raising comprising grasping means for being grasped by at least one finger on a hand of an operator and for stabilizing the portable computer when supported on a palm of said hand of said operator and a forearm of said operator, said means for raising further comprising:

a stand plate having a first end and a second end,

a first hinge pin coupled to said first end of said stand plate and coupled to an end of said edge portion of said cover means, said edge portion of said cover means and said stand plate extending in generally opposing directions about said first hinge pin when said cover means is closed, and being positioned adjacent to each other when said cover means is opened,

a holder being fixed to said main body proximate said side surface and said bottom side of said main body,

a second hinge pin coupled to said holder and said second end of said stand plate, said stand plate being disposed adjacent to said side surface of said main body when said cover means is closed, said holder and said stand plate extending in generally opposing directions from said second hinge pin when said cover means is opened.

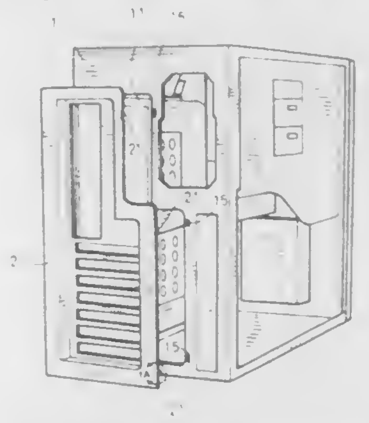
5,737,184
COMPUTER MAIN CIRCUIT BOARD RACK STRUCTURE

Wen Hsien Lai, No. 57, Lane 350, Nanshang Rd., Gueishan Hsiang, Taoyuan Hsien, Taiwan

Filed Jun. 4, 1996, Ser. No. 658,967

Int. Cl.^{6} G06F *1/16;* **H05K** *7/14*

U.S. Cl. 361—683 **2 Claims**



1. A computer main circuit board rack structure comprising a main circuit board rack sink disposed on a computer housing and an upper rail and a lower rail formed respectively at upper and lower ends of the rack sink, a computer main circuit board rack being inserted into the computer housing through the upper and lower rails of the rack sink, said main circuit board rack structure being characterized in that

the computer housing is formed with several engaging holes at an end near the main circuit board rack sink and several leaf springs are disposed in the upper rail, the main circuit board rack being disposed with several engaging hooks for engaging with the engaging holes of the computer housing, a bottom end of each engaging hook being formed with an slope face for guiding the engaging hook into the engaging hole, a top end of the main circuit board rack compressing and tightly contacting with the leaf springs in the upper rail whereby when it is desired to draw the main circuit board rack out of the main circuit board rack sink of the computer housing the main circuit board rack is lifted to make the engaging hooks disengaged from the engaging holes of the computer housing.

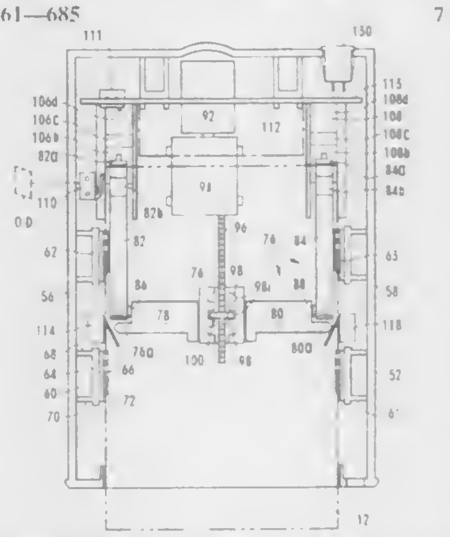
5,737,185
LATCH AND EJECTION MECHANISM FOR PORTABLE HARD DRIVE

Timothy J. Morrison, Oceanside, and Edson E. Ford, Escondido, both of Calif., assignors to Summatec Computer Corporation, Vista, Calif.

Continuation-in-part of Ser. No. 409,494, Mar. 23, 1995, Pat. No. 5,612,927. This application Jan. 24, 1997, Ser. No. 788,746

Int. Cl.^{6} G06F *1/16;* **H05K** *7/14*

U.S. Cl. 361—685 **7 Claims**



1. An apparatus operably engageable with a cavity of a desk top personal computer (PC), comprising:

a sleeve for holding a hard computer disk drive, the sleeve being formed with an engagement surface;

a bay positioned in the cavity of the computer for receiving the sleeve, the bay including an opening for receiving the sleeve, the bay being in electrical communication with the personal computer;

a carriage reciprocally disposed in the bay, the carriage including at least one clip configured for engaging the engagement surface of the sleeve when the sleeve is advanced a predetermined distance into the opening, the carriage further including a shuttle formed with at least one nut dock;

a motor coupled to the carriage for moving the carriage between an engaged position, wherein the hard drive is electrically connected to the personal computer, and a remove position wherein the sleeve can be manually removed from the bay, the motor being coupled to the carriage via a lead screw and a nut, the lead screw being threadably engaged with the nut and rotatable by the motor, the nut being closely received in the at least one nut dock such that rotation of the nut is prevented thereby, and

an eject button mounted on the bay, the eject button being selectively manipulable to cause the motor to move the sleeve from the engaged position toward the remove position after a predetermined time period has elapsed to spin down the hard disk drive.

5,737,186
ARRANGEMENT OF PLURAL MICRO-COOLING DEVICES WITH ELECTRONIC COMPONENTS

Hans-Juergen Fuesser, Gerstetten-Dettingen; Reinhard Zachai, Guenzburg; Wolfram Muench, Mannheim, and Tim Gutheit, Ulm, all of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

Filed Apr. 22, 1996, Ser. No. 639,102

Claims priority, application Germany, Apr. 20, 1995, 195 14 545.3

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—699 **13 Claims**

1. A microcooling arrangement comprising a plurality of adjacent microcooling devices each provided with at least one electronic component, each microcooling device having two opposed

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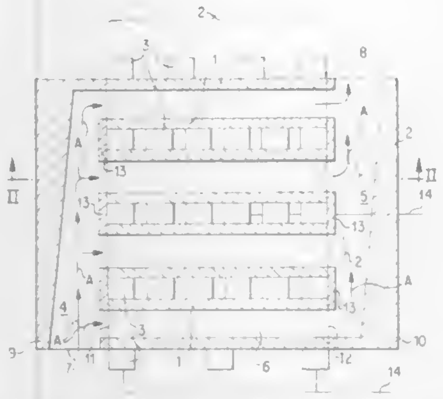

flat sides and comprising a closed channel structure through which a coolant passes, outwardly extending fluid lines for respectively supplying and carrying away the coolant flowing through the channel structures, outwardly extending electrical conductors for the electronic components, and a cover layer which forms one of the flat sides made of a heat-conducting, electrically-insulating material, wherein

- the at least one electronic component is arranged on one of the opposed flat sides of each microcooling device;
- adjacent microcooling devices are spaced apart from one another with proximate flat sides, which have at least one electronic component arranged thereon, confronting one another, and
- at least one of said electronic components on one microcooling device lies in contact with the cover layer of an adjacent microcooling device

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5,737,187
APPARATUS, METHOD AND SYSTEM FOR THERMAL MANAGEMENT OF AN UNPACKAGED SEMICONDUCTOR DEVICE

Minh H. Nguyen, Houston, and Mark S. Tracy, Tomball, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Aug. 26, 1996, Ser. No. 703,342
Int. Cl.⁶ H05K *7/20*
U.S. Cl. 361—704 41 Claims

1. A thermal management structure for a chip on board substrate, the thermal management structure comprising

- a substrate having a first side, a second side, an unpackaged semiconductor die mounted on the second side, the unpackaged semiconductor die having an exposed face,
- a first heat sink piece having a first face and a first plurality of mounting brackets, the first face proximate to the first side of said substrate and the first plurality of mounting brackets rigidly engaging the first side of said substrate
- a second heat sink piece having a second face and a second plurality of mounting brackets, the second face proximate to the exposed face of the unpackaged semiconductor die mounted on the second side of said substrate and the second plurality of mounting brackets rigidly engaging the second side of said substrate;
- a first interface means interposed between and compliantly engaging the first side of said substrate and the first face of said first heat sink piece, the first interface means proximate to the unpackaged semiconductor die whereby the first interface means conductively transfers heat from the unpackaged semiconductor die to said first heat sink piece;
- a second interface means interposed between and compliantly engaging the exposed face of the unpackaged semiconductor die and the second face of said second heat sink piece whereby the second interface means conductively transfers heat from the unpackaged semiconductor die to said second heat sink piece, and
- a plurality of fasteners, said fasteners fixedly connecting the first plurality of mounting brackets to the second plurality of mounting brackets.

5,737,188
CONTROL MODULE FOR MOTOR VEHICLES

Werner Flierl, Sulzbach-Rosenberg; Michael Genzel, Rosstal; Armin Gottschaller, Neumarkt; Gerhard Hettich, Dietenhofen, and Thomas Schmid, Nürnberg, all of Germany, assignors to TEMIC TELEFUNKEN microelectronic GmbH, Heilbronn, Germany

Filed Apr. 22, 1996, Ser. No. 635,644
Claims priority, application Germany, Apr. 28, 1995, 195 15 622.6
Int. Cl.⁶ H05K *7/20*
U.S. Cl. 361—715 5 Claims

1. Motor vehicle control module comprising:

- a control unit with a carrier body, a circuit arrangement disposed on the carrier body, a housing body at least partially enclosing the carrier body, and at least one stamped grid with several stamped grid connections integrated in the housing body; and,
- sensors and actuators formed respectively, of sensor elements and sensor connections and of actuator elements and actuator connections for the control unit, and,

wherein

- at least some of the sensors and actuators are arranged in the control unit or in the immediate proximity of the control unit, and,
- these at least some of the sensors and actuators are contacted by directly joining their sensor connections and actuator connector connections to stamped grid connections of the stamped grid of the control unit

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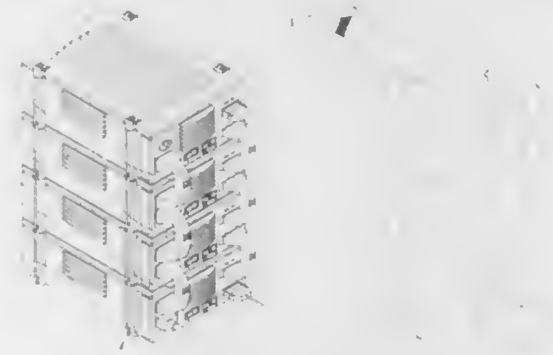
5,737,189
HIGH PERFORMANCE MASS STORAGE SUBSYSTEM

Dana W. Kammersgard, Escondido; Angus R. Colson, Jr., Jamul, and Steven B. Cook, Vista, all of Calif., assignors to Artecon, Carlsbad, Calif.

Continuation-in-part of Ser. No. 179,082, Jan. 10, 1994, Pat. No. 5,400,470, and Ser. No. 265,208, Jun. 24, 1994, Pat. No. 5,505,533, and a continuation of Ser. No. 295,280, Aug. 24, 1994. This application Dec. 5, 1996, Ser. No. 760,726
Int. Cl.⁶ G06F *1/16*, H05K *5/02*
U.S. Cl. 361—726 2 Claims



1. A computer subsystem comprising at least two individual modular peripheral containment enclosures for stacking in horizontal or vertical alignment, each enclosure comprising:

- a) broad top and bottom walls held in spaced-apart arrangement by opposed shorter side walls and a rear wall, said walls joined along their respective marginal edges to form a front opening and a cavity in said enclosure accessible through said front opening;
- b) a sled for receipt therein of a computer peripheral, said sled receivable in said cavity through said front opening in said enclosure;
- c) means extending rearward from said front enclosure opening interior said cavity for receiving therealong said sled in controlled alignment, said sled including a front face that aligns flush against said enclosure front opening when said sled is fully seated in said cavity;
- d) means for electrically interconnecting the peripheral in said enclosure to the rest of the computer subsystem including a connector interior said cavity mateable with the peripheral in said sled and with the computer subsystem exterior said sled;
- e) means for providing air cooling throughout said cavity, unimpeded by the stacking arrangement of said enclosures, including an aperture formed in at least one of said walls of each said enclosure for passage of air therethrough; and,
- f) means for interconnecting multiples of said enclosures in fixed horizontal or vertical, self-supporting arrangement for positioning on a surface, that does not adversely affect the cooling throughout said cavity by said cooling means, including means for maintaining a space between said surface and said enclosure wall nearest said surface wherein said means for interconnecting multiples of said enclosures includes:
  - i) first and second bars in spaced-apart engagement attached along the outside of said first enclosure side walls and extending from said bottom wall to said top wall;
  - ii) a flange extending from said first bar inward, along said bottom wall,
  - iii) said first bar and said flange including exterior surfaces at least a portion of which are spaced from said first enclosure wall;
  - iv) an elongated latch and a channel formed in said first and second bars for receipt therein of said elongated latch in slidable engagement therewith, and,
  - v) a hook formed in the upper end of said elongated latch extending above said first enclosure top wall and a notch formed in the lower portion of the first bar of a second enclosure stacked atop said first enclosure so that said elongated latch may be moved upward to engage said notch in said first bar for interconnecting said first and second said enclosures

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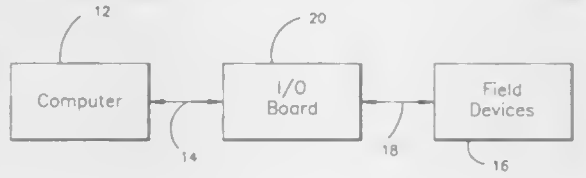
5,737,190
DIGITAL INPUT/OUTPUT CIRCUIT BOARD

Arthur James Marshall, Gettysburg, and John Anthony Ecton, Jr., Greencastle, both of Pa., assignors to Frick York International, Waynesboro, Pa.

Filed Aug. 30, 1995, Ser. No. 521,182
Int. Cl.⁶ H05K *1/14*
U.S. Cl. 361—760 12 Claims



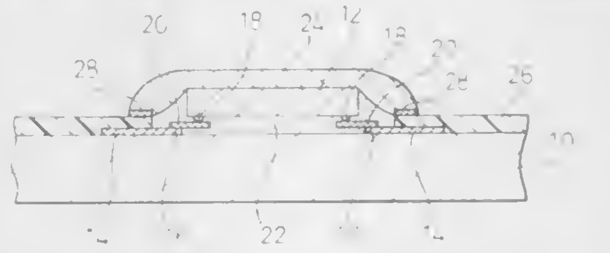
1. A digital input/output circuit board for selectively electrically connecting a plurality of field devices to a computer through input modules or receive outputs from the computer through output modules, the input/output circuit board comprising

- a plurality of module receptacles, each said module receptacle being adapted to selectively receive an input module or an output module, said module receptacles being electrically connectible to a computer;
- a plurality of field wiring terminals being adapted for attaching field wires to electrically connect said module receptacles to the plurality of field devices;
- a hot wire terminal for attaching a hot power wire;
- a neutral wire terminal for attaching a neutral power wire, and
- a plurality of selecting means electrically connected to said plurality of said module receptacles for selecting the status of each of said module receptacles as being an input or an output, each of said selecting means including an input position and an output position for each of said module receptacles.

5,737,191
STRUCTURE AND PROCESS FOR MOUNTING SEMICONDUCTOR CHIP

Michio Horiuchi, and Yoichi Harayama, both of Nagano, Japan, assignors to Shinko Electric Industries Co., Ltd., Nagano, Japan

Filed Apr. 5, 1996, Ser. No. 628,346
Claims priority, application Japan, Apr. 7, 1995, 7-082385; Apr. 10, 1995, 7-083679
Int. Cl.⁶ H05K *07/02*
U.S. Cl. 361—764 29 Claims



1. A semiconductor chip mount structure comprising

- a substrate having a base surface on which base side connectors are formed,
- a semiconductor chip mounted on said base surface of the substrate, said semiconductor chip having chip side connectors on a first surface thereof facing said base surface of the substrate, said chip side connectors being electrically connected to said base side connectors,
- an insulating resin layer covering said chip side connectors and said base side connectors,
- a metal layer including a metal having a melting point lower than a temperature at which circuits or other components of said semiconductor chip may be thermally destroyed, covering said semiconductor chip and said insulating resin layer and

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a wetting characteristic improving layer formed along at least a part of a contact surface between said metal layer and said insulating resin layer.

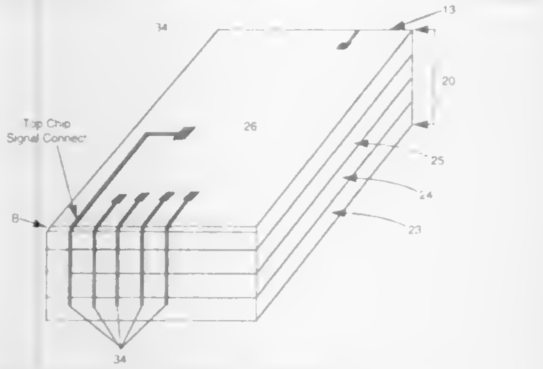
5,737,192
DENSITY IMPROVEMENT IN INTEGRATION MODULES

Richard W. Linderman, Rome, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 58,691, Apr. 30, 1993, Pat. No. 5,432,681. This application Jul. 10, 1995, Ser. No. 499,979

Int. Cl.^{6} H01R *23/68*

U.S. Cl. 361—790 **3 Claims**



1. A chip-like stack of wafers comprising:
at least one of said wafers having side and top surfaces;
said at least one wafer having further a beveled edge extending between said side and top surfaces;
conductive means connected to said at least one wafer;
said conductive means extending along the side surface over said beveled edge to the top surface; and
said conductive means being further connected electrically to side surfaces of all other wafers in said chip-like stack.

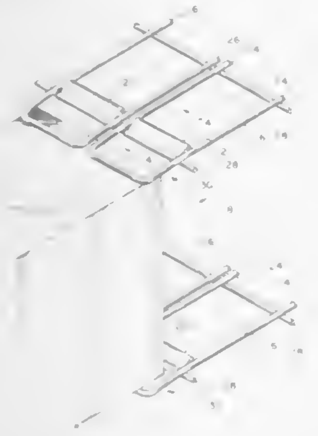
5,737,193
ELETRICAL CHASSIS STORAGE CABINET

Phillip H. LaRiviere, Woonsocket, R.I., and Richard Albert Nelson, Chanhassen, Minn., assignors to EMC Corporation, Hopkinton, Mass.

Filed Jul. 21, 1995, Ser. No. 505,405

Int. Cl.^{6} H05K *7/14*

U.S. Cl. 361—799 **5 Claims**



1. A cabinet for housing a plurality of electrical chassis comprising:
a cage like electrically conductive structure arranged to provide an array of chassis holding shelves.
an electrically conductive clip attached, and electrically connected to, one of the shelves, such clip having a surface adapted to electrically contact a chassis when such chassis is on such shelve.

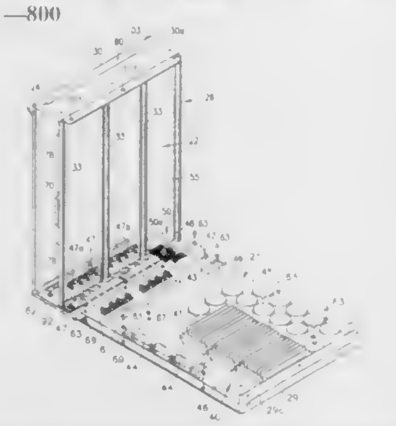
5,737,194
INPUT/OUTPUT MODULE ASSEMBLY

George M. Hopkins, Chippewa Falls; Larry Hayes Wood, Fall Creek, and Jeffrey Mark Glanzman, Mondovi, all of Wis., assignors to Cray Research, Inc., Eagan, Minn.

Filed Jul. 29, 1996, Ser. No. 681,944

Int. Cl.^{6} A05K *7/14*

U.S. Cl. 361—800 **21 Claims**



1. An input/output module for a digital processing system for coupling input/output devices to a network of said system, said system having a plurality of information channels, said input/output module comprising:
a plurality of circuit board assemblies, wherein each circuit board assembly includes a component bearing surface,
an enclosure for enclosing said circuit board assemblies,
a first one of said plurality of circuit board assemblies including circuits that are application specific to a given one of said plurality of information channels of said system, and a second one of said plurality of circuit board assemblies including circuits that are common to all of said plurality of information channels of said system;
and a connector assembly for electrically interconnecting said first and second circuit board assemblies, wherein the connector assembly includes a first connector mounted perpendicular to the component bearing surface of the first one of said plurality of circuit board assemblies, a second connector mounted perpendicular to the component bearing surface of the second one of said plurality of circuit board assemblies and connection means for electrically connecting the first and second connectors to form a composite circuit board assembly that is application specific to an information channel with which it is used

5,737,195
NEUTRAL BASE FOR DISCONNECT SWITCH AND METHOD OF ASSEMBLING SAME

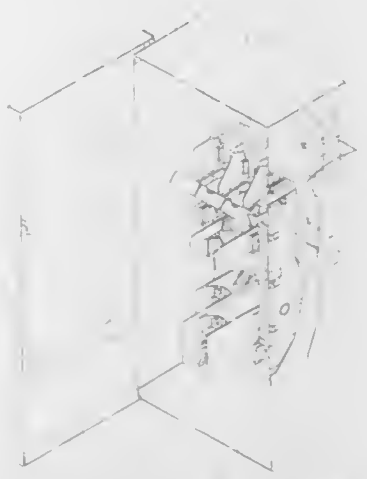
Terry Allen Cassity, Paris; David Emerson Greer, and Jonathan Hans Van Camp, both of Lexington, all of Ky., assignors to Square D Company, Palatine, Ill.

Division of Ser. No. 359,977, Dec. 20, 1994, Pat. No. 5,609,245. This application Jun. 7, 1995, Ser. No. 476,952

Int. Cl. H01H *9/00*

U.S. Cl. 361—823 **20 Claims**

1. A neutral base module for an interior assembly of an electrical distribution device having a plurality of modules, the neutral base module connecting the electrical distribution device to a circuit having at least one phase, the neutral base module comprising:
a generally rectangular body having a mounting surface



means for demountably securing the body to at least one adjacent module of the interior assembly, the means being manually operated and integrally formed with the body
a terminal for making an electrical connection, the terminal having a face for abutting the mounting surface of the body
an electrically insulating shield having sufficient size to substantially isolate the body from the adjacent module of the interior assembly, the shield abutting the body and terminal; and,
means for releasably retaining the terminal abutting the mounting surface and the shield between the body and the adjacent module, the retaining means being integrally formed with the body

5,737,196
ELECTRICAL POWER GENERATING SYSTEM PRODUCING ALTERNATING AND DIRECT CURRENT

Daniel L. Hughes, Rockford, and Thomas S. Latos, Huntley, both of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Aug. 12, 1996, Ser. No. 695,445

Int. Cl.^{6} H02M *5/45*

U.S. Cl. 363—8 **20 Claims**

1. An electrical power generating system comprising:
an inverter, responsive to a DC potential, for producing a fundamental frequency alternating current output including harmonics,
a first harmonic suppression filter, coupled to the alternating current output, for producing an output having reduced harmonics compared to the harmonics in the output of the inverter,
a transformer having a primary coupled to the output of the first harmonic filter, a first secondary for outputting the alternating current at the fundamental frequency and a second secondary for outputting the alternating current at the fundamental frequency;
a first fullwave rectifier coupled to an output of the second secondary for producing direct current including harmonics produced by fullwave rectification; and
a second harmonic suppression filter coupled to the output of the fullwave rectifier for outputting an output direct current having reduced harmonics compared to the harmonics in the output of the fullwave rectifier.

5,737,197
HIGH VOLTAGE POWER SUPPLY HAVING MULTIPLE HIGH VOLTAGE GENERATORS

Igor A. Krichtafovitch, Kirkland, and Irina Z. Sinitsyna, Bothell, both of Wash., assignors to International Power Group, Inc., Seattle, Wash.

Continoation-in-part of Ser. No. 416,997, Apr. 5, 1995, Pat. No. 5,629,844. This application Apr. 5, 1996, Ser. No. 628,876

Int. Cl.^{6} H02M *3/335*

U.S. Cl. 363—17 **27 Claims**

1. A high voltage power supply for generating a controlled current in a load having component parts, comprising:
(a) a timing generator producing a repetitive timing signal, wherein during each repetition of the timing signal the power supply cycles through a driving mode and a tracking mode;
(b) a first voltage generator connected to the timing generator and producing a tracking voltage during the tracking mode;
(c) a second voltage generator connected to the timing generator and coupled in cascode with the first voltage generator, the second voltage generator producing a base voltage during the driving mode and the tracking mode; and
(d) a third voltage generator connected to the timing generator and coupled in cascode with the first and second voltage generators, the third voltage generator producing an accelerator voltage during the driving mode, wherein an output voltage produced by the power supply is equal to the sum of the tracking voltage, the base voltage, and the accelerator voltage produced by the first voltage generator, the second voltage generator, and the third voltage generator so that during the driving mode the output voltage from the power supply induces an increasing voltage in the load to raise the current in the load to a desired level, and during the tracking mode the output voltage from the power supply is maintained at the level of the voltage across a component part of the load so as to maintain the current in the load at substantially the desired level.

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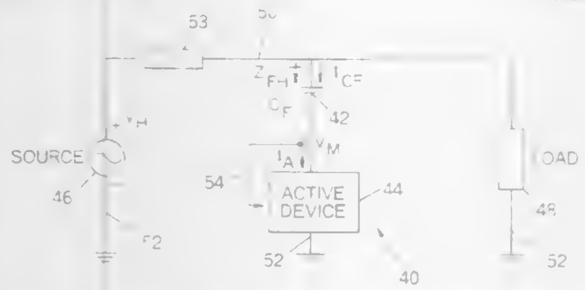
5,737,198
HYBRID ACTIVE POWER FILTER WITH PROGRAMMED IMPEDANCE CHARACTERISTICS

Einar V. Larsen, Charlton, and Robert Delmerico, Clifton Park, both of N.Y., assignors to General Electric Company, New York, N.Y.

Filed Nov. 26, 1996, Ser. No. 756,871

Int. Cl.^{6} H02M 1/12

U.S. Cl. 363—40 17 Claims



1. A hybrid active filter for use in a power system, the power system having a source supplying power to a load, comprising

a passive device;

an active device connected to said passive device, said passive and active devices connected to the power system, and

a controller for controlling impedance of said active device over selected frequencies in accordance with a control algorithm which is responsive to a sensed signal, said sensed signal being selected from only non-power system sensed signals.

5,737,199
FAIL CHECK DEVICE AND METHOD FOR SWITCHING SIGNAL LINES

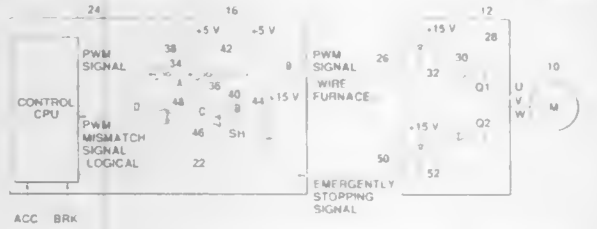
Akihiko Kanamori, Okazaki, and Shinji Kogure, Toyota, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 10, 1996, Ser. No. 677,836

Claims priority, application Japan, Aug. 31, 1995, 7-223431

Int. Cl.^{6} H02H 7/122

U.S. Cl. 363—56 4 Claims



1. A fail check device provided between switching elements and a control device producing switching signals, the fail check device comprising

output signal detection gates coupled between said control device and said switching elements for receiving the switching signals from said control device and for applying the received switching signals to said switching elements via switching signal lines, and

fault detection gates coupled to said output signal detection gates for detecting, based on the switching signals received by said output signal detection gates and the switching signals applied by said output signal detection gates, the possibility of occurrence of a fault relating to said switching signal lines, the fail check device thereby detecting the possibility of a fault relating to said switching signal lines while applying said switching signals to said switching elements through said switching signal lines.

5,737,200
SEMICONDUCTOR DEVICE PROTECTION METHOD

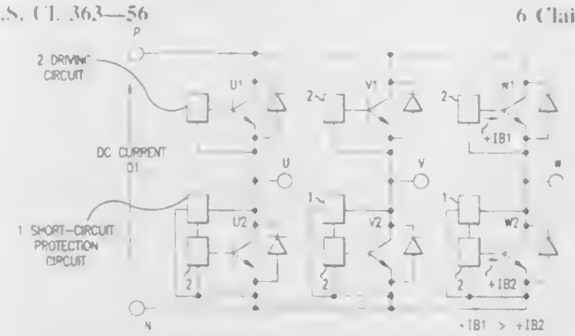
Shuji Miyashita, and Ayumi Fujibayashi, both of Nagano, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jan. 3, 1997, Ser. No. 779,156

Claims priority, application Japan, Jan. 10, 1996, 8-001920

Int. Cl.^{6} H02H 7/122

U.S. Cl. 363—56 6 Claims



1. A method of protection of semiconductor devices for a power converter including pairs of semiconductor devices operating as switching elements, each pair having upper and lower arms and being connected in series between electrodes of a DC power supply, said converter switching the pairs of the semiconductor devices to convert power from said DC power supply to obtain converted power from a connection between the semiconductor devices in each pair, said method comprising

setting magnitudes of drive signals or drive-circuit constants for the semiconductor devices of the upper and lower arms in each pair to be different from each other, and

providing protection means in only one of the semiconductor devices in the pair of the upper and lower arms, said protection means monitoring voltage between main terminals of the semiconductor device where the protection means is installed and controlling a drive signal for said semiconductor device to prevent passage of an excessive current therethrough.

5,737,201
ELECTRONIC DEVICE FOR ELECTRICAL ENERGY CONVERSION BETWEEN A VOLTAGE SOURCE AND A CURRENT SOURCE BY MEANS OF CONTROLLABLE SWITCHING CELLS

Thierry Meynard, 57, rue Labat de Savignac, 31400 Toulouse, and Henri Foch, 78, avenue Maignan, 31200 Toulouse, both of France

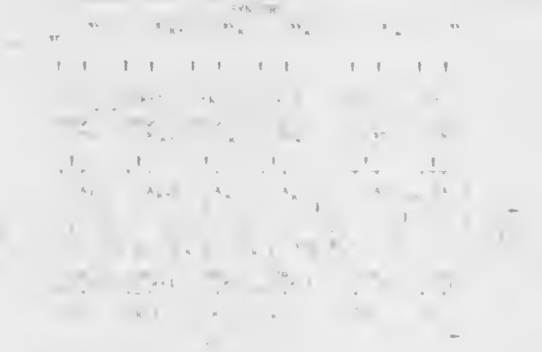
PCT No. PCT/FR92/00652, § 371 Date Mar. 24, 1993, § 102(e) Date Mar. 24, 1993, PCT Pub. No. WO93/02501, PCT Pub. Date Feb. 4, 1993

PCT Filed Jul. 8, 1992, Ser. No. 30,165

Claims priority, application France, Jul. 25, 1991, 91 09582

Int. Cl.^{6} H02M 3/18

U.S. Cl. 363—60 20 Claims



1. An electronic device for the conversion of electric energy between a voltage source and a current source, comprising

n controllable switching cells (CL_1, ..., CL_k, ..., CL_n) each comprising two switches (T_{Ak}, T_{Bk}) with n≥2, each cell being identified by a rank k such that 1≤k≤n,

a control logic (LG_k) connected to each switching cell (CL_k) for delivering thereto control signals (sc_k) of a frequency F_c for assuring opposed switchings of the two switches of the cell,

control means (GP) for delivering to said control logic a reference signal (sr) as a function of the energy conversion desired,

-n- homologous switches of the cells being connected in series and the -n- other homologous switches themselves being connected in series, in such a manner as to provide two symmetrical series, termed series A and series B, in which the two switches (T_{Ak}, T_{Bk}) of a given cell occupy symmetrical positions with respect to the source of current,

the two series A and B of switches being interconnected by one common extremity to said current source (J), and by the other common extremity to said voltage source (E), the rank k associated with the cells increasing from the cell (CL_1) in which the switches are directly connected to the current source (k=1) to the cell (CL_n) in which the switches are directly connected to the voltage source (k=n),

said conversion device being characterized in that,

capacitors (c_k) associated with the switching cells (CL_k) in such a manner that the symmetrical terminals of the two switches (T_{Ak}, T_{Bk}) of each cell are connected to each other through a capacitor for maintaining between said terminals a voltage, termed a load voltage of the capacitor, and assuring an alternate circulation of current from one switch to another switch of the cell,

the control logics (LG_k) of the -n- switching cells are synchronized for distributing the control signals (sc_k) over time such that the current circulating in each capacitor (c_k) has, over a period of time $1/F_c$, an average value essentially proportional to the variation of the voltage at the terminals of the voltage source over that same period of time, and in particular essentially zero for a continuous voltage source.

5,737,202
REDUNDANT POWER SUPPLY SYSTEM

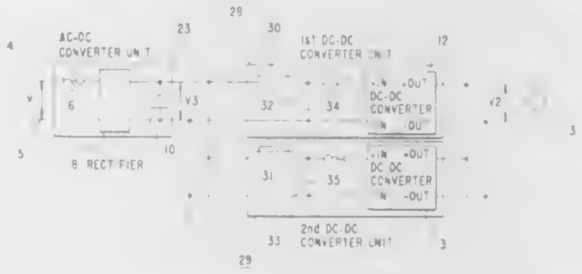
Hiroshi Shimamori, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 6, 1995, Ser. No. 498,910

Claims priority, application Japan, Nov. 14, 1994, 6-279367

Int. Cl.^{6} H02M 7/537

U.S. Cl. 363—65 13 Claims



1. A power supply system for feeding a load with a DC output, comprising

an AC-DC converter for converting an AC voltage to a DC voltage, said AC-DC converter including a rectifier for rectifying the AC voltage and a first capacitor for smoothing a rectified output from said rectifier; and

a plurality of power units connected in parallel to an output side of said AC-DC converter,

wherein each of said power units includes a power source for feeding said load with a stable DC output corresponding to said DC voltage, an interruption means connected to an input side of said power source for cutting off a first input line, a coil connected in series to said interruption means and a second capacitor connected between the first input line and a second input line, said second capacitor being disposed between said interruption means and said coil, said second input line being connected between the output side of said AC-DC converter and the input side of said power source, said coil being inserted in the first input line between said first capacitor of said AC-DC converter and said interruption means.

5,737,203
CONTROLLED-K RESONATING TRANSFORMER

Alfred Henry Barrett, Carmel, Ind., assignor to Delco Electronics Corp., Kokomo, Ind.

Filed Oct. 3, 1994, Ser. No. 316,969

Int. Cl.^{6} H02M 5/10

U.S. Cl. 363—75 14 Claims

13. A multiple output power converter, comprising:

a source of AC power having a constant frequency, and

a plurality of LC resonant circuits connected to said AC source, each said LC resonant circuit comprising

a resonant capacitor,

a transformer having a magnetic core, a primary winding wound on a first portion of said core and connected in series with said resonant capacitor, a secondary winding wound on a second portion of said core and loosely coupled with said primary winding, and a control winding wound on said core, said primary, secondary and control windings arranged so that substantially all of the magnetic flux generated by said control winding flows through said first and second portions of said core, said control winding saturating said first and second portions of said core in response to the application of direct current thereto, and

an output,

whereby each of said outputs of said LC resonant circuits is independently regulated by application of direct current to said respective control winding.

5,737,204
METHOD AND APPARATUS FOR INTERFACING BATTERY BACKUP TO POWER FACTOR CORRECTION FRONT END FOR MAINTAINING POWER

Alan E. Brown, Georgetown, Tex., assignor to Dell U.S.A. L.P., Austin, Tex.

Filed Oct. 12, 1995, Ser. No. 542,150

Int. Cl.^{6} H02M 5/42

U.S. Cl. 363—89 25 Claims

1. A battery backup system for a first power converter that provides a regulated DC input signal to a second power converter, the first power converter receiving an AC power signal from an AC

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source and including a bridge rectifier for converting the AC power signal to a pulsing DC signal, said battery backup system comprising:
- a power factor correction circuit for receiving the pulsing DC signal that provides the regulated DC input signal;
- a detection circuit for detecting the AC power signal;
- a backup battery for providing power to the second power converter when the AC power signal is absent; and
- a switch circuit coupled to said detection circuit, to said power factor correction circuit and to said battery for coupling said battery to the input of said power factor correction circuit when the AC power signal is absent and for otherwise disconnecting said battery.

5,737,205
SEMICONDUCTOR STATIC ELECTRIC POWER CONVERTER OPTIMIZED FOR OPERATION IN ZERO-VOLTAGE MODE

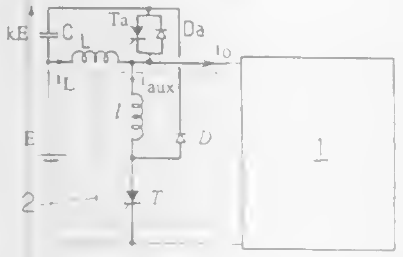
Hervé Pouliquen, Clamart; François Forest, Saint Clement; Khaled Elloumi, Clamart, and Wissam Melhem, Cachan Cedex, all of France, assignors to Electricite De France Service National, Paris, France

Filed Jun. 21, 1996, Ser. No. 667,309

Claims priority, application France, Jun. 29, 1995, 95 07840

Int. Cl.^{6} H02M *3/24*

U.S. Cl. 363—96 **11 Claims**



1. A method of controlling a semiconductor static electric power converter, connected to a load and to a DC voltage source E forming a DC voltage input, operating with soft switching in a zero-voltage mode and controlled with pulse width modulation, said converter including converter means having at least one branch of controllable bidirectional current switches that switch in a zero-voltage mode, having an input and having a midpoint connected to the load, said converter further including, in series between said DC voltage input and said converter means, an interface comprising an inductor having a ripple current flowing therethrough, a capacitor connected in parallel with said inductor and having a voltage kE thereacross so that at least one branch has an input terminal voltage window of amplitude (1+k)E, an auxiliary controllable bidirectional current switch that switches in a zero-voltage mode, and control means for said switches providing that:
- when the ripple current through the inductor of said interface is equal to a minimum value relative to a mean value thereof the input terminal voltage window of amplitude (1+k)E of the at least one branch of the converter is interrupted by switching off the auxiliary controllable switch so as to enable the controllable bidirectional current switches of the at least one converter branch to trigger under zero voltage, and
- when the current flowing through the inductor of said interface is equal to a maximum value relative to said mean value a short circuit stage provided by the at least one branch is interrupted and generating of the voltage window of amplitude (1+k)E is initiated by switching off one of said controllable bidirectional current switches in the at least one branch thereby enabling the auxiliary controllable switch of the interface to be triggered under zero voltage

said method further comprising:
- immediately before the end of the voltage window of amplitude (1+k)E, a positive current is caused to flow through the auxiliary controllable switch so as to compensate, at least in part, for current flow at said input of the converter means, said current flow being negative when the ripple current in the inductor is equal to said minimum value, so as to reduce in amplitude the ripple current required for switching off said auxiliary controllable switch, and
- immediately before said short circuit stage ends, a positive current is caused to flow through the controllable switches of the at least one branch of the converter means when the ripple current in the inductor is equal to said maximum value;

thereby reducing in amplitude the ripple current required in said inductor for enabling the auxiliary controllable switch and the controllable switches of the at least one branch of the converter means to operate in said zero-voltage mode.

5,737,206
CONTROL SYSTEM FOR POWER CONVERSION SYSTEM

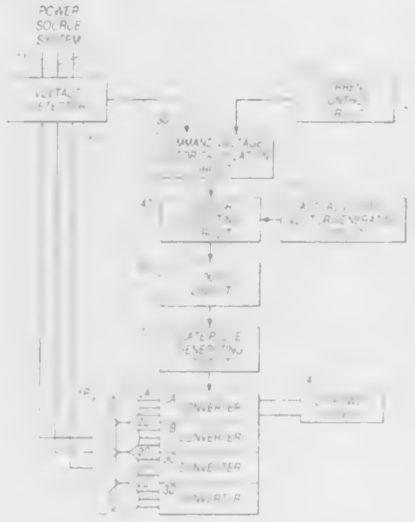
Hajime Yamamoto, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 23, 1996, Ser. No. 771,841

Claims priority, application Japan, Dec. 25, 1995, 7-336252

Int. Cl.^{6} H02M *7/48*

U.S. Cl. 363—96 **12 Claims**



1. A control system for a power conversion system composed of a plurality of unit converters and a transformer for connecting AC outputs of said unit converters in series, each of said unit converters composed of a plurality of bridge connected self-turn-off devices for converting DC power into AC power, each of AC sides of said unit converters connected to one of secondary windings of said transformer, respectively, DC sides of said unit converters connected in parallel to each other, respectively, and a primary winding of said transformer adapted for connecting to an AC power system, said control system comprising:
- means for detecting an AC system voltage at said primary winding of said transformer;
- means for generating a command voltage vector of a voltage output from said power conversion system at said primary winding of said transformer based on said AC system voltage;
- means for generating a plurality of actual voltage vectors of voltages output from said power conversion system at said primary winding of said transformer;
- means for selecting one of said actual voltage vectors that is the closest to said command voltage vector to generate as a selected actual voltage vector;
- means for calculating a plurality of voltage vectors based on said selected actual voltage vector, each of said voltage vectors allocated to one of said unit converters, respectively, and output from one of said unit converters, respectively, and for generating a plurality of ON/OFF commands for said self-turn-off devices, each determined by one of said voltage vectors, respectively, and
- means for generating gate pulses to said self-turn-off devices of said unit converters based on said ON/OFF commands,

whereby to control said power conversion system so as to generate said selected actual voltage vector that is the closest to said command voltage vector at said primary winding of said transformer.

5,737,207
POWER SUPPLY

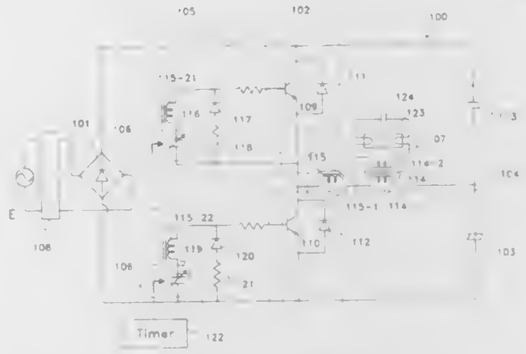
Kazuyuki Uratani, Tokyo; Noriyuki Kitamura, Kanagawa; Tsutomu Kakitani, Yokosuka; Yuji Takahashi, Yokosuka; Keiichi Shimizu, Yokosuka, and Kazutoshi Mita, Yokosuka, all of Japan, assignors to Toshiba Lighting and Technology Corporation, Tokyo, Japan

Filed Mar. 28, 1996, Ser. No. 624,319

Claims priority, application Japan, Mar. 29, 1995, 7-071532; Mar. 29, 1995, 7-072169; Mar. 30, 1995, 7-074043; Mar. 31, 1995, 7-076939; Mar. 31, 1995, 7-076959; Sep. 29, 1995, 7-254334; Sep. 29, 1995, 7-254343; Mar. 11, 1996, 8-053563

Int. Cl.^{6} H02M *7/537*

U.S. Cl. 363—132 **56 Claims**



1. A power supply apparatus comprising:
- a rectifier for rectifying an AC power and outputting a non-smoothed DC power;
- a switching circuit including first and second switching devices connected in series with each other, the switching devices alternately shutting off output of the rectifier at a high frequency;
- a first capacitor coupled to the first switching device and the second switching device such that the first capacitor is supplied with a charging current through the first switching device from the rectifier when the first switching device is closed and discharges through the second switching device when the second switching device is closed for smoothing output of the rectifier;
- a series resonance circuit including a second capacitor and an inductor provided in a path which flows charging and discharging currents of the first capacitor so that the voltage across the first capacitor becomes lower by the resonance voltage than that of the output of the rectifier;
- a feedback circuit operatively coupled to the switching devices, the feedback circuit including a saturatable current transformer having a primary winding and secondary winding, the primary winding being provided at a path which at least flows the resonant current, the secondary winding being coupled to the switching devices for controlling the operation of the switching devices;
- a control means for varying the saturation time of the saturatable current transformer; and
- an output means for outputting the voltage generated by the series resonance circuit.

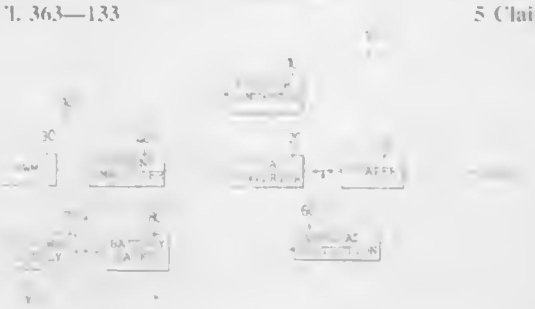
5,737,208
MODULAR UNINTERRUPTABLE POWER SUPPLY SYSTEM

Sung-chin Chen, 1st Fl., No. 19, Lane 456 Chilin Rd., Taipei, Taiwan

Filed May 24, 1996, Ser. No. 653,129

Int. Cl.^{6} H02M *7/538*

U.S. Cl. 363—133 **5 Claims**



1. An uninterruptable power supply module, comprising:
- a DC power supply having an output for outputting a first DC voltage signal,
- a battery backup module in parallel connection to the output of the DC power supply and having an identical voltage level to that of the first DC voltage signal,
- boost converter means having an input coupled to the first DC voltage signal for converting said first DC voltage signal to a second DC voltage signal,
- DC/AC conversion means having an input coupled to the second DC voltage signal from the boost converter means and an output for generating a pulse-width-modulated voltage signal in response to a variable duty cycle oscillation signal,
- pulse width modulator means having an output coupled to said DC/AC conversion means for generating said variable duty cycle oscillation signal;
- shaping means having an input coupled to the pulse-width-modulated voltage signal from the DC/AC conversion means and an output for supplying a sine voltage signal, and
- overload protection means having a first input coupled to the DC/AC conversion means for receiving a detection signal therefrom and a second input coupled to the battery backup module for receiving a reference signal therefrom and generating a trip signal to disconnect the input of the shaping means when a voltage level of the detection signal from the DC/AC conversion means is higher than a voltage level of the reference signal.

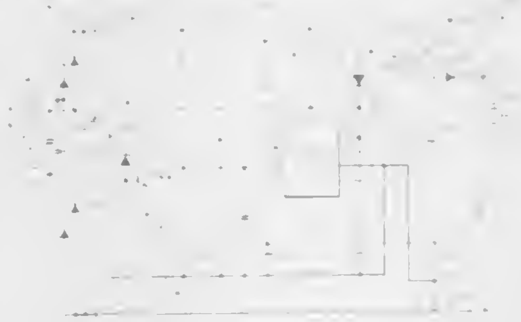
5,737,209
POWER QUALITY AND DEMAND MANAGEMENT MODULE

Carlile Stevens, P.O. Box 8784, Horseshoe Bay, Tex. 78654

Filed Oct. 16, 1996, Ser. No. 751,966

Int. Cl.^{6} H02M *7/04*; H02J *1/12*, *7/00*

U.S. Cl. 363—143 **14 Claims**



1. A power quality correction module comprising:
- energy consuming equipment having an AC power supply with an AC line input and a normal storage capacitor

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- a source of AC line power:
- a rectification means connected to said source of AC line power to convert AC line power to an unfiltered pulsating direct current power:
- a regulation and conversion circuit coupled to said rectification means to convert said unfiltered pulsating direct current power to a filtered and regulated direct current power output:
- said regulation and conversion circuit of the boost type having a storage inductor and which produces a voltage variation of said unfiltered pulsating direct current rent power to modify said regulation and conversion circuit so that the current drawn from said unfiltered direct current power is in phase with, and directly proportional to, the voltage of said unfiltered pulsating direct current power;
- a switching device coupled to one end of said regulation and conversion device and having a current sensing resistor means,
- a first capacitor connected at the output of said rectification means to provide high frequency bypass and transient noise protection without providing any filtering of said output of said rectification means;
- a second capacitor connected at the output of said regulation and conversion circuit to maintain an output voltage in the event of no load connection and to provide a voltage feedback for regulation:
- driving logic connected to said switching device operating in response to the feedback of a combination of the voltage drop across said current sensing resistor means indicating the amount of current flowing in said switching device and storage inductor, and the voltage across said second capacitor at the output of said regulation and conversion circuit such that the switching of said switching device is modulated in an "on" and "off" condition at a high frequency to provide said regulated output,
- a connection means from the unfiltered pulsating direct power to modulate said driving logic to allow for the said filtered and regulated direct current power output to be connected to an AC line input of a power supply for said energy consuming equipment as an alternative means of supplying power to said energy consuming equipment whereby said normal storage capacitor incorporated in said power supply supplies a voltage storage means to maintain a continuous direct current during the low power portion of a line frequency cycle of line power provided by said AC line power.

5,737,210

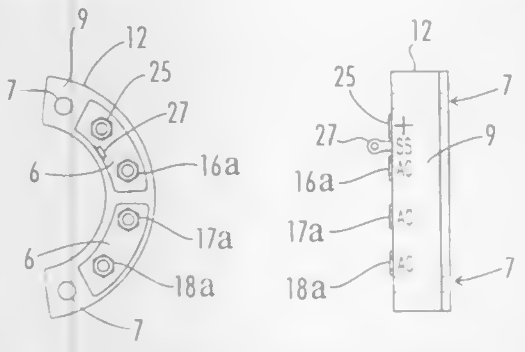
BRIDGE RECTIFIER CONFIGURATION AND MOUNTING FOR SUPPLYING EXCITER CURRENT IN AN AC GENERATOR

Manoj M. Barahia, Manchester, Mo., assignor to MagneTek, Inc., Nashville, Tenn.

Filed Apr. 30, 1996, Ser. No. 640,148

Int. Cl.^{6} H02M *1/00*, H09K *11/00*

U.S. Cl. 363—144 **10 Claims**



1. A rectifier module assembly for use in conjunction with a rotating field AC generator, the generator having a shaft, a main rotor mounted on the shaft, a main field wound on the main rotor, and a exciter rotor including an exciter coil wound on the rotor, the exciter rotor mounted on the shaft, comprising:

- a. a first rectifier module including a first thermally conductive mounting plate formed into a crescent shaped, a first rectifier circuit attached to the first mounting plate, at least one rectifier input terminal attached to the first mounting plate, and a recitier positive output terminal attached to the first, mounting plate,
- b. a second rectifier module including a second thermally conductive mounting plate formed into crescent shape, a second rectifier circuit attached to the second mounting plate, at least one rectifier input terminal attached to the second mounting plate, and a rectifier negative output terminal attached to the second mounting plate;
- c. first circuit connecting means to electrically connect the first and second rectifier circuits to each other, second circuit connecting means to connect the positive and negative rectifier output terminals to the generator main field, and third circuit connecting means to connect the rectifier input terminals to the exciter coil; and
- d. the first and second mounting plates mechanically attached to and in direct thermal contact with the exciter rotor and arranged in opposed positions to form a substantially circular assembly around the shaft whereby the exciter rotor acts as a heat sink for the rectifier module assembly.

5,737,211

LINEAR-MOTION CONTACTLESS POWER SUPPLY SYSTEM

Junji Hirai, and Yoshiji Hiraga, both of Fukuoka, Japan, assignors to Kabushiki Kaisha Yaskawa Denki, Kitakyushu, Japan

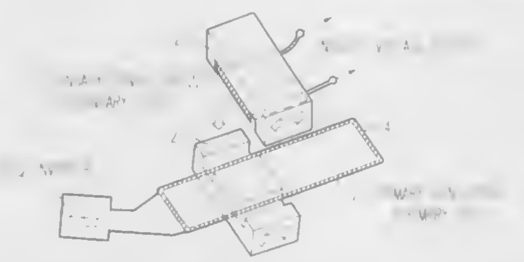
PCT No. PCT/JP95/00225, § 371 Date Aug. 19, 1996, § 102(e) Date Aug. 19, 1996, PCT Pub. No. WO95/22849, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 17, 1995, Ser. No. 693,251

Claims priority, application Japan, Feb. 21, 1994, 6-047856; Feb. 24, 1994, 6-053228

Int. Cl.^{6} H02M *1/00*; H01F *21/06*

U.S. Cl. 363—144 **5 Claims**



1. A linear-motion contactless power supply device including a stationary unit and a movable unit movable along the longitudinal direction of said stationary unit for supplying electrical power from said stationary unit to said movable unit without direct contact:

- said stationary unit being a cylindrical primary conductor to which a high-frequency alternating current is supplied:
- said movable unit being provided with a secondary conductor which is isolated from said primary conductor and which is arranged coaxially with said primary conductor, said movable unit also having a high-frequency toroidal core which is arranged so as to cover said secondary conductor from the outside, and
- slidable support means of a ceramic bearing structure interposed between said primary and secondary conductors for sliding said secondary conductor in the longitudinal direction of and with respect to said primary conductor, electrically insulating between said primary and second conductors and also preventing sagging in the gravitational direction.

5,737,212

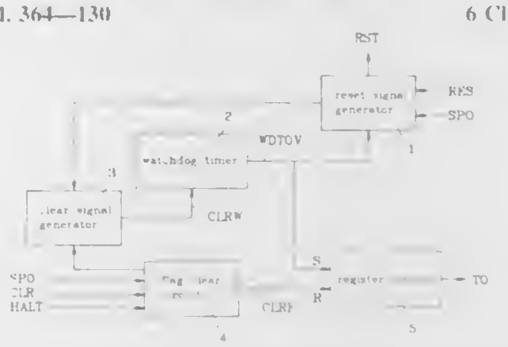
FLAG SETTING CIRCUIT FOR MICROCONTROLLER

I Liang Fang; Kuo Cheng Yu, and Jason Chen, all of Hsinchu, Taiwan, assignors to Industrial Technology Research Institute

Filed Dec. 4, 1995, Ser. No. 567,146

Int. Cl.^{6} G05B *19/048*

U.S. Cl. 364—130 **6 Claims**



1. A flag setting circuit for a microcontroller for setting (a) a HALT mode flag and (b) a watchdog timer overflow flag by using a system power-on signal, an external reset signal, a watchdog timer overflow signal inside said microcontroller, an instruction for clearing said watchdog timer (i.e., a clear instruction control signal), a HALT mode instruction, and a wake-up signal; said flag setting circuit for setting said watchdog timer overflow flag including:

- a watchdog timer, which is configured such that, when counting numbers, and when no clear instruction control signal to said watchdog timer is executed, but said watchdog timer has an overflow state, said watchdog timer will send out an overflow signal via its output point;
- a first flag clear circuit, having input points able to receive said system power-on signal, said clear instruction control signal for clearing said watchdog timer, and said HALT mode instruction provided by said microcontroller system respectively, so as to generate a flag clear signal;
- a clear signal generator, which has one input point for receiving an output signal from said flag clear circuit, and an output point for sending out said clear instruction control signal to said watchdog timer for clear the same;
- a first register circuit, which has an input point connected to said output point of said watchdog to receive said watchdog overflow signal from said watchdog timer, and another input point connected to receive said flag clear signal from said first flag clear circuit, said first register circuit also has an output point for sending out a watchdog timer overflow flag;
- a reset signal generator connected to said clear signal generator; said reset signal generator including two input points to receive an external reset signal and a system power-on signal, respectively, and an output point for sending out an internal reset signal to said clear signal generator, said reset signal generator further including another input point to receive said watchdog timer overflow signal from said watchdog timer, whereby, upon receiving said watchdog timer overflow signal from said watchdog timer, an internal reset signal will be generated for resetting a system hardware such that after said resetting, a judgment can be make, by means of examining said watchdog timer overflow flag, as to whether said system resetting is caused by using an external reset signal, or by using said watchdog timer overflow inside said microcontroller, and
- said flag setting circuit for setting said HALT mode flag including:
  - a HALT mode discerning circuit which includes two input points connected respectively to receive said wake up signal inside said microcontroller and said HALT mode instruction, said HALT mode discerning circuit also includes means for generating a HALT mode control signal to set said microcontroller system to a HALT mode,
  - a second flag clear circuit which includes two input points connected respectively to receive said system power on signal and said clear instruction control signal which will be used for clearing said watchdog timer, and an output point for sending out a flag clear signal.
  - a second register circuit, which includes an input point connected to said flag clear circuit to receive a flag clear signal for clearing a HALT mode flag set, and an output point for sending out a HALT mode flag.

5,737,213

CONTROLLING SYSTEM FOR DETERMINING A SYSTEM DEVIATION

Volker Hallwirth, St. Georgen, Germany, assignor to Siemens Aktiengesellschaft, Germany

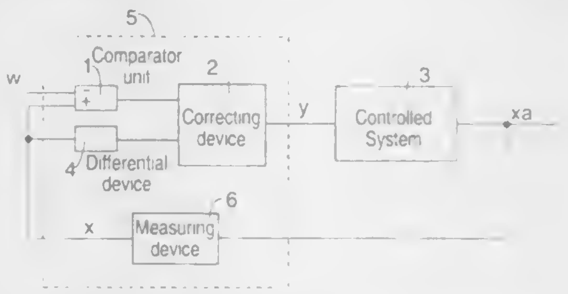
PCT No. PCT/DE94/00575, § 371 Date Nov. 27, 1995, § 102(e) Date Nov. 27, 1995, PCT Pub. No. WO94/28470, PCT Pub. Date Dec. 8, 1994

PCT Filed May 18, 1994, Ser. No. 553,572

Claims priority, application Germany, May 26, 1993, 43 17 538.4

Int. Cl.^{6} G05B *13/02*

U.S. Cl. 364—140 **2 Claims**



1. A controlling system, comprising.

- (a) a comparator unit which determines a system deviation from a reference variable and from a controlled variable;
- (b) a differential device which generates a difference quotient from said controlled variable, and
- (c) a correcting device, arranged downstream from said comparator unit, which determines a manipulated variable and is supplied with said difference quotient, wherein the correcting device accesses a state plane exhibiting a plurality of states and preselects the plurality of states,
- wherein the correcting device allocates coordinates for each state to a specifiable range of system deviation values and difference quotient values,
- wherein the correcting device selects a sequential state from the plurality of states as a function of the coordinates and an instantaneous state, and
- wherein the correcting device acts on the manipulated variable as a function of the sequential state

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5,737,214

METHOD FOR CONTROLLING A FUNCTION UNIT WITH A STEERING AND CONTROL DEVICE

Christian Rähder, Lückendorf, and Jens-Uwe Müller, Olbersdorf, both of Germany, assignors to ABB Patent GmbH, Mannheim, Germany

Continuation-in-part of Ser. No. 74,205, Jun. 9, 1993, abandoned. This application Nov. 23, 1994, Ser. No. 344,487

Int. Cl.^{6} G05B *13/02*

U.S. Cl. 364—148 **16 Claims**

1. A method for steering and controlling a functional unit with steering and control apparatus,

- the steering and control apparatus including a plurality equal to n of normalizing units, each normalizing unit having an input for receiving a respective input variable and being operative for generating a respective normalized variable (x), an analytic controller having a plurality of inputs being equal to at least the plurality n of normalizing units, for receiving the normalized variables, the analytic controller being operative for analytically combining the normalized variables in accordance with a plurality of knowledge based control rules to form an actuating variable, wherein the knowledge based

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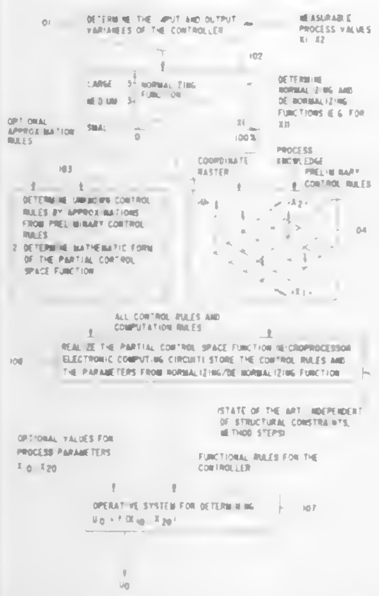
DETERMINE THE INPUT AND OUTPUT VARIABLES OF THE CONTROLLER
MEASURABLE PROCESS VALUES X1 X2
102
LARGE
MEDIUM
SMALL
NORMALIZING FUNCTION
DETERMINE NORMALIZING AND DE NORMALIZING FUNCTIONS E.G. FOR X(I)
0
100%
OPTIONAL APPROXIMATION RULES
COORDINATE RASTER
PROCESS KNOWLEDGE
PRELIMINARY CONTROL RULES
103
DETERMINE UNKNOWN CONTROL RULES BY APPROXIMATIONS FROM PRELIMINARY CONTROL RULES
2 DETERMINE MATHEMATIC FORM OF THE PARTIAL CONTROL SPACE FUNCTION
104
ALL CONTROL RULES AND COMPUTATION RULES
REALIZE THE PARTIAL CONTROL SPACE FUNCTION MICROPROCESSOR ELECTRONIC COMPUTING CIRCUIT STORE THE CONTROL RULES AND THE PARAMETERS FROM NORMALIZING/DE NORMALIZING FUNCTION
106
STATE OF THE ART INDEPENDENT OF STRUCTURAL CONSTRAINTS, METHOD STEPS
OPTIONAL VALUES FOR PROCESS PARAMETERS
FUNCTIONAL RULES FOR THE CONTROLLER
OPERATIVE SYSTEM FOR DETERMINING
107
u0

control rules include steering and control variables (u), which are assigned point-wise to the selected normalized variables (x); and a function unit having an input receiving the actuating variable, the function unit being operative for generating a process-control variable,

the method which comprises the steps of

defining the knowledge-based control rules as a plurality of continuous mathematical functions, wherein the continuous mathematical functions include at least one continuous linear mathematical function;

forming an (n+1) dimensional control space subdivided into partial control spaces wherein for subdividing the control space the value range of the normalized variables (x), and the value range of the control variables (u) are divided into a selected number of partial functions, said partial functions forming a grid defining physical and/or abstract values and analytically combining the plurality of the continuous mathematical functions to form the process-control variable

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5,737,215

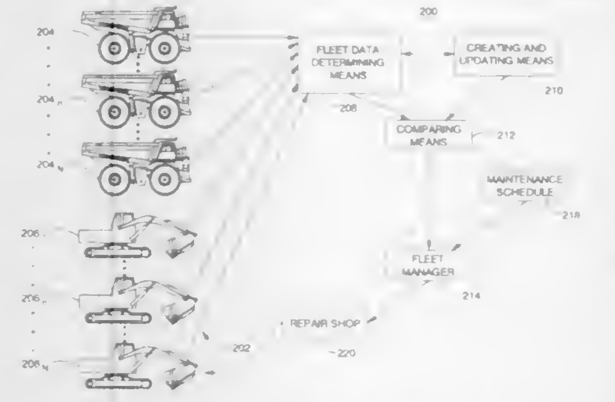
METHOD AND APPARATUS FOR COMPARING MACHINES IN FLEET

David R. Schricker, Dunlap; Jagannathan Sarangapani; David G. Young, both of Peoria, and Satish M. Shetty, East Peoria, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Dec. 13, 1995, Ser. No. 573,214

Int. Cl. G06F *19/00*

U.S. Cl. 364—149 **5 Claims**



1. An apparatus for comparing one machine in a fleet of machines comprising

means for sensing a plurality of characteristics of each machine in the fleet and responsively determining a set of fleet data, said set of fleet data includes a plurality of parameters of each machine, each parameter being associated with a time interval and time window, wherein values of said plurality of parameters are stored in a database in response to the associated time interval and time window,

means responsive to said set of fleet data for determining a set of reference machine data; and,

means for comparing data for the machine with said reference machine data and responsively producing a deviation signal.

5,737,216

ROTARY BODY DRIVE CONTROL SYSTEM

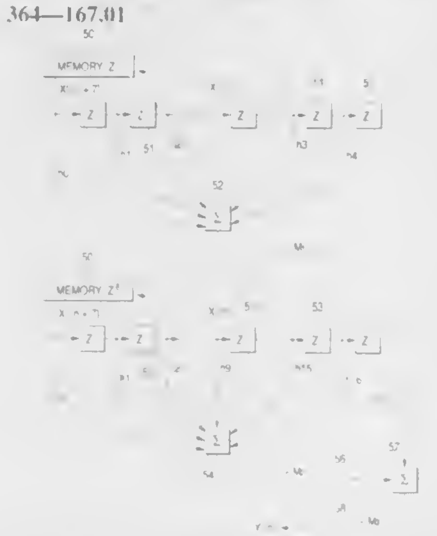
Norio Hnkari, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1995, Ser. No. 422,249

Claims priority, application Japan, May 9, 1994, 6-095318

Int. Cl.^{6} G05B *19/18*

U.S. Cl. 364—167.01 **6 Claims**



1. A rotary body drive control system for controlling the drive of a rotary body used in an image device, comprising:

rotation detecting means for detecting a rotation speed of the rotary body;

dividing means for dividing rotation speed information, detected by said rotation detecting means into segmental information,

storage means for storing the rotation speed information, detected by the rotation detecting means when drive means for driving the rotary body for rotation is turned at a fixed speed, for each of the divided segments of the rotation speed; and

control means for controlling the drive of the rotary body in accordance with corrected rotation speed information that is formed by weighing the rotation speed information of each divided segment stored in the storing means, and averaging the weighted rotation speed information when the image device is operated.

5,737,217

SYSTEM FOR DETECTING AND CONTROLLING THE POSITION OF A MOBILE ROBOT

Masao Nishikawa, and Nobuaki Ozawa, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 23, 1994, Ser. No. 363,497

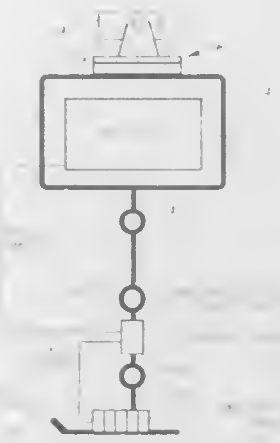
Claims priority, application Japan, Dec. 30, 1993, 5-351150

Int. Cl. B25J *11/00* G05B *19/00*

U.S. Cl. 364—167.01 **28 Claims**

1. A system for controlling locomotion of a legged mobile robot walking in a space with the robot having a foot member having first and second sides, comprising

detecting means for detecting at least one of position and direction of the legged mobile robot with respect to the space,



said detecting means including a plurality of non contact detectors in an array at least at the first side of the foot member of the robot

error determining means for determining an error between a desired value and the detected position direction of the robot

correcting means for correcting a gait or a desired value relative to a gait in response to the determined error, and

a space divider in the space for dividing the space into at least two regions with different attributes, with said non contact detectors generating different signals in response to the attributes of the regions

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5,737,218

SYSTEM WITH GRAPHICAL INTERFACE FOR MODIFYING POSITION OF PROGRAMMABLE FIXTURE DEVICES

Donald D. Demotte, Lake Orion, and James B. Kosmala, Clarkston, both of Mich., assignors to Fanuc Robotics North America, Inc., Auburn Hills, Mich.

Filed Nov. 1, 1995, Ser. No. 551,675

Int. Cl. G05B *19/00*

U.S. Cl. 364—191 **12 Claims**

1. An apparatus for modifying a position of a programmable fixture comprising:

a storage means for storing part program master position information representing a master position for a mechanical unit referenced to a predetermined common reference point,

a manufacturing cell having a least one mechanical unit for engaging components to be assembled said mechanical unit being responsive to a control signal for moving to said master position

an interface means being responsive to a display signal for generating a visual representation of the master position and being responsive to a human operator for generating a command signal identifying software shim position information for moving said mechanical unit from said master position to a new position, said visual representation being a graphic display of a shim utility screen displaying a plurality of parameters defining said operator selected new position of the programmable fixture relative to a current position of the programmable fixture and including a manufacturing cell display area having a graphical representation of a position of said mechanical unit relative to said predetermined common reference point, and

a data processing means connected to said storage means said mechanical unit and said interface means, said data processing means being responsive to said stored part program master position information for generating said display signal and said control signal, said data processing means being responsive to said command signal for generating a software shim modified control signal wherein said mechanical unit is responsive to said modified control signal for moving from said master position to said operator selected new position

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5,737,219

METHOD OF MONITORING DEFORMATION OF GEOLOGICAL STRUCTURES AND PREDICTING GEODYNAMIC EVENTS

Genrich Senekerimovich Vartanyan, Zeleny, Russian Federation, assignor to All-Russian Research Institute for Hydrogeology and Engineering Geology, Zeleny, Russian Federation; Danmarks Geologiske Undersogelse, Copenhagen, Denmark; Geoteknisk Institut, Lyngby, Denmark, and Krüger A/S, Søborg, Denmark

PCT No. PCT/DK93/00337, § 371 Date Apr. 14, 1995, § 102(e) Date Apr. 14, 1995, PCT Pub. No. WO94/09384, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 15, 1993, Ser. No. 416,846

Claims priority, application Denmark, Oct. 15, 1992, 1267/92

Int. Cl. G01V *1/00*

U.S. Cl. 364—421 **9 Claims**

1. A method of monitoring short term deformation changes in a geological space and predicting seismic events such as earthquakes and landslides, in a region wherein it comprises the steps of,

(a) performing at different times (t=0, t=t1) measurements of one or more parameters, X, Y, Z [illegible] in an aquifer in a number of locations throughout the area of the region using a corresponding number of observation wells,

(b) calculating the Relative Deformation Coefficient, e for each location and for each parameter X, Y, Z [illegible] on the basis of the measuring values obtained and using the formulas

[illegible]

wherein

X [illegible], Y [illegible], Z [illegible] are the values of parameter X, Y, Z respectively at time t=0 (reference time),

X [illegible], Y [illegible], Z [illegible] are the values of parameter X, Y, Z respectively at time t=t1,

(c) preparing a contour map of e isolines for each parameter X, Y, Z [illegible] on the basis of the calculated e values and using the contour maps prepared to identify short living deformation structures of potential seismic danger

characterized in that it comprises the additional steps of

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(d) calculating the Relative Deformation Parameter D, for each structure having been identified as being of potential seismic danger, said D parameter being defined as

$$D = \frac{1}{2 S_{ref} e_{ref}} [illegible] \quad (2)$$

wherein

e, e, e, … e and e are e-values of e isolines in the structure,

S, S, S, … S and S are the areas delimited by isolines e, e, e … e and e, respectively,

S_{ref} is a reference area,

e_{ref} is a reference e value, and

n is a positive integer,

(e) calculating the Parameter of Seismic Attack, A_s, defined as

$$A_s = \frac{\partial D_s}{\partial t}, \text{ and} \quad (3)$$

(f) preparing a diagram of D_s vs. t and a diagram of A_s^m vs. t, wherein m is a positive integer, drawing a subsidiary curve E through the top points of the peaks of the latter diagram and using the two resulting diagrams in combination as a basis for predicting the time of a possible future seismic event.

5,737,220
METHOD OF DETERMINING EARTH ELASTIC PARAMETERS IN ANISOTROPIC MEDIA

Douglas E. Miller, Sandy Hook, Conn., assignor to Schlumberger Technology Corporation, Ridgefield, Conn.

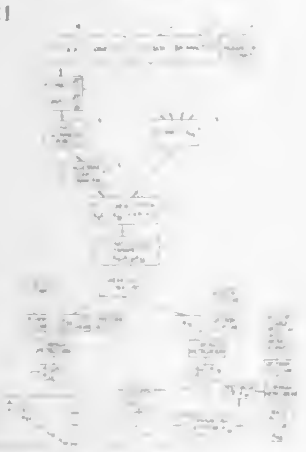
PCT No. PCT/IB94/00153, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO94/29750, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 2, 1994, Ser. No. 557,026

Claims priority, application United Kingdom, Jun. 7, 1993, 9311696

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—421 **11 Claims**



1. A method of characterizing anisotropic properties of an earth medium, comprising the steps of:

a) acquiring phase slowness data which satisfy a Christoffel relationship from seismic measurements of the earth medium,

b) transforming the phase slowness data so as to provide a series of equivalent linear equations which linearize the Christoffel relationship,

c) deriving a solution of the system of linear equations resulting from the transformation, and

d) deriving the elastic properties of the earth medium from the solution.

5,737,221
METHOD FOR DISPENSING DRY GRANULAR MATERIALS

Cloyce Dean Newton, Divernon, Ill., assignor to Ingersoll-Dresser Pump Company, Liberty Corner, N.J.

Continuation of Ser. No. 591,336, Jan. 25, 1996, abandoned, which is a division of Ser. No. 172,367, Dec. 22, 1993, abandoned. This application Mar. 20, 1997, Ser. No. 821,591

Int. Cl.⁶ B65D *83/06*

U.S. Cl. 364—424.07 **4 Claims**

1. A method for dispensing dry granular material from a moving agricultural implement, said implement having a main control unit and a plurality of sub-controllers, one for each of a plurality of dispensing mechanisms, each for dispensing dry granular material directly to a crop row, comprising the steps of:

determining a desired dispensing rate;

generating command data consistent with the desired dispensing rate to control the actuation of a metering device in each said dispensing mechanism to dispense said dry granular material directly to said crop row;

measuring the ground speed of the agricultural implement;

modifying the command data to account for the ground speed at each dispensing mechanism;

receiving stored calibration data for each said metering device from an electronic storage device;

further modifying the modified command data to account for the calibration data of each said metering device, and

actuating the metering device in response to the further modified command data.

5,737,222
APPARATUS FOR MEASURING LIFT FORCES BASED UPON DIFFERENTIAL PRESSURE BETWEEN SURFACES OF AN AIRCRAFT

Steven D. Palmer, Burlington, Iowa, assignor to AERS/Midwest, Inc., Burlington, Iowa

Continuation of Ser. No. 978,347, Nov. 18, 1992, Pat. No. 5,457,630. This application Oct. 6, 1995, Ser. No. 540,262

Int. Cl.⁶ G06G *7/76*; B64C *13/00*

U.S. Cl. 364—424.013 **13 Claims**

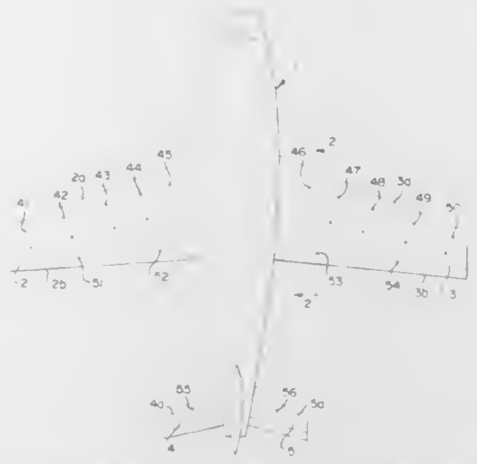
1. An apparatus for evaluating forces affecting an aircraft, the apparatus comprising:

means for measuring an actual differential pressure between air pressures acting on two aircraft surfaces;

means for obtaining an actual aircraft speed;

means for storing differential pressure measurements for various actual aircraft speeds;

means for comparing said actual differential pressure measurement for said actual aircraft speed with the stored differential pressure measurement for that actual aircraft speed; and



means for evaluating performance of the aircraft based on the result of the means for comparing.

5,737,223
POWER STEERING APPARATUS

Hirofumi Matsuoka, Kyoto, Japan, assignor to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Mar. 12, 1996, Ser. No. 615,753

Claims priority, application Japan, Mar. 13, 1995, 7-052899

Int. Cl.⁶ B62D *5/09*; H02P *1/04*

U.S. Cl. 364—424.051 **3 Claims**

1. A power steering apparatus comprising:

a control valve for controlling the pressure of the working oil for generating the steering assisting power on the basis of the operation of the steering wheel;

a hydraulic pump for transmitting the working oil under a predetermined pressure to said control valve;

an electric motor for driving said hydraulic pump;

a motor drive circuit for driving said electric motor;

a motor current detection circuit for detecting the motor current flowing in said electric motor;

current control means for outputting a voltage corresponding to the motor current detected by said motor current detection circuit to control by feedback the motor current flowing in said electric motor;

motor application voltage indication means for indicating a voltage to be applied to said motor drive circuit on the basis of the detected motor current; and

motor application voltage selection means for selecting the lower of the voltage outputted from said current control means and the voltage indicated by said motor application voltage indication means and outputting the selected voltage to said motor drive circuit.

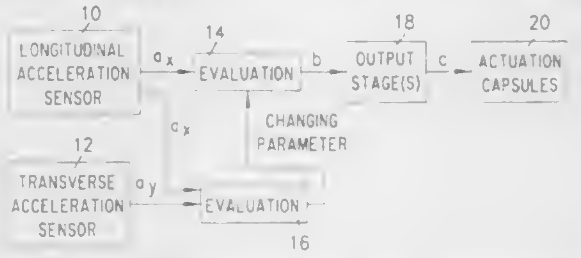
5,737,224
APPARATUS AND METHOD FOR TRIPPING A SYSTEM FOR THE PROTECTION OF OCCUPANTS OF A VEHICLE

Edmund Jeenicke, Schwieberdingen; Bernhard Mattes, Sachsenheim; Claus Condne, Wadgassen, and Michael Henne, Ditzingen-Schockingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Continuation of Ser. No. 659,366, Mar. 15, 1991, Pat. No. 5,483,447. This application Jun. 7, 1995, Ser. No. 478,075

Int. Cl.⁶ G06G *7/76*; B60R *21/32*

U.S. Cl. 364—424.055 **32 Claims**



1. An apparatus for actuating a safety device for the protection of at least one occupant of a vehicle, comprising:

a first sensor for generating a first signal indicative of an acceleration of the vehicle along a first axis oriented in the direction of forward motion of the vehicle;

a second sensor for generating a second signal indicative of an acceleration of the vehicle along a second axis oriented at an angle relative to the first axis; and

a control unit coupled to the first and second sensors and to the safety device, the control unit actuating the safety device as a function of the first signal, the second signal, or a combination thereof exceeding a threshold value, the control unit adjusting the threshold value as a function of the value of at least one of the first signal and the second signal.

5,737,225
NAVIGATION SYSTEM

Hans-Helmut Schulte, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 28, 1995, Ser. No. 496,105

Claims priority, application European Pat. Off., Jul. 1, 1994, 94201903

Int. Cl.⁶ G06F *165/00*

U.S. Cl. 364—449.5 **11 Claims**

1. A vehicle navigation system for use in a vehicle, said system comprising:

a planner for a route to be followed which includes the indication of a manoeuvre location in which the vehicle is to carry out a manoeuvre, detection means for detecting a location of the vehicle, and an instruction generator, coupled to said detection means for supplying an instruction concerning said manoeuvre, wherein the instruction generator, in response to the location of said vehicle, generates an anticipatory notification during a first time period, a direct advice notification during a second time period and a a life sign during a third time period for indicating an operational status of the system.

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wherein said first time period is prior to said second time period, said anticipatory notification and said direct advice notification are not simultaneously conveyed to a driver of said vehicle; and

the instruction generator generates the direct advice notification when the vehicle is present within said second time period which extends from a lower boundary at a distance DA_{min} from the manoeuvre location to an upper boundary at a distance DA_{max} from the manoeuvre location, that the instruction generator generates the anticipatory notification when the vehicle is present within said first time period which extends from a lower boundary at a distance NO_{min} from the manoeuvre location to an upper boundary at a distance NO_{max} from the manoeuvre location, and that the instruction generator generates the life sign when the vehicle is present within said third time period which extends from a lower boundary at a distance LS_{min} from the manoeuvre location.

5,737,226
VEHICLE COMPASS SYSTEM WITH AUTOMATIC CALIBRATION

Thomas R. Olson; Jeffrey N. Parks, and Paul S. VanLente, all of Holland, Mich., assignors to Prince Corporation, Holland, Mich.

Filed Jun. 5, 1995, Ser. No. 462,468

Int. Cl.^{6} G05D *1/00*

U.S. Cl. 364—457 **38 Claims**

1. An electrical quick calibration compass system for use in a vehicle such as an automobile comprising:

a magnetic field sensor for detecting the earth's magnetic field and for providing electrical signals representing the direction of the vehicle in relation to the earth's magnetic field;

a processing circuit coupled to said sensor for processing signals from said sensor and for providing display output signals in response thereto;

a display circuit coupled to said processing circuit and responsive to said display output signals for displaying the vehicle heading; and

said processing circuit responsive to signals from said sensor during which time the change of direction of the vehicle is less than a closed loop, for determining that the detected signal levels from said sensor, corresponding to the effect of the earth's magnetic field and the effect of vehicle magnetism on said sensor have shifted such that said signal levels are outside a predetermined threshold, said processing circuit responsive to said determination that said signal levels are outside said threshold for recalibrating said compass system using the detected signal levels output from said sensor during the time in which the vehicle direction changed less than a closed loop;

wherein said processing circuit adjusts the detected signal levels after determining that the vehicle's direction of travel has changed a predetermined amount corresponding to a plot of said detected signal levels from said sensor creating an arc spanning a predetermined angle, said arc has a starting point and an ending point that are used to determine the center of said arc, the center of the arc being determined by assuming a radius and identifying at least one center candidate point that is spaced apart from the starting point and the ending point by the assumed radius.

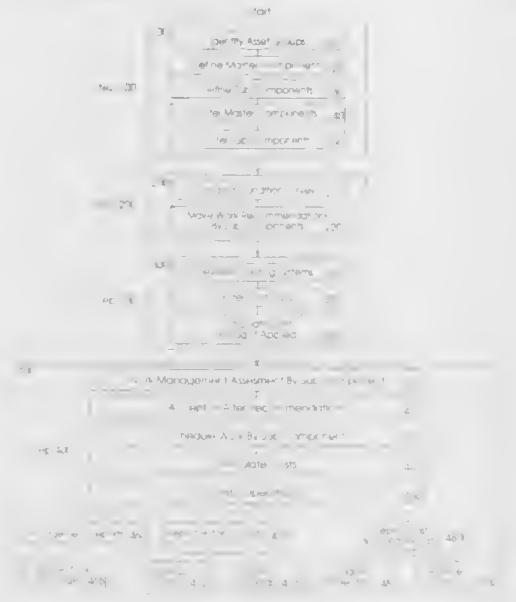
5,737,227
SOFTWARE PLANNING PROGRAM FOR COATINGS

T. Kyle Greenfield, Cocoa; Charles A. Vallance; Rogest W. Dively, II, both of Satellite Beach; Gregory D. Nelson, Apopka, and Ismael Rodriguez, Palm Bay, all of Fla., assignors to Consulex Corporation, Cocoa, Fla.

Filed Mar. 19, 1996, Ser. No. 619,830

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 364—464.1 **16 Claims**



1. An automated planning and maintenance program for linings and coatings in facilities comprising the steps of:

(a) identifying facility assets having coatings and linings;

(b) creating a maintenance history of each of the identified facility assets;

(c) determining current conditions of the identified facility assets based on current defects in linings and coatings;

(d) calculating maintenance recommendations based on the maintenance history and the conditions of the linings and coatings of the identified facility assets;

(e) prioritizing the calculated maintenance recommendations; and

(f) calculating cost of applying replacement linings and coatings by

i determining size of surface to be covered

ii determining cost of materials not being used to recover the surface,

iii determining time needed to apply the replacement coatings wherein steps i, ii, and iii are surface preparation cost

iv determining the replacement coating material cost, and

v determining equipment cost to apply the replacement coatings.

5,737,228
MANUFACTURING PROJECT FORMING METHOD AND DEVICE

Hiroaki Ishizuka, and Shigeru Matsumoto, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 6, 1996, Ser. No. 597,257

Claims priority, application Japan, Feb. 9, 1995, 7-021988; Jun. 29, 1995, 7-163322; Oct. 20, 1995, 7-272448

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—468.08 **15 Claims**

1. A method of forming a manufacturing project for a product which is put in a manufacturing line comprising:

an initial manufacturing project forming step of setting, on all manufacturing steps, a variable F (a, n) defined by Equation (1):

$$F(a,n) = k(a,n) \times \{Tave'(a,n) - Tw1(a,n)\} - \{Tave(a,n+1) - Tw1(a,n+1)\}$$

WHEREIN

$$Tave'(a,n) = \begin{cases} Tave(a,n) & (\text{IN CASE OF } Te(a,N(a)) \leq Tout(a)) \\ Tave(a,n) - \{Te(a,N(a)) - Tout(a)\}/E(a) & (\text{IN CASE OF } Te(a,N(a)) > Tout(a)) \end{cases}$$

wherein k (a, n) is a constant set on a step P (a, n) which is the nth step of a product a, Tave (a, n) is an average wait time for the same step as the step P (a, n) which is obtained from the past processing results, Tw1 (a, n) is a processing wait time which is a time difference between a processing end time for a step P (a, n−1) and a processing start time for the step P (a, n), N (a) is a final step for the product a, Te (a, N(a)) is a finish time for a final step P (a, N(a)), Tout (a) is a target delivery date for the product a, and E (a) is the number of steps in which the product a is not yet processed, and then determining the processing start and end times for each step in such a manner that the absolute value of the variable F (a, n) is smaller than a preset constant Fmax which is equal to or greater than 0 so that an initial manufacturing project is formed, and

a constraint condition canceling step for correcting the initial manufacturing project formed in the initial manufacturing project forming step in such a manner that the initial manufacturing project does not violate preset constraint conditions.

5,737,229
METHOD OF TEXTURING A MAGNETIC RECORDING MEDIUM FOR OPTIMUM SKEWNESS AND KURTOSIS TO REDUCE FRICTION WITH A MAGNETIC HEAD

Bharat Bhushan, Powell, Ohio, assignor to The Ohio State University, Columbus, Ohio

Filed Nov. 7, 1995, Ser. No. 554,776

Int. Cl.^{6} G11B *5/84*

U.S. Cl. 364—468.24 **1 Claim**

1. A method of texturing optimum skewness and kurtosis values for a surface of a magnetic storage media, the values determined by the method to reduce static and kinetic friction between the storage media and a reading head, the method comprising the steps of:

formulating probability density functions for non-gaussian surface roughness distributions with known mean peak heights, standard deviation, skewness and kurtosis values,

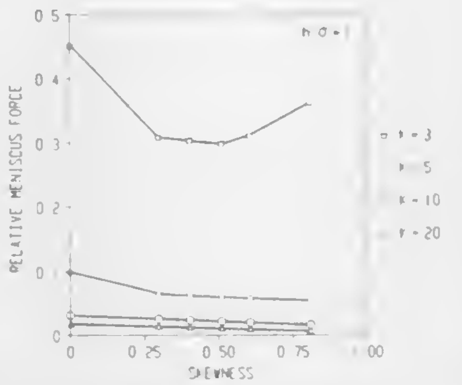
modeling parameters of contact of a read/write head with a disk surface including number of contact spots, total load force, Young's modulus of elasticity, Poisson's ratio, equivalent ratios of asperities,

calculating meniscus force of a lubricating liquid applied to the surface for each probability density function,

selecting a probability density function having a minimum real area of contact and number of contacts, and

extrapolating skewness and kurtosis values of the selected probability density functions, and

texturing a magnetic storage media surface to have skewness and kurtosis values determined by the selected probability density function to have a minimum real area of contact and minimum number of contacts with a reading head.



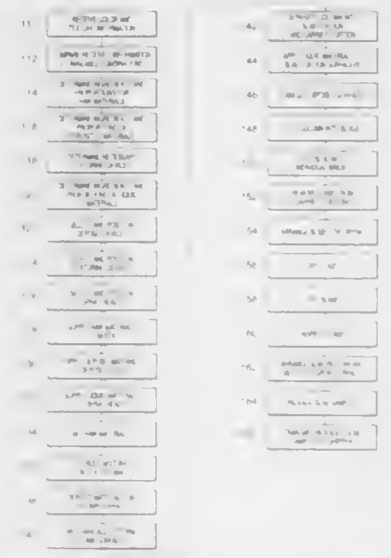
5,737,230
APPARATUS AND PROCESS FOR SLAB SAMPLING OF CUSTOMIZED BRICK

George Robinson, Jr., Denver, Colo., assignor to Robinson Brick Company, Denver, Colo.

Filed Jul. 24, 1995, Ser. No. 505,742

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 364—469.01 **23 Claims**



1. A process for rapid production of customized brick slab samples, said process comprising the steps of:

(a) receiving transmitted color and texture information;

(b) preparing a mixture of material suitable for producing a brick slab sample using said color information;

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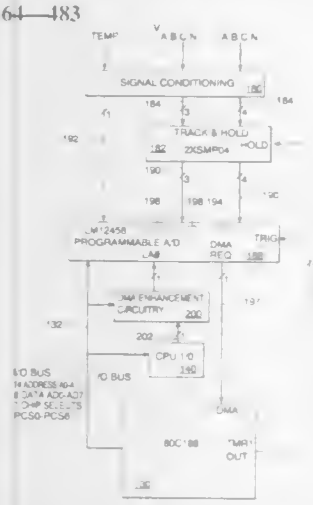
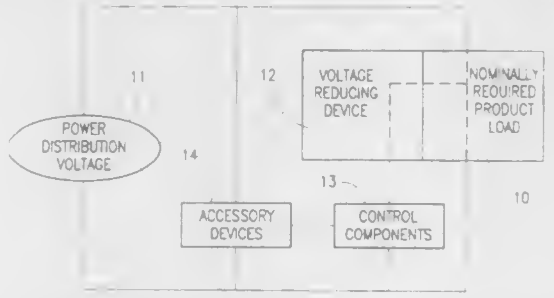
(c) forming a slab product from said mixture using such texture information said forming step comprising the steps of extruding a column comprising said mixture and separating said column into a slab product and a carrier portion supporting said slab product using cutting means;
(d) firing said slab product; and
(e) transmitting said slab product within 72 hours of receipt of said information.

5,737,231
METERING UNIT WITH ENHANCED DMA TRANSFER
Michael W. Pyle, Hermitage, and David C. Carlson, Murfreesboro, both of Tenn., assignors to Square D Company, Palatine, Ill.
Continuation of Ser. No. 159,884, Nov. 30, 1993, abandoned. This application May 28, 1996, Ser. No. 653,831
Int. Cl.⁶ G01R *21/06*
U.S. Cl. 364—483 **16 Claims**



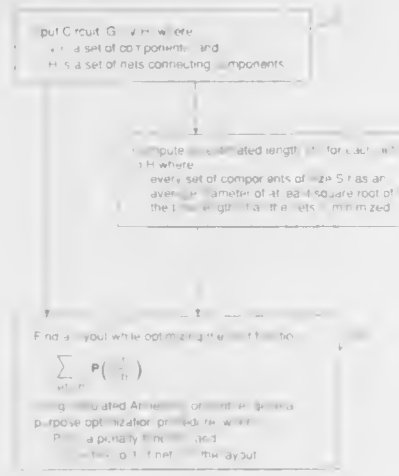
1. A metering unit for monitoring power in a distributed power network, wherein a power-related, multi-phase waveform passes through a power line and zero-crossings of the waveform define its cycles, said metering unit comprising:
signal conditioning circuitry disposed adjacent to the power line, for sensing desired phases of analog voltage and current associated with said waveform;
a processor generating a timer output and including DMA controller circuitry;
track and hold circuitry responsive to said timer output for simultaneously capturing intra-cycle voltage values and intra-cycle current values corresponding to each of said desired phases of said distributed power network;
an analog to digital converter coupled to said track and hold circuitry and responsive to said timer output for producing a plurality of distal samples from said intra-cycle voltage values and said intra-cycle current values, said analog to digital converter including a FIFO buffer storing said digital samples said analog to digital converter providing a transfer signal to said processor upon the filling of said FIFO buffer for initiating a DMA transfer of said digital samples to a memory, said DMA controller circuitry generating a single source address to said FIFO buffer to transfer a portion of each digital sample from said FIFO buffer to said memory,
DMA enhancement circuitry altering said source address received by said FIFO buffer to transfer a remaining portion of each digital sample from said FIFO buffer to said memory during said DMA transfer while said source address generated by said DMA controller circuitry remains the same; and
means for performing at least one power related calculation for said distributed power network by directly using said digital samples in said memory.

5,737,232
POWER SUPPLY ARRANGEMENT FOR A CONTROL CIRCUIT
Robert L. Wetekamp, Galesburg, Ill., assignor to Maytag Corporation, Newton, Iowa
Filed Feb. 4, 1997, Ser. No. 794,445
Int. Cl.⁶ H02J *3/16*
U.S. Cl. 364—483 **26 Claims**



1. In an appliance, comprising
a nominally required product load and independent control components requiring stable, relatively low voltages in comparison with those used by the nominally required product load, said nominally required product load including a resistive portion which produces a voltage drop corresponding to a difference between said relatively high and relatively low voltages, the improvement wherein:
said control components are connected in series with said resistive portion of the nominally required product load, whereby said portion of the nominally required product load serves to reduce supplied power voltages to control component voltages.

5,737,233
VLSI CIRCUIT LAYOUT METHOD BASED ON SPREADING FUNCTIONS AND SIMULATED ANNEALING HEURISTICS TO MINIMIZE AREA
Satish B. Rao, Trenton, N.J., assignor to NEC Research Institute, Inc., Princeton, N.J.
Filed Jan. 5, 1996, Ser. No. 583,296
Int. Cl.⁶ G06F *15/00*
U.S. Cl. 364—488 **8 Claims**


Input Circuit G where
V is a set of components and
H is a set of nets connecting components
Compute an estimated length for each net in H where
every set of components of size S has an average diameter of at least square root of S and
the total length of all the nets is minimized
Find a layout while optimizing the cost function
P( )
using Simulated Annealing or another general purpose optimization procedure where
P is a penalty function and
cost of net in the layout

1. A method of optimizing a VLSI circuit layout comprising the steps of
defining a circuit to be designed in terms of a set of components V and a set of nets H connecting components;

finding a length l(h) for set h in the set of nets H, where every set of components V of size S has a diameter of at least the square root of S and the total length

$$\sum_{h=1}^{H} l(h)$$

is minimized;
heuristically finding a layout that has a minimal value of

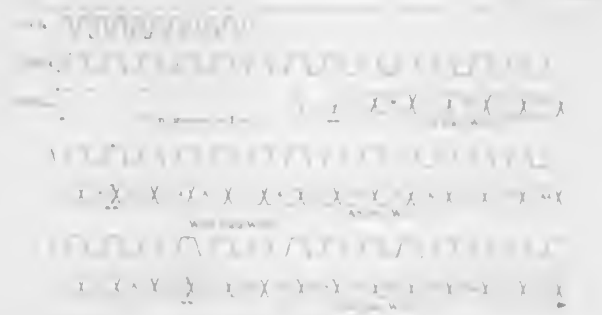
$$\sum_{nets\,h} P\left(\frac{c(h)}{l(h)}\right),$$

where P(.) is a penalty function and c(h) is the cost of net h in the layout, where $P(x)=cx^{1+\epsilon}$ for a given constant c, and where c is preferably close to 1, and $0<\epsilon<1$, by simulated annealing to determine a VLSI circuit layout; and
laying out the VLSI circuit to be designed in accordance with the determined VLSI circuit layout.

5,737,234
METHOD OF OPTIMIZING RESOURCE ALLOCATION STARTING FROM A HIGH LEVEL BLOCK DIAGRAM
Jorge P. Seidel, 4976 Adair Way, San Jose, Calif. 95124, and Steven K. Knapp, 3266 St. Ignatius Pl., Santa Clara, Calif. 95051
Division of Ser. No. 303,295, Sep. 8, 1994, Pat. No. 5,553,001, which is a continuation of Ser. No. 784,842, Oct. 30, 1991. This application Jun. 27, 1996, Ser. No. 672,182
Int. Cl.⁶ G06F *17/50*
U.S. Cl. 364—488 **6 Claims**

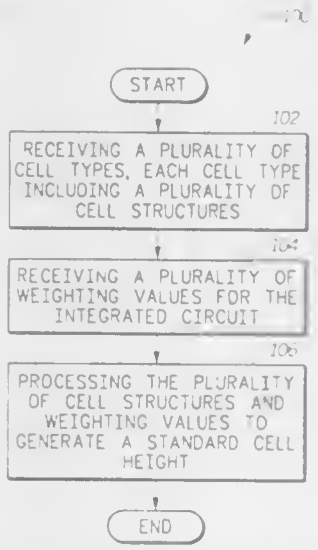
1. A method of mapping from symbols of a user logic design to resources on a chip comprising the steps of
(a) searching said user logic design until an arithmetic symbol is identified; then
(b) creating a general arithmetic symbol and replacing said arithmetic symbol with said general arithmetic symbol, wherein said general arithmetic symbol provides for selectively implementing one of a plurality of different functions to map arithmetic functions optimally into said resources.

5,737,235
FPGA WITH PARALLEL AND SERIAL USER INTERFACES
Thomas A. Kean, 130/10 Calton Road, Edinburgh, Scotland, EH88JQ, and William A. Wilkie, 96 Braid Road, Edinburgh, Scotland, EH106AP
Filed Sep. 6, 1995, Ser. No. 465,032
Claims priority, application United Kingdom, May 2, 1995, 9508932
Int. Cl.⁶ G06F *17/50*, **H03K** *19/173*
U.S. Cl. 364—490 **10 Claims**



1. A random access serial interface structure in a field programmable integrated circuit chip comprising:
a data pad for loading configuration data through an external pin of said field programmable integrated circuit chip.
means for terminating the loading of data to said data pad, and
means for reconfiguring said means for terminating the loading of data to said data pad.

5,737,236
APPARATUS AND METHOD FOR THE AUTOMATIC DETERMINATION OF A STANDARD LIBRARY HEIGHT WITHIN AN INTEGRATED CIRCUIT DESIGN
Robert Maziasz; Mohankumar Guruswamy; Daniel W. Dulitz; David Blaauw, and Larry Jones, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 8, 1996, Ser. No. 598,555
Int. Cl.⁶ G06F *17/50*
U.S. Cl. 364—490 **23 Claims**


START
102
RECEIVING A PLURALITY OF CELL TYPES, EACH CELL TYPE INCLUDING A PLURALITY OF CELL STRUCTURES
104
RECEIVING A PLURALITY OF WEIGHTING VALUES FOR THE INTEGRATED CIRCUIT
106
PROCESSING THE PLURALITY OF CELL STRUCTURES AND WEIGHTING VALUES TO GENERATE A STANDARD CELL HEIGHT
END

1. A method for determining a standard cell height in an integrated circuit design, the method comprising the steps of
(a) receiving a plurality of cell types, wherein each cell type within the plurality of cell types includes a plurality of cell structures;
(b) receiving a plurality of weighting values for the integrated circuit design, wherein each weighting value indicates a frequency of use of a respective cell type in the integrated circuit design; and

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(e) iteratively processing through different cell heights while making calculations using two-dimensional areas of the plurality of cell structures and the plurality of weighting values to determine the standard cell height, wherein based on the standard cell height, an area of the integrated circuit design is optimized.

5,737,237
METHOD AND APPARATUS FOR DATA PATH CIRCUIT LAYOUT DESIGN AND MEMORY MEDIUM FOR CAUSING COMPUTER TO EXECUTE DATA PATH CIRCUIT LAYOUT DESIGN

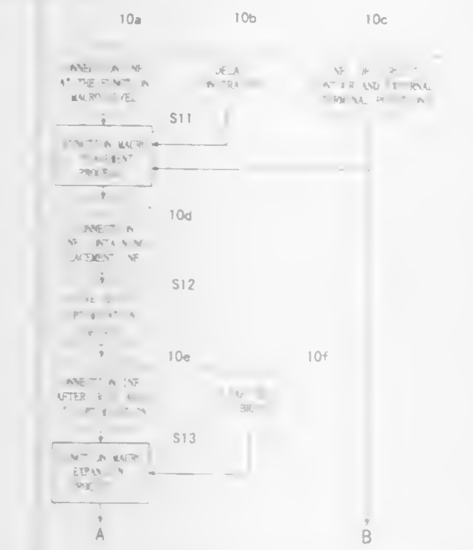
Yasuhiro Tanaka; Hiroshi Mizúno, and Shinichi Kumashiro, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 16, 1996, Ser. No. 602,315

Claims priority, application Japan, Feb. 17, 1995, 7-029071

Int. Cl.⁶ G06F *17/50*

U.S. Cl. 364—491 **21 Claims**



1. A data path circuit layout design method of generating a mask layout of a data path circuit comprising a plurality of function blocks,

said data path circuit layout design method characterized in that there are prepared (i) function macros in each of which there is defined an expansion, according to the parameters, to a circuit comprising a plurality of schematic leaf cells and (ii) layout leaf cells corresponding to said schematic leaf cells, and

said data path circuit layout design method comprising

a function macro placement process for determining, for a data path circuit of which function blocks are described by function macros, the placement of said function blocks so as to optimize the value of a predetermined objective function;

a function macro expansion process for expanding each of said function macros describing said function blocks, to a circuit comprising a plurality of schematic leaf cells and for preparing connection information on the schematic leaf cell level; and

a detail placement and routing process for generating a mask layout by replacing said schematic leaf cells with the corresponding layout leaf cells and for wiring said layout leaf cells to one another, said replacing and said wiring being made based on said placement of said function blocks determined by said function macro placement process and on said connection information on the schematic leaf cell level prepared by said function macro expansion process.

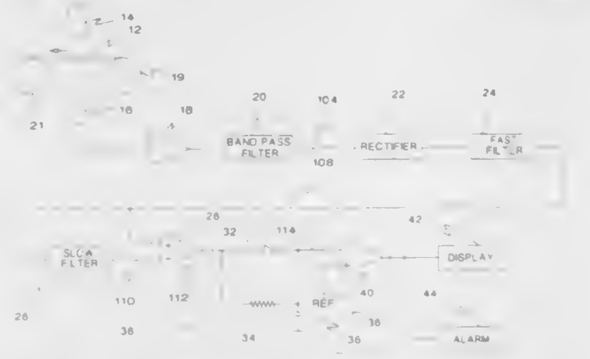
5,737,238
METHOD AND APPARATUS FOR PLY DISCONTINUITY DETECTION

Dean C. Mouradian, West Allis, Wis.; Jim A. Michaud, Kettering, and James T. Zalusky, Beavercreek, both of Ohio, assignors to Hyde Park Electronics, Inc., Dayton, Ohio

Filed Aug. 28, 1996, Ser. No. 703,951

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—507 **26 Claims**



1. A method of detecting a ply discontinuity in a web of laminated material, said method comprising the steps of:

(1) Scanning said web by a beam of some energy.

(2) Receiving said beam following said scanning and generating therefrom a first sample stream and a second sample stream,

(3) Filtering said first sample stream to cause said first sample stream to differ from said second sample stream in a time dependent manner.

(4) determining a difference between said first sample stream and said second sample stream.

(5) Establishing a persistence measure for a predetermined value of said difference, and

(6) Using said persistence measure to activate an alarm.

5,737,239
SHAKING TEST METHOD AND SYSTEM FOR A STRUCTURE

Toshihiko Horiuchi, Ushiku; Hiroaki Kasai, Ibaraki-ken; Masaki Kuribara, Tsuchiura, and Takao Konno, Ibaraki-ken, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 597,405

Claims priority, application Japan, Feb. 13, 1995, 7-023690

Int. Cl.⁶ G01H *11/00*

U.S. Cl. 364—508 **21 Claims**

5. A shaking test method for a structure comprising the steps of establishing a numerical model of an object structure for evaluation and

establishing an actual model with a part of said object structure;

calculating a natural frequency and natural mode vector in each vibration mode by eigen value analysis using data of said numerical model and said actual model.

maintaining one mode as a second-order lag system and converting at least one mode among remaining modes into a first-order lag system or proportional system.

shaking said actual model with a shaking device connected thereto;

measuring load and displacement applied to said actual model by said shaking device by means of measuring equipment;

inputting a load value and external force value associated with shaking by said shaking device;

calculating displacement at a boundary between said actual model and another portion of said object structure at a given period later from a measurement timing of said load by said measuring equipment with employing said second-order lag system and said first-order lag system or proportional system converted from second-order lag system; and

generating a command signal for input to a controller for controlling said shaking device

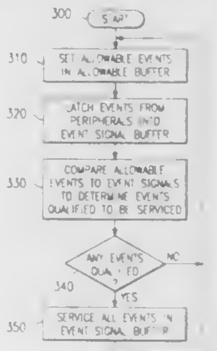
5,737,240
PROGRAMMABLE HARDWARE MAILBOX MESSAGE TECHNIQUE AND SYSTEM

Earle Ellsworth, Benson; Laura Hepner Evans, Tucson; Sangram Singh Ghoman, Tucson; Enrique Quique Garcia, Tucson; Thomas Charles Jarvis, Tucson; Matthew Joseph Kalos, Tucson; Ralph O'Neill, Tucson, all of Ariz.; Lisa Phan, Austin, Tex., and David Brent Schreiber, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 25, 1996, Ser. No. 591,062

Int. Cl.⁶ G06F *17/00*

U.S. Cl. 364—514 R **13 Claims**


300
START
310
SET ALLOWABLE EVENTS IN ALLOWABLE BUFFER
320
LATCH EVENTS FROM PERIPHERALS INTO EVENT SIGNAL BUFFER
330
COMPARE ALLOWABLE EVENTS TO EVENT SIGNALS TO DETERMINE EVENTS QUALIFIED TO BE SERVICED
ANY EVENTS QUALIFIED ?
NO
340
YES
350
SERVICE ALL EVENTS IN EVENT SIGNAL BUFFER

1. In a data processing system including a processor running control instructions and coupled to a mailbox for receiving a message, peripheral circuitry generating events to be serviced, and a mailbox message circuit coupled between said processor and said peripheral circuitry, a method for reporting said events to said processor comprising the steps of

setting a first memory in said mailbox message circuit to represent a plurality of allowable events, said plurality of allowable events being serviceable by said data processing system;

latching a plurality of event signals in a second memory of said mailbox message circuit, each event signal of said plurality of event signals originating from said peripheral circuitry and requiring service by said data processing system;

comparing said plurality of event signals with said plurality of allowable events to determine which of said plurality of event signals are currently qualified to be serviced by said data processing system;

transferring to said mailbox an encoded message indicating to said control instructions which event signal of said plurality of event signals is currently qualified to be serviced by said data processing system;

servicing said plurality of event signals latched in said second memory,

inhibiting subsequent latching of other event signals generated in said peripheral circuitry once said message has been transferred to said mailbox and until said plurality of event signals latched in said second memory have been serviced, and

storing a subsequent event signal in a third memory of said mailbox message circuit, said subsequent event signal representing said event generated by said peripheral circuitry after said message was transferred to said mailbox and before said plurality of event signals in said second memory have been serviced.

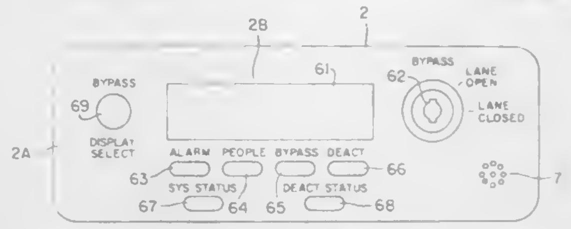
5,737,241
USER MANAGEMENT INTERFACE FOR EAS SYSTEM

William R. Accolla, Loxahatchee; Harry Watkins, Boca Raton, and Mark Krom, Ft. Lauderdale, all of Fla., assignors to Sensormatic Electronics Corporation, Boca Raton, Fla.

Filed Nov. 2, 1995, Ser. No. 556,763

Int. Cl.⁶ G08B *13/00*

U.S. Cl. 364—550 **40 Claims**



1. A user management interface for user interaction, monitoring and control of an electronic article surveillance ("EAS") system comprising:

user accessible input means for actuation by a user;

generating means responsive to said user accessible input means for generating signals for interacting with said EAS system; and

receiving means for receiving signals from said EAS system to provide indications with respect thereto, said signals received by said receiving means from said EAS system including signals indicative of EAS system event data.

5,737,242
METHOD FOR AUTOMATICALLY DETERMINING PROBABILITIES ASSOCIATED WITH A BOOLEAN FUNCTION

Jean-Christophe Madre, and Olivier Coudert, both of Boulogne Billancourt, France, assignors to Bull S.A., Puteaux, France

PCT No. PCT/FR93/01055, § 371 Date Aug. 29, 1994, § 102(e) Date Aug. 29, 1994, PCT Pub. No. WO94/10640, PCT Pub. Date May 11, 1994

Continuation of Ser. No. 256,088, Aug. 29, 1994, abandoned. This PCT application Oct. 27, 1993, Ser. No. 742,872

Claims priority, application France, Oct. 30, 1992, 92 13011

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 364—554 **17 Claims**

1. A method for fault analysis in an electronic system, said method determining a probability (P(f)) of occurrence of a reference event in the system, said reference event corresponding to a Boolean function (f) of atomic events $(x_1, x_2, x_3, \ldots x_k \ldots)$ each having a predetermined probability of occurrence $(P(x_1), P(x_2), P(x_3), \ldots, P(x_k) \ldots)$, said method comprising.

constructing a binary decision diagram from said Boolean function, said binary decision diagram having a root event (x_i) made of one of said atomic events having the predetermined probability of occurrence $P(x_i)$, said root event being connected to a low part (L) and a high part (H) of said binary decision diagram each including others of said atomic events,

storing, in memory means of a data processing machine, data representative of said binary decision diagram and respective predetermined probabilities of said atomic events,

recursively traversing the binary decision diagram from the stored data and predetermined probabilities of the atomic events in each of said low and high parts of said binary

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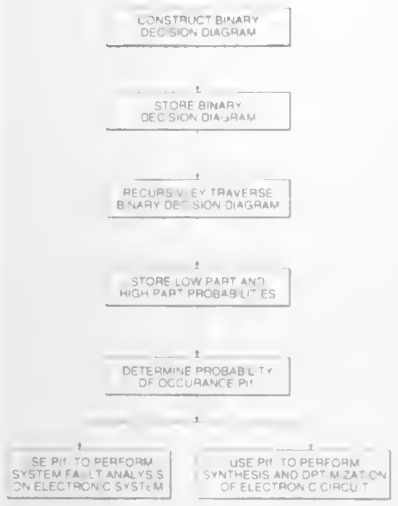

CONSTRUCT BINARY DECISION DIAGRAM
STORE BINARY DECISION DIAGRAM
RECURSIVELY TRAVERSE BINARY DECISION DIAGRAM
STORE LOW PART AND HIGH PART PROBABILITIES
DETERMINE PROBABILITY OF OCCURANCE P(f)
USE P(f) TO PERFORM SYSTEM FAULT ANALYSIS ON ELECTRONIC SYSTEM
USE P(f) TO PERFORM SYNTHESIS AND OPTIMIZATION OF ELECTRONIC CIRCUIT

decision diagram to obtain a low part probability (P(L)) and a high part probability (P(H));

storing said low part probability and said high part probability in said memory means;

determining, from said stored predetermined probabilities of said root event, said low part probability and said high part probability, the probability of occurrence P(f) of the reference event by applying the formula:

$P(f)=(1-P(x_1))\cdot P(L)+P(x_1)\cdot P(H)$, and

using said probability of occurrence P(f) to perform fault analysis on said electronic system.

5,737,243

METHOD FOR DISPLAYING OF THE OUTSIDE TEMPERATURE IN A MOTOR VEHICLE

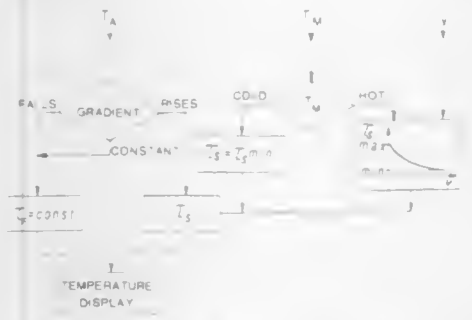
Werner Wallrafen, Sulzbach, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany

Continuation of Ser. No. 303,720, Sep. 9, 1994, abandoned. This application Feb. 13, 1997, Ser. No. 800,288

Claims priority, application Germany, Oct. 8, 1993, 43 34 356.2

Int. Cl.^{6} G01K *1/20*

U.S. Cl. 364—557 **10 Claims**



1. A method for displaying outside temperature in a motor vehicle, the vehicle having an engine, an outside-temperature sensor, and an engine-temperature sensor, the method comprising the steps of:

measuring the outside temperature by means of said outside temperature sensor;

displaying measured values of the outside temperature;

interposing a time delay between said measuring step and said displaying step;

selecting a first value of the time delay to be employed in said interposing step upon a decrease of the outside temperature and selecting a second value of the time delay to be employed in said interposing step upon an increase of the outside temperature, said second value of time delay being greater than said first value of time delay, and

changing said second value of the time delay as a function of a temperature of the engine as sensed by the engine temperature sensor.

5,737,244

COORDINATE MEASURING APPARATUS HAVING A CONTROL WHICH DRIVES THE PROBE HEAD OF THE APPARATUS IN ACCORDANCE WITH DESIRED DATA

Otto Ruck, Ellwangen-Pfahlheim, Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim, Germany

Filed Aug. 9, 1996, Ser. No. 693,633

Claims priority, application Germany, Aug. 11, 1995, 195 29 574.9

Int. Cl.^{6} G05B *19/19;19/4073*

U.S. Cl. 364—559 **16 Claims**

1. A coordinate measuring apparatus for measuring the surface of a workpiece, the coordinate measuring apparatus comprising:

a probe head having a probe pin for contact scanning said surface;

a control for driving said probe head in accordance with desired data along a pregiven path corresponding essentially to the desired geometry of said surface;

a device for detecting a deflection of said probe pin and for supplying control signals proportional to said deflection;

a two-stage controller connected to said device for receiving said control signals and for correcting said path in response to said control signals; and,

said two-stage controller including: a first stage continuously operating in response to said control signals; and, a second stage which becomes active only when the control signals representing the deflection ($\dot{A}t$) of the probe pin have reached a predetermined amount

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5,737,245

DISTANCE MEASUREMENT DEVICE

Hajime Oda, and Takuma Takahashi, both of Yotsukaido, Japan, assignors to Seiko Precision Inc., Japan

Filed Sep. 7, 1995, Ser. No. 525,351

Claims priority, application Japan, Sep. 7, 1994, 6-213884

Int. Cl.^{6} G01C *3/00*

U.S. Cl. 364—561 **13 Claims**

1. A distance measurement device comprising

distance measurement means for measuring a distance to an object, setting means for dividing a measurement range of the distance measurement means into a plurality of measurement zones, judging means for judging which respective measurement zone the object is in; and output means for outputting a signal in accordance with an output of the judging means representative of the respective measurement zone and for outputting another signal not representative of a respective measurement zone for a predetermined time period at a predetermined time other than during a distance measurement operation of the distance measurement means to identify the end of a measurement operation; wherein the output means includes a plurality of output terminals for outputting a predetermined unique combination of output levels for each of the respective measurement zones and another predetermined unique combination of output levels other than that corresponding to the respective measurement zones to identify the end of a measurement operation

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5,737,246

WATER DEPTH MEASURING DEVICE

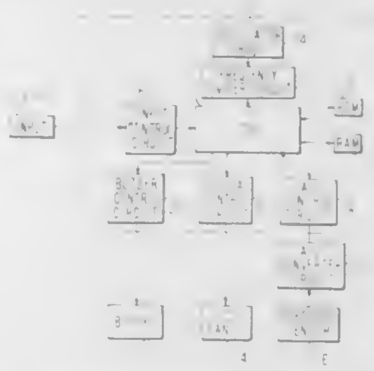
Tsuneaki Furukawa; Naoshi Furuta, both of Suwa; Yumi Sakamoto, Nagano-ken, and Kazuko Yoshida, Suwa, all of Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed May 9, 1995, Ser. No. 437,741

Claims priority, application Japan, May 10, 1994, 6-096700; Jun. 14, 1994, 6-132238; Jun. 22, 1994, 6-140470; Jun. 22, 1994, 6-140471; Jun. 22, 1994, 6-140472; Apr. 17, 1995, 7-091149

Int. Cl.^{6} G01B *07/26*

U.S. Cl. 364—562 **31 Claims**



1. A water depth measuring device comprising

a pressure sensor;

an A/D converter operatively coupled to the pressure sensor that converts the sensed signal of the pressure sensor into a digital value, the digital value corresponding to the start of water depth measuring being the initial digital value,

a comparator operatively coupled to the A/D converter that compares the initial digital value output by the A/D converter with a range of values defined by a first predetermined comparative value and a second predetermined comparative value, and determines whether the initial digital value falls within the range and produces a comparison result based thereon,

an initial value setting circuit operatively coupled to the comparator that, in response to the comparison result of the comparator, adopts the first digital value as an initial value corresponding to a zero meter depth when the initial digital value falls within the range defined by the first and second comparative values; and

a water depth computer operatively coupled to the A/D converter and the initial value setting circuit that computes a water depth value based on the initial value and the digital value derived from the A/D converter.

5,737,247

BICYCLE ACCESSORY WITH VOICE SYNTHESIS CAPABILITY

Ralph Baer Delray Beach, Fla.; Philip E. Orbanes, Topsfield, Mass.; Mark Ragoza, West Hatfield, Mass., and James P. Ryan, Holyoke, Mass., assignors to Phil Orbanes Productions, Inc., Topsfield, Mass.

Filed Apr. 4, 1996, Ser. No. 627,447

Int. Cl.^{6} G01C *21/10*

U.S. Cl. 364—565 **12 Claims**

1. An apparatus adapted to be mounted to a bicycle, said apparatus comprising

sensing means adapted to be mounted to a bicycle for generating a plurality of successive signals when the bicycle is being ridden by a rider at a speed, said successive signals having a variable periodicity based upon said speed of the bicycle,

input means mounted to the bicycle for allowing the rider to make a plurality of different types of parametric requests, said requests including a speed request, a distance request, and a time request;

means for determining said speed of the bicycle in response to said speed request made by said rider, said speed being determined based upon at least two of said signals generated by said sensing means,

means for determining a distance through which the bicycle has been ridden in response to said distance request made by said rider, said distance being determined based upon said signals generated by said sensing means;

means for determining an elapsed time in response to said time request made by said rider;

means for generating a first audible voice message which indicates said speed;

means for generating a second audible voice message which indicates said distance, and

means for generating a third audible voice message which indicates said elapsed time

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5,737,248

DEVICE FOR ALTERING THE OUTPUT CONDITIONS OF AN INFORMATION PROCESSING DEVICE ACCORDING TO INPUT STATES AT THE USER'S KEYBOARD

Yuji Kawasaki, Kanagawa, and Shunpei Yamazaki, Tokyo, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Filed Oct. 2, 1995, Ser. No. 538,010

Claims priority, application Japan, Oct. 5, 1994, 6-266192

Int. Cl.^{6} G06F *3/14*, H04N *1/393,1/60*

U.S. Cl. 364—569 **29 Claims**

1. An information processing device comprising

a keyboard as an input device; and

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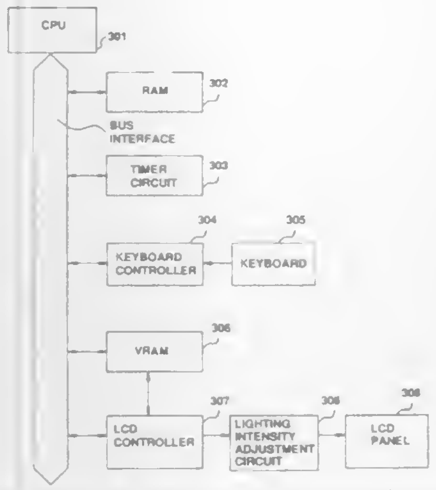


an output device for outputting an input data from said keyboard.

wherein time interval during which a user presses arbitrary two key switches on said keyboard is measured with respect to all combinations of key switches of said keyboard,

wherein variance range of distribution about scatter of the measured time interval is determined in an arbitrary rate, relative to an average value of the distribution of said time interval, and

wherein outputting state of said output device is changed when time interval during which a user presses arbitrary two key switches on said keyboard is outside said variance range.

5,737,249

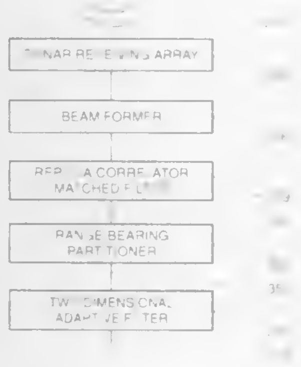
ACTIVE SONAR RANGE-BEAM PARTITIONER

Weita Chang, Niantic, and John H. Geary, Ledyard, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 27, 1997, Ser. No. 789,454

Int. Cl.^{6} H03H *25/00*

U.S. Cl. 364—572 **20 Claims**



1 A method for enhancing active sonar input signals comprising the steps of:

generating a reference set of non-redundant difference vectors for the input signal;

computing a set of feature vectors for each resolution cell;

partitioning the feature vectors into distinct clusters, and

reclassifying the feature vectors into minimally sized homogeneous regions.

5,737,250

METHOD AND SYSTEM FOR SIMULATING ION IMPLANTATION FOR PERFORMING SIMULATION WITH AVOIDING OVERFLOW BY ADJUSTING MEMORY CONSUMING AMOUNT

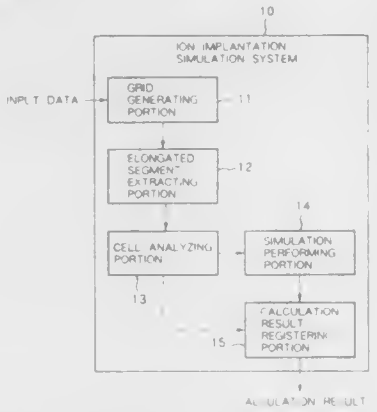
Koichi Sawahata, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 12, 1995, Ser. No. 541,265

Claims priority, application Japan, Oct. 14, 1994, 6-249218

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—578 **12 Claims**


10
ION IMPLANTATION SIMULATION SYSTEM
INPUT DATA
GRID GENERATING PORTION
11
ELONGATED SEGMENT EXTRACTING PORTION
12
CELL ANALYZING PORTION
13
14
SIMULATION PERFORMING PORTION
15
CALCULATION RESULT REGISTERING PORTION

1. An ion implantation simulation system, comprising:

grid generating means for generating an orthogonal grid with respect to a two-dimensional configuration of a simulation object,

elongated segment extracting means for extracting elongated segments defined by two grid lines in saint orthogonal grid;

cell analyzing means for extracting cells defined by adjacent grid lines perpendicular to the longer edge of said elongated segment, in the extracted elongated segments, and linearly rearranging polygon elements present in said cell along the longer edge direction;

simulation means for performing linear ion implantation simulation with respect to the cell, in which the polygon elements are linearly rearranged; and

calculation result registering means for registering an impurity concentration obtained as a result of simulation for each polygon element and registering the impurity concentration in each polygon element,

wherein said cell analyzing means calculates areas and gravity center positions of polygon elements in the extracted cell and converts respective polygon elements into rectangular elements having the same areas to corresponding polygon elements, and rearranges the rectangular elements depending upon calculated gravity center position along the longer edge direction.

5,737,251

RANK ORDER FILTER

Masahiro Kohno, Kobe; Hiroshi Nittaya, Ikoma-gun, and Masahiro Kato, Kobe, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 633,380, Apr. 17, 1996, abandoned, which is a continuation of Ser. No. 177,989, Jan. 6, 1994, Pat. No. 5,532,948. This application May 5, 1997, Ser. No. 851,463

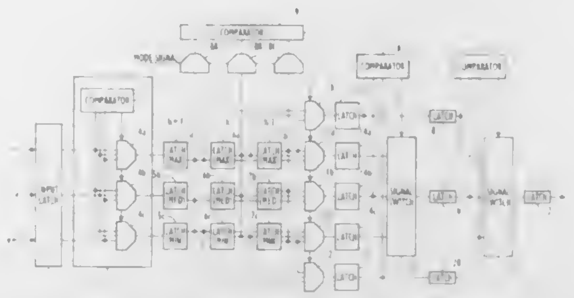
Claims priority, application Japan, Jan. 13, 1993, 5-22167

Int. Cl.^{6} G06F *7/00;* G05B *1/00*

U.S. Cl. 364—715.06 **4 Claims**

1 A rank order filter for a 3×3 local area having three columns and three rows, with three sample values in each column and row, comprising:

first comparing means for comparing in magnitude, for each column or row, three sample values from a column or row of said 3×3 local area to determine three maximum values and three minimum values;



switch means for selecting said three maximum values or said three minimum values,

second comparing means, responsive to said switch means, for comparing in magnitude the three maximum values or the three minimum values obtained by said first comparing means; and

means for determining a maximum value or a minimum value of the nine sample values in the 3×3 local area using comparison results of said second comparing means.

5,737,252

CIRCUIT ARRANGEMENT COMPRISING A PERMUTATION UNIT AND METHOD OF PROCESSING A BATCH OF ITEMS

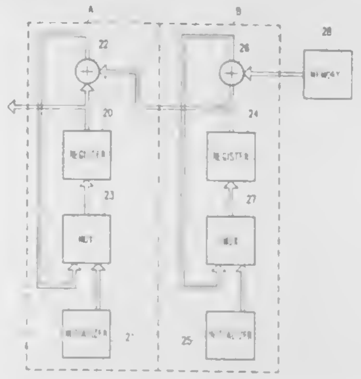
Hendrik D.L. Hollmann, and Constant P.M.J. Baggen, both of Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, N.Y., N.Y.

Filed Feb. 1, 1996, Ser. No. 595,089

Claims priority, application European Pat. Off., Feb. 1, 1995, 95200242; Mar. 3, 1995, 95200520; Mar. 9, 1995, 95200580; Mar. 16, 1995, 95200642

Int. Cl.^{6} G06F *1/02·12/00*

U.S. Cl. 364—717.05 **16 Claims**



1 A circuit arrangement which generates successive pseudo random permutations of a set of "m" numbers, comprising:

control means for generating control signals, each control signal specifying a respective set of "s+1" integer coefficients "t_i", $i=0, \ldots, s$, "s" being a natural number greater than one; and

computing means operating in repeated cycles, each cycle under control of a respective one of the control signals, for computing in that cycle a respective one of the successive permutations corresponding to

$$\sigma(n) = t_0 + \sum_{i=1}^{s} t_i \binom{n}{i} \alpha^i \bmod m$$

in which the t_i are the integer coefficients from the set specified by the respective one of the control signals, and α is an integer number common to all cycles, α being divisible by all prime factors of m, α having a potency s(α) equal to "s" with respect to m.

5,737,253

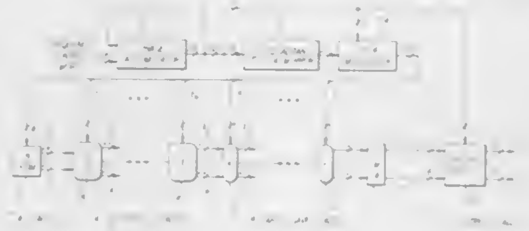
METHOD AND APPARATUS FOR DIRECT DIGITAL FREQUENCY SYNTHESIZER

Avanindra Madisetti, and Alan Y. Kwentus, both of Torrance, Calif., assignors to Pentomics, Inc., Los Angeles, Calif.

Filed Aug. 30, 1995, Ser. No. 521,173

Int. Cl.^{6} G06F *1/02*

U.S. Cl. 364—721 **55 Claims**



25 A digital circuit for generating an output digital signal representing a first trigonometric function in response to an input digital signal representing a plurality of angles, each one of said angles being equal to a sum of a plurality of subangles, said circuit comprising.

a first circuit element structured and configured to digitally compute a second trigonometric function value for at least one of the subangles of one of said angles using said digital circuit, wherein said computation is performed, for one or more of the subangles, by using the subangle itself as an approximation of the second trigonometric function value,

a second circuit element coupled to the first circuit element and structured and configured to digitally compute a value for the first trigonometric function in response to said one of said angles based upon said second trigonometric function value;

wherein the first and second circuit elements are further structured and configured to repeat the foregoing computations for each of the plurality of said angles; and

a third circuit dement coupled to the second circuit element and structured and configured to form said output digital signal using the value of the first trigonometric function computed for each one of said angles

5,737,254

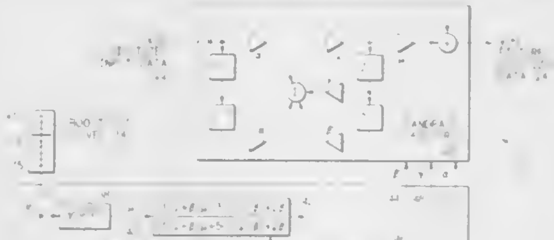
SYMMETRICAL FILTERING APPARATUS AND METHOD THEREFOR

John E. Lane, Satellite Beach, Fla.; Dan Hoory, and Eduardo F. Martinez, both of Austin, Tex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Oct. 27, 1995, Ser. No. 549,503

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—724.17 **33 Claims**



1 A data processing system comprising

a bus, wherein the bus passes data and instructions,

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an input/output port operably coupled to the bus, wherein the input/output port receives filter control parameters and digitized input data, and wherein the input/output port transmits filtered digitized data,

a memory operably coupled to the bus, wherein the memory stores the filter control parameters, instructions, and digitized input data; and

a processor operably coupled to the bus, wherein the processor receives the filter control parameters and instructions from the memory, wherein the processor calculates filter coefficients based upon the filter control parameters, wherein the processor implements a digital filter based upon the filter coefficients to filter the digitized input data and to thereby produce the filtered digitized data, the digital filter having only a single filter stage, and wherein the digital filter produces a frequency response which is symmetric about a unity gain line

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5,737,255

METHOD AND SYSTEM OF ROUNDING FOR QUADRATICALLY CONVERGING DIVISION OR SQUARE ROOT

Eric Mark Schwarz, Gardiner, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 414,867, Mar. 31, 1995. This application Jun. 5, 1995, Ser. No. 463,378

Int. Cl.⁶ G06F 7/38

U.S. Cl. 364—745 13 Claims

1. A method of providing an N bit exactly rounded result, according to a designated rounding mode, for a square root or a division operation, the exactly rounded result representing rounding in the designated rounding mode of an infinitely precise result to the division or square root operation, N having a nonzero positive value, the method comprising the steps of

generating an N+1 bit estimate signal to the infinitely precise result of the square root or division operation, said estimate having an error difference from said infinitely precise result with a magnitude less than the weight of the least significant (N+1)th bit, referred to as the guard bit, said error difference having an arbitrary sign, and

providing the exactly rounded result according to the designated rounding mode and the value of the guard bit, independently of a remainder signal representative of a difference between the infinitely precise result and the estimate signal to the division or square root operation, for a predetermined combination of the guard bit and the designated rounding mode

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5,737,256

INVERSE DISCRETE COSINE TRANSFORM APPARATUS

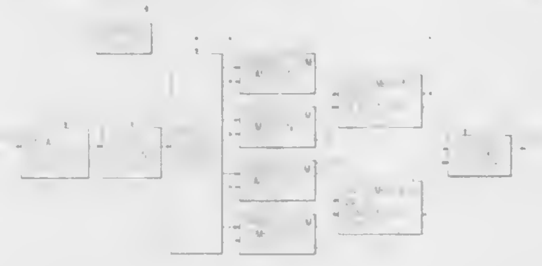
Akira Nakagawa, and Kimihiko Kazui, both of Kawaski, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 24, 1995, Ser. No. 505,857

Claims priority, application Japan, Oct. 13, 1994, 6-247469

Int. Cl.⁶ G06F *17/14*

U.S. Cl. 364—725.01 16 Claims



1. An 8-point inverse discrete cosine transform apparatus for converting eight function values in a frequency domain to eight function values in a domain of position variables, said eight function values in the frequency domain consisting of the zero-th to the seventh function values in increasing order of frequency, comprising.

a preprocessing circuit for preprocessing the seventh function value by adding the fifth function value, preprocessing the fifth function value by adding the third function value, and preprocessing the third function value by adding the first function value,

a first matrix computing circuit for outputting two values by multiplying a set of the zeroth and fourth function values by a first 2×2 matrix with no elements equal to 1:

a second matrix computing circuit for outputting two values by multiplying a set of the second and sixth function values by a second 2×2 matrix with no elements equal to 1;

a third matrix computing circuit for outputting two values by multiplying a set of the first function value and the preprocessed fifth function value by a third 2×2 matrix with no elements equal to 1;

a fourth matrix computing circuit for outputting two values by multiplying a set of the preprocessed third and seventh function values by a fourth 2×2 matrix with no elements equal to 1,

a first intermediate value generating circuit for outputting a first set of four intermediate values by performing addition and subtraction between the two values output from the first matrix computing circuit and the two values output from the second matrix computing circuit;

a second intermediate value generating circuit for outputting a second set of four values by first obtaining four values through addition and subtraction between the two values output from the third matrix computing circuit and the two values output from the fourth matrix computing circuit, and then multiplying the thus obtained four values by respective constants; and

a postprocessing circuit for computing four function values in the domain of position variables by respectively adding the four intermediate values of the first set to the four intermediate values of the second set, and for computing the remaining four function values in the domain of position variables by respectively subtracting the four intermediate values of the second set from the four intermediate values of the first set

5,737,257

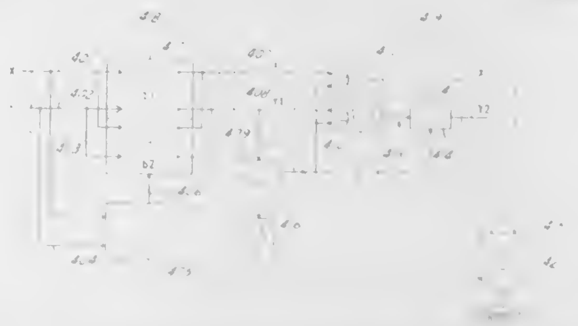
METHOD AND APPARATUS FOR COMPRESSION OF INTEGER MULTIPLICATION TABLE

Jason Chen, Ilan; Paul Chen, and George Chang, both of Taichung, all of Taiwan, assignors to Holtek Microelectronics, Inc., Hsinchu, Taiwan

Filed Sep. 13, 1995, Ser. No. 527,792

Int. Cl.⁶ G06F 7/52

U.S. Cl. 364—754.01 17 Claims



2. A multiplication table lookup apparatus for retrieving from a compressed multiplication table comprising:

a sequencing device for inputting a first value and a different second value, and then placing the two values in sequence such that said first value is larger than said second value,

an arbiter for determining whether said second value is 0,

a highest bit checking device for determining whether a highest bit of said second value is 1 or 0, and then outputting the result of said determination to an address convertor, and

an address convertor for converting said first value into a first index, said second value into a second index based on the determination of said highest bit checking device to retrieve a product from said compressed multiplication table

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5,737,258

NONVOLATILE SEMICONDUCTOR MEMORY WHICH IS CONNECTABLE TO A DRAM BUS

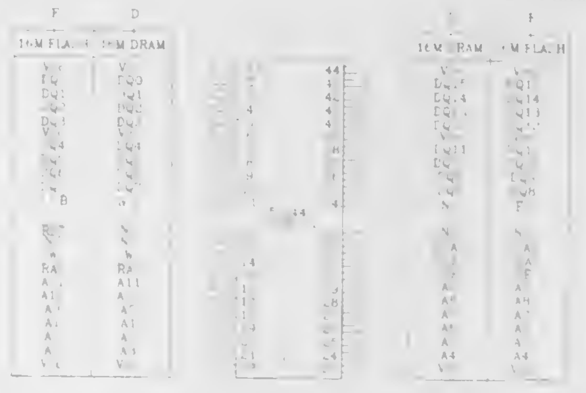
Do-Chan Choi, Seoul; Woung-Moo Lee, Seongnam; Tae-Sung Jung, Gunpo; Syed Ali, and Ejaz Haq, both of Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 26, 1996, Ser. No. 638,100

Claims priority, application Rep. of Korea, Apr. 26, 1995, 1995-9972

Int. Cl.⁶ G11C *5/02*

U.S. Cl. 365—63 28 Claims



1. An electrically erasable and programmable nonvolatile memory device comprising:

an electrically erasable and programmable nonvolatile memory chip; and

a package which contains the chip, the package including a plurality of pins which are adapted to electrically connect the chip to external devices, the plurality of pins including a first group of pins and a second group of pins;

the first group of pins providing memory functions which are common to a dynamic random access memory and an electrically erasable and programmable nonvolatile memory, each pin in the first group being located on said package at a location of a corresponding pin of a dynamic random access memory; and

the second group of pins providing functions of an electrically erasable and programmable nonvolatile memory which are not common to a dynamic random access memory, each pin in the second group being located on said package at a location of an unused pin of a dynamic random access memory

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5,737,259

METHOD OF DECODING A DIODE TYPE READ ONLY MEMORY

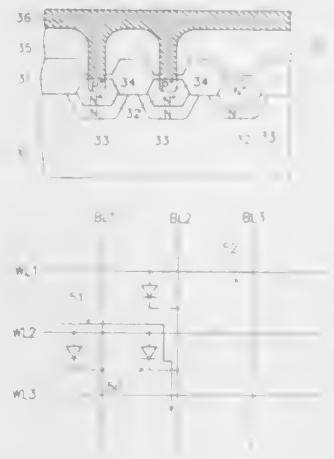
Kuang Yeh Chang, Taipei, Taiwan, assignor to United Microelectronics Corporation, Taipei, Taiwan

Filed Dec. 31, 1996, Ser. No. 775,168

Claims priority, application Taiwan, Nov. 22, 1996, 85114441

Int. Cl.⁶ G11C *17/06*

U.S. Cl. 365—105 8 Claims



1. A method of decoding a diode type read only memory, the read only memory comprising at least a first memory cell and a second memory cell, wherein the first memory cell is a diode and is coupled to a first bit line and a corresponding first word line, and the second memory cell has a logic data "off" and is coupled to a second bit line and a corresponding second word line, wherein the method comprises

forming the diode with a horizontal diode structure by forming a first conductivity-type diffusion region in a second conductivity-type diffusion region so that the second conductivity-type region partially encloses the first conductivity-type region;

providing a first voltage to one of the first bit line and the second bit line; and

providing a second voltage to the one of the first word line and the second word line which is corresponding to the one of the first bit line and the second bit line provided with the first voltage, wherein the first voltage is sufficiently lower than the second voltage that a closed circuit which includes the first bit line, the first memory cell and the first word line is formed when the one of the first and second bit lines is the first bit line and the one of the first word line and the second word line is the first word line, and that a closed circuit which includes the second bit line, the second memory cell and the second word line is not formed when the one of the first and second bit lines is the first bit line and the one of the first and second word lines is the first word line

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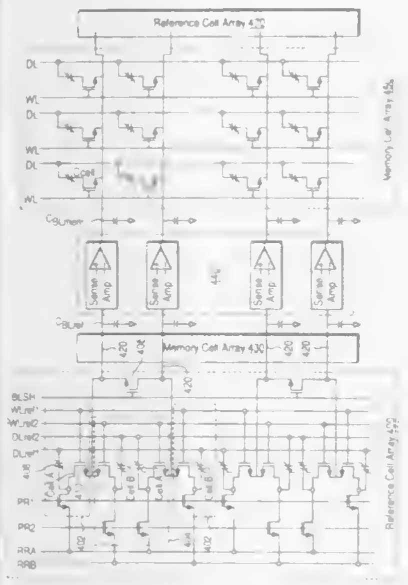
5,737,260
DUAL MODE FERROELECTRIC MEMORY REFERENCE SCHEME

Hidekazu Takata, Nara, Japan; Thomas Mnich, Woodland Park, Colo., and David Novosel, New Wilmington, Pa., assignors to Sharp Kabushiki Kaisha, Japan

Filed Mar. 27, 1996, Ser. No. 626,614

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—145 **27 Claims**



1. A dual mode reference circuit for generating a reference voltage for use with a ferroelectric memory circuit operating in either DRAM mode or NVRAM mode, comprising.

a pair of ferroelectric reference cells capable of storing opposite data states and wherein each said reference cell is capable of alternately storing opposite data states

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5,737,261
NON-VOLATILE FERROELECTRIC MEMORY UTILIZING RESIDUAL POLARIZATION OF A FERROELECTRIC FILM

Shigenobu Taira, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 18, 1996, Ser. No. 768,566

Claims priority, application Japan, Jun. 18, 1996, 8-157088

Int. Cl.^{6} G11C *11/22*

U.S. Cl. 365—145 **9 Claims**

1. A ferroelectric memory using residual polarization of a ferroelectric film comprising.

a semiconductor substrate of one conductive type:

a write transistor having a source region and a drain region of another conductive type formed at a surface of the semiconductor substrate.

a read transistor having a source region and a drain region of another conductive type formed at the surface of the semiconductor substrate; and

a storage transistor having a source region and a drain region of one conductive type formed at a well region of another conductive type at the surface of the semiconductor substrate.

wherein one source of drain region of the write transistor is connected to a gate electrode of the storage transistor, and one source or drain region of the storage transistor is connected to one source or drain region of the read transistor so as to provide a memory cell, write or erase operation is performed by inducing polarization in the ferroelectric film through applying a predetermined voltage between the well region and the gate electrode of the storage transistor, and read operation is performed by detecting a drain current for the storage transistor through the read transistor generated in accordance with the residual polarization, and

wherein the semiconductor substrate is maintained at a first potential, and a potential to be applied to the well region at the time of data writing or erasing is selected so that junction between the semiconductor substrate and the well region is placed in a reverse bias condition.

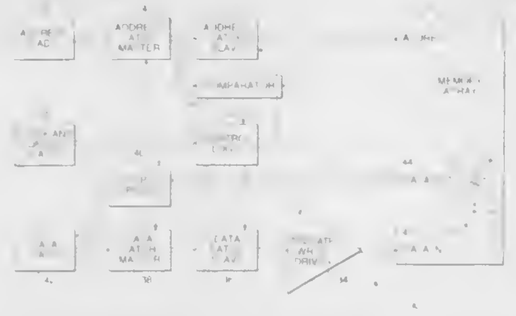
5,737,262
METHOD AND APPARATUS FOR AVOIDING BACK-TO-BACK DATA REWRITES TO A MEMORY ARRAY

Donald M. Morgan, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Aug. 8, 1996, Ser. No. 694,293

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—148 **24 Claims**



1. An integrated circuit memory comprising:

a plurality of memory cells arranged in an array, each memory cell having a unique address in said array:

a first latch circuit receiving a first address:

a second latch circuit receiving first data to be written to a memory cell having said first address:

a third latch circuit coupled to said first latch circuit and receiving said first address from said first latch circuit, whereupon said first latch circuit receives a second address:

a fourth latch circuit coupled to said second latch circuit and receiving said first data from said second latch circuit, whereupon said second latch receives second data to be written to a memory cell having said second address, and

a control circuit coupled to said first, second, third and fourth latch circuits, said control circuit writing said first data from said fourth latch to said memory cell having said first address when said first address in said first latch and said second address in said third latch are different, and inhibiting writing said first data to said memory cell having said first address when said first and second addresses are the same

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5,737,263
SEMICONDUCTOR MEMORY OF HIGH INTEGRATION, LARGE CAPACITY, AND LOW POWER CONSUMPTION

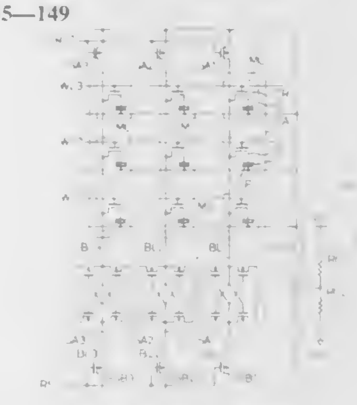
Yoshihiro Takemae, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 31, 1996, Ser. No. 688,740

Claims priority, application Japan, Mar. 19, 1996, 8-063027

Int. Cl.^{6} G11C *11/24*

U.S. Cl. 365—149 **12 Claims**



1. A semiconductor memory comprising

a plurality of bit lines:

a plurality of memory cells, each coupled to one of said bit lines, each of said memory cells including a transistor and a capacitor, and one end of said capacitor being connected to said transistor;

a circuit coupled to other ends of said capacitors, for outputting a reference voltage; and

a plurality of sense amplifiers, each having first end second input/output nodes, the first input/output nodes being coupled to a corresponding one of said bit lines and the second input/output nodes being coupled to said circuit, and said sense amplifiers amplifying a voltage between the first and second input/output nodes.

5,737,264
NON-VOLATILE SEMICONDUCTOR MEMORY CELL

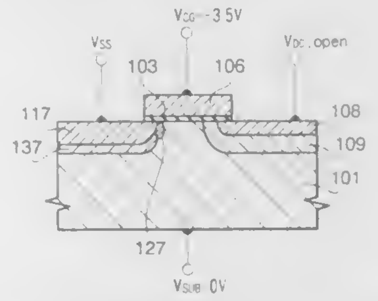
Hiroki Shirai, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Mar. 25, 1996, Ser. No. 621,479

Claims priority, application Japan, Mar. 30, 1995, 7-072922

Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.01 **4 Claims**



1. A non-volatile semiconductor memory cell, comprising:

a floating gate electrode formed on a front surface of a P type silicon substrate through a gate oxide film;

a control gate electrode formed on a front surface of said floating gate electrode through a gate insulation film, said control gate electrode working as a word line;

a source region including.

a first N^+ type diffusion layer having a first junction depth and formed on the front surface of the P type silicon substrate.

an N type diffusion layer having a second junction depth larger than the first junction depth, the N type diffusion layer being connected to the N^+ type diffusion layer and formed on the front surface of the P type silicon substrate, and

an N type diffusion layer formed just below said floating gate electrode through the gate oxide film, the width of said N type diffusion layer being larger than each of the N^+ type diffusion layer and the N type diffusion layer, the N type diffusion layer having a junction depth smaller than at least the second junction depth, the N type diffusion layer being connected to the N^+ type diffusion layer and formed on the front surface of the P type silicon substrate.

a drain region including a second N^+ type diffusion layer having a junction depth smaller than the first junction depth and being formed on the front surface of the P type silicon substrate; and

a bit line connected to said drain region

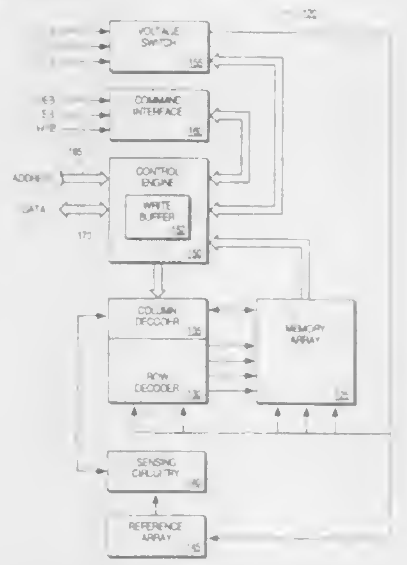
5,737,265
PROGRAMMING FLASH MEMORY USING DATA STREAM ANALYSIS

Gregory E. Atwood, San Jose, and Albert Fazio, Los Gatos, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 14, 1995, Ser. No. 572,620

Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.03 **16 Claims**



1. A nonvolatile memory system comprising

an array of memory cells;

a write buffer that stores data to be programmed into corresponding memory cells of the array, and

a control engine coupled to the write buffer and the array of memory cells, the control engine analyzing the data stored by the write buffer to identify a plurality of memory cells to be programmed to a same destination state, the control engine programming the plurality of memory cells to the same destination state a block at a time, the block specifying a maximum number of memory cells that can be programmed at a time, until fewer than a block of memory cells remain to be programmed such that the maximum number of memory cells are programmed per programming cycle

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5,737,266
METHODS AND APPARATUS FOR PROGRAMMING CONTENT-ADDRESSABLE MEMORIES USING FLOATING-GATE MEMORY CELLS

Jean-Michel Mirabel, Cabries, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Oct. 25, 1996, Ser. No. 738,231

Claims priority, application France, Oct. 26, 1995, 95 12662

Int. Cl.^{6} G11C *11/34;15/00*

U.S. Cl. 365—185.22 **18 Claims**

1. A method for programming floating-gate memory cells of a content-addressable memory in an integrated circuit, the method comprising the steps of:
- selecting the floating-gate memory cells of the content-addressable memory in the integrated circuit;
- applying, through a programming path, a programming high voltage to drains of the selected floating-gate memory cells;
- applying, in a verification stage, a read voltage to the selected floating-gate memory cells through the programming path, such that selection of the floating-gate memory cells is maintained to obtain direct read access of the selected floating-gate memory cells; and
- measuring, in the verification stage, one of current and voltage on the programming path.

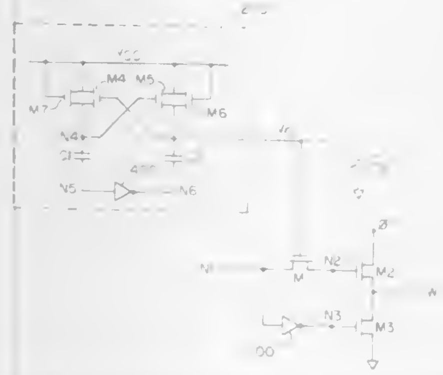
5,737,267
WORD LINE DRIVER CIRCUIT

Robert J. Proebsting, Los Altos Hills, Calif., assignor to Townsend and Townsend and Crew LLP, San Francisco, Calif.

Filed Apr. 10, 1996, Ser. No. 630,310

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—189.01 **7 Claims**



1. A word line driver circuit having an output terminal coupled to a word line, and an input terminal, the word line driver circuit comprising:
- an isolation transistor having a first terminal coupled to the input terminal; and
- a word line driver transistor having a gate terminal coupled to a second terminal of said isolation transistor, a first terminal coupled to a boost signal, and a second terminal coupled to the word line,
- wherein, a voltage at said gate terminal of said isolation transistor is momentarily boosted above a logic high voltage level.

5,737,268
MODULATED SLOPE SIGNAL GENERATION CIRCUIT, PARTICULARLY FOR LATCH DATA SENSING ARRANGEMENTS

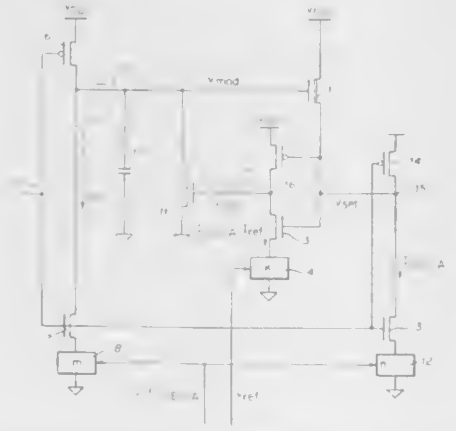
Luigi Pascucci, Sesto San Giovanni, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Filed Jul. 19, 1996, Ser. No. 684,431

Claims priority, application European Pat. Off., Jul. 28, 1995, 95830336

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—189.05 **19 Claims**



1. A circuit for generating an equalization signal with a modulated slope for a latch arrangement having an input for receiving the equalization signal on an equalization line and a load, the circuit comprising:
- a current follower branch having a generic matrix cell connected to the load of the latch arrangement and for following a current of the generic matrix cell;
- a current ratio evaluation branch connected to the current follower branch for evaluating a ratio between the current and a reference current;
- a slow discharge branch, having an input for receiving a control signal having a first state for precharging the circuit and a second state for discharging the circuit, connected to the equalization line and for slowly discharging the equalization line at a first slope after a change of the control signal from the first state to the second state; and
- a fast discharge branch connected to the equalization line for quickly discharging the equalization line at a second slope;
- wherein the current ratio evaluation branch activates the fast discharge branch in response to the evaluated ratio.

5,737,269
SEMICONDUCTOR MEMORY WITH BURST MODE FEATURE FOR THE REDUNDANT MEMORY AREA

Mamoru Fujita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

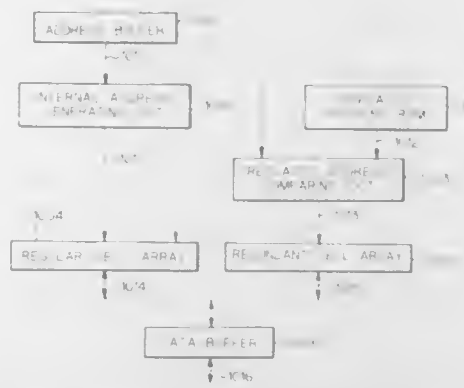
Filed Sep. 27, 1995, Ser. No. 534,995

Claims priority, application Japan, Sep. 28, 1994, 6-257332

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—200 **13 Claims**

1. A semiconductor memory having a burst access function for continuously accessing a plurality of data, comprising:



- an internal address generating circuit for receiving only a leading address, and for generating a plurality of internal addresses based on said leading address,
- a regular cell array to which said plurality of internal addresses are applied;
- a redundant cell array for substituting redundant cells thereof for defective cells included in said regular cell array,
- storing means for storing information representative of substitution of said redundant cells for said defective cells,
- a comparing circuit which compares substantially simultaneously with generation of said plurality of internal addresses by said internal address generating circuit, said information stored in said storing means only with said leading address supplied to both said comparing circuit and said internal address generating circuit; and
- control means for causing said regular cell array and said redundant cell array to be selectively accessed on the basis of a result of a comparison output from said comparing circuit.

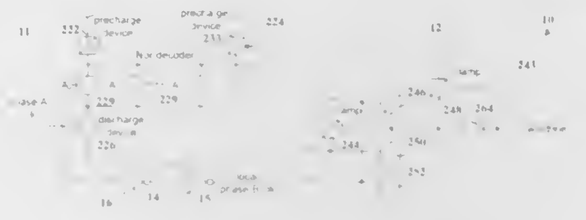
5,737,270
PRECHARGED WORDLINE DECODER WITH LOCALLY-CONTROLLED CLOCK

Jeffery H. Oppold, Richmond; Michael R. Ouellette, Westford; James A. Svarczkopf, Essex Junction, and Daved J. Wager, Jeffersonville, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 15, 1996, Ser. No. 680,081

Int. Cl.^{6} G11C *8/00*

U.S. Cl. 365—203 **18 Claims**



1. A decoder circuit for decoding an input signal having discharge elements and wordline driver elements, said decoder circuit being coupled to a first clock signal, comprising:
- a first logic circuit receiving said first clock signal for enabling said discharge elements of said first logic circuit;
- a delay circuit for generating a predetermined delayed clock signal from said first clock signal, wherein said delayed clock signal is locally controlled; and
- at least one precharged NAND circuit receiving said delayed clock signal for controlling said wordline driver elements.

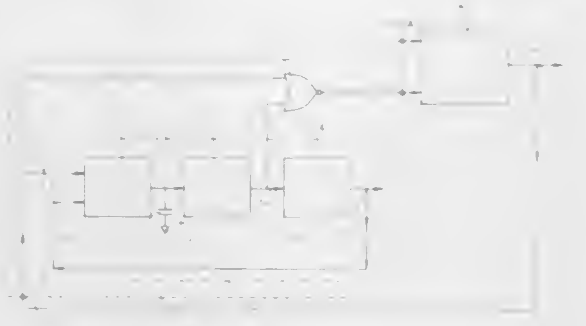
5,737,271
SEMICONDUCTOR MEMORY ARRAYS

Tah-Kang Joseph Ting, Hsinchu; Bor-Doou Rong, Chupei, and Yung-Ching Hsieh, Hsinchu, all of Taiwan, assignors to Etron Technology, Inc., Hsin-Chu, Taiwan

Filed Feb. 28, 1997, Ser. No. 808,205

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—203 **12 Claims**



1. A method of allowing flexible row activation and row precharge timing in a memory, comprising:
- receiving a row precharge command to begin charging of bit lines in said memory,
- generating a precharge complete signal upon completion of precharging of said bit lines, wherein said precharging requires a time τ,
- receiving and registering a row activation command, where said row activation command may be received prior to completion of said bitline precharging; and
- using said precharge complete signal and the registered row activation command to initiate an active period in said memory.

5,737,272
LIQUID CRYSTAL DISPLAY APPARATUS, STRUCTURE FOR MOUNTING SEMICONDUCTOR DEVICE, METHOD OF MOUNTING SEMICONDUCTOR DEVICE, ELECTRONIC OPTICAL APPARATUS AND ELECTRONIC PRINTING APPARATUS

Kenji Uchiyama; Eiji Muramatsu; Masaru Kamimura; Shigetoshi Yamada; Kenichi Maruyama; Seiichi Sakura; Kazuaki Furuichi, and Kinichi Maeda, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Sep. 8, 1993, Ser. No. 117,899

Claims priority, application Japan, Sep. 8, 1992, 4-239698; Jun. 28, 1993, 5-157323; Jun. 29, 1993, 5-158610; Jun. 29, 1993, 5-158611; Jun. 29, 1993, 5-158612; Jun. 29, 1993, 5-158613; Jul. 1, 1993, 5-163645; Jul. 1, 1993, 5-163646; Jul. 1, 1993, 5-163647; Jul. 1, 1993, 5-163648; Jul. 23, 1993, 5-182924; Aug. 12, 1993, 5-200865

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—206 **28 Claims**

1. A liquid crystal display apparatus comprising:
- a panel containing a liquid crystal and a panel terminal for receiving driving signals for driving the liquid crystal,
- a semiconductor chip for driving said liquid crystal of said liquid crystal display apparatus,
- a multi-layer substrate having said semiconductor chip mounted thereon, said multilayer substrate including a first layer having an input line pattern coupled to said semiconductor chip and an output line pattern coupled to said semiconductor chip, a second layer, and at least one intermediate layer located between said first layer and said second layer;
- said at least one intermediate layer having a portion of at least one of said input lines and said output lines as a circuit pattern located on a surface thereof, at least said first layer and said at least one intermediate layer having through holes through

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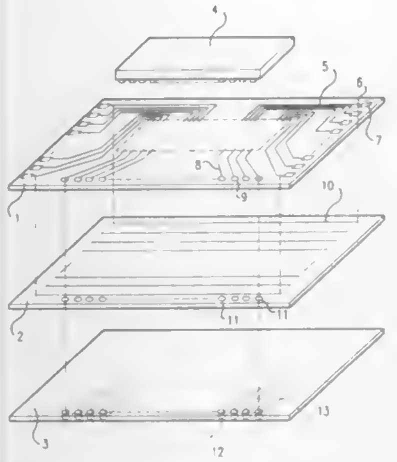


which the lines thereon are connected to one another and to said panel terminal.

5,737,273

SENSE AMPLIFIER AND READING CIRCUIT WITH SENSE AMPLIFIER

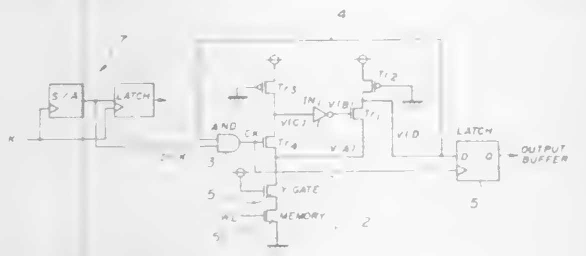
Hideo Fujiwara; Seiji Yamanaka, both of Ikeda; Toshihisa Nagata, Takarazuka, and Hiizu Okubo, Nishinomiya, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 5, 1996, Ser. No. 630,929

Claims priority, application Japan, Apr. 6, 1995, 7-081274; Jul. 5, 1995, 7-194263

Int. Cl.^{6} H01L *27/10*

U.S. Cl. 365—205 **9 Claims**



1 A sense amplifier comprising

state control means for setting a sense amplifier portion in an active state or an inactive state:

gated feedback means responsive to an output of said sense amplifier portion and a clock signal and providing a control signal for causing said control means to set said sense amplifier portion in the inactive state when a path is formed between a power source and a ground in said sense amplifier portion: and

latch means for holding said output of said sense amplifier portion when said path is formed.

5,737,274

SENSE AMPLIFIER DESIGN

Jeffery Scott Hunt, Ackerman, and Satish C. Saripella, Starkville, both of Miss., assignors to Cypress Semiconductor Corporation, San Jose, Calif.

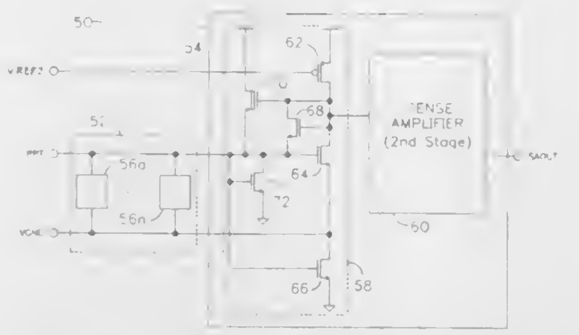
Filed Nov. 12, 1996, Ser. No. 746,320

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—205 **20 Claims**

1 A circuit having a read line, a ground line and a reference line comprising:

a first stage configured to generate a first output in response to said read line, said ground line and said reference line, wherein said first stage comprises: (i) a pullup section coupled to said reference line (ii) a first pulldown section coupled to



said pullup section and to said read line and (iii) a second pulldown section coupled between said first pulldown section and said read line, wherein said first and second pulldown sections provide a constant signal at the first output during a glitch condition: and

a second stage configured to provide a second output in response to said first output

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5,737,275

WORD LINE SELECTION CIRCUIT FOR STATIC RANDOM ACCESS MEMORY

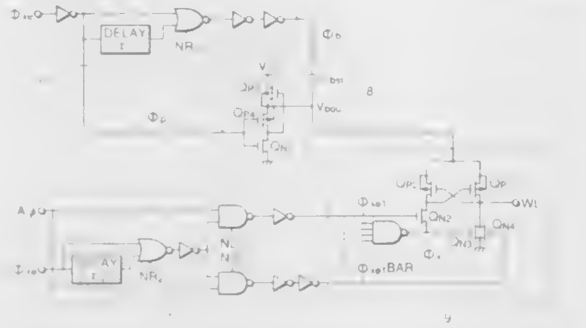
Frank Matthews, and Junji Ueoka, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,152

Claims priority, application Japan, Mar. 17, 1995, 7-057854

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—226 **13 Claims**



1 A semiconductor memory device having a boost circuit for raising a voltage to above a power supply voltage, a word drive circuit for driving a word line, and a row decoder for selecting said word driver circuit by an address input signal, said semiconductor memory device comprising:

a first P-channel MOS transistor and a second P-channel MOS transistor having drains and gates cross-connected and having each source and each substrate of said first P-channel MOS transistor and said second P-channel MOS transistor connected to an output terminal of said boost circuit;

a first N-channel MOS transistor having a drain connected to the drain of said first P-channel MOS transistor, a source connected to a ground terminal, and a gate connected to an output terminal of said row decoder;

a second N-channel MOS transistor having a source connected to said output terminal of said row decoder, a drain connected to a drain of said second P-channel MOS transistor, and a gate receiving one of said power supply voltage and a control signal; and

a third N-channel MOS transistor having a source connected to the ground terminal, a drain connected to the drain of said first P-channel MOS transistor, and a gate receiving one of said power supply voltage and an inverse control signal for pulling said word line to ground in a non-selected state independent of said row decoder

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5,737,276

MEMORY DEVICE WITH FAST EXTENDED DATA OUT (EDO) MODE AND METHODS OF OPERATION THEREFOR

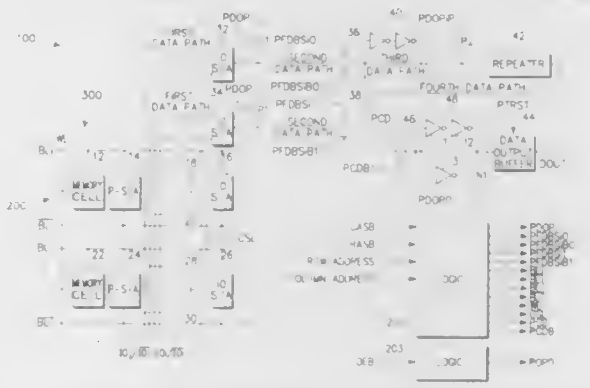
Sang-Gil Shin, Seoul, and Kyung-Woo Kang, Kyungki-do, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 11, 1996, Ser. No. 712,499

Claims priority, application Rep. of Korea, Sep. 11, 1995, 29572/1995

Int. Cl.^{6} G11C *8/00*

U.S. Cl. 365—230.08 **11 Claims**



1 A memory device, comprising

an array of memory cells arranged in a plurality of rows and columns,

a first data latch which stores data,

a second data latch which stores data,

a column address input which receives a column address signal,

a column address strobe input which receives a column address strobe signal:

first latch control means, responsive to said column address input and to said column address strobe input, for electrically coupling one memory cell in said array of memory cells and said first data latch when a column address signal is asserted at said column address input and for electrically decoupling said one memory cell and said first data latch when a column address strobe signal is asserted at said column address strobe input to thereby latch data present in the one memory cell prior to assertion of the column address strobe signal in the first data latch; and

second latch control means, responsive to said column address strobe input, for electrically coupling said first data latch and said second data latch when a column address strobe signal is asserted at said column address strobe input and for electrically decoupling said first data latch and said second data latch when a column address strobe signal is deasserted at said column address strobe input to thereby latch data present in the first data latch prior to deassertion of the column address strobe signal in the second data latch

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5,737,277

METHOD FOR COMPUTING BOREHOLE GEOMETRY FROM ULTRASONIC PULSE ECHO DATA

John F. Priest, Tomball, Tex., assignor to Western Atlas International, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 690,776, Aug. 1, 1996, Pat. No. 5,638,337. This application Oct. 25, 1996, Ser. No. 735,982

Int. Cl.^{6} G01V *1/40*

U.S. Cl. 367—27 **11 Claims**

1 A method of logging a wellbore which comprises

locating a logging tool including an acoustic transducer in the well,

transmitting a series of acoustic pulses radially centered from the transducer at different radial positions of the transducer at said location,

detecting the arrival times at the transducer of echoes of the pulses coming from the wall of the well to relate the position of the transducer to the wall of the well at said position, and

generating a general quadratic model of the well at said position from said arrival times, wherein said general quadratic model is a circular model based on the equation,

$$(x+x_c)^2+(y+y_c)^2=r^2$$

where (x_c, y_c) represents the center coordinate for the circle, r represents the radius of the circle and x and y represent the coordiantes of points used to model the circle

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5,737,278

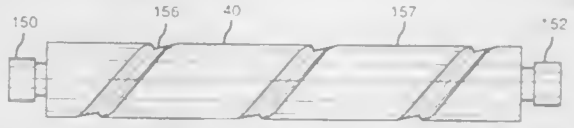
EXTENDED, FLEXIBLE, SPATIALLY WEIGHTED FIBER OPTIC INTERFEROMETRIC HYDROPHONE

Donald A. Frederick; Robert P. Goldman, both of Woodland Hills; Steven J. Maas, Simi Valley, and John E. Mansell, Thousand Oaks, all of Calif., assignors to Litton Systems, Inc., Woodlands Hills, Calif.

Filed Jun. 17, 1996, Ser. No. 664,871

Int. Cl.^{6} H04R *23/00*

U.S. Cl. 367—149 **11 Claims**



1 A spatially weighted, extended fiber optic sensor for measuring changes in a physical parameter, comprising

a first optical fiber having a plurality of spatially separated outer coils formed therein,

a second optical fiber having a plurality of spatially separated inner coils formed therein, the inner and outer coils being arranged in concentric pairs to form a plurality of serially connected sensor segments arranged such that there is a first sensor segment and a last sensor segment

a plurality of spacers arranged such that one of the plurality of spacers is between successive sensor segments, each spacer being formed to comprise a rod having a spiral groove along the length thereof, the first and second optical fibers being mounted in the spiral groove, the spacers being formed to guide the first and second optical fibers between successive sensor segments such that changes in the physical parameter between the sensor segments produce no phase difference between optical signals guided by the first and second fibers,

a first optical coupling apparatus arranged for coupling optical signals into the first and second optical fibers, the inner and outer coils being arranged for exposure to the parameter such that changes in the parameter at each sensor segment produce

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corresponding phase changes between the optical signals in the outer coils and the corresponding inner coils; and

a second optical coupling apparatus arranged to combine signals in the first and second optical fibers after exposure of the sensor segments to the parameter

5,737,279
RETRACTABLE SENSOR ARRAY SYSTEM

G. Clifford Carter, Waterford, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 7, 1996, Ser. No. 695,844

Int. Cl.⁶ H04R *17/00;23/00*

U.S. Cl. 367—173 **17 Claims**

1 A retractable sensor array system comprising:

at least one sensor array sheet having at least one sensor element disposed on at least one surface of said at least one sheet, and

a sensor array positioning mechanism having a roller mechanism coupled to said at least one sensor array sheet, said at least one sensor array sheet rolling and unrolling on said roller mechanism for deploying and retracting said at least one sensor array sheet into the environment.

5,737,280
CLOCKING SYSTEM FOR MEASURING RUNNING SPEEDS OF TRACK RUNNERS

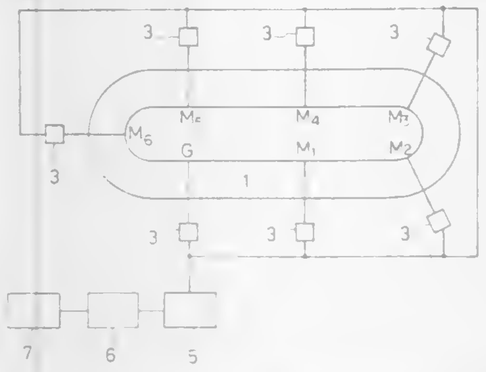
Hiroshi Kokubo, Kyoto, Japan, assignor to Univert Inc., Osaka, Japan

Filed Nov. 21, 1995, Ser. No. 561,580

Claims priority, application Japan, Nov. 21, 1994, 6-309483

Int. Cl.⁶ G04F *8/00;* G04B *47/00* G06K *7/10;* G01C *22/00*

U.S. Cl. 368—2 **12 Claims**



1 A clocking system for measuring running speeds of a plural number of track runners at each one of a plural number of clocking positions provided at predetermined intervals along a running course or track toward a goal position, said clocking system comprising:

an ID number transmitter carried by each runner and provided with an ID number generator to release at least an ID signal of said runner at each clocking position:

a trigger signal generator means provided at each one of said clocking positions to release a trigger signal toward said ID number transmitter of said runner passing across a measuring zone in front of said clocking position: and

time measuring means located at each one of said clocking positions to receive said ID signal transmitted by said ID number transmitter in response to said trigger signal from said trigger signal generator means, and arranged to register Identity of said runner passing across said clocking position along with a split time to said clocking position:

said ID number transmitter being arranged to release said ID signal repeatedly for a plural number of times in response to a trigger signal at predetermined time Intervals distinguishable of ID signals from other ID number transmitters carried by other runners.

5,737,281
DATA WRITING METHOD AND DEVICE OF SEMICONDUCTOR DEVICE

Minoru Takeda; Yutaka Hayashi, and Machio Yamagishi, all of Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Mar. 5, 1996, Ser. No. 611,083

Claims priority, application Japan, Mar. 7, 1995, 7-046878

Int. Cl.⁶ G11B *13/00;* G11C *11/34*

U.S. Cl. 369—14 **6 Claims**

1 A data writing method of a semiconductor device, wherein writing of data is carried out by selectively spot irradiating an ultraviolet laser beam to a memory cell array of a selectively movable semiconductor device of a nonvolatile MOS type semiconductor configuration comprising a memory cell array and a peripheral control circuit for controlling movement of said semiconductor device

5,737,282
OPTICAL DISK APPARATUS AND TRACK ACCESS CONTROL METHOD UTILIZING POSITIONED SHIFT BETWEEN SCANNING BEAMS

Shigeru Shimonou, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,637

Claims priority, application Japan, Feb. 28, 1995, 7-039916

Int. Cl.⁶ G11B *17/22;11/00*

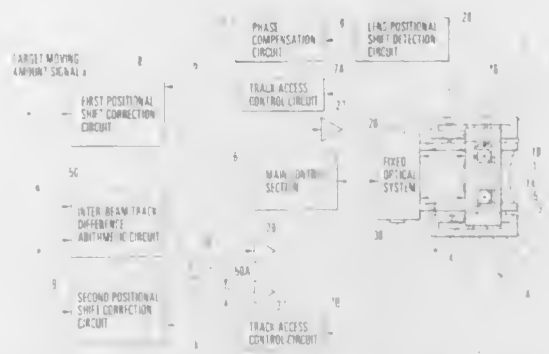
U.S. Cl. 369—32 **6 Claims**

1 An optical disk apparatus comprising:

first and second objective lenses respectively for outputting first and second light beams on the same track on an optical disk, the first and second beams separately recording, reproducing, and erasing information on the same track,

first and second driving means respectively for slightly driving said first and second objective lenses in a track crossing direction in accordance with a first and a second positional shift correction signals,

a carriage on which said first and second objective lenses are mounted:


TARGET MOVING AMOUNT SIGNAL
PHASE COMPENSATION CIRCUIT
LENS POSITIONAL SHIFT DETECTION CIRCUIT
FIRST POSITIONAL SHIFT CORRECTION CIRCUIT
TRACK ACCESS CONTROL CIRCUIT
MAIN CONTROL SECTION
FIXED OPTICAL SYSTEM
INTER-BEAM TRACK DIFFERENCE ARITHMETIC CIRCUIT
SECOND POSITIONAL SHIFT CORRECTION CIRCUIT
TRACK ACCESS CONTROL CIRCUIT
50A

a moving mechanism for moving said carriage between tracks.

a fixed optical system for emitting the first and second beams on said optical disk and detecting the beams reflected by said optical disk through said first and second objective lenses, and extracting first and second track position signals from the detected reflected beams of the first and second beams:

main control means for controlling an operation of said moving mechanism, and controlling an information recording/reproducing/erasing operation using said first and second objective lenses through said fixed optical system:

track access control means for controlling the movement of said carriage between the tracks based on the first and second track position signals from said fixed optical system:

first positional shift correction means for counting the first track position signal from said fixed optical system to output a first positional error signal with respect to a target track, and outputting the first positional shift correction signal to said first driving means based on the first positional error signal and the first track position signal:

second positional shift correction means for counting the second track position signal from said fixed optical system to output a second positional error signal with respect to said target track, and outputting the second positional shift correction signal to said second driving means based on the second positional error signal and the second track position signal.

arithmetic means for calculating a difference between the first and second positional error signals from said first and second positional shift correction means to output an inter-beam positional shift signal: and

correction means for correcting one of the first and second positional shift correction signals from said first and second positional shift correction means based on the inter-beam positional shift signal from said arithmetic means.

5,737,283
REPRODUCING METHOD AND APPARATUS USING ABSOLUTE TIME DATA

Itaru Sato; Shigeto Yanagi, both of Chiba, and Susumu Matsunaga, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 9, 1996, Ser. No. 629,444

Claims priority, application Japan, Apr. 10, 1995, 7-083705

Int. Cl.⁶ G11B *17/22*

U.S. Cl. 369—32 **15 Claims**

1 An apparatus for reproducing information from a disc-shaped record medium, which comprises.

information reading means for reading a program information signal and absolute time data from a disc-shaped record medium on which the program information signal are recorded together with the absolute time data, wherein said absolute time data represents a temporal position of said program information signal on said disc-shaped record medium:

reading position driving means for moving a reading position set by the information reading means on the disc shaped record medium.

information reproducing means for obtaining a reproduced program information signal and reproduced absolute time data based on outputs from the information reading means.

memory means for storing the reproduced absolute time data obtained from the information reproducing means.

reference time data supplying means for supplying reference time data indicating a target temporal position on said disc shaped record medium:

data comparing means for comparing the reproduced absolute time data with the reference time data supplied from the reference time data supplying means to produce a comparison output:

control signal producing means for forming a reading position control signal in response to the comparison output obtained from the comparing means. and

reading position control means for controlling in response to the reading position control signal the reading position driving means so as to cause the reading position set by the information reading means on the disc-shaped record medium to reach said target temporal position corresponding to the reference time data

5,737,284
OPTICAL DISC DRIVE HAVING ACCESSING FROM A CURRENT POSITION WITHIN A LEAD-IN AREA

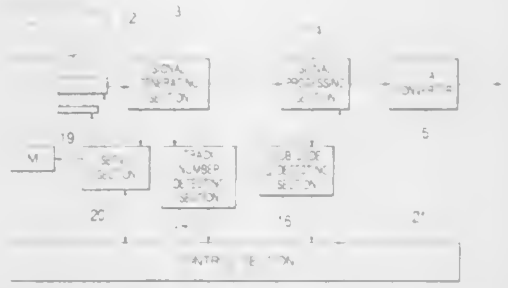
Minoru Yamada, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Oct. 9, 1996, Ser. No. 728,306

Claims priority, application Japan, Oct. 13, 1995, 7-265668

Int. Cl.⁶ G11B *17/22,5 596*

U.S. Cl. 369—32 **4 Claims**



1. An optical disc drive for driving a compact disc including a lead-in area having a plurality of tracks addressed by a sequence of relative addresses and a program area disposed adjacent to the lead-in area, the program area having a plurality of tracks addressed at least by a sequence of absolute addresses, the optical disc drive comprising:

an optical pick-up movable with respect to an optical disk in a radial direction thereof from a current position to a target track specified from outside for reading data recorded on the target track.

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- a relative address detecting section for detecting a current relative address of the optical pick up at the current position at least when the optical pick-up stays within the lead-in area:
- a first storage section for storing a reference relative address in a reference track in the lead-in area, the reference track including a beginning position of the program area, the reference relative address being detected by the address detecting section after the optical disc is mounted on the disc drive;
- a calculation section for calculating a first number of remaining tracks disposed between the current position and the target track, when the optical pick-up stays within the lead-in area, based on a target address of the target track, the reference relative address and a current address detected by the address detecting section at the current position, and
- a driving section for moving the optical pick-up from the current position to the target track based on the first number of remaining tracks.

5,737,285

DISK LOADING AND UNLOADING APPARATUS FOR A DISK PLAYER-CHANGER

Kouji Uchiyama, Kanagawa, Japan, assignor to Nakamichi Corporation, Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 631,641

Claims priority, application Japan, Apr. 13, 1995, 7-112324

Int. Cl.⁶ G11B *17/22*

U.S. Cl. 369—34 **14 Claims**

1 A disk changer, comprising.
- a chassis;
- a disk playback device attached to said chassis.
- a disk storage magazine, attached to said chassis, with multiple storage positions.
- an insertion aperture of said chassis;
- a disk transporter to transport a first disk from said multiple storage positions to said insertion aperture.
- a disk sensor, attached to said chassis in such a position that said first disk, brought to said insertion aperture by said disk transporter and remaining at said insertion aperture, is sensed by said disk sensor;
- a controller connected to said disk transporter and programmed to prevent a second disk from being transferred by said disk transporter from one of said multiple storage positions and said disk playback device to said insertion aperture when said first disk is sensed by said disk sensor

5,737,286

SYSTEM AND APPARATUS FOR RECOVERING INFORMATION FROM A RECORD CURRIER WHICH EXHIBITS VARIATIONS OF TWO DIFFERENT PHYSICAL PARAMETERS THEREOF

Jozef M. K. Timmermans, Hasselt, Belgium; Erik C. Schylander, and Johannes J. Mons, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

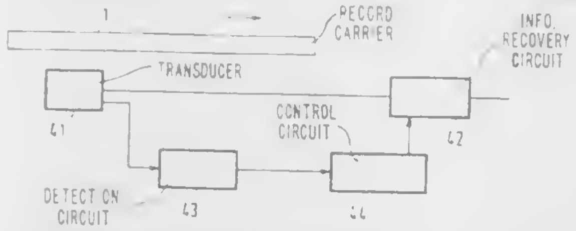
Continuation of Ser. No. 983,901, Dec. 1, 1992, abandoned.

This application Feb. 15, 1995, Ser. No. 389,445

Claims priority, application European Pat. Off., Dec. 2, 1991, 91203147

Int. Cl.⁶ G11B *7/095*

U.S. Cl. 369—44.13 **25 Claims**



1 An information system, comprising:
- a record carrier having information marks along a track thereof and exhibiting:
  - first variations caused by existence and non-existence of the information marks along the track, said first variations representing an information signal recorded on said record carrier, and
  - second variations caused by variations associated with the track; and
  - a playback apparatus including:
    - transducer means for scanning said record carrier, said transducer means being adapted to detect said first variations and said second variations,
    - recovery means coupled to said transducer means for recovering the information signal from said first variations,
    - detection means for detecting whether said second variations exhibit a predetermined variation pattern on the basis of at least one signal, which is at least indicative of said second variations, originating from said transducer means, and
    - enabling means for enabling said recovery means to recover the information signal when said detection means detects said predetermined variation pattern.

5,737,287

METHOD FOR RECORDING/REPRODUCING STATUS INFORMATION ON/FROM AN OPTICAL DISC

Soo Young Lee, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

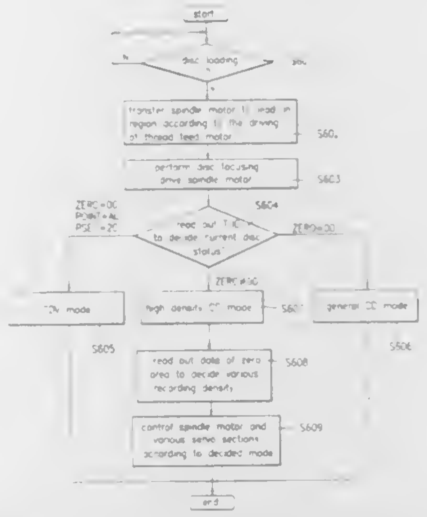
Filed Jun. 28, 1996, Ser. No. 673,509

Claims priority, application Rep. of Korea, Jun. 29, 1995, 18284/1995

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—44.26 **4 Claims**

3 A method for recording/reproducing on/from an optical disc for transferring a thread motor to transfer a pickup upon the insertion of said disc, and driving a spindle motor at a linear velocity while performing a tracking servo and a focusing servo to decide the kind and recording density status of said disc, said method comprising:
- a recording step of recording status information including classification of a general disc and a high density disc, identification of respective layers of a multi-layer disc and recording density status onto both a zero area of a lead-in region and a zero area of a Q channel of a subcode; and
- a reproducing step of reading out said zero area of said lead-in region to decide said recording density status and positional information with respect to respective musics, and controlling said linear velocity of said spindle motor, tracking servo and focusing servo with respect to the decided recording density status and positional information of respective musics.


start
disc loading
transfer spindle motor to lead in region according to the driving of thread feed motor
S602
perform disc focusing drive spindle motor
S603
S604
ZERO=00
POINT=AL
PSE=2C
read out TOC to decide current disc status
ZERO=00
ZERO≠00
TDV mode
high density CD mode
S607
general CD mode
S605
S606
read out data of zero area to decide various recording density
S608
control spindle motor and various servo sections according to decided mode
S609
end

5,737,288

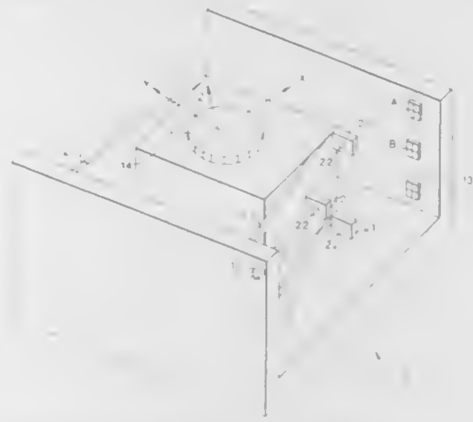
POSITION SENSING FOR AN OPTICAL RECORDING ACTUATOR

Philip F. Marino, and Charles J. Simpson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 7, 1996, Ser. No. 660,568

Int. Cl.⁶ G11B *7/095*

U.S. Cl. 369—44.32 **4 Claims**



1 An optical recording actuator comprising
- a) a base;
- b) a moveable lens holder having its position controlled between two to six degrees of freedom of motion, such lens holder including an objective lens;
- c) a sensor assembly including mounted on the base a light source and three sensors and mounted on the moveable lens holder, means defining three separate apertures, each corresponding to a sensor and arranged so that light from the source passes through the apertures and illuminates its corresponding sensor mounted on the base, each sensor having:
  - i) means for providing position detection in two orthogonal directions; and
- d) computing means responsive to the position detection means to determine the position of the moveable lens holder with respect to the base in six degrees of freedom of motion.

5,737,289

DATA RECORDING APPARATUS ADAPTED FOR RECORDING DATA SIGNALS ONTO AN OPTICAL RECORDING MEDIUM

Osamu Udagawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

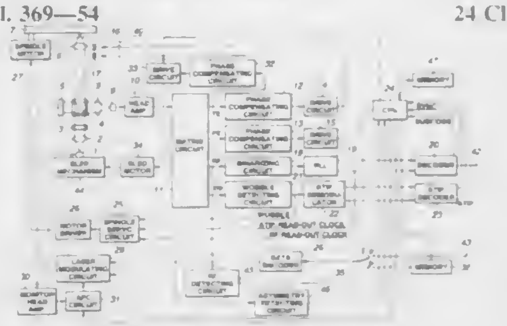
PCT No. PCT/JP95/01067, § 371 Date Jan. 26, 1996, § 102(e) Date Jan. 26, 1996, PCT Pub. No. WO95/33261, PCT Pub. Date Dec. 7, 1995

PCT Filed May 31, 1995, Ser. No. 586,703

Claims priority, application Japan, May 31, 1994, 6-141109

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—54 **24 Claims**



1 A data recording apparatus comprising.
- laser irradiating means for irradiating laser beams with respect to an optical recording medium;
- laser driving means for driving the laser irradiating means,
- moving means for relatively moving the laser irradiating means with respect to the optical recording medium: and
- control means for controlling the laser driving means and the moving means so that test write data are recorded by different plural laser drive powers within each subcode frame of a test write area including the plural subcode frames within the optical recording medium by the laser irradiating means

5,737,290

RECORDING MEDIUM CAPABLE OF RECORDING A FIRST DATA-TYPE AND A SECOND DATA-TYPE, PLAYBACK METHOD AND PLAYBACK DEVICE FOR PLAYING BACK FROM THE RECORDING MEDIUM, AND RECORDING DEVICE FOR RECORDING FIRST-TYPE DATA AND SECOND-TYPE DATA ON THE RECORDING MEDIUM

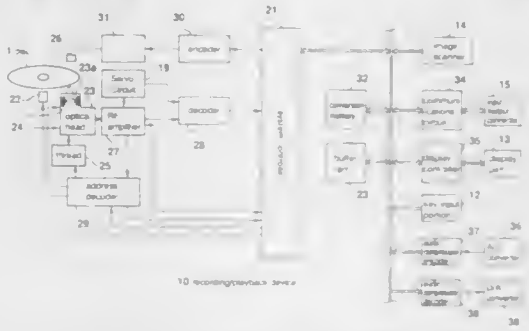
Takashi Ohmori, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jul. 21, 1995, Ser. No. 505,749

Claims priority, application Japan, Jul. 29, 1994, 6-196162

Int. Cl.⁶ G11B *3/90;5/09;17/22*

U.S. Cl. 369—58 **19 Claims**



18 A recording device for recording and/or updating first-type data and/or second-type data from a recording medium comprising
- a first recordable area for recording first-type data composed of at least one program;
- a second recordable area for recording second-type data composed of at least one tile.
- a first management area for managing the at least one program of the first recordable area and at least one tile of the second

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recordable area and a defective area on the medium, first management data comprising a corresponding part table indicating data for indicating a part table, the part table manages the start address, end address of part of a program, and link information for indicating next slot address to be linked;

a second management area for managing the at least one file of the second recordable area; and

a third management area recorded at a position having an address offset by a prescribed extent from within the first management area, said recording device comprising:

recording means for recording first-type data and/or second-type data at the first and/or second recordable areas; and

updating means for updating, while the second-type data is being recorded at the first or second recordable area, first management data and/or second management data in such a manner that an area recorded with the second-type data is managed as a defect area at the first management area and/or the second management area and also for updating management data at the third management area.

5,737,291

Patent Not Issued For This Number

5,737,292

OPTICAL DATA RECORDING/REPRODUCING DEVICE

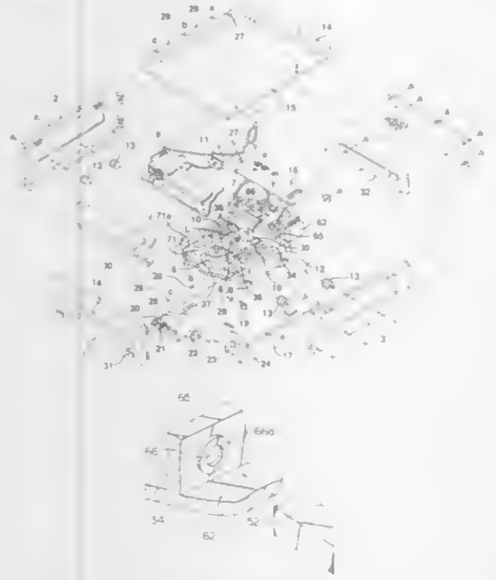
Syuichi Honda, Yokohama, and Masaaki Sofue, Hadano, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 456,286, May 31, 1995, abandoned, which is a continuation of Ser. No. 11,419, Jan. 29, 1996, abandoned. This application Sep. 3, 1996, Ser. No. 709,237

Claims priority, application Japan, Feb. 3, 1992, 4-017724

Int. Cl.^{6} G11B *33/14*

U.S. Cl. 369—75.1 **10 Claims**



1. An optical data recording/reproducing device comprising:

a housing defining a movable optical system holding portion, a motor holding portion and a stationary optical system holding portion, said stationary optical system holding portion being isolated from said movable optical system holding portion and said motor holding portion by at least one wall such that dust is inhibited from passing between said movable optical system holding portion and said stationary optical system holding portion;

a movable optical system movably positioned in said movable optical system holding portion, said movable optical system being configured to direct light toward a face of a disc positioned adjacent said movable optical system and to receive light reflected by the face of the disc,

a motor positioned in said movable optical system holding portion and configured to move said movable optical system relative to the disc,

a spindle motor positioned in said motor holding portion for rotating the disc,

a light emitting system mounted in said stationary optical system holding portion, said light emitting system generates a light beam and directs the light beam through an opening in said isolating wall toward said movable optical system, said opening in said isolating wall being a sealed opening configured to permit the light beam to pass therethrough which is sealed by a light directing member mounted in said stationary optical system holding portion and abutting said opening; and

a light detecting system mounted in said stationary optical system holding portion, said light detecting system receives a reflected light beam from said movable optical system through said opening in said isolating wall and detects data from the reflected light beam.

5,737,293

DISC LOADING APPARATUS FOR LOADING OPTICAL DISCS IN A CARTRIDGE OR WITHOUT

Ichiro Kawamura, and Shinichi Maeda, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Sep. 19, 1995, Ser. No. 530,429

Claims priority, application Japan, Sep. 21, 1994, 6-226203

Int. Cl.^{6} G11B *23/03*

U.S. Cl. 369—77.1 **4 Claims**

1. A disc loading apparatus, comprising

an overall holding device with a first holding device for elastically fitting with a holding notch provided at both sides of a disc cartridge inserted in a disc receiving opening and a second holding device for elastically fitting against a circumferential edge of a naked disc inserted in said disc receiving opening, and wherein said overall holding device is movable by a transfer means along a direction connecting said disc receiving opening and a turn table, and

said transfer means for transferring said overall holding device so that said naked disc and a disc housed in said disc cartridge travel between said disc receiving opening and said turn table, wherein

said overall holding device is comprised of a moving body, a pair of aligning devices provided at both sides of the moving body for regulating the positioning of a naked disc by conforming with arcs of circumferential edge of the naked disc in the front side of inserting direction, a pair of spring reeds stretching from the aligning devices towards the disc receiving opening and are elastically deformable in opposite directions relative to said naked disc, and holding hooks provided opposing to each other at the top end of these spring reeds for resiliently pressing against arcs of the circumferential edge of the naked disc in the rear side of inserting direction as well as with the holding notches of a disc cartridge, and

said second holding device comprises said aligning devices and said holding hooks, and said first holding device shares said holding hooks in common with said second holding device.

5,737,294

OBJECTIVE LENS WITH TWO NUMERICAL APERTURES FOR READING/WRITING TWO OPTICAL DISCS

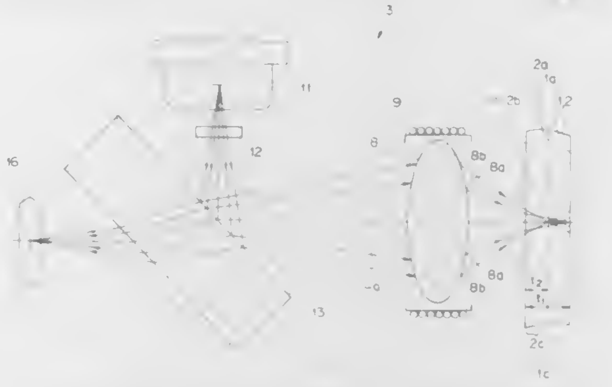
Akio Yamakawa, Kanagawa, and Kamon Uemura, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,449

Claims priority, application Japan, Mar. 10, 1995, 7-051311

Int. Cl.^{6} G11B *7/00*; G02B *3/00*

U.S. Cl. 369—99 **13 Claims**



1. An objective lens having at least a first region and a second region, said first and second regions having different numerical apertures and being configured for focusing a light beam on first and second signal recording surfaces which are spaced apart from each other.

5,737,295

DUAL-FOCUS OPTICAL PICKUP FOR DIFFERENT THICKNESSES OF RECORDING MEDIUM

Chul-woo Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 26, 1995, Ser. No. 585,252

Claims priority, application Rep. of Korea, Jun. 26, 1995, 95-17596

Int. Cl. G11B *7/09*

U.S. Cl. 369—103 **3 Claims**

1. A dual-focus optical pickup, having means for detecting a signal corresponding to light reflected from two loaded disks having different thicknesses, for forming two light spots, with each light spot focused on its corresponding disk, said pickup comprising:

a light source for generating light,

a hologram lens for diffracting said generated light into ±1st order light beams simultaneously; and

an objective lens for focusing said ±1st order light beams from said hologram lens onto either disk.

5,737,296

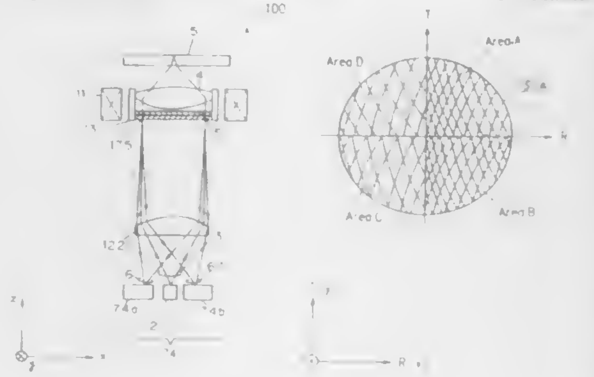
FOCUS AND TRACKING ERROR DETECTION BY USING PLUS AND MINUS FIRST ORDER DIFFRACTED LIGHT

Yoshiaki Komma, Kyoto; Ken'ichi Kasazumi, Katano; Seiji Nishino, Osaka, and Hiroaki Yamamoto, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 23, 1996, Ser. No. 589,883

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—103 **19 Claims**



1. An optical head device, comprising

a light source for emitting light,

an optical system for focusing the light emitted by the light source onto an information medium to form a light spot,

a photodetector including a plurality of light detection areas for receiving the light reflected by the information medium and for outputting photocurrents in accordance with the respective amount of the light received,

a holographic optical element for diffracting the light reflected by the information medium and for directing the light to the photodetector, and

a signal processing circuit section for obtaining a focusing error signal and a tracking error signal for controlling the light spot using the photocurrents,

wherein the signal processing circuit section obtains the focusing error signal from the photocurrents which are obtained in accordance with the amount of light of one of ± first order diffracted beams, and obtains the tracking error signal from the photocurrents which are obtained in accordance with the amount of light of the other of the ± first order diffracted beams,

the holographic optical element includes a substrate having a hologram formed thereon having a plurality of diffraction areas, and each of the diffraction areas generates, as plus first order diffracted beams, at least two light beams which are respectively focused between the photodetector and the holographic optical element and on one side of the photodetector opposite to the holographic optical element, and each of the diffraction areas generates, as minus first order diffracted light beams, at least two light beams which are respectively focused between the photodetector and the holographic optical element and on one side of the photodetector opposite to the holographic optical element

the plurality of diffraction areas includes at least a first, a second, a third and a fourth diffraction area arranged clock

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wise: the photodetector includes a first, a second, a third and a fourth detection area respectively for receiving the minus first order diffracted light beams from the first, the second, the third and the fourth diffraction areas; and the first, the second, the third and the fourth detection areas respectively output a first, a second, a third and a fourth photocurrent based on the amounts of light received,

the signal processing circuit section obtains the tracking error signal based on the first, the second, the third and the fourth photocurrents, and

the signal processing circuit section includes a phase comparison circuit for comparing the phases of the sum of the first and the third photocurrents and the sum of the second and the fourth photocurrents and then obtaining the differential phase, and obtains the tracking error signal using the differential phase.

5,737,297
OPTICAL HEAD

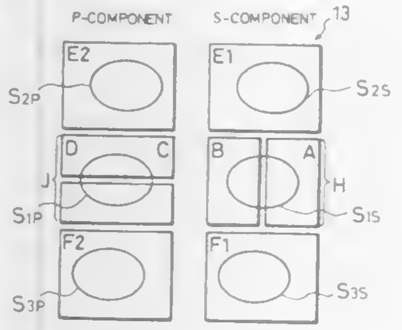
Tomio Mashiyama; Hiroshi Katayama, both of Higashihiroshima; Nobuo Ogata, Nara, and Kenji Ikeda, Higashihiroshima, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 11, 1997, Ser. No. 797,735

Claims priority, application Japan, Jun. 21, 1996, 8-162070

Int. Cl.⁶ G11B *7/09*

U.S. Cl. 369—109 **8 Claims**



1 An optical head, comprising:

a light source for radiating a light beam;

a diffraction grating for dividing the light beam radiated from the light source into a main beam for detecting information signals and sub-beams for tracking, the main beam and the sub-beams irradiating an optical recording medium;

a plurality of plurally divided light receiving elements for receiving the beams reflected by the optical recording medium at a plurality of light receiving parts into which each of the plurally divided light receiving elements is divided, the light receiving parts being disposed adjacent to each other so as to detect a light intensity change resulting from diffraction by a guide groove formed on the optical recording medium; and

beam shaping means for shaping the reflected beams so that spots formed by the reflected light beams on the plurally divided light receiving elements take elliptic shapes that are flattened in a direction in which a main spot corresponding to the main beam and sub-spots corresponding to the sub-beams are arranged.

5,737,298
HOLOGRAPHIC SECURITY SYSTEM FOR OPTICAL DISCS

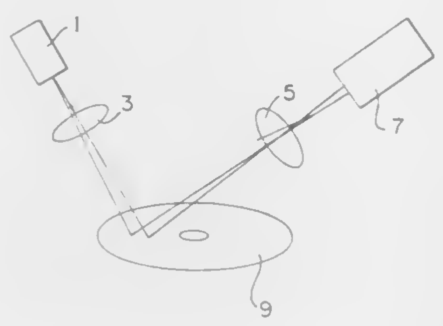
John M. Suhan, Blakely, Pa., assignor to WEA Manufacturing, Inc., Olyphant, Pa.

Filed Sep. 5, 1996, Ser. No. 708,456

Int. Cl.⁶ G11B *7/00*, G01J *4/00*

U.S. Cl. 369—110 **3 Claims**

1 A method for detecting pirated copies of a bona-fide compact disc comprising



(a) reflecting polarized light from a surface of a bona-fide compact disc,

(b) passing the reflected polarized light through a polarization analyzer and into a photodetector, said photodetector comprising means to respond to light incident upon it,

(c) replacing the bona-fide compact disc with a test disc and repeating steps (a)–(b) for said test disc,

(d) omparing the response of the photodetector in steps (b) and (c), wherein a difference in response signifies that the test disc is a pirated copy.

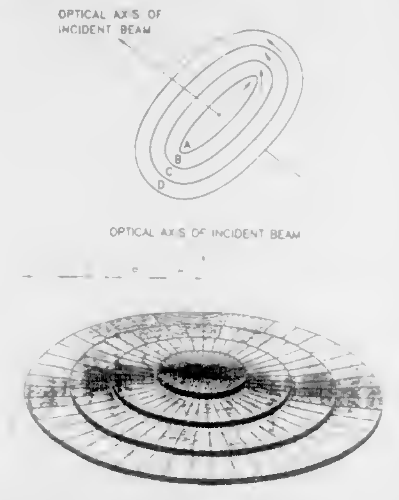
5,737,299
OPTICAL PICKUP APPARATUS HAVING WAVE PLATES

Jang-hoon Yoo, and Chul-woo Lee, both of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 18, 1996, Ser. No. 733,970

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—112 **6 Claims**



1 An optical pickup apparatus in which a light beam emitted from a light source is focused on an optical medium for reproducing the signal from said optical medium, said optical pickup apparatus comprising:

an objective lens for focusing the light beam on the surface of said optical medium and focusing a beam reflected from the surface of said optical medium; and

at least two wave plates each having a different optical axis direction relative to one another and located on an optical path between said light source and said objective lens.

5,737,300
OPTICAL DISH DEVICE

Takeshi Ota, and Masao Ito, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Division of Ser. No. 386,594, Feb. 10, 1995, Pat. No. 5,619,488, which is a continuation of Ser. No. 941,155, Sep. 4, 1992, abandoned. This application Oct. 28, 1996, Ser. No. 738,705

Claims priority, application Japan, Sep. 7, 1991, 3-227532; May 1, 1992, 4-112906

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—112 **9 Claims**

1 An optical disk device comprising:

a disk-line recording medium;

a drive mechanism for rotating said recording medium; and

a movable optical head for recording and reproducing data into and from said recording medium with a laser beam,

wherein said optical head comprises at least one light source section including a laser light source, a collimator lens for arranging a laser beam emitted from the laser light source into a parallel laser beam, an image forming lens for focusing the laser beam emanating from the collimator lens on the recording medium, and phase modulating means substantially located on a principal plane of said collimator lens, wherein said principal plane and the recording medium are disposed in an optically conjugate relationship with respect to said image forming lens.

5,737,301
LASER CONTROL FOR SETTING AVERAGE RECORDING POWER OF "1" EQUAL TO AVERAGE RECORDING POWER OF "0"

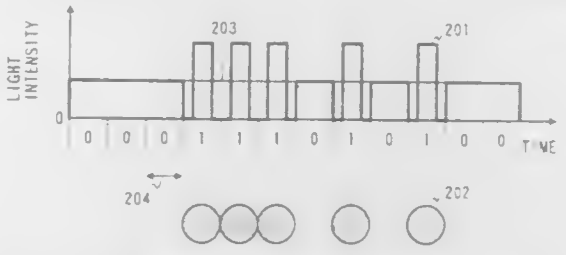
Harukazu Miyamoto, Kodaira; Kiyoshi Matsumoto, Chiba, and Hisataka Sugiyama, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 31, 1996, Ser. No. 657,771

Claims priority, application Japan, Jun. 1, 1995, 7-134917

Int. Cl.⁶ G11B *7/125*

U.S. Cl. 369—116 **10 Claims**



8 An optical recording method comprising the steps of:

applying an energy beam modulated according to information to be recorded to a plurality of unit recording areas of an optical recording medium to cause each of the unit recording areas to hold information;

wherein average powers of the energy beams to are at least almost equal at both unit recording areas to be recorded "1" and "0".

5,737,302
GALVANOMIRROR AND OPTICAL DISK DRIVE USING THE SAME

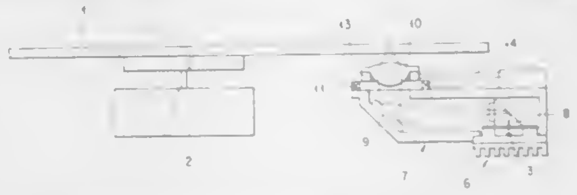
Akihiro Kasahara, Chiba-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 9, 1995, Ser. No. 554,933

Claims priority, application Japan, Nov. 10, 1994, 6-276263

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—118 **17 Claims**



1 An optical disk drive comprising:

an objective lens for focusing a laser beam on an optical disk

an optical head supporting said objective lens and movable along a surface of the optical disk;

a galvanomirror, connected to said optical head, driven by electrostatic force, and disposed to reflect the laser beam,

a magnet, operatively coupled to said objective lens and producing a magnetic field; and

a coil, disposed to interact with the magnetic field of said magnet, and producing electromagnetic force to move said objective lens.

5,737,303
APPARATUS FOR STORING AND TRANSPORTING ESSENTIALLY DISK-SHAPED OBJECTS OF UNIFORM DIMENSIONS

Martin Stetter, Marktstrasse 61-63, 68789 St. Leon-Rot, Germany

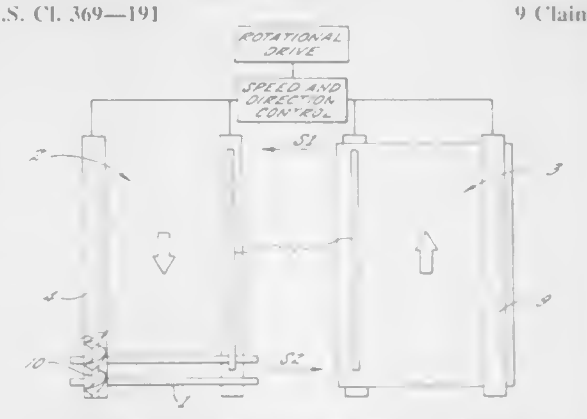
PCT No. PCT/DE93/00578, § 371 Date Jan. 20, 1995, § 102(e) Date Jan. 20, 1995, PCT Pub. No. WO94/02941, PCT Pub. Date Feb. 3, 1994

PCT Filed Jul. 1, 1993, Ser. No. 373,292

Claims priority, application Germany, Jul. 20, 1992, 42 23 813.7

Int. Cl.⁶ G11B *17/04*

U.S. Cl. 369—191 **9 Claims**



1 A data storage and transporting apparatus comprising

a plurality of data storage disks of uniform dimensions, and with the disks each having an essentially round peripheral edge portion,

a magazine supporting said plurality of disks in a stack like arrangement and comprising a plurality of spiral elements, with each spiral element defining a central axis and being mounted for rotation about the central axis, with each spiral element further defining a sequence of uniform axial spacings which are dimensioned to generally correspond to the thickness of the disks, and with the spiral elements being arranged in a laterally spaced apart, parallel arrangement so as to define a compartment therebetween, and with the disks being disposed in the compartment and generally perpendicular to the

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central axes of the spiral elements, and with a portion of the peripheral edge portion of each disk being disposed within one of the axial spacings of each of the spiral elements,

whereby rotation of the spiral elements causes the disks to move in unison in an axial direction,

wherein the axial spacings of the spiral elements define an end position which is adapted to receive a disk of said plurality of disks which is at one end of the stack like arrangement of said disks, and

wherein the apparatus further comprise a manipulator for engaging the disk in said end position and withdrawing the same and inserting the disk into said end position.

5,737,304
CD/CD-ROM APPARATUS

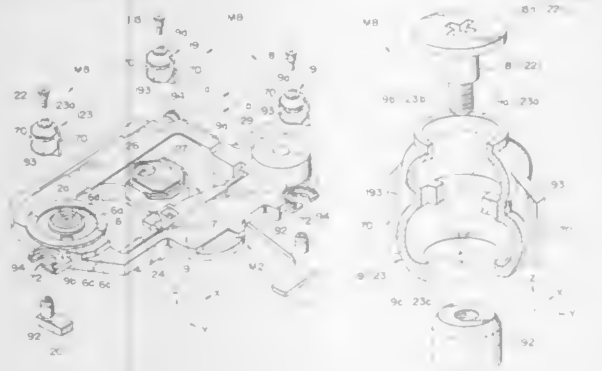
Ryo Soga; Yoshikazu Ishimatsu; Toshiro Ota, and Takuji Shimoda, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 425,155, Apr. 19, 1995. This application Mar. 12, 1996, Ser. No. 614,387

Claims priority, application Japan, Apr. 25, 1994, 6-107490; May 25, 1994, 6-133970

Int. Cl.⁶ G11B *33/08*

U.S. Cl. 369—247 **7 Claims**



1. A disk drive apparatus for driving a disk recording medium comprising:

a disk table on which said disk recording medium is mounted,

an optical pickup for emitting a laser beam to said disk recording medium,

a base unit for holding said disk table and said optical pickup, and

a plurality of insulators supporting said base unit comprising displacement minimizing means that maintains deformation or displacement in the X direction while minimizing deformation or displacement in the Y and Z directions, wherein said displacement minimizing means comprises a pair of outer ribs integrally formed parallel to said Y and Z directions on and projecting from the outer surface of each of said plurality of insulators, and wherein said displacement minimizing means comprises a pair of said inner ribs formed on and projecting from the inside of each of said plurality of insulators, such that said inner ribs mutually oppose each other in said Y direction, said inner pair of ribs coming into contact with the lateral faces of a plurality of fixing screws respectively inserted in said plurality of insulators

where a tracking direction of said optical pickup is the X direction, a focusing direction of said optical pickup is the Z direction, and a direction perpendicular to said X and Z directions is the Y direction, taking X, Y, Z as coordinate axes.

5,737,305
PLATE MEMBER FOR ATTACHING/DETACHING DISK FROM DISK CHUCK

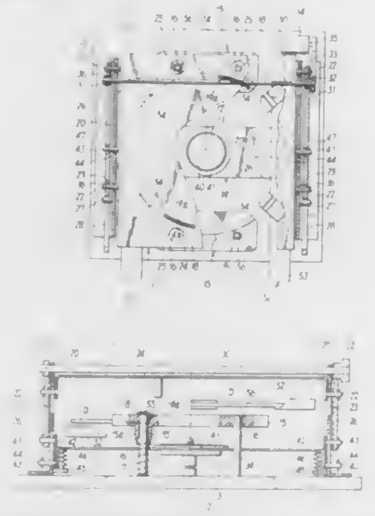
Yoshiaki Kayukawa, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed Mar. 7, 1996, Ser. No. 612,405

Claims priority, application Japan, Mar. 15, 1995, 7-052853

Int. Cl.⁶ G11B *25/04, 17/028*

U.S. Cl. 369—271 **10 Claims**



1. A disk detaching/attaching unit for detaching a disk like recording medium from a magnet chuck for rotatably supporting the disk-like recording medium and attaching it thereto, said unit comprising

a tray movable to a disk detaching/attaching direction perpendicular to a rotating plane of a disk and supporting said disk,

tray drive means for moving said tray between a tray raised-up position where the disk supported on the tray is situated above said magnet chuck and a tray descent position below the disk chucked on said magnet chuck;

a plate member movable to said disk detaching/attaching direction and having an edge portion capable of abutting against the vicinity of the center of said disk chucked on said magnet chuck;

plate member drive means for moving said plate member between a waiting position where said edge portion of plate member is situated below the chucked disk and a delivery position where the disk is detached and raised up from said magnet chuck so as to detach the disk from said magnet chuck or attach it thereto,

both of said drive means driving said plate member and tray so that said plate member and tray make a cooperative motion which moves said plate member to said delivery position during a process of moving said tray supporting the disk from said raised-up position to said descent position, and attaches the disk to said magnet chuck during a process of moving said plate member to said waiting position after the disk is transferred onto said plate member, and which receives the disk on said magnet chuck to said plate member during a process of moving said plate member from said waiting position to said delivery position, and delivers the disk on said plate member to said tray during a process of moving said tray from said descent position to said raised-up position; and

wherein said plate member has an opening allowing said magnet chuck to pass therethrough and a ring-shaped fitting portion formed on a circumferential edge of said opening, and is movable in said detaching/attaching direction in a state that said magnet chuck positions in said opening,

said fitting portion abutting against a circumferential portion of the vicinity of the center of said disk.

5,737,306
PLAYBACK SYSTEM FOR AN OPTICAL DISC PRESENTING A CHARACTER OR A GRAPHIC PATTERN FORMED BY SPECIFIED PIT PATTERNS ON DATA TRACKS

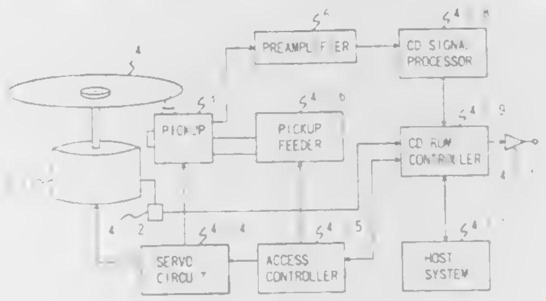
Tamotsu Ito, Ayase; Hiroshi Banno, Koshigaya; Ryuichi Koike, Yokohama, and Takashi Takeuchi, Fujisawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 301,889, Sep. 7, 1994, Pat. No. 5,608,717. This application Aug. 13, 1996, Ser. No. 689,683

Claims priority, application Japan, Sep. 7, 1993, 5-221687; Apr. 1, 1994, 6-065224

Int. Cl.⁶ G11B *7/24; 7/00*

U.S. Cl. 369—275.1 **9 Claims**



1. A playback system for playing back an optical disc which has a record surface, and which records information in terms of pit patterns formed on a plurality of tracks of the record surface and corresponding to data to be recorded, said optical disc comprising

at least one area which is provided on said record surface, and in which at least one specified pit pattern is concentratedly formed in order that a visible size pattern is presented in a pattern displaying area provided on said record surface, an average optical reflectance of said at least one specified pit pattern differing from that of surroundings of said at least one area to a visually perceptible extent, wherein said visible size pattern is visible on the basis of a difference between said average optical reflectances,

said playback system comprising:

a memory for storing therein positional information which specifies a position of said pattern displaying area of said optical disc, reproduction means for reproducing the data recorded on the optical disc mounted on said playback system; control means for reproducing the data from a specified area specified by said positional information stored in said memory; and reproduction inhibition means for suspending subsequent playback of said mounted optical disc on condition that the reproduction of said data from said specified area as specified by said positional information has failed.

5,737,307
METHOD FOR RECORDING-REGENERATING INFORMATION FROM OPTICAL RECORDING MEDIUMS

Akihiko Shimizu, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 276,518, Jul. 15, 1994, Pat. No. 5,638,354. This application Oct. 4, 1995, Ser. No. 539,319

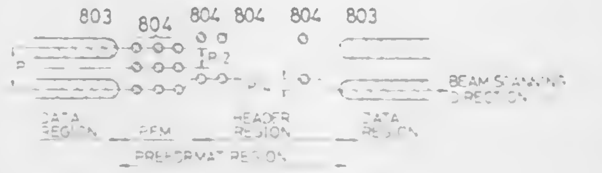
Claims priority, application Japan, Jul. 16, 1993, 5-198934; Aug. 9, 1993, 5-214805; Dec. 22, 1993, 5-324109

Int. Cl.⁶ G11B *17/22; 17/24*

U.S. Cl. 369—275.4 **6 Claims**

1. A method for recording and regenerating information from an optical information recording medium comprising the steps of,

using an optical information recording medium having a data region and a grooveless preformat region, wherein the preformat region includes a prepit series for tracking and wherein the prepit series is positioned relative to a central line shifted from a central line associated with the data region by P/4 when P is set to a distance between grooves in different data regions,



scanning a laser converging beam on a central line of a groove or a land in the data region while a tracking servo operation is performed when information is regenerated in the data region,

stopping the tracking servo operation when switching from the data region to the preformat region when information is regenerated in the preformat region;

scanning the laser converging beam while the tracking servo operation is again performed after the laser converging beam has been shifted to a center of the prepit series,

stopping the tracking servo operation when switching from the preformat region to the data region, and

scanning the laser converging beam while the tracking servo operation is performed after the laser converging beam has been shifted to a center of the groove or the land in the data region

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5,737,308
RECORDING MEDIUM FOR SPECIFIED REPRODUCTION AND REPRODUCTION APPARATUS

Masatoshi Nakai, Kawasaki, and Mitsutaka Kuwabara, Fukaya, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

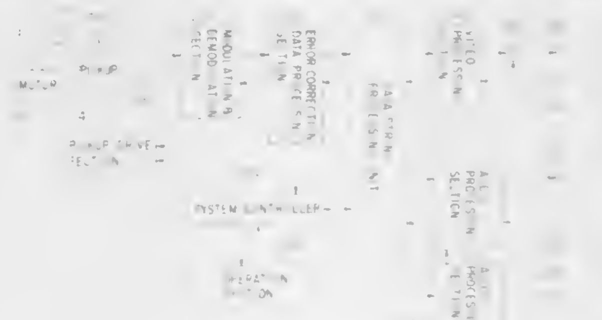
PCT No. PCT/JP94/01794, § 371 Date Jun. 27, 1995, § 102(e) Date Jun. 27, 1995, PCT Pub. No. WO95/12201, PCT Pub. Date May 4, 1995

PCT Filed Oct. 26, 1994, Ser. No. 464,837

Claims priority, application Japan, Oct. 29, 1993, 5-271640

Int. Cl.⁶ G11B *7/00*

U.S. Cl. 369—275.2 **21 Claims**



1. A recording medium for selective reproduction of data comprising:

a disc having a managing area formed as one area of the disc and area data formed in the other area, the area data including a plurality of data units, the respective data units having a block with audio information having a flag to represent a demarcation mark which divides voice information into units of at least one of chorus units, phrase units, and sentence units, and the managing area having address information for the respective data units

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5,737,309

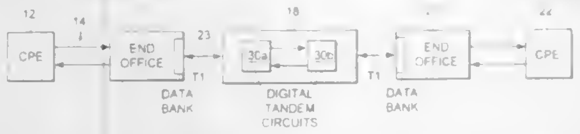
METHOD AND APPARATUS FOR INTERFACE COMMUNICATIONS IN A TANDEM CROSS CONNECT

Lujack Ewell, Buford; Randy Holzworth, Lawrenceville, and Larry A. Jackson, Roswell, all of Ga., assignors to Conklin Instrument Corporation, Pleasant Valley, N.Y.

Filed Nov. 9, 1995, Ser. No. 556,229

Int. Cl.^{6} H04J *15/00;* **H04L** *5/20*

U.S. Cl. 370—200 **8 Claims**



1. A method for effecting a cross connect digital communications between ports of an intermediate station in a telephone system communications network, said ports each providing a transformer coupling to a digital cross-connect internal station communications net, said method providing synchronization of a repeating protocol of digital signals output from one said port to the internal station communications net and received as asynchronous signals at a second port of said communications net, said method comprising the steps of:

- providing center-tapped transformers at each port for coupling to said internal station communications net,
- applying a synchronizing electrical signal to said center tap of the transformer at the first port for identifying a selected portion of the repeating protocol of said digital signals,
- receiving said synchronizing electrical signal through said center-tap of the second transformer at the second port, and
- processing, at a receiver, said received synchronizing electrical signal for synchronizing to said repeating protocol of said received asynchronous signals.

5,737,310

SYNCHRONOUS RING NETWORK SYSTEM

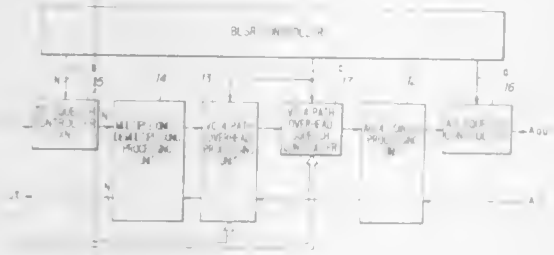
Masataka Goto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 648,999

Claims priority, application Japan, May 17, 1995, 7-117581

Int. Cl.^{6} H04J *3/14*

U.S. Cl. 370—222 **6 Claims**



1. A synchronous ring network system comprising a plurality of nodes connected through a synchronous ring network, each of said plurality of nodes comprising multiplexing/demultiplexing means in which a TU' signal which corresponds to a lower-order path signal is multiplexed to give an AU' signal which corresponds to a higher-order path signal and said AU' signal is demultiplexed to give said TU' signal, higher-order path overhead processing means for conducting a production/termination control of a higher-order path overhead, lower-order path squelch means for squelching said TU' signal, and higher-order path squelch means for squelching said AU' signal,

- characterized in that each of said plurality of nodes further comprises,
- switching means for conducting a protection switching processing in response to a trouble;
- higher-order path misconnection search means for searching a misconnection of said AU' signal caused by said switching processing;
- means for instructing said higher-order path squelch means to squelch an AU' signal from the result of said higher-order path misconnection searching,
- lower-order path misconnection search means for searching a misconnection of said TU' signal caused by said switching processing;
- means for instructing said lower-order path squelch means to squelch a TU' signal from the result of said lower-order path misconnection searching;
- means for instructing the release of said higher-order path squelch after squelching by said lower-order path squelch means; and
- means for instructing said higher-order path overhead processing means to stop the termination as to a predetermined byte of each byte for composing said higher-order path overhead.

5,737,311

FAILURE DETECTION METHOD IN A COMMUNICATION CHANNEL WITH SEVERAL ROUTES

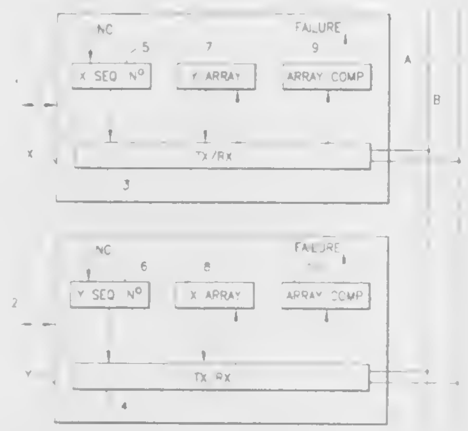
Brian Christopher Wyld, Crolles, France, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 11, 1996, Ser. No. 587,864

Claims priority, application European Pat. Off., Dec. 11, 1995, 95410139

Int. Cl.^{6} H04J *1/16*

U.S. Cl. 370—227 **10 Claims**



1. A failure detection method for detecting route failure in a communication system in which a plurality of stations can communicate with each other through each of at least two independent routes, wherein at least one station repeatedly sends simultaneous messages containing a sequence number on said independent routes, and receives messages from at least one other station, wherein the messages received from said at least one other station contain an array of sequence numbers last received by said at least one other station on each independent route, and said at least one station detects failure of an independent route by comparing the sequence numbers in the array contained in the messages it receives.

5,737,312

CELL ASSEMBLY AND DISASSEMBLY APPARATUS IN AN ATM NETWORK

Yasushi Sasagawa, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

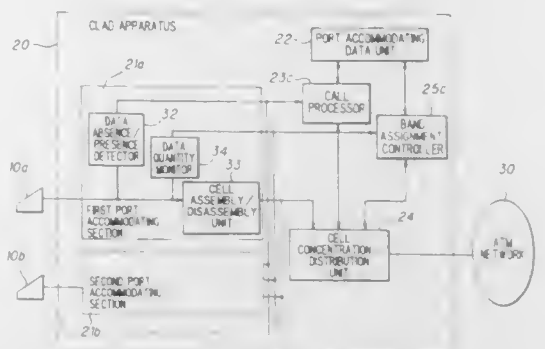
Continuation of Ser. No. 529,520, Sep. 18, 1995, abandoned. This application Dec. 5, 1996, Ser. No. 759,452

Claims priority, application Japan, Jan. 30, 1995, 7-012213

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—232 **18 Claims**

1. A cell assembly and disassembly apparatus for accommodating a plurality of terminals in a network and managing a band assigned to each terminal, comprising


CLAD APPARATUS
20
22
PORT ACCOMMODATING DATA UNIT
21a
23c
CALL PROCESSOR
25c
32
DATA ABSENCE/PRESENCE DETECTOR
DATA QUANTITY MONITOR
34
33
BAND ASSIGNMENT CONTROLLER
10a
CELL ASSEMBLY/DISASSEMBLY UNIT
FIRST PORT ACCOMMODATING SECTION
24
30
CELL CONCENTRATION DISTRIBUTION UNIT
ATM NETWORK
10b
SECOND PORT ACCOMMODATING SECTION
21b

- storage means for storing, in correspondence with each terminal, an assigned band of said terminal and whether the terminal is a terminal which accommodates a switched virtual channel service (first service) or a permanent virtual channel service (second service);
- a data absence/presence detecting unit for detecting absence/presence of data sent from each terminal;
- call processing means which, when data sent from a terminal is detected, determines whether the assigned band of said terminal is smaller than a present idle band of the network and, if the terminal is the first service terminal in a case where the assigned band is smaller, executes call set-up processing and decreases the idle band by an amount equivalent to the assigned band of the first service terminal, and which, when absence of data from the first service terminal is detected, executes call release processing and increases the idle band by an amount equivalent to the assigned band of the first service terminal; and
- a cell assembly/disassembly unit for assembling data into a cell after establishment of connection by the call set-up processing, sending the cell to the network, disassembling a data cell from the network into data and sending this data to a terminal.

5,737,313

DESIGN OF A CLOSED LOOP FEED BACK CONTROL FOR ABR SERVICE

Aleksandar Kolarov, Plainsboro, and Gopalakrishnan Ramamurthy, Cranbury, both of N.J., assignors to NEC USA, Inc., Princeton, N.J.

Filed Mar. 15, 1996, Ser. No. 616,389

Int. Cl.^{6} H04L *12/26*

U.S. Cl. 370—234 **22 Claims**

1. A method of rate based feedback congestion control at an ATM switch for ABR service in an ATM network comprising the steps of:

- determining a global queue fill N_q^t at a sampling interval where g is the global queue of output port q;
- computing a common rate R_q based upon the global queue fill at sequential sampling intervals;
- computing an explicit rate ER based upon said computed common rate for each virtual channel forming the ATM network, and
- controlling the transmission rate of individual virtual channels responsive to said computed explicit rate.

5,737,314

ATM EXCHANGE, ATM MULTIPLEXER AND NETWORK TRUNK APPARATUS

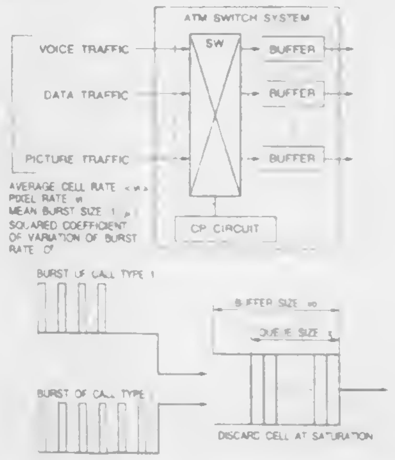
Atsuo Hatono, and Masashi Hiraiwa, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 14, 1996, Ser. No. 663,981

Claims priority, application Japan, Jun. 16, 1995, 7-150493

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—235 **13 Claims**



1. An ATM switch system for receiving as inputs thereto cells of a plurality of kinds having respectively different traffic characteristics and conducting a multiplexing process for exchange of the cells, comprising:

- a buffer to accumulate therein cells undergone collisions among the plural input cells of the ATM switch system; and
- traffic control means, wherein said traffic control means comprises
- means for observing a queue size of cells in the buffer,
- testing means for statistically testing, according to observed values of the queue size, whether or not a cell loss occurring in the exchange exceeds an upper limit value of an acceptable cell loss probability,
- overflow testing means for outputting therefrom, according to a result of the test, a traffic regulation alert start signal of the input cell, and
- change means for changing the traffic characteristic of the input cell.

5,737,315

TRAFFIC CONTROL DEVICE IN PRIVATE ATM NETWORK

Haruo Moritomo, Kanagawa, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 353,894, Dec. 12, 1994, Pat. No. 5,581,545. This application Sep. 11, 1996, Ser. No. 712,071

Claims priority, application Japan, Mar. 16, 1994, 6-046122

Int. Cl.^{6} H04J *3/14,* **H04L** *12/56*

U.S. Cl. 370—235 **8 Claims**

1. A traffic control device which is operated in a network, and which controls transmission quality of a cell according to a quality class assigned to the cell in each connection in the network, the device comprising

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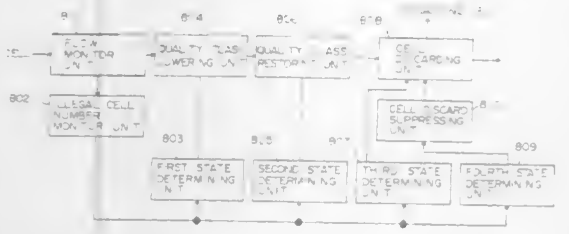

FIRST STATE DETERMINING UNIT
SECOND STATE DETERMINING UNIT
THIRD STATE DETERMINING UNIT
FOURTH STATE DETERMINING UNIT
CELL DISCARD SUPPRESSING UNIT
NUMBER MONITOR UNIT
803
809

quality class management means for managing a quality class which is assigned in said each connection;

quality class addition means for adding said quality class assigned in a connection of a cell to a cell input from an input line;

flow monitor means for monitoring a flow of cells in each connection for monitor sections segmented at predetermined intervals;

violation decision means for deciding whether or not an illegal number of cells have been detected by comparing the flow of cells in each monitor section of each connection monitored by the flow monitor means with a flow of cells preliminarily declared for each connection; and

quality class change means for changing the quality class of the cell in a connection into one class lower than a present quality class if said violation decision means detects an illegal cell number.

5,737,316

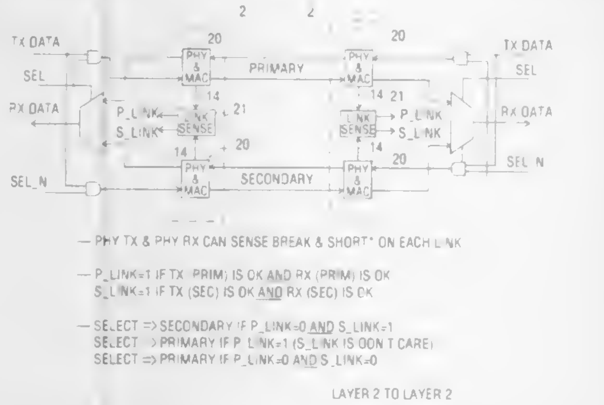
METHOD AND DEVICE FOR DETERMINING LINK STATUS IN A COMPUTER NETWORK

Jack Lee, Marlborough, Mass., assignor to 3Com Corporation, Santa Clara, Calif.

Filed May 2, 1995, Ser. No. 432,781

Int. Cl.^{6} H04J *1/16; 3/14*

U.S. Cl. 370—248 **17 Claims**


TX DATA
SEL
RX DATA
SEL_N
PHY & MAC
PRIMARY
SECONDARY
LINK SENSE
P_LINK
S_LINK
14
20
21
— PHY TX & PHY RX CAN SENSE BREAK & SHORT ON EACH LINK
— P_LINK=1 IF TX (PRIM) IS OK AND RX (PRIM) IS OK
S_LINK=1 IF TX (SEC) IS OK AND RX (SEC) IS OK
— SELECT => SECONDARY IF P_LINK=0 AND S_LINK=1
SELECT => PRIMARY IF P_LINK=1 (S_LINK IS DON'T CARE)
SELECT => PRIMARY IF P_LINK=0 AND S_LINK=0
LAYER 2 TO LAYER 2

1. A process for detecting link status in a computer network, the process comprising the steps of:

converting data to be transmitted over a link into a substantially continuous signal with a substantially consistent spectrum;

transmitting said signal over the link from a first end of the link to a second end of the link;

measuring at the first end of the link a reflection signal caused by a characteristic impedance of the link and a characteristic impedance of a termination of the link

identifying the link as satisfactory if said reflection signal represents a substantial match between the characteristic impedance of the link and the characteristic impedance of the termination of the link,

identifying the link as defective if said reflection signal represents a mismatch between the characteristic impedance of the link and the characteristic impedance of the termination of the link.

5,737,317

COMMUNICATION SYSTEM TESTING METHOD

Akira Takayama, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

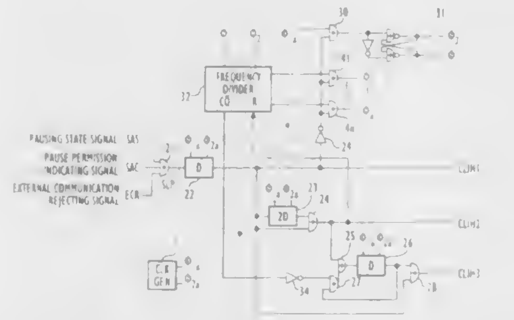
Division of Ser. No. 243,088, May 16, 1994, abandoned, and a continuation of Ser. No. 445,764, Dec. 4, 1989, abandoned.

This application May 31, 1995, Ser. No. 454,845

Claims priority, application Japan, Dec. 5, 1988, 63-307568; Dec. 5, 1988, 63-307569

Int. Cl.^{6} H04J *1/16; 3/14*

U.S. Cl. 370—249 **1 Claim**


FREQUENCY DIVIDER
PAUSING STATE SIGNAL
PAUSE PERMISSION INDICATING SIGNAL
EXTERNAL COMMUNICATION REJECTING SIGNAL
CLK GEN
CLK1
CLK2
CLK3
D
2D
30
31
32
24
25
26
34

1. A control apparatus for use in a testing method, the control apparatus being incorporated in a first communication unit which is connected with a second communication unit through a transit switch by communication lines for communicating with the second communication unit, the first communication unit having at least one integrated communication control circuit, the control apparatus comprising,

a main clock generator for generating a main clock signal;

pause control means for generating a detecting signal when the integrated communication control circuit simultaneously receives a first signal indicating that the integrated communication control circuit can be paused, a second signal for processing a hierarchical process of a given priority in the first communication unit, and a third signal indicating that a communication is not requested, so as to enter a pause state to await a request of a communication from the second communication unit;

a driving clock signal generator, responsive to said main clock signal, for generating a driving clock signal to drive said at least one integrated communication control circuit, and

control means for stopping supply of the driving clock signal to each component of the integrated communication control circuit when the pause control means outputs the detecting signal so as to enter a low energy consumption state.

5,737,318

METHOD FOR INITIALIZING A WIRELESS, PACKET-HOPPING NETWORK

George A. Melnik, Montrose, N.Y., assignor to Philips Electronics North America Corporation, New York, N.Y.

Filed Dec. 27, 1995, Ser. No. 579,650

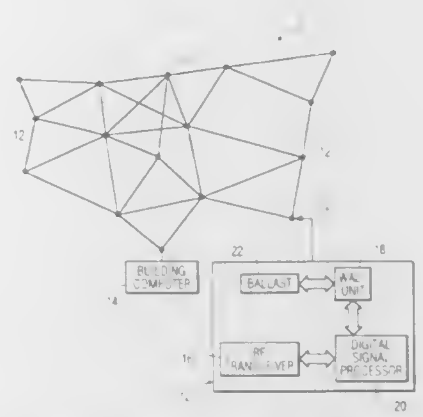
Int. Cl.^{6} H04Q *7/20*

U.S. Cl. 370—254 **25 Claims**

1. A method for initializing a wireless network which includes a central node and a plurality of individual nodes, comprising the steps of:

issuing an initialization request to each individual node; and,

wherein, in response to said initialization request, each individual node performs a self-initialization routine which includes the steps of determining its entire connectivity wherein all nodes in communication with said individual node are identified, compiling corresponding nodal connectivity information, and then, after compiling said nodal connectivity information, transmitting said nodal connectivity information to the central node



5,737,319

DYNAMIC NETWORK TOPOLOGY DETERMINATION

William D. Croslin, Colorado Springs, Colo.; Mark W. Sees, and Perry Voyles, both of Plano, Tex., assignors to MCI Corporation, Washington, D.C.

Filed Apr. 15, 1996, Ser. No. 632,200

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 370—255 **18 Claims**

1. A method to dynamically determine the topology of a communications network comprising a plurality of diverse network elements (DNEs), each comprising at least one communications port, said method comprising the steps of:

(1) configuring at least one DNE with at least one mismatched port, said mismatched port adapted so that a signal mismatch is generated by each communications port coupled to said mismatched port;

(2) cross-connecting said mismatched port with a communications port within the same DNE;

(3) collecting alarm data from each communications DNE within the communications network

(4) correlating the alarm data from step (3) with the cross connection performed in step (2), thereby identifying alarms correlated to said mismatched port,

(5) processing the correlated alarms from step (4) to determine network connectivity

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5,737,320

METHODS OF COMMUNICATION FOR EXPANDABLE TELECOMMUNICATION SYSTEM

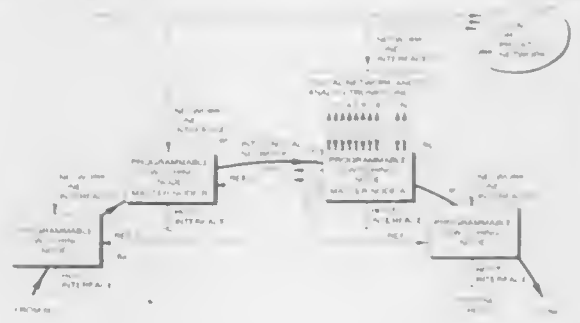
Robert P. Madonna, West Barnstable, Mass., assignor to Excel Switching Corporation, Hyannis, Mass.

Division of Ser. No. 207,931, Mar. 8, 1994, Pat. No. 5,544,163.

This application May 30, 1995, Ser. No. 454,411

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—258 **29 Claims**



1. A method of transferring information between a plurality of nodes which are connected in communicating relationship by an inter-nodal network to form an expandable telecommunications system, said method comprising the steps of

(a) transmitting a packet over said inter-nodal network from one of said nodes when said packet is not utilized by another node, said packet containing information identifying said transmitting node, wherein said packet either contains information which said transmitting node intends to transfer to one or more other nodes or having a capacity to carry information,

(b) receiving at one of said one or more other nodes said packet,

(c) determining if said received packet is an empty packet or full packet,

(d) transmitting information destined for said transmitting node via said packet from said receiving node when said received packet is an empty packet,

(e) receiving said information destined for said receiving node at said receiving node when said received packet is full, and

(f) repeating step (a) through (e) at each of said one or more other nodes.

5,737,321

MULTI-MEDIA TELECONFERENCE SYSTEM

Eiichiro Takahashi, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Oct. 18, 1995, Ser. No. 547,665

Claims priority, application Japan, Mar. 16, 1995, 7-057423

Int. Cl.^{6} H04L *12/18*

U.S. Cl. 370—263 **15 Claims**

1. A multimedia teleconference system for exchanging multimedia data between multimedia terminals, comprising

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multimedia terminals registered as a group for teleconferencing, including,
- a first multimedia terminal generating multimedia data including sound data and for further forming the multimedia data in segments each having connection data and an indicator for indicating whether or not the sound data is present,
- second multimedia terminals receiving the multimedia data;
- telephone terminals registered as the group for teleconferencing, receiving only sound data; and
- a switch receiving the multimedia data generated and sent from the first multimedia terminal, detecting the connection data, extracting the sound data from the multimedia data according to the indicator, and sending the multimedia data to the multimedia terminals according to the connection data, the switch also sending sound data only to the telephone terminals.

5,737,322

SELECTIVE CALL SYSTEM AND A SECONDARY STATION FOR USE THEREIN

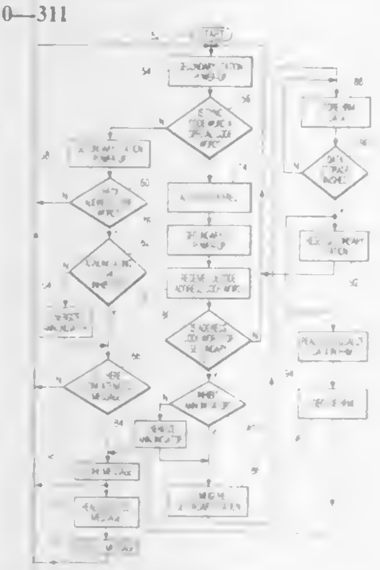
Richard C. Burbidge, Reigate; Andrew T. Yule, Oxted, and Anthony K. Sharpe, Cambridge, all of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 27, 1995, Ser. No. 430,518

Claims priority, application United Kingdom, Apr. 27, 1994, 9408321

Int. Cl.^{6} H04Q *7/18*

U.S. Cl. 370—311 31 Claims



1. A selective call system comprising:
- a controller:
- at least one base station coupled to said controller, said at least one base station comprises a transmitter, said controller comprises means for encoding data message signals at a higher bit rate than a bit rate of address signals of an at least one secondary station, and
- at least one secondary station, said at least one secondary station comprises signal receiving means, decoding means coupled to the receiving means, control means which, in response to identifying an address code word, adapts said at least one secondary station to receive a higher bit rate message signal, and means for equalising the higher bit rate message signal in non-real time.

5,737,323

RADIO TELEPHONE

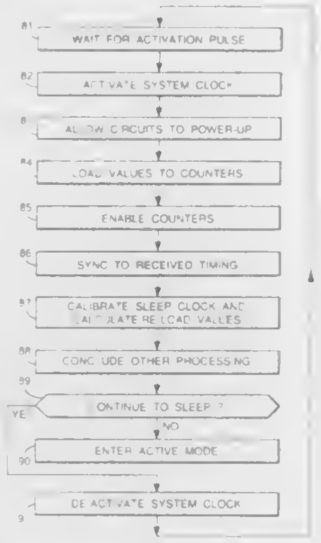
Richard Lansdowne, Chandlers Ford, England, assignor to Nokia Mobile Phones Limited, Salo, Finland

Filed Feb. 6, 1996, Ser. No. 597,640

Claims priority, application United Kingdom, Feb. 7, 1995, 9502381

Int. Cl.^{6} G08C *17/00*

U.S. Cl. 370—311 14 Claims



1. A mobile telephone having a high frequency system clock and processing means arranged to process polling signals received during a predetermined portion of a repeated periodic cycle, comprising:
- first counting means for counting system clock pulses derived from said high frequency system clock;
- a low frequency sleep clock providing sleep clock pulses;
- second counting means for counting said sleep clock pulses;
- means for de-activating said system clock;
- means for re-activating said system clock after a calibrated number of said sleep clock pulses;
- means for re-loading said first counting means to provide a re-set system clock count; and
- calibration means for calibrating said calibrated number by comparing said re-set system clock count with timing signals received from a base station.

5,737,324

METHOD AND APPARATUS FOR ESTABLISHING SPREAD SPECTRUM COMMUNICATION

Robert C. Dixon, Palmer Lake, and Jeffrey S. Vanderpool, Colorado Springs, both of Colo., assignors to Omnipoint Corporation, Colorado Springs, Colo.

Continuation of Ser. No. 536,432, Sep. 29, 1995, abandoned, which is a continuation of Ser. No. 161,187, Dec. 3, 1993, Pat. No. 5,455,822, which is a continuation of Ser. No. 957,457, Oct. 5, 1992, abandoned, which is a continuation of Ser. No. 600,772, Oct. 23, 1990, abandoned. This application Dec. 16, 1996, Ser. No. 767,152

Int. Cl.^{6} H04J *13/02*

U.S. Cl. 370—342 13 Claims

9. A method for initialization between a master unit and a node unit, comprising the steps of
- in response to the transmission of an initialization signal, transmitting from said node unit a node initialization signal;
- transmitting from said master unit a master identification signal, in response to receiving the node initialization signal; and

- transmitting from said node unit a node identification signal, in response to receiving the node initialization signal

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5,737,325

CONNECTION METHOD OF DIGITAL CORDLESS TELEPHONE APPARATUS

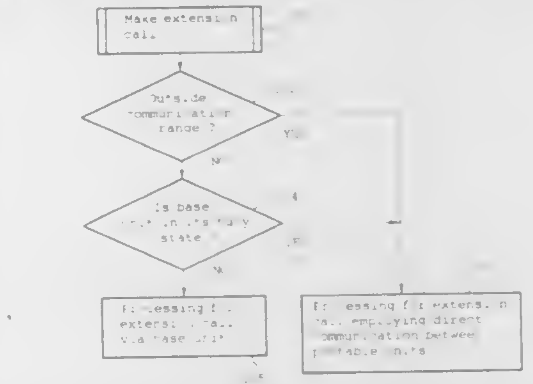
Kunio Fukuda, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 7, 1995, Ser. No. 568,647

Claims priority, application Japan, Dec. 9, 1994, 6-306499

Int. Cl.^{6} H04Q *7/38*

U.S. Cl. 370—337 4 Claims


Make extension call
Outside communication range ?
Is base
Processing for extension call via base unit
Processing for extension call employing direct communication between portable units

1. A connection method of a digital cordless telephone apparatus which includes a base unit and a plurality of portable units, in which one channel is divided into frames in view of time, each frame being formed of a plurality of transmission slots and a plurality of reception slots, in which digital data is transmitted and received during respective periods of said transmission slots and said reception slots, and in which by using said plurality of transmission slots and reception slots in each of said frames, said base unit can communicate with said plurality of portable units and provide communication between one portable unit and another portable unit of said plurality of portable units via said base unit, said connection method being used to establish a connection for communication between a first calling side portable unit and a second called side portable unit of said plurality of portable units, comprising the steps of
- at said first portable unit, transmitting an access request signal for requesting a call to said second portable unit;
- at said base unit receiving the access request signal and determining whether there are any transmission slots and reception slots available for connecting said first portable unit to said second portable unit via said base unit;
  - if there are any available transmission slots and reception slots, allowing a call between said first portable unit and said second portable unit by using the available slots,
  - if there are no available transmission slots and reception slots, transmitting a control signal including busy information
- at said first portable unit, determining whether it is possible to receive the control signal from said base unit if said first portable unit can receive the control signal receiving the control signal and transmitting to said second portable unit a direct access request signal for requesting a call to said second portable unit, and
- at said second portable unit, receiving the direct access request signal, thereby communicating with said first portable unit

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5,737,326

MULTI-CODE CODE DIVISION MULTIPLE ACCESS RECEIVER

Chih-Lin I, Manalapan Township, Monmouth County; Andrzej Partyka, Bedminster Township, Somerset County, and Charles Albert Webb, III, Rumson Township, Monmouth County, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 12, 1996, Ser. No. 678,834

Int. Cl.^{6} H04B *7/216;* **H04J** *13/04*

U.S. Cl. 370—335 14 Claims

1. A multicode (MC) code division multiple access (CDMA) receiver comprising
- rake receiver means for receiving a MC CDMA signal including N where N>1, encoded complex data signal channels, each complex data signal channel being different from any other complex data signal channel,
- first correlator means for tracking and acquiring timing information for a preselected one of the N encoded complex data signal channels of the MC-CDMA signal, and
- a plurality of second correlator means, each second correlator means utilizing said acquired timing information for decoding and despreading an associated one of the N encoded complex data signal channels

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5,737,327

METHOD AND APPARATUS FOR DEMODULATION AND POWER CONTROL BIT DETECTION IN A SPREAD SPECTRUM COMMUNICATION SYSTEM

Fuyun Ling, Hoffman Estates; David E. Borth, Palatine; Colin D. Frank, Schaumburg; Phillip D. Rasky, and James F. Kepler, both of Buffalo Grove, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 29, 1996, Ser. No. 624,329

Int. Cl.^{6} H04J *13/04;* **H04Q** *7/20*

U.S. Cl. 370—335 33 Claims

31. A method for demodulating a direct sequence code division multiple access (DS CDMA) signal received in a receiver, the DS CDMA signal including traffic symbols and pilot symbols, the method comprising the steps of
- filtering the pilot symbols to produce an estimate of channel gain and channel phase,
- delaying the traffic symbols for a predetermined time producing delayed traffic symbols, and

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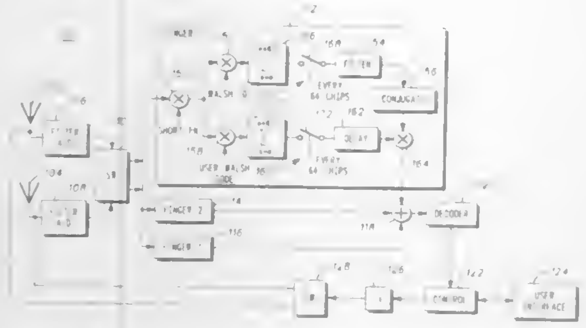
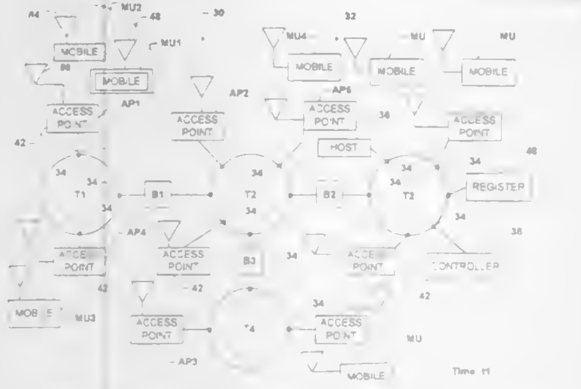


demodulating the delayed traffic symbols in response to the channel gain and phase.

5,737,328
NETWORK COMMUNICATION SYSTEM WITH INFORMATION REROUTING CAPABILITIES

Stuart G. Norman, Don Mills, Canada, and Marvin Sojka, Doylestown, Ohio, assignors to Aironet Wireless Communications, Inc., Fairlawn, Ohio

Filed Oct. 4, 1995, Ser. No. 539,130
Int. Cl.⁶ H04B *7/26;* H04L *12/66*
U.S. Cl. 370—331 **30 Claims**

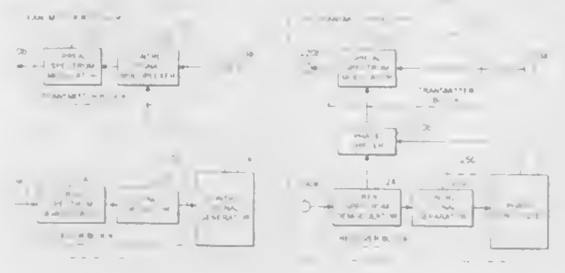


1. A network communication system, comprising
a communication network including a plurality of nodes; and
a plurality of access points each coupled to said communication network at a respective one of said nodes, said access points serving as communication links between said communication network and one or more mobile communication units, each of said access points including
wireless communication means for communicating information between said respective node and any of said one or more mobile communication units which are registered to said access point,
means for receiving an information packet from said communication network, said information packet being addressed to a particular one of said one or more mobile communication units,
means for determining whether said access point is a master among a plurality of said access points according to a predefined criteria independent of whether the particular mobile communication unit has been registered to said access point;
means for transmitting said information packet to said particular mobile communication unit, via said wireless communication means, in the event said particular mobile communication unit is currently registered to said access point; and
means for rerouting said information packet to said particular mobile communication unit via said communication network in the event said particular mobile communication unit is not currently registered to said access point and said access point is determined to be the master.

5,737,329
SPREAD SPECTRUM COMMUNICATION APPARATUS

Yoshinori Horiguchi, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 12, 1996, Ser. No. 631,199
Claims priority, application Japan, Apr. 14, 1995, 7-088980
Int. Cl.⁶ H04J *3/06; 13/00*
U.S. Cl. 370—342 **10 Claims**

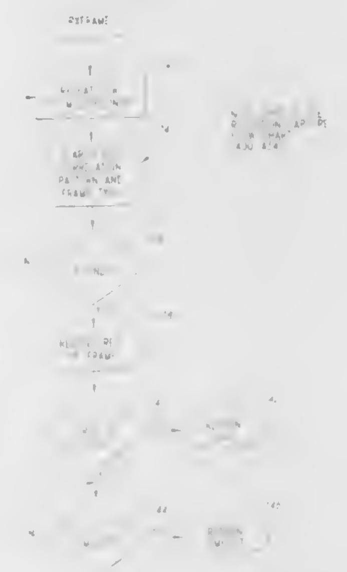


1. A spread spectrum communication apparatus, comprising.
a first transmitter-receiver having:
a receiver block for receiving a transmission signal which is spread spectrum modulated using a first PN code, carrying out a spread spectrum demodulation by synchronizing the received signal with a phase of the first PN code, determining whether the spread spectrum demodulated signal has synchronized with the phase of the first PN code, and then outputting a synchronization detection signal;
a control signal generator for generating a control signal for shifting the phase of the first PN code for spread spectrum modulation in a second transmitter-receiver so as to establish synchronization of signals received in the receiver block of the first transmitter-receiver based on the synchronization detection signal, and
a transmitter block for transmitting to the second transmitter-receiver an information signal which is multiplexed with the control signal and spread spectrum modulated using a second PN code:
the second transmitter-receiver having:
a receiver block for receiving the transmission signal which is spread spectrum modulated in the first transmitter-receiver with the first PN code, performing a reverse spread spectrum process on the signal received by the receiver block in the second transmitter-receiver by synchronizing the phase of the received signal using the second PN code, demodulating the received signal, separating the control signal from the received signal and outputting control signal;
a phase controller for generating a phase control signal that shifts the phase of the first PN code for spread spectrum processing to establish a reception synchronization of the first transmitter receiver, which can not establish the reception synchronization based on the control signal separated from the receiver block;
a transmitter block for transmitting an information signal for transmission by performing spread spectrum processing using the first PN code which is generated by a clock pulse synchronizing the phase of the first PN code with the spread spectrum demodulator of the receiver block, and
a phase shifter connected between the receiver block and the transmitter block of the second transmitter-receiver for shifting the phase of the first PN code based on the phase control signal from the phase controller in the second transmitter-receiver so as to establish the reception synchronization of the first transmitter-receiver.

5,737,330
SYSTEM AND METHOD FOR THE EFFICIENT CONTROL OF A RADIO COMMUNICATIONS NETWORK

Richard J. Fulthorp; Dale K. Smith, both of Renton; David A. Fulthorp, Seattle, and Thomas G. Donich, Federal Way, all of Wash., assignors to Meteor Communications Corporation, Kent, Wash.

Filed Jan. 11, 1996, Ser. No. 584,961
Int. Cl.⁶ H04L *12/413*
U.S. Cl. 370—346 **42 Claims**



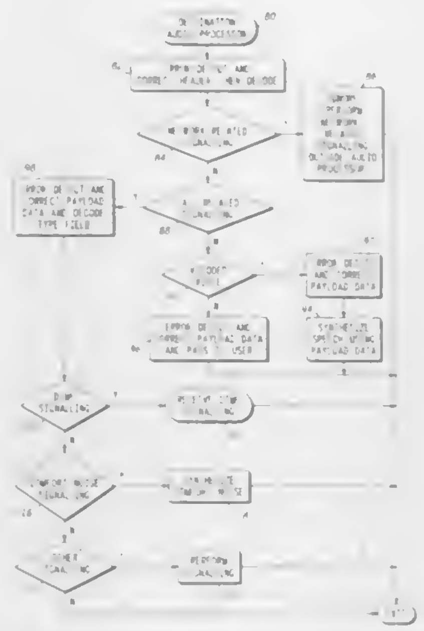
1. A system for the control of radio communications, comprising:
a plurality of remote radio units having transmit and receive capability, each of said remote units operating in a first mode to transmit a poll request signal to initiate communications, and a second mode to transmit data;
a base station having transmit and receive capability, said base station receiving a plurality of respective poll requests from at least some of said plurality of remote radio units and transmitting a poll signal to said plurality of remote radio units, said poll signal including a poll response sequence instructing at least some remote radio units to when to respond to said poll signal;
a poll detection unit in each of said remote radio units to detect said poll signal; and
a control unit in each of said remote units to control transmission of said data in accordance with said poll response sequence, whereby said at least some remote radio units transmits in said second mode in accordance with said poll response sequence.

5,737,331
METHOD AND APPARATUS FOR CONVEYING AUDIO SIGNALS USING DIGITAL PACKETS

Thomas Jake Hoppal, Gilbert; Peter Joseph Armbruster, Tempe; James William Bishop, Jr., Chandler, and Johanna Wild, Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 18, 1995, Ser. No. 529,812
Int. Cl.⁶ H04J *3/12,* H04M *3/42*
U.S. Cl. 370—349 **25 Claims**

1. A method for digitally conveying audio signals through a telecommunication network using digital packets, said method comprising the steps of:
evaluating a first portion of a packet at an audio processor to detect a call related signalling event,
synthesizing said call-related signalling event at said audio processor when said call related signalling event is detected, said

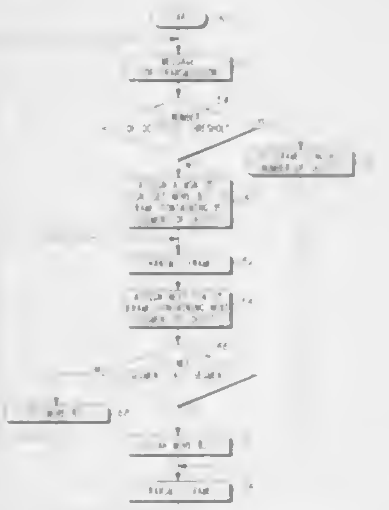


call-related signalling synthesis occurring in response to data conveyed by a second portion of said packet, and
performing speech synthesis at said audio processor when said call-related signalling is not detected, said speech synthesis occurring in response to data conveyed by said second portion of said packet.

5,737,332
DATA LINK CONTROL METHOD

Richard J. Corrigan; Camille Dozier, both of Schaumburg; Rachel Baumann, Downers Grove; Scott Chu, Northfield; Kurt Steinbrenner, Bartlett, and David Ingham, Schaumburg, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 31, 1996, Ser. No. 594,462
Int. Cl.⁶ H04L *12/54*
U.S. Cl. 370—394 **11 Claims**



7. A data link control method, comprising the steps of
(a) receiving a frame,
(b) determining if the frame is an information frame,
(c) when the frame is the information frame, reading a message sequence number and a frame sequence number,
(d) determining if the frame sequence number is one greater than a previous frame sequence number, and
(e) when the frame sequence number is one greater than the previous frame sequence number, appending a message payload from the frame to a previous message payload

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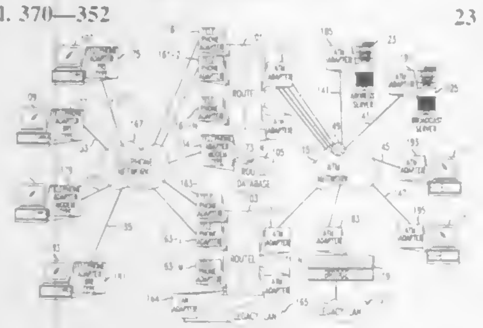
5,737,333
METHOD AND APPARATUS FOR INTERCONNECTING ATM-ATTACHED HOSTS WITH TELEPHONE-NETWORK ATTACHED HOSTS

Seyhan Civanlar, Middletown Township, Monmouth County, and Vikram R. Saksena, Freehold, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, and AT&T Corp., Middletown, both of N.J.

Filed Jun. 23, 1995, Ser. No. 494,121

Int. Cl.⁶ H04Q *11/04*

U.S. Cl. 370—352 **23 Claims**



1. Apparatus for use in establishing connections between a host connected via a telephone link to a telephone network, and a host attached to an asynchronous transfer mode ATM network, the apparatus comprising:

- telephone network adapter means for establishing a first data communications session between said apparatus and said host connected to said telephone network, said first data communication session employing a first protocol for carrying a layer-3 packet,
- means for determining a layer-3 address for said host connected to said telephone network;
- ATM adapter means for establishing a second data communications session between said apparatus and said ATM-attached host, said second data communication session employing a second protocol for carrying a layer-3 packet;
- means for translating between said first and second protocols,
- means for performing address translation between ATM addresses, telephone numbers, and layer-3 addresses; and
- means for reading a layer-3 packet header and routing a packet between said telephone network adapter means and said ATM adapter means to connect said host connected to said telephone network with said ATM-attached host, said packet having its address and protocol translated to correspond to that of the host to which it is destined.

5,737,334
PIPELINE ARCHITECTURE FOR AN ATM SWITCH BACKPLANE BUS

Jeff Prince, Sunnyvale; Mike Noll, San Jose, and Earl Ferguson, Sunnyvale, all of Calif., assignors to Bay Networks, Inc., Santa Clara, Calif.

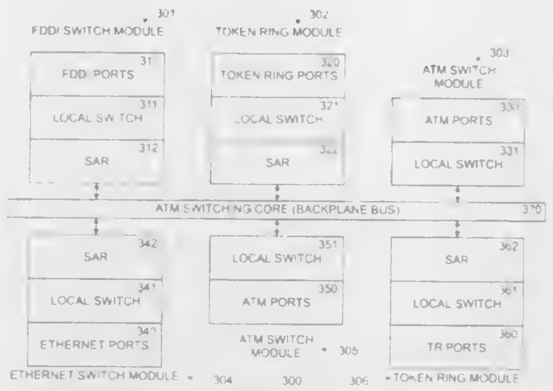
Continuation-in-part of Ser. No. 502,088, Jul. 12, 1995, abandoned. This application Sep. 29, 1995, Ser. No. 536,133

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—395 **22 Claims**

1. An apparatus for transmitting data on a time division multiplexed data bus to which a first module and a second module are coupled, comprising

- an ownership bus coupled to said first module and said second module:
- a CPU coupled to said ownership bus for transmitting a module identification number of said first module during a first time slot to notify said first module that said first module can transmit data on said time division multiplexed data bus during a third time slot, and
- a destination bus coupled to said first module and said second module, said first module transmitting a destination identifier of said second module on said destination bus during a second time slot to notify said second module that said second module will receive data on said time division multiplexed data bus during said third time slot



5,737,335
COMMUNICATION SYSTEM USING TIME DIVISION MULTIPLEX SIGNAL TRANSMISSION

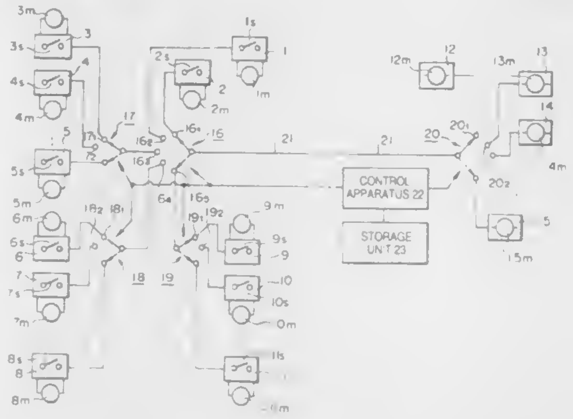
Ken Mizuta; Yukio Miura; Ken Shibazaki, and Toshihiko Kawata, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Japan

Filed Nov. 9, 1995, Ser. No. 555,540

Claims priority, application Japan, Nov. 9, 1994, 6-275055; Jan. 10, 1995, 7-001952

Int. Cl.⁶ H04J *3/16*

U.S. Cl. 370—444 **11 Claims**



1. A multiplex communication system in which a plurality of data signals are transmitted during a plurality of transmission cycles via a bus line from a plurality of node devices to at least one of a plurality of end devices, each transmission cycle being divided into a plurality of equal-length time slots, the multiplex communication system comprising:

- means for controlling transmission of the data signals according to a necessity of transmission, wherein a first data signal having a greatest degree of transmission necessity is transmitted in a first time slot during each of the plurality of transmission cycles, while second and third data signals having a lesser degree of transmission necessity are transmitted in a second time slot in a predetermined alternating sequence such that each of the second and third data signals is always transmitted every n transmission cycles, where n is an integer greater than or equal to two;
- wherein connections between said plurality of node devices and said bus line, and connections between said plurality of end devices and said bus line are selectively switched by a plurality of change-over switches which are controlled by a control apparatus

5,737,336
SIGNAL PROCESSING APPARATUS AND SIGNAL PROCESSING METHOD FOR THE SAME

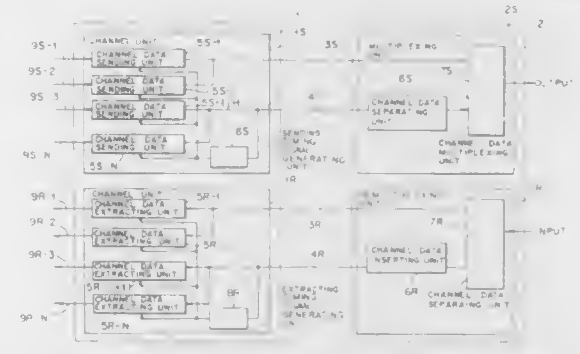
Kazuhiko Takeda, Sendai, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Sep. 8, 1995, Ser. No. 525,825

Claims priority, application Japan, Feb. 20, 1995, 7-031179

Int. Cl.⁶ H04J *3/04*

U.S. Cl. 370—539 **12 Claims**


9S-1
9S-2
9S-3
9S-N
CHANNEL UNIT
CHANNEL DATA SENDING UNIT
5S-1
5S-N
3S
6S
SENDING TIMING SIGNAL GENERATING UNIT
CHANNEL DATA SEPARATING UNIT
CHANNEL DATA MULTIPLEXING UNIT
OUTPUT
9R-1
9R-2
9R-3
9R-N
CHANNEL DATA EXTRACTING UNIT
5R-1
5R-N
3R
4R
7R
8R
6R
CHANNEL DATA INSERTING UNIT
CHANNEL DATA SEPARATING UNIT
EXTRACTING TIMING SIGNAL GENERATING
INPUT

1. A signal processing apparatus which has a channel unit including a plurality of channels, a multiplexing unit for multiplexing a plurality of sets of channel data from said channel unit, a data signal line for transmitting the channel data from said channel unit to said multiplexing unit, and a timing signal line for transmitting timing signals from said multiplexing unit to said channel unit, wherein

- said channel unit comprises a plurality of channel data sending units to transmit the plurality of sets of channel data to said multiplexing unit while using the timing signals input through said timing signal line to determine the timing of sending out the data, part of said channel data sending units being connected to said data signal line so that channel data from part of said channel data sending units are transmitted to said multiplexing unit through said data signal line, and the rest of said channel data sending units being connected to said timing signal line so that channel data from the rest of said channel data sending units are inserted into empty slots of the timing signals and are transmitted to said multiplexing unit through said timing signal line; and
- said multiplexing unit comprises a channel data separating unit for separating the channel data from the timing signals transmitted through said timing signal line, and a channel data multiplexing unit for multiplexing the channel data transmitted through said data signal line and the channel data separated by said channel data separating unit

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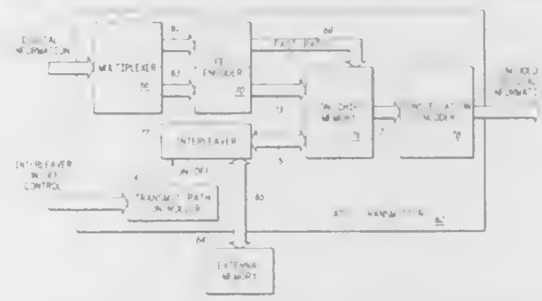
5,737,337
METHOD AND APPARATUS FOR INTERLEAVING DATA IN AN ASYMMETRIC DIGITAL SUBSCRIBER LINE (ADSL) TRANSMITTER

Raymond P. Voith, and Sujit Sudhaman, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 30, 1996, Ser. No. 723,032

Int. Cl.⁶ H03M *13/22*

U.S. Cl. 371—2.2 **25 Claims**



17. A method for interleaving data arranged in flames, the method comprising the steps of:

- serially receiving S frames of data having an aggregate of K words, where S is a total number of flames in a codeword, and where K and S are integers and K/S is an integer,
- performing forward error correction encoding on the S flames to produce the codeword:
- providing a storage element, and
- interleaving a plurality of bytes of the codeword by accessing the storage element for a plurality of first operations and a plurality of second operations wherein the plurality of first operations is equal in number to the plurality of second operations, and wherein the storage element is accessed for at least one additional second operation for a frame of the codeword.

5,737,338
ATM EXCHANGE AND METHOD OF TESTING SAME

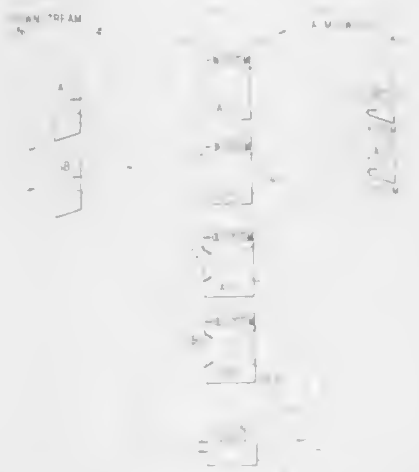
Nobuhiko Eguchi; Hiroyuki Kudou; Kazumasa Sonoda, all of Fukuoka, and Naoki Aihara, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 193,693, Feb. 8, 1994, abandoned. This application Aug. 2, 1995, Ser. No. 510,181

Claims priority, application Japan, Jul. 19, 1993, 5-177822

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 371—20.5 **3 Claims**



1. An exchange having a switch, a first interface circuit serving as an interface between data transmission line and the switch, and a second interface circuit provided between the switch and the first interface circuit comprising:

- a control means for controlling said first and second interface circuits, and
- a test means for testing the first interface circuit by sending a fixed-length packet for test to the first interface circuit via the switch and the second interface circuit and receiving a returned test packet from the first interface circuit via the second interface circuit and the switch, wherein
- said second interface circuit including:
- a means for judging, when a test packet is entered, whether the test packet is blocked or passed in accordance with control information sent from the control means, and
- means for selectively blocking or passing the test packet in accordance with the result of judgment and,
- said first interface circuit including
- a means for judging, when a test packet is entered, whether the test packet is blocked or returned in accordance with control information sent from the control means, and
- means for selectively blocking or passing the test packet in accordance with the result of judgment

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5,737,339

METHOD AND APPARATUS FOR VERIFYING STORED DATA

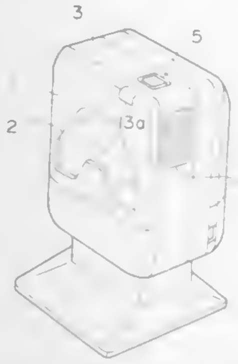
Kota Goto, and Norio Koyanagi, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 212,791, Mar. 15, 1994, abandoned. This application Dec. 18, 1995, Ser. No. 573,877

Claims priority, application Japan, Feb. 8, 1994, 6-014611

Int. Cl.^{6} G06K *7/00*

U.S. Cl. 371—21.2 **27 Claims**



1. An apparatus for verifying stored data without using a dedicating output unit comprising:

memory means for storing a plurality of original data as said stored data at a plurality of addresses,

setting means for setting the plurality of the original data to respectively correspond to the plurality of the addresses in said memory means and for selecting one of the plurality of the addresses,

control means for reading out one of said plurality of original data from said memory means corresponding to said one address selected by said setting means and for determining a value of said one original data, said one original data including a plurality of bits in binary represented by "0" and "1"; and

output means for outputting general data which indicates an operation status of the apparatus, for receiving each of said plurality of bits of said one original data one-by-one from said control means, and for outputting said value of said one original data to identify said one original data set to said one address selected by said setting means, said output means including one indicating means for indicating said value of said one original data.

5,737,340

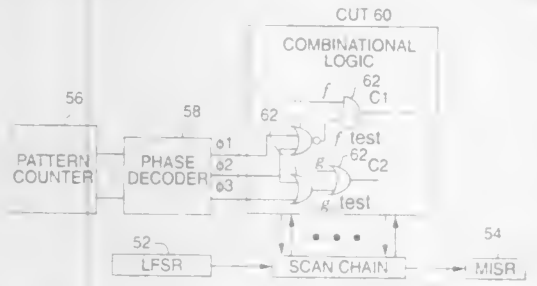
MULTI-PHASE TEST POINT INSERTION FOR BUILT-IN SELF TEST OF INTEGRATED CIRCUITS

Nagesh Tamarapalli, Tualatin, and Janusz Rajski, West Linn, both of Oreg., assignors to Mentor Graphics Corporation, Wilsonville, Oreg.

Filed Jul. 1, 1996, Ser. No. 678,376

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 371—22.5 **28 Claims**



1. Apparatus for built in self testing of a circuit comprising:

a test pattern generator for generating test patterns that are applied to inputs of the circuit during a test phase,

an output response analyzer for analyzing an output response of the circuit to the test patterns to detect a fault within the circuit;

a test pattern counter for counting the test patterns generated by the test pattern generator; and

a phase decoder responsive to the test pattern counter for generating a phase signal that controls control points in the circuit during the test phase.

5,737,341

METHOD OF GENERATING TEST SEQUENCE AND APPARATUS FOR GENERATING TEST SEQUENCE

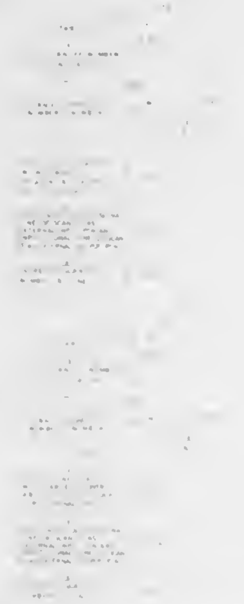
Toshinori Hosokawa, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 268,322, Jun. 30, 1994, abandoned. This application Dec. 4, 1996, Ser. No. 758,835

Claims priority, application Japan, Jul. 1, 1993, 5-163406

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—22.31 **9 Claims**



3. A method of generating a test sequence for testing a stuck-at fault supposed in a sequential circuit as a circuit under test, comprising:

a first step of judging whether or not a frequency divider exists in said circuit under test;

a second step of classifying, if it is judged in said first step that a frequency divider exists in said circuit under test, the registers included in said circuit under test by the frequencies of clock input signals for operating the individual registers; and

a third step of identifying registers, which are operated by the individual clock input signals with different frequencies and which transfer data therebetween, with scan registers.

5,737,342

METHOD FOR IN-CHIP TESTING OF DIGITAL CIRCUITS OF A SYNCHRONOUSLY SAMPLED DATA DETECTION CHANNEL

Pablo A. Ziperovich, Palo Alto, Calif., assignor to Quantum Corporation, Milpitas, Calif.

Filed May 31, 1996, Ser. No. 656,021

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—25.1 **21 Claims**

1. A method for in-chip testing of a digital section of an application specific integrated circuit (ASIC) chip implementing a synchronous sampling data detection channel, the digital section including at least an input node nominally for receiving digital values from an analog to digital converter, an in-chip test block, and, a digital memory path detector, the method comprising the steps of

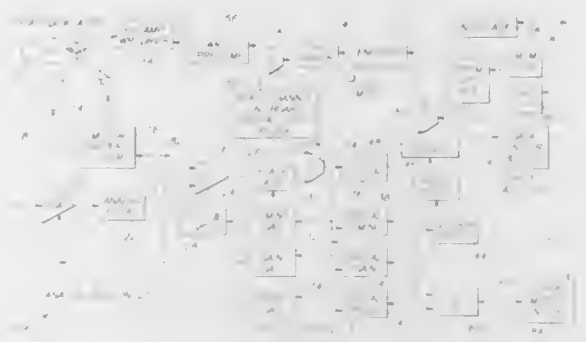
injecting a sequence of known digital values from a source into the input node,

generating a sequence of pseudo samples from the sequence of known digital values within the pseudo sample generator,

generating a controlled amount of digital noise within the digital noise generator, and adding the digital noise to the pseudo samples at the summing circuit to produce noisy pseudo samples,

selectively passing the noisy pseudo samples through the digital memory path detector to produce a test value indicative of detected pseudo samples, and

storing the test value as a chip signature into a chip signature storage circuit



5,737,343

CIRCUIT FOR LOCALIZING ERRORS IN REED-SOLOMON DECODERS

Jacques Meyer, Corenc, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Jun. 22, 1995, Ser. No. 493,830

Claims priority, application France, Jun. 27, 1994, 94 08122

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.1 **19 Claims**

1. A Reed-Solomon decoder comprising

a first set of registers having contents initialized to values corresponding to coefficients of a syndrome polynomial of degree 2t-1;

a second set of registers having contents initialized to zero except for a second register of the second set which has a content initialized to 1,

a third set of registers connected to outputs of the first set of registers, the third set of registers having contents initialized to zero except for a last register of the third set which has a content initialized to 1

a fourth set of registers connected to outputs of the second set of registers, the fourth set of registers having contents initialized to zero,

a calculation circuit associated with each register of the first and second sets, to provide each register with a sum of a product of a content of a preceding register of said first and second sets by the content of the last register of the third set and a product of a content of the corresponding registers of the third and fourth sets by a content of the last register of the first set wherein the calculation circuit includes a plurality of first calculation circuit portions, wherein a first calculation circuit portion associated with a first register of the second set executes calculations from contents of last registers of the second and fourth sets,

a counter and an indicator register, respectively initialized to a first number and a number exceeding the first number by 1, the indicator register being connected to an output of the counter, and

a sequencer that

a) enables writing of the first and second sets of registers and decrementing of the content of the counter when the content of the counter is higher than or equal to the content of the indicator register or the content of the last register of the first set is zero,

b) enables writing of the first, second, third and fourth sets of registers and the indicator register when both the content of the counter is lower than the content of the indicator register and the content of the last register of the first set is non-zero, and

c) stops when the content of the counter is decreased by t

5,737,344

DIGITAL DATA STORAGE WITH INCREASED ROBUSTNESS AGAINST DATA LOSS

Karl Arnold Belser; Mario Blaum, both of San Jose, Calif.; John Edward Kulakowski, Tucson, Ariz., and Kurt Allen Rubin, Santa Clara, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 25, 1995, Ser. No. 450,123

Int. Cl.^{6} G11B *20/18*; G06F *11/10*

U.S. Cl. 371—40.4 **51 Claims**

1. A method for storing digital data with increased robustness against data loss, comprising the steps of

storing a first predetermined number of data items in selected positions of a contiguous block of a data storage medium, said contiguous block having a second predetermined number of positions at least as large in number as the first predetermined number,

generating a parity block by performing steps comprising

applying a parity routine to the first predetermined number of data items to form a parity computation

forming a parity map representative of the selected positions in which the first predetermined number of data items are stored, and

storing the parity block on the data storage medium

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5,737,345
METHOD FOR ARITHMETIC DECODING

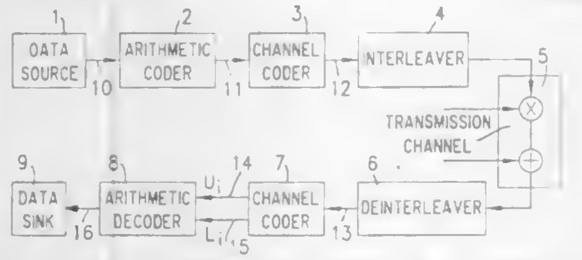
Rodolfo Mann Pelz, Hanover, and Bechir Jannet, Pattensen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 21, 1995, Ser. No. 517,540

Claims priority, application Germany, Aug. 19, 1994, 44 29 585.5

Int. Cl.^{6} H03M *13/12*

U.S. Cl. 371—43.1 **8 Claims**



1 A method for arithmetically-decoding data, comprising the steps of:

channel-decoding channel-coded data using a soft Viterbi algorithm;

determining at least one first item of reliability information.

storing the channel-decoded data;

determining arithmetically-decoded data as a function of the channel-decoded data;

predicting data from a predetermined number of the arithmetically-decoded data;

arithmetically-coding the predicted data.

comparing the predicted data with corresponding stored channel-decoded data; and

if the predicted data does not correspond to the channel-decoded data:

decreasing an upper value of a value range of a distribution density function into which the channel-data falls, given a first value of the channel-decoded data and a determined small first item of reliability information.

increasing a lower value of the value range of the distribution density function, given a second value, greater than the first value, of the channel-decoded data and a determined small first item of reliability information

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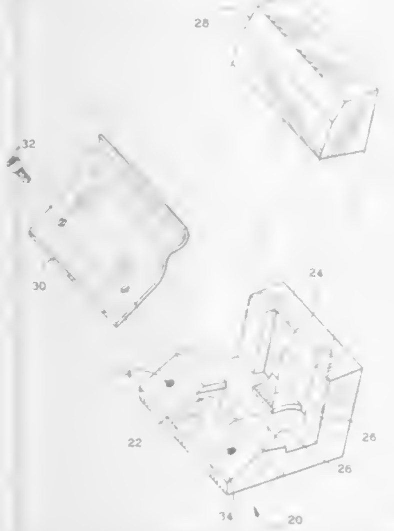
5,737,346
MOUNT FOR OPTICAL COMPONENTS

Jeffrey J. Stenstrom, Long Beach, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Jul. 1, 1996, Ser. No. 674,291

Int. Cl.^{6} H01S *3/108;* **G02B** *7/00*

U.S. Cl. 372—21 **20 Claims**



12 An improved optical resonator of the type in which a laser rod, a polarizing plate and a Q-switch lie along an optical axis between mirrors, and a crystal for nonlinear generation of laser radiation lies along said optical axis outside said mirrors, wherein the improvement comprises:

a mount for holding said crystal, said mount comprising:

a base for accepting said crystal, said base comprising first and second non-parallel faces oriented to support said crystal, each of said faces including a respective plurality of mutually spaced elevated mounting surfaces for contacting said crystal, and

a spring retainer secured to said base, said spring retainer holding said crystal in said mount by simultaneously urging said crystal towards both of said faces.

5,737,347
LASER WITH MULTIPLE GAIN ELEMENTS

Richard Scheps, Del Mar, and Joseph F. Myers, San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation of Ser. No. 155,034, Nov. 19, 1993, Pat. No. 5,528,612. This application Feb. 26, 1996, Ser. No. 607,036

Int. Cl.^{6} H01S *3/10*

U.S. Cl. 372—23 **4 Claims**

1 A laser for emitting at least two wavelengths within a preselected range of wavelengths that reduces the problems associated with gain competition comprising

a resonator for said at least two wavelengths within a preselected range of wavelengths defining a laser resonator cavity, said resonator including at least two highly reflective end elements, at least one highly reflective concave fold mirror element and a output coupler reflective element arranged to form a reflective path defining said laser resonator cavity therebetween;

a dispersing prism disposed in said laser resonator cavity between said concave fold mirror and said at least two highly reflective end elements to spatially disperse said at least two wavelengths, said dispersing prism and said at least two highly reflective end elements being aligned in a manner to define a discrete end portion of a separate one of at least two resonant paths in said laser resonator cavity, each separate one of two resonant paths being for a discrete one of said at least two wavelengths in said preselected range of wavelengths;

at least two laser gain elements each being disposed in a separate said discrete end portion of a separate one of at least two resonator paths in said laser resonator cavity, and each of said two gain elements being aligned to emit at least a discrete one of said at least two wavelengths; and

means for optically exciting said laser gain elements in a side pumping mode to emit an optical emission that includes said at least two wavelengths in said preselected range of wavelengths at predetermined relative magnitudes thereof.

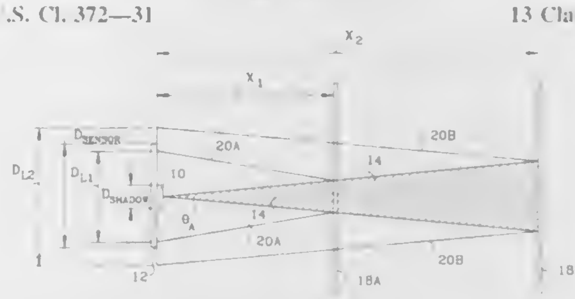
5,737,348
LIGHT SOURCE MONITOR WITH COMPENSATED TRACKING RATIO

David F. Smith, Dallas, Tex., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 28, 1996, Ser. No. 739,471

Int. Cl.^{6} H01S *3/10*

U.S. Cl. 372—31 **13 Claims**



1 A light source monitor, comprising:

a light source for providing a light beam.

a light sensitive component disposed proximate said light source;

a first window, which intersects an axis through said light source, said first window being partially reflective and partially transmissive and disposed to direct a first reflected light beam toward said light sensitive component, the amount of light energy of said first reflected light beam directed onto said light sensitive component by said first window being a function of a variable characteristic of said light beam; and

a second window, which intersects said axis, said second window being partially reflective and partially transmissive and disposed to direct a second reflected light beam toward said light sensitive component, the amount of light energy of said second reflected light beam directed onto said light sensitive component by said second window being a function of said variable characteristic of said light beam, said first and second windows being spaced apart by a predetermined distance, whereby a change in said variable characteristic of said light beam causes mutually compensating changes in said first and second reflected light beams to cause a sum of the light energies of said first and second reflected light beams to remain generally constant over a preselected range of said variable characteristic.

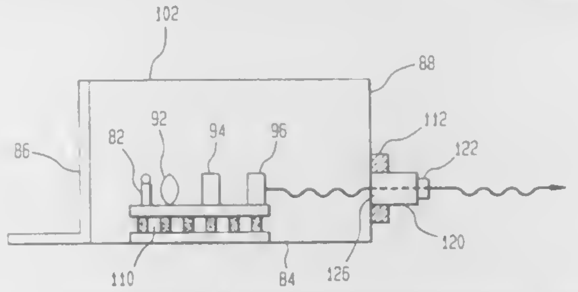
5,737,349
OPTICAL ISOLATOR AND ALIGNMENT METHOD

Carl E. Gaebe, Fleetwood, Pa., assignor to Lucent Technologies Inc., Murray Hills, N.J.

Filed May 22, 1996, Ser. No. 652,289

Int. Cl.^{6} H01S *3/00*

U.S. Cl. 372—37 **13 Claims**



1 A method for aligning an optical isolator comprising the steps of:

transmitting a light from a laser source along a light emitting axis through a Faraday rotator magnetized in a first magnetization direction so as to rotate the polarization axis of said light transmitted from said laser source.

rotatably adjusting an output polarizer structured and arranged to receive said light traveling through said Faraday rotator until such time that substantially no light travels through said output polarizer, and

providing a magnet having an external magnetic field, said magnet structured and arranged so as to be longitudinally spaced from said Faraday rotator along said light emitting axis and so that said Faraday rotator is magnetized in a second magnetization direction such that said Faraday rotator reverses the rotation of said light traveling through said Faraday rotator.

5,737,350
SEMICONDUCTOR LASER HAVING MULTI-QUANTUM BARRIER INCLUDING COMPLEX BARRIER STRUCTURE AND METHOD OF MAKING THE SEMICONDUCTOR LASER

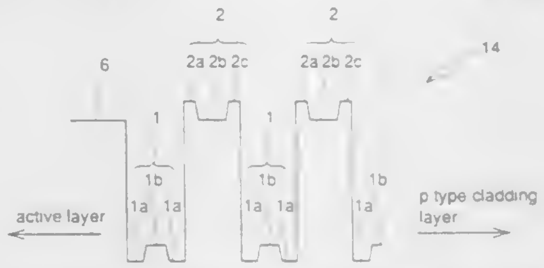
Takashi Motoda, and Manabu Kato, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1995, Ser. No. 529,715

Claims priority, application Japan, Sep. 13, 1994, 6-223327

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—45 **17 Claims**



6 A semiconductor laser having a multi-quantum barrier layer, the multi-quantum barrier layer comprising

a plurality of barrier layer structures, each barrier layer structure comprising a first barrier layer comprising a III-V compound semiconductor material including a Group V element and having a first band gap energy, a second barrier layer disposed on the first barrier layer, comprising a III-V compound semiconductor material including a Group V element different from the Group V element in the first barrier layer, and having a second band gap energy different from the first band gap energy, and a third barrier layer disposed on the second barrier layer, comprising a III-V compound semiconductor material including the same Group V element as in the first barrier layer, and having the first band gap energy, and

a plurality of well layer structures, each well layer structure comprising a first well layer comprising a III-V compound semiconductor material including the same Group V element as in the second barrier layer and having a third band gap energy, and a second well layer disposed on the first well layer, comprising a III-V compound semiconductor material including the same Group V element as in the first well layer, and having a fourth band gap energy different from the third band gap energy, the barrier layer structures and the well layer structures being alternatingly laminated

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5,737,351
SEMICONDUCTOR LASER INCLUDING RIDGE STRUCTURE EXTENDING BETWEEN WINDOW REGIONS

Kenichi Ono, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 3, 1996, Ser. No. 660,179

Claims priority, application Japan, Nov. 16, 1995, 7-298116

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—45 **6 Claims**

1 A semiconductor laser comprising

opposed resonator facets.

a semiconductor substrate of a first conductivity type

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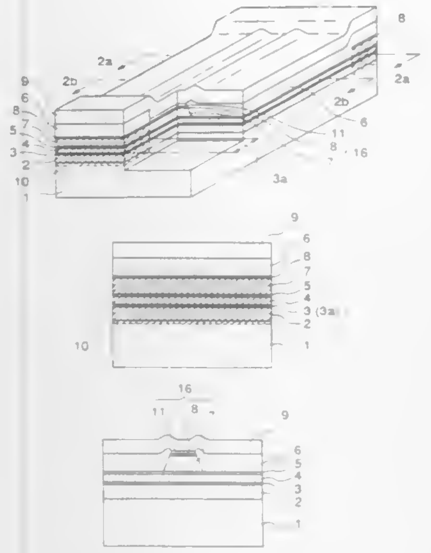


a lower cladding layer of the first conductivity type, disposed on the semiconductor substrate;

an active layer having a superlattice structure and disposed on the lower cladding layer, the superlattice structure being disordered in respective window regions adjacent each of the resonator facets;

a first upper cladding layer of a second conductivity type, opposite the first conductivity type, disposed on the active layer;

an etch stopping layer of the second conductivity type, disposed on the first upper cladding layer;

a second upper cladding layer of the second conductivity type, disposed on the etch stopping layer, the laser including a ridge structure disposed on the etch stopping layer and comprising part of the second upper cladding layer, the ridge structure having a width narrower than the resonator facets and extending in a direction perpendicular to the resonator facets, between the window regions, and

a current blocking layer contacting opposite sides of the ridge structure between the window regions, the second upper cladding layer and the current blocking layer being coextensive in width with the resonator facets in the window regions.

5,737,352
SEMICONDUCTOR DIODE LASER, IN PARTICULAR A LASER AMPLIFIER, AND METHOD OF MANUFACTURING THIS LASER

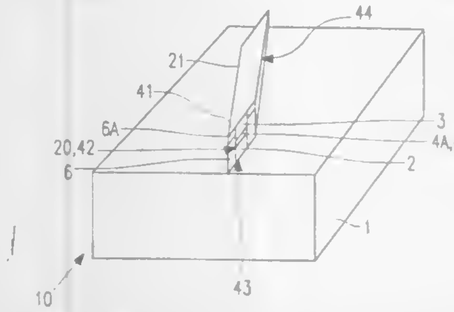
Lukas F. Tiemeijer; Johannes J. M. Binsma, and Petrus J. A. Thijs, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 8, 1996, Ser. No. 745,761

Claims priority, application European Pat. Off., Nov. 8, 1995, 95203035

Int. Cl.⁶ H01S *3/06*

U.S. Cl. 372—45 14 Claims



1. A semiconductor diode laser with a semiconductor body of III-V semiconductor materials comprising a substrate and an overlaying semiconductor layer structure with at least a first cladding layer of a first conductivity type, a second cladding layer of a second conductivity type opposed to the first, said cladding layers being provided with current supply means; and between the first and second cladding layers an active layer and a pn junction which, given a sufficient current strength in the forward direction, is capable of amplifying or generating electromagnetic radiation in a strip-shaped active region which forms part of the active layer, which lies within a resonance cavity formed between two parallel end faces, the longitudinal axis of said resonance cavity enclosing a small angle with the perpendicular to the end faces, and which has at least one end which is situated adjacent an end face and is separated from said end face by a third cladding layer which is preferably current-blocking and which is provided with a tapering portion, as seen in projection, of which a first side face coincides with a side face of the strip-shaped active region outside the tapering portion and of which a second side face encloses an acute angle with the perpendicular to the end face, characterized in that the second side face of said tapering portion encloses an angle with the perpendicular to the end face which lies between 0° and 30°.

5,737,353
MULTIQUANTUM-WELL SEMICONDUCTOR LASER

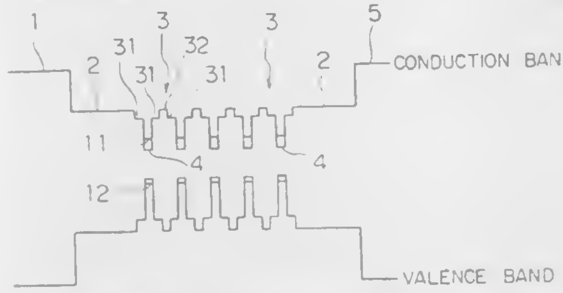
Yoshihiro Sasaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 348,924, Nov. 25, 1994, abandoned. This application Jan. 16, 1997, Ser. No. 783,899

Claims priority, application Japan, Nov. 26, 1993, 5-296499

Int. Cl.⁶ H01S *3/18*

U.S. Cl. 372—45 13 Claims



1. A multiquantum-well semiconductor laser comprising:

a substrate;

a cladding layer;

an active region located between said substrate and said cladding layer further comprising:

- a plurality of quantum-well layers, wherein each said quantum well layer is comprised of material selected from a group of InGaAs and InGaAsP, and each said quantum-well layer has a first bandgap; and

a plurality of barrier laminates abutting two quantum well layers and separating two of said plurality of quantum-well layers, wherein each said barrier laminate comprises at least two InGaAsP barrier materials including a first material having a second bandgap larger than said first bandgap and a second material having a third bandgap larger than said second bandgap, wherein said second material is substantially free of dopants, and wherein said first material having said second bandgap abuts at least one quantum-well layer having said first bandgap.

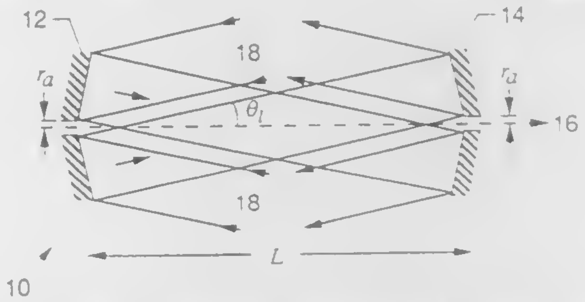
5,737,354
ENERGY EXCHANGE BETWEEN A LASER BEAM AND CHARGED PARTICLES USING INVERSE TRANSITION RADIATION AND METHOD FOR ITS USE

Wayne D. Kimura, Bellevue; Richard D. Romea, Seattle, and Loren C. Steinhauer, Bothell, all of Wash., assignors to STI Optronics, Inc., Bellevue, Wash.

Filed Jul. 9, 1996, Ser. No. 677,268

Int. Cl.⁶ H01S *3/00*

U.S. Cl. 372—74 27 Claims



1. A method for exchanging energy between a relativistic particle beam, containing one or more charged particles, and a laser beam, the exchange of energy occurring due to inverse transition radiation, the method comprising the steps of:

a) supplying a first optical element including a thin foil,

b) supplying a second optical element including a thin foil;

c) positioning the first and second optical elements so that the relativistic particle beam passes through the foil of the first optical element and then through the foil of the second optical element, the foils of the first and second optical elements being separated by a predetermined distance of separation, L;

d) causing said laser beam to interact with said first element so that said laser beam intersects the particle beam at a predetermined angle, θ_l; and

e) causing the laser beam to interact with said second element after interacting with said particle beam

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5,737,355
DIRECTLY INDUCED SWING FOR CLOSED LOOP CONTROL OF ELECTROSLAG REMELTING FURNACE

Brian Damkroger, Corrales, N. Mex., assignor to Sandia Corporation, Albuquerque, N. Mex.

Filed Sep. 21, 1995, Ser. No. 510,960

Int. Cl.⁶ H05B *3/60*

U.S. Cl. 373—50 7 Claims

1. A method for controlling an electroslag remelting furnace having an electrode immersed in slag within the furnace, the method comprising the steps of:

driving the electrode into the slag at a constant drive rate,

periodically varying the drive rate to produce a periodic variation of voltage swing signal across the electrode; and

comparing the voltage swing signal to a predetermined value to control the constant drive rate of the electrode

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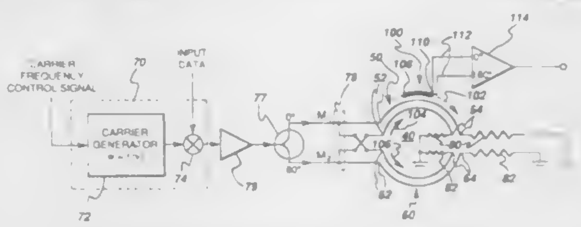
5,737,356
SPECTRAL SPREADING APPARATUS FOR REDUCING ELECTROMAGNETIC RADIATION FROM A TRANSMISSION LINE USED FOR HIGH DATA RATE COMMUNICATION IN A COMPUTERIZED TOMOGRAPHY SYSTEM

Daniel David Harrison, and Richard Louis Frey, both of Delanson, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 31, 1995, Ser. No. 414,814

Int. Cl.⁶ H04B *15/00*

U.S. Cl. 375—200 16 Claims



1. A computerized tomography system comprising:

a carrier generator for generating a carrier signal having a predetermined carrier bandwidth, said carrier bandwidth being sufficiently broad relative to a predetermined inspection bandwidth for substantially reducing the level of electromagnetic radiation being measured over said inspection bandwidth;

modulating means respectively coupled to said carrier generator for receiving said carrier signal and for receiving an externally-derived data signal to produce a spread spectrum modulated output signal,

a phase splitter coupled to said modulating means for generating first and second modulated constituent signals being substantially out-of-phase relative to one another,

a transmission line having first and second signal conductors coupled to said phase splitter to respectively receive said first and second modulated constituent signals, and

a coupler having a first coupler signal conductor and having a second coupler signal conductor positioned sufficiently near said propagating in said transmission line transmission line for establishing radio coupling therebetween so as to receive said first and said second respective modulated constituent signals propagating in said transmission line.

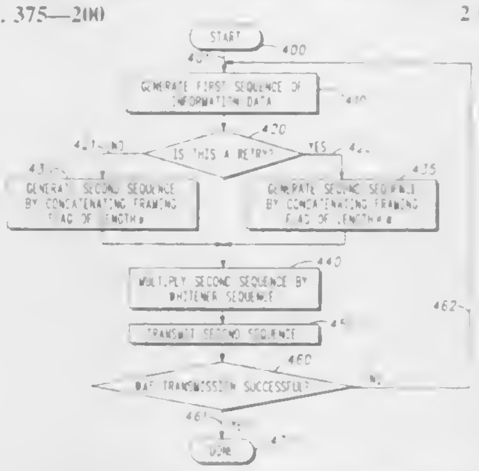
5,737,357
APPARATUS AND METHOD FOR DATA PATTERN SENSITIVITY CORRECTION

Michael H. Retzer, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 8, 1995, Ser. No. 525,808

Int. Cl.⁶ H04B *15/00,* **H04L** *1/18, 25/00, 25/08*

U.S. Cl. 375—200 2 Claims


START
400
GENERATE FIRST SEQUENCE OF INFORMATION DATA
420
IS THIS A RETRY?
NO
YES
435
GENERATE SECOND SEQUENCE BY CONCATENATING FRAMING FLAG OF LENGTH
GENERATE SECOND SEQUENCE BY CONCATENATING FRAMING FLAG OF LENGTH
440
MULTIPLY SECOND SEQUENCE BY WHITENER SEQUENCE
TRANSMIT SECOND SEQUENCE
460
WAS TRANSMISSION SUCCESSFUL?
NO
462
DONE

2. A method for eliminating an undesired pattern of physical values of a generated signal, comprising the steps of:

generating a first sequence of information data.

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concatenating a variable length framing flag onto said first sequence resulting in a second sequence of data, said framing flag length responsive to a retry control signal, and

multiplying said second sequence with a whitener sequence

5,737,358

MULTIPLEXED RADIO COMMUNICATION SYSTEM

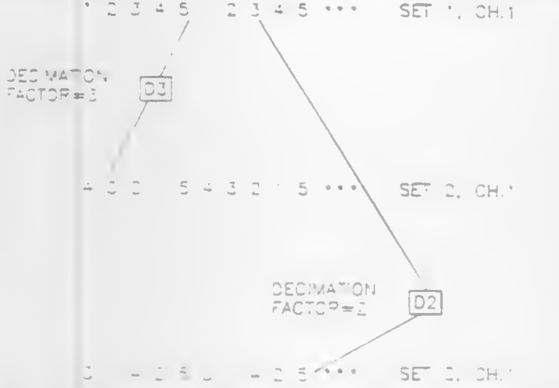
Mordechai Ritz, Givat-Elah; Giora Silbershatz, Haifa; Noam Livneh, D.N. Misgav, all of Israel; George Calhoun, New York, N.Y., and Oliver Hilsenrath, Ridgefield, N.J., assignors to Geotek Communications, Inc., Montvale, N.J., and Rafael Armament Development Authority, Haifa, Israel

Continuation-in-part of Ser. No. 80,075, Jun. 18, 1993, Pat. No. 5,408,496, and a continuation-in-part of Ser. No. 178,887, Jan. 7, 1994, abandoned. This application Feb. 2, 1995, Ser. No. 382,631

Claims priority, application Israel, Mar. 11, 1992, 103620

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 375—202 **10 Claims**



1 A method of providing hopping communication channels in a hopping multiple access communications system in which a set of R communications resources are used to provide said hopping communications channels, said method including:

defining a plurality of adjacent communications sites associated with said communications system;

using said R communication resources to define a first set of hopping communications channels associated with a first of said plurality of adjacent communications sites in which no two of said channels in said first set of hopping communications channels employ the same one of said R communications resources at the same time, and

using said R communications resources to define a second set of hopping communications channels associated with a second of said plurality of adjacent communications sites in which no two of said channels in said second set of hopping communications channels employ the same one of said R communications resources at the same time, said second set of hopping communications channels being a first decimated transformation of each of said hopping communications channels in said first set.

5,737,359

METHOD FOR SUPERVISING BASE STATION RADIO CHANNELS

Vesa Koivu, Oulu, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

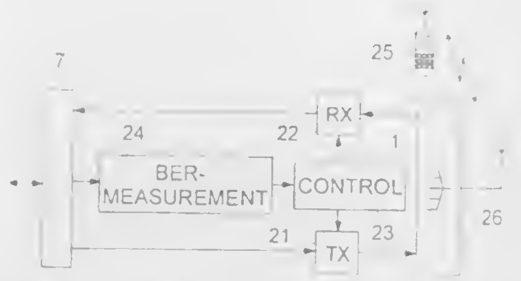
PCT No. PCT/FI94/00399, § 371 Date May 10, 1995, § 102(e) Date May 10, 1995, PCT Pub. No. WO95/08246, PCT Pub. Date Mar. 23, 1995

PCT Filed Sep. 12, 1994, Ser. No. 436,184

Claims priority, application Finland, Sep. 14, 1993, 934019; Feb. 15, 1994, 940705

Int. Cl.^{6} H04Q *7/38*

U.S. Cl. 375—202 **6 Claims**



1 A method for supervising base station radio channels in a mobile communication system where the radio channels are divided into logical channels on a TDMA-principle, by measuring the quality of signals received on a plurality of said radio channels during a plurality of connections utilizing said radio channels, comprising the steps of:

separately measuring during said connections the received signal quality of the logical channels hopping from one radio channel to another for each of the radio channels used in a frequency hopping sequences, to obtain respective measured values of received signal quality;

storing separately the measured values of each radio channel used,

analyzing separately for each radio channel used by said connections the respective measured values of received signal quality for signals measured during a predetermined period of time, and

detecting that a radio channel has poor quality on the basis of said analyzing.

5,737,360

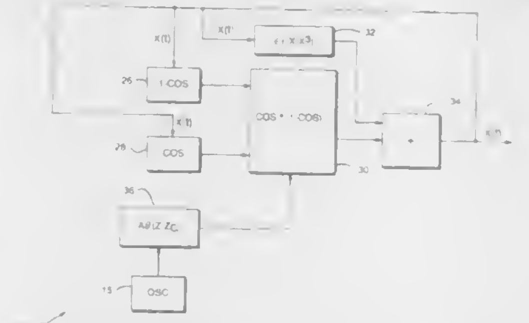
SYSTEM EMPLOYING CONTINUOUS-TIME DISSIPATIVE PSEUDORANDOM DYNAMICS FOR COMMUNICATIONS AND MEASUREMENT

Geoffrey Grinstein, Yorktown Heights, N.Y., and Neil Gershenfeld, Somerville, Mass., assignors to International Business Machines, Corp., Armonk, N.Y.

Filed Jun. 19, 1995, Ser. No. 492,285

Int. Cl.^{6} H04B *15/00;* **H04K** *1/00;* **H04L** *27/30*

U.S. Cl. 375—206 **10 Claims**



1 A communication or measurement system including:

A a harmonic oscillator;

B a transmitter for transmitting a modulated signal, the transmitter including a first analog feedback system that operates in accordance with the harmonic oscillator and produces a binary-valued pseudo-random noise signal; and

C a receiver for receiving the modulated message signal, the receiver including a second analog feedback system for reproducing the pseudo-random noise signal from the received modulated signal and using the noise signal to recover the message signal from the received signal, the second analog feedback system being characterized by a non-chaotic expression that is associated with the expression that governs the first analog feedback system and has a stable periodic orbit with binary integer values that correspond to the pseudo-random noise signal produced by the first analog feedback system

5,737,361

RECEIVER IN A DIRECT-SEQUENCE SPREAD-SPECTRUM COMMUNICATION SYSTEM USING A WINDOW FILTER

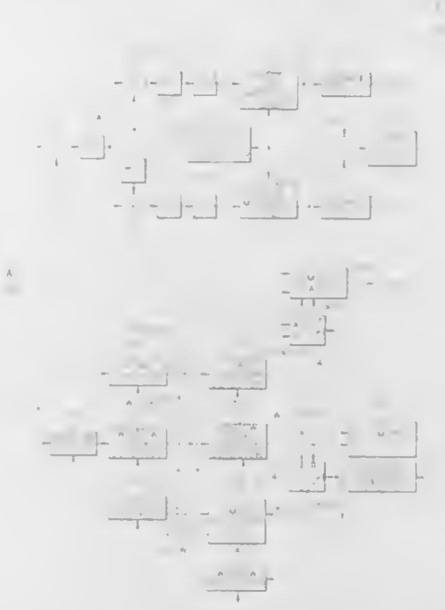
Jong-Hyeon Park, Seoul, and Je-Woo Kim, Suwon, both of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 22, 1995, Ser. No. 562,282

Claims priority, application Rep. of Korea, Nov. 22, 1994, 30742/1994

Int. Cl.^{6} H04B *1/707*

U.S. Cl. 375—208 **15 Claims**



1 A receiver in a direct sequence spread spectrum communication system for demodulating a spread spectrum signal, said spread spectrum signal having been converted into correlation signal by converting said spread spectrum signal into an I-channel base band spread spectrum signal and a Q-channel base band spread spectrum signal, correlating the I and Q-channel base band spread spectrum signals with a reference pseudonoise code to respectively produce I and Q-channel correlation values, squaring the I and Q-channel correlation values to produce squared I and Q-channel correlation values, adding the squared I and Q-channel correlation values to produce a sum signal, and generating said correlation signal by performing a square root operation on the sum signal, said receiver comprising:

first peak detecting means for producing a first peak detection value by detecting an uppermost peak value of said correlation signal in response to a first control signal indicative of a starting point and a demodulating point of a data interval,

second peak detecting means for producing a second peak detection value by detecting an uppermost peak value of a portion of said correlation signal in response to said first control signal;

means for generating said first control signal and for producing phase location information signals by dividing said data interval into a plurality of phases;

first peak location detecting means responsive to said first peak detection value for storing and outputting a first peak location signal indicative of the phase location information signal being produced when said first peak location means receives said first peak detection value,

second peak location detecting means responsive to said second peak detection value for storing and outputting a second peak location signal indicative of the phase location information signal being produced when said second peak location means receives said second peak detection value,

comparing means for comparing said first and second peak location signals and for outputting a comparing signal having a state based on a comparison result;

means for outputting a checking signal by checking an initial synchronization establishment state in response to said comparing signal;

first selector means having a selection terminal for receiving said checking signal and having a first input and a second input for respectively receiving said first and second peak location signals, said first selector means selectively outputting one of said first and second peak location signals in response to said checking signal,

second selector means having a selection terminal for receiving said checking signal and having a first input and a second input for respectively receiving said first and second peak detection signals said second selector means selectively outputting one of said first and second peak detection signals in response to said checking signal;

a timing recovery loop for generating a timing recovery signal in response to one of said first and second peak location signals output by said first selector means for controlling timing of said means for generating said first control signal and for producing said phase location information signals to enable said phase location information to be changed; and

data demodulating means connected to receive said I and Q channel correlation values, and in response to one of said first and second peak detection signals selectively output from said second selector means demodulating said I and Q channel correlation values to output data transmitted in said spread spectrum signal.

5,737,362

DELAY-LOCKED LOOP CODE TRACKING SYSTEM FOR RECEIVER OF A CODE SPREAD COMMUNICATION SYSTEM

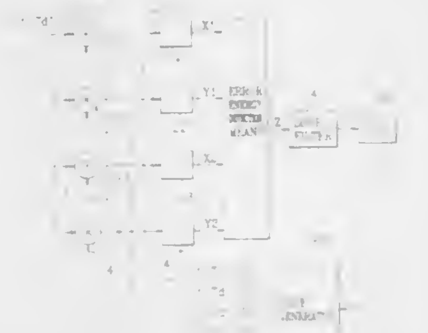
Jin-Il Hyun, Ne-Dong; In Kang, Eoeun-Dong; Jin-Jong Cha, Eoeun-Dong; Jae-Seok Kim, Eoeun-Dong, and Kyung-Soo Kim, Dunsan-Dong, all of Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon-shi, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 684,790

Claims priority, application Rep. of Korea, Dec. 18, 1995, 1995-51479

Int. Cl.^{6} H04L *27/30*

U.S. Cl. 345—206 **8 Claims**



1 A code tracking loop in a double delay locked loop code tracking system for a receiver of a code spread communication system, comprising:

a code generating unit for generating a code having numerous time differences;

a correlating unit for correlating an input reception signal and numerous outputting codes output from said code generating unit and performing a code reverse-spread function for a signal code-spread and transmitted from a transmitter,

a plurality of square computing units for eliminating a phase element of received signals through a square computation of the signals output from said correlating unit,

an error energy detecting unit for receiving an energy of a signal reverse-spread by a code preceded by as much as Δ and 2Δ and the energy of the signal reverse spread by a code delayed

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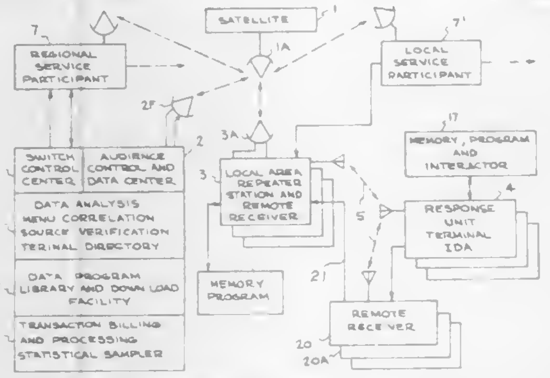
by as much as Δ and 2Δ and then for detecting an error energy, wherein Δ is 1/N code period (N being an integer),

a loop filter for changing an output of said error energy detecting unit to a stabilized signal; and

a voltage controlling oscillator for receiving the output of said loop filter and controlling a code generating speed of said code generating unit so that a code of the reception signal and an output code of the code generating unit coincide.

5,737,363
LOW POWER OUTPUT SUBSCRIBER UNIT
Gilbert M. Dinkins, 3002 Taylor McKenzie Ct., Herdon, Va. 22071
Division of Ser. No. 966,414, Oct. 26, 1992. This application May 10, 1994, Ser. No. 240,883
Int. Cl.^{6} H04N *7/14;7/173;* **H04B** *7/24*
U.S. Cl. 375—219 **8 Claims**


SATELLITE
REGIONAL SERVICE PARTICIPANT
LOCAL SERVICE PARTICIPANT
SWITCH CONTROL CENTER
AUDIENCE CONTROL AND DATA CENTER
DATA ANALYSIS MENU CORRELATION SOURCE VERIFICATION TERINAL DIRECTORY
DATA PROGRAM LIBRARY AND DOWN LOAD FACILITY
TRANSACTION BILLING AND PROCESSING STATISTICAL SAMPLER
LOCAL AREA REPEATER STATION AND REMOTE RECEIVER
MEMORY, PROGRAM AND INTERACTOR
RESPONSE UNIT TERMINAL IDA
MEMORY PROGRAM
REMOTE RECEIVER
1
1A
2
2F
3A
4
5
7
7'
13
16
17
20
20A
21

1. A subscriber unit adapted for use in a two-way interactive communication system employing a base station repeater cell and a local remote receiver communicating with the base station, said subscriber unit comprising:

a digital transmitter that transmits signals to said local receiver, wherein said digital transmitting has a maximum power output in the milliwatt range, and

receiver means for receiving synchronized signals from said base station repeater cell.

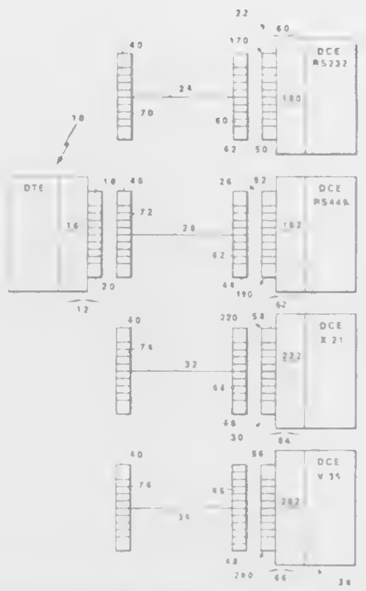
5,737,364
SERIAL COMMUNICATIONS INTERFACE THAT SUPPORTS MULTIPLE INTERFACE STANDARDS
Gary L. Cohen, Sunnyvale, and Scott Kingsley Smader, Cupertino, both of Calif., assignors to Telebit Corporation, Chelmsford, Mass.
Filed Feb. 18, 1994, Ser. No. 198,448
Int. Cl.^{6} H04B *1/38;* **H03H** *5/00;* **H04Q** *11/04*
U.S. Cl. 375—220 **21 Claims**

1. A DTE communications system coupled between a DTE and a DCE for supporting a plurality of interface communications standards, said DTE communications system comprising:

a DTE interface having a first connector and interface electronics comprising:

at least two receivers, each of said at least two receivers having at least one input terminal in electrical communication with said first connector and each of said at least two receivers having an output terminal; and

a selection circuit comprising a multiplexer having a control terminal, an output terminal coupled to said DTE, a first input terminal in electrical communication with said output terminal of one of said at least two receivers, and a second input terminal in electrical communication with said output terminal of the other of said at least two receivers and a comparator having a first input coupled to said first connector, a second input and an output coupled to said control terminal of said multiplexer and at which a selection signal is provided, and

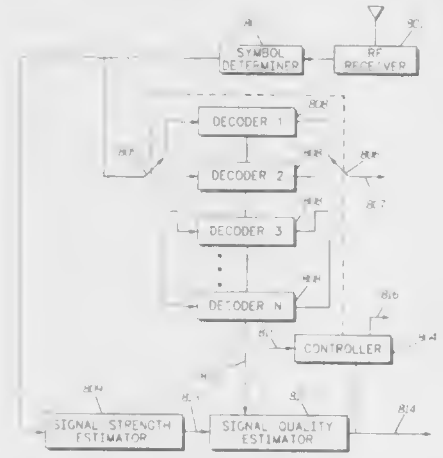


a DTE interface cable assembly comprising a second connector for mating with said first connector, and an identification device in electrical communication with said second connector,

said identification device operative to provide a signal to said first input of said comparator to identify which of said plurality of interface standards is supported by said DTE interface cable assembly, wherein said selection signal is generated by said comparator in response to said signal provided by said identification device and coupled to said first input of said comparator as a result of the mating of said first and second connectors,

said selection circuit operative to electrically connect the output terminal of a selected one of said at least two receivers to said output terminal of said multiplexer in response to said selection signal applied to said control terminal of said multiplexer.

5,737,365
METHOD AND APPARATUS FOR DETERMINING A RECEIVED SIGNAL QUALITY ESTIMATE OF A TRELLIS CODE MODULATED SIGNAL
Stephen S. Gilbert, Lake Zurich, and Gregory W. Cox, Schaumburg, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Oct. 26, 1995, Ser. No. 548,853
Int. Cl.^{6} H04B *3/46;17/00*
U.S. Cl. 375—224 **28 Claims**



1. A method for determining a received signal quality estimate based on at least one received trellis, wherein each of the at least one received trellis comprises a plurality of received symbols, the method comprising steps of

decoding the at least one received trellis using at least one convolutional decoder to produce a path metric for each of the at least one received trellis, wherein each path metric is representative of the cumulative error introduced into the corresponding at least one received trellis,

determining a signal strength estimate for each of the at least one received trellis, and

determining the received signal quality estimate based on the path metric and the signal strength estimate for each of the at least one received trellis

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5,737,366
METHOD AND APPARATUS FOR RECEIVING LINE ENCODED BURSTS OF INFORMATION
Narayan Lal Gehlot, Middlesex, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed Dec. 29, 1995, Ser. No. 580,953
Int. Cl.^{6} H03K *5/26;9/08*
U.S. Cl. 375—238 **42 Claims**

1. An apparatus for receiving at least a single input, data bit stream of line encoded bursts of information, each data bit of the data bit stream having an original pulse width, comprising

a splitter for at least splitting the input, data bit stream into a first data bit stream and a second data bit stream;

a delay device for delaying information in the second data bit stream relative to information in the first data bit stream;

difference circuitry for generating a bipolar, difference data bit stream from the information in the delayed, second data bit stream and the information in the first data bit stream

ideal threshold circuitry for outputting a first bit when a voltage level of a first signal in the bipolar, difference data bit stream exceeds a threshold voltage and outputting a second bit when a voltage level of a second signal in the bipolar difference data bit stream exceeds the threshold voltage, and

pulse regenerating circuitry for regenerating each data bit in the line encoded data bit stream using the first and second bits, each regenerated data bit having a regenerated pulse width equal to said original pulse width

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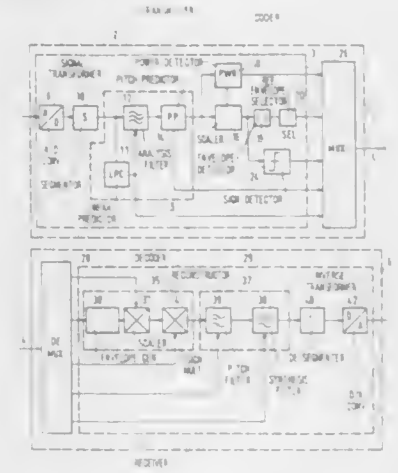
5,737,367
TRANSMISSION SYSTEM WITH SIMPLIFIED SOURCE CODING
Friedhelm Wuppermann, and Franciscus M. J. De Bont, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 7, 1994, Ser. No. 319,900
Claims priority, application Belgium, Oct. 11, 1993, 09301076
Int. Cl.^{6} H04B *14/04 1/66*
U.S. Cl. 375—242 **6 Claims**



1. A transmission system comprising a transmitter for deriving an encoded digital signal from a transmit signal and transmitting the encoded signal over a communication channel to a receiver which decodes the transmitted encoded signal to derive a reconstruction of the transmit signal, characterized in that

said transmitter includes a coder which comprises

means for digitizing and segmenting the transmit signal to derive a segmented digital signal, each segment including a plurality of successive samples of the transmit signal,

transforming means for subtracting a predictable component of the segmented digital signal therefrom so as to transform said signal into a segmented residual signal, each segment of said residual signal having an envelope, said predictable component being described by prediction parameters

means for selecting for each of said residual signal segments, based on comparison with a plurality of stored reference envelopes, a reference envelope which best matches the segment envelope and providing parameters descriptive of each of the selected reference envelopes, and

multiplexing means for combining said prediction parameters and said reference envelope parameters to form said encoded digital signal for transmission to said receiver, and

said receiver includes a decoder which comprises

demultiplexing means for deriving from the encoded digital signal the prediction parameters and envelope parameters relating to each segment of the segmented residual signal

reconstruction means responsive to said envelope parameters to derive a reconstructed segmented residual signal the segments of which have envelopes corresponding to the envelopes of the segments of the segmented residual signal derived by said transmitter

inverse transforming means for combining the reconstructed segmented residual signal with said prediction parameters to derive a segmented digital signal corresponding thereto and

demultiplexing means for combining the segments of the derived segmented digital signal to convert it into an analog signal which is a reconstruction of said transmit signal

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5,737,368
MATCHED FILTER

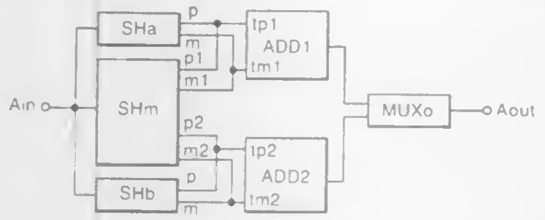
Guoliang Shou; Changming Zhou; Makoto Yamamoto, and Sunao Takatori, all of Tokyo, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, and Yozan Inc., Tokyo, both of Japan

Filed Sep. 17, 1996, Ser. No. 715,321

Claims priority, application Japan, Sep. 18, 1995, 7-263573

Int. Cl.^{6} H03D *1/00*

U.S. Cl. 375—343 **6 Claims**



1 A matched filter comprising

a main sampling and holding circuit with a plurality of sampling and holding circuit modules parallelly connected to an input voltage for holding said input voltage, each of said sampling and holding circuit modules having first and second outputs corresponding to first and second values of a PN code;

a first adder for adding said first outputs of said sampling and holding circuit modules,

a second adder for adding said second outputs of said sampling and holding circuit modules;

a first addition and subtraction circuit for subtracting an output of said second adder from an output of said first adder;

a plurality of auxiliary sampling and holding circuits for sampling and holding a part of said input voltage to be sampled and held by one of said sampling and holding circuit modules in said main sampling and holding circuit.

a second addition and subtraction circuit having circuits equivalent to those of said first addition and subtraction circuit.

a multiplexer for alternately outputting an output of one of said first and second addition and subtraction circuits and:

a refreshing means for refreshing one of said sampling and holding circuit modules in said main sampling and holding circuit for which said auxiliary sampling and holding circuits hold said input voltage, and for refreshing the other of said first and second addition and subtraction circuits which was not selected by said multiplexer, wherein outputs of said sampling and holding circuit modules and said auxiliary sampling and holding circuits are input in both of said first and second addition and subtraction circuits

5,737,369
APPARATUS AND METHOD FOR RECOVERING DATA IN THE PRESENCE OF ERROR TRANSIENTS

Michael Herbert Retzer, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 28, 1996, Ser. No. 608,230

Int. Cl.^{6} H04B *1/10*

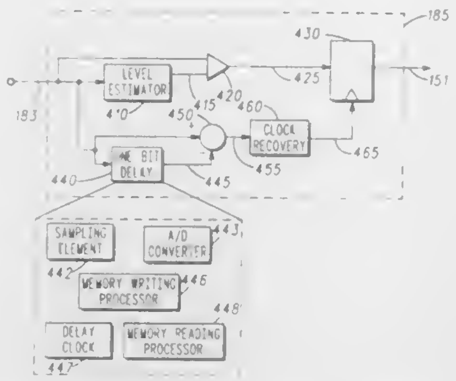
U.S. Cl. 375—346 **9 Claims**

1 An apparatus comprising:

a received waveform containing an information signal encoded at periodic time instants of a known period for eliminating an undesired amplitude error in said received waveform where said undesired amplitude error is slowly varying with respect to said known period and recovering a desired periodic time instants:

a delay element for delaying said received waveform, to provide a delayed waveform, by an amount equal to said known period;

a subtracting element for comparing said received waveform with said delayed waveform, and providing a timing recovery signal with zero crossing substantially less corrupted by said undesired amplitude error; and



averaging circuitry, said averaging circuitry operating on said timing recovery signal for purposes of recovering said desired periodic time instants

5,737,370
METHOD FOR INITIALIZING A NETWORK

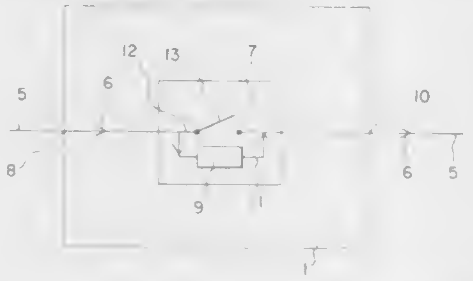
Herbert Hetzel, Weingarten, Germany, assignor to Becker GmbH, Karlsbad-Ittersbach, Germany

Filed Feb. 2, 1996, Ser. No. 595,839

Claims priority, application Germany, Feb. 2, 1995, 195 03 214.4

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 375—356 **8 Claims**



1 In a method for initializing a network for data transmission between a plurality of subscribers connected to one another like a ring, which includes sending a clock signal through the network in a continuous data stream originating at a network position, starting a process of locking onto a clock frequency in each subscriber after reception of the data stream, and forwarding the data stream to the next subscriber in succession after locking on is completed, the improvement which comprises:

splitting a not-yet-locked-on arriving data stream at each subscriber into two identical streams, using one of the streams for the locking-on process, and immediately forwarding the other of the streams to the next subscriber

5,737,371
REALIGNMENT OF DATA STREAM FROM AN OPTICAL DISK

Glen Alan Jaquette, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 6, 1995, Ser. No. 568,238

Int. Cl.^{6} G11B *17/22;3/90*

U.S. Cl. 375—357 **6 Claims**

1 A channel for use in the detection of a PWM coded input data stream having first transitions from a first state to a second state and second transitions from the second state to the first state, both first and second transitions being representative of a first binary state of data represented by the input data stream, the portions of the input data stream between consecutive first and second transitions being representative of a second binary state of the data, the input data stream further having an m-bit sync mark and a plurality

of n-bit resync marks, each resync mark having an alignment bit, the channel comprising

a data divider coupled to receive the input data stream and having a first output indicative of the passage of first transitions in the input data stream and a second output indicative of the passage of second transitions in the input data stream,

first and second p-bit registers coupled to receive the first and second outputs, respectively, of said data divider, p≥m.n, each of said first and second p-bit registers having a plurality of outputs;

a resync mark misalignment detector coupled to q-outputs of each of said first and second registers, q<p, said resync mark misalignment detector for indicating a misalignment of the alignment bit relative to other bits in a first resync mark in the input data stream,

a validation network coupled to receive r bits from said first register and outputs from said resync mark misalignment detector, said validation network for confirming the misalignment of the alignment bit in the first resync mark, r<p;

a sync mark misalignment detector coupled to p-outputs of each of said first and second registers for indicating a misalignment of one or more bits relative to other bits in a sync mark in the input data stream; and

a realignment controller responsive to said validation network and said sync mark misalignment detector for generating an aligned output data stream.

5,737,372
APPARATUS FOR SYNCHRONIZING MULTIPOINT-TO-POINT COMMUNICATIONS SYSTEMS

Steven Todd Barham; Samuel Charles Kingston, both of Salt Lake City, and John Walter Zscheile, Jr., West Farmington, all of Utah, assignors to Unisys Corporation, Blue Bell, Pa.

Filed Jul. 19, 1995, Ser. No. 503,955

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 375—367 **10 Claims**

1 A code phase error system for generating code adjustment signals for use by multi-user receivers in a synchronized spread spectrum multipoint-to-point communication system, comprising

a. a central hub transmitter/receiver,

b. a plurality of user receiver/transmitters for maintaining wireless communications with said hub transmitter/receiver,

c. a digital demodulator in said central hub transmitter receiver for receiving PN encoded information from the user transmitters,

d. said digital demodulator having a phase error detector which includes a programmable digital filter,

e said programmable digital filter comprising a serial adder having a highly accurate digital phase error signal output,

f. a frequency to phase converter coupled to an output of said serial adder,

g. said frequency to phase converter comprising means for processing said highly accurate digital phase error signal to provide a plurality of highly accurate phase error values, and

h. processor means coupled to said frequency to phase converter in said digital demodulator for calculating a digital clock adjustment signal to be transmitted to each of said user receiver/transmitters by said central hub transmitter/receiver,

i. said code phase error system being programmed to calculate the phase offset of the received PN coded data and for adjusting each of the user transmitters until highly synchronized with the PN code generated in said central hub transmitter/receiver

5,737,373
CONTROL METHOD AND APPARATUS FOR SUPPRESSING JITTER

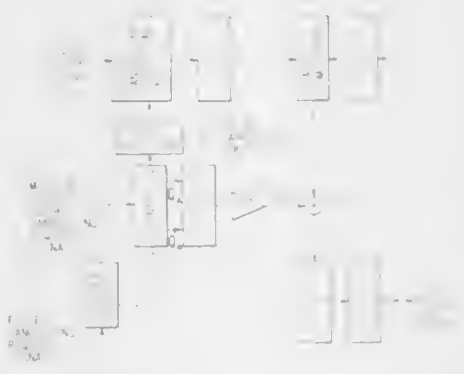
Sakutaro Sato, and Naonobu Fujimoto, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Oct. 11, 1994, Ser. No. 321,413

Claims priority, application Japan, Jan. 11, 1994, 6-001113; Sep. 2, 1994, 6-210022

Int. Cl.^{6} H03L *7/00*, **H04L** *29/00*

U.S. Cl. 375—376 **6 Claims**



1 A control apparatus for suppressing jitter, induced by a pointer action, provided with

a pulse cancelling processing unit which, when an input clock signal is received and said pointer-action is generated, receives a pulse-cancelling request signal given in response to that pointer-action and outputs the input clock signal after performing a 1-bit pulse cancelling operation on said input clock signal, and

a circuit for receiving as input the output from the pulse cancelling processing unit and producing an output clock signal phase-locked to that output that is, a phase locked loop circuit comprised of a phase comparator for comparing the phases between the output and the output clock signal, a low pass filter for receiving the output of the phase comparator and a voltage controlled oscillator for receiving as the voltage-controlling input the output of the low pass filter and producing the output clock signal,

wherein further provision is made of

a divider circuit which, when one pulse-cancelling request signal is given, divides said pulse-cancelling request signal into a consecutive number of bits and converts said bits into multi bit divided pulse-cancelling request signals and

a pulse cancelling control unit which gradually changes the phase locked state in the phase-locked loop circuit in several stages from the state before the 1-bit pulse cancelling at the timings of the consecutive multi-bit divided pulse cancelling request signals, wherein the pulse-cancelling control unit is provided with a counter means which receives the multi-bit divided pulse cancelling request signals and successively sets a plurality of states for gradually changing the phase locked

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state in the phase-locked loop circuit from the state before a 1-bit pulse-cancelled processing to the state of a 1-bit pulse-cancelling.

5,737,374
DELAY LOCKED LOOP FOR USE IN A GPS SIGNAL RECEIVER

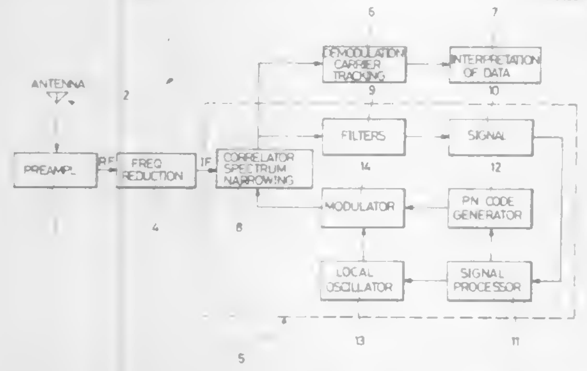
Eric Jeanclaude, Bellevue; Pierre-André Farine, Neuchâtel, and Jean-Daniel Etienne, Les Geneveys-sur-Coffrane, all of Switzerland, assignors to Asulab S.A., Bienne, Switzerland

Filed Mar. 19, 1996, Ser. No. 617,638

Claims priority, application France, Apr. 11, 1995, 95 04333

Int. Cl.^{6} H03D *3/24*

U.S. Cl. 375—376 **4 Claims**



1. Delay locked loop intended to be used in a receiver of signals emitted by a GPS satellite, said signal including information modulated by a pseudo-random code, said receiver being adapted so as to search, during an acquisition phase, said GPS satellite to identify said pseudo-random code, comprising

- a pseudo-random code generator (**35**) for generating a copy of said pseudo-random code of said satellite;
- a local oscillator (**34**);
- a modulator (**14**) for modulating said copy of the pseudo-random code of said satellite coming from said pseudo-random generator (**35**) with the output signal of said local oscillator (**34**);
- a plurality of signal channels (C1, C2, C3) each including a correlator (**37** to **42**) connected to the output of said modulator (**14**), a pass-band filter (**48** to **50**) connected to the output of said correlator and a signal detection circuit (**51** to **56**) connected to the output of said pass-band filter; and
- a data processing unit (**11**) adapted, firstly, to control the central frequency of the output signal of said local oscillator as a function of the output signal of said signal detection circuit and, secondly, adapted to control the central frequencies and the bandwidth of said pass-band filters (**48** to **50**) in several steps during said acquisition phase, so that said pass-band filters divide up, at each step, one of the pass-bands of the preceding step into non-overlapping pass bands.

5,737,375
SEED-BLANKET REACTORS

Alvin Radkowsky, Ramat Chen, Israel, assignor to Radkowsky Thorium Power Corporation, New York, N.Y.

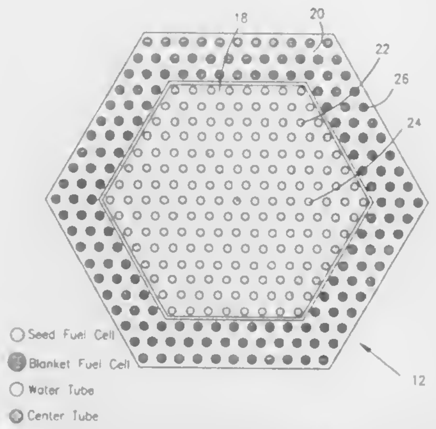
Continuation-in-part of Ser. No. 288,749, Aug. 16, 1994, abandoned. This application Aug. 17, 1995, Ser. No. 516,130

Int. Cl.^{6} G21C *1/00*

U.S. Cl. 376—173 **30 Claims**

1. A nuclear reactor having a core including a plurality of seed blanket units, each said seed blanket unit comprising

- a) a central seed region, said seed region containing seed fuel elements formed of fissionable material comprising U 235 and U 238;



- b) an annular blanket region surrounding said seed region and containing blanket fuel elements comprising predominantly thorium and approximately 10% or less by volume of enriched uranium;
- c) moderator in said seed region in the volume ratio of moderator to fuel in the range of approximately 2.5 to 5.0; and
- d) moderator in said blanket region in the ratio of moderator to fuel of between approximately 1.5 and 2.0.

5,737,376
SMALL AND INEXPENSIVE SLOW POSITRON BEAM GENERATING DEVICE CAPABLE OF GENERATING A SLOW POSITRON BEAM HAVING A HIGH INTENSITY

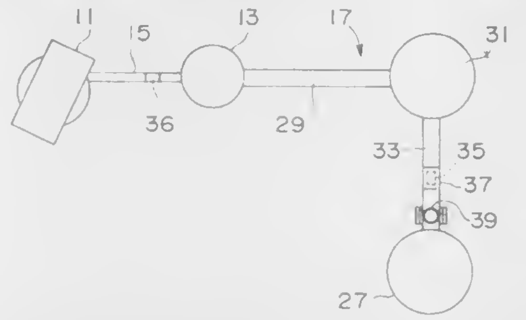
Masafumi Hirose, Kanagawa, Japan, assignor to Sumitomo Heavy Industries, Ltd., Tokyo, Japan

Continuation of Ser. No. 480,943, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 141,088, Oct. 26, 1993, abandoned. This application Sep. 19, 1996, Ser. No. 716,046

Claims priority, application Japan, Oct. 27, 1992, 4-288335

Int. Cl.^{6} G21G *1/10*

U.S. Cl. 376—194 **4 Claims**



1. A method of generating a slow positron beam by using a target member for receiving protons to generate β+ decay radioisotopes which emit fast positrons by causing β+ decay, said method comprising the steps of:

- preparing a cyclotron as a source for producing said protons,
- making said cyclotron irradiate said target member by said protons during an irradiating time interval which is longer than six times a half life of each of said radioisotopes;
- making a moderator moderate said fast positrons emitted from said target member into slow positrons which are slower than said fast positrons; and
- making an ejecting electrode eject said slow positrons as said slow positrons beam.

5,737,377
NUCLEAR REACTOR CAMERA MAST ASSEMBLY AND LOADING GUIDE

David J. Stefko, Jeannette; Robert M. Blumstein, Hempfield; Robert E. Meuschke, Monroeville; William J. Smoody, North Huntingdon; John A. Klimek, Oakdale, and Edward H. Smith, Brave, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 96,316, Jul. 23, 1993, Pat. No. 5,490,185. This application Feb. 5, 1996, Ser. No. 596,961

Int. Cl.^{6} G21C *19/20; 17/06*

U.S. Cl. 376—268 **19 Claims**

16. An apparatus for inspecting a nuclear reactor vessel comprising:

- a refueling mast;
- a camera mast assembly comprising a stationary camera mast mounted on a peripheral surface of the refueling mast and an extendable camera mast,
- a camera supported by the extendable camera mast;
- means for raising and lowering the extendable camera mast;
- a video cable connected to the camera for transmitting video signals from the camera; and
- means for taking up the video cable when the extendable camera is raised, wherein the means for taking up the video cable comprises a stationary pulley fixedly mounted in relation to the stationary camera mast and a movable pulley slidably mounted on the stationary camera mast, and wherein the video cable is reeved around the stationary and movable pulleys.

5,737,378
REACTOR SHROUD JOINT

Gary J. Ballas; Alex Blair Fife, and Israel Ganz, all of San Jose, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 21, 1996, Ser. No. 669,879

Int. Cl.^{6} G21C *13/00*

U.S. Cl. 376—287 **17 Claims**

1. A shroud section for being located within a reactor pressure vessel of a nuclear reactor, said shroud section comprising:

- a substantially cylindrical main body having an outer diameter less than an inner diameter of the reactor pressure vessel and comprising a first end and a second end, and
- a flange located at said main body first end, said flange having a plurality of bolt openings therein and comprising a plurality of scalloped regions therein.

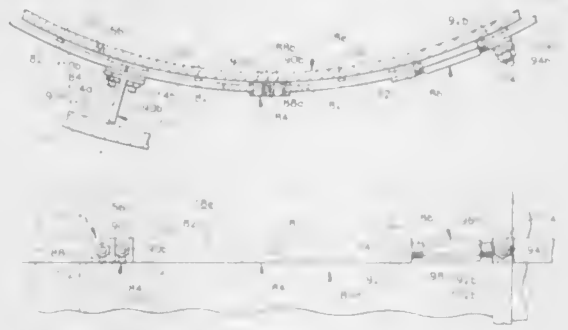
5,737,379
REACTOR CORE SHROUD REPAIR USING THERMALLY TENSIONED RING TO APPLY COMPRESSION ACROSS SHROUD VERTICAL SEAM WELDS

John Geddes Erbes, Mt. View, Calif., assignor to General Electric Company, San Jose, Calif.

Filed Feb. 21, 1997, Ser. No. 804,503

Int. Cl.^{6} G21C *11/00*

U.S. Cl. 376—302 **18 Claims**



11. A nuclear reactor comprising

- a reactor pressure vessel,
- a core shroud arranged inside said reactor pressure vessel with an annular gap therebetween, said core shroud comprising a cylindrical shell extending vertically between first and second elevations and comprising first and second shroud sections joined by a vertical seam weld;
- a fuel core arranged inside said core shroud;
- an annular shroud support plate having an outer perimeter supported by said reactor pressure vessel and an inner perimeter which supports said core shroud, said shroud support plate disposed at a third elevation below said first and second elevations;
- a tensioned ring encircling said cylindrical shell and disposed between said first and second elevations, and
- a vertical support structure for vertically supporting said tensioned ring between said first and second elevations.

5,737,380
CORE SPRAY LINE ASSEMBLY

Gerald Alan Deaver; Barry Hal Koepke, and Frank Ortega, all of San Jose, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 29, 1996, Ser. No. 681,803

Int. Cl.^{6} G21C *15/00*

U.S. Cl. 376—352 **20 Claims**

1. A core spray line for a nuclear reactor, the reactor including a reactor pressure vessel and a shroud having a shroud head, said core spray line comprising

- first and second horizontal pipes, each of said horizontal pipes having a first end and a second end,
- a core spray header for coupling said second end of said first horizontal pipe to said first end of said second horizontal pipe,
- a first elbow connector connected to said first end of said first horizontal pipe,
- a second elbow connector connected to said second end of said second horizontal pipe.

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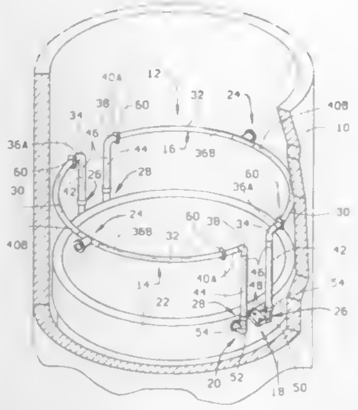

first and second vertical pipes, each of said vertical pipes having a first end and a second end, said first ends of said first and second vertical pipes connected to said first and second elbow connectors, respectively;

first and second articulating vertical pipe connectors, said first articulating pipe connector connected to said second end of said first vertical pipe, said second articulating pipe connector connected to said second end of said second vertical pipe; and

first and second shroud attachment pipes connected at first ends to said first and second articulating vertical pipe connectors, respectively

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5,737,381
COUNTING DEVICE

Takehiko Shimomura; Nobusuke Abe, and Yoshikazu Satoh, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Mitsubishi Electric Semiconductor Software Co., Ltd., Itami, Japan

Filed Jun. 21, 1996, Ser. No. 668,130

Claims priority, application Japan, Feb. 16, 1996, 8-038237

Int. Cl.^{6} H03K *23/66*

U.S. Cl. 377—52 **12 Claims**

1 A counting device for repeatedly counting count values in a predetermined bit range, comprising:

a plurality of one-bit counters having a carry/borrow output terminal and a carry/borrow input terminal, the carry/borrow output terminal of each counter being connected with the carry/borrow input terminal of the counter in a subsequent stage such that a carry/borrow signal generated during a count operation is supplied from one of the one-bit counters to another one-bit counter in a subsequent stage;

means for supplying an instruction to repeatedly count the count values in a range corresponding to at least a part of the one-bit counters.

a means, selected from one of either a register and a memory, for outputting a mask signal, for masking the carry/borrow signal, in accordance with the instruction, and

a single means, connected between the carry/borrow output terminal of a predetermined one bit counter and the carry/borrow input terminal of a one bit counter in a subsequent stage of the predetermined one-bit counter, for receiving the carry/borrow signal outputted by the predetermined one-bit counter and said mask signal so as to halt a count operation of the one-bit counter in the subsequent stage of the predetermined one-bit counter in accordance with the mask signal.

5,737,382
X-RAY COMPUTED TOMOGRAPHY APPARATUS WITH OPTIMIZED READOUT OF A PLANAR X-RAY DETECTOR

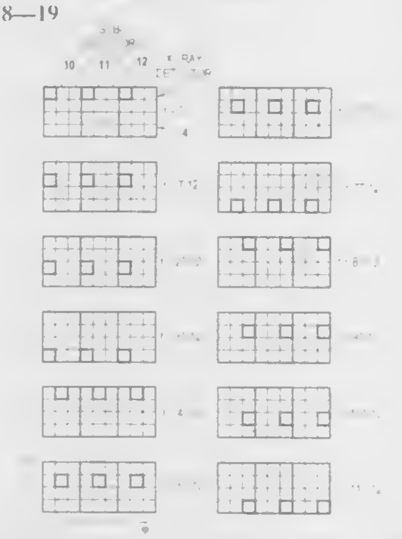
Karl Stierstorfer, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 3, 1996, Ser. No. 754,035

Claims priority, application Germany, Jan. 3, 1996, 196 00 115.3

Int. Cl.^{6} A61B *6/03*

U.S. Cl. 378—19 **3 Claims**



1 An X-ray computed tomography apparatus comprising

means for scanning an examinations subject from a plurality of successive projection directions proceeding along a rotational direction, including an X ray source and a planar X-ray detector;

said planar X-ray detector comprising a plurality of sub detectors disposed successively in a sequence in a row proceeding along said rotational direction, each sub-detector comprising a plurality of detector elements arranged in a matrix; and

means for controlling readout of said X-ray detector for simultaneously reading out only one detector element from each of said sub-detectors proceeding along said rotational direction until all detector elements in all of said sub-detectors have been read out.

5,737,383
METHOD AND APPARATUS FOR AUTOMATICALLY TESTING TIRE

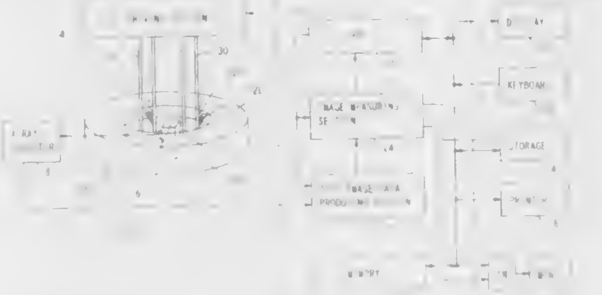
Yuichi Noda, and Kenji Nakamura, both of Hiratsuka, Japan, assignors to The Yokohama Rubber Co. Ltd., Tokyo, Japan

Filed Apr. 3, 1996, Ser. No. 626,991

Claims priority, application Japan, Apr. 24, 1995, 7-098921

Int. Cl.^{6} G01B *15/06*

U.S. Cl. 378—61 **20 Claims**



1 A tire testing apparatus, for testing a tire including at least a pair of breaker plies disposed between a carcass and a tread, each of the breaker plies including a plurality of wire cords provided with a substantially constant gap between the wire cords, and an orientation of each wire cords in one of the breaker plies being different from that of each wire cords in the other, said apparatus comprising:

driving means for loading and holding a tire to a testing position in response to a test command, for intermittently rotating said tire at the test position in response to a rotate command such that a stationary test image can be generated, and for unloading said tire to a first position in response to a first unload command;

emitting means for emitting electromagnetic wave having a wavelength equal to or shorter than X-ray;

detecting means for detecting said electromagnetic wave having transmitted one of test portions of said tire which is loaded at the test position, and for outputting the detecting result as a test image signal;

measuring means for receiving the test image signal from said detecting means, for executing a processing of at least one test item on said pair of breaker plies to produce a test image data corresponding to the test image signal, and for determining whether said pair of breaker plies is defective or non defective, based on the processing result and a reference data for said at least one test item; and

control means for outputting the test command to said driving means, for determining whether all the test portions of said tire are tested, when said tire is determined to be non defective at said one test portion, for outputting the rotate command to said driving means for a next test portion if all the test portions of said tire are not yet tested, and for outputting the first unload command to said driving means if all the test portions are tested.

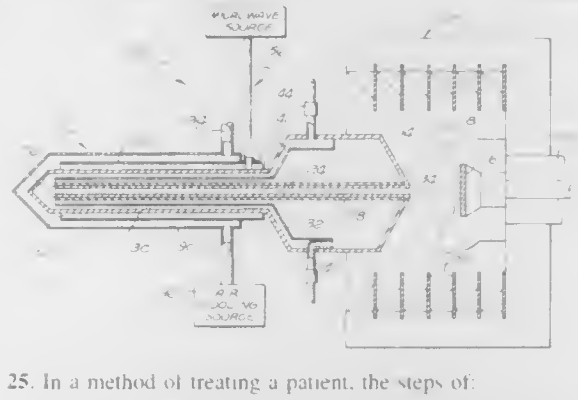
5,737,384
X-RAY NEEDLE PROVIDING HEATING WITH MICROWAVE ENERGY

Alan J. Fenn, Wayland, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Oct. 4, 1996, Ser. No. 725,728

Int. Cl.^{6} A61N *5/10*

U.S. Cl. 378—65 **25 Claims**



25. In a method of treating a patient, the steps of:

directing electrons in a first axial direction to a first position,

converting the electrons to x-rays at the first position for passage of the x-rays to a particular position in the patient's body.

providing microwave energy.

directing the microwave energy in the first axial direction in co-axial relationship with the movement of the electrons, and

providing for the passage of the microwave energy to the particular position in the patient's body.

5,737,385
AUTOMATED SYSTEM FOR USE IN THE DETERMINATION OF SUBSURFACE MATERIAL PROPERTIES BY X-RAY DIFFRACTION

Paul S. Prevey, III, and Glenn A. Plunkett, both of Cincinnati, Ohio, assignors to Lambda Research, Inc., Cincinnati, Ohio

Filed Jul. 2, 1996, Ser. No. 674,434

Int. Cl.^{6} G01N *23/20*

U.S. Cl. 378—71 **28 Claims**

1 An automated system for use with an X-ray diffraction system having an X-ray source for directing a beam of X rays to the surface of a specimen and a detector for detecting diffracted radiation extending and expanding outwardly from the surface of the specimen, the automated system comprising

means for exposing the surface of the specimen to a chemical solution, for a predetermined period of time, to remove a predetermined amount of material from the surface of the specimen;

means for exposing the specimen, for a predetermined period of time, to a beam of X rays; and

means for automatically cycling the specimen between said means for exposing the surface of the specimen to a chemical solution and said means for exposing the specimen to a beam of X-rays.

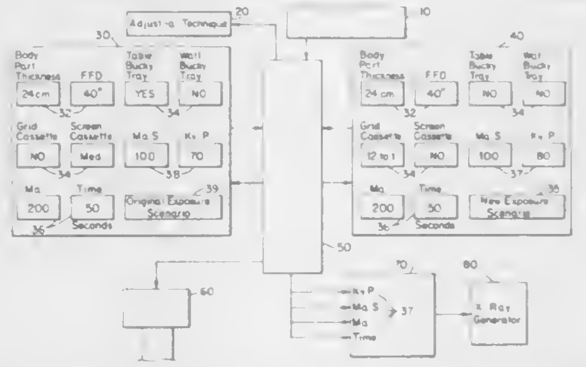
5,737,386
COMPUTER FOR AN X-RAY MACHINE

Glenn G. Strawder, 3405 Robey Ter., Apt. 302, Silver Spring, Md. 20904

Filed Jun. 4, 1996, Ser. No. 657,950

Int. Cl.^{6} H05G *1/10*

U.S. Cl. 378—95 **11 Claims**



1 A computer for calculating input data for an X-ray machine which is about to be used for making an X ray of a body, comprising:

a computer having a number of input devices for inputting signals into the computer.

said computer comprising means for computing input data for said X-ray machine.

a plurality of said input devices comprising means for entering information about the body to be X-rayed, said means for

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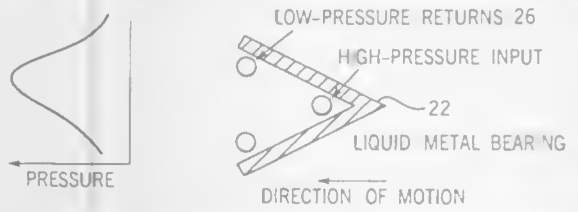
entering information comprising means for entering an identification of the body part to be X-rayed and the thickness of said body part,
means for deleting at least some of the input information previously entered, and
means for adding new input information to the computer.

5,737,387
COOLING FOR A ROTATING ANODE X-RAY TUBE

Robert K. Smither, Hinsdale, Ill., assignor to ARCH Development Corporation, Chicago, Ill.

Filed Mar. 11, 1994, Ser. No. 212,180
Int. Cl.^{6} H01J *35/10*

U.S. Cl. 378—130 **9 Claims**



1. A method of cooling a rotating anode x-ray tube, comprising the steps of:
providing an electromagnetic motor to rotate said anode;
providing cooling passages in said anode,
coupling said cooling passages to a cooling structure located adjacent said electromagnetic motor;
filling said passages and said cooling structure with a liquid metal; and
supplying electrical power to said electromagnetic motor to rotate said anode and to generate a rotating magnetic field which moves the liquid metal through said cooling passages and said cooling structure, wherein friction between said cooling structure and the liquid metal causes said anode to rotate.

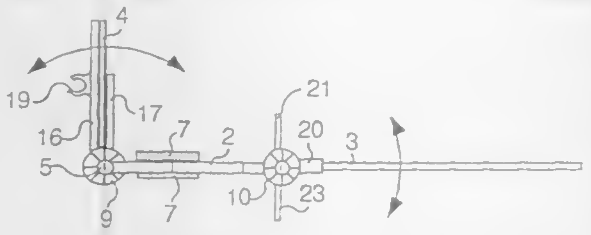
5,737,388
DIGITAL INTRAORAL X-RAY PHOTOGRAPHY METHOD AND HOLDER FOR PICTURE PLATE OR X-RAY FILM

Pauli Juhani Kossila, Ylioppilaskylä 6 B 11, FIN-20540 Turku, Finland

PCT No. PCT/FI95/00118, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO95/23554, PCT Pub. Date Sep. 8, 1995

PCT Filed Mar. 1, 1995, Ser. No. 702,527
Claims priority, application Finland, Mar. 3, 1994, 941025
Int. Cl.^{6} A61B *6/14*

U.S. Cl. 378—168 **11 Claims**



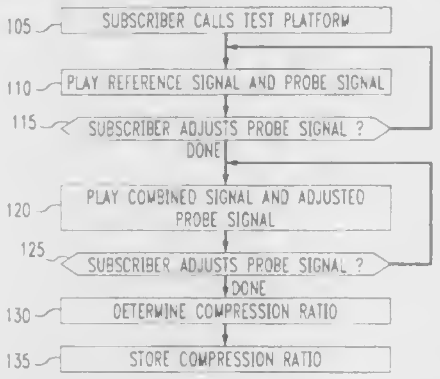
1. In a method for digital or film-based intraoral dental x-ray photography, wherein a holder for a picture plate or film is held in place in the mouth of a patient, and the picture plate or film is placed at a desired angle in relation to a tooth being x rayed with radiation emitted from an x ray tube the improvement comprising the steps of
(a) collecting data as to (i) an angle between the picture plate or film and the tooth, (ii) an angle between the x-ray tube and the tooth and (iii) a distance between the x ray tube and the tooth, and
(b) correcting an image distortion resulting from a non-orthogonal disposition between said tube and said tooth or between said tube and said picture plate or film based upon the data collected in step (a).

5,737,389
TECHNIQUE FOR DETERMINING A COMPRESSION RATIO FOR USE IN PROCESSING AUDIO SIGNALS WITHIN A TELECOMMUNICATIONS SYSTEM

Jonathan Brandon Allen, Mountainside, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 18, 1995, Ser. No. 573,743
Int. Cl.^{6} H04M *1/24, 3/08; 3/22*

U.S. Cl. 379—1 **36 Claims**


105
SUBSCRIBER CALLS TEST PLATFORM
110
PLAY REFERENCE SIGNAL AND PROBE SIGNAL
115
SUBSCRIBER ADJUSTS PROBE SIGNAL ?
DONE
120
PLAY COMBINED SIGNAL AND ADJUSTED PROBE SIGNAL
125
SUBSCRIBER ADJUSTS PROBE SIGNAL ?
DONE
130
DETERMINE COMPRESSION RATIO
135
STORE COMPRESSION RATIO

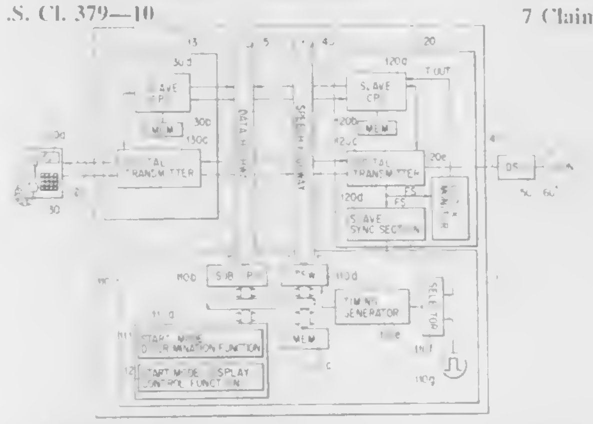
1. A method for use in providing a telecommunications service that adjusts an amplitude of an audio signal transmitted to a subscriber, the method comprising the steps of
providing an audio test signal pattern to a receiver of a telephone set device of the subscriber;
adjusting the audio test signal pattern in response to feedback generated by the subscriber via an input device of the telephone set device; and
specifying at least one parameter as a function of the adjustment of the test signal pattern such that the-at least one parameter further determines the adjustment to the amplitude of the audio signal at at least one frequency

5,737,390
DIGITAL EXCHANGE SYSTEM WITH FUNCTION OF DISPLAYING OPERATION STATE OF SYSTEM

Hiroshi Mano, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 13, 1994, Ser. No. 304,835
Claims priority, application Japan, Sep. 20, 1993, 5-232730
Int. Cl.^{6} H04M *3/08, 3/22*

U.S. Cl. 379—10 **7 Claims**



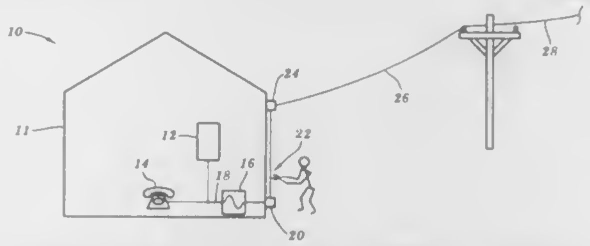
1. A digital exchange apparatus which is connected to a digital communication network via a plurality of digital channels, and operates in synchronism with network clocks supplied from the digital communication network via one of the plurality of digital channels, comprising:
mode discrimination means for discriminating whether a start mode set in correspondence with said one of the digital channels which receives the network clocks is a first start mode for normally supplying the network clocks or a second start mode for supplying the network clocks only during a specific period including a communication period upon generation of a call; and
mode display means for displaying the start mode discriminated by said mode discrimination means.

5,737,391
ALARM SYSTEM BACKUP WITH CUT LINE DETECTOR

Richard J. Dame, 307 Cambridge Ave., Syracuse, N.Y. 13208, and Kenneth A. Immeke, Rensselaer, N.Y., assignors to Richard J. Dame, Syracuse, N.Y.

Filed Sep. 6, 1995, Ser. No. 524,424
Int. Cl.^{6} H04M *11/04*

U.S. Cl. 379—37 **17 Claims**



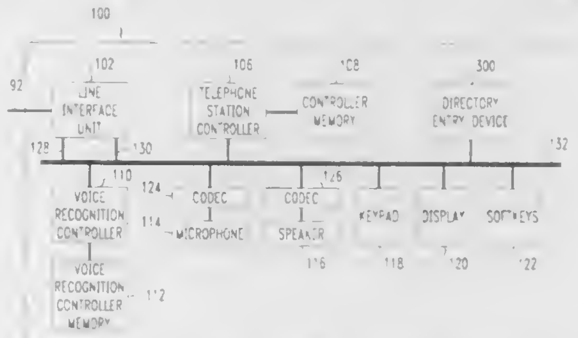
1. An impaired telephone line warning system comprising:
a signal generation device operably connected to an interior telephone line, wherein said signal generation device includes a mechanism for status signal over said interior telephone line to a distally connected outdoor telephone line that runs from a building containing said interior telephone line to a telephone company service line;
a signal detection device operably connected to said outdoor telephone line, wherein said signal detection device includes a mechanism for detecting said status signal; and
a telephonic calling unit operably connected to said outdoor telephone line and to said signal detection device, said calling unit including a mechanism for dialing out and transmitting a warning message over said outdoor telephone line

5,737,392
TWO-PASS DIRECTORY ENTRY DEVICE AND METHOD

Frank S. Cheng, East Brunswick; Randall J. Penning, Middletown, and Michael D. Porter, Flanders, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 27, 1995, Ser. No. 579,175
Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—67 **20 Claims**



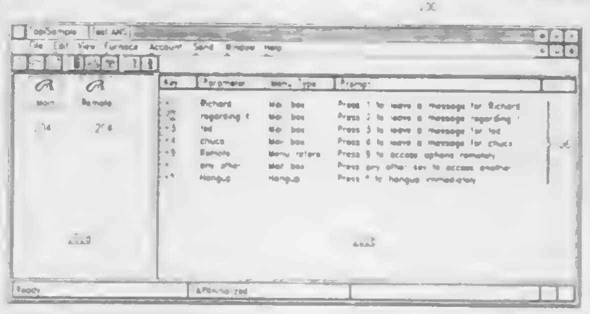
1. A two-pass directory entry method for performing a directory entry function, a directory entry controller executing the two-pass directory entry method, the method comprising
storing only a name for each of a plurality of directory items in a directory memory received from a user through a user interface device in a first-pass; and
in a second-pass:
a) in response to a request from the user, recalling the name for each of the plurality of directory items from the directory memory until each of the plurality of directory items has been recalled;
b) outputting the name for each of the plurality of directory items recalled from the directory memory to the user through the user interface;
c) receiving at least one data input from the user,
d) associating each of the at least one data input with a corresponding name for each of the plurality of directory items recalled from the directory memory; and
e) storing the name and the at least one data input in the directory memory for each of the plurality of directory items, wherein each at least one data input comprises a plurality of data types.

5,737,393
SCRIPT-BASED INTERACTIVE VOICE MAIL AND VOICE RESPONSE SYSTEM

Richard J. Wolf, Crowley, Tex., assignor to AST Research, Inc., Irvine, Calif.

Continuation of Ser. No. 508,391, Jul. 31, 1995, abandoned. This application Mar. 21, 1997, Ser. No. 821,413
Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—67 **24 Claims**



12. A method of operating an interactive voice mail and voice response (IVR) system on a personal computer (PC) having a display and electrically connected to a telephone line, the IVR system comprising at least one menu for implementing a plurality of user-selected IVR functions in an order defined by a user and comprising a plurality of menu records each having associated therewith one of said user-selected IVR functions, the method comprising the steps of:
(a) presenting on said display a graphical representation of said at least one menu,
(b) said user selecting a menu graphically represented on said display by selecting said graphical representation thereof,
(c) responsive to detection of a ringing signal on said telephone line, answering said telephone line and activating said selected menu;
(d) playing at least one prompt associated with said selected menu to a caller over said telephone line,
(e) for each menu record in said selected menu, playing a first prompt associated with said menu record for instructing said caller regarding how to initiate an IVR function associated with said menu record; and
(f) responsive to receipt of a DTMF tone associated with one of said menu records over said telephone line, interrupting execution of step (e) and performing an IVR function associated with said one menu record

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5,737,394
PORTABLE TELEPHONE APPARATUS HAVING A PLURALITY OF SELECTABLE FUNCTIONS ACTIVATED BY THE USE OF DEDICATED AND/OR SOFT KEYS

Geoffrey T. Anderson, San Diego, Calif.; Sophie Klym, Lincoln Park, N.J.; Andrew Todd Zidel, Hawthorne, N.J.; Masaaki Akahane, Mahwah, N.J., and Eduardo Sciammarella, Hoboken, N.J., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics, Park Ridge, N.J.

Filed Feb. 6, 1996, Ser. No. 597,292

Int. Cl.^{6} H04M *1/56; 11/08*

U.S. Cl. 379—88 26 Claims

18 A telephone apparatus for communicating between an operator and a plurality of people, said apparatus comprising:

a plurality of dedicated keys each having at least one respective dedicated function associated therewith;

a plurality of changeable keys each having at least one respective changeable function associated therewith, in which the function of at least one of said changeable keys is changeable to another function when said operator receives information from one person while said operator is communicating with another person; and

display means for displaying the current function associated with each of said changeable keys.

5,737,395
SYSTEM AND METHOD FOR INTEGRATING VOICE, FACSIMILE AND ELECTRONIC MAIL DATA THROUGH A PERSONAL COMPUTER

Roberto Irribarren, Fremont, Calif., assignor to Centigram Communications Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 482,608, Jun. 7, 1995, Pat. No. 5,530,740, which is a continuation of Ser. No. 33,520, Mar. 18, 1993, abandoned, which is a continuation-in-part of Ser. No. 783,686, Oct. 28, 1991, abandoned. This application Apr. 22, 1996, Ser. No. 635,610

Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—88 28 Claims

1 A communication system comprising:

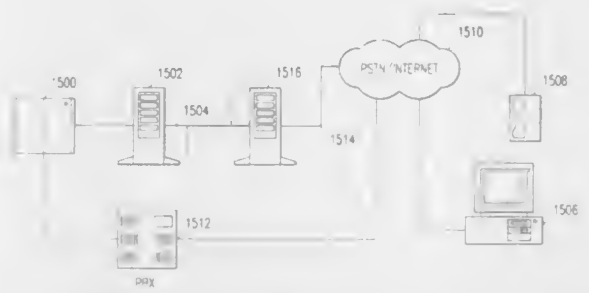
(a) message means including:

(1) voice message means for storing and retrieving voice messages,

(2) facsimile means for storing and retrieving facsimile data;

(3) a text message system for storing and retrieving text messages from a computer system;

(4) internal network communication means for coordinating operation of the voice message means, facsimile message means, and text message system responsive to commands originating externally from the message means;



(b) network interface means, coupled to the message means, for generating at least one summary page of entries referencing voice messages, facsimile data, and text messages stored in the message means, for responding to commands to retrieve and forward voice messages, facsimile data, and text messages corresponding to selected ones of such entries, and for generating commands to the message means responsive to such commands to retrieve and forward;

(c) computer processing means coupled to the network interface means through an interface device, the computer processing means including a browser function for displaying a graphical user interface to coordinate access to the network interface means, for retrieving and viewing at least one summary page, for selecting one or more entries from at least one summary page and transmitting such selections to the network interface means, and for viewing forwarded voice messages, facsimile data, and text messages from the network interface means.

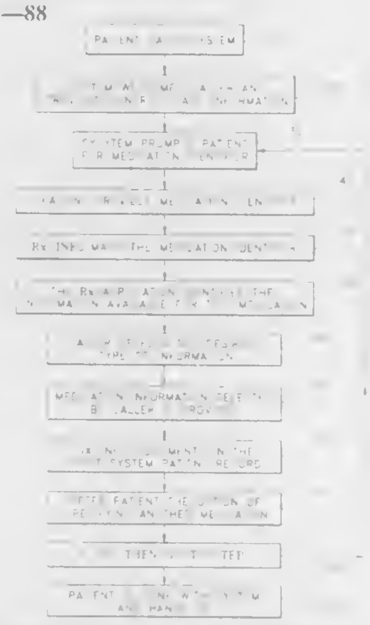
5,737,396
INTERACTIVE MEDICATION DATA TELEPHONY SYSTEM

Alfredo Garcia, Coral Gables, Fla., assignor to Mumps Audio-FAX, Inc., Wayne, Pa.

Continuation of Ser. No. 515,250, Aug. 15, 1995, abandoned. This application Jan. 17, 1997, Ser. No. 786,088

Int. Cl.^{6} H04M *1/64*

U.S. Cl. 379—88 16 Claims



1 An automated telephony method comprising:

(a) providing an informational database containing information for a variety of medications and a host system database containing signatures for at least some of said variety of medications,

(b) receiving an incoming audio communication relating to a request for information concerning a specific medication; said audio communication containing a unique identifier which contains a prescription number which has been previously dispensed with said specific medication, said identifier being mapped to a signature for said specific medication in said host system database;

(c) matching said signature with a portion of the information in said informational database relating to said specific medication;

(d) providing a signal which is representative of said portion of information relating to said specific medication; and

(e) transmitting a message concerning said specific medication generated from said signal which is responsive to said incoming audio communication.

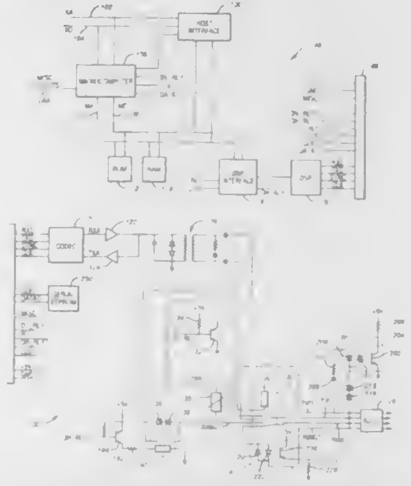
5,737,397
MODEM HAVING SEPARATE MODEM ENGINE AND DATA ACCESS ARRANGEMENT

Benjamin H. Skinner, Spring; Robert F. Watts, Houston, both of Tex., and Paul E. Nagel, Draper, Utah, assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 304,262, Sep. 12, 1994, abandoned, which is a continuation-in-part of Ser. No. 973,625, Nov. 9, 1992, Pat. No. 5,428,671, and Ser. No. 148,661, Nov. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,625, Nov. 9, 1992, Pat. No. 5,428,671, and Ser. No. 972,949, Nov. 6, 1992, abandoned. This application Oct. 9, 1996, Ser. No. 727,283

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—93.29 6 Claims



1. A modem for use with a computer system to allow communication over a telephone line, the modem comprising:

a modem engine portion, said modem engine portion including:

a computer system interface;

a microcontroller connected to said computer system interface, said microcontroller providing first digital control signals;

a data pump providing second digital control signals and receiving first data signals

a first connector connected to said microcontroller and said data pump for transferring said first digital control signals from said microcontroller, said second digital control signals from said data pump, and said first data signals to said data pump: and

a first circuit board on which said computer system interface, said microcontroller, said data pump and said first connector are located, and

a data access arrangement portion, said data access arrangement including,

a second connector for transferring said first digital control signals and said second digital control signals from said first connector and for transferring said first data signals to said first connector;

a codec for receiving said second digital control signals from said second connector and providing said first data signals to said second connector;

circuitry configured for connection to the telephone line for receiving first digital control signals from said second connector, for receiving telephone line signals from said telephone line, and for providing said telephone line signals to said codec, and

a second circuit board on which said codec, said circuitry and said second connector are located,

wherein said first circuit board and said second circuit board are separate circuit boards

5,737,398

Patent Not Issued For This Number

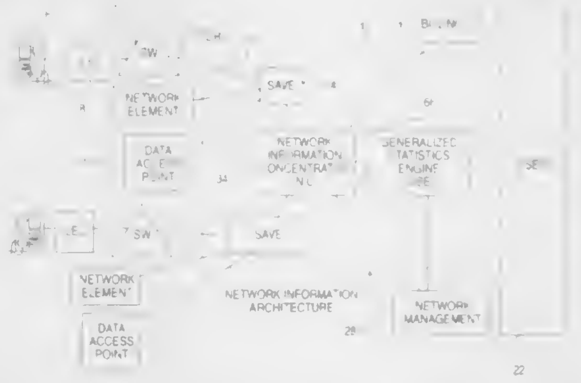
5,737,399
NETWORK INFORMATION ARCHITECTURE HAVING CENTRALIZING STORAGE AND VERIFICATION ELEMENT

Kevin R. Witzman, Monument; Isaac K. Elliott, Colorado Springs; Robert A. Smout, Divide; Arlene M. Plaza, and Richard A. Sostheim, both of Colorado Springs, all of Colo., assignors to MCI Communications Corporation, Washington, D.C.

Filed Jul. 13, 1995, Ser. No. 438,931

Int. Cl.^{6} H04M *15/00; 3/42, 7/00*

U.S. Cl. 379—112 8 Claims


SW
SAVE
NETWORK ELEMENT
DATA ACCESS POINT
NETWORK INFORMATION CONCENTRATOR
GENERALIZED STATISTICS ENGINE
NETWORK ELEMENT
DATA ACCESS POINT
NETWORK INFORMATION ARCHITECTURE
28
NETWORK MANAGEMENT
22

1 In a telephone network, network information architecture interposed between network elements located at inputs of the architecture, and end users at outputs of the architecture, the architecture comprising:

a plurality of storage and verifications elements (SAVEs) for collecting and storing call detail records presented at the inputs;

network information concentration means for providing single point access between the SAVEs and a plurality of downstream application subsystems, the network information concentration means selecting data fields from call detail records supplied by the SAVEs, as required by the subsystems, and

means for connecting the application subsystems to end users requiring data from corresponding selected data fields and processed by selected subsystems;

a fiberoptic interface connected between the output of each data access point of a network and a related active input of a SAVE;

each SAVE having a standby input connected to an output of another fiberoptic interface to increase the redundancy of the connection between the fiberoptic interfaces and the data access points.

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5,737,400
TELECOMMUNICATIONS SYSTEM FOR ACCESSING SUBSCRIBER PREMISES EQUIPMENT USING RING SUPPRESSION

Debashis Bagchi, Reno, and Richard Wilder, Sparks, both of Nev., assignors to U-Tel Incorporated, Reno, Nev.

Filed Feb. 27, 1996, Ser. No. 607,602

Int. Cl.^{6} H04M *3/42*

U.S. Cl. 375—142 **25 Claims**

22. A method of accessing one of a telephone and a data communication device from a remote data communication system via a telephone line extending to a subscriber's premises from a telecommunications network, comprising the steps of:

- receiving a first ring signal and caller identification data from said network, said caller identification data corresponding to said remote data communication system and being generated after said first ring signal, said telephone being prevented from receiving said first ring signal;
- determining from said caller identification data to which one of said telephone and said data communication device said call is directed;
- receiving a second ring signal from said network, and
- generating said caller identification data to supply said caller identification data to said telephone line after said second ring signal if said call is a voice call to be directed to said telephone.

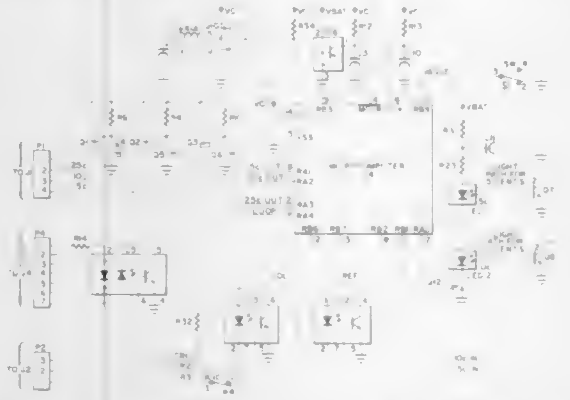
5,737,401
FULL COIN BOX SIGNALLING DEVICE FOR USE WITH COIN TELEPHONES

Gary Grantland, Hartselle, and Gregory L. Distler, Huntsville, both of Ala., assignors to Quadrum Telecommunications, Inc., Huntsville, Ala.

Filed Jun. 14, 1996, Ser. No. 662,242

Int. Cl.^{6} H04M *17/00*, G06M *1/27*, G07F *9/08*, G07D *5/08*

U.S. Cl. 379—147 **9 Claims**



1. A coin box monitoring circuit for use in a telephone paystation connected to a telephone central office, said paystation including a source of electrical power, a hookswitch, a coin relay including a trigger switch and a coin hopper, a plurality of coin paths extending to said coin hopper, a coin vault including a coin box located therein, said coin box monitoring circuit comprising:

- a microprocessor;
- a plurality of light sources adjacent to said coin paths including a circuit connection from said microprocessor;
- a plurality of light detectors each adjacent to one of said coin paths and adjacent to an associated light source, each of said detectors including circuit connections to said microprocessor, said light sources periodically operated in response to said microprocessor;
- full coin box signaling means connected between said microprocessor and said coin relay;
- said detectors operated in response to the passage of each coin deposited through at least one of said light paths during operation of said light source, to cause said microprocessor to tabulate a volumetric unit for each of said coins passing through at least one of said light paths;
- said full coin box signaling means operated in response to the volumetric units counted by said microprocessor being equal to a predetermined amount, to apply a signal to said coin relay to provide an indication at said telephone central office that the coin box is at a maximum capacity.

5,737,402
COIN RELEASE MECHANISM OF PAY PHONE

Li-Te Cheng, and Sung-Min Lin, both of Taipei, Taiwan, assignors to Karlin Telecomm Corporation, Taipei, Taiwan

Filed Sep. 17, 1996, Ser. No. 714,277

Int. Cl.^{6} H04M *17/00*

U.S. Cl. 379—150 **6 Claims**

1. A coin release mechanism comprising:

- a base plate adapted to fix inside a casing, comprising a pivot pin and a stop formed thereon, the base plate further comprising a through hole through which an outer end of a rotating shaft extends outside the casing to be adapted to fix to a user-accessible lever and an inner end of the shaft extends into the casing;
- a driving link which is drivingly engaged by and secured on the inner end of the shaft to be rotatable in unison therewith, having an elongated slot formed thereon, the driving link further comprising an extension to be contactable by the stop of the base plate to define a un-actuated position of the driving link;
- a driven link having a hole received over the pivot pin of the base plate to allow the driven link to be rotatable relative to the base plate, the driven link comprising two arms substantially opposite to each other about the hole and defining therebetween an obtuse angle, one of the arms having a pin fixed thereon to be movably received within the elongated slot of the driving link and a second one of the arms having a roller rotatably supported thereon and adapted to cooperate with a coin receiving mechanism for returning coins therefrom; and
- biasing means arranged between the base plate and the driving link to bias the driving link toward the un-actuated position.

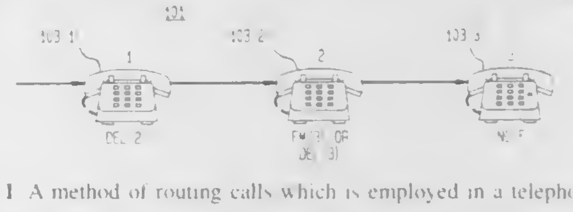
5,737,403
INTERACTION OF ROUTING FEATURES IN A TELEPHONE SYSTEM

Pamela Zave, Chatham, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Sep. 15, 1995, Ser. No. 528,900

Int. Cl.^{6} H04M *3/42*

U.S. Cl. 379—211 **35 Claims**



1. A method of routing calls which is employed in a telephone system employing a plurality of telephone numbers, wherein a telephone number has associated therewith a telephone and a subscriber and wherein a call routing operation may comprise one or more routing steps, each routing step utilizing at least one predetermined call routing feature, wherein call routing features are classified into first features which are related to subscribers represented by their associated telephone numbers and second features which are related to telephones represented by their associated telephone numbers, the method comprising the steps of:

- in a routing step of the call routing operation, determining whether each predetermined call routing feature which is utilized in the routing step is classified as one of the first features or one of the second features, and
- determining how a call associated with the routing operation is to be routed in the routing step according to how the call routing features associated with the routing step are classified.

5,737,404
DISTRIBUTED SIGNALING SYSTEM SEVEN CALL HANDLING SYSTEM

Niranjan Nath Segal, Arlington, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

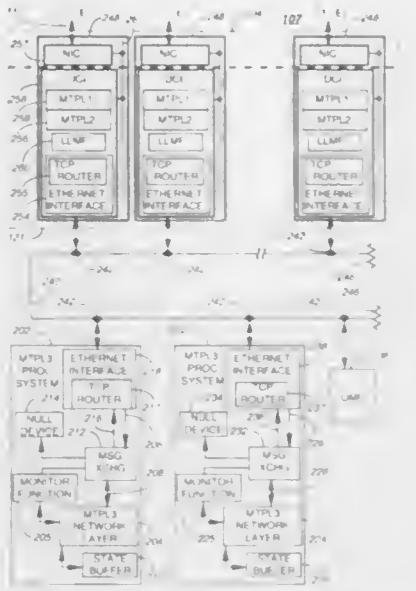
Filed Apr. 4, 1996, Ser. No. 627,540

Int. Cl.^{6} H04M *7/06*; H04J *3/14*

U.S. Cl. 379—230 **15 Claims**

1. A distributed signaling system seven (SS7) call handling system, comprising:

- an SS7 message transport protocol level three (MTPL3) processing module, comprising
  - an SS7 MTPL3 network layer, and
  - a level three local network interface, coupled to said SS7 MTPL3 network layer;
- an SS7 message transport protocol lower level (MTPLL) processing module, comprising
  - an SS7 message transport protocol level one (MTPL1) physical layer,
  - an SS7 message transport protocol level two (MTPL2) link layer, coupled to said SS7 MTPL1 physical layer,
  - a lower level local network interface, coupled to said SS7 MTPL2 link layer, and



  - an MTPLL monitor function coupled to said lower level local network interface, for routing messages to an SS7 MTPL3 processing module identified to be in an active state; and
- a local interconnection media, coupling said level three local network interface to said lower level local network interface.

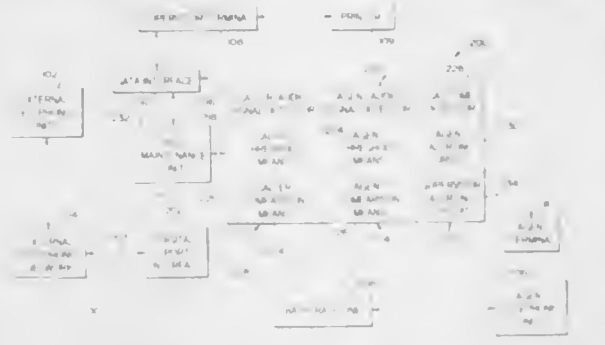
5,737,405
APPARATUS AND METHOD FOR DETECTING CONVERSATION INTERRUPTIONS IN A TELEPHONIC SWITCH

Anthony J. Dezonno, Downers Grove, Ill., assignor to Rockwell International Corporation, Downers Grove, Ill.

Filed Jul. 25, 1995, Ser. No. 506,502

Int. Cl.^{6} H04M *3/22*

U.S. Cl. 379—265 **20 Claims**



1. In a telephonic switch, an apparatus for detecting an interruption in a conversation between two participants during an incoming telephone call, said two participants including an agent and a caller, said interruption being detected when one of said participants begins talking while the other of said participants is talking, the apparatus comprising:

- a detection circuit for actuating an interruption when the agent and the caller are concomitantly talking, and
- a reporting mechanism for reporting the interruption in response to the detection circuit detecting when the agent and the caller are concomitantly talking.

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5,737,406
DISTRIBUTED CONNECTION CONTROL IN TELECOMMUNICATION NETWORKS

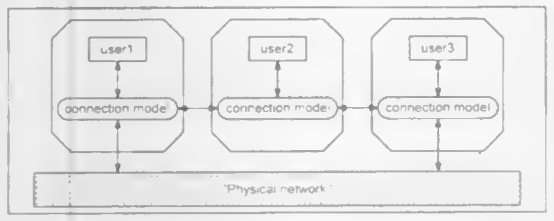
L. J. Ola Dagberg, Stockholm, and K. S. Tomas Aurell, Enebyberg, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jun. 15, 1995, Ser. No. 490,992

Claims priority, application Sweden, Jun. 15, 1994, 9402105

Int. Cl.^{6} H04M *7/00*

U.S. Cl. 379—269 **8 Claims**



1. In a telecommunication network including digital controlled telephone exchanges and connected subscribers, wherein control of the handling of connections between subscribers is distributed in the network, an object oriented system comprising:

one or more processors for implementing a plurality of different, mutually independent processes for controlling the handling of connections that are required for connection set-up through connection and release of complete connections between subscribers or nodes of the network and redirection of connections,

one or more processors implementing connection models for setting up abstract connection paths by linking together connection objects, port objects or end port objects, the connection models being substantially identical and each connection model simulating a complete connection,

wherein the linking is carried out by at least one of normal association, internal association, and preliminary association;

upon normal association of connection models, references are sent from a port in a connection model to a port in a second connection model, and

upon internal association of objects within a connection model, references are supplied between adjacent connection objects and ports, and

a physical connection for exchanging references between abstract and physical access points upon a set-up abstract connection between two end ports and between the associated connection objects, port objects, and connection models,

wherein upon preliminary association, references are supplied between a port object and a connection object that is in addition to a connection object to which the port object is associated by normal association.

5,737,407
VOICE ACTIVITY DETECTOR FOR HALF-DUPLEX AUDIO COMMUNICATION SYSTEM

David L. Graumann, Vancouver, Wash., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 520,305, Aug. 28, 1995, Pat. No. 5,598,466. This application Aug. 26, 1996, Ser. No. 702,937

Int. Cl.^{6} H04M *9/10;9/08,* **G10L** *3/00,9/18*

U.S. Cl. 379—389 **20 Claims**

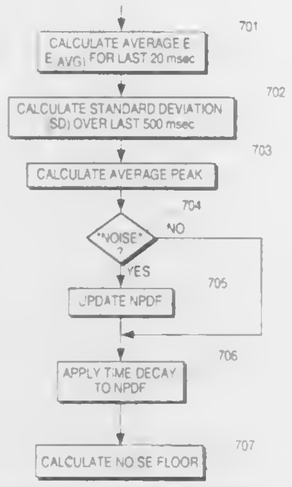
1. A method of locating a noise floor for qualifying a signal, comprising the steps of

establishing a noise function based on:

a relationship between an approximate peak level of the signal and a current level of the signal, and

variation measures determined for a plurality of time intervals,

repeatedly updating the noise function to produce a current state of the noise function; and



using the current state of the noise function to locate the noise floor

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5,737,408
ECHO CANCELLING SYSTEM SUITABLE FOR VOICE CONFERENCE

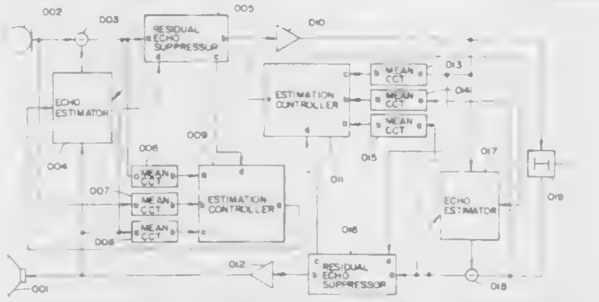
Atsushi Hasegawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 9, 1995, Ser. No. 552,503

Claims priority, application Japan, Nov. 9, 1994, 6-274128

Int. Cl.^{6} H04M *1/60;9/08*

U.S. Cl. 379—390 **5 Claims**



1. A two wire voice conference apparatus for receiving a microphone signal from a microphone and providing a speaker signal to a speaker through a hybrid circuit that connects the microphone to the speaker through a channel, said apparatus comprising:

first echo estimating means for estimating a channel echo component contained in the speaker signal due to the hybrid circuit, said first echo estimating means being activated by a first external control signal;

second echo estimating means for estimating a room echo component contained in a hybrid input signal provided to said hybrid circuit, said second echo estimating means being activated by a second external control signal,

first subtracting means for subtracting the channel echo component from the microphone signal and providing a first subtracted output signal,

second subtracting means for subtracting the room echo component from a hybrid output signal provided from said hybrid circuit and providing a second subtracted output signal,

first echo suppressing means for suppressing a residual echo of the first subtracted output signal and providing said hybrid input signal and a first suppressed signal;

second echo suppressing means for suppressing a residual echo of the second subtracted output signal and providing said speaker signal and a second suppressed signal;

first estimation control means for determining a first speech direction and a first amount of suppression by referencing the speaker signal, the first subtracted output signal, the microphone signal and the first suppressed signal, and for generating said first external control signal, and

second estimation control means for determining a second speech direction and a second amount of suppression by referencing the hybrid input signal, the second subtracted output signal, the hybrid output signal and the second suppressed signal, and for generating said second external control signal.

5,737,409
ECHO REMOVING APPARATUS

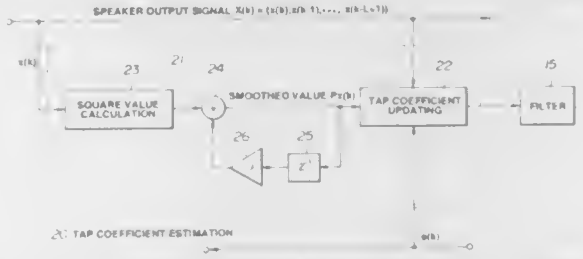
Akira Inoue, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 5, 1996, Ser. No. 611,199

Claims priority, application Japan, Mar. 9, 1995, 7-050025

Int. Cl.^{6} H04M *9/00*

U.S. Cl. 379—410 **2 Claims**



1. An echo removing apparatus for removing an echo produced by the return of sound generated from sound generating means to sound collecting means arranged in proximity to said sound generating means, comprising:

filter means for outputting a pseudo echo signal estimating an echo component derived from a generated sound signal supplied to said sound generating means, said echo component having been returned to said collecting means;

subtracting means for subtracting the pseudo echo signal supplied by said filter means from a collected signal supplied by said collecting means; and

filter coefficient estimation means for estimating and updating a filter coefficient of said filter means using a smoothed input power value of the generated sound signal, wherein said filter coefficient estimation means calculates said smoothed input power value using a mean power over L samples of the past N samples of the generated sound signal, where L is a number of taps of said filter means and N is a number larger than L and said filter coefficient estimation means estimates filter tap coefficients by a learning identification method and wherein a mean value over L square sums of the generated sound signal of the previous N square sums is used as the value of the square sums in an equation employed for estimating the filter tap coefficients by the learning identification method.

5,737,410
METHOD FOR DETERMINING THE LOCATION OF ECHO IN AN ECHO CANCELLER

Antti Vähätalo, and Jorma Mäkinen, both of Tampere, Finland, assignors to Nokia Telecommunication Oy, Espoo, Finland

PCT No. PCT/FI94/00577, § 371 Date Sep. 13, 1996, § 102(e) Date Sep. 13, 1996, PCT Pub. No. WO95/17784, PCT Pub. Date Jun. 29, 1995

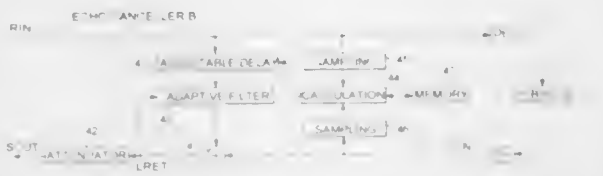
PCT Filed Dec. 21, 1994, Ser. No. 666,412

Claims priority, application Finland, Dec. 23, 1993, 935834

Int. Cl.^{6} H04B *3/20;3/23*

U.S. Cl. 379—410 **7 Claims**

1. A method for adaptation to an echo location in an echo canceller comprising an output port, an input port, an adjustable delay unit compensating for the pure delay component in an echo path between the echo location and the output port of the echo canceller, a digital filter calculating, from a signal outgoing to the echo path, an estimate for the echo location which is shorter than



the maximum allowed duration of the echo path, characterized in that the method comprises the steps of

a) taking N samples of the speech signal outgoing to the echo path, and storing them in memory,

b) taking N samples of a signal incoming from the echo path, and storing them in memory,

c) determining the correlation between the stored N samples of the outgoing signal and the stored N samples of the incoming signal by calculating a scalar product thereof,

d) taking a new sample of the signal incoming from the echo path and deleting from memory the oldest sample, N of the latest samples of the incoming signal being stored,

e) repeating steps c) and d) M times, which corresponds to at least to the combined length of the longest allowed time interval of said delay and the actual echo location,

f) determining the center of echo on the basis of the calculated correlations,

g) determining, on the basis of the calculated correlation values, whether the delay location has been found with sufficient certainty, and if not, returning to step a),

h) adjusting the delay of said delay means in such a way that the center of the digital filter is aligned with the center of echo thus determined.

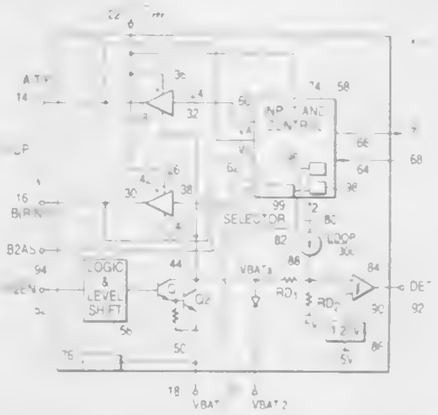
5,737,411
BATTERY SWITCHING IN A TELEPHONE SUBSCRIBER LINE INTERFACE CIRCUIT

Russell Jay Apfel, and Richard Bruce Webb, both of Austin, Tex., assignors to Advanced Micro Devices Inc., Sunnyvale, Calif.

Filed Dec. 29, 1994, Ser. No. 366,545

Int. Cl.^{6} H04M *19/00*

U.S. Cl. 379—413 **22 Claims**



1. A telephone subscriber line interface circuit coupled to a telephone subscriber line, the telephone subscriber line interface circuit comprising:

a first circuit portion;

a second circuit portion;

a first battery input for receiving a first battery voltage,

a second battery input for receiving a second battery voltage, the second battery voltage having a lower absolute value than the first battery voltage, and the second circuit portion being coupled to the second battery input,

a switch for coupling the first circuit portion to one of the first battery input when the switch is in a first state and the second battery input when the switch is in a second state, and

means for providing one of a first DC feed characteristic from the first battery input and a second DC feed characteristic from the second battery input to said telephone subscriber line

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coupled to said subscriber line interface circuit in accordance with the state of said switch.

5,737,412
PORTABLE TELEPHONE WITH A CARRYING STRAP

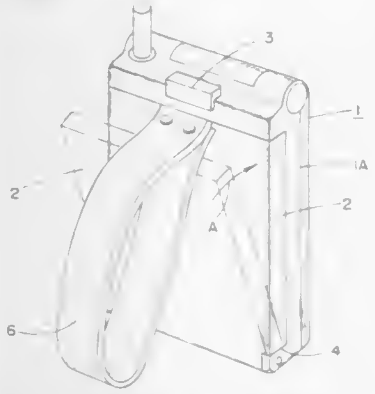
Koji Yamashita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 24, 1996, Ser. No. 652,922

Claims priority, application Japan, May 24, 1995, 7-125456

Int. Cl.⁶ H04M *1/00*

U.S. Cl. 379—446 **4 Claims**



1 A portable electronic apparatus comprising
a body;
a battery pack mounted on said body and rotatable toward and away from said body about one end thereof engaged with a lower end of said body;
a detachable strap for holding said apparatus, said strap having a hole formed proximate one end thereof;
a latch mechanism provided on an upper end of said body for latching said battery pack;
a lock mechanism provided on said battery pack for selectively mating with said latch mechanism, said battery pack including spaced grooves for said lock mechanism located in a center portion of the outer end of said battery pack, said lock mechanism being positioned intermediate said grooves, and said lock mechanism including lugs for hooking into the hole at said one end of said strap and a recess for mating with said latch mechanism whereby said strap is latched to said apparatus in the mated condition of said lock mechanism and latch mechanism and is detachable from said apparatus in the released condition of said mechanisms.

5,737,413
INFORMATION DISTRIBUTION SYSTEM WHEREIN STORAGE MEDIUM STORING CIPHERED INFORMATION IS DISTRIBUTED

Ryota Akiyama; Takayuki Hasebe, and Makoto Yoshioka, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

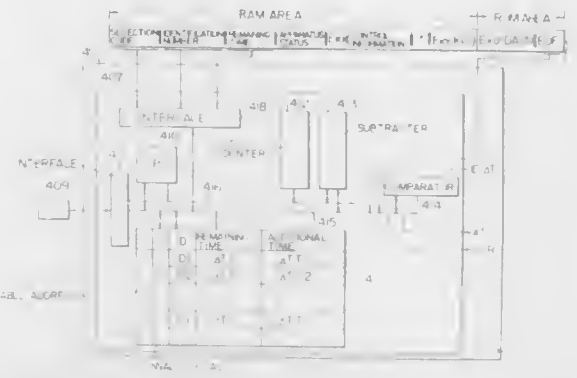
Division of Ser. No. 51,749, Apr. 26, 1993, Pat. No. 5,440,631. This application Apr. 3, 1995, Ser. No. 415,611

Claims priority, application Japan, Apr. 24, 1992, 4-105033; Apr. 24, 1992, 4-105034

Int. Cl.⁶ H04L *9/32* **G06F** *3/06*

U.S. Cl. 380—4 **28 Claims**

1 A distributor apparatus comprising
piece of storage medium holding means for temporarily holding a piece of storage medium which contains first and second areas for storing first and second ciphered information respectively and said second ciphered information indicates a limit for an operation of reading the first ciphered information,
limit information generating means for generating limit information indicating the limit of the operation of reading the first ciphered information;



key storing means for storing key information;
ciphering means for ciphering the limit information, by using the key information in the key storing means, to generate the second ciphered information,
writing means for writing the second ciphered information in the second area of the piece of storage medium held in the piece of storage medium holding means; and
communication means for receiving a request for an additional limit information for reading the first ciphered information from a user apparatus and for transmitting the additional limit information to the user apparatus.

5,737,414
900 NUMBER BILLING AND COLLECTION SYSTEM AND METHOD FOR ON-LINE COMPUTER SERVICES

Jay Walker, Ridgefield, Conn., and Bruce Schneier, Oak Park, Ill., assignors to Walker Asset Management Limited Partnership, Stamford, Conn.

Continuation of Ser. No. 449,208, May 24, 1995, abandoned. This application May 20, 1997, Ser. No. 859,162

Int. Cl.⁶ H04L *9/32*

U.S. Cl. 380—4 **19 Claims**

1 A method for utilizing an access management computer to control a user's access to digital data provided by an on line server over a data network wherein a billing system separate from said on line server charges said user for access to said digital data, comprising the steps of:
said access management computer receiving, from said billing system, a message indicating that said user has requested access to digital data,
said access management computer interfacing with said on-line server
said access management computer sending an access message to said on line server to signal said on line server to provide said digital data to said user over said data network, and
said access management computer providing, to said billing system, said access message corresponding to said user's request for access.

5,737,415
DATA MANAGEMENT MODULE, DATA REPRODUCTION MANAGEMENT DEVICE AND DATA REPRODUCTION MANAGEMENT SYSTEM

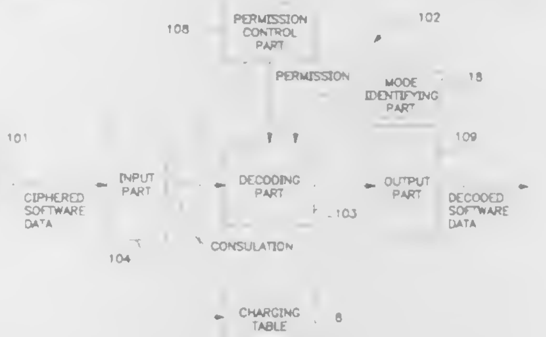
Ryota Akiyama, and Makoto Yoshioka, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 31, 1995, Ser. No. 509,226

Claims priority, application Japan, Aug. 10, 1994, 6-219372; Sep. 20, 1994, 6-225228

Int. Cl.⁶ H04L *9/00*

U.S. Cl. 380—4 **16 Claims**



1 A data management module mounted on a data reproducing device for selecting and reproducing encrypted data, comprising:
input means for inputting said encrypted data;
authorization control means for authorizing decoding of said encrypted data;
decoding means for decoding said encrypted data authorized by said authorization control means; and
charge data storage means for storing a balance value, wherein said authorization control means reduces the balance value based upon characteristics of said encrypted data decoded by said decoding means, compares the balance value with a predetermined cutoff value, and authorizes the decoding of additional encrypted data based upon the comparison, an initial value of said balance value being resettable through commands from a source external of said data management module,
output means for outputting said decoded encrypted data decoded by said decoding means.

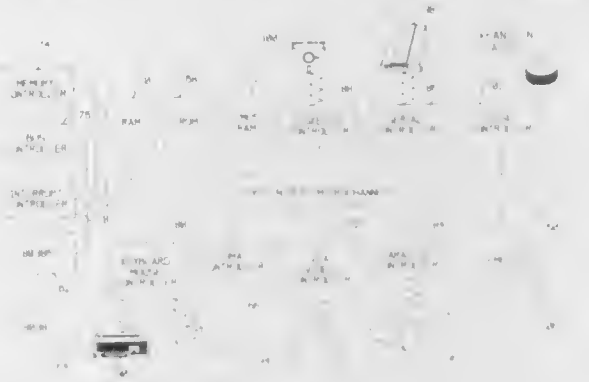
5,737,416
METHOD AND APPARATUS FOR ENABLING TRIAL PERIOD USE OF SOFTWARE PRODUCTS: METHOD AND APPARATUS FOR UTILIZING A DECRYPTION STUB

Thomas Edward Cooper, Louisville; Hudson Wayne Phillips, Boulder, and Robert Franklin Pryor, Longmont, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 235,033, Apr. 25, 1994, abandoned. This application Aug. 2, 1996, Ser. No. 693,555

Int. Cl.⁶ H04L *9/00*

U.S. Cl. 380—4 **22 Claims**



12 An apparatus for allowing selective access to an encrypted file, comprising
means for providing a plurality of files, the encrypted file being one of the plurality of files;
means for attaching an unencrypted security stub, at least partially composed of executable code, to the encrypted file;
means for locating the plurality of files in an accessible location,
means for generating a user-initiated request for a called file in response to an action taken by a user, the called file being one of the plurality of files;
means for translating the user request into a data processing system call;
means for receiving the data processing system call using a file management program, wherein the file management program exists in (a) an active state or (b) an inactive state, the file management program being a component of an operating system;
means for selectively accessing the called file from among the plurality of files utilizing the file management program, if the called file is has the unencrypted security stub,
means for accessing the called file from among the plurality of files utilizing the file management program, if the called file does not have the unencrypted security stub,
means for processing the called file in accordance with the user-initiated request, to the extent the called file was accessed, wherein access by the user to the certain ones of the plurality of files is controlled by the unencrypted security stub.

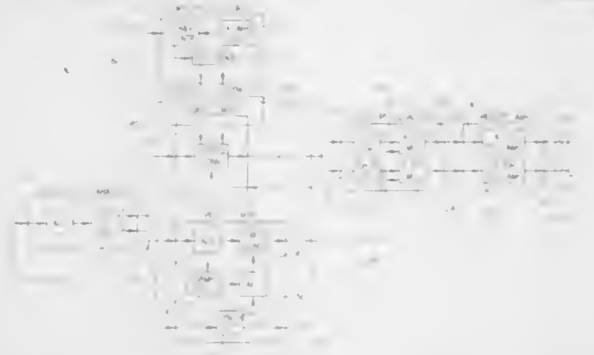
5,737,417
VIDEOTAPE ANTI-COPYING ENCRYPTION SCHEME

William J. Buynak, Bayville, N.Y., and Michael A. Sterling, Woodland Hills, Calif., assignors to Technicolor Videocassette, Inc., Camarillo, Calif.

Filed Apr. 24, 1995, Ser. No. 427,151

Int. Cl.⁶ H04L *9/00*

U.S. Cl. 380—5 **11 Claims**



1 A method of encrypting a video signal to be placed legitimately onto a recording medium so as to prevent the useful copying of said video signal from that medium, said video signal comprising consecutive frames of picture information, each of said frames being represented in two fields, each of said fields having a vertical interval associated therewith which indicates the start of each said field, and each of said fields further comprising lines, including active and viewable lines, active but non-viewable lines, and non-active lines, and each of said lines having horizontal sync pulses or other reference points for performing horizontal synchronization function indicating the end of each of said lines, comprising the steps of
separating said video signal into a luminance component and a chromenance component,
inserting a high amplitude pulse having a width of no more than about three microseconds into said luminance component of said video signal immediately after said horizontal sync pulse or other reference point for performing a horizontal synchronization function in certain of said active bun non-viewable lines and certain of said non active lines,
mixing said luminance component and said chromenance component to yield an encrypted video signal, wherein the width of said high amplitude pulse in said encrypted video signal is

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less than the width of said high-amplitude pulse as inserted into said luminance component; and,

transferring said encrypted video signal onto the recording medium

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5,737,418

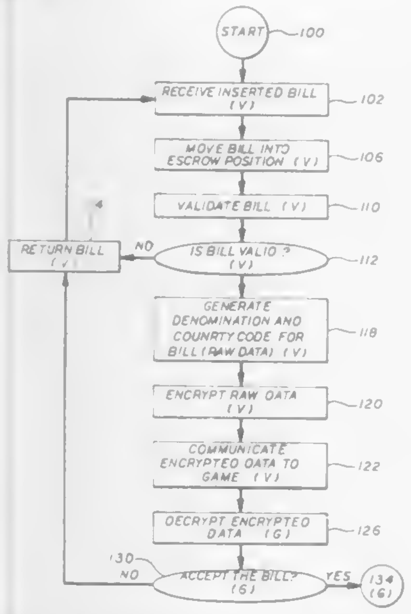
ENCRYPTION OF BILL VALIDATION DATA

Ali M. Saffari, and James P. Hunt, both of Reno, Nev., assignors to International Game Technology, Reno, Nev.

Filed May 30, 1995, Ser. No. 453,269

Int. Cl.^{6} H04L *9/00;* **H04K** *1/00, 1/02;* **G06F** *7/04,* **G07D** *7/00*

U.S. Cl. 380—9 **21 Claims**


START
100
RECEIVE INSERTED BILL (V)
102
MOVE BILL INTO ESCROW POSITION (V)
106
VALIDATE BILL (V)
110
RETURN BILL (V)
NO
IS BILL VALID ? (V)
112
GENERATE DENOMINATION AND COUNRTY CODE FOR BILL (RAW DATA) (V)
118
ENCRYPT RAW DATA (V)
120
COMMUNICATE ENCRYPTED DATA TO GAME (V)
122
DECRYPT ENCRYPTED DATA (G)
126
130
NO
ACCEPT THE BILL? (G)
YES
134 (G)

1 A method of validating cash currency in a machine that accepts currency and which provides credit for goods or services, the method comprising the following steps:

(a) upon receipt of a bill in said machine, generating a bill validation signal containing raw bill validation data, which validation data includes data codifying the denomination of the currency and data codifying the country of origin of the currency;

(b) encrypting the raw bill validation data in the bill validation signal to produce an encrypted bill validation signal;

(c) communicating the encrypted validation signal to machine logic contained in said machine, and

(d) decrypting the encrypted bill validation signal with said machine logic to retrieve the raw bill validation data.

5,737,419

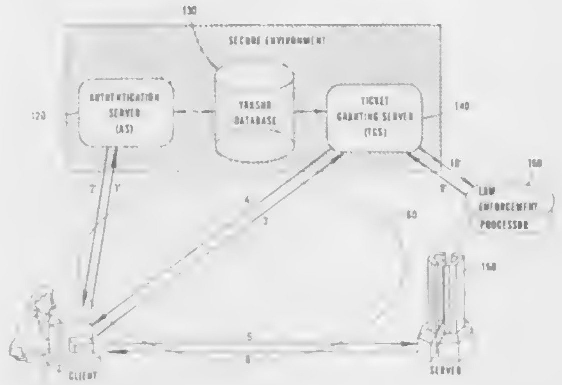
COMPUTER SYSTEM FOR SECURING COMMUNICATIONS USING SPLIT PRIVATE KEY ASYMMETRIC CRYPTOGRAPHY

Ravi Ganesan, Arlington, Va., assignor to Bell Atlantic Network Services, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 338,128, Nov. 9, 1994, Pat. No. 5,535,276. This application Jun. 7, 1996, Ser. No. 660,403

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 380—21 **27 Claims**


130
SECURE ENVIRONMENT
120
AUTHENTICATION SERVER (AS)
YAKSHA DATABASE
TICKET GRANTING SERVER (TGS)
140
160
LAW ENFORCEMENT PROCESSOR
150
CLIENT
110
SERVER
5
6

1 An article of manufacture for securing communications between users of a crypto-system having a plurality of users, each of said plurality of users having an associated asymmetric crypto-key with a public key portion and a corresponding private key portion, each public key portion being accessible to the plurality of system users, each private key portion having a first private key portion known only to the associated user and a corresponding second private key portion, comprising:

computer readable storage medium; and

computer programming stored on said storage medium,

wherein said stored computer programming is configured to be readable from said computer readable storage medium by a computer and thereby cause said computer to operate so as to:

generate a temporary asymmetric crypto-key having a first temporary key portion and an associated second temporary key portion;

encrypt said second temporary key portion with the first private key portion of a first user crypto-key associated with a first user to form a first encrypted message;

direct issuance of said first encrypted message to a second user having access to the second private key portion of the first user crypto-key, wherein the second temporary key portion is obtainable by application of the second private key portion of the first user crypto-key to the first encrypted message to thereby authenticate the first user to the second user, and

apply the public key portion of the first user crypto-key to decrypt a second encrypted message, which includes the first encrypted message encrypted with the second private key portion of the first user crypto-key, to thereby authenticate the second user to the first user.

5,737,420

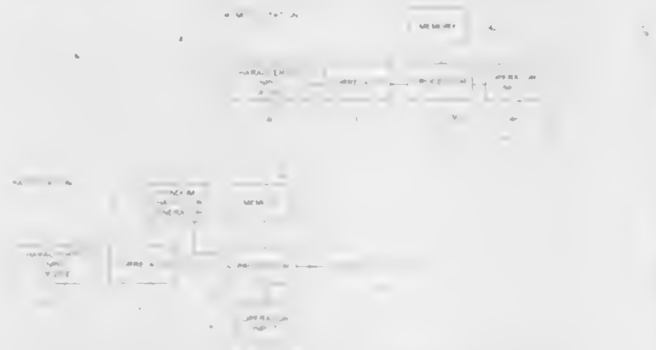
METHOD FOR SECURE DATA TRANSMISSION BETWEEN REMOTE STATIONS

George J. Tomko, East York, and Alexei Stoianov, Toronto, both of Canada, assignors to Mytec Technologies Inc., Don Mills, Canada

Continuation-in-part of Ser. No. 301,677, Sep. 7, 1994, Pat. No. 5,541,994, and Ser. No. 508,978, Jul. 28, 1995, Pat. No. 5,712,912. This application Jan. 8, 1996, Ser. No. 584,375

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—23 **10 Claims**



1 A method for permitting the secure passing of data between two remote stations, comprising the steps of

obtaining from a user of a first of two remote stations, a first characteristic information signal;

obtaining from a user of a second of two remote stations, a second characteristic information signal;

generating a sequence of random characters to obtain a random key;

obtaining a key function which represents said key,

obtaining a Fourier transform of said key representing function,

obtaining at least one encrypted version of said key based on said Fourier transform of said key representing function, and a least one of said first characteristic information signal and said second characteristic information signal such that said key may be recovered by writing said at least one encrypted version of said encrypted key to a spatial light modulator (SLM) of an optic correlator and inputting either one of said first characteristic information signal and said second characteristic information signal to said optic correlator;

storing said at least one encrypted version of said key at each of said first station and said second station, whereby thereafter any message encrypted in such a way that it may be decrypted by said key may be decrypted at either of said two remote stations by retrieving said stored encrypted key, writing said at least one encrypted version of said encrypted key to a spatial light modulator (SLM) of an optic correlator and inputting either one of said first characteristic information signal and said second characteristic information signal to said optic correlator.

5,737,421

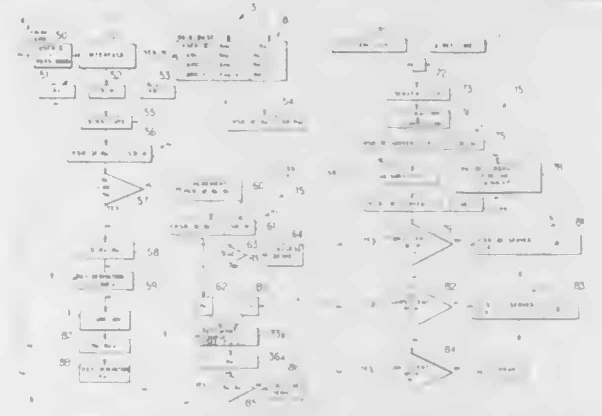
SYSTEM FOR CONTROLLING ACCESS TO A FUNCTION HAVING CLOCK SYNCHRONIZATION

Yves Audebert, Croissy-sur-Seine, France, assignor to Activcard, Issy les Moulineaux Cedex, France

Filed Mar. 22, 1996, Ser. No. 620,162

Int. Cl.^{6} H04K *1/00;* **H04L** *9/00;* **G06K** *5/00*

U.S. Cl. 380—23 **21 Claims**



1 A system for authentication of individuals and/or messages, including at least one first portable unit personalized for an individual and at least one second verification unit capable of delivering an authentication function authenticating said individual and/or said messages,

(a) said first unit comprising:

first generating means for generating at least a first variable;

first calculating means for producing a first password with the aid of at least a first encryption algorithm using an encryption key for encrypting at least said first variable,

transmission means for transmitting said first password to said second unit;

(b) said second unit comprising:

second generating means for, in response to an authentication request made by way of a specified one of said first units, generating at least a second variable assigned to this first unit;

second calculating means for producing a second password with the aid of at least one second encryption algorithm using an encryption key for encrypting at least said second variable, said first and second variables being produced in concert, but independently in said first and second units,

means for comparing said first and second passwords,

delivering means for, in the event of a predetermined consistency of said passwords, deliver said authentication function,

said transmission means being configured so as to transmit with said first password n digits having the least significant weight of said first variable from said first unit to said second unit,

(c) said second unit further comprising

j) substituting means for, based on the current value of said second variable, generating a substituted value wherein n digits having the least significant weight are replaced by said n digits having the least significant weight of said first variable, said second variable thereby comprising a replaced first group of n least significant digits and a second group of m highest significant digits,

jj) third calculating means for

k) retaining as second variable for the calculation of said second password said substituted variable, if said substituted variable and said current value of said second variable are consistent with at least a first predetermined condition,

kk) if said first predetermined condition is not satisfied, adjusting in said substituted value by one unit said second group of m highest significant digits, said adjusting being dependent from a second predetermined condition, said adjusting generating a substituted and adjusted variable, and

kkk) retaining as second variable for the calculation of said second password said substituted and adjusted variable

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5,737,422

DISTRIBUTED DATA PROCESSING NETWORK

Roger E. Billings, 26900 E. Pink Hill Rd., Independence, Mo. 64057-3294

Filed Apr. 26, 1995, Ser. No. 430,942

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—25 **18 Claims**

1 A method of sending secured data between a data server computer and a user computer coupled together by a communication network comprising the steps,

storing a randomized version of a user's password and an identifier in the data server computer;

receiving into the data server computer a data request from a user of the user computer, the data request including the user's identifier but not including the user's randomized password;

encrypting the requested data at the data server computer using the user's randomized password stored in the data server computer as an encryption key to produce encrypted data,

sending the encrypted data to the user computer, and

decrypting the encrypted data at the user computer using the user's randomized password as a decryption key,

whereby secured data is sent between the data server computer and the user computer without sending the user's password over the communication network and without sending any encrypted variation of the user's password over the communication network.

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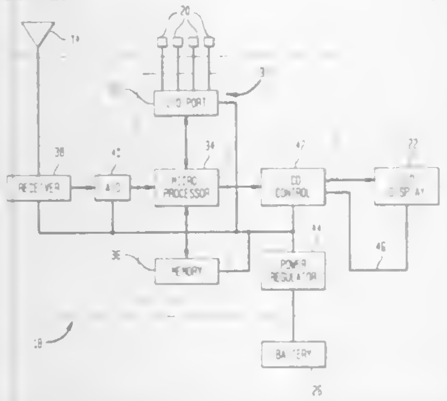
5,737,423
OLD MODIFIED SMART CARD OR SIMILAR APPARATUS HAVING A REMOTE INSPECTION CAPABILITY

Flavio M. Manduley, Woodbury, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Aug. 23, 1995, Ser. No. 518,212

Int. Cl.⁶ H04L *9/00*

U.S. Cl. 380—25 **16 Claims**



1. A method for inspecting an apparatus, said apparatus having a capability to decode and respond to a response request message transmitted to said apparatus by generating and displaying a secure output message, and also having an automatic deactivation capability, said method comprising the steps of

a) transmitting said response request message addressed to said apparatus, said secure output message prompting an authorized possessor of said apparatus to send a response reflecting said secure output message to an originator of said response request message;

b) if a message reflecting said secure output message is not received before the occurrence of a predetermined event, automatically controlling said apparatus to deactivate; and

c. if said message reflecting said secure output message is received before the occurrence of said predetermined event, transmitting a response confirmation message addressed to said apparatus and thereafter ignoring occurrence of said predetermined event.

5,737,424
METHOD AND SYSTEM FOR SECURE DISTRIBUTION OF PROTECTED DATA USING ELLIPTIC CURVE SYSTEMS

Laszlo Elteto, Stamford, Conn., and Jose Pastor, Zaragoza, Spain, assignors to Software Security, Inc., Darien, Conn.

Filed Jun. 4, 1996, Ser. No. 658,072

Int. Cl.⁶ H04L *9/28, 9/00*

U.S. Cl. 380—28 **45 Claims**

400
Start
Provide Information to Be Encrypted
Generate Index of Second Point on Elliptic Curve
Second Point and Delta Key
End

1. A method of encrypting, at a processing center computer system, information to be sent to a user, the processing center computer system comprising a processor, a memory, an input device and an output device, comprising the steps of:

storing, in the memory of the processing center computer system, information representing an elliptic curve;

providing information to be encrypted;

responsive to receiving a user key from a user, inputting the user key into the processing center computer system;

selecting a first point on the elliptic curve having an index corresponding to the information to be encrypted.

determining a second point on the elliptic curve related to the first point on the elliptic curve based on the user key;

determining an index of the second point on the elliptic curve.

generating the encrypted message from the index of the second point on the elliptic curve and information based on the user key which relates the second point on the elliptic curve to the first point on the elliptic curve; and

transmitting the encrypted message to the user.

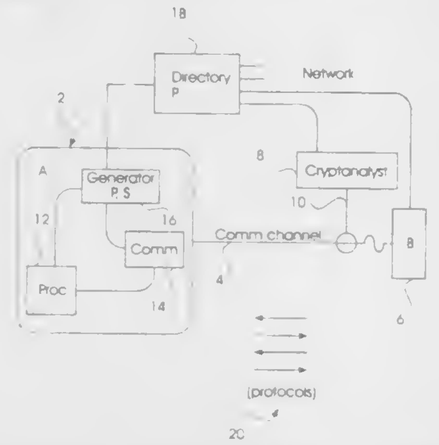
5,737,425
CRYPTOSYSTEM EMPLOYING WORST-CASE DIFFICULT-TO SOLVE LATTICE PROBLEM

Miklos Ajtai, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1996, Ser. No. 646,806

Int. Cl.⁶ H04K *1/00*

U.S. Cl. 380—30 **45 Claims**



1. A cryptographic communications system A comprising:

a communications channel;

means for generating a public key and a corresponding private key based on an instance of a problem, the problem being difficult to solve in the worst case, the instance of the problem being difficult to solve, commensurate with the difficulty of the worst-case solution of the problem, and

means for performing a cryptographic communication protocol, employing the public and private keys generated by the means for generating, with another cryptographic communications system B over the communications channel

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5,737,426
REMOTE AND SECURE FEATURE ENABLING FOR AN ELECTRONIC POSTAGE METER

George M. Brookner, Norwalk, and Hyung-Kim Paul Kim, Wilton, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

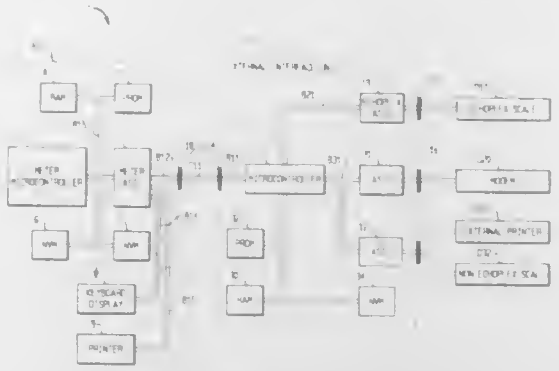
Filed Dec. 13, 1994, Ser. No. 357,175

Int. Cl.⁶ H04L *9/00;* **G06F** *17/00*

U.S. Cl. 380—51 **4 Claims**

1. A postage metering system having a meter and an electronic interface unit (EIU), said meter being in bus communication with said EIU, comprising

said meter having



meter program means for controlling the operation of said meter in response to one or more of a plurality of meter program routines and

a principal communication port in bus communication with said program means;

input means in bus communication with said meter program means for providing operator instruction to said meter program means said EIU having

EIU program means for controlling the operation of said EIU in response to one or more of a plurality of EIU program routines,

a meter port and a plurality of communications ports, said meter port being in bus communication with said principal communication port of said meter,

said meter program means being responsive to said operator instructions for enabling one or more of said meter program routines, and generating EIU instruction messages in response to said operator instruction and communication said EIU instruction message to said EIU over said principal communication bus, and,

said EIU program means being responsive to EIU instruction messages from said meter via said meter port for enabling one or more of said EIU program routines.

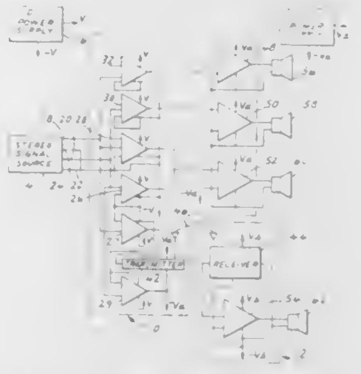
5,737,427
SURROUND SOUND PROCESSOR UNIT

Paul R. Ambourn, 26 Scotch Pine Rd., North Oaks, Minn. 55127

Filed Sep. 9, 1996, Ser. No. 708,839

Int. Cl.⁶ H04R *5/00*

U.S. Cl. 381—18 **20 Claims**



1. A surround sound processor unit comprising:

a first center preamplifier, a second center preamplifier, a first rear preamplifier, and a second rear preamplifier;

a transmitter; and

a center power amplifier, wherein a left audio signal being input into said first center preamplifier and said first rear preamplifier, a right audio signal being input into said second center preamplifier and said second rear preamplifier, the output of said first center preamplifier and said second center preamplifier being input into said center power amplifier, the output of said first rear preamplifier being input into said transmitter, the output of said second rear preamplifier being connected to a ground of said transmitter

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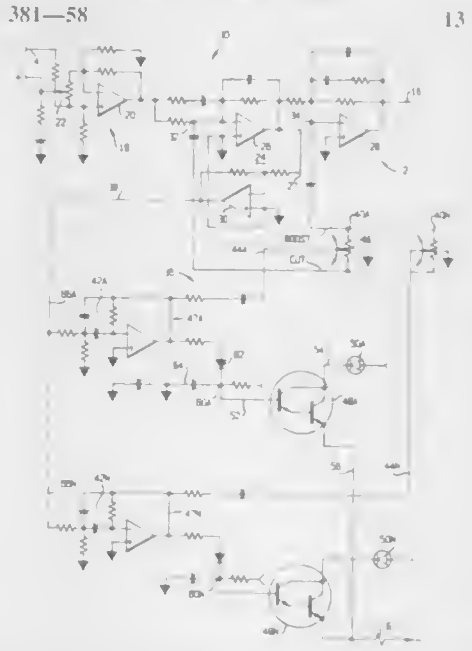
5,737,428
CIRCUIT FOR PROVIDING VISUAL INDICATION OF FEEDBACK

John H. Roberts, Hickory, Miss., assignor to Peavey Electronics Corporation, Meridian, Miss.

Filed Aug. 18, 1995, Ser. No. 516,776

Int. Cl.⁶ H04R *29/00*

U.S. Cl. 381—58 **13 Claims**



1. A circuit for detecting the highest relative signal of a plurality of input signals comprising:

a plurality of peak detector circuits, one each of said peak detector circuits responsively coupled to a corresponding one of said input signals for producing a corresponding switch control signal proportional to the peak value of said input signal;

a plurality of solid state switches including a common connection with each other, one each of said switches responsively coupled to a corresponding one of the peak detector circuits for receiving the switch control signal, the common connection of said switches being operative so that only one of said switches is active at a time in response to the highest switch control signal; and

visual display means including one each responsively coupled to the a corresponding switch and being illuminated upon actuation of said corresponding switch so that a visual indication of only the highest input signal is displayed

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5,737,429
PORTABLE VIEWABLE AND AUDIBLE STETHOSCOPE

Byung Hoon Lee, #7-402, Jinhung Apt., 65, Cheongdam-dong, Kangnam-Ku, Seoul 135-100, Rep. of Korea, 135-100

Filed Mar. 19, 1996, Ser. No. 616,482

Claims priority, application Rep. of Korea, Mar. 28, 1995, 1995/5784

Int. Cl.⁶ A61B *7/04*

U.S. Cl. 381—67 **15 Claims**

1. A portable viewable and audible stethoscope comprising

a pair of sound absorption cups, each of said sound absorption cups provided with an annular rim to permit comfortable, close contact with a patient's body for absorbing sounds produced within the patient's body;

said pair of sound absorption cups further including,

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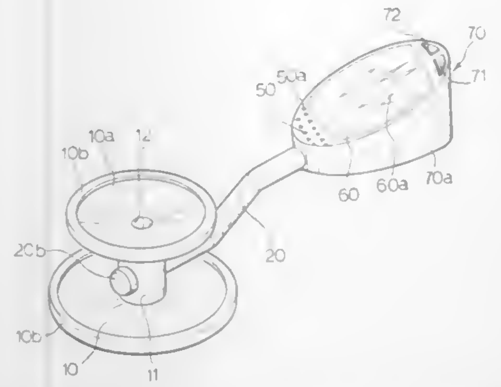


- a first sound absorption cup having a cup diameter sized sufficiently large for absorbing, sounds from a chest area of an adult;
- a second sound absorption cup having a cup diameter sized smaller than said cup diameter of said first sound absorption cup for absorbing sounds from a chest region of a child;

a tubular connector for connecting said pair of sound absorption cups to opposite ends thereof such that said pair of sound absorption cups are disposed in back to back relationship to each other;

a microphone for converting the absorbed sounds to electrical signals;

an electronic circuit assembly for amplifying the electrical signals;

a speaker for outputting sounds;

a picture screen for displaying the curves of the absorbed sounds in graphs;

a hand held case for accommodating said electronic circuit assembly, said speaker and said picture screen; and

a rigid supporting tube including a first end portion, a middle portion and a second end portion, wherein:

said first end portion is integrally coupled to said case;

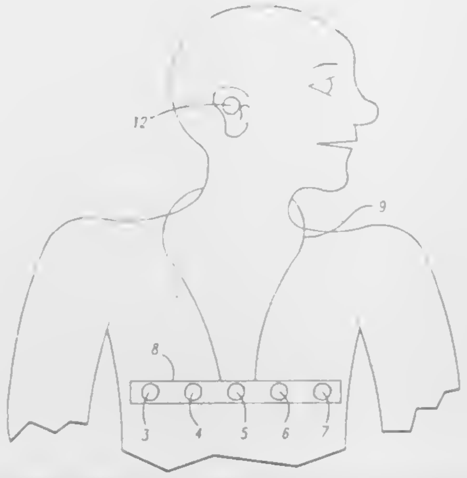
said second end portion is freely rotatably coupled to said tubular connector; and whereby rotation of said tubular connector about said supporting tube permits a desired one of said first and second sound absorption cups to be oriented in a downward position for close contact with the chest region of the patient's body while said case and picture screen are oriented in a desired upward, viewable position.

5,737,430
DIRECTIONAL HEARING AID

Bernard Widrow, Stanford, Calif., assignor to Cardinal Sound Labs, Inc., Stanford, Calif.

Continuation of Ser. No. 328,512, Oct. 25, 1994, abandoned, which is a continuation of Ser. No. 95,836, Jul. 22, 1993, Pat. No. 5,363,680. This application Oct. 16, 1996, Ser. No. 730,807

U.S. Cl. 381—68.1 **4 Claims**



I. A directional hearing aid system including:

an electromagnetic acoustic transducer adapted to be worn in the ear by a user,

an array of spaced microphones for receiving sound and each generating electrical microphone signals representing the sound received by each microphone,

electronic means for receiving each of said electrical microphone signals from the microphone array and generating an output signal representing sound received from a selected direction while attenuating background noise and multipath interference,

an elongated package means extending across the chest of the user for mounting said array of spaced microphones and housing said electronic means,

a conductive neck encircling the neck of the user and secured to the package means at spaced locations to solely directly support the elongated package means and the microphone array substantially horizontally across the chest of the user so the user can position her/his body to receive sound from the selected direction with the back of the user's body blocking sound to all of the microphones from the opposite direction, said neck loop connected to receive said output signal and generate magnetic fields responsive thereto, and

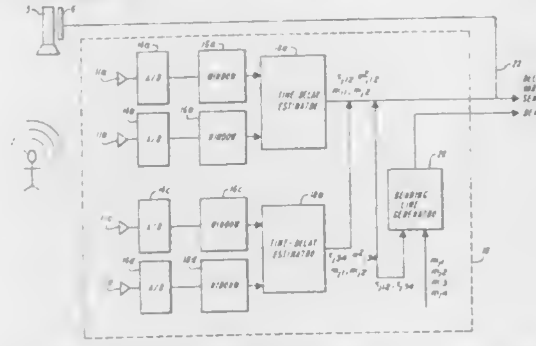
said electromagnetic acoustic transducer including a telecoil coupled to said magnetic fields for applying signals to said electromagnetic acoustic transducer to generate acoustic waves in said ear of the user.

5,737,431
METHODS AND APPARATUS FOR SOURCE LOCATION ESTIMATION FROM MICROPHONE-ARRAY TIME-DELAY ESTIMATES

Michael S. Brandstein; John E. Adcock, both of Providence, and Harvey F. Silverman, East Greenwich, all of R.I., assignors to Brown University Research Foundation, Providence, R.I.

Filed Mar. 7, 1995, Ser. No. 399,427
Int. Cl.^{6} H04R *3/00*

U.S. Cl. 381—92 **21 Claims**



1. Apparatus for determining a location of a source that generates source signals, comprising

A. at least three sensors arranged in a plurality of sets, each set including two or more of sensors,

B. surface-finding means, coupled with said sensors, for responding to receipt of a source signal by the sensors of each set for identifying a geometric surface representing a locus of potential source locations, said geometric surface being defined as a function of locations of the sensors in that set and a time difference of arrival of the source signal at those sensors, and

C. location-approximating means for generating a location signal, said location-approximating means being coupled to said surface-finding means and including

i) identification means for identifying a line representing a further constrained locus of potential source locations, said line being defined as a function of an intersection of surfaces identified by two or more of said sensor sets,

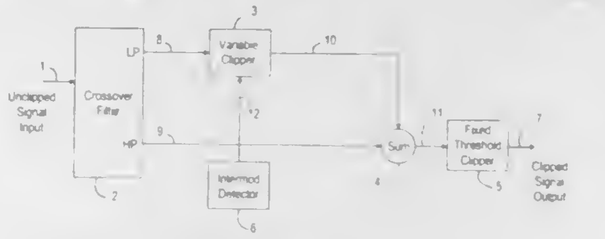
ii) intersection-finding means for generating said location signal representing a location of said source as a function of points of closest intersection of a plurality of said lines.

5,737,432
SPLIT-BAND CLIPPER

Donn R. Werrbach, Glendale, Calif., assignor to Aphex Systems, Ltd., Sun Valley, Calif.

Filed Nov. 18, 1996, Ser. No. 751,411
Int. Cl.^{6} H04B *15/00*

U.S. Cl. 381—94 **18 Claims**



I. A split band clipper, comprising:

a. a crossover filter including a first Nth order lowpass filter, an Nth order allpass filter, a (2N)th order lowpass filter and a first differencer, the first Nth order lowpass and the Nth order allpass filters each having means for receiving an unclipped input signal and producing an output signal, the (2N)th order lowpass filter having means for receiving the unclipped input signal and producing a lowpass output signal, and the first differencer having means for receiving the output signals of the allpass filter and the (2N)th order lowpass filter and producing a highpass output signal;

b. a variable clipper having means for receiving said output signal of said first Nth order lowpass filter which serves to act as the low frequency pre-filter for rejecting the high frequencies from the variable clipper and producing a variably clipped lowpass output signal;

c. a second Nth order lowpass filter having means for receiving said variably clipped lowpass output signal from said variable clipping means and removing the clipping generated harmonics in said variably clipped lowpass output signal of said variable clipping means and producing a filtered variably clipped lowpass output signal;

d. a summing member having means for receiving and adding together said highpass output signal from said first differencer and said filtered variably clipped lowpass output signal from said second Nth order lowpass filter and producing a summed output signal;

e. a fixed clipper having means for clipping said summed output signal from said summing means at a fixed threshold level and producing a clipped output signal;

f. an intermodulation detector including a second differencer, a switch, a rectifier and filter and a peak detector;

g. said second differencer having means for receiving said summed output signal from said summing member and said clipped output signal of said fixed clipper and producing a recovered peak clipped output signal corresponding to clipping of frequencies residing above a crossover frequency;

h. said peak detector coupled between said (2N)th order lowpass filter and said switch for detecting the amplitude of the bass frequency peaks in said unclipped input signal and producing a control pulse output signal for controlling said switch;

i. said switch connected between said second differencer and said rectifier and filter and controlled by said control pulse of said peak detector, such that when said switch is in a closed condition, it allows said peak clipped output signal to flow through to said rectifier and filter to produce a D.C. voltage proportion to the amplitude of said recovered peak clipped output signal, and when said switch is in an opened condition, said rectifier and filter settles to zero, and

j. said rectifier and filter coupled to said variable clipper such that an increasing D.C. output from said rectifier and filter causes a decreasing clip threshold of said variable clipper, but when said rectifier and filter is zero, the threshold of said variable clipper rests slightly below the threshold of said fixed clipper so as to prevent the additional clipping of low frequencies by said fixed clipper

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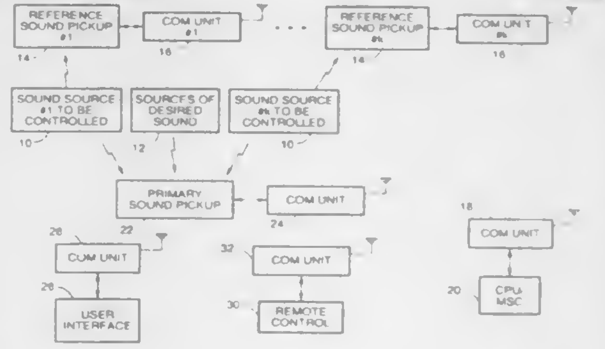
5,737,433
SOUND ENVIRONMENT CONTROL APPARATUS

William A. Gardner, 6950 Yount St., Yountville, Calif. 94599

Filed Jan. 16, 1996, Ser. No. 587,357
Int. Cl.^{6} H04B *15/00*

U.S. Cl. 381—94.7 **23 Claims**



I. A sound environment control apparatus, comprising:

(a) a primary sound pickup;

(b) a reference sound pickup;

(c) signal processing means for processing a composite signal having a signal of interest and an interfering signal acquired by said primary sound pickup, for processing said interfering signal acquired by said reference sound pickup, and for producing an output signal wherein the amplitude of said interfering signal in said output signal can be controlled in relation to the amplitude of said signal of interest,

(d) user interface means, communicating with said signal processing means, for presenting said output signal to a user; and

(e) remote control means, communicating with said signal processing means, for controlling the amplitude of said interfering signal in said output signal;

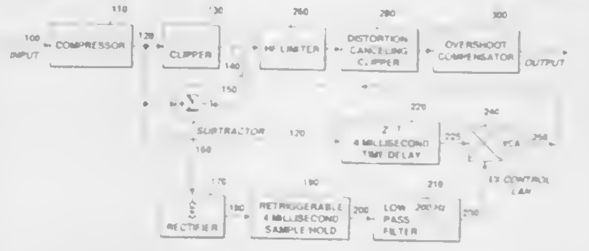
(f) wherein said reference sound pickup is stationary, wherein said reference sound pickup is located remote from said user, and wherein said user may freely move within a sound domain without moving said reference sound pickup.

5,737,434
MULTI-BAND AUDIO COMPRESSOR WITH LOOK-AHEAD CLIPPER

Robert Orban, Belmont, Calif., assignor to Orban, Inc., San Leandro, Calif.

Filed Aug. 26, 1996, Ser. No. 703,026
Int. Cl.^{6} H03G *7/00*

U.S. Cl. 381—106 **10 Claims**



1. An audio processing apparatus comprising

a compressor for compressing an input audio signal,

a peak limiter coupled to the output of the compressor for limiting peaks of the input audio signal after compression by the compressor, the limiter including delaying the input audio

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signal after compression such that the limiting occurs in time coincidence with a control signal developed from the audio signal, the peak limiter also including a center-clipper, retriggerable sample-and-hold circuit and a low-pass filter where a holding period of the sample-and-hold circuit is approximately equal in time to the delaying of the input audio signal after compression; and.

a circuit for providing pre-emphasis coupled to the output of the peak limiter.

5,737,435
SOUND-REPRODUCING APPARATUS COMPRISING AN ACOUSTIC HORN, AND ACOUSTIC HORN FOR USE IN THE APPARATUS

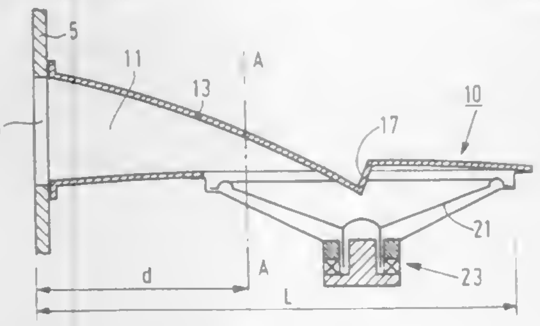
Gerrit F. M. De Poortere, Sint Niklaas, Belgium; Martinus P. M. Van De Thillart, Eindhoven, Netherlands; Guido O. M. D'Hoogh, Dendermonde, Belgium, and Joris A. M. Nieuwendijk, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 21, 1995, Ser. No. 576,625

Claims priority, application European Pat. Off., Dec. 23, 1994, 94203746

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—156 9 Claims



9 An acoustic horn comprising.

an acoustic duct. said duct being bounded by a horn side wall, and having an opening,

wherein the horn side wall is partly formed by a diaphragm which is drivable by a drive mechanism,

characterized in that an obstacle is disposed in the duct near a central part of the diaphragm;

further characterized in that the duct has a cross-section with an area which. as a function of the distance from the opening of the duct. has a local minimum at the location of said obstacle

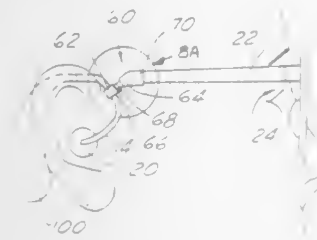
5,737,436
EARPHONES WITH EYEGLASS ATTATCHMENTS

James H. Boyden, Los Altos Hills, Calif., assignor to Interval Research Corporation, Palo Alto, Calif.

Continuation of Ser. No. 530,760, Sep. 19, 1995, abandoned. This application Mar. 27, 1997, Ser. No. 826,477

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—187 10 Claims



1 A portable, wearable communication and entertainment audio system comprising.

an audio mechanism, said audio mechanism comprising a body member adapted to be positioned behind the ear of the user, a tubular member for transmitting audio from said audio mechanism to the ear of a wearer, and an ear insert member positioning said tubular member in the ear;

said ear insert member being made from an acoustically transparent material which allows substantially full acoustic transmission therethrough;

said audio mechanism having a first output transducer in said body member for providing transmission of acoustic sounds in the frequency range of normal human hearing; and

an adapter mechanism for connecting said audio mechanism to the end of a shortened earpiece of a pair of eyeglasses, said shortened earpiece terminating in front of the wearer's ear and said adapter mechanism comprising a first connector member adapted to be attached to said audio mechanism, a second connector member having a socket for attaching to the end of said shortened earpiece, and a selectively releasable attachment mechanism positioned between said first and second connector members.

5,737,437
ADDRESS REGION DETECTING APPARATUS USING CIRCUMSCRIBED RECTANGULAR DATA

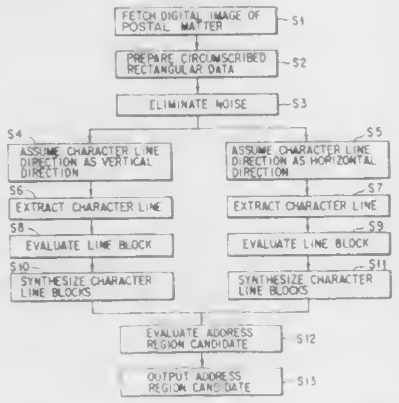
Akihiko Nakao; Nobuaki Takagi, and Yoshikatu Nakamura, all of Yokosuka, Japan, assignors to Kabushiki Kaisha Toshiha, Japan

Filed Mar. 30, 1995, Ser. No. 413,890

Claims priority, application Japan, Mar. 31, 1994, 6-064005

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—101 25 Claims


FETCH DIGITAL IMAGE OF POSTAL MATTER
S1
PREPARE CIRCUMSCRIBED RECTANGULAR DATA
S2
ELIMINATE NOISE
S3
S4
ASSUME CHARACTER LINE DIRECTION AS VERTICAL DIRECTION
S5
ASSUME CHARACTER LINE DIRECTION AS HORIZONTAL DIRECTION
S6
EXTRACT CHARACTER LINE
S7
EXTRACT CHARACTER LINE
S8
EVALUATE LINE BLOCK
S9
EVALUATE LINE BLOCK
S10
SYNTHESIZE CHARACTER LINE BLOCKS
S11
SYNTHESIZE CHARACTER LINE BLOCKS
EVALUATE ADDRESS REGION CANDIDATE
S12
OUTPUT ADDRESS REGION CANDIDATE
S13

1 An address region detection apparatus comprising:

converting means for converting an image having address information on postal matter to a digital image signal formed of a digital electronic signal,

finding means for finding a pixel region associated with the digital image signal in accordance with the digital image signal;

first synthesizing means for synthesizing the pixel region in a direction of a character line so as to form a plurality of character line rectangular regions, and

second synthesizing means for synthesizing the plurality of character line rectangular regions in a direction perpendicular to the character line, thereby detecting an address region including the address information.

5,737,438
IMAGE PROCESSING

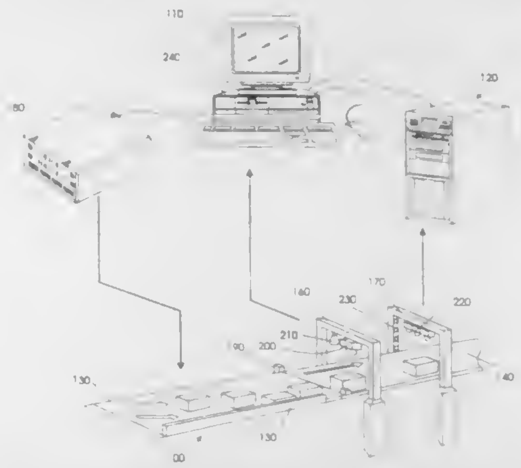
Aviad Zlotnick, Mitzpe Netofa, and Ziva Sommer, Haifa, both of Israel, assignors to International Business Machine Corp., Armonk, N.Y.

PCT No. PCT/EP94/00667, § 371 Date Aug. 20, 1996, § 102(e) Date Aug. 20, 1996, PCT Pub. No. WO95/24278, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 7, 1994, Ser. No. 700,550

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—101 9 Claims



1 Image processing apparatus for locating labels on images of parcels comprising:

means to generate and store in digital form an image of the parcel comprising pixels arranged in rows and columns;

classification logic for classifying each pixel as either a label pixel, a background pixel or neither, based on the pixel color;

segmentation logic for reclassifying each pixel as either label or background based on its original classification and the classification of pixels in its neighborhood; and

identification logic for identifying the boundaries of regions in which all pixels are classified as label pixels

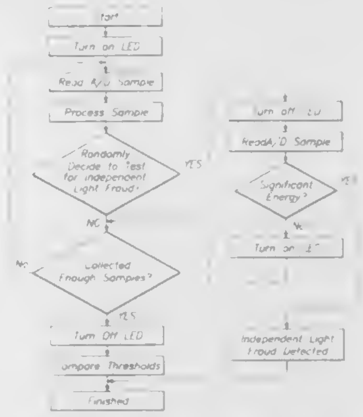
5,737,439
ANTI-FRAUD BIOMETRIC SCANNER THAT ACCURATELY DETECTS BLOOD FLOW

Philip Dean Lapsley, Oakland; Jonathan Alexander Lee, Berkeley; David Ferrin Pare, Jr., Berkeley, and Ned Hoffman, Berkeley, all of Calif., assignors to SmartTouch, LLC., Berkeley, Calif.

Filed Oct. 29, 1996, Ser. No. 739,313

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—115 45 Claims


Turn on LED
Process Sample
Randomly Decide to Test for Independent Light Fraud?
YES
NO
Collected Enough Samples?
No
YES
Turn Off LED
Finished
Read A/D Sample
Significant Energy?
Independent Light Fraud Detected

1 An anti-fraud biometric scanner that determines whether an object exhibits characteristics of blood flow consistent with that of a live human, comprising

a) biometric scanning means for obtaining a biometric sample from the object;

b) blood flow detection means for determining whether the object exhibits characteristics of blood flow consistent with that of a live human, and

c) deception detection means for determining if the object is attempting to deceive the blood flow detection means

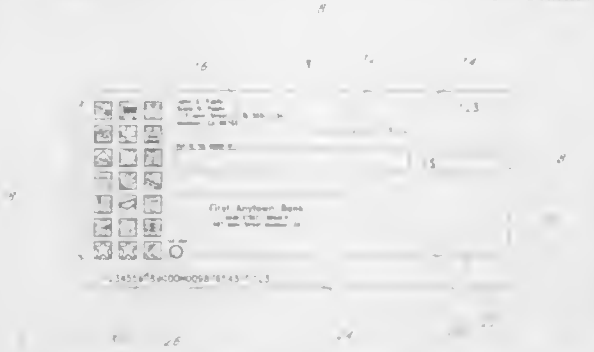
5,737,440
METHOD OF DETECTING A MARK ON A GRAPHIC ICON

Todd M. Kunkler, 11029 Sunburst St., Lakeview Terrace, Calif. 91342

Continuation-in-part of Ser. No. 281,441, Jul. 27, 1994. This application Jun. 7, 1995, Ser. No. 479,912

Int. Cl.⁶ G06K *9/00; 9/20; 9/32; 9/34*

U.S. Cl. 382—137 34 Claims



1 A method of categorizing and/or tracking expenditure transactions comprising the following steps

providing a check substrate having a predetermined number of pictographic icons thereon arranged in a two-dimensional array each said icon being representative of a particular expenditure category and being adapted to receive a mark directly thereon; and

detecting the presence of a mark placed directly on one or more of said pictographic icons by

scanning said substrate to obtain a series of data representative of a bi-level pixel image of said icon array relative to a predetermined PCS level generally above the PCS level of said pictographic icons but generally below the PCS level of a mark placed on one or more of said pictographic icons such that said icons are not detected or are caused to drop out of the resulting pixel image;

locating in said pixel image one or more predetermined reference lines,

detecting in said pixel image the existence of data representative of a mark placed in said icon array relative to said reference lines corresponding to a particular icon position; and

determining the pictographic icon. icon number and/or expenditure category corresponding to said icon position.

5,737,441
ALIGNING METHOD AND APPARATUS

Kenji Nishi, Yokohama, Japan, assignor to Nikon Corporation. Tokyo, Japan

Continuation-in-part of Ser. No. 281,146, Jul. 27, 1994, abandoned, which is a continuation of Ser. No. 984,680, Dec. 2, 1992, abandoned. This application Nov. 30, 1995, Ser. No. 565,250

Claims priority, application Japan, Dec. 12, 1991, 3-328904; Apr. 27, 1995, 7-103891

Int. Cl.⁶ G06K *9/00*

U.S. Cl. 382—151 9 Claims

1 A method of aligning a circular substrate with predetermined direction, whereby the circular substrate is pre-aligned relative to a first stage, comprising the steps of

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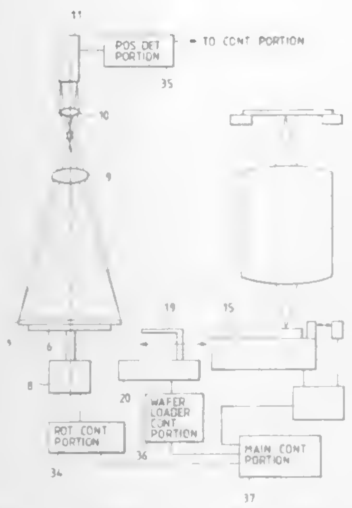


setting said circular substrate on a second stage, which rotates with respect to a center of rotation thereof, such that the center of said substrate substantially coincides with said center of rotation;

detecting positions of a pair of marks which are formed on a peripheral portion of said circular substrate, said detecting including rotating said second stage;

rotating said second stage so as to align said circular substrate with said predetermined direction in accordance with the detected positions of said pair of marks; and

moving the aligned circular substrate from said second stage to said first stage.

5,737,442

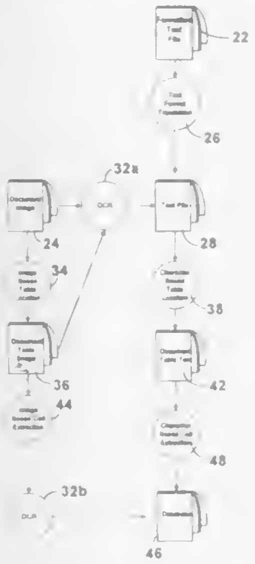
PROCESSOR BASED METHOD FOR EXTRACTING TABLES FROM PRINTED DOCUMENTS

Hassan Alam, San Jose, Calif., assignor to BCL Computers, San Jose, Calif.

Filed Oct. 20, 1995, Ser. No. 546,186

Int. Cl.^{6} G06K *9/00;9/34,9/36;9/46*

U.S. Cl. 382—181 **13 Claims**



1. A processor-based method for recognizing, capturing and storing into a database file unruled tabular data of a document, the document having at least one page, the method comprising the steps of:

receiving into a digital computer digital-computer data representing formatted text present in a document;

processing within the digital computer the digital-computer data to locate unruled tabular data present in the formatted text;

extracting the unruled tabular data from cells present in the digital-computer data by:

establishing white-space-interval vectors for all text lines in which unruled tabular data has been located; and

forming a white-space-vector intersection by intersecting the white-space-interval vectors for all white-space-interval vectors having more than two white-space intervals; and

storing into a database file present on the digital computer the extracted tabular data.

5,737,443

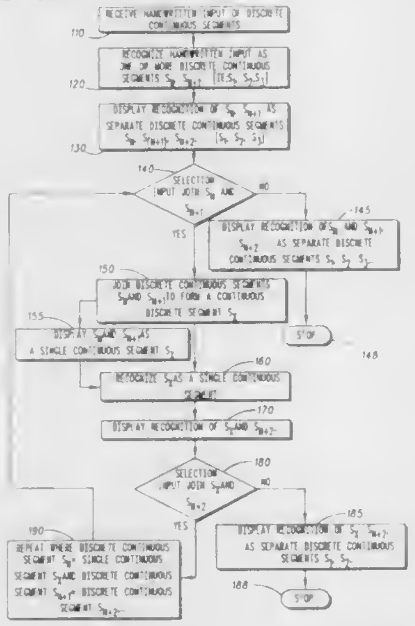
METHOD OF JOINING HANDWRITTEN INPUT

Kenneth J. Guzik, Santa Clara; Alan Paul Huff, Fremont, and John L. C. Seybold, Portola Valley, all of Calif., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 14, 1994, Ser. No. 339,524

Int. Cl.^{6} G06K *9/00;9/34;9/03*

U.S. Cl. 382—188 **24 Claims**


RECEIVE HANDWRITTEN INPUT OF DISCRETE CONTINUOUS SEGMENTS
110
RECOGNIZE HANDWRITTEN INPUT AS ONE OR MORE DISCRETE CONTINUOUS SEGMENTS
120
DISPLAY RECOGNITION OF
SEPARATE DISCRETE CONTINUOUS SEGMENTS
130
140
SELECTION INPUT JOIN
145
DISPLAY RECOGNITION OF
AS SEPARATE DISCRETE CONTINUOUS SEGMENTS
150
155
STOP
148
160
170
180
YES
190
REPEAT WHERE DISCRETE CONTINUOUS SEGMENT
SINGLE CONTINUOUS
185
AS SEPARATE DISCRETE CONTINUOUS SEGMENTS
188
STOP

1. A method for facilitating recognition of handwriting input, comprising the steps of:

receiving electronic data comprising a series of data points that correspond to an original handwritten input;

generating recognized words that correspond to the original handwritten input;

displaying the recognized words;

receiving user selection input comprising a join instruction;

upon receiving the join instruction, automatically joining at least a selected series of data points that correspond to a first portion of original handwritten input with a second series of data points that correspond to a second portion of original handwritten input to provide a joined series of data points;

performing a recognition operation on the joined series of data points; and

displaying a new recognized word that comprises a recognized word that corresponds to the joined series of data points.

5,737,444

BINARY DIGITAL IMAGE FEATURE EXTRACTING PROCESS

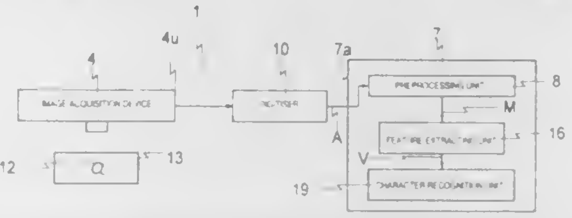
Anna Maria Colla, Piazza Verdi, and Pietro Pedrazzi, Beato Martino, both of Italy, assignors to Ministero Dell 'Universita' E Della Ricerca Scientifica E Technologica, Italy

Continuation of Ser. No. 447,093, May 22, 1995, abandoned. This application Jan. 13, 1997, Ser. No. 782,831

Claims priority, application Italy, May 20, 1994, T094A0411

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—190 **21 Claims**



1. A binary digital image feature extracting process, characterized in that it comprises the steps of

acquiring (**100**) a binary digital matrix (M) of pixels;

defining (**110**) in said matrix (M) at least one elementary portion (F1, F2, ... Fi, ... Fl) of predetermined shape;

selecting (**115**) said at least one elementary portion;

defining (**120**) in said at least one elementary portion at least one analysis direction (j(i));

defining (**130**) within said at least one elementary portion a number of paths K(i, j) parallel to said analysis direction (j(i));

each path being defined by an orderly set of pixels of said matrix (M) arranged approximately parallel to said at least one analysis direction;

examining (**140**, **155**, **156**) said paths to determine, for each path examined, the pixels presenting a predetermined characteristic, and to calculate, based on said predetermined characteristic, at least one number (Ni, j, k, l) for each path examined;

calculating (**145**, **150**) a score (Ti, j, k, l; Pi, j, k) for each path by applying a function f(x) to said number (Ni, j, k, l), and

grouping (**160**) said scores (Ti, j, k, l; Pi, j, k) for said at least one analysis direction (j(i)) to obtain a directional primitive feature (Si, j) for said analysis direction (j(i)).

5,737,445

AUTOMATED FEATURE DETECTION AND IDENTIFICATION IN DIGITAL POINT-ORDERED SIGNALS

Jane E. Oppenlander, Burnt Hills; Kent C. Loomis, Clifton Park; David M. Brudnoy, Albany, and Arthur J. Levy, Schenectady, all of N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 20, 1995, Ser. No. 425,758

Int. Cl.^{6} G06K *9/46;* **G06F** *15/46*

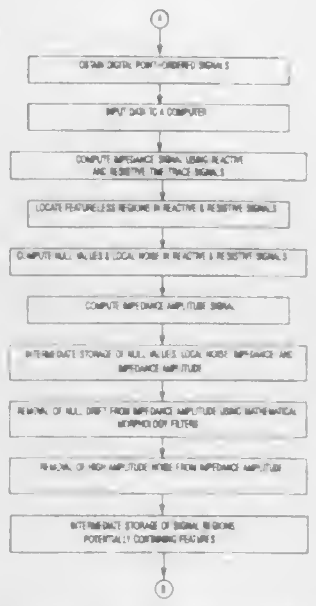
U.S. Cl. 382—207 **23 Claims**

1. A computer implemented information-extraction method that locates and identifies features in digital point-ordered signals, said signals representing data from test material containing one or more known physical features, wherein said method is independent of the number and position of said features, comprising the steps of

(a) obtaining data from said test material in the form of digital point-ordered signals;

(b) inputting said digital point-ordered signals into a computer,

(c) processing said digital point-ordered signals to remove noise, wherein said processing includes determining the null values of said signals independent of irrelevant signal features including regions of high amplitude noise, removing long-term signal trends, including null drifting, by morphological filtering of said signals, and locating and removing noise regions of high signal amplitude in said signals,


INPUT DATA TO A COMPUTER
COMPUTE IMPEDANCE AMPLITUDE SIGNAL
INTERMEDIATE STORAGE OF SIGNAL REGIONS POTENTIALLY CONTAINING FEATURES

(d) detecting features of said signals, representing known features of said test material, using a computer assisted morphological filtering process to locate positions of peaks of said signal features using peak width filters of progressively smaller size,

(e) verifying any features detected in said signals using a computer implemented expert system of signal pattern recognition and applying geometric criteria, and

(f) outputting information about the identity and location of any detected known features of said test material

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5,737,446

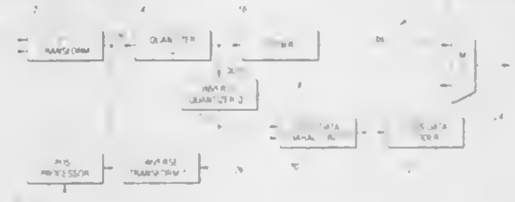
METHOD FOR ESTIMATING HIGH FREQUENCY COMPONENTS IN DIGITALLY COMPRESSED IMAGES AND ENCODER AND DECODER FOR CARRYING OUT SAME

Ronnie R. Burns, Irvine, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Sep. 9, 1996, Ser. No. 709,696

Int. Cl.^{6} H04N *1/415*

U.S. Cl. 382—232 **14 Claims**



1. A method for performing a data compression on an original image and for estimating high frequency components of the original image lost during a data compression stage, the data compression stage including quantized and unquantized frequency domain coefficients of the high frequency components, the method comprising the steps of:

performing an inverse quantization on the quantized coefficients to obtain lossy frequency domain coefficients,

determining loss characteristics identifying the type of loss associated with the high frequency components based on the unquantized frequency domain coefficients and the lossy frequency domain coefficients, and

coding the loss characteristics to obtain coded descriptors

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DEVICE FOR HIERARCHICAL ESTIMATION OF THE MOTION OF IMAGE SEQUENCES

François Bourdon; Philippe Guillotel, both of Rennes, and Jean-Yves Aubie, Ventabren, all of France, assignors to Thomson-CSF, Paris, France

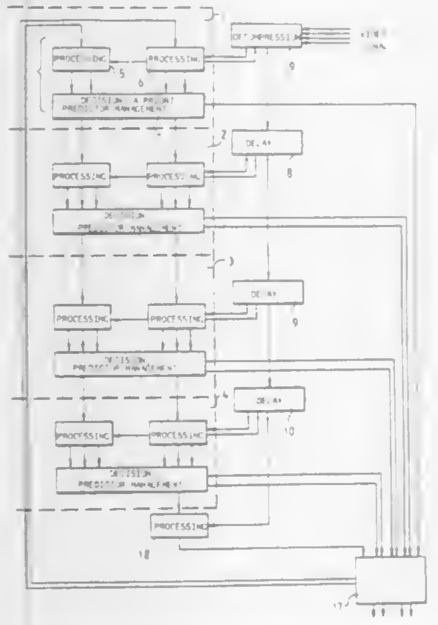
PCT No. PCT/FR93/01241, § 371 Date Dec. 18, 1995, § 102(e) Date Dec. 18, 1995, PCT Pub. No. WO94/15436, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 14, 1993, Ser. No. 464,626

Claims priority, application France, Dec. 24, 1992, 92 15709

Int. Cl.^{6} G06K *9/36*

U.S. Cl. 382—236 **7 Claims**



1. A device for hierarchical estimation of the motion of image sequences, comprising:

a set of cascaded processing macromodules organized in accordance with hierarchical levels, each macromodule of said set of cascaded macromodules being structured so as to partition a current image into blocks of a determined size, a size corresponding to a hierarchical level in order to provide a motion vector field to a block of a lower hierarchical level corresponding to a lower size,

first circuits for calculating a displaced inter-image differences DFDi and gradients based on luminance values of pixels of the current image and of displacement vectors of each image preceding and following the current image;

second circuits for performing summations, on a block, of the displaced inter-image differences; and

third circuits for performing corrections of the displacement vectors of the current image.

5,737,448
METHOD AND APPARATUS FOR LOW BIT RATE IMAGE COMPRESSION

Thomas R. Gardos, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Jun. 15, 1995, Ser. No. 490,823

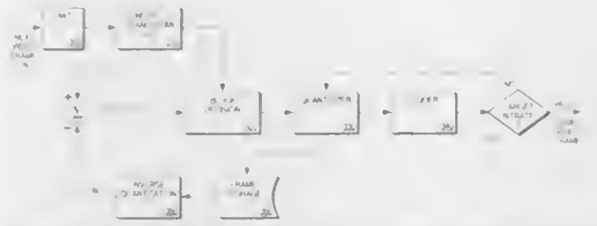
Int. Cl.^{6} G06K *9/36; 9/46;* **H04N** *1/41*

U.S. Cl. 382—240 **36 Claims**

32. An apparatus to reduce the amount of memory required to store a digital image, the apparatus comprising:

means for transforming the image into a plurality of blocks, each block comprising a matrix of pixels;

means for ordering the pixels in each block to form a plurality of ordered blocks;



means for computing a first coefficient count by adding a number of nonzero pixels in the ordered block to a number of runs of zero valued pixels in the ordered block;

means for computing an inter block by subtracting the pixels in the ordered block from the pixels in a second ordered block in a second image;

means for computing a second coefficient count by adding a number of non-zero pixels in the inter block to a number of runs of zero valued pixels in the inter block;

means for making a block decision, the means for making the block decision further:

- discarding the block from the image if the second coefficient count is less than a first threshold value;
- replacing the block with the inter block if the second coefficient count is greater than the first threshold value but less than a second threshold value; and
- replacing the block with the inter block if the second coefficient count is greater than the second threshold value and less than a sum of the first coefficient count plus an adjustment.

5,737,449
APPARATUS FOR ENCODING A CONTOUR OF REGIONS CONTAINED IN A VIDEO SIGNAL

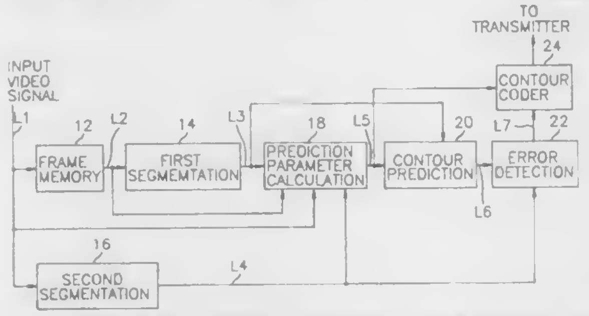
Min-Sup Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 580,237

Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38606

Int. Cl.^{6} G06K *9/36; 9/48*

U.S. Cl. 382—242 **6 Claims**



1. An apparatus for encoding a contour of regions contained in a video signal, the video signal having a plurality of frames including a current frame and a previous frame, which comprises:

first segmentation means for segmenting the previous frame into a number of regions to generate a previous contour;

second segmentation means for segmenting the current frame into a number of regions to generate a current contour;

means for generating prediction parameters based on the previous and the current contours, and the previous and the current frames;

means for constructing a predicted current contour by transforming the previous contour based on the prediction parameters;

means for detecting deviation points lying on portions of the predicted current contour that deviate from the current contour, to thereby generate the deviation points and corresponding displacements to the deviation points, wherein each of the displacements represents a minimum distance in a horizontal direction between each of the deviation points and the current contour;

means for encoding the deviation points and the displacements together with the prediction parameters;

contour reconstruction means for relocating the deviation points based on the displacements and producing a reconstructed current contour from the predicted current contour;

means for taking N sample points on each of a plurality of line segments, each line segment joining two neighboring relocated deviation points on the reconstructed current contour, and calculating an error for each of the N sample points on each of the line segments to produce a set of errors for said each of the line segments, wherein the N sample points are equi-spaced on said each of the line segments and each of the errors represents a distance between each of the N sample points and the current contour;

means for summing up the set of errors to provide a similarity index;

control means for sequentially providing the feature point selection means with one or more grids until a similarity index obtained based on one of said one or more grids becomes smaller than a predetermined threshold value and generating a grid index indicating the grid related to the similarity index smaller than the predetermined threshold value; and

means for encoding the grid index;

wherein said prediction parameter generation means includes:

means for determining a predetermined number of vertex points on the previous contour to generate vertex information representing the positions of the vertex points on the previous contour;

means for generating vertex point blocks from the previous frame based on the vertex information, each of the vertex point blocks having a vertex point at the center thereof,

means for defining a search region of the current frame and generating a plurality of equal-sized candidate blocks from the search region, each of the candidate blocks is chosen such that its center pixel is a pixel forming a part of the current contour;

means for detecting predicted vertex points by performing a block matching algorithm between a vertex point block and each of the plurality of candidate blocks to generate predicted vertex information representing the positions of the predicted vertex points; and

means for generating the prediction parameters based on the vertex information and the predicted vertex information, and

wherein said deviation point detection means includes,

- feature point selection means for selecting a number of points from the points on the predicted current contour as feature points by using a grid, wherein the feature points represent intersection points between the grid and the predicted current contour; and
- means for determining the deviation points among the feature points, lying on portions of the predicted current contour that deviate from the current contour, and calculating the displacements for the deviation points, to thereby produce the deviation points and the corresponding displacements.

5,737,450
METHOD AND APPARATUS FOR FAST TWO-DIMENSIONAL COSINE TRANSFORM FILTERING

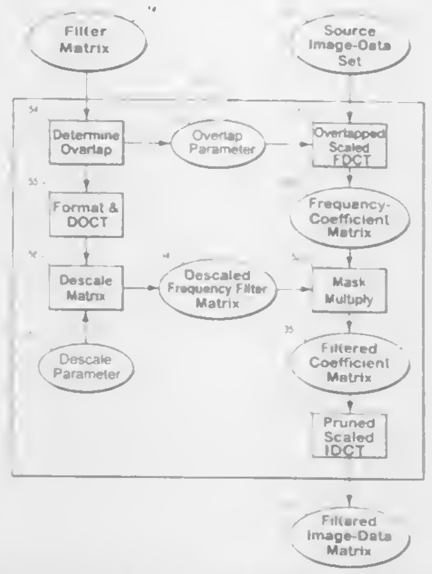
Ibrahim Hajjahmad, Malden, and Munib A. Wober, Haverhill, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed May 15, 1995, Ser. No. 441,383

Int. Cl.^{6} G06K *9/40*

U.S. Cl. 382—260 **26 Claims**

1. A method for applying an image filter to an image signal, the image signal provided as a series of electrical signals, each electrical signal corresponding to a characteristic of an element of a two-dimensional image, the image elements configured as a two-dimensional H×V array, and the image filter provided as a set of filter terms configured as a k×k filter matrix, said method comprising the steps of:



converting the series of electrical signals into a set of numerical values, each said numerical value quantitatively describing a feature characteristic of a corresponding image element, said numerical values further denoted by $d(s,r)$ where $0\leq r\leq H-1$ and $0\leq s\leq V-1$;

formatting said set of numerical values into a plurality of N×N overlapped image data matrices identified by indices 'p' and 'q', each said overlapped image-data matrix comprising image-data terms denoted by $s_{q,p}(j,i)$, each said image data term comprised of a said numerical value determined in accordance with the relationship,

$$s_{q,p}(j,i)=d(j+q\omega,i+p\omega)$$

where $0\leq i,j\leq N-1$ and ω is an integer constant satisfying the condition $1\leq\omega\leq N-1$;

transforming each said image-data matrix into an N×N frequency-coefficient matrix comprising scaled frequency-coefficient terms denoted by $S_{q,p}(v,\mu)$, said step of transforming each said image-data matrix accomplished by means of a scaled orthogonal transform Gs in accordance with the expression,

$$S_{q,p}(v,\mu)=Gs\times s_{q,p}(j,i)\times Gs^{T},$$

converting the k×k filter matrix into an N×N spatial-domain filter matrix comprising terms denoted by $f(j,i)$;

transforming said spatial-domain filter matrix into an N×N descaled frequency filter matrix comprising descaled frequency filter terms denoted by $Fd(v,\mu)$, said step of transforming said spatial-domain filter matrix accomplished by means of a descaled orthogonal transform Hs in accordance with the expression,

$$Fd(v,\mu)=Hs\times f(j,i)\times Hs^{T},$$

multiplying said descaled frequency filter matrix with each said frequency-coefficient matrix to produce at least one N×N filtered coefficient matrix comprising terms denoted by $Fc(v,\mu)$, said step of multiplying accomplished in accordance with the expression,

$$Fc_{q,p}(v,\mu)=Fd(v,\mu)\times S_{q,p}(v,\mu),$$

inverse transforming each said filtered coefficient matrix into an N'×N' filtered image-data matrix comprising filtered image data terms, where N'<N, said step of inverse transforming accomplished by means of a pruned scaled inverse orthogonal transform Js; and

converting said filtered image-data terms into a series of filtered electrical signals such that said filtered electrical signals can be configured into a two-dimensional H×V array of filtered image elements, each said filtered electrical signal corresponding to a characteristic of one said filtered image element.

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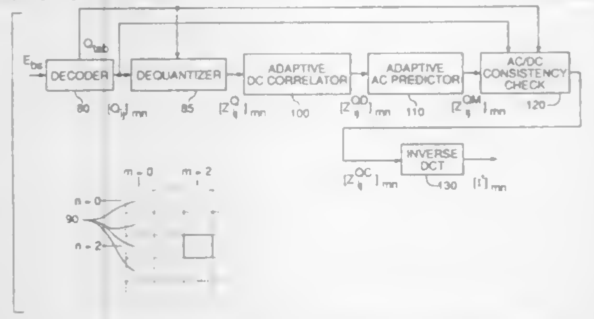
5,737,451
METHOD AND APPARATUS FOR SUPPRESSING BLOCKING ARTIFACTS IN BLOCK-TRANSFORM CODED IMAGES

Bhavan R. Gandhi; Majid Rabbani, both of Pittsford, and Rodney L. Miller, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 10, 1996, Ser. No. 630,553

Int. Cl.^{6} G06T *5/00;9/00;* **H04N** *1/409;1/415*

U.S. Cl. 382—268 **32 Claims**



1 An improved method for removing blocking artifacts in regions of slowly varying intensity in an electronic image decoded from a transform-coded representation of an image, the method comprising the steps of:

(a) receiving signals indicative of DC and AC coefficient values of transformed blocks of image data;
(b) dequantizing the quantized coefficient values;
(c) modifying the DC value in each of the blocks based on the level of activity within the block and the DC values in neighboring blocks;
(d) replacing the AC values in each block with the AC predicted values based on the modified DC values in the block and in neighboring blocks; and
(e) reconstructing the image using the modified DC and AC coefficient values.

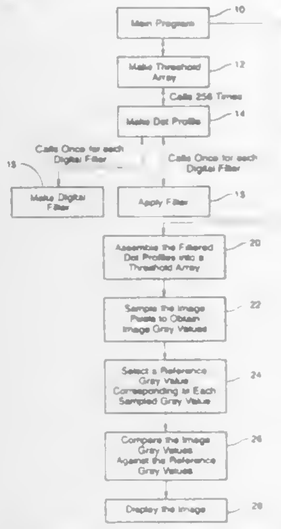
5,737,452
METHOD OF GENERATING A THRESHOLD ARRAY

Stephen N. Schiller, Hayward, Calif., assignor to Adobe Systems Incorporated, San Jose, Calif.

Continuation of Ser. No. 236,493, Apr. 29, 1994, abandoned. This application Dec. 17, 1996, Ser. No. 755,803

Int. Cl.^{6} H04N *1/40;* **G06K** *9/38;9/40*

U.S. Cl. 382—270 **5 Claims**


Main Program
10
Make Threshold Array
12
Calls 256 Times
Make Dot Profile
14
Calls Once for each Digital Filter
Calls Once for each Digital Filter
15
Make Digital Filter
Apply Filter
18
Assemble the Filtered Dot Profiles into a Threshold Array
20
Sample the Image Pixels to Obtain Image Gray Values
22
Select a Reference Gray Value Corresponding to Each Sampled Gray Value
24
Compare the Image Gray Values Against the Reference Gray Values
26
Display the Image
28

1. A method of displaying on a digital display device an image made up of a plurality of pixels, each having a particular color, using a threshold array made up of a plurality of dot profiles, the dot profiles being made up of a plurality of black or white pixels, certain of the pixels in certain of the dot profiles being constrained to be either black or white, the method using a plurality of digital filters, comprising the following steps:

(1) assigning a value to each unconstrained pixel of one of the dot profiles, each such value being interpretable as one of the two colors black or white;
(2) based upon whether a function of a digital filter value at a predetermined pixel is different from a predetermined desired value at such pixel, adjusting the value assigned to that particular pixel such that in some instances, the adjusted value is interpretable as the other of the two colors; and
(3) repeating step (2) for additional pixels in the dot profile until the entire dot profile has been covered;
(4) changing the digital filter and repeating steps (2) and (3) for the same dot profile;
(5) repeating steps (1) through (4) for each of the dot profiles in the threshold array, whereby the resulting dot profiles are substantially free of artifacts;
(6) assembling the dot profiles into a threshold array made up of a set of reference gray values;
(7) sampling the image to be reproduced at each pixel of the display device to obtain an image gray value;
(8) selecting a reference gray value for that pixel from the threshold array corresponding to the sampled image gray value for that pixel,
(9) comparing the image gray value for that pixel against the reference gray value for that pixel to obtain the color of the pixel to be displayed;
(10) displaying an image on the digital display device, including each of the pixels with the color determined by the comparison of step (9).

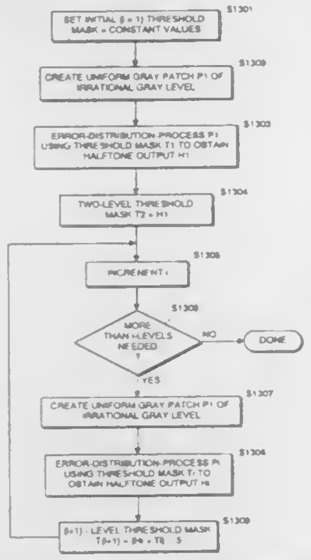
5,737,453
ENHANCED ERROR-DIFFUSION METHOD FOR COLOR OR BLACK-AND-WHITE REPRODUCTION

Victor Ostromoukhov, Lausanne, Switzerland, assignor to Canon Information Systems, Inc., Costa Mesa, Calif.

Filed May 17, 1996, Ser. No. 651,042

Int. Cl.^{6} G06K *9/40*

U.S. Cl. 382—275 **26 Claims**


SET INITIAL (j = 1) THRESHOLD MASK = CONSTANT VALUES
S1301
CREATE UNIFORM GRAY PATCH P1 OF IRRATIONAL GRAY LEVEL
S1302
ERROR-DISTRIBUTION-PROCESS P1 USING THRESHOLD MASK T1 TO OBTAIN HALFTONE OUTPUT H1
S1303
TWO-LEVEL THRESHOLD MASK T2 = H1
S1304
INCREMENT i
S1305
MORE THAN i LEVELS NEEDED ?
S1306
NO
DONE
YES
CREATE UNIFORM GRAY PATCH Pi OF IRRATIONAL GRAY LEVEL
S1307
ERROR-DISTRIBUTION-PROCESS Pi USING THRESHOLD MASK Ti TO OBTAIN HALFTONE OUTPUT Hi
S1308
(i+1) - LEVEL THRESHOLD MASK T(i+1) = (Hi + Ti) / 2
S1309

1. A method for generating a threshold mask, the threshold mask being usable by an error diffusion halftoning process which generates halftone images by comparing gray-level pixel values against thresholds in the threshold mask, the method comprising the steps of:

defining a first gray-level patch having a constant gray level whose value is irrational;
error-diffusing the first gray level patch against a constant threshold, so as to obtain a first intermediate threshold mask;
defining a second gray-level patch having a constant gray level whose value is irrational;
error diffusing the second gray-level patch against thresholds in the first intermediate threshold mask, so as to obtain a second intermediate threshold mask; and
combining the first and second intermediate threshold masks so as to generate the threshold mask.

5,737,454
FACSIMILE SYSTEM HAVING A FUNCTION OF PROCESSING A PERSONAL MESSAGE AND A METHOD THEREFOR

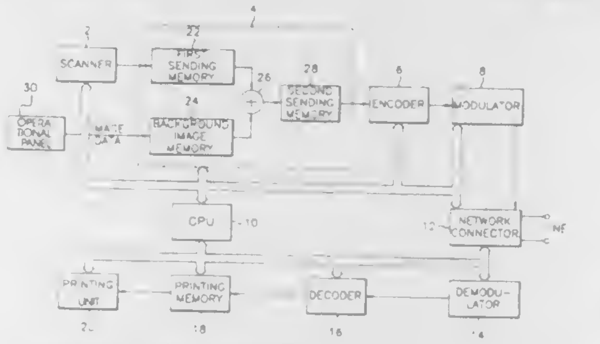
You-Il Park, Suwon, and Yoon-Soo Kim, Seongnam, both of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 24, 1995, Ser. No. 562,553

Claims priority, application Rep. of Korea, Nov. 25, 1994, 1994 31162

Int. Cl.^{6} H04N *1/44*

U.S. Cl. 382—284 **20 Claims**



1 A facsimile device comprising.

an operational panel including a plurality of discrete keys that are independently operable by manual depression from a user;
a scanner for scanning a document bearing information and obtaining first image data representative of said information.
means for generating second image data representative of a confidential message directly input manually by the user via said discrete keys from said operational panel to be printed in the background of said first image data;
data storing means for additively storing said second image data in said first image data;
encoding means for generating encoded data by encoding composite image data stored in said data storing means representative of said information on the document and said confidential message in the background of said information; and
modulating means for modulating and transmitting said encoded data to a remote recipient station via a telephone line for enabling said remote recipient station to print said encoded data having said confidential message in the background

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5,737,455
ANTIALIASING WITH GREY MASKING TECHNIQUES

Steven J. Harrington, Holley, and R. Victor Klassen, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

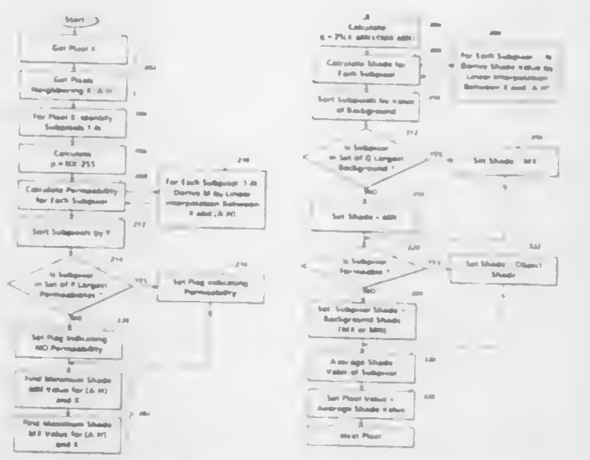
Filed Dec. 12, 1994, Ser. No. 353,763

Int. Cl.^{6} G06K *9/36;* **H04N** *1/40;1/36*

U.S. Cl. 382—284 **23 Claims**

1 A method of combining continuous tone foreground and background images, said images comprised of pixels each assigned a mask value and a shade value, including:

1) providing a background image including pixels having a shade value, and at least one foreground image including pixels having a mask value and a shade value, wherein said received background and foreground images are received at a common resolution;
2) providing a high resolution version of a pixel of interest in the foreground image and the background image, including a plurality of subpixels,



3) assigning a mask value and a shade value to each subpixel as a function of its position in the pixel of interest and the values of nearest neighbors of the pixel of interest,
4) combining the assigned values for each subpixel in the pixel of interest to determine a final output value for the pixel of interest, whereby the combined image has an improved edge between the foreground and background images

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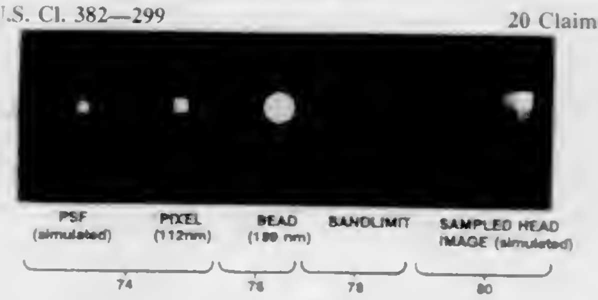
5,737,456
METHOD FOR IMAGE RECONSTRUCTION

Walter A. Carrington, Worcester, and Kevin E. Fogarty, Hubbardston, both of Mass., assignors to University of Massachusetts Medical Center, Worcester, Mass.

Filed Jun. 9, 1995, Ser. No. 488,938

Int. Cl.^{6} G06K *9/42*

U.S. Cl. 382—299 **20 Claims**



1 A method for processing a digitized image to form a processed image, said method comprising:

generating a digitized image using an image-measuring system and representing said image as a vector g.
determining for said measuring system a point spread function (PSF) and representing said PSF as a function k(x,y,z), said PSF comprising sub-pixels having a closer spacing than points in said vector g, and
processing said vector g and said function k(x,y,z) by
(a) selecting a vector c;
(b) calculating the value of Ψ(c) using said vector g, said selected vector c, and said function k(x,y,z), where

and wherein α is a balancing term and V is a volume element.

$$\Psi(c) = \frac{1}{2}\left[\int \left(\max\left(0, \sum_{i=1}^{N} c_i k_i(x,y,z) \right) \right) dx\,dy\,dz + \alpha c \right] \sum_{1}^{N} c\,g$$

and,

(c) iteratively repeating steps (a) and (b) to determine a value for c that minimizes Ψ(c), and,
reconstructing said digitized image to form said processed by including in

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$$f(x,y,z) = \max\left(0, \sum_{i=1}^{N} c_i k_i(x,y,z)\right)$$

said value for c that minimizes Ψ(c) so that said processed image comprises sub-pixels having a closer spacing than said points of said vector g.

5,737,457

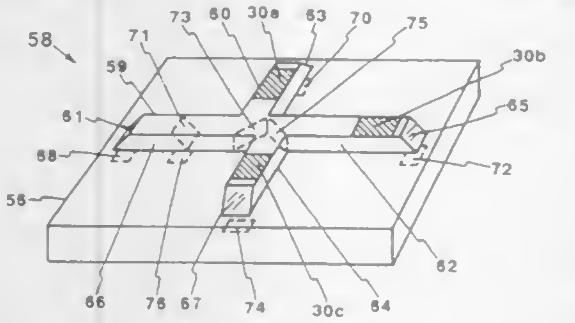
CHIP LEVEL WAVEGUIDE SENSOR

Devinder P. Saini; Stanley M. Klainer, and Stephen L. Coulter, all of Henderson, Nev., assignors to FCI - FiberChem, Inc., Las Vegas, Nev.

Continuation of Ser. No. 511,959, Aug. 7, 1995, Pat. No. 5,650,123, which is a continuation-in-part of Ser. No. 201,796, Feb. 25, 1994, Pat. No. 5,439,647. This application Jan. 16, 1996, Ser. No. 587,231

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—12 22 Claims



1. An optical sensor comprising:

a modular substrate having at least one light source and at least one light detector formed internally therein and covered by an optically transparent material;

a waveguide structure mounted on said substrate and extending over said at least one source and at least one detector, said waveguide structure including direction turning means for guiding light from said at least one source into said waveguide structure and direction turning means for guiding light from said waveguide structure to said at least one detector;

a sensing region formed on or in a portion of the waveguide structure, wherein the sensing region is a sensing chemistry selected from the group consisting of inorganics, organics, polymers, metals, metal compounds, and organometallics; a sensing biochemistry selected from the group consisting of antibodies, enzymes, microbes and bioinorganics; or an uncoated portion of the waveguide which acts as a sensing element.

5,737,458

OPTICAL LIGHT PIPE AND MICROWAVE WAVEGUIDE INTERCONNECTS IN MULTICHIP MODULES FORMED USING ADAPTIVE LITHOGRAPHY

Robert John Wojnarowski, Ballston Lake; Herbert Stanley Cole, Scotia, and John Lawrence Henkes, Latham, all of N.Y., assignors to Martin Marietta Corporation, Bethesda, Md.

Division of Ser. No. 37,833, Mar. 29, 1993, Pat. No. 5,562,838. This application Mar. 22, 1995, Ser. No. 408,236

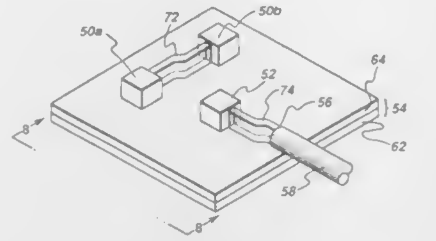
Int. Cl.^{6} G02B *6/132, 6/30*

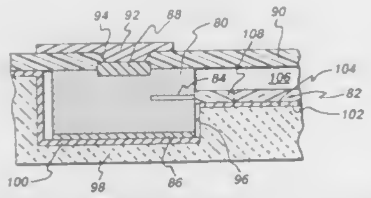
U.S. Cl. 385—15 8 Claims

1. An adaptive method for making an optical coupling to an electro-optical device on a substrate and electrically connected in a high density interconnect structure including at least one layer of polymer dielectric material bonded to a major surface of the electro-optical device and a metallization layer over the layer of polymer dielectric electrically connected through a via in the polymer dielectric layer to a contact pad on the electro-optical device, said device being situated within predetermined tolerances from an ideal position and orientation on the substrate, the method comprising the steps of:

determining the actual position and orientation of the device on the substrate; and

adaptively forming an optical waveguide optically coupled to the device, the optical waveguide being formed along a route adapted as required for a proper optical coupling to the device in its actual position and orientation.





5,737,459

LOSS INTERFEROMETRIC POWER COMBINER COMPRISING A FEEDBACK CIRCUIT

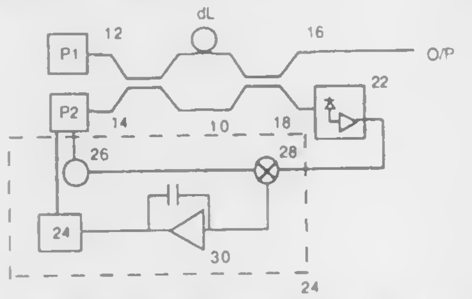
Richard Edward Epworth, Sawbridgeworth, and Jonathan Paul King, Epping, both of United Kingdom, assignors to Northern Telecom Limited, Montreal, Canada

Filed Sep. 14, 1995, Ser. No. 528,640

Claims priority, application United Kingdom, Sep. 27, 1994, 9419454

Int. Cl.^{6} G02B *6/26*

U.S. Cl. 385—15 16 Claims



1. An interferometric optical coupler comprising first and second input ports, an output port and an output monitoring port, wherein first and second lasers are coupled to respective input ports and a photo detector comprises part of a feedback circuit, wherein each laser operates in a dither fashion about a centre frequency and wherein the feedback circuit is operable to control the centre frequency of both lasers.

5,737,460

APPLICATIONS OF SOLITONS IN TRANSMISSION SYSTEMS EMPLOYING HIGH LAUNCH POWERS

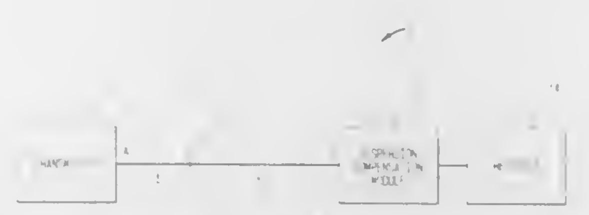
Theodoor Charlouis Damen, Colts Neck; Per Bang Hansen, Bradley Beach, both of N.J.; Herman Anton Haus, Lexington, Mass., and Rogers Hall Stolen, Rumson, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 29, 1995, Ser. No. 580,910

Int. Cl.^{6} G02B *6/28*, **H04B** *10/00*

U.S. Cl. 385—24 12 Claims

1. A method for launching a sequence of optical pulses into a transmission system, comprising the steps of



generating a sequence of pulses of electromagnetic radiation of a given wavelength;

launching the sequence of pulses into a first optical fiber span at an input location, the sequence of pulses forming fundamental solitons having a pulse width at the input location,

propagating the solitons a distance through a first optical fiber span without amplification until the pulse width of the solitons adiabatically broadens and an average power of the solitons decreases such that self-phase modulation in the first optical fiber span becomes insignificant;

propagating the solitons through a second optical fiber span without amplification to an output location; and

detecting the solitons at the output location.

5,737,461

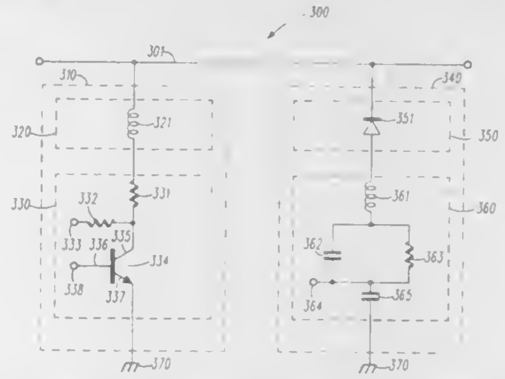
METHODS AND FILTER FOR ISOLATING UPSTREAM INGRESS NOISE IN A BI-DIRECTIONAL CABLE SYSTEM

Stuart Baker Sanders, and Vivian Therese Lund, both of Lindenhurst, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 9, 1996, Ser. No. 644,029

Int. Cl.^{6} G02B *6/34*

U.S. Cl. 385—27 8 Claims



1. A method for isolating upstream ingress noise on a bi-directional cable system comprising a cable control unit, a plurality of cables, and a plurality of cable access units, each one of said plurality of cables having an upstream band and a downstream band for carrying upstream signals and downstream signals, respectively, each one of said plurality of cable access units comprising an associated upstream ingress filter, each of said ingress filters comprising a DC switching element for changing a DC voltage on said one of said plurality of cables and a switchable notch filter responsive to said DC switching element for making an ingress noise measurement, said DC switching element and said switchable notch filter being in parallel to each other and said one of said plurality of cables said method comprising the steps of

activating at least one of said upstream ingress filters to prevent said upstream signals and any associated ingress noise from being transmitted from said one of said plurality of cable access units;

measuring said upstream ingress noise during said step of activating to determine a first upstream ingress level;

comparing said first upstream ingress level with a predetermined threshold level; and

determining whether or not one or more of said plurality of cable access units are responsible for introducing upstream ingress noise to said cable system in response to said step of comparing.

5,737,462

RADIATION COUPLING ARRANGEMENTS WITH FREE ELECTRON REMOVAL

Andrew Ian Whitehouse, Cumbria; Aled Wyn Williams, and Richard Marc Perks, both of Swansea, all of United Kingdom, assignors to British Nuclear Fuels plc, Warrington, England

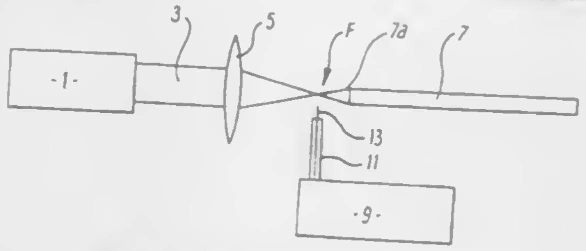
PCT No. PCT/GB95/00889, § 371 Date Aug. 1, 1996, § 102(e) Date Aug. 1, 1996, PCT Pub. No. WO95/29417, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 20, 1995, Ser. No. 571,851

Claims priority, application United Kingdom, Apr. 21, 1994, 9407893

Int. Cl.^{6} G02B *6/32*

U.S. Cl. 385—31 20 Claims



14. An optical apparatus, comprising

a laser for producing an output laser beam,

an optical guide for guiding a focused laser beam incident on the optical guide;

a focusing lens, positioned between the laser and the optical guide such that the focusing lens contacts the output laser beam, for forming the focused laser beam, wherein the focused laser beam follows a path, having a path length, that extends from the focusing lens to the optical guide and wherein free electrons are present along at least a portion of the path length, and

a sharp point electrode for applying a localized electric field along a first portion of the path to remove at least a portion of the free electrons along the first portion of the path, the first portion of the path having a length less than the path length.

5,737,463

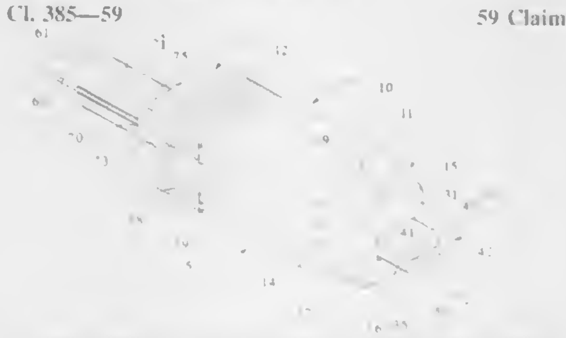
MASSIVE PARALLEL OPTICAL INTERCONNECT SYSTEM

Roger E. Weiss, 10 Mary Way, Foxborough, Mass. 02035; Daniel P. Vladic, 42643 Linden La., Antioch, Ill. 60002, and Philip W. Schofield, 1218 N. Euclid, Oak Park, Ill. 60303

Filed Dec. 22, 1995, Ser. No. 577,508

Int. Cl.^{6} G02B *6/38*

U.S. Cl. 385—59 59 Claims



1. A massive parallel optical interconnect system comprising

a plug connector body including an aperture therethrough including a generally rectangular ferrule having beveled edges; and

a receptacle including an opening having an alignment sleeve mounted within the opening having a pair of alignment members for providing alignment with the beveled edges of the ferrule.

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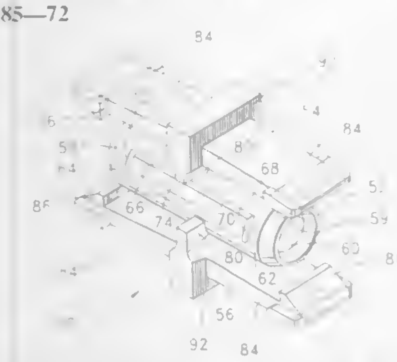
5,737,464
MONOLITHIC OPTICAL FIBER COUPLER INCLUDING SLEEVE WITH FLEXIBLE FLAP

David T. Underwood, N. Richland Hills, and Mike de Jong, Fort Worth, both of Tex., assignors to Siecor Corporation, Hickory, N.C.

Filed Aug. 31, 1995, Ser. No. 521,700
Int. Cl.⁶ G02B *6/36*
U.S. Cl. 385—72 **12 Claims**



1 A monolithic coupler for coupling optical fiber connectors, each optical fiber connector having a ferrule extending from a connector housing, the coupler comprising:

(a) a sleeve portion having a generally sleeve-shaped wall with a first end and a second end opposite thereto, the wall defining a passageway extending there through in a longitudinal direction from the first end to the second end, the passageway sized for receiving and operatively aligning the ends of each of each of the ferrules in an end to end abutting relation at a point in the passageway, the sleeve portion further defines at least one cut-out through the wall so as to create at least one flexible flap in the wall that bears against the ferrules when the ferrules are disposed in the passageway of the sleeve portion;

(b) a first spacer portion and a second spacer portion extending from opposite sides of the sleeve portion at a midpoint along the sleeve portion and in a direction perpendicular to the longitudinal direction of the sleeve portion;

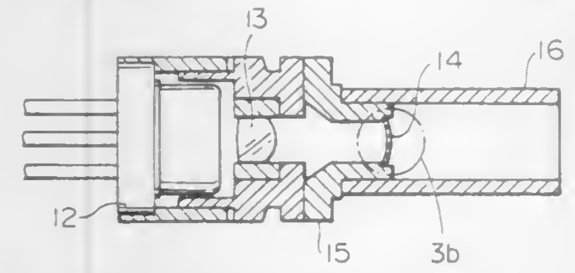
(c) a first latch portion extending in opposite directions from the first spacer portion so as to be spaced from and extending generally parallel with the sleeve portion, the first latch portion having a first end with a first projection and a second end opposite thereto with a second projection, the first and second projections engageable with the connector housings; and

(d) a second latch portion extending in opposite directions from the second spacer portion so as to be spaced from and extending generally parallel with the sleeve portion, the second latch portion having a first end with a third projection and a second end opposite thereto with a fourth projection, the third and fourth projections engageable with the connector housings.

5,737,465
MODULE FOR OPTICAL COMMUNICATION

Ken Okochi, Miyagi-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 27, 1996, Ser. No. 722,595
Claims priority, application Japan, Oct. 4, 1995, 7-257715
Int. Cl.⁶ G02B *6/36*
U.S. Cl. 385—88 **6 Claims**



4 A module for optical communication comprising:

a stopper having a reference surface for contacting a distal end of a ferrule supporting an optical fiber; and

an antireflection member for preventing light emitted from a light emitting element from being reflected by the distal end of said ferrule;

wherein the stopper includes a shoulder for retaining said antireflection member such that a peripheral edge of said antireflection member is pressure-attached to the shoulder;

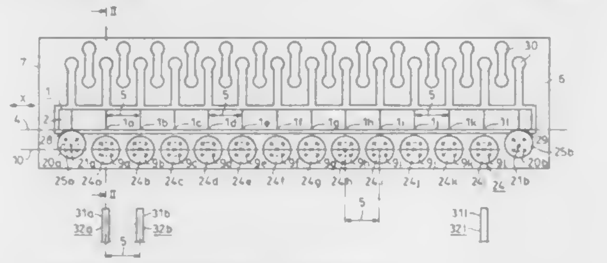
wherein a central part of said antireflection member projects beyond said reference surface when said ferrule has not yet been attached; and

wherein the central part of said antireflection member is pushed and deformed by the distal end of said ferrule when the distal end of the ferrule is in contact with said reference surface.

5,737,466
ELECTRO-OPTICAL MODULE WITH SIMPLIFIED ADJUSTMENT OF THE ELECTRO-OPTICAL ELEMENTS

Martin Honsberg, Aicha Vorm Wald; Volker Plickert, and Jörg-R Kropp, both of Berlin, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jun. 10, 1996, Ser. No. 661,076
Claims priority, application Germany, Dec. 10, 1993, 43 42 844.4
Int. Cl.⁶ G02B *6/36*
U.S. Cl. 385—89 **4 Claims**



1. An electro-optical module, comprising:

a substrate having a given surface with first and second lines;

an electro-optical unit having a plurality of electro-optical elements being fixed in said first line on said given surface;

a corresponding plurality of recesses being formed in said second line on said given surface;

lenses being fixed in said recesses opposite said electro-optical elements, for coupling said electro-optical elements with further optical elements;

said given surface having at least two alignment recesses formed therein offset from said second line toward said electro-optical unit; and

bodies each being disposed in a respective one of said alignment recesses and acting as a mechanical stop for said electro-optical unit.

5,737,467
RESIN MOLDED OPTICAL ASSEMBLY

Takeshi Kato, Akishima; Shinji Tsuji, Hidaka; Kimio Tatsuno, Tokyo; Satoru Kikuchi, Kokubunji; Masahiro Ojima, Tokyo, and Yoichi Yasuda, Komoro, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 8, 1995, Ser. No. 569,915
Claims priority, application Japan, Dec. 13, 1994, 6-308635
Int. Cl.⁶ G02B *6/36*
U.S. Cl. 385—92 **23 Claims**

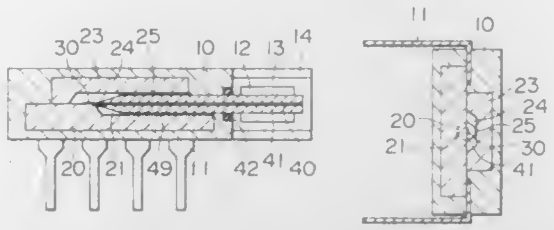
1 An optical assembly comprising:

an optical device;

an optical fiber coupled to said optical device;

a ferrule having a through hole in which said optical fiber is held;

a substrate having a first groove therein, said optical device being bonded to said substrate;



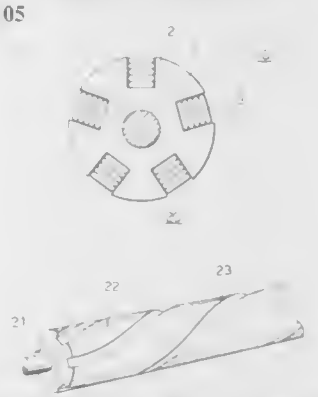
a lid having a second groove therein adapted to face said first groove for positioning of said ferrule in the first and second grooves, said lid being sealingly secured to said substrate; and

a package formed of a resin molding and covering said substrate, said lid, and said ferrule, with said ferrule projecting from said package for connection to an optical circuit.

5,737,468
SPACER FOR OPTICAL FIBER CABLE AND POLYETHYLENE RESIN COMPOSITION THEREFOR

Kunihiro Sasai; Terumitu Kotani; Akira Nakamura; Hiroshi Shibano, all of Kawasaki; Takashi Tanaka, Yokohama; Takashi Saito, Yokohama, and Hiroshi Satani, Yokohama, all of Japan, assignors to Showa Denko K.K., Tokyo, and Sumitomo Electric Industries, Ltd., Osaka, both of Japan

Filed Oct. 12, 1995, Ser. No. 542,375
Claims priority, application Japan, Jul. 26, 1995, 7-190605
Int. Cl.⁶ G02B *6/44*
U.S. Cl. 385—105 **7 Claims**



1 A polyethylene resin composition for spacer for optical fiber cable said spacer having a roughness average measured in accordance with JIS B0601 of less than or equal to 1.5 μm provided with a plurality of channels spirally formed on the periphery surface thereof for receiving the optical fiber comprising polyethylene resin having a melt index of more than or equal to 0.01 g/10 min to less than 0.30 g/10 min, a density of 0.941 to 0.955 g/cm^3 and a flow ratio of 20 to 55,

wherein said flow ratio means a ratio (HLMI/MLMI) measured by JIS K7210, which is defined by calculating a ratio between a value (HLMI) measured at a cylinder temperature of 190° C. and a load of 21.6 kg, and a value (MLMI) which is measured at a cylinder temperature of 190° C. and a load of 5.0 kg.

5,737,469
FILLING COMPOUND FOR FIBER OPTICAL CABLES

Michael Costello, Hewitt; Anna Debska-Chwaja, Suffern, both of N.J.; Alan Eckard, Chester, N.Y., and William Thalman, Denville, N.J., assignors to Witco Corporation, Greenwich, Conn.

Filed Jun. 3, 1996, Ser. No. 659,031
Int. Cl.⁶ G02B *6/44*
U.S. Cl. 385—109 **2 Claims**

1 A composition useful as a filling material for substantially filling voids between fiber optical conductors in a fiber optic cable, wherein the filling material does not include an inorganic gelling agent and consists essentially of

(a) 85 to 95 parts by weight of oil selected from the group consisting of

(a1) naphthenic mineral oils comprising 45 to 50 wt % naphthenics and the balance paraffins, exhibiting a viscosity at 40° C. of 19 to 66 centistokes, a viscosity at 100° C. of 3.5 to 7.5 centistokes, a viscosity index of 40 to 65, a specific gravity at 15.6° C. of 0.87 to 0.90, a pour point of −45° F. to −25° F., and an average molecular weight of 310 to 400, and

(a2) poly-alphaolefins and mixtures thereof, exhibiting a viscosity at 40° C. of 15 to 400 centistokes, a viscosity at 100° C. of 1 to 40 centistokes, a viscosity index of 120 to 160, specific gravity at 15.6° C. of 0.79 to 0.84, and a pour point of −100° F. to −50° F.;

(b) 5 to 15 parts by weight of a (styrene)-(ethylene/propylene) diblock copolymer having a styrene:(ethylene/propylene) ratio of 37.5:62.5 to 27.5:72.5, a Shore A hardness of 70 to 75 and a specific gravity of about 0.90 to 0.95;

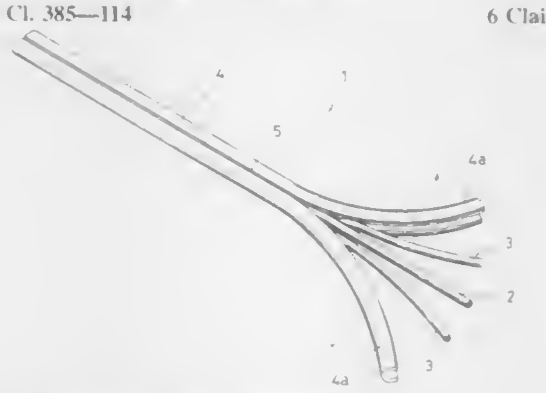
(c) an optional antioxidant component in an amount if present up to 2 parts by weight; and

(d) optional metal deactivator in an amount if present up to 0.1 part by weight.

5,737,470
FLAT OPTICAL FIBER CABLE

Ryuichiro Nagano, Tokyo; Yoichi Nagase, and Hajime Tamura, both of Gyoda, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, and Toyokuni Electric Cable Co., Ltd., both of Tokyo, Japan

Filed Nov. 19, 1996, Ser. No. 754,447
Int. Cl.⁶ G02B *6/44*
U.S. Cl. 385—114 **6 Claims**



1 A flat optical fiber cable comprising:

at least two optical fibers

a tension strength member for carrying tension on said flat fiber optical cable;

said at least two optical fibers and said tension strength member being disposed adjacent one another in a row to form a flat row assembly with a top surface, a bottom surface and side surfaces at ends of said row;

a tubular sheath covering said flat row assembly,

said tubular sheath having an outside surface and an oval inner surface, the oval inner surface having semicircular portions covering said side surfaces of said flat row assembly and substantially flat top and bottom portions tangentially covering said top and bottom surfaces of said flat row assembly, and

at least one tear slot in a formed of a longitudinal indentation in said outside surface of said tubular sheath for permitting said tubular sheath to be torn open along said tear slot and separated from said at least two optical fibers.

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5,737,471
OPTICAL WAVEGUIDE TUBE

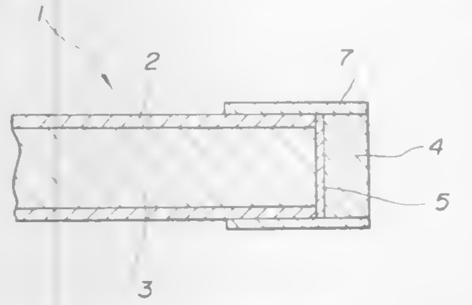
Hideo Sugiyama, Higashimurayama; Masato Sugimachi, Kodaira; Atsushi Hotta, Higashikurume; Minoru Ishiharada, Urawa; Itsuo Tanuma, Sayama, and Torao Hashimoto, Yokohama, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 649,107

Claims priority, application Japan, May 19, 1995, 7-145359; May 19, 1995, 7-145360; May 19, 1995, 7-145361; May 19, 1995, 7-145362

Int. Cl.^{6} G02B *6/02*

U.S. Cl. 385—123 28 Claims



1 An optical waveguide tube comprising.
- a tubular cladding.
- a solid core within the cladding having a higher refractive index than the cladding, the core having opposed end faces, and
- a light transmissive window member disposed in close contact with at least the end face of said core on a light incident side over its entire surface, wherein the core is formed of a flexible plastic material and the window member is formed of an inorganic glass material.

5,737,472
OPTICAL FIBER WITH MULTIPLE POINT LATERAL ILLUMINATION

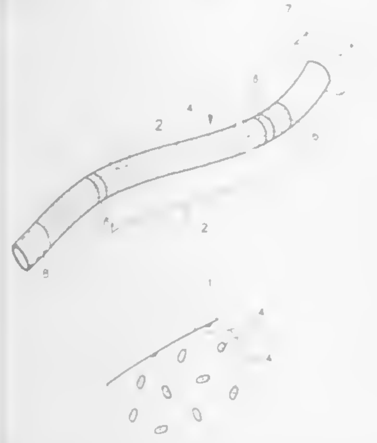
André Bernasson, Les Pradeaux, and Hubert Peuvergne, Champdieu, both of France, assignors to Audio-Images S.A.R.L., Menetrol, France

Filed Jun. 17, 1996, Ser. No. 695,075

Claims priority, application France, Dec. 17, 1993, 9315401; WIPO, Dec. 16, 1994, PCT/FR94/01475

Int. Cl.^{6} G02B *6/02*

U.S. Cl. 385—123 10 Claims



1 Optical fiber, wherein a fiber is furnished to convey a light flux from one light source, disposed at one of its ends, called inlet end, up to another end, called outlet end, said fiber having a substantially cylindrical form and including at least on one certain area (2) of its external surface numerous degradations, closely spaced by small dimensions for the emergence of the light flux in the fiber, where the surface density D(x) of the degradations varies in accordance with the direction of propagation of the light flux, characterized in that said degradations (4) are formed as craters having dimensions between 10^{-3} and 10^{-1} times the diameter of the fiber, wherein said craters are more or less elongated and have a length varying between 1 and 5 times their width, wherein each degradation causes an appearance of uniformity of the light conveyed in the fiber, wherein the surface density D(x) of the degradations varies, in accordance with the direction of propagation of the light flux, according to a law of progression such that at a point i the density Di at this point be inversely proportional to the light flux ϕi at this point, wherein Di=K.1/ϕi

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5,737,473
LIGHT GUIDE HAVING A FLEXIBLE PLASTIC TUBE FILLED WITH AN AQUEOUS SALT SOLUTION

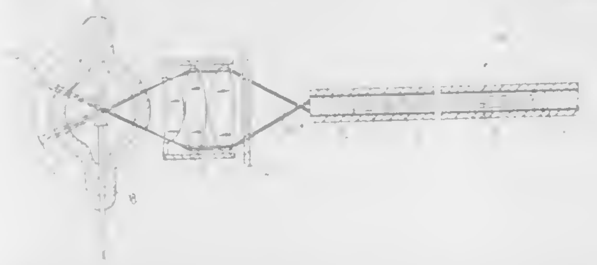
Günther Nath, Otto-Heilmann-Str. 3, D-82031 Grünwald, Germany

Filed May 17, 1996, Ser. No. 649,269

Claims priority, application Germany, May 17, 1995, 195 18 147.6

Int. Cl.^{6} G02B *6/02;6/20*

U.S. Cl. 385—125 15 Claims



1. A light guide comprising an envelope made of a flexible plastic tube and a light conducting core containing an aqueous halogenide salt solution, characterized in that the solution further comprises an alkaline substance in such an amount that the solution has a pH value of at least 6.

5,737,474
SEMICONDUCTOR OPTICAL DEVICE

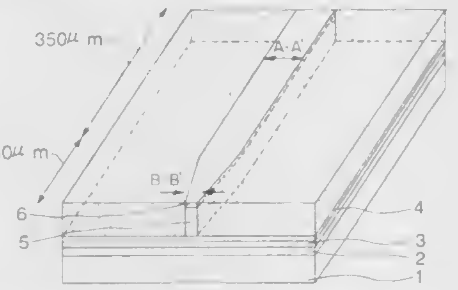
Masahiro Aoki; Makoto Takahashi, and Hiroshi Sato, all of Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 13, 1995, Ser. No. 542,840

Claims priority, application Japan, Oct. 13, 1994, 6-247511

Int. Cl.^{6} G02B *6/10*

U.S. Cl. 385—131 20 Claims



1. A semiconductor optical device, comprising:
- a semiconductor substrate;
- a first core layer disposed on said substrate with a second core layer being interposed between said substrate and said first core layer, said second core layer having a lower refractive index than that of said first core layer; and
- a ridge-shaped optical waveguide region formed in a top surface of said first core layer;
- wherein width of said ridge-shaped optical waveguide region is changed along a direction coinciding with an optical axis of said semiconductor optical device and wherein width of a bottom surface of said ridge-shaped optical waveguide does not exceed 4 μm over a whole length thereof.

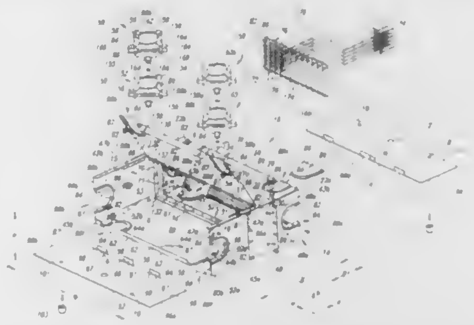
5,737,475
UNIVERSAL MULTIMEDIA CONNECTION UNIT

William D. Regester, Bothell, Wash., assignor to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Filed Jan. 17, 1997, Ser. No. 783,920

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—134 12 Claims



1 A multimedia connection unit for coupling fiber optic strands of a fiber optic cable to communication devices, comprising:
- a housing having a top panel, an opposing bottom panel, and opposing first and second side panels extending generally between the top and bottom panels, the housing defining a cavity therein in which a portion of the fiber optic cable and the fiber optic strands may be housed;
- a door attached to the housing, the door being movable between an open position to allow access to the cavity and a closed position to close the cavity;
- a cable port through a wall portion of one of the top panel, the first and second side panels, the bottom panel and the door to pass the fiber optic cable into the cavity, the cable port having a rim intersecting an edge of the wall portion to define an open end of the cable port at the edge, and a portion of the rim extending through the wall portion to define a closed-end of the cable port at an interior location of the wall portion, wherein the fiber optic cable may be laterally passed through the open end of the cable port and into the cable port when the open end is not blocked by the housing when the cable port is through the door and not blocked by the door when the cable port is through the housing; and
- a bulkhead positioned in the cavity to divide the cavity into a distribution cell and a patch cell,
- a plurality of connectors positioned at the bulkhead, each of the connectors having a distribution end in the distribution cell and a patch end in the patch cell, the distribution end of each connector being connectable to an individual fiber optic strand and the patch end of each connector being connectable to an internal line in a building coupled to one of the communication devices.

5,737,476
AUTOMATIC EDITING METHOD AND APPARATUS OF A VIDEO SIGNAL

Kuie-sup Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

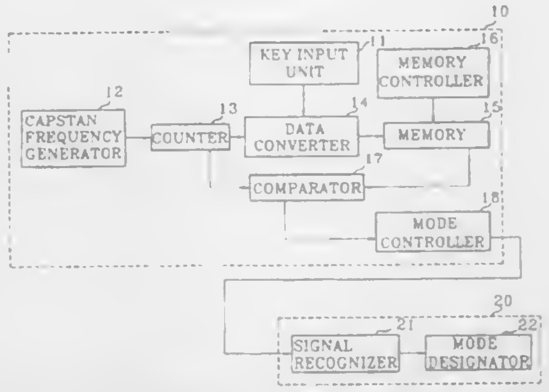
Filed Jan. 11, 1996, Ser. No. 584,272

Claims priority, application Rep. of Korea, Jan. 12, 1995, 1995-491

Int. Cl.^{6} H04N *5/93*

U.S. Cl. 386—52 7 Claims

1. An automatic editing apparatus of a video signal which records only desired signals, among signals recorded on a source tape, on an editing tape, the automatic editing apparatus comprising:



- detection means for detecting position data of a picture reproduced during reproduction of the source tape, said detecting means detecting the position data independently of any information contained on said source tape;
- setting/storing means for setting and storing a signal erase interval corresponding to at least a portion of said signals recorded on said source tape relative to a position value detected from said detection means during a first reproduction of said source tape;
- recording means for recording signals reproduced from the source tape;
- control means for comparing the position data detected from said detection means during a second reproduction of said source tape with the position value stored by said setting/storing means, and for outputting to said recording means a specific signal during a time period corresponding to the stored signal erase interval, said specific signal causing a recording operation of said recording means to pause while said specific signal is output to said recording means

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5,737,477
VIDEO CASSETTE TAPE RECORDING AND REPRODUCING DEVICE

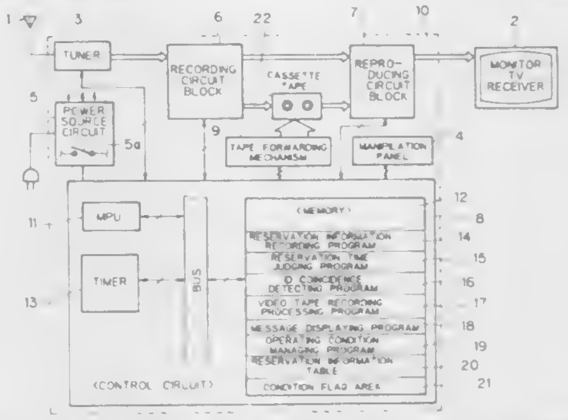
Kunihiro Tsutsumi, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Sep. 17, 1996, Ser. No. 715,095

Claims priority, application Japan, Sep. 20, 1995, 7-266268

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 386—83 11 Claims


1
3
6
22
7
10
2
TUNER
RECORDING CIRCUIT BLOCK
CASSETTE TAPE
REPRO-DUCING CIRCUIT BLOCK
MONITOR TV RECEIVER
5
POWER SOURCE CIRCUIT
5a
9
TAPE FORWARDING MECHANISM
MANIPULATION PANEL
4
11
MPU
TIMER
13
BUS
(MEMORY)
RESERVATION INFORMATION RECORDING PROGRAM
RESERVATION TIME JUDGING PROGRAM
ID COINCIDENCE DETECTING PROGRAM
VIDEO TAPE RECORDING PROCESSING PROGRAM
MESSAGE DISPLAYING PROGRAM
OPERATING CONDITION MANAGING PROGRAM
RESERVATION INFORMATION TABLE
CONDITION FLAG AREA
(CONTROL CIRCUIT)
12
8
14
15
16
17
18
19
20
21

1 A video cassette tape recording and reproducing device including a reserved time detecting means which periodically detects either coming of a reserved time or coming of a time slightly before the reserved time after a timer controlled video tape recording being reserved comprising:
- a reservation information recording means which stores the reserved time, information relating to TV channel and identification information inputted in response to a signal associated with the timer controlled video tape recording reservation in a memory, records the identification information at the head position of a cassette tape loaded in the video cassette tape

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recording and reproducing device and starts said reservation time detecting means without turning off a power source switch in the video cassette tape recording and reproducing device;

a coincidence detecting means which reproduces the identification information recorded on the cassette tape when the detection signal from said reservation time detecting means is received and detects whether or not the reproduced identification information coincides with the identification information stored in the memory; and

a video tape recording means which starts the reserved timer controlled video tape recording when a coincidence detection signal is received from said coincidence detecting means

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5,737,478
RECORDING APPARATUS FOR RECORDING A FIRST AND A SECOND INFORMATION SIGNAL

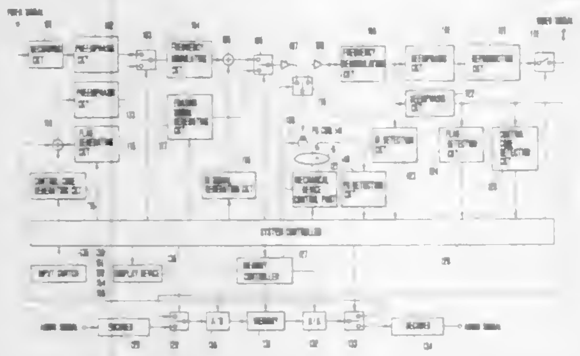
Yoichi Yamagishi, and Hiroyuki Horii, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 236,654, Apr. 29, 1994, abandoned, which is a continuation of Ser. No. 879,145, Apr. 30, 1992, abandoned, which is a continuation of Ser. No. 566,883, Aug. 13, 1990, abandoned, which is a continuation of Ser. No. 192,956, May 12, 1988, abandoned. This application Jun. 2, 1995, Ser. No. 458,231

Claims priority, application Japan, May 15, 1987, 62-119302; May 15, 1987, 62-119312

Int. Cl.⁶ H04N *5/928*

U.S. Cl. 386—95 **10 Claims**



1 An information signal recording method for recording respectively a first information signal and a second information signal on at least a part of a plurality of recording areas provided on a recording medium, said second information signal being related to but different from said first information signal, comprising the following steps.

(a) a recording step of, in the case that a recording area other than a recording area having been recorded with the first information signal thereon is set as a recording area on which an after-recording operation is enabled to be performed on the second information signal related to the first information signal, the second information signal being recorded thereon after the first information signal has been recorded, when said first information signal is recorded on at least the part of the plurality of recording areas provided on the recording medium, recording on said recording area thus set an after-recording reservation signal indicating that an after-recording operation is enabled to be performed on the recording area;

(b) a searching-reproducing step of searching an after-recording reservation recording area having been recorded with said after-recording reservation signal thereon among the plurality of recording areas provided on the recording medium and reproducing a first information signal recorded on a recording area corresponding to the searched after recording reservation recording area recorded with the after-recording reservation signal, prior to a recording operation of said second information signal when at the recording step an after recording operation of said second information signal is performed to said recording medium in which said first information signal is recorded on at least the part of the plurality of recording areas; and

(c) an after-recording step of recording said second information signal on the searched after-recording reservation recording area at the searching-reproducing step.

5,737,479
APPARATUS AND METHOD FOR INSERTING RATING CODE INTO THE DIGITAL VIDEO SIGNAL

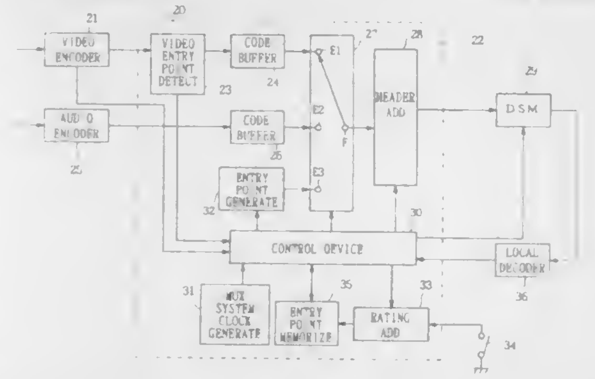
Yasushi Fujinami, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 18, 1995, Ser. No. 574,382

Claims priority, application Japan, Dec. 21, 1994, 6-335602

Int. Cl.⁶ H04N *5/76;5/92*

U.S. Cl. 386—95 **10 Claims**



1. An image data coding method for recording digital moving image data and digital aural data on a recording medium in a time-division multiplexing manner, comprising the steps of:

partitioning at least said digital moving image data into packets;

detecting an entry point included in a coded image in a frame which is present, by at least one sheet, in said packet;

adding a rating code to said entry point, said rating code including start and end addresses of a risque part of said digital moving image data;

inserting said entry point between said packets of said digital moving image data to form a data bit stream; and

recording said data bit stream on said recording medium.

5,737,480
DATA RECORDING APPARATUS

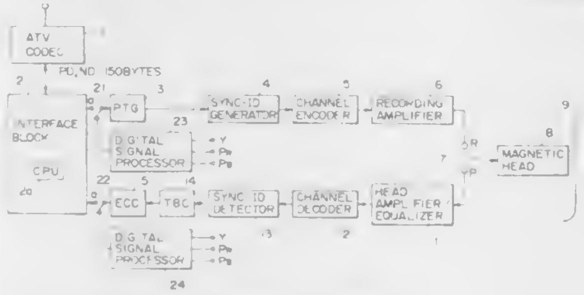
Takahito Seki; Yukio Kubota; Keiji Kanota, all of Kanagawa, and Hajime Inoue, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 417,263, Apr. 5, 1995, Pat. No. 5,526,199, which is a continuation of Ser. No. 147,579, Nov. 5, 1993, abandoned. This application Jan. 5, 1996, Ser. No. 583,287

Claims priority, application Japan, Nov. 6, 1992, 4-322489

Int. Cl.⁶ H04N *5/917;5/91*

U.S. Cl. 386—109 **5 Claims**



1 A data recording apparatus comprising

means for separating input data into priority data and normal data;

means for formatting said priority data and said normal data in a predetermined format in which said priority data is repeated to produce first formatted priority data, repeated first formatted priority data and formatted normal data wherein said first formatted priority data and said repeated first formatted priority data are the same; and

means for recording said first formatted priority data, said repeated first formatted priority data and said formatted normal data in a record track on a recording medium.

5,737,481
INFORMATION RECORDING METHOD, INFORMATION RECORDING APPARATUS AND INFORMATION RECORDING MEDIUM

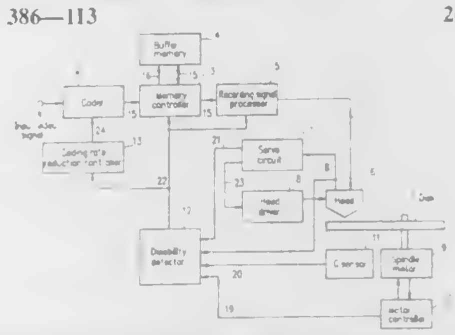
Toyoji Gushima, Habikino; Yoshiharu Kobayashi; Ryoji Yamaguchi, both of Katano; Satoshi Kondo, Sakai; Katsuhiko Yoshida, Takatsuki; Shigeru Furumiya, Himeji; Kenji Koishi, Sanda, and Yoshinari Takemura, Settsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 21, 1995, Ser. No. 493,150

Claims priority, application Japan, Jun. 22, 1994, 6-140130; Nov. 22, 1994, 6-287846

Int. Cl.⁶ H04N *5/911;7/64*

U.S. Cl. 386—113 **26 Claims**



1. An information recording method for writing input information into a memory means once so as to record the information read from the memory means onto a recording medium,

wherein a detection of a recording-enable state and a recording-disable state of a recording means is performed during a series of recording operations; on detecting the recording-disable state, the recording operation of the recording means and a reading of the information from the memory means are interrupted; after the recording-enable state is detected again, the reading of the information from the memory means and the recording operation are started again; and a write rate into the memory means is reduced during a predetermined period after the detection of the recording-disable state.

5,737,482

Patent Not Issued For This Number

5,737,483
MOTOR SPEED CONTROL APPARATUS FOR MOTORS

Toshio Inaji, Minoo; Eiji Ueda, Yawata, and Keisuke Matsuo, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Oct. 25, 1995, Ser. No. 548,047

Int. Cl.⁶ H02P *5/06*

U.S. Cl. 388—805 **26 Claims**

1. A motor speed control apparatus comprising

a frequency generator for generating a frequency signal which is proportional to a rotating speed of a motor;

a period detector for detecting a period of the frequency signal and for outputting a mean speed signal which is proportional to a mean rotating speed of the motor;

a controller for receiving an externally supplied speed command signal and a speed feedback signal, and for performing a control operation to output a control signal,

a driver for supplying the motor with a driving current in accordance with the control signal;

a speed estimator for receiving the control signal and the mean speed signal, and for estimating a rotating speed of the motor from the control signal and the mean speed signal to thereby obtain an estimated speed signal of the motor which is outputted to said controller as the feedback signal, wherein said speed estimator includes

a predictor which comprises

- a multiplier for comparing an estimated mean speed signal obtained by integrating the estimated speed signal with respect to time and the mean speed signal to generate a mean speed error, and for multiplying the mean speed error by a factor (1+∝), wherein ∝ is a real number;
- a delay circuit for multiplying an output of a subtractor by the factor ∝, and for delaying the output by a time equal to a period of the frequency signal;
- said subtractor for subtracting an output of said delay circuit from an output of said multiplier thereby generating a predicted value of an instantaneous speed error from the mean speed error; and

a feedback loop for correcting the estimated speed signal by the predicted value generated by said predictor.

5,737,484
MULTISTAGE LOW BIT-RATE CELP SPEECH CODER WITH SWITCHING CODE BOOKS DEPENDING ON DEGREE OF PITCH PERIODICITY

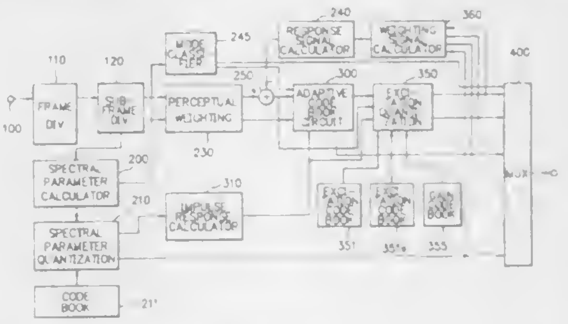
Kazunori Ozawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 184,925, Jan. 24, 1994, abandoned. This application Feb. 29, 1996, Ser. No. 710,341

Claims priority, application Japan, Jan. 22, 1993, 5-008737

Int. Cl.⁶ G10L *9/14*

U.S. Cl. 395—2.28 **1 Claim**



1 A voice coder system, comprising:

a spectral parameter calculator for dividing a sequence of input speech signals into a plurality of frames and further dividing the speech signals into a plurality of subframes according to predetermined timing, and calculating spectral parameters representing a predetermined spectral characteristic of the speech signals in at least one of the subframes,

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- a weighting unit for weighting a set of perceptual weights to the speech signals depending on the spectral parameters calculated by the spectral parameter calculator to obtain a set of weighted signals.
- a mode classifier including means for calculating a degree of pitch periodicity based on pitch prediction distortions calculated from the set of weighted signals and for determining one of a plurality of modes for each frame by using the degree of pitch periodicity:
- a spectral parameter quantization unit for quantizing the spectral parameters. said spectral parameter quantization unit including means for switching between a plurality of quantization code books. when the spectral parameters are quantized. depending on a mode classification result in the mode classifier;
- an adaptive code book for obtaining a set of pitch parameters of the speech signals depending on the mode classification result in the mode classifier using the spectral parameters. the quantized spectral parameters and the set of weighted signals. and
- an excitation quantization unit for searching a plurality of stages of excitation code books and a plurality of gain code books using the spectral parameters. the quantized spectral parameters and the set of weighted signals to obtain a set of quantized excitation signals of the speech signals. said excitation quantization unit including means for switching between a plurality of excitation code books and a plurality of gain code books depending on the mode determined by the mode classifier

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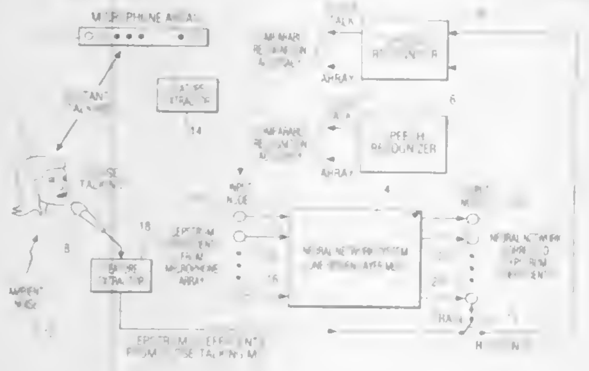
5,737,485
METHOD AND APPARATUS INCLUDING MICROPHONE ARRAYS AND NEURAL NETWORKS FOR SPEECH/ SPEAKER RECOGNITION SYSTEMS

James L. Flanagan, Warren; Qiguang Lin, Highland Park; Mazin Rahim, Manalapan, and Chiwei Che, Edison, all of N.J., assignors to Rutgers The State University of New Jersey, New Brunswick, N.J.

Filed Mar. 7, 1995, Ser. No. 399,445

Int. Cl.^{6} G10L *9/00, 5/06*

U.S. Cl. 395—2.41 **16 Claims**



1 A method for preprocessing speech input signals from a microphone array receiving speech from a distant-talking speaker. for converting features of the measured speech of distant-talking reverberant speech input to be substantially similar to those of features of close-talking speech input signals used to train a speech recognition system and/or a speaker recognition system. comprising the steps of:

- simultaneously recording the close-talking speech from said speaker positioned close to a microphone. and distant-talking reverberant speech from said speaker positioned a distance from said microphone array. for a predetermined number of sentences:
- extracting features of said close-talking speech and said distant talking reverberant speech:
- connecting features of the distant-talking reverberant speech to input nodes of a neural network system.
- connecting features of the close-talking speech to output nodes of said neural network:
- training said neural network system to convert said features of distant-talking reverberant speech to a form substantially similar to said features of close-talking speech relative to said speaker:
- disconnecting the close-talking speech from said output nodes after said neural network is trained: and
- permitting said speaker to speak a distance from said microphone array unencumbered by a close-talking microphone. by providing corrected cepstrum coefficients of said features of the speech representative of close-talking speech from said output nodes of said neural network. for connection to either one or both of said speech recognition system and said speaker recognition system.

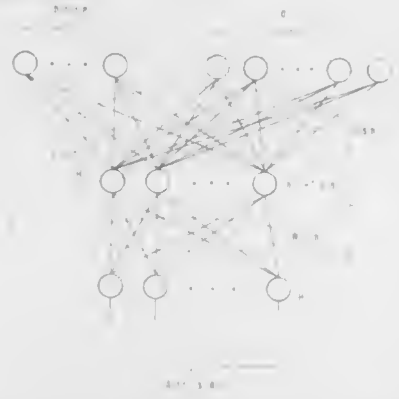
5,737,486
PATTERN RECOGNITION METHOD BY USING REFERENCE PATTERNS EACH OF WHICH IS DEFINED BY PREDICTORS

Ken-Ichi Iso, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 159,306, Nov. 30, 1993, which is a continuation-in-part of Ser. No. 29,951, Mar. 9, 1993, abandoned, which is a continuation of Ser. No. 521,625, May 10, 1990. This applicatinn May 4, 1995, Ser. No. 434,992

Int. Cl.^{6} G10L *9/00; 5/06*

U.S. Cl. 395—2.41 **2 Claims**



1 A method of training a plurality of predictors defining a reference pattern representative of a category by using a plurality of training patterns. each representing said category. to adjust a plurality of parameters characterizing each of said predictors. each of said predictors comprising an input layer. a hidden layer. and an output layer. the input layer comprising a plurality of primary input units and a plurality of secondary input units. the hidden layer comprising a plurality of hidden units. the output layer comprising a plurality of output units. each of said training patterns representing speech sound having a variable time interval, said method training said predictors with the aid of a computer system and comprising the steps of.

- a. storing. in a reference pattern storing section. said parameters of the reference pattern. said parameters corresponding to a first coefficient matrix U(s. n) for connecting between the primary input units and the hidden units. a second coefficient matrix V(s. n) for connecting between the secondary input units and the hidden units. and a third coefficient matrix W(s. n) for connecting between the hidden units and the output units. where U(s. n) represents a matrix with D rows and H columns. V(s. n) represents a matrix with R rows and H columns. W(s. n) represents a matrix with H rows and D columns. and D. R. and H have dimensions of the feature vector. dimensions of the state vector. and the number of the hidden units, respectively;
- b. storing. in a training speech data base storing section. training speech data of all categories to be recognition objects. said training speech data representing said training patterns each being time sequences of feature vectors into which the speech sound has been converted by an acoustic analysis section:
- c. initializing. in a reference pattern correcting section. said parameters:

- d. calculating. in said reference pattern correcting section. a prediction error between said reference pattern and one of said training patterns at a time:
- e. correcting. in said reference pattern correcting section. said parameters so as to decrease said prediction error: and
- f. iterating. in said reference pattern correcting section. steps d and e for all of said training patterns.

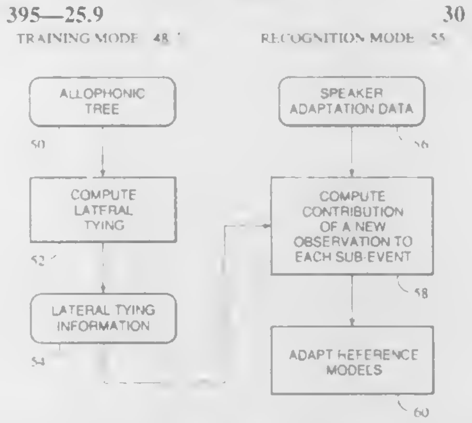
5,737,487
SPEAKER ADAPTATION BASED ON LATERAL TYING FOR LARGE-VOCABULARY CONTINUOUS SPEECH RECOGNITION

Jerome R. Bellegarda, Los Gatos; John W. Butzberger, Foster City, and Yen-Lu Chow, Saratoga, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Feb. 13, 1996, Ser. No. 600,859

Int. Cl.^{6} G10L *5/06*

U.S. Cl. 395—25.9 **30 Claims**



1. A method of performing speaker adaptation in a speech recognition system which includes a set of reference models corresponding to speech data from a plurality of speakers. the speech data represented by a plurality of acoustic models and corresponding sub-events. wherein each sub-event includes one or more observations of speech data. the method comprising the steps of.

- (a) computing a degree of lateral tying between each pair of sub-events. wherein the degree of tying indicates the degree to which a first observation in a first sub-event contributes to the remaining sub-events:
- (b) assigning a new observation from adaptation data of a new speaker to one of the sub-events:
- (c) populating each of the sub-events with a transformed version of the observation contained in the assigned sub-event based on the degree of lateral tying computed between each pair of sub-events;
- (d) adapting the reference models that correspond to the populated sub-events to account for speech pattern idiosyncrasies of the new speaker. thereby reducing the error rate of the speech recognition system.

5,737,488
SPEECH RECOGNIZER

Ken-Ichi Iso, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 483,321

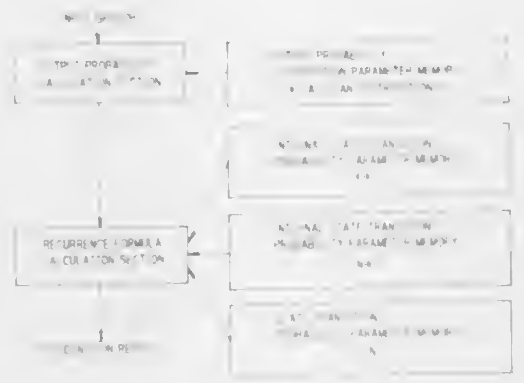
Claims priority, application Japan, Jun. 13, 1994, 6-129985

Int. Cl.^{6} G10L *5/06*

U.S. Cl. 395—2.65 **6 Claims**

6. A word speech recognizer for recognizing words from a speech signal. comprising

- an input unit for inputting the speech signal.
- a feature vector extraction unit connected to the input unit and configured to sample the speech signal. digitize the sampled speech signal. and convert the digitized sampled speech signal into at least one feature vector



- a first Hidden Markov Model (HMM) parameter memory configured to store first HMM parameters of a plurality of words. transition probabilities a_{mn} for transitioning from state m to state n. wherein m and n are integers and wherein there are k possible states. k being an integer greater than or equal to m and n. the first HMM parameter memory being configured to store a probabilities b_{rs} of outputting a symbol s in a state r. wherein r and s are integers.
- a second HMM parameter memory configured to store second HMM parameters common to all of the plurality of words. which correspond to distribution functions representing transition probabilities a_{jk} from internal state j to internal state k. and which correspond to output probabilities $b_k(o_t)$ of outputting feature vector o_t in the internal state k.
- a work memory for temporarily storing the output probabilities. the work memory also temporarily storing a forward probability and array variables associated with the forward probability: and
- a processor coupled to the feature vector extraction unit. the first HMM parameter memory. the second HMM parameter memory. and the work memory. the processor comprising:
  - a calculating unit configured to receive the feature vector o_1 from the feature vector extraction unit and to calculate the output probability $b_k(o_1)$ of outputting the feature vector o_1 in the internal state b_k based on the second HMM parameters stored in the second HMM parameter memory. the output probability $b_k(o_1)$ being stored by the processor in the work memory:
- a clearing unit configured to clear the forward probabilities stored in the work memory:
- a forward probability calculating unit configured to calculate the forward probability for each of the plurality of words when the feature vector o_1 is output through transition from the state m and the internal state j to the state n and the internal state k. the forward probability being calculated based on the first HMM parameters stored in the first HMM parameter memory and the second HMM parameters stored in the second HMM parameter memory. and
- a determining unit for determining a maximum probability of the forward probabilities calculated for each of the plurality of words. wherein the corresponding word having the maximum probability is output as a recognized word of the speech signal

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5,737,489
DISCRIMINATIVE UTTERANCE VERIFICATION FOR CONNECTED DIGITS RECOGNITION

Wu Chou, Berkeley Heights; Biing-Hwang Juang, Warren; Chin-Hui Lee, New Providence, and Mazin G. Rahim, Manalapan, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 15, 1995, Ser. No. 528,902

Int. Cl.^{6} G10L *5/06*

U.S. Cl. 395—2.65 **19 Claims**

1 A speech signal processing method of making a speech recognizer verification model database based on one or more

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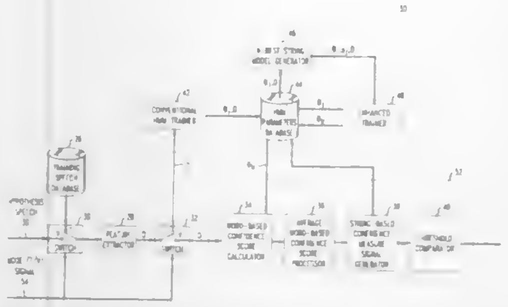

SWITCH
FEATURE EXTRACTOR
SWITCH
WORD-BASED CONFIDENCE SCORE CALCULATOR
AVERAGE WORD-BASED CONFIDENCE SCORE PROCESSOR
STRING-BASED CONFIDENCE MEASURE SIGNAL GENERATOR
THRESHOLD COMPARATOR

known hypothesis string signals representing known speech utterances and a set of current verification models, the method comprising the following steps:

(A) receiving a known hypothesis string signal representing a known speech utterance;

(B) generating a first string-based confidence measure signal based on the known hypothesis string signal representing a known speech utterance and a current verification model for that signal;

(C) generating one or more other string-based confidence measure signals, each such string-based confidence measure signal based on the known hypothesis string signal representing a known speech utterance and another current verification model;

(D) computing a misverification signal based on the first string-based confidence measure signal and the other string-based confidence measure signals;

(E) based on the misverification signal and the known hypothesis string signal representing a known speech utterance, modifying one or more of the current verification models to decrease the likelihood of misverifying an unknown hypothesis string signal representing an unknown speech utterance; and

(F) storing one or more modified verification models in memory.

5,737,490

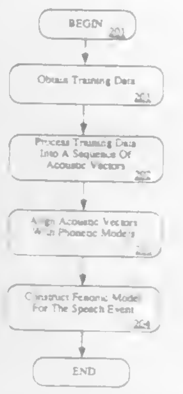
METHOD AND APPARATUS FOR CONSTRUCTING CONTINUOUS PARAMETER FENONIC HIDDEN MARKOV MODELS BY REPLACING PHONETIC MODELS WITH CONTINOUS FENONIC MODELS

Stephen Christopher Austin, San Mateo, and Peter Vincent de Souza, San Jose, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Continuation of Ser. No. 129,954, Sep. 30, 1993, abandoned. This application Oct. 22, 1996, Ser. No. 735,049

Int. Cl.⁶ G01L *5/06, 9/00*

U.S. Cl. 395—2.65 **31 Claims**


BEGIN
Obtain Training Data
Process Training Data Into A Sequence Of Acoustic Vectors
Construct Fenonic Model For The Speech Event
END

1. A method of constructing a hidden Markov model of a given speech event comprising the steps of:

providing a sequence of phonetic models representing the given speech event;

creating a plurality of fenones associated with acoustic vectors, wherein each of the plurality of fenones is a hidden Markov model representing an acoustic event; and

creating a fenonic model for said given speech event, wherein each of the sequence of phonetic models is replaced by at least one of the plurality of fenones, such that the fenonic model comprises a sequence of fenones.

5,737,491

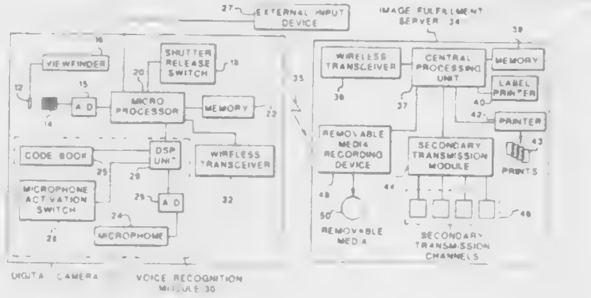
ELECTRONIC IMAGING SYSTEM CAPABLE OF IMAGE CAPTURE, LOCAL WIRELESS TRANSMISSION AND VOICE RECOGNITION

James D. Allen; Omid A. Mnghadam, and Donna M. Romer, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 28, 1996, Ser. No. 672,773

Int. Cl.⁶ G10L *3/00*

U.S. Cl. 395—2.79 **7 Claims**



1. A system for digital image capture and transmission, comprising:

a) a digital camera having:

i) an electronic image sensor for sensing an image and producing a digital image;

ii) a memory for storing digital images produced by the image sensor in digital image files, the digital image files having associated information for controlling a remote image fulfillment server;

iii) a voice recorder for digitizing voice commands relating to control of the image fulfillment server; and

iv) a transmitter for transmitting the digital image file to the image fulfillment server;

b) a voice recognition module responsive to the digitized voice commands for producing control signals for the image fulfillment server; and

c) an image fulfillment server, having:

i) a receiver for receiving the digital image file and control signals;

ii) a memory for storing the received digital image file; and

iii) a file manager for managing the digital image file in response to the control signals.

5,737,492

FUZZY LOGIC MEMBERSHIP FUNCTION GENERATING APPARATUS

Jyuo-Min Shyu; Yao-Chou Lu, both of Hsinchu; Hsi-Chou Deng, Chupei, and Hsu-Huang Cheng, Tainan, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Continuation-in-part of Ser. No. 53,081, Apr. 26, 1993, abandoned. This application Jul. 20, 1995, Ser. No. 504,451

Int. Cl.⁶ G06F *9/44*

U.S. Cl. 395—3 **4 Claims**

1. A complement-generating circuit for generating complement data for outputting to a one's-complement circuit to determine a degree of membership output, said complement-generating circuit comprising

a control unit for controlling said complement-generating circuit by transmitting a relative-location signal, a slope type signal, and a slope-selection count N,

a memory unit for storing a prescaled base-distance-slope product table including a plurality of prescaled base-distance-slope products;

a pre-scale shifter controlled by said relative-location signal for shifting an inputted relative distance data by −K bits for generating a prescaled relative distance data;

an address generator for receiving a type of slope signal and said prescaled relative distance data for generating a table address for retrieving a selected prescaled base-distance-slope product from said prescaled base-distance-slope product table; and

a post scalar shifter controlled by said slope selection count N for shifting said selected prescaled base-distance-slope product by a sum of said N and K bits to the right for generating said complement data.

5,737,493

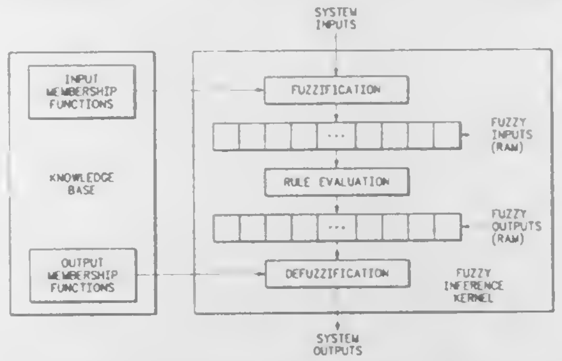
INSTRUCTION SET FOR EVALUATING FUZZY LOGIC RULES

J. Greg Viot, Austin; James M. Sibigtroth, Round Rock, and Marlan L. Winter, Austin, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 11, 1995, Ser. No. 570,453

Int. Cl.⁶ G06G *7/00*

U.S. Cl. 395—3 **9 Claims**



1. A method for operating a data processor to perform a fuzzy logic operation, said method comprising the steps of:

performing a fuzzification process on one or more system inputs to produce one or more fuzzy inputs;

storing said one or more fuzzy inputs in memory;

performing a rule evaluation process of a first rule by retrieving a first set of decoded processor instructions representing rules which (1) retrieve said one or more fuzzy inputs from said memory, (2) produce one or more fuzzy outputs, and (3) store said one or more fuzzy outputs in said memory, wherein said first set of decoded instructions perform said rule evaluation process without using a rule data structure in data memory, and

performing a defuzzification process on said one or more fuzzy outputs to produce one or more system outputs.

5,737,494

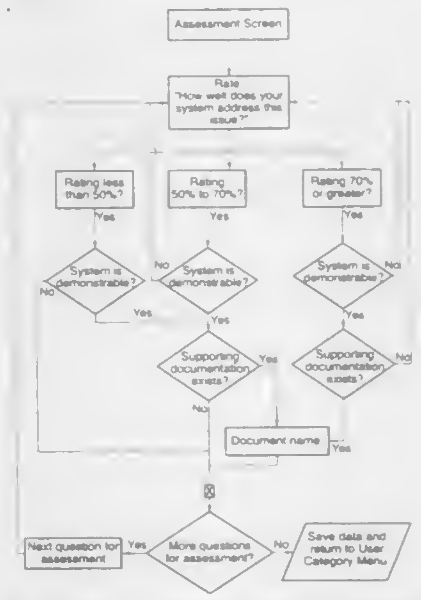
ASSESSMENT METHODS AND APPARATUS FOR AN ORGANIZATIONAL PROCESS OR SYSTEM

Lawrence R. Guinta, and Lori A. Frantzve, both of Scottsdale, Ariz., assignors to Tech-Metrics International, Inc., Scottsdale, Ariz.

Filed Dec. 8, 1994, Ser. No. 351,896

Int. Cl.⁶ G06F *15/18*

U.S. Cl. 395—10 **23 Claims**


Assessment Screen
Rate "How well does your system address this issue?"
Rating less than 50%?
Rating 50% to 70%?
Rating 70% or greater?
Yes
No
System is demonstrable?
Supporting documentation exists?
Document name
More questions for assessment?
Next question for assessment
Save data and return to User Category Menu

1. A method of using a computer to gather information about an organizational process or system, comprising:

displaying on a display device computer driven questions, at least some of the computer driven questions being adapted to prompt an assessor who has at least some knowledge about the organizational process or system to numerically input on an input device of the computer the assessor's perception of the capability of the organizational process or system to address an issue;

receiving a first numerical input from the input device of the computer, the first numerical input being stored in a memory of the computer, and the first numerical input reflecting the assessor's perception of the capability of the organizational process or system to address an issue;

comparing within a processing unit of the computer the first numerical input to a first value, and, if the first numerical input has a first predetermined characteristic in relation to the first value, then prompting the assessor to identify evidence that supports the first numerical input, and if evidence is identified that supports the first numerical input, then validating the first numerical input for subsequent evaluation, and if the evidence is not identified that supports the first numerical input, then inhibiting validation of the first numerical input until the evidence is identified or until the first numerical input is changed to have a second predetermined characteristic in relation to the first value;

displaying on the display device computer driven questions that are adapted to prompt the assessor to numerically input a second numerical input on the input device of the computer, the second numerical input reflecting the assessor's perception of how extensively the organizational process or system is deployed; and

receiving a second numerical input from the input device of the computer, the second numerical input being stored in a memory of the computer, and the second numerical input reflecting the assessor's perception of how extensively the organizational process or system is deployed.

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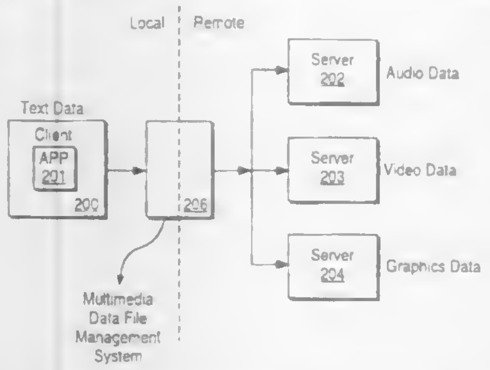
METHOD AND APPARATUS FOR MANAGING MULTIMEDIA DATA FILES IN A COMPUTER NETWORK BY STREAMING DATA FILES INTO SEPARATE STREAMS BASED ON FILE ATTRIBUTES

Robert Adams, Lake Oswego; Burt W. Perry, Beaverton; John W. Richardson; David M. Williams, both of Portland, and Nelson L. Yaple, Aloha, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 29, 1995, Ser. No. 536,138

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—615 **30 Claims**



1 A computer implemented method for managing multimedia data files in a computer network, said computer implemented method comprising the steps of

receiving a request from a first unit on said computer network.

processing said request to determine file attributes of said request;

redirecting automatically said request based on said file attributes of said request, to a second unit on said computer network, said second unit being compatible with said file attributes; and

receiving on said first unit a response to said request redirected to said second unit, said response including data files, said data files being streamed into separate data streams based on said file attributes, said step of receiving said response further including the step of selecting a transport protocol from a plurality of transport protocols based on said file attributes of said data files in said separate data streams, wherein said file attributes of said data files in said separate data streams include text data types, audio data types, video data types and graphics data types.

5,737,496

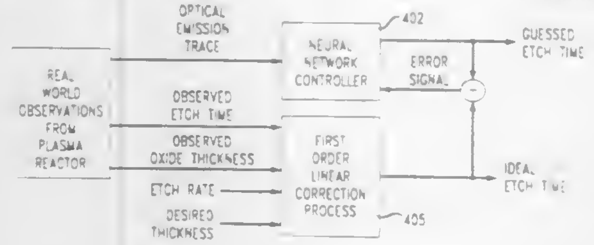
ACTIVE NEURAL NETWORK CONTROL OF WAFER ATTRIBUTES IN A PLASMA ETCH PROCESS

Robert Charles Frye, Piscataway; Thomas Richard Harry, Trenton; Earl Ryan Lory, Pennington, and Edward Alois Rietman, Madison, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Division of Ser. No. 150,261, Nov. 17, 1993, Pat. No. 5,467,883. This application Jun. 6, 1995, Ser. No. 468,167

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—23 **3 Claims**



1 A method comprising the steps of:

training a neural network by repetitively. performing an individual run of a process, measuring, during said run, a selected process signature of said process, applying a representation of said process signature to the input nodes of said neural network to obtain a guessed value of a process variable of said process at the output of said neural network, and updating said neural network in response to said guessed value of said process variable and an ideal value of said process variable for said individual run, and

thereafter performing a subsequent run of said process, the value of said process variable during said subsequent run being determined from the output of the trained neural network that results when a representation of said process signature, measured during said subsequent run, is applied to said neural network input nodes,

wherein said ideal value of said process variable is a value that would yield a particular quality attribute value for the process during said individual run, and wherein said selected process signature is indicative of a process parameter which is interdependent with said quality attribute value.

5,737,497

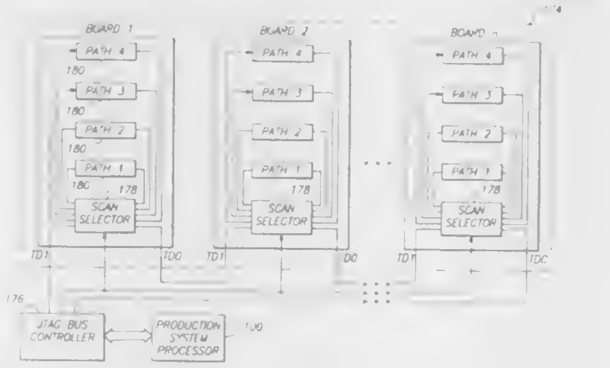
TEST SYSTEM WITH INFERENCE CIRCUIT

Dan Ballard, San Diego, Calif., assignor to Reticular Systems, Inc., San Diego, Calif.

Division of Ser. No. 393,241, Feb. 23, 1995, Pat. No. 5,487,134, which is a continuation of Ser. No. 23,059, Feb. 25, 1993, abandoned. This application Sep. 14, 1995, Ser. No. 528,314

Int. Cl.^{6} G06F *15/18*

U.S. Cl. 395—50 **5 Claims**



1 A universal test system, comprising:

a production system processor having an inference circuit, comprising:

a rule network connected to a working memory,

circuitry receiving input data from a bus and applying the input data to the inference circuit, and

circuitry reading output data from the inference circuit and transmitting the output data to the bus; and

a plurality of system circuits containing boundary-scan inputs and outputs in communication with the production system processor over the bus so that the system circuits are tested by the production system processor.

5,737,498

PROCESS AUTOMATION METHOD AND APPARATUS

Carl Murray, Indianapolis, Ind., assignor to Beckman Instruments, Inc., Indianapolis, Ind.

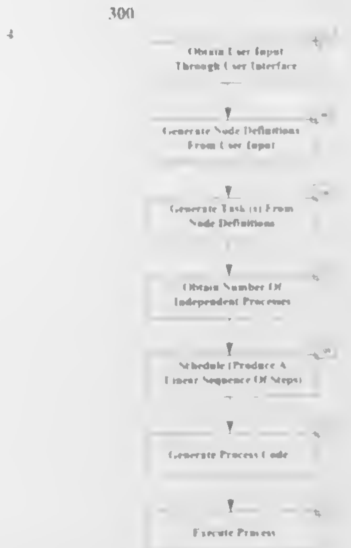
Filed Jul. 11, 1995, Ser. No. 500,765

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—81 **28 Claims**

1. A method for generating a schedule for the performance of a process, the process comprising a plurality of steps, at least one step being performed by at least one of a plurality of devices, the method comprising.

a) obtaining input containing information defining the process;


300
Obtain User Input Through User Interface
Generate Node Definitions From User Input
Generate Task(s) From Node Definitions
Obtain Number Of Independent Processes
Schedule (Produce A Linear Sequence Of Steps)
Generate Process Code
Execute Process

b) generating from the input a series of node definitions, each node definition including duration and device usage information relating to one or more steps, each node definition further including information relating to at least one previous step and at least one subsequent step, and

c) generating from the series of node definitions a plurality of tasks, each task comprising at least one step of the process, such that every step in the process is associated with at least one of the plurality of tasks;

d) employing a scheduler to generate a schedule comprising a sequence of the steps of the process based on the generated tasks an allocation of the plurality of devices that avoids device usage conflicts, and the node definitions, said schedule corresponding to the defined process.

5,737,499

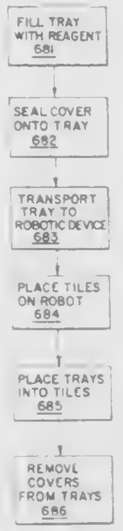
SYSTEM FOR PERFORMING A PLURALITY OF INDEPENDENT TISSUE ANALYSIS

Steven A. Bernstein, Los Olivos; Page A. Erickson, and Stephen Barker, both of Santa Barbara, all of Calif., assignors to Biotek Solutions, Inc., Santa Barbara, Calif.

Division of Ser. No. 252,282, May 31, 1994, Pat. No. 5,696,887, which is a continuation-in-part of Ser. No. 740,285, Aug. 15, 1991, Pat. No. 5,355,439, and Ser. No. 218,143, Mar. 24, 1994, Pat. No. 5,675,715. This application Jun. 21. 1996, Ser. No. 669,009

Int. Cl.^{6} G05B *19/04;* **F16B** *2/00;* **G01N** *33/00.35/10*

U.S. Cl. 395—82 **20 Claims**



1 A method of operating a system for performing a plurality of independent analysis procedures simultaneously, each said procedure having a sample and at least one process step for operating on that sample, said method comprising

coupling a plurality of tiles to a substrate, each at a selected location on said substrate;

coupling a plurality of sealed reagent trays, each having a substantially uniform shape and size selected from a predetermined set of shapes and sizes, each having been prefilled with an amount of a substance, said amount and said substance selected from a predetermined set of amounts and substances, to said plurality of tiles,

exposing said substance in said sealed reagent trays while said sealed reagent trays are coupled to said plurality of tiles,

selecting a plurality of analysis programs from a set of predetermined analysis programs stored in a computer memory; and

initiating an interleaving program stored in a computer memory that performs said plurality of analysis programs simultaneously by directing a robotic device to move said samples among said plurality of reagent trays, interleaving a plurality of steps of said analysis programs.

5,737,500

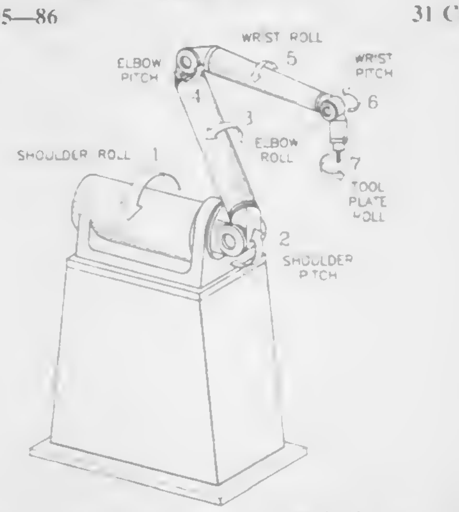
MOBILE DEXTEROUS SIREN DEGREE OF FREEDOM ROBOT ARM WITH REAL-TIME CONTROL SYSTEM

Homayoun Seraji, La Crescenta; David Lim, Walnut, and Thomas S. Lee, Los Angeles, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation-in-part of Ser. No. 849,629, Mar. 11, 1992, Pat. No. 5,430,643, and Ser. No. 231,597, Apr. 20, 1994, Pat. No. 5,550,953. This application Apr. 28, 1995, Ser. No. 431,361

Int. Cl.^{6} G05B *19/04;19/18*

U.S. Cl. 395—86 **31 Claims**



1. A method of controlling a robot arm, said robot arm comprising a base with a central axis, n joints, joint angle sensor means connected to each of said joints, joint servo loop means connected to each of said joints, and two ends comprising a mobile platform end having two degrees-of-redundancy and a movable hand end, each of said joints having a joint angle specifying a rotational orientation of said joint, said hand end having m degrees of freedom of movement, wherein m is less than n and said robot arm is characterized by a degree of redundancy, said method comprising:

first defining a first m-by-n matrix for defining location and orientation of said hand end in terms of said rotation angles of said joints;

second defining a second r-by-n matrix for defining r user-specified kinematic functions in terms of said joint angles, wherein r is a positive integer exceeding to the degree of redundancy of said robot arm,

combining said first and second matrices to produce an augmented m+r-by-n matrix;

computing in accordance with forward kinematics from said augmented m+r-by-n matrix and from the joint angles sensed by said joint angle sensor means a set of n desired joint angles and transmitting said set of n desired joint angles to said joint servo loop means to control the robot arm;

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defining a translational position of said mobile platform end from said central axis of said base; and
controlling said translational position of said mobile platform end by a platform motion controller.

5,737,501
PRINTER CONTROL UNIT AND METHOD

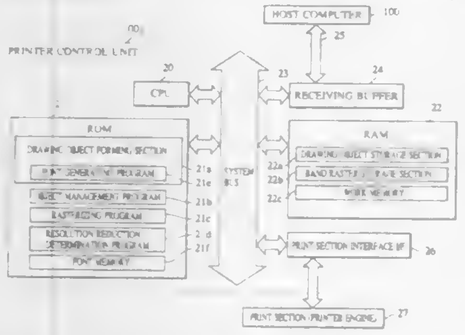
Kiyohiro Tsunekawa, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 9, 1996, Ser. No. 677,108

Claims priority, application Japan, Jul. 14, 1995, 7-178700

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—102 **32 Claims**


HOST COMPUTER
100
25
PRINTER CONTROL UNIT
20
CPU
23
24
RECEIVING BUFFER
22
ROM
DRAWING OBJECT FORMING SECTION
FONT GENERATION PROGRAM
OBJECT MANAGEMENT PROGRAM
RASTERIZING PROGRAM
RESOLUTION REDUCTION DETERMINATION PROGRAM
FONT MEMORY
21a
21e
21b
21c
21d
21f
SYSTEM BUS
RAM
DRAWING OBJECT STORAGE SECTION
BAND RASTER STORAGE SECTION
WORK MEMORY
22a
22b
22c
PRINT SECTION INTERFACE I/F
26
PRINT SECTION (PRINTER ENGINE)
27

1. A printer control unit, comprising:
drawing object forming means for forming a drawing object described in an intermediate data format on the basis of input print data; and
selection means for selecting font object forming means according to a font type of a reference drawing object which is a font object when there occurs a need to form an image at a resolution different from the resolution at which the reference drawing object was formed.

5,737,502
CHARACTER PROCESSING APPARATUS HAVING A CURSOR WHOSE DISPLAY FORM CHANGES WITH PITCH

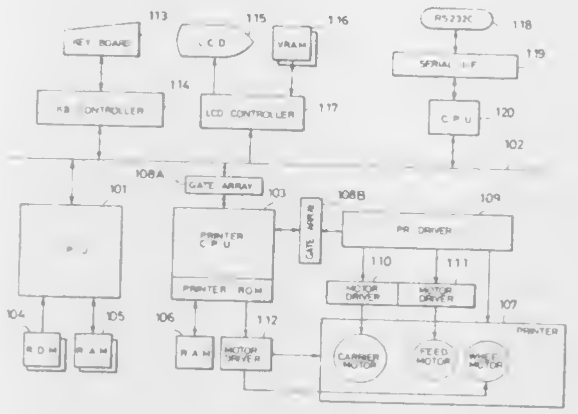
Naoki Shimada, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 109,458, Aug. 20, 1993, abandoned, which is a continuation of Ser. No. 821,904, Jan. 15, 1992, abandoned, which is a continuation of Ser. No. 666,561, Mar. 8, 1991, abandoned, which is a continuation of Ser. No. 194,149, May 16, 1988, abandoned. This application Feb. 13, 1995, Ser. No. 387,620

Claims priority, application Japan, May 22, 1987, 62-124000

Int. Cl.^{6} G06F *3/12,3/14;* **G06T** *11/60*

U.S. Cl. 395—110 **16 Claims**



1. A character processing apparatus comprising
input means for inputting character information, instruction information for moving a cursor, and character type information,
memory means for storing information;
memory control means for controlling said memory means to store the character information and the character type information inputted from said input means and position information relating to the cursor,
pattern memory means for storing a pattern developed from the character information stored in said memory means, said pattern memory means having a bit map memory;
development control means for controlling the line pitch of a pattern in response to the character type information stored in said memory means and for controlling said pattern memory means to store the developed pattern in the controlled line pitch and the position information; and
display means for displaying the pattern stored in said pattern memory means and a cursor to designate a position at which the pattern is displayed on said display means, the position and form of the cursor being changeable with the character type information, said display means having a plurality of pixel display elements each of which corresponds to each bit of the bit map memory of said pattern memory means, the cursor size being changeable in accordance with the character type information input by said input means, said display means displaying different types of characters on the same line determining different cursor forms on the same line, depending on the type of displayed character, so that the cursor has different forms on the same line when characters of different types are displayed on the same line,
wherein said display means comprises memory means for storing patterns corresponding to a plurality of character pitches.

5,737,503
APPARATUS AND METHOD FOR PRINT CONTROL

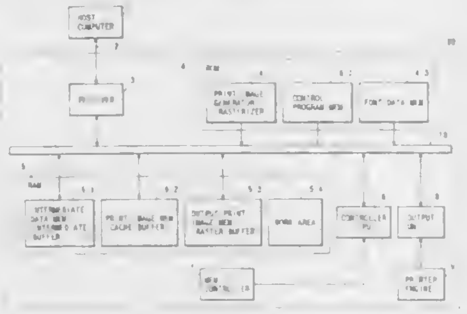
Keisuke Mitani, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 6, 1996, Ser. No. 643,749

Claims priority, application Japan, May 10, 1995, 7-136174; May 10, 1995, 7-136175; Jun. 26, 1995, 7-159470; Apr. 24, 1996, 8-102496

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—115 **17 Claims**


HOST COMPUTER
PRINT IMAGE GENERATOR RASTERIZER
CONTROL PROGRAM ROM
FONT DATA ROM
RAM
INTERMEDIATE DATA MEM INTERMEDIATE BUFFER
PRINT IMAGE MEM CACHE BUFFER
OUTPUT PRINT IMAGE MEM RASTER BUFFER
WORK AREA
CONTROLLER PU
OUTPUT UNIT
MEM CONTROLLER
PRINTER ENGINE

1. A print control device which allows image data to be generated from intermediate data and printed by a printing unit, comprising:
generating means for generating said image data from said intermediate data memorized in an intermediate buffer;
a band raster buffer for memorizing said image data generated by said generating means;
a cache buffer for allowing cache of said image data generated by said generating means; and
control means for reserving said intermediate buffer for memorizing said intermediate data by extending said band raster buffer to a full-raster buffer of one page or deleting said cache buffer, when the capacity of said intermediate buffer is insufficient

5,737,504
LABEL PRINTER

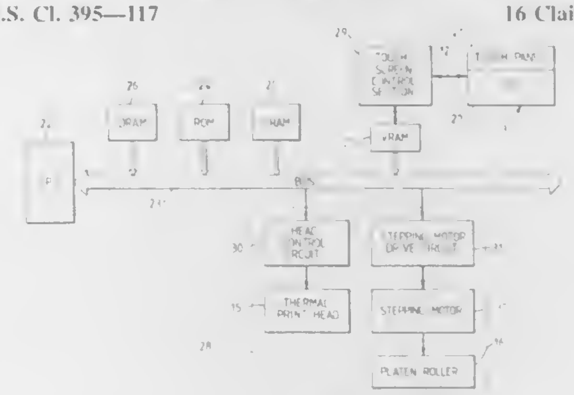
Keisuke Yamada, Saitama-ken, Japan, assignor to Kabushiki Kaisha Sato, Japan

Filed Dec. 19, 1995, Ser. No. 575,891

Claims priority, application Japan, Dec. 21, 1994, 6-335625

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—117 **16 Claims**



1. A label printer in which print data is printed on a label, the label printer comprising:
a printer system unit and a touch-screen unit electrically connected to the printer system unit, with print data setting information for setting prescribed content of label print data and print data editing information for printing the print data on the label in a prescribed format being capable of being entered by operating touch screens hierarchically displayed on the touch-screen unit,
data input means displaying print data setting information on a screen of the touch-screen unit and making a data input possible, designation input means designating a treatment address for reading out print data setting information to be displayed subsequent to displaying input data setting information on a screen, display means displaying on a screen a designated print data setting information in accordance with the input from the designation input means;
and an operation screen at any level in the hierarchical structure can be displayed on the touch-screen and print data setting information inputted from that level.

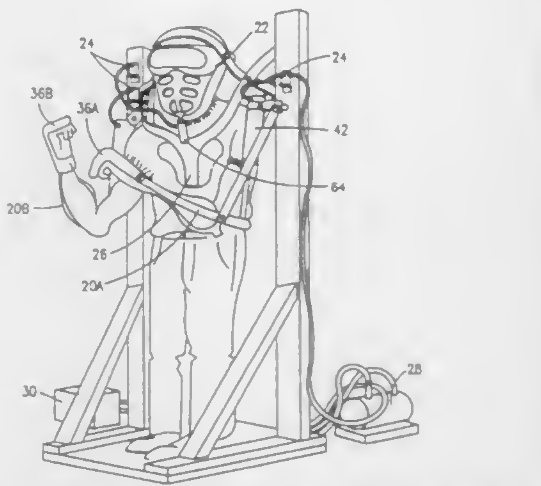
5,737,505
TACTILE INTERFACE APPARATUS FOR PROVIDING PHYSICAL FEEDBACK TO A USER BASED ON AN INTERACTION WITH A VIRTUAL ENVIRONMENT

Christopher D. Shaw, Santa Cruz, and Jack W. Wiley, Corralitos, both of Calif., assignors to Haptek, Inc., Santa Cruz, Calif.

Continuation of Ser. No. 371,497, Jan. 11, 1995, abandoned. This application Oct. 15, 1996, Ser. No. 729,310

Int. Cl.^{6} G08B *3/100*

U.S. Cl. 395—119 **16 Claims**



1. Tactile interface apparatus comprising:
a mounting means;
a left interface arm comprising a left upper arm and a left forearm, the left interface arm for providing physical feedback to a left human arm, the left upper arm and the left forearm being coupled to one another for rotation about a left elbow hinge;
a right interface arm comprising a right upper arm and a right forearm, the right interface arm for providing physical feedback to a right human arm, the right upper arm and the right forearm being coupled to one another for rotation about a right elbow hinge;
a left mechanical shoulder rotatably coupling the left interface arm to the mounting means, the left mechanical shoulder permitting rotation of the left upper arm with respect to the mounting means about a left shoulder pivot;
a right mechanical shoulder rotatably coupling the right interface arm to the mounting means, the right mechanical shoulder permitting rotation of the right upper arm about a right shoulder pivot;
left actuating means being operable in response to a left output signal to cause rotation of the left forearm relative to the left upper arm, and simultaneously to cause rotation of the left upper arm relative to the mounting means, thereby to exert forces on the left human arm in use;
right actuating means being operable in response to a right output signal to cause rotation of the right forearm relative to the right upper arm, and simultaneously to cause rotation of the right upper arm relative to the mounting means, thereby to exert forces on the right human arm in use;
sensing means for providing input signals representative of the relative locations of the left forearm, the left upper arm and the mounting means, and representative of the relative locations of the right forearm, the right upper arm and the mounting means; and
processing means for providing a virtual environment and for determining an interaction of the human operator with the virtual environment in use, the interaction being determined from the virtual environment and the input signals, the processing means further providing the left and right output signals to the left and right actuating means respectively based on said determined interaction, thereby to exert forces on the left and right human arms in use.

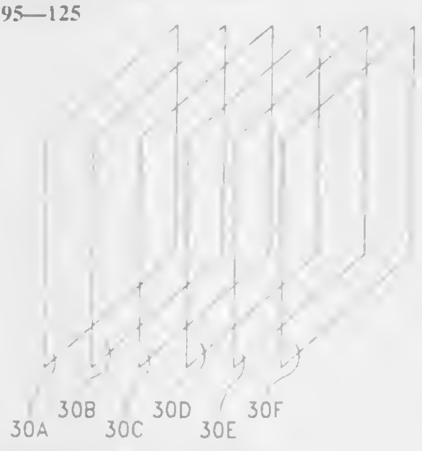
5,737,506
ANATOMICAL VISUALIZATION SYSTEM

Michael A. McKenna, Cambridge; David T. Chen, Somerville, both of Mass., and Steven D. Pieper, Thetford Center, Vt., assignors to Medical Media Systems, West Lebanon, N.H.

Filed Jun. 1, 1995, Ser. No. 457,692

Int. Cl.^{6} G06T *7/40*

U.S. Cl. 395—125 **16 Claims**



1. A visualization system comprising:

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a first database comprising a plurality of 2-D slice images generated by scanning a structure such that each of said 2-D slice images comprises a cross-sectional view of said structure as taken at a plane extending through said structure, said 2-D slice images being stored in a 2-D data format;

a second database comprising a 3-D computer model of said scanned structure, said 3-D computer model being generated from said 2-D slice images contained in said first database, said 3-D computer model comprising at least a first software object representative of at least a portion of said scanned structure, said first software object being defined by a 3-D geometry database;

means for generating a second software object and for inserting said second software object into said 3-D computer model such that said second software object co-exists with said first software object within said 3-D computer model so as to augment said 3-D computer model, said second software object being defined by a 3-D geometry database and including a planar surface;

means for providing a 2-D slice image from said 2-D slice images contained in said first database, wherein said provided 2-D slice image corresponds to the position of said planar surface of said second software object within said augmented 3-D computer model;

means for texture mapping said provided 2-D slice image onto said planar surface of said second software object; and

means for displaying an image of said augmented 3-D computer model so as to simultaneously provide a view of both said first software object and said 2-D slice image texture mapped onto said planar surface of said second software object

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5,737,507

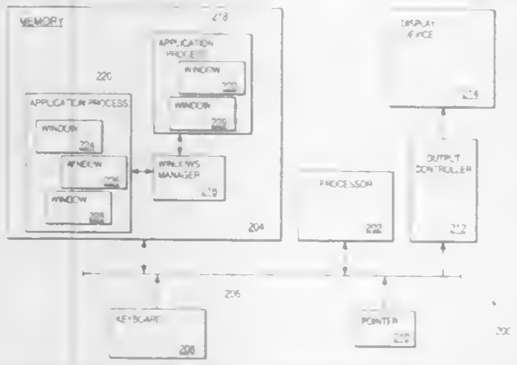
REPRESENTATION OF INTER-RELATIONSHIPS BETWEEN GRAPHICAL OBJECTS IN A COMPUTER DISPLAY DEVICE

Randall B. Smith, Palo Alto, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 7, 1995, Ser. No. 499,137

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—133 **39 Claims**



1. A method for representing relationships between two or more graphical objects displayed in a computer display device of a computer system which includes a processor, memory and the computer display device, the method comprising:

(a) detecting a resize event which is associated with a first one of the graphical objects displayed in the computer display device and which is generated in response to user manipulation of a computer input device in a resize gesture;

(b) determining that the first graphical object is in a view relationships mode which indicates that the resize gesture is to be interpreted as a view relationships gesture,

(c) representing the first graphical object in a graphics world in the memory;

(d) determining that one or more related ones of the graphical objects displayed in the computer display device are related to the first graphical object by reference to data stored in the memory of the computer system which represents relationships between the graphical objects displayed in the computer display device;

(e) for each related graphical object, performing the following steps:

(i) representing the related graphical object in the graphics world, and

(ii) representing in the graphics world the relationship between the related graphical object and the first graphical object;

(f) associating the graphics world with a relationship window, and

(g) displaying the relationship window in the computer display device to thereby cause display in the computer display device of the representations of the first graphical object, of each related graphical object, and of the relationship between each related graphical object and the first graphical object

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5,737,508

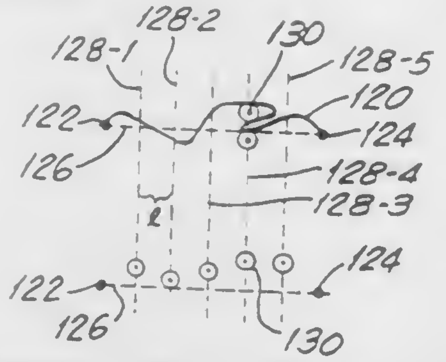
METHOD FOR SMOOTHING FRACTALLY-CURVED LINES

Mitchell Feigenbaum, New York, N.Y., assignor to Hammond, Incorporated, Maplewood, N.J.

Division of Ser. No. 149,650, Nov. 5, 1993, Pat. No. 5,355,314, which is a continuation of Ser. No. 671,246, Mar. 21, 1991, abandoned, which is a continuation-in-part of Ser. No. 499,143, Mar. 26, 1990, abandoned. This application Sep. 2, 1994, Ser. No. 300,135

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—142 **1 Claim**



1. A method for automatically smoothing a fractally curved line to a length 1, said line having two endpoints and representing a lineal cartographic feature on the surface of a map and being represented by a series of sample points in the memory of a digital computer, while retaining the larger scale characteristics of importance of the line, comprising the steps of:

recursively defining a new endpoint on the line between any two adjacent endpoints so far determined by locating a point on said line which is the farthest perpendicular distance from a chord joining such endpoints so far determined so long as such farthest perpendicular distance is at least of length 1,

segmenting each chord joining adjacent endpoints into sections of length not greater than 1 by defining locations along the chord,

defining new points between adjacent endpoints along a line perpendicular to the chord at each such location, such new points being displaced from the chord by a distance equal to the average value of the perpendicular distance of the line from the chord in the segment of the chord between the locations or endpoints adjacent to such location;

fitting an arc-length splined curve through such endpoints and said new points to define a smooth line; and

generating a display of such smoothed line

5,737,509

METHOD AND APPARATUS FOR RESTORING DATA COHERENCY IN A DUPLEX SHARED MEMORY SUBSYSTEM

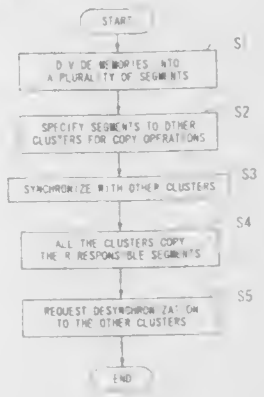
Masato Fushimi, and Toshinori Hiraishi, both of Shizuoka, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 7, 1995, Ser. No. 524,580

Claims priority, application Japan, Jan. 27, 1995, 7-011194

Int. Cl.^{6} G06F *12/06*

U.S. Cl. 395—182.03 **16 Claims**


START
S1
DIVIDE MEMORIES INTO A PLURALITY OF SEGMENTS
S2
SPECIFY SEGMENTS TO OTHER CLUSTERS FOR COPY OPERATIONS
S3
SYNCHRONIZE WITH OTHER CLUSTERS
S4
ALL THE CLUSTERS COPY THEIR RESPONSIBLE SEGMENTS
S5
REQUEST DESYNCHRONIZATION TO THE OTHER CLUSTERS
END

9. A method for restoring data coherency between first and second memories which have lost data coherency, the first and second memories being accessible by a plurality of clusters, the method comprising the steps of:

dividing the first and second memories into a plurality of segments, the plurality of segments of the first memory corresponding, respectively, to the plurality of segments of the second memory;

assigning each segment of the plurality of segments of the first memory to a respective cluster of the plurality of clusters; and

causing each cluster to copy each segment of the first memory assigned thereto to the corresponding segment of the second memory, to restore data coherency between the first and second memories.

5,737,510

DISC ARRAY SYSTEM HAVING DISC STORAGE DEVICES DISPERSED ON PLURAL BOARDS AND ACCESSIBLE AT WITHDRAWAL OF PART OF THE BOARDS

Hitoshi Kakuta, Tokyo; Yoshifumi Takamoto, Fuchu, and Toyohiko Kagimasa, Sagamihara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 350,080, Nov. 29, 1994, Pat. No. 5,600,783. This application Feb. 3, 1997, Ser. No. 794,756

Claims priority, application Japan, Nov. 30, 1993, 5-329810

Int. Cl.^{6} G06F *11/00*

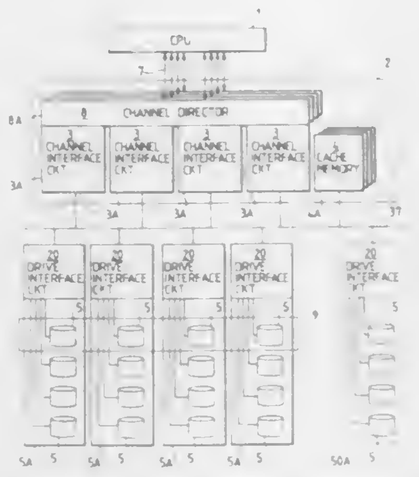
U.S. Cl. 395—182.04 **39 Claims**

1. A disc array system, comprising:

(a) a group of disc storage devices divided into a plurality of logical groups, each logical group comprising a plurality of disc storage devices for holding groups of error correction data, each error correction data group comprising a plurality of data and an error correction code for the plurality of data; and

(b) a plurality of local boards each for holding a number of disc storage devices within the group of disc storage devices,

wherein different sub groups of disc storage devices belonging to a same logical group are held on mutually different ones of said plurality of local boards, and different sub groups of disc



storage devices held by each local board belong to different ones of said plurality of logical groups.

5,737,511

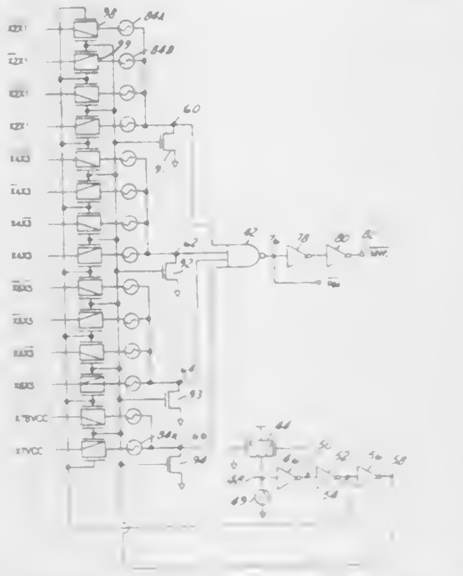
METHOD OF REDUCING CHIP SIZE BY MODIFYING MAIN WORDLINE REPAIR STRUCTURE

Tung Chi Chang, Hsing-Chu County, Taiwan, assignor to United Microelectronics Corporation, Hsinchu, Taiwan

Filed Jun. 13, 1996, Ser. No. 662,682

Int. Cl.^{6} G06F *11/18; 11/20*

U.S. Cl. 395—182.05 **18 Claims**



1. An apparatus for effecting replacement of main circuits with redundancy circuits in a solid state memory chip using logic circuits instead of fuse circuits, comprising

a predecoder comprising:

first inverter means for receiving a first signal having a first state indicating whether a predetermined main circuit is selected and providing an output inverting said first signal to a second state;

second inverter means connected to the output of said first inverter means for providing an inverted output of said output of said first inverter means to restore said first signal to said second state;

third inverter means connected to the output of said second inverter means for providing an inverted output of said output of said second inverter means to output said first signal in said second state,

first circuit means for receiving inputs, indicative of whether a main circuit is selected and comprising a first fixed input and a second varying input having a first enabling state and a

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second disabling state, and providing an output having an enabling state and a disabling state; and

second circuit means for receiving a first input from the output of said third inverter means and a second input from the output of said first circuit means and providing an enabling output whenever the output of said first circuit means is in the enabling state indicating the main circuit is selected and a disabling output whenever the output of said first circuit means is in the disabling state indicating the main circuit is to be replaced; and

a decoder comprising:

fourth inverter means for receiving as an input said enabling and disabling outputs from said second circuit means and providing an output inversely indicative of said enabling and disabling outputs; and

fifth inverter means for receiving said output of said fourth inverter means and providing a signal indicating whether to replace said main circuit with a redundancy circuit.

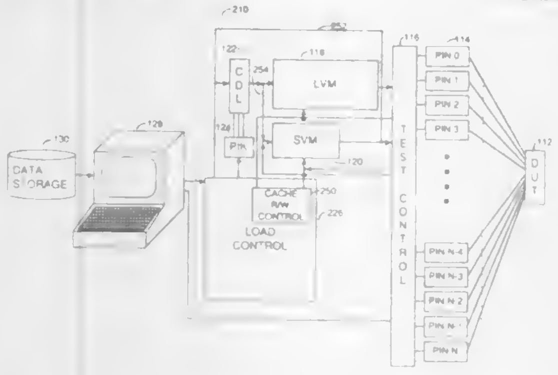
5,737,512
FAST VECTOR LOADING FOR AUTOMATIC TEST EQUIPMENT

David M. Proudfoot, Stanford, and Peter A. Reichert, Thousand Oaks, both of Calif., assignors to Teradyne, Inc., Boston, Mass.

Filed May 22, 1996, Ser. No. 653,949

Int. Cl.⁶ G06F *11/00;* G01R *31/28*

U.S. Cl. 395—183.08 16 Claims



1. Automatic test equipment of the type executing a test pattern comprising a series of vectors, the test equipment being of the type which is connected to a workstation having nonvolatile memory for storing the test pattern, comprising:

a) a memory for storing the test pattern;

b) circuitry for executing the test pattern stored in the memory and generating test signals, the circuitry being connected to the memory;

c) a data input port adapted for connection to the workstation; and

d) load control circuitry, connected to the data input port and the memory, comprising

i) a cache memory for storing a plurality of vectors, and

ii) control logic for receiving a message from the data input port, retrieving a vector from the cache memory in response to the received message, receiving change messages from the data input port, producing a composite vector from the combination of the vector retrieved from the cache memory and the received change messages, and storing the composite vector in the memory for storing the test pattern.

5,737,513
METHOD OF AND SYSTEM FOR VERIFYING OPERATION CONCURRENCE IN MAINTENANCE/REPLACEMENT OF TWIN CPUS

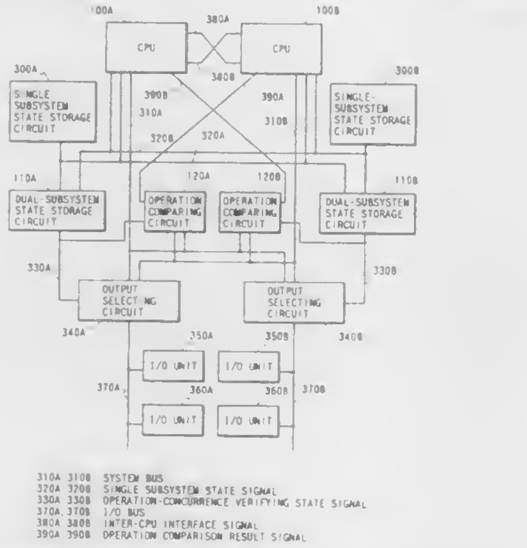
Koji Matsuda, Hitachinaka; Yoshihiro Miyazaki, Hitachi; Soichi Takaya, Hitachi; Kazuhiro Hyuga, Hitachi; Nobuo Akeura, Ebina; Shinichiro Yamaguchi, Mito; Naoto Miyazaki, Hitachi, and Satoru Kayukawa, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Information & Control Systems Inc., Hitachi, both of Japan

Filed May 20, 1996, Ser. No. 650,662

Claims priority, application Japan, May 24, 1995, 7-125109

Int. Cl.⁶ G06F *11/16;11/22*

U.S. Cl. 395—182.09 9 Claims


100A
100B
380A
CPU
CPU
300A
300B
380B
SINGLE SUBSYSTEM STATE STORAGE CIRCUIT
SINGLE-SUBSYSTEM STATE STORAGE CIRCUIT
390B
390A
310A
310B
320B
320A
110A
110B
120A
120B
DUAL-SUBSYSTEM STATE STORAGE CIRCUIT
OPERATION COMPARING CIRCUIT
OPERATION COMPARING CIRCUIT
DUAL-SUBSYSTEM STATE STORAGE CIRCUIT
330A
330B
OUTPUT SELECTING CIRCUIT
OUTPUT SELECTING CIRCUIT
340A
350A
350B
340B
370A
360A
360B
370B
I/O UNIT
I/O UNIT
I/O UNIT
I/O UNIT
310A 310B SYSTEM BUS
320A 320B SINGLE SUBSYSTEM STATE SIGNAL
330A 330B OPERATION-CONCURRENCE VERIFYING STATE SIGNAL
370A, 370B I/O BUS
380A 380B INTER-CPU INTERFACE SIGNAL
390A 390B OPERATION COMPARISON RESULT SIGNAL

1. A method of verifying concurrence of operations in maintenance/replacement of twin CPUs each employed in one of two subsystems of a dual-CPU computer system allowing one of said CPUs in one of said subsystems to undergo maintenance/replacement process while the other CPU in the other subsystem is operating, which system comprises:

dual-subsystem state storage means for storing at least a state with said two subsystems carrying out the same operation, a state with said two subsystems carrying out different operations or a state of verifying concurrence of operations carried out by said two subsystems as an operating state of said twin CPUs; and

operation comparing means connected to said dual-subsystem state storage means and said twin CPUs for comparing operations carried out by said twin CPUs with each other in said state of verifying concurrence of operations carried out by said two subsystems,

wherein:

said two subsystems are let start to carry out identical operations after a replacement CPU is installed in a maintenance/replacement process; then

said operating state of said twin CPUs stored in said dual-subsystem state storage means is changed from said state with said two subsystems carrying out different operations to said state of verifying concurrence of operations carried out by said two subsystems; and then

said operation comparing means are let start to compare said identical operations carried out by said twin CPUs with each other for a predetermined time period; and

if a result of comparison output by said operation comparing means indicates operation concurrence, said state with said two subsystems carrying out the same operation is stored in said dual-subsystem state storage means as an operating state of said two subsystems; or else

if said result of comparison output by said operation comparing means indicates operation discordance, on the other hand, said state with said two subsystems carrying out different operations is stored in said dual-subsystem state storage means as an operating state of said two subsystems;

wherein an output selecting unit is provided in each of said subsystem;

said output selecting unit is connected to said dual-subsystem state storage means; and

said output selecting unit receives signals output by said twin CPUs;

said output selecting unit selects said signals output by said CPU of said subsystem associated with said output selecting unit if said operating state of said twin CPUs stored in said dual-subsystem state storage means is said state with said two subsystems carrying out the same operation or said state with said two subsystems carrying out different operations but said output selecting unit selects said signals output by said CPU of said subsystem not associated with said output selecting unit if said operating state of said twin CPUs stored in said dual-subsystem state storage means is said state of verifying concurrence of operations carried out by said two subsystems.

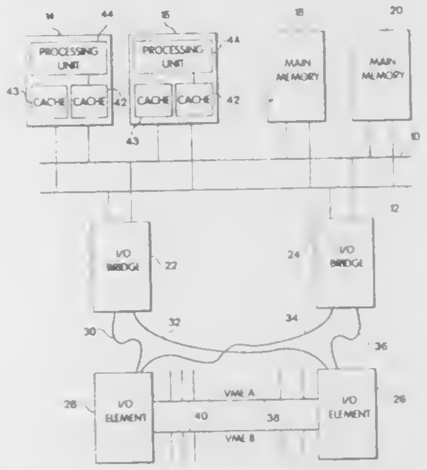
5,737,514
REMOTE CHECKPOINT MEMORY SYSTEM AND PROTOCOL FOR FAULT-TOLERANT COMPUTER SYSTEM

Jack J. Stiffler, Hopkinton, Mass., assignor to Texas Micro, Inc., Houston, Tex.

Filed Nov. 29, 1995, Ser. No. 564,023

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 395—182.11 14 Claims



1. A computer system comprising:

a first computer processing at least a first application, the first computer including:

a processor having a cache, internal registers and an input/output event queue,

a main memory subsystem coupled to the processor and cache,

a write buffer coupled to the main memory subsystem that captures data written to the main memory,

an external port, and

an interface controller, coupled to the write buffer and the external port, that transfers data in the write buffer to the external port of the first computer,

wherein the processor includes means for flushing the cache, internal registers and input/output event queue to the main memory subsystem and means for issuing a checkpoint instruction after flushing the cache, internal registers and input/output event queue;

a data communications link coupled to the external port of the first computer;

a second computer including:

an external port coupled to the data communications link,

an interface controller, coupled to the external port of the second computer to receive the data from the interface controller of the first computer,

a main memory subsystem,

a buffer memory, coupled to the interface controller of the second computer and the main memory of the second computer, that receives the data transferred from the write buffer of the first computer; and

wherein data stored in the buffer memory is transferred to the main memory subsystem of the second computer upon receipt of the checkpoint instruction from the first computer, such that the main memory subsystem of the second computer maintains a consistent state from which processing of the first application can be restarted of the first computer.

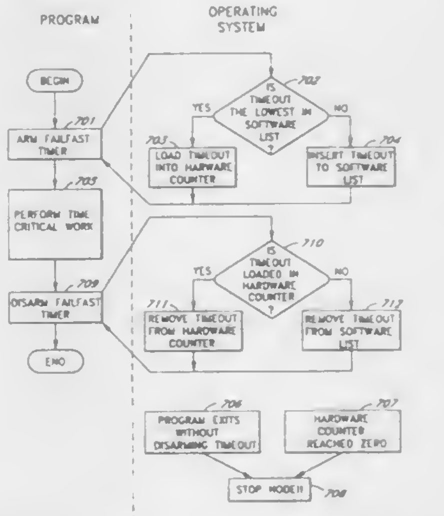
5,737,515
METHOD AND MECHANISM FOR GUARANTEEING TIMELINESS OF PROGRAMS

Vladimir Matena, Redwood City, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jun. 27, 1996, Ser. No. 669,722

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 395—182.21 17 Claims


PROGRAM
OPERATING SYSTEM
BEGIN
701
ARM FAILFAST TIMER
702
IS TIMEOUT THE LOWEST IN SOFTWARE LIST ?
YES
NO
703
LOAD TIMEOUT INTO HARDWARE COUNTER
704
INSERT TIMEOUT TO SOFTWARE LIST
PERFORM TIME CRITICAL WORK
710
IS TIMEOUT LOADED IN HARDWARE COUNTER ?
YES
NO
709
DISARM FAILFAST TIMER
711
REMOVE TIMEOUT FROM HARDWARE COUNTER
712
REMOVE TIMEOUT FROM SOFTWARE LIST
END
706
PROGRAM EXITS WITHOUT DISARMING TIMEOUT
707
HARDWARE COUNTER REACHED ZERO
STOP NODE!!
708

1. A method for a fail-fast timer for a plurality of programs, each associated with a timeout value and each running a time critical operation on a node, comprising the steps of:

arming a fail-fast timer mechanism by loading the smallest timeout value associated with one of said plurality of programs from a software list of a plurality of timeout values into a hardware counter, said smallest timeout value being smaller than or equal to the timeout value associated with any one of the other said plurality of programs;

resetting said one of a plurality of programs if the time critical operation associated with said one of a plurality of programs does not complete execution within said smallest timeout value; and

disarming said fail-fast timer mechanism for said one of a plurality of programs once said time critical operation has been completed and loading the smallest timeout value associated with one of the other of said plurality of programs.

5,737,516
DATA PROCESSING SYSTEM FOR PERFORMING A DEBUG FUNCTION AND METHOD THEREFOR

Joseph C. Circello, Phoenix, Ariz., and William A. Hohl, Pflugerville, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 30, 1995, Ser. No. 520,943

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—183.14 8 Claims

1. A data processor comprising.

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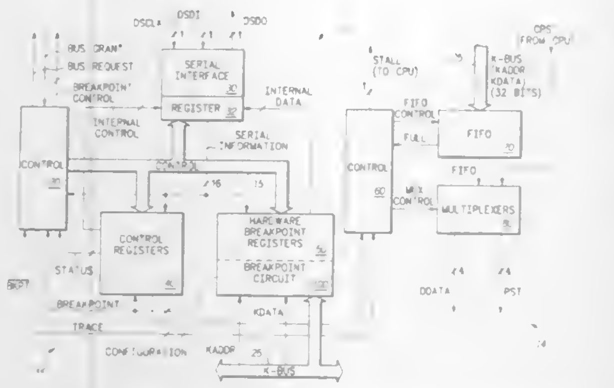


a central processor unit for executing instructions sequentially having a first debug state for executing a breakpoint exception routine and a second debug state for suspending sequential execution of instructions pending an external event;

input means for receiving a breakpoint value and one of a plurality of breakpoint response values;

a control register coupled to the input means for storing the breakpoint response value;

a breakpoint register coupled to the input means for storing the breakpoint value;

a breakpoint circuit coupled to the breakpoint register, and a data bus for generating a breakpoint signal when the breakpoint value matches a value on the data bus;

a control circuit coupled to the control register, the central processor unit, and coupled to receive the breakpoint signal, wherein the control circuit causes the central processor unit to operate in the first state when the breakpoint response value is a first value and the control circuit causes the central processor unit to operate in the second state when the breakpoint response value is a second value.

5,737,517

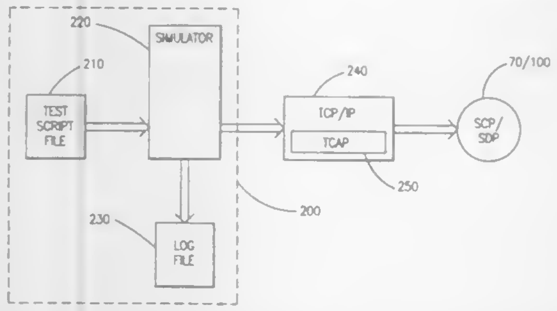
TESTING TOOLS IN AN INTELLIGENT NETWORK SYSTEM

Kurt Kite, and Hans Gundersen, both of Richardson, Tex., assignors to Ericsson, Inc., Research Triangle Park, N.C.

Filed Dec. 21, 1995, Ser. No. 577,913

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 395—183.14 **26 Claims**



1. An apparatus for performing function tests on Intelligent Network (IN) software modules external to a telecommunications network within which the software modules are to be installed, comprising:

a simulator for generating Transaction Capabilities Application Part (TCAP) messages for triggering execution of a software module to be tested;

a computer platform for executing the software module; and

a Local Area Network (LAN) connecting said simulator with said computer platform for transporting TCAP messages, encapsulated in LAN communications packets, between said simulator and said computer platform.

5,737,518

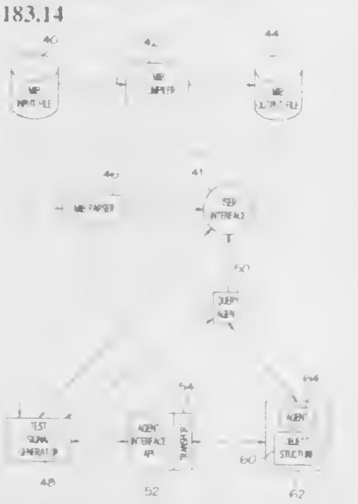
METHOD AND APPARATUS FOR TESTING AN OBJECT MANAGEMENT SYSTEM

Douglas M. Grover, Elk Ridge, and Tony L. Worwood, Nephi, both of Utah, assignors to Novell, Inc., Provo, Utah

Filed Jul. 31, 1996, Ser. No. 690,580

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 395—183.14 **22 Claims**



1. A method for testing the implementation of an object in an object management system, the object management system including a plurality of objects and procedures for accessing the objects, the object management system being accessible over a network and associated with a network-attached device, comprising:

a) identifying an object;

b) automatically identifying at least one attribute of the object;

c) automatically generating a test signal for testing the identified attribute, the test signal being generated as a function of the identified attribute; and

d) communicating the test signal over the network to the object management system.

5,737,519

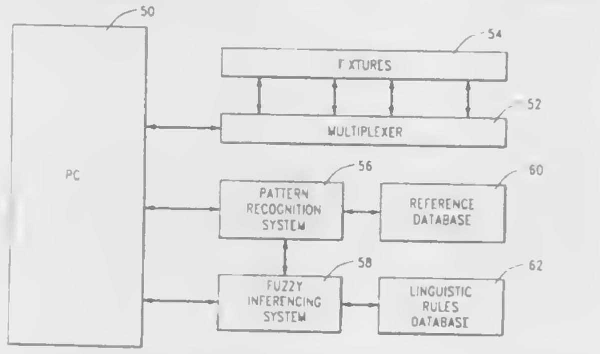
SYSTEM AND METHOD FOR EARLY DISC DRIVE FAULT DETECTION

Ghassan Maurice Abdelnour, Oklahoma City; Steven Hill Rogers, Norman, and Horace David Chandler, Oklahoma City, all of Okla., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Aug. 22, 1995, Ser. No. 518,105

Int. Cl.^{6} G06F *11/34*

U.S. Cl. 395—183.15 **7 Claims**



1. An apparatus for early detection of faults in a device under test comprising:

(a) means for obtaining parametrics for a device under test;

(b) means for providing a database of historical parametric patterns and corresponding error rates;

(c) means for determining a similarity measure for each historical parametric pattern by comparison of the historical parametrics to the parametrics;

(d) means for estimating an error rate for the device from the corresponding error rates of a selected number of historical parametric patterns;

(e) means for providing a set of linguistic rules,

(f) means for applying the linguistic rules to the set of fuzzy linguistic domains for the estimated error rate and parametrics to give a classification of the device; and

(g) means for dispositioning the device for further operations according to the classification of the device.

5,737,520

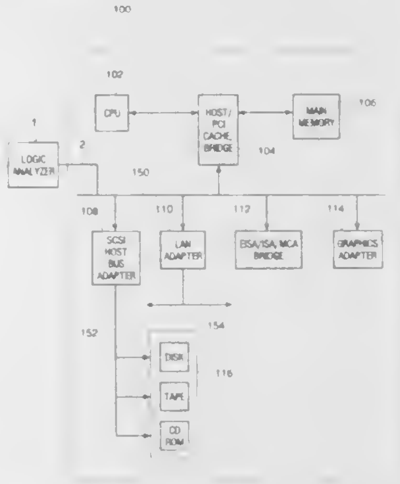
METHOD AND APPARATUS FOR CORRELATING LOGIC ANALYZER STATE CAPTURE DATA WITH ASSOCIATED APPLICATION DATA STRUCTURES

Robert D. Gronlund; Brian A. Willette, both of Colorado Springs, Colo., and William M. Zevin, Raleigh, N.C., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed Sep. 3, 1996, Ser. No. 708,142

Int. Cl.^{6} G06F *11/22*

U.S. Cl. 395—183.15 **31 Claims**



14. A computer operable method for displaying state logic data acquired by a logic analyzer regarding memory accesses on an electronic interconnect bus connected to said logic analyzer, said method comprising the steps of:

correlating at least one buffer with said state logic data acquired by said logic analyzer wherein said at least one buffer comprises states dispersed in said state logic data representing a sequence of memory accesses to contiguous memory addresses; and

displaying said at least one buffer on a computer display screen.

5,737,521

TRACER SYSTEM FOR ANALYZING ERRORS IN RUNNING REAL-TIME SYSTEMS

Ulrich Kleber, München; Gerhard Goller, Taufkirchen; Jörg Neuhoff, München, and Hans-Jörg Keller, Ottobrunn, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE94/01093, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO95/09396, PCT Pub. Date Apr. 6, 1995

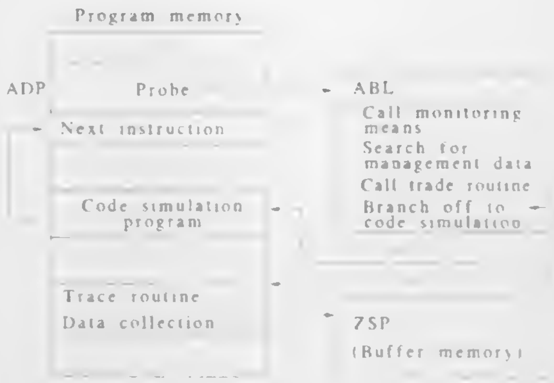
PCT Filed Sep. 20, 1994, Ser. No. 619,532

Claims priority, application Germany, Sep. 28, 1993, 43 32 992.6

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 395—183.21 **4 Claims**

4. A tracer system for analyzing errors of programs in running real-time systems, comprising:



a) activation device which effects execution of predetermined functions at predetermined program points that are trace points;

b) an executive device, which controls operational sequence of a tracing process and instigates an immediate continuation of a attested program after execution of the functions at a trace point;

c) an input for inputting trace points into the real-time system and for inputting associated functions during execution of the real-time system,

d) a generating device for generating during program execution trace routines for execution of the predetermined functions and also for assigning memory areas for receiving data determined by the trace routines; and

a monitoring device for monitoring how heavily the tracer system loads the real-time system during the tracing process, and for deactivating the tracing process if a predetermined loading threshold is exceeded.

5,737,522

SERIAL INPUT/OUTPUT CIRCUIT WITH AN AUTOMATIC TRANSFER FUNCTION

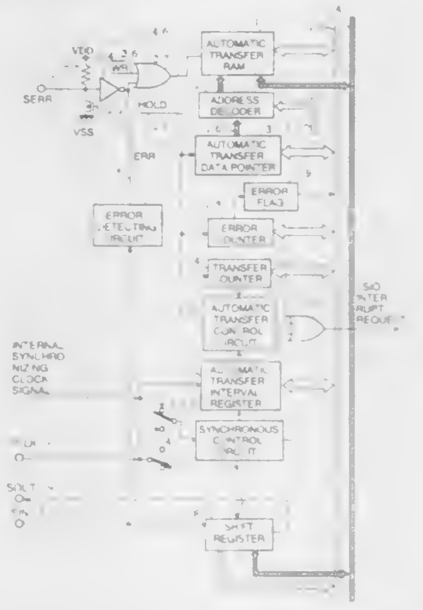
Naoko Matsumoto, Hyogo, Japan, assignor to Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

Filed Oct. 31, 1996, Ser. No. 742,825

Claims priority, application Japan, Jun. 17, 1996, 8-155386

Int. Cl.^{6} G06F *13/00;13/38*

U.S. Cl. 395—185.02 **12 Claims**


VDD
WR
SERR
HOLD
VSS
AUTOMATIC TRANSFER RAM
ADDRESS DECODER
AUTOMATIC TRANSFER DATA POINTER
ERROR FLAG
ERROR DETECTING CIRCUIT
ERROR COUNTER
TRANSFER COUNTER
AUTOMATIC TRANSFER CONTROL CIRCUIT
SIO INTERRUPT REQUEST
INTERNAL SYNCHRONIZING CLOCK SIGNAL
AUTOMATIC TRANSFER INTERVAL REGISTER
SYNCHRONOUS CONTROL CIRCUIT
SHIFT REGISTER

1. A serial input/output circuit with an automatic transfer function comprising:

memory means for storing respective data to be transferred.

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transfer means for successively serially transferring the respective data stored in said memory means,

pointer means for storing an address pointer for addressing data in said memory means, updating the address pointer after completion of a transfer of a first data signal, and supplying the address pointer to said memory means;

a transfer counter for storing a transfer count indicating a quantity of untransferred data and updating the transfer count after completion of the transfer of the first data signal; and

update prohibiting means comprising a logic circuit including a plurality of input terminals for receiving error signals indicative of data errors, a first output terminal coupled to said transfer counter and said pointer means, a second output terminal coupled to said memory means, said update prohibiting means producing a first control signal for prohibiting the transfer count from being updated and a second control signal for prohibiting writing to said memory means when transfer of the first data has been completed and a data error occurs.

5,737,523

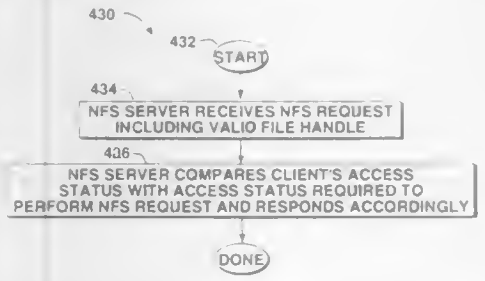
METHODS AND APPARATUS FOR PROVIDING DYNAMIC NETWORK FILE SYSTEM CLIENT AUTHENTICATION

Brent P. Callaghan, Mountain View, and Michael R. Eisler, San Jose, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Mar. 4, 1996, Ser. No. 610,704

Int. Cl.⁶ G06F *15/163*

U.S. Cl. 395—187.01 30 Claims


430
432
START
434
NFS SERVER RECEIVES NFS REQUEST INCLUDING VALID FILE HANDLE
436
NFS SERVER COMPARES CLIENT'S ACCESS STATUS WITH ACCESS STATUS REQUIRED TO PERFORM NFS REQUEST AND RESPONDS ACCORDINGLY
DONE

1. A method implemented on a server computer system for providing dynamic client authentication in a distributed file system computing environment, the method comprising the computer controlled steps of:

receiving an NFS request from an NFS client, the NFS request including a file handle representing a given file system available on the server computer system and a file operation to be performed upon the given file system, the given file system modifiable by clients of the server computer having a corresponding access status of read-write with respect to the given file system, readable by clients of the server computer having the corresponding access status of read only with respect to the given file system, and inaccessible to all other clients of the server computer;

dynamically determining whether the NFS client has an access status sufficient to perform the NFS request; and

performing the NFS request when the NFS client has sufficient access status.

5,737,524

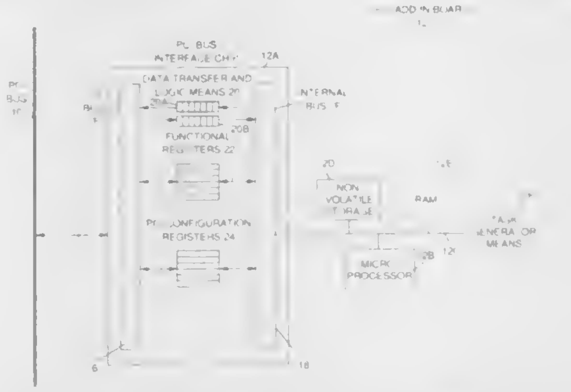
ADD-IN BOARD WITH PROGRAMMABLE CONFIGURATION REGISTERS FOR USE IN PCI BUS COMPUTERS

Ariel Cohen, Zichron-Yaacov, Israel; William Gavin Holland, Cary; Joseph Franklin Logan, Raleigh, both of N.C., and Avi Parash, Ramat-Yishay, Israel, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 22, 1995, Ser. No. 446,390

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.01 21 Claims



1. An add-in board for using in a PCI computer system comprising: a first bus;

a sub-assembly means coupled to the first bus;

said sub-assembly means performing predetermined functions to accomplish a desired task;

a microprocessor coupled to the first bus;

a non-volatile storage means coupled to the first bus, said non-volatile storage means storing configuration information;

a Peripheral Component Interconnect (PCI) bus interface chip interconnected to the first bus and a second bus, said PCI bus interface chip including programmable configuration registers accessible by a PCI microprocessor, over the second bus, and the microprocessor; and

a PCI bus interface chip controller responsive to a first signal to inhibit the PCI microprocessor from accessing said configuration registers until the microprocessor pre-loads the configuration information into the said configuration registers.

5,737,525

NETWORK PACKET SWITCH USING SHARED MEMORY FOR REPEATING AND BRIDGING PACKETS AT MEDIA RATE

Jose J. Picazo, Jr., San Jose; Paul Kakul Lee, Union City, and Robert P. Zager, San Jose, all of Calif., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 498,116, Jul. 5, 1995, which is a continuation-in-part of Ser. No. 881,931, May 12, 1992, Pat. No. 5,432,907. This application Aug. 7, 1996, Ser. No. 694,491

Int. Cl.⁶ H04J *3/02*

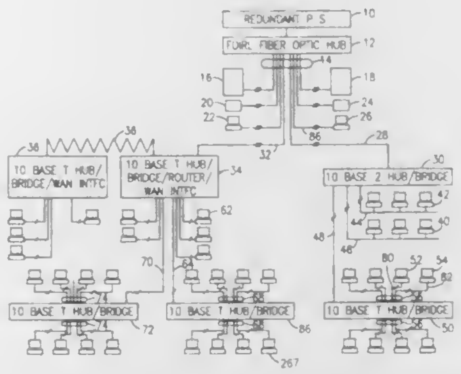
U.S. Cl. 395—200.02 18 Claims

1. An apparatus for connection to first and second networks of computing machines, each said network having different network addresses for computer software processes in execution on machines coupled said first and second networks, comprising:

a support structure;

memory means mechanically coupled to said support structure for storing data and a computer program, said data comprising data packets to be transmitted on said first network stored in a first transmit buffer, and data packets to be transmitted on said second network stored in a second transmit buffer, and data packets received from said first network stored in a first receive buffer, and data packets received from said second network stored in a second receive buffer;

a one or more hub port means affixed to said support structure, for coupling to said first network external to said support structure via a plurality of corresponding transceiver cables which are coupled to and carry data packets to and from a plurality of machines each of which is coupled to one transceiver cable, each of said machines having a network address and each of said machines having at least one computer software process in execution thereon, each said data packet having a source network address indicating the machine and network from which the data packet originated and having a destination network address indicating the machine and network to which the packet is directed each said hub port means for sending data packets out on said first network via a corresponding one of said plurality of transceiver cables and for receiving data packets from said first network via said one of said plurality of transceiver cables;



hub means for receiving a data packet from any of said hub port means and for retransmitting each said data packet out on said first network through every other said hub port means coupled to said first network other than said hub port means from which said data packet was received, and for sending all said retransmitted data packets out on a data path affixed to said support structure and which carries data which came from or which is bound for said first network segment, each said data packet having a source network address identifying the network address of the machine from which the data originated and a destination network address identifying the network address of the machine for which the data is bound;

first network controller means affixed to said support structure for retrieving data packets from said first transmit buffer in said memory means and for sending said retrieved data packets out on said first network by sending said data packets to said hub means via said data path, and for receiving data packets from said hub means via said data path and storing said data packets in said first receive buffer in said memory means;

second network transceiver means affixed to said support structure for receiving data packets from said second network and for transmitting data packets on said second network;

second network controller means affixed to said support structure and coupled to said second network transceiver means and coupled to said memory means, for retrieving data packets from said second transmit buffer in said memory means and for sending said retrieved data packets to said second network transceiver means for transmission on said second network, and for receiving data packets from said second network transceiver means received from said second network and for storing said data packets in said second receive buffer;

computer means affixed to said support structure and coupled to said memory means, said hub means and said first and second network controllers by an address and control bus and by a data bus, said computer means for executing said computer program stored in said memory means, said computer program including bridge means for selectively coupling data packets from said first network to said second network and vice versa, said selective coupling performed by reading at least the destination network address of each received data packet in said first and second receive buffers in said memory means and, for each data packet, comparing the destination network address to which the data packet is to be sent to data indicating whether said destination network address is located on said first network or on said second network, and, if the data packet was retrieved from said first receive buffer but is addressed to a destination network address on said second network, for forwarding said data packet to said second network controller via said data bus, and, if the data packet was retrieved from said second receive buffer but is addressed to a destination network address on said first network for forwarding said data packet to said first network controller via said data bus for transmission on said first network and for discarding any data packet retrieved from either the first or second receive buffer if the destination network address of the data packet is on the same network as the source network address from which said data packet originated,

and wherein said computer program includes one or more routines to manage said first and second transmit buffers and said first and second receive buffers in said memory means as linked lists which record the sequence in which each data packet was received in the case of the first and second receive buffers and record the sequences in which the data packets are to be transmitted in the case of the transmit buffers, and wherein each linked list is comprised of individual data packets stored in different addresses in one of said buffers, and each data packet is stored with an associated pointer which contains data indicating the address of the next data packet in the sequence recorded in said linked list, and wherein said hub means includes an attachment unit interface port at which data packets received from said first network are repeated for transmission,

and wherein said hub means includes an attachment unit interface port at which data packets received from said first network are repeated for transmission, and wherein said second network controller means and said attachment unit interface port are selectively, alternatively coupled to said second network transceiver means by a switch

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5,737,526

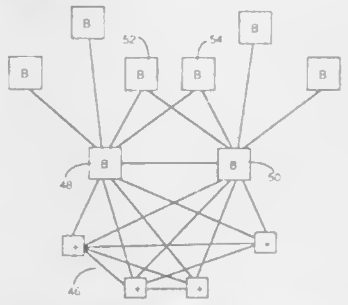
NETWORK HAVING AT LEAST TWO ROUTERS, EACH HAVING CONDITIONAL FILTER SO ONE OF TWO TRANSMITS GIVEN FRAME AND EACH TRANSMITS DIFFERENT FRAMES, PROVIDING CONNECTION TO A SUBNETWORK

Ravi Periasamy; Wayne Clark, both of Cary, N.C.; Gnanaprakasam Pandian, Sunnyvale; Ramin Naderi, San Jose, both of Calif.; Frank Bordonaro, Cary, N.C., and David Lowry, Pleasonton, Calif., assignors to Cisco Systems, San Jose, Calif.

Filed Dec. 30, 1994, Ser. No. 366,713

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.06 8 Claims



1. A wide-area network, comprising:

a plurality of subnetworks, wherein each subnetwork contains at least one network node;

a plurality of routers that are respectively connected to said plurality of subnetworks, for providing a logical connection from a node in one subnetwork to a node in another subnetwork, and wherein at least one of said subnetworks has at least two routers connected to it in parallel, and

a conditional filter in each of said two routers that are connected to said one subnetwork, said conditional filter causing said routers to selectively transmit or drop frames of data that are

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sent to said routers from said one subnetwork in parallel, so that only one of said two routers transmits a given frame of data from one subnetwork and each of said two routers transmits different respective frames of data from said one subnetwork.

5,737,527
INTERACTIVE ENTERTAINMENT APPARATUS

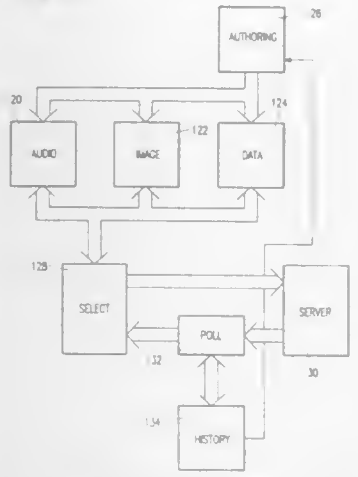
Martin A. Shiels, Bristol; Richard S. Cole, Redhill; Paul J. Rankin, Horley, and Rosa Freitag, London, all of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 29, 1996, Ser. No. 705,888

Claims priority, application United Kingdom, Aug. 31, 1995, 9517788

Int. Cl.⁶ G06F *17/00*

U.S. Cl. 395—200.09 **20 Claims**



1. Interactive entertainment apparatus operable to output sequences of image frames comprising a user-influenced path through a branch structured narrative, the apparatus comprising.
- a source of image frames for all branch structure paths of the narrative;
- branch storage means for data defining the narrative branch structure;
- user operable input means;
- branch selection means coupled to the branch store and operable to detect narrative branch points and to call one of two or more image frame sequences from the image frame source in dependence on the user input;
- an output for the selected image frame sequences; and
- interaction memory means arranged to receive and store data relating to user input.
- the branch selection determining which of said two or more image frame sequences to call on the basis of at least two preceding and separate user inputs.

5,737,528
NETWORK CONNECTING APPARATUS WITH SEPARATE DATA AND CONTROL SIGNAL LINES

Kuniyoshi Konishi, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

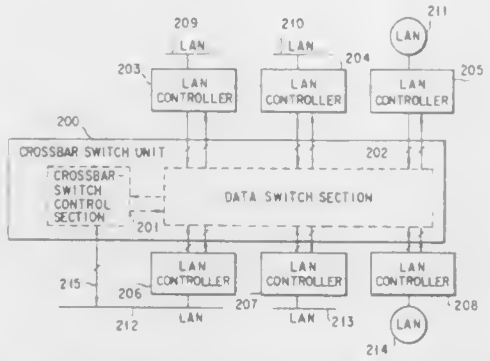
Continuation of Ser. No. 275,414, Jul. 15, 1994, abandoned. This application Feb. 10, 1997, Ser. No. 792,071

Claims priority, application Japan, Jul. 16, 1993, 5-176536

Int. Cl.⁶ G06F *13/14*

U.S. Cl. 395—200.12 **11 Claims**

1. A network connecting apparatus for connecting a plurality of networks to each other, comprising:
- a plurality of network controllers, respectively connected to said plurality of networks, for transmitting/receiving data between the network connected to the self network controller and other networks, each of the plurality of network controllers receiving a control signal and data in serial and outputting the control signal and data over separate lines in parallel; and
- a switch unit connected to said plurality of network controllers, and having a network connection section for connecting at least two networks, and a switch control section for controlling said network connection section on the basis of connection requests from said plurality of network controllers to achieve a connection between desired networks, wherein
- each of said plurality of network controllers outputs in parallel the data and the control signal to said network connection section and said switch control section, respectively.



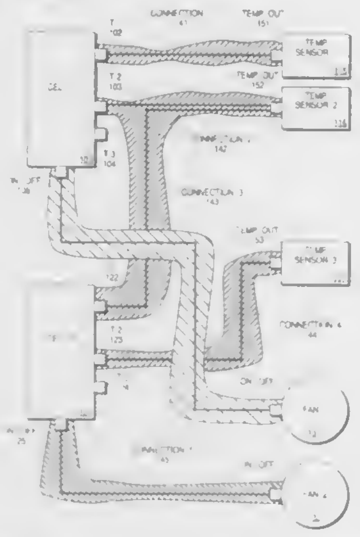
5,737,529
NETWORKED VARIABLES

Robert A. Dolin, Jr., Menlo Park; Robert L. Einkauf, Fremont, both of Calif.; Richard S. Kagan, London, England; Glen M. Riley, Los Gatos, and James M. Von De Bur, San Jose, both of Calif., assignors to Echelon Corporation, Palo Alto, Calif.

Continuation of Ser. No. 207,229, Mar. 7, 1994, Pat. No. 5,513,324, which is a continuation of Ser. No. 671,036, Mar. 18, 1991, abandoned. This application Apr. 12, 1996, Ser. No. 631,534

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.18 **10 Claims**



8. A network comprising a plurality of interconnected nodes including.
- a reader node and
- a set of writer nodes;
- said reader node being configured to send a first message to said set of writer nodes;
- each of said writer nodes being configured to respond to said first message by
  - determining a variable that is uniquely identified by information contained in said first message, said variable being a variable used by an application that resides on said writer node;
  - locating a value associated with said variable, and
  - sending a response message to said first message, said response message containing said value;
- said reader node being configured to receive the response messages that were sent by said set of writer nodes in response to said first message;
- said reader node being configured to respond to each response message by
  - determining a variable that is uniquely identified by information contained in said response message, said variable being a variable used by an application that resides on said reader node, and
  - storing the value in said response message in a location that corresponds to the variable that is uniquely identified by the information contained in said response message.

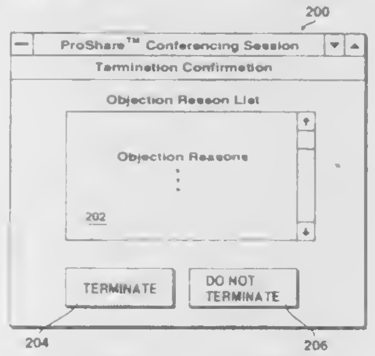
5,737,530
METHOD AND APPARATUS FOR CONDITIONALLY TERMINATING A PERSONAL COMPUTER CONFERENCE

Puneet Kukkal, Hillsboro; Sridhar Iyengar, and Dale Boss, both of Beaverton, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 28, 1995, Ser. No. 535,630

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 395—200.34 **20 Claims**



13. In a personal computer (PC) conference, a method for conditionally terminating a conference in progress, the method comprising the steps of:
- a) notifying a first cooperative application by a first conference manager of a first PC conferencing system of a conference terminating request received by the first conference manager for terminating the conference in progress; and
- b) conditionally terminating the conference in progress by the first conference manager depending on whether the first conference manager received a reply from the first cooperative application, and if the first conference manager received a reply from the first cooperative application, whether the first cooperative application objects to the conference termination request, and if the first cooperative application objects to the conference termination request, whether a user of the first PC conferencing system prefers to override or sustain the first cooperative application's objection.

5,737,531
SYSTEM FOR SYNCHRONIZING BY TRANSMITTING CONTROL PACKET TO OMIT BLOCKS FROM TRANSMISSION, AND TRANSMITTING SECOND CONTROL PACKET WHEN THE TIMING DIFFERENCE EXCEEDS SECOND PREDETERMINED THRESHOLD

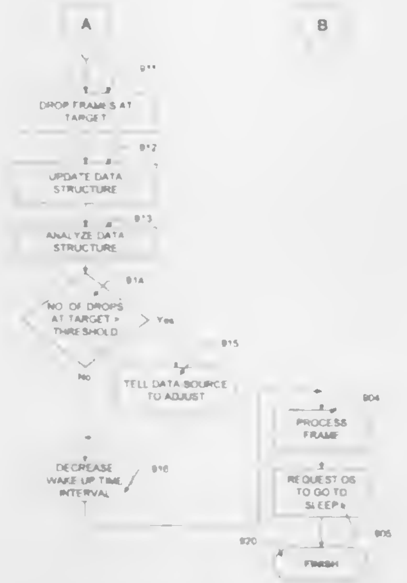
Lynnae Anne Ehley, Delray Beach, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 27, 1995, Ser. No. 495,162

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.38 **11 Claims**

1. Apparatus for synchronizing a slave media stream to a master media stream, the slave media stream having a plurality of slave media data blocks sequentially transmitted from a slave data source to a data target, and the master media stream having a plurality of master media data blocks sequentially transmitted from a master data source to the data target, the slave media blocks and the master media blocks being transmitted across a computer network, the apparatus comprising:
- means, located at the data target and responsive to the plurality of slave media data blocks and the plurality of master media data blocks arriving at the data target, for comparing stream times of the slave media data blocks and the master media data blocks to determine a timing difference between the slave media stream and the master media stream and for transmitting a feedback control packet across the network to the slave data source to cause the slave data source to omit selected slave media data blocks from transmission across the network, the control packet comprising: a frame drop number, indicating the number of slave media data blocks to drop at the slave data source at a given instance, an interval count, indicating the number of slave media data blocks to allow to pass before attempting to drop more slave media data blocks; and, a skip count, indicating the number of times to repeat dropping frames according to the frame drop number and the interval count;
- means, responsive to the timing difference, for controlling the slave data source to omit selected slave media data blocks from transmission across the network, when the timing difference exceeds a first predetermined threshold, and
- means responsive to the timing difference exceeding a second predetermined threshold for dropping slave media data blocks at the data target and wherein the first predetermined threshold comprises a predetermined number of dropped slave media data blocks within a predetermined time period.



5,737,532
SYSTEM AND TECHNIQUE FOR ACCESSING STORED AUDIO AND VISUAL INFORMATION FROM A DATABASE

Charles M. DeLair; Grant Schmieder; Mark S. Sprague; Kenneth W. Virgil, and Anthony F. Zucco, all of Tucson, Ariz., assignors to Hughes Missile Systems Company, Los Angeles, Calif.

Filed Jun. 6, 1995, Ser. No. 469,964

Int. Cl.⁶ G06F *17/10*

U.S. Cl. 395—200.49 **10 Claims**

1. A system for providing video on demand from a MIL-STD-1388-2B database of textual information including:
- first means for providing said database of textual information;
- second means for selectively providing video information at a predetermined address;

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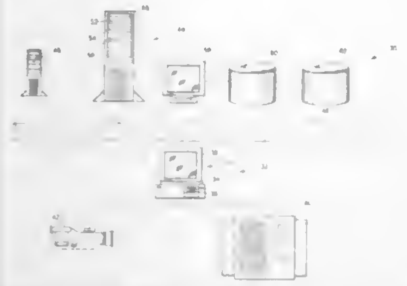


third means for storing said address of said video information in said second means in a predetermined location in said data base of text information; and

fourth means for selectively displaying video information at said address in said second means.

5,737,533

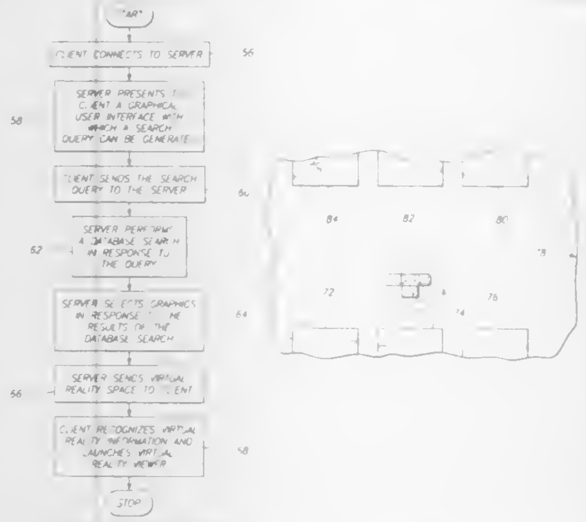
SYSTEM FOR GENERATING A VIRTUAL REALITY SCENE IN RESPONSE TO A DATABASE SEARCH

Maurice de Hond, Amsterdam, Netherlands, assignor to Wegener Internet Projects BV, Apeldoorn, Netherlands

Filed Oct. 26, 1995, Ser. No. 548,873

Int. Cl.⁶ G06F *13/38; 17/30*

U.S. Cl. 395—200.49 **21 Claims**



START
CLIENT CONNECTS TO SERVER
56
SERVER PRESENTS THE CLIENT A GRAPHICAL USER INTERFACE WITH WHICH A SEARCH QUERY CAN BE GENERATED
58
CLIENT SENDS THE SEARCH QUERY TO THE SERVER
SERVER PERFORMS A DATABASE SEARCH IN RESPONSE TO THE QUERY
62
SERVER SELECTS GRAPHICS IN RESPONSE TO THE RESULTS OF THE DATABASE SEARCH
64
SERVER SENDS VIRTUAL REALITY SPACE TO CLIENT
66
CLIENT RECOGNIZES VIRTUAL REALITY INFORMATION AND LAUNCHES VIRTUAL REALITY VIEWER
68
STOP
84
82
80
72
74
76

1. A system comprising:

a server having a memory, and a database defined in the memory; and

a client in communication with the server, the server communicating to the client an interface for use in requesting a search of the database, and the server having virtual reality means for generating a virtual reality scene comprising a space in which a user can navigate by zooming in, zooming out and turning around, the virtual reality scene varying depending on the results of the search.

5,737,534

TASK ALLOCATION IN A SYSTEM OF NETWORKED PROCESSORS

Shigeo Suzuki, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

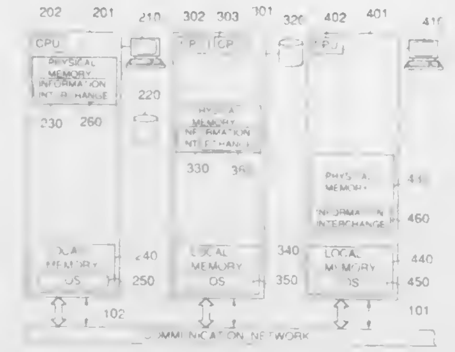
Filed Nov. 3, 1994, Ser. No. 334,373

Claims priority, application Japan, Nov. 5, 1993, 5-276370

Int. Cl.⁶ G06F *9/00*

U.S. Cl. 395—200.53 **12 Claims**

1. An information processing system comprising a plurality of information processing apparatuses connected through a communication network, each said information processing apparatus having a processor and a memory, and the memories of the plurality of



information processing apparatuses together forming one single memory space, said system comprising:

getting means for getting information relating to each of said information processing apparatuses;

judging means for judging whether a certain process can be executed more efficiently by the processor in one of said information processing apparatuses than by the processor in another one of said information processing apparatuses which is currently executing the certain process, based on the information gotten by said getting means; and

executing means for executing the certain process using the processor in said one information processing apparatus, in response to an affirmative judgment provided by said judging means,

wherein said executing means executes the process in a case where the memory of the information processing apparatus which is executing the certain process is insufficient.

5,737,535

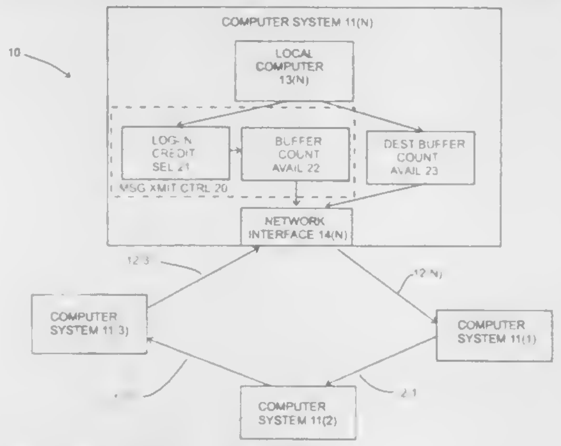
FLOW CONTROL CIRCUIT FOR NETWORKED COMMUNICATIONS SYSTEM INCLUDING ARRANGEMENT FOR REDUCING OVERHEAD AT THE BEGINNING OF A COMMUNICATIONS SESSION BY ENABLING MESSAGE TRANSMISSION BEFORE RECEIVING FLOW CONTROL INFORMATION

Norman J. Bagley, Wakefield, and Brian E. Gallagher, Marlboro, both of Mass., assignors to EMC Corporation, Hopkinton, Mass.

Filed Jun. 7, 1995, Ser. No. 484,460

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.57 **22 Claims**



1. A network interface comprising:

A. a network session control for establishing a communications session between a source device and a destination device.

B. a message transmitter for transmitting messages from said source device to said destination device; and

C. a message transmission control circuit for controlling transmission of messages by said message transmitter, the message transmission control circuit initially enabling said network interface to transmit a number of messages corresponding to one of a plurality of log in credit values selected in response to the particular destination device with which the communications session is established, and thereafter enabling the network interface to transmit messages based on flow control information received from the selected device.

5,737,536

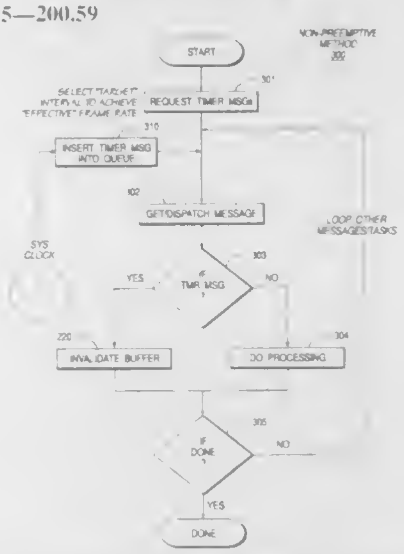
SYSTEM AND METHODS FOR OPTIMIZED ACCESS IN A MULTI-USER ENVIRONMENT

Conrad Herrmann, Soquel; Randolph T. Solton, Berkeley, and Raymond Shigeru Kiuchi, Santa Cruz, all of Calif., assignors to Borland International, Inc., Scotts Valley, Calif.

Continuation-in-part of Ser. No. 96,796, Jul. 23, 1993, Pat. No. 5,493,728, which is a continuation-in-part of Ser. No. 19,799, Feb. 19, 1993, Pat. No. 5,446,840. This application Nov. 2, 1995, Ser. No. 554,328

Int. Cl.⁶ G06F *9/00*

U.S. Cl. 395—200.59 **19 Claims**



NON-PREEMPTIVE METHOD 300
START
301
SELECT "TARGET" INTERVAL TO ACHIEVE "EFFECTIVE" FRAME RATE
REQUEST TIMER MSGs
310
INSERT TIMER MSG INTO QUEUE
GET/DISPATCH MESSAGE
SYS CLOCK
DISP OTHER MESSAGES/TASKS
YES
IF TMR MSG
NO
INVALIDATE BUFFER
DO PROCESSING
IF DONE ?
NO
YES
DONE

14. A server-based networking system with improved data access comprising:

(a) a server having a storage device;

(b) at least one client operably coupled to said server through a communication line, each said at least one client having a processor and a memory;

(c) means for transferring a valid copy of data from the storage device of the server to memory of a client;

(d) means, responsive to a request for data, for providing access to the valid copy of the data in the memory of the client;

(e) time-based means for periodically marking the copy as invalid regardless of whether modifications have been posted from clients to the server;

(f) modification means for creating a modified copy of the data and posting the modified copy to the server; and

(g) update means for updating the copy of the data in the memory of the client, upon posting the modified copy to the server.

5,737,537

TWO-MEASURE BLOCK CLASSIFICATION SCHEME FOR ENCODING VIDEO IMAGES

Thomas R. Gardos, Portland, and Vaughn Iverson, Beaverton, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

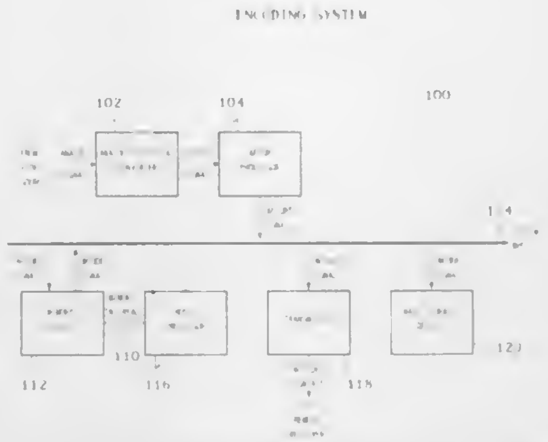
Filed Sep. 29, 1995, Ser. No. 536,671

Int. Cl.⁶ H04N *1/41*

U.S. Cl. 395—200.77 **13 Claims**

1. A computer-implemented process for encoding video images, comprising the steps of:

(a) generating a first statistical measure for a current block of a current frame relative to a reference block of a reference frame, wherein the first statistical measure is a global measure, wherein the first statistical measure is a sum-of-absolute-differences (SAD) measure;



(b) generating a second statistical measure for the current block relative to the reference block, wherein the second statistical measure is a local measure, wherein the second statistical measure is a maximum-absolute-difference (MAD) measure

(c) selecting an encoding scheme for the current block based on the first and second statistical measures; and

(d) encoding the current block based on the selected encoding scheme;

wherein if the inter SAD measure is less than a specified inter-SAD threshold value and if the MAD measure is less than a specified MAD threshold value, then step (c) comprises the step of designating the current block as an empty block and step (d) comprises the step of encoding the current block as an empty block.

5,737,538

SYSTEM FOR REMOTE MICROCOMPUTER ACCESS AND MODIFICATION OF INFORMATION IN HOST COMPUTER

Stephen E. Wilhite, Worthington, Ohio, assignor to CompuServe Incorporated, Columbus, Ohio

Continuation of Ser. No. 97,849, Jul. 27, 1993, abandoned. This application Apr. 2, 1996, Ser. No. 627,913

Int. Cl.⁶ G06F *13/14; 13/42*

U.S. Cl. 395—200.12 **8 Claims**

1. An information retrieval system comprising

means for a host computer and an end-user microcomputer to communicate via a plurality of application protocols end-user requests for information or other services and host computer responses to said requests.

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- means at said end-user microcomputer for said end-user microcomputer to display information contained in said host computer responses;
- means for said host to query said end-user microcomputer for which of said plurality of application protocols it utilizes; and
- means for said end-user microcomputer to respond with acknowledgments for application protocols it supports and negative acknowledgments for applications it does not support

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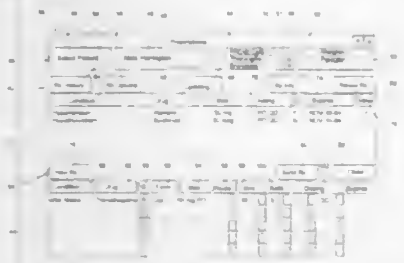
5,737,539
PRESCRIPTION CREATION SYSTEM
Jonathan Edelson, Scarsdale, N.Y., and Christian Mayaud, New Canaan, Conn., assignors to Advanced Health Med-E-Systems Corp., Tarrytown, N.Y.

Filed Oct. 28, 1994, Ser. No. 330,939

Int. Cl.^{6} G06F *159/00;17/60*

U.S. Cl. 395—203 **5 Claims**



1. A computer-implemented prescription creation system for use by a prescriber in creating a prescription at a point of patient care, said prescription being usable by a pharmacist to dispense drugs, said prescription creation system comprising:
- a) electronic posting means to select and capture in said prescription,
  - i) a patient identifier;
  - ii) a prescribed drug intended to treat a patient condition;
  - iii) a dosage for said prescribed drug, and
- b) a prescription division subsystem to create a bridge prescription divided into a local prescription component intended for fulfillment at a pharmacy convenient to said patient and a separate, remote prescription component intended for fulfillment at a remote, lower cost, mail order pharmacy

said prescription creation system automatically creating and outputting said prescription components.

5,737,540
DATA COMMUNICATION SYSTEM THROUGH PERSONAL COMPUTERS AND TERMINAL ADAPTER THEREFOR
Hironobu Ogawa, Nagoya, Japan, assignor to Hisago Communications Kabushiki Kaisha, Nagoya, Japan

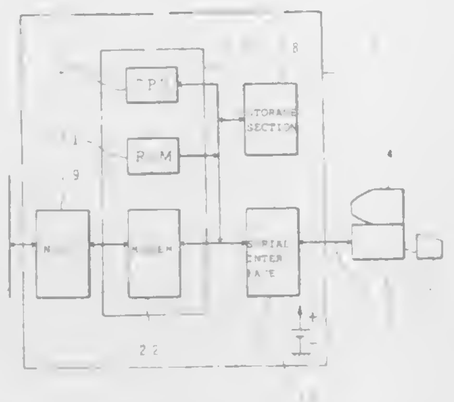
Filed Jan. 25, 1995, Ser. No. 378,365

Claims priority, application Japan, Jun. 7, 1994, 6-150509

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—281 **4 Claims**

1. A data communication system for transmitting data through a communication line between computers, the communication line being a public or commercial telecommunications line, the system comprising a plurality of terminal adapters connected between said communication line and said computers, respectively, each terminal adapter for transmitting and receiving the data to and from a respective computer, and each terminal adapter comprising
- a) a modem,
- b) an input-output section connected to said modem for inputting and outputting the data from and to the communication line via said modem;
- c) a serial transmission cable connected to the respective computer,



- d) a storage section from which the data is readable at the computer side via said serial transmission cable and into which the data is writable at the computer side via said serial transmission cable;
- e) a communication control section inputting the data from the storage section and outputting the input data to the input-output section according to an instruction from the computer, the communication control section writing the data input to the input-output section into the storage section independently of the operation of the computer; and
- f) a power supply, said power supply being independent and separate from a power supply of the respective computer; and

each computer comprising:
- a) an addressee information storage section storing information about one or more addressees, the information including the names of the addressees,
- b) a transmittal file storage section for storing one or more files to be transmitted to the communication line via a respective terminal adapter,
- c) a received file storage section for storing a file received from the communication line via the respective adapter;
- d) a display unit;
- e) transmittal information displaying means for displaying, on said display unit, a list of the names of the addressees stored in the addressee information storage section and the names of the files stored in the transmittal file storage section,
- f) an input device,
- g) transmittal information selecting means for selecting one of the names of the addressees and one of the names of the files displayed on the display unit by the transmittal information displaying means, by way of said input device;
- h) transmission control means outputting the addressee information selected by the transmittal information selecting means to said communication control section of the respective terminal adapter;
- i) transmitted file writing means for writing, into said storage section of the respective terminal adapter, the transmitted file on the basis of the file name selected by the transmittal information selecting means,
- j) received file displaying means for displaying, on said display unit, a list of the names of the received files written into said storage section of the respective terminal adapter;
- k) received file selecting means for selecting a desired one of the file names displayed in the form of the list on said display unit by the received file displaying means; and
- l) received file writing means for writing, into said received file storage section, the received file on the basis of the file name selected by the received file selecting means

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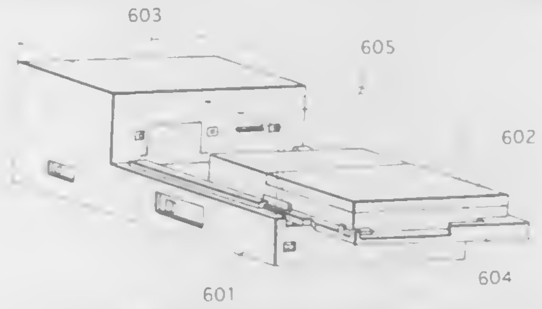
5,737,541
BOX FOR FUNCTIONAL EXPANSION OF A PORTABLE ELECTRONIC EQUIPMENT
Hisao Shimizu; Shoichi Sunagawa; Hidemi Dohi; Yoshiaki Matsuoka; Yoshio Tanioka, and Norimitsu Asano, all of Tottori, Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, and Tottori Sanyo Electric Co., Ltd., Tottori-ken, both of Japan

Filed Mar. 30, 1995, Ser. No. 413,777

Claims priority, application Japan, Mar. 30, 1994, 6-061352; May 20, 1994, 6-107143; May 23, 1994, 6-108546; May 24, 1994, 6-109893; May 24, 1994, 6-109894; Nov. 21, 1994, 6-286647

Int. Cl.^{6} G06F *1/16, 13/00*

U.S. Cl. 395—281 **31 Claims**



1. A docking station box for functional expansion of portable electronic equipment, said box comprising
- a horizontal table on which a portable electronic equipment is to be mounted;
- a vertical wall at the rear of said table;
- one half part of a connector fixed on said vertical wall for connection to another half part of the connector on the equipment, the connector halves to be connected by mounting the equipment on said table and then moving the equipment backward toward said vertical wall, and to be disconnected by moving the equipment forward;
- at least one hook with a head, said at least one hook being rotatably mounted to said box to be rotated between a releasing position with said at least one hook under said table and a hooking position in which the head of said at least one hook projects above said table;
- operating means for manipulating said at least one hook,
- an aperture in said table corresponding to the location of a said at least one hook for letting the hook move therethrough, between said releasing position and said hooking position;
- a manipulation member for manipulating said operating means from outside of the body of said box; and
- a restraining means for restraining said manipulation member at a position so that said at least one hook is located in the releasing position.

5,737,542
INFORMATION PROCESSING DEVICE, EXPANSION BOARD AND EXPANDING HOUSING SYSTEM
Ken Kurihara; Hiroshi Tezuka, both of Tokyo, and Hiroyuki Kobayashi, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

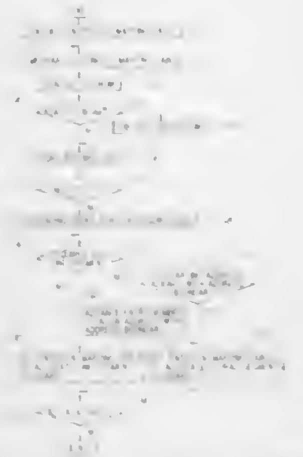
Continuation of Ser. No. 143,282, Oct. 25, 1993, abandoned. This application Oct. 10, 1995, Ser. No. 541,979

Claims priority, application Japan, Oct. 27, 1992, 4-311449

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—282 **12 Claims**

7. In an information processing device having plural slots into which boards may be detachably installed and an I/O memory space dedicated to said slots, said boards comprising an address space including a first ID memory in which has been stored prior to installation in said information processing device, size information disclosing the size of an address space occupied by said board, a method of allocating I/O memory space dedicated to said slots amongst said boards, comprising the steps of,



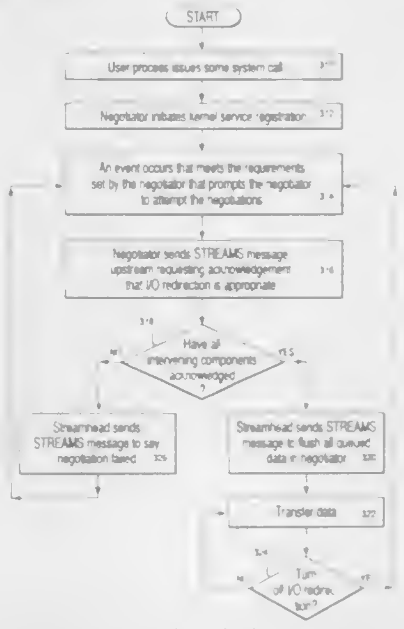
- (1) reading said size information from said first ID memory of any such boards installed in said slots;
  - (1.8) sorting said boards by memory size from largest to smallest,
  - (1.9) selectively assigning a portion of the I/O memory space to said boards in order from largest to smallest, and
- (2) storing said size information in a first mapping table

5,737,543
HIGH PERFORMANCE COMMUNICATIONS PATH
Derwin DeLon Gavin; Daniel Cletus Gillen; Jessie Ann Hays Haug, all of Austin; James Britt Partridge, Bastrop; Lance Warren Russell, Fredericksburg, and Eldon Perry Smith, Leander, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 23, 1995, Ser. No. 392,576

Int. Cl.^{6} H01J *13/00*

U.S. Cl. 395—285 **15 Claims**


START
User process issues some system call
Negotiator initiates kernel service registration
An event occurs that meets the requirements set by the negotiator that prompts the negotiator to attempt the negotiations
Negotiator sends STREAMS message upstream requesting acknowledgement that I/O redirection is appropriate
Have all intervening components acknowledged ?
NO
YES
Streamhead sends STREAMS message to say negotiation failed
Streamhead sends STREAMS message to flush all queued data in negotiator
Transfer data
Turn off I/O redirection?
NO
YES

1. A computer-implemented method for generating a high performance communication path in a computer system, the communication path having a plurality of linked components, at least one component being a negotiator and one being a controller, comprising the steps of,
- registering the negotiator with the controller,
  - verifying acknowledgement of negotiation from each component between the negotiator and the controller to determine whether any intervening processing is required by any component, said verifying step including the steps of (a) in response to an event received by the negotiator, sending a negotiation message, including an address of the negotiator,

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upstream from the negotiator. (b) if a receiving component recognizes the negotiation message, incrementing a counter, (c) sending the counter and the negotiation message upstream, and (d) repeating steps (b) and (c) until the negotiation message and the counter are received by the controller; and

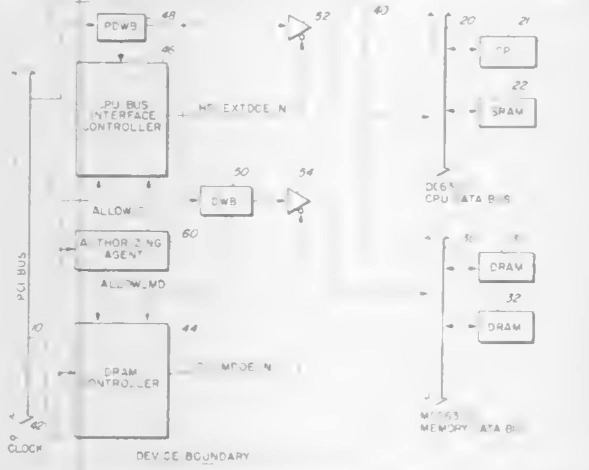
in response to a valid verification selecting an alternate communication path for directing I/O communication between the controller and the negotiator wherein the alternate communication path has no linked components between the negotiator and the controller.

5,737,544
LINK SYSTEM CONTROLLER INTERFACE LINKING A PCI BUS TO MULTIPLE OTHER BUSES

Philip Wszolek, Phoenix, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Apr. 8, 1996, Ser. No. 628,969
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—287 **8 Claims**



1. A link system controller in a computer system for controlling the transfer of data from a PCI bus to a CPU data bus and a memory data bus including in combination:

first and second buffers each having a data input coupled with a PCI bus, an enable input for controlling passage of data therethrough, and a data output, with the data output of said first buffer coupled with a CPU data bus, and the data output of said second buffer coupled with a memory data bus;

a CPU bus interface controller having an output connected with the enable input of said first buffer;

a memory bus controller having an output coupled with the enable input of said second buffer;

an authorizing switch circuit having a clock input and first and second outputs coupled with said CPU bus interface controller and said memory data bus controller, respectively, for alternately enabling said CPU bus interface controller and said memory data bus controller in response to clock signals supplied to the clock input of said authorizing switch circuit;

a source of clock signals connected with the clock input of said authorizing switch circuit and said CPU bus interface controller and said memory data bus controller for synchronizing the operation of said controllers and said authorizing switch circuit, and

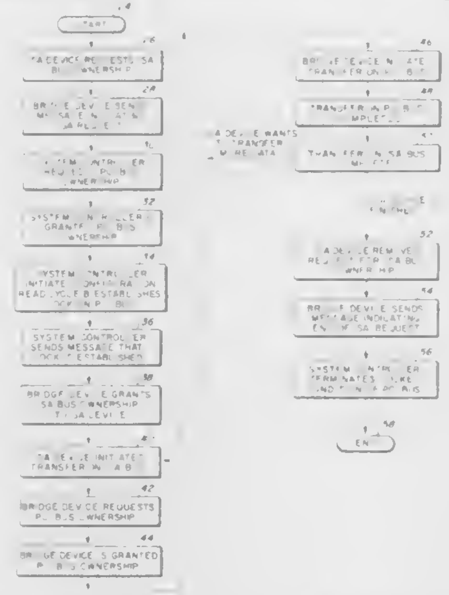
said authorizing switch circuit enabling said CPU bus interface controller for supplying enable signals on the output thereof connected with said first buffer on first predetermined clock signals and enabling said memory data bus controller on second predetermined clock signals different from said first predetermined clock signals to supply enable signals on the output thereof connected with the enable input of said second buffer, so that said first and second buffers are enabled in synchronism with different clock signals to offset the initiation of the transfer of write data signals to said CPU data bus and said memory data bus.

5,737,545
COMPUTER BUS MASTERY SYSTEM AND METHOD HAVING A LOCK MECHANISM

Philip Wszolek; Barry Martin Davis, both of Phoenix; Brian Neil Fall, Chandler, and Richard Demers, Peoria, all of Ariz., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed May 21, 1996, Ser. No. 651,698
Int. Cl.^{6} H01J *13/00*

U.S. Cl. 395—288 **11 Claims**


START
BRIDGE DEVICE REQUESTS PCI BUS OWNERSHIP
BRIDGE DEVICE IS GRANTED PCI BUS OWNERSHIP
A DEVICE WANTS TO TRANSFER
42
44
46

1. In a computer system, a method for establishing bus mastery to a device on an expansion bus for a system resource residing on another bus having a locking mechanism to guarantee exclusive access for said device to system resources on such another bus, including the steps of:

providing a bridge device between said expansion bus and said another bus to pass unclaimed cycles from said another bus to said expansion bus and to pass expansion bus cycles to said another bus;

initiating an ownership request of said expansion bus by an expansion bus device through said bridge device;

locking said another bus in response to said ownership request through a locked configuration read of a configuration space register on said another bus to prevent devices on said another bus from locking any other resources on said another bus,

granting ownership of said expansion bus to an expansion bus device;

requesting ownership of said another bus by said bridge device; and

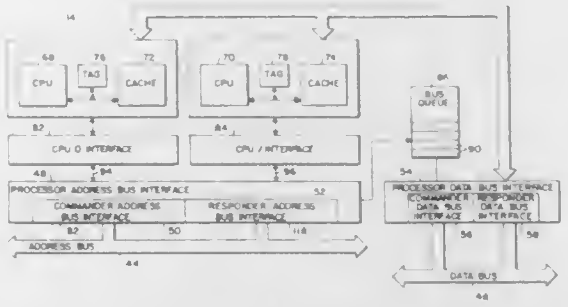
transferring data between said expansion bus device on said expansion bus and a system resource on said another bus.

5,737,546
SYSTEM BUS WITH SEPARATE ADDRESS AND DATA BUS PROTOCOLS

David M. Fenwick, Chelmsford; Denis J. Foley, Shrewsbury; Stephen R. Van Doren, Shrewsbury, and Dale R. Keck, Shrewsbury, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 269,222, Jun. 30, 1994, abandoned. This application Dec. 31, 1996, Ser. No. 775,552
Int. Cl.^{6} G06F *13/00, 13/368*

U.S. Cl. 395—290 **12 Claims**


CPU
TAG
CACHE
CPU
TAG
CACHE
BUS QUEUE
CPU 0 INTERFACE
CPU 1 INTERFACE
PROCESSOR ADDRESS BUS INTERFACE
COMMANDER ADDRESS BUS INTERFACE
RESPONDER ADDRESS BUS INTERFACE
PROCESSOR DATA BUS INTERFACE
COMMANDER DATA BUS INTERFACE
RESPONDER DATA BUS INTERFACE
ADDRESS BUS
DATA BUS
52
50
56
58
44
48

12. A bus interface for a node in a computer system comprising:

an address bus interface for providing to an address bus address and command transactions and for acknowledging receipt of address and command transactions via the address bus, the address bus interface including means for asserting an address bus flow control signal for controlling the rate at which address and command transactions are submitted to the address bus;

a data bus interface for controlling submission of data transactions associated with the address transactions occurring on the address bus to a data bus separate from the address bus and for transferring data on the data bus during the data transactions, the data bus interface including means for asserting a data bus flow control signal for controlling the rate at which data transactions occur on the data bus; and

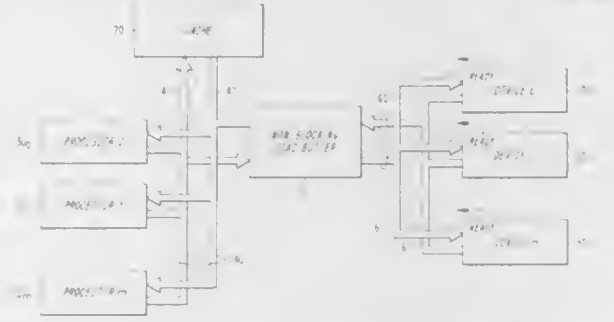
wherein the address bus interface and the data bus interface operate synchronously with a clock signal.

5,737,547
SYSTEM FOR PLACING ENTRIES OF AN OUTSTANDING PROCESSOR REQUEST INTO A FREE POOL AFTER THE REQUEST IS ACCEPTED BY A CORRESPONDING PERIPHERAL DEVICE

William K. Zuravleff, Mountainview; Mark Semmelmeyer, Sunnyvale; Timothy Robinson, Boulder Creek, and Scott Furman, Union City, all of Calif., assignors to MicroUnity Systems Engineering, Inc., Sunnyvale, Calif.

Filed Jun. 7, 1995, Ser. No. 480,739
Int. Cl.^{6} G06F *13/36, 9/22*

U.S. Cl. 395—292 **27 Claims**



1. In a data processing system including one or more requesting processors that generate processor requests directed to one or more peripheral devices, a non-blocking load buffer, comprising:

a plurality of variable depth pending queues corresponding to each one of the plurality of peripheral devices for queuing entries of processor requests,

a variable length return queuing unit for queuing data returned from said peripheral devices in response to an outstanding processor request, and

a free pool of entries for placing entries of the outstanding processor request, after the outstanding processor request is accepted by a corresponding peripheral device

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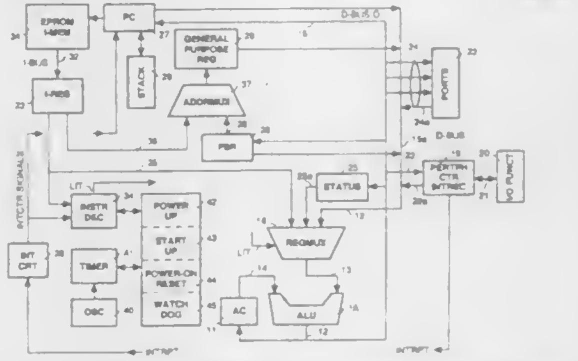
5,737,548
RISC-BASED MICROCONTROLLER WITH PERIPHERAL FUNCTION ADDED TO A SPLIT DATA BUS

Randy L. Yach, 16238 S. 25th St., Phoenix, Ariz. 85048, and Ray Allen, 1331 W. Baseline #157, Mesa, Ariz. 85202

Filed Nov. 7, 1995, Ser. No. 554,741
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—308 **8 Claims**



1. A microcontroller using RISC architecture having an accumulating ALU, a program counter, a stack, program memory, data memory, an address bus, and clock input which receives a clock signal having alternating positive transitions and negative transitions, the microcontroller comprising:

a data bus comprising a read bus which provides data from said data memory to said accumulating ALU, and a write bus which provides data from said accumulating ALU to said data memory;

a timing control circuit which causes said accumulating ALU to write data to said data memory during each positive transition of said clock signal, and read data from the data memory during each negative transition of said clock signal,

a peripheral control register which receives data from said accumulating ALU via said write bus and provides data to said accumulating ALU via said read bus, and

a bi-directional signal bus for providing data and control signals between said peripheral control register and a peripheral circuit

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5,737,549
METHOD AND APPARATUS FOR A PARALLEL DATA STORAGE AND PROCESSING SERVER

Roger D. Hersch, Lausanne, and Bernard Krummenacher, Chavannes, both of Switzerland, assignors to Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

Filed Jan. 31, 1994, Ser. No. 188,589
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—309 **30 Claims**

1. A storage and processing server computing system apparatus for offering processing services including, parallel file storage access, and processing functions, comprising

(a) a server interface connected by a communication means to at least one computer;

(b) disk nodes, said disk nodes each comprising a disk node processor and at least one disk

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(c) an interconnection network between said server interface and disk nodes whereby: said server interface is operable for receiving service requests from computers, further operable for analyzing, processing and decomposing service requests into storage, access and processing commands and further operable for transmitting them to said disk node processors which are operable for receiving commands, further operable for executing commands and further operable for returning results, whereby an operation is selected from the group of geometric transformations and image processing operations.

5,737,550

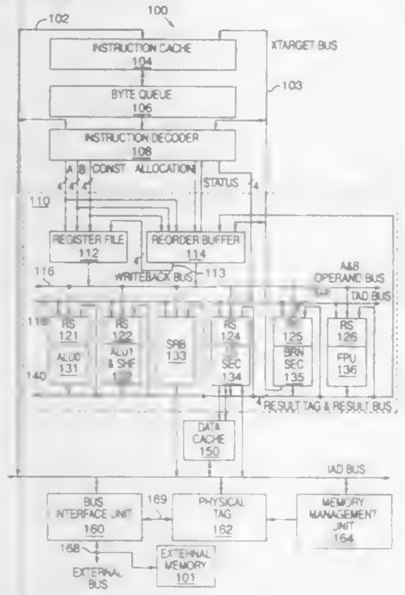
CACHE MEMORY TO PROCESSOR BUS INTERFACE AND METHOD THEREOF

Seungtaik Michael Song, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Mar. 28, 1995, Ser. No. 412,471

Int. Cl.⁶ G06F *13/14*

U.S. Cl. 395—310 24 Claims



1. In a processor, a bus interface circuit for interfacing a first cache memory of said processor and a second cache memory of said processor to an external processor bus, wherein the first cache memory has a line size of "N" bytes and is adapted to receive a plurality "N" of bytes per request, wherein the second cache memory has a line size of "M" bytes and is adapted to receive a plurality "M" of bytes per request, and wherein the processor bus is adapted to transfer a plurality "M" of bytes per processor bus transaction, wherein "M" is an integer multiple of "N", said interface circuit comprising:

- a controller circuit coupled to the processor bus for initiating a processor bus transaction and for retrieving a plurality "M" of bytes transferred thereby, said processor bus adapted to transfer a plurality "M" of bytes per processor bus transaction;
- a first cache interface circuit coupled to the controller circuit for receiving from the first cache memory a request to provide a plurality "N" of bytes associated with a first requested address, for conveying the first request to the controller circuit, and for providing to the first cache memory a corresponding plurality "N" of bytes retrieved from the processor bus by the controller circuit, said plurality "N" of bytes being a portion of the plurality "M" of bytes retrieved from the processor bus in the bus transaction;
- a second cache interface circuit coupled to the controller circuit for receiving from the second cache memory a request to provide a plurality "M" of bytes associated with a second requested address, wherein "M" is an integer multiple of "N", for conveying the second request to the controller circuit, and for providing to the second cache memory a corresponding plurality "M" of bytes retrieved from the processor bus by the controller circuit;

wherein the first cache memory interface circuit includes

- a first buffer circuit coupled to the controller circuit for buffering a plurality "M-N" of bytes, being a portion of the plurality "M" of bytes retrieved from the processor bus;
- a second buffer circuit coupled to the controller circuit for buffering an address associated with the buffered plurality "M-N" of bytes; and
- a comparator circuit for comparing a requested address to an address stored within the second buffer circuit.

5,737,551

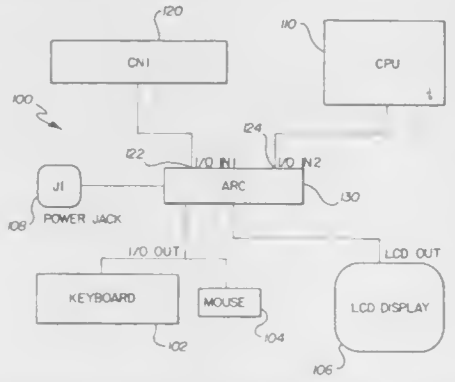
SWITCHING CIRCUIT FOR COMPUTER/DATA ACQUISITION TERMINAL

Raymond Massa, Birmingham, and Michael Stowowy, Bloomfield Hills, both of Mich., assignors to Cascade Technology Corp., Inc., Farmington Hills, Mich.

Filed Nov. 28, 1994, Ser. No. 345,846

Int. Cl.⁶ G06F *15/16*

U.S. Cl. 395—311 8 Claims



1. An electronic circuit for switching the control of a plurality of computer peripheral devices between a data acquisition mode and a stand alone mode, said circuit comprising:

- a first plurality of inputs connected to a host computer for data acquisition mode operation, and a second plurality of inputs connected to a stand alone computer for stand alone mode operation;
- a plurality of multiplexing chips electronically coupled to said inputs, said multiplexing chips adapted to shunt signals from said host computer and said stand alone computer to said plurality of computer peripheral devices;
- a switching element including at least two logic gates, said switching element being electronically coupled to said multiplexing chips, and responsive to an external voltage supplied by said stand alone computer; and
- a plurality of stabilizing elements electronically coupled to at least some of said first and second inputs, wherein said stabilizing elements are clamping diode pairs.

5,737,552

MACHINE, METHOD AND MEDIUM FOR LINEAR PROGRAMMING WITH INTERACTIVE CONVERSATIONAL INTERFACE

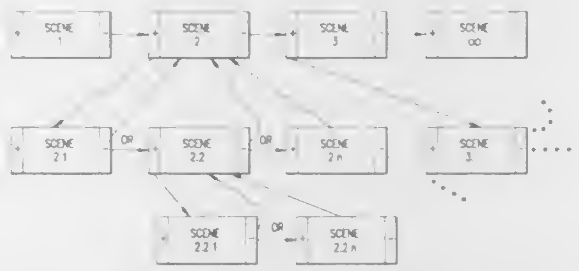
David Anthony Lavallee, Mercer Island, and Gregg S. Foster, Seattle, both of Wash., assignors to Starwave Corporation, Bellevue, Wash.

Filed Jul. 28, 1995, Ser. No. 508,971

Int. Cl.⁶ G06F *3/00;* **H04N** *7/173*

U.S. Cl. 395—328 90 Claims

1. A computer-implemented method for allowing a user to obtain additional or alternate program information corresponding to a scene being viewed by the user, comprising the steps of



(1) conveying, from a content source to the user, program information comprising one or more scenes,

wherein at least one of said one or more scenes have associated control information;

(2) receiving, from the user, a signal indicating a request to receive additional or alternate program information corresponding to a current scene viewed by the user when said signal was initiated;

(3) obtaining, in response to said step (2), control information corresponding to said current scene;

(4) conveying to the user, based upon said control information of said step (3), additional program information corresponding to said current scene, when said signal indicates a request to receive said additional program information;

(5) conveying to the user, based upon said control information of said step (3), alternate program information when said signal indicates a request to receive alternate program information corresponding to said current scene; and

(6) conveying linear program information to the user where no request of said step (2) is made by the user after a period of time has elapsed.

5,737,553

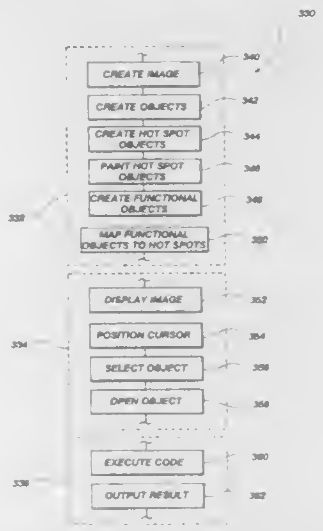
COLORMAP SYSTEM FOR MAPPING PIXEL POSITION AND COLOR INDEX TO EXECUTABLE FUNCTIONS

Peter Dennis Bartok, Springville, Utah, assignor to Novell, Inc., Provo, Utah

Filed Jul. 14, 1995, Ser. No. 502,490

Int. Cl.⁶ G06F *3/14;3/033*

U.S. Cl. 395—339 20 Claims



15. A method for launching an executable instruction on a processor of a computer comprising a memory device operably connected to the processor, the method comprising:

- creating an image on a display device operably connected to the processor and to an input device, the display device comprising a plurality of pixels for displaying the image and a cursor positionable with respect to the plurality of pixels by actuation of the input device by a user;
- creating a graphical object on the display device corresponding to a portion of the image;
- creating a hot spot object on the display device, the hot spot object corresponding to the graphical object, for initiating a hot signal to the processor; and
- mapping the hot spot object to a color code displayable by the display device and uniquely associated with the hot spot object.

5,737,554

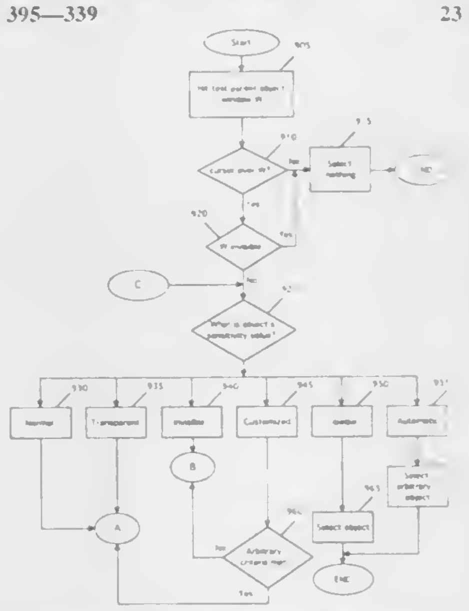
SYSTEM AND METHOD OF USING OBJECT SENSITIVITY FOR SELECTING COMPUTER-GENERATED OBJECTS

Hernan Epelman-Wang, Cupertino; Ruben Kleiman, Redwood City, and David Patrick Vronay, Petaluma, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Oct. 31, 1995, Ser. No. 551,195

Int. Cl.⁶ G06F *3/14*

U.S. Cl. 395—339 23 Claims



1. A computer-based method comprising the steps of:

- presenting on a display device a plurality of graphical objects having an order of containment;
- designating a sensitivity value for each of the objects,
- determining the position of a cursor on the display device; and
- enabling selection of an object from the plurality of objects based on the position of the cursor, the order of containment and the sensitivity value of at least one of the objects.

5,737,555

METHOD FOR RAPID REPOSITIONING OF A DISPLAY POINTER IN A PREFERRED ORDER

Leon Edward Gregg, Rochester, Minn., and William Jaaskelainen, Jr., Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1995, Ser. No. 557,406

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 395—339 15 Claims

15. A computer system comprising:

- a display screen;
- an input device;
- a central processing unit that includes:
  - an input device driver operably coupled to the input device,
  - an input device interpolation module operably coupled to the input device driver;
  - a screen monitor module operably coupled to the input device interpolation module;
  - a display screen driver operably coupled to the screen monitor module and the display screen;

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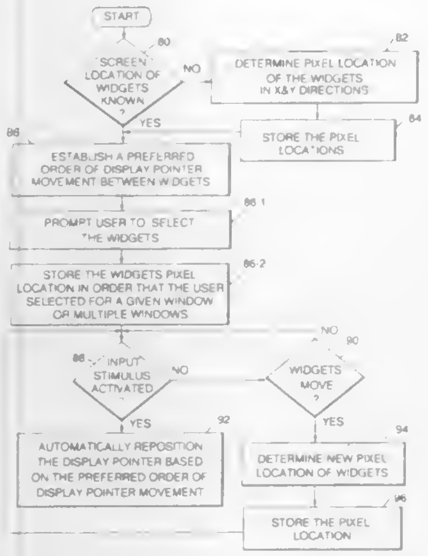

START
80
SCREEN LOCATION OF WIDGETS KNOWN ?
NO
YES
82
DETERMINE PIXEL LOCATION OF THE WIDGETS IN X&Y DIRECTIONS
84
STORE THE PIXEL LOCATIONS
86
ESTABLISH A PREFERRED ORDER OF DISPLAY POINTER MOVEMENT BETWEEN WIDGETS
86.1
PROMPT USER TO SELECT THE WIDGETS
86-2
STORE THE WIDGETS PIXEL LOCATION IN ORDER THAT THE USER SELECTED FOR A GIVEN WINDOW OR MULTIPLE WINDOWS
88
INPUT STIMULUS ACTIVATED
NO
YES
90
WIDGETS MOVE ?
NO
YES
92
AUTOMATICALLY REPOSITION THE DISPLAY POINTER BASED ON THE PREFERRED ORDER OF DISPLAY POINTER MOVEMENT
94
DETERMINE NEW PIXEL LOCATION OF WIDGETS
96
STORE THE PIXEL LOCATION

memory that operably coupled to the central processing unit, wherein the memory includes:

first storage means for storing program instructions that cause the central processing unit to, based on known screen location of widgets, establish a preferred order of display pointer movement between at least some of the widgets; and

second storage means for storing program instructions that cause the central processing unit to automatically reposition the display pointer on the display screen based on the preferred order of the display pointer movement when an input stimulus is activated.

5,737,556
DOCUMENT MANAGEMENT SYSTEM FOR DISPLAYING AND SHIFTING A PLURALITY OF REGIONS

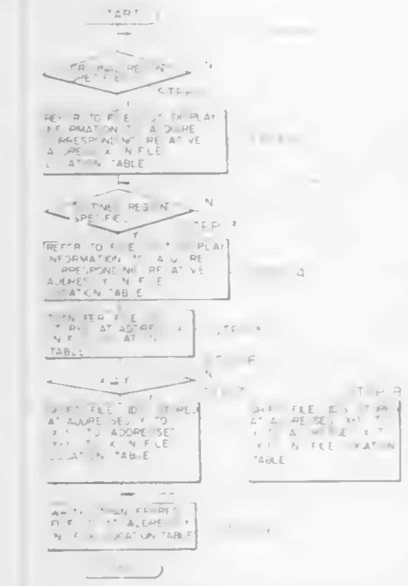
Fumiaki Yasunaga, Fukuoka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 309,739, Sep. 21, 1994, abandoned. This application Nov. 22, 1995, Ser. No. 562,120

Claims priority, application Japan, Sep. 27, 1993, 5-239696

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—339 **8 Claims**



1. A document management system comprising:

display means for displaying a plurality of regions,

specifying means for specifying a first region and a second region from among said regions displayed by said display means;

memory means for storing information corresponding to said first region specified by said specifying means, first shifting means for shifting said first region specified by said specifying means to a position of said second region specified by said specifying means; and

second shifting means for shifting all or some of the plurality of regions not specified by the means.

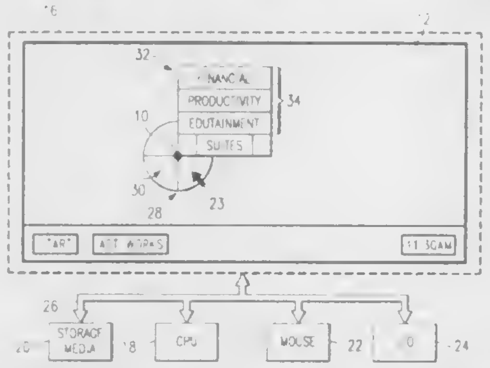
5,737,557
INTELLIGENT WINDOW USER INTERFACE FOR COMPUTERS

Gary Sullivan, Mansfield, Tex., assignor to AST Research, Inc., Irvine, Calif.

Filed May 26, 1995, Ser. No. 452,068

Int. Cl.^{6} G06F *3/100*

U.S. Cl. 395—340 **36 Claims**



1. A method of operating a computer comprising a graphical user interface (GUI) and a display, the method comprising:

installing on said computer a plurality of related items comprising data files and application programs, said installed items collectively comprising a suite;

storing in a storage element associated with said suite contextual information relating to said installed items individually and collectively, said contextual information comprising information for identifying a location of each of said files and defining a relationship among said items;

responsive to user selection of a graphical display element (GDE) associated with said suite, displaying on said display a window for representing said suite, wherein each of said installed items is represented in said window by an icon; and

responsive to receipt of a command in connection with at least one of said icons, performing an action identified by said command on each of said at least one of said icons and said installed item represented thereby.

5,737,558
MULTI-COLUMN WINDOWS

Joshua Wilson Knight, III, Mohegan Lake, and John Timothy Robinson, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 8, 1995, Ser. No. 512,325

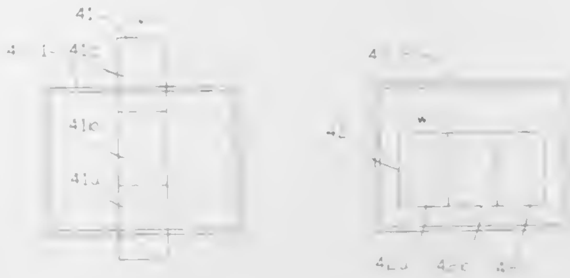
Int. Cl.^{6} G06F *15/00*; G09G *5/00*

U.S. Cl. 395—342 **7 Claims**

7. A computer system for displaying data, said system comprising:

a. an electronic display device,

b. means for converting first location information for said data from an application program into second location information for said data, where said first location information is for a logical display area on a first contour and where said second location information is for a a plurality of contours, each of



said second contours being a logical section of said first contour, where said conversion is transparent to said application program; and

c. means for displaying said data on said display device at locations in said second contours in accordance with said second location information.

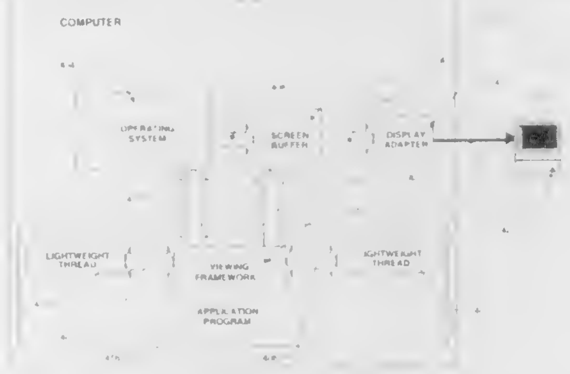
5,737,559
OBJECT-ORIENTED VIEW HIERARCHY FRAMEWORK

Debra L. Orton, Colorado Springs, Colo.; David B. Goldsmith, Los Gatos, and Arnold Schaeffer, Belmont, both of Calif., assignors to Object Technology Licensing Corporation, Cupertino, Calif.

Continuation of Ser. No. 176,149, Dec. 30, 1993, abandoned. This application Dec. 20, 1995, Ser. No. 575,263

Int. Cl.^{6} G06F *3/14*

U.S. Cl. 395—344 **12 Claims**



1. An apparatus for displaying a hierarchical arrangement of a first and a second view in which the first view may partially obscure a portion of the second view leaving a non-obscured visible area of the second view, the first and second views each displaying screen information generated by application programs, the apparatus operating on a computer system having a display and comprising:

(a) a screen buffer having a first storage area for holding screen information of the first view and a second storage area for holding screen information for the second view visible area;

(b) display adapter means for directly obtaining screen information from the screen buffer and for displaying the screen information on the display;

(c) means in each of the application programs to directly store screen information in the first and second storage areas according to a first storage area definition and a second storage area definition, each definition, respectively, defining portions of the screen buffer corresponding to the first and second storage areas,

(d) hierarchy object means for defining the hierarchal arrangement of the first and the second view;

(e) view system means, cooperating with the hierarchy object means, for determining a new second storage area definition in response to user requests to change the first view, and

(f) updating means, cooperating with the view system means, for informing the application programs of the new second storage area definition so that the application programs can obtain the storage area definitions and use them to directly store information in the storage areas without overwriting other areas of the screen buffer.

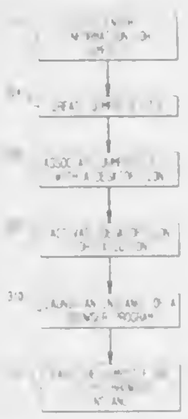
5,737,560
GRAPHICAL METHOD AND SYSTEM FOR ACCESSING INFORMATION ON A COMMUNICATIONS NETWORK

Steven J. Yohanan, San Francisco, Calif., assignor to Silicon Graphics, Inc., Mountain View, Calif.

Filed Dec. 29, 1995, Ser. No. 580,742

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—349 **19 Claims**



1. A computer program product for permitting a computer system to access a network location using a browser application by activating a desktop icon, said computer program product comprising:

a computer usable medium having computer readable program code means embodied in said medium for causing an application program to execute on the computer system, said computer readable program code means comprising

a computer readable first program code means for causing the computer system to display a desktop icon, said desktop icon associated with a file containing a network address corresponding to the network location,

a computer readable second program code means for, when said desktop icon is activated, causing the computer system to launch the browser application, if the browser application is not currently executing, wherein said computer readable second program code means is separate from the browser application, and

a computer readable third program code means for causing the computer system to access the network location using said network address and the browser application

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5,737,561
METHOD AND APPARATUS FOR EXECUTING AN INSTRUCTION WITH MULTIPLE BRANCING OPTIONS IN ONE CYCLE

Carole Dulong, Saratoga, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 377,482, Jan. 24, 1995, abandoned, which is a continuation of Ser. No. 7,582, Jan. 22, 1993, abandoned. This application Nov. 1, 1996, Ser. No. 743,421

Int. Cl.^{6} G06F *1/08 9/38, 9/42*

U.S. Cl. 395—391 **9 Claims**

1. A method for executing a case instruction in a computer system that executes a plurality of instructions, wherein said case instruction includes a plurality of branching options, each of which is conditioned and has a respective branch address associated therewith, and further wherein said computer system generates at least one condition indicator in response to the execution of said plurality of instructions, said method comprising the steps of

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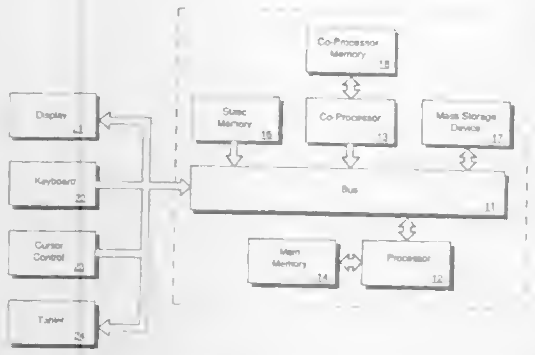


storing each of the respective branch addresses associated with each of said plurality of branching options in storage register means prior to execution of said case instruction;

selecting one of said plurality of branching options according to said at least one condition indicator, wherein said at least one condition indicator is indicative of said one of said plurality of branching options;

obtaining the respective branch address associated with said one of said plurality of branching options from said storage register means, the branch address not being included in the case instruction; and

implementing said one of the plurality of branching options, such that the computer system branches to the respective branch address associated with said one of the plurality of branching options, such that the case instruction is performed within one cycle.

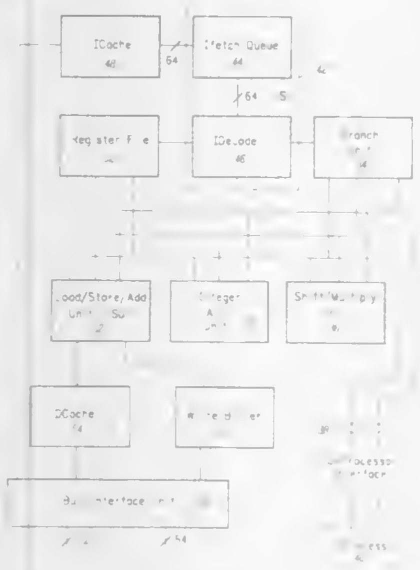
5,737,562
CPU PIPELINE HAVING QUEUING STAGE TO FACILITATE BRANCH INSTRUCTIONS

Robert L. Caulk, Jr., Livermore, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 6, 1995, Ser. No. 540,382

Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—394 11 Claims



1 A pipelined processor comprising.

a) an instruction fetch stage for fetching instructions for execution.

b) an instruction decode stage for receiving and decoding fetched instructions.

c) an instruction execution stage for executing instructions, and

d) a queue stage connected between said instruction fetch stage and said instruction decode stage for storing instructions related to branches and instructions related to resource conflicts

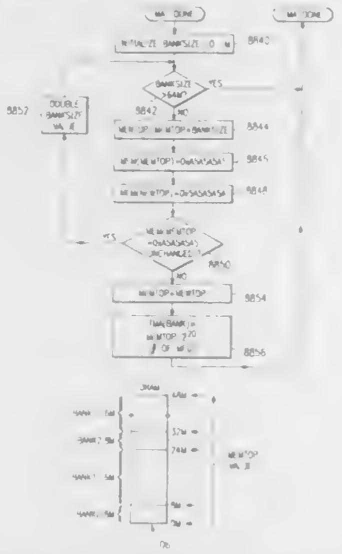
5,737,563
DETERMINATION OF MEMORY BANK SIZES IN A COMPUTER SYSTEM

Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 404,702, Mar. 15, 1995. This application Jun. 7, 1995, Ser. No. 472,623

Int. Cl.^{6} G06F *12/06; 12/00*

U.S. Cl. 395—405 21 Claims



1. A process for testing a memory arranged in a plurality of banks to determine a bank size of each of the plurality of banks, comprising the steps of:

selecting a first one of the plurality of banks;

writing a first datum to a location in the selected bank of the memory using a first address corresponding to a first address boundary of the selected bank;

writing a second datum to a location in the selected bank using a second address spaced from the first address by a trial bank size value, while preventing the second datum from being written to any bank of the plurality of banks other than the selected bank;

after the writing steps, reading the contents of the selected bank, using the first address;

responsive to the result of the reading step corresponding to the first datum, increasing the trial bank size value and repeating the writing and reading steps;

responsive to the result of the reading step corresponding to the second datum, storing a code corresponding to a second address boundary of the selected bank in a storage location, the second address boundary corresponding to a sum of the first address of the selected bank and the trial bank size value; and

after the storing step for the first bank, selecting a second one of the plurality of banks and repeating the writing, reading, and storing steps for the second bank, wherein the first address of the second bank corresponds to the second address boundary of the first bank.

5,737,564
CACHE MEMORY SYSTEM HAVING MULTIPLE CACHES WITH EACH CACHE MAPPED TO A DIFFERENT AREA OF MAIN MEMORY TO AVOID MEMORY CONTENTION AND TO LESSEN THE NUMBER OF CACHE SNOOPS

Salim A. Shah, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

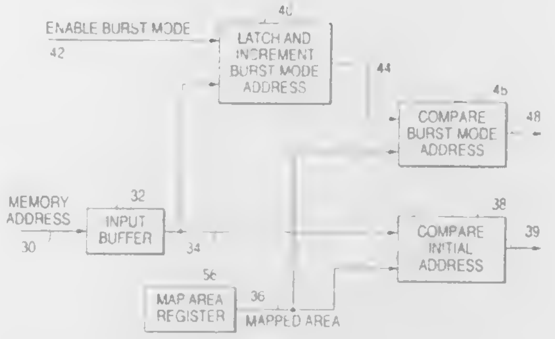
Continuation of Ser. No. 993,005, Dec. 18, 1992, Pat. No. 5,502,828. This application Jun. 5, 1995, Ser. No. 463,271

Int. Cl.^{6} G06F *12/10*

U.S. Cl. 395—412 8 Claims

1 A cache memory system, comprising:

a first Central Processing Unit (CPU).



a shared memory bus;

a main memory;

a plurality of cache memories connected to be directly accessible by said first CPU and connected to access said main memory through said shared memory bus, each of said cache memories having an associated memory address range indicating a range of addresses which are permitted to be stored in said each of said cache memories; and

a second CPU with copy back, said second CPU having at least one associated cache memory connected to said main memory through said shared memory bus to carry out said copy back to said main memory, said second CPU outputting a memory access request including a memory address, said address of said memory address request being transmitted over said shared memory bus so as to carry out said copy back;

wherein each of said cache memories connected to said first CPU monitors said address of said memory access request transmitted over said shared memory bus due to said copy back to determine if said address on said shared memory bus lies within its associated memory address range, such that said each of said cache memories connected to said first CPU is accessed to search for an address corresponding to said memory access request only when said address of said memory address request lies within said associated memory address range,

wherein each one of said cache memories comprises:

a storing means for storing a physical address range corresponding to a non-overlapping portion of said main memory;

a first comparing means for comparing said main memory address in said memory access request with said physical address range in said storing means, and

a first signalling means for signalling when said first comparing means determines that said main memory address is within said memory address range to initiate a cache memory access in response to said memory access request,

and wherein each non-overlapping portion of said main memory corresponding to each one of said cache memories is a separate and distinct memory region with respect to the non-overlapping portions corresponding to the other ones of said cache memories.

5,737,565
SYSTEM AND METHOD FOR DIALLOCATING STREAM FROM A STREAM BUFFER

Michael John Mayfield, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

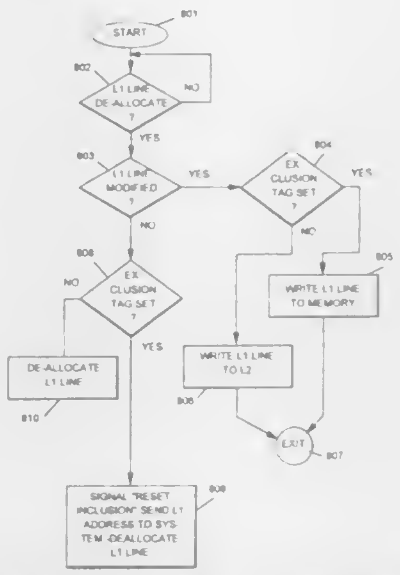
Filed Aug. 24, 1995, Ser. No. 519,032

Int. Cl.^{6} G06F *12/02*

U.S. Cl. 395—421.03 24 Claims

1 An apparatus operable for prefetching data to a memory subsystem from a main memory, wherein said memory subsystem is associated with a processor coupled to said main memory, said apparatus comprising

a stream buffer operable for containing X streams, wherein X is a positive integer; and



means operable for de-allocating one of said X streams after a predetermined number of potential new streams are detected, wherein said predetermined number is greater than 1.

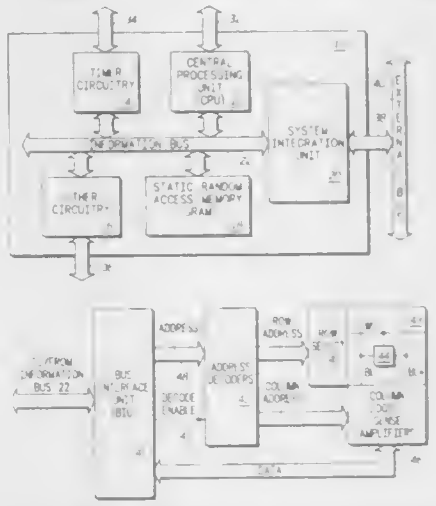
5,737,566
DATA PROCESSING SYSTEM HAVING A MEMORY WITH BOTH A HIGH SPEED OPERATING MODE AND A LOW POWER OPERATING MODE AND METHOD THEREFOR

Robert Wayne Sparks, Kyle; Wallace Baker Harwood, III, Austin; Thomas Jew, Austin, and James Bradley Eifert, Austin, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 20, 1993, Ser. No. 169,103

Int. Cl.^{6} G06F *12/00; 13/00*

U.S. Cl. 395—427 16 Claims



7. A data processing system having a central processing unit and an information bus, comprising:

a memory array having a plurality of memory cells, each memory cell of the plurality of memory cells coupled to a word line and to a bit line, the memory array providing data in response to receiving an address;

an address decoder coupled to the memory array, for decoding the address to select a memory cell of the plurality of memory cells,

a storage element, coupled to the information bus, for storing a control value; and

control circuitry, coupled to the memory array and to the storage element, the control circuitry for determining if the address is valid, and for causing the address decoder to decode the

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lpaddress for accessing the memory cell within a first predetermined number of clock cycles in response to the control value being a first predetermined value, and the control circuitry causing the address decoder to decode the address for accessing the memory cell within a second predetermined number of clock cycles in response to both the control value being a second predetermined value and the address being valid, wherein the first predetermined number of clock cycles is fewer than the second predetermined number of clock cycles, and wherein if the address is not valid when the control signal is in the second predetermined logic state, the address decoder is prevented from decoding the address.

5,737,567

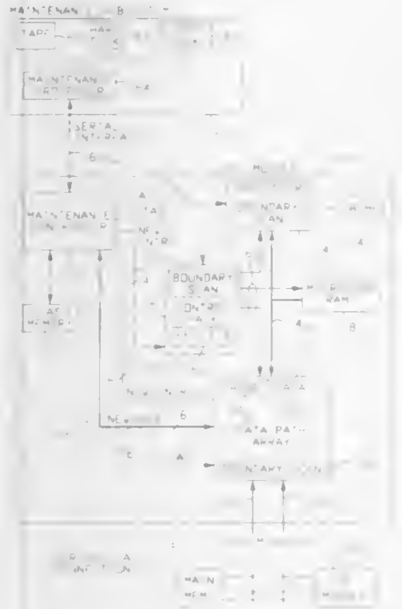
FAST WRITE INITIALIZATION SYSTEM FOR MICROCODE RAM VIA DATA PATH ARRAY USING PRE-LOADED FLASH MEMORY AN PROGRAMMABLE CONTROL LOGIC ARRAY

Bruce Ernest Whittaker, Mission Viejo, and James Henry Jeppesen, III, Lake Forest, both of Calif., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Oct. 23, 1995, Ser. No. 546,650

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—430 **6 Claims**



1 A system for fast loading, during initialization routines, of a microcode RAM in a central processing module having a central processor, a microcode RAM and data path array managed by a Programmable Control PAL means and interconnected by an internal processor bus, comprising.

(a) means to preload instruction code addresses and words from a maintenance subsystem into a flash memory connected to a programmable maintenance controller to continually maintain an updated instruction set of microcode words,

(b) means to transfer said instruction code addresses and words from said flash memory to said data path array via a high speed parallel transfer bus wherein said data path array also provides, for temporarily holding said microcode words being transferred, for communication between said internal processor bus and slower speed external dual system buses, and

(c) means to control the transfer of said instruction code addresses and words from said data path array to said microcode RAM, said means to control the transfer including said programmable control PAL means which includes.

(c1) means to receive control instructions from said programmable maintenance controller and to transmit control signals to said central processor, to said microcode RAM and to said data path array, to enable said microcode instruction words to be transferred on said internal bus for loading into said microcode RAM

5,737,568

METHOD AND APPARATUS TO CONTROL CACHE MEMORY IN MULTIPROCESSOR SYSTEM UTILIZING A SHARED MEMORY

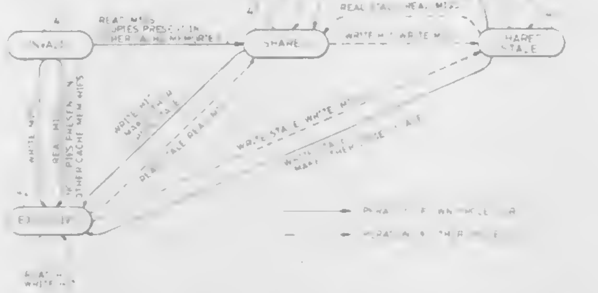
Kazumasa Hamaguchi, Kawasaki, and Shigeki Shibayama, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 723,386, Jun. 28, 1991, abandoned. This application Feb. 21, 1995, Ser. No. 393,927

Claims priority, application Japan, Jul. 9, 1990, 2-179541

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—448 **7 Claims**



1 A method of controlling a cache memory for a local processor in a multiprocessor system, which is equipped with a shared memory and a plurality of local processors each having a respective cache memory, said method comprising the steps of:

storing a state of data validity for every entry in each cache memory.

monitoring, by each local processor, transactions on a system bus generated owing to read miss by other processors;

generating a transaction requiring data of a shared memory address by a first local processor which has caused a read miss for the address:

detecting the generated transaction by each local processor other than the first local processor:

determining, by each local processor which has detected the generated transaction, whether or not an entry having a same shared memory address as the address of the generated transaction is present in its respective cache memory by comparing addresses of all entries in the cache memory with the address of the generated transaction,

checking, by each local processor in which the entry of the same shared address is determined to be present, a stored state of data validity for the entry of the same shared address;

outputting data of the same shared memory address to the system bus by a second local processor which has the entry of the same shared address with the state determined to be valid;

deriving, by the first local processor, the output data of the same shared memory address from the system bus into its own cache memory and storing the data in an entry with a state of data validity of the entry valid, and

deriving, by a third local processor which has the entry of the same shared address with the state determined to be invalid, the output data of the same shared memory address from the system bus into its respective cache memory to update the entry of the same shared memory address by the data and validating the state of data validity of the entry.

5,737,569

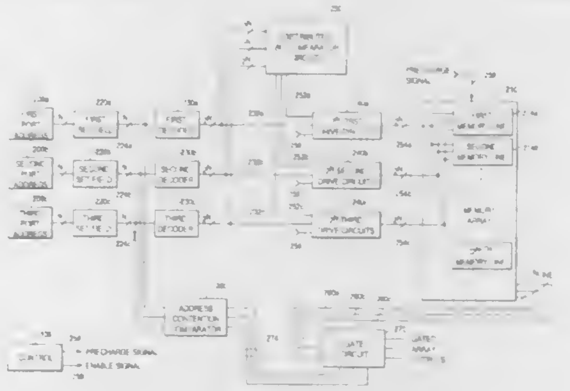
MULTIPORT HIGH SPEED MEMORY HAVING CONTENTION ARBITRATION CAPABILITY WITHOUT STANDBY DELAY

James Nadir, and Ching-Hua Chu, both of San Jose, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 85,983, Jun. 30, 1993, abandoned. This application Mar. 26, 1996, Ser. No. 622,614

Int. Cl.^{6} G06F *12/00;13/14*

U.S. Cl. 395—476 **2 Claims**



2 A multiport high speed memory circuit including:

a plurality of ports including a first port and a second port,

an address means for providing a plurality of physical addresses to said plurality of ports,

an address comparator circuit coupled to the physical address means for comparing each of said addresses to determine if there is a match between any two of said addresses, and in response thereto to provide a plurality of gate control signals,

a memory array defining a plurality of memory lines for storing computer data, each memory line having a plurality of memory wordlines for accessing said memory line, said plurality of memory wordlines including a first wordline for said first port and a second wordline for said second port;

a plurality of decoders including a decoder for each of said plurality of ports, each decoder coupled to one of said plurality of ports to receive one of the plurality of physical addresses, each of said decoders including a circuit for decoding said plurality of physical addresses to select one of a plurality of decoder output lines,

a plurality of distributed bit comparators coupled to the outputs of the decoders, each distributed bit comparator being coupled to receive at least two of the decoder output lines associated with a single memory line, compare said decoder output lines, and supply a comparison signal to a plurality of line drivers responsive to said comparison; said plurality of line drivers including a first group of line drivers for the first port and the second group of line drivers for the second port, each line driver in said first group coupled to drive a preselected first wordline of a memory array for the first port and receiving an input line from the decoders for the first port, each line driver in said second group being coupled to drive a preselected second wordline for the second port and receiving an input line from the decoder for the second port and also receiving from the distributed bit comparators a comparison signal that, if asserted, prevents said line driver in the second group from driving its respective memory line; and

a gate circuit coupled to receive each of a plurality of memory lines output from the memory array, said gate circuit also coupled to receive the gate control signals, and responsive thereto, to route the data in said plurality of memory lines to a correct output line corresponding to the port that addressed said data.

5,737,570

MEMORY UNIT INCLUDING AN ADDRESS GENERATOR

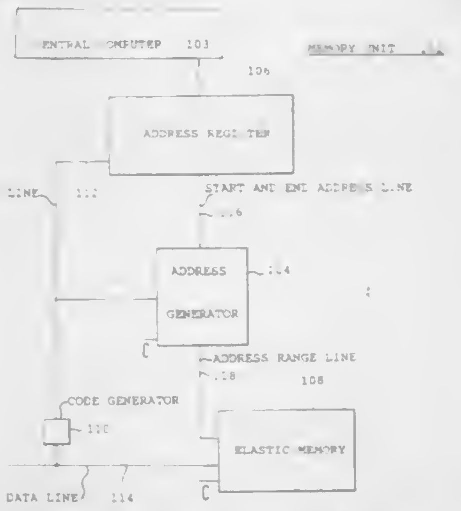
Werner Koch, Hemmingen, Germany, assignor to Alcatal N.V., Amsterdam, Netherlands

Continuation of Ser. No. 452,669, May 26, 1995, abandoned, which is a continuation of Ser. No. 930,924, Aug. 18, 1992, abandoned. This application Apr. 28, 1997, Ser. No. 847,907

Claims priority, application Germany, Aug. 21, 1991, 41 27 579.9

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—476 **12 Claims**



7 A memory unit for use with a computer to store data blocks of a data stream, the data stream including a plurality of transmission channels, said memory unit comprising:

a memory which receives the data stream;

code generator means for deriving identifier numbers from the data stream, each identifier number being associated with a respective one of the transmission channels and indicating the block length of a data block which is to be stored;

address register means for storing start and end addresses of address ranges and for emitting a particular start address and a particular end address in response to a particular identifier number from the code generator means, the start and end addresses being changeably assigned by the computer, the address ranges varying in size as a function of the identifier number; and

address generator means for addressing the memory, while at least part of the data stream is stored therein, by counting through an address range from a start address emitted by the address register means to an end address emitted by the address register means.

5,737,571

SYSTEM FOR DISCRIMINATING THAT AN EXTERNAL PROCESSOR IS PERMITTED TO ACCESS A DATA STORAGE DEVICE UTILIZING PRESCRIBED CONTROL SIGNALS INCLUDING ACCESS ENABLE SIGNAL

Tomoya Fukuzumi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 581,497

Claims priority, application Japan, Aug. 24, 1995, 7-215759

Int. Cl.^{6} G06F *15/20;12/14*

U.S. Cl. 395—479 **18 Claims**

1 A data storage device comprising.

a data storage section storing data.

a connector detachable connected to an external data processor, the connector including terminals for transmitting an address signal, a data signal and control signals, the control signals including prescribed control signals for controlling said data storage section and an access enable signal for discriminating that the external data processor is permitted to access the data storage device;

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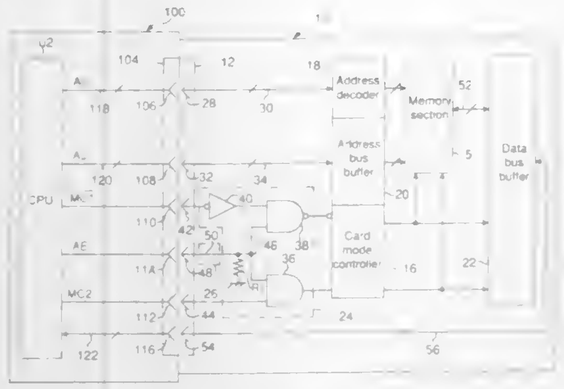

a transmission controller generating a signal when the access enable signal is received from said connector; and

a storage controller supplying the prescribed control signals received from said connector said data storage section when the signal is received from said transmission controller

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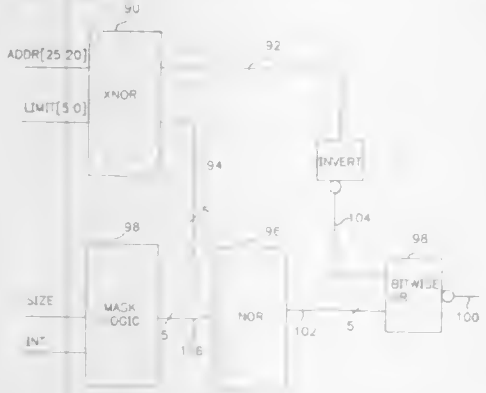
5,737,572
BANK SELECTION LOGIC FOR MEMORY CONTROLLERS

Ann B. Nunziata, Cupertino, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jun. 6, 1995, Ser. No. 470,963

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—484 **9 Claims**



1. A memory system comprising.

a plurality of memory banks, at least two of which are associated with one another for one of interleaved and non-interleaved operation:

a memory controller including.

a size register for storing a size of each of said plurality of memory banks;

an interleave register for storing a status of each of said memory banks as interleaved or non-interleaved based upon said size of said respective memory bank,

a limit register associated with each of said memory banks for storing a base memory address assigned to each of said memory banks based upon said size and said status of each of said memory banks;

bank selection logic which identifies at least one of said memory banks based upon an input system address and said size, said status and said base memory address of each of said memory banks, and

address generation logic which generates a row address based upon said input system address irrespective of said status of said each of said memory banks and which generates a column address based upon both said input system address and said status.

5,737,573
ASYNCHRONOUS ACCESS SYSTEM HAVING AN INTERNAL BUFFER CONTROL CIRCUIT WHICH INVALIDATES AN INTERNAL BUFFER

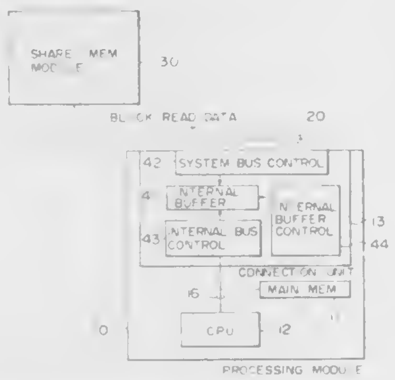
Jun Funaki; Akira Kabemoto, and Hirohide Sugahara, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 139,746, Oct. 22, 1993, abandoned. This application Oct. 16, 1996, Ser. No. 733,721

Claims priority, application Japan, Oct. 27, 1992, 4-288685

Int. Cl.^{6} G06F *12/12*

U.S. Cl. 395—486 **8 Claims**



1. An asynchronous access system comprising:

a system bus;

at least one shared memory module provided with a shared memory unit and a second connection unit which connects to said system bus;

at least one processing module provided with a main memory, a central processing unit, a first connection unit which connects to said system bus, and an internal bus connecting said main memory, said central processing unit and said first connection unit, said first connection unit adapted to issue a block read request to said shared memory module via said system bus when said first connection unit recognizes that said central processing unit has requested a read from said shared memory module, said first connection unit comprising:

an internal buffer for storing data read from said shared memory module;

a system bus control circuit coupled to said system bus;

an internal bus control circuit coupled to said internal bus; and

an internal buffer control circuit controlling writing and reading of said internal buffer based on a signal from said internal bus control circuit, said internal buffer control circuit includes a timer circuit means for judging whether said central processing unit executed a read with respect to said internal buffer within a set time from execution of a final read instruction from said central processing unit, said internal buffer control circuit invalidating the content of said internal buffer when said timer circuit means judges that the read is not executed within said set time.

one of said internal buffer control circuit and said internal bus control circuit invalidating a content of said internal buffer when an invalidating condition is recognized

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5,737,574
METHOD FOR GENERATING A LOGIC CIRCUIT FROM A HARDWARE INDEPENDENT USER DESCRIPTION USING MUX CONDITIONS AND HARDWARE SELECTORS

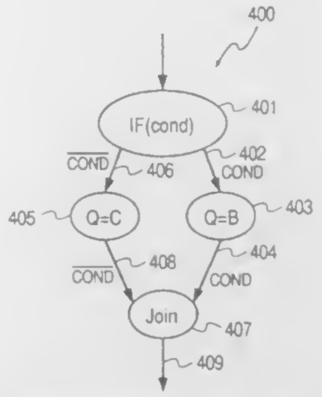
Brent L. Gregory, Sunnyvale, and Russell B. Segal, Mountain View, both of Calif., assignors to Synopsys, Inc, Mountain View, Calif.

Continuation of Ser. No. 632,439, Dec. 21, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 485,432

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 395—489 **18 Claims**

1. A method for generating a logic circuit from a hardware independent user description using a flow control graph that includes mux conditions comprising:



initiating processing at a source of the flow control graph:

generating at least one hardware selector at a join node in said flow control graph;

wherein said at least one hardware selector has a first data input line, a second data input line, a first data input select line, a second data input select line and an output line; and

said first data input select line is driven by a first mux condition associated with a first edge into said join node;

said second data input select line is driven by a second mux condition associated with a second edge into said node; and

a signal on said output line is associated with an edge from said join node.

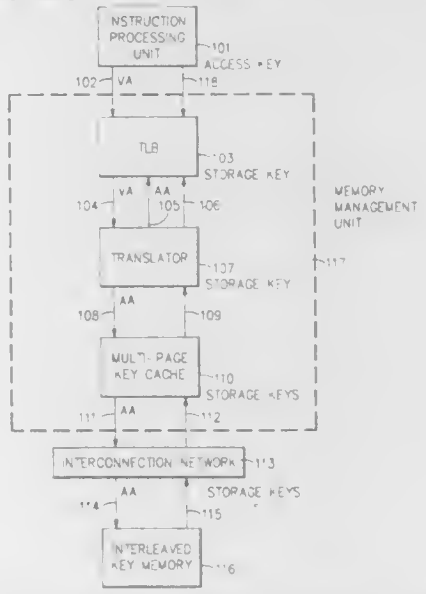
5,737,575
INTERLEAVED KEY MEMORY WITH MULTI-PAGE KEY CACHE

Bartholomew Blaner, Newark Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 883,516, May 15, 1992, abandoned. This application Feb. 28, 1995, Ser. No. 406,751

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—491 **4 Claims**



1. In a digital computer system, the combination comprising.

a plurality of storage protection keys.

a first storage mechanism for storing storage protection keys, said first storage mechanism allowing multiple said storage protection keys to be accessed in parallel in response to a single access to said first storage mechanism, and

a memory management unit including a translation lookaside buffer having storage means for storage of storage protection keys, said memory management unit further including a second storage mechanism.

said memory management unit having means for requesting storage protection keys and for receiving said multiple storage protection keys,

said second storage mechanism being coupled between said first storage mechanism and said translation lookaside buffer, for receiving said multiple storage protection keys from said first storage mechanism, for storing said multiple storage protection keys received in response to accesses of said first storage means, and for associatively retrieving one of said multiple storage protection keys stored in said second storage mechanism when a particular storage protection key is not available from said translation lookaside buffer.

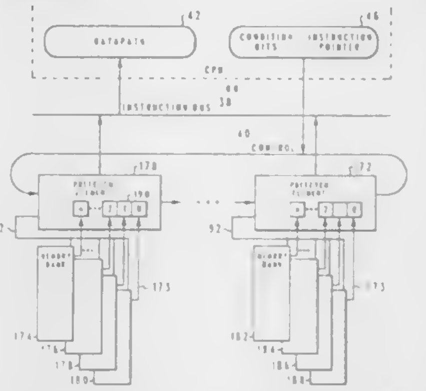
5,737,576
METHOD AND SYSTEM FOR EFFICIENT INSTRUCTION EXECUTION IN A DATA PROCESSING SYSTEM HAVING MULTIPLE PREFETCH UNITS

Mauricio Breternitz, Jr., Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 472,360, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 164,497, Dec. 9, 1993, abandoned. This application Nov. 20, 1996, Ser. No. 754,595

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—496 **21 Claims**



1. A system for efficiently executing instructions in a central processing unit of a data processing system comprising

a central processing unit for executing instructions;

a plurality of memory banks for storing said instructions, wherein each of said memory banks includes one or more memory devices coupled together to recall at least a portion of one of said instructions in response to receiving an address signal;

an instruction bus coupled to said central processing unit for transferring said instructions to said central processing unit.

a control bus coupled to said central processing unit for transferring control data;

a plurality of prefetch elements, wherein each of said plurality of prefetch elements is coupled to a subgroup of two or more of said plurality of memory banks, to said instruction bus, and to said control bus said subgroup of said plurality of memory banks including said plurality memory banks in particular sequence, said instructions including a first plurality of instructions, each of said instructions included within said first plurality of instructions being stored only in a last of said plurality of memory banks in said particular sequence:

wherein said plurality of prefetch elements are each operable in a plurlaity of modes including.

(a) an idle mode wherein said prefetch element waits for said control data before fetching a plurality of instructions in program order from said subgroup of said plurality of memory banks.

(b) a fetching mode wherein said prefetch element fetches said plurality of instructions in program order from said subgroup of said plurality of memory banks in response to receiving said control data, wherein fetching of one of said plurality of instructions overlaps a portion of said fetching of another of said plurality of instructions.

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- (c) a ready mode wherein said prefetch element has fetched said plurality of instructions from said subgroup of said plurality of memory banks and is waiting to receive said control data via said control bus before transferring said plurality of instructions in program order to said central processing unit via said instruction bus; and
- (d) an active mode wherein said prefetch element transfers said plurality of instructions in program order to said central processing unit via said instruction bus in response to receiving said control data via said control bus.

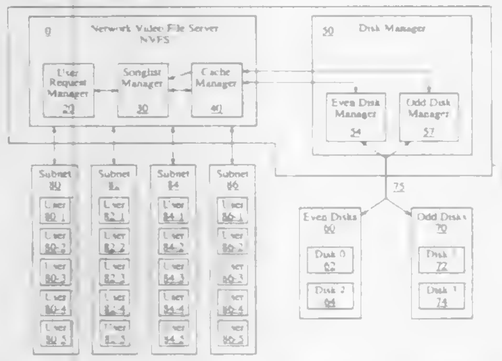
5,737,577
COMPLEMENTARY BLOCK STORAGE FOR BREATER MINIMUMDATA TRANSFER RATE

Edward W. Martini, Newark, Calif., assignor to Digital Video Systems, Inc., Santa Clara, Calif.

Filed Aug. 12, 1996, Ser. No. 694,399

Int. Cl.⁶ G06F *12/00*

U.S. Cl. 395—497.04 **23 Claims**



1. A system for storage and delivery of a plurality of data files comprising:

a first disk and a second disk for storing the plurality of data files, the first disk and the second disk each further comprising a plurality of blocks;

means coupled to the first and second disks for dividing each of the plurality of data files into at least one data block, at least one of the plurality of data files being divided into a plurality of data blocks having an order, the at least one data file being stored by storing the plurality of blocks in order alternatively in the first and second disks in a portion of the plurality of blocks, each data block stored in the second disk being located in a block of the portion of the plurality of blocks occupying a complementary location on the second disk to a block of the portion of the plurality of blocks on the first disk in which a prior data block in the order is stored; and

means coupled to the first and second disks for transferring each of the plurality of data files from the first and second disks, the means for transferring further comprising:

means coupled to the first disk and the second disk for performing a seek operation, the first and second disks being read alternatively to read the plurality of data blocks in order, at least a portion of the seek operation being performed on the second disk to find a next block on the second disk while a read and data transfer is performed for a current block on the first disk, and at least the portion of the seek operation being performed on the first disk to find a next block on the first disk while a read and transfer is performed on a current block of the second disk.

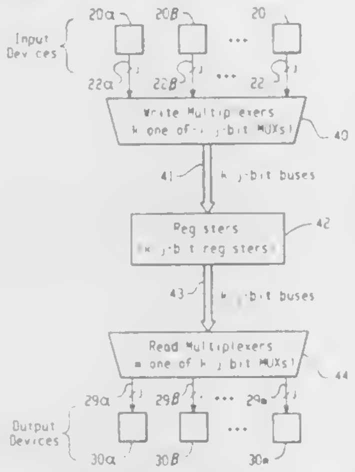
5,737,578
APPARATUS AND METHOD FOR PARTITIONING MULTIPORT RAMS

Eric Todd Hennenhoefer, Essex Jct., and Jonathan Henry Raymond, Underhill, both of Vt., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Nov. 18, 1994, Ser. No. 341,775

Int. Cl.⁶ G06F *12/00*

U.S. Cl. 395—500 **25 Claims**



1. An emulation system for emulating a circuit having at least one multiport RAM that requires at least two programmable devices to be emulated, comprising:

- (a) a plurality of programmable devices;
- (b) a configuration unit electrically coupled to said plurality of programmable devices for programming said plurality of programmable devices to emulate the circuit; and
- (c) a partition unit coupled to said configuration unit for partitioning the at least one multiport RAM into at least two circuit portions, the at least two circuit portions capable of being programmed into two of said programmable devices by said configuration unit, and wherein during emulation there are no logical data flow paths between the at least two circuit portions; and

wherein the at least two circuit portions each comprise another multiport RAM having the same depth, number of read ports, and number of write ports as the at least one multiport RAM, but having a narrower width than the at least one multiport RAM.

5,737,579
SYSTEM AND METHOD FOR EMULATING COMPUTER ARCHITECTURES

Tsunenori Kimura; Chiharu Takeuchi, and Masaru Kohno, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Dec. 22, 1994, Ser. No. 361,528

Claims priority, application Japan, Dec. 24, 1993, 5-328588; Apr. 11, 1994, 6-097991; Oct. 21, 1994, 6-282539

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—500 **85 Claims**

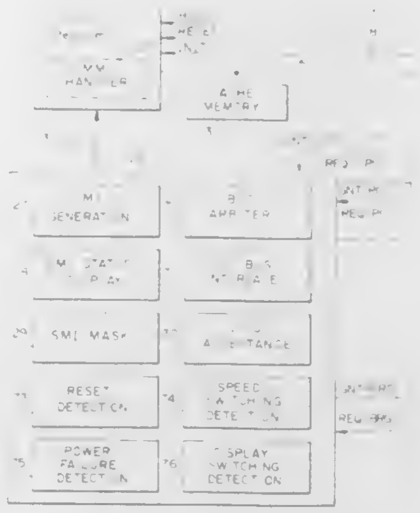
1. An emulation system, comprising:

first device control means for controlling a first device, said first device control means being controlled by instructions of a first instruction set, said first instruction set conforming to a first computer architecture;

second device control means for controlling a second device, said second device control means being controlled by instructions of a second instruction set, said second instruction set conforming to a second computer architecture differing from said first computer architecture;

central control means coupled to the first and the second device control means for issuing an instruction which is a second instruction of said second instruction set;

transferring means coupled to said second device control means for transferring said second instruction received from the central control means to one of said second device control means and said second device.



accepting means coupled to said transferring means for accepting and analyzing said second instruction when emulating one of said second device control means and said second device;

setting means coupled to said accepting means for setting first event data that indicates an instruction type when the accepting means accepts said second instruction; and

interrupt means coupled to said central control means and said setting means for generating a first interrupt in said central control means based on said first event data when the accepting means accepts said second instruction, said first interrupt activating said central control means to execute a first given processing corresponding to said first event data with respect to one of at least said first device control means and said first device.

5,737,580
WIRING DESIGN TOOL IMPROVEMENT FOR AVOIDING ELECTROMIGRATION BY DETERMINING OPTIMAL WIRE WIDTHS

David James Hathaway, Underhill Ctr.; Douglas Wayne Kemerer, Essex Junction; William John Livingstone, Cambridge; Daniel Joseph Mainiero, Williston; Joseph Leonard Metz, South Burlington, and Jeannie Therese Harrigan Panner, Underhill, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 28, 1995, Ser. No. 430,670

Int. Cl.⁶ H02B *1/20*

U.S. Cl. 395—500 **17 Claims**

1. In an electronic design automation tool for IC circuit design having a placement procedure, a circuit library of possible circuit elements used in the IC circuit, a netlist describing the circuit elements and their interconnections, a wiring procedure for detailed wiring of the IC circuit, and an EM checker for determining downstream capacitive loading for any IC circuit segment or element, the improvement comprising:

a tapering procedure for use by the wiring procedure comprising the steps of:

- (a) assigning an allowable narrower wire width to the IC segment or element,
- (b) testing the narrower width with the EM checker,
- (c) repeating steps (a) and (b) until the EM checker indicates an EM failure,
- (d) assigning a last width tested which did not fail the EM checker test as a wire width for that segment or element,
- (e) repeating steps (a) through (d) for each segment or element in an IC net.

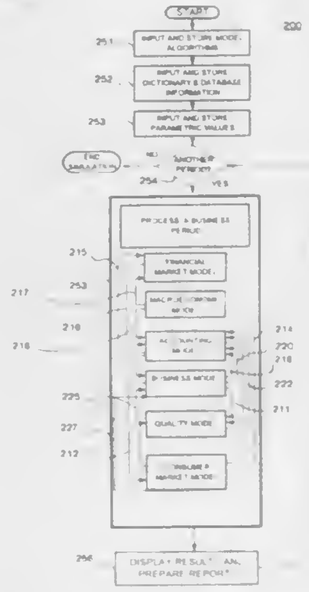
5,737,581
QUALITY SYSTEM IMPLEMENTATION SIMULATOR

John A. Keane, 273 Jefferson Rd., Princeton, N.J. 08540

Filed Aug. 30, 1995, Ser. No. 520,870

Int. Cl.⁶ G06F *9/44, 9/445*

U.S. Cl. 395—500 **30 Claims**


START
200
251
INPUT AND STORE MODEL ALGORITHMS
252
INPUT AND STORE DICTIONARY & DATABASE INFORMATION
253
INPUT AND STORE PARAMETRIC VALUES
254
255
DISPLAY RESULTS AND PREPARE REPORT

1. A process for simulating on a computer system the implementation of a quality system on a business having a product flow, said process comprising the steps of:

inputting a selection of quality assurance measures of said quality system,

configuring a quality model resident within said computer system according to said selection to form a configured quality model, said configured quality model having a mathematical representation of each quality assurance measure selected;

inputting product flow data representing said product flow with a number of defects,

applying said configured quality model to said product flow data; and

displaying on a user interface of said computer system results of said quality assurance measures on said product flow as determined by applying said configured quality model.

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5,737,582

IC CARD AND IC CARD SYSTEM

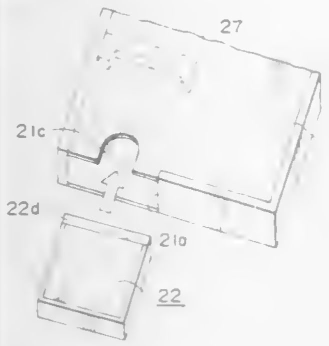
Tomoya Fukuzumi, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 1, 1995, Ser. No. 523,512

Claims priority, application Japan, Sep. 2, 1994, 6-210003; Dec. 28, 1994, 6-328608

Int. Cl.^{6} G06F *9/02*

U.S. Cl. 395—500 **14 Claims**



1. An IC card and sub-card comprising.

an IC card including:

a main body including an IC providing various functions, a main connector, and a key card connector for connecting a sub-card; and

a housing including an opening for receiving a sub-card inserted inside said housing for connection to said key card connector; and

a sub-card having a connector for detachable connection to said key card connector when said sub-card is inserted inside said housing through the opening and including an IC providing a function in addition to the functions of said IC of said main body

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5,737,583

DIGITAL CIRCUIT SIMULATION

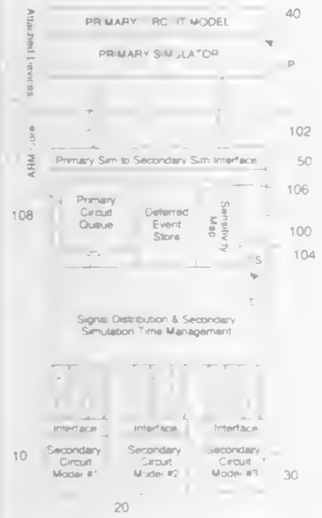
Clive Richard Jones, Cambridge, and Richard William Earnshaw, Teversham, both of United Kingdom, assignors to Advanced Risc Machines Limited, Cambridge, United Kingdom

Filed Sep. 12, 1995, Ser. No. 527,156

Claims priority, application United Kingdom, Jul. 13, 1995, 9514304

Int. Cl.^{6} G06F *15/16*

U.S. Cl. 395—500 **13 Claims**


Attached Devices
PRIMARY CIRCUIT MODEL
PRIMARY SIMULATOR
40
P
ARM Core
102
Primary Sim to Secondary Sim Interface
50
106
108
Primary Circuit Queue
Deferred Event Store
Sensitivity Map
100
104
S
Signal Distribution & Secondary Simulation Time Management
Interface
Interface
Interface
10
Secondary Circuit Model #1
Secondary Circuit Model #2
Secondary Circuit Model #3
30
20

13. An apparatus for simulating a digital circuit comprising a primary circuit coupled to a plurality of secondary circuits, said apparatus comprising:

(i) a primary circuit model for simulating signals exchanged within said primary circuit, said primary circuit model operating through a sequence of primary simulated times separated by primary time increments;

(ii) a plurality of secondary circuit models for simulating signals exchanged between said plurality of secondary circuits, said plurality of secondary circuit models operating through a sequence of secondary simulated times separated by secondary time increments; and

(iii) an interface controller for controlling the passing of signals between said primary circuit model and said plurality of secondary circuit models; wherein,

(iv) when said primary circuit model advances to a primary simulated time at which said primary circuit model changes a signal value to which at least one of said secondary circuit models is responsive, said primary circuit model stops simulating signals exchanged within said primary circuit, stops incrementing said primary simulated time and passes said signal via said interface controller to said at least one of said secondary circuit models; and

(v) a detector for detecting when no further signal exchanges are driven by said plurality of secondary circuit models, said interface controller then stopping the incrementing of said secondary simulated time and passing to said primary circuit model the last asserted value of any signals changed by said plurality of secondary circuit models during incrementing of said secondary simulated time and to which said primary circuit model is responsive, whereupon said primary circuit model restarts simulation of signals exchanged within said primary circuit and incrementing of said primary simulated time.

5,737,584

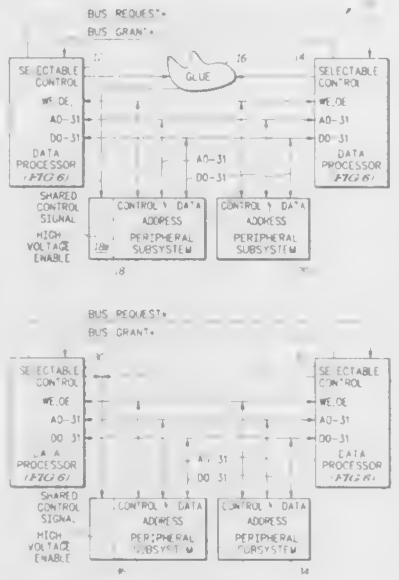
DATA PROCESSING SYSTEM HAVING PROGRAMMABLE EXTERNAL TERMINALS SUCH THAT THE EXTERNAL TERMINALS ARE SELECTIVELY SUBJECTED TO BUS ARBITRATION

William C. Moyer, Dripping Springs, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 22, 1996, Ser. No. 589,699

Int. Cl.^{6} G06F *13/364*

U.S. Cl. 395—500 **24 Claims**



1. A data processing system comprising:

a first central processing unit having a bus request output, a bus grant input, at least one data bus output, at least one address bus output, at least one control bus output, and at least one programmable output;

a second central processing unit having a bus request output, a bus grant input, at least one data bus output, at least one address bus output, at least one control bus output, and at least one programmable output.

a bus control circuit coupled to both the first central processing unit and the second central processing unit, the bus control circuit determining which of the first central processing unit or the second central processing unit obtains ownership of the at least one data bus output, the at least one control bus output, and the at least one address bus output;

at least one peripheral device coupled to the first central processing unit; and

wherein the first central processing unit contains control circuitry which determines whether the at least one programmable output of the first central processing unit: (1) functions independent of a logic value provided on the bus grant input to the first central processing unit; or (2) functions only when the ownership of the at least one data bus output and the at least one address bus output is granted to the first central processing unit via an asserted signal provided through the bus grant input of the first central processing unit.

5,737,585

FIRMWARE MAINTENANCE AND MODIFICATION SYSTEM

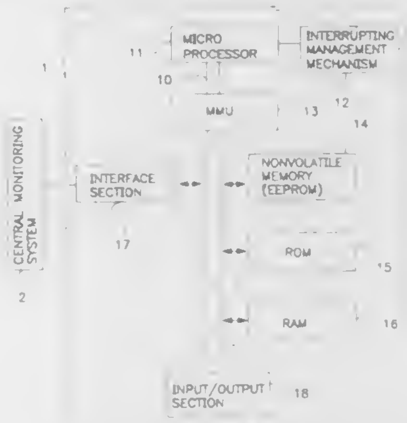
Toshihito Kaneshima, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 264,486, Jun. 23, 1994, abandoned. This application Oct. 21, 1996, Ser. No. 734,313

Claims priority, application Japan, Jan. 10, 1994, 6-013242

Int. Cl.^{6} G06F *9/455*

U.S. Cl. 395—500 **10 Claims**


MICRO PROCESSOR
INTERRUPTING MANAGEMENT MECHANISM
11
1
10
MMU
13
12
14
CENTRAL MONITORING SYSTEM
INTERFACE SECTION
NONVOLATILE MEMORY (EEPROM)
17
ROM
15
2
RAM
16
INPUT/OUTPUT SECTION
18

1. A subordinate system connected to a central monitoring system via a communication network for storing firmware which is updated from the central monitoring system, the subordinate system comprising:

a microcomputer having logical addresses;

an EEPROM subdivided into a plurality of pages, including a management area to store a version number and a writing frequency of the management area, a firmware entry area to simultaneously store multiple versions of firmware formed by micro-programming from the central monitoring system wherein each of said multiple versions of firmware may be optionally read out from the firmware entry area, and a page management area to store a writing frequency for each of said plurality of pages,

a ROM to store management data indicating respective storing locations of each of said simultaneously stored firmware versions; and

memory management means for converting the logical addresses of said microcomputer into physical addresses of said EEPROM, for transferring a firmware version as an undivided whole from the central monitoring system to said EEPROM, and for storing the transferred firmware version in said EEPROM,

wherein said memory management means prohibits storage of the transferred firmware version into pages in which a writing frequency has exceeded a predetermined number and loads the transferred firmware version as a next firmware version upon restart of said microcomputer.

5,737,586

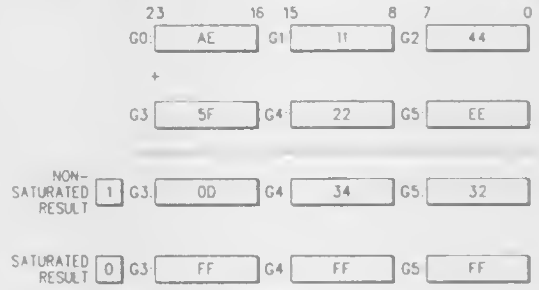
DATA PROCESSING SYSTEM AND METHOD THEREOF

Michael G. Gallup, and L. Rodney Goke, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 40,779, Mar. 31, 1993. This application Mar. 21, 1995, Ser. No. 408,098

Int. Cl.^{6} G06F *9/302*

U.S. Cl. 395—583 **20 Claims**



1. A data processor, comprising:

interface means for receiving a data processing instruction, wherein an operand of the data processing instruction is one of a scalar value and a portion of a vector value;

a sequencer for decoding the data processing instruction to provide a plurality of control signals, the sequencer being coupled to the interface means for receiving the data processing instruction;

instruction execution means for executing a data processing operation in response to the plurality of control signals, the instruction execution means providing a result of the data processing operation, the instruction execution means being coupled to the sequencer for receiving the plurality of control signals;

a first storage circuit for storing an overflow value, the overflow value being asserted when the result is not one of a range of data values, the overflow value being negated when the result is one of the range of data values;

a modification circuit coupled to the first storage circuit for receiving the overflow value and coupled to the instruction execution means for receiving the result, the modification circuit modifying the result to be equal to a predetermined value when the overflow value is asserted; and

a second storage circuit for storing an overflow direction value, the overflow direction value being asserted when the result is greater than a maximum value and the overflow direction value being negated when the result is less than a minimum value.

5,737,587

RESYNCHRONIZATION CIRCUIT FOR CIRCUIT MODULE ARCHITECTURE

Wingyu Leung, Cupertino; Winston Lee, South San Francisco, and Fu-Chieh Hsu, Saratoga, all of Calif., assignors to Monolithic System Technology, Inc., Sunnyvale, Calif.

Division of Ser. No. 417,511, Apr. 5, 1995, Pat. No. 5,498,990, which is a continuation of Ser. No. 156,186, Nov. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 927,564, Aug. 10, 1992, abandoned, which is a continuation-in-part of Ser. No. 865,410, Apr. 8, 1992, abandoned, which is a continuation-in-part of Ser. No. 787,984, Nov. 5, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 473,633

Int. Cl.^{6} G06F *1/04*

U.S. Cl. 395—552 **7 Claims**

1. A resynchronization circuit for reading data values from a dynamic random access memory (DRAM) in response to a system

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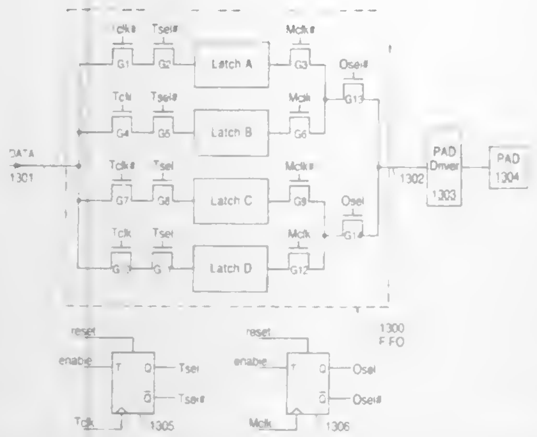

clock signal, the DRAM having a read data path, the resynchronization circuit comprising:

a delay path coupled to receive the system clock signal, wherein the delay path provides a first clock signal in response to the system clock signal, the first clock signal having no definite phase relationship with the system clock signal, wherein the delay path introduces a delay to the system clock signal which is approximately equal to a delay through the read data path of the DRAM, and

a first in, first out (FIFO) memory coupled to the delay path and the DRAM, wherein the data values read from the DRAM are written to the FIFO memory in response to the first clock signal, and wherein the data values are read from the FIFO memory in response to the system clock signal

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5,737,588
DRIVING CIRCUIT FOR A MICROCOMPUTER THAT ENABLES SLEEP CONTROL USING A SMALL-SCALE TIMER

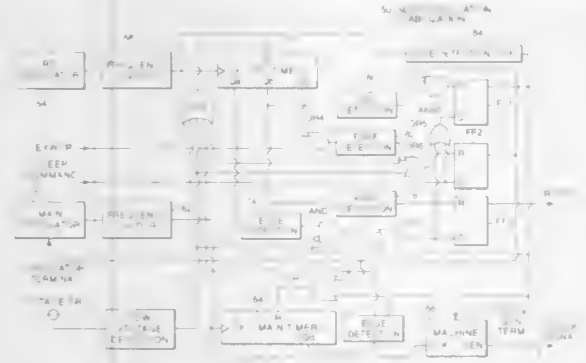
Kouichi Maeda, Anjou; Hideaki Ishihara, Okazaki, and Akihiro Sasaki, Anjou, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 7, 1995, Ser. No. 499,174

Claims priority, application Japan, Jul. 7, 1994, 6-156202; May 19, 1995, 7-121437

Int. Cl.^{6} G06F *1/04*

U.S. Cl. 395—555 **16 Claims**



1 A driving circuit for a microprocessor comprising.

a main oscillator generating a main oscillation signal.

machine clock generation means for generating a machine clock signal based on said main oscillation signal;

main sleep control means for selectively controlling oscillation of said main oscillator responsive to a sleep command;

machine clock sleep control means for selectively providing said machine clock signal to said microprocessor;

a sleep period timer measuring a time period elapsing since said main sleep control means has terminated oscillation of said main oscillator;

main sleep control termination means for causing said main sleep control means to enable oscillation of said main oscillator when said time period measured by said sleep period timer is at least as long as a main sleep release time; and

machine clock sleep control termination means for causing said machine clock sleep control means to provide said machine clock signal to said microprocessor when said time period measured by said sleep period timer is at least as long as a machine clock sleep release time, said machine clock sleep release time being a time period necessary for oscillation of said main oscillator to stabilize.

5,737,589
DATA TRANSFER SYSTEM AND METHOD INCLUDING TUNING OF A SAMPLING CLOCK USED FOR LATCHING DATA

Toshio Doi, Kodaira; Takehisa Hayashi, Sagamihara, and Tetsuo Nakano, Hinodemachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 19, 1994, Ser. No. 308,346

Claims priority, application Japan, Sep. 20, 1993, 5-232827

Int. Cl.^{6} G06F *1/06*

U.S. Cl. 395—558 **7 Claims**

1 A data transfer system, comprising

a first device;

a second device;

a master clock generator supplying a master clock signal to the first device and the second device;

a controller supplying control signals to the first device and the second device;

a data transfer channel transferring transmitted data between the first device end the second device;

the first device transmitting data on the data transfer channel based on the master clock signal and including a tuning signal generator transmitting a tuning signal under control of the control signals;

the second device having a sampling clock generator generating a sampling clock based on the master clock signal and a latch latching the data transmitted from the data transfer channel at a timing according to the sampling clock;

the second device including a timing error detector detecting deviation of the sampling based on the data transmitted from the first device and outputting the detected deviation and

the sampling clock generator setting timing of the sampling clock based on the detected deviation.

5,737,590
BRANCH PREDICTION SYSTEM USING LIMITED BRANCH TARGET BUFFER UPDATES

Tetsuya Hara, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 27, 1995, Ser. No. 578,992

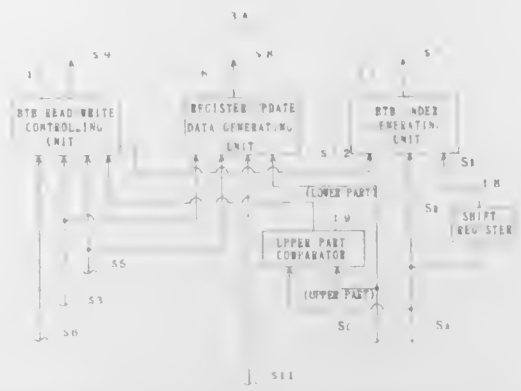
Claims priority, application Japan, Feb. 27, 1995, 7-038473

Int. Cl.^{6} G06F *9/22*

U.S. Cl. 395—585 **9 Claims**

1 A branch predication system which performs a branch prediction when a branch instruction is fetched in a device executing instructions in a pipelined processing flow, the system comprising:

an instruction cache memory for storing said instructions;


BTB READ WRITE CONTROLLING UNIT
REGISTER UPDATE DATA GENERATING UNIT
BTB INDEX GENERATING UNIT
LOWER PART
UPPER PART COMPARATOR
UPPER PART
SHIFT REGISTER
S11

a branch target buffer for storing a signal indicating a lower part of a branch target address obtained in advance by execution of said branch instruction as a prediction index signal;

branch instruction address generating means for generating and outputting a signal indicating a branch instruction address of said branch instruction actually fetched;

linking means for linking said prediction index signal fetched from said branch target buffer with an upper part of said branch instruction address indicated by an output signal of said branch instruction address generating means to generate and output a signal indicating a predicted target address;

branch target generating means for generating and outputting a signal indicating said branch target address obtained by actually executing said branch instruction;

comparing means for comparing a first output signal of said branch target generating means with a second output signal of said linking means to output a signal indicating whether or not the first and second output signals agree; and

branch target buffer controlling means for comparing an upper part of said branch target address indicated by said output signal of said branch target generating means with said upper part of said branch instruction address indicated by said output signal of said branch instruction address generating means and for storing a lower part of said branch target address into said branch target buffer only when said upper part of said branch target address and said upper part of said branch instruction address agree.

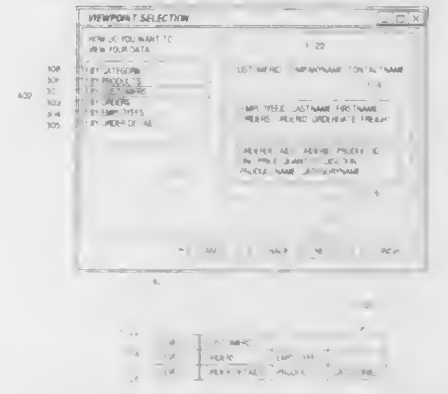
5,737,591
DATABASE VIEW GENERATION SYSTEM

David L. Kaplan, Mercer Island; Andrew R. Miller, and Andrew McRae Warden, both of Bellevue, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed May 23, 1996, Ser. No. 653,716

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—601 **33 Claims**



4 A program storage device readable by a computer, tangibly embodying instructions executable by said computer to perform a method for generating a view of a result set of data extracted by a query from at least one record source of a database, wherein said query is defined by a field set, and wherein said field set defines a sub-schema of said database comprised of at least one field set record source from among said at least one record source of said database, said method comprising:

selecting a viewpoint from among said at least one field set record source; and

generating said view of said result set in at least one level from a perspective of said viewpoint

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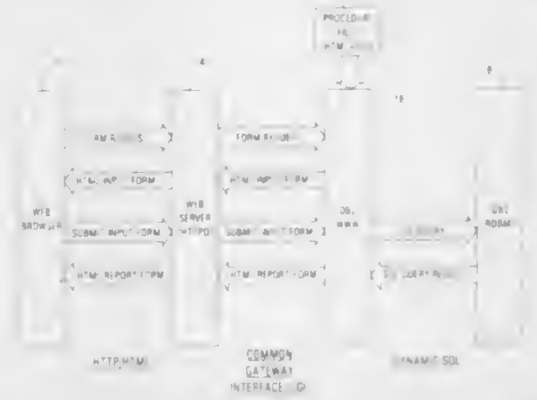
5,737,592
ACCESSING A RELATIONAL DATABASE OVER THE INTERNET USING MACRO LANGUAGE FILES

Tam Minh Nguyen, San Jose, and Venkatachary Srinivasan, Santa Clara, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 19, 1995, Ser. No. 491,742

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—604 **12 Claims**



1 A method for executing Structured Query Language (SQL) queries in a computer-implemented relational database management system via a network, comprising the steps of

(a) transmitting a HyperText Markup Language (HTML) input form to a browser executed by a client computer in the network for display on a monitor attached thereto,

(b) receiving a HyperText Transfer Protocol (HTTP) request from the browser to access the relational database, wherein the request includes data entered by the user into the HTML input form;

(c) substituting the data entered by the user into the HTML input form into a dynamic SQL query using a common name space, wherein the common name space comprises variables found in both the dynamic SQL query and the HTML input form,

(d) transmitting the SQL query to a relational database management system for execution,

(e) receiving an output table from the relational database management system in response to the transmitted SQL query,

(f) merging the output table from the relational database management system into an HTML report form, and

(g) transmitting the HTML report form to the browser for display on the monitor attached to the client computer

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5,737,593
SYSTEM AND METHOD FOR DEFINING SHAPES WITH WHICH TO MINE TIME SEQUENCES IN COMPUTERIZED DATABASES

Rakesh Agrawal, San Jose, Calif.; Giuseppe Psaila, Dalmine, Italy; Edward L. Wimmers, and Mohamed Zait, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 2, 1995, Ser. No. 459,018

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—606 **32 Claims**

1. A computer program device comprising

a computer program storage device readable by a digital processing apparatus; and

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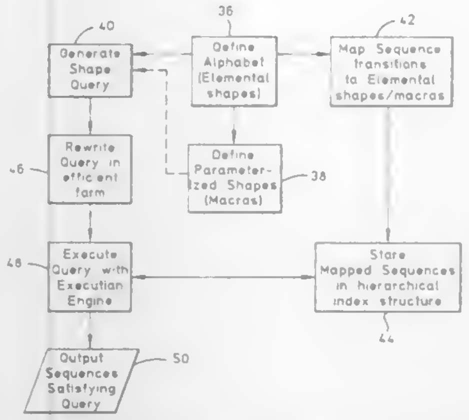

Generate Shape Query
40
36
Define Alphabet (Elemental shapes)
42
Map Sequence transitions to Elemental shapes/macros
46
Rewrite Query in efficient form
Define Parameterized Shapes (Macros)
38
48
Execute Query with Execution Engine
Store Mapped Sequences in hierarchical index structure
44
Output Sequences Satisfying Query
50

- a program means on the program storage device and including instructions executable by the digital processing apparatus for performing method steps for defining time sequence shape criteria and identifying electronically stored time sequences satisfying the shape criteria, the method steps comprising:
  - (a) defining a set of elemental shapes;
  - (b) defining a desired time sequence shape using the elemental shapes or combinations thereof;
  - (c) mapping intervals of a time sequence to corresponding transition sequences, each transition sequence corresponding to one or more elemental shapes or combinations thereof that describe a respective interval of the time sequence;
  - (d) identifying one or more transition sequences that match the desired time sequence shape; and
  - (e) outputting parameter values representative of the one or more transition sequences that match the desired time sequence shape.

5,737,594

METHOD FOR MATCHING ELEMENTS OF TWO GROUPS

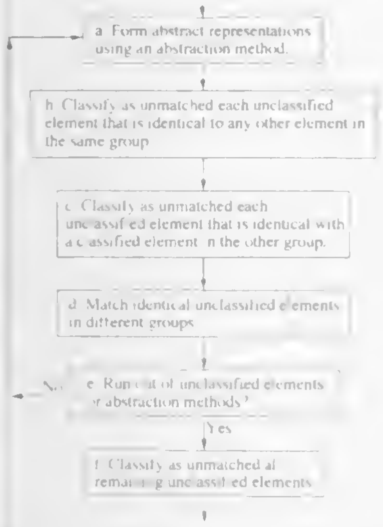
Ross Neil Williams, Hazelwood Park, Australia, assignor to Trustus Pty Ltd., Adelaide, Australia

Filed Jul. 5, 1995, Ser. No. 525,281

Claims priority, application Australia, Jul. 5, 1994, 66168/94

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—606 **7 Claims**


a Form abstract representations using an abstraction method.
b Classify as unmatched each unclassified element that is identical to any other element in the same group
c Classify as unmatched each unclassified element that is identical with a classified element in the other group.
d Match identical unclassified elements in different groups
No
e Run out of unclassified elements or abstraction methods?
Yes
f Classify as unmatched all remaining unclassified elements

1. A method for matching elements of two groups of data elements, comprises the steps of:

- a. forming an abstract representation of each of the groups according to one of a set of abstraction methods;
- b. classifying as UNMATCHED each unclassified element of said abstract representation that is identical to any other element of said abstract representation within its own group.
- c. classifying as UNMATCHED each unclassified element of said abstract representation in each group that is identical to an element of said abstract representation of the other group that is already classified as MATCHED or UNMATCHED;
- d. classifying as MATCHED, and identifying a match between each pair of identical elements of said abstract representation such that one element of the pair is in one group and the other element is in the other group and each element of the pair is not classified as MATCHED OR UNMATCHED;
- e. repeating steps a through d until all elements of both groups have been classified as MATCHED or UNMATCHED, or until all abstraction methods in said set of abstraction methods have been used;
- f. classifying as UNMATCHED all elements that are not already classified as MATCHED or UNMATCHED.

5,737,595

DISTRIBUTED DATABASE SYSTEM AND DATABASE RECEIVER THEREFOR

Thomas Andrew Cohen, Cottesloe, and Robert Jeffries Chatfield, Leederville, both of Australia, assignors to Io Research Pty. Limited, West Perth, Australia

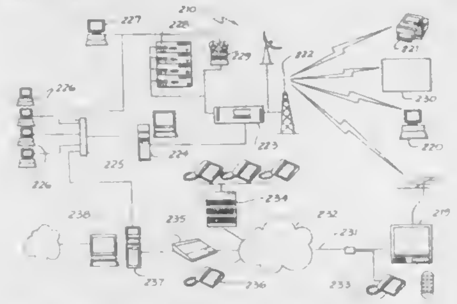
PCT No. PCT/AU93/00604, § 371 Date Jul. 18, 1995, § 102(e) Date Jul. 18, 1995, PCT Pub. No. WO94/13102, PCT Pub. Date Jun. 9, 1994

PCT Filed Nov. 26, 1993, Ser. No. 436,336

Claims priority, application Australia, Nov. 24, 1992, PL 6080; Aug. 13, 1993, PM 0549; Aug. 20, 1993, PM 0742; Sep. 30, 1993, PM 1570; Sep. 30, 1993, PM 1571; Oct. 1, 1993, PM 1621

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—611 38 Claims



1. A distributed database system comprising:

- a central station for accumulating and distributing data on a database,
- a plurality of receiver stations for receiving said data and selectively making available at least portions of said data in accordance with the demands of a user of a said receiver station; and
- transmission means for encoding and transmitting said sequential data stream, which is delivered embedded within television signals;
- wherein said central station comprises: a data store for storing accumulated data from said database, ready for distribution; processing means for extracting said data from said data store and generating a sequential data stream therewith for distribution; and transmission means for encoding and transmitting said sequential data stream; and
- a said receiver station comprises: decoder means to receive and decode transmitted data so as to reconstitute said database data therefrom; input means for a user of said receiver station to input user commands in respect of the demands of the user to said receiver station, receiver processing means for constituting a database from said data having regard to said user commands; memory means for storing data for constituting said database; and means for communicating selected data in direct response to said user commands.

5,737,596

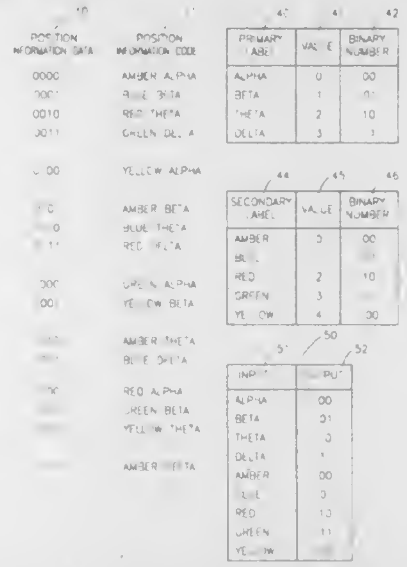
SEQUENTIAL NUMERICAL INFORMATION ENCODER AND DECODER

Barbara Lynne Chambers, Scotts Valley, Calif., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Dec. 11, 1995, Ser. No. 570,141

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—611 **30 Claims**



1. A method of encoding position information for a group of recording units on a recording medium, the recording medium having at least one group of recording unit encoding X position information data, each group of recording unit having

- a plurality of primary groups, each of said primary group having a predetermined number N of primary recording units, each said primary recording unit having a plurality of information units for recording a primary label, said primary recording unit within said primary group having a primary label that differs from the primary label of every other primary recording unit within said primary group;
- plurality of secondary groups having a predetermined number M of secondary recording units, M being larger than N, each of said secondary recording unit having a plurality of information units for recording a secondary label;
- the method of encoding position information data comprising the steps of:
- assigning a value to each said primary label indicating its position within said primary group;
- assigning a value to each said secondary label and
- forming a position information code for each position X of said group of recording unit by combining a primary label and a secondary label such that at Xth position,
  - the value of said primary label differs by the quotient of the division X/N from the value of said secondary label if the value of said primary label is greater than or equal to the value of said secondary label
  - else
  - the value of said Xth primary label differs by M subtracted from the quotient of the division X/N from the value of said secondary label if the value of said primary label is less than the value of said secondary label.

5,737,597

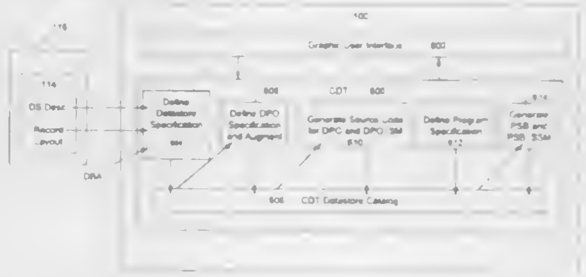
METHOD FOR CATALOGING DATASTORE CHARACTERISTICS AND DEFINING AND GENERATING DATASTORE PERSISTENT OBJECTS

Kenneth R. Blackman, San Jose, and Jack L. Howe, III, Gilroy, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1996, Ser. No. 736,765

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—613 **42 Claims**


100
Graphic User Interface
802
CDT
806
OS Desc
Record Layout
Define Datastore Specification
Define DPO Specification and Augment
Generate Source Code for DPC and DPO SM
810
Define Program Specification
812
Generate PSB and PSB SM
DBA
806
CDT Datastore Catalog

1. A method for cataloging datastore characteristics and defining and generating datastore persistent objects, comprising the steps of:

- defining a specification in a memory of a computer for an external non-object-oriented datastore stored on a data storage device attached to a computer;
- defining a specification in the memory of the computer for a datastore persistent object class using the specification of the external non-object-oriented datastore, and
- defining a specification in the memory of the computer for an application program that interacts with the datastore persistent object class.

5,737,598

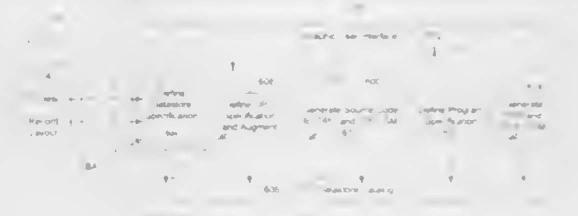
METHOD FOR CAPTURING AND CATALOGING SPECIFICATIONS FOR DATASTORE PERSISTENT CLASSES

Kenneth R. Blackman, San Jose, and Jack L. Howe, III, Gilroy, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1996, Ser. No. 738,102

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—613 **15 Claims**



1. A computerized method for cataloging datastore persistent object class characteristics, comprising the steps of

- defining a specification in a memory of a computer for an external non-object-oriented datastore stored on a data storage device attached to a computer;
- defining a specification in the memory of the computer for a datastore persistent object class using the specification of the external non-object oriented datastore; and
- augmenting the datastore persistent object class specification to constrain use of the external non-object oriented datastore by datastore persistent objects.

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5,737,599

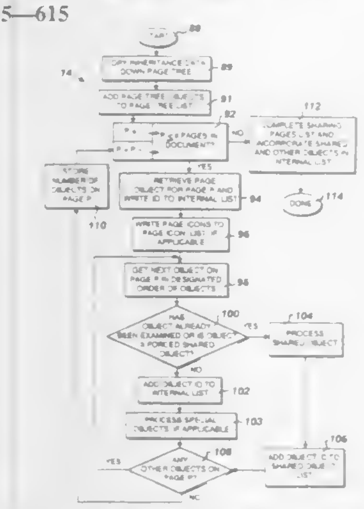
METHOD AND APPARATUS FOR DOWNLOADING MULTI-PAGE ELECTRONIC DOCUMENTS WITH HINT INFORMATION

Edward R. Rowe, 701 W. 32nd St. #14, Los Angeles, Calif. 90007; Eswar Priyadarshan, 1054 Heatherston Ave., Sunnyvale, Calif. 94087; Kenneth S. Anderson, 4133 Amaranta, Palo Alto, Calif. 94306; Nabeel A. Al-Shamma, 1525 Gretel La., Mountain View, Calif. 94040; Edward A. Taft, 1147 Sladky Ave., Mountain View, Calif. 94040; Elizabeth M. McQuarrie, 15882 Ravine Rd., Los Gatos, Calif. 95030, and Richard J. Cohn, 575 N. California Ave., Palto Alto, Calif. 94301

Continuation-in-part of Ser. No. 533,875, Sep. 26, 1995, and a continuation-in-part of Ser. No. 533,177, Sep. 25, 1995. This application Dec. 7, 1995, Ser. No. 569,000

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—615 48 Claims


88
74
COPY INHERITANCE DATA DOWN PAGE TREE
89
ADD PAGE TREE OBJECTS TO PAGE TREE LIST
91
92
112
PAGES IN DOCUMENT?
NO
COMPLETE SHARING PAGES LIST AND INCORPORATE SHARED AND OTHER OBJECTS IN INTERNAL LIST
YES
STORE NUMBER OF OBJECTS ON PAGE
RETRIEVE PAGE OBJECT FOR PAGE P AND WRITE ID TO INTERNAL LIST
94
DONE
114
110
WRITE PAGE CONTENTS TO PAGE ICON LIST IF APPLICABLE
96
GET NEXT OBJECT ON PAGE P IN DESIGNATED ORDER OF OBJECTS
98
100
104
HAS OBJECT ALREADY BEEN EXAMINED OR IS OBJECT A FORCED SHARED OBJECT?
YES
PROCESS SHARED OBJECT
NO
ADD OBJECT ID TO INTERNAL LIST
102
PROCESS SPECIAL OBJECTS IF APPLICABLE
103
106
108
ANY OTHER OBJECTS ON PAGE P?
YES
NO
ADD OBJECT ID TO SHARED OBJECT LIST

1. A method for downloading a multi-page electronic document which contains page offset information hints, hints being optional information added to the document to optimize operations, the method comprising:

reading the page offset information hints early during the downloading process;

receiving a request to download a specific page of the document, the document having elements defining the appearance of the specific page, the elements being stored in the document in a non-contiguous manner;

finding the non-contiguous elements of the specific page in the document using the page offset information hints which were downloaded early during the downloading process, and

downloading the elements defining the appearance of the specific page

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5,737,600

METHOD AND SYSTEM FOR LOG MANAGEMENT IN A COUPLED DATA PROCESSING SYSTEM

Robert Vaughn Geiner, Poughkeepsie; Jeffrey Mark Nick, Fishkill, both of N.Y.; Mark Phillips, Campbell, Calif.; James Henry Warnes, Poughkeepsie, N.Y., and Dennis Jack Zimmer, Eastleigh, England, assignors to International Business Machines Corporation, Armonk, N.Y.

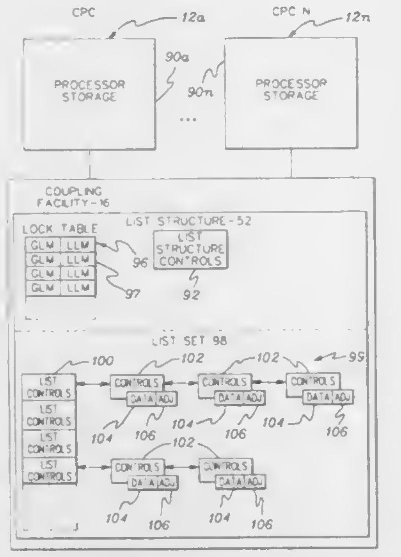
Continuation of Ser. No. 304,677, Sep. 12, 1994, abandoned. This application Apr. 15, 1996, Ser. No. 632,683

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—616 71 Claims

1. A method for managing log data in a data processing system comprising a plurality of processors, said method comprising:

writing, by said plurality of processors, a plurality of data records to a log stream, said log stream comprising at least a portion of a coupling facility storage structure residing within a coupling facility, said coupling facility sharable by said plurality of processors and comprising a processor and a communications facility, said writing comprising



providing a real-time merge of said plurality of data records in a particular sequence, said providing comprising performing serialization for said log stream at said coupling facility, wherein said plurality of processors are relieved of providing said serialization for said log stream.

5,737,601

METHOD AND APPARATUS FOR PEER-TO-PEER DATA REPLICATION INCLUDING HANDLING EXCEPTIONAL OCCURRENCES

Sandeep Jain, Belmont, and Dean Daniels, Fremont, both of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Continuation of Ser. No. 479,075, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 126,586, Sep. 24, 1993, abandoned. This application Jan. 16, 1997, Ser. No. 784,442

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—617 11 Claims

Transaction Table
Transaction Identifier
Delivery Order Number
Commit Time
Deferring User Identifier
Destination List
User A
Transaction Nodes Table
Transaction Identifier
Destination Node
Call Table
Transaction Identifier
Deferred Procedure Identifier
Parameter Count
Call Nodes Table
Transaction Identifier
Call Identifier
Destination Node

1. A computer-implemented method of peer-to-peer data replication comprising the steps of:

performing data modifications to a first computer system and a second computer system;

generating propagation information associated with said data modifications on said first and said second computer systems, said propagation information being retrievable and modifiable, said propagation information including information indicative of an operation to be performed on another computer system;

performing a bi-directional replication of said data modifications using said propagation information said bi-directional replication occurring between said first computer system and said second computer system, said replication initiated by either said first or said second computer system, said bi-directional replication resulting in consistent data between said first and said second computer system;

identifying exceptional occurrences while performing said data modifications; and wherein

said step of performing data modifications is performed by a procedure;

said step of identifying said exceptional occurrences is incorporated into said procedure, and

said procedure handles said exceptional occurrences by specifying multiple conflict resolution routines that can be called in order until one of said multiple conflict resolution routines returns a successful value

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5,737,602

IMAGE FORMING APPARATUS USING BAND BUFFERING SYSTEM AND PRINTING METHOD THEREOF

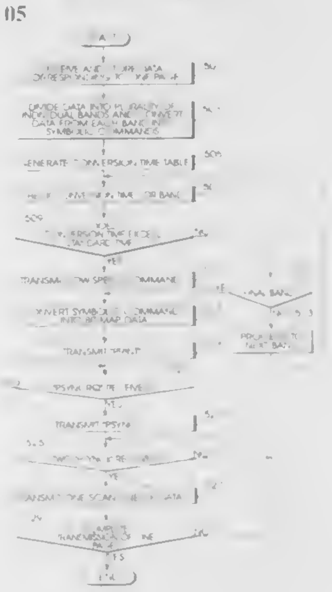
In-Soo Lee, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 14, 1995, Ser. No. 557,881

Claims priority, application Rep. of Korea, Nov. 17, 1994, 30262/1994

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—105 12 Claims


START
DIVIDE DATA INTO PLURALITY OF INDIVIDUAL BANDS AND CONVERT DATA FROM EACH BAND IN SYMBOLIC COMMANDS
GENERATE CONVERSION TIME TABLE
YES
NO
END

1. An image forming apparatus using a band buffering system, comprising:

interface means for interfacing data transmitted between an external source and said image forming apparatus; and

control means for dividing said data received by said image forming apparatus from said external source via said interface means into a plurality of band blocks and estimating a conversion time for each one of said plurality of band blocks, said conversion time representative of an amount of time required to convert said data corresponding to a respective one of said plurality of band blocks into bit map data, said control means reducing a speed of a motor that feeds paper during a printing operation when said conversion time for at least one of said plurality of band blocks exceeds a standard time, said control means reducing said speed of said motor by one half

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5,737,603

DATABASE SYSTEM CAPABLE OF CARRYING OUT AN EFFICIENT FREE AREA SEARCH

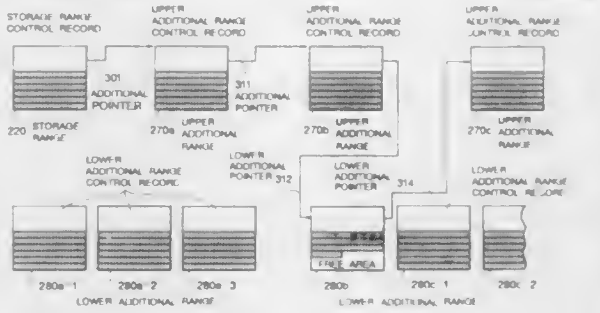
Yukiko Fujiki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 903,826, Jun. 24, 1992, abandoned. This application Sep. 11, 1995, Ser. No. 526,307

Claims priority, application Japan, Jun. 24, 1991, 3-178695

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—621 7 Claims


STORAGE RANGE CONTROL RECORD
UPPER ADDITIONAL RANGE CONTROL RECORD
UPPER ADDITIONAL RANGE CONTROL RECORD
UPPER ADDITIONAL RANGE CONTROL RECORD
301 ADDITIONAL POINTER
311 ADDITIONAL POINTER
220 STORAGE RANGE
270a UPPER ADDITIONAL RANGE
270b UPPER ADDITIONAL RANGE
270c UPPER ADDITIONAL RANGE
LOWER ADDITIONAL RANGE CONTROL RECORD
LOWER ADDITIONAL POINTER 312
LOWER ADDITIONAL POINTER 314
LOWER ADDITIONAL RANGE CONTROL RECORD
FREE AREA
280a-1
280a-2
280a-3
LOWER ADDITIONAL RANGE
280b
280c-1
280c-2
LOWER ADDITIONAL RANGE

1. A data processing system for free area search processing in a database system, comprising:

a database; and

search means for searching for a free area to store data of said database,

said database having data files comprising a data storage area to store data and an overflow area to be added upon overflow at said data storage area,

said data storage area comprising a plurality of storage ranges,

said overflow area comprising at least one additional range connected to said plurality of storage ranges and an unused area for acquiring a new additional range,

said additional range comprising one upper additional range and one or more lower additional ranges connected to said upper additional range,

said plurality of storage ranges having a control record storing an address of said upper additional range in said additional range, and

said upper additional range having a control record storing addresses of the one or more lower additional ranges connected to the upper additional range, an address of another upper additional range to be connected, and free area information for the one or more lower additional ranges,

said free area information for the one or more lower additional ranges indicating a free or full status of one of the lower additional ranges to be renewed at the time of data store and elimination of the data in the one or more lower additional ranges,

said searching means including

storage range free area checking means for judging whether said plurality of storage ranges have any free area,

upper additional range free area checking means for judging whether the upper additional range of said additional range has any free area, and

lower additional range free area checking means for judging whether any free area exists in the one or more lower additional ranges by referring to the free area information for the one or more lower additional ranges stored in the control record of said upper additional range

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5,737,604

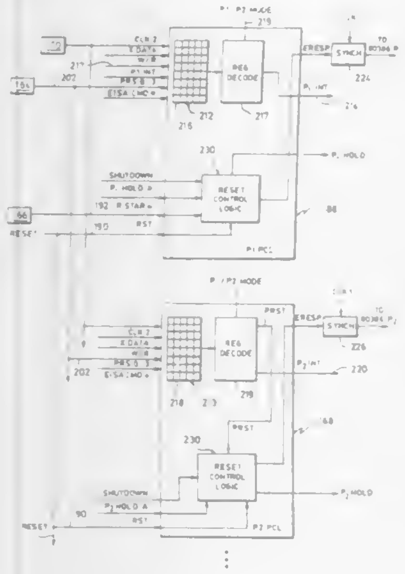
METHOD AND APPARATUS FOR INDEPENDENTLY RESETTING PROCESSORS AND CACHE CONTROLLERS IN MULTIPLE PROCESSOR SYSTEMS

David A. Miller, Houston; Kenneth A. Jansen, Spring; Paul R. Culley, Cypress; Mark Taylor, and Javier F. Izquierdo, both of Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 480,874, Jun. 7, 1995, Pat. No. 5,611,078, which is a continuation of Ser. No. 152,241, Nov. 12, 1993, Pat. No. 5,465,360, which is a continuation of Ser. No. 15,314, Feb. 9, 1993, abandoned, which is a continuation of Ser. No. 431,653, Nov. 3, 1989, abandoned. This application Sep. 30, 1996, Ser. No. 723,841

Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—651 **12 Claims**



1 A computer system responsive to a system reset signal and a processor only reset signal comprising:

a processor;

system main memory for storing data and coded instructions;

a system bus for transmitting program instructions, data and control signals;

a hard disk memory coupled to said system main memory and said system bus;

cache memory coupled to said processor and said system main memory for temporarily storing a duplication of a portion of the data and program instructions stored in said system main memory for high speed access by said processor;

a cache memory controller connected to said processor, said cache memory, said system main memory and said system bus for determining whether program instructions or data required by said processor are resident in cache memory;

cache reset circuitry coupled to said cache memory controller and receiving the system reset signal, said cache reset circuitry resetting said cache memory controller responsive to said system reset signal but unresponsive to said processor only reset signal, and

processor reset circuitry receiving the system reset signal and the processor-only reset signal, said processor reset circuit for resetting the processor responsive to said system reset signal or said processor-only reset signal.

5,737,605

DATA PROCESSING SYSTEM FOR SHARING INSTANCES OF OBJECTS WITH MULTIPLE PROCESSES

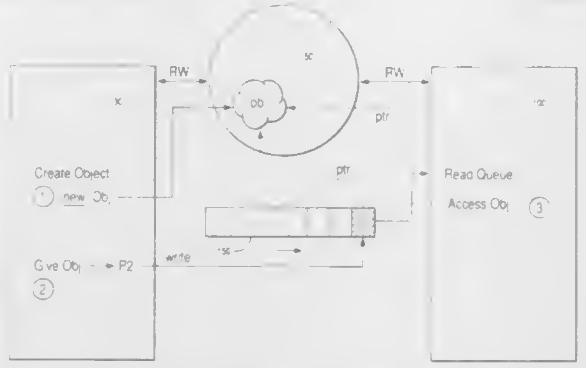
Connel G. Cunningham, Co. Dublin, and Ferghil J. O'Rourke, Dublin, both of Ireland, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 311,085, Sep. 23, 1994, abandoned. This application Oct. 8, 1996, Ser. No. 729,829

Claims priority, application United Kingdom, Oct. 12, 1993, 9320982

Int. Cl.^{6} G06F *9/40*

U.S. Cl. 395—670 **2 Claims**



1. A computer system having a message based environment, whereby objects comprise one or more methods and associated data, and the methods are invoked by messages, the computer system comprising.

an operating system;

memory controlled by said operating system;

means for initiating a first process having a first portion of said memory associated therewith;

allocation means, accessible by said first process, for creating at least one object in said first portion of said memory;

designation means for designating said first portion of said memory to be shared with at least a second process;

a storage device containing a code library for storing the methods of said object, said code library being accessible by both said first process and said second process;

said allocation means for creating a table of pointers and said associated data for said object in said first portion of said memory, each pointer pointing to a method in said code library required by said object; and

identification means for indicating to said second process the location of said object in said first portion of said memory, said identification means for providing said second process with an object pointer identifying the location of said object within said first portion of memory, said second process utilizing said object pointer to access said object, and to utilize said object by employing the methods referenced by the table of pointers in said first portion.

5,737,606

METHOD AND SYSTEM FOR DELEGATION IN A CLASS-BASED LANGUAGE

Fred A. Cummins, Farmington Hills, Mich., assignor to Electronic Data Systems Corporation, Plano, Tex.

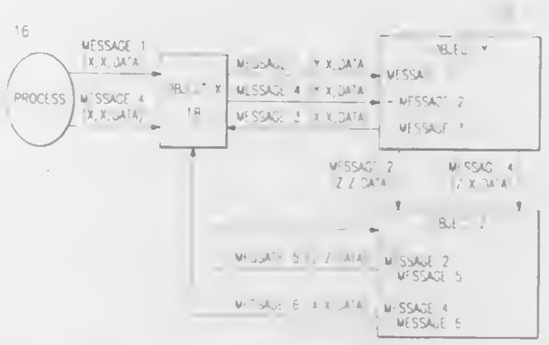
Filed Jul. 18, 1996, Ser. No. 683,289

Int. Cl.^{6} G06F *9/40*

U.S. Cl. 395—683 **16 Claims**

1 A method for delegating messages with a computer between instances in a class based language, comprising

receiving a first message at a first object, the first message containing a first target parameter;



delegating the first message to a second object, the delegated first message containing a second target parameter, wherein the value of the second target parameter equals the value of the first target parameter;

executing a first method of the second object in response to the delegated first message;

generating a first self message in response to executing the first method of the second object;

sending the first self message to the object identified in the second target parameter;

receiving a second message at the second object, the second message containing a third target parameter identifying the second object;

executing a second method of the second object in response to receiving the second message at the second object.

generating a second self message in response to executing the second method of the second object; and

executing a third method of the second object in response to the second self message, the second object identified by the third target parameter.

5,737,607

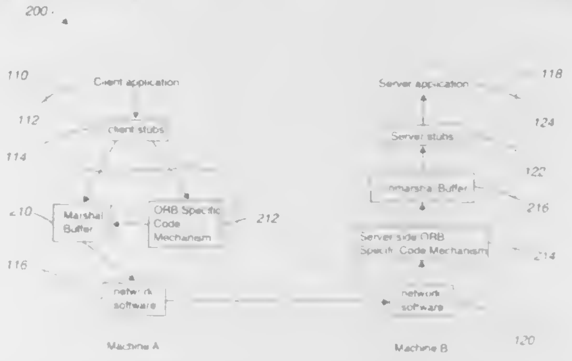
METHOD AND APPARATUS FOR ALLOWING GENERIC STUBS TO MARSHAL AND UNMARSHAL DATA IN OBJECT REFERENCE SPECIFIC DATA FORMATS

Graham Hamilton, Palo Alto; Swee Boon Lim, Mountain View; Peter B. Kessler, Palo Alto; Jeffrey D. Nisewanger, San Jose, and Sanjay R. Radia, Fremont, all of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Sep. 28, 1995, Ser. No. 534,966

Int. Cl.^{6} G06F *15/16*

U.S. Cl. 395—701 **21 Claims**



1 A computer system having a processor, a memory, a display device, an input/output device, an operating system (OS), for processing program code mechanism invocations which are directed to one of a multiplicity of remote Object Request Brokers (ORBs), the computer system comprising.

an ORB independent layer of code mechanisms including program applications and related stubs; and

an ORB dependent layer of code mechanisms, coupled to the ORB independent layer, the ORB dependent layer comprising program code mechanisms which are ORB-specific and which are configured to generate a marshal code mechanism to marshal data in an ORB required format and.

program code mechanisms configured to use a specific network protocol code whereby a program application code mechanism from the ORB independent layer can invoke a call on a remote implementation program code mechanism and the ORB-specific program code mechanisms in the ORB dependent layer will determine an appropriate marshal code mechanism to marshal data in an ORB required format;

thereby providing a computer system capable of communicating with a multiplicity of ORBs wherein each ORB requires data to be in a specific format.

5,737,608

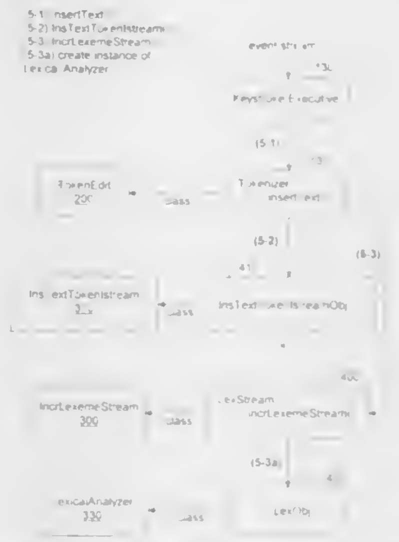
PER-KEYSTROKE INCREMENTAL LEXING USING A CONVENTIONAL BATCH LEXER

Michael L. Van De Vanter, Mountain View, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 499,088, Jul. 6, 1995. This application Jul. 8, 1996, Ser. No. 676,815

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—701 **21 Claims**



1 A process for employing a conventional batch lexer to incrementally lex a computer program internally represented as a stream of tokens while said computer program is being edited, said process enabling said stream of tokens to be updated to reflect editing actions on said program as said editing actions occur, said process comprising the steps of

(1) selecting a range of tokens from said stream of tokens that could be affected by an editing action occurring at an editing point within said range of tokens, said editing point being expressed in token coordinates, which comprise a token index and a character-offset within an indexed token;

(2) forming a hypothetical text stream that is a textual equivalent of said range of tokens and that reflects said editing action, said hypothetical text stream including lexical boundaries corresponding to separators existing at token boundaries within said range of tokens;

(3) lexing with said batch lexer said hypothetical text stream so as to compute a hypothetical token stream segment that corresponds to said token range after said editing action, and

(4) computing an updated editing point that unambiguously identifies in token coordinates position of said editing action within said hypothetical token stream, and

(5) updating said stream of tokens and said editing point using said hypothetical token stream and said updated editing point, respectively

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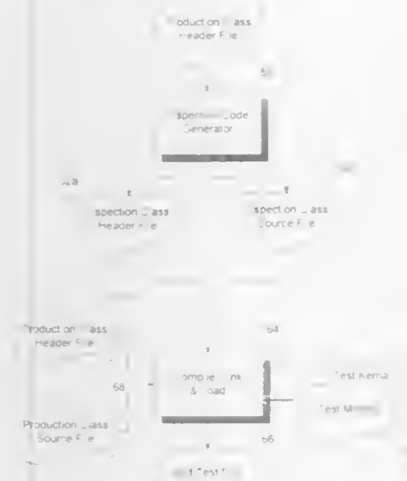
5,737,609
METHOD AND APPARATUS FOR TESTING OBJECT-ORIENTED PROGRAMMING CONSTRUCTS

Harvey G. Reed, Marlborough; John T. Dalton, Chelmsford; Jonathan B. Aibel, Concord, and Stephen A. Sciandra, Kingston, all of Mass., assignors to Marcam Corporation, Newton, Mass.

Filed Oct. 18, 1994, Ser. No. 324,810
Int. Cl.^{6} G06F *11/30*

U.S. Cl. 395—704 **92 Claims**


Production Class Header File
50
Inspection Code Generator
Inspection Class Header File
Inspection Class Source File
Production Class Header File
54
58
Production Class Source File
Test Kernel
Test Methods
56

1 A method for testing a subject class in an object-oriented digital data processing system, said method comprising the step of

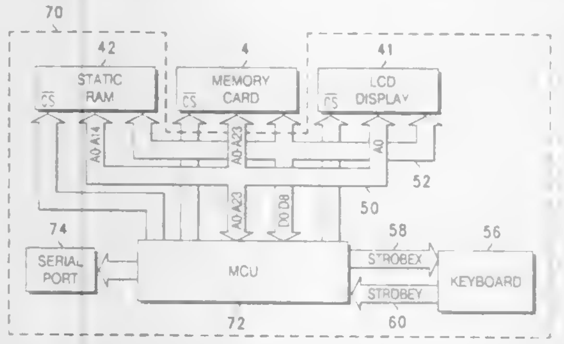
(A) responding to a source signal defining said subject class to generate an inspection signal defining an inspection class having one or more members for
   (i) creating a test object as an instantiation of any of said subject class and a class derived therefrom.
   (ii) invoking one or more selected method members of said test object.
   (iii) generating a signal, hereinafter referred to as a report signal, reporting an effect of such invocation.

5,737,610
SYSTEM AND METHOD FOR PROVIDING DATA AND PROGRAM CODE TO A CARD FOR USE BY A READER

Bruce Darryl Sandig, Phoenix; John Edward Matlock, and Roy David Pringle, both of Glendale, all of Ariz., assignors to Infopak Inc., Phoenix, Ariz.

Continuation of Ser. No. 17,607, Feb. 16, 1993, abandoned. This application Oct. 12, 1995, Ser. No. 542,041
Int. Cl.^{6} G06F *3/06;* **G06K** *19/07*

U.S. Cl. 395—712 **7 Claims**



1 A method for transferring data and program code to an external card and utilizing a reader controlled by the program code for accessing the data, the method comprising the steps of:

storing the program code on a first storage device of a computer,

transferring the data from a source database to a second storage device of said computer

transferring the data and the program code to the external card; and

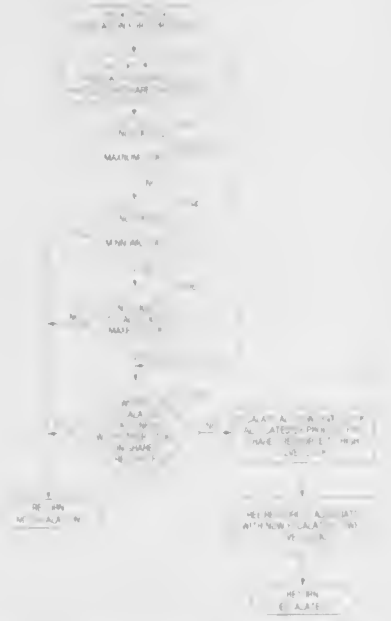
using an external reader including circuitry controlled by the program code stored on the external card for accessing the data on the external card, said external reader having no internal program code stored therein and being incapable of accessing the data without the program code stored on said external card.

5,737,611
METHODS FOR DYNAMICALLY ESCALATING LOCKS ON A SHARED RESOURCE

Frederic Otto Vicik, Issaquah, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Apr. 5, 1996, Ser. No. 628,472
Int. Cl.^{7} G06F *12/00*

U.S. Cl. 395—726 **23 Claims**



1 A method for dynamically escalating at least one lower granularity lock of a shared resource in a computing system to a higher granularity lock in said computing system said method comprising.

determining a present value of an operating parameter associated with operation of said computer system;

dynamically computing a plurality of escalation threshold parameters associated with operation of said computer system in real time;

comparing said present value of said operating parameter to said plurality of escalation threshold parameters associated with operation of said computer system, and

escalating said at least one lower granularity lock to said higher granularity lock in positive response to said step of comparing said present value of said operating parameter to said plurality of escalation threshold parameters.

5,737,612
POWER-ON RESET CONTROL CIRCUIT

George M. Ansel, Starkville; Jeffery Scott Hunt, Ackerman, both of Miss.; Christopher W. Jones, Pleasanton, Calif.; Jeffery Mark Marshall, and Hatem Yazbek, both of Starkville, Miss., assignors to Cypress Semiconductor Corp., San Jose, Calif.

Filed Sep. 30, 1994, Ser. No. 316,121
Int. Cl.^{6} G06F *1/30*

U.S. Cl. 395—750.01 **7 Claims**

1 A power on reset control circuit comprising.

a control emulation circuit including a plurality of integrated circuits cascaded together and capable of transmitting a control signal from a last one of the plurality of integrated circuits on a control line to indicate that the plurality of integrated circuits are operating correctly, and

a control verification circuit coupled to said control emulation circuit through said control line, wherein said control verification circuit is capable of deactivating a global power on reset signal upon receiving both an inactive local power-on reset signal indicating that a power source is providing a voltage at an operating threshold level, and said control signal in an inactive state

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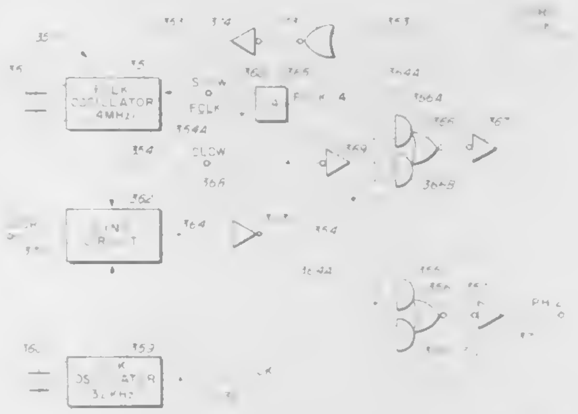
5,737,613
METHOD OF OPERATING MICROCOMPUTER TO MINIMIZE POWER DISSIPATION WHILE ACCESSING SLOW MEMORY

William D. Mensch, Jr., 1924 E. Hope St., Mesa, Ariz. 85203

Division of Ser. No. 111,379, Aug. 24, 1993. This application Mar. 10, 1995, Ser. No. 401,885
Int. Cl.^{6} G06F *1/32*

U.S. Cl. 395—750.04 **7 Claims**



1 A method of operating a CMOS microcomputer to minimize power dissipation while accessing a plurality of memories including a first memory operable at a first frequency, a second memory operable at a second frequency, the first frequency being higher than the second frequency, the method comprising the steps of.

(a) operating the entire CMOS microcomputer at the first frequency while accessing the first memory, causing the CMOS microcomputer to dissipate power at a first level.

(b) determining from a user program currently being executed that it is necessary to access the second memory, and

(c) in response to the determining of step (b), operating the entire CMOS microcomputer at the second frequency while accessing the second memory, causing the CMOS microcomputer to dissipate power at a second level which is lower than the first level

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5,737,614
DYNAMIC CONTROL OF POWER CONSUMPTION IN SELF-TIMED CIRCUITS

Christopher McCall Durham, and Peter Juergen Klim, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 27, 1996, Ser. No. 671,189
Int. Cl.^{7} G06F *1/32*

U.S. Cl. 395—750.04 **13 Claims**

1 A circuit including a plurality of stages for performing data processing operations, comprising

means for monitoring a characteristic of said circuit and outputting a frequency control signal in accordance with said characteristic.

means for continuously transferring data at a predetermined frequency directly between said stages and outputting an acknowledgement control signal to a subsequent stage based upon completion of said data processing operations at a previous stage; and

means for regulating said predetermined frequency at which said data is continuously transferred directly between said stages based upon said characteristic by performing a logical operation on said frequency control signal and said acknowledgement control signal to delay receipt of said acknowledgement control signal at said subsequent stage

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5,737,615
MICROPROCESSOR POWER CONTROL IN A MULTIPROCESSOR COMPUTER SYSTEM

R. Scott Tetrick, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Apr. 12, 1995, Ser. No. 421,389
Int. Cl. G06F *1/32*

U.S. Cl. 395—750.06 **11 Claims**

5 A computer system comprising:

a first central processing unit having a first power down input

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a second central processing unit having a second power down input and a boot inhibit input, wherein the boot inhibit input selectively prevents the second central processing unit from becoming a boot system processor during system initialization; and

a power down control register having a first bit coupled to communicate with the power down input of said first central processing unit and a second bit coupled to communicate with the power down input of the second central processing unit, wherein a reduced power usage state of the first and second central processing units is controlled by a value stored in the power down control register.

5,737,616
POWER SUPPLY CIRCUIT WITH POWER SAVING CAPABILITY

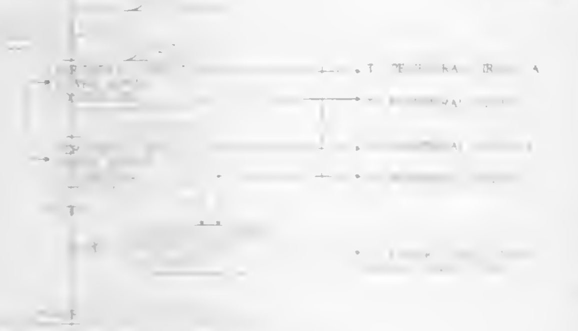
Mitsuhiro Watanabe, Tokyo, Japan, assignor to NEC Curporation, Tokyo, Japan

Filed May 15, 1996, Ser. No. 647,742

Claims priority, application Japan, May 15, 1995, 7-115616

Int. Cl.^{6} G06F *1/26; 1/32*

U.S. Cl. 395—750.08 **8 Claims**



1. A power supply circuit comprising:

a central processing unit, and

a peripheral assembly connected to said central processing unit

said central processing unit having a register for establishing a status of an internal power supply of the central processing unit, a first mechanism for changing the internal power supply into the status established by said register, and a second mechanism for outputting a status signal indicative of said status,

said peripheral assembly having a peripheral circuit, a peripheral device, and control means for changing power supply statuses and clock statuses of the peripheral circuit and the peripheral device based on the status signal outputted from said second mechanism.

5,737,617
METHOD AND SYSTEM FOR ENGLISH TEXT ANALYSIS

Arendse Bernth; Michael Campbell McCord, both of Ossining, N.Y., and Andrew Tsuneo Tanabe, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 6, 1995, Ser. No. 467,709

Int. Cl. G06F *17/20*

U.S. Cl. 395—759 **17 Claims**

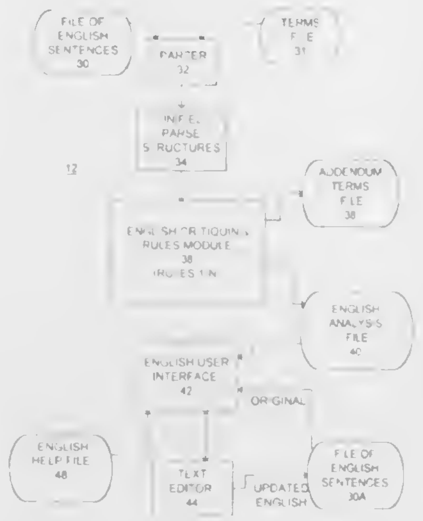
1. A computer implemented method for English text analysis comprising the steps of:

receiving a file of a plurality of English sentences,

identifying selected ones of said English sentences for critiquing,

applying a plurality of parse independent critiquing rules to said identified selected ones of said English sentences

applying a parser to said received file and generating a unified parse structure for said identified selected ones of said English sentences


FILE OF ENGLISH SENTENCES 30
PARSER 32
TERMS FILE 31
UNIFIED PARSE STRUCTURES 34
12
ADDENDUM TERMS FILE 36
ENGLISH CRITIQUING RULES MODULE 38 (RULES 1-N)
ENGLISH ANALYSIS FILE 40
ENGLISH USER INTERFACE 42
ORIGINAL
ENGLISH HELP FILE 48
TEXT EDITOR 44
UPDATED ENGLISH
FILE OF ENGLISH SENTENCES 30A

applying a plurality of predetermined parse dependent critiquing rules to each of said unified parse structures for identifying exceptions to recommended English,

storing identified exceptions together with related information in an exception file; and

performing an interactive session with a user utilizing said stored exception file

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5,737,618
DOCUMENT PROCESSING SYSTEM FOR DISPLAYING BRACKETS

Rimiko Nakayama, Yamatoko riyama; Takayuki Nagai, Nara; Toshiharu Oshima, Yamatoko riyama, and Tadamasa Maekawa, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 25, 1995, Ser. No. 428,625

Claims priority, application Japan, Apr. 28, 1994, 6-092136; Oct. 6, 1994, 6-242688

Int. Cl.^{6} G06F *7/60*

U.S. Cl. 395—761 **15 Claims**

1. A document processing system comprising

input means for inputting data of a document,

document storing means for storing therein the input document data

display means for displaying the document data

bracket data storing means for storing therein data of plural types of brackets each having a predetermined shape,

bracket specification storing means for storing therein data of a bracket type selected from the plural types of brackets stored in said bracket data storing means

bracket position specifying means for specifying positions of starting and ending points between which a bracket specified by the data stored in said bracket specification storing means is to be located in the document

bracket position storing means for storing therein positional data indicative of the positions of the starting and ending points in the document specified by said bracket position specifying means,

bracket generating means for determining a size of the bracket specified by the data stored in said bracket specification storing means based on the position data stored in said bracket position storing means so as to lay out the bracket in the document for generating the bracket having said size, and for storing data of the generated bracket in said document storing means,

editing means for controlling display of the generated bracket by said display means in a position in the document specified by the positional data based on the data of the generated bracket stored in said document storing means, and

middle projection position specifying means for specifying a position of a middle projection of the bracket specified by the data stored in said bracket specification storing means,

said bracket position storing means storing positional data indicative of the position of the middle projection in the document specified by said middle-projection position specifying means,

said bracket generating means generating the bracket specified by the data stored in said bracket specification storing means as having a middle projection located in the position specified by said middle-projection position specifying means and storing the generated bracket in said document storing means

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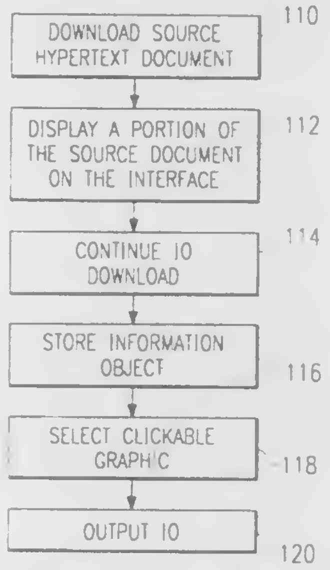
5,737,619
WORLD WIDE WEB BROWSING WITH CONTENT DELIVERY OVER AN IDLE CONNECTION AND INTERSTITIAL CONTENT DISPLAY

David Hugh Judson, 6823 Northport, Dallas, Tex. 75230

Continuation-in-part of Ser. No. 543,876, Oct. 19, 1995, Pat. No. 5,572,643. This application Sep. 9, 1996, Ser. No. 708,795

Int. Cl.^{6} G06F *19/00*

U.S. Cl. 395—761 **13 Claims**



1. A method of browsing in a computer network including a plurality of servers using a client machine having a browser, comprising the steps of:

in response to a client request that establishes a live connection between the client machine and a server in a computer network, downloading and initiating the display of at least a portion of a first hypertext document on an interface of the client machine, the first hypertext document having a clickable graphic identifying second hypertext document,

as the portion of the first hypertext document is being displayed on the interface and while the live connection is idle, downloading an information object to the client machine as a background process;

storing but not displaying the information object in the client machine as the user browses the first hypertext document and before the user takes a predetermined action with respect to the clickable graphic to initiate downloading of the second hypertext document, and

in response to the user taking the predetermined action with respect to the clickable graphic, retrieving the information object from storage in the client machine and displaying the information object on the interface to provide information to a user of the client machine as the browser links from the first hypertext document to a second hypertext document

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5,737,620
IMAGE PROCESSING METHOD AND APPARATUS HAVING AN INTERPRETER FUNCTION FOR CONVERTING INFORMATION DESCRIBED IN A PAGE DESCRIPTION LANGUAGE INTO IMAGE DATA

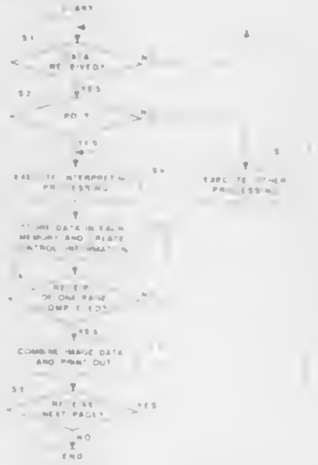
Yuichi Sato, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 797,926, Nov. 26, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 465,190

Claims priority, application Japan, Nov. 29, 1990, 2-325897

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 395—791 **18 Claims**



1. An image processing method for producing a combined image by combining a first image data for each pixel produced based upon image information described in a page-description language and a second image data for each pixel produced by a method different from that used in producing the first image data, such that a first image represented by the first image data and a second image represented by the second image data are overlapped with each other, comprising:

an input step of inputting the page-description language,

an interpretation step of interpreting the image information described in the page-description language and producing the first image data;

a first storing step of storing the first image data for each pixel in a first memory,

a position-information producing step of producing position information, which is indicative of a position at which the first image data exists, for each pixel of the combined image based on the image information interpreted in said interpretation step,

a second storing step of storing the position information for each pixel in a second memory; and

a combining step of producing the combined image by combining the first image data and the second image data by selecting, for each pixel the first image data or the second image data based upon the position information for each pixel stored in the second memory

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5,737,621

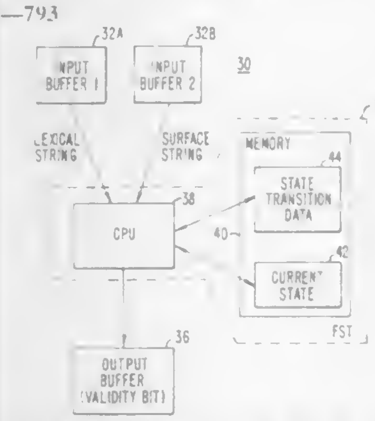
FINITE-STATE ENCODING SYSTEM FOR HYPHENATION RULES

Ronald M. Kaplan, Palo Alto, and Lauri J. Karttunen, Redwood City, both of Calif., assignors to Xerox Corporation, Rochester, N.Y.

Continuation of Ser. No. 51,024, Apr. 21, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 469,173

Int. Cl.^{6} B06F *17/20*

U.S. Cl. 395—793 **19 Claims**



16. A method of generating a finite state machine comprising the steps of:

creating a single level of hyphenation rules, at least one rule of said single level of hyphenation rules encoding at least one hyphen position for a pattern which maps to an unbounded set of input strings, wherein each hyphenation rule of said single level of hyphenation rules defines valid output strings for a set of possible input strings operated upon by said each hyphenation rule;

generating a state-transition structure corresponding to said patterns from said single level of hyphenation rules, said state transition structure comprising data indicating which of a plurality of transitions from a current state to a next state is taken following an input of a particular symbol in an input string, said data also indicating hyphen positions in said input string, and

coupling a finite state processor to said state transition structure, thereby forming a finite state machine which outputs only an output string selected from said valid output strings when an input string is a string in said set of possible input strings.

5,737,622

METHOD AND APPARATUS FOR MORE EFFICIENT FUNCTION SYNCHRONIZATION IN A DATA FLOW PROGRAM

Steven W. Rogers; Jeffrey L. Kodosky, and Dean A. Luick, all of Travis County, Tex., assignors to National Instruments Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 979,416, Nov. 19, 1992, Pat. No. 5,291,587, which is a continuation of Ser. No. 376,257, Jul. 6, 1989, abandoned, which is a continuation of Ser. No. 851,569, Apr. 14, 1986, Pat. No. 5,901,221. This application Sep. 22, 1993, Ser. No. 125,642

Int. Cl.^{6} G06F *13/42*

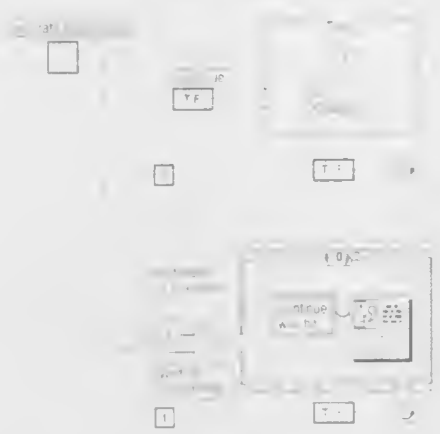
U.S. Cl. 395—800 **25 Claims**

1. A method for programming a computer system including a CPU which executes functions, a video display screen and means for creating a data flow diagram, the method comprising the computer-implemented steps of:

displaying on the screen a first input terminal icon that references a first input variable;

displaying on the screen a first output terminal icon that references a first output variable;

displaying on the screen a first function icon that controls a first function, wherein said first function icon generates first data;



displaying on the screen a second function icon that controls a second function, wherein said second function icon requires said first data from said first function icon before beginning operation;

displaying on the screen a set occurrence icon associated with said first function icon that triggers an occurrence when said first data is generated;

displaying on the screen a wait on occurrence icon associated with said second function icon, wherein said wait on occurrence icon activates said second function icon when said first function icon generates said first data, and

assembling on the screen a first data flow diagram including said first input terminal icon, said first output terminal icon, said first function icon, said second function icon, said set occurrence icon, and said wait on occurrence icon, wherein said wait on occurrence icon includes an output coupled to said second function icon, wherein the first data flow diagram displays a procedure for producing at least one value for said output terminal icon from at least one value for said first input terminal icon;

wherein said set occurrence icon triggers an occurrence when said first function icon generates said first data;

wherein said wait on occurrence icon generates said output to said second function icon when said first data is generated and said occurrence is triggered;

wherein said second function icon begins operation when said wait on occurrence icon output is received; and

wherein said second function icon does not require any CPU time until said first function icon generates said first data.

5,737,623

MULTI-PROCESSOR PARALLEL COMPUTER ARCHITECTURE USING A PARALLEL MACHINE WITH TOPOLOGY-BASED MAPPINGS OF COMPOSITE GRID APPLICATIONS

Lorie M. Liebrock, 2315 County Rd., Calumet, Mich. 49913

Filed Apr. 19, 1995, Ser. No. 423,483

Int. Cl.^{6} G06F *17/16*

U.S. Cl. 395—800 **35 Claims**

1. A computer-implemented method of automating data layout for parallelization of composite grid problems, based on problem topology and machine topology, having physical quantities using a parallel machine having parallel processors, comprising the steps of:

(a) classifying the physical quantities into one of all small meshes each to be executed substantially by one of the parallel processors, all medium meshes each to be executed by a subset of the parallel processors, or a combination of at least two of large, medium, and small meshes, the large mesh being executed substantially across all of the parallel processors;

(b) generating a data distribution responsive to a combination of at least two of the meshes as classified in step (a) and the problem and machine topology, and

(c) executing an application program using the data distribution generated in step (b).

5,737,624

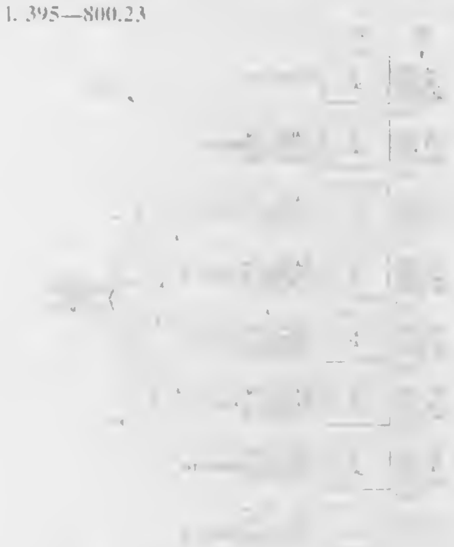
SUPERSCALAR RISC INSTRUCTION SCHEDULING

Sanjiv Garg, Freemont; Kevin Ray Iadonato, San Jose; Le Trong Nguyen, Monte Sereno, and Johannes Wang, Redwood City, all of Calif., assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 219,425, Mar. 29, 1994, Pat. No. 5,497,499, which is a continuation of Ser. No. 860,719, Mar. 21, 1992, abandoned. This application Jan. 31, 1996, Ser. No. 594,401

Int. Cl.^{6} G06F *9/38*

U.S. Cl. 395—800.23 **19 Claims**



1. A system for register renaming in a computer system capable of out of order instruction execution, comprising:

a temporary buffer comprising a plurality of storage locations for storing execution results, wherein an execution result for an instruction is stored at one of said plurality of storage locations, said one of a plurality of storage locations being determined by a location of said instruction in an instruction window;

(b) assignment logic for receiving data dependency results from a data dependency checker and for outputting a tag in place of a register address for an operand of a first instruction if said first instruction is dependent on a previous one of said plurality of instructions in said instruction window for said operand, wherein said tag represents an address of said operand in one of said plurality of storage locations.

5,737,625

SELECTABLE PROCESSING REGISTERS AND METHOD

David Vivian Jaggar, Cherry Hinton, United Kingdom, assignor to Advanced Risc Machines Limited, United Kingdom

Continuation of Ser. No. 303,080, Sep. 8, 1994, abandoned. This application Oct. 31, 1996, Ser. No. 742,071

Claims priority, application United Kingdom, Jan. 26, 1994, 9401501

Int. Cl.^{6} G06F *9/00*

U.S. Cl. 395—800 **7 Claims**

1. An integrated circuit central processing unit comprising:

(i) a plurality of sets of registers for holding data to be processed;

(ii) a selecting circuit for selecting from each set of registers one register to be available for data processing specified by subsequent data processing instruction words; and

(iii) a register control circuit responsive to a register selecting instruction word separate from and executed at a different time to said data processing instruction words for controlling which register is selected from each set of registers by said selecting circuit, said register selecting instruction word including a control field for each set of registers, each control field indicating which register should be selected from a corresponding set of registers;

(iv) whereby each set of registers includes one selected register, said selected registers being connected to a register bus within said integrated circuit central processing unit for access by said subsequent data processing instruction words that are independent of which particular register within each set of registers is selected for connection to said register bus, those registers within each set of registers that are not selected being disconnected from said register bus and being unavailable for use by said subsequent data processing instruction words.

5,737,626

DETERMINISTIC COMMUNICATION NETWORK FOR INDUSTRIAL CONTROL

Kenwood H. Hall, Stow; David A. Vasko, Macedonia; Howard Korsberg, Solon, and Michael S. Pelley, Cleveland, all of Ohio, assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Continuation of Ser. No. 212,533, Mar. 14, 1994, abandoned. This application Mar. 14, 1996, Ser. No. 616,999

Int. Cl.^{6} G06F [illegible]

U.S. Cl. 395—800.01 **1 Claim**

1. A method of real time communication for an industrial control system having a spatially separated transmitting and receiving

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node together forming a path connected by at least one communication link, the method comprising the steps of:

(a) generating a message identifier identifying a message to be transmitted to the receiving node;

(b) sending an OPEN message from the transmitting node to the receiving node including the message identifier and transmission information related to transmission requirements of the message;

(c) storing in a table in the receiving node the message identifier and the transmission information as indexed by the message identifier;

(d) pre-allocating receiver node resources for the processing of the message according to the transmission information by the receiving node;

(e) sending a data message from the transmitting node to the receiving node, the data message having a data part and the message identifier;

(f) matching the message identifier of the data message to the message identifier of the table of the receiving node; and

(g) processing the data message at the receiving node according to the transmission information indexed by the message identifier;

wherein the receiving node maintains a transmission schedule of messages to be transmitted and wherein the transmission information is the desired transmission scheduling of a retransmission of the data message by the receiving node and wherein the step (d) includes scheduling the data message on the schedule;

wherein the desired transmission scheduling of a retransmission indicates a size of a portion of the message and a periodicity of transmission of the portion in time.

5,737,627
PIPELINED DATA ORDERING SYSTEM UTILIZING STATE MACHINES TO ORDER DATA REQUESTS

Gregory V. Kabenjian, Duarte, Calif., assignor to AST Research, Inc., Irvine, Calif.

Continuation of Ser. No. 357,132, Dec. 15, 1994, Pat. No. 5,603,042, which is a continuation of Ser. No. 981,806, Nov 25, 1992, abandoned. This application Feb. 7, 1997, Ser. No. 796,343

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—800.01 **2 Claims**

1. A data management system which manages data in a personal computer data pipelining system, said pipelining system coupling a central processing unit (CPU), a data communications bus, and a plurality of data generation devices, wherein said CPU and said data generation devices are connected to the data communication bus, said pipelining system configured so that said CPU may issue a first data request and then a second data request before the CPU

has received any response from a data generation device to the first data request, said pipelining system further configured to provide the CPU with a response to the first data request before providing the CPU with a response to the second data request, said data management system comprising:

a plurality of select circuits, each of said plurality of select circuits responsive to a data request directed to a corresponding one of said plurality of data generation devices to generate a select signal, and

a plurality of state machines, each of said plurality of state machines coupled to a corresponding one of said plurality of data generation devices and to a corresponding one of said plurality of select circuits, each of said plurality of state machines connected to receive the local select signal from said corresponding select circuit and to receive a global select signal which indicates that a local select signal has been activated by any of said plurality of select circuits, each of said plurality of state machines responsive to an order in which said state machine receives said respective local select signal and said global select signal to activate said corresponding data generation device to output data to the data communications bus when the local select signal from said corresponding select circuit is activated prior to activation of a local select signal from any of the other select circuits, said state machine responsive to activation of said global select signal before said local select signal to wait until after a data generation device corresponding to another of said select circuits has responded to a data request before activating said corresponding data generation device.

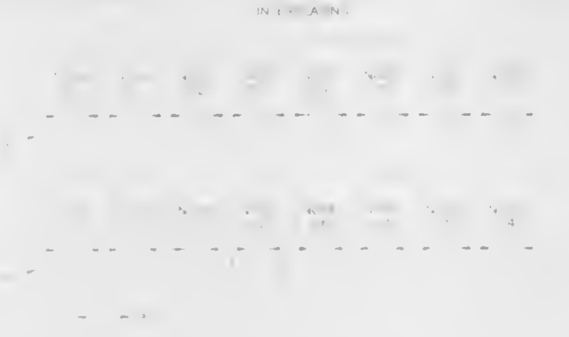
5,737,628
MULTIPROCESSOR COMPUTER SYSTEM WITH INTERLEAVED PROCESSING ELEMENT NODES

Mark S. Birrittella, Chippewa Falls; Richard E. Kessler, Eau Claire; Steven M. Oberlin; Randal S. Passint, both of Chippewa Falls, and Greg Thorson, Altoona, all of Wis., assignors to Cray Research, Inc., Eagan, Mich.

Division of Ser. No. 165,266, Dec 10, 1993, Pat. No. 5,583,990. This application Jun. 12, 1996, Ser. No. 662,868

Int. Cl.⁶ G06F *15/*

U.S. Cl. 395—800.11 **1 Claim**



1. A multiprocessor computer system comprising:

a plurality of processing element nodes capable of executing more than one instruction simultaneously, each node including a processing element having a processor and a local

memory, wherein globally addressable portions of local memory of each processing element form a distributed memory;

an interconnection network connecting together the processing element nodes in an n-dimensional topology, wherein n is at least two, the network comprising internode communication paths connecting each of the plurality of processing element nodes to adjacent processing element nodes, wherein the maximum interconnection distance between the processing element nodes is minimized by interleaving selected ones of the plurality of processing element nodes in at least one of the n dimensions, and

a network router for transmitting messages between processing element nodes via the interconnection network.

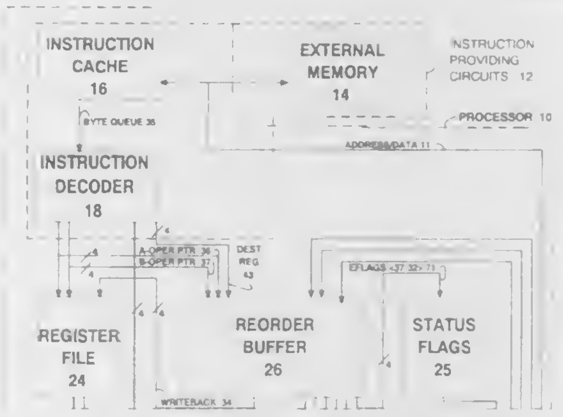
5,737,629
DEPENDENCY CHECKING AND FORWARDING OF VARIABLE WIDTH OPERANDS

Gerald D. Zuraski, Jr.; Scott A. White; Murali S. Chinnakonda, and David S. Christie, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 233,567, Apr. 26, 1994, Pat. No. 5,590,352. This application Jun. 27, 1996, Ser. No. 671,439

Int. Cl.⁶ G06F *9/38*

U.S. Cl. 395—800.23 **26 Claims**



5. A superscalar processor for executing a plurality of instructions concurrently and out-of-order, the processor comprising:

a reorder buffer array including a plurality of array elements, the array elements including a result field and a destination pointer field, the result field having a plurality of bits arranged in a plurality of sub fields, some of the sub-fields being overlapping, the destination pointer having a destination register field designating a destination register in a register file that is to receive data from the result field when the data is retired and a sub-field identifier designating the sub-fields in the destination register that are defined for a particular instruction;

a decoder coupled to the reorder buffer array via a plurality of operand pointer buses, the decoder decoding instructions, generating operand pointers based on the decoding operation, and driving the operand pointers on the operand pointer buses, the operands having a source register field designating a source register in the register file and a sub-field identifier designating sub-fields in the source register that are defined for the particular instruction; and

a dependency check comparator coupled to the reorder buffer and coupled to the operand pointer buses, the dependency check comparator detecting a dependency when the source register field for a defined sub-field matches a defined sub-field of a destination register in the plurality of array elements in the reorder buffer array.

5,737,630
COMMUNICATION DEVICE FOR SYNCHRONIZED SERIAL COMMUNICATION

Masayuki Kobayashi, Anjo, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 16, 1995, Ser. No. 515,571

Claims priority, application Japan, Sep. 20, 1994, 6-225227

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—800.29 **17 Claims**

1. A communication device for performing synchronized serial communication between a master CPU and a slave CPU, the device comprising:

a first data line for sending a first communication message from the master CPU to the slave CPU;

a second data line for sending a second communication message from the slave CPU to the master CPU;

a request line for requesting initialization from the master CPU to the slave CPU; and

a reply line for indicating completion of initialization from the slave CPU to the master CPU, wherein:

a request for initialization from the slave CPU to the master CPU, when a communication error is detected in the slave CPU, is made by means of an initialization request code inserted in the second communication message from the slave CPU to the master CPU sent over the second data line, and

the master CPU initializes the slave CPU and synchronizes therewith through the request line and the reply line only when one of power is turned on and the communication error occurs, the communication error being indicated by the request for initialization by means of the initialization request code.

5,737,631
REPROGRAMMABLE INSTRUCTION SET ACCELERATOR

Stephen M. Trimberger, 1261 Chateau Dr., San Jose, Calif. 95120

Filed Apr. 5, 1995, Ser. No. 417,337

Int. Cl.⁶ G06F *15/76, 9/30*

U.S. Cl. 395—800.37 **40 Claims**

1. A data processor comprising:
internal buses for operand and result data.

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a defined execution unit coupled to the internal buses for execution of defined instructions.

a programmable execution unit coupled to the internal buses for execution of a programmed instruction, and

a condition code register connected to the programmable execution unit to receive condition codes from the programmable execution unit

5,737,632
MAGNETIC DISC CONTROL APPARATUS WITH PARALLEL DATA TRANSFER BETWEEN DISC CONTROL UNIT AND ENCODER/DECODER CIRCUIT

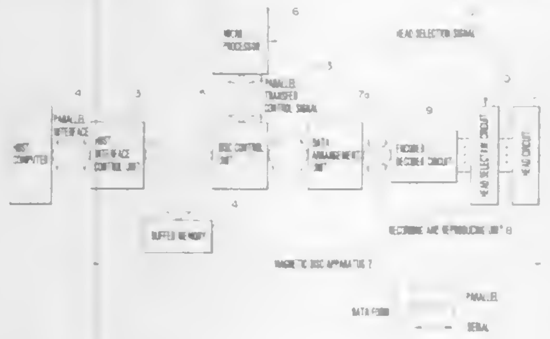
Takashi Oeda; Motoyasu Tsunoda; Noriyuki Karasawa, all of Yokohama; Yukihito Takada, Kamakura; Satoshi Kawamura, Yokohama; Yoshio Yukawa, Kanagawa-ken; Tsuneo Hirose, and Mitsuru Kubo, both of Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Video Engineering, Incorporated, Yokohama, both of Japan

Continuation of Ser. No. 630,236, Dec. 19, 1990, abandoned. This application Feb. 22, 1994, Ser. No. 199,988

Claims priority, application Japan, Dec. 19, 1989, 1-328925; Dec. 25, 1989, 1-332931

Int. Cl.^{6} G08F *13/00*

U.S. Cl. 395—821 34 Claims



1. A disc storage apparatus comprising

at least one disc having at least one recording surface;

at least one head associated with the at least one recording surface for recording data on the at least one recording surface.

a disc control unit for receiving r-bit parallel data and selectively outputting q-bits of the r-bit parallel data as q-bit parallel data, wherein q and r are integers of at least 2; and

an encoder/decoder circuit for receiving the q-bit parallel data from the disc control unit and outputting coded data for recording by the at least one head on the at least one recording surface

5,737,633
SERIAL DATA RECEIVING DEVICE HAVING A MEMORY FOR STORING A RECEPTION PERMIT SIGNAL WHICH ENABLE OR DISABLE THE DEVICE FROM HAND-SHAKING WITH THE TRANSMITTING DEVICE

Katsunori Suzuki, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 30, 1995, Ser. No. 550,325

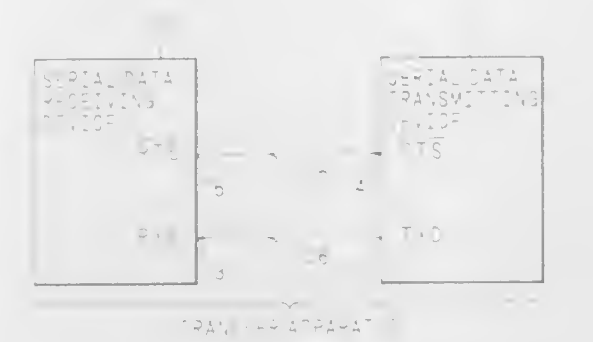
Claims priority, application Japan, Nov. 30, 1994, 6-297393

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—849 12 Claims

1. A serial data receiving device, comprising:

a first memory means for receiving and storing serial data from a data sending line and shifting the data bit by bit when receiving each one bit of the data and converting the serial data into parallel data when all the bits constituting the serial data are stored.



a first detecting means coupled to the data sending line for detecting the the reception of the last bit of the serial data.

a second memory means coupled to the first detecting means for storing a reception permit signal allowing the serial data to be received, wherein the reception permit signal is enabled or disabled by the first detecting means, and

a first control means coupled to the second memory means for controlling the reception of the serial data in accordance with the reception permit signal, wherein the first control means further comprises

a signal generating means for generating a signal enabling the serial data receiving device to hand shake with a transmitting device and outputting a hand-shake signal to the transmitting device when the reception permit signal is enabled.

5,737,634
STORAGE DEVICE CONTROL SYSTEM WITH AN INTERNAL BUS WHEREIN A NETWORK INTERFACE HAS A DATA LINE FOR MEMORY TRANSFER

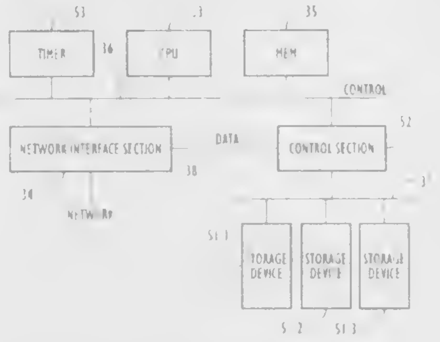
Takashi Hamano; Tsutomu Togo; Hiroichi Egawa; Yasushi Inamoto, and Kiichi Matsuda, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 7, 1995, Ser. No. 554,695

Claims priority, application Japan, Nov. 28, 1994, 6-292922

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—847 12 Claims



1. A storage device control system for controlling data read process or data write process, comprising:

storing means for storing data;

an internal bus;

control means, connected to said internal bus, for controlling reading data from said storing means or writing data to said storing means,

interface means, connect to said internal bus, for interfacing with a network and for sending a read request or a write request to said control means through said internal bus, in response to an access request to said storing means received from the network, and

a data line for connecting said control means and said interface means to each other to transfer data read from said storing means or data to be written to said storing means.

5,737,635
VARIABLE LATENCY CUT THROUGH BRIDGE HAVING VARIABLE LATENCY THRESHOLD POINT BEING CONFIGURED DYNAMICALLY FOR FORWARDING PACKETS WHILE THE BRIDGE IS OPERATING

Bernard N. Daines, Union City; Lazar Birenbaum, Saratoga, and Richard J. Hausman, Soquel, all of Calif., assignors to Cisco Technology, Inc., San Jose, Calif.

Continuation of Ser. No. 103,439, Aug. 6, 1993, Pat. No. 5,598,581. This application Oct. 2, 1996, Ser. No. 672,369

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—872 34 Claims

1. A cut through bridge for connecting at least two computer network segments, having a plurality of computer devices interconnected by a plurality of data transmission devices wherein data packets are transmitted over the data transmission devices, the cut through bridge comprising

a buffer for temporarily holding the data packets.

a controller for controlling said buffer such that the data packets are forwarded of said buffer upon command from said controller, and

means for adjusting a latency threshold point of the buffer while the cut through bridge operating in the computer network, the latency threshold point specifying that portion of each data packet which is received by the buffer prior to said controller commanding said buffer to forward that data packet, wherein the means for adjusting adjusts the latency threshold point dynamically.

5,737,636
METHOD AND SYSTEM FOR DETECTING BYPASS ERRORS IN A LOAD/STORE UNIT OF A SUPERSCALAR PROCESSOR

David George Caffo, and Christopher Anthony Freymuth, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 18, 1996, Ser. No. 591,249

Int. Cl.^{6} G06F *13/16*

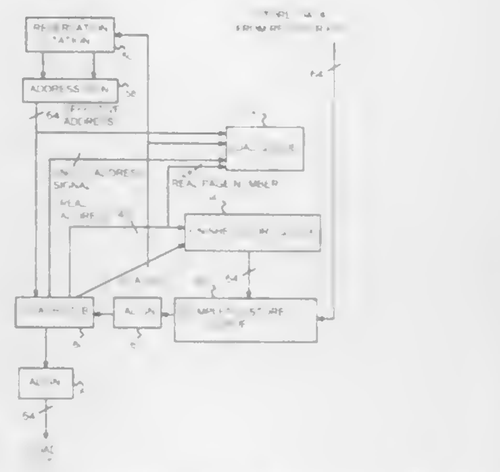
U.S. Cl. 395—874 14 Claims

1. A load queue in a load/store unit of a superscalar processor, the load queue, coupled to a data cache, an address generator, and holding one or more load instruction entries, the load queue comprising

a real page number buffer for storing a real page number for each instruction entry in the load queue.

a real page number comparator coupled to the real page number buffer for comparing executing load or store instructions with queued load instruction entries in the load queue, and

a cache line modified register coupled to the data cache, the cache line modified register for marking queued load instruction entries in the load queue when a cache line of the data



cache addressed by the queued load instruction entry has been modified

5,737,637
SYSTEM FOR CONTROL OF DATA I/O TRANSFER BASED ON CYCLE COUNT IN A SEMICONDUCTOR MEMORY DEVICE

Haruki Toda; Shozo Saito, and Kaoru Tokushige, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 427,270, Apr. 24, 1995, Pat. No. 5,587,963, which is a division of Ser. No. 223,222, Apr. 5, 1994, Pat. No. 5,500,829, which is a division of Ser. No. 775,602, Oct. 15, 1991, Pat. No. 5,313,437. This application Sep. 27, 1996, Ser. No. 720,309

Claims priority, application Japan, Oct. 15, 1990, 2-273170; Oct. 2, 1991, 3-255354

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—878 20 Claims

1. A memory system comprising

a semiconductor memory device including an internal circuit which is controlled to perform memory access operation in response to a first signal, and

signal input means inputting said first signal to said semiconductor memory device, said signal input means being arranged outside of said semiconductor memory device.

wherein said semiconductor memory device including

a memory cell array having a plurality of memory cells arranged in rows and columns, said memory cells being selected based on a address signal, and

control means for receiving said first signal having a first state and a second state, and a second signal having a third state and a fourth state, and for outputting a plurality of data stored in said memory cells in synchronism with said first signal, after said first signal switches N times (N≥2, N is a positive integer) from the first state to the second state after said second signal switches from said third state to said fourth state

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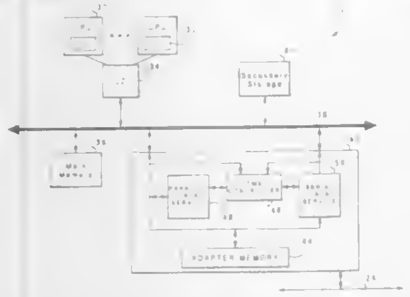
5,737,638
SYSTEM FOR DETERMINING PLURALITY OF DATA TRANSFORMATIONS TO BE PERFORMED UPON SINGLE SET OF DATA DURING SINGLE TRANSFER BY EXAMINING COMMUNICATION DATA STRUCTURE

Jonathan W. Byrn; Gary S. Delp; Philip L. Leichty; Robert J. Manulik, all of Rochester; Arthur J. Meyer, III, and Albert A. Slane, both of Oronoco, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 14, 1995, Ser. No. 502,782

Int. Cl.⁶ G06F *3/00; 15/16*

U.S. Cl. 395—888 **36 Claims**



1. An apparatus for providing an inline data service within a data processing system coupled to a communications network, said data processing system including a host memory, said apparatus comprising:

an adapter memory for temporarily storing data communicated between said data processing system and said communications network;

a memory access controller that controls transfers of data between said adapter memory and said host memory, said memory access controller including:

means for determining a plurality of data transformations to be performed upon a single set of data during a single transfer of said single set of data between said adapter memory and said host memory wherein said means for determining a plurality of data transformations to be performed upon said single set of data includes means for examining a communication data structure that specifies said plurality of data transformations, wherein a storage location of said communication data structure is indicated by information within said single set of data; and

means for selectively performing said plurality of data transformations on said single set of data during a single transfer of said single set of data between said adapter memory and said host memory such that data communication latency is reduced.

5,737,639
METHOD AND APPARATUS FOR THE RECORDING AND REPRODUCING OF DATA ON A STORAGE MEDIUM

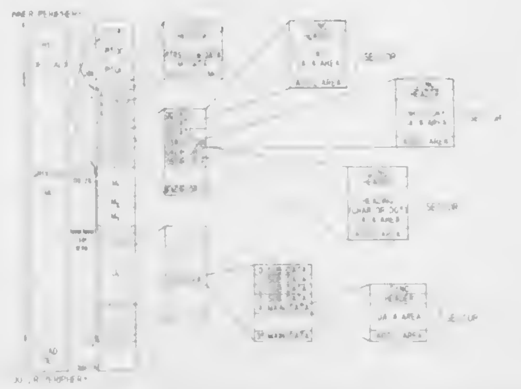
Takashi Ohmori, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 196,469, Feb. 15, 1994. This application Aug. 9, 1996, Ser. No. 694,607

Claims priority, application Japan, Feb. 26, 1993, 5-062992; Feb. 26, 1993, 5-062993

Int. Cl.⁶ G11B *13/04*

U.S. Cl. 395—893 **36 Claims**



1. A recording apparatus for use with a recording medium for recording thereon first management information relating to a first type of information, second management information relating to a second type of information, said second type of information being different than said first type of information and one of said first and second types of information being user data, said apparatus comprising:

means for recording on said medium said first management information, said second management information and said first and second types of information in first, second and third areas, respectively, said means for recording being operative to record said user data and the management information for said user data in respective sectors on said recording medium, each of said sectors including category information; and

control means for generating said first management information when said first type of information is recorded by said means for recording and for generating said second management information when said second type of information is recorded by said means for recording, said control means being operative to erase each of said sectors by setting its category information to a predetermined value.

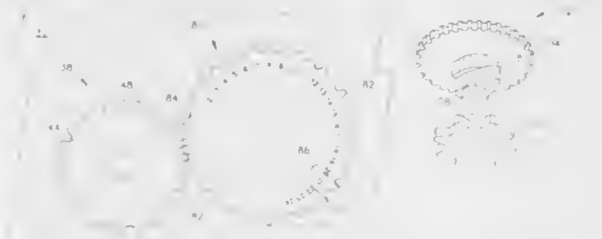
5,737,640
COMBINATION METERING CAM AND FILM TRANSPORT THUMBWHEEL

Dennis Roland Zander; John Horace Alligood, both of Penfield, and Dwight John Petruchik, Honeoye Falls, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 27, 1996, Ser. No. 607,739

Int. Cl.⁶ G03B *1/10; 17/18*

U.S. Cl. 396—6 **73 Claims**



55. A prepackaged single use photographic combination comprising:

a camera housing,

a roll strip of photographic film contained within the camera housing,

an exposure gate in the camera housing defining a shutter plane across which a length of the photographic film is extended,

an objective lens for directing light from a photographic scene to the exposure gate,

an actuatable shutter mechanism including a shutter reset lever pivotally mounted within said housing that is pivoted to place the shutter mechanism in a set condition so the shutter mechanism can be actuated to allow light from the photographic scene to enter said exposure gate through the objective lens;

a shutter release, located on the camera housing, that is actuated by a camera user and in response actuates the shutter mechanism,

a film metering mechanism that locks to prevent movement of the photographic film within the camera housing and includes a separate metering lever pivotally mounted with said housing that pivots to unlock the film metering mechanism and permit movement of the photographic film allowing a fresh frame of the photographic film to be positioned at the exposure gate,

a rotatable thumbwheel having an outer circumferential surface of which a portion projects externally out of the camera housing wherein the thumbwheel is coupled to the photographic film so that the thumbwheel moves the photographic film when the thumbwheel is rotated by the camera user,

a shutter cam surface that rotates with the thumbwheel so that the pivotally mounted shutter reset lever of the shutter mechanism is pivoted by the shutter cam surface and resets the shutter mechanism after a predetermined rotation of the thumbwheel, and

a film metering cam surface that rotates with the thumbwheel so that the pivotally mounted metering lever is pivoted by the film metering cam surface and releases the film metering mechanism after a predetermined rotation of the thumbwheel wherein the thumbwheel further includes a shaft extending outwardly therefrom and upon which the shutter cam surface and film metering cam surfaces are separately disposed.

5,737,641
VIEWPOINT DETECTING DEVICE USING STORED INFORMATION WHEN DETECTING IS IMPROPER

Takashi Kobayashi, Mitaka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 26, 1995, Ser. No. 507,078

Claims priority, application Japan, Jul. 29, 1994, 6-178566

Int. Cl.⁶ G03B *17/00*

U.S. Cl. 396—51 **32 Claims**

1. A viewpoint detecting device comprising:

a) viewpoint detecting means for taking an image of the eye of the user and detecting the position of the viewpoint of said user;

b) memory means for storing information used for a first detecting operation of the viewpoint by said viewpoint detecting means when said viewpoint is properly detected by said viewpoint detecting means; and

c) correction means for, when the viewpoint of the user is not properly detected by said viewpoint detecting means, causing said viewpoint detecting means to detect the viewpoint of the user by reading the information stored in said memory means.

5,737,642
CAMERA HAVING A LINE-OF-SIGHT DETECTING MEANS

Keisuke Aoyama, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 6, 1995, Ser. No. 524,408

Claims priority, application Japan, Sep. 7, 1994, 6-238609; Aug. 21, 1995, 7-212022

Int. Cl.⁶ G03B *17/00*

U.S. Cl. 396—51 **21 Claims**

1. A camera for detecting the line-of-sight of a user, comprising:

a photographing control circuit for performing a continuous shot operation in which a photographing operation is repeated continuously while a release button is pressed;

a line-of-sight detection device for detecting a position of the user's line of sight;

a line of sight detection control circuit for operating said line of sight detection device for every photographing operation of said continuous shot operation,

a focus detection device for performing a focus detecting operation based upon the position of the line of sight detected by said line of sight detection device

a determination circuit for determining whether the result of focus detection by said focus detection device is appropriate and

a focus detection control circuit for operating said focus detection circuit without operating said line-of-sight detection device if said determination circuit determines that the result of focus detection is inappropriate.

5,737,643
MOTION COMPENSATION DEVICE HAVING STABILIZING MOTION DETECTION UNIT THAT DOES NOT INHIBIT IMAGING OPERATIONS IN AN IMAGING UNIT

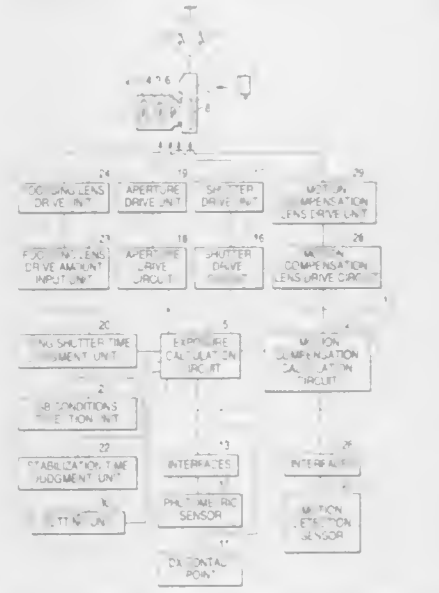
Yoshihisa Kitagawa, Kashiwa, and Yoshio Imura, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 479,399

Claims priority, application Japan, Jun. 7, 1994, 6-125467

Int. Cl.⁶ G03B *5/00*

U.S. Cl. 396—55 **9 Claims**



1. A motion compensation device suitable for a camera comprising:

a detection unit detecting an amount of motion about a camera

a photographic preparatory operation commencement instruction unit generating a first instruction to commence photographic preparatory operations including the commencement of the detection unit;

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an exposure commencement instruction unit generating a second instruction to commence an exposure operation;

a motion compensation unit to drive an optical system of the camera to inhibit image blurring on a focal plane based on the amount of motion detected by the detection unit;

a stabilization time judgment unit judging whether a photographic preparatory time from when the photographic preparatory operation instruction unit generates the first instruction until the exposure commencement instruction unit generates the second instruction is longer or shorter than a predetermined amount of time, the predetermined time being long enough to allow the operation of the detection unit to become stable; and

a control unit controlling the motion compensation unit so as to inhibit operation of the motion compensation unit after the exposure operation commences when the stabilization time judgment unit judges that photographic preparatory time is shorter than the predetermined time.

5,737,644

LENS DRIVE MECHANISM

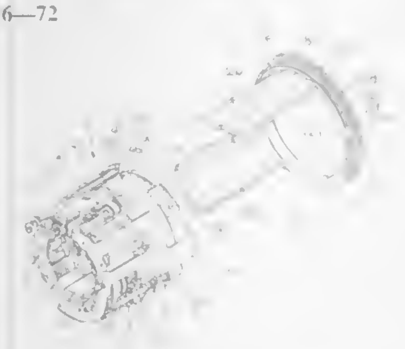
Hiroshi Nomura; Kazuyoshi Azegami, and Takamitsu Sasaki, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 9, 1997, Ser. No. 781,021

Claims priority, application Japan, Jan. 26, 1996, 8-12317; Feb. 19, 1996, 8-31080

Int. Cl.^{6} G03B *17/00*

U.S. Cl. 396—72 **22 Claims**



1. A lens drive mechanism comprising:

first and second members positioned adjacent to each other, said second member supporting a lens group, said second member being movable relative to said first member along an optical axis of said lens group;

a first guide shaft extending in a direction of said optical axis, said first guide shaft being supported by said first member to be guided in said direction of said optical axis, one end of said first guide shaft being secured to said second member;

a gear rotatably supported on said first member so as not to move in said direction of said optical axis relative to said first member, said gear defining a hole at an axial center, and a first thread formed on an inner periphery of said hole;

a screw shaft on which a second thread is formed which extends parallel to said first guide shaft, one end of said screw shaft being secured to said second member, said gear being rotatably fitted to said screw shaft with said first thread meshing with said second thread;

a stopper plate secured to another end of each of said screw shaft and said first guide shaft; and

an impact absorbing member fitted on said first guide shaft adjacent to said stopper plate.

5,737,645

DISTANCE MEASURING APPARATUS AND METHOD OF MEASURING DISTANCE

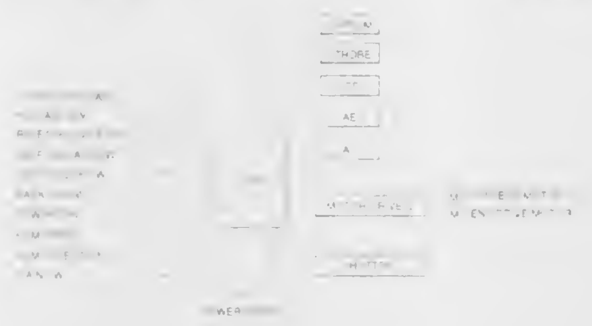
Tatsuo Saito, Saitama, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama, Japan

Filed Jun. 7, 1996, Ser. No. 660,414

Claims priority, application Japan, Jun. 14, 1995, 7-147893

Int. Cl.^{6} G03B *13/36*

U.S. Cl. 396—98 **18 Claims**



1. A distance measuring apparatus for measuring a distance to an object comprising:

first distance measuring means using an active method including projecting distance measuring light toward an object to measure the distance to the object based upon a position where light reflected by the object is condensed;

second distance measuring means using a passive method with two optical systems for detecting natural light reflected by the object to measure the distance to the object based on two optical images produced by said two optical systems;

a focus lock switch for designating whether a measured distance to the object is held; and

distance selecting means, having a detecting portion for detecting switching of said focus lock switch, for inhibiting distance measurement by said second distance measuring means when switching of said focus lock switch is detected by said detecting portion.

5,737,646

AUTO FOCUS CAMERA IN WHICH A LENS POSITION IS CHANGEABLE IN ACCORDANCE WITH A PHOTOGRAPHING MODE

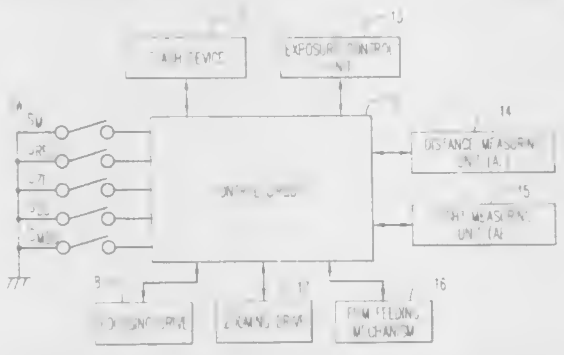
Hidekazu Nakajima, Kawachinagano; Masayuki Ikemura, Osaka, and Hiroyuki Okada, Sakai, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 9, 1995, Ser. No. 488,916

Claims priority, application Japan, Jun. 10, 1994, 6-153025; May 18, 1995, 7-145749

Int. Cl.^{6} G03B *13/36, 17/24*

U.S. Cl. 396—104 **16 Claims**



1. An auto focus camera in which a lens position is changeable in accordance with a photographing mode, comprising:

distance measuring means which measures an object distance;

judging means which judges whether or not distance measuring can be done;

estimating means which estimates whether or not a person is being photographed;

distance selecting means which selects distance data measured by the distance measuring means when distance measuring can be done, and selects first predetermined distance data when distance measuring can not be done and a person is being photographed, and selects second predetermined distance data when distance measuring can not be done and a person is not being photographed, and,

driving means which drives a photographic lens in accordance with selected measuring data.

5,737,647

CAMERA

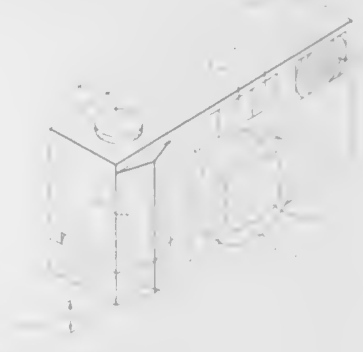
Hidekazu Nakajima, Higashiosaka, and Hiroyuki Okada, Izumi, both of Japan, assignors to Minolta Co., Ltd., Japan

Filed Jan. 29, 1997, Ser. No. 790,596

Claims priority, application Japan, Jan. 29, 1996, 8-013065

Int. Cl.^{6} G03B *13/36, 15/03*

U.S. Cl. 396—106 **19 Claims**



1. A camera comprising:

a distance measurement unit;

an exposure unit;

a light source which is capable of emitting lights for distance measurement and for red eye reduction; and

a controller which prohibits said light source from emitting light for red-eye reduction when exposure is started within a predetermined time after the light source emits light for distance measurement.

5,737,648

PHOTOMETRIC DEVICE FOR A CAMERA

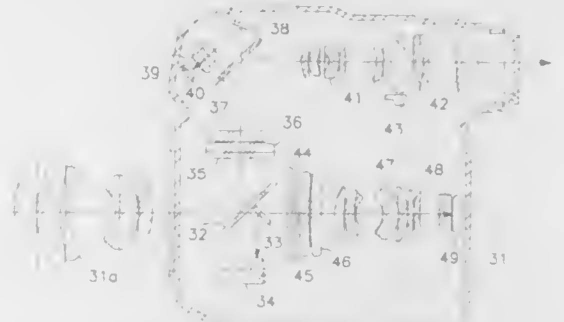
Satoshi Ejima, Tokyo, and Yasuo Kitsugi, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jun. 26, 1995, Ser. No. 494,350

Claims priority, application Japan, Aug. 22, 1994, 6-196724

Int. Cl.^{6} G03B *7/00, 17/20*

U.S. Cl. 396—276 **20 Claims**



1. A photometric device comprising:

a first optical dividing member to divide incident light into a first reflected beam and a first transmitted beam, said first optical dividing member has a first reflection ratio of P polarized light and a first reflection ratio of S polarized light;

a second optical dividing member to divide the first reflected beam into a second reflected beam and a second transmitted beam, said second optical dividing member has a second transmission ratio of P polarized light and a second transmission ratio of S polarized light, the product of the first reflection ratio of P polarized light and the second transmission ratio of P polarized light is substantially equal to the product of the first reflection ratio of S polarized light and the second transmission ratio of S polarized light; and

a photometric unit to perform photometry on the second transmitted beam.

5,737,649

DETECTING CIRCUIT AND METHOD FOR DETECTING POWER INTERRUPTION IN A CAMERA

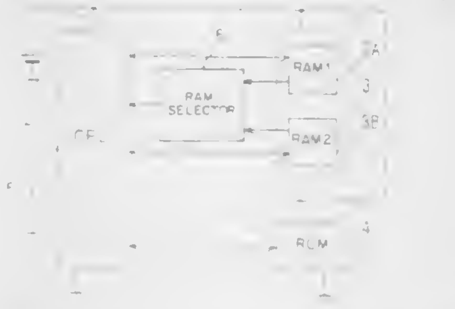
Yoshiyuki Iwamatsu; Isamu Ishii, and Shinichi Endo, all of Yotsukaido, Japan, assignors to Seiko Precision Inc., Japan

Filed Apr. 11, 1995, Ser. No. 419,815

Claims priority, application Japan, Apr. 12, 1994, 6-073356

Int. Cl.^{6} G03B *7/26*

U.S. Cl. 396—277 **4 Claims**



1. A detecting circuit for detecting a power interruption in a battery powered electrical device, the detecting circuit comprising: first storage means for storing first data used in operating the electrical device and for retaining the first data irrespective of a power interruption in the electrical device; second storage means powered by the battery for storing second data, the second data being dependent upon the first data; detecting means for detecting a change in the second data indicative of a power interruption in the electrical device; initialization means for initializing the electrical device in accordance with an output of the detecting means; and copying means for copying the first data stored in the first storage means into the second storage means; wherein the detecting means comprises comparing means for comparing the first data stored in the first storage means with the second data stored in the second storage means and generating an output indicative of a difference between the first and second data, and the initialization means includes means for initializing the electrical device in accordance with the output generated by the comparing means; and means for inverting the first data stored in the first storage means and copying the inverted first data into the second storage means as the second data.

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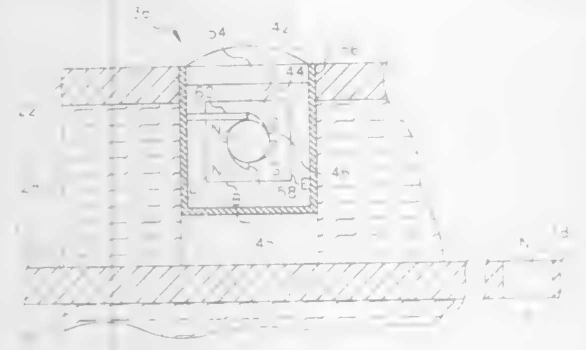
5,737,650
PHOTOGRAPHIC MEDIUM CARTRIDGE WITH MAGNETICALLY ACTIVATED STATUS INDICATOR

John R. Debesis, Penfield; J. Kelly Lee; William Mey, both of Rochester; P. W. Thomas Moran, Fairport, and Svetlana Reznik, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 16, 1996, Ser. No. 766,958

Int. Cl. G03B 17/36

U.S. Cl. 396—285 65 Claims



1. A cartridge of web material, comprising:

a hollow cartridge body having an exit slit;

a strip or sheet of web material enclosed in said cartridge body to be withdrawn from or inserted into said cartridge body via said exit slit;

at least one magnetic member carried on said strip or sheet; and

a magnetically actuated visual indicator mounted on said cartridge body adjacent said exit slit to be actuated by said magnetic member when said strip or sheet is withdrawn from or inserted into said cartridge body.

5,737,651
INFORMATION PROCESSING DEVICE AND METHOD

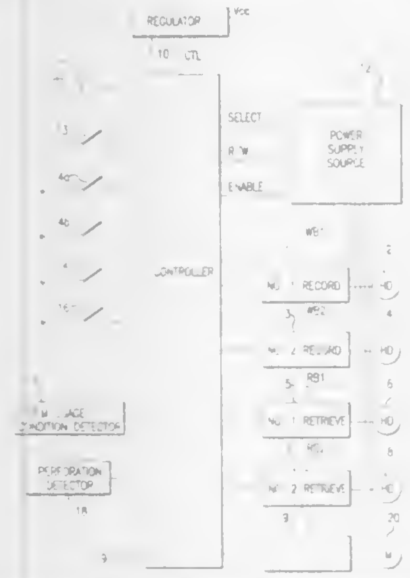
Hideo Hibino, Kanagawa-ken; Kazuyuki Kazami, Tokyo; Norikazu Yokonuma, Kanagawa-ken, and Tetsuya Takano, Saitama-ken, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Oct. 24, 1995, Ser. No. 547,292

Claims priority, application Japan, Oct. 26, 1994, 6-262277

Int. Cl. G03B 17/24

U.S. Cl. 396—303 50 Claims



1. An information processing device that retrieves information [illegible] medium, the device comprising:

at least one retrieval device that retrieves information from the recording medium;

a power source which is electrically connected to the retrieval device and which supplies power to the at least one retrieval device only during a time period when the at least one retrieval device is in operation; and

a perforation detector which is electrically connected to the power source and which detects a perforation in the recording medium, wherein the time period is started on the detection of a perforation.

5,737,652
INFORMATION MAGNETIC RECORDING APPARATUS STOPPING MAGNETIC RECORDING IN CASE OF ABNORMAL TEMPERATURE

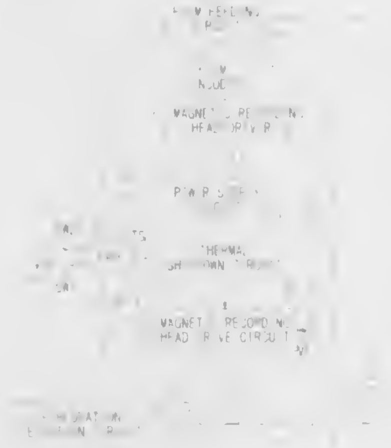
Hideo Hibino, Kawasaki; Norikazu Yokonuma, Yokohama; Kazuyuki Kazami, Tokyo, and Yoichi Yamazaki, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Aug. 2, 1995, Ser. No. 510,490

Claims priority, application Japan, Aug. 8, 1994, 6-185691

Int. Cl. G03B 17/24; G11B 5/00; 15/48

U.S. Cl. 396—319 7 Claims


MAGNETIC RECORDING HEAD DRIVER
MAGNETIC RECORDING HEAD DRIVE CIRCUIT
4

1. An information magnetic recording apparatus, comprising:

a feeding device that winds and rewinds a film;

a magnetic recording head that magnetically records on said film when said feeding device winds said film;

a magnetic recording signal conversion device that converts information of a frame of said film to a magnetic recording signal and outputs the magnetic recording signal;

a head driving circuit that drives said magnetic recording head based on said magnetic recording signal that is outputted from said magnetic recording signal conversion device; and

a temperature detection circuit that detects a temperature around said head driving circuit and outputs an abnormal temperature signal if the temperature is abnormal, wherein

said magnetic recording signal conversion device stops outputting said magnetic recording signal to cause said head driving circuit not to be driven if said temperature detection circuit outputs said abnormal temperature signal, and then waits until outputting of said abnormal temperature signal is stopped;

said feeding device automatically rewinds said film if said temperature detection circuit outputs said abnormal temperature signal while said magnetic recording head is magnetically recording in synchronization with winding of said film, then waits until outputting of said abnormal temperature signal is stopped and then automatically starts winding said film if outputting of said abnormal temperature signal is stopped after said abnormal temperature signal was outputted;

said magnetic recording signal conversion device restarts outputting said magnetic recording signal if outputting of said abnormal temperature signal from said temperature detection circuit is stopped after said abnormal temperature signal was outputted.

5,737,653
CAMERA CAPABLE OF MAGNETIC RECORDING

Masaki Tokui, Kanagawa-ken, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 294,270, Aug. 23, 1994, abandoned. This application Sep. 10, 1996, Ser. No. 710,089

Claims priority, application Japan, Aug. 26, 1993, 5-211556

Int. Cl. G03B 17/24

U.S. Cl. 396—319 25 Claims

1. A camera capable of performing magnetic recording with respect to a film having a magnetic recording section, the camera comprising:

a magnetic head;

a pressure plate having a hole through which the magnetic head is brought into contact with the magnetic recording section of the film;

an urging member for securing the magnetic head and for pressing the magnetic head through the hole in the pressure plate and against the magnetic recording section of the film at all times;

a recessed portion provided at a position which faces the magnetic head with the film interposed between the recessed portion and the magnetic head, said recessed portion including a portion which is flush with a face of a film rail in height in an optical axis direction;

an elastic slidable member provided within said recessed portion; and

a graded portion including a sloped surface having a height in the optical axis direction which gradually decreases from the height of the recessed portion which is flush with the face of the film rail, said sloped surface being on a film feeding side of the recessed portion so as to prevent the film from becoming stuck as the film is fed; and

wherein, when magnetic information is recorded in the magnetic recording section or read out from the magnetic recording section by the magnetic head, a pressure with which the magnetic head is pressed against the magnetic recording section is controlled and a film running resistance is reduced by cooperation between said urging member securing the magnetic head and said elastic slidable member provided within the recessed portion irrespective of a position which the magnetic head takes relative to the pressure plate.

5,737,654
CAMERA, AND APPARATUS FOR CAMERA

Masaaki Ishihara, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 30, 1996, Ser. No. 777,421

Claims priority, application Japan, Jan. 12, 1996, 8-020712

Int. Cl. G03B 17/24

U.S. Cl. 396—319 21 Claims

1. A camera arranged to record photographed-frame information indicative of a photographed frame or photographed frames of a film on a frame-by-frame basis, comprising:

(A) an indication device which gives a midroll interrupt indication for rewinding a film which is partway used into a film cartridge;

(B) a film transport device which rewinds the film which is partway used into the film cartridge in accordance with the midroll interrupt indication given by said indication device; and

(C) a determination device which determines whether the photographed-frame information is recorded on photographed frames of the film on a frame by frame basis, while said film transport device is rewinding the film into the film cartridge in accordance with the midroll interrupt indication given by said indication device.

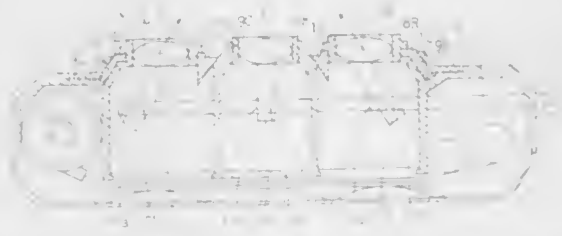
5,737,655
STEREO CAMERA

Minoru Inaba, No. 1116, Oaza Samukawa, Oyama-shi, Tochigi-ken, Japan

Filed Aug. 26, 1996, Ser. No. 697,491

Int. Cl. G03B 35/08

U.S. Cl. 396—324 6 Claims



1. A stereo camera comprising an automatic inter-optical axis distance correcting mechanism having independent lens boards having sliders mounting two photographing lenses having optical axes, visual fields, and a shortest focal distance for moving the lens boards in parallel in approaching directions as the lens boards are moved by a focusing mechanism so that the optical axes of the two photographing lenses approach to bring the visual fields of the two photographing lenses at a focal position into coincidence, and slide guides of the lens boards provided to move on a linear line to a position where principal points of the two photographing lenses are shifted in the approaching direction from right and left picture pitches at an infinite remote focal position to another position where the visual fields of the two photographing lenses are brought into coincidence at the shortest focal distance, thereby automatically correcting the distance between the optical axes by the slide guides coupled to the sliders and the focusing mechanism.

5,737,656
PUMP CAMERA

Dennis Roland Zander, Penfield; David Clinton Smart, Fairport; Thomas Edgar Dussinger, Henrietta, and Edward Norman Balling, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1995, Ser. No. 577,285

Int. Cl. G03B 1/08

U.S. Cl. 396—411 20 Claims

1. A camera comprising:

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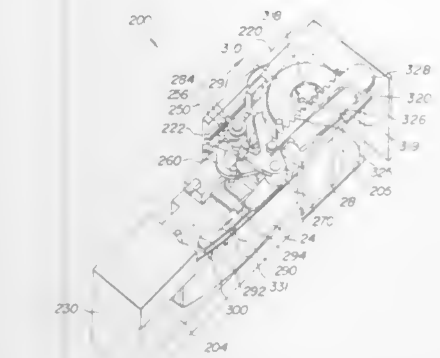


a body portion having a cartridge chamber for retaining a film cartridge and a film chamber for retaining a filmstrip;

a pump cover coupled to said body portion and movable in opposite directions between an opened and a closed position; and

a rotatable film winding gear attached to said body portion for engaging the film cartridge to wind filmstrip into the film cartridge as said gear is rotated, is characterized by:

engageable locking means for locking said film winding gear to prevent said gear from being rotated to wind the filmstrip into the film cartridge, wherein said engageable locking means includes a pivotable locking lever for engaging said cover and said film winding gear to prevent said gear from being rotated when said cover is moved in a first of said opposite directions.

a movable gear rack having a set of engagement teeth for engaging said film winding gear to rotate the film winding gear when said cover is moved in a second of said opposite directions; and

means for disengaging said locking means when said cover is moved in said second of said opposite directions.

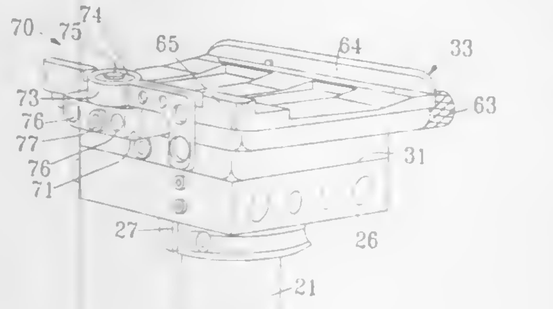
5,737,657
ADJUSTABLE PLATFORM HAVING A QUICK RELEASE MECHANISM FOR USE WITH A CAMERA

George K. Paddock, and Christopher C. Haarhoff, both of 6040 Rodgerton Rd., Los Angeles, Calif. 90068

Filed Nov. 17, 1995, Ser. No. 560,399

Int. Cl.⁶ G03B *17/00*

U.S. Cl. 396—428 **1 Claim**



1. An adjustable platform for use with a camera, said adjustable platform comprising

a. a platform having a surface, a first downwardly innerly beveled sidewall and a second downwardly innerly beveled sidewall;

b. a mounting plate, which has a first sidewall and a second sidewall and to which the camera is attached, disposed on said platform whereby said first and second downwardly innerly beveled sidewalls loosely engage said first and second sidewalls, respectively, of said mounting plate so that said mounting plate is slidably coupled to said platform

a locking mechanism which securely engages said mounting plate to said platform, and

d. a quick release mechanism including.
   - i. a locking plate;
   - ii. a cam lever mount fixedly coupled to said locking plate.
   - iii. a cam lever having a pair of notches.
   - iv. a mounting screw and a washer rotatively coupling said cam lever to said cam lever mount.
   - v. two pins slidably coupled to said locking plate and fixedly coupled to said platform;
   - vi. a spring resiliently coupling said locking plate to said platform;
   - vii. a screw having a ball-plunger which is resiliently biased and being fixedly coupled to said locking plate whereby said ball-plunger of said screw engages one of said notches of said cam lever to provide a stop therefor; and
   - viii. a locking screw slidably coupled to said locking plate and threadedly coupled to said platform whereby when said locking screw is tightened, said locking plate moves laterally towards said mounting plate so that said locking plate engages the second sidewall of said mounting plate in order to securely couple said mounting plate to said platform

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5,737,658
BARRIER DEVICE FOR CAMERA

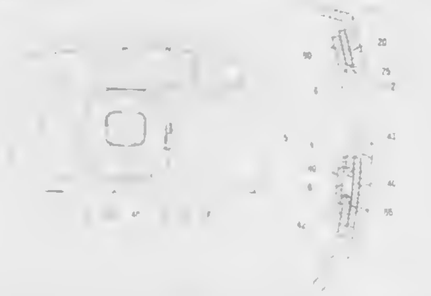
Akihiro Arai, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 576,012, Dec. 21, 1995, abandoned. This application Apr. 11, 1997, Ser. No. 834,037

Claims priority, application Japan, Dec. 22, 1994, 6-336561

Int. Cl.⁶ G03B *9/26*

U.S. Cl. 396—448 **14 Claims**



1. A barrier device for a camera having a photographing lens, comprising

a cover plate having a first opening through which said photographing lens is selectively exposed.

a support plate having a second opening positioned coincident with said first opening so that said photographing lens is selectively exposed through said second opening.

a first barrier member disposed between said cover plate and said support plate said first barrier member being movable to cover a first part of said first opening.

a second barrier member disposed between said cover plate and said support plate, said second barrier member being movable to cover a second part of said first opening, said second part not being covered by said first barrier member, such that said second part covers more than half of said first opening

an operation member connected to said first barrier member that moves said first barrier member and

a lever rotatably supported by a rear surface of said support plate, said rear surface of said support plate being positioned opposite to said cover plate, said lever connecting said first barrier member and said second barrier member so that a movement of said first barrier member is transmitted to said second barrier member in such a manner that a moving amount of said second barrier member is greater than a moving amount of said first barrier member

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5,737,659
CARTRIDGE HANDLING SYSTEM FOR CAMERA

Wayne Edward Stiehler, Spencerport; Patricia Lynn Williams, Rochester; Donald Patrick McGinn, Palmyra; Robert Louis Kuhn, Jr., Rush; Anthony DiRisio, Rochester, and Thomas Samuel Albrecht, Canandaigua, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 30, 1995, Ser. No. 565,463

Int. Cl.⁶ G03B *17/26*

U.S. Cl. 396—513 **11 Claims**

1. A camera, comprising

a chamber for receiving a film cartridge having a light lock movable between open and closed positions.

a chamber cover movable between a closed position covering said chamber and an open position uncovering said chamber.

manually operable means for releasing said chamber cover to move from said closed position to said open position of said chamber cover.

an ejector for ejecting the film cartridge at least part way out of said chamber.

means for moving the light lock between the open and closed positions of the light-lock, and

an actuating member sized and positioned to be moved by said means for releasing to engage said ejector to eject the cartridge from said chamber and to move said moving means to move the light lock from the open to the closed position of the light-lock

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5,737,660
SHEET FILM PACK

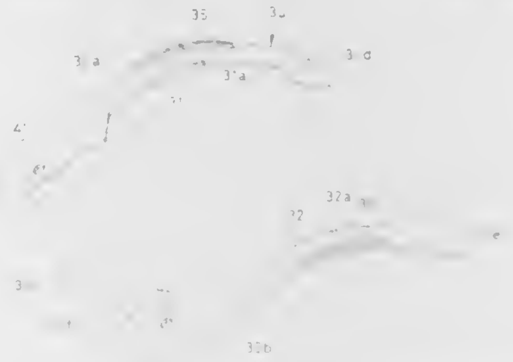
Taro Okutsu; Hitoshi Komiyama, and Katsumasa Okada, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 679,711, Jul. 12, 1996. This application Nov. 20, 1996, Ser. No. 754,258

Claims priority, application Japan, Jul. 14, 1995, 7-178813; Jul. 14, 1995, 7-201598

Int. Cl.⁶ G03B *17/26*

U.S. Cl. 396—517 **20 Claims**



1. In a sheet film pack comprising a pack housing containing a plurality of sheet film units in a stack therein, a lid slidable relative to said pack housing to open or close an open top of said pack housing, and a plate spring mounted on an inner bottom surface of said pack housing to urge the stack of sheet film units towards said open top, said sheet film units consisting of a sheet of photographic film and a film sheath backing and fringing said sheet film, wherein said plate spring comprises

a pair of arched arms which extend parallel to each other along side zones of a bottom one of said sheet film units wherein peak areas of said arms contact the bottom sheet film unit at positions within 15 mm from side edges of said bottom sheet film unit, and wherein said peak areas have a smaller width than other portions of said arms

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5,737,661
APPARATUS FOR PROCESSING PHOTOSENSITIVE MATERIAL

Tsutomu Nakai, and Takuya Tsujita, both of Wakayama, Japan, assignors to Noritsu Koki Co., Ltd., Wakayama, Japan

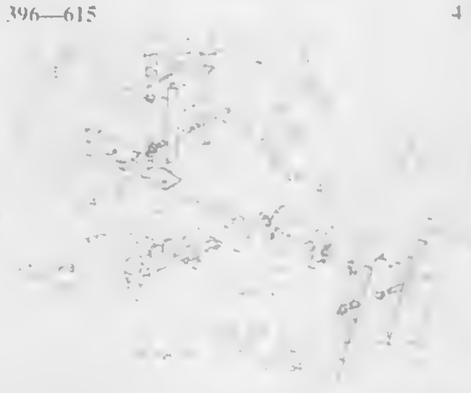
PCT No. PCT/JP95/01780, § 371 Date Apr. 23, 1996, § 102(e) Date Apr. 23, 1996, PCT Pub. No. WO96/08748, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 7, 1995, Ser. No. 632,438

Claims priority, application Japan, Sep. 13, 1994, 6-219134; Sep. 21, 1994, 6-226854; Sep. 21, 1994, 6-226855

Int. Cl.⁶ G03D *3/08*

U.S. Cl. 396—615 **4 Claims**



1. An apparatus for processing photosensitive material comprising

at least a developing part for developing a photographic paper to which an image recorded on a developed photographic film is printed.

a drying part for drying said photographic paper once developed by said developing part; and

a guide width synchronizing mechanism for synchronizing a spacing of two pairs of guides, a first pair of guides being a part of a first guide width changing mechanism installed on a submerged rack part for guiding said photographic paper in said developing part and a second pair of guides being a part of a second guide width changing mechanism for guiding said photographic paper in said drying part, respectively so as to adjust said spacing of both said pairs of guides for guiding each side edge of said photographic paper and wherein said guide width synchronizing means in said guide width synchronizing mechanism and a first and second slide connecting means in said first and second guide width changing mechanism, respectively, are designed to be separable by a projection and recess fitting

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5,737,662
APPARATUS FOR THE WET PROCESSING OF PHOTOGRAPHIC SHEET MATERIAL

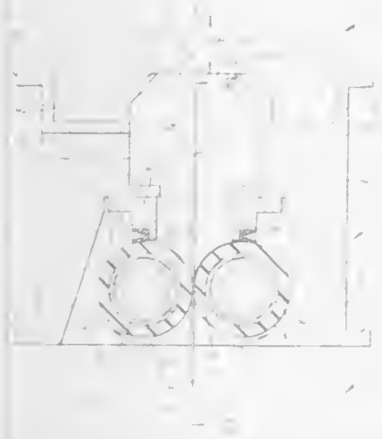
Bartholomeus Verlinden, Tongeren; Bart Verhoest, Wilrijk, and Patrick Van den Bergen, Berchem, all of Belgium, assignors to AGFA-Gevaert, N.V., Mortsel, Belginm

Filed May 7, 1996, Ser. No. 643,825

Claims priority, application European Pat. Off., May 20, 1995, 95201329

Int. Cl.⁶ G03D 3/08

U.S. Cl. 396—617 **20 Claims**



1. An apparatus for the wet processing of photographic sheet material comprising at least one treatment vessel having upper and lower openings, one of said openings constituting a sheet material inlet and the other of said openings constituting a sheet material outlet, said inlet and outlet defining there-between a substantially vertical sheet material path through the vessel, the vessel comprising a pair of rotatable rollers biased towards each other to define a nip there-between through which the sheet material path extends, wherein

i) said rollers are axially offset relative to each other; and

ii) each roller is in sealing contact along it length, at least between the limits of said nip, with a stationary sealing member which is carried on a sealing support, secured within said vessel and, said sealing support is in contact with the end face of the opposite roller.

5,737,663
SYSTEM FOR ALTERING A CHARGE APPLIED TO A PHOTOSENSITIVE DRUM BY A CONTACT CHARGER

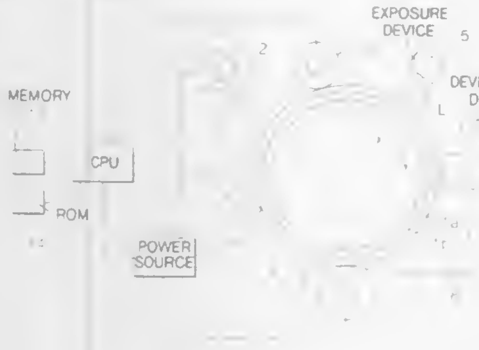
Junichi Handa, Toride, and Atsushi Hosoi, Moriya-machi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 25, 1996, Ser. No. 670,130

Claims priority, application Japan, Jun. 30, 1995, 7-165801

Int. Cl.⁶ G03G *15/02, 15/043*

U.S. Cl. 399—50 **33 Claims**



1. An image forming apparatus having an image bearing member:

a contact member contacting with said image bearing member;

detecting means for detecting a voltage-current characteristic between said image bearing member and said contact member; and

counting means for counting a frequency of image formation

wherein image forming condition on said image bearing member being controlled on the basis of a detected result by said detecting means and a counted value of said counting means

5,737,664
OVERHEATING PREVENTION DEVICE FOR A FIXING UNIT

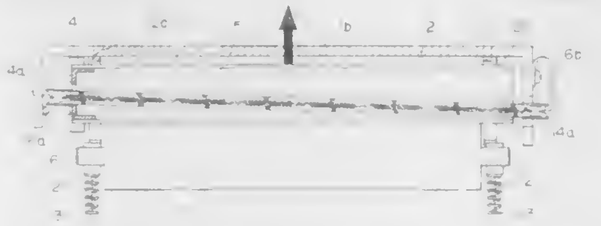
Masahiro Fukuda; Shigeki Nakajima; Koji Morimoto; Takashi Wakana; Takao Uchida, and Naoki Sunaga, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jun. 15, 1995, Ser. No. 490,841

Claims priority, application Japan, Jun. 17, 1994, 6-159254; Jun. 17, 1994, 6-159255

Int. Cl.⁶ G03G *15/20*

U.S. Cl. 399—33 **24 Claims**



1. An image fixing unit for use with an electrophotographic printing apparatus for causing a printing paper to pass between a heating roller and a pressuring roller for pressuring the heating roller so as to perform a fixing process, the heating roller having an axis, the unit comprising:

a heater disposed in the heating roller;

power supply means for supplying power to said heater;

tensioning means for tensioning the pressuring roller to the heating roller;

holding means for holding the heating roller against the tension of said tensioning means and for releasing the heating roller when the heating roller exceeds a predetermined temperature, and

shut-off means for shutting off the power to said heater as the heating roller moves when said holding means releases the heating roller,

wherein the shut-off means is disposed in a path of the power to the heater and is constructed of a temperature detecting device for shutting off the power to the heater when a detected temperature of the heating roller exceeds a predetermined temperature;

wherein the temperature detecting device has a facing surface facing toward the heating roller, the facing surface residing in a plane substantially perpendicular to a plane in which the axis of the heating roller moves, the facing surface having a midline substantially parallel to the axis of the heating roller, the midline substantially coinciding with the plane in which the axis of the heating roller moves; and

wherein the temperature detecting device is out of contact with the heating roller for at least an initial period of time as the heating roller moves.

5,737,665
APPARATUS FOR CALIBRATING TONER DENSITY FOR COLOR IMAGES

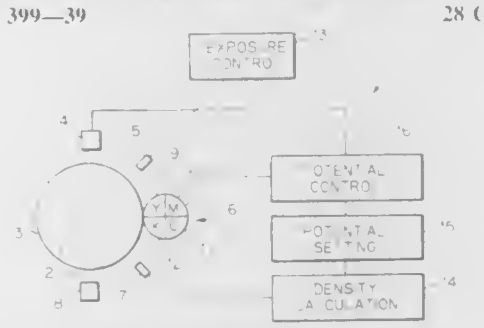
Mitsugu Sugiyama, Yokohama; Eiichi Sasaki, Sagamihara; Tadashi Shinohara, Tokyo; Kouichi Irie, Kashiwa, and Yutaka Shio, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 7, 1995, Ser. No. 568,950

Claims priority, application Japan, Dec. 7, 1994, 6-303266

Int. Cl.⁶ G03G *15/00; 15/01; 15/02, 15/06*

U.S. Cl. 399—39 **28 Claims**



1. A color image forming apparatus comprising

a photoconductive element,

a charger for charging a surface of said photoconductive element;

an exposing unit for electrostatically forming a latent image on the charged surface of said photoconductive element and producing a pixel exposure signal indicative of pixel exposure,

a developing unit for developing the latent image with a color toner;

pattern forming means for causing said exposing unit to electrostatically form on said photoconductive element a latent image representative of a test pattern which has multiple tones set by a dither method,

pattern reading means for optically reading the test pattern developed by the color toner,

a density detecting device for detecting toner density of the test pattern in response to an output of said pattern reading means, comprising,

a counter for counting said pixel exposure signal, said counting being initiated by exposure of a test pattern by said exposing unit, and

a calculator for retrieving the optically read test pattern at a predetermined reference count matching a count of said counter and determining a toner density of the test pattern,

a potential setting device, provided with the determined toner density, for setting biases for at least one of said exposing unit and said developing unit based on the determined toner density, and

a repeating mechanism for repeatedly performing bias setting, pattern forming, pattern reading, and density detection until the detected density of the test pattern is within a predetermined delta of a predetermined reference density

5,737,666
DEVELOPMENT CONTROL SYSTEM

Ishaiau Lior, Ness Ziona; Ehud Chatow, Petach Tikva, and Amiran Lavon, Bat Yam, all of Israel, assignors to Indigo N.V., Veldhoven, Netherlands

PCT No. PCT/NL94/00027, § 371 Date Apr. 4, 1996, § 102(e) Date Apr. 4, 1996, PCT Pub. No. WO95/10801, PCT Pub. Date Apr. 20, 1995

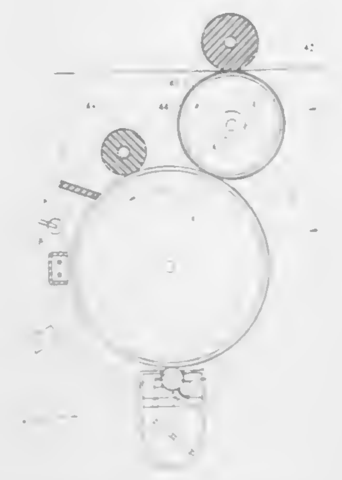
PCT Filed Feb. 3, 1994, Ser. No. 615,187

Claims priority, application Israel, Oct. 8, 1993, 107217

Int. Cl.⁶ G03G *15/10*

U.S. Cl. 399—57 **27 Claims**

1. Toning apparatus for toning an electrostatic latent image having image and background portions at different potentials on an imaging surface comprising



a source of liquid developer having a given concentration of toner material;

an toning surface, coated with a layer of concentrated liquid developer having a higher toner concentration than the given concentration and derived from the source of liquid developer and engaging the imaging surface at a toning region,

a source of voltage connected to the toning surface and electrifying the toning surface to a voltage operative to selectively transfer at least a portion of the layer to image portions on the imaging surface; and

a developed mass per unit area controller having an input indicative of the mass of toner material per unit area (DMA) on the imaging surface and operative to adjust the DMA on the toning surface, without changing the given concentration, in response to the input

25. Squeegeeing apparatus for use in liquid imaging to squeegee an endless moving surface, comprising

a squeegee roller having a squeegee surface associated with said endless moving surface, and

a source of pressure applied to a central portion of the squeegee surface and arranged such that the pressure urges the squeegee surface against said endless surface.

5,737,667
IMAGE FORMING APPARATUS HAVING A GRIPPER PORTION

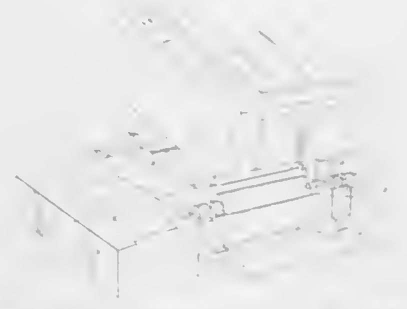
Naoki Okuda, Kawasaki, and Shohei Takeda, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 25, 1995, Ser. No. 378,355

Claims priority, application Japan, Jan. 28, 1994, 6-008175

Int. Cl.⁶ G03G *21/00*

U.S. Cl. 399—108 **13 Claims**



1. An image forming apparatus for forming an image on a recording medium, comprising

a first frame

a second frame pivotable with respect to said first frame around a pivotal shaft located between said first and second frames along one side edge of said first and second frames, and

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a first gripper portion formed on a surface of said first frame opposite to a surface where the pivotal shaft is located at a position immediately below the pivotal shaft for facilitating lifting and transporting said image forming apparatus.

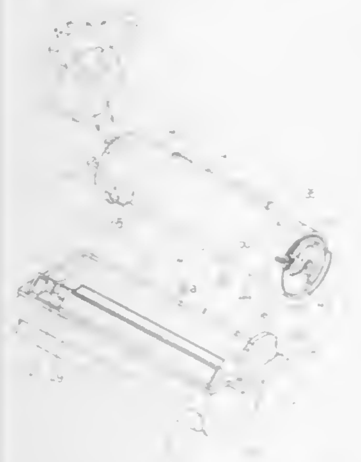
5,737,668
TONER CARTRIDGE/COLLECTING TANK ASSEMBLY
Kazuo Johroku, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed May 20, 1996, Ser. No. 650,226

Claims priority, application Japan, May 23, 1995, 7-123478; Nov. 10, 1995, 7-292553

Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—120 **40 Claims**



1. A toner cartridge for an image forming apparatus, comprising:

a toner cartridge main body, said toner cartridge main body having on an exterior surface thereof a collecting tank support portion formed integrally with said toner cartridge mainbody, said collecting tank support portion having two opposing hooks extending outward from said exterior surface of said toner cartridge main body and said opposing hooks inclined with respect to one another at an obtuse angle, and a means for installing said toner cartridge main body into a developing unit of an image forming apparatus, and

a collecting tank for collecting useless toner, said collecting tank having on an exterior surface thereof a support member corresponding to and engaging said collecting tank support portion,

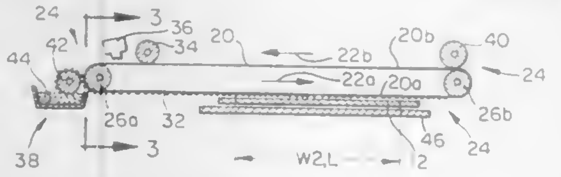
whereby said collecting tank and said toner cartridge main body are configured to be installable and removable as a unit from said developing unit.

5,737,669
MONOCHROME/MULTICHROME BAND PRINTER
John Joseph Ring, Cherry Hill, N.J., assignor to Oki America, Inc., Hackensack, N.J.

Filed Jun. 7, 1995, Ser. No. 478,066

Int. Cl.^{6} G03G *15/22*

U.S. Cl. 399—130 **66 Claims**



1. A band printer comprising:

a transport mechanism defining a printing medium path extending in a first direction, the transport mechanism for transporting a printing medium along the printing medium path,

an endless photoreceptive image carrying ribbon having a surface, the ribbon for being circulated adjacent the printing medium path in a second direction at an angle to the first direction;

a toner imaging apparatus adjacent to and stationary with respect to the circulating ribbon for forming an electrostatic toner image on the surface of the ribbon according to received image data as the ribbon moves past the imaging apparatus,

a transfer mechanism for transferring a formed toner image on the surface of the ribbon to the printing medium when the formed toner image is aligned with the printing medium, and

a fixing mechanism for fixing the transferred toner image to the printing medium, wherein the printing medium is continuously transported along the printing medium path during the transfer of the formed toner image on the surface of the ribbon to the printing medium.

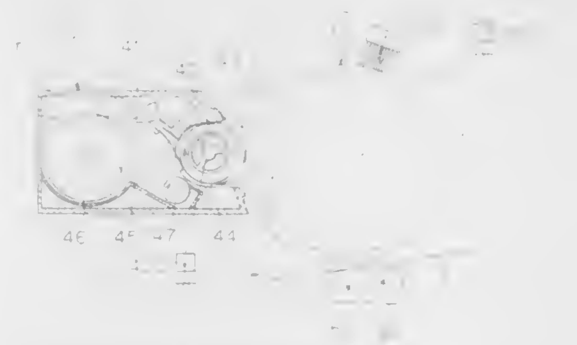
5,737,670
FORMING METHOD AND APPARATUS
Akihito Ikegawa, Sakai, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Continuation of Ser. No. 88,108, Jul. 8, 1993, abandoned, which is a continuation of Ser. No. 697,425, May 9, 1991, abandoned. This application Mar. 29, 1995, Ser. No. 415,339

Claims priority, application Japan, May 12, 1990, 2-122537; Jun. 29, 1990, 2-171685; Jun. 29, 1990, 2-171686

Int. Cl.^{6} G03G *15/30*

U.S. Cl. 399—149 **48 Claims**



3. An image forming apparatus comprising:

an image carrier provided movably in a moving direction,

a contact charger which is in contact with said image carrier to charge said image carrier to a voltage having a predetermined polarity, said voltage being high enough to form an electrostatic latent image on said image carrier;

an image forming mechanism provided on a downstream side of said charger with respect to the moving direction, said image forming mechanism forming an electrostatic latent image on the charged image carrier, and

a developing device provided on the downstream side of said image forming mechanism with respect to the moving direction, said developing device accommodating toner particles and having an element, said element being provided rotatably to carry a layer of the toner particles to a contact position at which said element is in contact with said image carrier through the layer with a predetermined nip width to develop the electrostatic latent image with the toner particles and to collect residual toner particles on said image carrier, said layer having a thickness of 100 μm or less, said toner particles which are carried by said element being charged to a predetermined polarity same as that of the predetermined polarity of the charged image.

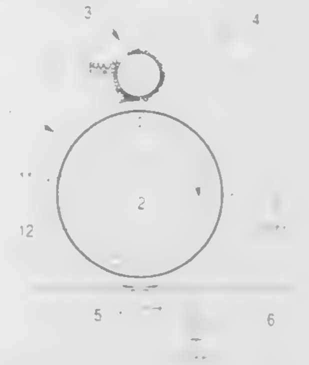
5,737,671
ELECTROPHOTOGRAPHIC PHOTORECEPTOR AND AN IMAGE FORMING METHOD USING THE SAME
Masao Watanabe, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Division of Ser. No. 325,986, Oct. 19, 1994, abandoned. This application Apr. 10, 1996, Ser. No. 630,253

Claims priority, application Japan, Oct. 25, 1993, 5-287338

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—159 **17 Claims**



1. An electrophotographic apparatus comprising:

an electrophotographic photoreceptor having:
  - a transparent substrate,
  - a transparent conductive layer layered on the transparent substrate,
  - a thin film intermediate layer made of semiconductor material or semiconductor insulating material having a band gap of at least 2.4 eV, the thin film intermediate layer being formed by vacuum deposition on the transparent conductive layer, and
  - an amorphous silicon photoconductive layer on the thin film intermediate layer;

developing means located on one side of the photoreceptor, the one side being adjacent to a surface of the photoconductive layer;

exposing means located on a side of the photoreceptor opposite from the one side, and

bias means for applying a bias voltage between the substrate and the developing means to cause one of holes and electrons to move to the surface of the photoconductive layer.

5,737,672
SELF-CLEANING LIQUID DEVELOPING MATERIAL APPLICATOR
Gary A. Denton, Lexington, Ky.; Paul W. Morehouse, Jr., Webster, and John M. Simpson, III, Churchville, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 28, 1995, Ser. No. 535,429

Int. Cl.^{6} G03G *15/10*

U.S. Cl. 399—240 **1 Claim**

1. An apparatus for developing an electrostatic latent image on an imaging member with a liquid developing material, comprising:

a liquid developing material applicator, a housing defining an aperture adapted for transporting liquid developing material into contact with the imaging member, said housing further including a planar surface adjacent the aperture for providing a liquid developing material application region in which the liquid developing material can flow freely with the imaging member;

a developing roll situated adjacent said liquid developing material applicator and downstream therefrom relative to a path of travel of the imaging member;

an electrical biasing circuit to bias said developing roll for attracting the liquid developing material to image areas of the electrostatic latent image, and

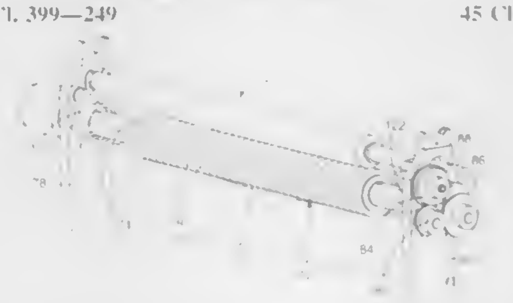
a cleaning system, operatively coupled to the liquid developing material applicator, for cleaning residue liquid developer material from said liquid developing material applicator and said developing roll.

5,737,673
APPARATUS FOR REMOVAL OF BACK-PLATED DEVELOPER FROM A DEVELOPMENT DEVICE
Arthur V. Lang, Maplewood, and Donald H. Larson, Stillwater, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 538,193, Sep. 29, 1995, abandoned. This application Mar. 4, 1997, Ser. No. 811,661

Int. Cl.^{6} G03G *21/00*

U.S. Cl. 399—249 **45 Claims**



1. An apparatus for removing back-plated developer from a development device in a liquid electrographic imaging system, the apparatus comprising:

a shaft having a fluid flow means for delivering a cleaning liquid to an outer surface of the shaft,

cleaning media mounted about the outer surface of the shaft, the cleaning media receiving the cleaning liquid, wherein the cleaning media comprises a fiber material;

means for loading the cleaning media against the development device; and

means for rotating the shaft and cleaning media, wherein the cleaning media removes back plated developer from the development device and the cleaning liquid flushes at least a portion of the removed back plated developer from the cleaning media.

5,737,674
VAPOR CONTROL SYSTEM FOR AND A LIQUID ELECTROGRAPHIC SYSTEM
Jai Venkatesan, Woodbury, Minn.; James A. Baker, Hudson, Wis.; Therese M. Downey, Woodbury, Minn.; Russell A. Roiko, Rogers, Minn., and Kay F. Schilli, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 20, 1995, Ser. No. 561,080

Int. Cl.^{6} G03G *15/10*

U.S. Cl. 399—250 **31 Claims**

1. A vapor control system for reducing vapor emissions in an electrographic system employing a developer having toner particles dispersed in a carrier liquid in which said carrier liquid is at

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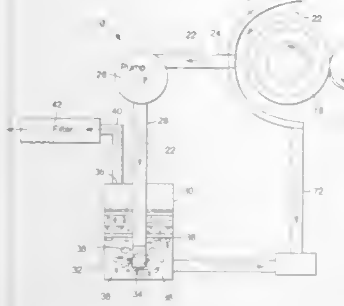


least partially vaporized during operation of said liquid electrographic system creating vaporized carrier having a temperature, comprising:

- vapor collection means for collecting at least some of said vaporized carrier from said electrographic system;
- a container having a vapor inlet and a vapor outlet containing a non-aqueous cooling liquid, said cooling liquid having a temperature less than said temperature of said vaporized carrier but greater than zero degrees Centigrade; and
- flow means operatively coupled to said vapor collection means and to said vapor inlet of said container for delivering at least a portion of said vaporized carrier which has been collected within said vapor collection means to said cooling liquid in said container at a point below the surface of said cooling liquid;
- wherein pressure drop is created through said cooling liquid between said vapor inlet and said vapor outlet of said container and wherein said flow means delivers said portion of said vaporized carrier to said cooling liquid with a pressure at least as great as ambient air pressure plus said pressure drop;
- wherein said carrier liquid is a hydrocarbon carrier liquid; and
- wherein said cooling liquid is miscible with said liquid carrier and is immiscible with water;
- whereby at least some of said vaporized carrier is condensed into said liquid carrier by said cooling liquid.

5,737,675
TONER SUPPLY DEVICE INCLUDING TONER CARTRIDGE AND GUIDE

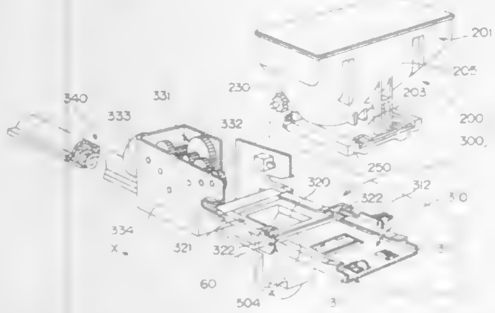
Mitsuharu Okada; Toshinori Nishimura, and Hiroaki Ohashi, all of Osaka, Japan, assignors to Mita Industrial Co. Ltd., Osaka, Japan

Filed Jul. 22, 1996, Ser. No. 685,016

Claims priority, application Japan, Jul. 31, 1995, 7-195509; Jul. 31, 1995, 7-195510; Jul. 31, 1995, 7-195511

Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—258 **21 Claims**



1. A toner supply device for use with a toner cartridge that includes a toner cartridge main body in which toner is housed and which is provided in an underside thereof with a toner falling opening, and a plate-like shutter member disposed as extending along the underside of the toner cartridge main body and slidable between a closing position where the toner falling opening is closed, and an opening position where the toner falling opening is opened, the toner supply device comprising:

- a toner supply device main body capable of setting the toner cartridge to a predetermined setting position therein, and
- guide means disposed at the toner supply device main body for guiding the toner cartridge along a predetermined insertion direction when inserting and pulling the toner cartridge into and from the setting position; and wherein,
  - the guide means includes a guide tray capable of assuming a guide posture for guiding insertion and removal of the toner cartridge, and a retreat posture in which the guide tray is retreated to a predetermined retreated position,
  - the guide tray has engaging means for coming in engagement with the shutter member at a predetermined portion thereof to prevent the shutter member from coming off from the guide tray,
  - the shutter member of the toner cartridge is provided in the vicinity of an end thereof in a counter-insertion direction with an engagement surface,
  - the engaging means includes a first projection and a resilient support member for resiliently biasing the first projection toward an engagement position where the first projection is engaged with the engagement surface, and
  - the disengaging means includes a second projection having a cam surface arranged to be engaged with a predetermined portion of the toner cartridge main body in a course of pulling out, and is arranged to deform the resilient support member such that an engagement of the first projection with the engagement surface is released.

5,737,676
LATENT ELECTROSTATIC IMAGE DEVELOPING DEVICE HAVING REGULATING BLADE WITH CHAMFER

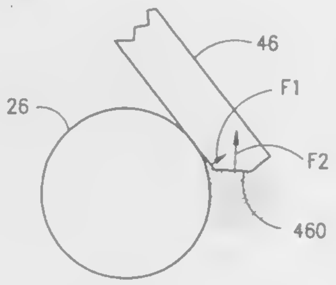
Masahiko Maeda; Masayuki Nakashima; Masao Uyama; Shoji Tomita, and Kenichiro Kitajima, all of Osaka, Japan, assignors to Mita Industrial, Osaka, Japan

Filed Jun. 6, 1996, Ser. No. 659,749

Claims priority, application Japan, Jul. 4, 1995, 7-168685

Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—284 **3 Claims**



3. A developer amount restricting blade for acting on the surface of a developing roller in a latent electrostatic image developing device to restrict the amount of a developer held on the surface of the developing roller,

- said blade having a portion that is proximate the upstream side of the developing roller, as viewed in the direction of movement of the developing roller, said portion of said blade having a chamfer located on a side of said blade where said developer acts on the surface of said developing roller;
- wherein said chamfer measures C 0.1 to 0.6 mm.

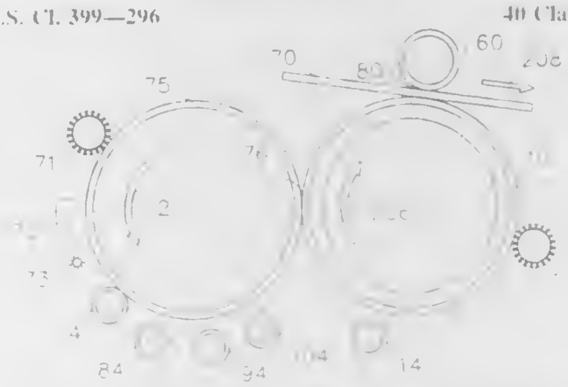
5,737,677
APPARATUS AND METHOD OF TONER TRANSFER USING NON-MARKING TONER

Thomas Nathaniel Tombs, Brockport; John Walter May, Rochester; Donald Saul Rimai, and Robert E. Zeman, both of Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1995, Ser. No. 572,559

Int. Cl.^{6} G03G *15/16*

U.S. Cl. 399—296 **40 Claims**



1. A method of forming a desired toner image on a receiver, said method comprising:

- forming at least one electrostatic image on at least one imaging member,
- toning at least one said electrostatic image with marking toner particles,
- transferring said marking toner particles from at least one said imaging member to the surface of an intermediate transfer member in the presence of an electric field which urges said marking toner particles toward said intermediate transfer member, and
- transferring said marking toner particles from said intermediate transfer member to a receiver in the presence of an electric field which urges said marking toner particles toward said receiver,
- wherein, when transferring said marking toner particles to said intermediate transfer member from at least one said imaging member, said surface of said intermediate transfer member contacts non-marking toner particles in some areas which receive marking toner particles, and wherein said intermediate transfer member comprises a blanket layer having a Young's modulus of about 10^8 Newtons/m^2 or less.

5,737,678
LIQUID IMMERSION DEVELOPMENT MACHINE HAVING A MULTIPLE INTERMEDIATE MEMBERS IMAGE TRANSFER ASSEMBLY

Stewart W. Volkers, Ontario, and Terry D. Seim, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

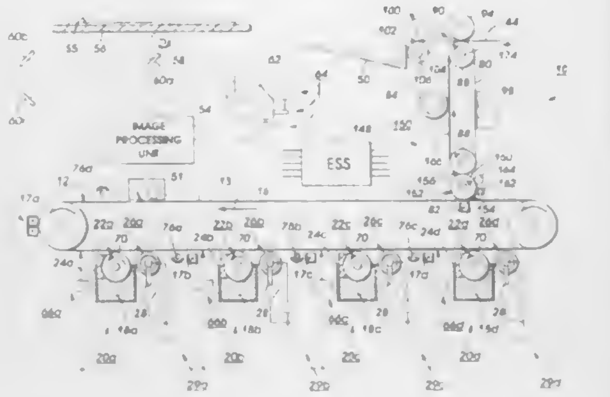
Filed Jul. 1, 1996, Ser. No. 674,040

Int. Cl.^{6} G03G *15/01*

U.S. Cl. 399—302 **6 Claims**

1. A liquid immersion development (LID) reproduction machine having a heat protected image forming surface, the LID reproduction machine comprising:

- (a) a movable image forming member having a path of movement and a heat protected image forming surface,
- (b) means mounted along said path of movement for forming a latent image onto said image forming surface
- (c) development means mounted along said path of movement and containing liquid developer consisting of liquid carrier and charged toner particles for developing said latent image forming a toner developed image, and
- (d) an image transfer assembly including multiple intermediate transfer members for transferring the toner developed image from said image forming surface onto a copy substrate while heat protecting said image forming surface, said image transfer assembly including a first intermediate transfer member



mounted along said path of movement forming an unheated image transfer nip with said image forming surface for cold transfer of the toner developed image onto said first intermediate transfer member, thereby heat protecting said image forming surface, said first intermediate transfer member including a top surface layer consisting of a silicon rubber coating, as well as, a release solvent being applied to said silicon rubber layer at a first rate, and said image transfer assembly including a second intermediate transfer member mounted spaced from said image forming surface for receiving and transferring the toner developed image onto a copy substrate, said second intermediate transfer member forming an unheated image transfer nip with said first intermediate transfer member, and a heated transfix nip for transferring the toner developed image onto the copy substrate, and said second intermediate transfer member including a top surface layer consisting of a silicon rubber coating, and a release solvent being applied to said silicon rubber layer at a second rate less than the first rate of application to said first intermediate transfer member for effecting high quality low pressure, low temperature image transfer from said first intermediate transfer member to said second intermediate transfer member

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5,737,679
FIXING APPARATUS HAVING PRESSING MEMBERS

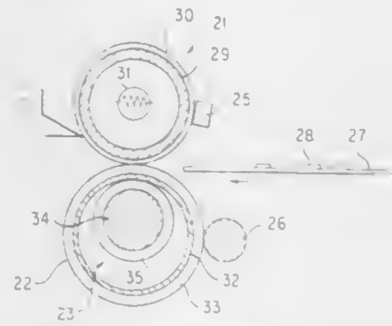
Yasuhiro Uehara, and Mitsuhiro Matsumoto, both of Nakai-machi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed May 24, 1996, Ser. No. 653,631

Claims priority, application Japan, Aug. 31, 1995, 7-245227

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 399—329 **9 Claims**



1. A fixing apparatus which heats and pressurizes a recording medium having a toner image transferred thereon so that the toner image can be fused and fixed onto the recording medium, said fixing apparatus comprising:

- a heating roller for heating the recording medium;
- a rotary driving means for rotating the heating roller;
- a cylindrical rotary pressing member disposed opposite to the heating roller with the recording medium between them, a circumference of each end of the cylindrical rotary pressing member being set to 0.98 to 1.02 times as large as the circumference of a center thereof such that the circumference

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of each end of the cylindrical rotary pressing member is different from the circumference of the center thereof; and

a pressed-contact member inserted into the cylindrical rotary pressing member for pressing the cylindrical rotary pressing member against the heating roller, the pressed-contact member having a larger diameter at the longitudinal center thereof than at both ends thereof so as to render a pressing force acting between the rotary pressing member and the heating roller substantially even in the axial direction of them.

5,737,680
IMAGE FORMING APPARATUS WITH TONER RECYCLING DEVICE

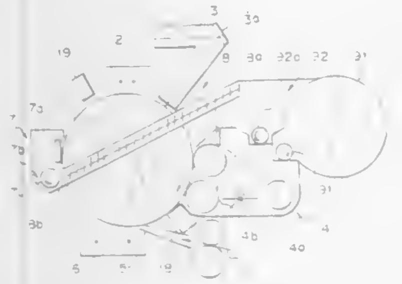
Hiromitsu Takagaki, Yokohama; Shinji Kato, Kawasaki; Hisao Murayama; Shigeru Watanabe, both of Yokohama; Mayumi Yoshida, Tokyo, and Shunji Kato, Sagamihara, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 441,612, May 15, 1995, Pat. No. 5,604,575, which is a continuation of Ser. No. 44,394, Apr. 8, 1993, Pat. No. 5,493,382. This application Nov. 19, 1996, Ser. No. 746,985

Claims priority, application Japan, Apr. 11, 1992, 4-118374; May 3, 1992, 4-139790; Jul. 23, 1992, 4-217189; Aug. 13, 1992, 4-237693; Feb. 22, 1993, 5-56566

Int. Cl. G03G *21/10*

U.S. Cl. 399—359 8 Claims



1. An image forming apparatus comprising:

developing means comprising a developing section for developing a latent image formed on an image carrier by depositing a toner on said latent image;

cleaning means for collecting toner remaining on said image carrier;

toner storing means for storing toner including both a fresh toner from a rotatable toner cartridge and the collected toner;

toner supplementing means for supplementing the toner from said toner storing means to said developing section of said developing means;

a first drive section for driving the toner supplementing means;

toner conveying means for conveying the collected toner to said toner storing means;

a second drive section for driving the toner conveying means; and

control means for controlling drive operations of the first and second drive sections associated with said toner supplementing means and said toner conveying means such that an amount of the toner fed from said toner storing means to said developing section and an amount of the collected toner conveyed to said toner storing means by said toner conveying means have a ratio lying in a predetermined range.

5,737,681
IMAGE FORMING APPARATUS HAVING CURLING DEVICE FOR HOLDING TRANSFER MATERIAL AND METHOD OF CURLING SHEET

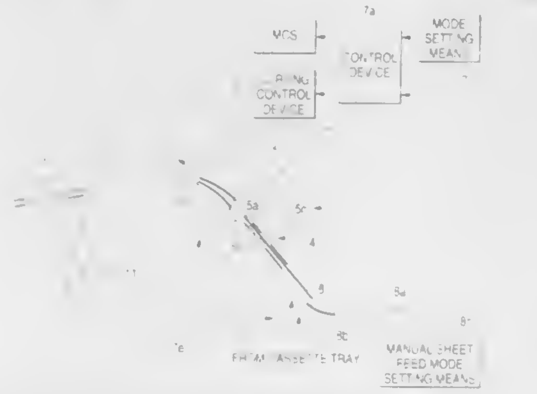
Nobuo Hyakutake; Yasuo Nakamura; Fumio Furusawa; Keiji Yamamoto; Masaaki Tokunaga; Satoshi Fukada; Satoru Torimaru; Yoshihiro Enomoto; Tetsuya Fujita, and Nobuyoshi Komatsu, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,159

Claims priority, application Japan, Feb. 22, 1995, 7-033461; Oct. 19, 1995, 7-270857

Int. Cl.⁶ G03G *15/00*

U.S. Cl. 399—388 17 Claims



1. An image forming apparatus comprising:

an image carrier;

a developing device which develops an electrostatic latent image formed on a surface of said image carrier by toner, thereby forming a toner image;

a transferring device which is disposed opposingly contacting with said image carrier, which electrostatically attracts and transports a transfer material fed between said image carrier and said transferring device, and which transfers the toner image carried on said image carrier to the transfer material;

a registration device which provides a timing of feeding the transfer material which is to be fed to a portion where said image carrier opposingly contacts with said transferring device;

a curling device which is disposed upstream of said portion where said image carrier opposingly contacts with said transferring device, in a direction of transporting the transfer material, and which produces a curl in the transfer material, said curl being curved in the same direction as said transferring device; and

a control device which, during a period when said curling device is activated, inhibits an image forming operation, and which, after said curling device is activated, starts the image forming operation.

5,737,682
DUPLEX SHEET FEEDING DEVICE FOR AN IMAGE FORMING APPARATUS

Masaru Yamagishi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 3, 1996, Ser. No. 724,783

Claims priority, application Japan, Oct. 3, 1995, 7-256480; Dec. 15, 1995, 7-327533; Dec. 20, 1995, 7-332019

Int. Cl.⁶ G03G *21/00*

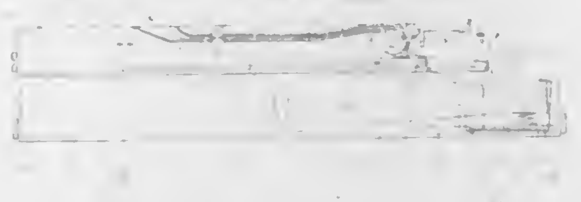
U.S. Cl. 399—402 25 Claims

1. A duplex sheet feeding device comprising:

a sheet feed tray for storing a stack of sheets;

pay-out means for paying out sheets one by one;

a sheet feeding device for conveying sheets one by one while separating said sheets, and including separators positioned in front of said sheet feed tray and respectively contacting opposite side edges of a leading edge of the stack; and



a duplex unit disposed in a space above said sheet feed tray and rearward of said pay-out means, and comprising an intermediate tray for receiving a stack of sheets each carrying an image on one side thereof, and a bottom plate movable back and forth in an intended direction of sheet refeed while supporting a leading edge of said stack,

wherein said bottom plate includes separators, and wherein said bottom plate shifts the stack of sheets loaded on said intermediate tray to a preselected refeed position and then causes the sheets to be refed to an image forming section while sharing said pay-out means with said sheet feed tray.

5,737,683
PROCESS FOR PRODUCING METALLIC SHAPED PARTS BY POWDER INJECTION MOLDING

Hans-Josef Sterzel, Dannstadt-Schauernheim, Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Sep. 13, 1995, Ser. No. 527,682

Claims priority, application Germany, Sep. 15, 1994, 44 32 797.8

Int. Cl.⁶ B22F *3/12, 5/00*

U.S. Cl. 419—36 4 Claims

1. A process for producing a metallic shaped article by injection molding in the following sequence:

a) an injection molding composition is injected into a mold to give a shaped article,

b) the shaped part is removed from the mold, and

c) the shaped article thus obtained is sintered,

wherein the sintering is on a non-flat support which has approximately the contour of the finished shaped article,

the contour of the non-flat support being maintained stable during sintering except for insignificant creep.

5,737,684
DAMA TYPE SATELLITE COMMUNICATION SYSTEM USING NON-OVERLAPPED MULTI-SPOT BEAM

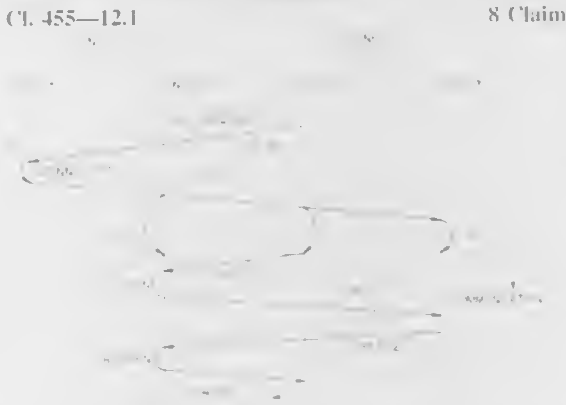
Yuji Goto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 12, 1995, Ser. No. 420,609

Claims priority, application Japan, Apr. 12, 1994, 6-099223

Int. Cl.⁶ H04B *7/15*

U.S. Cl. 455—12.1 8 Claims



4. A demand assignment multiple access (DAMA) type satellite communication system in which a CSC (common signalling channel) signal is transmitted/received via a satellite between a control station and a plurality of satellite earth stations by way of an SCPC (single channel per carrier) communication system using a cross beam among a plurality of zones covered by a multi-spot beam from a single antenna in which communication from one earth station to another in the same zone via satellite is prohibited, and in response to a demand issued from said satellite earth station, a communication signal channel is automatically allocated, wherein said DAMA type satellite communication system comprises:

delay time compensating means for compensating delay times in such a manner that said delay times defined after said CSC signal is transmitted from said control station to a first satellite earth station of a plurality of second satellite earth stations installed in a first zone and a second satellite earth station installed in a second zone until said CSC signal is received from said first and second satellite earth stations to said control station are equal to each other;

in case of the CSC signal transmission/reception between said first satellite earth station within said first zone and said second satellite earth station within said second zone, means for returning a call request signal by said CSC signal transmitted from said first satellite earth station to said control station within said first zone and communication channel setting signal from said control station to said first satellite earth station at a repeater station having a repeater function located in said second zone;

in case of the CSC signal transmission/reception between two of said second satellite earth stations of a plurality of second satellite earth stations located in said second zone, means for returning communication signal at said control station after defining said communication channel by a PDC (primary DAMA controller) of said control station; and

in case of the CSC signal transmission/reception between the control station and the satellite station, which are located within said first zone,

means for returning at said repeater station located in the second zone, the call request signal by said CSC signal derived from said first satellite earth station within said first zone, said communication channel setting signal by said CSC signal derived from said control station, and said communication signal between the control station and the satellite earth station, located in said first zone.

5,737,685
CO-LOCATED SUBSCRIBER UNIT TO SUBSCRIBER UNIT COMMUNICATION WITHIN A SATELLITE COMMUNICATION SYSTEM

Robert J. Locascio, Crystal Lake; Michael W. Frenzer, Palatine; Michael P. Gaynor, Elgin; Christopher N. Kurby, Elmhurst, and Joan E. Zocher, Schaumburg, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 310,355, Sep. 21, 1994, abandoned, which is a continuation of Ser. No. 841,129, Feb. 25, 1992, abandoned. This application Dec. 20, 1995, Ser. No. 575,269

Int. Cl.⁶ H04B *7/212*

U.S. Cl. 455—12.1 16 Claims

1. In a satellite communication system having a predetermined number of communication satellites arranged in orbit around the earth such that a plurality of subscriber units and at least one earth based unit can communicate via the satellites,

a geographically co-located user assignment system for facilitating a push-to-talk communication mode for communication among a designated group of subscriber units that are geographically co-located, the assignment system comprising:

an assignment unit for assignment of a same frequency and channel among a plurality of multiple access channels to a group of subscriber unit users that are geographically co-located,

a storage unit, responsive to the assignment unit, for storing a list of each of the subscriber unit users in the group, and

an instruction unit, responsive to the assignment unit, for transmitting from at least a first satellite for instructing the

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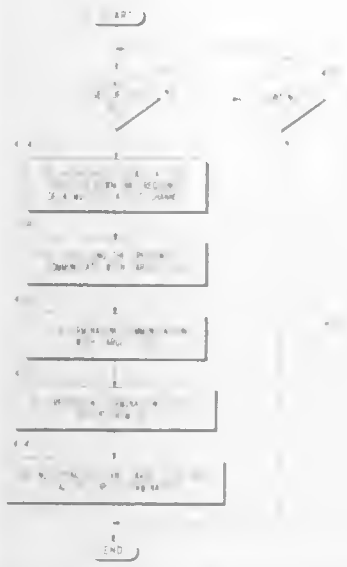

subscriber unit users in the group to operate in a push to-talk unit to unit mode on the assigned same frequency and channel such that, within each group of subscriber units users, a subscriber unit of the group can perform unit to unit communication with other subscriber units of the group utilizing the same frequency and channel assigned to that group by transmitting and receiving on a push to-talk basis on the assigned same frequency and channel

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5,737,686
CIRCUIT CONTROL APPARATUS FOR SATELLITE COMMUNICATION SYSTEM

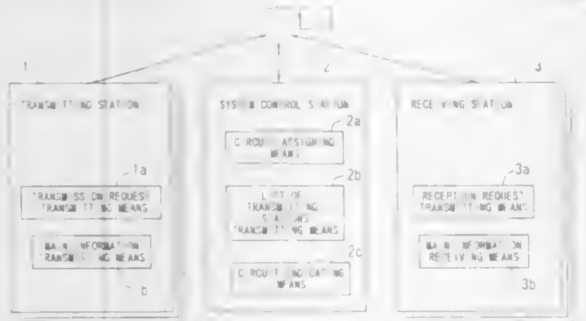
Satoru Fukui, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 14, 1996, Ser. No. 663,901

Claims priority, application Japan, Nov. 14, 1995, 7-295458

Int. Cl.⁶ H04B *7/185*

U.S. Cl. 455—12.1 **10 Claims**


1
2
3
TRANSMITTING STATION
SYSTEM CONTROL STATION
RECEIVING STATION
2a
CIRCUIT ASSIGNING MEANS
1a
2b
3a
TRANSMISSION REQUEST TRANSMITTING MEANS
LIST OF TRANSMITTING STATIONS TRANSMITTING MEANS
RECEPTION REQUEST TRANSMITTING MEANS
MAIN INFORMATION TRANSMITTING MEANS
2c
MAIN INFORMATION RECEIVING MEANS
CIRCUIT INDICATING MEANS
3b

1. An apparatus for controlling circuits of a satellite communication system having a plurality of transmitting stations, a plurality of receiving stations, and a system control station, comprising

transmission request transmitting means disposed in each of the transmitting stations, for transmitting a transmission request,

circuit assigning means disposed in the system control station, for assigning a circuit in response to the transmission request from said transmission request transmitting means;

main information transmitting means disposed in each of the transmitting stations, for transmitting main information to each of said receiving stations through a circuit which has been assigned to a transmitting station of its own by said circuit assigning means;

list-of-transmitting-stations transmitting means disposed in the system control station, for transmitting a list of transmitting stations to which circuits have been assigned to each of the receiving stations,

reception request transmitting means disposed in each of the receiving stations for selecting a certain transmitting station from the list of transmitting stations transmitted from said list-of transmitting stations transmitting means and transmitting a reception request with respect to the selected transmitting station to the system control station,

circuit indicating means disposed in the system control station, for indicating a circuit of the selected transmitting station to a receiving station from which a reception request has been transmitted, in response to the reception request from said reception request transmitting means, and

main information receiving means disposed in each of the receiving stations, for receiving the main information from said main information transmitting means through the circuit which has been indicated from said circuit indicating means to the receiving station of its own.

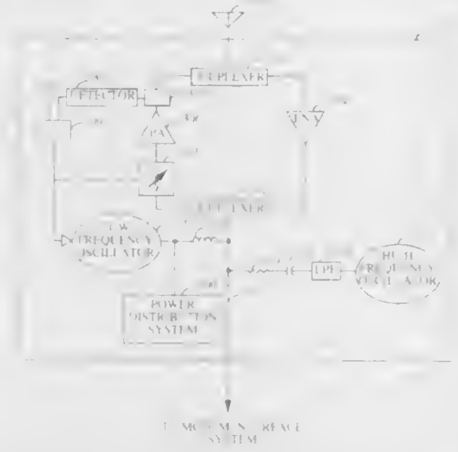
5,737,687
SELF-ATTENUATING RF TRANSCEIVER SYSTEM USING ANTENNA AND MODEM INTERFACES AND CABLE LINK

Christopher B. Martin, El Cajon; Richard K. Kornfeld, and Sherman Gregory, both of San Diego, all of Calif., assignors to Qualcomm Incorporated, San Diego, Calif.

Filed Mar. 1, 1995, Ser. No. 398,619

Int. Cl.⁶ H04B *3/36*

U.S. Cl. 455—14 **22 Claims**



1. A wireless telephone transceiver system comprising,

an antenna for receiving and transmitting radio frequency signals;

an antenna interface system coupled to said antenna for processing said radio frequency signals, said antenna interface system including

a low noise amplifier for amplifying said radio frequency signals following reception thereof by said antenna with minimum noise introduction,

a power amplifier coupled to said antenna for generating an outgoing radio frequency signal for transmission by said antenna,

a variable attenuator coupled to said power amplifier for attenuating said outgoing radio frequency signal prior to transmission, and

a power output detection circuit for controlling said variable attenuator by generating and applying an attenuation signal to said variable attenuator when said power amplifier generates a signal having a power level greater than a predetermined level;

a coaxial cable for propagating said radio frequency signals, said coaxial cable having a first end and a second end wherein said first end is coupled to said antenna interface system; and

a first oscillation generation circuit coupled to said coaxial cable for introducing a first oscillating signal into said coaxial cable; and

a second oscillation generation signal for generating a second oscillation signal in response to said attenuation signal; and

a modem interface system coupled to said second end of said coaxial cable for processing said radio frequency signals.

5,737,688
RADIO-PAGER AND METHOD OF RADIO-PAGING

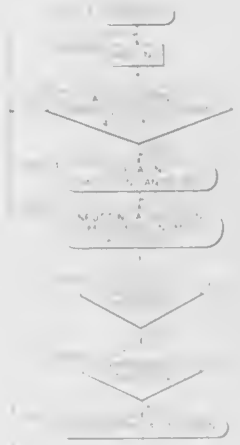
Yoichi Sakai, Hachioji, and Fukuya Ishino, Yokohama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, and NTT Software Corporation, Kanagawa, both of Japan

Filed Mar. 3, 1995, Ser. No. 397,937

Claims priority, application Japan, Mar. 4, 1994, 6-034811

Int. Cl.⁶ H04Q *7/06; 7/10*

U.S. Cl. 455—31.2 **15 Claims**



1. A radio-pager having an identification code, the radio-pager producing an electronic sound signal, displaying a message including a number, characters or a picture received together with an identification code, or simultaneously producing the electronic sound and displaying the message upon detecting that the received identification code corresponds to the identification code of the radio-pager, the radio-pager comprising

demodulating means for receiving a modulated radio wave and extracting digital information including the message and the received identification code therefrom;

storing means for storing the identification code of the radio pager;

identifying means for checking whether the extracted received identification code is identical with the stored identification code;

sounding means for producing the electronic sound when the stored identification code and the extracted received identification code have been identified as identical to each other;

displaying means for displaying the extracted message which is transmitted after the received identification code; and

inputting means for inputting the identification code of the radio-pager into said storing means to set any user inputted optional identification code in said storing means as the identification code of the radio pager

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5,737,689
METHOD FOR PREVENTING CALLS OF BAD QUALITY FROM BEING DISCONNECTED IN A CELLULAR MOBILE RADIO SYSTEM

Per Viktor Israelsson, Täby, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jun. 14, 1994, Ser. No. 261,264

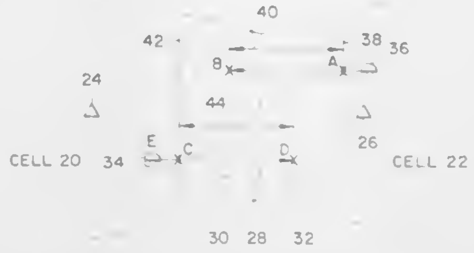
Int. Cl.⁶ H04M *11/00*

U.S. Cl. 455—33.2 **8 Claims**

1. A method for handoff in an alarm case in a cellular mobile radio telephone system having a plurality of cells each providing radio coverage by a base station and having a plurality of mobile stations associated with said cells, said method comprising the steps of

defining a handoff cell border where the handoff is allowed from a first base station to a second base station by comparing radio transmissions between a mobile station and said first and second base stations,

modifying said handoff border by the offset value to form an alarm case handoff border, wherein the alarm case handoff is allowed only when said mobile station experiences the alarm case and is in an area bounded by said handoff cell border and said alarm case handoff border



5,737,690
METHOD AND APPARATUS FOR ORIENTING A PLURIDIRECTIONAL WIRELESS INTERFACE

Jose Gutman, Boynton Beach, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 6, 1995, Ser. No. 554,617

Int. Cl.⁶ H04B *10/06* **H04Q** *7/14*

U.S. Cl. 455—38.1 **1 Claim**

1. A method in a selective call receiver the selective call receiver having a memory and a pluridirectional wireless infrared communication interface, the pluridirectional wireless infrared communication interface having a plurality of directional wireless infrared communication ports, the method comprising the steps of

(a) selecting one directional wireless infrared communication port of the plurality of directional wireless infrared communication ports of the pluridirectional wireless infrared communication interface,

(b) receiving a wireless message via the one directional wireless infrared communication port,

(c) determining, based on the wireless message that the one directional wireless infrared communication port allows directional wireless infrared communication between the pluridirectional wireless infrared communication interface of the selective call receiver and a wireless infrared communication interface of a device, thereby producing a memory signal,

(d) in response to the memory signal storing into the memory an identifier uniquely associated with the selected directional wireless infrared communication port,

(e) repeating steps (a) through (d) for each directional wireless infrared communication port of the plurality of directional wireless infrared communication ports of the pluridirectional wireless infrared communication interface thereby forming a list in memory of the directional wireless infrared communication ports allowing directional wireless infrared communication with the wireless infrared communication interface of the device.

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(f) establishing a wireless infrared communication link between the pluridirectional wireless infrared communication interface of the selective call receiver and the wireless infrared communication interface of the device through a directional wireless infrared communication port having an identifier stored in memory; and

(g) upon a loss of the wireless infrared communication link established in step (f), re-establishing the wireless infrared communication link between the pluridirectional wireless infrared communication interface of the selective call receiver and the wireless infrared communication interface of the device through another directional wireless infrared communication port having an identifier stored in memory

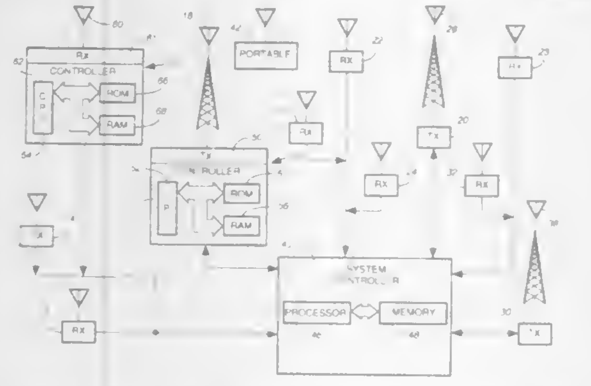
5,737,691
SYSTEM AND METHOD FOR ALLOCATING FREQUENCY CHANNELS IN A TWO-WAY MESSAGING NETWORK

Zhonghe Wang, Lakeworth, and Robert J. Schwendeman, Pompano Beach, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 14, 1995, Ser. No. 502,399

Int. Cl.^{6} H04B *1/00, 15/00*

U.S. Cl. 455—63 7 Claims



1 In a radio frequency communication network having a plurality of transmitter and receiver units for communication with a portable two-way selective call communication device, a method for allocating a plurality of frequency channels to a plurality of said transmitter units for which there is a demand that the transmitter units transmit messages comprising:

storing for each transmitter unit an interference data matrix including information identifying interfering transmitter units and for each of said interfering transmitter units a co-channel interference value and an adjacent channel interference value.

calculating a transmitter priority value for each of said transmitter units, said transmitter priority value determining the order in which transmitter units are assigned a channel:

calculating for each of said transmitter units a channel priority value for each of the frequency channels that the transmitter unit can access, said channel priority value determining the order in which an available channel is considered for assignment to the transmitter unit.

determining whether a proposed available channel is acceptable for assignment to a given transmitter unit based upon the data stored in the interference matrix of said given transmitter unit for other transmitter units currently using the same channel as said proposed channel or a channel adjacent to said proposed channel upon the data stored in the interference matrices of other transmitter units currently using the same channel or a channel adjacent to said proposed channel for said given transmitter unit, and further upon the transmitter priority value and the channel priority value, and

assigning said proposed channel to said transmitter unit if said proposed channel is determined to be acceptable

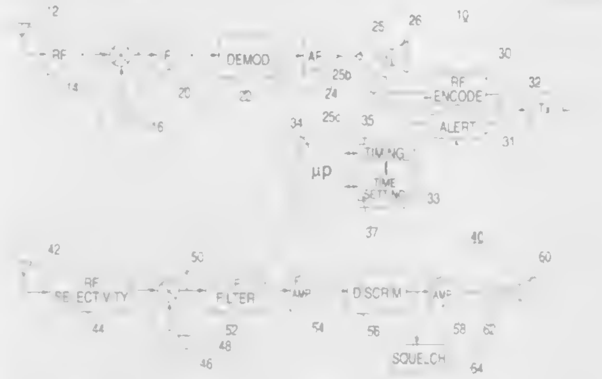
5,737,692
CLOCK RADIO SYSTEM WITH REMOTE ALERT DEVICE

Michael Lang, Reston, Va., assignor to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Sep. 27, 1996, Ser. No. 720,336

Int. Cl.^{6} H04B *7/00*

U.S. Cl. 455—66 9 Claims



1 A method of providing a plurality of radio frequency signals from a clock radio to a plurality of Wireless remote alert devices in order to alert users at predetermined times, comprising the steps of

determining in said clock radio a first predetermined time:

producing a first alert signal in said clock radio at said first predetermined time:

transmitting a first of said plurality of radio frequency signals from said clock radio to a first of said plurality of wireless remote alert devices at said first predetermined time in response to said first alert signal, and.

receiving said first radio frequency signal in said first wireless remote alert device, wherein only said first of said plurality of wireless remote alert devices is activated.

5,737,693
METHOD AND SYSTEM FOR GENERATING ARBITRARY ANALOG WAVEFORMS

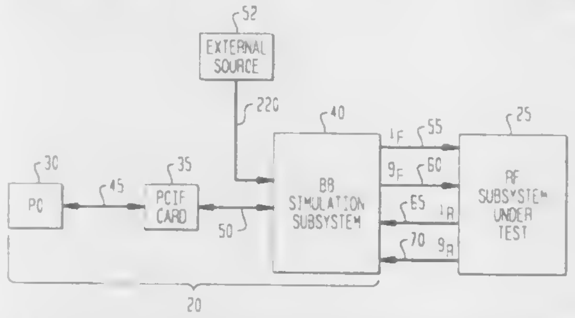
Christopher Aldridge, Reading, United Kingdom, and Pranesh Sinha, Pine Grove, Singapore, assignors to Institute of Microelectronics, Science Park II, Singapore

Filed Jan. 4, 1996, Ser. No. 582,741

Claims priority, application Singapore, Oct. 28, 1995, 9501667-1

Int. Cl.^{6} H04B *17/00*

U.S. Cl. 455—67.4 13 Claims



1 A process for generating and receiving arbitrary analog waveforms comprising the steps of

generating a sequence of discrete samples by a computer, said sequence of discrete samples representing a full resolution uncompressed version of a first arbitrary analog waveform, wherein said first arbitrary analog waveform simulates an output of a baseband subsystem of a communication device:

storing said full resolution uncompressed discrete samples in a memory:

counting out addresses by a counter to retrieve said full resolution uncompressed discrete samples from said memory

converting said retrieved full resolution uncompressed discrete samples to said first analog waveform by a digital to analog converter:

transmitting said first arbitrary waveform to an RF subsystem of said communication device for modulation on an RF carrier,

receiving a second arbitrary analog waveform from said RF subsystem; and

storing said second arbitrary analog waveform in said memory

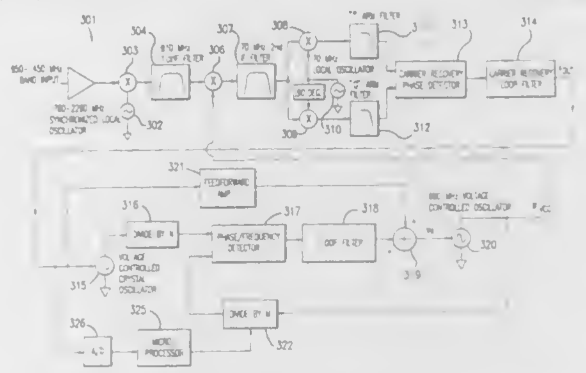
5,737,694
HIGHLY STABLE FREQUENCY SYNTHESIZER LOOP WITH FEEDFORWARD

Daniel R. McMahill, Tucker, and Thomas C. Whitehouse, Suwanee, both of Ga., assignors to Scientific-Atlanta, Inc., Norcross, Ga.

Filed Nov. 30, 1995, Ser. No. 565,313

Int. Cl.^{6} H04B *1/40*

U.S. Cl. 455—76 12 Claims



5 A tuner circuit comprising:

a voltage controlled oscillator circuit, said voltage controlled oscillator circuit comprising a first voltage controlled oscillator, a carrier recovery circuit and a second local oscillator: and

a loop circuit, responsive to an output of said voltage controlled oscillator circuit and including a third voltage controlled oscillator, said loop circuit comprising

a feedforward amplifier for directly feeding forward the output voltage of the voltage controlled oscillator circuit toward the third voltage controlled oscillator, the gain of the feedforward path being chosen such that the transfer function between the output of the third voltage controlled oscillator and the output voltage of the voltage controlled oscillator circuit remains constant past the bandwidth of said loop circuit and

a processor, responsive to the output voltage of the voltage controlled oscillator circuit, for controlling a divider circuit of a phase lock loop for controlling the third voltage controlled oscillator.

5,737,695
METHOD AND APPARATUS FOR CONTROLLING THE USE OF DISCONTINUOUS TRANSMISSION IN A CELLULAR TELEPHONE

Tomas Lagerqvist, Stockholm, and Peter Wahlström, Bromma, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Dec. 21, 1996, Ser. No. 781,887

Int. Cl.^{6} H04B *1/46*

U.S. Cl. 455—79 8 Claims

1 A method for controlling the use of discontinuous transmission in a cellular telephone comprising the steps of

detecting the presence or absence of speech input to a microphone of the cellular telephone:

measuring an energy level of sound input to the microphone of the cellular telephone when speech is absent.

comparing the measured energy level against a threshold value the threshold value representing a maximum energy level of background noise allowable for use of discontinuous transmission:

enabling discontinuous transmission when the comparison indicates that the measured energy level is at or below the threshold value: otherwise

disabling discontinuous transmission when the comparison indicates that the measured energy level is greater than the threshold value

5,737,696
DIELECTRIC FILTER HAVING INDUCTIVE COUPLING WINDOWS BETWEEN RESONATORS AND TRANSCEIVER USING THE DIELECTRIC FILTER

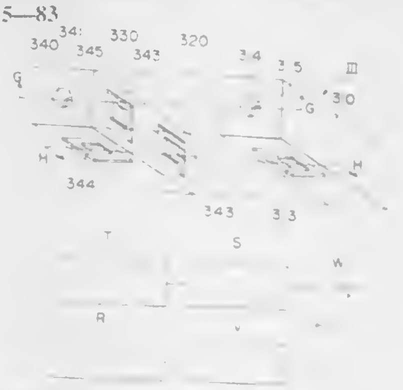
Tadahiro Yorita, Nagaokakyo, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Division of Ser. No. 426,287, Apr. 21, 1995, which is a continuation of Ser. No. 89,223, Jul. 8, 1993, abandoned. This application May 18, 1995, Ser. No. 443,926

Claims priority, application Japan, Jul. 6, 1993, 5-167044

Int. Cl.^{6} H01P *1/213; 1/202,* **H04B** *1/50*

U.S. Cl. 455—83 27 Claims



27 A transceiver comprising

a pair of dielectric filters, each of said dielectric filters having

a first dielectric block having a thorough bore extending between first and second end faces thereof, said first dielectric block having a plurality of side surfaces extending between said end faces, substantially all of said first and second end faces, said side surfaces and said bore being covered with a conductive film to define a first dielectric resonator whose magnetic energy when an input signal is applied thereto varies in the direction of an axis of said through bore, a pair of ring shaped areas wherein said conductive film does not exist at said first through bore defining respective capacitances across corresponding said ring shaped areas, each of said ring shaped areas being near a respective end of said bore:

a first coupling window in said conductive film on a first one of said side surfaces of said first dielectric block for coupling said input signal applied thereto to said first dielectric resonator:

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a second coupling window on a second one of said side surfaces of said first dielectric block in a location wherein said magnetic energy in said dielectric block is at a relatively higher level than in other locations in said dielectric block so that magnetic energy in said first dielectric block exits said first dielectric block via said second coupling window;

a second dielectric block having a through bore extending between first and second end faces thereof, said second dielectric block having a plurality of side surfaces extending between said first and second end faces of said second dielectric block, substantially all of said first and second end faces, said side surfaces and said bore of said second dielectric block being covered with a conductive film to define a second dielectric resonator, a first side surface of said second dielectric block abutting said second side surface of said first dielectric block, a pair of ring shaped areas in said second dielectric block wherein said conductive film does not exist at said second through bore defining respective capacitances across corresponding said ring shaped areas, each of said ring shaped areas being near a respective end of said bore of said second dielectric block;

a third coupling window on said first side surface of said second dielectric block at a location corresponding to said second coupling window such that magnetic energy leaving said first dielectric block via said second coupling window enters said second dielectric block via said third coupling window and sets up a magnetic field in said second dielectric block whose magnetic energy varies in the direction along said through bore of said second dielectric block; and

a fourth coupling window on a second one of said side surfaces of said second dielectric block;

and further comprising

a transmission circuit,

a receiver circuit; and

an antenna;

a first of said dielectric filters being connected in series between said transmission circuit and said antenna via respective first and fourth coupling windows thereof, and a second of said dielectric filters being connected in series between said receiver circuit and said antenna via respective fourth and first coupling windows thereof.

5,737,697

TRANSMISSION POWER CONTROL CIRCUIT FOR A COMMUNICATION SYSTEM

Tatsuya Yamada, Hino, Japan, assignor to Toshiba Corporation, Kanagawa-ken, Japan

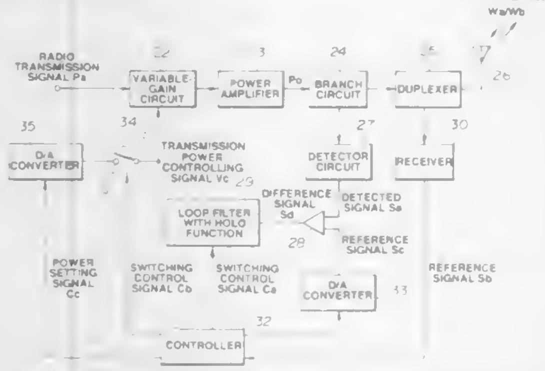
PCT No. PCT/JP94/00073, § 371 Date Jul. 10, 1995, § 102(e) Date Jul. 10, 1995, PCT Pub. No. WO94/17598, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 21, 1994, Ser. No. 464,828

Claims priority, application Japan, Jan. 25, 1993, 5-009922

Int. Cl.^{6} H04B *1/04*

U.S. Cl. 455—126 **28 Claims**



1. A radio communication apparatus transmitting a signal during a transmit period comprising:

variable power amplifying means for producing transmission power in response to a control voltage;

detecting means for detecting the level of the transmission power supplied from the variable power amplifying means;

reference voltage generating means for generating a reference voltage for controlling the level of the transmission power from the variable power amplifying means;

comparing means for comparing the detected level with the reference voltage to output a difference signal;

control means for generating the control voltage to control an output level of the variable power amplifying means based on the difference signal sent from the comparing means, said control signal being output during the transmit period; and

control voltage setting means for outputting a compensation signal through a closed loop including the variable power amplifying means, the detecting means, the comparing means, and the control means, so as to set the control voltage before a transmit period at such a value as not to increase a transmission power from the variable power amplifying means.

5,737,698

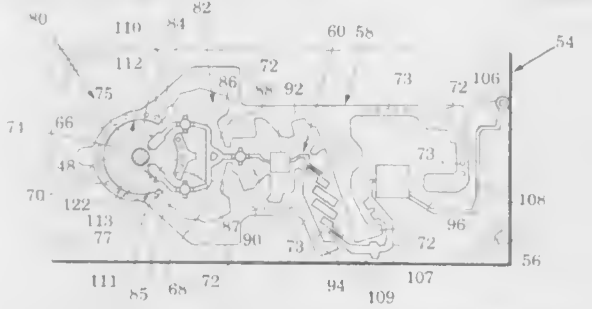
ANTENNA/AMPLIFIER AND METHOD FOR RECEIVING ORTHOGONALLY-POLARIZED SIGNALS

Edward E. Gabrelian, Tarzana, and Mark Lange, Camarillo, both of Calif., assignors to California Amplifier Company, Camarillo, Calif.

Filed Mar. 18, 1996, Ser. No. 619,939

Int. Cl.^{6} H04B *1/10*

U.S. Cl. 455—286 **51 Claims**



1. A receiving system for receiving orthogonally-polarized microwave signals comprising:

a waveguide having an open end for receipt of said microwave signals and terminating in a transverse wall;

a substrate carrying first and second signal lines which respectively form first and second coplanar and orthogonal microwave probes, said substrate joined with said waveguide with said microwave probes extending into said waveguide;

an isolation member extending into said waveguide from said wall and terminating in an isolation member end; and

a low noise amplifier system carried on said substrate, said amplifier system having first and second low-noise amplifiers which are coupled respectively to said first and second signal lines;

wherein said amplifier system further includes:

a second stage amplifier; and

a diplexer which selectively couples said second stage amplifier to said first and second low noise amplifiers.

5,737,699

ANTENNA STRUCTURE FOR USE IN A TIMEPIECE

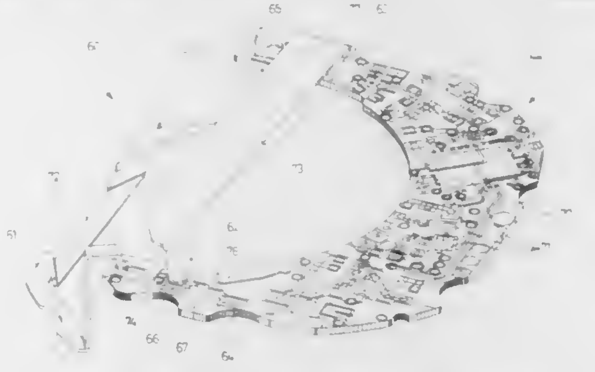
Penny Farrar, and Bjorn Kjelsberg, both of Bienne, Switzerland, assignors to Eta Fabriques d'Ebauches, Grenchen, Switzerland

Filed May 26, 1995, Ser. No. 451,538

Claims priority, application European Pat. Off., May 5, 1995, 95106836

Int. Cl.^{6} H04B *1/08*

U.S. Cl. 455—344 **4 Claims**



1. Timepiece adapted to be worn on the wrist or like-member of the body, comprising:

a case (**24,91,82**) for housing, in addition to elements necessary for displaying the time of day,

an antenna (**60**) comprising at least one coil winding and being capable of capturing an electromagnetic field bearing radio diffused messages;

a microreceiver (**71**) capable of receiving and transforming messages captured by said antenna (**60**) into data perceptible to the wearer of the timepiece; and,

non-conductive support structure (**70**) onto which said microreceiver (**71**) is at least partially mounted, wherein said support structure (**70**) bears conductive paths (**63,64,65,66**) to enable the connection of said antenna (**60**) to said microreceiver (**70**) and said at least one coil winding is composed of a plurality of segments (**61,62**) each being directly connected to said conductive paths (**63,64,65,66**) such that said antenna (**60**) is directly mounted to and supported by said support structure (**70**), at least one segment of said plurality of segments being mounted to said support structure only at two end portions of such at least one segment and having a substantially rigid, self-supporting and freestanding portion intermediate said end portions, when mounted to said support structure

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5,737,700

PROVIDING ASSISTANCE TO A MOBILE TELEPHONE SUBSCRIBER TRAVELLING FROM A LOCATION TO A DESIRED LOCATION

Patrick Michael Cox, Beaverton; Adrian Peter Powell, Molalla; Paul William Filliger, Silverton, and Michael A. Kepler, McMinnville, all of Oreg., assignors to Metro One Telecommunications, Inc., Beaverton, Oreg.

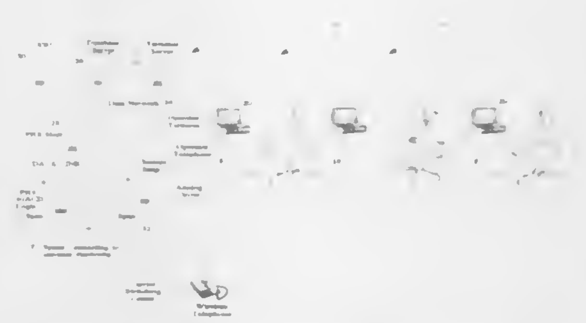
Continuation of Ser. No. 527,437, Sep. 13, 1995, which is a division of Ser. No. 234,644, Apr. 28, 1994. This application Aug. 30, 1996, Ser. No. 705,979

Int. Cl.^{6} H04Q *7/38*

U.S. Cl. 455—414 **5 Claims**

1. In a method of providing assistance to a mobile telephone subscriber, the assistance taking the form of spoken directions to the subscriber guiding the subscriber in travelling from a present location of the subscriber to a desired location, an improvement comprising,

connecting the subscriber to a first human directory assistance operator;



determining a route from the present location to the desired location,

voicing to the subscriber directions corresponding to a first part of the route;

placing the subscriber on hold;

monitoring the subscriber connection for a predetermined DTMF signal issued by the subscriber,

detecting said predetermined DTMF signal;

reconnecting the subscriber to a second human directory assistance operator, different than the first human directory assistance operator, upon said detection of the DTMF signal;

transferring to said second human directory assistance operator a pointer to a database record established by the first human directory assistance operator, wherein said second operator has access to the database record accessed by the first human directory assistance operator, and

voicing to the subscriber directions corresponding to a second part of the route;

wherein the subscriber can summon operator assistance as needed while travelling along the route

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5,737,701

AUTOMATIC AUTHENTICATION SYSTEM

Eugene J. Rosenthal, Edison; David Phillip Silverman, Somerville, and Michael Zaleski, North Plainfield, all of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Oct. 3, 1995, Ser. No. 538,679

Int. Cl.^{6} H04M *11/00;3/00*

U.S. Cl. 455—411 **24 Claims**

1. A method of processing a call initiated by a caller, said method comprising the steps of,

receiving a destination telephone number and identification information associated with said call, and

overriding a requirement of receiving an authentication code to complete said call when a) an authentication code is required to process said call, and b) said destination telephone number is identified in a profile that is retrieved using said identification information associated with said call.

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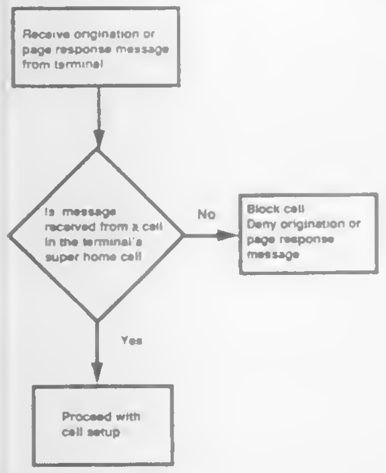
5,737,702
CELLULAR RADIO COMMUNICATIONS SYSTEM

Seshagiri Rao Madhavapeddy, Richardson, and Udaya Sankar Kotamarti, Garland, both of Tex., assignors to Northern Telecom Limited, Montreal, Canada

Filed Mar. 8, 1995, Ser. No. 401,083

Int. Cl.^{6} H04Q *7/00*

U.S. Cl. 455—422 **7 Claims**


Receive origination or page response message from terminal
Is message received from a cell in the terminal's super home cell
No
Block cell
Deny origination or page response message
Yes
Proceed with cell setup

1. A fixed access cellular communications system serving fixed subscriber terminals, each of which is permanently located in a respective home cell, via a respective base station disposed in that home cell, wherein each fixed subscriber terminal is allocated a super home cell comprising the home cell in which that fixed subscriber terminal is permanently located together with one or more cells adjacent thereto, wherein setting up of calls to and from said fixed subscriber terminal is effected via any one cell of the super home cell of that fixed subscriber terminal via the respective base station located in that one cell, and wherein setting up of calls to and from said fixed subscriber terminal via the base station of any cell located outside the super home cell of that fixed subscriber terminal is prohibited.

5,737,703
MULTI-MODE RADIO TELEPHONE WHICH EXECUTES HANDOVER BETWEEN DIFFERENT SYSTEM

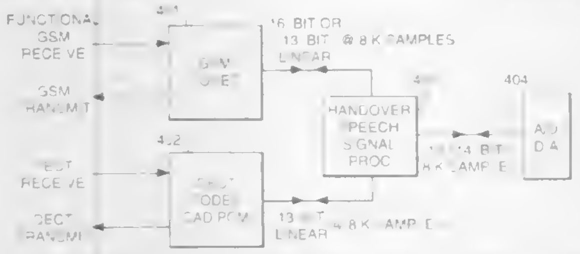
John Daniel Byrne, Shepperton, England, assignor to Nokia Mobile Phones Limited, Espoo, Finland

Filed Oct. 16, 1995, Ser. No. 543,479

Claims priority, application United Kingdom, Dec. 23, 1994, 9426467

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 455—442 **20 Claims**



1. A radio telephone operable for more than one different radio telephone system having different operational protocols, comprising communication means respectively associated with each of the different radio telephone systems and control means for controlling the communication means, wherein a first communication means is responsive to the control means to automatically cease communication with a first radio system and a second communication means is substantially simultaneously responsive to the control means to automatically commence communication with a second radio system to effect handover of a call from a first radio telephone system to a second radio telephone system, wherein the telephone further comprises signal processing means adapted to inhibit sudden change in audio signals during handover.

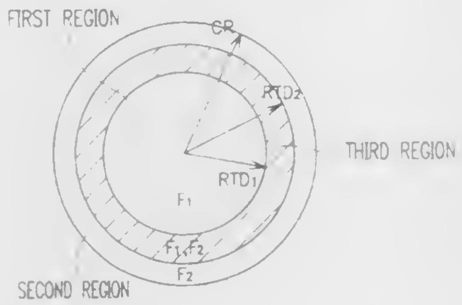
5,737,704
CHANNEL ALLOCATION METHOD FOR REMOVING INTER-CELL HARD HANDOFFS IN A CDMA SYSTEM

Go-Whan Jin; Mou-Ho Cho; Cheol-Hye Cho, and Hun Lee, all of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 683,967

Int. Cl.^{6} H04Q *7/20;* **H04B** *7/00*

U.S. Cl. 455—450 **5 Claims**



1. A method of allocating channels to a mobile moving in and between a center cell and at least one neighboring cell to reduce or prevent hard handoffs requiring the mobile to be switched between channels when moving in or between cells to maintain call continuity in a CDMA system having a center cell divided into concentric regions and at least one neighboring cell with a first channel being assigned to a part of the center cell, a second channel being assigned to the at least one neighboring cell and a part of the center cell and each concentric region being assigned at least one of the first or second channels comprising:

dividing the center cell into three concentric regions;

allocating the first channel to an innermost concentric region;

allocating the second channel to an outermost concentric region;

allocating the first and second channels to a middle concentric region; and

assigning the mobile at least one of the first and second channels allocated to a location of the mobile in the three concentric regions of the center cell and the at least one neighboring cell so as to reduce or prevent hard handoffs.

5,737,705
METHOD AND APPARATUS FOR FREQUENCY ASSIGNMENT OF A BASE STATION

John Stephen Ruppel, North Richland Hills, and John Douglas Reed, Arlington, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 28, 1995, Ser. No. 395,670

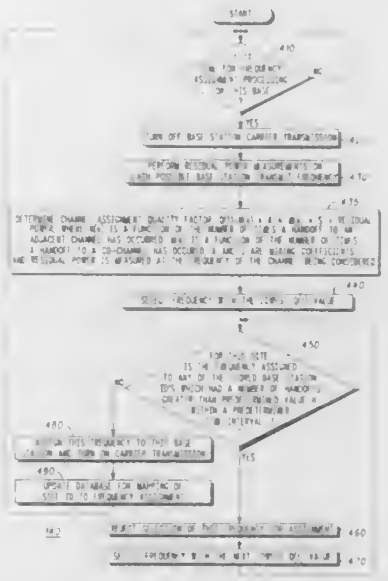
Int. Cl.^{6} H04B *7/26; 17/02*

U.S. Cl. 455—452 **20 Claims**

1. A method of assigning a channel to a first communication unit of plural communication units comprising the steps of:

(a) scanning a set of channels and determining a signal quality measure of each channel of the set of channels;

(b) determining a channel assignment quality factor for each channel of the set of channels based, at least in part, upon the signal quality measure and data representing handoffs to or from another of the plural communication units using that channel; and


START
410
NO
YES
TURN OFF BASE STATION CARRIER TRANSMISSION
PERFORM RESIDUAL POWER MEASUREMENTS ON EACH POSSIBLE BASE STATION TRANSMIT FREQUENCY
435
440
450
NO
YES
480
ASSIGN THIS FREQUENCY TO THIS BASE STATION AND TURN ON CARRIER TRANSMISSION
490
UPDATE DATABASE FOR MAPPING OF SITE ID TO FREQUENCY ASSIGNMENT
460
470

(c) assigning a channel of the set of channels having the best channel assignment quality factor as a channel of the first communications unit.

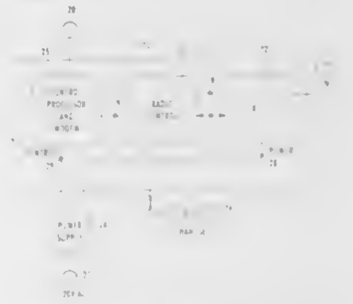
5,737,706
POWER SYSTEM SUPPORTING CDPD OPERATION

John W. Seazholtz, Great Falls, and Robert D. Farris, Sterling, both of Va., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Filed Aug. 3, 1995, Ser. No. 510,732

Int. Cl.^{6} H04Q *11/04*

U.S. Cl. 455—466 **13 Claims**



1. A mobile radio telephone data terminal comprising:

(a) an RF transceiver portion including a plurality of transceivers;

(b) means for controlling analog cellular Advanced Mobile Phone Service (AMPS) communication;

(c) means for controlling Cellular Digital Packet Data (CDPD) communication;

(d) a variable level power supply arranged to provide a plurality of low voltage outputs and at least one high voltage 120 volt AC output, wherein said high voltage AC output is for use by an external load;

(e) means for controlling the variable level power supply output responsive to a CDPD operating cycle and incidence of AMPS or PCS communication;

(f) means for de-activating said high voltage AC output of said power supply responsive to said CDPD operating cycle and said incidence of AMPS or PCS communication, wherein said power supply output is adjusted responsive to various levels of PCS operation.

5,737,707
PAGER-CONTROLLED WIRELESS RADIOTELEPHONE

David Alan Gaulke; Thomas Charles Hanson, both of Boulder, and Richard Paul Moleres, Louisville, all of Colo., assignors to AT&T Corp., Middletown, N.J.

Filed Jan. 11, 1996, Ser. No. 584,417

Int. Cl.^{6} H04B *1/38*

U.S. Cl. 455—556 **8 Claims**

1. An integrated wireless radiotelephone and pager comprising:

a wireless radiotelephone for receiving wireless calls that selectively receives power through a switch coupled to a battery; and

a pager, coupled to the battery independent of the switch, the pager being operable to send a control signal that closes the switch in response to receipt by the pager of a first paging signal, thereby enabling the wireless radiotelephone to receive power and an incoming wireless call.

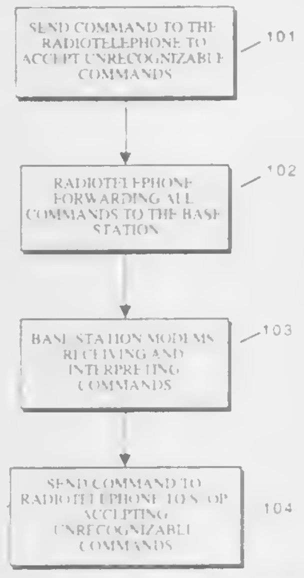
5,737,708
METHOD FOR HANDLING UNRECOGNIZABLE COMMANDS IN A WIRELESS ENVIRONMENT

Matthew S. Groh, San Diego, and Gadi Karmi, Del Mar, both of Calif., assignors to Qualcomm Incorporated, San Diego, Calif.

Continuation-in-part of Ser. No. 152,159, Nov. 15, 1993, abandoned. This application Nov. 14, 1994, Ser. No. 337,904

Int. Cl.^{6} H04Q *7/22*

U.S. Cl. 455—557 **16 Claims**


SEND COMMAND TO THE RADIOTELEPHONE TO ACCEPT UNRECOGNIZABLE COMMANDS
101
RADIOTELEPHONE FORWARDING ALL COMMANDS TO THE BASE STATION
102
BASE STATION MODEMS RECEIVING AND INTERPRETING COMMANDS
103
SEND COMMAND TO RADIOTELEPHONE TO STOP ACCEPTING UNRECOGNIZABLE COMMANDS
104

1. A method for handling modem commands by a wireless modem in a portable communication device having a digital mode, the wireless modem coupled to a processor, the portable communication device operating in a digital cellular communication system including a base station having at least one modem, the wireless modem having a set of known modem commands wherein

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the at least one modem of the base station has a set of modem commands unknown to the wireless modem, the method comprising the steps of:

the processor instructing the wireless modem to accept both the known modem commands generated by the processor and the modem commands unknown to the wireless modem generated by the processor;

the wireless modem forwarding, to the base station, the known modem commands and the modem commands unknown to the wireless modem; and

the processor instructing the wireless modem to stop accepting the modem commands unknown to the wireless modem.

5,737,709

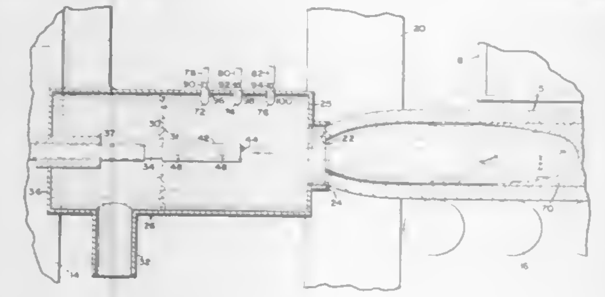
HIGH PRESSURE WASHOUT OF EXPLOSIVES AGENTS

Heather L. Getty, 6130 Dallas La., Plymouth, Minn. 55446; Paul L. Miller, 18611 Red Cherry Cir., Minnetonka, Minn. 55345; Michael S. Cypher, 10940 95th, Monticello, Minn. 55330; Joseph H. Lamon, R.R. 1, Box 231, Zimmerman, Minn. 55398; David P. Hatz, 17036 Gray's Bay Blvd., Wayzata, Minn. 55391; Millard M. Garrison, 7025 Lanham La., Edina, Minn. 55439; Lonny D. Hill, 19213 Yale St., Elk River, Minn. 55330; Dennis A. Martinson, 8220 Blackbind La., Lino Lakes, Minn. 55014; Ray Elbert Reynolds, 8012 S. 86th E. Ave., Tulsa, Okla. 74113, and José P. Munoz, 5380 Mystic Lake Dr., Brighton, Mich. 48116

Continuation of Ser. No. 365,661, Dec. 29, 1994, abandoned. This application Sep. 17, 1996, Ser. No. 714,825

Int. Cl.^{6} A62D *3/00*; B08B *3/02*

U.S. Cl. 588—202 28 Claims



12. A method for the removal of explosive agent from explosive agent filled bodies comprising:

(a) supplying fluid from a fluid supply means;

(b) pressurizing the fluid to ultra-high pressures using a pressurizing means which pressurizes the fluid to more than about 40,000 psi;

(c) chilling the fluid by use of a chilling means to a temperature at least below the melting point of the explosive agent to be removed;

(d) inserting a directing means into the explosive agent filled body along a rotational axis of symmetry of the body;

(e) rotating either the directing means or the body about the rotational axis of symmetry of the body along which the directing means was inserted;

(f) projecting the fluid onto the explosive agent contained in the explosive agent filled body using the directing means whereby the explosive agent is removed from the interior of the body, the directing means having a hollow lance, a nozzle and a plurality of orifices through which the fluid is projected, each of the plurality of orifices having a diameter in the range of about 0.001" to about 0.020", and

(g) stripping the directing means of removed explosive agent accumulated thereon using a stripper means in which a plurality of washer nozzles project a fluid onto the outer surface of the directing means at a pressure high enough so as to remove accumulated explosive agent from the outer surface of the directing means.

5,737,710

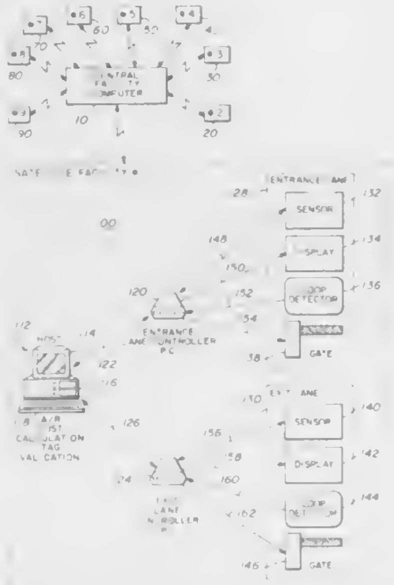
AUTOMATED VEHICLE PARKING SYSTEM FOR A PLURALITY OF REMOTE PARKING FACILITIES

Robert B. Anthonyson, Sunapee, N.H., assignor to Amtech Corporation, Dallas, Tex.

Filed Nov. 7, 1995, Ser. No. 554,849

Int. Cl.^{6} G06F *17/40*; G03B *15/02*

U.S. Cl. 701—1 15 Claims



1. An automated vehicle parking system for access and revenue control of a plurality of remote parking facilities, each facility having controlled entrance lanes and controlled exit lanes, the system including:

a vehicle detection device with each of the remote parking facilities for detecting a vehicle as the vehicle approaches the facility entrance lane;

a lane controller system with each of the remote parking facilities coupled to the vehicle detection device for identifying the vehicle and generating a recognition signal;

a computer database with each of the remote parking facilities for storing parking information concerning all vehicles that use the automated system;

a first computer associated with each of the remote parking facilities and coupled to the lane controller and the database for receiving the recognition signal and generating appropriate parking response signals from the database to the lane controller system, said first computer calculating a parking fee for each vehicle;

a central facility; and

a communication system including a second computer in said central facility coupled to the first computer to enable the second computer to communicate with said first computer at each of the remote parking facilities and to periodically calculate a single parking fee statement for a given vehicle whether parked at one or more of the plurality of remote parking facilities and to advise each remote facility first computer of the total fees due to that remote facility for each vehicle during specified periods.

5,737,711

DIAGNOSIS SYSTEM FOR MOTOR VEHICLE

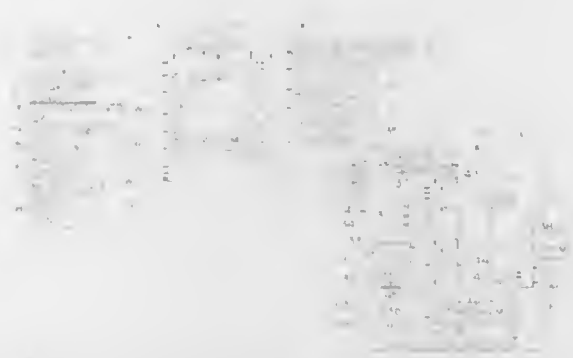
Kunihiro Abe, Higashi-Murayama, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 30, 1995, Ser. No. 550,237

Claims priority, application Japan, Nov. 9, 1994, 6-275349; Nov. 9, 1994, 6-275350

Int. Cl.^{6} G06F *13/00*; *17/40*; G01R *31/00*

U.S. Cl. 701—29 8 Claims



1. A diagnosis device removably connectable to an electronic control unit installed in a motor vehicle for data communication with the electronic control unit having a communication protocol, the diagnosis device comprising:

a main processor provided for issuing a command directed to the electronic control unit and processing data transmitted from the electronic control unit in response to the command; and

a field programmable gate array provided between the main processor and the electronic control unit, the field programmable gate array being reprogrammable so as to make communication between the main processor and the electronic control unit possible under the communication protocol of the electronic control unit,

wherein the field programmable gate array is a communication interface with logical functions being reprogrammable on board by transmitted design data to make the communication interface applicable to the communication protocol of the electronic control unit, thereby enabling the diagnosis device to diagnose electronic control units having different communication protocols.

5,737,712

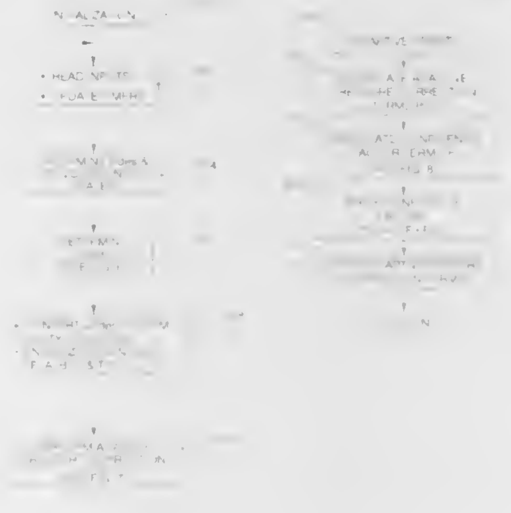
FUZZY LOGIC ADAPTIVE SHIFT CONTROL

Ed Erliang Han, Ann Arbor, and John Edward Marano, Milford, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 3, 1996, Ser. No. 627,153

Int. Cl.^{6} G06F *17/00*; B60K *41/06*

U.S. Cl. 701—51 8 Claims



1. An improved method of adaptive shift control for a multiratio, electronically controlled automatic transmission coupled at an input thereof to a throttle controlled internal combustion engine, said transmission effective to establish speed ratio changes between input and output shafts thereof in accordance with predetermined line pressure commands including a base pressure term and an updatable adaptive pressure term, the improvement comprising:

providing a pressure correction term upon the execution of a ratio change regardless of predetermined powertrain operating parameters;

calculating a plurality of degrees of confidence in the provided pressure correction term in accordance with a corresponding plurality of functions of the predetermined powertrain operating parameters;

deriving an overall confidence factor from said plurality of degrees of confidence; and

updating the adaptive pressure term from said provided pressure correction term in proportion to the overall confidence factor.

5,737,713

TRACTION CONTROL SYSTEM FOR VEHICLE

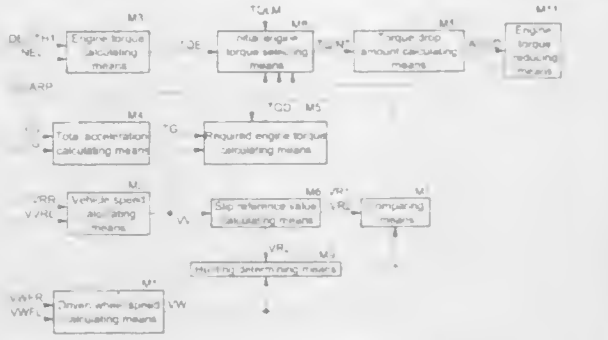
Toru Ikeda; Fumiaki Honjyo; Shuji Shiraishi, all of Saitama, and Osamu Yano, Tochigi, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 4, 1996, Ser. No. 610,615

Claims priority, application Japan, Mar. 2, 1995, 7-042644

Int. Cl.^{6} B60K *28/16*

U.S. Cl. 701—84 6 Claims


M3
Engine torque calculating means
NE
ARP
M8
Initial engine torque selecting means
M9
Torque drop amount calculating means
M11
Engine torque reducing means
M4
Total acceleration calculating means
G
M5
Required engine torque calculating means
Vehicle speed calculating means
V
M6
Slip reference value calculating means
Comparing means
Hunting determining means
VWFR
VWFL
Driven wheel speed calculating means
VW

1. A traction control system for a vehicle, comprising:

a driven wheel speed calculating means for calculating a driven wheel speed of the vehicle;

a vehicle speed calculating means for calculating a vehicle speed;

a slip reference value calculating means for calculating a slip reference value of a driven wheel based on said vehicle speed;

a comparing means for comparing said driven wheel speed and said slip reference value with each other; and

an engine torque reducing means for feed back control of the engine torque to prevent an excessive slipping of the driven wheel when said driven wheel speed exceeds said slip reference value, wherein

said traction control system further includes:

a required-engine torque calculating means for calculating a required engine torque based on the driving state of the vehicle;

a hunting determining means for determining a hunting of the driven wheel speed based on the number of times when said driven wheel speed has become lower than a predetermined threshold value after becoming higher than the predetermined threshold value; and

an initial engine torque selecting means which outputs said required engine torque, as an initial engine torque at the start of the feed back control to said engine torque reducing means, when the hunting is not determined by said hunting determining means, and which outputs an engine torque smaller than said required engine torque, as the initial engine torque at the start of the feed back control to said engine torque reducing means, when the hunting is determined by said hunting determining means.

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5,737,714

TRACTION CONTROL SYSTEM FOR FOURWHEEL DRIVE VEHICLE

Koji Matsuno, Azami, and Saiichiro Oshita, Ota, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1996, Ser. No. 588,019

Claims priority, application Japan, Jan. 31, 1995, 7-014286

Int. Cl. B60K 17/348

U.S. Cl. 701—89 **6 Claims**

1. A traction control system of a fourwheel drive vehicle having an engine, a transmission, front wheels, rear wheels, a center differential for dividing a torque into said front and rear wheels, a front differential, a rear differential, front left and right wheels, a wheel speed sensor for detecting a wheel speed of each wheel of said front and rear wheels, a longitudinal acceleration sensor for detecting a longitudinal acceleration of said vehicle, a brake pressure control apparatus for independently controlling a brake pressure on said each wheel, an engine output control apparatus for controlling an output of said engine and a control unit for controlling said brake pressure control apparatus and said engine output control apparatus, comprising:

vehicle speed calculating means provided in said control unit for calculating a reference vehicle speed of said vehicle based on a lowest wheel speed in said wheels and said longitudinal acceleration.

slip amount calculating means provided in said control unit for calculating a slip amount of said each wheel based on said reference vehicle speed and said wheel speed of said each wheel;

target slip amount determining means provided in said control unit for determining a front target slip amount of said front wheels and a rear target slip amount of said rear wheels according to said reference vehicle speed;

traction control determining means provided in said control unit for determining to operate a traction control when said slip amount of said front wheels exceeds said front target slip amount or when said slip amount of said rear wheels exceeds said rear target slip amount and for outputting a traction control signal.

brake pressure calculating means provided in said control unit responsive to said traction control signal for calculating a brake pressure corresponding to a difference between said slip amount and said target slip amount and for outputting a brake pressure signal to said brake pressure control apparatus so as to apply a brake to said wheels, and

engine output calculating means provided in said control unit responsive to said traction control signal for calculating a target engine torque corresponding to a difference between said slip amount and said target slip amount and for outputting a target engine torque signal to said engine output control apparatus.

5,737,715

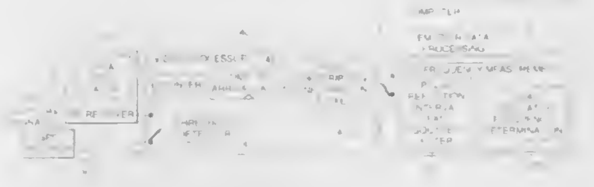
FREQUENCY NORMALIZATION UTILIZING GPS PULSE TIME AND TIME INTERVAL SIGNAL

Robert A. Deaton, Los Angeles, and Rick J. Linio, Redondo Beach, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Apr. 23, 1996, Ser. No. 636,290

Int. Cl.⁶ H04B 7/185

U.S. Cl. 701—213 **1 Claim**



1. An ESM receiver comprising:

an RF receiver for receiving RF emitter signals and providing a receiver downconverted output signal representing received emitter signals, said receiver including a local oscillator.

counting means clocked by the output of the local oscillator for providing a counting means output.

a time-of-arrival latch for sampling the counting means output in response to a latch control signal.

a global positioning system (GPS) receiver for providing a GPS precision pulse time and time interval signal.

a switch which is controllably switched between said receiver output signal and said GPS signal, wherein a switch output signal represents either said receiver output signal or said GPS signal, the switch controlled to intercept said GPS signal at a predetermined periodic rate;

detection means responsive to said switch output for detecting pulses in said GPS pulse time and time interval signal when switched to said GPS signal for providing an output indicative of the occurrences of said GPS pulses, and for detecting pulses in said receiver output signal, wherein the detection means provides as an output said latch control signal, whereby said sampling occurs in response to pulses in said GPS pulse time and time interval signal on precisely determined time intervals to provide sampled counts represent the outputs of said counting means at the time said GPS pulses are detected, and said sampling occurs in response to pulses in said RF receiver output signal when the switch is connected to the RF receiver output signal.

a pulse description information buffer for buffering counter outputs sampled by the time-of-arrival latch.

a receiver computer comprising an emitter data processing module for receiving and processing information pertinent to the RF emitter signals received by the RF receiver, and a local oscillator frequency measurement module responsive to buffered outputs of the time-of-arrival latch which represent sampled counts of the counter and which were sampled pursuant to the detected GPS signal pulses, the local oscillator frequency measurement module comprising means for processing said sampled counts to determine the frequency of the local oscillator

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5,737,716

METHOD AND APPARATUS FOR ENCODING SPEECH USING NEURAL NETWORK TECHNOLOGY FOR SPEECH CLASSIFICATION

Chad Scott Bergstrom, Chandler, Ariz., and Sidney Clarence Garrison, III, deceased, late of Tempe, Ariz., by Ruth R. Garrison, personal representative, assignors to Motorola, Schaumburg, Ill.

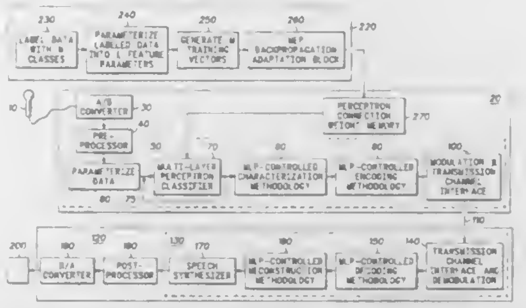
Filed Dec. 26, 1995, Ser. No. 578,730

Int. Cl.⁶ G10L 5/00

U.S. Cl. 704—202 **41 Claims**

20. A method for encoding speech data by a speech coding apparatus comprising the steps of:

a) acquiring a segment of the speech data.


230
LABEL DATA WITH N CLASSES
240
PARAMETERIZE LABELLED DATA INTO L FEATURE PARAMETERS
250
GENERATE M TRAINING VECTORS
260
MLP BACKPROPAGATION ADAPTATION BLOCK
220
10
A/D CONVERTER
30
40
PRE-PROCESSOR
PERCEPTRON CONNECTION WEIGHT MEMORY
270
20
50
70
PARAMETERIZE DATA
MULTI-LAYER PERCEPTRON CLASSIFIER
80
MLP-CONTROLLED CHARACTERIZATION METHODOLOGY
MLP-CONTROLLED ENCODING METHODOLOGY
100
MODULATION & TRANSMISSION CHANNEL INTERFACE
60
75
110
200
D/A CONVERTER
POST-PROCESSOR
SPEECH SYNTHESIZER
MLP-CONTROLLED RECONSTRUCTION METHODOLOGY
MLP-CONTROLLED DECODING METHODOLOGY
TRANSMISSION CHANNEL INTERFACE AND DEMODULATION
120
130
170
150
140

b) parameterizing the segment of the speech data to produce at least one feature vector which describes parameters of the speech data;

c) applying a first neural network to the at least one feature vector to obtain at least one speech classification of the speech data;

d) creating characterized speech data by characterizing the speech data using a characterization methodology which depends on the at least one speech classification, and

e) creating an encoded bitstream by encoding the characterized speech data.

5,737,717

METHOD AND APPARATUS FOR ALTERING FREQUENCY COMPONENTS OF A TRANSFORMED SIGNAL, AND A RECORDING MEDIUM THEREFOR

Kenzo Akagiri, Kanagawa, and Makoto Akune, Tokyo, both of Japan, assignors to Sony Corporation, Japan

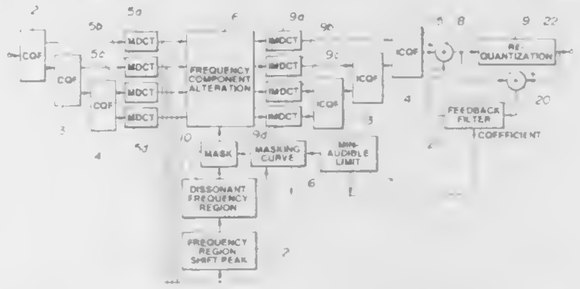
PCT No. PCT/JP94/00627, § 371 Date Feb. 21, 1995, § 102(e) Date Feb. 21, 1995, PCT Pub. No. WO94/24666, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 14, 1994, Ser. No. 351,386

Claims priority, application Japan, Apr. 14, 1993, 5-087592; Apr. 30, 1993, 5-127867; May 25, 1993, 5-122918

Int. Cl.⁶ G10L 3/02

U.S. Cl. 704—205 **50 Claims**



1. A signal transforming method in which, with respect to frequency components obtained from time signal information, difference in magnitude of attribute is altered between any one of the frequency components and at least one proximate frequency component, wherein an amount of alteration is determined by a subset of a total number of frequency components which exist in a critical band.

5,737,718

METHOD, APPARATUS AND RECORDING MEDIUM FOR A CODER WITH A SPECTRAL-SHAPE-ADAPTIVE SUBBAND CONFIGURATION

Kyoya Tsutsui, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

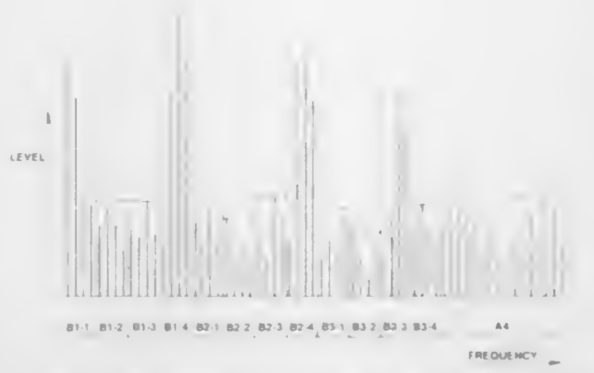
Filed Jun. 8, 1995, Ser. No. 488,573

Claims priority, application Japan, Jun. 13, 1994, 6-130654

Int. Cl.⁶ G01L 7/04

U.S. Cl. 704—205 **16 Claims**

1. A method for encoding information comprising the steps of transforming an input signal into frequency components.



normalizing and quantizing an output of the transforming step from one encoding unit to another for encoding resulting data, and

providing a plurality of encoding unit configuration modes for resolving the frequency components into plural encoding units and adaptively selecting and determining one of the encoding unit configuration modes depending upon the spectral shape of the frequency components

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5,737,719

METHOD AND APPARATUS FOR ENHANCEMENT OF TELEPHONIC SPEECH SIGNALS

Alvin Mark Terry, Longmont, Colo., assignor to U S West, Inc., Englewood, Colo.

Filed Dec. 19, 1995, Ser. No. 574,527

Int. Cl.⁶ G10L 3/02

U.S. Cl. 704—224 **13 Claims**

1. A method for processing a telephone speech signal, comprising the steps of:

a) transforming a digital representation of the speech signal into an auditory spectrum.

b) identifying regions within the auditory spectrum of strong first and second formants.

c) enhancing identified second formants relative to their respective first formants.

d) identifying consonant regions within the auditory spectrum.

e) amplifying the identified consonant regions, the amplification of the consonant regions increasing the consonant/vowel intensity ratio, the enhancement of the second formants and the amplification of the consonant regions producing a modified auditory spectrum;

f) mapping the modified auditory spectrum to a Fourier spectrum;

g) converting the Fourier spectrum to the time domain using an inverse fast-Fourier transform, and

h) normalizing the converted Fourier spectrum to provide a digital representation of a processed speech signal having more energy in regions of the second formants and the consonants.

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5,737,720
LOW BIT RATE MULTICHANNEL AUDIO CODING METHODS AND APPARATUS USING NON-LINEAR ADAPTIVE BIT ALLOCATION

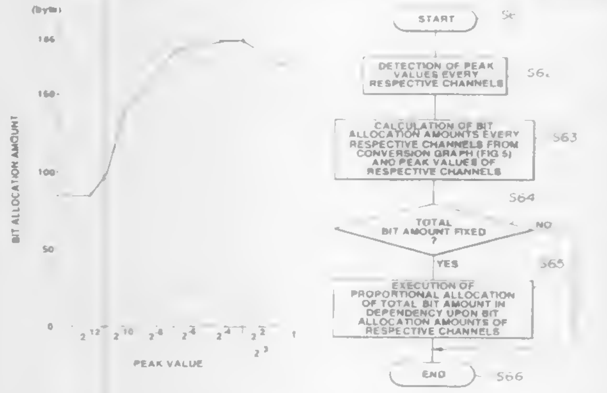
Shinji Miyamori, and Masatoshi Ueno, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 21, 1994, Ser. No. 327,282

Claims priority, application Japan, Oct. 26, 1993, 5-267250

Int. Cl.⁶ G10L *3/02*

U.S. Cl. 704—229 **4 Claims**


(byte)
166
150
100
50
0
BIT ALLOCATION AMOUNT
PEAK VALUE
START
DETECTION OF PEAK VALUES EVERY RESPECTIVE CHANNELS
S62
CALCULATION OF BIT ALLOCATION AMOUNTS EVERY RESPECTIVE CHANNELS FROM CONVERSION GRAPH (FIG 5) AND PEAK VALUES OF RESPECTIVE CHANNELS
S63
S64
TOTAL BIT AMOUNT FIXED ?
NO
YES
S65
EXECUTION OF PROPORTIONAL ALLOCATION OF TOTAL BIT AMOUNT IN DEPENDENCY UPON BIT ALLOCATION AMOUNTS OF RESPECTIVE CHANNELS
END
S66

2. A low bit rate encoder adapted for compression-encoding digital audio signals of a plurality of channels, the low bit rate encoder comprising:

- energy detecting means for detecting energies of the digital audio signals of each respective channel,
- bit allocation amount determining means for determining bit allocation amounts for the respective channels on the basis of the detected energies;
- compression-encoding means for compression-encoding the digital audio signals on the basis of the bit allocation amounts allocated to the respective channels: and
- multiplexing means for multiplexing the compression-encoded digital audio signals of the respective channels,
- the bit allocation amount determining means operative to determine bit allocation amounts so that the relationship between the energy and the bit allocation amount of the digital audio signals represents a non-linear characteristic based upon human hearing sense such that, as energy of the digital audio signals increases, the bit allocation amounts, as a whole, increase, wherein the non-linear characteristic of the bit allocation amount determining means is such that, when energy of the digital audio signal is sufficiently large, the bit allocation amount decreases.

5,737,721
PREDICTIVE TECHNIQUE FOR SIGNAL TO MASK RATIO CALCULATIONS

Soon-Keon Kwon, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Nov. 6, 1995, Ser. No. 554,622

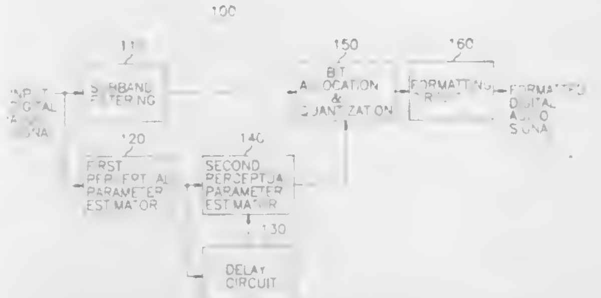
Claims priority, application Rep. of Korea, Nov. 9, 1994, 94-29219

Int. Cl.⁶ G10L *9/14 7/00*

U.S. Cl. 704—229 **3 Claims**

1. A method for adaptively encoding a digitally sampled audio signal including a plurality of frames, which comprises the steps of

- (a) dividing the frequency band of the digital audio signal into a number of P subbands, wherein said P is an integer larger than 1 and the bandwidths of said subbands substantially correspond to bandwidths which are critical to a human auditory system,
- (b) estimating first signal to mask ratios for the respective subbands in response to the digital signal samples in each subband included in the ith frame of the digital audio signal, said i being a frame index


100
110
INPUT DIGITAL AUDIO SIGNAL
SUBBAND FILTERING
150
BIT ALLOCATION & QUANTIZATION
160
FORMATTING
FORMATTED DIGITAL AUDIO SIGNAL
120
FIRST PERCEPTUAL PARAMETER ESTIMATOR
140
SECOND PERCEPTUAL PARAMETER ESTIMATOR
130
DELAY CIRCUIT

- (c) storing the first signal-to-mask ratios for the ith frame for a predetermined time period and generating delayed signal-to-mask ratios for the (i−1)st frame prestored therein synchronized with the first signal-to-mask ratios;
- (d) providing second signal-to-mask ratios based on the first signal-to-mask ratios and the delayed signal-to-mask ratios;
- (e) adaptively determining bits for each of the subbands based on the second signal-to-mask ratios, and for generating bit allocation information corresponding to the determined bits for each of the subbands;
- (f) quantizing the digital signal samples in each subband in response to the generated bit allocation information for each of the subbands; and
- (g) formatting the quantized digital signal samples together with the generated bit allocation information.

5,737,722
PATTERN AND SPEECH RECOGNITION USING GRADIENT-BASED DYNAMICAL REDUCTION OF DP MATCHING SEARCH AREA

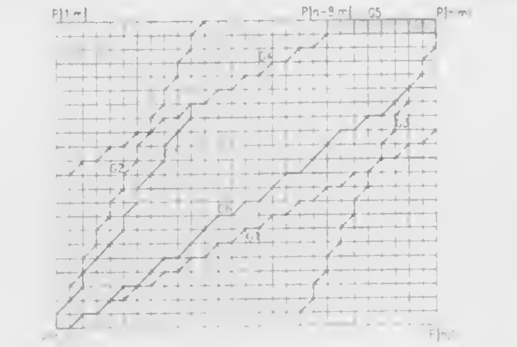
Dieter Kopp, Hemmingen; Gebhard Thierer, Ditzingen, and Gregor Rozinaj, Stuttgart, all of Germany, assignors to Alcatel N.V., Rijswijk, Netherlands

Filed Sep. 20, 1995, Ser. No. 530,079

Claims priority, application Germany, Sep. 20, 1994, 44 33 366.8

Int. Cl.⁶ G10L *5/06*

U.S. Cl. 704—241 **12 Claims**



1. A method of determining a degree of correspondence between a first pattern indicative of an input signal and a second pattern indicative of a second signal, wherein

- the first and second patterns are mapped to a plurality of n first feature vectors (**V11** to **V1n**) and to a plurality of m second feature vectors (**V21** to **V2m**), respectively, with the n first and m second feature vectors (**V11** to **V1n**, **V21** to **V2m**) forming a matrix with n×m points ({1, 1} to {n, m}),
- wherein for points ({1, 1} to {n, m}) in a subarea of the matrix, a distance between the respective first and second feature vectors (**V11** to **V1n**, **V21** to **V2m**) is calculated;
- wherein from the distances calculated, a mean distance along an optimum path is calculated using a dynamic programming (DP) algorithm, and
- wherein the mean distance at at least one point ({n, m}) is evaluated as the degree of correspondence for providing an output signal indicative thereof for deciding on recognition of the input signal as corresponding to said second signal, characterized in that
- for boundary points of the subarea, data on a gradient of a respective optimum path is determined during the calculation, and that for further calculation, the subarea is dynamically reduced on the basis of said data.

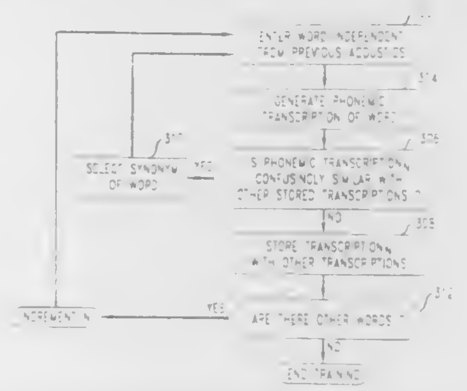
5,737,723
CONFUSABLE WORD DETECTION IN SPEECH RECOGNITION

Michael Dennis Riley, New York, N.Y., and David Bjorn Roe, Berkeley Heights, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 29, 1994, Ser. No. 297,283

Int. Cl.⁶ G10L *9/00*

U.S. Cl. 704—243 **6 Claims**


ENTER WORD INDEPENDENT FROM PREVIOUS ACOUSTICS
304
GENERATE PHONEMIC TRANSCRIPTION OF WORD
306
IS PHONEMIC TRANSCRIPTION CONFUSINGLY SIMILAR WITH OTHER STORED TRANSCRIPTIONS ?
YES
SELECT SYNONYM OF WORD
NO
308
STORE TRANSCRIPTION WITH OTHER TRANSCRIPTIONS
312
ARE THERE OTHER WORDS ?
YES
INCREMENT N
NO
END TRAINING

1. A method comprising the steps of:

- (a) inputting a first vocabulary word in a form independent of previous acoustics into a speech recognition unit training system;
- (b) determining a first set of phonemes representative of the first vocabulary word; and
- (c) comparing the first set of phonemes with a second set of phonemes representative of a second vocabulary word to determine a confusability index, the first vocabulary word and the second vocabulary word being different

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5,737,724
SPEECH RECOGNITION EMPLOYING A PERMISSIVE RECOGNITION CRITERION FOR A REPEATED PHRASE UTTERANCE

Bishnu Saroop Atal, New Providence; Raziel Haimi-Cohen, Springfield, and David Bjorn Roe, Berkeley Heights, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

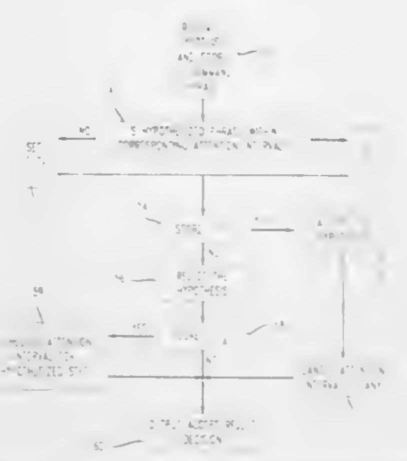
Continuation of Ser. No. 158,096, Nov. 24, 1993. This application Aug. 8, 1996, Ser. No. 695,140

Int. Cl.⁶ G01L *5/06*

U.S. Cl. 704—251 **36 Claims**

1. A method of recognizing a spoken phrase, the phrase including one or more words, the method comprising the steps of:

- performing a first speech recognition process in an attempt to recognize a first utterance of the phrase, said first speech recognition process employing a first speech recognition criterion;
- if said first speech recognition process does not result in recognition of said first utterance in accordance with said first recognition criterion, establishing a time interval in which to receive a second utterance of the phrase; and
- if said first speech recognition process does not result in recognition of said first utterance in accordance with said first recognition criterion, and if said second utterance is received during said time interval, performing a second speech recognition process in an attempt to recognize said second utterance, said second speech recognition process employing a second speech recognition criterion, wherein said second speech recognition criterion is more likely to be satisfied than said first speech recognition criterion.



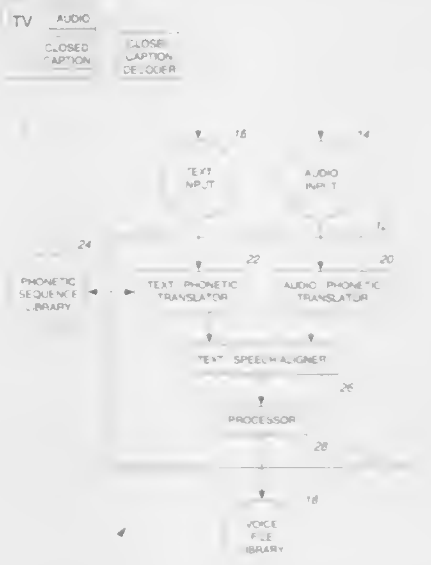
5,737,725
METHOD AND SYSTEM FOR AUTOMATICALLY GENERATING NEW VOICE FILES CORRESPONDING TO NEW TEXT FROM A SCRIPT

Eliot M. Case, Denver, Colo., assignor to U S WEST Marketing Resources Group, Inc., Englewood, Colo.

Filed Jan. 9, 1996, Ser. No. 584,649

Int. Cl.⁶ G10L *5/02*

U.S. Cl. 704—260 **67 Claims**



1. A method for automatically generating a new voice file from a script having at least one new speech pattern and a plurality of known speech patterns each having a known phonetic sequence associated therewith, the script having a text input and an audio input, the method comprising.

- translating the text input to obtain a corresponding textual phonetic sequence in order to identify at least one new textual phonetic sequence corresponding to the at least one new speech pattern based on the plurality of known speech patterns.
- translating the audio input to obtain a corresponding audio phonetic sequence.
- aligning the text input and the corresponding textual phonetic sequence with the audio input and the corresponding audio phonetic sequence to obtain an alignment of the text input and

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the audio input of the script to identify at least one new audio phonetic sequence corresponding to the new at least one speech pattern; and

generating the new voice file containing a portion of the audio input based on the at least one new audio phonetic sequence

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5,737,726

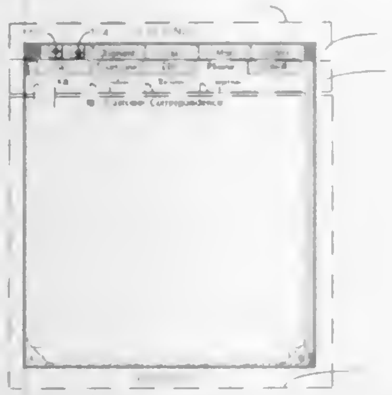
CUSTOMER CONTACT MANGEMENT SYSTEM

Paul Scott Cameron, Minneapolis; John Charles Nash, Shoreview; Robert Christopher Bloomer, Little Canada; Robert Edward Wollan, St. Paul; Melinda Ann Ahler Olmstead, Shoreview, and Kelly Marie Kreutter, Minnetonka, all of Minn., assignors to Anderson Consulting LLP, Chicago, Ill.

Filed Dec. 12, 1995, Ser. No. 570,753

Int. Cl.⁶ G06F *17/60*

U.S. Cl. 705—7 85 Claims



1. A computerized customer service system for assisting a user in providing service to a customer in connection with products, information and services, the customer service system comprising:

a) a computer system for storing, displaying, and processing information, and

b) software comprising directive information for configuring the computerized customer service system within the computer system, the software implementing in the computer system the steps of:

i) storing customer relationship information, including customer identification information and one or more business events related to one or more customers;

ii) providing a customizable framework for storing, retrieving and displaying the customer relationship information according to one or more contact types related to the one or more customers,

iii) displaying a depiction of the one or more contact types within the customizable framework associated with the one or more customers,

iv) locating a business event within the customizable framework associated with the one or more customers, by selectively processing any one or more of the customer identification information, a contact date, and one or more of the contact types; and

v) selectively displaying one or more records detailing the business event located by the locating step.

5,737,727

PROCESS MANAGEMENT SYSTEM AND METHOD

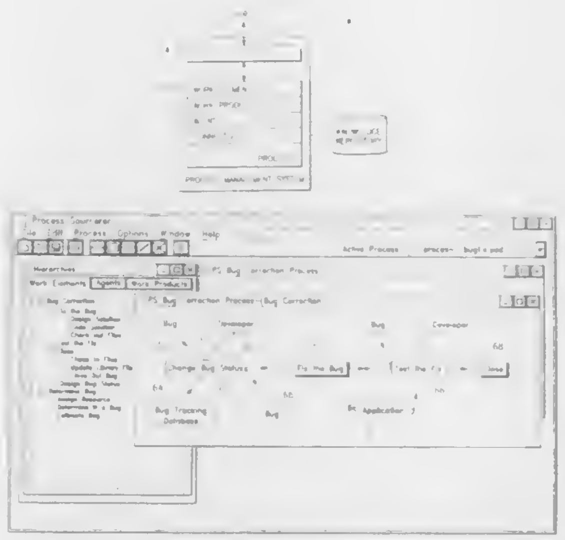
Jean B. Lehmann, Arlington; Matthew B. Reid, Plano; Jaye D. Hicks, Frisco; Steven K. Berenbrock, Plano; Brad L. Rucker, Allen, and Scott M. Boettcher, Plano, all of Tex., assignors to Electronic Data Systems Corporation, Plano, Tex.

Filed Jan. 25, 1996, Ser. No. 591,920

Int. Cl.⁶ G06F *17/60*

U.S. Cl. 705—7 79 Claims

1. A process management system for operating on a computer, comprising:



a graphical user interface for graphically presenting a process or a portion thereof to a user;

a work element for graphically representing a task to be performed in the process, said work element being expandable into an unlimited number of graphically representable sub-process levels;

a work product for graphically representing a resultant product of performing a task;

an agent for graphically representing an actor responsible for performing a task.

a link for graphically connecting said work element, work product, and agent indicative of inter-relationships therebetween, and

a knowledge repository coupled to said computer for storing valuable information regarding the process.

5,737,728

SYSTEM FOR RESOURCE ASSIGNMENT AND SCHEDULING

Elizabeth M. Sisley, Woodbury, Minn., and John E. Collins, Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 201,664, Feb. 25, 1994, Pat. No. 5,467,268. This application May 15, 1995, Ser. No. 440,770

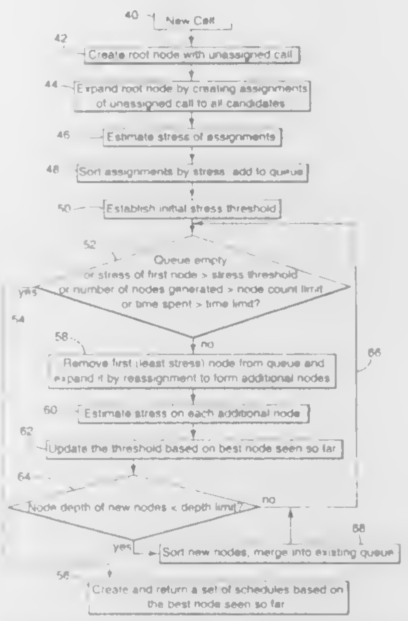
Int. Cl.⁶ G06F *17/60*

U.S. Cl. 705—8 52 Claims

1. A computer-implemented system for assigning a plurality of resource requests among a plurality of resource providers, said plurality of resource requests including a plurality of pending resource requests assigned among said resource providers according to an existing assignment set, wherein said existing assignment set defines a root node of a search tree, said system comprising

(a) means for expanding said root node by forming one or more next level nodes each of said next-level nodes corresponding to said root node but being further defined by a reassignment of one of said pending resource requests between one of said resource providers and another of said resource providers.

(b) means for estimating, for each of said next-level nodes a stress value representing a degree of undesirability of the respective reassignment; and


40
New Call
42
Create root node with unassigned call
44
Expand root node by creating assignments of unassigned call to all candidates
46
Estimate stress of assignments
48
Sort assignments by stress add to queue
50
Establish initial stress threshold
52
Queue empty or stress of first node > stress threshold or number of nodes generated > node count limit or time spent > time limit?
yes
54
no
58
Remove first (least stress) node from queue and expand it by reassignment to form additional nodes
66
60
Estimate stress on each additional node
62
Update the threshold based on best node seen so far
64
Node depth of new nodes < depth limit?
no
68
yes
Sort new nodes, merge into existing queue
56
Create and return a set of schedules based on the best node seen so far

(c) means for generating a new assignment set corresponding to one of said next-level nodes having a minimum stress value

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5,737,729

INTERACTIVE KIOSK FOR SELECTING AND SENDING MAIL PIECES

Donald E. Denman, 91 Norman Ridge Dr., Bloomington, Minn. 55437

Filed Jun. 4, 1996, Ser. No. 657,963

Int. Cl.⁶ G07B *17/00*

U.S. Cl. 705—401 29 Claims

1. A system for providing interaction with a customer for selection of a plurality of mail pieces and subsequent sending of a selected mail piece from said plurality of mail pieces to a selected address, said system comprising:

(a) a kiosk having a communication means including a selection means for prompting said customer to select one of said plurality of mail pieces and an input means for receiving customer entered data to be included on said selected mail piece said input means includes an automatic address search means for searching a database of addresses to match parameters entered by said customer.

(b) a control means supported in kiosk for controlling said communication means and for storing customer entered data, and

(c) a finishing means for finishing said selected-mail piece with said customer entered data

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5,737,730

MEASURING PROCESS FOR MEASURING CHARGEABLE ELECTRICAL CONSUMPTION FROM AN ELECTRICAL NETWORK AND ELECTRONIC ELECTRICITY METER

Landulfo Mosqueira Alvarenga; Roberto Pereira Caldas, and Milton Lippincott, all of Rio de Janeiro, Brazil, assignors to Centro De Pesquisas De Energia Eletrica--Cepel, Rio de Janeiro, Brazil

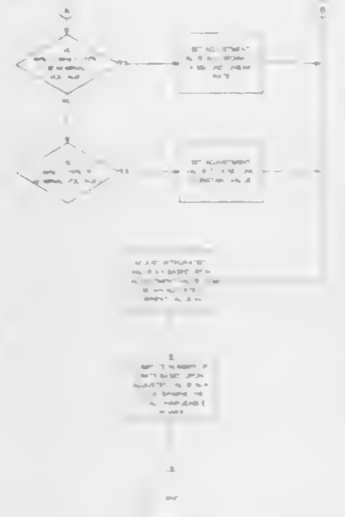
PCT No. PCT/BR95/00001, § 371 Date Jul. 3, 1996, § 102(e) Date Jul. 3, 1996, PCT Pub. No. WO95/19573, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 11, 1995, Ser. No. 669,449

Claims priority, application Brazil, Jan. 12, 1994, 9400084

Int. Cl.⁶ G01R *21/06;17/02;17/00*

U.S. Cl. 705—412 21 Claims



1. Measuring process for measuring chargeable electrical consumption from an electrical network, characterised by comprising the steps of.

a) carrying out a permanent measurement of the current of the consumer:

b) integrating the value of the measured current with respect to time until a value. (A h) is obtained relative to the electrical consumption by the consumer.

c) adjusting the integration step b) in function of the electrical voltage of the network until an adjusted value (A h) is obtained that is proportional to a preestablished unit of electrical consumption; and

d) computing the number of preestablished units obtained so as to obtain a value proportional to the electrical consumption chargeable up to any given moment

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5,737,731

METHOD FOR RAPID DETERMINATION OF AN ASSIGNED REGION ASSOCIATED WITH A LOCATION ON THE EARTH

Joseph Olk Lester; Scott David Blanchard, both of Mesa, and Dean Paul VandenHeuvel, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 5, 1996, Ser. No. 692,109

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 707—1 18 Claims

1. A method for generating a database having a plurality of hierarchical records for correlating a present location of a subscriber unit on the Earth with a location area controlled by a communication service provider, said location area denoting a functionally uniform operable region for said communication service provider, said method comprising the steps of.

(a) partitioning the Earth into a plurality of equally spaced areas

(b) for each of said plurality of equally spaced areas, overlaying service area boundary data denoting service areas controlled

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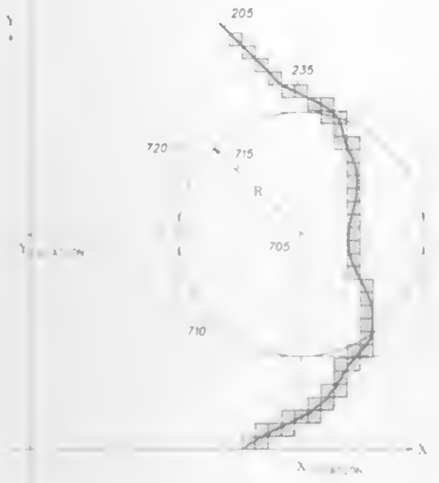


by said communication service provider within said each of said plurality of equally spaced areas.
(c) when one of said plurality of equally spaced areas contains any of said service area boundary data, further partitioning said one of said plurality of equally spaced areas into additional ones of said plurality of equally spaced areas,
(d) when said plurality of equally spaced areas do not contain said service area boundary data, recording said location area assigned to said one of said plurality of equally spaced areas, and
(e) repeating steps (c) and (d) for each of said plurality of equally spaced areas.

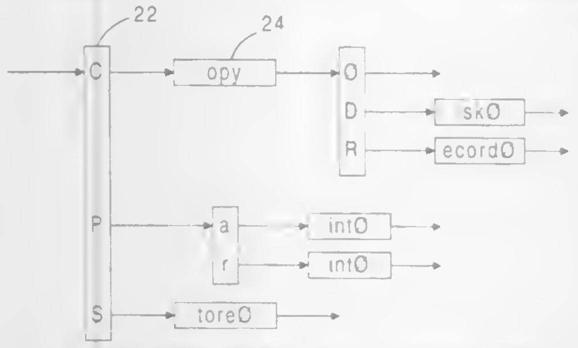
5,737,732
ENHANCED METATREE DATA STRUCTURE FOR STORAGE INDEXING AND RETRIEVAL OF INFORMATION

Seann A. Gibson, and William K. Gibson, both of Columbus, Ohio, assignors to 1st Desk Systems, Inc., Medway, Mass.

Continuation-in-part of Ser. No. 909,170, Jul. 6, 1992, Pat. No. 5,488,717. This application Jan. 25, 1996, Ser. No. 591,093

Int. Cl. G06F *17/30*

U.S. Cl. 707—2 **14 Claims**



1 In a computation means including processor means and memory means for executing digital programs, said programs including coded instructions and coded data, the improvement wherein:
(a) said processor means establishes in said memory means a tree of nodes that are interrelated by a distribution of pointers
(b) said tree of nodes including predecessor nodes and successor nodes,
(c) said predecessor nodes and said successor nodes including packed nodes and alternate list nodes,
(d) said distribution of pointers including progressions of next node pointers in said packed nodes and alternate list node pointers in said alternate nodes,
(e) said processor means accessing progressions of said nodes in correspondence with progressions of items of said coded data
(f) each of said progressions of nodes being associated with at least one identifier, wherein said identifier gives said progression of nodes the means to do at least one of (1) locating one or more other progressions of nodes within said tree of nodes, (2) being located by one or more other progressions of nodes from said tree of nodes, (3) locating one or more external objects, and (4) being located by one or more external objects;
(g) selected elements of different data items in selected progressions of successor nodes being different for different data items in order to uniquely identify said different data items; and
(h) selected elements of different data items in selected predecessor nodes being common to said different data items in order to achieve a high concentration of said coded data in said memory means and to achieve rapid accessibility of said different data items by said processor means

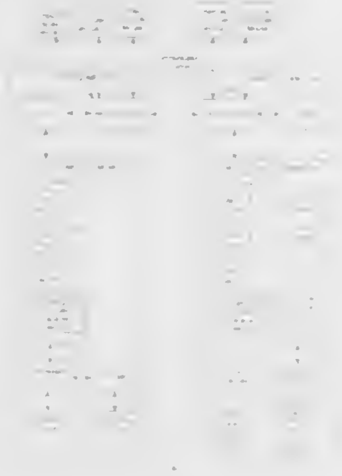
5,737,733
METHOD AND SYSTEM FOR SEARCHING COMPRESSED DATA

Marlin Jay Eller, Seattle, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 85,481, Jun. 30, 1993, abandoned. This application Sep. 26, 1996, Ser. No. 721,558

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 727—3 **25 Claims**



1 An apparatus for searching a compressed document comprised of a plurality of variable length compressed codes which represent an uncompressed document, each variable length compressed code having a length indicator which indicates the length of the variable length compressed code, the apparatus comprising
means for receiving a query request in an uncompressed code,
means for converting the query request from the uncompressed code into a converted query request of one of the plurality of variable length compressed codes,
means for determining the length of the converted query request,
means for comparing the converted query request with the variable length compressed codes of the compressed document, to determine if variable length compressed codes of the compressed document match the converted query request, wherein the converted query request is only compared with those variable length compressed codes whose length is equal to the length of the converted query request, and
means for responding to the determination that there is a match between the variable length compressed codes of the compressed document and the converted query request

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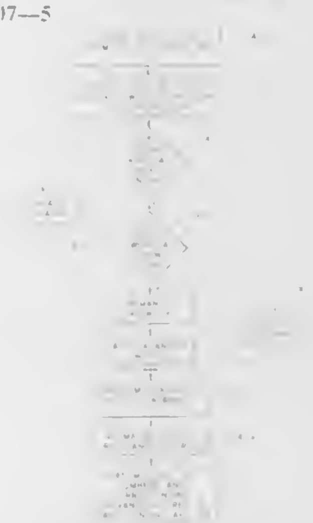
5,737,734
QUERY WORD RELEVANCE ADJUSTMENT IN A SEARCH OF AN INFORMATION RETRIEVAL SYSTEM

John Michael Schultz, Bala Cynwyd, Pa., assignor to Infonautics Corporation, Wayne, Pa.

Filed Sep. 15, 1995, Ser. No. 528,736

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—5 **6 Claims**



1 A method for performing a search of a database in an information retrieval system in response to a query having at least one query word with a query word weight for applying said query word to said database and selecting information from said information retrieval system in accordance with said query word, comprising the steps of
(a) determining whether a selected query word is a slow word;
(b) decreasing a weight assigned to said selected query word if said selected query word is a slow word; and
(c) selecting said information from said information retrieval system in accordance with said assigned weight decreased in step (b).

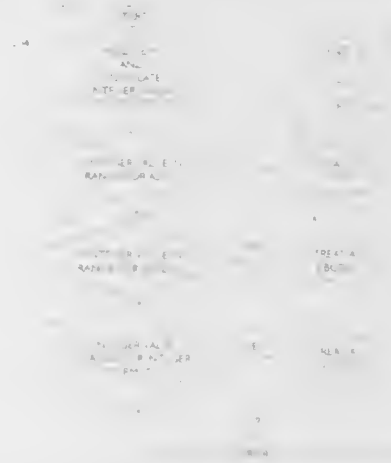
5,737,735
METHOD AND APPARATUS FOR RECORDING AND READING DATE DATA HAVING COEXISTING FORMATS

Thomas B. Soeder, West Friendship, Md., assignor to Resolve 2000, Inc., Columbia, Md.

Continuation-in-part of Ser. No. 645,822, May 14, 1996, Pat. No. 5,644,762. This application Feb. 5, 1997, Ser. No. 795,429

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—6 **9 Claims**



1 A series of operational steps to be performed on or with the aid of a computer, said steps comprising
(a) reading a year datum from a computer readable storage medium, the year datum representing a year
(b) examining the year datum to determine whether the year datum comprises an ASCII representation of a year,
(c) if the year datum comprises the ASCII representation, determining the year from the year datum in accordance with the ASCII representation; and
(d) if the year datum does not comprise the ASCII representation, determining the year from the year datum in accordance with an encoding scheme different from ASCII, wherein step (b) comprises
(i) examining at least one bit having a predetermined place value in the year datum to determine whether the at least one bit is on or off
(ii) if the at least one bit is on, determining that the year datum comprises the ASCII representation, and
(iii) if the at least one bit is off, determining that the year datum does not comprise the ASCII representation.

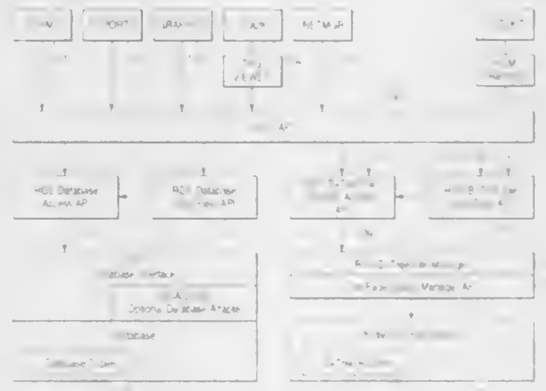
5,737,736
METHOD AND APPARATUS FOR STORING OBJECTS USING A C-STRUCTURE AND A BIND DESCRIPTOR

Walter Chang, San Jose, Calif., assignor to Oracle Corporation, Redwood Shores, Calif.

Continuation of Ser. No. 283,052, Jul. 29, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 586,139

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 707—102 **62 Claims**



1 A resource object store, comprising
a persistent store,
a bind descriptor that maps each of a plurality of attributes of a resource object to corresponding fields of the persistent store
routine having an application program interface that enables an application program to pass a c structure containing the attributes to the routine such that the routine receives the c structure through the application program interface and reads the bind descriptor to determine the fields of the persistent store that correspond to the attributes and then stores each attribute passed in the c structure into the fields of the persistent store, whereby application programs may utilize the resource object store by passing a c structure of a resource object via an application program interface

5,737,737
DATA MANAGEMENT METHOD AND APPARATUS

Yoshiro Hikida, Inagi; Yasufumi Takada; Naohiro Yoshikawa, both of Yokohama, and Satoshi Watanabe, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 19, 1993, Ser. No. 63,497

Claims priority, application Japan, May 22, 1992, 4-131138

Int. Cl. G06F [illegible]

U.S. Cl. 707—104 **18 Claims**

13 A data management apparatus comprising:
display means for displaying one or more appl[illegible] each of which corresponds to an application program and one of

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more data icons each of which corresponds to data created by one or more application programs

designation means for designating a data icon displayed by said display means.

searching means for searching for an application program which is able to process data corresponding to the data icon designated by said designation means;

decision means for deciding whether or not an application program has been found by said searching means, and

display control means for changing display statuses of an application icon corresponding to the application program found by said searching means and the data icon designated by said designation means so that they are distinguishable from other application icons and other data icons when said decision means decides an application program has been located by said searching means

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5,737,738
DISTRIBUTED READ/WRITE REPLICATION WITH PRIMARY COPY FIRST WRITE AND PRIMARY COPY TRANSFER FEATURES

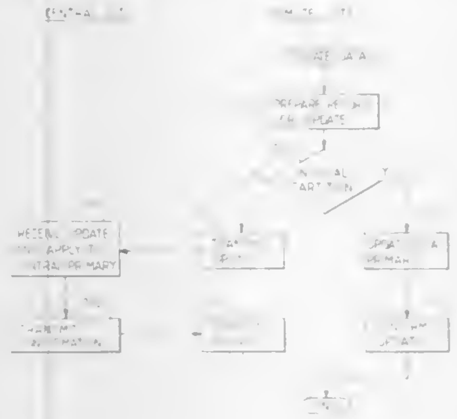
Geoffrey Sharman, Winchester, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 158,119, Nov. 23, 1993, Pat. No. 5,586,310. This application Mar. 26, 1996, Ser. No. 622,722

Claims priority, application United Kingdom, Dec. 4, 1992, 9225455

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 707—201 **10 Claims**



1 A method of distributed data processing comprising the steps of.

storing replicated copies of a data record (**310**) at a plurality of data processors (**400**, **200**, **250**)

in response to an access request at a one of said plurality of data processors for the data record accessing the copy of the data record stored at the one of said plurality of data processors.

designating a first one of said copies at a first one of said data processors as the primary copy for update purposes and the other copies as secondary copies.

applying updates to the data record firstly to the primary copy and subsequently propagating (**420**, **570**) updates of said primary copy to the other data processors holding secondary copies of the data record, and

transferring (**850**) responsibility for the primary copy from said first data processor to a second one of said data processors wherein the secondary copy at the second processor is then designated as the primary copy of the data record for update purposes such that future updates to the data record received at any of said plurality of data processors will firstly be applied at the second processor and will subsequently be propagated to the other data processors

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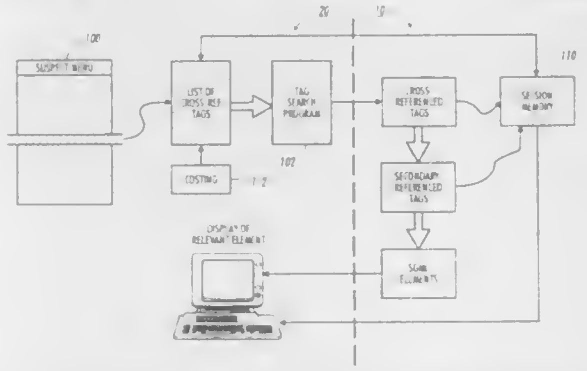
5,737,739
SYSTEM THAT ACCESSES A KNOWLEDGE BASE BY MARKUP LANGUAGE TAGS

Mark H. Shirley, Santa Clara, Calif.; Lawrence Armour, Stantonbury Fields, England; David G. Bell; Daniel G. Bobrow, both of Palo Alto, Calif.; Mark Harmison, Rochester, N.Y.; Daniel S. Marder, Penfield, N.Y.; Olivier Raiman, Paris, France; Kim H. Schwind, Honeoye, N.Y.; Estella M. Verdouw, Walworth, N.Y., and Charles Vorndran, Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 19, 1995, Ser. No. 574,482

Int. Cl.^{6} G06F *17/00*, **G03G** *21/00*

U.S. Cl. 707—512 **19 Claims**



1 A viewer for viewing a knowledge base, the knowledge base including a plurality of markup language elements, each of a subset of markup language elements in the knowledge base having a markup language tag which identifies the element in the subset as query element each query element including a query about an observable condition of a physical system, each of a subset of markup language elements in the knowledge base having a markup language tag which identifies the element in the subset as a corrective action element, each corrective action element being related to a possible way of addressing the condition of a physical system the markup language elements in the knowledge base being arranged hierarchically in a plurality of decision trees with each query element functioning as a node in a decision tree, each query element and each corrective action element including an identifying code in the tag thereof, comprising

a list of suspects, each suspect being a name relating to a condition of a physical system;

means for cross referencing each suspect to at least one query element or corrective action element in the knowledge base said cross-referencing means identifying elements by the identifying code in the tag thereof, and

means for retrieving from the knowledge base and displaying, in response to a user entering a suspect to the viewer a cross-referenced markup language element

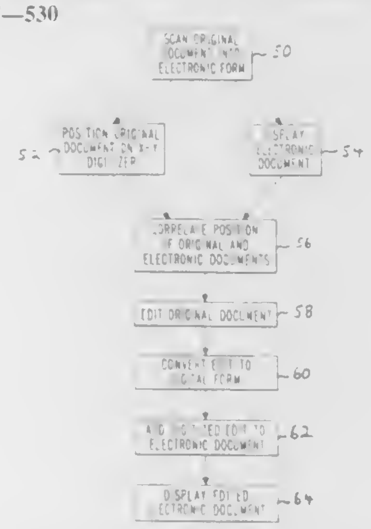
5,737,740
APPARATUS AND METHOD FOR PROCESSING ELECTRONIC DOCUMENTS

Phillip L. Henderson, Doylestown, and David J. Porter, Glenside, both of Pa., assignors to Numonics, Montgomeryville, Pa.

Continuation-in-part of Ser. No. 266,138, Jun. 27, 1994, abandoned. This application Oct. 25, 1995, Ser. No. 548,283

Int. Cl.^{6} G06F *17/24;17/21;03/03;* **G08C** *21/00*

U.S. Cl. 707—530 **33 Claims**


SCAN ORIGINAL DOCUMENT INTO ELECTRONIC FORM
50
POSITION ORIGINAL DOCUMENT ON X-Y DIGITIZER
52
DISPLAY ELECTRONIC DOCUMENT
54
CORRELATE POSITION OF ORIGINAL AND ELECTRONIC DOCUMENTS
56
EDIT ORIGINAL DOCUMENT
58
CONVERT EDIT TO DIGITAL FORM
60
ADD DIGITIZED EDIT TO ELECTRONIC DOCUMENT
62
DISPLAY EDITED ELECTRONIC DOCUMENT
64

1. A system for processing documents comprising

a support means for receiving relative to a substantially horizontal plane at least one document in a position having a longitudinal axis of said document being closer to an axis perpendicular to said horizontal plane than to an axis parallel to said horizontal plane;

means for marking on said at least one document;

means responsive to said marking means for converting said marking provided on said document into electronic form, and

means for storing said electronic form of said marking as an electronic version of said document

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5,737,741
DISK ARRAY WITH PARITY DATA STORAGE ON THE RADIALLY INNER PART OF EACH DISK

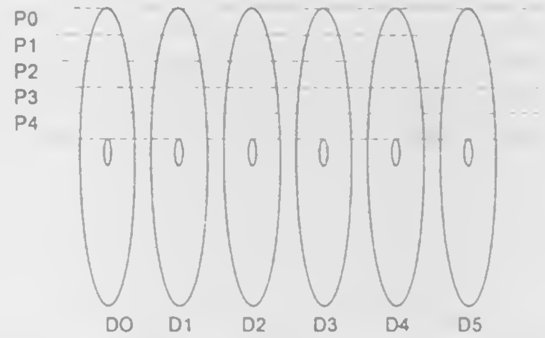
Albert Stephen Hilditch, Wokingham, and Ian Gregory Colloff, Ascot, both of England, assignors to International Computers Limited, London, England

Filed Aug. 15, 1995, Ser. No. 515,492

Claims priority, application United Kingdom, Sep. 16, 1994, 9418655; Mar. 29, 1995, 9506419

Int. Cl.^{6} G06F *12/00;11/10*

U.S. Cl. 711—114 **3 Claims**



1 A RAID system comprising a plurality of disk units, wherein data is mapped on to the disks as a series of stripes each stripe comprising d data chunks and p parity chunks, where d and p are both greater than zero, wherein the data chunks of each stripe are physically located within a radially outer fraction d/(d+p) of each disk and the parity chunks of each stripe are physically located within a radially inner fraction p/(d+p) of each disk, and wherein successive chunks within each stripe are physically located at successively more radially inward positions on successive disks, whereby each stripe has a helical configuration.

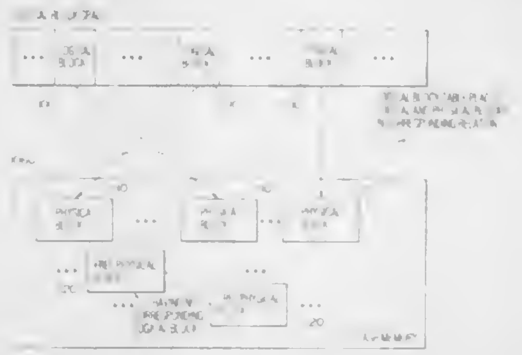
5,737,742
MEMORY SYSTEM USING FLASH MEMORY AND METHOD OF CONTROLLING THE MEMORY SYSTEM

Kyosuke Achiwa, Hino; Akira Yamamoto, Sagamihara, and Hirotsugu Yamagata, Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 27, 1995, Ser. No. 495,165

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 711—103 **16 Claims**



9 A memory system using a flash memory where logical blocks each as a unit accessed by a computer are allocated by allocation means to physical blocks of the flash memory, comprising

a flash memory having a plurality of individually erasable physical blocks.

table means for holding the relationship in correspondence between the logical blocks allocated by the allocation means and the physical blocks;

first counting and managing means for counting and managing write counts of the respective logical blocks.

first classifying means for classifying the logical blocks into a plurality of groups on the basis of the respective write counts of the logical blocks.

erasure means for erasing data in a physical block allocated to a logical block to produce a free physical block.

second counting and managing means for counting and managing the erasure counts of the respective physical blocks.

second classifying means for classifying the physical blocks into a plurality of groups on the basis of the respective erasure counts of the physical blocks.

control means for allocating the respective logical blocks to the physical blocks, and

means for managing free physical blocks which are not allocated to any logical blocks;

wherein said allocation control means performs an exchanging process as required which comprises the steps of allocating a logical block belonging to a logical block group having a larger write count to a free physical block belonging to a physical block group having a smaller erasure count and allocating a logical block belonging to a logical block group having a smaller write count to a free physical block belonging to a logical block group having a larger erasure count

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DISK BLOCK CONTROLLER AND FILE SYSTEM WHICH SUPPORTS LARGE FILES BY ALLOCATING MULTIPLE SEQUENTIAL PHYSICAL BLOCKS TO LOGICAL BLOCKS

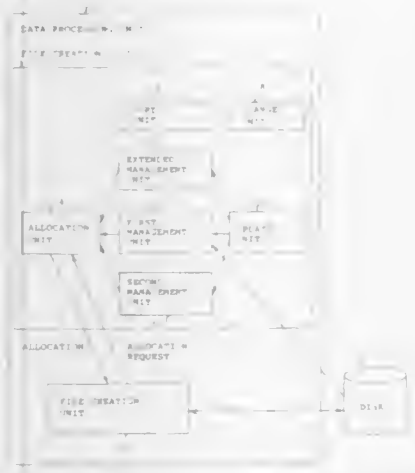
Kazuichi Ooe, and Kazuto Kamimura, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 15, 1995, Ser. No. 490,589

Claims priority, application Japan, Jun. 17, 1994, 6-135283; Dec. 27, 1994, 6-324382

Int. Cl.^{6} G06F *12/06*

U.S. Cl. 711—112 **11 Claims**



1 Apparatus for managing free physical disk block spaces and allocating free physical disk block spaces to a file comprising:

extended management means comprising an allocation list formed in a memory for managing a start block number and a sequential block number for sequential empty physical disk block spaces having specified entries and utilized for an extended file whose logical block size is an integral multiple of a physical disk block size; and

allocation means for finding sequential empty physical disk block spaces whose sequential block number is greater than the number requested according to management data provided by said extended management means when a request to secure free physical blocks is made and allocating as many sequential empty physical disk block spaces as requested to a file

5,737,744

DISK ARRAY CONTROLLER FOR PERFORMING EXCLUSIVE OR OPERATIONS

Ryan A. Callison, Spring, and Gary F. Chard, Tomball, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Oct. 13, 1995, Ser. No. 542,709

Int. Cl.^{6} G06F *12/16*

U.S. Cl. 711—114 **33 Claims**

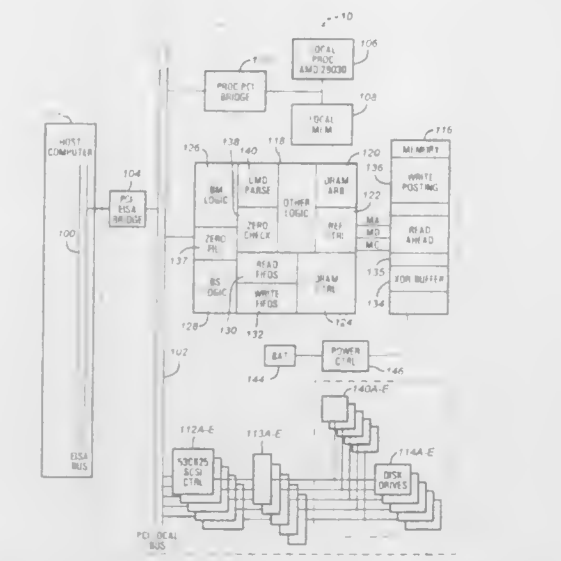
1. A memory controller for controlling operations of a memory device, wherein the memory controller is allocated an address space having a first address range and a second address range and wherein write commands containing addresses and data are issued to the memory controller to perform write operations to the memory device, the memory controller comprising

receiving logic for receiving a write command;

mapping logic responsive to the write command address of said received write command for mapping addresses in the first address range and addresses in the second address range to a physical region in the memory device; and

read modify write logic coupled to said receiving logic and said mapping logic for generating a read-modify write cycle to the memory device if the received write command address is in the second address range,

wherein said read-modify write cycle reads data from the memory device address associated with the received write command address, performs an exclusive OR operation of said read data with the received write command data to generate exclusive OR data, and writes said exclusive-OR data back to the memory device address associated with the received write command address.



5,737,745

REDUNDANT ARRAY OF DISKS WITH HOST NOTIFICATION PROCESS FOR IMPROVED STORAGE AND RECOVERY SPEED

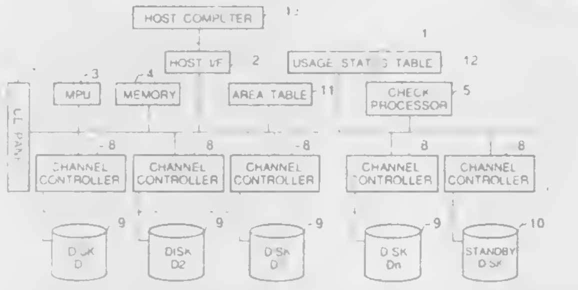
Toshiu Matsumoto; Hiroshi Baba; Kazuhiku Itoh, and Shiro Ogura, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 110,423, Aug. 23, 1993, Pat. No. 5,517,632. This application Jan. 4, 1996, Ser. No. 582,872

Claims priority, application Japan, Aug. 26, 1992, 4-226976

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 711—114 **11 Claims**



1. A method of storing new data in a redundant array of disks, comprising the steps of

receiving said new data from a host computer;

storing said new data in a semiconductor memory;

selecting an area on at least one disk in said redundant array in which to store said new data,

writing said new data on the area on said disk in said redundant array,

notifying said host computer that said new data is written on said disk in said redundant array as soon as the foregoing step of writing the new data ends;

reading data from another area on at least one other disk in said redundant array

computing check information from the new data stored in said semiconductor memory and the data thus read; and

writing said check information on a disk in said redundant array.

5,737,746

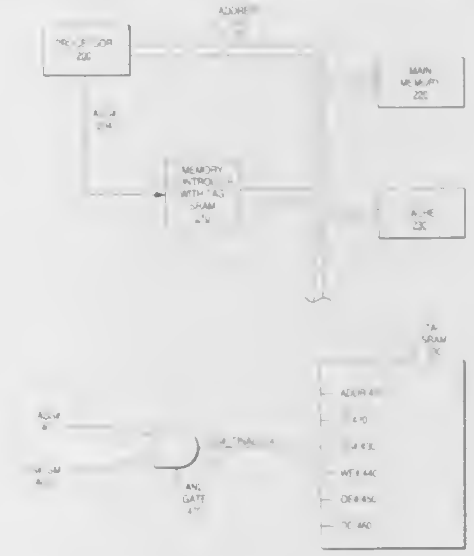
COMPUTER SYSTEM INCLUDING AN APPARATUS FOR REDUCING POWER CONSUMPTION IN AN ON-CHIP TAG STATIC RAM

Jennefer S. Hardin, Orangevale; Robert F. Kubick, and Brian K. Langendorf, both of El Dorado Hills, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 213,034, Mar. 15, 1994, Pat. No. 5,430,683. This application Apr. 3, 1995, Ser. No. 415,600

Int. Cl.^{6} G06F *13/00; 1/26*, G11C *11/413, 7/00*

U.S. Cl. 711—118 **6 Claims**



1 A computer system comprising:

bus means for communicating data; processing means coupled to the bus means for processing data, wherein the processing means generates a memory request that includes a first signal initiating a memory access cycle;

cache memory means coupled to the bus means for storing information frequently requested by said processing means,

a memory control means coupled to the bus means and said processing means, said memory control means including:

a tag static random access memory (SRAM) for storing addresses and including sense amplifier circuitry,

a control logic means for generating a second signal for activating said tag SRAM and said sense amplifier circuitry in response to the first signal initiating the access cycle to said SRAM, said control logic means being coupled to said tag SRAM, the control logic means further for generating a third signal coupled to said tag SRAM by logically combining the first and second signals, said third signal for keeping said tag SRAM and said sense amplifier circuitry activated during the entire access cycle and for deactivating said tag SRAM and said sense amplifier circuitry upon completion of an access cycle to said tag SRAM, thereby placing said tag SRAM in a reduced power consumption state

5,737,747

PREFETCHING TO SERVICE MULTIPLE VIDEO STREAMS FROM AN INTEGRATED CACHED DISK ARRAY

Natan Vishlitzky, Brookline; Robert Wilson, Hopkinton, and Percy Tzelnic, Concord, all of Mass., assignors to EMC Corporation, Hopkinton, Mass.

Filed Jun. 10, 1996, Ser. No. 661,185

Int. Cl.^{6} G06F *13/16*

U.S. Cl. 711—118 **35 Claims**

1 A method of operating a cached disk storage subsystem to supply a video data stream at a substantially constant data rate to a client of a data network, said method comprising the steps of

a) scheduling issuance of periodic fetch commands to said cached disk storage subsystem for fetching segments of said video data stream so that said segments of said video data stream are fetched from said cached disk storage subsystem in time for said video data stream so long as said segments of said video data stream are in cache of said cached disk storage subsystem when said periodic fetch commands are issued to said cached disk storage subsystem; and

b) scheduling issuance of periodic prefetch commands to said cached disk storage subsystem for prefetching said segments of said video data stream sufficiently in advance of said periodic fetch commands to insure that said segments of said video data stream are in said cache of said cached disk storage subsystem when said periodic fetch commands are issued to said cached disk storage subsystem, wherein the scheduling of the issuance of the periodic prefetch commands to said cached disk storage subsystem checks availability of resources in the cached disk storage subsystem, and selects an amount of advance of the prefetch commands before the fetch commands in dependence on the availability of resources in the cached disk storage subsystem in order to conserve the resources in the cached disk storage subsystem.

5,737,748

MICROPROCESSOR UNIT HAVING A FIRST LEVEL WRITE-THROUGH CACHE MEMORY AND A SMALLER SECOND-LEVEL WRITE-BACK CACHE MEMORY

Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 15, 1995, Ser. No. 404,702

Int. Cl.^{6} G06F *12/00; 13/00*

U.S. Cl. 711—122 **12 Claims**

1 A microprocessor unit, comprising:

a microprocessor having a processing unit operable to process digital data in accordance with computer instructions, and having a first cache of a selected capacity, said first cache being of write-through type, and coupled to said processing unit;

a second cache having a plurality of cache entries of a cumulative capacity that is substantially smaller than the capacity of said first cache, said second cache being of write-back type, and having a plurality of dirty bits, each associated with one of the plurality of cache entries for indicating, when set, that

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data in its associated cache entry has been modified, and said second cache coupled to said first cache at a higher cache level; and

memory control circuitry, for applying the contents of the plurality of entries of the second cache to a memory bus, responsive to all of the plurality of dirty bits of the second cache being set.

5,737,749

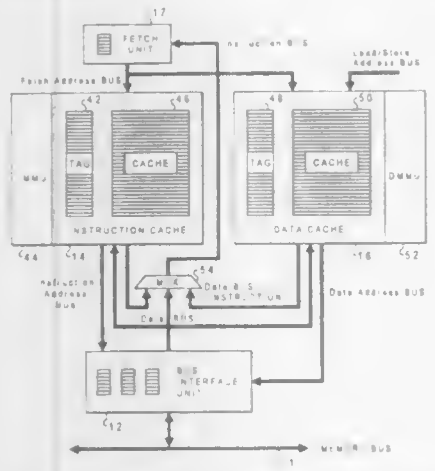
METHOD AND SYSTEM FOR DYNAMICALLY SHARING CACHE CAPACITY IN A MICROPROCESSOR

Rajesh Bhikhubhai Patel; Romesh Mangho Jessani, and Belliappa Manavattira Kuttana, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y., and Motorola, Inc., Schaumburg, Ill.

Filed May 20, 1996, Ser. No. 651,013

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 711—123 **16 Claims**



1 A method for dynamically sharing cache capacity among caches, the method comprising the steps of

receiving a request for information of a type associated with a first cache and belonging to a particular class of information,

determining if the information is contained in the first cache;

determining if the information is contained in a second cache;

if the information is not contained in the first cache and the second cache:

determining if all members of the class of information are valid in the first cache and determining if at least one replacement member of one or more replacement members of the class of information is valid in the second cache;

if the replacement member of the second cache is not valid and all members of the class of information in the first cache are valid, placing the information in the second cache; and

if the replacement member of the second cache is valid or at least one member of the class of information in the first cache is not valid, placing the information in the first cache.

5,737,750

PARTITIONED SINGLE ARRAY CACHE MEMORY HAVING FIRST AND SECOND STORAGE REGIONS FOR STORING NON-BRANCH AND BRANCH INSTRUCTIONS

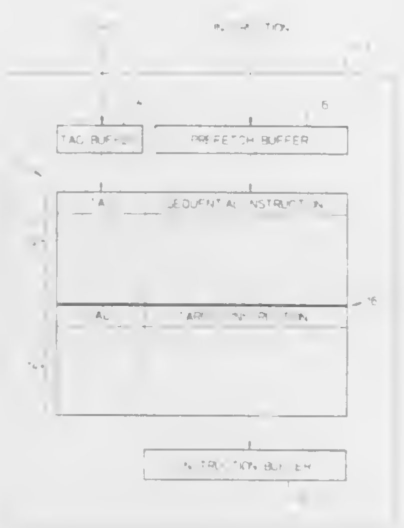
Rajendra Kumar, Sunnyvale, and Paul Gene Emerson, San Jose, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 298,861, Aug. 31, 1994, abandoned. This application Dec. 9, 1996, Ser. No. 762,539

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 711—129 **3 Claims**

1 A cache memory, comprising



a single memory array having word lines, write bit lines, and read bit lines;

an address circuit coupled to the words lines of the memory, wherein the address circuit partitions the memory array into a sequentially addressed storage region and a randomly addressed storage region during a write operation, wherein each of the sequentially addressed storage region and the randomly addressed storage region is a physically integral storage region and includes a plurality of physically contiguous storage locations, wherein the address circuit further comprises

a sequential address generation circuit that produces a sequential address for addressing the sequentially addressed storage region;

a random address generation circuit that produces a random address for addressing the randomly addressed storage region;

a selector coupled to the sequential address generation circuit and the random address generation circuit to select one of the sequential address and the random address to be applied to the memory array during the write operation;

a programmable register that stores a base value that indicates where the memory array is partitioned, wherein the programmable register is coupled to the sequential address generation circuit and the random address generation circuit; and wherein the programmable register is re-programmable to change the base value such that the memory army is dynamically partitioned.

5,737,751

CACHE MEMORY MANAGEMENT SYSTEM HAVING REDUCED RELOADS TO A SECOND LEVEL CACHE FOR ENHANCED MEMORY PERFORMANCE IN A DATA PROCESSING SYSTEM

Rajesh Bhikhubhai Patel; Sung-Ho Park; Romesh Mangho Jessani, and Belliappa Manavattira Kuttanna, all of Austin, Tex., assignors to Intellectual Business Machines Corporation, Armonk, N.Y., and Motorola, Inc., Schaumburg, Ill.

Filed Mar. 26, 1996, Ser. No. 622,254

Int. Cl.⁶ G06F *12/12*

U.S. Cl. 711—133 **8 Claims**

1 A method of enhancing memory performance in a data processing system, comprising:

receiving a memory request for a cache line at a first level cache that results in a miss in both the first level cache and a second level cache;

determining if the received memory request is a load request or a store request.

loading the cache line in the first level cache without the cache line being loaded in the second level cache, in response to a determination that the received memory request is a store request, and

loading the cache line in both the first level cache and the second level cache, in response to a determination that the received memory request is a load request.

5,737,752

CACHE REPLACEMENT MECHANISM

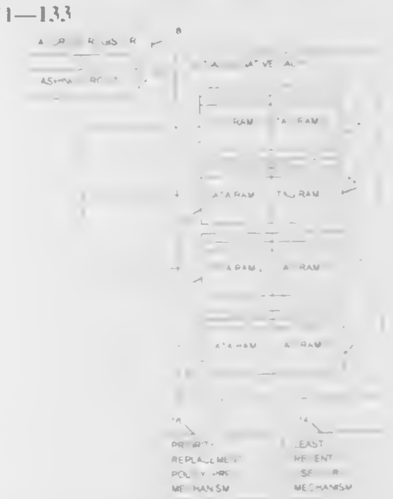
Albert Stephen Hilditch, Wokingham, England, assignor to International Computers Limited, Putney, England

Continuation of Ser. No. 216,253, Mar. 22, 1994, abandoned. This application Jun. 17, 1996, Ser. No. 670,238

Claims priority, application United Kingdom, Apr. 8, 1993, 9307359

Int. Cl.⁶ G06F *12/12*

U.S. Cl. 711—133 **4 Claims**


ADDRESS REGISTER
ASSOCIATIVE
RAM
TAG RAM
PRIORITY REPLACEMENT POLICY MECHANISM
LEAST RECENT USED MECHANISM

1 An n-way set-associative cache (where n is an integer greater than 1) comprising

(a) a plurality n of cache RAMs, each of said cache RAMs containing a plurality of cache lines,

(b) means for storing a plurality of priority tags, one for each of said cache lines, said priority tags defining respective individual user-defined priorities for each of said cache lines,

(c) addressing means for addressing said cache RAMs in parallel to select a set of n cache lines, one line from each of the cache RAMs,

(d) means for comparing the priority tags of said set of n cache lines with each other,

(e) first selection means operative in the event that one of said set of n cache lines has a priority, as defined by its priority tag, that is lower than the priorities of all others of said set of n cache lines, as defined by their priority tags, for selecting said one of said set of n cache lines for replacement, and

(f) second selection means operative in the event that at least two of said set of n cache lines have priorities, as defined by their priority tags, that are equal to each other but lower than the priorities of all others of said set of n cache lines, as defined by their priority tags, for selecting one of said at least two of said set of n cache lines for replacement.

5,737,753

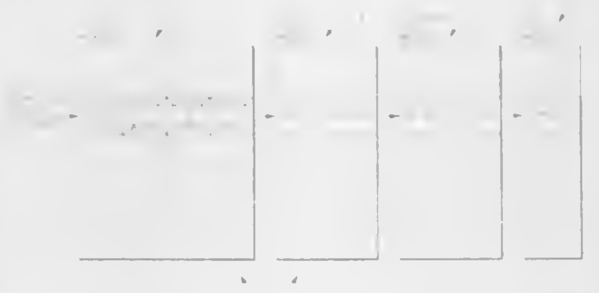
LEAST RECENTLY USED BLOCK REPLACEMENT FOR FOUR BLOCK CACHE LOGIC SYSTEM

Kenichi Isuchiya, New Brighton, Minn., and Thomas John Adelmeyer, Hillsboro, Oreg., assignors to Unisys Corporation, Blue Bell, Pa.

Continuation of Ser. No. 881,915, May 12, 1992, abandoned. This application Aug. 29, 1995, Ser. No. 520,442

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 711—136 **13 Claims**



1 A cache logic system for accessing a cache memory and for diagnosing errors in cache memory in a run mode, comprising

a four block cache memory comprising a plurality of set associated block memories,

an instruction processor (IP) for generating set associative addresses coupled to point to said set associated block memories for accessing information in said four block cache memory and said plurality of set associated block memories in the run mode,

a cache associative logic circuit coupled to said four block cache memory for generating degrade information and validity information for the blocks of the four block cache memory at a set associative address generated by said instruction processor during said run mode,

said cache associative logic circuit being coupled to a most recently used (MRU) memory for storing a modified most recently used (MMRU) block information for a set associated address after the IP has accessed said four block cache memory and said set associated block memories during said run mode

said cache associative logic circuit having MRU logic means coupled to said MRU memory for generating said modified most recently used block information after an IP hit occurs in said four block cache memory during said run mode, and

LRU logic means coupled to said MRU logic means and to said plurality of set associated block memories for generating a least recently used (LRU) block code for the set associative address being accessed in said four block cache memory

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5,737,754

CACHE MEMORY WHICH SELECTS ONE OF SEVERAL BLOCKS TO UPDATE BY DIGITALLY COMBINING CONTROL BITS IN ALL THE BLOCKS

David Edgar Castle, Poway, Calif., assignor to Unisys Corporation, Blue Bell, Pa.

Filed Mar. 20, 1996, Ser. No. 619,050

Int. Cl.⁶ G06F *12/12*

U.S. Cl. 711—136 **15 Claims**

4. A cache memory which includes: a plurality of tag memory blocks, each of which stores multiple compare addresses; a first bus which sends a low order address to all of said tag memory blocks; a respective output from each tag memory block on which a compare address is read in response to said low order address, a second bus which carries a high order address, and, a comparator circuit which generates a miss signal when the compare address on the output from every tag memory block miscompares with said high order address, wherein,

each tag memory block further stores respective control bits with each compare address;

each tag memory block responds to said low order address by reading said compare address and said respective control bits in parallel, on said respective output; and,

a digital logic circuit is coupled to the outputs from all of said tag memory blocks, which selects one of said tag memory blocks to write when said miss signal occurs by generating the sum of a binary number and the exclusive-or of said control bits that are read by said low order address from all of said tag memory blocks.

5,737,755

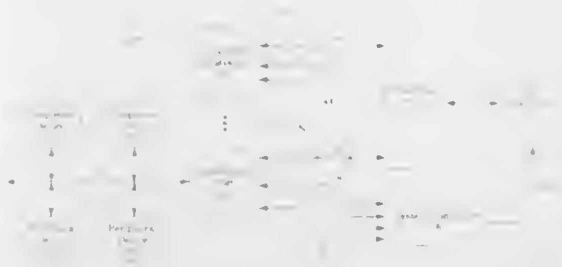
SYSTEM LEVEL MECHANISM FOR INVALIDATING DATA STORED IN THE EXTERNAL CACHE OF A PROCESSOR IN A COMPUTER SYSTEM

Zahir Ebrahim, Mountain View; Satyanarayana Nishtala, Cupertino; William Van Loo, Palo Alto; Kevin Normoyle; Leslie Kohn, both of Mountain View, and Louis F. Collin, III, San Jose, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 414,365, Mar. 31, 1995. This application Feb. 12, 1997, Ser. No. 797,995

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 711—141 **9 Claims**



5. A computer system comprising:

processor subsystem having an external cache memory and associated cache tags; and

memory interconnect including a mechanism for invalidating a data block in the external cache memory, the memory interconnect further being separate from the processor subsystem

wherein the memory interconnect invalidates the data block in response to an invalidate advisory (IVA) indication included in a write invalidate (WRI) operation issued by the processor subsystem that specifies the data block.

5,737,756

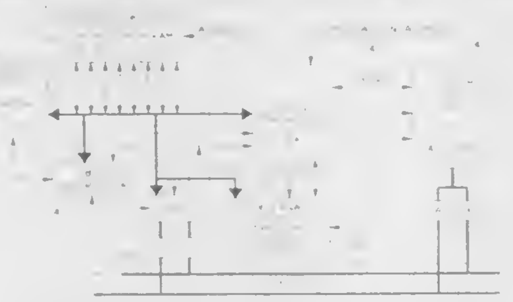
DUAL BUS COMPUTER NETWORK USING DUAL BUSSES WITH DUAL SPY MODULES ENABLING CLEARING OF INVALIDATION QUEUE FOR PROCESSOR WITH STORE THROUGH CACHE WHILE PROVIDING RETRY CYCLES FOR INCOMPLETE ACCESSES TO INVALIDATION QUEUE

Theodore Curt White, and Jayesh Vrajlal Sheth, both of Mission Viejo, Calif., assignors to Unisys Corporation, Blue Bell, Pa.

Continuation of Ser. No. 432,047, Apr. 28, 1995, abandoned. This application Aug. 21, 1996, Ser. No. 701,039

Int. Cl.⁶ G06F *12/08; 13/00*

U.S. Cl. 711—142 **2 Claims**



1. In a network having a central processor means connected via a bus interface unit to first and second busses of a dual system bus means and using a store through cache memory means regulated by use of a cache control module with an invalidation queue and using an external state machine controller working with first and second internal state machine spy modules sensing said dual system bus means which carry addresses of a packet of four new data overwrite words, a method for handling invalidation cycles for disabling stale data packets in said cache memory means without substantially inhibiting said central processor means access to said cache memory, comprising the steps of:

- (a) identifying, via said first and second internal state machine spy modules, the address of a packet of four new data overwrite words appearing on said first and second busses of said dual system bus means,
  - (a1) determining whether said first/second internal state machine spy module on said first and second busses is already active in transmitting a new data overwrite address to said invalidation queue;
  - (a2) transmitting a new data overwrite address to said invalidation queue in one clock period when said second/first internal state machine spy module is inactive;
- (b) determining whether said invalidation queue is full or has locations available for address storage by monitoring via said external state machine of the status of said invalidation queue to give priority to invalidation cycles when said invalidation queue is full

- (c) signaling said external state machine when said invalidation queue is full and needs immediate attention;
- (d) transmitting said new data overwrite packet address for storage into said invalidation queue if a location is available therein;
- (e) executing an invalidation cycle to invalidate any matching address in said cache memory means by giving priority of cache memory access to said invalidation cycle after locking-out said central processor means during a period when it is not executing a command;
- (f) establishing priority of said central processor request for cache memory access over a concurrent request for access to said invalidation queue except when said invalidation queue is full;
- (g) executing repeated access trials, when said invalidation queue is full, of said new data overwrite packet address on said first or second busses for re-transmitting said new data overwrite address at a later period when said invalidation queue is no longer full;
- (h) pointing to said invalidation queue as an address source.
- (i) selecting an address from said invalidation queue for a search of said cache memory means;
- (j) performing a tag search in a tag/status array in said cache control module using said selected packet address;
  - (j1) checking each parity address in said invalidation queue which is selected fro a tag search in said tag/status array.
- (k) establishing existence of a matching address in said tag/status array (hit);
- (l) setting an invalid signal bit against the matching address in said tag/status array;
- (m) sensing, by said tag/status array, the occurrence of a multiple-hit condition, in said cache memory means on a single address search.
- (n) generating a multiple hit error signal to said central processor means upon occurrence of a multiple hit condition.

5,737,757

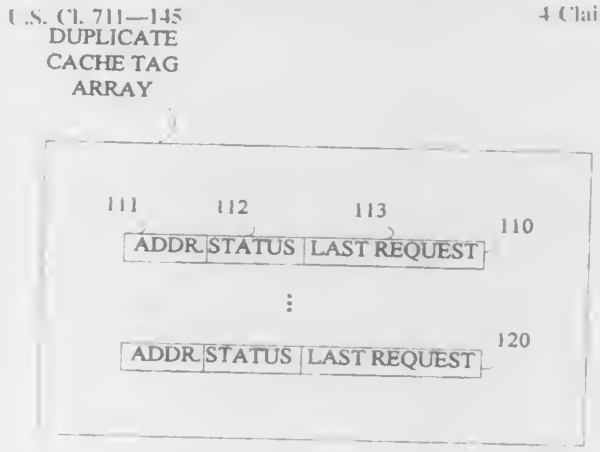
CACHE TAG SYSTEM FOR USE WITH MULTIPLE PROCESSORS INCLUDING THE MOST RECENTLY REQUESTED PROCESSOR IDENTIFICATION

Joseph Hani Hassoun, Roseville, Calif.; Michael L. Ziegler, Whitinsville, Mass., and Robert D. Odineal, Roseville, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 621,318, Mar. 25, 1996, abandoned, which is a continuation of Ser. No. 236,541, May 3, 1994, abandoned. This application Jan. 23, 1997, Ser. No. 787,984

Int. Cl.⁶ G06F *12/06*

U.S. Cl. 711—145 **4 Claims**



1. A memory system, comprising:

a main memory controller for supplying data in response to transactions received by said main memory controller,

a plurality of modules, each of said modules having a cache memory for storing data supplied to each of said modules by said main memory controller, each of said modules requesting data from said main memory controller by sending module generated transactions to said main memory controller, and

a cache tag array coupled to said main memory controller, said cache tag array including a cache tag corresponding to each data line stored in one of said cache memories of said modules, there being a one-to-one correspondence between said cache tags and said data lines, said cache tag specifying the module that most recently requested said data line corresponding to said cache tag from said main memory controller independent of whether or not a previous request for said data line has been completed.

5,737,758

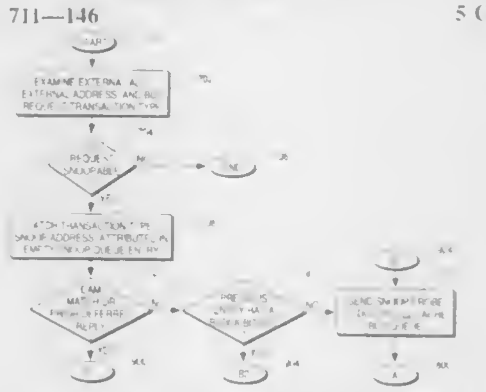
METHOD AND APPARATUS FOR MAINTAINING CACHE COHERENCY IN A COMPUTER SYSTEM WITH A HIGHLY PIPELINED BUS AND MULTIPLE CONFLICTING SNOOP REQUESTS

Amit A. Merchant, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Division of Ser. No. 568,248, Dec. 6, 1995. This application Apr. 4, 1997, Ser. No. 825,716

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 711—146 **5 Claims**



1. In a computer system including a plurality of caching agents and a bus coupling one or more of the plurality of caching agents to one another, a method of maintaining cache coherence, the method comprising the steps of:

- (a) monitoring the bus for a snoopable request, the snoopable request having an address associated with it, and responsive to finding the snoopable request:
  - (i) allocating an entry in a snoop queue, the snoop queue having one or more entries,
  - (ii) comparing the address of the snoopable request with one or more pending addresses stored in the snoop queue corresponding to one or more pending bus operations,
  - (iii) setting a first block condition if there is a match between the address of the snoopable request and the one or more pending addresses stored in the snoop queue, and
  - (iv) setting one or more history bits indicating a chronological ordering of the entry in the snoop queue, and
- (b) preventing one or more subsequent snoop operations from starting until the first block condition set in the step (a)(iii) is cleared

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5,737,759

METHOD AND APPARATUS FOR MAINTAINING CACHE COHERENCY IN A COMPUTER SYSTEM WITH A HIGHLY PIPELINED BUS AND MULTIPLE CONFLICTING SNOOP REQUESTS

Amit A. Merchant, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Division of Ser. No. 568,248, Dec. 6, 1995. This application Apr. 4, 1997, Ser. No. 825,718

Int. Cl.⁶ G06F *12/08*

U.S. Cl. 711—146 **10 Claims**

9. A method of maintaining cache coherence comprising the steps of:

- (a) allocating a first entry in a snoop queue corresponding to a first bus request having an unknown address,

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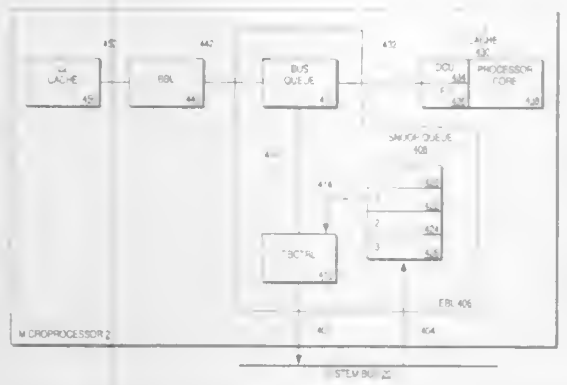
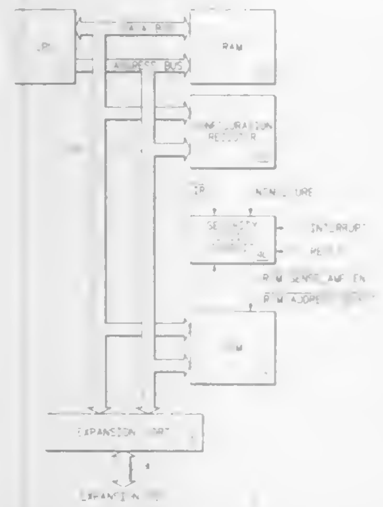


(b) allocating a second entry in the snoop queue corresponding to a second bus request;
(c) blocking the second entry from starting a snoop operation corresponding to the second bus request until the first entry has been deallocated from the snoop queue.

5,737,760
MICROCONTROLLER WITH SECURITY LOGIC CIRCUIT WHICH PREVENTS READING OF INTERNAL MEMORY BY EXTERNAL PROGRAM

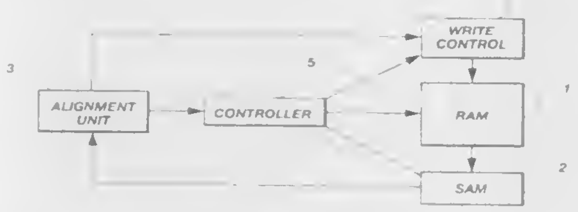
George G. Grimmer, Jr., and Michael W. Rhoades, both of Austin, Tex., assignors to Motorola Inc., Schaumburg, Ill.
Filed Oct. 6, 1995, Ser. No. 539,979
Int. Cl.^{6} G06F *12/14*
U.S. Cl. 711—163 **17 Claims**



1. A microcontroller which prevents reading of internal memory by an external program, comprising:
a central processing unit coupled to address and data buses for fetching instructions and for accessing data in response to executing said instructions, said central processing unit providing a load instruction register signal while fetching instructions;
a nonvolatile memory coupled to said address and data buses and having a control input for receiving an enable signal, said nonvolatile memory allowing accesses to data elements stored therein when said enable signal is active.
an expansion port for coupling said address and data buses to an external bus; and
a security logic circuit coupled to said central processing unit and to said nonvolatile memory, which is set to a first state when a first address within an address range of said nonvolatile memory is conducted on said address bus while said load instruction register signal is active, and is reset to a second state when a second address which is not within said address range of said nonvolatile memory is conducted on said address bus while said load instruction register signal is active, said security logic circuit activating said enable signal to said nonvolatile memory while in said first state but not while in said second state.

5,737,761
MEMORY CONTROL ARCHITECTURE FOR HIGH-SPEED TRANSFER OPERATIONS

Stephen Holland, and Gregory L. Tucker, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Continuation of Ser. No. 360,865, Dec. 20, 1994, Pat. No. 5,623,624, which is a continuation of Ser. No. 12,094, Feb. 1, 1993, abandoned. This application Jun. 12, 1996, Ser. No. 662,851
Int. Cl.^{6} G06F *12/02*
U.S. Cl. 711—165 **32 Claims**

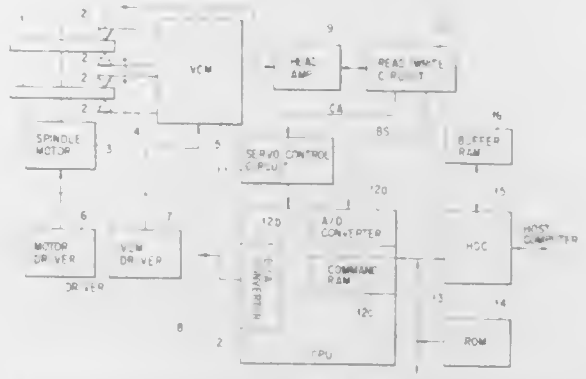


1. A memory system comprising.
a memory array for storing a plurality of data unit groups, each data unit group comprising one or more data units, each data unit having a relative position within its data unit group and comprising one or more data bits;
an array reader coupled to the memory array for selectively reading data unit groups from a source area therein, the array reader including a masking circuit for read-filtering the selectively-read data unit groups by masking data units at selected relative positions therein;
a data aligner coupled to the array reader for aligning the read-filtered data unit groups with a destination area in the memory array by selectively shifting the relative positions of data units in the read-filtered data unit groups, and
an array writer coupled to the data aligner and the memory array for write-filtering the aligned data unit groups by masking data units at selected relative positions therein and for writing the write-filtered data unit groups to the destination area in the memory array, whereby the memory system may effect a data transfer between the source and destination areas in the memory array.

5,737,762
DATA RECORDING/REPRODUCING SYSTEM CAPABLE OF PROCESSING SERVO PROCESS PROGRAM AT HIGH SPEED

Masakatsu Hattori, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 778,542, Jan. 3, 1997, abandoned, which is a continuation of Ser. No. 348,584, Dec. 2, 1994, abandoned. This application Jun. 17, 1997, Ser. No. 877,245
Claims priority, application Japan, Dec. 8, 1993, 5-308289
Int. Cl.^{6} G06F *13/00*
U.S. Cl. 711—165 **11 Claims**

1. A data recording/reproducing system comprising:
a first memory for holding a control program which includes a data transfer control program for controlling data to be recorded/reproduced and a servo control program;
processing means for generating a control amount in accordance with said servo control program, such that a head for reading/writing data is located at a desired position on a recording medium;
positioning means for positioning said head at the desired position on said recording medium in accordance with the control amount generated by said processing means.



a second memory to be accessed at a higher speed than said first memory, said second memory having a capacity smaller than a capacity of said first memory;
transfer means for transferring a predetermined part of said servo control program held in said first memory to said second memory;
wherein said second memory is accessed when said processing means executes said predetermined part of said servo control program transferred by said transfer means, and wherein said first memory is accessed when said processing means executes a portion of said control program other than said predetermined part of said servo control program transferred by said transfer means; and
wherein said processing means, said second memory and said transfer means are included in a one chip microprocessor

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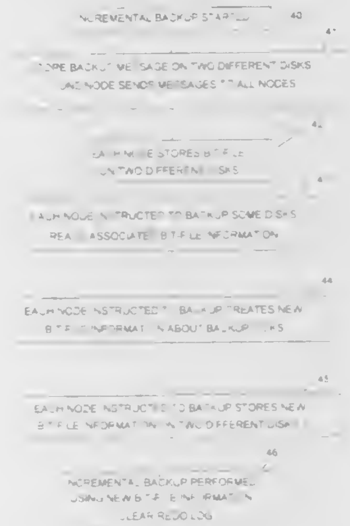
5,737,763
INCREMENTAL DISK BACKUP

Albert Stephen Hilditch, Stockport, England, assignor to International Computers Limited, Putney, England
Filed Mar. 22, 1996, Ser. No. 620,470
Claims priority, application United Kingdom, Mar. 30, 1995, 9506501
Int. Cl.^{6} G06F *12/16*
U.S. Cl. 711—162 **18 Claims**


INCREMENTAL BACKUP STARTED
40
41
STORE BACKUP MESSAGE ON TWO DIFFERENT DISKS AND NODE SENDS MESSAGES TO ALL NODES
42
EACH NODE STORES BIT FILE ON TWO DIFFERENT DISKS
43
EACH NODE INSTRUCTED TO BACKUP SOME DISKS READS ASSOCIATED BIT FILE INFORMATION
44
EACH NODE INSTRUCTED TO BACKUP CREATES NEW BIT FILE INFORMATION ABOUT BACKUP DISKS
45
EACH NODE INSTRUCTED TO BACKUP STORES NEW BIT FILE INFORMATION ON TWO DIFFERENT DISKS
46
INCREMENTAL BACKUP PERFORMED USING NEW BIT FILE INFORMATION CLEAR REDO LOG

1. A distributed data processing system including a plurality of processing nodes and a plurality of data storage disks which are shared between the nodes and each have a plurality of data blocks, each node storing a respective incremental backup bit file containing one bit for each block on the shared disks, the respective bit being set when a said node writes data to a said block, means for reading the bit-files of all nodes, forming the logical OR thereof and producing a corresponding new incremental backup bit file, and means for performing incremental backup in accordance with the new incremental backup bit file

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5,737,764
GENERATION OF MEMORY COLUMN ADDRESSES USING MEMORY ARRAY TYPE BITS IN A CONTROL REGISTER OF A COMPUTER SYSTEM

Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Division of Ser. No. 404,702, Mar. 15, 1995. This application Jun. 7, 1995, Ser. No. 474,582
Int. Cl.^{6} G06F *12/00; 13/00*
U.S. Cl. 711—170 **15 Claims**

1. A memory controller circuit for generating column addresses from addresses communicated on a bus, comprising
a control register for storing a memory array type code indicating a particular one of a plurality of memory array types, and
a column address selector circuit having inputs receiving a plurality of address lines of the bus, having outputs, and having control inputs receiving the contents of said control register, for selectively communicating a number of the address lines to its outputs as a column address responsive to the memory array type code stored in said control register

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5,737,765
ELECTRONIC SYSTEM WITH CIRCUITRY FOR SELECTIVELY ENABLING ACCESS TO CONFIGURATION REGISTERS USED BY A MEMORY CONTROLLER

Akio Shigeeda, 7522 Holly Hill Dr., Apt. 2, Dallas, Tex. 75231
Division of Ser. No. 404,702, Mar. 15, 1995. This application Jun. 7, 1995, Ser. No. 488,350
Int. Cl.^{6} G06F *13/00*
U.S. Cl. 711—170 **20 Claims**

1. An electronic system comprising
a memory, and
a microprocessor unit coupled to the memory and to a system bus, the microprocessor unit comprising
a memory controller circuit coupled to said memory
configuration registers for storing configuration information for use by said memory controller circuit in performing accesses to the memory, and
a bus bridge circuit coupled to said system bus for transferring addresses and data, and comprising
a request logic circuit for generating, responsive to at least one of the addresses, a write request signal to said memory

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controller circuit signaling an impending write access to at least one of said configuration registers; and

an enable circuit for enabling a write access to at least one of said configuration registers responsive to receiving a reply signal;

wherein said memory controller circuit includes a reply logic circuit for generating the reply signal responsive to the combination of the write request signal from said request logic circuit and a signal in the memory controller indicating the absence of a pending memory operation utilizing current information in at least one of said configuration registers.

5,737,766

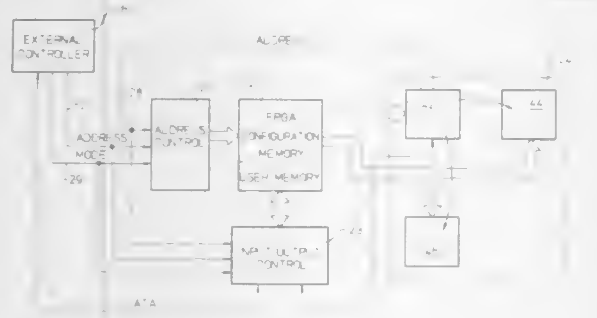
PROGRAMMABLE GATE ARRAY CONFIGURATION MEMORY WHICH ALLOWS SHARING WITH USER MEMORY

Charles M. C. Tan, Santa Clara, Calif., assignor to Hewlett Packard Company, Palo Alto, Calif.

Filed Feb. 14, 1996, Ser. No. 599,883

Int. Cl.⁶ G06F *12/00*

U.S. Cl. 711—170 **6 Claims**



1 A shared FPGA configuration memory system comprising:

a user defined logic block comprising a plurality of logic function modules wherein each logic function module comprises a plurality of programmable switch elements.

a plurality of sharable memory cells, and

a plurality of reconfigurable memory cells, each reconfigurable memory cell electrically connected to a corresponding programmable switch element thereby configuring logic functions within each logic function module, wherein one of the logic function modules is designated as a master logic function module which can write into the reconfigurable memory cells corresponding to the programmable switch elements within the other logic function modules but no other logic function module can write to the configuration memory cells corresponding to the programmable switch elements within the master logic function module.

5,737,767

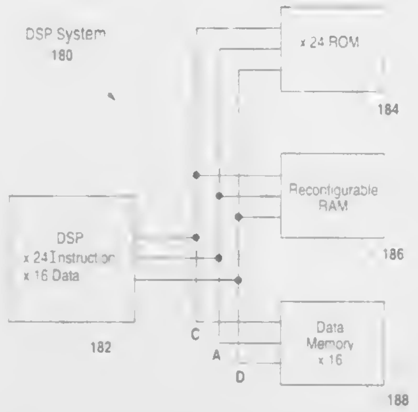
SYSTEM FOR RECONFIGURING THE WIDTH OF AN X-Y RAM

Ram Agrawal, Round Rock, and Michael Spak, Kyle, both of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Nov. 8, 1995, Ser. No. 555,081

Int. Cl.⁶ G06R *12/00*

U.S. Cl. 711—171 **20 Claims**



1 A reconfigurable x-y memory system for storing words of information comprising bits, and wherein said words have a width, the x-y memory system comprising:

a memory array including a plurality of RAM columns;

column configuration logic including a first configuration mode to configure said plurality of RAM columns in a first number of groups, wherein said x-y memory system has a first word width in said first configuration mode, and including a second configuration mode to configure said plurality of RAM columns in a second number of groups, wherein said x-y memory system has a second word width in said second configuration mode; and

select logic which selects one bit from each one of said first number of groups when said column configuration logic is in said first configuration mode, and selects one bit from each one of said second number of groups when said column configuration logic is in said second configuration mode;

wherein said width is determined by said first number when said column configuration logic is in said first configuration mode, and wherein said width is determined by said second number when said column configuration logic is in said second configuration mode.

5,737,768

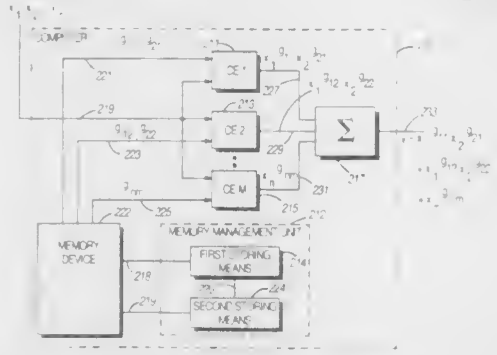
METHOD AND SYSTEM FOR STORING DATA BLOCKS IN A MEMORY DEVICE

Scott E. Lloyd, Hoffman Estates, Ill., assignor to Motorola Inc., Schaumberg, Ill.

Continuation of Ser. No. 288,385, Aug. 10, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 808,225

Int. Cl.⁶ C06F *12/06*

U.S. Cl. 711—173 **29 Claims**



1 In a computer including a memory device, a method of storing a plurality of data blocks in the memory device, the method comprising the following steps:

assigning to each of the plurality of data blocks an accessing method, each of the data blocks having a plurality of data elements.

changing an assigned accessing method of at least one of the plurality of data blocks to an alternative accessing method, which is not the same as the assigned accessing method, in order to produce a plurality of common data elements among the data blocks; and

storing the plurality of data blocks in the memory device, wherein the plurality of data blocks are accessible using the assigned accessing method and the alternative accessing method and the common data elements are non-redundantly stored in the memory device.

5,737,769

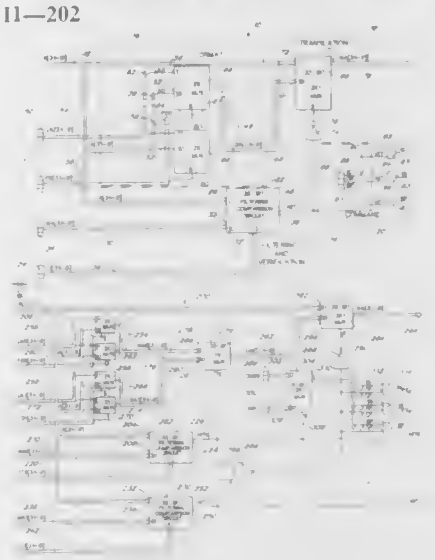
PHYSICAL MEMORY OPTIMIZATION USING PROGRAMMABLE VIRTUAL ADDRESS BUFFER CIRCUITS TO REDIRECT ADDRESS REQUESTS

Jason Seung-Min Kim, Los Angeles, Calif., assignor to AST Research, Inc., Irvine, Calif.

Continuation of Ser. No. 520,154, Aug. 28, 1995, abandoned, which is a division of Ser. No. 132,643, Oct. 6, 1993, Pat. No. 5,526,503. This application Jan. 24, 1997, Ser. No. 788,938

Int. Cl.⁶ G06F *12/02*

U.S. Cl. 711—202 **5 Claims**



1 A method of optimizing physical memory of a computer system having a processing unit by enabling the use of memory blocks which are reserved for memory mapped access of external peripherals, comprising the steps of:

configuring a system memory map to include a memory space above a physical memory space, said memory space having a size equivalent to the size of the reserved memory mapped space for accessing memory mapped peripherals.

utilizing a first programmable buffer address circuit, said first programmable buffer address circuit having at least a first writable memory element configured to store first address mapping data, to intercept address requests from said processing unit for the reserved memory mapped space and to changeably redirect said address requests according to said first address mapping data from a local memory bus to a slower downstream bus where a requested peripheral device is located; and

utilizing a second programmable buffer address circuit, said second programmable buffer address circuit having at least a second writable memory element configured to store second address mapping data, to changeably redirect address requests for memory locations above the physical memory space according to said second address mapping data to the physical memory space which was reserved for access by the memory mapped address of the peripheral devices.

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GRANTED April 7, 1998

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For CLASS	See PATENT NO.
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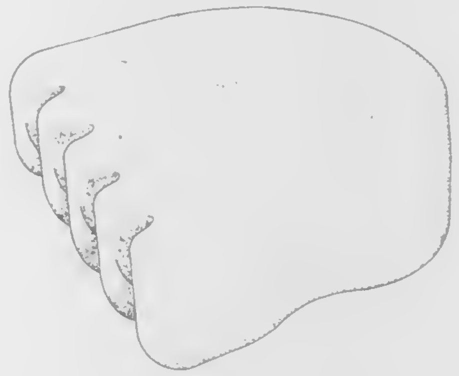
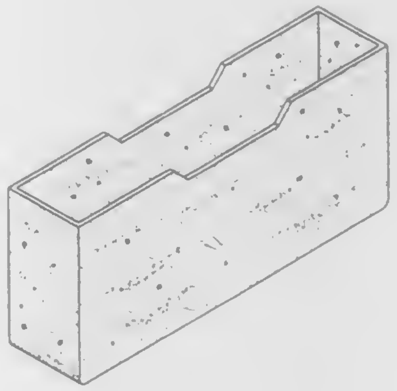
APRIL 7, 1998

393,135
BAKED ITEM
Paul T. Durst, 716 Antrim Rd., Louisville, Ky. 40207
Filed Sep. 18, 1996, Ser. No. 59,919
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—109



393,137
NEW IMAGE TIE WITH MIRROR CASE
Daniel A. Breton, 519-C Reynolds St., Danielson, Conn. 06239
Filed Oct. 10, 1996, Ser. No. 60,910
Term of patent 14 years
LOC (6) Cl. 02 - *05*
U.S. Cl. D2—605

393,136
TORTILLA SHELL
Timothy J. Gornet, 625 Newport Ave., Webster Grove, Mo. 63119
Division of Ser. No. 34,610, Feb. 8, 1995, Pat. No. Des. 376,893. This application Aug. 26, 1996, Ser. No. 58,852
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—122



393,138
SLEEVE
Fred Frey, 601 S. Ocean Ave. #4, Pompano Beach, Fla. 33062
Filed Mar. 23, 1994, Ser. No. 20,294
Term of patent 14 years
LOC (6) Cl. 02 - *06*
U.S. Cl. D2—610

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393,139
PADDED SEATBELT SHOULDER HARNESS SLEEVE WITH POCKET

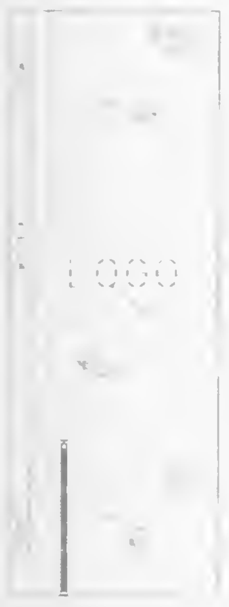
Daniel M. Lawrence, 301 Liberty St., Pontiac, Mich. 48341, and Daren Borza, 13339 Perry Cir., Warren, Mich. 48093

Filed Aug. 9, 1996, Ser. No. 58,192

Term of patent 14 years

LOC (6) Cl. 02 - *07*

U.S. Cl. D2—639



393,140
PATIENT GOWN

Deborah J. Shannon, 11425 Tiffany La., Moreno Calley, Calif. 92557

Filed Dec. 23, 1996, Ser. No. 64,107

Term of patent 14 years

LOC (6) Cl. 02 - *01*

U.S. Cl. D2—720

393,141
WORK PANTS WITH KNEELING PAD POCKETS

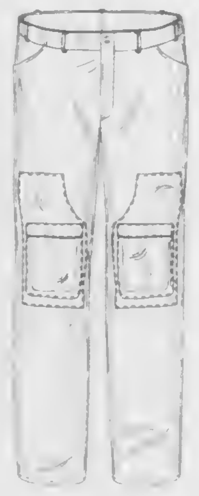
George F. Glycenfer, 11 Wesley Pl., Nutley, N.J. 07110

Filed Apr. 7, 1997, Ser. No. 68,434

Term of patent 14 years

LOC (6) Cl. 02 - *02*

U.S. Cl. D2—742



393,142
ATHLETIC SHOE

Quincy Brown, 4401 NW. 27th St., Lauderhill, Fla. 33313

Filed Nov. 25, 1996, Ser. No. 63,063

Term of patent 14 years

LOC (6) Cl. 02 - *04*

U.S. Cl. D2—908

393,143
SHOE PROVIDED WITH A BORDER

Luigi Ferro, Verona, Italy, assignor to SAGHE' S.r.l., Verona, Italy

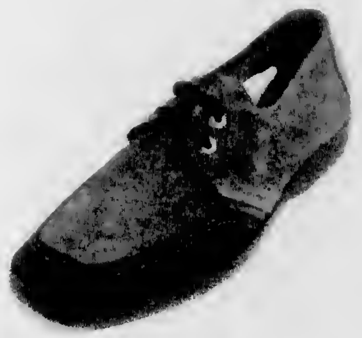
Filed Oct. 22, 1996, Ser. No. 61,358

Claims priority, application Italy, Apr. 23, 1996, VR9600014

Term of patent 14 years

LOC (6) Cl. 02 - *04*

U.S. Cl. D2—944



393,144
SOLE FOR A SHOE

Luigi Ferro, Verona, Italy, assignor to Saghe' S.r.l., Verona, Italy

Filed Oct. 22, 1996, Ser. No. 61,338

Claims priority, application Italy, Apr. 23, 1996, VR9600014

Term of patent 14 years

LOC (6) Cl. 02 - *04*

U.S. Cl. D2—954

393,145
SHOE SOLE

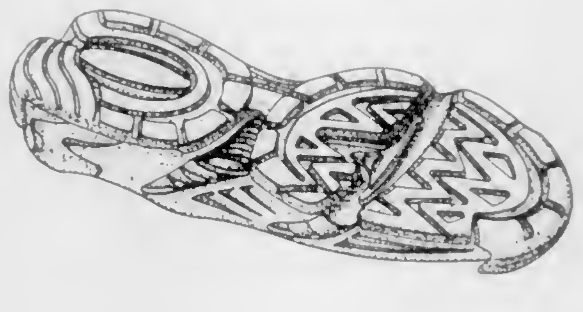
Toshikazu Kayano, Kobe, Japan, assignor to Asics Corporation, Japan

Filed Jun. 11, 1996, Ser. No. 55,702

Term of patent 14 years

LOC (6) Cl. 02 - *04*

U.S. Cl. D2—959



393,146
SHOE SOLE

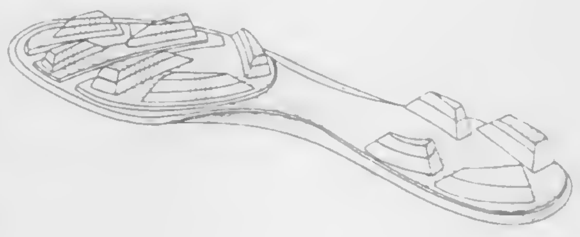
Guido Valle, Padua, Italy, assignor to VALSPORT S.p.A., Padua, Italy

Filed Jan. 24, 1997, Ser. No. 65,224

Term of patent 14 years

LOC (6) Cl. 02 - *04*

U.S. Cl. D2—962



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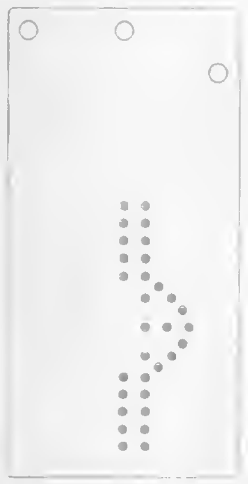
COMBINED BOW AND POM-POM MAKER

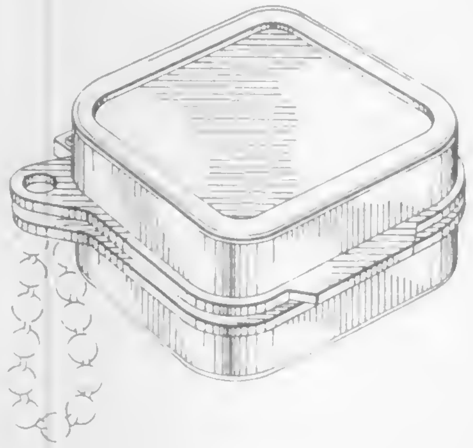
Ruth N. Renshaw, 207 Wenatchee, Umatilla, Oreg. 97882
Filed Nov. 6, 1996, Ser. No. 62,066
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D3—26



393,148

KEY CHAIN BOX

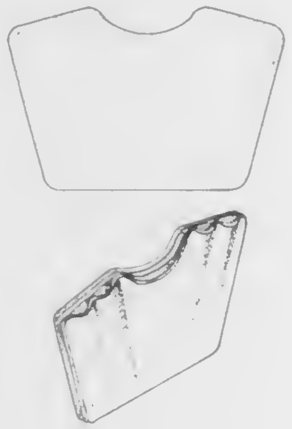
Thomas G. Petruzzi, 5118 Belleville Ave., Orlando, Fla. 32812
Filed May 14, 1996, Ser. No. 54,408
The portion of the term of this patent subsequent to Aug. 26, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—208



393,149

WALLET

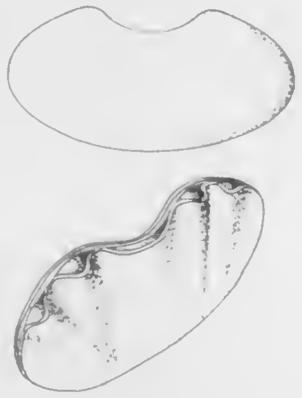
Scott G. Swanston, 914 Ford Road, Maroubra NSW 2035, and William F. Swanston, P.O. Box 142, Beaconsfield NSW 2014, both of Australia
Filed Feb. 18, 1997, Ser. No. 66,571
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—247



393,150

WALLET

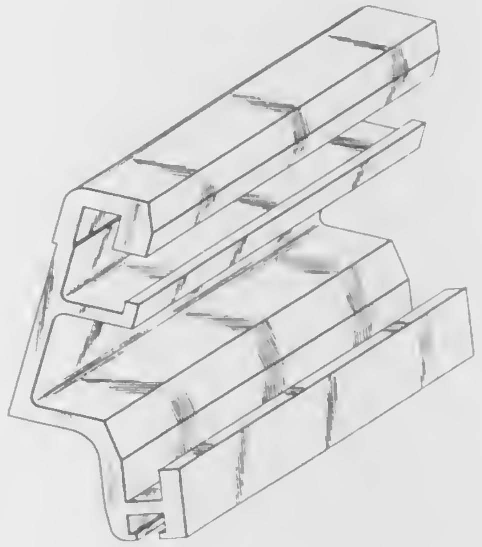
Scott G. Swanston, 914 Ford Rd., Maroubra, Australia, 2035, and William F. Swanston, Beaconsfield, Australia, 2014
Filed Feb. 18, 1997, Ser. No. 66,572
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—247



393,151

TRACK FOR STORING FISHHOOKS

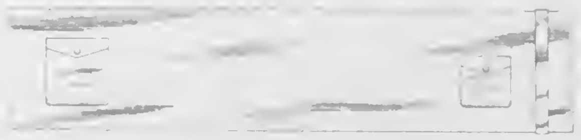
Geir Jorn Liaklev, Gjovik, Norway, assignor to O. Mustad & Søn A/S, Gjøvik, Norway
Filed Jul. 23, 1996, Ser. No. 57,375
Claims priority, application Norway, Jan. 23, 1996, 960041
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—260



393,152

ROD AND REEL ACCESSORY BAG

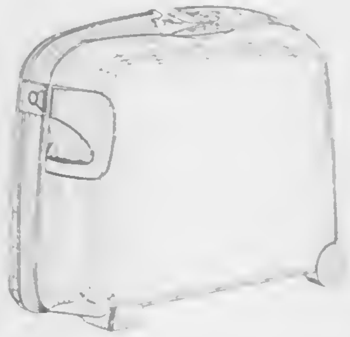
Melvin T. Gibson, 151 Bergen Ave., Jersey City, N.J. 07305
Filed Feb. 21, 1997, Ser. No. 67,209
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—260



393,153

WHEELED MOLDED LUGGAGE CASE

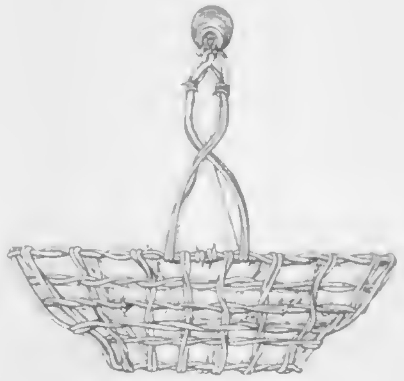
David P. Farrage, Weehawken, N.J., assignor to Samsonite Corporation, Denver, Colo.
Filed Jan. 24, 1997, Ser. No. 65,349
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—279



393,154

BARBED WIRE BASKET

David C. Kolar, and Lorna J. Kolar, both of P.O. Box 219, Hobson, Mont. 59452
Continuation-in-part of Ser. No. 32,713, Dec. 27, 1994, abandoned. This application Jul. 30, 1996, Ser. No. 57,682
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—30



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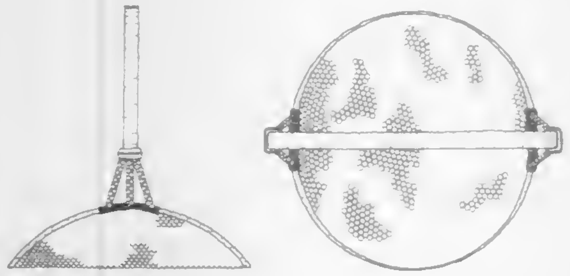
393,155
BASKET

Carol D. McCain, 313 Forest Dr., Reidsville, N.C. 27320
Filed Jul. 21, 1997, Ser. No. 73,293
Term of patent 14 years
LOC (6) Cl. 03 - *01*

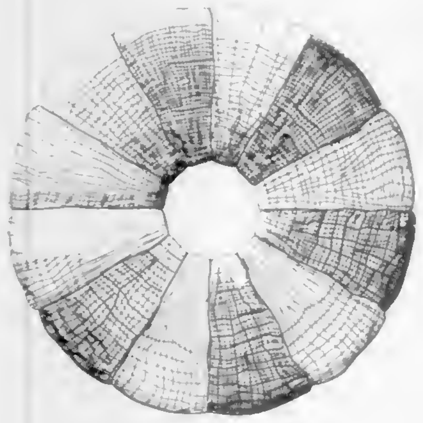
U.S. Cl. D3—306



393,156
STUFFED FABRIC APPLIQUÉ

Theresa A. Degoede, P.O. Box 777, Mossyrock, Wash. 98564
Filed Jul. 1, 1996, Ser. No. 56,518
Term of patent 14 years
LOC (6) Cl. 05 - *04*

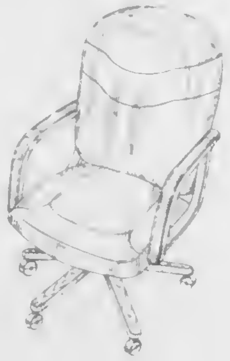
U.S. Cl. D5—63



393,157
CHAIR

William H. Goodworth, Davenport, and Robert Baillie, Muscatine, both of Iowa, assignors to Hon Industries Inc., Muscatine, Iowa
Filed Dec. 23, 1996, Ser. No. 64,188
Term of patent 14 years
LOC (6) Cl. 06 - *01*

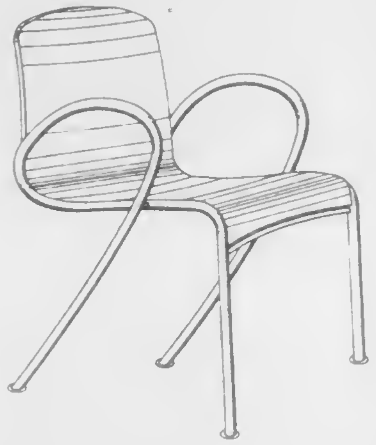
U.S. Cl. D6—366



393,158
CHAIR

Lisa Smith, 140 E. 46th St., Suite 2C, New York, N.Y. 10017
Filed Jan. 9, 1997, Ser. No. 64,701
Term of patent 14 years
LOC (6) Cl. 06 - *01*

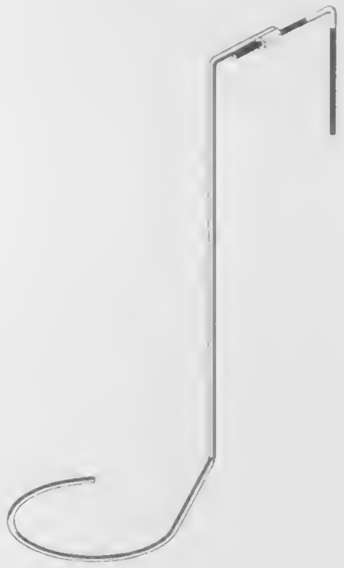
U.S. Cl. D6—375



393,159
ADJUSTABLE PLANT HOLDER

Roger H. Richards, 3134 Waterside Dr., Arlington, Tex. 76012, and William C. Richards, 700 Middlefork, Irving, Tex. 75063
Division of Ser. No. 43,856, Sep. 13, 1995, Pat. No. Des. 383,916. This application May 27, 1997, Ser. No. 71,323
Term of patent 14 years
LOC (6) Cl. 11 - *02*

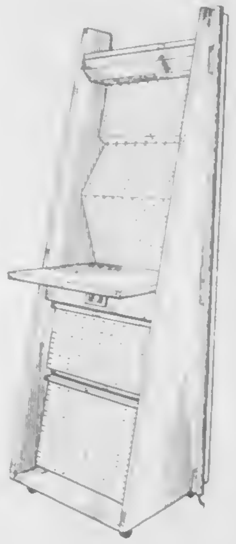
U.S. Cl. D6—403



393,160
DISPLAY STAND

Antonio Canton Gongora; Carlos Jesús Cruz Fernandez; José Maria Munagorri Enriquez, and Juan Carlos Rayo Ortigüela, all of Madrid, Spain, assignors to Telefonica de Espana, S.A., Madrid, Spain
Filed Nov. 21, 1996, Ser. No. 62,702
Claims priority, application Spain, May 21, 1996, 137533
Term of patent 14 years
LOC (6) Cl. 06 - *04*

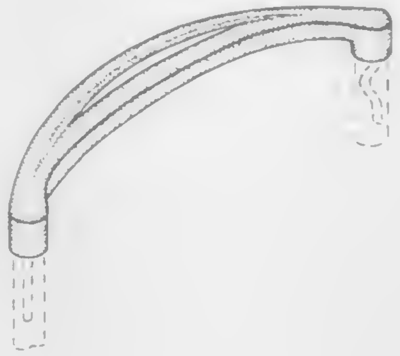
U.S. Cl. D6—449



393,161
CHAIR ARM

Arnold B. Dammerman, Grand Rapids; David A. Bodnar, Jenison; Charles P. Roossien, Wyoming, and Michael I. Deimen, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Filed Jun. 5, 1996, Ser. No. 55,407
Term of patent 14 years
LOC (6) Cl. 06 - *06*

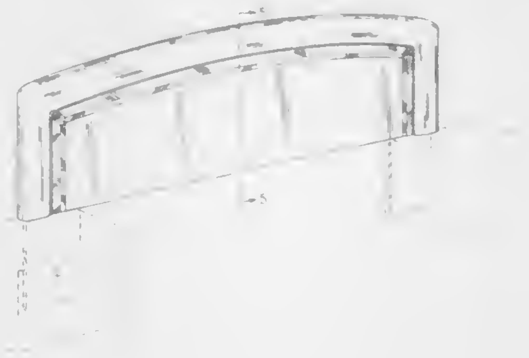
U.S. Cl. D6—501



393,162
HEADBOARD

Carlo Bargagli-Stoffi, Union, N.J., assignor to SanGiacomo, N.A., Ltd., Union, N.J.
Filed Dec. 12, 1996, Ser. No. 63,684
Term of patent 14 years
LOC (6) Cl. 06 - *01*

U.S. Cl. D6—505



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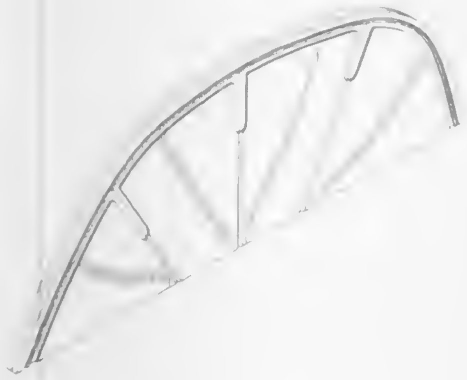
HEADBOARD

Paul Zaidman, Winnipeg, Canada, assignor to Palliser Furniture Ltd., Winnipeg, Canada

Filed Mar. 10, 1997, Ser. No. 67,752
Term of patent 14 years
LOC (6) Cl. 06 - *06*

U.S. Cl. D6—505



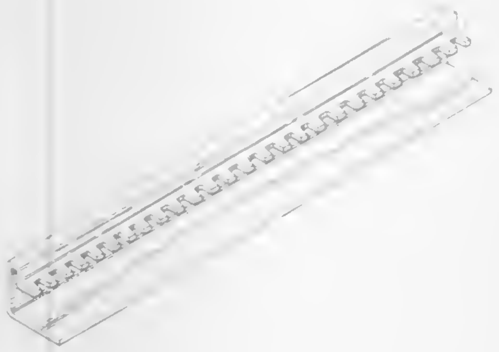
393,164

TOOTH RAIL

Brian F. Russell, Georgetown, Ky., and Tom W. Rogers, Monrovia, Calif., assignors to Western Pacific Storage Systems, Inc., Georgetown, Ky.

Filed Jun. 6, 1996, Ser. No. 55,503
Term of patent 14 years
LOC (6) Cl. 06 - *04*

U.S. Cl. D6—509



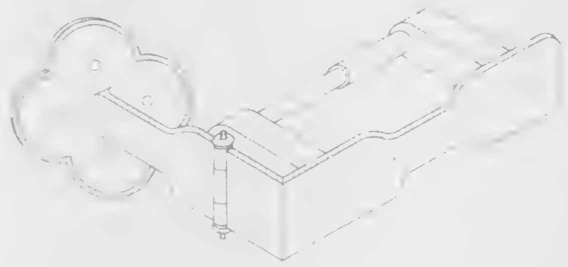
393,165

TOILET TISSUE HOLDER

Finn Jensen, 2906 East Ave., Q3, Palmdale, Calif. 93550

Filed Jun. 9, 1997, Ser. No. 71,947
Term of patent 14 years
LOC (6) Cl. 07 - *07*

U.S. Cl. D6—523



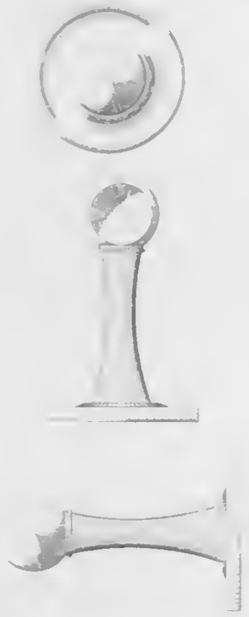
393,166

BATHROOM WALL MOUNT

Norton Sharpe, Los Angeles, Calif., assignor to Franklin Brass Manufacturing Company, Rancho Dominguez, Calif.

Division of Ser. No. 41,839, Jun. 29, 1995, Pat. No. Des. 377,570. This application Aug. 30, 1996, Ser. No. 58,994
Term of patent 14 years
LOC (6) Cl. 07 - *07*

U.S. Cl. D6—524



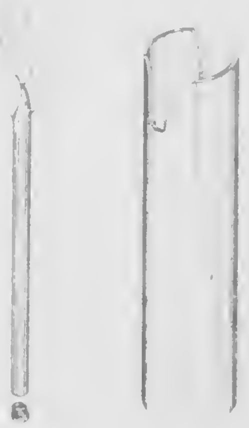
393,167

COMBINED TOILET BOWL BRUSH AND HOLDER THEREFOR

Gary U. Bussa, 2030 Fillmore St. Apt. 3, Hollywood, Fla. 33020

Filed Jul. 18, 1997, Ser. No. 73,877
Term of patent 14 years
LOC (6) Cl. 04 - *02*

U.S. Cl. D6—527



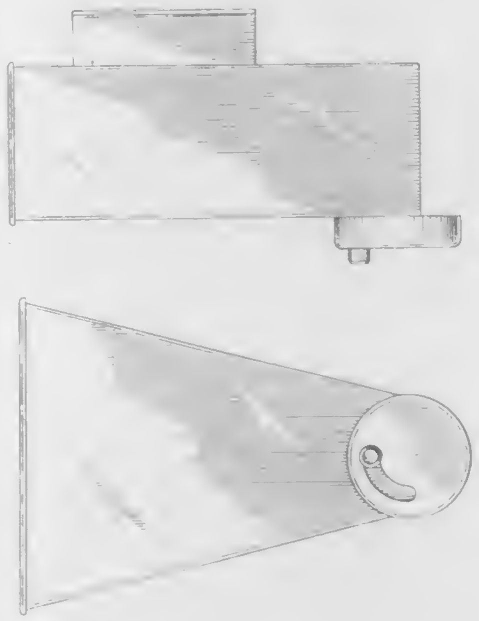
393,168

DISPENSER FOR LIQUIDS

Edward R. Arcese, 501 Lexington St. Unit #48, Waltham, Mass. 02154, and Edward R. Arcese, Jr., 52 Fitzgerald Rd., Marlborough, Mass. 01752

Filed Jun. 2, 1997, Ser. No. 72,020
Term of patent 14 years
LOC (6) Cl. 07 - *07*

U.S. Cl. D6—545



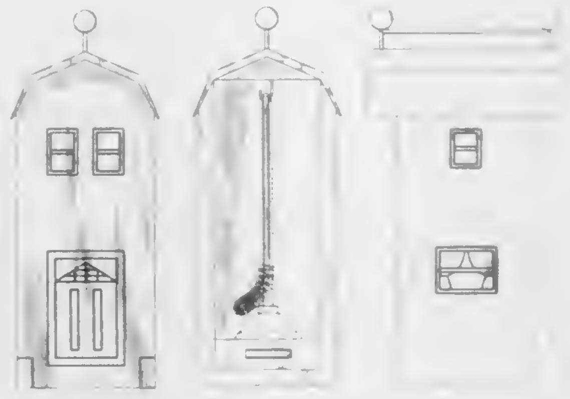
393,169

PLUNGER/BOWL BRUSH HOLDER

Carl M. Cross, and Sandra B. Cross, both of P.O. Box 912, Hopewell, Va. 23860

Filed Jul. 31, 1997, Ser. No. 74,483
Term of patent 14 years
LOC (6) Cl. 07 - *07*

U.S. Cl. D6—551



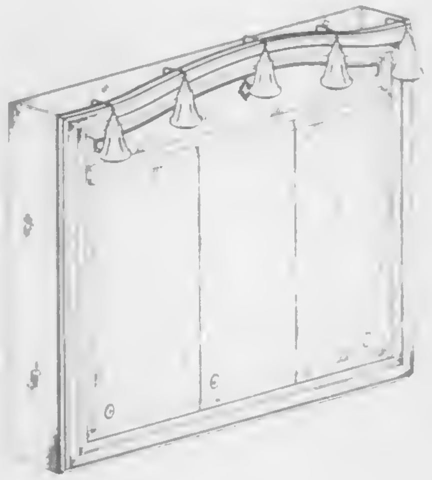
393,170

MIRRORED MEDICINE CABINET WITH LIGHT BRIDGE

James J. Palka, 22351 W. Thornridge Dr., Kildeer, Ill. 60047

Division of Ser. No. 44,238, Sep. 21, 1995, Pat. No. Des. 386,346. This application Jun. 6, 1997, Ser. No. 71,783
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D6—559



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393,171
CIGARETTE PACK DISPLAY UNIT

Yvon St-Pierre; Andre Dubeau, and Roch Cyr, all of Montreal, Canada, assignors to Imperial Tobacco Limited, Quebec, Canada

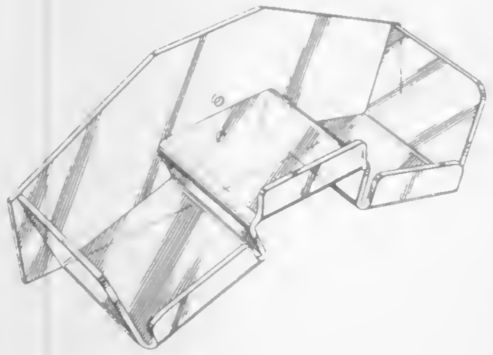
Filed Sep. 17, 1996, Ser. No. 59,876

Claims priority, application Canada, Jun. 20, 1996, 1996-1427

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—571



393,172
CUSHION FOR USE IN A CHILD'S SEAT OF A SHOPPING CART

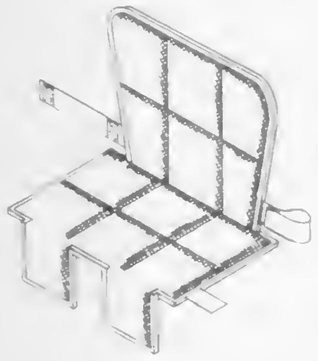
Carol Anne Brady, 20535 S. Tamiami Trail, Estero, Fla. 33928-2829

Filed Dec. 7, 1995, Ser. No. 47,549

Term of patent 14 years

LOC (6) Cl. 06 - *09*

U.S. Cl. D6—601



393,173
COMPACT DISC STORAGE RACK

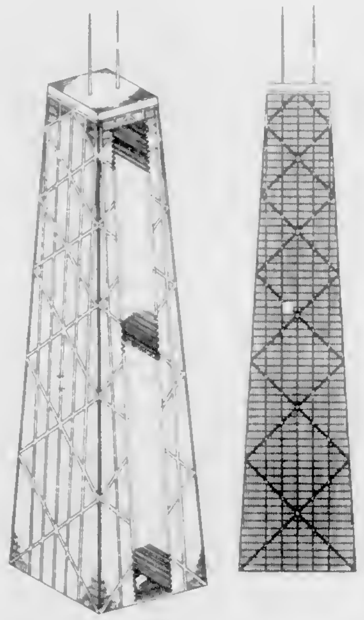
James O. Harris, 1335 Jefferson Rd., Hoffman Estates, Ill. 60195

Filed Oct. 21, 1996, Ser. No. 61,435

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—630



393,174
CARAFE

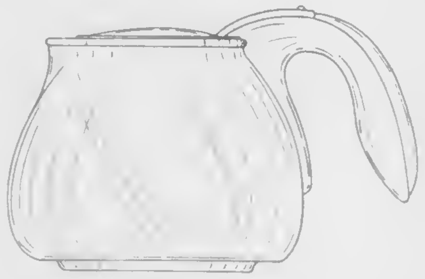
Steve O. Mork, Lowell, Mich.; Ronald J. Vish, Somerville, and Jason E. Short, Cambridge, both of Mass., assignors to Amway Corporation, Ada, Mich.

Filed Feb. 7, 1997, Ser. No. 66,151

Term of patent 14 years

LOC (6) Cl. 07 - *01*

U.S. Cl. D7—318



393,175
WATER JUG

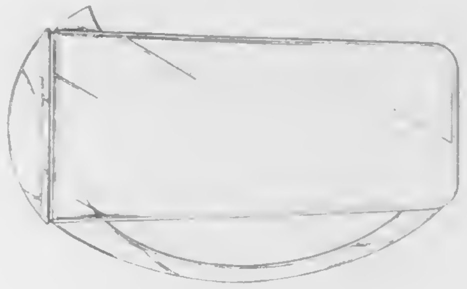
Tai-In Chang, Taipei, Taiwan, assignor to Free-Free Industrial Corp., Taipei, Taiwan

Filed Mar. 14, 1997, Ser. No. 68,015

Term of patent 14 years

LOC (6) Cl. 07 - *01*

U.S. Cl. D7—319



393,176
ELECTRIC OVEN

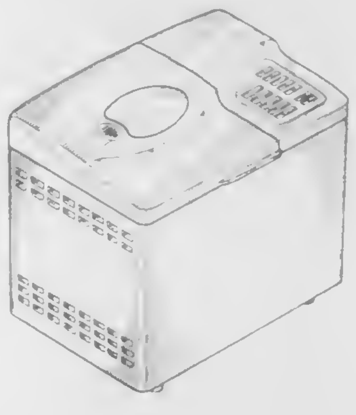
Kyoung-Soo Jung, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Oct. 18, 1996, Ser. No. 61,236

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—350



393,177
ELECTRIC OVEN

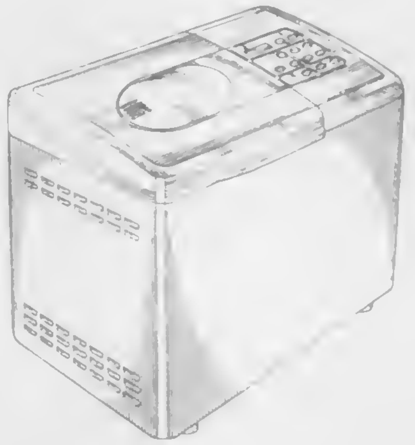
Kyoung-Soo Jung, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Oct. 18, 1996, Ser. No. 61,237

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—350



393,178
OVEN

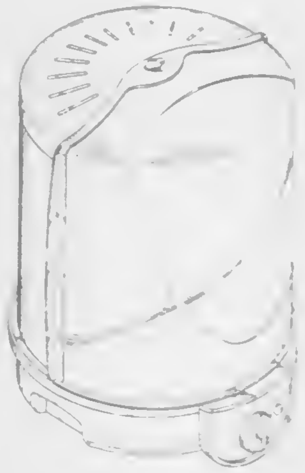
Johnson Su, P.O. Box 82-144, Taipei, Taiwan

Filed Jan. 13, 1997, Ser. No. 64,890

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—350



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393,179
FRONT PANEL FOR A MICROWAVE OVEN

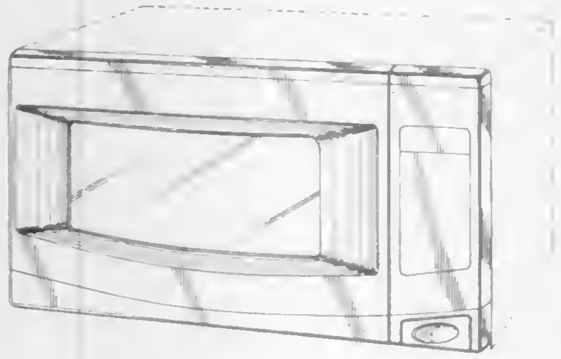
Mark W. Baldwin, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Dec. 20, 1996, Ser. No. 64,062

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—405



393,180
EASY CLEAN ELECTRIC MIXER BLADE APPARATUS

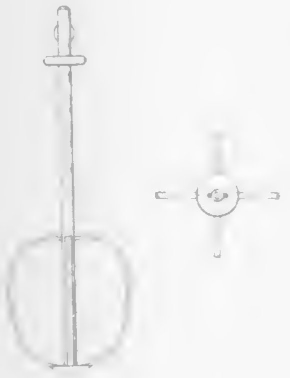
Donna L. VanWestrienen, 44725 E Florida Ave. Sp 90, Hemet, Calif. 92544

Filed Sep. 11, 1996, Ser. No. 59,451

Term of patent 14 years

LOC (6) Cl. 31 - *00*

U.S. Cl. D7—412



393,181
SERVING TRAY

Hector Virgilio Panta, Guayaquil, Ecuador, assignor to Pantalimentos, Cia Ltda., Guayaquil

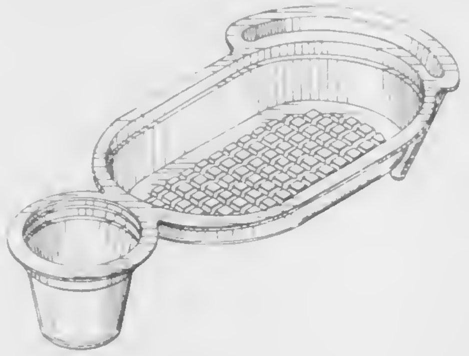
Filed Sep. 8, 1995, Ser. No. 43,628

Claims priority, application Ecuador, Mar. 7, 1995, SDI-95-235

Term of patent 14 years

LOC (6) Cl. 07 - *01*

U.S. Cl. D7—553



393,182
COOKIE CADDY

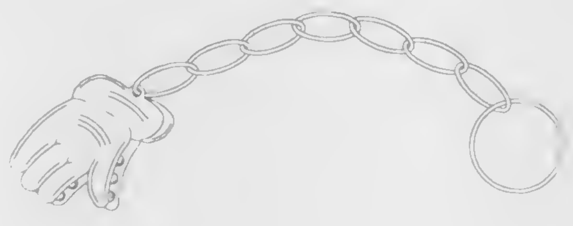
Dena G. Fein, 11625 High Forest Dr., Dallas, Tex. 75230

Filed May 30, 1995, Ser. No. 39,521

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—601



393,183
COMBINED ADJUSTABLE DECORATIVE CHAIN AND CLIP NAPKIN HOLDER

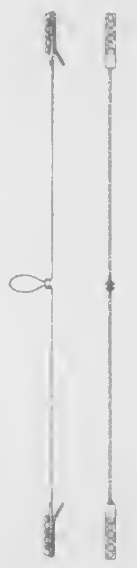
Edward Kurtzman, 427 Lewelen Cir., Englewood, N.J. 07631

Filed Sep. 5, 1997, Ser. No. 76,226

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—633



393,184
CAKE CUTTING APPARATUS

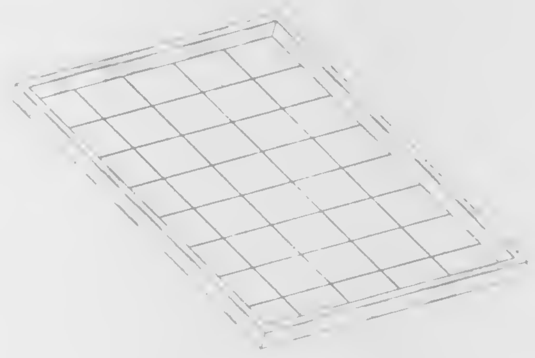
Irvin E. Chambers, 2160 Menalto Ave., Menlo Park, Calif. 94025

Filed Jan. 30, 1997, Ser. No. 65,604

Term of patent 14 years

LOC (6) Cl. 07 - *04*

U.S. Cl. D9—673



393,185
COOKING SPATULA

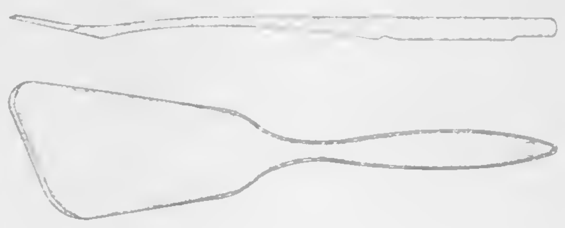
Tai-Yuan Chen, No. 46, Lane 451, Sec. 1, Fu-Hsing S. Rd., Ping-Tung City, Taiwan

Filed Jul. 23, 1997, Ser. No. 74,040

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—688



393,186
SCOOP

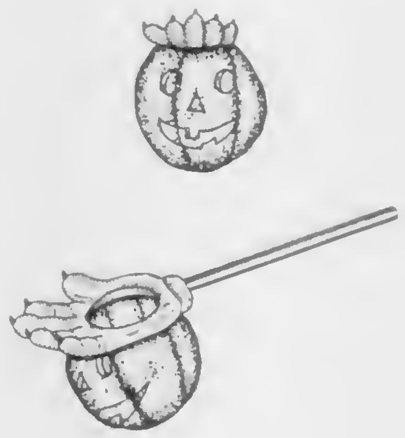
Ian T. Allison, P.O. Box 1705, Santa Rosa, Calif. 95402

Filed Sep. 16, 1996, Ser. No. 59,783

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—689



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393,187
SPRAYING VESSEL

Adi Shfaram, Herzlia Pituach, Israel, assignor to Netafim Irrigation Equipment & Drip Systems Systems Kibbutz Hatzerim (1973), Negev, Israel

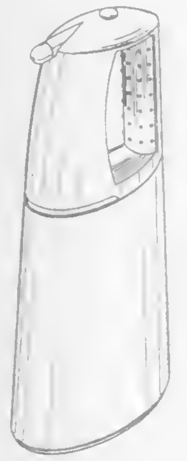
Filed May 13, 1996, Ser. No. 54,348

Claims priority, application Israel, Nov. 13, 1995, 25387

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—1



393,188
SHRUB GUARD UNIT

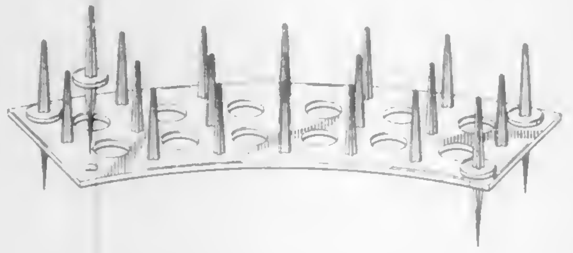
Elaine W. Beiersdoerfer, 8 Brush Creek Farms, Columbiana, Ala. 35051

Continuation-in-part of Ser. No. 28,570, Sep. 19, 1994. This application Sep. 25, 1996, Ser. No. 60,246

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—1



393,189
DESIGN FOR PRUNER

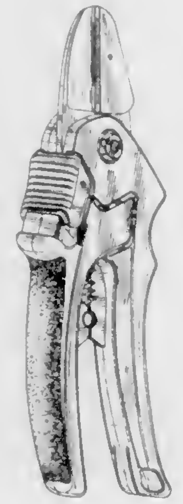
Kenneth J. Spear, Vienna, W. Va.; Frank G. Czerwinski, Parkersburg, Va., and Steven F. Brooker, Marietta, Ohio, assignors to O. Ames Co., Parkersburg, W. Va.

Filed Jan. 30, 1997, Ser. No. 65,262

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—5



393,190
SHOVEL HANDLE

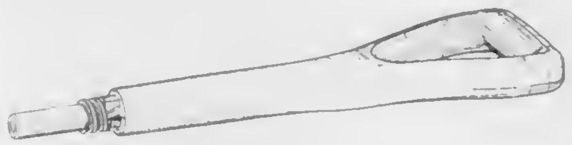
David L. Garrison, Indianapolis, and Trevor S. Brown, Fishers, both of Ind., assignors to Remco Products Corporation, Zionsville, Ind.

Filed Jul. 21, 1997, Ser. No. 73,908

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—10



393,191
SAND TRAP RAKE WITH DOUBLE PARALLEL ROWS OF TEETH ALTERNATELY POSITIONED

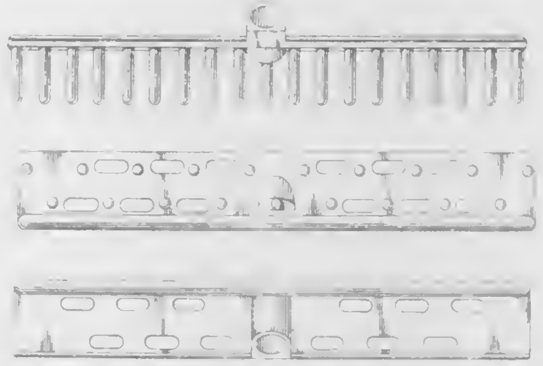
Ned M. Latto, 16134 Hartsook St., Encino, Calif. 91436

Filed May 12, 1997, Ser. No. 70,603

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—13



393,192
SCISSORS

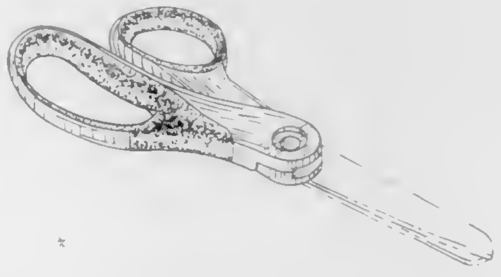
Robert W. Cornell, Schofield, Wis., assignor to Fiskars Oy Ab, Helsinki, Finland

Division of Ser. No. 47,807, Nov. 6, 1995, Pat. No. Des. 383,957, which is a continuation-in-part of Ser. No. 28,298, Sep. 12, 1994, Pat. No. Des. 363,866. This application Mar. 13, 1997, Ser. No. 67,953

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—57



393,193
SNIPS

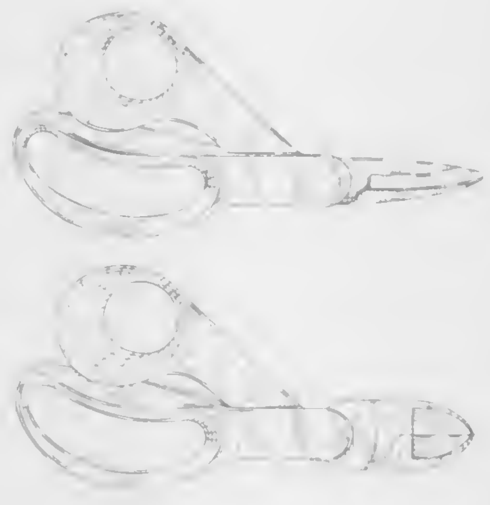
Paul A. Schneider, Waunakee, Wis., and Erkki Olavi Lindén, Billnäs, Finland, assignors to Fiskars Inc., Madison, Wis.

Filed May 19, 1997, Ser. No. 71,075

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—57



393,194
RESILIENT GRIP SLEEVE FOR AN AIR TOOL

Aaron G. Hogue, and Patrick L. Hogue, both of Paso Robles, Calif., assignors to Hogue Grips, Atascadero, Calif.

Division of Ser. No. 48,378, Dec. 27, 1995, Pat. No. Des. 382,458. This applicatioo Mar. 7, 1997, Ser. No. 67,707

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—70

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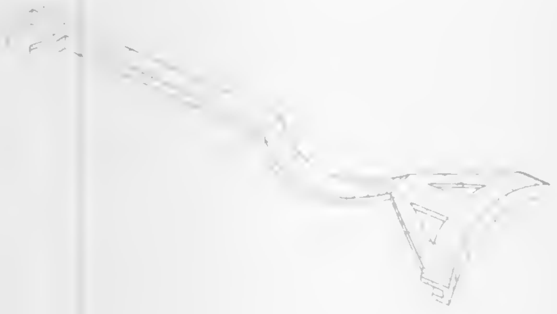
393,195

BUCKET OPENER

G. B. Rose, III, 192 Tuttle Park Dr., Sherwood, Mich. 49089
Filed Jan. 15, 1997, Ser. No. 64,934
Term of patent 14 years
LOC (6) Cl. 08 - *05*

U.S. Cl. D8—89

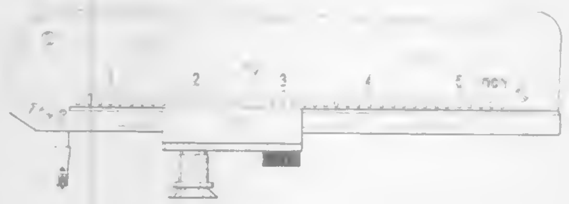


393,196

RADIAL CUTTER

Sonja Weschenfelder geb. Klotz, Graf-Zeppelin-Str. 6, 76694 Forst, Germany
Filed Mar. 17, 1997, Ser. No. 68,193
Term of patent 14 years
LOC (6) Cl. 08 - *03*

U.S. Cl. D8—98

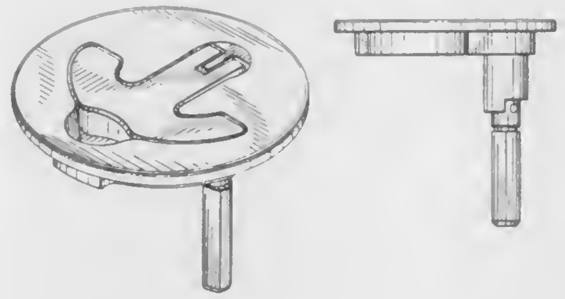


393,197

FLUSH LATCH

Michael Burnley, 58 Prince Alfred Parade, Newport N.S.W. 2106, Australia
Filed Feb. 6, 1997, Ser. No. 66,309
Term of patent 14 years
LOC (6) Cl. 08 - *07*

U.S. Cl. D8—331

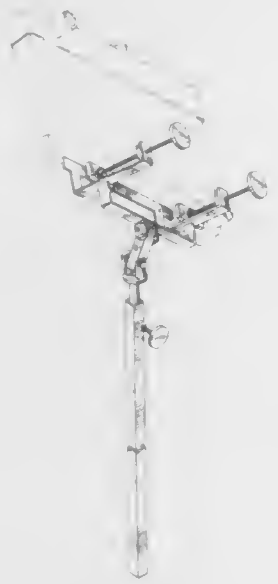


393,198

MOVABLE RADIATOR HOLDER

Rex G. Schmidt, Hydro, Okla., assignor to Robert M. Avila, San Clemente, Calif., a part interest
Filed Nov. 12, 1996, Ser. No. 64,073
Term of patent 14 years
LOC (6) Cl. 08 - *05*

U.S. Cl. D8—355



393,199

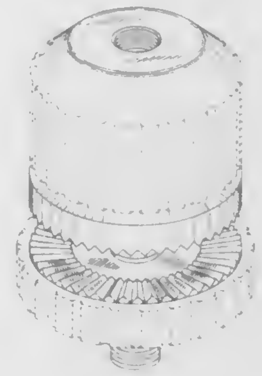
Patent Not Issued For This Number

393,200

ADJUSTABLE SECURING DEVICE

Dean E. Longstreet, 830 W. Oak St., Lebanon, Oreg. 97355
Filed Aug. 9, 1996, Ser. No. 58,248
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D8—383

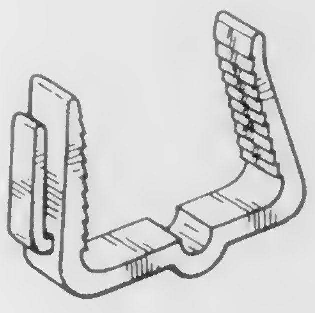


393,201

SUPPORT CLIP

Ron Hearidge, 64 St. Croix, Laguna Niguel, Calif. 92677, and Timothy A. Clegg, 12233 Branicole La., San Diego, Calif. 92129
Filed Jul. 1, 1997, Ser. No. 73,152
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D8—395

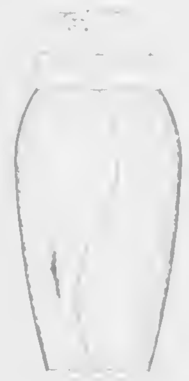


393,202

BODY FOR A DUAL COMPARTMENT BOTTLE

Peter Bertolini, Shelton, Conn., and Matthew Scott Okin, Cresskill, N.J., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.
Filed May 13, 1996, Ser. No. 54,380
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—341

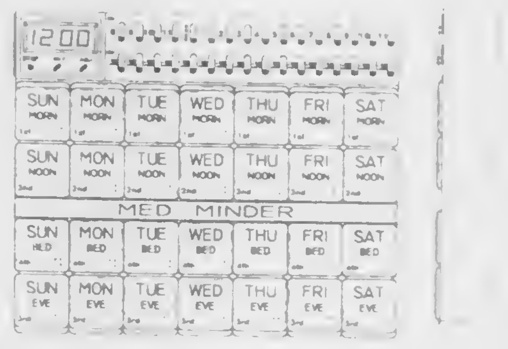


393,203

MEDICAL DISPENSING SYSTEM

Stephen Saltzman, and Deanne Saltzman, both of 17435 Shadow Valley Dr., Spring, Tex. 77379
Filed Jun. 12, 1997, Ser. No. 72,325
Term of patent 14 years
LOC (6) Cl. 09 - *03*

U.S. Cl. D9—341



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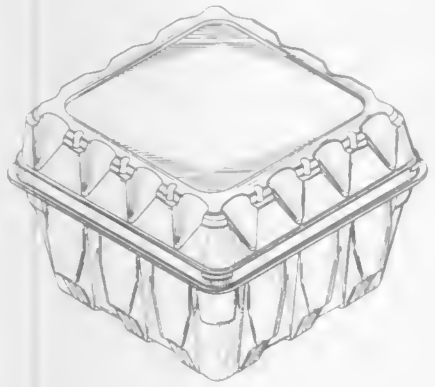
393,204

PLASTIC FOOD CONTAINER

Timothy S. Goins, Detroit, Mich.; Ayberk Abayhan, Arlington Heights, and Stephen A. Smith, Naperville, both of Ill., assignors to Tenneco Packaging Inc., Evanston, Ill.

Filed Jul. 19, 1996, Ser. No. 57,217
Term of patent 14 years
LOC (6) Cl. 09 - *07*

U.S. Cl. D9—425



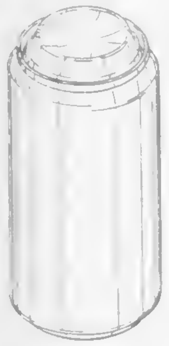
393,205

CAN

Josephus Ignatius Matthias Jansen, Emmastraat 12, 6591 DW Gennep, Netherlands

Filed Jan. 31, 1997, Ser. No. 65,627
Term of patent 14 years
LOC (6) Cl. 09 - *02*

U.S. Cl. D9—500



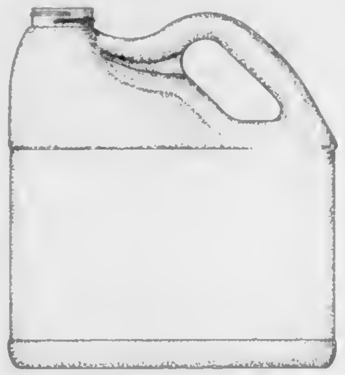
393,206

PLASTIC BOTTLE

Thomas E. McCurry, Jr., Colleyville, Tex., and Harbinder Bhangu, Villa Hills, Ky., assignors to Fruit of the Earth, Inc., Irving, Tex.

Filed Sep. 8, 1997, Ser. No. 76,608
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D99—520



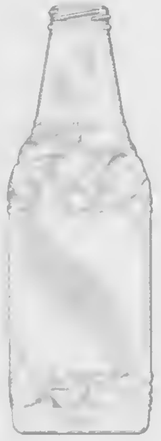
393,207

BOTTLE

Lee K. Farlander, Tampa; James E. Gorski, Palm Harbor, both of Fla., and John J. Marota, Ballwin, Mo., assignors to Anheuser-Busch Incorporated, St. Louis, Mo.

Filed Dec. 6, 1995, Ser. No. 47,526
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—537



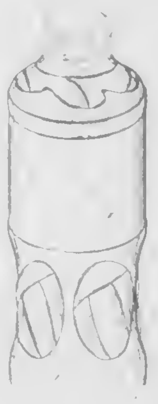
393,208

BOTTLE

Missy Wilson, New York, N.Y.; Jeff Johnson, and Chittamai Suvongse, both of Minneapolis, Minn., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Nov. 8, 1995, Ser. No. 46,192
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—538



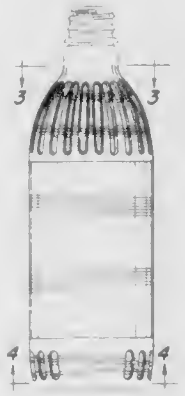
393,209

LIQUOR FLASK

Richard J. Steih, Britton, and Kerry Silvers, Chelsea, both of Mich., assignors to Schmalbach-Lubeca AG, Ratingen, Germany

Filed Jul. 11, 1997, Ser. No. 73,615
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—542



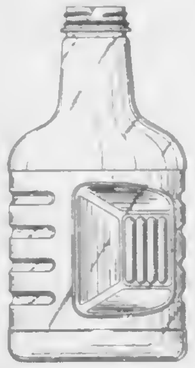
393,210

BOTTLE

Paul E. Ewing, Jr., Monroe, Conn., assignor to Mott's Inc., Stamford, Conn.

Continuation of Ser. No. 58,113, Aug. 8, 1996, abandoned.
This application Jan. 17, 1997, Ser. No. 65,702
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—543



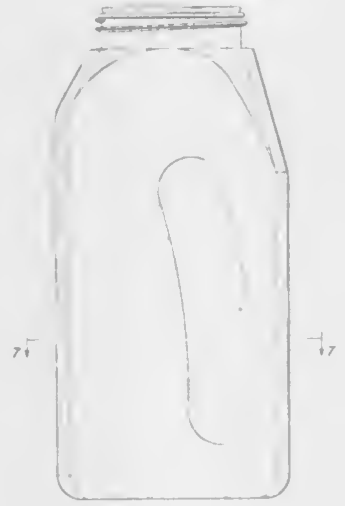
393,211

BOTTLE

Gary L. Mengeu, Wheeling, W. Va., assignor to RXI Plastics, Inc., Triadelphia, W. Va.

Filed Sep. 24, 1997, Ser. No. 76,878
Term of patent 14 years
LOC (6) Cl. 09 - *01*

U.S. Cl. D9—543



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PARKING METER

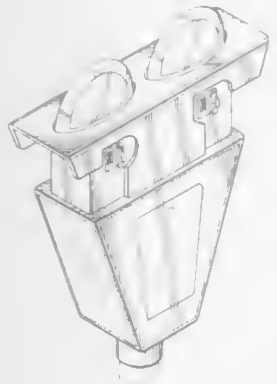
Tom Lucas, 421 East 29th Street, Vancouver, British Columbia, Canada, V7N 1E2

Filed Sep. 19, 1996, Ser. No. 60,000

Term of patent 14 years

LOC (6) Cl. 10 - *03*

U.S. Cl. D10—42



393,213

LASER CALIBRATION CARD

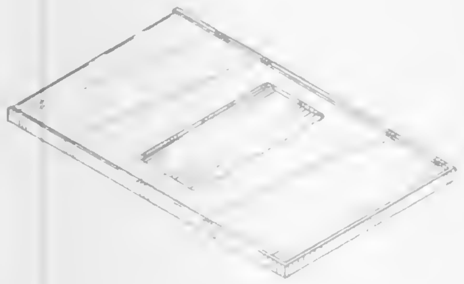
Rowland W. Kanner, Guntersville, Ala., assignor to Atrion Medical Products, Inc., Arab, Ala.

Filed Jan. 6, 1997, Ser. No. 64,551

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—46



393,214

THERMOSTAT HOUSING

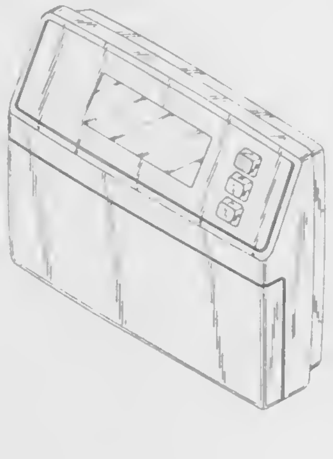
Jolayne K. Ingebritson, St. Paul; James A. Odom, Apple Valley, and Timothy J. Smith, Minneapolis, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 65,343, Jan. 24, 1997. This application Jun. 13, 1997, Ser. No. 72,357

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—50



393,215

BATHTUB WATER TEMPERATURE MONITOR AND ALARM DEVICE

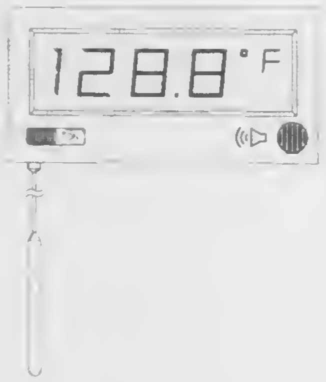
Ambrose Piraino, III, and Darrin L. Romine, both of 216 Briar Fork Dr., Huntsville, Ala. 35811

Filed May 29, 1997, Ser. No. 71.379

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—52



393,216

THERMOMETER

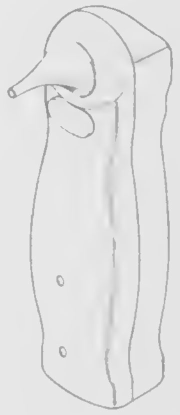
Mei-Yen Chen, 3rd Floor, No. 16-4, Lane 10, Chung Hwa Road, Yung King City, Tainan Hsien, Taiwan

Filed Aug. 12, 1997, Ser. No. 75,064

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—57



393,217

DRILLING TEMPLATE FOR CABINETS

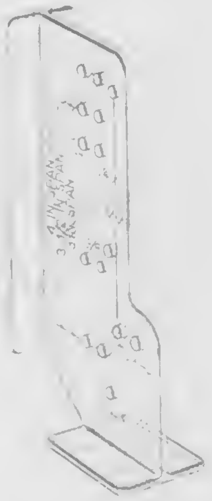
Barry Brickman, 4 Park de Ville, San Antonio, Tex. 78248

Filed Feb. 13, 1997, Ser. No. 66,619

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—64



393,218

DRILLING TEMPLATE FOR DRAWERS

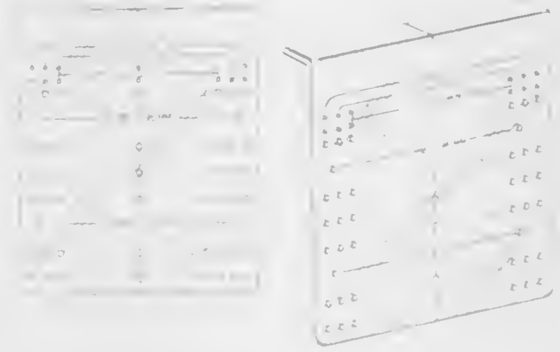
Barry Brickman, 4 Park de Ville, San Antonio, Tex. 78248

Filed Feb. 13, 1997, Ser. No. 66,620

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—64



393,219

PLUMB BOB

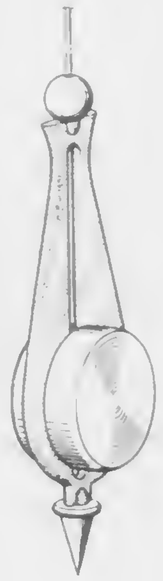
Jerrold R. Beall, Newark, Ohio, and Michael S. McGuire, Ottawa, Canada, assignors to Lee Valley Tools Ltd., Ontario, Canada

Filed May 13, 1997, Ser. No. 70,692

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—65



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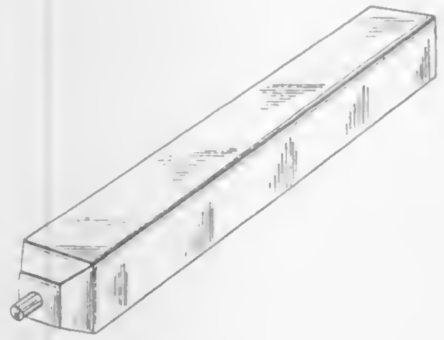
MOWING LEVEL INDICATOR FOR LAWNS

Paul Jursik, 4912 Arden Ave., Minneapolis, Minn. 55424
Filed Dec. 31, 1996, Ser. No. 64,432
Term of patent 14 years
LOC (6) Cl. 10 - *04*

U.S. Cl. D10—70

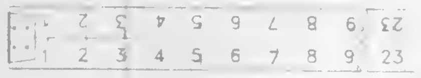


393,221

MEASURING TAPE FOR A LEFT HANDED TAPE MEASURE

Fred E. McConahay, 1766 Crater Lake Ave., Milpitas, Calif. 95035
Filed Mar. 13, 1997, Ser. No. 67,991
Term of patent 14 years
LOC (6) Cl. 10 - *04*

U.S. Cl. D10—72

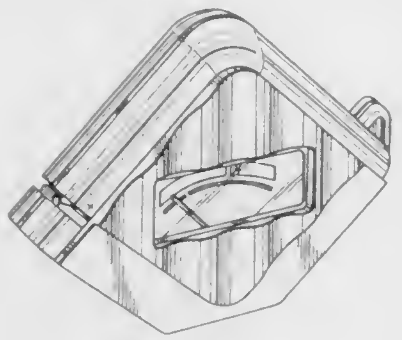


393,222

BATTERY TESTER

Kuo-Hsiang Wang, Taipei, Taiwan, assignor to Stuart Instrument Co., Ltd., Taipei, Taiwan
Filed Jul. 16, 1997, Ser. No. 73,760
Term of patent 14 years
LOC (6) Cl. 10 - *04*

U.S. Cl. D10—77

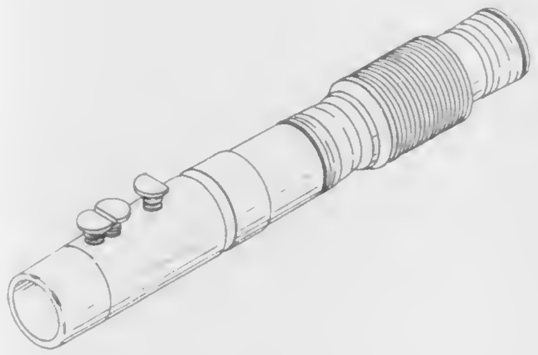


393,223

PUSH BUTTON DEER CALL

Stanley J. Hall, 443 Wells Rd., Doylestown, Pa. 18901
Filed May 5, 1997, Ser. No. 70,275
Term of patent 14 years
LOC (6) Cl. 10 - *05*

U.S. Cl. D10—119

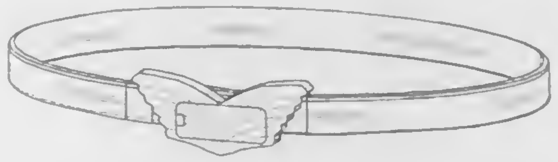


393,224

BRACELET

Anna Miller, 2197 Timber Trace Cir., Cleveland, Tenn. 37311
Filed Feb. 21, 1997, Ser. No. 66,806
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—4

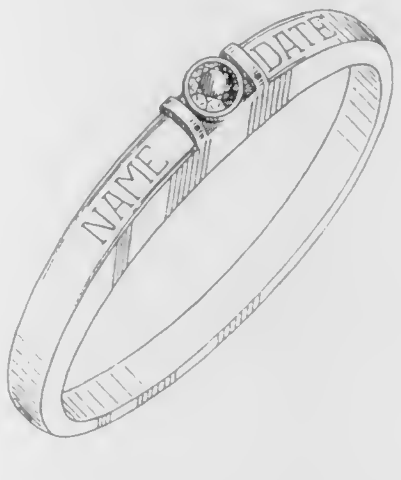


393,225

FINGER RING

Jerry Morrison, Austin, Tex., assignor to Commemorative Brands, Inc., Austin, Tex.
Filed Jul. 23, 1996, Ser. No. 57,371
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—26

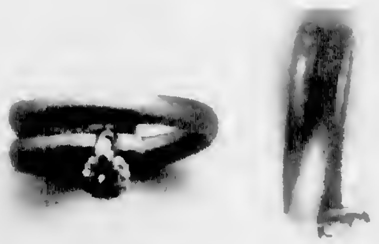


393,226

RING

Eran Shenhav, Teich, Germany, assignor to Feeling the Collection Schmuckwaren GmbH, Phorzheim, Germany
Filed Nov. 25, 1996, Ser. No. 62,796
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—27

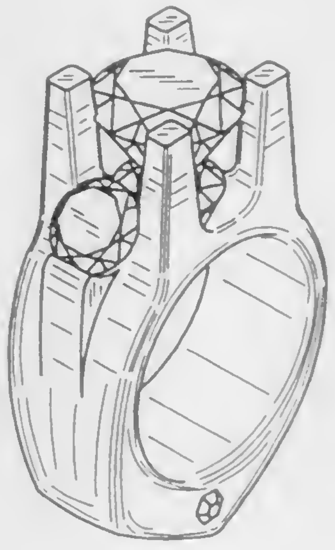


393,227

RING

Thomas Bruce Roemer, 1163 First Capitol Dr., St. Charles, Mo. 63301
Filed Sep. 27, 1996, Ser. No. 60,429
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—34



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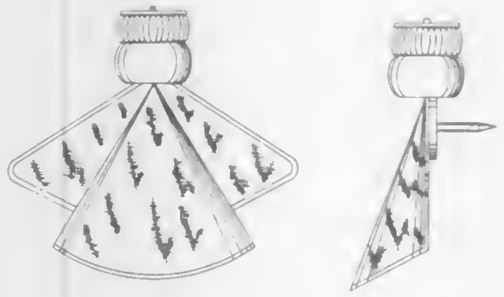
ANGEL PIN

Elizabeth K. Fox, Wauwatosa, Wis., assignor to Eli Kase, Milwaukee, Wis.

Filed Jan. 6, 1997, Ser. No. 64,563
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—53



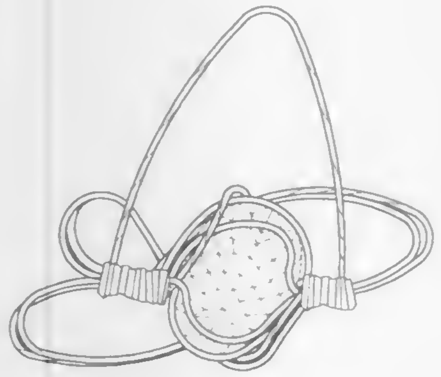
393,229

PENDANT

Patricia Milner, 1455 Joy Lake Rd., Reno, Nev. 89511

Filed Dec. 18, 1996, Ser. No. 63,890
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—79



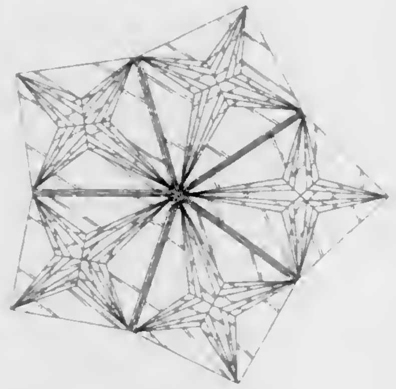
393,230

GEMSTONE

Avi Katz, 63/15 Harav Kook St., Netanya 42260, Israel

Filed Jun. 14, 1996, Ser. No. 55,884
Term of patent 14 years
LOC (6) Cl. 11 - *01*

U.S. Cl. D11—90



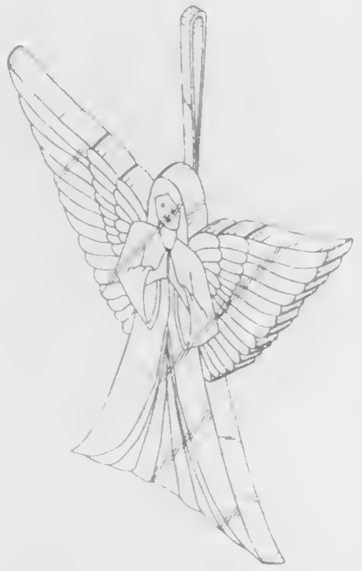
393,231

FOIL WRAPPED CANDY ORNAMENT

Bernard M. Bueza, 1210 E. 213 St., Carson, Calif. 90745

Filed Sep. 29, 1997, Ser. No. 77,222
Term of patent 14 years
LOC (6) Cl. 11 - *05*

U.S. Cl. D11—128



393,232

FLOWER POT COVER

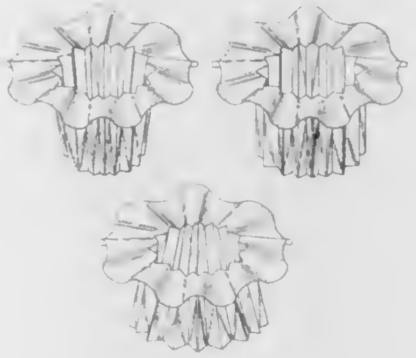
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc.

Division of Ser. No. 3,434, Jan. 6, 1993, Pat. No. Des. 368,873, which is a continuation-in-part of Ser. No. 807,904, Dec. 16, 1991, Pat. No. Des. 366,227, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, Pat. No. Des. 365,302, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 24, 1996, Ser. No. 50,567

The portion of the term of this patent subsequent to Sep. 9, 2011, has been disclaimed.

Term of patent 14 years
LOC (6) Cl. 11 - *02*

U.S. Cl. D11—164



393,233

COMBINED SLED AND WAGON

Dorothy Emanuel, 6 Donna Dr., Edison, N.J. 08820

Filed Nov. 18, 1994, Ser. No. 31,143
Term of patent 14 years
LOC (6) Cl. 12 - *14*

U.S. Cl. D12—6

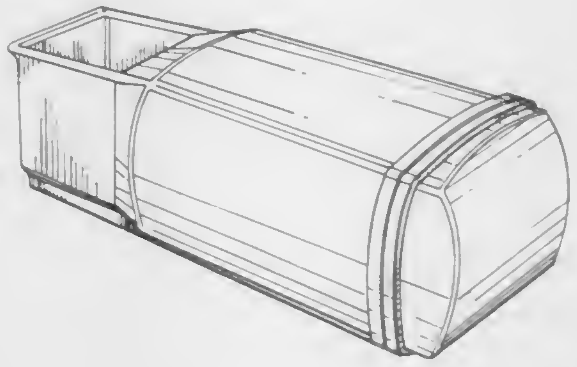
393,234

CARGO BODY

Marcel G. Stragier, Scottsdale, Ariz., assignor to The Heil Co., Chattanooga, Tenn.

Filed Apr. 10, 1996, Ser. No. 53,051
Term of patent 14 years
LOC (6) Cl. 12 - *08*

U.S. Cl. D12—15



393,235

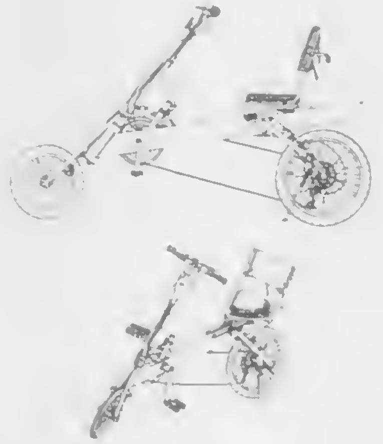
RECUMBENT BICYCLE

David G. Ullman, and Paul A. Atwood, both of Corvallis, Oreg., assignors to BikeE Corporation, Corvallis, Oreg.

Continuation of Ser. No. 42,724, Aug. 1, 1995, abandoned, which is a continuation of Ser. No. 406,647, Mar. 20, 1995, Pat. No. 5,509,678, which is a continuation of Ser. No. 188,036, Jan. 28, 1994, abandoned. This application Feb. 11, 1997, Ser. No. 68,069

Term of patent 14 years
LOC (6) Cl. 12 - *11*

U.S. Cl. D12—111



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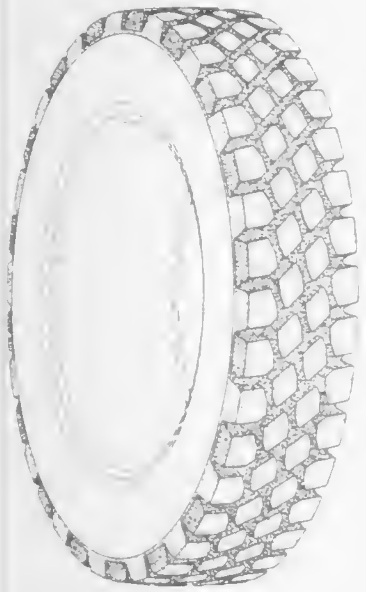
TIRE TREAD

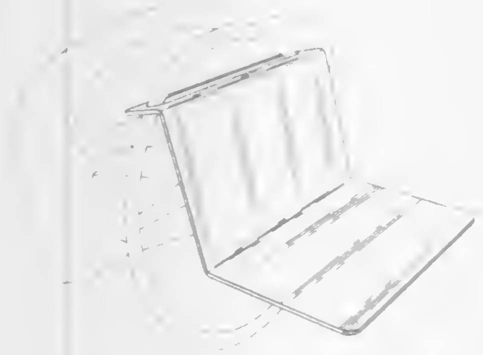
Charles Chesley Rowe, Clemson, S.C., assignor to Michelin Recherche ET Technique S.A., Switzerland
Filed May 2, 1997, Ser. No. 70,197
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



393,237

DEMOUNTABLE AUTOMOBILE STEERING WHEEL PORTABLE COMPUTER PLATFORM

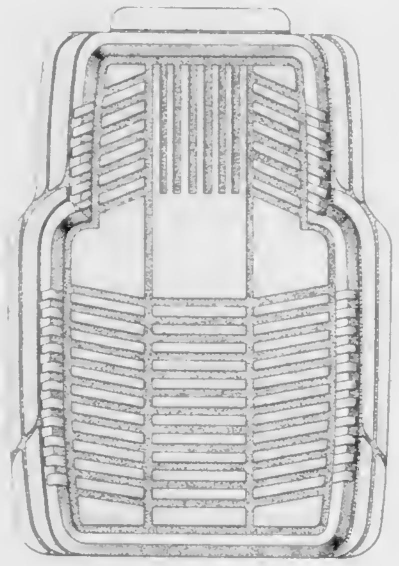
Domenick Mondo, Jr., P.O. Box 1483, Lockeford, Calif. 95237
Filed Apr. 17, 1996, Ser. No. 53,206
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—177



393,238

VEHICLE FLOOR MAT

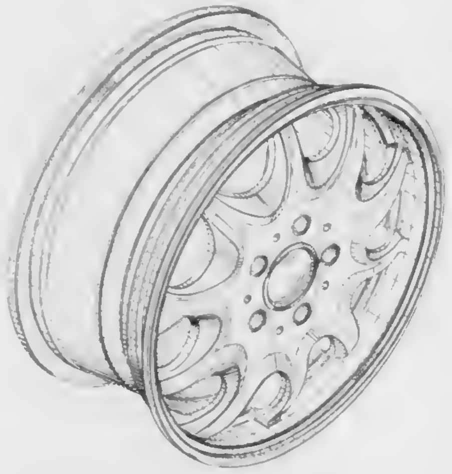
Steven D. Kraines, Beverly Hills, Calif., assignor to Kraco Enterprises, Inc., Compton, Calif.
Filed Mar. 7, 1997, Ser. No. 67,706
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—203



393,239

WHEEL

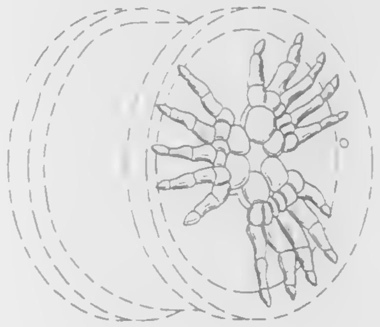
Ralf Schmid, Schwetzingen, Germany, assignor to Rial-Leichtmetallfelgen GmbH, Fussgonheim, Germany
Filed Sep. 26, 1996, Ser. No. 60,348
Claims priority, application Germany, Mar. 26, 1996, M9602764.09
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209



393,240

SPOKE UNIT FOR A WHEEL RIM

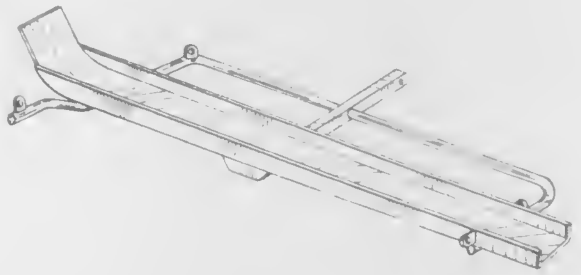
Alexander J. Escobedo, 7495 Stanford Pl., Cupertino, Calif. 95014
Filed Oct. 1, 1996, Ser. No. 60,568
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—213



393,241

MOTORCYCLE CARRIER FOR VEHICLES

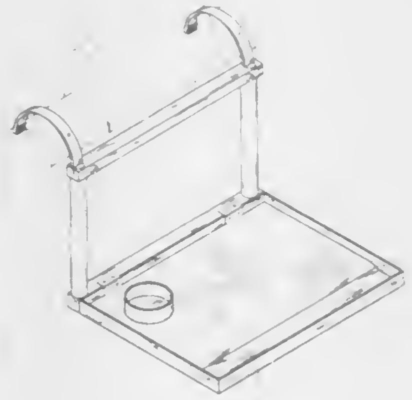
Daniel B. Diotte, 2302 Patrician Way, Colorado Springs, Colo. 80909
Filed Dec. 19, 1996, Ser. No. 63,943
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—408



393,242

BACK SEAT SERVICE TRAY

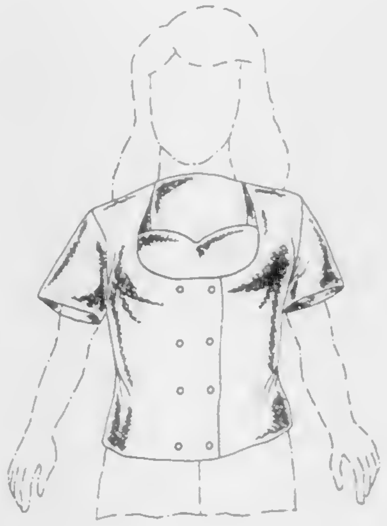
Rob R. Wood, 2808 River Ave., Gen. Delivery Youngs Point, Ontario, Canada, K0L 3G0
Filed May 16, 1997, Ser. No. 70,828
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—416



393,243

ARTICLE OF CLOTHING

Joyce S. Ferguson, Rt. 7 Box 1310, Center, Tex. 75935
Continuation-in-part of Ser. No. 13,587, Nov. 2, 1993, abandoned. This application Mar. 13, 1995, Ser. No. 36,131
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—841



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393,244

ELECTRICAL CONNECTOR

Vernon James Donnelly, Braddan, Isle of Man, assignor to Strix Limited, Isle of Man

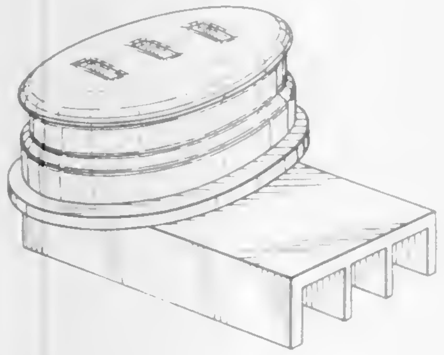
Filed May 21, 1996, Ser. No. 54,774

Claims priority, application United Kingdom, Nov. 22, 1995, 2052182

Term of patent 14 years

LOC (6) Cl. 13 - *03*

U.S. Cl. D13—147



393,245

ELECTRIC CONNECTOR

Atsushi Nishio, and Masaru Onuki, both of Ibaraki, Japan, assignors to Mitsumi Electric Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1996, Ser. No. 60,345

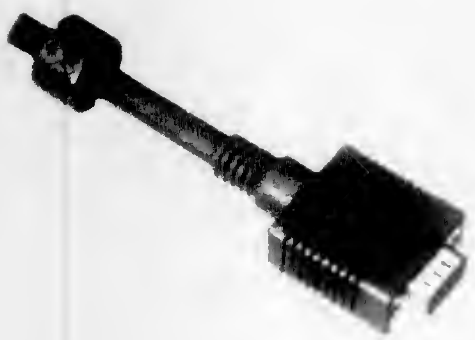
Claims priority, application Japan, May 24, 1996, 8-15252

The portion of the term of this patent subsequent to Mar. 3, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 13 - *03*

U.S. Cl. D13—147



393,246

ENCLOSURE FOR A DESKTOP PERSONAL COMPUTER

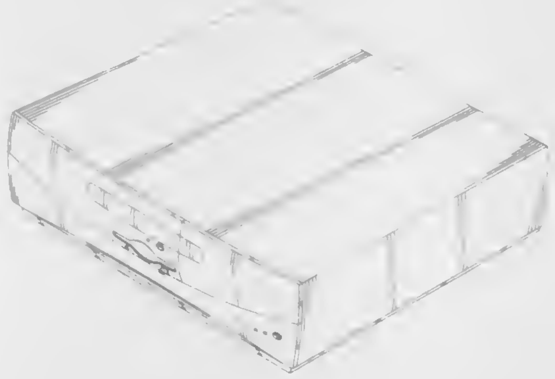
Shaun Fynn, West Hollywood; John Arbak, Ventura; Greg Halus, Woodland Hills; David Hoard, Sherman Oaks; Jonathan Scheiner, Topanga; Phil Smith, Valencia, all of Calif.; Lorrie Vogel, Lake Oswego, Oreg., and Stan Wada, Tarzana, Calif., assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed Oct. 15, 1996, Ser. No. 61,030

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—100



393,247

COMPUTER INTERNAL

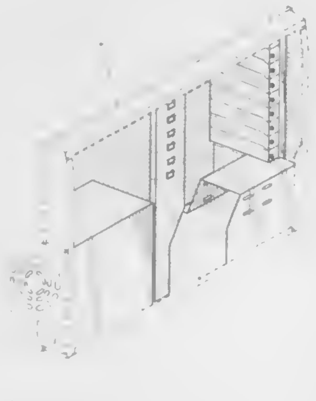
James Cheng, Baldwin Park, Calif., assignor to Acme Portable Machines, Inc., Baldwin Park, Calif.

Filed Feb. 21, 1997, Ser. No. 66,815

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—100



393,248

PERSONAL COMPUTER

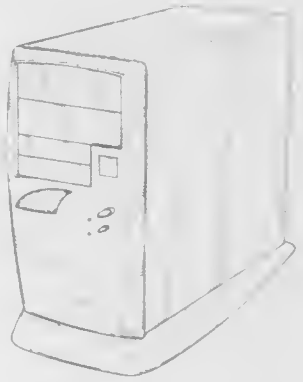
Jefferson Lin, Taipei Hsien, Taiwan, assignor to Linkworld Electronic Co. Ltd., Taipei Hsien, Taiwan

Filed Jul. 2, 1997, Ser. No. 73,269

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—100



393,249

HOUSING FOR DESKSIDE COMPUTER

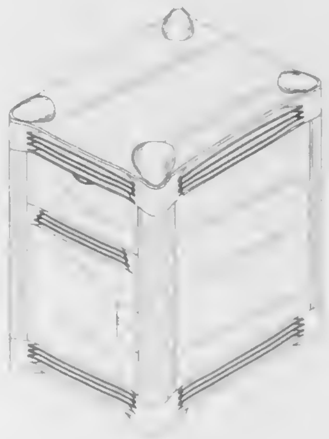
Richard Singer, Menlo Park; Robert Pandorf; Robin Chu, both of San Francisco; Mark Edwards, Livermore; James Gilbert Ammon, San Jose, and Daniel Farmer, Mountain View, all of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Sep. 23, 1996, Ser. No. 60,131

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—102



393,250

ELECTRONIC COMPUTER

Osamu Kondo, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

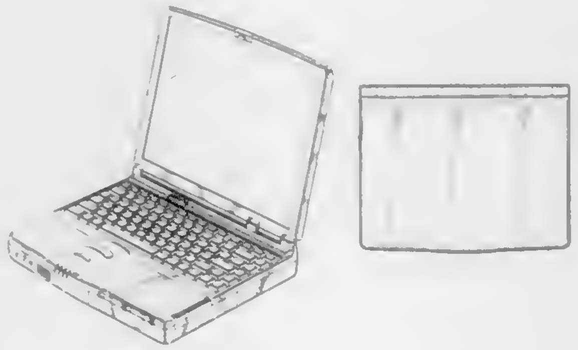
Filed Sep. 16, 1996, Ser. No. 59,795

Claims priority, application Japan, Apr. 26, 1996, 8-12043

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—106



393,251

DATA TRANSFER MACHINE FOR A COMPUTER

Mayumi Kurokawa, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

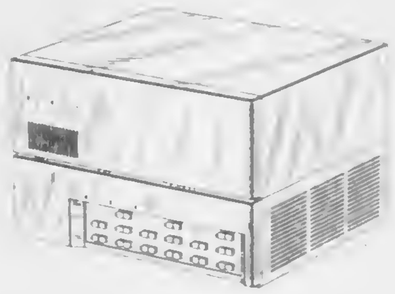
Filed Jun. 10, 1997, Ser. No. 72,236

Claims priority, application Japan, Jan. 27, 1997, 9-1888

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—107



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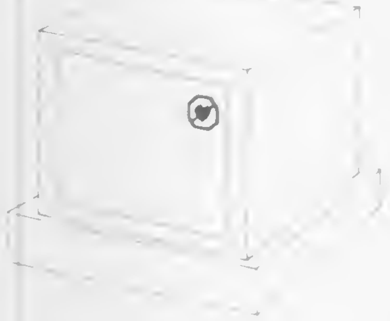
393,252
DISPLAY SCREEN WITH AN ICON

Armando M. Cappa, Reseda; Jeffrey D. Konopka, Northridge, and Warren R. Heer, La Palma, all of Calif., assignors to Pacesetter, Inc., Sylmar, Calif.

Filed Jan. 24, 1996, Ser. No. 49,406
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114.3

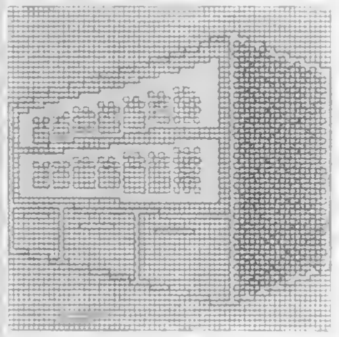


393,253
"CABINET" ICON FOR A DISPLAY SCREEN

Makoto Morioka, Kawasaki; Hiroshi Matsuda, Yokohama; Daisaburo Murai, Tokyo; Masato Ikemori, Kawasaki; Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Hiroshi Suzuki, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 27, 1997, Ser. No. 71,268
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—114.3

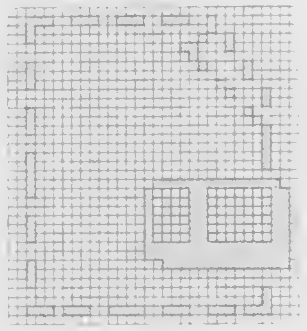


393,254
"DELETE DOCUMENT FILE" ICON FOR A DISPLAY SCREEN

Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Division of Ser. No. 592,317, Oct. 1, 1990, abandoned. This application May 27, 1997, Ser. No. 71,279
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—114.3

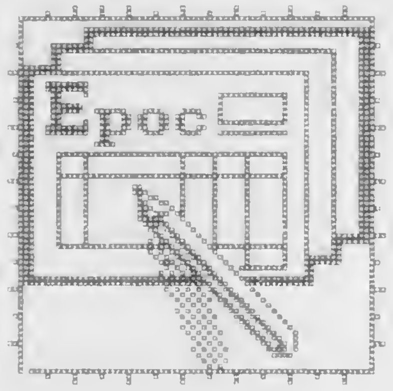


393,255
"ACTIVATION" ICON FOR A DISPLAY SCREEN

Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Filed May 27, 1997, Ser. No. 71,281
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—114.3

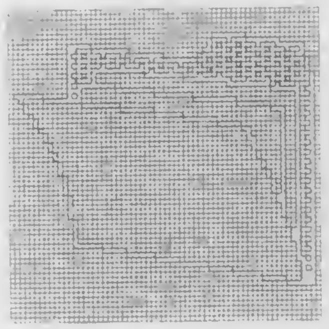


393,256
"FOLDER" ICON FOR A DISPLAY SCREEN

Makoto Morioka, Kawasaki; Hiroshi Matsuda, Yokohama; Daisaburo Murai, Tokyo; Masato Ikemori, Kawasaki; Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Hiroshi Suzuki, Kawasaki, all of Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Division of Ser. No. 588,820, Sep. 29, 1990, abandoned. This application May 27, 1997, Ser. No. 71,330
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—114.3

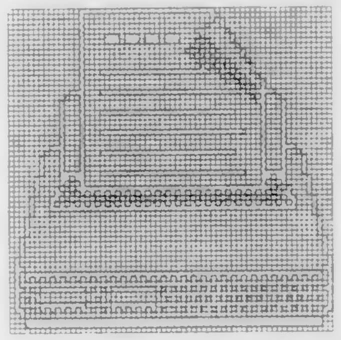


393,257
"PRINTER OUTPUT INSTRUCTION" ICON FOR A DISPLAY SCREEN

Makoto Morioka, Kawasaki; Hiroshi Matsuda, Yokohama; Daisaburo Murai, Tokyo; Masato Ikemori, Kawasaki; Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Hiroshi Suzuki, Kawasaki, all of Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Filed May 27, 1997, Ser. No. 71,333
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—114.3

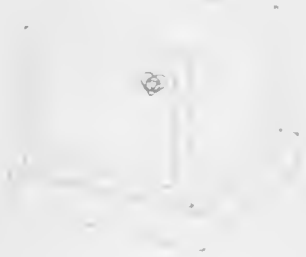


393,258
DISPLAY SCREEN WITH AN ICON

Armando M. Cappa, Reseda; Jeffrey D. Konopka, Northridge, and Warren R. Heer, La Palma, all of Calif., assignors to Pacesetter, Inc.

Filed Jan. 24, 1996, Ser. No. 49,411
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114.5

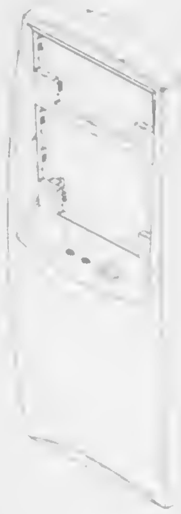


393,259
FRONT BEZEL FOR A FLOOR-STANDING PERSONAL COMPUTER

Anton Poole, and James P. Collas, both of Dakota Dunes, S. Dak., assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed May 7, 1997, Ser. No. 70,419
Term of patent 14 years
LOC (6) Cl. 14 - *02*

U.S. Cl. D14—115



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393,260
RADIO COMMUNICATION DEVICE

Ahmad Zaini B. Yahaya, Penang, Malaysia, assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 10, 1996, Ser. No. 54,243

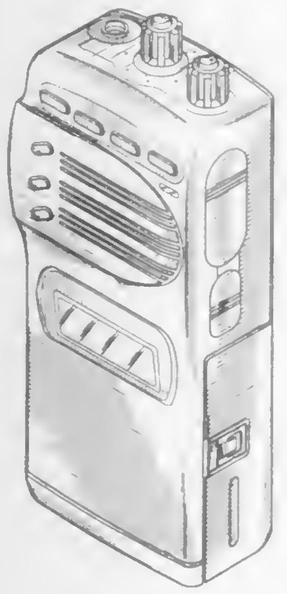
Claims priority, application United Kingdom, Nov. 10, 1995, 2051833

The portion of the term of this patent subsequent to Oct. 21, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—137



393,261
WIRELESS PAY PHONE

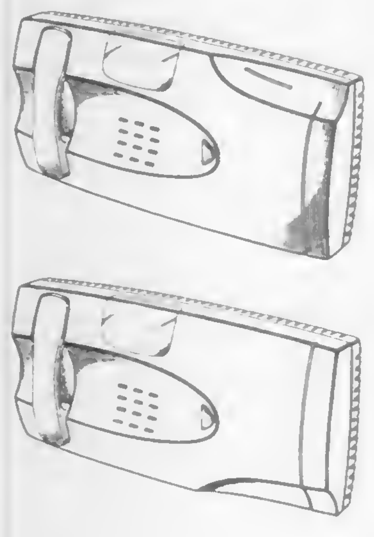
James H. Muir, and Christopher J. Muir, both of Indiatlantic, Fla., assignors to Bright Technologies, Inc., Norcross, Ga.

Filed Dec. 2, 1996, Ser. No. 63,273

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—146



393,262
PORTABLE INFORMATION STORING AND RETRIEVING DEVICE

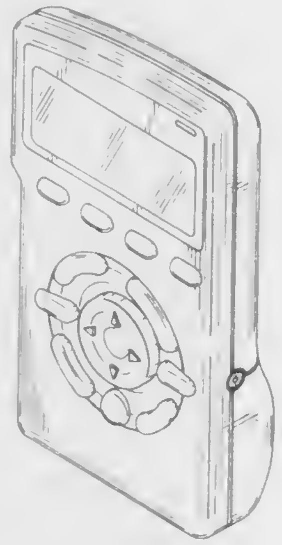
Scott T. Shimatsu, Alhambra, and Spencer L. Mackay, Agoura Hills, both of Calif., assignors to Voice It Worldwide, Inc., Fort Collins, Colo.

Filed May 29, 1996, Ser. No. 55,081

Term of patent 14 years

LOC (6) Cl. 14 - *01*

U.S. Cl. D14—154



393,263
DISPLAY PANEL AND KEY ASSEMBLY FOR A PORTABLE ELECTRONIC DEVICE

Panu Mårten Jesper Johansson, Tampere, Finland, assignor to Nokia Mobile Phones Limited, Espoo, Finland

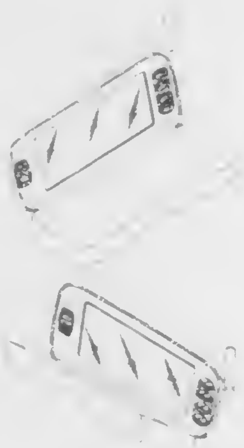
Filed Aug. 23, 1996, Ser. No. 58,818

Claims priority, application United Kingdom, Feb. 26, 1996, 2054447

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—240



393,264
CONNECTOR RECEPTACLE

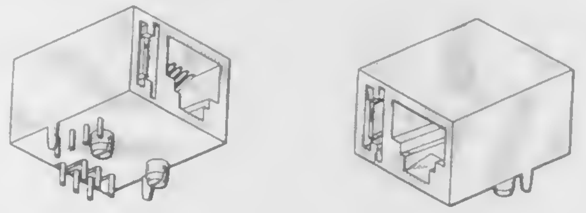
Tommy Y. Leung, San Jose, and Ming Huei Tseng, Saratoga, both of Calif., assignors to Asante Technologies, Inc., San Jose, Calif.

Filed May 30, 1996, Ser. No. 55,048

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—256



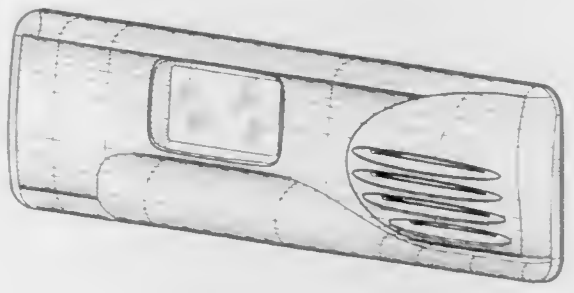
393,265
CONTROL HEAD FOR A MOBILE RADIO

Masaru Tokiyama, Coral Springs, and Glen A. Oross, Sunrise, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill. Division of Ser. No. 51,156, Mar. 4, 1996, Pat. No. Des. 389,841. This application Jun. 9, 1997, Ser. No. 72,097

Term of patent 14 years

LOC (6) Cl. 14 - *03*

U.S. Cl. D14—258



393,266
COMBINED HOUSING, OPERATIVE HANDLE AND BASE FOR A VOLUMETRIC PUMP

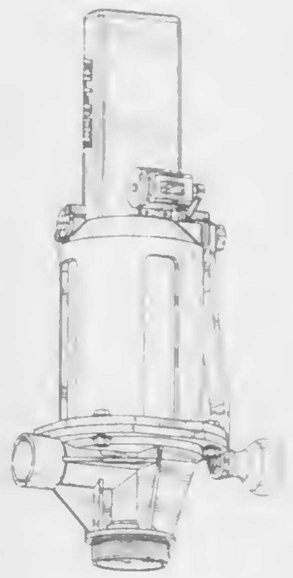
John E. Hathaway, Fort Wayne, Ind., assignor to Fill-Rite Corporation, Fort Wayne, Ind.

Filed Dec. 18, 1996, Ser. No. 63,889

Term of patent 14 years

LOC (6) Cl. 15 - *02*

U.S. Cl. D15—7



393,267
FRONT FACE OF A REAR FENDER FOR A RIDING MOWER

Bradley John Wolf, N. Royalton, Ohio, assignor to MTD Products Inc, Cleveland, Ohio

Filed Sep. 5, 1996, Ser. No. 59,241

Term of patent 14 years

LOC (6) Cl. 15 - *03*

U.S. Cl. D15—17

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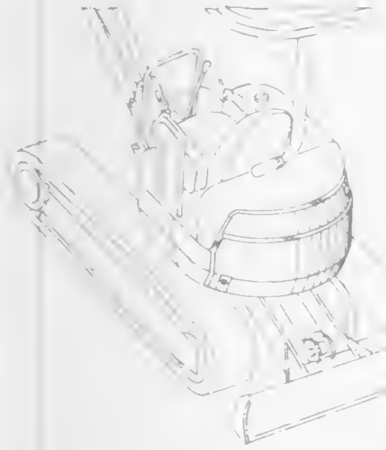
COUNTERWEIGHT FOR AN EXCAVATOR

Masaaki Tachinou, Hiroshima, and Shigeo Maenaka, Ogaki, both of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed May 9, 1996, Ser. No. 54,292
Claims priority, application Japan, Nov. 9, 1995, 7-33751
Term of patent 14 years
LOC (6) Cl. 15 - *04*

U.S. Cl. D15—28



393,269

Patent Not Issued For This Number

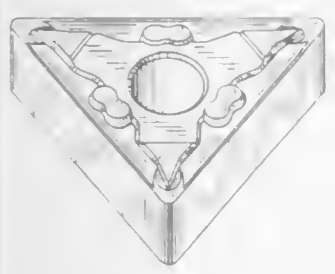
393,270

CUTTING INSERT

Sture Murén, Gävle, and Jörgen Wiman, Sandviken, both of Sweden, assignors to Sandvik AB, Sandviken, Sweden

Filed Sep. 27, 1996, Ser. No. 60,375
Term of patent 14 years
LOC (6) Cl. 15 - *09*

U.S. Cl. D15—139



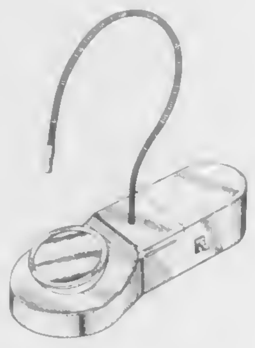
393,271

AGGLUTINATION VIEWER WITH FIBER OPTIC LIGHT PIPE AND MAGNETIC MAGNIFYING MIRROR

Patrick M. Conner, Pembroke Pines, Fla.; Duane M. Durkos, Zionsville, and Ben D. Taylor, Carmel, both of Ind., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 30, 1996, Ser. No. 60,519
Term of patent 14 years
LOC (6) Cl. 16 - *06*

U.S. Cl. D16—130



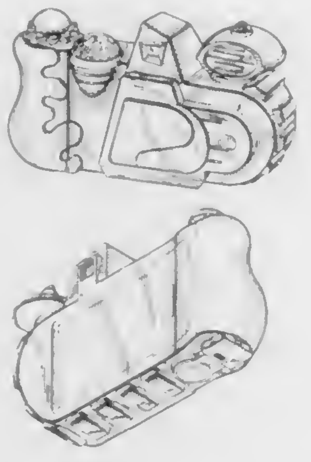
393,272

CAMERA

Marc H. Segan, New York, N.Y.; Gerald W. Cummings, Marlton, N.J.; Vint Gonser, Essex, Mass., and Gary Strauss, Mamaroneck, N.Y., assignors to Long Hall Technologies, L.L.C., New York, N.Y.

Filed Jan. 24, 1997, Ser. No. 65,344
Term of patent 14 years
LOC (6) Cl. 16 - *01*

U.S. Cl. D16—218



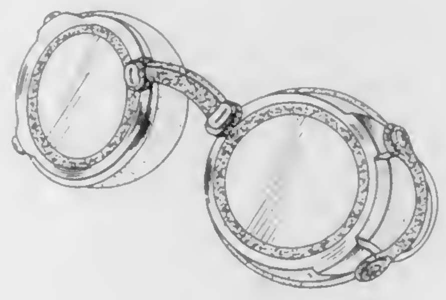
393,273

FRONTPIECE FOR SWIM GOGGLES

Stephen John Hall, Surrey, Canada; Aidan Petrie, Providence, R.I.; Stephen Lane, Jamestown, R.I., and John Mathews, Providence, R.I., assignors to Authentic Fitness Products, Van Nuys, Calif.

Filed Oct. 3, 1996, Ser. No. 60,669
Term of patent 14 years
LOC (6) Cl. 16 - *06*

U.S. Cl. D16—303



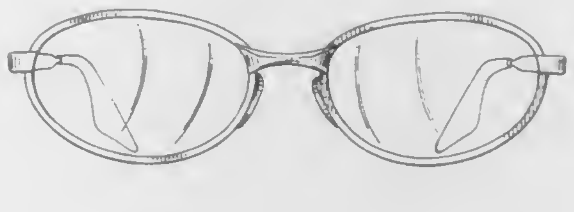
393,274

EYEWEAR

Mark J. Flanagan, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Mar. 12, 1997, Ser. No. 67,837
Term of patent 14 years
LOC (6) Cl. 16 - *06*

U.S. Cl. D16—328



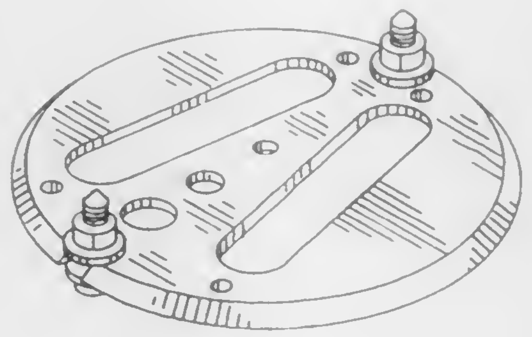
393,275

V-SHAPED MOUNT FOR ACOUSTIC GUITAR PICKUPS

Leonard L. Andrenacci, P.O. Box 1461, North Fork, Calif. 93643

Filed May 7, 1996, Ser. No. 54,149
Term of patent 14 years
LOC (6) Cl. 17 - *03*

U.S. Cl. D17—20



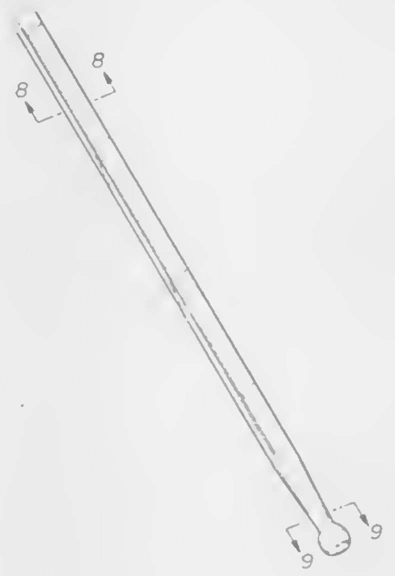
393,276

DRUMSTICK

Jessie Alvarado, G-5112 Fenton Rd., Flint, Mich. 48507, assignor to Jessie Alvarado, Flint, Mich.

Filed Jun. 24, 1996, Ser. No. 58,295
Term of patent 14 years
LOC (6) Cl. 17 - *04*

U.S. Cl. D17—22



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ELECTRONIC VALUE PROCESSING DEVICE

Masayuki Ohki, Kodaira; Atsuhiko Urushihara; Koji Suso, both of Kokubunji; Yuhei Abe, Hitachinaka, and Kotaro Yamashita, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

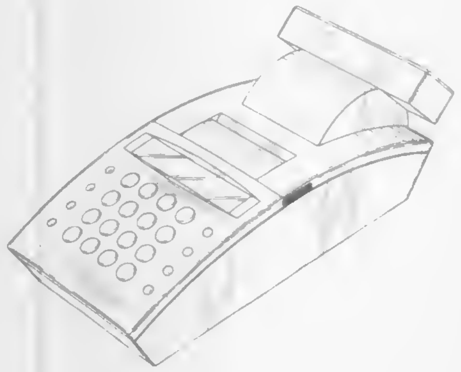
Filed Mar. 10, 1997, Ser. No. 67,714

Claims priority, application Japan, Sep. 11, 1996, 8-26912

Term of patent 14 years

LOC (6) Cl. 18 - *01*

U.S. Cl. D18—4



393,278

BAR CODE PRINTER

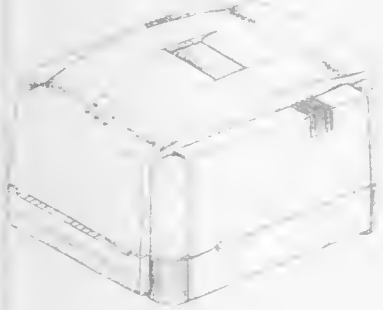
Chih Jung Lee, No. 8, Lane 56, Li Ming Rd., Hsin Tieo, Taipei Hsien, Taiwan

Filed Aug. 12, 1996, Ser. No. 59,695

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D18—50



393,279

PEN AND TIMEPIECE COMBINATION

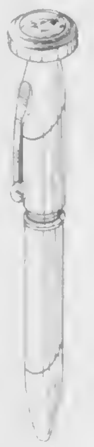
Hyo Sam Byun, 110 W. 30th St., 3rd Floor, New York, N.Y. 10001

Continuation-in-part of Ser. No. 52,137, Mar. 25, 1996. This application Jul. 14, 1997, Ser. No. 73,486

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—36



393,280

COMBINED WRITING INSTRUMENT AND ROLL-OUT MAP

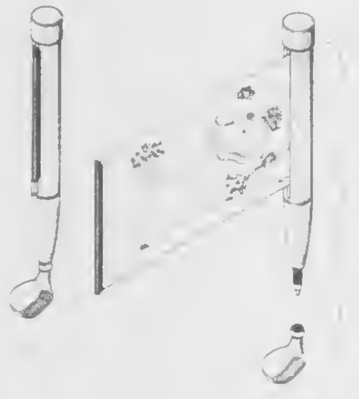
Chang-Ming Cheng, 2F, No. 58, Lane 285, Sec. 5, Yen-Ping Rd., Taipei, Taiwan

Filed Jun. 23, 1997, Ser. No. 72,676

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—42



393,281

HYDRAULIC NEWSPAPER DISPENSER

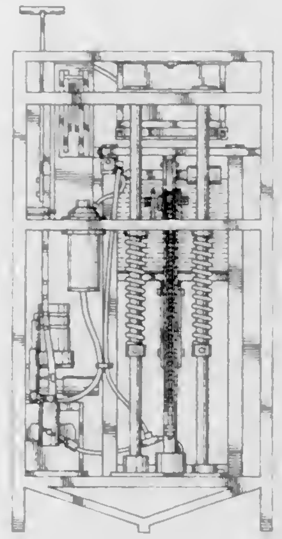
Jose Rivero, 16142 Mission Glen Dr., Houston, Tex. 77083

Filed Jun. 17, 1996, Ser. No. 55,912

Term of patent 14 years

LOC (6) Cl. 20 - *01*

U.S. Cl. D20—6



393,282

GUMBALL VENDING MACHINE

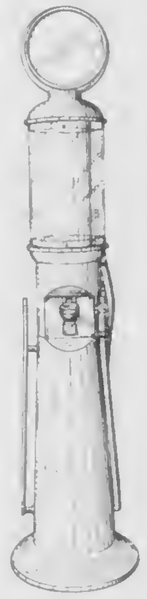
John E. Hutchinson, 2021 McKinnion Avenue S., Saskatoon, Saskatchewan, Canada, S7J 1N1, and Kenneth R. Epp, 401-112th Street E., Saskatoon, Saskatchewan, Canada, S7N 1V7

Filed Jan. 11, 1996, Ser. No. 48,660

Term of patent 14 years

LOC (6) Cl. 20 - *01*

U.S. Cl. D20—7



393,283

MODULAR CIGARETTE DISPLAY

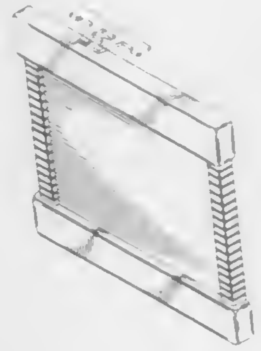
Randall Moderhack, Chicago, Ill., assignor to Thomas A. Schutz Company, Morton Grove, Ill.

Filed Sep. 11, 1995, Ser. No. 43,748

Term of patent 14 years

LOC (6) Cl. 20 - *03*

U.S. Cl. D20—10



393,284

DECORATIVE DISPLAY PANEL

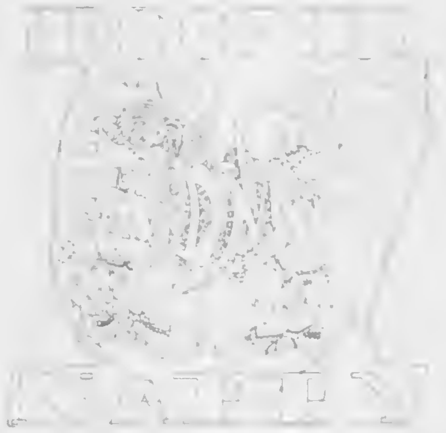
Polk M. Cline, III, 322 Forestal Dr. Apt. 317, Knoxville, Tenn. 37918

Filed Jun. 19, 1997, Ser. No. 72,537

Term of patent 14 years

LOC (6) Cl. 20 - *03*

U.S. Cl. D20—30



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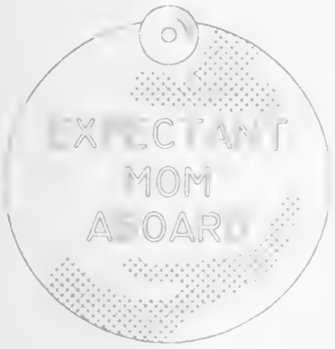
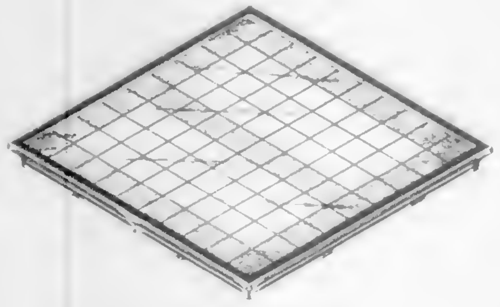
393,285
WINDOW MEDALLION APPARATUS
Cedric Nipper, and Valerie Nipper, both of 180 Parkhill Ave. Apt. 5 W, Staten Island, N.Y. 10304
Filed Jul. 21, 1997, Ser. No. 73,849
Term of patent 14 years
LOC (6) Cl. 20 - *02*

U.S. Cl. D20—42



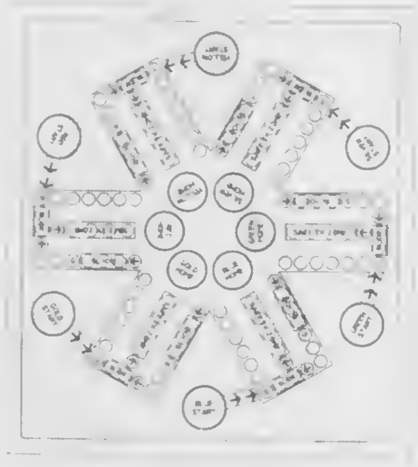
393,286
GAME BOARD
Satoshi Hasegawa, No. 1006-31, Takada, Kashiwa-shi, Chiba-ken, Japan, 277
Filed Nov. 8, 1996, Ser. No. 62,195
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—15



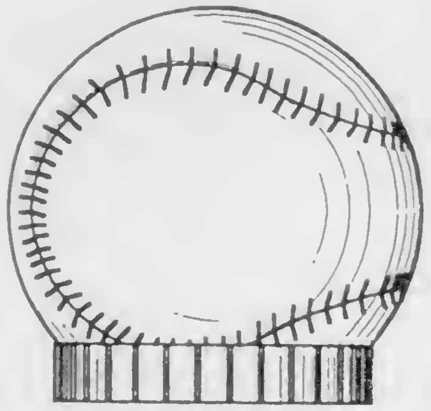
393,287
RIGHT MOVE GAME BOARD
Barbara A. Colangelo, 577 Cottage St., Pawtucket, R.I. 02861
Filed Feb. 21, 1997, Ser. No. 66,796
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—35



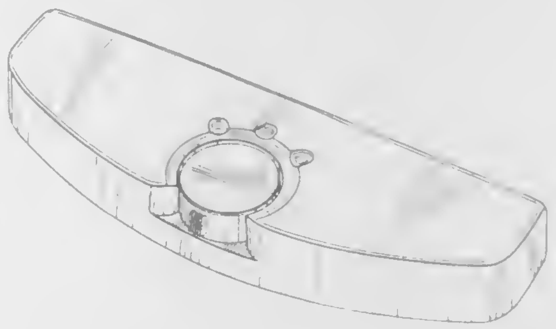
393,288
DICE CUP
Joseph Paolucci, 2302 Pacheco St., Concord, Calif. 94520
Filed Jun. 21, 1996, Ser. No. 56,070
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—41



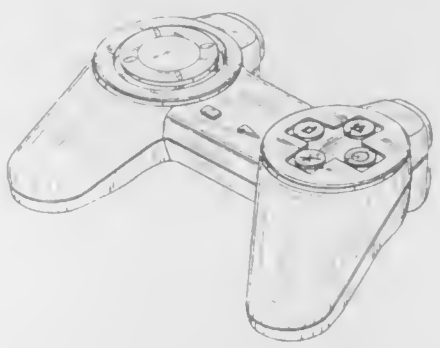
393,289
SELECTOR FOR AUDIO, VIDEO AND GAME DEVICE
Satoshi Suzuki, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed May 24, 1996, Ser. No. 54,946
Claims priority, application Japan, Nov. 28, 1995, 7-35650
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—48



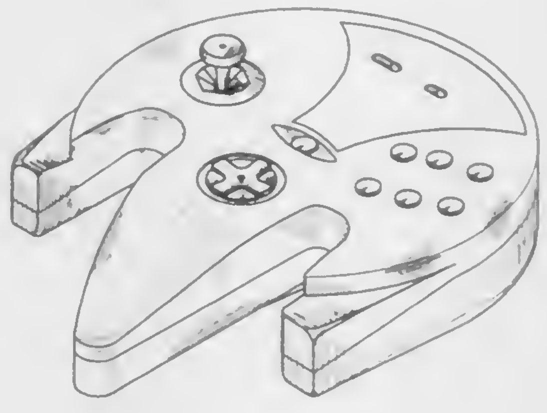
393,290
CONTROLLER FOR COMPUTER GAME
Teiyu Goto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Division of Ser. No. 42,706, Jun. 16, 1995, Pat. No. Des. 382,603, which is a continuation-in-part of Ser. No. 30,017, Oct. 3, 1994, abandoned. This application Jun. 12, 1997, Ser. No. 72,015
Claims priority, application Japan, Dec. 16, 1994, 6-38241; Dec. 16, 1994, 6-38242; Dec. 16, 1994, 6-38243; Dec. 16, 1994, 6-38244; Dec. 16, 1994, 6-38245; Dec. 16, 1994, 6-38246; Dec. 16, 1994, 6-38247; Dec. 16, 1994, 6-38248; Dec. 16, 1994, 6-38249; Dec. 16, 1994, 6-38250; Jun. 16, 1995, 6-9763
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—48



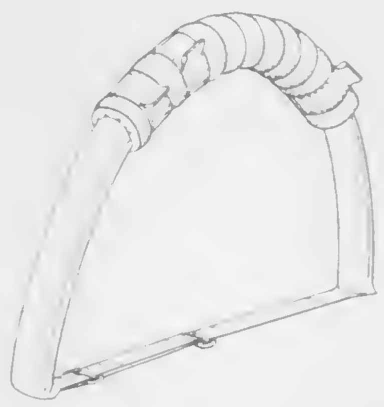
393,291
ELECTRONIC CONTROLLER
Ching-hu Kung, Taipei, Taiwan, assignor to Tigerex Enterprise Co., Ltd., Taipei, Taiwan
Filed Jul. 15, 1997, Ser. No. 74,262
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—48



393,292
ACTIVITY BAR FOR SAFETY CHAIR
Shoshana Oren, Herzlia; Roni Golos, Kiryat Ono, and Zafrira Weisman-Zanger, Givataim, all of Israel, assignors to Tiny Love Limited, Tel Aviv, Israel
Filed Feb. 5, 1997, Ser. No. 67,719
Claims priority, application Israel, Aug. 5, 1996, 26575
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—63



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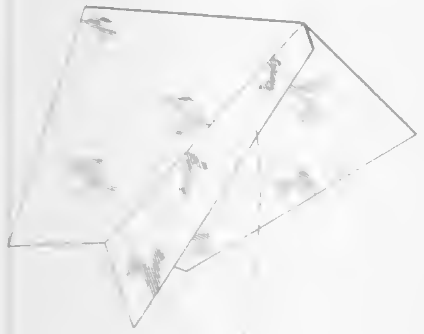
393,293

KITE

Christophorus D. F. Romswinekel, P.O. Box 123423, Fort Worth, Tex. 76121

Filed Feb. 13, 1997, Ser. No. 66,470
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—88



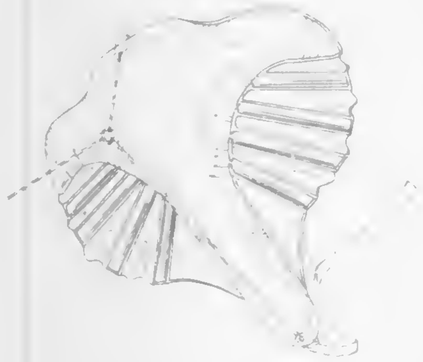
393,294

INFLATABLE KITE

Scott C. Crosbie, 4349 Brookside Ave., St. Louis Park, Minn. 55436

Filed May 14, 1997, Ser. No. 70,720
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—88



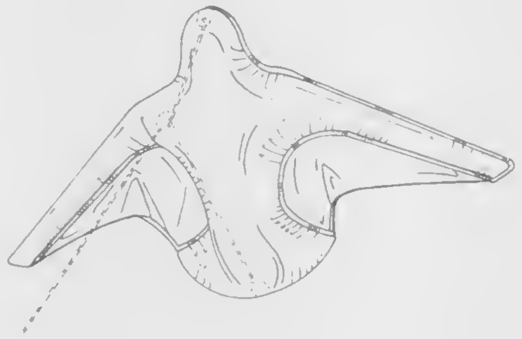
393,295

INFLATABLE KITE

Scott C. Crosbie, 4349 Brookside Ave., St. Louis Park, Minn. 55436

Filed May 14, 1997, Ser. No. 70,709
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—84



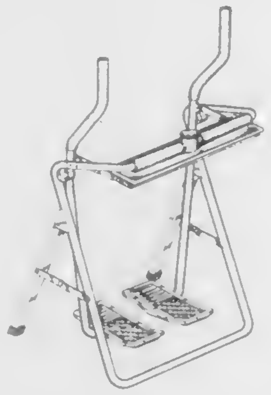
393,296

STRIDING EXERCISER

Michael Lee, 7F, No. 164, Nan King East Road, Section 4, Taipei, Taiwan

Filed Feb. 28, 1997, Ser. No. 67,116
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—191



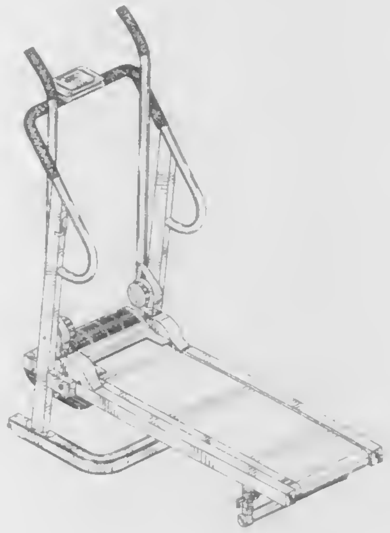
393,297

FOLDABLE TREADMILL

Robert W. McBride; Michael R. Byrd, both of Springfield, Mo., and David Chen, Taichung, Taiwan, assignors to Stamina Products Inc., Springfield, Mo.

Filed Jan. 30, 1997, Ser. No. 67,293
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—192



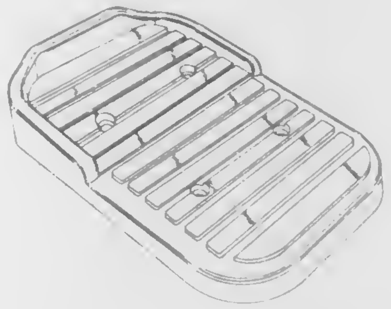
393,298

STRIDING EXERCISER PEDAL

Johnson Kuo, 5F., No. 6, Lane 12, Sec. 6, Hsin I Rd., Taipei, Taiwan

Filed Mar. 12, 1997, Ser. No. 67,685
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—191



393,299

GOLF HEAD RAKE

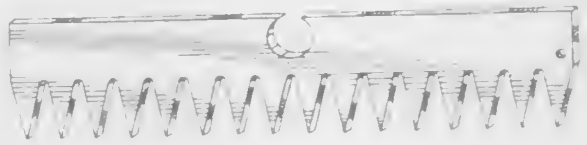
David B. Hunt, 1505 Pelham Street, Box 1315, Fonthill, Ontario, Canada, L0S 1E0

Filed Jul. 29, 1996, Ser. No. 57,589

Claims priority, application Canada, May 30, 1996, 1996-1254

Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—206



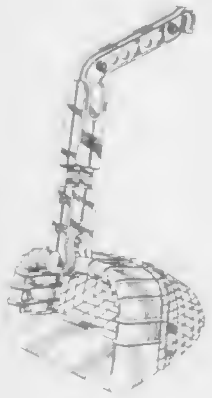
393,300

APPARATUS FOR COLLECTING OBJECTS FROM A SURFACE OF PLAY

Rod Andrews, Markham; Wally Stankov, Aurora; Paul L. Arato, Willowdale; F. William Coffman, Toronto, and Jason Breem, Willowdale, all of Canada, assignors to Stankov and Andrews, Markham, Canada

Filed Oct. 9, 1996, Ser. No. 60,865
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—206



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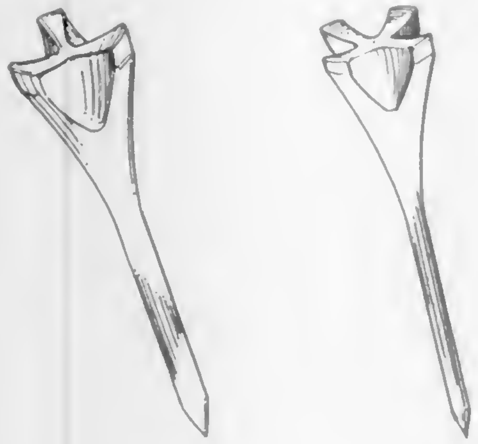
393,301

GOLF TEE

Arthur R. Koskela, 351 E. Thomas Rd., Suite D501, Phoenix, Ariz. 85012

Filed Sep. 10, 1996, Ser. No. 59,389
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—208



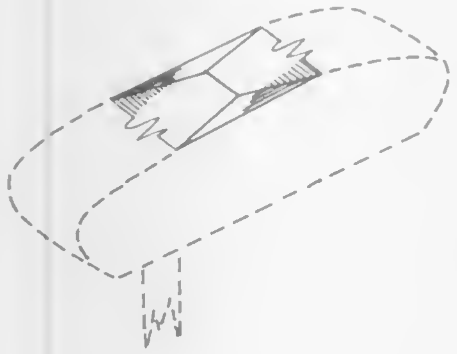
393,302

FOUR SURFACE SOLE CONTOUR FOR GOLF CLUBS

Robert M. Renegar, 304 Black Bear Trail, Murfreesboro, Tenn. 37127

Filed Dec. 17, 1996, Ser. No. 63,851
Term of patent 14 years
LOC (6) Cl. 21 - *02*

U.S. Cl. D21—221



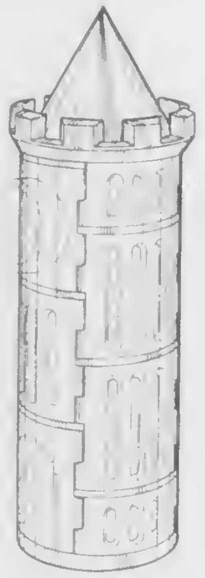
393,303

CYLINDRICAL CASTLE CLIMBING STRUCTURE

Gary B. Van Wagenen, San Marino, Calif., assignor to Little Tikes Commercial Play Systems (OMNI) Inc., City of Industry, Calif.

Filed Feb. 3, 1997, Ser. No. 66,074
Term of patent 14 years
LOC (6) Cl. 21 - *03*

U.S. Cl. D21—245



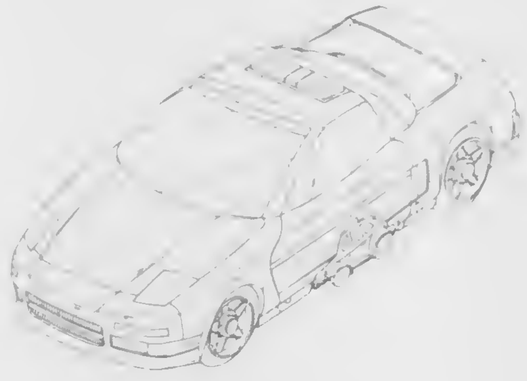
393,304

TOY CAR

Ping-Lin Yeh, P.O. Box 90, Tainan 704, Taiwan

Filed Jan. 17, 1997, Ser. No. 65,059
Term of patent 14 years
LOC (6) Cl. 21 - *01*

U.S. Cl. D21—136



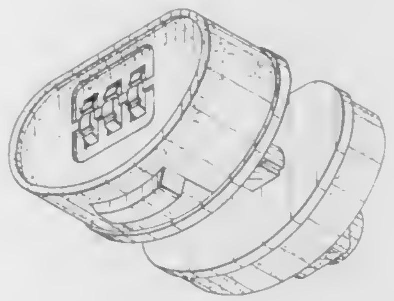
393,305

COMBINATION OPERATED TRIGGER LOCK FOR FIREARMS

Michael O. Misner, Lake Villa, and Elbert M. Spencer, Wildwood, both of Ill., assignors to The Eastern Company, New Britain, Conn.

Filed Jan. 2, 1996, Ser. No. 48,524
Term of patent 14 years
LOC (6) Cl. 22 - *01*

U.S. Cl. D22—108



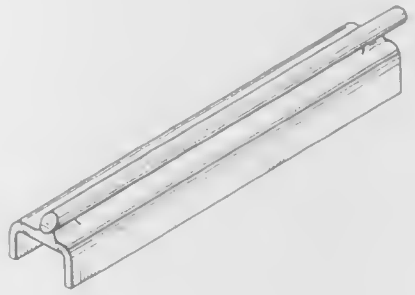
393,306

SHOTGUN SIGHT

John R. Couper, Loveland, Colo., assignor to North Pass, Ltd., Longmont, Colo.

Filed May 6, 1996, Ser. No. 49,549
Term of patent 14 years
LOC (6) Cl. 22 - *01*

U.S. Cl. D22—109



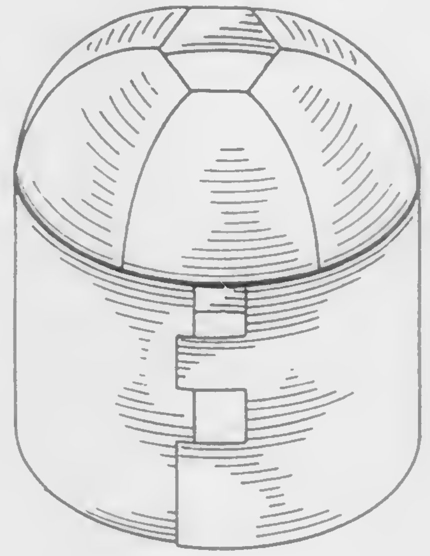
393,307

SWIMMING POOL FILTER COVER

Betty Carolyn Golston, 980 N. Avenida Venado, Tucson, Ariz. 85748, and Morris Brown, 4510 S. Evergreen Ave., Tucson, Ariz. 85730

Filed Sep. 19, 1996, Ser. No. 59,989
Term of patent 14 years
LOC (6) Cl. 23 - *01*

U.S. Cl. D23—209



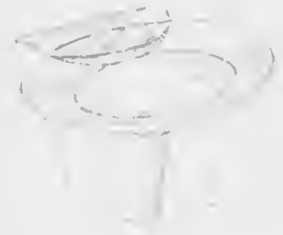
393,308

BASIN

Kenichi Nagato, Kitakyushu, Japan, assignor to Toto Ltd., Japan

Filed Jun. 18, 1997, Ser. No. 72,540
Claims priority, application Japan, Dec. 19, 1996, 8-038722
Term of patent 14 years
LOC (6) Cl. 23 - *02*

U.S. Cl. D23—280.1



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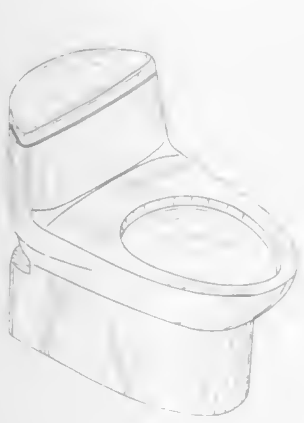
393,309

WATER CLOSET

Minoru Tani, Kitakyushu, Japan, assignor to Toto Ltd, Japan
Filed Jul. 11, 1997, Ser. No. 73,575
Term of patent 14 years
LOC (6) Cl. 23 - *02*

U.S. Cl. D23—301

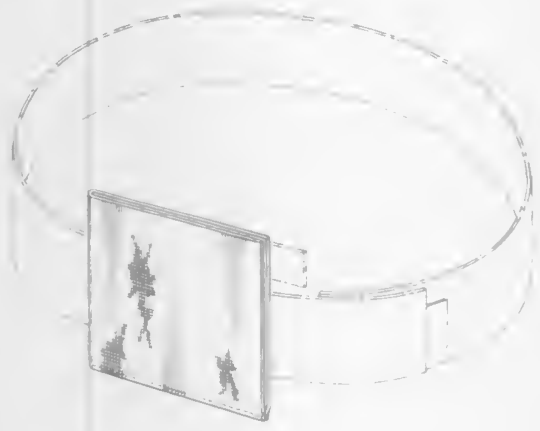


393,310

GASTROSTOMY TUBE HOLDER

Ronald D. Russo, 8 Candleberry Rd., Barrington, R.I. 02806
Filed Jun. 5, 1996, Ser. No. 55,398
Term of patent 14 years
LOC (6) Cl. 24 - *04*

U.S. Cl. D24—128

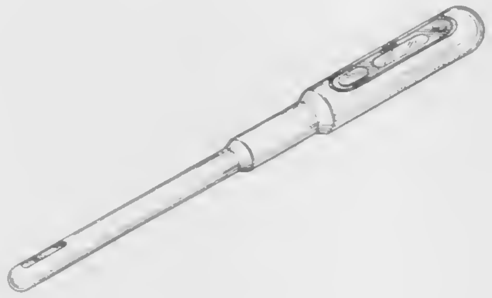


393,311

MAMMALIAN FERTILITY PROBE

Vaclav Kirsner, 2600 Brookwood Dr., Fort Collins, Colo. 80525
Filed Feb. 26, 1997, Ser. No. 67,121
Term of patent 14 years
LOC (6) Cl. 24 - *02*

U.S. Cl. D24—141

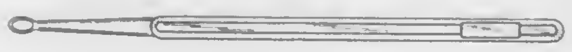


393,312

EAR CURETTE

James J. Huttner, Sylvania, Ohio, assignor to Bionix Development Corporation, Toledo, Ohio
Filed Jun. 12, 1997, Ser. No. 72,299
Term of patent 14 years
LOC (6) Cl. 24 - *02*

U.S. Cl. D24—147

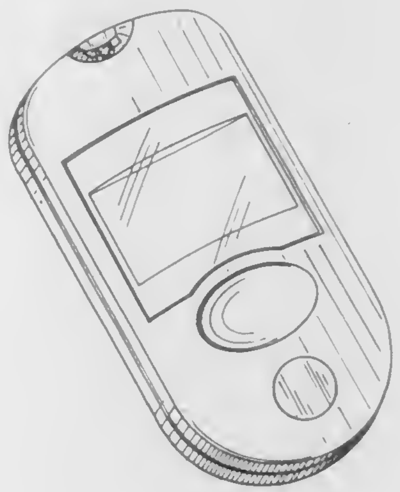


393,313

METER FOR ANALYSIS OF BLOOD CONSTITUENTS

Edward Meisner, Short Hills; Michael Ballone, New Providence, and Thomas Van Dyk, Prospect Park, all of N.J., assignors to MediSense, Inc., Bedford, Mass.
Filed May 1, 1996, Ser. No. 55,800
Term of patent 14 years
LOC (6) Cl. 24 - *01*

U.S. Cl. D24—169

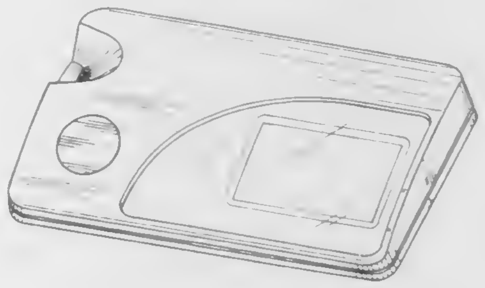


393,314

METER FOR ANALYSIS OF BLOOD CONSTITUENTS

Edward Meisner, Short Hills; Michael Ballone, New Providence; Thomas Van Dyk, Prospect Park, all of N.J., and Gary Grossman, Riverside, Conn., assignors to MediSense, Inc., Bedford, Mass.
Filed Aug. 28, 1996, Ser. No. 58,951
Term of patent 14 years
LOC (6) Cl. 24 - *01*

U.S. Cl. D24—169

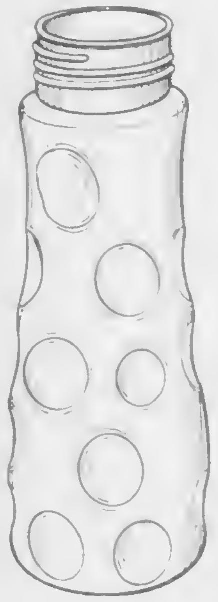


393,315

FEEDING-BOTTLE

Franco Crisi, Drezzo, Italy, assignor to RHEA S.r.l., Mariano Comense, Italy
Filed Jul. 2, 1996, Ser. No. 56,545
Claims priority, application Italy, Jan. 9, 1996, MI9600011
Term of patent 14 years
LOC (6) Cl. 07 - *01*

U.S. Cl. D24—197

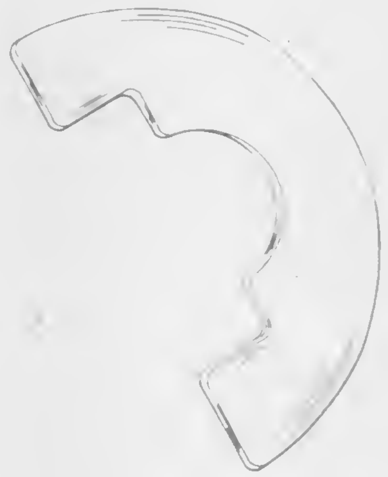


393,316

SUPPORT PLATFORM FOR BREAST-FEEDING MULTIPLE INFANTS

Janet Y. Simon, 209 Clearwood Ct., St. Peters, Mo. 63376
Filed Sep. 13, 1996, Ser. No. 59,739
Term of patent 14 years
LOC (6) Cl. 07 - *01*

U.S. Cl. D24—199



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COMBINED NECK MASSAGER AND CONTROL

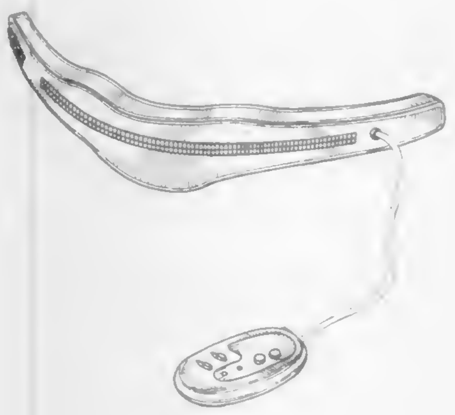
John D. Lange, Mentor; Frank Brichetto, South Russell, and Lawrence M. Pillion, University Heights, all of Ohio, assignors to Signature Brands, Inc., Glenwillow, Ohio

Filed Jan. 9, 1997, Ser. No. 64,703

Term of patent 14 years

LOC (6) Cl. 24 - *04*

U.S. Cl. D24—215



393,318

SURGICAL INSTRUMENT HANDLE

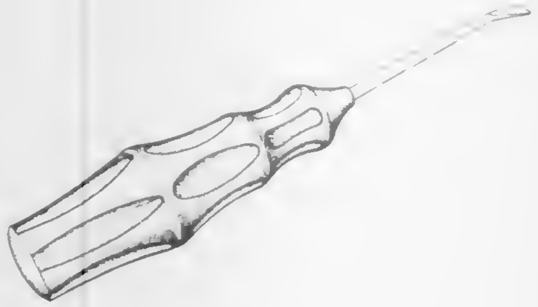
Thomas Jörn Wolter, Dallas, Tex., assignor to Deutschland Surgical Inc., Dallas, Tex.

Filed Jul. 17, 1996, Ser. No. 57,131

Term of patent 14 years

LOC (6) Cl. 24 - *02*

U.S. Cl. D24—133



393,319

CORNICE

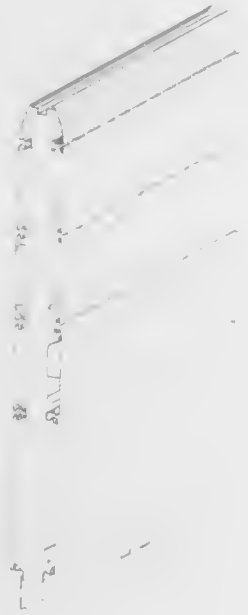
Robert E. Reuter, East Setanket, N.Y., assignor to Knoll, Inc., East Greenville, Pa.

Filed May 23, 1997, Ser. No. 71,245

Term of patent 14 years

LOC (6) Cl. 25 - *02*

U.S. Cl. D25—55



393,320

PARKING CURB

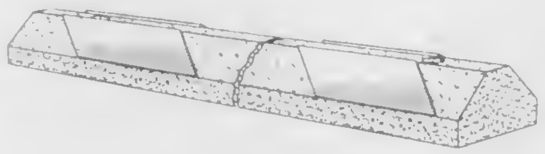
David Brent Sinclair, Quebec, Canada, assignor to GNR Technologies, Inc., Lasalle, Canada

Filed Oct. 21, 1996, Ser. No. 61,314

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—102



393,321

LEAF ROOF SHINGLE

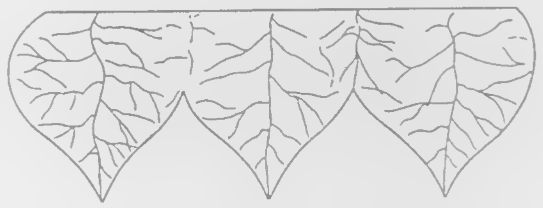
Chan Than Tom Chak, 1721 E. Frankford, Apt. 914, Carrollton, Tex. 75007

Filed Jun. 26, 1996, Ser. No. 56,323

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—140



393,322

CONTINUOUS LENGTH AND INTERCONNECTED COMPARTMENTALIZED SAND BAG STRUCTURE

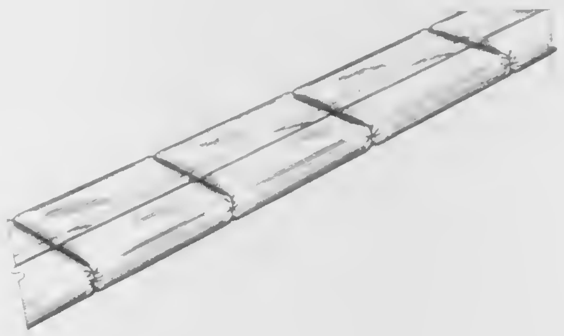
Richard A. Suttles, 2612 Lakewest Dr., Chico, Calif. 95928

Filed Sep. 12, 1995, Ser. No. 43,803

Term of patent 14 years

LOC (6) Cl. 25 - *01*

U.S. Cl. D25—164



393,323

LANTERN

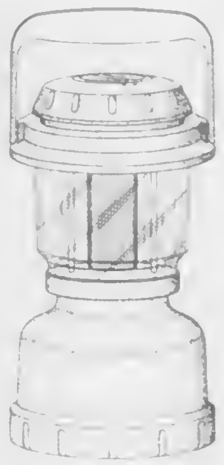
John Donaldson Howard, Brewster, N.Y., and Gary Evan van Deursen, Evergreen, Colo., assignors to The Coleman Company, Inc., Wichita, Kans.

Filed Jun. 2, 1997, Ser. No. 71,568

Term of patent 14 years

LOC (6) Cl. 26 - *02*

U.S. Cl. D26—41



393,324

FLASHLIGHT

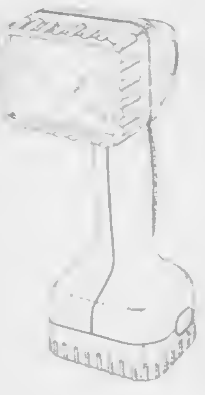
John Donaldson Howard, Brewster, N.Y., and Gary Evan van Deursen, Evergreen, Colo., assignors to The Coleman Company, Inc., Wichita, Kans.

Filed Mar. 10, 1997, Ser. No. 67,718

Term of patent 14 years

LOC (6) Cl. 26 - *06*

U.S. Cl. D26—50



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393,325
LIGHTING FIXTURE

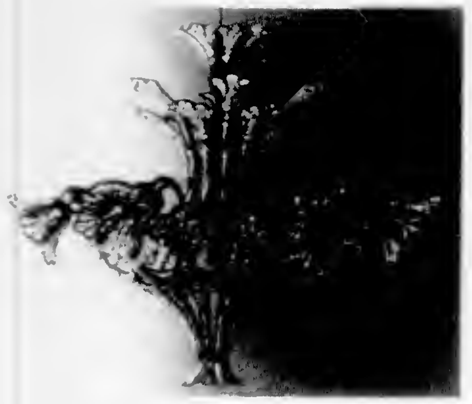
Georg Bayer, Plattsburgh; Roslyn Yando, Brainardsville, and Andrew M. Schuyler, Plattsburgh, all of N.Y., assignors to Schonbek Worldwide Lighting, Inc., Plattsburgh, N.Y.

Filed Jan. 6, 1995, Ser. No. 33,239

Term of patent 14 years

LOC (6) Cl. 26 - *05*

U.S. Cl. D26—84



393,326
LAMP

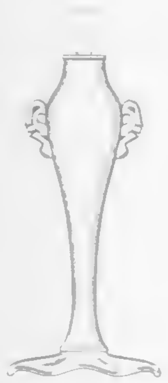
John Hutton, New York, N.Y., assignor to Donghia Furniture Co., Ltd., New York, N.Y.

Filed Mar. 13, 1997, Ser. No. 67,893

Term of patent 14 years

LOC (6) Cl. 26 - *05*

U.S. Cl. D26—106



393,327
ASHTRAY

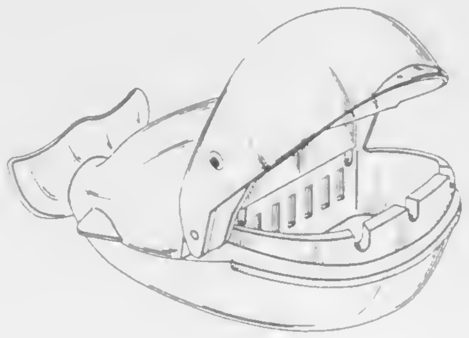
Mei-Kuei Lee Shu, P.O. Box 82-144, Taipei, Taiwan

Filed May 13, 1997, Ser. No. 70,644

Term of patent 14 years

LOC (6) Cl. 27 - *03*

U.S. Cl. D27—115



393,328
GAS LIGHTER

Isao Inoue, Tokyo, and Minoru Kanno, Shizuoka-ken, both of Japan, assignors to Tokai Corporation, Shizuoka-ken, Japan

Filed Sep. 25, 1996, Ser. No. 60,276

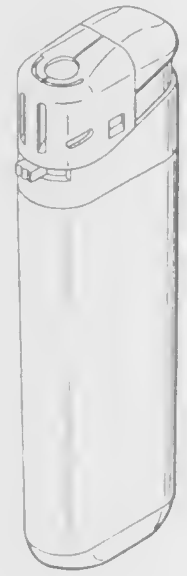
Claims priority, application Japan, Mar. 29, 1996, 8-8810

The portion of the term of this patent subsequent to Jan. 7, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 27 - *05*

U.S. Cl. D27—154



393,329
RAZOR HOLDER

Kiyoshi Ido, and Shigeru Goto, both of Sheki, Japan, assignors to Feather Safety Razor Co., Ltd., Osaka, Japan

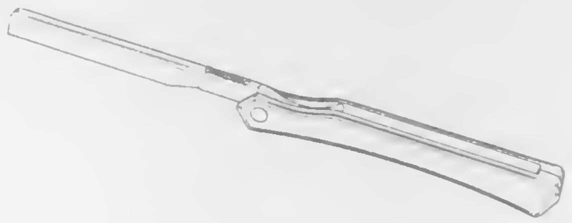
Continuation of Ser. No. 16,296, Dec. 13, 1993, abandoned. This application Jan. 6, 1995, Ser. No. 48,749

Claims priority, application Japan, Jun. 15, 1993, 5-17605

Term of patent 14 years

LOC (6) Cl. 28 - *03*

U.S. Cl. D28—45



393,330
RAZOR HANDLE

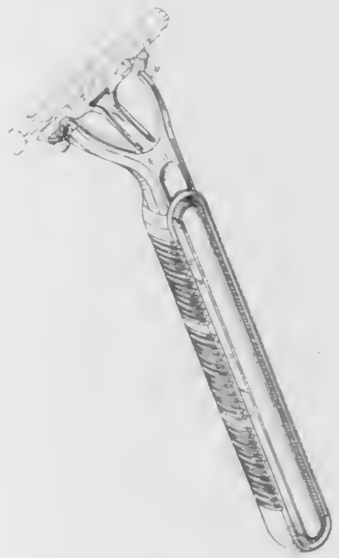
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 34,347, Feb. 2, 1995, abandoned, which is a continuation of Ser. No. 13,727, Sep. 30, 1993, abandoned. This application Jul. 12, 1995, Ser. No. 41,847

Term of patent 14 years

LOC (6) Cl. 28 - *03*

U.S. Cl. D28—48



393,331
DENTAL FLOSS DISPENSER

Lisa A. Hester, 140 Dunecrest Ave., Monterey, Calif. 93940

Filed Nov. 26, 1996, Ser. No. 62,812

Term of patent 14 years

LOC (6) Cl. 28 - *03*

U.S. Cl. D28—64

393,332
SPRAY GUN WASHER

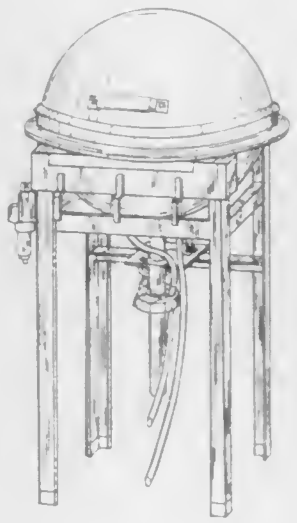
Richard Nygren, 309 S. Harvard, Arlington Heights, Ill. 60005

Filed Aug. 13, 1996, Ser. No. 58,609

Term of patent 14 years

LOC (6) Cl. 15 - *05*

U.S. Cl. D32—1



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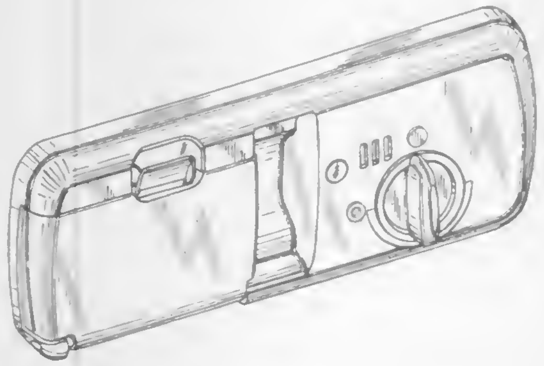
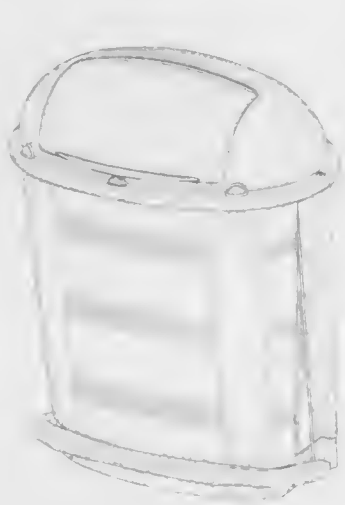
393,333
DETERGENT DISPENSER
Lawrence R. Kibler; David W. Carr, and Kenneth Todd Shelley, all of St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Nov. 20, 1996, Ser. No. 62,632
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—3



393,334
REFUSE CONTAINER
Donald C. Presnell, Stephens City, and Kirstin J. van Duelmen, Winchester, both of Va., assignors to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 28, 1997, Ser. No. 70,401
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—9



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7th DAY OF APRIL, 1998

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.C.X. Trading, Inc. See—
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A.E. Petsche Company, Inc. See—
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A et S Biovecteurs. See—
Samain, Daniel; De Miguel, Ignacio; Meniali, Jaouad; Ioualalen, Karim; Ding, Li; Cervilla, Monique; Rieumajou, Valerie; Delrieu, Pascal; and Imbertie, Laurent, 5,736,371, Cl. 435-179.000
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AB Volvo. See—
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AB Volvo Penta. See—
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ABB Control Oy. See—
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ABB Henschel Aktiengesellschaft. See—
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ABB Patent GmbH. See—
Rahder, Christian; and Muller, Jens Uwe, 5,737,214, Cl. 364-148.000
ABB Research Ltd. See—
Knopfel, Hans Peter, and Ruck, Thomas, 5,735,687, Cl. 431-354.000
Abbate, Richard, and Parente, Richard, to United States Surgical Corporation. Needle transporting apparatus. 5,735,383, Cl. 198-456.000
Abbott Laboratories. See—
Bieniarz, Christopher; Young, Douglas F.; Cornwell, Michael J.; and Husain, Mazhar, 5,736,624, Cl. 530-391.100
Grenier, Frank; Holzman, Thomas F.; Smith, Allan H.; and Tsutsui, Alan C., 5,736,401, Cl. 436-8.000
Spies, Uwe, 5,736,334, Cl. 435-6.000
Abdelnour, Ghassan Maurice; Rogers, Steven Hill; and Chandler, Horace David, to Seagate Technology, Inc. System and method for early disc drive fault detection. 5,737,519, Cl. 395-183.150
Abe, Hidetoshi. See—
Kondo, Katsumi; Terao, Hiromu; Abe, Hidetoshi; Ohta, Masuyuki; Suzuki, Kenkichi; Sasaki, Tohru; Kawachi, Genshiro; and Ohwada, Junichi, 5,737,051, Cl. 349-141.000
Abe, Hirotsugu. See—
Mikami, Shigeyuki; Abe, Hirotsugu; and Higuchi, Yoko, 5,736,912, Cl. 333-235.000
Abe, Koichi. See—
Funato, Toshiyasu; Abe, Koichi; and Yokoi, Yasushi, 5,736,082, Cl. 264-46.500
Abe, Kunihiro, to Fuji Jukogyo Kabushiki Kaisha. Diagnosis system for motor vehicle. 5,737,711, Cl. 701-29.000
Abe, Nobusuke. See—
Shimomura, Takehiko; Abe, Nobusuke; and Satoh, Yoshikazu, 5,737,381, Cl. 377-52.000
Aberg, Gunnar, and McCullough, John R., to Sepracor Inc. Methods and compositions for treating urinary incontinence using optically pure (S)-oxybutynin. 5,736,577, Cl. 514-617.000
Abild, Vernon E., and Huard, Stephen J., to Boeing Company, The. Main deck cargo door control panel indication. 5,735,487, Cl. 244-129.500
Abileah, Adiel, to OIS Optical Imaging Systems, Inc. LCD with notch filter. 5,737,045, Cl. 349-104.000
Abileah, Adiel, and Xu, Gang, to OIS Optical Imaging Systems, Inc. Liquid crystal display having high contrast viewing zone centered in positive or negative vertical region with retarder's retardation equal to 100-250 nanometers. 5,737,048, Cl. 349-121.000
Abiru, Manabu. See—
Moriwaki, Hiroyuki; Abiru, Manabu; Yabuta, Koji; and Kasai, Nobuhiro, 5,737,046, Cl. 349-117.000
ABI Boatlifts. See—
Parkins, David G., 5,735,561, Cl. 294-74.000
Abrahmsen, Lars; Burnier, John; Wells, James A.; and Jackson, David Y., to Genentech, Inc. Serine protease variants having peptide ligase activity. 5,736,512, Cl. 514-12.000
ABT, Inc. See—
Gunter, Charles E., 5,735,637, Cl. 405-118.000
Accolla, William R.; Watkins, Harry; and Krom, Mark, to Sensormatic Electronics Corporation. User management interface for EAS system. 5,737,241, Cl. 364-550.000
Achelpohl, Fritz, to Windmoller & Holscher. Doctor blade unit for the inking system of a rotary printing press. 5,735,209, Cl. 101-363.000
Achiwa, Kyosuke; Yamamoto, Akira; and Yamagata, Hirotsugu, to Hitachi, Ltd. Memory system using flash memory and method of controlling the memory system. 5,737,742, Cl. 711-103.000
Ackerman, Peter P. See—
Miller, William R.; Ackerman, Peter P.; and Shinn, Robert E., 5,735,184, Cl. 83-504.000
Ackerman, William C. See—
Smith, Douglas M., and Ackerman, William C., 5,736,425, Cl. 438-778.000
Activcard. See—
Audebert, Yves, 5,737,421, Cl. 380-23.000
Acuson Corporation. See—
Hossack, John A., 5,735,282, Cl. 128-662.030
Adachi, Hiroyuki. See—
Yamagata, Eiji; Fujishima, Kazuo; Adachi, Hiroyuki; Watanabe, Hiroshi; and Haga, Masakazu, 5,735,065, Cl. 47-348.000
Adachi, Kenji. See—
Umemoto, Teruo; Adachi, Kenji; Tomizawa, Ginjiro; Ishihara, Shin; and Nagayoshi, Masayoshi, 5,736,274, Cl. 429-192.000
Adachi, Rensuke. See—
Koeda, Takashi; Sano, Hiroshi; Ueda, Hirohisa; Ikeda, Kiyotoshi; Kaneko, Kunikiyo; and Adachi, Rensuke, 5,735,794, Cl. 600-178.000
Adams, James David; Kladman, Lori Kathleen; and Mukherjee, Soman Kumar, to Neurocal International Inc. Use of NAD related compounds in the treatment of neural trauma to inhibit neurodegeneration. 5,736,529, Cl. 514-46.000
Adams, Kenneth M., and Nenz, Sorin, to Linvatec Corporation. Adjustable length saw blade. 5,735,866, Cl. 606-178.000
Adams, Paul H. See—
McDonough, James M.; Doiron, Gerald J.; Adams, Paul H.; Barone, Chris A.; and Fairbanks, Floyd B., 5,735,294, Cl. 131-329.000
Adams, Robert; Perry, Burt W.; Richardson, John W.; Williams, David M.; and Yaple, Nelson E., to Intel Corporation. Method and apparatus for managing multimedia data files in a computer network by streaming data files into separate streams based on file attributes. 5,737,495, Cl. 395-615.000
Adams, Theodore P. See—
Kroll, Mark W.; Adams, Theodore P.; and Supino, Charles G., 5,735,878, Cl. 607-5.000
Adcock, John E. See—
Brandstein, Michael S.; Adcock, John E.; and Silverman, Harvey F., 5,737,431, Cl. 381-92.000
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Tsuchiya, Kenichi, and Adelmeyer, Thomas John, 5,737,753, Cl. 711-136.000
Adobe Systems Incorporated. See—
Schiller, Stephen N., 5,737,452, Cl. 382-270.000
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Advanced Contracting & Hedging, Inc. See—
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Advanced Micro Devices, Inc. See—
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Advantest Corp. See—
Kosuge, Takashi, 5,736,845, Cl. 324-76.270
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Aeroquip Corporation. See—

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Evans, Robert J., Schuller, Mark W., Biberstein, Kraig A., and Rambo, Anna K., 5,735,047, Cl. 29-890.130.
Jenski, Gary M., Jr.; and Shiery, Jeffrey C., 5,735,313, Cl. 138-30.000.
Aerospatiale Societe Nationale Industrielle: *See*—
Ciprian, Danilo; Hemadou, Benoit, and Chaumel, Pascal, 5,735,485, Cl. 244-113.000.
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Palmer, Steven D., 5,737,222, Cl. 364-424.013.
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Agency of Industrial Science & Technology, Ministry of International Trade & Industry: *See*—
Hashino, Satoshi, 5,735,088, Cl. 52-184.000.
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Aggarwal, Ishwar: *See*—
Sanghera, Jasbinder; Pureza, Pablo; Aggarwal, Ishwar, and Miklos, Robert, 5,735,927, Cl. 65-389.000.
Agrawal, Rakesh; Psaila, Giuseppe, Wimmers, Edward L., and Zait, Mohamed, to International Business Machines Corporation. System and method for defining shapes with which to mine time sequences in computerized databases. 5,737,593, Cl. 395-606.000.
Agrawal, Ram, and Spak, Michael, to Advanced Micro Devices, Inc. System for reconfiguring the width of an x-y RAM. 5,737,767, Cl. 711-171.000.
Ahigian, Edward E.: *See*—
Piech, Zbigniew; Jaminet, Jerome F., Kowalczyk, Thomas M.; Ahigian, Edward E., Kulak, Richard E., McHugh, Thomas M., He, Thomas, Peruggi, Richard E., and Barrett, David W., 5,736,693, Cl. 187-316.000.
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Ahlstrom Machinery Corporation: *See*—
Engdahl, Holger; and Jantti, Jouni, 5,735,331, Cl. 162-30.100.
Ahlstrom Machinery Inc.: *See*—
Prough, J. Robert, 5,736,006, Cl. 162-52.000.
Ahuja, Avinash K.: *See*—
Howe, Richard W.; and Ahuja, Avinash K., 5,735,136, Cl. 62-354.000.
Aiba, Satoshi: *See*—
Teraoka, Masao; Aiba, Satoshi, Kenji, Hiraishi, Ugajin, Kazumitsu, and Ono, Shuhei, 5,735,765, Cl. 475-248.000.
Aiba, Yoshinobu: *See*—
Utsunomiya, Takehito, Yoshihara, Kunio, Aiba, Yoshinobu, and Kohtani, Hideto, 5,737,092, Cl. 358-407.000.
Aibel, Jonathan B.: *See*—
Reed, Harvey G., Dalton, John T., Aibel, Jonathan B., and Sciandra, Stephen A., 5,737,609, Cl. 395-704.000.
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- Bailey, James T , to United States Forgecraft Corporation. Ergonomic recessed release safety hook 5,735,025, Cl 24-600 100
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- Bair, Scott, to Sentinel Medical, Inc Method of using fluid jet surgical cutting tool. 5,735,815, Cl. 604-51 000.
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- Baker, George T Electrical power management system 5,737,168, Cl. 361-90 000.
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- Bakhshi, Shiv K., Williams, Steven H , Scott, James W , Haines, Randall M , and McGrath, Ralph D , to Owens Corning Fiberglas Technology, Inc Mineral fiber product containing polymeric material 5,736,475, Cl 442-415.000.
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- Bales, Donald R.; Bales, Darryl L , and Fedler, Clifford B. Pumping unit with dynamic fluid ballast. 5,735,170, Cl. 74 41 000.
- Ballard, Dan, to Reticular Systems, Inc Test system with inference circuit. 5,737,497, Cl 395-50 000
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- Huang, Tsongshih, to United States of America, Navy. Barge linking system using flexible connectors. 5,735,228, Cl. 114-266.000.
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- Nitta, Minoru. Heat exchanger. 5,735,342, Cl. 165-122.000.
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O'Lenick, Anthony J., Jr., to Fan Tech Ltd. and Lambent Technologies Inc. Guerbet meadowfoam esters in personal care. 5,736,571, Cl. 514-549.000.

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- Samain, Daniel, De Miguel, Ignacio, Meniali, Jaouad, Ioualalen, Karim; Ding, Li, Cervilla, Monique, Rieumajou, Valérie; Delrieu, Pascal, and Imbertie, Laurent, to A et S Biovecteurs. Biodegradable particulate vector for transporting molecules having biological activity. 5,736,371, Cl. 435-179.000.
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- Sammon, Sheila A. Hair adornment having hair clip. 5,735,295, Cl. 132-275.000.
- Samsung Display Devices Co., Ltd. *See*—
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  - Kim, Kuie-sup, 5,737,476, Cl. 386-52.000.
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  - Ko, Young-Wi; Cho, Yun-Jin; Cho, Sung-Hee, and Lee, Hyong-Gon, 5,736,772, Cl. 257-412.000.
  - Lee, Byoung hun, 5,735,731, Cl. 451-143.000.
  - Lee, Chul-woo, 5,737,295, Cl. 369-103.000.
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  - Lee, Phil-hong; and Cho, Young-ho, 5,737,148, Cl. 360-96.500.
  - Park, Jong-Hyeon, and Kim, Je-Woo, 5,737,361, Cl. 375-208.000.
  - Park, Suck Haong; and Kim, Yong Myoung, 5,735,138, Cl. 62-455.000.
  - Park, You-Il; and Kim, Yoon-Soo, 5,737,454, Cl. 382-284.000.
  - Rhee, Nam-hyuk, 5,737,034, Cl. 348-738.000.
  - Shin, Sang-Gil, and Kang, Kyung-Woo, 5,737,276, Cl. 365-230.080.
  - Yoo, In-kyung, 5,737,180, Cl. 361-313.000.
  - Yoo, Jang-hoon, and Lee, Chul woo, 5,737,299, Cl. 369-112.000.
- Samuelson, Jeffrey C. Combination drywall joint compound hopper and drywall tape dispenser. 5,736,001, Cl. 156-575.000.
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- Sanders, Stuart Baker; and Lund, Vivian Therese, to Motorola, Inc. Methods and filter for isolating upstream ingress noise in a bi-directional cable system. 5,737,461, Cl. 385-27.000.
- Sanders, William P., and Mitola, Anthony F., to Innovative Technology, L.L.C. Method and apparatus for minimizing leakage in turbine seals. 5,735,667, Cl. 415-170.100.
- Sandhu, Gurtej S., Iyer, Ravi, and Sharan, Sujit, to Micron Technology, Inc. Apparatus and method to increase gas residence time in a reactor. 5,735,960, Cl. 118-723.0IR.
- Sandia Corporation. *See*—
  - Damkroger, Brian, 5,737,355, Cl. 373-50.000.
  - Shahinpoor, Mohsen; and Martinez, David R., 5,735,607, Cl. 374-187.000.
- Sandig, Bruce Darryl, Matlock, John Edward, and Pringle, Roy David, to Intopak Inc. System and method for providing data and program code to a card for use by a reader. 5,737,610, Cl. 395-712.000.
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- Sankaran, Venkateswara A., Xu, Xingyi, Pao, Yi-Hsin, and Jung, Wen-Je, to Ford Global Technologies, Inc. Power module with silicon dice oriented for improved reliability. 5,736,786, Cl. 257-717.000.
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- Tanii, Takeshi: *See—*
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- Taplin, Gerald N. Locking device for cam rod locks. 5,735,146, Cl. 70-56.000.
- Tarasenko, Vladimir Vitalievich; and Kindzersky, Vasily Vasilievich. Device for separating fruit and root-crops from extraneous material. 5,735,740, Cl. 460-97.000.
- Tarassov, Alexander: *See—*
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- Tarelin, Anatoly O.; Skliarov, Volodymyr P.; Serhienko, Yury I.; and Weres, Oleh. Steam condensation in steam turbine. 5,735,125, Cl. 60-685.000.
- Targeted Genetics Corporation: *See—*
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- Tari, Makoto: *See—*
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- Tendler, Robert K., to Tendler Cellular, Inc. Time since last fix annunciation system for GPS-based wireless rescue system. 5,736,962, Cl. 342-357.000.
- Teng, Ming-Chang, to Taiwan Semiconductor Manufacturing Company Ltd. Method for improved aluminum-copper deposition and robust via contact resistance. 5,736,458, Cl. 438-627.000.
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- Teraoka, Masao; Aiba, Satoshi; Kenji, Hiraishi; Ugajin, Kazumitsu; and Ono, Shuhei, to Tochigi Fuji Sangyo Kabushiki Kaisha. Differential apparatus. 5,735,765, Cl. 475-248.000.
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Zalusky, James T.: *See*—
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Zambias, Robert; Bolten, David A.; Hogan, Joseph C.; Furth, Paul; Casebier, David, and Tu, Cheng, to ArQule, Inc. Method of generating a plurality of chemical compounds in a spatially arranged array. 5,736,412, Cl. 436-518.000.

Zander, Dennis Roland; Allgood, John Horace, and Petruchik, Dwight John, to Eastman Kodak Company. Combination metering cam and film transport thumbwheel. 5,737,640, Cl. 396-6.000.

Zander, Dennis Roland; Smart, David Clinton; Dussinger, Thomas Edgar, and Balling, Edward Norman, to Eastman Kodak Company. Pump camera. 5,737,656, Cl. 396-411.000.

Zanzig, David John: *See*—
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Zarling, David A.; Rossi, Michel J.; Peppers, Norman A.; Kane, James; Faris, Gregory W.; Dyer, Mark J.; Ng, Steve Y., and Schneider, Luke V., to SRI International. Up-converting reporters for biological and other assays using laser excitation techniques. 5,736,410, Cl. 436-172.000.

Zave, Pamela, to AT&T Corp. Interaction of routing features in a telephone system. 5,737,403, Cl. 379-211.000.

Zavracky, Paul M.; Fan, John C. C.; McClelland, Robert; Jacobsen, Jeffrey; and Dingle, Brenda. Single crystal silicon arrayed devices for display panels. 5,736,768, Cl. 257-347.000.

Zeftek, Inc.: *See*—
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Zhao, Xi, and Jin, Guobing. Computer system for controlling values of operational parameters during an operation. 5,736,370, Cl. 435-173.600.

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Ziperovich, Pablo A., to Quantum Corporation. Method for in-chip testing of digital circuits of a synchronously sampled data detection channel. 5,737,342, Cl. 371-25.100.

Zircotube: *See*—
Mardon, Jean Paul; Senevat, Jean; and Charquet, Daniel, 5,735,978, Cl. 148-672.000.

Zlotnick, Aviad, and Sommer, Ziva, to International Business Machine Corp. Image processing. 5,737,438, Cl. 382-101.000.

ZMC Inc.: *See*—
Zaccagni, Gregory R., and Zaccagni, Richard J., 5,735,084, Cl. 52-11.000.

Zocher, Joan E.: *See*—
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Zollars, Byron G.; Chin, Robert C.; McMillian, Gary B.; Cruce, Tommy C., and Hallidy, William H., to Systems & Processes Engineering Corporation. Precision optical displacement measurement system. 5,737,085, Cl. 356-376.000.

ZoMed International, Inc.: *See*—
Gough, Edward J.; and Stein, Alan A., 5,735,847, Cl. 606-41.000.

Zook, Christopher P., to Cirrus Logic, Inc. Servo track address channel code for PR4 magnetic recording. 5,737,142, Cl. 360-49.000.

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Zorzi, Claudio, to Nordica S.p.A. Braking device particularly for skates. 5,735,537, Cl. 280-11.200.

Zschaschler, Gudrun: *See*—
Walther, Marten; Heming, Martin; Spallek, Michael, and Zschaschler, Gudrun, 5,736,207, Cl. 428-34.700.

Zscheile, John Walter, Jr.: *See*—
Barham, Steven Todd; Kingston, Samuel Charles; and Zscheile, John Walter, Jr., 5,737,372, Cl. 375-367.000.

Zubelewicz, Aleksander: *See*—
Dickinson, Gerard Truman; McGinniss, James Lee, Jr.; Tokarz, Ronald Francis; and Zubelewicz, Aleksander, 5,736,646, Cl. 73-814.000.

Zucco, Anthony F.: *See*—
DeLair, Charles M.; Schnueder, Grant; Sprague, Mark S.; Virgil, Kenneth W., and Zucco, Anthony F., 5,737,532, Cl. 395-200.490.

Zuehlke, Kurt G., and Lein, Steven H., to Honeywell Inc. Solid state AC switch with self-synchronizing means for stealing operating power. 5,736,795, Cl. 307-130.000.

Zuger, Eric, to Tesa SA. Tubular coil unit of an inductive transducer for measuring displacements. 5,736,854, Cl. 324-207.120.

Zupkas, Paul F., to UROS Corporation. Method of treating the prostate using cryosurgery. 5,735,845, Cl. 606-20.000.

Zuraski, Gerald D., Jr.; White, Scott A.; Chinnakonda, Murali S.; and Christie, David S., to Advanced Micro Devices, Inc. Dependency checking and forwarding of variable width operands. 5,737,629, Cl. 395-800.230.

Zuravleff, William K.; Semmelmeyer, Mark; Robinson, Timothy, and Furman, Scott, to MicroUnity Systems Engineering, Inc. System for placing entries of an outstanding processor request into a free pool after the request is accepted by a corresponding peripheral device. 5,737,547, Cl. 395-292.000.

Zygo Mold Limited: *See*—
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ZymoGenetics, Inc.: *See*—
Raymond, Christopher K., 5,736,383, Cl. 435-255.700.

Zywno, Marek: *See*—
Emery, David Garth; Saidin, Zain Kahuna; Wihl, Mark J.; Fu, Tao-Yi; Zywno, Marek; Kvamme, Damon F., and Fein, Michael E., 5,737,072, Cl. 356-73.000.

1st Desk Systems, Inc.: *See*—
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3Com Corporation: *See*—
Lee, Jack, 5,737,316, Cl. 370-248.000.

527233 B.C. Ltd.: *See*—
Campbell, Ronald W., 5,735,100, Cl. 52-645.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7th DAY OF APRIL, 1998

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice)

Burghacher, Martin, to Papst-Motoren GmbH & Co. KG. Permanent magnet excited electric motor. RE. 35,763, Cl. 310-51.000.

Carrier Corporation: *See*—
Vaccaro, Joseph P., and Kassout, Thomas L., RE. 35,760, Cl. 29-888.020.

Casper, Stephen L.; and Duesman, Kevin G., to Micron Technology, Inc. Inverting output driver circuit for reducing electron injection into the substrate. RE. 35,764, Cl. 326-122.000.

Dardashti, Shahriar. Display or storage unit. RE. 35,761, Cl. 211-40.000.

Duesman, Kevin G.: *See*—
Casper, Stephen L., and Duesman, Kevin G., RE. 35,764, Cl. 326-122.000.

Dunsmore, Clay Allen: *See*—
Zander, Dennis Roland, and Dunsmore, Clay Allen, RE. 35,767, Cl. 396-6.000.

Eastman Kodak Company: *See*—
Zander, Dennis Roland, and Dunsmore, Clay Allen, RE. 35,767, Cl. 396-6.000.

Kabushiki Kaisha Toshiba: *See*—
Taguchi, Toyoki, RE. 35,766, Cl. 372-38.000.

Kassout, Thomas L.: *See*—
Vaccaro, Joseph P., and Kassout, Thomas L., RE. 35,760, Cl. 29-888.020.

Micron Communications, Inc.: *See*—
Tuttle, John R., RE. 35,765, Cl. 340-825.540.

Micron Technology, Inc.: *See*—
Casper, Stephen L., and Duesman, Kevin G., RE. 35,764, Cl. 326-122.000.

Papst-Motoren GmbH & Co. KG: *See*—
Burghacher, Martin, RE. 35,763, Cl. 310-51.000.

Taguchi, Toyoki, to Kabushiki Kaisha Toshiba. Stabilized feedback control device for semiconductor lasers. RE. 35,766, Cl. 372-38.000.

Tuttle, John R., to Micron Communications, Inc. Method for reducing conductive and convective heat loss from the battery in an RFID tag or other battery-powered devices. RE. 35,765, Cl. 340-825.540.

Vaccaro, Joseph P., and Kassout, Thomas L., to Carrier Corporation. Method of making a scroll compressor pump cartridge subassembly. RE. 35,760, Cl. 29-888.020.

Zander, Dennis Roland; and Dunsmore, Clay Allen, to Eastman Kodak Company. Method and apparatus for preventing unauthorized recycling of single-use camera and permitting authorized reuse of the camera. RE. 35,767, Cl. 396-6.000.

Zimmerman, H. Allen. Optical detection of water droplets using light refraction with a mask to prevent detection of unrefracted light. RE. 35,762, Cl. 250-574.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Amoco Corporation: *See*—
Nubel, Philip O., and Yokelson, Howard B., B1 559,190, Cl. 525-270.000.

Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., to Illinois Tool Works Inc. Method and apparatus for forming a head on a fastener and a fastener formed therefrom. B1 476,351, Cl. 411-439.000.

Brown, Paul P.: *See*—
Schad, Robert D., and Brown, Paul P., B1 052,915, Cl. 425-556.000.

Browne, H. Lee: *See*—
Elam, Carl M.; and Leavy, Dale A., B1 554,584, Cl. 348-634.000.

Buhr, Chris A., and Matteucci, Mark, to Gilead Sciences. 2' modified nucleoside and nucleotide compounds. B1 466,786, Cl. 536-26.260.

Courtaulds PLC: *See*—
Taylor, James M., B1 310,424, Cl. 8-190.000.

Doke, Michael J.; Howarth, Richard A., and Recine, Leonard J., Sr., to Marlow Industries, Inc. Modular thermoelectric assembly. B1 315,830, Cl. 62-3.200.

Elam, Carl M.; and Leavy, Dale A., to Browne, H. Lee. Video and audio blanking system. B1 554,584, Cl. 348-634.000.

Gabriel, William L.: *See*—
Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., B1 476,351, Cl. 411-439.000.

Gilead Sciences: *See*—
Buhr, Chris A., and Matteucci, Mark, B1 466,786, Cl. 536-26.260.

Goble, E. Marlowe, and Somers, W. Karl, to Goble, E. Marlowe. Ligament attachment method and apparatus. B1 034,293, Cl. 623-13.000.

Gueret, Jean-Louis H., to L'Oreal. Spill preventing cosmetic applicator. B1 324,128, Cl. 401-126.000.

Howarth, Richard A.: *See*—
Doke, Michael J.; Howarth, Richard A., and Recine, Leonard J., Sr., B1 315,830, Cl. 62-3.200.

Husky Injection Molding Systems Ltd.: *See*—
Schad, Robert D., and Brown, Paul P., B1 052,915, Cl. 425-556.000.

Illinois Tool Works Inc.: *See*—
Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A.; and Gabriel, William L., B1 476,351, Cl. 411-439.000.

InTest Corporation: *See*—
Smith, Nathan R., B1 589,815, Cl. 324-758.000.

Leavy, Dale A.: *See*—
Elam, Carl M., and Leavy, Dale A., B1 554,584, Cl. 348-634.000.

L'Oreal: *See*—
Gueret, Jean-Louis H., B1 324,128, Cl. 401-126.000.

Marlow Industries, Inc.: *See*—
Doke, Michael J.; Howarth, Richard A., and Recine, Leonard J., Sr., B1 315,830, Cl. 62-3.200.

Matteucci, Mark: *See*—
Buhr, Chris A., and Matteucci, Mark, B1 466,786, Cl. 536-26.260.

Nubel, Philip O., and Yokelson, Howard B., to Amoco Corporation. Difunctional telechelic linear non-crosslinked polyolefins. B1 559,190, Cl. 525-270.000.

Recine, Leonard J., Sr.: *See*—
Doke, Michael J.; Howarth, Richard A., and Recine, Leonard J., Sr., B1 315,830, Cl. 62-3.200.

Schad, Robert D.; and Brown, Paul P., to Husky Injection Molding Systems Ltd. Sequential injection molding machine. B1 052,915, Cl. 425-556.000.

Schniedermeier, Henry W.: *See*—
Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A., and Gabriel, William L., B1 476,351, Cl. 411-439.000.

Shelton, Lawrence S.: *See*—
Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A., and Gabriel, William L., B1 476,351, Cl. 411-439.000.

Smith, Nathan R., to InTest Corporation. Electronic test head positioner for test systems. B1 589,815, Cl. 324-758.000.

Somers, W. Karl: *See*—
Goble, E. Marlowe, and Somers, W. Karl, B1 034,293, Cl. 623-13.000.

Sygnator, Henry A.: *See*—
Binder, John; Schniedermeier, Henry W.; Shelton, Lawrence S.; Sygnator, Henry A., and Gabriel, William L., B1 476,351, Cl. 411-439.000.

Taylor, James M., to Courtaulds PLC. Process for reducing the fibrillation tendency of solvent-spun cellulose fibre. B1 310,424, Cl. 8-190.000.

Yokelson, Howard B.: *See*—
Nubel, Philip O., and Yokelson, Howard B., B1 559,190, Cl. 525-270.000.

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- Amway Corporation: *See*—
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- Andrenacci, Leonard L. V shaped mount for acoustic guitar pickups. 393,275, Cl. D17-20.000.
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- Anheuser-Busch Incorporated: *See*—
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- Arcese, Edward R., Jr.: *See*—
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- Asante Technologies, Inc.: *See*—
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- Bionix Development Corporation: *See*—
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- Cappa, Armando M.; Konopka, Jeffrey D.; and Heer, Warren R., to Pacesetter, Inc. Display screen with an icon. 393,252, Cl. D14-114.300.
- Cappa, Armando M.; Konopka, Jeffrey D.; and Heer, Warren R., to Pacesetter, Inc. Display screen with an icon. 393,258, Cl. D14-114.500.
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- Erickson, Kersten Anne: *See*—
  - Goode, Mark Gregory, Erickson, Kersten Anne, and McCullough, James Douglas, Jr., H1,722, Cl. 525-323.000.
- Ferrando, William A., Divecha, Amarnath P., and Kerr, James M., to United States of America, Navy. Method of producing high temperature superconductor wires. H1,718, Cl. 264-61.000.
- Goode, Mark Gregory, Erickson, Kersten Anne, and McCullough, James Douglas, Jr. Process for producing polypropylene impact block copolymers. H1,722, Cl. 525-323.000.
- Kerr, James M.: *See*—
  - Ferrando, William A., Divecha, Amarnath P., and Kerr, James M., H1,718, Cl. 264-61.000.
- Leuenberger, Ernest L., and Burger, John C. Process for producing gasoline blending components from jet range and heavier aromatics. H1,723, Cl. 585-310.000.
- Longeat, Gerard, to Babolat VS. Process and device for the manufacture of a string for stringing tennis rackets or the like and string resulting therefrom. H1,715, Cl. 57-7.000.
- Lorillard Tobacco Company: *See*—
  - Noakes, Derek P., and Smart, David R., H1,719, Cl. 324-687.000.
- McCullough, James Douglas, Jr.: *See*—
  - Goode, Mark Gregory, Erickson, Kersten Anne, and McCullough, James Douglas, Jr., H1,722, Cl. 525-323.000.
- Moli Energy (1990) Limited: *See*—
  - Wainwright, David Stanley, H1,721, Cl. 429-49.000.
- Noakes, Derek P., and Smart, David R., to Lorillard Tobacco Company. Loose end detector for tobacco articles. H1,719, Cl. 324-687.000.
- Rapp, Larry Alan, and Wang, Shih-Chen. Method for preparing a chemical mixture to environmental specifications. H1,716, Cl. 208-17.000.
- Richardson, Michael A.: *See*—
  - Stoudt, David C.; and Richardson, Michael A., H1,717, Cl. 257-431.000.
- Smart, David R.: *See*—
  - Noakes, Derek P., and Smart, David R., H1,719, Cl. 324-687.000.
- Stoudt, David C., and Richardson, Michael A., to United States of America, Navy. Bistable photoconductive switches particularly suited for frequency agile, radio-frequency sources. H1,717, Cl. 257-431.000.
- United States of America
  - Navy: *See*—
    - Ferrando, William A., Divecha, Amarnath P.; and Kerr, James M., H1,718, Cl. 264-61.000.
    - Stoudt, David C., and Richardson, Michael A., H1,717, Cl. 257-431.000.
- Wainwright, David Stanley, to Moli Energy (1990) Limited. Aqueous rechargeable battery. H1,721, Cl. 429-49.000.
- Wang, Shih-Chen: *See*—
  - Rapp, Larry Alan, and Wang, Shih-Chen, H1,716, Cl. 208-17.000.

CLASSIFICATION OF PATENTS

ISSUED APRIL 7, 1998

NOTE.—First number, class; second number, subclass; third number, patent number.

CLASS 2

69	5,734,990
	5,734,991
161.7	5,734,992
175.3	5,734,993
411	5,734,994
428	5,734,995

CLASS 4

227.3	5,734,996
420.2	5,734,997
476	5,734,998
507	5,734,999
572.1	5,735,000
631	5,735,001

CLASS 5

81.1 HS	5,735,002
413	5,735,003
502	5,735,004

CLASS 7

127	5,735,005

CLASS 8

158	5,735,006
159	5,735,007
190	B1 5,310,424
405	5,735,907
410	5,735,908
412	5,735,909
415	5,735,910
547	5,735,911

CLASS 14

73	5,735,008

CLASS 15

3	5,735,009
88	5,735,010
167.1	5,735,011
	5,735,012
210.1	5,735,013
236.06	5,735,014
250.34	5,735,015
304	5,735,016
321	5,735,017
405	5,735,018

CLASS 16

125	5,735,019
198	5,735,020
369	5,735,021

CLASS 24

30.5 R	5,735,022
170	5,735,023
575	5,735,024
600.1	5,735,025

CLASS 29

25.35	5,735,026
	5,735,027
27 R	5,735,028
40	5,735,029
56	5,735,030
235	5,735,031
	5,735,032
254	5,735,033
407.09	5,735,034
527.2	5,735,035
603.12	5,735,036
611	5,735,037
623.1	5,735,913
623.5	5,735,912
	5,735,914
736	5,735,038
829	5,735,039
841	5,735,040
857	5,735,041
874	5,735,042
888.02	Re. 35,760
888.44	5,735,043
889.1	5,735,044
	5,735,045
889.2	5,735,046
890.13	5,735,047
898.045	5,735,048

CLASS 30

276	5,735,049
324	5,735,050
333	5,735,051

CLASS 33

27.03	5,735,052
265	5,735,053
471	5,735,054
554	5,735,055
573	5,735,056
648	5,735,057
809	5,735,058

CLASS 34

[illegible]	5,735,059
	5,735,060
393	5,735,061
503	5,735,062

CLASS 36

124	5,735,063

CLASS 37

260	5,735,064
348	5,735,065
	5,735,066
444	5,735,067

CLASS 40

784	5,735,068
793	5,735,069

CLASS 42

1.02	5,735,070

CLASS 43

4	5,735,071
17	5,735,073
19	5,735,074
43.16	5,735,072

CLASS 44

347	5,735,915
605	5,735,916

CLASS 47

41.12	5,735,075
58	5,735,076
	5,735,077
	5,735,078

CLASS 48

201	5,735,917

CLASS 49

169	5,735,079
209	5,735,080
506	5,735,081

CLASS 52

2.13	5,735,083
11	5,735,084
16	5,735,085
19	5,735,086
20	5,735,082
92.2	5,735,087
184	5,735,088
202	5,735,089
220.2	5,735,090
302.7	5,735,091
309.11	5,735,093
309.9	5,735,092
314	5,735,094
393	5,735,095
464	5,735,096
489.1	5,735,097
508	5,735,098
539	5,735,099
645	5,735,100

CLASS 53

136.1	5,735,102
399	5,735,103
	5,735,104
411	5,735,105
413	5,735,106
450	5,735,107
540	5,735,108

CLASS 54

1	5,735,109

CLASS 55

274	5,735,918
[illegible]	5,735,919

CLASS 57

224	5,735,110
290	5,735,112
306	5,735,113

CLASS 60

39.091	5,735,116
39.094	5,735,117
39.1	5,735,114
39.36	5,735,115
219	5,735,118
276	5,735,119
	5,735,120
277	5,735,121
306	5,735,122
525	5,735,123
548	5,735,124
685	5,735,125
[illegible]	5,735,126

CLASS 62

3.2	B1 5,315,830
6	5,735,127
	5,735,128
51.1	5,735,129
71	5,735,130
90	5,735,131
129	5,735,132
185	5,735,133
240	5,735,134
259.1	5,735,135
354	5,735,136
410	5,735,137
455	5,735,138
470	5,735,139
605	5,735,140
620	5,735,141
646	5,735,142

CLASS 63

11.3	5,735,143
15	5,735,144

CLASS 65

[illegible]	5,735,920
32	5,735,921
104	5,735,922
	5,735,923
111	5,735,924
171	5,735,925
362	5,735,926
389	5,735,927
551	5,735,928

CLASS 66

196	5,735,145

CLASS 70

56	5,735,146
164	5,735,147
201	5,735,148
209	5,735,149
	5,735,150
231	5,735,151
278	5,735,152
493	5,735,153

CLASS 71

63	5,735,929

CLASS 72

13.4	5,735,154
14.8	5,735,155
57	5,735,156
164	5,735,157
196	5,735,158
275	5,735,159
296	5,735,160
306	5,735,161
315	5,735,162
348	5,735,163
416	5,735,164
452.5	5,735,165

CLASS 73

9	5,736,630
12.06	5,736,631
38	5,736,632
116	5,736,633
117.3	5,736,634
118.2	5,736,635
152.05	5,736,636
152.31	5,736,637
290 V	5,735,166
304 C	5,735,167
323	5,735,168
431	5,736,638
432.1	5,736,639
504.12	5,736,640
514.32	5,736,641
602	5,736,642
660	5,736,643
799	5,736,645
814	5,736,646
861.22	5,736,647
861.23	5,736,649
861.356	5,736,653
861.63	5,736,650
861.66	5,736,651
861.73	5,736,652
863.84	5,736,654
865.4	5,736,656
865.9	5,736,655

CLASS 74

7 A	5,735,169
41	5,735,170
42	5,735,171
60	5,735,172
89	5,735,173
89.15	5,735,174
331	5,735,175
337.5	5,735,176
473 R	5,735,177
535	5,735,178
553	5,735,179
813 R	5,735,180

CLASS 75

10.1	5,735,930
230	5,736,657
236	5,736,658
334	5,735,931
399	5,735,932
403	5,735,933
414	5,735,934
571	5,735,935

CLASS 81

3.25	5,735,181
57.3	5,735,182
473	5,735,183

CLASS 83

504	5,735,184
611	5,735,185
685	5,735,186

CLASS 84

95.2	5,736,659
200	5,736,660
454	5,736,661
600	5,736,662
609	5,736,663
634	5,736,664
667	5,736,665
669	5,736,666

CLASS 89

132	5,736,667

CLASS 91

44	5,735,187

CLASS 92

129	5,735,188

CLASS 95

28	5,735,937
49	5,735,936
[illegible]	5,735,938

CLASS 99

300	5,735,189
327	5,735,190
339	5,735,191
342	5,735,192
483	5,735,194
494	5,735,193

CLASS 100

65	5,735,195
90	5,735,196
127	5,735,197
170	5,735,198
191	5,735,199
[illegible]	5,735,200
269.01	5,735,201

CLASS 101

2	5,735,202
126	5,735,203
148	5,735,204
181	5,735,205
216	5,735,206
	5,735,207
329	5,735,208
363	5,735,209
366	5,735,210
[illegible]	5,735,211
[illegible]	5,735,212
480	5,735,213

CLASS 102

202.5	5,736,668
293	5,736,669

CLASS 105

29.1	5,735,214
34	5,735,215
[illegible]	5,735,216
239	5,735,217

CLASS 106

14.44	5,735,939
31.01	5,735,940
31.28	5,735,941
35	5,735,942
164.3	5,735,943
272	5,735,944
287.14	5,735,945
486	5,735,946
[illegible]	5,735,947
724	5,735,948

CLASS 108

6	5,735,218
[illegible]	5,735,219
87	5,735,220
107	5,735,221
144	5,735,222

CLASS 110

226	5,735,223
259	5,735,224
346	5,735,225

CLASS 114

222	5,735,226
227	5,735,227
266	5,735,228
363	5,735,229

CLASS 116

173	5,735,230

CLASS 117

8	5,735,949
85	5,735,950
217	5,735,951

CLASS 118

[illegible]	5,735,952
224	5,735,953
264	5,735,954
317	5,735,955
410	5,735,956
411	5,735,957
620	5,735,958
663	5,735,959
723 IR	5,735,960
724	5,735,961

CLASS 119

51	5,735,231
171	5,735,232
452	5,735,233
795	5,735,234

CLASS 122

1 R	5,735,235
6 A	5,735,236
13	5,735,237

CLASS 123

41.29	5,735,238
90.31	5,735,239
295	5,735,240
305	5,735,241
322	5,735,242
396	5,735,243
399	5,735,244
417	5,735,245
436	5,735,246
470	5,735,247
491	5,735,249
[illegible]	5,735,250
518	5,735,251
520	5,735,252
527	5,735,248
644	5,735,254
698	5,735,255

CLASS 124

65	5,735,256
89	5,735,257

CLASS 125

[illegible]	5,735,258
	5,735,259

CLASS 126

[illegible] R	5,735,260
190	5,735,261
649	5,735,262

CLASS 128

200.14	5,735,263
[illegible]	5,735,265
204.18	5,735,266
[illegible]	5,735,267
204.23	5,735,268
205.24	5,735,269
206.14	5,735,270
207.16	5,735,271
207.18	5,735,272
630.03	5,735,280
635	5,735,273
637	5,735,274
645	5,735,275
[illegible]	5,735,264
653.1	5,735,276
	5,735,277
653.2	5,735,278
654	5,735,279
662.02	5,735,281
662.03	5,735,282
664	5,735,283
696	5,735,284
	5,735,285
700	5,735,286
725	5,735,287
743	5,735,288
[illegible]	5,735,289
898	5,735,290

CLASS 131

34	5,735,292
68	5,735,293
329	5,735,294

CLASS 132

275	5,735,295
277	5,735,296
294	5,735,297
309	5,735,298
323	5,735,299
329	5,735,300

CLASS 134

[illegible]	5,735,962
	5,735,963
8	5,735,964
[illegible]	5,735,965
[illegible] R	5,735,301

CLASS 135

[illegible]	5,735,302
66	5,735,303

CLASS 136

244	5,735,966
256	5,735,967

CLASS 137

[illegible]	5,735,304
[illegible]	5,735,305
[illegible]	5,735,306
271	5,735,307
337	5,735,291
488	5,735,308
505.46	5,735,309

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596	5,735,311
625 4	5,735,312

CLASS 138

30	5,735,313
31	5,735,314
592	5,736,455

CLASS 139

68	5,735,315
194	5,735,316

CLASS 141

65	5,735,317
67	5,735,318
286	5,735,319
330	5,735,320
383	5,735,321
386	5,735,322

CLASS 144

34 1	5,735,323
216	5,735,324
250 17	5,735,325
350	5,735,326

CLASS 148

105	5,735,969
208	5,735,970
217	5,735,971
266	5,735,972
269	5,735,973
330	5,735,974
403	5,735,975
437	5,735,976
516	5,735,977
672	5,735,978

CLASS 150

160	5,735,327

CLASS 152

209 A	5,735,979
216	5,735,980

CLASS 156

52	5,735,981
62 2	5,735,982
64	5,735,983
73 3	5,735,984
89	5,735,985
160	5,735,986
176	5,735,987
209	5,735,988
237	5,735,989
244 11	5,735,990
268	5,735,991
345	5,735,992
	5,735,993
386	5,735,994
398	5,735,995
448	5,735,996
495	5,735,997
	5,735,998
499	5,736,000
523	5,735,999
575	5,736,001
628 1	5,736,002

CLASS 159

31	5,736,003

CLASS 160

25	5,735,328
178 1 R	5,735,329

CLASS 162

30 1	5,735,331
49	5,736,004
52	5,736,005
	5,736,006
53	5,736,007
102	5,736,008
138	5,736,009
143	5,736,010
301	5,735,330
336	5,736,011

CLASS 164

98	5,735,332
113	5,735,333
130	5,735,334
516	5,735,335
	5,735,336

CLASS 165

41	5,735,337
42	5,735,338
80 1	5,735,339
80 3	5,735,340
81	5,735,341
122	5,735,342
153	5,735,343

CLASS 166

75.14	5,735,344
208	5,735,345
250 03	5,735,346
285	5,735,348
295	5,735,349
313	5,735,350
384	5,735,351

CLASS 172

4.5	5,735,352

CLASS 173

11	5,735,353
93 5	5,735,354
575	5,735,253

CLASS 174

15 6	5,736,670
35 R	5,736,671
	5,736,672
48	5,736,673
50	5,736,674
50 5	5,736,675
53	5,736,676
65 G	5,736,677
84 C	5,736,678
250	5,736,679
	5,736,680
265	5,736,681

CLASS 175

11	5,735,355
21	5,735,356
61	5,735,357
96	5,735,358
269	5,735,359
391	5,735,360

CLASS 177

16	5,736,682
25 18	5,736,683
	5,736,684
145	5,736,685

CLASS 178

18	5,736,686
	5,736,687
20	5,736,688

CLASS 180

6 24	5,735,361
197	5,735,362
205	5,735,363
308	5,735,364
428	5,735,365

CLASS 181

141	5,736,689
230	5,736,690
284	5,736,691

CLASS 187

247	5,736,692
316	5,736,693
391	5,736,694
394	5,736,695

CLASS 188

19	5,735,367
73 39	5,735,368
77 R	5,735,369
218 A	5,735,370
218 X	5,735,366
276	5,735,371
299	5,735,372
321 11	5,735,373

CLASS 191

54	5,735,374

CLASS 192

84 96	5,735,375
85 CA	5,735,376

CLASS 193

33	5,735,377
356	5,735,378

CLASS 194

346	5,735,379

CLASS 198

347 1	5,735,380
370 07	5,735,381
399	5,735,382
456	5,735,383
465 1	5,735,384
499	5,735,385
550 01	5,735,386
690 1	5,735,387
699 1	5,735,388
809	5,735,389

CLASS 200

1 B	5,736,703
5 R	5,736,696
	5,736,697
16 R	5,736,698
38 R	5,736,699
61 54	5,736,700
61 88	5,736,701
81 H	5,736,702
344	5,735,390
549	5,735,391
553	5,735,392

CLASS 204

157 94	5,736,012
192 2	5,736,013
198	5,736,014
224 M	5,736,015
237	5,736,016
253	5,736,017
297 R	5,736,018
298 07	5,736,019
298 11	5,736,020
	5,736,021
467	5,736,022
524	5,736,023
554	5,736,024
621	5,736,025

CLASS 205

343	5,736,026
742	5,736,027
781	5,736,028
789	5,736,029

CLASS 206

5	5,735,393
15	5,735,394
278	5,735,395
308 1	5,735,396
315 3	5,735,398
316	5,735,397
362	5,735,399
408	5,735,400
469	5,735,401
	5,735,404
511	5,735,405
535	5,735,406
707	5,735,407
723	5,735,408

CLASS 208

45	5,736,030
340	5,736,031

CLASS 209

23	5,735,403
129	5,735,402
399	5,735,409

CLASS 210

122	5,736,033
169	5,736,034
172	5,736,035
198 2	5,736,036
232	5,736,037
243	5,736,038
249	5,736,039
437	5,736,040
445	5,736,041
474	5,736,042
477	5,736,043
488	5,736,044
497 01	5,736,045
500 23	5,736,046
607	5,736,047
	5,736,048
620	5,736,049
644	5,736,050
650	5,736,051
675	5,736,052
688	5,736,053
739	5,736,054
748	5,736,055
755	5,736,056
759	5,736,057
764	5,736,058
774	5,736,059

CLASS 211

20	5,735,410
26	5,735,411
40	Re 35,761
59 4	5,735,412
107	5,735,413
162	5,735,414
187	5,735,415

CLASS 212

344	5,735,416

CLASS 215

216	5,735,417
237	5,735,418
253	5,735,419
373	5,735,420
382	5,735,421

CLASS 216

22	5,736,060
33	5,736,061

CLASS 218

68	5,736,704
155	5,736,705

CLASS 219

68	5,736,706
117 1	5,736,707
121 51	5,736,708
121 61	5,736,709
121 63	5,736,710
132	5,736,711
137 2	5,736,712
411	5,736,713
521	5,736,714
535	5,736,715
708	5,736,716
720	5,736,717
729	5,736,718
769	5,736,719

CLASS 220

4 21	5,735,422
23 83	5,735,423
203 01	5,735,424
235	5,735,425
258	5,735,426
324	5,735,427
	5,735,428
416	5,735,429
484	5,735,430
639	5,735,431

CLASS 221

1	5,735,432
229	5,735,433

CLASS 222

1	5,735,434
63	5,735,435
129 1	5,735,436
137	5,735,437
153 06	5,735,438
199	5,735,439
610	5,735,440

CLASS 224

420	5,735,441

CLASS 225

1	5,735,442
4	5,735,443

CLASS 227

120	5,735,444
175 4	5,735,445

CLASS 228

114 5	5,735,446
	5,735,447
119	5,735,448
180 5	5,735,449
191	5,735,450
206	5,735,451
254	5,735,452

CLASS 229

92 8	5,735,453
123 1	5,735,454
185	5,735,455

CLASS 235

B	5,736,720
353	5,736,721
449	5,736,722
456	5,736,723
462	5,736,724
	5,736,725
472	5,736,726
487	5,736,727
492	5,736,728
	5,736,729

CLASS 236

75	5,735,456

CLASS 238

28	5,735,457
343	5,735,458

CLASS 239

8	5,735,459
34	5,735,460
124	5,735,461
242	5,735,462
265 19	5,735,463
288 5	5,735,464
337	5,735,465
406	5,735,466
414	5,735,467
425	5,735,468
430	5,735,469
566	5,735,470

CLASS 241

23	5,735,471
79 3	5,735,472

CLASS 242

18 1	5,735,473
332 2	5,735,474
333	5,735,475
356 3	5,735,476
363	5,735,477
376.1	5,735,478
377	5,735,479
378	5,735,480
526 1	5,735,481
537	5,735,482
608 7	5,735,483

CLASS 244

108	5,735,484
113	5,735,485
124	5,735,486
129 5	5,735,487
161	5,735,488
163	5,735,489
223	5,735,490

CLASS 246

124	5,735,491
125	5,735,492

CLASS 248

27 1	5,735,493
97	5,735,494
100	5,735,495
118	5,735,496
181 1	5,735,497
222 12	5,735,498
230 1	5,735,499
419	5,735,500

CLASS 250

203 1	5,736,730
207	5,736,731
208 1	5,736,732
208 2	5,736,733
225	5,736,734
	5,736,735
227 11	5,736,736
227 17	5,736,737
239	5,736,738
287	5,736,739
288	5,736,740
	5,736,741
396 R	5,736,742
492 21	5,736,743
505 1	5,736,744
559 41	5,736,745
574	Re 35,762
589	5,736,746

CLASS 251

1 3	5,735,502
30 01	5,735,503
83	5,735,504
85	5,735,501

CLASS 252

67	5,736,062
	5,736,063
74	5,736,064
182 12	5,736,747
182 26	5,736,748
188 26	5,736,065
299 01	5,736,066
299 5	5,736,067
299 62	5,736,068
301 4 H	5,736,069
512	5,736,070
518 1	5,736,071

CLASS 254

134 3 PA	5,735,505
361	5,735,506
391	5,735,507

CLASS 256

57	5,735,508
66	5,735,310

CLASS 257

3	5,736,749
59	5,736,750
66	5,736,751
72	5,736,752
77	5,736,753
89	5,736,754
166	5,736,755
223	5,736,756
236	5,736,757
290	5,736,758
295	5,736,759
301	5,736,760
	5,736,761
318	5,736,764
321	5,736,765
338	5,736,766
344	5,736,767
347	5,736,768
368	5,736,769
382	5,736,770
390	5,736,771
412	5,736,772
437	5,736,773
500	5,736,774
509	5,736,775
529	5,736,777
532	5,736,776
536	5,736,778
603	5,736,779
673	5,736,780
679	5,736,781
	5,736,782
691	5,736,783
692	5,736,784
712	5,736,785
717	5,736,786
732	5,736,787
774	5,736,789
780	5,736,790
781	5,736,791
783	5,736,792

CLASS 261

27	5,736,072

CLASS 264

6	5,736,074
10	5,736,073
28	5,736,075
29 6	5,736,076
32	5,736,077
39	5,736,078
40 1	5,736,079
40 3	5,736,080
46 5	5,736,082
103	5,736,083
112	5,736,084
113	5,736,081
161	5,736,085
171 17	5,736,086
188	5,736,087
237	5,736,088
255	5,736,089
	5,736,090
263	5,736,091
432	5,736,092
471	5,736,094
513	5,736,093
614	5,736,095

CLASS 266

205	5,736,096

CLASS 267

13	5,735,509
140 13	5,735,510
	5,735,511

CLASS 269

21	5,735,512
43	5,735,513
	5,735,514

CLASS 270

58 11	5,735,515
60	5,735,516

CLASS 271

273	5,735,517
274	5,735,518
294	5,735,519

CLASS 273

155	5,735,520
157 R	5,735,521
249	5,735,522
261	5,735,523
274	5,735,524
309	5,735,525
378	5,735,526
408	5,735,527

CLASS 277

1	5,735,528
180	5,735,529
412	5,735,530
500	5,735,531

630	5,735,532
	5,735,533

CLASS 279

124	5,735,534
131	5,735,535

CLASS 280

7 13	5,735,536
11 2	5,735,537
47 24	5,735,538
506	5,735,539
617	5,735,541
689	5,735,540
728 2	5,735,542
752	5,735,543

CLASS 281

45	5,735,544

CLASS 283

67	5,735,546
	5,735,547
75	5,735,548
81	5,735,549
108	5,735,550

CLASS 285

15	5,735,551
81	5,735,552
101	5,735,553
239	5,735,554
319	5,735,555

CLASS 292

169 23	5,735,556
216	5,735,557
337	5,735,558
341 16	5,735,559

CLASS 293

15	5,735,560

CLASS 294

74	5,735,561
87 2	5,735,562
89	5,735,563

CLASS 296

24 1	5,735,564
39 2	5,735,565
164	5,735,566
180 1	5,735,567
190	5,735,568
210	5,735,569

CLASS 297

35	5,735,571
39	5,735,570
216 13	5,735,572
257	5,735,573
284 4	5,735,574
314	5,735,575
397	5,735,576
411 36	5,735,577
440 11	5,735,578

CLASS 303

7	5,735,579
27 6	5,735,580
114 3	5,735,581
119 2	5,735,582
122 05	5,735,583
140	5,735,584
145	5,735,585

CLASS 307

10 1	5,736,793
10 8	5,736,794
130	5,736,795
151	5,736,796

CLASS 310

36	5,736,797
51	Re 35,763
	5,736,798
90	5,736,799
90 5	5,736,800
	5,736,801
	5,736,802
156	5,736,803
235	5,736,804
249	5,736,805
254	5,736,806
322	5,736,808
359	5,736,807

CLASS 312

235 1	5,735,586
305	5,735,587
330 1	5,735,588
408	5,735,589

CLASS 313

141	5,736,809
309	5,736,810
318 02	5,736,811
413	5,736,812
490	5,736,813
495	5,736,814
586	5,736,815

CLASS 315

82	5,736,816
106	5,736,817
111 21	5,736,818
209 R	5,736,819
505	5,736,820

CLASS 318

16	5,736,821
116	5,736,822
432	5,736,823
561	5,736,824
599	5,736,825
678	5,736,826
696	5,736,827
701	5,736,828
704	5,736,829

CLASS 320

2	5,736,830
9	5,736,831
21	5,736,832
	5,736,833
22	5,736,834
43	5,736,835
46	5,736,836
104	5,736,837

CLASS 323

211	5,736,838
213	5,736,839
217	5,736,840
222	5,736,841
	5,736,842
273	5,736,843
282	5,736,844

CLASS 324

76 27	5,736,845
127	5,736,846
142	5,736,847
	5,736,848
158 1	5,736,849
	5,736,850
	5,736,851
166	5,736,852
173	5,736,853
207 12	5,736,854
207 13	5,736,855
244 1	5,736,856
309	5,736,857
318	5,736,858
319	5,736,859
339	5,736,860
424	5,736,861
527	5,736,862
633	5,736,864
660	5,736,865
758	B1 4,589,815
765	5,736,863

CLASS 326

18	5,736,866
38	5,736,867
55	5,736,868
8	5,736,869
86	5,736,870
115	5,736,871
122	Re 35,764

CLASS 327

3	5,736,872
41	5,736,873
65	5,736,874
74	5,736,875
77	5,736,876
	5,736,877
94	5,736,878
102	5,736,879
157	5,736,880
175	5,736,881
259	5,736,882
276	5,736,883
304	5,736,884
307	5,736,885
310	5,736,886
333	5,736,887
382	5,736,888
415	5,736,889
423	5,736,890
434	5,736,891
536	5,736,892
538	5,736,894
551	5,736,893
554	5,736,895
	5,736,896

CLASS 330

126	5,736,897
149	5,736,898
252	5,736,899
265	5,736,900
296	5,736,901
	5,736,902

CLASS 331

10	5,736,904
17	5,736,903
143	5,736,905

CLASS 332

152	5,736,906

CLASS 333

113	5,736,907
125	5,736,908
166	5,736,909
181	5,736,910
188	5,736,911
235	5,736,912
246	5,736,913

CLASS 335

284	5,736,914

CLASS 336

55	5,736,915
69	5,736,916
90	5,736,917

CLASS 337

186	5,736,918
227	5,736,919
290	5,736,920

CLASS 338

32 R	5,736,921

CLASS 340

426	5,736,924
429	5,736,923
468	5,736,925
479	5,736,926
506	5,736,927
511	5,736,928
572	5,736,929
642	5,736,930
825 25	5,736,931
825 34	5,736,932
825 44	5,736,933
	5,736,934
825 54	Re 35,765
825 69	5,736,935
853 1	5,736,936
870 16	5,736,937
870 37	5,736,938
905	5,736,939
974	5,736,922
994	5,736,940
995	5,736,941

CLASS 341

22	5,736,942
50	5,736,943
	5,736,944
63	5,736,945
67	5,736,946
107	5,736,947
141	5,736,948
	5,736,949
143	5,736,950
159	5,736,951
	5,736,952
163	5,736,953

CLASS 342

5	5,736,954
33	5,736,955
90	5,736,956
99	5,736,957
179	5,736,958
354	5,736,959
357	5,736,960
	5,736,961
	5,736,962
373	5,736,963
457	5,736,964

CLASS 343

702	5,736,965
910	5,736,966

CLASS 345

1	5,736,967
2	5,736,968
6	5,736,969
35	5,736,970
99	5,736,972
102	5,736,973
127	5,736,971
146	5,736,974
156	5,736,975
168	5,736,976
173	5,736,978
177	5,736,979
179	5,736,980
185	5,736,981
206	5,737,272
	5,737,362
326	5,736,977
330	5,736,982
335	5,736,983
338	5,736,984
419	5,736,986
420	5,736,987
423	5,736,988
431	5,736,989
433	5,736,990
474	5,736,991

CLASS 347

7	5,736,992
11	5,736,993
	5,736,994
14	5,736,995
19	5,736,996
	5,736,997
45	5,736,998
47	5,736,999
62	5,737,000
85	5,737,001
86	5,737,002
116	5,737,003
151	5,737,004
172	5,737,005
235	5,737,006
250	5,737,007
253	5,737,008

CLASS 348

7	5,737,009
15	5,737,010
	5,737,011
53	5,737,012
66	5,737,013
220	5,737,014
230	5,737,015
241	5,737,016
280	5,737,017
363	5,737,018
391	5,737,019
403	5,737,020
408	5,737,021
416	5,737,022
	5,737,023
441	5,737,024
473	5,737,025
	5,737,026
474	5,737,027
563	5,737,028
564	5,737,029
	5,737,030
587	5,737,031
634	B1 4,554,584
649	5,737,032
678	5,737,033
725	5,737,035
738	5,737,034
742	5,737,036
	5,737,037
759	5,737,038
836	5,737,039

CLASS 349

9	5,737,040
43	5,737,041
57	5,737,042
58	5,737,043
61	5,737,044
104	5,737,045
117	5,737,046
119	5,737,047
121	5,737,048
122	5,737,049
	5,737,050
141	5,737,051
149	5,737,052
	5,737,053

CLASS 351

47	5,737,054
138	5,737,055
177	5,737,056
	5,737,057
208	5,737,058
214	5,737,059
224	5,737,060
246	5,737,061

CLASS 355

40	5,737,062
53	5,737,063
73	5,737,064
113	5,737,065

CLASS 356

5 01	5,737,067
5 13	5,737,068
	5,737,069
28 5	5,737,070
71	5,737,071
73	5,737,072
139 09	5,737,073
237	5,737,074
310	5,737,075
	5,737,076
317	5,737,077
338	5,737,078
348	5,737,079
350	5,737,080
360	5,737,081
364	5,737,082
375	5,737,083
376	5,737,084
	5,737,085
432	5,737,086

CLASS 358

296	5,737,087
	5,737,088
	5,737,089
299	5,737,090
	5,737,091
407	5,737,092
433	5,737,093
442	5,737,094
475	5,737,095
	5,737,096
476	5,737,097
483	5,737,098
487	5,737,099
501	5,737,100
525	5,737,101

CLASS 359

107	5,737,102
117	5,737,103
124	5,737,104
140	5,737,106
146	5,737,107
152	5,737,108
161	5,737,109
	5,737,110
179	5,737,105
194	5,737,111
205	5,737,112
259	5,737,113
268	5,737,114
296	5,737,115
332	5,737,117
341	5,737,118
353	5,737,119
356	5,737,120
359	5,737,116
388	5,737,121
436	5,737,122
450	5,737,123
487	5,737,124
565	5,737,125
620	5,737,126
684	5,737,127
686	5,737,128
691	5,737,129
819	5,737,131
	5,737,132
	5,737,133
821	5,737,134
822	5,737,135
843	5,737,136
859	5,737,137
900	5,737,138

CLASS 360

8	5,737,139
29	5,737,140
45	5,737,141
49	5,737,142
76	5,737,143
	5,737,144
77 08	5,737,145
77 15	5,737,146
96 3	5,737,147
96 5	5,737,148
99 04	5,737,149
103	5,737,150
	5,737,151
104	5,737,152
106	5,737,153
108	5,737,154
113	5,737,155
	5,737,156
	5,737,157
130 21	5,737,158
135	5,737,159

CLASS 361

3	5,737,160
7	5,737,161
8	5,737,162
18	5,737,163
31	5,737,164
58	5,737,165
78	5,737,166
79	5,737,167
91	5,737,168
98	5,737,169
103	5,737,170
	5,737,171
154	5,737,172
160	5,737,173
220	5,737,174
	5,737,176
234	5,737,175
	5,737,177
	5,737,178
301 5	5,737,179
313	5,737,180
504	5,737,181
683	5,737,183
	5,737,184
685	5,737,185
699	5,737,186
704	5,737,187
715	5,737,188
726	5,737,189
760	5,737,190
764	5,737,191
790	5,737,192
799	5,737,193
800	5,737,194
823	5,737,195

CLASS 362

31	5,735,590
61	5,735,591
118	5,735,592
147	5,735,593
202	5,735,594
223	5,735,595
267	5,735,596
	5,735,597
400	5,735,598

CLASS 363

8	5,737,196
17	5,737,197
40	5,737,198
56	5,737,199
	5,737,200
60	5,737,201
65	5,737,202
75	5,737,203
89	5,737,204
96	5,737,205
	5,737,206
132	5,737,207
133	5,737,208
143	5,737,209
144	5,737,210
	5,737,211

CLASS 364

130	5,737,212
140	5,737,213
148	5,737,214
149	5,737,215
167 01	5,737,216
	5,737,217
191	5,737,218
421	5,737,219
	5,737,220
424 013	5,737,222
424 051	5,737,223
424 055	5,737,224
424 07	5,737,221
444 5	5,737,225
457	5,737,226
464	5,737,227
468 03	5,737,228
468 24	5,737,229
469 01	5,737,230
487	5,737,231
	5,737,232
488	5,737,233
	5,737,234
490	5,737,235
	5,737,236
491	5,737,237
507	5,737,238
508	5,737,239
514 R	5,737,240
550	5,737,241
554	5,737,242
557	5,737,243
559	5,737,244

561	5,737,245
562	5,737,246
565	5,737,247
569	5,737,248
572	5,737,249
578	5,737,250
715.06	5,737,251
717.05	5,737,252
721	5,737,253
724.17	5,737,254
725.01	5,737,256
745	5,737,255
754.01	5,737,257
CLASS 365	
63	5,737,258
105	5,737,259
145	5,737,260
	5,737,261
148	5,737,262
149	5,737,263
185.01	5,737,264
185.03	5,737,265
185.22	5,737,266
189.01	5,737,267
189.05	5,737,268
200	5,737,269
203	5,737,270
	5,737,271
205	5,737,273
	5,737,274
226	5,737,275
230.08	5,737,276
CLASS 366	
82	5,735,599
101	5,735,600
150.1	5,735,601
314	5,735,602
331	5,735,603
CLASS 367	
27	5,737,277
149	5,737,278
173	5,737,279
CLASS 368	
2	5,737,280
CLASS 369	
14	5,737,281
32	5,737,282
	5,737,283
	5,737,284
34	5,737,285
44.13	5,737,286
44.26	5,737,287
44.32	5,737,288
54	5,737,289
58	5,737,290
75.1	5,737,292
77.1	5,737,293
99	5,737,294
103	5,737,295
	5,737,296
109	5,737,297
110	5,737,298
112	5,737,299
	5,737,300
116	5,737,301
118	5,737,302
190	5,737,303
247	5,737,304
271	5,737,305
275.1	5,737,306
275.2	5,737,308
275.4	5,737,307
CLASS 370	
200	5,737,309
222	5,737,310
227	5,737,311
232	5,737,312
234	5,737,313
235	5,737,314
	5,737,315
248	5,737,316
249	5,737,317
254	5,737,318
255	5,737,319
258	5,737,320
263	5,737,321
311	5,737,322
	5,737,323
331	5,737,328
335	5,737,326
	5,737,327
337	5,737,325
342	5,737,324
	5,737,329
346	5,737,330
349	5,737,331
352	5,737,333
394	5,737,332
395	5,737,334
444	5,737,335
539	5,737,336
CLASS 371	
2.2	5,737,337
20.5	5,737,338
21.2	5,737,339
22.31	5,737,341
22.5	5,737,340
25.1	5,737,342
37.1	5,737,343
40.4	5,737,344
43	5,737,345
CLASS 372	
21	5,737,346
23	5,737,347
31	5,737,348
37	5,737,349
38	Re 35,766
45	5,737,350
	5,737,351
	5,737,352
	5,737,353
74	5,737,354
CLASS 373	
50	5,737,355
CLASS 374	
134	5,735,604
179	5,735,605
185	5,735,606
187	5,735,607
CLASS 375	
142	5,737,400
200	5,737,356
	5,737,357
202	5,737,358
	5,737,359
206	5,737,360
208	5,737,361
219	5,737,363
220	5,737,364
224	5,737,365
238	5,737,366
242	5,737,367
343	5,737,368
346	5,737,369
356	5,737,370
357	5,737,371
367	5,737,372
376	5,737,373
	5,737,374
CLASS 376	
173	5,737,375
194	5,737,376
268	5,737,377
287	5,737,378
302	5,737,379
352	5,737,380
CLASS 377	
52	5,737,381
CLASS 378	
19	5,737,382
61	5,737,383
65	5,737,384
71	5,737,385
95	5,737,386
130	5,737,387
168	5,737,388
CLASS 379	
1	5,737,389
10	5,737,390
37	5,737,391
67	5,737,392
	5,737,393
88	5,737,394
	5,737,395
	5,737,396
93.29	5,737,397
112	5,737,399
147	5,737,401
150	5,737,402
211	5,737,403
230	5,737,404
265	5,737,405
269	5,737,406
389	5,737,407
390	5,737,408
410	5,737,409
	5,737,410
413	5,737,411
446	5,737,412
CLASS 380	
4	5,737,413
	5,737,414
	5,737,415
	5,737,416
5	5,737,417
9	5,737,418
21	5,737,419
23	5,737,420
	5,737,421
25	5,737,422
	5,737,423
28	5,737,424
30	5,737,425
51	5,737,426
CLASS 381	
18	5,737,427
58	5,737,428
67	5,737,429
68.1	5,737,430
92	5,737,431
94	5,737,432
94.7	5,737,433
106	5,737,434
156	5,737,435
187	5,737,436
CLASS 382	
101	5,737,437
	5,737,438
115	5,737,439
137	5,737,440
151	5,737,441
181	5,737,442
188	5,737,443
190	5,737,444
207	5,737,445
232	5,737,446
236	5,737,447
240	5,737,448
242	5,737,449
260	5,737,450
268	5,737,451
270	5,737,452
275	5,737,453
284	5,737,454
	5,737,455
299	5,737,456
CLASS 383	
25	5,735,608
33	5,735,609
CLASS 384	
42	5,735,610
296	5,735,611
448	5,735,612
468	5,735,613
476	5,735,614
	5,735,615
CLASS 385	
12	5,737,457
15	5,737,458
	5,737,459
24	5,737,460
27	5,737,461
31	5,737,462
59	5,737,463
72	5,737,464
88	5,737,465
89	5,737,466
92	5,737,467
105	5,737,468
109	5,737,469
114	5,737,470
123	5,737,471
	5,737,472
125	5,737,473
131	5,737,474
134	5,737,475
CLASS 386	
52	5,737,476
83	5,737,477
95	5,737,478
	5,737,479
109	5,737,480
113	5,737,481
CLASS 388	
805	5,737,483
CLASS 395	
2.28	5,737,484
2.41	5,737,485
	5,737,486
2.65	5,737,488
	5,737,489
	5,737,490
2.79	5,737,491
3	5,737,492
	5,737,493
10	5,737,494
23	5,737,496
25.9	5,737,487
50	5,737,497
51	5,737,498
82	5,737,499
86	5,737,500
102	5,737,501
105	5,737,602
110	5,737,502
115	5,737,503
117	5,737,504
119	5,737,505
125	5,737,506
133	5,737,507
142	5,737,508
182.03	5,737,509
182.04	5,737,510
182.05	5,737,511
182.09	5,737,513
182.11	5,737,514
182.21	5,737,515
183.08	5,737,512
183.14	5,737,516
	5,737,517
	5,737,518
183.15	5,737,519
	5,737,520
183.21	5,737,521
185.02	5,737,522
187.01	5,737,523
200.01	5,737,524
200.02	5,737,525
200.06	5,737,526
200.09	5,737,527
200.12	5,737,528
	5,737,538
200.18	5,737,529
200.34	5,737,530
200.38	5,737,531
200.49	5,737,532
	5,737,533
200.53	5,737,534
200.57	5,737,535
200.59	5,737,536
200.77	5,737,537
203	5,737,539
281	5,737,540
	5,737,541
282	5,737,542
285	5,737,543
287	5,737,544
288	5,737,545
290	5,737,546
292	5,737,547
308	5,737,548
309	5,737,549
310	5,737,550
311	5,737,551
328	5,737,552
339	5,737,553
	5,737,554
	5,737,555
	5,737,556
340	5,737,557
342	5,737,558
344	5,737,559
349	5,737,560
354	5,736,985
391	5,737,561
394	5,737,562
405	5,737,563
412	5,737,564
421.03	5,737,565
427	5,737,566
430	5,737,567
448	5,737,568
476	5,737,569
	5,737,570
479	5,737,571
484	5,737,572
486	5,737,573
489	5,737,574
491	5,737,575
496	5,737,576
497.04	5,737,577
500	5,737,578
	5,737,579
	5,737,580
	5,737,581
	5,737,582
	5,737,583
	5,737,584
	5,737,585
552	5,737,587
555	5,737,588
558	5,737,589
583	5,737,586
585	5,737,590
601	5,737,591
604	5,737,592
606	5,737,593
	5,737,594
611	5,737,595
	5,737,596
613	5,737,597
	5,737,598
615	5,737,495
	5,737,599
616	5,737,600
617	5,737,601
621	5,737,603
651	5,737,604
670	5,737,605
683	5,737,606
701	5,737,607
	5,737,608
704	5,737,609
712	5,737,610
726	5,737,611
750.01	5,737,612
750.04	5,737,613
	5,737,614
750.06	5,737,615
750.08	5,737,616
759	5,737,617
761	5,737,618
	5,737,619
791	5,737,620
793	5,737,621
800	5,737,622
	5,737,623
	5,737,625
800.01	5,737,626
	5,737,627
800.11	5,737,628
800.23	5,737,624
	5,737,629
800.29	5,737,630
800.37	5,737,631
821	5,737,632
847	5,737,634
849	5,737,633
872	5,737,635
874	5,737,636
878	5,737,637
888	5,737,638
893	5,737,639
CLASS 396	
6	Re 35,767
	5,737,640
51	5,737,641
	5,737,642
55	5,737,643
72	5,737,644
98	5,737,645
104	5,737,646
106	5,737,647
276	5,737,648
277	5,737,649
285	5,737,650
303	5,737,651
319	5,737,652
	5,737,653
	5,737,654
324	5,737,655
411	5,737,656
428	5,737,657
448	5,737,658
513	5,737,659
517	5,737,660
615	5,737,661
617	5,737,662
CLASS 399	
33	5,737,664
39	5,737,665
50	5,737,663
57	5,737,666
108	5,737,667
120	5,737,668
130	5,737,669
149	5,737,670
159	5,737,671
240	5,737,672
249	5,737,673
250	5,737,674
258	5,737,675
284	5,737,676
296	5,737,677
302	5,737,678
329	5,737,679
359	5,737,680
388	5,737,681
402	5,737,682
CLASS 400	
120.01	5,735,616
120.17	5,735,617
472	5,735,618
488	5,735,619
CLASS 401	
27	5,735,620
52	5,735,621
96	5,735,622
115	5,735,623
126	B1 5,324,128
217	5,735,624
CLASS 402	
79	5,735,625
CLASS 403	
16	5,735,626
38	5,735,627
218	5,735,628
325	5,735,629
334	5,735,630
378	5,735,631
CLASS 404	
6	5,735,632
65	5,735,633
102	5,735,634
CLASS 405	
36	5,735,635
116	5,735,636
118	5,735,637
119	5,735,638
128	5,735,639
258	5,735,640
282	5,735,642
286	5,735,643
CLASS 406	
112	5,735,644
CLASS 408	
1 R	5,735,645
3	5,735,646
103	5,735,647
144	5,735,648
153	5,735,649
156	5,735,650
CLASS 409	
233	5,735,651
288	5,735,652
CLASS 411	
82	5,735,653
291	5,735,655
366	5,735,656
383	5,735,657
414	5,735,658
439	B1 5,476,351
CLASS 412	
9	5,735,659
CLASS 414	
225	5,735,660
276	5,735,661
331	5,735,662
338	5,735,663
393	5,735,664
CLASS 415	
3.1	5,735,665
34	5,735,666
170.1	5,735,667
172.1	5,735,668
CLASS 416	
60	5,735,669
87	5,735,670
95	5,735,671
213 A	5,735,672
223 A	5,735,673
CLASS 417	
68	5,735,674
275	5,735,675
407	5,735,676
CLASS 418	
55.2	5,735,677
	5,735,678
179	5,735,679
CLASS 419	
36	5,737,683
CLASS 422	
14	5,736,097
28	5,736,098
57	5,736,099
64	5,736,100
65	5,736,101
	5,736,102
68.1	5,736,103
96	5,736,104
100	5,736,105
131	5,736,106
144	5,736,107

161	5,736,108
179	5,736,109
245.1	5,736,110
CLASS 423	
54	5,736,112
206.2	5,736,113
213.2	5,736,114
228	5,736,115
359	5,736,116
573.1	5,736,117
594	5,736,111
659	5,736,118
CLASS 424	
1.53	5,736,119
1.69	5,736,120
1.85	5,736,123
9.4	5,736,121
45	5,736,124
59	5,736,125
76.5	5,736,032
78.02	5,736,126
	5,736,127
78.03	5,736,128
85.4	5,736,129
93.2	5,736,131
94.5	5,736,132
94.6	5,736,133
94.64	5,736,134
	5,736,135
132.1	5,736,136
133.1	5,736,137
143.1	5,736,138
164.1	5,736,139
169	5,736,122
178.1	5,736,140
184.1	5,736,141
185.1	5,736,142
190.1	5,736,143
194.11	5,736,146
195.1	5,736,144
	5,736,145
[illegible]	5,736,148
275.1	5,736,149
401	5,736,150
423	5,736,151
426	5,736,152
449	5,736,153
	5,736,154
450	5,736,155
	5,736,156
	5,736,157
464	5,736,158
480	5,736,159
487	5,736,160
493	5,736,161
601	5,736,164
661	5,736,165
CLASS 425	
[illegible]	5,736,166
119	5,736,167
183	5,736,168
450.1	5,736,169
537	5,736,170
549	5,736,171
556	5,736,172
	B1 5,052,915
577	5,736,173
CLASS 426	
6	5,736,175
54	5,736,176
93	5,736,178
96	5,736,177
105	5,736,179
138	5,736,180
285	5,736,181
384	5,736,182
518	5,736,184
531	5,736,174
589	5,736,185
646	5,736,186
656	5,736,187
CLASS 427	
2.11	5,736,188
64	5,736,189
96	5,736,190
	5,736,191
99	5,736,192
117	5,736,193
180	5,736,195
282	5,736,194
341	5,736,196
393	5,736,197
419.7	5,736,198
430.1	5,736,199
450	5,736,200
466	5,736,201
591	5,736,202
CLASS 428	
13	5,736,203
34.2	5,736,204
34.6	5,736,206
34.7	5,736,207
34.9	5,736,208
36.4	5,736,209
40.1	5,736,210
	5,736,211
[illegible]	5,736,212
76	5,736,213
92	5,736,214
99	5,736,215
	5,736,216
100	5,736,217
107	5,736,218
113	5,736,219
114	5,736,220
116	5,736,221
119	5,736,222
154	5,736,223
156	5,736,224
167	5,736,225
174	5,736,226
192	5,736,227
195	5,736,228
	5,736,229
	5,736,230
198	5,736,231
204	5,736,233
209	5,736,234
210	5,736,232
212	5,736,235
	5,736,236
220	5,736,237
298	5,736,465
329	5,736,239
332	5,736,240
	5,736,241
335	5,736,242
357	5,736,243
364	5,736,244
391	5,736,245
392	5,736,246
408	5,736,252
424.2	5,736,247
427	5,736,248
447	5,736,249
	5,736,250
	5,736,251
[illegible]	5,736,253
	5,736,254
469	5,736,255
	5,736,256
474.4	5,736,257
516	5,736,260
523	5,736,258
537	5,736,259
552	5,736,261
611	5,736,262
	5,736,263
694 MI	5,736,265
694 R	5,736,264
702	5,736,267
CLASS 429	
12	5,736,268
32	5,736,269
94	5,736,270
96	5,736,271
99	5,736,272
100	5,736,273
197	5,736,274
199	5,736,275
CLASS 430	
5	5,736,276
	5,736,277
7	5,736,278
22	5,736,279
30	5,736,280
	5,736,281
59	5,736,282
	5,736,283
79	5,736,284
83	5,736,285
97	5,736,286
102	5,736,287
106.6	5,736,288
110	5,736,289
124	5,736,290
137	5,736,291
191	5,736,292
203	5,736,293
264	5,736,295
270.1	5,736,296
	5,736,297
287.1	5,736,298
313	5,736,300
325	5,736,301
379	5,736,299
	5,736,302
380	5,736,303
398	5,736,304
403	5,736,305
505	5,736,306
	5,736,307
512	5,736,308
533	5,736,309
567	5,736,310
569	5,736,311
	5,736,312
CLASS 431	
5	5,735,680
10	5,735,681
170	5,735,682
202	5,735,683
242	5,735,684
354	5,735,685
	5,735,686
	5,735,687
CLASS 433	
	5,735,688
[illegible]	5,735,689
	5,735,690
140	5,735,691
213	5,735,692
CLASS 434	
157	5,735,693
322	5,735,694
CLASS 435	
2	5,736,313
4	5,736,314
5	5,736,315
	5,736,316
	5,736,317
	5,736,318
	5,736,319
	5,736,320
	5,736,321
	5,736,322
6	5,736,323
	5,736,325
	5,736,326
	5,736,327
	5,736,328
	5,736,329
	5,736,330
	5,736,331
	5,736,332
	5,736,333
	5,736,334
	5,736,335
	5,736,336
7.1	5,736,337
	5,736,338
	5,736,339
	5,736,340
	5,736,341
7.2	5,736,342
7.21	5,736,345
	5,736,346
	5,736,400
7.32	5,736,347
7.9	5,736,344
7.92	5,736,348
7.94	5,736,349
8	5,736,350
	5,736,351
11	5,736,352
28	5,736,353
29	5,736,354
31	5,736,355
68.1	5,736,356
69.1	5,736,357
	5,736,358
	5,736,359
	5,736,360
69.3	5,736,361
	5,736,362
69.4	5,736,363
69.7	5,736,364
91.2	5,736,365
123	5,736,366
172.3	5,736,367
	5,736,368
	5,736,369
173.6	5,736,370
179	5,736,371
180	5,736,372
194	5,736,373
207	5,736,374
210	5,736,375
212	5,736,376
219	5,736,377
235.1	5,736,378
240.2	5,736,294
252.3	5,736,379
	5,736,381
252.5	5,736,382
253.3	5,736,380
255.7	5,736,383
278	5,736,384
280	5,736,385
320	5,736,387
	5,736,388
	5,736,389
	5,736,390
	5,736,391
	5,736,392
325	5,736,394
326	5,736,395
366	5,736,396
374	5,736,397
383	5,736,398
399	5,736,399
CLASS 436	
8	5,736,401
10	5,736,402
47	5,736,403
52	5,736,404
55	5,736,405
71	5,736,406
72	5,736,407
97	5,736,408
147	5,736,409
172	5,736,410
173	5,736,411
518	5,736,412
526	5,736,413
CLASS 437	
21	5,736,414
27	5,736,415
29	5,736,416
31	5,736,417
41	5,736,418
44	5,736,419
45	5,736,420
52	5,736,421
201	5,736,422
228	5,736,424
238	5,736,423
CLASS 438	
6	5,736,426
14	5,736,427
15	5,736,428
31	5,736,429
53	5,736,430
96	5,736,431
123	5,736,432
130	5,736,433
151	5,736,434
	5,736,435
157	5,736,436
	5,736,437
166	5,736,438
	5,736,439
232	5,736,440
255	5,736,441
257	5,736,442
	5,736,443
	5,736,444
275	5,736,445
305	5,736,446
365	5,736,447
393	5,736,448
396	5,736,449
	5,736,450
443	5,736,451
455	5,736,452
460	5,736,453
585	5,736,454
614	5,736,456
624	5,736,457
627	5,736,458
629	5,736,459
650	5,736,460
651	5,736,461
692	5,736,462
	5,736,463
707	5,736,464
778	5,736,425
CLASS 439	
63	5,735,695
65	5,735,696
83	5,735,697
91	5,735,698
92	5,735,699
98	5,735,700
147	5,735,701
157	5,735,702
234	5,735,703
271	5,735,704
372	5,735,705
402	5,735,706
446	5,735,707
491	5,735,708
495	5,735,709
535	5,735,710
578	5,735,711
609	5,735,712
638	5,735,713
676	5,735,714
682	5,735,715
843	5,735,716
851	5,735,717
CLASS 440	
83	5,735,718
CLASS 441	
[illegible]	5,735,719
CLASS 442	
26	5,736,467
67	5,736,466
93	5,736,468
110	5,736,469
151	5,736,470
220	5,736,471
239	5,736,473
243	5,736,472
388	5,736,474
415	5,736,475
CLASS 445	
24	5,735,720
	5,735,721
	5,735,722
CLASS 446	
85	5,735,723
172	5,735,724
207	5,735,725
298	5,735,726
462	5,735,727
CLASS 449	
1	5,735,728
CLASS 451	
36	5,735,729
87	5,735,730
143	5,735,731
242	5,735,732
307	5,735,733
347	5,735,734
CLASS 452	
119	5,735,735
176	5,735,736
CLASS 454	
64	5,735,737
296	5,735,738
359	5,735,739
CLASS 455	
12.1	5,737,684
	5,737,685
	5,737,686
14	5,737,687
31.2	5,737,688
33.2	5,737,689
38.1	5,737,690
63	5,737,691
66	5,737,692
67.4	5,737,693
76	5,737,694
79	5,737,695
83	5,737,696
126	5,737,697
286	5,737,698
344	5,737,699
411	5,737,701
414	5,737,700
422	5,737,702
442	5,737,703
450	5,737,704
452	5,737,705
466	5,737,706
556	5,737,707
557	5,737,708
CLASS 460	
97	5,735,740
CLASS 463	
22	5,735,741
25	5,735,742
35	5,735,743
40	5,735,744
CLASS 464	
83	5,735,746
111	5,735,745
133	5,735,747
CLASS 472	
117	5,735,748
CLASS 473	
3	5,735,749
40	5,735,750
192	5,735,751
317	5,735,752
318	5,735,753
328	5,735,754
342	5,735,755
382	5,735,756
384	5,735,757
386	5,735,758
485	5,735,760
540	5,735,759
596	5,735,761
CLASS 474	
166	5,735,762
263	5,735,763
CLASS 475	
[illegible]	5,736,343
88	5,735,764
248	5,735,765
249	5,735,766
269	5,735,767
347	5,735,768
CLASS 476	
40	5,735,769
CLASS 477	
5	5,735,770
[illegible]	5,735,771
CLASS 482	
1	5,735,772
52	5,735,773
[illegible]	5,735,774
[illegible]	5,735,775
91	5,735,776
93	5,735,777
	5,735,779
112	5,735,780
114	5,735,778
126	5,735,781
CLASS 483	
1	5,735,782
CLASS 492	
15	5,735,783
39	5,735,788
CLASS 493	
29	5,735,784
34	5,735,785
[illegible]	5,735,786
CLASS 494	
5	5,735,787
70	5,735,789
CLASS 501	
67	5,736,476
99	5,736,477
CLASS 502	
74	5,736,478
77	5,736,479
155	5,736,480
174	5,736,481
303	5,736,482
347	5,736,483
349	5,736,484
429	5,736,485
CLASS 504	
127	5,736,486
[illegible]	5,736,487
CLASS 505	
238	5,736,488
239	5,736,489
CLASS 508	
272	5,736,490
365	5,736,491
485	5,736,492
[illegible]	5,736,493
CLASS 510	
212	5,736,495
235	5,736,496
278	5,736,494
303	5,736,497
372	5,736,498
392	5,736,499
417	5,736,500
444	5,736,501
	5,736,502
[illegible]	5,736,503
CLASS 512	
1	5,736,504
2	5,736,505

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	5,736,507
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46	5,736,528
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48	5,736,530
50	5,736,531
55	5,736,532
61	5,736,533
63	5,736,534
64	5,736,535
165	5,736,536
178	5,736,537
211	5,736,542
215	5,736,538
218	5,736,539
220	5,736,540
	5,736,541
229.5	5,736,543
247	5,736,544
252	5,736,545
255	5,736,546
258	5,736,547
	5,736,548
261	5,736,550
262	5,736,549
269	5,736,551
293	5,736,553
303	5,736,554
	5,736,555
304	5,736,556
313	5,736,557
321	5,736,558
330	5,736,559
343	5,736,560
364	5,736,561
372	5,736,562
410	5,736,563
414	5,736,564
423	5,736,565
438	5,736,566
474	5,736,567
524	5,736,568
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560	5,736,573
563	5,736,575
568	5,736,574
570	5,736,576
617	5,736,577
630	5,736,578
709	5,736,579
772	5,736,580
785	5,736,581
859	5,736,582
919	5,736,584

CLASS 521

47	5,736,585
84.1	5,736,586
125	5,736,587
155	5,736,588

CLASS 522

43	5,736,589

CLASS 523

113	5,736,590
122	5,736,591
137	5,736,592
437	5,736,593

CLASS 524

2	5,736,594
45	5,736,595
90	5,736,596
100	5,736,597
106	5,736,598
108	5,736,599
400	5,736,600
425	5,736,601
494	5,736,602
495	5,736,603
521	5,736,605
547	5,736,606
591	5,736,604
609	5,736,607
779	5,736,608

CLASS 525

131	5,736,609
270	B1 5,559,190
276	5,736,610
305	5,736,611
314	5,736,612
322	5,736,613
326.4	5,736,614
329.3	5,736,615
330.3	5,736,616
354.2	5,736,617
387	5,736,618
393	5,736,619
524	5,736,620

CLASS 528

26	5,736,583
271	5,736,621
295.5	5,736,622
422	5,736,623

CLASS 530

391.1	5,736,624
402	5,736,625

CLASS 536

25.3	5,736,626
26.26	B1 5,466,786

CLASS 544

211	5,736,628

CLASS 588

202	5,737,709

CLASS 600

25	5,735,790
37	5,735,791
138	5,735,792
153	5,735,793
178	5,735,794
410	5,735,795
439	5,735,796
441	5,735,797
490	5,735,798
500	5,735,799
503	5,735,800
572	5,735,801

CLASS 601

129	5,735,803
136	5,735,804

CLASS 602

10	5,735,805
32	5,735,806
43	5,735,812
63	5,735,807

CLASS 604

1	5,735,808
4	5,735,809
20	5,735,810
22	5,735,811
43	5,735,813
	5,735,814
51	5,735,815
96	5,735,816
100	5,735,817
132	5,735,818
161	5,735,819
174	5,735,821
179	5,735,822
192	5,735,823
208	5,735,824
218	5,735,825
251	5,735,826
263	5,735,827
264	5,735,828
	5,735,829
280	5,735,830
	5,735,831
282	5,735,832
289	5,735,833
347	5,735,834
331	5,735,835
368	5,735,836
385.1	5,735,837
385.2	5,735,838
	5,735,839
391	5,735,840
411	5,735,841

CLASS 606

1	5,735,842
5	5,735,843
9	5,735,844
20	5,735,845
41	5,735,846
	5,735,847
48	5,735,848
51	5,735,849
61	5,735,850
	5,735,851
	5,735,852
71	5,735,853
73	5,735,854
86	5,735,855
87	5,735,856
99	5,735,857
107	5,735,858
108	5,735,859
139	5,735,861
147	5,735,862
152	5,735,863
161	5,735,864
167	5,735,865
178	5,735,866
185	5,735,867
189	5,735,868
194	5,735,869
198	5,735,871
	5,735,872
205	5,735,873
208	5,735,874
232	5,735,875
	5,735,877

CLASS 607

5	5,735,876
	5,735,878
7	5,735,879
9	5,735,880
14	5,735,881
27	5,735,882
28	5,735,883
36	5,735,884
54	5,735,886
55	5,735,885
60	5,735,887
96	5,735,889
104	5,735,890
126	5,735,891

CLASS 623

1	5,735,892
	5,735,893
2	5,735,894
4	5,735,895
11	5,735,896
12	5,735,897
13	B1 Re 34,293
16	5,735,898
17	5,735,899
18	5,735,900
	5,735,901
	5,735,902
20	5,735,903
	5,735,904
23	5,735,905
34	5,735,906

CLASS 701

1	5,737,710
29	5,737,711
51	5,737,712
84	5,737,713
89	5,737,714
213	5,737,715

CLASS 704

202	5,737,716
205	5,737,717
	5,737,718
224	5,737,719
229	5,737,720
	5,737,721
241	5,737,722
243	5,737,723
251	5,737,724
260	5,737,725

CLASS 705

1	5,737,726
	5,737,727
8	5,737,728
40	5,737,729
412	5,737,730

CLASS 707

1	5,737,731
2	5,737,732
5	5,737,734
6	5,737,735
102	5,737,736
104	5,737,737
201	5,737,738
512	5,737,739
530	5,737,740

CLASS 711

103	5,737,742
112	5,737,743
114	5,737,74[illegible]
	5,737,744
	5,737,745
118	5,737,746
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122	5,737,748
123	5,737,749
129	5,737,750
133	5,737,751
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136	5,737,753
	5,737,754
141	5,737,755
142	5,737,756
145	5,737,757
146	5,737,758
	5,737,759
162	5,737,763
163	5,737,760
165	5,737,761
	5,737,762
170	5,737,764
	5,737,765
	5,737,766
171	5,737,767
173	5,737,768
202	5,737,769

CLASS 727

3	5,737,733

CLASS 800

205	5,736,627
235	5,736,629

CLASSIFICATION OF DESIGNS

D1—	109	393,135
	122	393,136
D2—	605	393,137
	610	393,138
	639	393,139
	720	393,140
	742	393,141
	841	393,243
	908	393,142
	944	393,143
	954	393,144
	959	393,145
	962	393,146
D3—	26	393,147
	30	393,154
	208	393,148
	247	393,149
		393,150
	260	393,151
		393,152
	279	393,153
	306	393,155
D5—	63	393,156
D6—	366	393,157
	375	393,158
	403	393,159
	449	393,160
	501	393,161
	505	393,162
		393,163
	509	393,164
	523	393,165
	524	393,166
	527	393,167
	545	393,168
	551	393,169
	559	393,170
	571	393,171
	601	393,172
	630	393,173
D7	318	393,174
	319	393,175
	350	393,176
		393,177
		393,178
	405	393,179
	412	393,180
	553	393,181
	601	393,182
	633	393,183
	688	393,185
	689	393,186
D8—	1	393,187
		393,188
	5	393,189
	10	393,190
	13	393,191
	57	393,192
		393,193
	70	393,194
	89	393,195
	98	393,196
	331	393,197
	355	393,198
	383	393,200
	395	393,201
D9	341	393,202
		393,203
	425	393,204
	500	393,205
	537	393,207
	538	393,208
	542	393,209
	543	393,210
		393,211
	673	393,184
D10—	42	393,212
	46	393,213
	50	393,214
	52	393,215
	57	393,216
	64	393,217
		393,218
	65	393,219
	70	393,220
	72	393,221
	77	393,222
	119	393,223
D11—	4	393,224
	26	393,225
	27	393,226
	34	393,227
	53	393,228
	79	393,229
	90	393,230
	128	393,231
	164	393,232
D12	6	393,233
	15	393,234
	111	393,235
	147	393,236
	177	393,237
	203	393,238
	209	393,239
	213	393,240
	408	393,241
	416	393,242
D13—	147	393,244
		393,245
D14—	100	393,246
		393,247
		393,248
	102	393,249
	106	393,250
	107	393,251
	114.3	393,252
		393,253
		393,254
		393,255
		393,256
		393,257
	114.5	393,258
	115	393,259
	137	393,260
	146	393,261
	154	393,262
	240	393,263
	256	393,264
	258	393,265
D15—	7	393,266
	17	393,267
	28	393,268
	139	393,270
D16—	130	393,271
	218	393,272
	303	393,273
	328	393,274
D17	20	393,275
	22	393,276
D18	4	393,277
	50	393,278
D19—	36	393,279
	42	393,280
D20—	6	393,281
	7	393,282
	10	393,283
	30	393,284
	42	393,285
D21—	15	393,286
	35	393,287
	41	393,288
	48	393,289
		393,290
		393,291
	63	393,292
	84	393,295
	88	393,293
		393,294
	136	393,304
	191	393,296
		393,298
	192	393,297
	206	393,299
		393,300
	208	393,301
	221	393,302
	245	393,303
D22	108	393,305
	109	393,306
D23—	209	393,307
	280.1	393,308
	301	393,309
D24	128	393,310
	133	393,318
	141	393,311
	147	393,312
	169	393,313
		393,314
	197	393,315
	199	393,316
	215	393,317
D25—	55	393,319
	102	393,320
	140	393,321
	164	393,322
D26—	41	393,323
	50	393,324
	84	393,325
	106	393,326
D27—	115	393,327
	154	393,328
D28—	45	393,329
	48	393,330
	64	393,331
D32	1	393,332
	3	393,333
D34—	9	393,334
D99—	520	393,206

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P—	34.1	0,314
	43.1	0,315
	54.1	0,316
		0,317
	55	0,318
	67.3	0,319
	87.6	0,320
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		0,322
	88.1	0,323

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PATENTS

01 5.735.547
5.735.979
5.736.474
5.737.401
02 5.735.712
04 5.735.226
5.735.272
5.735.283
5.735.410
5.735.892
5.735.998
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PATENT AND TRADEMARK OFFICE
Bruce Lehman, *Commissioner*

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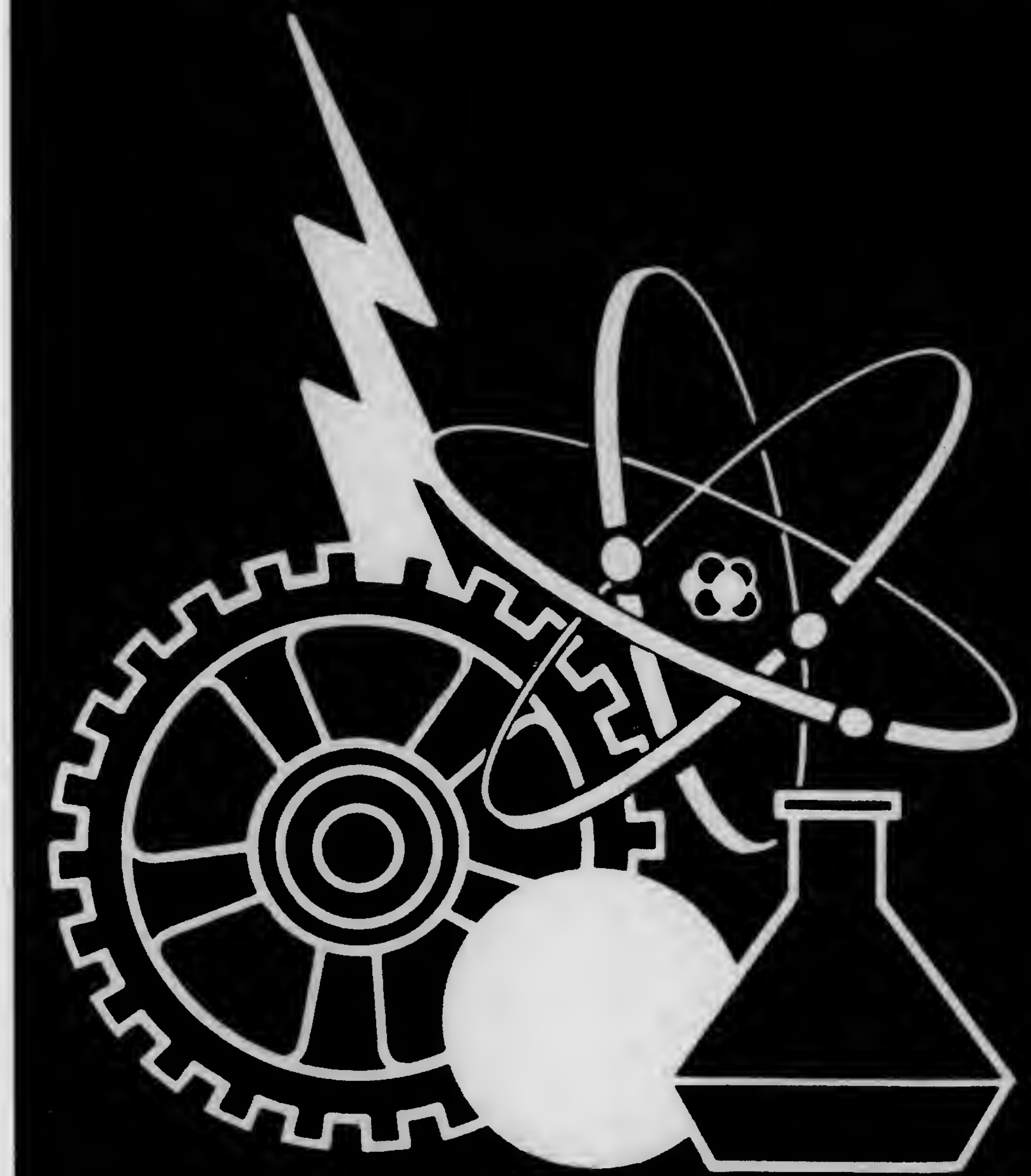

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20.	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on April 11, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,404,590 through 5,406,644
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on April 9, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,005,214 through 5,007,107
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on April 7, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,654,893 through 4,656,666
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED February 4, 1998
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,736	07/006,444	08/23/88
(4,568,094)	(06/602,545)	(02/04/86)
Re. 32,803	07/085,837	12/20/88
(4,567,971)	(06/462,280)	(02/04/86)
4,567,614	06/521,329	02/04/86
4,567,619	06/599,407	02/04/86
4,567,624	06/583,714	02/04/86
4,567,631	06/541,564	02/04/86
4,567,635	06/647,164	02/04/86
4,567,641	06/650,314	02/04/86
4,567,644	06/673,631	02/04/86
4,567,645	06/533,016	02/04/86
4,567,648	06/574,014	02/04/86
4,567,655	06/663,163	02/04/86
4,567,659	06/727,100	02/04/86
4,567,660	06/657,720	02/04/86
4,567,661	06/706,837	02/04/86
4,567,666	06/527,908	02/04/86
4,567,667	06/683,072	02/04/86
4,567,672	06/616,890	02/04/86
4,567,676	06/521,162	02/04/86
4,567,677	06/645,332	02/04/86
4,567,684	06/486,953	02/04/86
4,567,685	06/477,350	02/04/86
4,567,692	06/593,166	02/04/86
4,567,696	06/584,982	02/04/86
4,567,701	06/692,175	02/04/86
4,567,703	06/561,312	02/04/86
4,567,708	06/536,401	02/04/86
4,567,716	06/592,644	02/04/86
4,567,723	06/597,464	02/04/86
4,567,725	06/569,483	02/04/86
4,567,726	06/528,896	02/04/86
4,567,729	06/651,418	02/04/86
4,567,733	06/539,078	02/04/86
4,567,735	06/609,987	02/04/86
4,567,744	06/571,534	02/04/86
4,567,755	06/584,383	02/04/86
4,567,757	06/713,360	02/04/86
4,567,767	06/610,352	02/04/86
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4,567,775	06/655,519	02/04/86
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Patent Number	Serial Number	Issue Date
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Patent Number	Serial Number	Issue Date
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5,283,558	07/826,363	02/01/94
5,283,577	07/838,739	02/01/94
5,283,585	07/946,711	02/01/94
5,283,586	08/023,440	02/01/94
5,283,601	07/844,155	02/01/94
5,283,605	07/888,049	02/01/94
5,283,611	07/786,488	02/01/94
5,283,659	07/686,530	02/01/94
5,283,667	07/625,661	02/01/94
5,283,680	07/900,841	02/01/94
5,283,685	07/990,871	02/01/94
5,283,689	07/729,592	02/01/94
5,283,715	07/953,080	02/01/94
5,283,719	07/856,510	02/01/94
5,283,721	08/035,611	02/01/94
5,283,725	07/813,959	02/01/94
5,283,731	07/995,798	02/01/94
5,283,732	07/836,778	02/01/94
5,283,733	07/858,336	02/01/94
5,283,741	07/711,872	02/01/94
5,283,743	07/851,163	02/01/94
5,283,750	07/807,822	02/01/94
5,283,755	08/048,396	02/01/94
5,283,766	07/535,951	02/01/94
5,283,787	07/688,122	02/01/94
5,283,798	07/875,822	02/01/94
5,283,802	08/071,403	02/01/94
5,283,804	07/737,053	02/01/94
5,283,816	07/641,490	02/01/94
5,283,825	07/721,079	02/01/94
5,283,839	07/636,637	02/01/94
5,283,842	07/666,051	02/01/94
5,283,843	08/012,048	02/01/94
5,283,847	07/937,720	02/01/94
5,283,849	08/011,589	02/01/94
5,283,853	07/836,079	02/01/94
5,283,878	07/560,442	02/01/94
5,283,886	07/950,746	02/01/94
5,283,896	07/478,818	02/01/94
5,283,899	07/982,251	02/01/94
5,283,902	07/759,894	02/01/94

Patents Reinstated Due to the Acceptance of a Late Maintenance Fee From 01/30/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,386,525	06/414,305	09/02/82	06/07/83	01/30/98
4,412,369	06/387,695	06/11/82	11/01/83	02/02/98
4,470,546	06/415,822	09/07/82	09/11/84	02/03/98
4,487,347	06/531,405	09/12/83	12/11/84	02/05/98
4,708,828	06/853,507	04/18/86	11/24/87	01/30/98
4,733,045	06/938,975	12/08/86	03/22/88	02/02/98
4,790,904	07/051,730	05/19/87	12/13/88	02/02/98
4,837,860	07/177,320	04/04/88	06/13/89	02/02/98
4,838,705	07/059,112	06/08/87	06/13/89	02/03/98
4,841,685	07/120,771	11/13/87	06/27/89	02/02/98
4,841,999	07/087,916	08/21/87	06/27/89	02/05/98
4,843,402	06/879,383	06/27/86	06/27/89	02/02/98
4,863,314	07/167,499	03/14/88	09/05/89	02/02/98
4,870,410	07/158,716	02/22/88	09/26/89	02/03/98
5,067,620	07/583,206	09/17/90	11/26/91	01/30/98
5,073,830	07/462,416	01/09/90	12/17/91	02/05/98
5,100,358	07/544,193	06/26/90	03/31/92	02/02/98
5,117,049	07/718,915	06/24/91	05/26/92	01/30/98
5,118,844	07/677,173	03/29/91	06/02/92	02/02/98
5,136,371	07/494,101	03/15/90	08/04/92	01/30/98
5,147,102	07/653,306	02/11/91	09/15/92	01/30/98
5,172,693	07/465,510	01/16/90	12/22/92	01/30/98
5,173,629	07/435,568	11/13/89	12/22/92	02/05/98
5,199,704	07/790,418	11/07/91	04/06/93	02/05/98
5,201,872	07/826,127	01/27/92	04/13/93	02/05/98
5,209,106	07/736,406	07/26/91	05/11/93	01/30/98
5,217,511	07/826,302	01/24/92	06/08/93	01/30/98
5,221,471	07/723,007	06/27/91	06/22/93	02/02/98
5,223,260	07/297,402	01/17/89	06/29/93	01/30/98
5,237,782	07/694,122	05/01/91	08/24/93	02/02/98
5,242,336	07/910,406	07/08/92	09/07/93	01/30/98
5,242,391	07/787,306	10/30/91	09/07/93	01/30/98
5,243,929	07/764,837	09/24/91	09/14/93	02/02/98
5,291,914	08/086,046	06/30/93	03/08/94	01/30/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

4,650,793, Re. S.N. 08/396,588, Feb. 17, 1995, Cl. 514/188, IRON PYRIDONE COMPLEXEES FOR ANEMIA, Robert C. Hider, et. al., Owner of Record: *British Technology Group Ltd., London, England,* Attorney or Agent: Leonard C. Mitchard, Ex. Gp.: 1205

5,402,123, Re. S.N. 08/820,812, Mar. 28, 1997, Cl. 341/63, VARIABLE LENGTH CODING/DECODING METHOD OF IMAGE DATA AND APPARATUS THEREOF, Je-Chang Jung, Owner of Record: *Samsung Electronics Co. Ltd., Suwon-City, Korea,* Attorney or Agent: William H. Mandir, Ex. Gp.: 2104

5,411,085, Re. S.N. 08/850,894, May 2, 1997, Cl. 166/242, SPOOLABLE FLEXIBLE HYDRAULICALLY SET, STRAIGHT PULL RELEASE WELL PACKER, Ronald E. Pringle, Owner of Record: *Camco International Inc., Houston, Tex.*, Attorney or Agent: Peter J. Davis, Ex. Gp.: 3506

5,436,574, Re. S.N. 08/900,070, Jul. 24, 1997, Cl. 326/39, UNIVERSAL LOGIC MODULE WITH ARITHMETIC CAPABILITIES, Kerry S. Veenstra, Owner of Record: *Altera Corp., San Jose, Calif.*, Attorney or Agent: Stephen LeBlanc, Ex. Gp.: 2509

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

D. 384,017, Reexam. No. 90/004,911, Feb. 9, 1998, Cl. D12/179, CANTILEVER BRAKE FOR A BICYCLE, Tomohiko Nishimura, Owner of Record: *Shimano, Inc., Osaka, Japan,* Attorney or Agent: James A. Deland, Deland Law Office, San Ramon, Calif., Ex. Gp.: 2901, Requester: Owner

D. 384,018, Reexam. No. 90/004,912, Feb. 9, 1998, Cl. D12/179, CANTILEVER BRAKE FOR A BICYCLE, Tomohiko Nishimura, Owner of Record: *Shimano, Inc., Osaka, Japan,* Attorney or Agent: James A. Deland, Deland Law Office, San Ramon, Calif., Ex. Gp.: 2901, Requester: Owner

4,733,665, Reexam. No. 90/004,916, Feb. 15, 1998, Cl. 606/108, EXPANDABLE INTRALUMINAL GRAFT, AND METHOD AND APPARATUS FOR IMPLANTING AN EXPANDABLE INTRALUMINAL GRAFT, Julio C. Palmaz, Owner of Record: *Expandable Grafts Partnership, San Antonio, Tex.*, Attorney or Agent: John P. Milnamow, Dressler, Rockey, Milnamow, and Katz Ltd., Chicago, Ill., Ex. Gp.: 3301, Requester: Cook Inc., c/o Spiro Bereveskos, Indianapolis, Ind.

5,104,407, Reexam. No. 90/004,913, Feb. 9, 1998, Cl. 623/002, SELECTIVELY FLEXIBLE ANNULOPLASTY RING, Hung L. Lam, et. al., Owner of Record: *Baxter International Inc., Deerfield, Ill.*, Attorney or Agent: Workman Nydegger and Seeley, Salt Lake City, Utah, Ex. Gp.: 3308, Requester: Owner

5,472,326, Reexam. No. 90/004,910, Feb. 5, 1998, Cl. 417/454, VALVE ASSEMBLIES FOR SUCKER ROD OPERATED SUBSURFACE PUMPS, Leon Tarpley, Owner of Record: *Inventor,* Attorney or Agent: Robert C. Peterson, Milburn and Peterson, Odessa, Tex., Ex. Gp.: 3403, Requester: Baker and Botts, Thomas R. Felger, Dallas, Tex.

5,594,585, Reexam. No. 90/004,917, Feb. 17, 1998, Cl. 359/512, VEHICLE MIRROR, Toru Komatsu, Owner of Record: *Murakami Kaimeido Co., Ltd., Shizuoka, Japan,* Attorney or Agent: James V. Costigan, Hedman Gibson and Costigan, New York, N.Y., Ex. Gp.: 2507, Requester: Owner

5,604,105, Reexam. No. 90/004,915, Feb. 11, 1998, Cl. 435/007.4, METHOD AND DEVICE FOR DIAGNOSING AND DISTINGUISHING CHEST PAIN IN EARLY ONSET THEREOF, George Jackowski, Owner of Record: *Spectral Diagnostics Inc., Toronto, Ontario,* Attorney or Agent: David A. Jackson, Klauber and Jackson, Hackensack, N.J., Ex. Gp.: 1815, Requester: Sara Lynn Mandel, Mandel and Adriano, Half Moon Bay, Calif.

5,670,047, Reexam. No. 90/004,914, Feb. 9, 1998, Cl. 210/603, ANAEROBIC TREATMENT PROCESS FOR THE RAPID HYDROLYSIS AND CONVERSION OF ORGANIC MATERIALS TO SOLUBLE AND GASEOUS COMPONENTS, Dennis W. Burke, Owner of Record: *Inventor,* Attorney or Agent: Jeffrey M. Sakoi, Christensen O'Connor Johnson and Kindness, Seattle, Wash., Ex. Gp.: 1308, Requester: Francis J. Hone, Baker and Botts, New York, N.Y.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration maybe renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED FEBRUARY 9, 1998 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
116,549	71/100,778	05/08/1917
345,561	71/338,571	05/04/1937
345,567	71/368,734	05/04/1937
345,568	71/368,735	05/04/1937
345,569	71/368,736	05/04/1937
345,570	71/368,737	05/04/1937
345,576	71/372,403	05/04/1937
345,608	71/383,293	05/04/1937
345,613	71/383,598	05/04/1937
345,625	71/384,924	05/04/1937
345,631	71/385,197	05/04/1937
345,642	71/385,374	05/04/1937
345,655	71/385,581	05/04/1937
345,680	71/386,088	05/04/1937
345,706	71/386,454	05/04/1937
345,742	71/386,785	05/04/1937

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Reg. Number	Serial Number	Reg. Date
345,745	71/386,815	05/04/1937
644,965	72/010,050	05/07/1957
644,971	72/011,767	05/07/1957
644,972	72/012,158	05/07/1957
644,986	72/013,742	05/07/1957
644,988	72/015,580	05/07/1957
644,989	71/681,821	05/07/1957
644,998	72/013,941	05/07/1957
645,004	72/014,685	05/07/1957
645,006	71/690,438	05/07/1957
645,008	72/003,867	05/07/1957
645,013	72/011,473	05/07/1957
645,016	72/015,042	05/07/1957
645,018	72/015,139	05/07/1957
645,019	72/015,251	05/07/1957
645,020	72/015,252	05/07/1957
645,021	72/015,346	05/07/1957
645,022	72/015,354	05/07/1957
645,029	72/004,941	05/07/1957
645,030	72/017,510	05/07/1957
645,031	72/017,511	05/07/1957
645,034	72/018,536	05/07/1957
645,036	72/018,544	05/07/1957
645,038	72/018,546	05/07/1957
645,039	72/018,547	05/07/1957
645,047	72/004,589	05/07/1957
645,062	72/007,547	05/07/1957
645,067	71/693,496	05/07/1957
645,068	71/695,878	05/07/1957
645,079	72/002,818	05/07/1957
645,082	72/004,982	05/07/1957
645,086	72/018,467	05/07/1957
645,087	72/018,600	05/07/1957
645,099	72/013,936	05/07/1957
645,100	72/001,381	05/07/1957
645,104	72/003,952	05/07/1957
645,105	72/018,422	05/07/1957
645,106	72/018,459	05/07/1957
645,117	72/011,853	05/07/1957
645,128	71/629,961	05/07/1957
645,129	71/682,341	05/07/1957
645,136	72/005,409	05/07/1957
645,137	72/006,606	05/07/1957
645,141	72/013,832	05/07/1957
645,144	72/014,594	05/07/1957
645,150	72/018,056	05/07/1957
645,153	71/694,540	05/07/1957
645,160	72/012,638	05/07/1957
645,162	72/012,774	05/07/1957
645,163	72/012,828	05/07/1957
645,168	72/013,458	05/07/1957
645,177	71/684,809	05/07/1957
645,181	71/698,500	05/07/1957
645,185	72/005,141	05/07/1957
645,189	72/010,940	05/07/1957
645,195	72/011,904	05/07/1957
645,196	72/011,905	05/07/1957
645,201	72/012,253	05/07/1957
645,207	72/012,860	05/07/1957
645,213	72/013,564	05/07/1957
645,214	72/013,621	05/07/1957
645,215	72/013,622	05/07/1957
645,216	72/013,623	05/07/1957
645,231	72/014,437	05/07/1957
645,249	72/012,096	05/07/1957
1,064,749	73/038,516	05/03/1977
1,064,752	73/066,712	05/03/1977
1,064,755	73/073,892	05/03/1977
1,064,757	73/076,214	05/03/1977
1,064,758	73/078,148	05/03/1977
1,064,759	73/078,769	05/03/1977
1,064,764	73/091,018	05/03/1977
1,064,765	73/091,372	05/03/1977
1,064,768	73/095,856	05/03/1977
1,064,769	73/101,459	05/03/1977
1,064,774	73/072.992	05/03/1977
1,064,778	73/080,839	05/03/1977
1,064,779	73/080,840	05/03/1977
1,064,780	73/080,842	05/03/1977
1,064,784	73/095,153	05/03/1977
1,064,786	73/100,162	05/03/1977
1,064,795	73/077,723	05/03/1977
1,064,796	73/080,005	05/03/1977
1,064,798	73/091,213	05/03/1977
1,064,801	73/093,116	05/03/1977
1,064,802	73/095,581	05/03/1977
1,064,804	73/100,695	05/03/1977
1,064,807	73/101,014	05/03/1977
1,064,808	73/101,164	05/03/1977
1,064,809	73/101,182	05/03/1977
1,064,821	73/066,433	05/03/1977
1,064,822	73/078,734	05/03/1977
1,064,824	73/082,026	05/03/1977
1,064,828	73/102,712	05/03/1977
1,064,829	73/066,083	05/03/1977
1,064,830	73/085,152	05/03/1977
1,064,834	73/056,787	05/03/1977
1,064,838	73/088,189	05/03/1977
1,064,840	73/100,943	05/03/1977
1,064,843	73/087,705	05/03/1977
1,064,847	73/100,655	05/03/1977
1,064,850	73/073,905	05/03/1977
1,064,853	73/077,000	05/03/1977
1,064,854	73/079,212	05/03/1977
1,064,855	73/100,166	05/03/1977
1,064,857	73/054,196	05/03/1977
1,064,868	73/090,957	05/03/1977
1,064,871	73/066,818	05/03/1977
1,064,877	73/045,008	05/03/1977
1,064,884	73/070,304	05/03/1977
1,064,889	73/073,221	05/03/1977
1,064,893	73/076,583	05/03/1977
1,064,896	73/078,971	05/03/1977
1,064,897	73/081,563	05/03/1977
1,064,899	73/088,414	05/03/1977
1,064,901	73/091,605	05/03/1977
1,064,902	73/091,673	05/03/1977
1,064,904	73/095,578	05/03/1977
1,064,905	73/095,815	05/03/1977
1,064,906	73/095,816	05/03/1977
1,064,907	73/083,727	05/03/1977
1,064,908	73/101,435	05/03/1977
1,064,910	73/048,488	05/03/1977
1,064,911	73/048,557	05/03/1977
1,064,913	73/057,405	05/03/1977
1,064,916	73/073,163	05/03/1977
1,064,919	73/098,251	05/03/1977
1,064,920	73/055,286	05/03/1977
1,064,926	73/042,883	05/03/1977
1,064,927	73/064,730	05/03/1977
1,064,932	73/078,260	05/03/1977
1,064,944	73/077,016	05/03/1977
1,064,946	73/075,724	05/03/1977
1,064,947	73/077,191	05/03/1977
1,064,952	73/100,184	05/03/1977
1,064,957	73/054,950	05/03/1977
1,064,960	73/078,162	05/03/1977
1,064,961	73/081,718	05/03/1977
1,064,964	73/096,281	05/03/1977
1,064,966	73/100,739	05/03/1977
1,064,967	73/101,222	05/03/1977
1,064,971	73/087,259	05/03/1977
1,064,972	73/093,768	05/03/1977
1,064,984	73/093,758	05/03/1977
1,064,987	73/100,765	05/03/1977
1,064,988	73/031,230	05/03/1977
1,064,996	73/081,911	05/03/1977
1,065,000	73/077,834	05/03/1977
1,065,008	73/080,817	05/03/1977
1,065,014	73/091,746	05/03/1977
1,065,015	73/096,750	05/03/1977
1,065,016	73/098,220	05/03/1977
1,065,017	73/099,863	05/03/1977
1,065,018	73/047,533	05/03/1977
1,065,023	73/061,415	05/03/1977
1,065,029	73/007,144	05/03/1977

Reg. Number	Serial Number	Reg. Date
1,065,030	73/032,798	05/03/1977
1,065,031	73/051,808	05/03/1977
1,065,032	73/060,274	05/03/1977
1,065,035	73/079,674	05/03/1977
1,065,038	73/086,147	05/03/1977
1,065,044	73/099,909	05/03/1977
1,065,045	73/099,910	05/03/1977
1,065,046	73/100,022	05/03/1977
1,065,047	73/100,172	05/03/1977
1,065,049	72/451,794	05/03/1977
1,065,051	73/046,594	05/03/1977

Notice Regarding Technical Center Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998

NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

United Merchants and Manufacturers, Inc., New York, N.Y., Reg. No. 522,745 and 1,337,987, for the mark "AMERITEX", Canc. No. 26,689.

Miller Manufacturing Co., Ft. Worth, Tex., Reg. No. 1,212,832, for the mark "THE LINEN BARN", Canc. No. 26,796.

Samiko, Inc., St. Louis, Mo., Reg. No. 1,079,585, for the mark "GOOMBA'S" and design, Canc. No. 26,960.

American Motivation Co., Inc., St. Louis, Mo., Reg. No. 1,699,518, for the mark "IDEABANK", Canc. No. 27,177.

Stony Creek Knitting Mills, Inc., Rocky Mount, N.C., Reg. No. 1,292,377, for the mark "STONY CREEK KNITTING MILLS", Canc. No. 26,594.

Armando J. Guerra, Miami, Fla., Reg. Nos. 1,721,280 and 1,721,281, for the marks "HINDS" and design and "HINDS", Canc. No. 27,098.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Patents Available For License or Sale

5,104,001 TOILET PAPER DISPENSER

Contact:
Jose Negron
400 Cozine Ave.
Apt. 3F
Brooklyn, N.Y. 11207

5,335,438 DEER FLAGGING APPARATUS

Contact:
David E. Terrill
P. O. Box 1006
Gore, Okla. 74435
(voice) : (918) 489-5543

5,709,320 MANUAL SELF-DEFENSE SPRAY DEVICE

Contact:
Ruben Jimenez
1038 Woolworth St.
Houston, Tex. 77020
(voice) : (713) 674-0883

5,709,430 BICYCLE SEAT

Contact:
Richard J. Peters
3712 W. Cass St.
Apt. #22
Tampa, Fla. 33609
(voice) : (813) 872-4496
(fax) : (954) 728-9176

Certificates of Correction for April 14, 1998

D. 380,441
D. 384,404
D. 385,098
D. 385,580
D. 387,361
D. 387,545
D. 388,738
D. 390,290
P. 10,093
Re. 35,533
Re. 35,581
Re. 35,636
Re. 35,658
4,920,132
5,027,255
5,086,078
5,199,512
5,219,946
5,286,431
5,381,799
5,389,739
5,390,678
5,407,459
5,426,894
5,445,518
5,487,827
5,490,027
5,500,419
5,502,440
5,503,048
5,509,362
5,532,402
5,534,961
5,541,201
5,546,884
5,549,728
5,549,791
5,550,051
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5,672,417
5,672,452
5,672,587
5,672,903
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5,673,067
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5,717,269
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5,717,907
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Summary of Final Decisions

Issued by the

Trademark Trial and Appeal Board

February 23-27, 1998

Date Issued	Type of Case(1)	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
2-23	CANC (SJ)	25,262	ADC Telecommunications, Inc. v. Reltec Corp.	Res judicata [2(d)]	Petition to Cancel Granted	"FIBERSEAL" [sealed metallic enclosures for fiber optic telecommunications cabling systems]	"FIBERSEAL" [enclosures for fiber optic cable splices]		No
2 24	OPP	96,032	Signature Brands, Inc. v. Dallas Technologies Corp.	2(d); misuse of the federal registration symbol	Opposition Dismissed	"MR COFFEE" [coffee makers, espresso/cappuccino makers, warming plates, thermal carafes, coffee filters, ice tea makers, hot tea makers, bread makers, food dehydrators, water filters]	"MR. BEER" [beer manufacturing kit]		No
2-24	EX	74/277,559	Tessco Communications Inc.	whether, as evidenced by the specimens, applicant is using the mark sought to be registered in connection with the goods identified in its application	Refusal Reversed		"WIRELESS SOLUTIONS" [a full line of parts for cellular telephones]		No
2-24	CU	1,007	Michael W. Wyckoff v. Rick E. Briggs	whether applicant is entitled to a current use registration	Concurrent use registration Refused	"RENT-A-NERD" [temporary employment services for computer specialists-for all the U.S. except Ohio]	"RENT-A-NERD" (and design) [registration for "consulting services rendered regarding the use and application of computers"]		No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION, CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT, (R)=REQ. FOR RECONSIDERATION, (MD)=MOTION TO DISMISS, (MR)=MOTION TO REOPEN

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Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
2-24	EX	74/664,809	Phil Posthuma and Cordell Langeland	whether the matter sought to be registered functions as a service mark for the sevices recited in the application or functions, instead, only as the title of a single creative work	Refusal Affirmed		"PHANTASM" [entertainment services in the nature of live theater production]		Yes
2-26	EX	74/448,220	Carmen D Caserta	whether, as evidenced by the specimens of record, the matter sought to be registered functions as a trademark for the goods identified in the application or functions, instead, only as a fictitious character name	Refusal Affirmed		"FURR-BALL FURCANIA" [children's books and periodical publications, namely, comic strips and comic magazines]		Yes
2-26	CANC	24,090	In-Flight Phone Corp. v. J. Anselmo, Inc.	whether registrant had used its mark in commerce as of the issue date of its registration; fraud	Petition to Cancel Granted (but only on the ground of non-use of the mark as of the date of registration)		"SKY LIMO" (and design) [transportation of passengers by limousine, vans, buses and cars]		No

(1)EX=EX PARTE APPEAL, OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE, (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS, (MR)=MOTION TO REOPEN

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Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
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Box POST REG FEE	Affidavits, renewals, corrections and amendments.
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Box 6	Mail for the Office of Procurement.
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Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
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Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

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Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

Partnership PTDLs provide enhanced and expanded services for which fees are charged. They offer on-line patent text and image searching, on-line trademark searching, and videoconferencing for examiner interviews and workshops. They accept disclosure documents on site, order file wrappers, assignment documents and certified copies for their customers, and host a variety of seminars aimed at specific audiences, including practitioners, paralegals, and independent inventors. Currently, partnerships are located at the Great Lakes Patent and Trademark Center (GLPTC) at the Detroit Public Library in Detroit, Michigan and the Sunnyvale Center for Innovation, Invention and Ideas (SCI^3) in Sunnyvale, California.

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LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/05/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	05/28/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	06/03/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	04/28/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	09/28/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	10/19/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	03/01/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	03/01/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	11/29/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	07/22/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	06/08/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	04/05/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	11/22/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	10/22/96
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	01/10/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	01/16/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	11/12/96

*A communication from the examiner should have been received in most applications filed prior to this date

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C 154, 155, or 156 Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of March 1, 1998

	Oldest Date	
Law Office	New*	Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308-9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/19/97	12/29/97
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308-9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/22/97	01/05/98
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308-9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/17/97	03/06/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308-9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/09/97	12/15/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308-9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/24/97	12/10/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308-9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/22/97	11/06/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308-9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/09/97	12/09/97
Law Office 108—David Shallant, Managing Attorney, (703) 308-9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions— Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services–Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/16/97	11/14/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308-9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/30/97	01/05/98
**Collective Marks—Class 200 **Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	01/16/98	—0—
Renewals (All Classes)	01/16/98	—0—
Section 12(c) Publications (All Classes)	12/31/97	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

APRIL 14, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification, matter printed in italics indicates additions made by reexamination

B1 4,496,066 (3482nd)

NECK FINISH FOR PLASTIC CONTAINERS

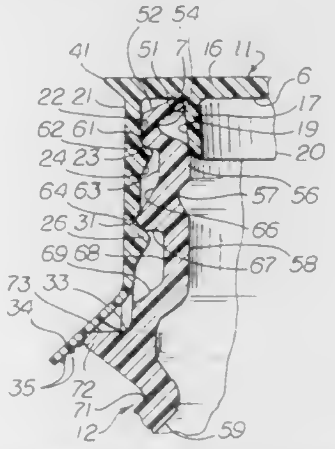
Joseph J. Bullock, III, Atherton, Calif., assignor to Portola Packaging, Inc., San Jose, Calif.

Reexamination Request No. 90/003,230, Oct. 27, 1993.

Reexamination Certificate for Patent 4,496,066, issued Jan. 29, 1985, Ser. No. 517,584, Jul. 27, 1983.

Int. Cl.^{6} B65D *41/18*

U.S. Cl. 215—320



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2** and **6** are cancelled

Claims **1** and **5** are determined to be patentable as amended.

Claims **3**, **4**, **7** and **8**, dependent on an amended claim, are determined to be patentable.

1. In combination, a neck for a container formed of a flexible plastic material comprising a straight, thin top flange extending inward from the upper end of said neck, said flange slanting upwardly at an acute angle of approximately 20° from the horizontal, first locking means on said neck below said flange, a cap having a disc, an inner and an outer skirt depending from said disc, second locking means on said outer skirt cooperable with said first locking means, whereby when said first and second locking means are engaged said flange is depressed and seals against the underside of said disc, said flange being dimensioned and positioned to slant upward-inward into the annular space between said skirts with the inner edge of said flange fitting tightly into the corner where the outside of said inner skirt intersects the underside of said disc, *said upper end of said neck having a short vertical external surface immediately below said flange, the inside of said neck being formed opposite said short vertical external surface with an internal groove immediately below said flange to increase the flexibility of said flange, the exterior of said neck being formed with a substantially horizontal, inwardly directed shoulder immediately below said short vertical external surface, the interior of said outer skirt being formed with internal bead means forming part of said second locking means, said internal bead means having an upper surface immediately below said short vertical external surface which engages under said shoulder, the lower edge of said short, vertical external surface fitting tightly against the inside of said skirt immediately above said internal bead means, said internal bead means restraining said lower edge against downward movement.*

B1 4,547,328 (3483rd)

METHOD FOR PRODUCING FOAMED PLASTIC INSULATOR

Masao Yuto, and Yoichi Suzuki, both of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Reexamination Request No. 90/004,047, Dec. 14, 1995.

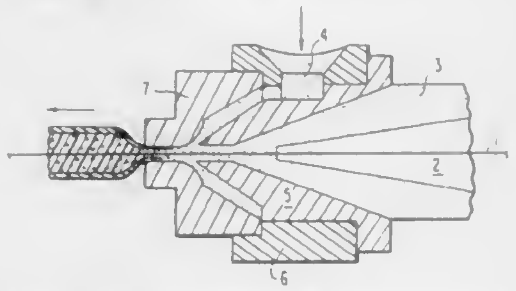
Reexamination Certificate for Patent 4,547,328, issued Oct. 15, 1985, Ser. No. 600,870, Apr. 16, 1984.

Division of Ser. No. 335,318, Dec. 29, 1981, abandoned, which is a continuation of Ser. No. 970,021, Dec. 14, 1978, abandoned.

Claims priority, application Japan, Dec. 16, 1977, 52-150600

Int. Cl.^{6} B29C *44/24*

U.S. Cl. 264—45.9



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1**, **2**, **5** and **7** is confirmed

Claim **6** is cancelled.

Claims **3** and **4** are determined to be patentable as amended.

New claims **8**–**33** are added and determined to be patentable.

1. A method for producing a foamed plastic insulator comprising the steps of:
preparing a plastic material comprising low density polyethylene having a melt flow swelling ratio of at least 55%
adding a chemical and/or inert gas blowing agent to said plastic material,
extruding a mixture of said plastic material and said blowing agent over a conductor, and
foaming said mixture to produce foamed insulation layer

B1 4,609,564 (3484th)

METHOD OF AND APPARATUS FOR THE COATING OF A SUBSTRATE WITH MATERIAL ELECTRICALLY TRANSFORMED INTO A VAPOR PHASE

Eduard Pinkhasov, Forest Hills, N.Y., assignor to Masco VT, Inc., Taylor, Mich.

Reexamination Request No. 90/004,016, Nov. 14, 1995.

Reexamination Certificate for Patent 4,609,564, issued Sep. 2, 1986, Ser. No. 494,302, May 13, 1983.

Continuation-in-part of Ser. No. 358,186, Mar. 15, 1982, Pat. No. 4,438,153, which is a continuation-in-part of Ser. No. 237,670, Feb. 24, 1981, Pat. No. 4,351,855.

Int. Cl.^{6} H01T *14/00*; **C23C** *13/00, 13/12*

U.S. Cl. 427—580

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–6 is confirmed

1. A method of depositing a material upon a substrate which comprises the steps of:

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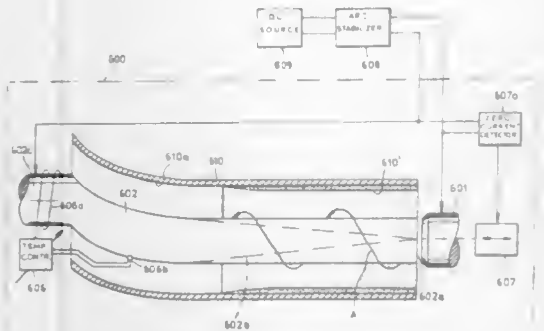


juxtaposing an elongated electrode composed of at least one component of said material with a surface of said substrate along the length of said electrode;

evacuating the space in which said electrode is juxtaposed with said substrate to at most 10^{-5} torr and maintaining the pressure in said space substantially no higher than 10^{-5} torr during deposition; and

striking an electrical arc with said electrode at one end thereof at a voltage of substantially 30 to 60 volts and with a current of substantially 50 to 90 amperes to evaporate said electrode over a length thereof receding from said arc and to deposit the material evaporated from said electrode on said substrate over said length.

B1 4,641,139 (3485th)
METHOD AND APPARATUS FOR MEASURING THE LEVEL OF A FLUENT MATERIAL IN A CONTAINER

Kurt O. Edvardsson, Linköping, Sweden, assignor to Saab Marine Electronics Aktiebolag, Goteborg, Sweden

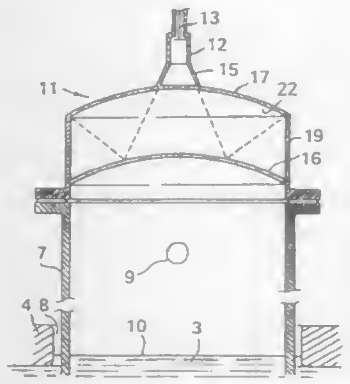
Reexamination Request No. 90/004,617, May 1, 1997.

Reexamination Certificate for Patent 4,641,139, issued Feb. 3, 1987, Ser. No. 725,621, Apr. 22, 1985.

Claims priority, application Sweden, Apr. 25, 1984, 8402247

Int. Cl.^{6} G01S *13/08*

U.S. Cl. 342—124



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–10** is confirmed

1 Method of measuring the level of a fluent material in a container (**1**), with the use of a microwave signal that is fed through a tubular waveguide (**7**) that extends vertically downward through the container and communicates with it so that the surface (**10**) of the material in the waveguide follows the level of the surrounding material, and which signal is reflected by the surface back up through the waveguide to be received and employed, after signal processing, for determining the level of material in the container, characterized in that the microwave signal has a wavelength substantially smaller than the diameter of the waveguide (**7**), and that the microwave signal is fed to the waveguide by way of a mode generator (**11**) that produces substantially only one dominant propagation mode of the signal.

B1 4,919,484 (3486th)
ANTI-CINCH SEAT BELT SYSTEM

Jerry D. Bougher, Lebanon; James R. Anthony, Carmel; Jeffrey L. Williams, Zionsville; Ronald F. Homeier, Plainfield, and Allan R. Lortz, Carmel, all of Ind., assignors to Indiana Mils & Manufacturing, Inc., Westfield, Ind.

Reexamination Request No. 90/004,259, May 31, 1996.

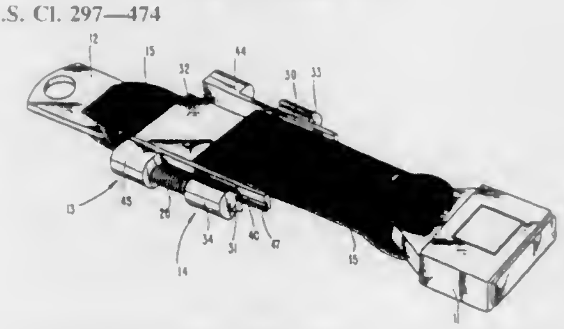
Reexamination Certificate for Patent 4,919,484, issued Apr. 24, 1990, Ser. No. 302,788, Jan. 26, 1989.

Continuation-in-part of Ser. No. 111,182, Oct. 22, 1987.

The portion of the term of this patent subsequent to May 23, 2006, has been disclaimed.

Int. Cl.^{6} B60R *22/00*

U.S. Cl. 297—474



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–10**, **15–18** is confirmed.

Claim **11** is determined to be patentable as amended.

Claims **12–14** dependent on an amended claim, are determined to be patentable.

8. A seat belt assembly which comprises:

a tongue;

a belt buckle,

mounting brackets;

mounting brackets;

linking means for linking said tongue to one mounting bracket and for linking said buckle to another mounting bracket;

linking portion for joining said linking means with said belt buckle and said tongue;

a retractor assembly; and,

collecting means for collecting and paying out predetermined slack in said linking means in lieu of collection of such slack by said retractor assembly.

B1 4,960,381 (3487th)
SCREW-TYPE DENTAL IMPLANT ANCHOR

Gerald A. Niznick, Encino, Calif., assignor to Core-Vent Corporation, Encino, Calif.

Reexamination Request No. 90/004,452, Nov. 13, 1996.

Reexamination Certificate for Patent 4,960,381, issued Oct. 2, 1990, Ser. No. 231,653, Aug. 10, 1988.

Continuation of Ser. No. 1,564, Jan. 8, 1987, abandoned.

Int. Cl.^{6} A61C *8/00*

U.S. Cl. 433—174

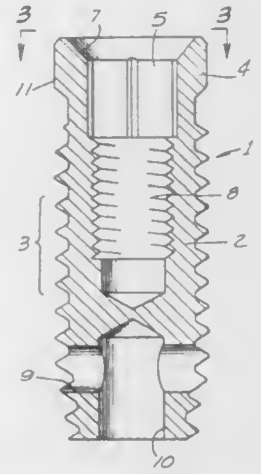
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–35**, **41–43** and **44** is confirmed.

Claims **36** and **38** are determined to be patentable as amended

Claims **37**, **39** and **40**, dependent on an amended claim, are determined to be patentable.

New claims **45–47** are added and determined to be patentable.



36. A dental implant anchoring means comprising a body portion, an internally-threaded shaft extending downwardly from the top of said dental implant anchoring means into said body portion, *said internally-threaded shaft terminating inside said body portion,* and an internal, wrench-engaging surface lying substantially entirely within said shaft, substantially entirely within the exterior walls of said anchoring means, and substantially entirely below the top surface of said anchoring means.

B1 5,037,437 (3488th)
METHOD OF BONE PREPARATION FOR PROSTHETIC FIXATION

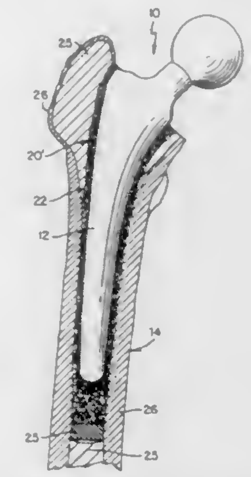
Frederick A. Matsen, III, Seattle, Wash., assignor to The University of Washington, Seattle, Wash.

Reexamination Request No. 90/004,032, Nov. 14, 1995.

Reexamination Certificate for Patent 5,037,437, issued Aug. 6, 1991, Ser. No. 466,777, Jan. 18, 1990.

Int. Cl.^{6} A61F *2/028*

U.S. Cl. 623—16



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **17–23** are cancelled.

Claims **1**, **9**, **24** and **26** are determined to be patentable as amended.

Claims **2–8**, **10–16** and **25**, dependent on an amended claim, are determined to be patentable.

1. A method to improve mechanical interdigitation of bone cement and a prepared bone which comprises the steps of:

mechanically shaping a bone surface, which includes exposed cancellous bone, for reception of a joint prosthesis;

applying a pressurized jet of dry flowing gas having a relatively high diffusion coefficient relative to oxygen or nitrogen to the bone surface, *at a flow rate sufficient* to clean *debris from the trabecular interstices of the exposed cancellous bone* and dry the trabecular interstices of the exposed cancellous bone; and

forcing bone cement into the dried interstices of the bone

B1 5,174,649 (3489th)
LED LAMP INCLUDING REFRACTIVE LENS ELEMENT

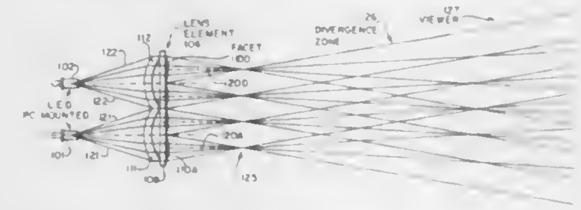
Kevin G. Alston, Wylie, Tex., assignor to Precision Solar Controls Inc., Garland, Tex.

Reexamination Request No. 90/004,283, Jun. 24, 1996.

Reexamination Certificate for Patent 5,174,649, issued Dec. 29, 1992, Ser. No. 731,621, Jul. 17, 1991.

Int. Cl.^{6} F21V *5/00*

U.S. Cl. 362—244



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1**, **3**, **17–40** are confirmed.

Claims **2**, **5–8** and **10–13** & **16** are determined to be patentable as amended.

Claims **4**, **9**, **14** and **15**, dependent on an amended claim, are determined to be patentable.

1 An apparatus for emanating electromagnetic radiation as a desired output beam, the apparatus comprising.

a) at least one emitting device for producing an emitted beam of electromagnetic radiation, and,

b) a lens element including, for each emitting device:

1) an entrance surface shaped to refract the emitted beam into an intra-lens beam; and

2) an exit surface including at least two facets shaped to refract the intra-lens into the desired output beam;

wherein the emitting device is located at a focus of the lens entrance surface.

B1 5,209,728 (3490th)
LOW PROFILE, HIGH PERFORMANCE INTERVENTIONAL CATHETERS

Jeff Kraus, San Jose, and Robert D. Lashinski, Cupertino, both of Calif., assignors to Danforth Biomedical, Inc., Menlo Park, Calif.

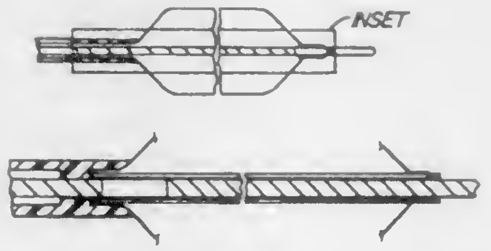
Reexamination Request No. 90/003,907, Jul. 31, 1995.

Reexamination Certificate for Patent 5,209,728, issued May 11, 1993, Ser. No. 946,828, Sep. 16, 1992.

Continuation of Ser. No. 430,702, Nov. 2, 1989, abandoned.

Int. Cl.^{6} A61M *29/00; 25/10*

U.S. Cl. 604—96



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

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Claims **1-16** having been finally determined to be unpatentable, are cancelled.

New claims **17-21** are added and determined to be patentable.

17. A catheter having a balloon at a distal end thereof, the balloon having an interior that is inflatable upon pressurization with inflation media and a seal preventing leakage of inflation media from the catheter, the seal comprising:

a first region disposed on a first portion of the catheter and having a first surface contour; and

a second region disposed on a second portion of the catheter, the second region being movable with respect to the first region and having a second surface contour corresponding to the first surface contour, the second region being movable with respect to the first region, the first and second regions spaced apart by a distance sufficiently small to prevent inflation media from flowing therebetween, thereby forming a seal, the seal positioned to commence substantially at the proximal end of the balloon and to extend distally into the balloon, and to separate a first volume within the catheter that is in communication with the balloon interior from a second volume that is in communication with the exterior of said catheter.

B1 5,229,612 (3491st)

RADIATION DETECTOR WITH REMOTE TEMPERATURE REFERENCE

Francesco Pompei, Boston, and Janus Ternullo, Belmont, both of Mass., assignors to Exergen Corporation, Newton, Mass.

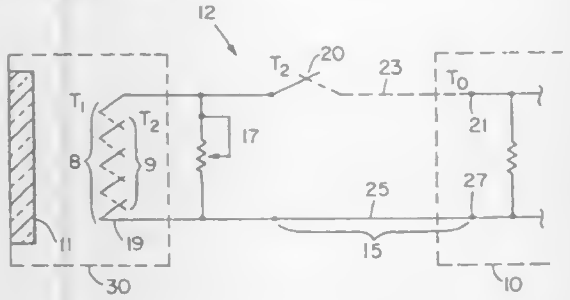
Reexamination Request No. 90/004,317, Jul. 29, 1996.

Reexamination Certificate for Patent 5,229,612, issued Jul. 20, 1993, Ser. No. 716,038, Jun. 14, 1991.

Continuation of Ser. No. 561,169, Aug. 1, 1990, abandoned.

Int. Cl.^{6} G01J *5/26*

U.S. Cl. **250—349**



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-79** is confirmed.

1 A radiation detector comprising:

a thermopile having a hot junction and a cold junction, the thermopile sensing radiation emitted from a target and providing an output signal indicative of a temperature of the target; and

a thermocouple having a hot junction and a cold junction, one of said thermocouple junctions being thermally remote from the hot and cold junctions of the thermopile, the thermocouple being electrically connected in series with the thermopile in a passive circuit and providing an output signal which combines with the output signal of the thermopile to produce a total output signal, a change in the thermocouple output signal with a local temperature being inversely related to a change in the thermopile output signal with said local temperature

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B1 5,396,155 (3492nd)

SELF-DIMMING ELECTRONIC BALLAST

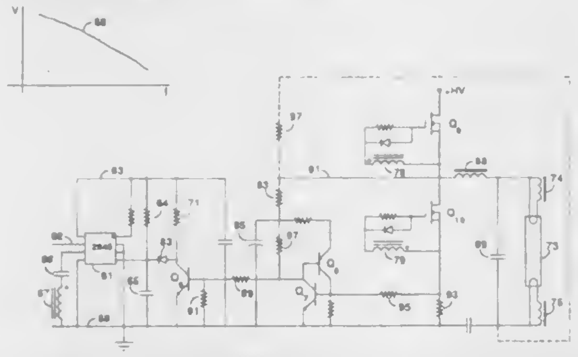
Ronald J. Bezdon, Antioch; Peter W. Shackle, Arlington Heights; Randy G. Russell, Glen Ellyn, and Kent E. Crouse, Hanover Park, all of Ill., assignors to Energy Savings, Inc., Schaumburg, Ill.

Reexaminatinn Request No. 90/004,294, Jul. 2, 1996.

Reexamination Certificate for Patent 5,396,155, issued Mar. 7, 1995, Ser. No. 266,746, Jun. 28, 1994.

Int. Cl.^{6} G05F *1/00*

U.S. Cl. 315—291



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-14** is confirmed

1. A self-dimming electronic ballast for powering a gas discharge lamp from an AC input voltage, said ballast comprising:

a converter for converting said AC input voltage into direct current at a high voltage;

a driven, half-bridge inverter powered by said converter, said inverter having a series resonant, direct coupled output for connection to said lamp;

a control circuit coupled to said inverter for driving said inverter at a frequency inversely proportional to said input voltage.

B1 5,466,181 (3493rd)

DOLL HAVING CONDUCTIVE OUTER SKIN AREAS AND INTERNAL BATTERY SUPPLY

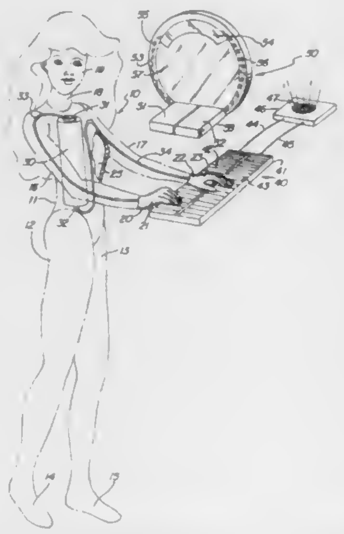
Linda K. Bennett, Marina Del Rey, and Joseph Feldman, Los Angeles, both of Calif., assignors to Mattel, Inc., El Segundo, Calif.

Reexamination Request No. 90/004,409, Oct. 7, 1996.

Reexamination Certificate for Patent 5,466,181, issued Nov. 14, 1995, Ser. No. 251,156, May 31, 1994.

Int. Cl.^{6} A63H *3/28;33/26*

U.S. Cl. 446—297



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1-7** are cancelled.

1. A doll and interactive electrical toy combination comprising.

a doll having a body defining a hand, a foot, outer surfaces and an interior cavity;

a plurality of electrically conductive areas supported upon at least a portion of said outer surfaces including a conductive area on said hand and said foot;

a battery power source supported within said interior cavity;

means for electrically coupling said battery power source to said conductive areas to provide an incomplete electrical circuit; and

an electrical toy having a plurality of electrically conductive portions and an electrically powered device coupled to said electrically conductive portions in an incomplete electrical circuit;

said doll being positionable to place said plurality of electrically conductive areas in contact with said plurality of electrically conductive portions to complete an electrical circuit between said battery power source and said electrically powered device thereby causing said electrically powered device to operate.

B1 5,487,748 (3494th)

BLOOD SAMPLING DEVICE

Jeremy Marshall, and David D. Crossman, both of Oxford, United Kingdom, assignors to Owen Mumford Limited, Oxford, United Kingdom

Reexamination Request No. 90/004,365, Sep. 11, 1996.

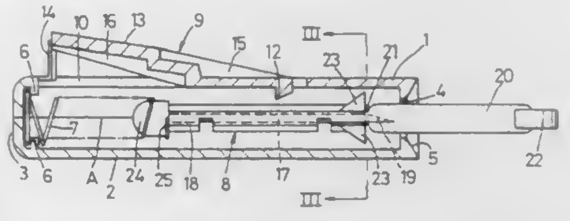
Reexamination Certificate for Patent 5,487,748, issued Jan. 30, 1996, Ser. No. 307,624, Sep. 27, 1994.

PCT No. PCT/GB93/00650, § 371 Date Sep. 27, 1994, § 102(e) Date Sep. 27, 1994, PCT Pub. No. WO93/19671, PCT Pub. Date Oct. 14, 1993

Claims priority, application United Kingdom, Apr. 1, 1992, 9207120

Int. Cl.^{6} A61B *5/14*

U.S. Cl. **606—182**



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-7** is confirmed.

New claims **8-9** are added and determined to be patentable.

1. A disposable pricker comprising an elongate body with a lancet non-rotatably carried therein, the lancet tip normally being within the body, a spring urging the lancet in a direction to project its tip from the body, a trigger mechanism carried by the body with a portion within the body arranged to retain the lancet in a fully retracted position energizing the spring and a second portion outside the body manually actuable to release the lancet to cause the tip to have a momentary position projecting from an opening in the forward end of the body, and a cap encasing the lancet tip and having a shank traversing said opening, wherein said shank extends outwardly of said body through said opening a distance sufficient to permit said lancet to be moved against the action of said spring to said fully retracted position solely by pushing said cap further into said body through said opening, and wherein said cap is breakable free of the lancet by twisting when so retracted to leave the tip exposed within said body

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B1 5,496,866 (3495th)

C_3 TO C_5 POLYFLUOROALKANES PROPELLANTS

Claus-Dieter Sommerfeld, Overath; Wilhelm Lamberts, Cologne; Dietmar Bielefeldt, Ratingen; Albrecht Marhold, Leverkusen, and Michael Negele, Cologne, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Reexamination Request Nos. 90/004,519, Jan. 9, 1997 and 90/004,793, Oct. 9, 1997.

Reexamination Certificate for Patent 5,496,866, issued Mar. 5, 1996, Ser. No. 469,622, Jan. 24, 1990.

Claims priority, application Germany, Feb. 4, 1989, 39 03 336.8

Int. Cl.^{6} C08J *9/14*, **C08G** *18/14*

U.S. Cl. **521—131**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1, 2, 5,** and **9** are determined to be patentable as amended

Claims **3, 4, 6, 7, 8,** and **10-22**, dependent on an amended claim, are determined to be patentable.

1. A method of forming plastic foam compositions comprising foaming a plastic based on isocyanate in the presence of a propellant the improvement wherein the propellant comprises at least one polyfluoroalkane of the formula:

$$CX_3—CY_2—R$$

wherein each of the X radicals independently represents hydrogen or fluorine and either:

(1) the CY_2 radical represents CH_2, CHF or $CH(CF_3)$, and R represents CH_2F, CHF_2, CH_3, CF_3, $CF_2—CH_3$, $CF_2—CH_2F$, $CH_2—CH_3$, $CH_2—CH_2—CH_3$, or $CH(CH_3)—CH_3$; or

(2) the CY_2 radical represents CF_2 and R represents CH_2F, CHF_2, CH_3, $CF_2—CH_3$, $CF_2—CH_2F$, $CH_2—CH_3$, $CH_2—CH_2—CH_3$, or $CH(CH_3)—CH_3$;

wherein the polyfluoroalkane contains at least two fluorine atoms, and wherein when the CY_2 radical represents a $—CH_2—$ group and the R radical represents a $—CH_2—CH_3$ group, respectively, then the CX_3 radical represents a $CHF_2—$ group; *and wherein when the CY_2 radical represents a $—CF_2—$ group, the R radical and CX_3 radical cannot both represent a CH_3 group.*

B1 5,502,989 (3496th)

COMPUTER PHYSICAL SECURITY DEVICE

William R. Murray, Jr., Redwood City; Stewart R. Carl, Palo Alto, and Arthur H. Zarnowitz, San Jose, all of Calif., assignors to Kensington Microware Limited, San Mateo, Calif.

Reexamination Request No. 90/004,538, Feb. 4, 1997.

Reexamination Certificate for Patent 5,502,989, issued Apr. 2, 1996, Ser. No. 307,113, Sep. 16, 1994.

Division of Ser. No. 138,634, Oct. 15, 1993, which is a continuation-in-part of Ser. No. 42,851, Apr. 5, 1993, Pat. No. 5,381,685, which is a continuation of Ser. No. 824,964, Jan. 24, 1992, abandoned, and a continuation-in-part of Ser. No. 6,311, Jan. 19, 1993, abandoned.

Int. Cl.^{6} E05B *65/00*

U.S. Cl. **70—58**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **7** and **11** are cancelled.

Claims **1 6 8-10** and **12** are determined to be patentable as amended.

New claim **13** is added and determined to be patentable

1. A locking [apparatus] *system*, comprising:

a portable electronic computer having an external wall defining a security slot;

a housing including a slot engagement member having a slot engaging portion provided with a locking member having a

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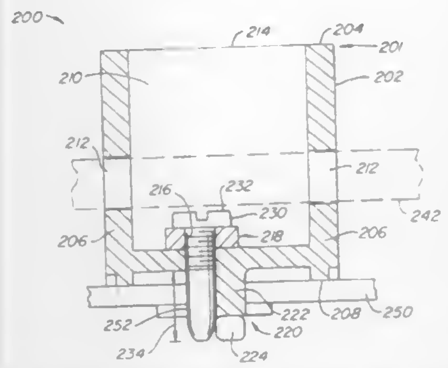

peripheral profile complementary to preselected dimensions of [a] *said* security slot [provided in an exterior wall of a portable electronic device] which thereby permits said locking member to extend into said security slot. said slot engagement member being rotatable between an unlocked position wherein said locking member is removable from said security slot, and a locked position wherein said locking member is retained within said security slot;

a pin[,] coupled through said housing[, for] *and* extending into said security slot proximate said slot engaging portion [when] *after* said slot engagement member is in said locked position to thereby inhibit rotation of said slot engagement member to said unlocked position; [and]

cable attachment means, coupled to said housing, for attaching a cable to said housing; *and*

a cable, coupled to said cable attachment means, for securing said portable electronic computer to an object other than to said housing

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REISSUES

APRIL 14, 1998

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification, matter printed in italics indicates additions made by reissue

Re. 35,768

PROCESS FOR THE PREPARATION OF IMPROVED DYESTUFF GRANULES FROM SUSPENSION CONTAINING A PROPYLENE OXIDE-ETHYLENE OXIDE COPOLYMER

Vaclav Kaspar, Cologne; Horst Brandt, Odenthal, and Gottfried Popp, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Original No. 5,213,583, dated May 25, 1993, Ser. No. 796,111, Nov. 21, 1991. Application for reissue May 25, 1995, Ser. No. 450,280

Claims priority, application Germany, Nov. 29, 1990, 40 38 002.5

Int. Cl.^{6} C08J *3/20;* **C08K** *9/02*

U.S. Cl. 8—526 7 Claims

1 Process for the preparation of storage-stable, low-dusting dyestuffs granules that are readily soluble in plastics, said process *being* characterized in that a suspension of (a) a water-insoluble or sparingly-soluble-in-water dyestuff, (b) 0.1 to 5% by weight, based on the dry dyestuff, of a polyglycol which is a copolymer of propylene oxide and ethylene oxide, and (c) *optionally* up to 2%, based on the dry dyestuff, of polyacrylic acid and/or salts thereof, is dried while being granulated *with spray drying*, the polyglycol having a molecular weight of 900–15,000, calculated from the OH, *the granules comprising 95 to 99% by weight of the dyestuff*

Re. 35,769

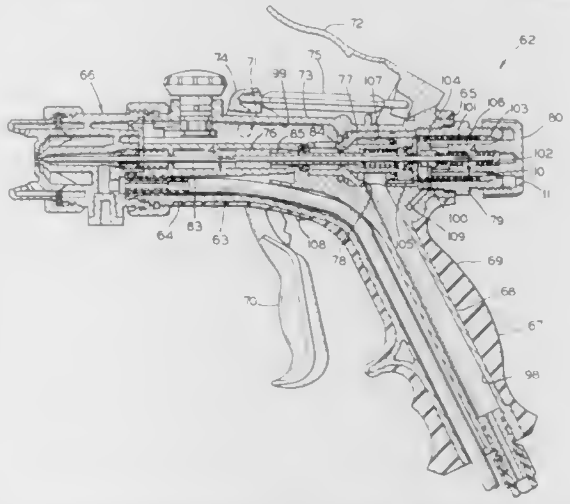
SPRAY GUN HAVING TRIGGER OVERTRAVEL PROTECTION AND MAXIMUM FLOW ADJUSTMENT KNOB WARNING

Thomas E. Grime, Temperance, Mich.; Roger T. Cedoz, Curtice, Ohio; Roger D. Wheeler, Holland, Ohio, and John F. Schaupp, Toledo, Ohio, assignors to Ransburg Corporation, Indianapolis, Ind.

Original No. 5,289,974, dated Mar. 1, 1994, Ser. No. 48,268, Apr. 14, 1993. Continuation-in-part of Ser. No. 894,730, May 27, 1992, Pat. No. 5,236,129. Application for reissue Mar. 1, 1996, Ser. No. 609,882

Int. Cl.^{6} B05B *7/02*

U.S. Cl. 239—72 12 Claims



12 In a paint spray gun having a fluid valve including a trigger, a valve needle which is moved from a closed position to a predetermined open position when said trigger is squeezed, a return spring exerting a predetermined force to urge said valve needle to the closed position and means for establishing the predetermined open position of said valve needle, the improvement comprising an over travel spring, and means mounting said over travel spring in said spray gun to be deflected in response to the application of an excessive force on said trigger after said valve needle has been moved to said open position whereby said over travel spring prevents damage to said spray gun from the application of an excessive trigger force.

Re. 35,770

OLIGOSACCHARIDES HAVING ANTI-XA ACTIVITY AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Jean Claude Lormeau, Maromme-la-Maine; Maurice Petitou, Paris, and Jean Choay, deceased, late of Paris, all of France, by Françoise Choay, Pauline Choay, Corinne Choay-Verdet, heirs, assignors to Choay, S.A., Paris, France

Original No. 4,401,662, dated Aug. 30, 1983, Ser. No. 194,545, Oct. 6, 1980. Continuation-in-part of Ser. No. 91,164, Nov. 5, 1979, abandoned. Application for reissue Dec. 19, 1995, Ser. No. 574,761

Claims priority, application France, Nov. 6, 1978, 7831357; Jul. 20, 1979, 7918873; United Kingdom, Oct. 5, 1979, 7934673; Jan. 7, 1980, 8000443; Jul. 2, 1980, 8021749; Jul. 2, 1980, 8021750; Sep. 15, 1980, 8029697

Int. Cl.^{6} A61K *31/725;* **C08B** *37/10*

U.S. Cl. 514—56 16 Claims

1. An oligosaccharide fraction of the heparin chain which oligosaccharide has improved antithrombotic activity in vivo higher than that of heparin (as measured by the Yin-Wessler test), which oligosaccharide fraction (1) comprises not more than 8 saccharide units, (2) of which one is an N-sulfate-3-O-sulfate-D-glucosamine unit (3) has anti-Xa activity at least 10 times that of heparin, (4) specific affinity for AT III, (5) a ratio of Yin-Wessler titer to USP titer of at least 30 and (6) virtually no anticoagulant activity (as determined by the USP test) and, the biologically acceptable salts of said oligosaccharide.

Re. 35,771

PROCESS FOR PRODUCING A FINE PORED SILICONE FOAM

Franz Joseph Giesen, Bergheim, Germany, assignor to H. B. Fuller Licensing & Financing, Inc., Arden Hills, Minn.

Original No. 5,356,940, dated Oct. 18, 1994, Ser. No. 141,299, Oct. 22, 1993. Application for reissue Dec. 26, 1996, Ser. No. 773,396

Claims priority, application Germany, Oct. 22, 1992, 42 35 693.3

Int. Cl.^{6} C08J *9/02*

U.S. Cl. 521—77 18 Claims

1. A process for producing a fine pored silicone foam by free foaming a two-component mixture of a reaction component A and a crosslinking component B, wherein

reaction component A, a silicone composition, contains a silicone polymer having at least two double bonds per molecule, a complexed organo-platinum catalyst, fumed silica, and water,

reaction component B, a crosslinking component, contains a polydimethyl hydrogen siloxane crosslinking agent, and additionally contains a silicone polymer having at least two double bonds per molecule, and fumed silica; and,

the process includes the steps of

pressurizing the reaction mixture to a pressure of about 70 psi or greater in a storage vessel for dissolving a gas into the reaction mixture before it is withdrawn from the storage vessel; and

foaming the mixture by heating to a temperature of 150°–220° C.

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PLANT PATENTS

GRANTED APRIL 14, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing

10,324

HYBRID TEA ROSE PLANT NAMED 'MORJOYBON'

Ralph S. Moore, Visalia, Calif., assignor to Spring Hill Nurseries Co., Tipp City, Ohio

Filed Sep. 3, 1996, Ser. No. 707,324

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—16 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea rose class, substantially as shown and described.

10,325

PEAR TREE NAMED 'BIEHN'

Nancy Biehn, and Don Biehn, both of 1621 Orchard Rd., Hood River, Oreg. 97031

Filed Feb. 3, 1997, Ser. No. 792,065

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—36 **1 Claim**

1. A new and distinct variety of pear tree, referred to as the Biehn cultivar, substantially as shown and described herein, characterized by its fruit ripening two to three weeks later than its parent, Bartlett, by its sweet, spicy, slightly cinnamon flavor and by its uniform golden russet color upon ripening.

10,326

'EARLY KING' CHERRY TREE

Shinichi Mukai, 2411 22nd Ave., Kingsburg, Calif. 93631

Filed Apr. 17, 1996, Ser. No. 634,086

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—37 **1 Claim**

1. A new and distinct variety of cherry tree, *Prunus avium*, named 'Early King', substantially as illustrated and described within.

10,327

'MORNING LORD' PEACH TREE

Fernando C. Avila, Hanford, Calif., assignor to Fredrick A. Avila, San Ramon, and Jeffrey D. Avila, Mill Valley, both of Calif.

Filed Aug. 8, 1996, Ser. No. 695,903

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—43.2 **1 Claim**

1. A new and distinct variety of peach tree substantially as illustrated and described which is somewhat remotely similar to the "O'Henry" peach tree (U.S. Plant Pat. No. 2,964), but from which it is distinguished in a number of 4 respects including by producing fruit which are mature for commercial harvesting and shipment approximately August 13 to August 24, or about one week after the "O'Henry" peach tree, in the San Joaquin Valley of central California and which has a high skin coloration.

10,328

EASTERN REDBUD TREE NAMED 'COVEY'

Cornelia L. Covey, Westfield, N.Y., assignor to Brotzman's Nursery, Inc., Madison, Ohio

Filed Mar. 27, 1996, Ser. No. 622,055

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—51.1 **1 Claim**

1. An eastern redbud plant named Covey, as described and illustrated, a small tree characterized by its contorted stems and pendulous branchlets, light green new growth, large heart shaped leaves with pointed tips, dull finish and papery texture, dark brown and scaly mature bark with reddish underlay, and winter hardiness.

10,329

MANDEVILLA PLANT NAMED 'MONTE'

Richard Wells, Visalia, Calif., assignor to Monrovia Nursery Company, Azusa, Calif.

Filed Mar. 26, 1996, Ser. No. 621,650

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—54.1 **1 Claim**

1. A new variety of Mandevilla plant substantially as herein shown and described.

10,330

PETUNIA PLANT NAMED '(REVOLUTION VIOLET NO. 3)'

Ushio Sakazaki, Hikone, Japan, assignor to Suntory Limited, Osaka, Japan

Filed Nov. 13, 1996, Ser. No. 746,555

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—68.1 **1 Claim**

1. A new and distinct variety of petunia plant, substantially as herein illustrated and described, characterized particularly as to novelty by (A) being a decumbent habit plant having long stems, (B) an over-abundant branching, Particularly primary branching is strong, and great profusion blooms, the whole bush remaining in bloom for a considerable period of time, (C) flowers are single and large, the petals having a vivid purple color, and the bottom color of the corolla throat is vivid purple and the outside of corolla tube is strong purple (D) a high resistance to rain, heat, drought and pests.

10,331

CHRYSANTHEMUM PLANT NAMED 'PILAR'

Cornelis P. VandenBerg, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Mar. 6, 1997, Ser. No. 812,147

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—74.1 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named 'Pilar', as illustrated and described.

10,332

'MS-CHOICE' BERMUDAGRASS

Jeffrey V. Krans, and H. Wayne Philley, both of Mississippi State, Miss., assignors to Mississippi State University, Mississippi State, Mich.

Filed Jan. 4, 1996, Ser. No. 582,962

Int. Cl.^{6} A01H *5/00*

U.S. Cl. Plt.—90 **1 Claim**

1. A bermudagrass plant substantially as described and illustrated in the specification herein.

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PATENTS

GRANTED April 14, 1998

ERRATA

For CLASS	See PATENT NO.
132–320	5,738,067
429–003	5,738,919
562–512	5,739,076
505–330	5,739,084
570–110	5,739,090
524–100	5,739,182
524–239	5,739,183
524–047	5,739,244
336–056	5,739,316
140–140	5,739,319
258–483	5,739,542
337–206	5,739,737

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PATENTS

GRANTED APRIL 14, 1998

GENERAL AND MECHANICAL

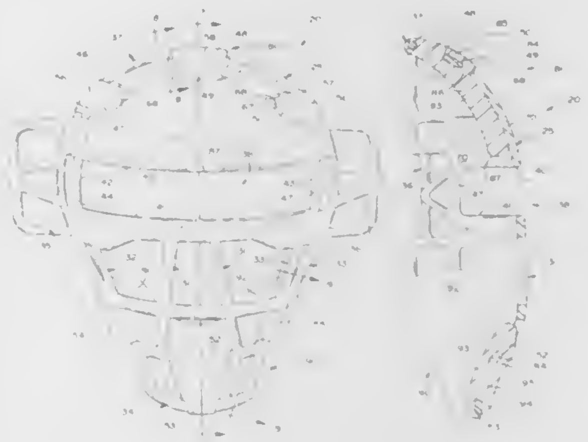
5,737,770
SPORT FACE MASK

Mike Chien-Fang Chen, 17, Kung 6 Road, Linkou 2nd Industrial Park, Taipei Hsien, Taiwan

Continuation-in-part of Ser. No. 907,352, Jul. 1, 1992, abandoned. This application Aug. 5, 1993, Ser. No. 102,291

Int. Cl.^{6} A41D *13/00*

U.S. Cl. 2—9 3 Claims



1. A face mask comprising a one-piece molded plastic framework defined by a front nose part located generally between opposite cheek parts, a lower jaw part below said front nose part, an ear part adjacent above and outboard of each cheek part, and a rear skull part spanning said ear parts; said parts all being formed of relatively narrow bars collectively defining said framework, a relatively narrow elongated eyes opening extending generally between said ear parts; a first relatively broad sunshade wall between an upper edge of said elongated eyes opening and said rear skull part, a second relatively broad sunshade wall beneath a lower edge of said elongated eyes opening, an in situ molded pad of polymeric/copolymeric synthetic plastic material molded generally inboard of and at least in part about said framework located at least at one of said lower jaw part and said rear skull part, another in situ molded pad of polymeric/copolymeric synthetic plastic material molded generally inboard of and at least in part about said framework, said first-mentioned in situ molded pad and said another in situ molded pad being located at a respective one of said lower jaw part and said rear skull part, each of said in situ molded pads at least partially embracing at least one narrow bar of its respective lower jaw part and rear skull part, and each molded pad being of substantially thicker cross section inboard of said framework as compared to outboard of said framework.

5,737,771
HEAT RESISTANT LIMB BRACE

Bobby Aanonsen, 465 Shore Rd., Apt. 6A, Long Beach, N.Y. 11561

Filed Dec. 16, 1996, Ser. No. 767,202

Int. Cl.^{6} A41D *13/08*

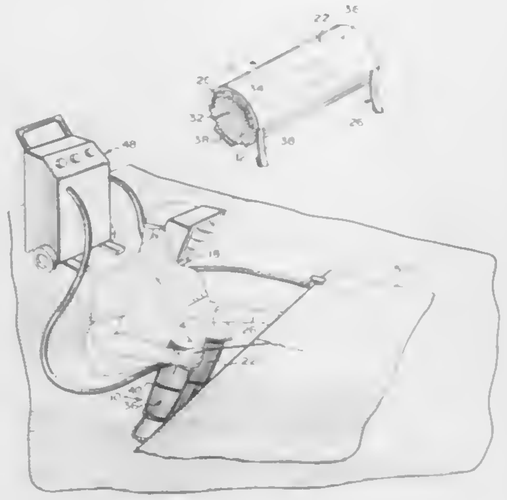
U.S. Cl. 2—16 18 Claims

1. A heat resistant limb brace comprising

a) a flexible liner to be worn about a limb of a person;

b) an insulation jacket affixed to said flexible liner to protect said limb from heat; and

c) a non-slip cover attached to said insulation jacket, to prevent items placed against said non-slip cover from sliding off,



wherein said flexible liner is tubular shaped, while said insulation jacket and said non slip cover are each semi tubular shaped.

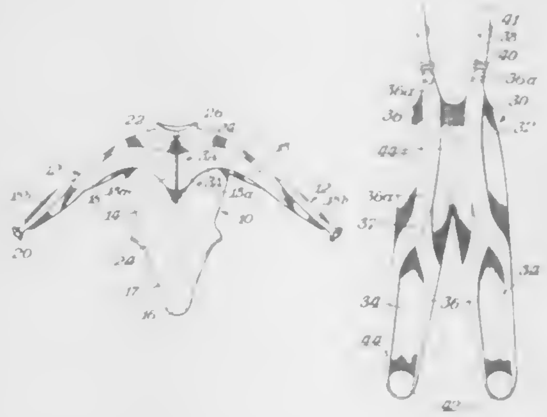
5,737,772
METHOD OF MANUFACTURING AEROBIC EXERCISE GARMENT

Timothy P. Dicker, 6906 Foothill Blvd., Tujunga, Calif. 91042-2780, and William T. Wilkinson, P.O. Box 73, Salem, N.J. 08079

Filed Feb. 20, 1997, Ser. No. 802,972

Int. Cl.^{6} A41B *1/00*; A41D *13/02*

U.S. Cl. 2—69 23 Claims



1. A method of making an aerobic resistance garment which includes a body portion and limb portions comprising the steps of providing a base material and a plurality of elastic resistance bands which are secured together to form the body portion and limb portions, each of the elastic resistance bands having a pair of longitudinal side edges and a pair of opposite ends intermediate the side edges, each of the elastic resistance bands being made of a material which has a direction of stretch for causing the user to exert a force in stretching the elastic resistance band and in resisting the elastic resistance band returning to its unstretched condition, anchoring each of the ends of the elastic resistance bands, and securing the elastic resistance band to the base material by attaching the longitudinal side edges of each elastic resistance band to the base material in a manner that the base material and elastic resistance band are free of attachment to each other between

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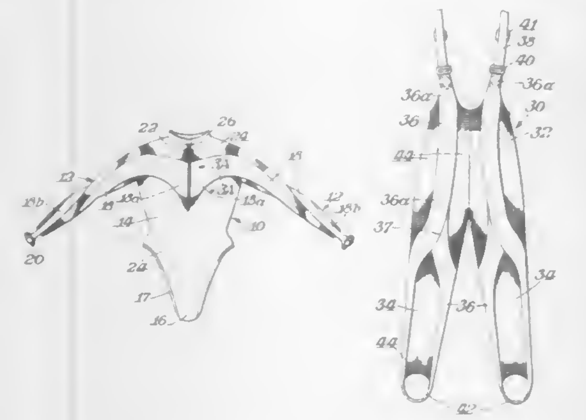
the longitudinal side edges and between the opposite ends of the elastic resistance band to minimize interference with the movement of the elastic resistance band along its direction of stretch.

5,737,773

AEROBIC EXERCISE GARMENT

Timothy P. Dicker, 6906 Foothill Blvd., Tujunga, Calif. 91042-2780, and William T. Wilkinson, P.O. Box 73, Salem, N.J. 08079

Filed Feb. 20, 1997, Ser. No. 802,973
Int. Cl.^{6} A41B *1/00;* **A41D** *13/02*
U.S. Cl. 2—69 **26 Claims**



1 An aerobic resistance garment including a body portion and limb sections, said garment being made from a plurality of segments of base material, a plurality of elastic resistance bands secured to said base material, each elastic resistance band having an anchor structure, said elastic resistance bands having a direction of stretch which causes the user to exert a force in stretching said elastic resistance bands and in resisting said elastic resistance bands returning to their unstretched condition, and said elastic resistance bands being secured to said base material in an arrangement wherein pairs of said segments of base material are spaced from each other and connected together by being connected to one of said elastic resistance bands therebetween.

5,737,774

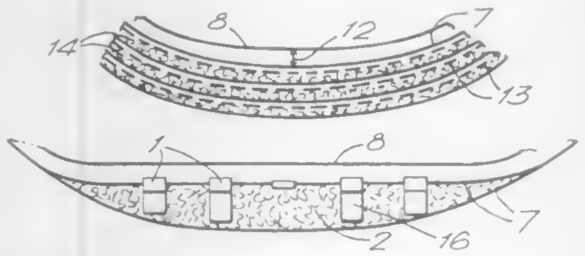
DEVICE FOR PREVENTING OR REDUCING THE INCIDENCE OR INTENSITY OF PAIN IN THE BODY

Satham Petty-Saphon, Saffron Walden, England, and Tommy Hansson, Gothenburg, Sweden, assignors to Spine-Issimus Limited, Saffron Walden, England

Continuation of Ser. No. 307,458, Sep. 19, 1994, abandoned. This application Jul. 21, 1997, Ser. No. 897,966

Claims priority, application United Kingdom, Sep. 18, 1993, 9319288; Jan. 21, 1994, 9401176

Int. Cl.^{6} A61F *7/00;* **A41D** *13/00,27/00*
U.S. Cl. 2—69 **18 Claims**



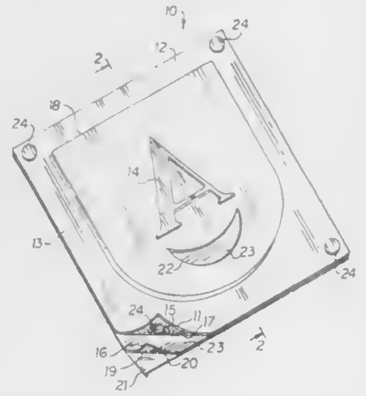
1 A device for preventing or reducing the incidence or intensity of pain occurring in a region of the body of a wearer, said device being non-rigid and comprising insulating material with means designed for the material to conform with the contour of the body region and to be worn in close proximity with the body region, said insulating material having means for reducing heat loss from the body region by convection and reflective means for reducing heat loss from the body by radiation, said reflective means having a moisture permeable micro-porous structure providing multiple passage ways, so that said reflective means can allow the passage of water vapor therethrough while reflecting heat back to the body region, whereby a targeted reduction in heat loss from said body region is achieved such that the skin and underlying musculoskeletal structures are kept in an active state such that they can function properly to provide a clinical benefit to the body region.

5,737,775

STICK-ON SHIRT POCKET AND ADVERTISING DISPLAY

Frederick B. Schwartz, 4683 Mission Blvd., San Diego, Calif. 92109

Filed Oct. 7, 1996, Ser. No. 726,912
Int. Cl.^{6} A41D *27/20*
U.S. Cl. 2—247 **8 Claims**



1 The combination of a garment having a smooth, continuous, woven cloth surface section and a disposable pocket, wherein said pocket comprises:

a first pliable sheet of material including a central portion and a continuous peripheral portion surrounding said central portion said first pliable sheet having a slit opening in said central portion;
means for removably bonding said continuous, peripheral portion to said cloth surface;
an intermediary sheet of pliable material having an outer side permanently bonded to said continuous peripheral portion, and an inner side having means for removably sticking upon said cloth surface; and
wherein said first and intermediary sheets are made of paper.

5,737,776

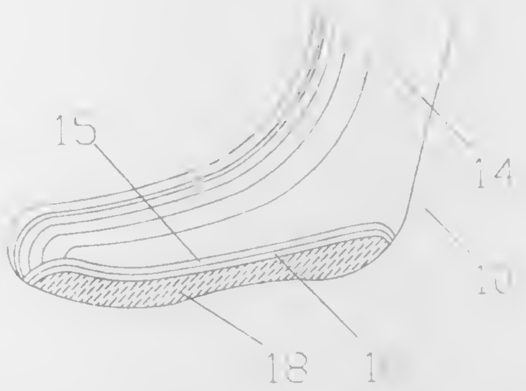
NON-SLIP PANTYHOSE

Lynne M. Jennings, 2400 Feather Sound Dr. #112, Clearwater, Fla. 33762

Filed Nov. 21, 1996, Ser. No. 753,000
Int. Cl.^{6} A41B *11/04*
U.S. Cl. 2—409 **9 Claims**

1 Multi-layer foot pads used in connection with pantyhose having an elastic waistband attached, two footed leg members downwardly depending therefrom, and each of said leg members having a sole portion, each said foot pad comprising.

an outer gripping layer and an inner layer;
said outer gripping layer comprising non-slip material to prevent said sole portions of said pantyhose from slipping a shoe of a wearer;
said inner layer comprising material which would keep moisture away from the foot of said wearer.



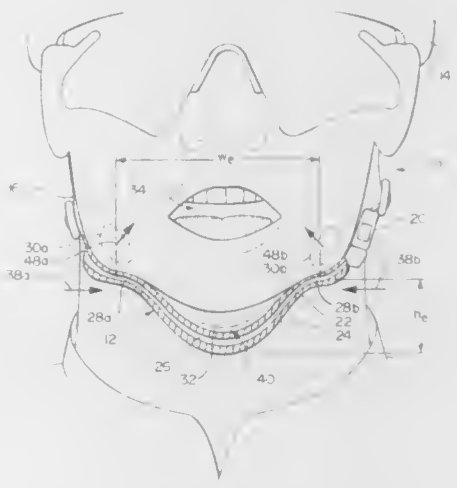
said inner layer being positioned between said outer gripping layer and said sole portion of one of said leg members; and
attaching means to position said outer gripping layer and said inner layer adjacent to said sole portion of one of said leg members during use by said wearer.

5,737,777

HELMET STRAP ASSEMBLY HAVING CONTOURED SUPPORT MEMBER

Alan J. Hilleary, 2100 Electric Ave., #317, Bellingham, Wash. 98226

Filed Oct. 30, 1996, Ser. No. 739,589
Int. Cl.^{6} A42B *3/00*
U.S. Cl. 2—421 **20 Claims**



1 A chin strap assembly for placement under the jaw of a wearer, said chin strap assembly comprising:

a flexible strap member configured to extend under said wearer's jaw;
an elongate semi-rigid, resiliently flexible support member having first and second upwardly-extending end portions which are configured to be positioned beneath first and second sides of said wearer's jawbone and a downwardly arched center portion which is configured to extend beneath the soft tissue, hypoglossal area of said jaw between said first and second sides of said jawbone; and
attachment means for mounting said semi-rigid support member to said flexible strap member;

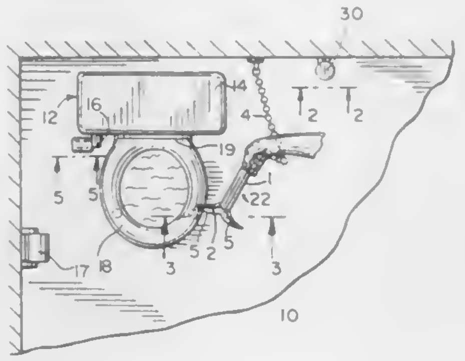
so that when said strap assembly is placed under said jaw and a tension is applied to said strap member, said downwardly arched center portion support member relieves said hypoglossal area from upward pressure generated by said tension so said strap member and said upward pressure is transmitted into said first and second sides of said jawbone through said upwardly extending end portions of said support member

5,737,778

TOILET SEAT ACTUATOR

Clint Patrick Black, c/o Charles Sussman, Sussman & Associates 1222 16th Ave. South, Third Floor, Nashville, Tenn. 37212

Filed Mar. 27, 1996, Ser. No. 622,813
Int. Cl.^{6} A47K *13/10*
U.S. Cl. 4—246.1 **1 Claim**



1 A commode unit including:

a toilet having a hinged toilet seat moveable between down and up positions;
a portable toilet seat lifter independent of said toilet seat, adapted to be manually grasped and moved into engagement with said toilet seat for lifting said toilet seat between its down and up positions without manual touching of the toilet seat;
said toilet lifter comprising
an elongated handle having opposed first and second ends,
a manually graspable member at said first end.
a toilet seat engageable member at said second end in the form of a bifurcated fish tail;
said toilet seat engageable member including a central section secured to the second end of said handle, and a pair of symmetric freely extending actuating sections flaring outward of said central section, each of said actuating sections defined by first upper and second lower opposed concave surfaces of greatest separation at said central section each of said first and second concave surfaces continually and gradually tapering towards each other in a generally downward direction, such that the width of each of said actuating sections continually narrows to provide a smooth transition between its central section and free end extreme, with said first and second concave surfaces of each of said actuating sections smoothly tapering to a lowermost position whereat they meet at first and second junctures at their respective free end extremes, said first and second junctures disposed in a plane generally perpendicular to the axis of said elongated handle;
the second concave surfaces of said pair of actuating sections meeting at an outer juncture at said central section, said outer juncture being indented and adapted to engage the edge of a raised toilet seat for lowering the toilet seat;
said elongated handle, manually graspable member and toilet seat engageable member being fixedly and permanently secured together to provide a unitary assembly; and
storage means for keeping said toilet seat lifter in proximity to said toilet

5,737,779

HAND HELD MOVABLE URINAL ASSEMBLY

Robert H. Haddock, 345 "K" St., P.O. Box 432, Penrose, Colo. 81240

Filed Sep. 19, 1995, Ser. No. 530,058
Int. Cl.^{6} E03D *13/00*
U.S. Cl. 4—301 **5 Claims**

1 A urinal receiver and discharge assembly, comprising

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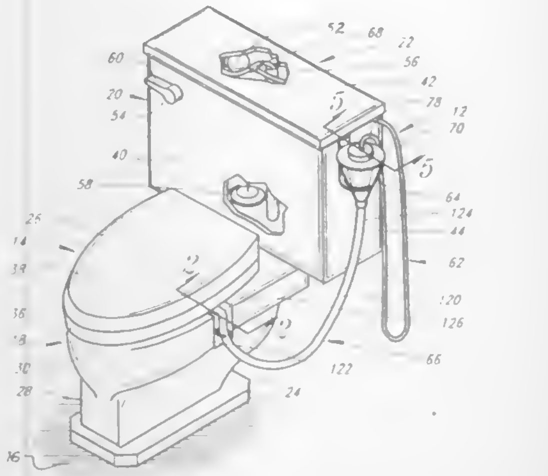


- a) a toilet bowl assembly including a fluid control and supply assembly having a fluid inlet line connected to a main float valve assembly;
- b) a flush fluid supply assembly includes a fluid discharge line connected to said main float valve assembly to receive fluid from said fluid inlet line during a flushing actuation of said main float valve assembly;
- c) a funnel receiver assembly connected to said fluid discharge line operable to selectively receive the fluid therein during the flushing actuation of said main float valve assembly;
- d) a discharge hose member connected to said funnel receiver assembly to receive and transfer all fluids received in said funnel receiver assembly to a receive reservoir;
- e) said funnel receiver assembly includes a main body member having a funnel enclosure lid member pivotally connected thereto; and
- f) said fluid discharge line mounted through a receiver hole in said funnel enclosure lid member operable to discharge the fluid within said main body member during the flushing actuation.

5,737,780
SEAT LIFTING DEVICE FOR A STOOL

Koru Okita; Shigeo Saeki, both of Hyogo-Ken; Koichi Yamada, Osaka; Jiro Koshijima, Osaka, and Kenichi Kobayashi, Osaka, all of Japan, assignors to Nippon Cable System Inc., Hyogo-ken, and Matsushita Electric Works, Ltd., Osaka-fu, both of Japan

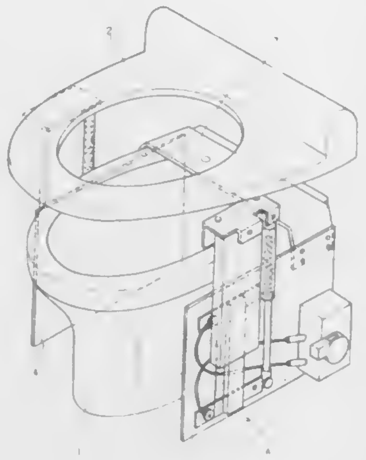
Filed Apr. 19, 1996, Ser. No. 634,864

Claims priority, application Japan, Apr. 19, 1995, 7-119286; Sep. 30, 1995, 7-276912; Sep. 30, 1995, 7-276913; Sep. 30, 1995, 7-276914

Int. Cl.^{6} A47K *13/10*

U.S. Cl. 4—667 **20 Claims**

1. A seat-lifting device for raising and lowering a seat relative to a stool, comprising.
   - a pair of left and right static guides to be set on left and right sides of the stool respectively:
   - left and right moving members provided on the left and right static guides respectively, for up-and-down sliding motion relative thereto, each moving member having a seat-supporting portion; and
   - left and right actuating mechanisms, for actuating the moving members in up or down motion, respectively provided at said left and right static guides,
   - wherein each actuating mechanism has a pair of direction changing members attached to upper and lower ends of the static guide, a pull cable arranged between the direction changing members and having a portion connected to a lower portion of the moving member, and a motor-powered cable-driving means for alternately pulling ends of the pull cable



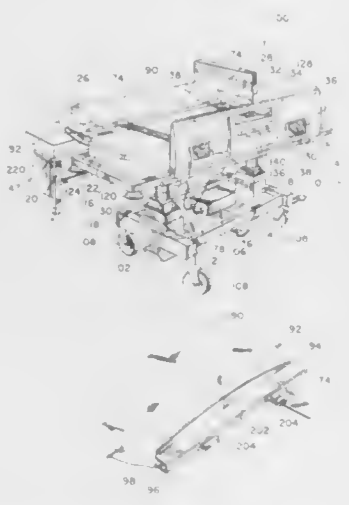
5,737,781
PATIENT TRANSFER SYSTEM

Thomas W. Votel, St. Paul, Minn., assignor to Ergodyne Corporation, St. Paul, Minn.

Filed Sep. 13, 1995, Ser. No. 527,519

Int. Cl.^{6} A61G *7/10*

U.S. Cl. 5—81.1 HS **25 Claims**



1. A transfer system for moving a patient reclining on a transfer sheet between a first horizontal surface and a second horizontal surface, comprising:
   - a winch apparatus configured for positioning adjacent to either of said first or second horizontal surfaces, the winch apparatus including a drive, an axle rotated by the drive and at least one reel attached to the axle;
   - at least one strap with a first end and a second end, the first end of the strap attached to the reel and the second end of the strap having a fastening device; and
   - a clamping device having at least one corresponding fastener for the attachment to the fastening device at the second end of the strap, the clamping device comprising a rigid structure forming a cavity, with the cavity being formed by two curved sections, and the cavity having a releasable catch at its opening such that said transfer sheet can be held within the cavity by the catch until the catch is released to remove the sheet from the cavity, said clamping device further comprising a functional hinge proximate said cavity.

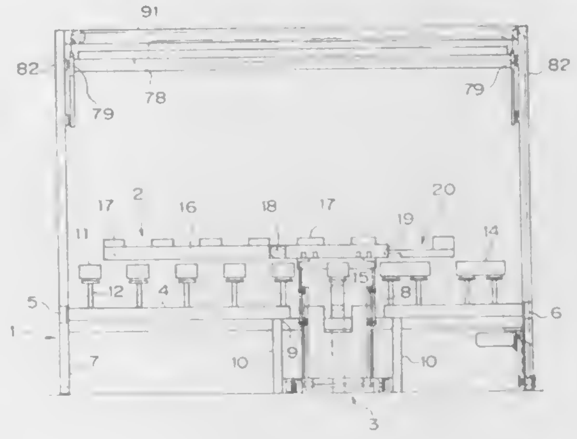
5,737,782
SICK OR WOUNDED PATIENT BED HAVING SEPARABLE FRAME AND MOVING/LIFTING APPARATUS FOR THE SEPARABLE FRAME

Takashi Matsuura, and Reiko Matsuura, both of Kabushiki Kaisha, Japan, assignors to Matsura Kenkyujo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 8, 1995, Ser. No. 569,352

Int. Cl.^{6} A61G *7/14,7/00;7/015*

U.S. Cl. 5—86.1 **21 Claims**



1. A sick or wounded patient bed including a bed frame which includes horizontal side members extending between front and rear ends of said bed in the longitudinal direction, with a plurality of comb teeth cushions spaced from each other extending in the transverse direction from said horizontal side members, horizontal end members extending in the transverse direction and joined to both ends of said horizontal side members at front and rear ends of said bed, and legs supporting said horizontal side members and said horizontal end members, said bed comprising:
   - a separable frame which has a pair of outer side members extending in the longitudinal direction outside both side ends of said comb teeth cushions on said horizontal side members, and said comb teeth cushions extending between said pair of outer side members in the transverse direction, said cushions positioned to fill gaps between adjacent comb teeth cushions on said horizontal side members to enable said comb teeth cushions of said separable frame to pass through the gaps between said comb teeth cushions vertically and to move away from said bed frame to cooperate with associated equipment, such as a wheelchair stand, a toilet stool, a bathtub, or the like placed outside of the bed:
   - a moving/lifting apparatus including support arms, a guide frame and a lift frame, said support arms fixedly attached at its base portion to an upper portion of said lift frame, extending horizontally from the fixed base portion to support said separable frame detachably and move it on the floor under said bed parallel to said support arms guiding said support arms to allow vertical movement of said support arms; and
   - said support arms adapted to raise said separable frame for movement outwardly of said bed, adapted to lower said separable frame onto said associated equipment placed outside of the bed, and adapted to return thus-moved separable frame to the original position on said bed frame again.

5,737,783
MATTRESS RETENTION BRACKET FOR ADJUSTABLE BEDS

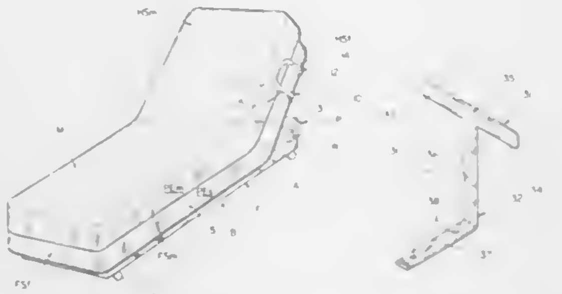
Santino Antinori, 3615 E. Lake Ave., Tampa, Fla. 33610

Filed Feb. 13, 1995, Ser. No. 387,578

Int. Cl.^{6} A47C *21/00*

U.S. Cl. 5—411 **11 Claims**

1. An adjustable bed comprising a frame, said frame carrying a mattress supporting member; said mattress supporting member being defined by a foot section, a head section and a peripheral edge section; said foot section and head section being relatively movable between a first position in which said foot and head sections are substantially relatively co-planar and a second position in which said foot and head sections are substantially relatively angulated, a mattress, said mattress being defined by a foot section, a head section, an upper supporting surface and a peripheral edge section, said mattress being supported upon said mattress supporting member in head section-to-head section and foot section-to-foot section relationship and in substantially peripheral alignment, at least one mattress retention bracket adapted to prevent excessive undesired sliding movement of said mattress relative to said mattress supporting member incident to user ingress and egress, said mattress retention bracket including a substantially inverted U-shaped member defined by a bight portion and a pair of legs, each leg being defined by a first leg portion adjacent said bight portion and a second leg portion remote from said bight portion, means for securing each second leg portion to said mattress supporting member with said first leg portions being contiguous adjacent portions of said mattress and mattress supporting member periphery edge sections to thereby prevent sliding movement therebetween, and said bight portion being disposed below said mattress upper supporting surface to prevent user injury incident to user ingress and egress.



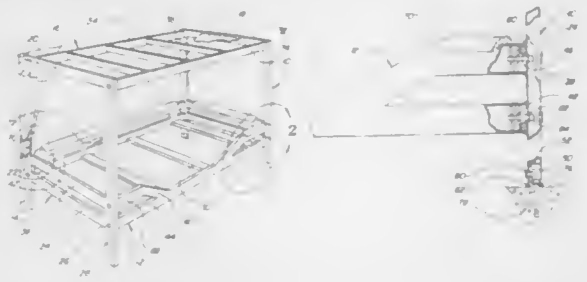
5,737,784
PROTECTIVE BED FRAME WITH EARTHQUAKE SHELTER

Douglas S. Jackman, P.O. Box 3581, Orange, Calif. 92587

Filed Feb. 3, 1997, Ser. No. 792,379

Int. Cl.^{6} A47C *29/00,19/22*

U.S. Cl. 5—414 **9 Claims**



1. A protective bed frame for protecting persons therein during a calamity, comprising:
   - a plurality of subassemblies secured together by internal securing means to form a protective bed frame which has the appearance of a conventional piece of furniture;
   - said subassemblies including a generally horizontal upper section having two ends and a cover therein; a generally horizontal lower section having two ends and side rails to hold an occupant and for retaining a sleep support surface therein, and two generally vertical end supporting sections secured to the two ends of the generally horizontal upper and lower sections, and
   - anchoring means cooperating with said two generally vertical end supporting sections to anchor said protective bed frame to a supporting surface; said anchoring means comprising a

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mounting block mounted internally of each of said two generally vertical end supporting section, and an anchor installed through each of said mounting blocks into said supporting surface

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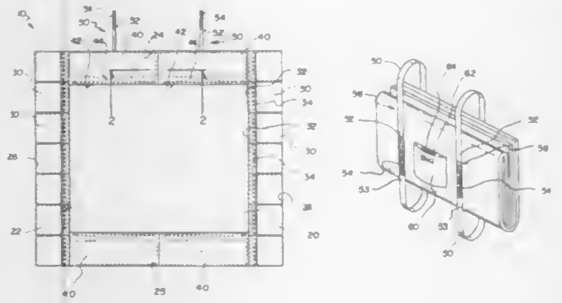
5,737,785
BLANKET WITH POCKETS

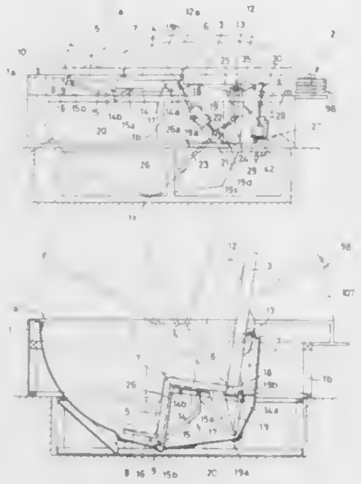
Kevin M. Casey, 9200 Ambassador Pl., Philadelphia, Pa. 19115
Filed Jan. 16, 1997, Ser. No. 783,349
Int. Cl.^{6} A47G *9/06*
U.S. Cl. 5—419 **13 Claims**



11 A multipurpose blanket, comprising:
a generally rectangular textile member having a top surface and a bottom surface, a top edge and a bottom edge, and a pair of side edges, said textile member having a medial longitudinal axis equidistant said pair of side edges, a first longitudinal axis intermediate said medial longitudinal axis and a first of said pair of side edges, and a second longitudinal axis intermediate said medial longitudinal axis and a second of said pair of side edges;
a plurality of side pockets provided on said top surface of said textile member along an entire length of each of said pair of side edges thereof, each of said plurality of side pockets having a side pocket opening and including a side pocket closure for securely closing said side pocket opening;
a first pair of pillow pockets provided on said top surface of said textile member along said top edge thereof, each of said first pair of pillow pockets having a pillow pocket opening and including a pillow pocket closure for securely closing said pillow pocket opening;
a first pair of inflatable pillows each disposed within one of said first pair of pillow pockets; and
a pair of securing straps each attached to said bottom surface of said textile member, each of said pair of securing straps having a first end and a second end, said first end extending beyond said top edge of said textile member and said second end extending under said bottom surface of said textile member, a first of said pair of securing straps longitudinally extending along said textile member intermediate said medial longitudinal axis and said first longitudinal axis, and a second of said pair of securing straps longitudinally extending along said textile member intermediate said medial longitudinal axis and said second longitudinal axis,
said textile member foldable to a portable form wherein said textile member is sequentially foldable along said first longitudinal axis, along said second longitudinal axis, along a first transverse axis intermediate said top edge and said bottom edge, and along a second transverse axis intermediate said top edge and said first transverse axis,
said first end and said second end of each of said pair of securing straps joinable by a securing strap fastener when said textile member has been folded to said portable form, said pair of securing straps retaining said textile member in said portable form and forming a pair of carrying straps when said first end and said second end of each of said pair of securing straps are joined together by said securing strap fastener.

5,737,786
COLLAPSIBLE BED STRUCTURE FOR BED-RIDDEN INVALIDS

Tsuneo Yamamoto, 20-ban, Shirinashi, Tameto-cho, Toyokawa-shi, Aichi, Japan
Filed Jul. 31, 1996, Ser. No. 690,146
Claims priority, application Japan, Mar. 1, 1996, 8-044608
Int. Cl.^{6} A61G *7/16*
U.S. Cl. 5—618 **8 Claims**

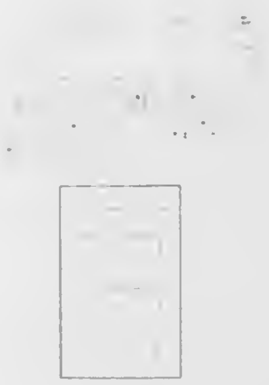


1 A collapsible bed structure for bed-ridden invalids, comprising:
a bed section horizontally supported by a rotational shaft, for being provided on an upper open end of a bathtub, the bed section having at least first, second and third bed plates each pivotably connected at their neighboring side;
means for moving the bed section between a rest position in which the first, second and third bed plates are horizontally supported and an operative position in which the first, second and third bed plates are supported in a chair-shaped configuration within the bathtub, said moving means comprising:
  a pedestal plate pivotably placed at one end by a hinge to the first plate of the bed section;
  a rocker arm, rotatably mounted on the rotational shaft;
  a rack provided to engage the rocker arm, the rack being moved in an axial direction by an electric motor;
  wherein when the rack is moved in an axial direction downward, the rocker arm pivots around the rotational shaft to cause the pedestal plate to move upward around the hinge so as to raise haunches of an occupant lying on the bed section to expedite the occupant's divestiture; and
  a slide plate slidably mounted on each of the first and second bed plates of the bed section to slightly slide along a lengthwise direction of the occupant by an action of a lever so as to prevent a slippage between the occupant lying on the bed section and the first and second bed plates when changing the bed section from the rest position to the operative position.

5,737,787
PILLOW RADIO APPARATUS

Ilan Iozef, Rishon Lezion, Israel, assignor to Rotem Ilan B.M., Beer-Sheva, Israel
Filed Jan. 21, 1997, Ser. No. 786,669
Int. Cl.^{6} A47G *9/00*
U.S. Cl. 5—639 **13 Claims**

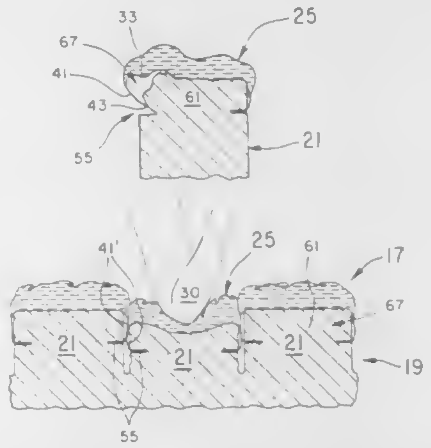
1 A pillow audio apparatus, which comprises a pillow substantially covered by one or two sensors on one or both sides of the pillow, said sensor being able to sense a force applied thereto; the apparatus being located within a pillow case and being connected



via actuating means to a sound emitter, the apparatus being also connected to at least one power supply unit.

5,737,788
ATTACHING ARRANGEMENT IN A MULTI-LAYERED PAD

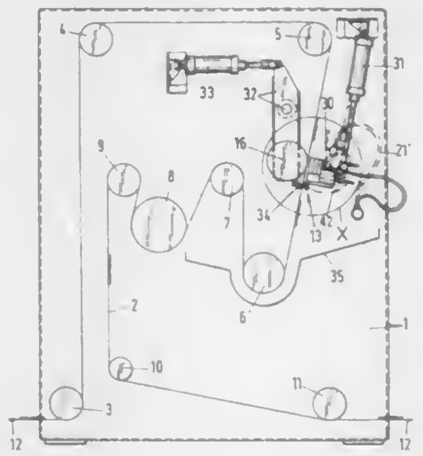
Robin L. Castellino, Louisville, and Gregory S. Marino, Westminster, both of Colo., assignors to RIK Medical, LLC, Boulder, Colo.
Filed May 15, 1997, Ser. No. 856,914
Int. Cl.^{6} A61G *7/057;* A47C *27/18*
U.S. Cl. 5—655.5 **28 Claims**



1 In a multi-layered pad having at least first and second layers, said first layer including bladder means for containing fluid, said second layer being positioned beneath said first layer and including at least one upstanding column of resilient, compressible material, said column extending substantially about and along an axis, said column having an upper surface extending substantially about said axis and further having a wall portion extending substantially from said upper surface substantially about and along said axis, the improvement including:
means for removably attaching said first layer to said second layer with the bladder means of said first layer positioned substantially atop the upper surface of the resilient column of said second layer, said attaching means including an indentation extending inwardly from the wall portion of said column and substantially about said axis to define a head section of said column, said head section extending from said indentation to the upper surface of said column, said head section having a first perimeter about said axis and said column at said indentation having a second perimeter about said axis, said second perimeter being smaller than said first perimeter, said attaching means further including connecting means with an opening defined by a perimeter, said opening perimeter being less than the first perimeter of said column, said connecting means being secured to said first layer and said opening perimeter being receivable in said indentation in the wall portion of said column wherein said first layer can be removably attached to said second layer with said bladder means positioned atop the upper surface of said column by compressing the head section of said column to pass through the opening perimeter of said connecting means whereby the opening perimeter of said connecting means is received and retained in the indentation in said wall portion of the column.

5,737,789
METHOD FOR SIMULTANEOUS APPLICATION OF A MINIMAL QUANTITY OF A PROCESSING FLUID TO A TEXTILE WEB OF GOODS

Gerold Fleissner, Zug, Switzerland, assignor to Fleissner GmbH & Co. Maschinenfabrik, Egelsbach, Germany
Division of Ser. No. 562,180, Nov. 22, 1995. This application Jun. 3, 1997, Ser. No. 868,068
Claims priority, application Germany, Nov. 24, 1994, 44 41 805.1
Int. Cl.^{6} D06B *1/08*
U.S. Cl. 8—151 **1 Claim**



1. A method for uniform application of a minimum quantity of a processing or finishing fluid to a passing textile web of goods of a given width, comprising passing said web between a pressure roller and an application beam arranged transversely with respect to the web and parallel to the pressure roller, said application beam having an open slot extending over the width of the web and facing said web; uniformly supplying fluid to the slot over the working width of the web; and pressing the web passing between the roller and the application beam against lengthwise edges that delimit the slot; the lengthwise edges of the slot being arranged with a vertical space therebetween and a surface of the web to be treated including a nap being compressed between the pressure roller and each of the lengthwise edges, wherein the vertical space is sized and the pessure roller arranged with respect to the vertical space so that the web is initially compressed between the pressure roller and one lengthwise edge, then allowed to breath and receive the fluid in the slot located between the lengthwise edges when freed of the pressure of the pressure roller, and again compressed between the pressure roller and another lengthwise edge so that only a minimal amount of the fluid remains in the nap.

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5,737,790
RINSING PROCEDURE FOR AUTOMATIC WASHING MACHINE

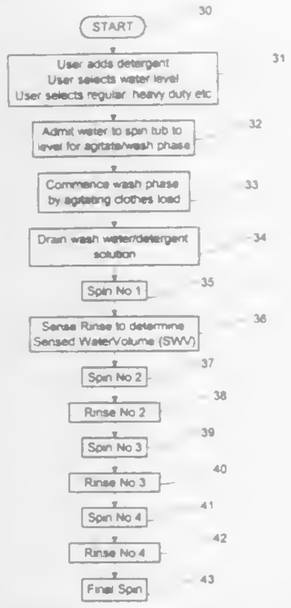
Gordon George Badger, and Paul Stephen Hood, both of Auckland, New Zealand, assignors to Fisher & Paykel Limited, Auckland, New Zealand

Filed Jul. 25, 1996, Ser. No. 686,255

Claims priority, application New Zealand, Jul. 26, 1995, 272651

Int. Cl.⁶ D06F *33/02*

U.S. Cl. 8—158 **21 Claims**


START
30
User adds detergent
User selects water level
User selects regular heavy duty etc
31
Admit water to spin tub to level for agitate/wash phase
32
Commence wash phase by agitating clothes load
33
Drain wash water/detergent solution
34
Spin No 1
35
Sense Rinse to determine Sensed Water/Volume (SWV)
36
Spin No 2
37
Rinse No 2
38
Spin No 3
39
Rinse No 3
40
Spin No 4
41
Rinse No 4
42
Final Spin
43

1. A method of washing and rinsing a load in a washing liquid and detergent solution during a washing cycle of a laundry washing machine having a rotatable spin tub within a stationary water container, the walls of said spin tub having a number of holes therein to allow liquid flow between said spin tub and said water container, a valve means to control admission of washing liquid to said spin tub, draining means to control the removal of said washing liquid from said water container, control means including timing means to determine the duration of selected functions of said washing machine and washing liquid level determining means, said method comprising the steps of:

i) commencing a washing phase of said washing cycle in which said valve means admits washing liquid to said spin tub and said load is washed in said liquid and detergent solution,
ii) operating said draining means to drain a substantial amount of said washing liquid and detergent from said water container,
iii) commencing a washing liquid and detergent extraction phase of said washing cycle to centrifugally extract washing liquid and detergent from said load by rotating said spin tub at a first speed for a predetermined length of time to cause said washing liquid and detergent to pass from said load, through said holes in said spin tub walls and into said water container while said draining means is operated to remove said washing liquid and said detergent from said water container,
iv) commencing a sensing rinse phase of said washing cycle by initiating admission of washing liquid into said spin tub while starting said timing means and causing said draining means to prevent said washing liquid from being removed from said water container,
v) completing said sensing rinse by ending said admission of washing liquid to said spin tub when said washing liquid level indicating means indicates that the level of washing liquid in said water container has reached a predetermined level and stopping said timing means, said timing means indicating a sensed time representative of a sensed volume of washing liquid admitted to said spin tub during said sensing rinse phase,
vi) operating said draining means to cause extraction of washing liquid and detergent from said water container and commencing a further washing liquid and detergent extraction phase of said washing cycle by rotating said spin tub at a second speed to centrifugally extract washing liquid and detergent from said load,
vii) commencing a further rinse phase by operating said washing liquid admission means to cause a predetermined fraction of said sensed volume of said washing liquid to be admitted to said spin tub,
viii) rotating said spin tub at a third spin speed to centrifugally extract washing liquid and detergent from said load, and
ix) repeating steps (vii) and (viii) a number of times until the end of said washing cycle is reached.

5,737,791
CLEANER FOR A SUBMERGED SURFACE

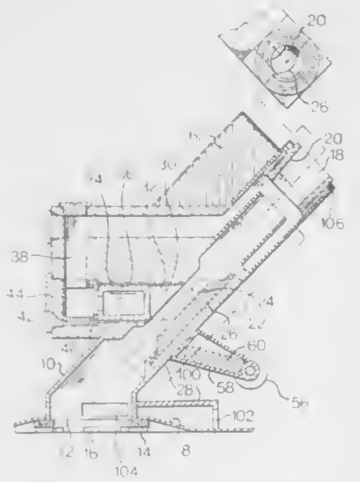
Duilio Durigon, 61 Homestead Road, Rau Marais Park, Sandton, South Africa

Filed May 31, 1996, Ser. No. 656,786

Claims priority, application South Africa, May 31, 1995, 95/4449

Int. Cl.⁶ E04H *4/16*

U.S. Cl. 15—1.7 **13 Claims**



1. A cleaner for a submerged surface comprising:
a body defining an inlet for liquid;
an outlet adapted for connection to a source of suction;
a throat positioned between the inlet and the outlet defining a region of reduced cross-sectional area relative to at least one of the inlet and the outlet,
a valve element adjacent the region of reduced cross-sectional area and movable reciprocally in a valve bore which intersects the throat in a direction transverse to the axis of the throat between an extended position in which it substantially obstructs a flow of liquid through the throat and a retracted position in which it permits a flow of liquid through the throat; and
a passage defined by the body between the valve bore and the outlet via which suction is applied to the valve element, in opposition to suction applied to the valve element due to reduced pressure in liquid flowing through the region of reduced cross-sectional area in the throat, thereby to induce reciprocation of the valve element.

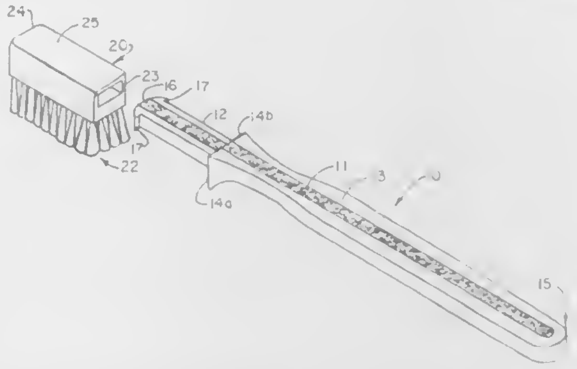
5,737,792
DISPENSABLE-HEAD MANUAL TOOTHBRUSH AND DISPENSER COMBINATION

Kirk Quigless, 46 Lewis, St. Louis, Mo. 63113

Filed Sep. 30, 1996, Ser. No. 720,473

Int. Cl.⁶ A46B *9/04*

U.S. Cl. 15—167.1 **9 Claims**



1. An improved dispensable-head manual toothbrush and dispenser combination comprising:
a. a toothbrush handle, resiliently squeezable towards a longitudinal axis, said handle extending from a first contoured end which forms a short, narrow tongue means, to a second end which forms a long, broader-hand hold means; and
b. a plurality of hollow dispensable toothbrush heads, each head having bristles extending from a base member, said base member having a hollow internal mouth channel being wholly contained within the base but open at one end of the base, said mouth channel being shaped to a contour of the first contoured end of the handle so as to
  (i) detachably receive the short narrow tongue means of the first contoured end of the handle when said handle is squeezed along its longitudinal axis at its second end, and
  (ii) to releasably engage said tongue means when the handle is not squeezed, and
c. a toothbrush head dispenser means having individual compartments in which each of the plurality of toothbrush heads rest, said compartments being open at one end for receiving and dispensing each individual toothbrush head, said toothbrush heads resting in said compartments so as to expose the opening in the base of the head for receiving the handle,
whereby the toothbrush may be assembled by squeezing the handle and inserting the handle's tongue means into the opening of a dispensable head, while said head rests within a compartment of the dispenser

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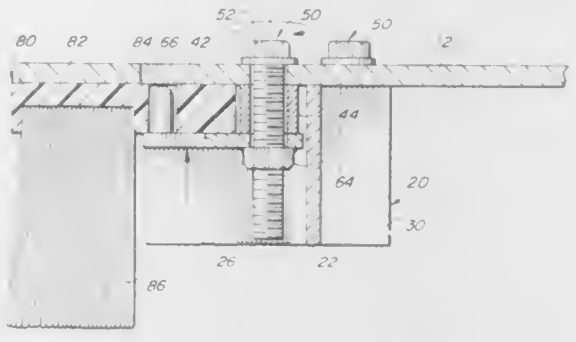
5,737,793
ROTARY BRUSH PLATE APPARATUS

Phillip W. Prohoroff, 5022 N. 54th Ave. #10, Glendale, Ariz. 85301

Filed May 13, 1997, Ser. No. 855,485

Int. Cl.⁶ A46B *13/02*

U.S. Cl. 15—180 **20 Claims**



1. Brush apparatus comprising in combination
plate means including a plate having a top side and a bottom side for receiving a brush segment;
a first aperture extending through the plate,
a bolt having a threaded shank extending through the first aperture;
a lock plate,
threaded means on the lock plate for receiving the threaded shank of the bolt whereby rotation of the bolt moves the lock plate upwardly and downwardly,
a pin on the lock plate spaced apart from the threaded means and
a brush segment to be secured to the plate, including a first aperture for receiving the pin, whereby rotation of the bolt moves the lock plate upwardly to lock the brush segment to the plate means.

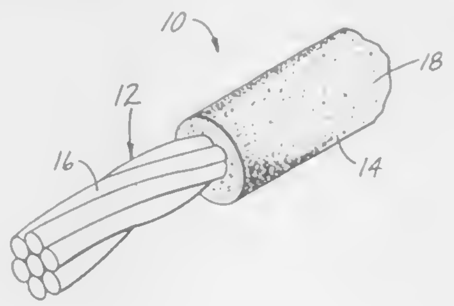
5,737,794
COMPOSITE ABRASIVE FILAMENTS, METHODS OF MAKING SAME, ARTICLES INCORPORATING SAME, AND METHODS OF USING SAID ARTICLES

Loren L. Barber, Jr., Lake Elmo; Dennis G. Welygan, Woodbury, and Richard M. Pihl, Cottage Grove, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 67,053, May 25, 1993, Pat. No. 5,616,411, which is a division of Ser. No. 853,799, Mar. 19, 1992, abandoned. This application Dec. 16, 1996, Ser. No. 767,373

Int. Cl.⁶ D02G *3/00;* **C09K** *3/14,* **A47L** *13/10*

U.S. Cl. 15—229.12 **2 Claims**



1. A method of abrading a workpiece with an abrasive article the abrasive article having at least one composite abrasive filament mounted to a substrate, said method comprising creating relative movement between the substrate and a workpiece so that said at least one composite abrasive filament contacts and abrades the workpiece, the composite abrasive filament comprising at least one preformed core at least partially coated with thermoplastic elastomer having abrasive particles dispersed and adhered therein, the thermoplastic elastomer and the abrasive particles together comprising a hardened composition

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5,737,795
STIFFENED BULL FLOAT APPARATUS

Jack D. Murders, Fayetteville, Ark., assignor to Marshalltown Trowel Company, Marshalltown, Iowa

Filed Jan. 10, 1997, Ser. No. 781,800

Int. Cl.⁶ B05C *17/10,* **E01C** *19/12*

U.S. Cl. 15—235.4 **9 Claims**

1. A bull float, comprising
a blade, said blade having a working surface and a pair of opposing substantially vertical members,

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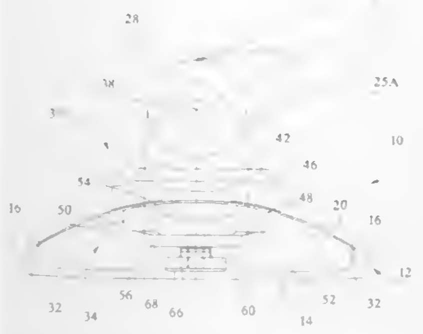


a notch located in each of said opposing substantially vertical members, and

a stiffener, said stiffener partially disposed within said notches, said stiffener being bowed outwardly from said working surface.

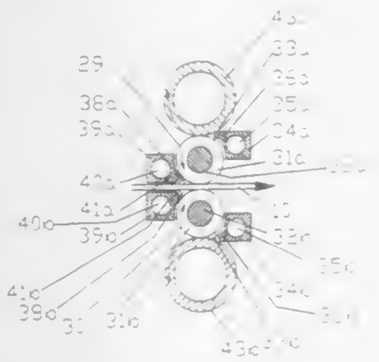
5,737,796
ROLL TYPE STRIP WIPING SYSTEM

Michael G. Sendzimir, Woodbury, and John W. Turley, Oxford, both of Conn., assignors to T. Sendzimir, Inc., Waterbury, Conn.

Filed Sep. 11, 1996, Ser. No. 712,390

Int. Cl.^{6} B21B *45/02*

U.S. Cl. 15—308 **15 Claims**



1. A roll assembly for wiping liquids from the upper and lower surfaces of a horizontally oriented metal strip, said roll assembly comprising a pair of upper and lower wiper rolls forming a nip therebetween and being mounted above and below said strip respectively with their axes parallel to the plane of the strip and extending transversely of said strip, said upper and lower wiper rolls each comprising a porous resilient covering on a metal core, said roll assembly further comprising at least one backup roll for each of said wiper rolls having a body length substantially equal to the length of said porous resilient covering of its respective wiper roll, said at least one backup roll of each wiper roll applying pressure to its respective wiper roll at the zone where they contact each other to urge its respective wiper roll against the adjacent surface of said strip, and to squeeze liquid absorbed by said porous cover of its respective wiper roll forming a bead of said squeezed liquid at the entry side of said contact zone between said backup roll and said wiper roll, and a suction assembly adjacent each such liquid bead for removal of liquid therefrom

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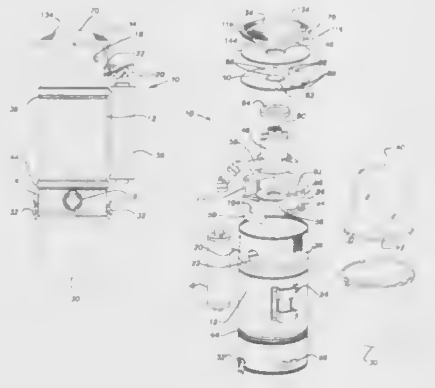
5,737,797
CENTRAL VACUUM WITH ACOUSTICAL DAMPING

Stephen P. Rittmueller, St. Charles, Ill.; Douglas E. Johnson; Steven D. Lauritsen, both of Webster City, Iowa; J. Adin Mann, III, and David K. Holger, both of Ames, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa, and White Consolidated Industries, Inc., Cleveland, Ohio

Filed Nov. 28, 1995, Ser. No. 563,287

Int. Cl.^{6} A47L *5/38*

U.S. Cl. 15—326 **27 Claims**



1. A central vacuum unit comprising.

a canister having a sidewall forming a hollow interior;

a vacuum motor within said canister which emits noise during operation;

at least one opening in said sidewall of said canister; and

an acoustic damping tunnel within said hollow interior and forming a pathway between said hollow interior and said opening, said tunnel having an inlet end in fluid flow communication with said hollow interior and an outlet end surrounding said opening and sealed to said sidewall around said opening, said pathway being lined with a sound absorbing material, whereby said tunnel reduces noise emitted from said hollow interior through said opening.

5,737,798
DEVICE FOR A VACUUM CLEANER AND A METHOD FOR COOLING A MOTOR

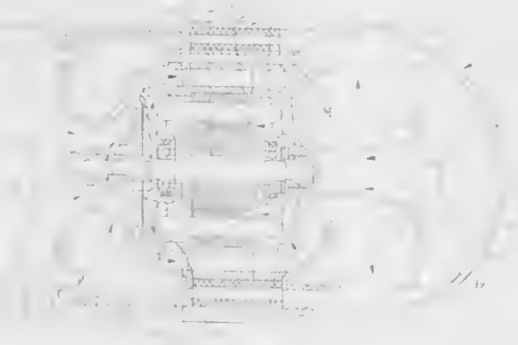
Lars Gunnar Morén, Huddinge; Christer Caleb Ingemar Wiss, Lidingö, and Magnus Carl Wilhelm Lindmark, Stockholm, all of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

Division of Ser. No. 327,916, Oct. 24, 1994, Pat. No. 5,592,716. This application Sep. 27, 1996, Ser. No. 720,075

Claims priority, application Sweden, Nov. 2, 1993, 9303598; Nov. 2, 1993, 9303599

Int. Cl.^{6} A47L *9/00*

U.S. Cl. 15—413 **15 Claims**



1. A device for cooling an electric motor for a turbo-fan unit, the motor having a shaft supporting a turbo-fan impeller which is rotatable so as to create a primary air stream which escapes from the turbo-fan unit via an outlet, said device comprising a motor shell having first and second end walls each having a hub part in which the shaft is supported, and means for creating a secondary air stream which at least partially cools the electric motor and flows into the motor shell through at least one cooling air inlet, said at least one cooling air inlet being separated from the primary air stream and being formed in the second end wall so as to permit the secondary air stream to flow adjacent to the hub part in the second end wall, thereby helping to provide cooling to the hub part in the second end wall.

5,737,799
SCREEN WIPING APPARATUS INCLUDING A DEFLECTOR MOUNTED FOR DEFORMATION ON A BLADE HAVING A FLEXIBLE WIPING STRIP

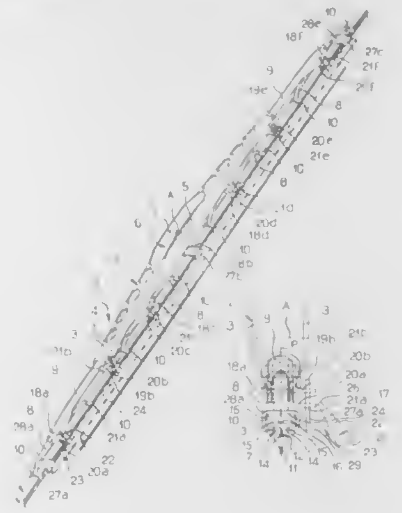
Daniel Maubray, Issy les Moulineaux, and Corinne Soucheyre, St. Babel, both of France, assignors to Valeo Systemes d'Essuyage, La Verriere, France

Filed Jul. 24, 1995, Ser. No. 506,083

Claims priority, application France, Jul. 25, 1994, 94 09172

Int. Cl.^{6} B60S *1/38*

U.S. Cl. 15—250.201 **19 Claims**



1. A screen wiping apparatus for wiping a curved swept surface of a vehicle, said apparatus comprising: an elongate wiper blade defining a first plane and including a support structure, supporting an elongate flexible wiping strip for contact with the swept surface a said strip having a back surface said support structure allowing the flexible strip to generally conform to the curvature of the swept surface whereby to remain in contact with the swept surface curvature; an elongate flexible deflector coupled to said wiper blade, said deflector configured to define a mask for diverting the surrounding air, at high travelling speeds of the vehicle, to cause the air to exert an aerodynamic force to urge the flexible strip into contact with the swept surface; and mounting means mounting the deflector on the wiper blade, the mounting means including means coupling the deflector with the flexible strip whereby the deflector can undergo deformation under control of the flexible strip, wherein the coupling means include deformation transmitting means disposed in at least three points along the length of the wiper blade, for transmitting deformations of the wiping strip to the deflector so that deformations of the wiping strip are reproduced in the deflector, the apparatus including first guide means carried by the blade and located in a plurality of points along the length of the wiper blade, and second guide means carried by the deflector for sliding cooperation with the first guide means to guide the deformation of the deflector, an armature extending along the length of the wiper blade and having a longitudinal edge thereal-ong, the elongate flexible deflector carried by the armature at said edge to extend along the longitudinal edge in isolation from the support structure, said deformation transmitting means and said second guide means extending from said armature, the armature protruding from the elongate flexible deflector and toward the wiping strip back surface.

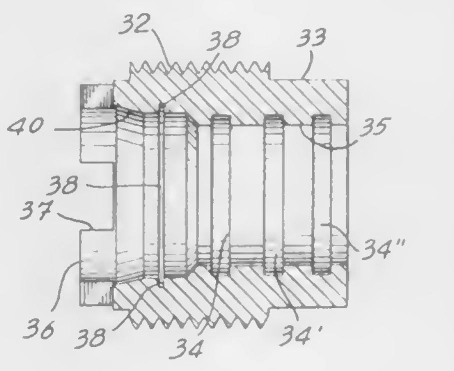
5,737,800
HOT WATER BUSHING

Claude Lesage, Quebec, Canada, assignor to Giant Factories Inc., Montréal, Canada

Filed May 28, 1996, Ser. No. 654,227

Int. Cl.^{6} F16L *5/00*

U.S. Cl. 16—2 **7 Claims**



1. A bushing for a hot water tank for connecting exterior devices associated with said tank and requiring access to an interior thereof through said bushing secured to an interior wall of said tank, said bushing being comprised of a cylindrical body having an outer circumferential connecting portion, a stub-nose outer end, and a cylindrical inner bore portion, lock means to retain a probe of an exterior device at a fixed position in axial extension through said inner bore portion, said inner bore portion having three equidistantly spaced-apart circumferential awl receiving channels, and O ring seals each of which is receivable in friction fit within a respective one of said channels, a central one of said O-ring scale providing a pivot for said probe and a substantially leak-proof seal about a cylindrical body portion of said probe while an outer and inner one of said O-ring seals resist to opposing lead forces created by said exterior device secured to an outer end of said probe, said outer and inner O-ring seals also equilibrate the load about said central O-ring seals.

5,737,801
CHANNEL MEMBERS

William R. Flood, 1404 Henry Ave., Des Plaines, Ill. 60016

Filed Nov. 12, 1996, Ser. No. 746,331

Int. Cl.^{6} B60B *33/00*

U.S. Cl. 16—30 **18 Claims**

1. In combination with an elongated channel member having a generally C shape in cross section and provided with a base portion and a pair of generally parallel sides terminating in inwardly curled edges defining an elongated open side, an insert adapted to be positioned within the channel member, said insert including an elongated body having a portion projecting outwardly of the channel member and of a width to be conformably received within the channel member, said insert having a pair of oppositely disposed parallel grooves receiving the curled edges of said channel member to allow longitudinal movement of the insert within the member, said insert having at least one opening extending therethrough, said opening being internally threaded to receive a

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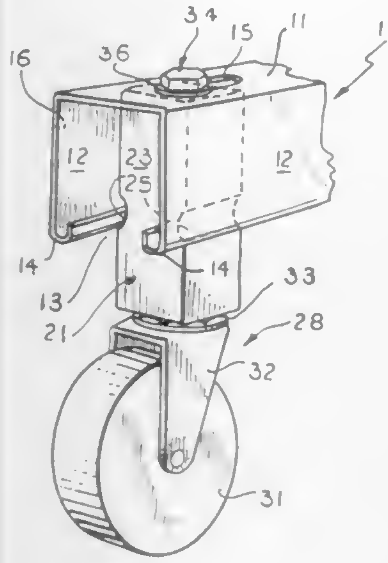


bolt securing the insert within the channel member, and said channel member being provided with an opening receiving said bolt.

5,737,802

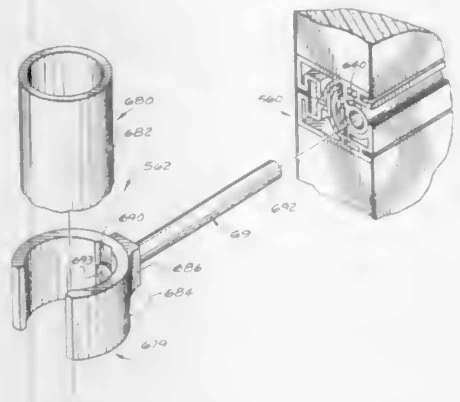
DOOR TRACK

John F. Jellá, 1983 E. Los Arboles, Tempe, Ariz. 85284

Division of Ser. No. 293,499, Aug. 19, 1994, Pat. No. 5,564,164, which is a continuation-in-part of Ser. No. 724,212, Jul. 1, 1994, Pat. No. 5,365,993, which is a continuation-in-part of Ser. No. 492,771, Mar. 12, 1990, abandoned, which is a continuation-in-part of Ser. No. 236,548, Aug. 25, 1988, abandoned. This application Apr. 16, 1996, Ser. No. 632,887

Int. Cl.⁶ E05D *15/00*

U.S. Cl. 16—93 R **15 Claims**



1 A track assembly for affixing a door to a building structure, which door includes an upright lateral edge and which building structure includes an upright wall, and for reciprocal movement of said door along an upright axis, said track assembly comprising
- a) a track including
  - i) an elongate tubular upright guide portion, and
  - ii) mounting means for securing said guide portion to said wall, and
- b) a guide member including
  - i) a semi-cylindrical body portion having an opening so that said body portion is clipped onto, and slidably encompasses said guide portion, and
  - ii) attachment means for securing said body portion to said door

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5,737,803

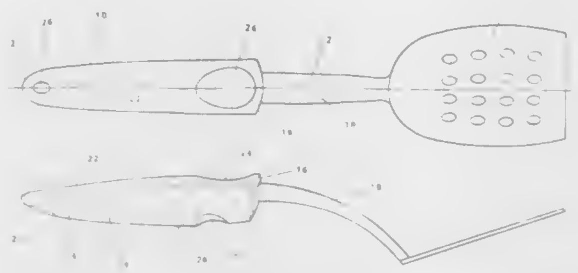
ERGONOMIC HANDLE FOR KITCHEN ARTICLES

David Tisdale, New York, N.Y., assignor to Lechters, Inc., Harrison, N.J.

Filed Sep. 25, 1996, Ser. No. 720,169

Int. Cl.⁶ A47J *45/10*

U.S. Cl. 16—111 R **10 Claims**



1 An ergonomic handle for a kitchen article, the handle comprising an elongate body, including a longitudinal axis, said body having a first end for providing attachment and connection of said articles into a hollow cavity therewithin, said body also having a second or free end thereof, in which said elongate body comprises:
- (a) a top face including:
  - (i) a substantially oval recess proportioned for receipt of an engaging surface of a human thumb, said recess proximal to said first end of said body, said oval recess having a longitudinal axis co-linear with said longitudinal axis of said body, and
  - (ii) an ellipsoidal aperture proximal to said free end, said aperture having a major axis co-linear with said longitudinal axis of said body; and
- (b) a bottom face curved within cross-sections of said body normal to said longitudinal axis of said body, said bottom face including:
  - (i) a recess proximal to said first end, said recess having a major axis transverse to said longitudinal axis of said body, said recess proportioned for receipt of an engaging surface of a human finger when positioned transversely to said thumb; and
  - (ii) an ellipsoidal recess proximal to said free end of said body, said recess having a major axis co-linear with said longitudinal axis of said body, said ellipsoidal recess having major and minor axes of smaller dimension than corresponding axes of said recess of said first and of said bottom face, said ellipsoidal recess in integral communication with said ellipsoidal aperture of said top face, further in which said elongate handle body is tapered, from said first end to said second end, both in a plane transverse to said top and bottom faces, and in a plane between said top and bottom faces and substantially parallel therewith, in which the degree of taper from the first end to second end is greater in said transverse plane.

5,737,804

FURNITURE HINGES WITH CAM ADJUSTMENT SYSTEM

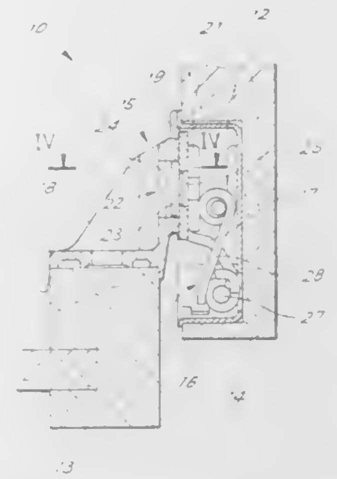
Franco Ferrari, Frazione Deviscio, 2, 22053 Lecco, and Carlo Migli, Lecco, both of Italy, assignors to Franco Ferrari

Filed Dec. 16, 1996, Ser. No. 767,093

Claims priority, application Italy, Dec. 22, 1995, MI95A2742; Feb. 14, 1996, MI96A0281

Int. Cl.⁶ E05D *7/04; 11/10*

U.S. Cl. 16—242 **16 Claims**



1 Furniture hinge comprising a first and a second fastening element designed to be secured to two furniture parts to be hinged together, and an arm which ends at one extremity with the first fastening element and at the other extremity has a pivot pivoting it to the second fastening element to achieve the joint of the hinge, the arm being made in two parts, and adjusting means interconnecting said two parts for sliding movement reciprocally relative to each other upon operation of said adjusting means to allow adjustment of the reciprocal position of the first and second fastening elements, in which the adjusting means comprise a cam with axis of rotation pivoted to the first part of the arm and a cam surface reacting against the second part of the arm to achieve said adjustment upon rotation of the cam.

5,737,805

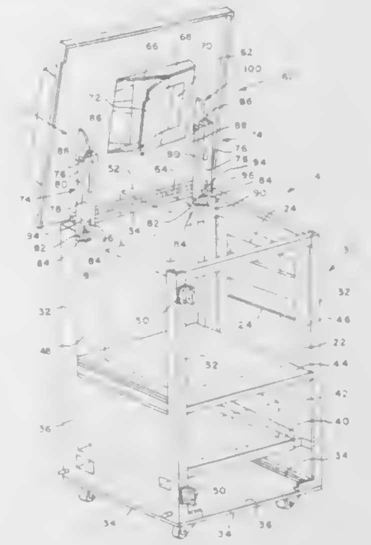
SELF RISING COVER ASSEMBLY FOR MACHINE HOUSING

Ming Xiao, Terryville, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 13, 1995, Ser. No. 571,663

Int. Cl.⁶ E05D *15/30*

U.S. Cl. 16—345 **5 Claims**



1 A self rising cover assembly for use on a machine housing which includes a frame and a plurality of panels connected to the frame to define the machine housing, said cover assembly comprising
- a) a general flat body member,
- b) hinge means mounted on an edge portion of said body member and a first portion of said frame for connecting said body member to said first portion of said frame for pivotal movement between a substantially horizontal closed position and a substantially vertical open position,
- c) actuating means interconnected between said body member and a second portion of said frame adjacent to said first portion for moving said body member upwardly relatively to said frame, said actuating means exerting an upward toque on said body member of insufficient magnitude to overcome the downward torque due to the force of gravity acting on said body member when said body member is in said closed position, and
- d) said body member including a cam secured to said lower surface of said body member, said cam defining a cam surface which causes said actuating means to remain substantially stationary while continuing to exert said upward torque on said body member during movement thereof from said closed position to an intermediate position, said downward torque due to the force of gravity on said body member becoming less than said upward torque after said body member is manually moved from said closed position to said intermediate position, and said cam surface causing said actuating means to continue to exert said upward torque on said body member after said body member is manually moved from said closed position to said intermediate position, whereby after an operator manually raises said body member from said closed position to said intermediate position, said actuating means raises said body member from said intermediate position to said open position without further assistance from the operator

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5,737,806

APPARATUS FOR TREATING FIBER AND PRODUCING A FIBER LAP THEREFROM

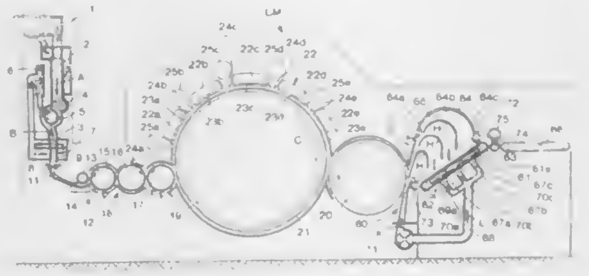
Ferdinand Leifeld, Kempen, and Stefan Schlichter, Viersen, both of Germany, assignors to Trützschler GmbH & Co. Kg, Monchen-Gladbach, Germany

Continuation-in-part of Ser. No. 448,679, May 24, 1995, abandoned. This application Oct. 23, 1996, Ser. No. 735,948

Claims priority, application Germany, May 26, 1994, 44 18 377.1

Int. Cl.⁶ D01G *15/46; 23/04*

U.S. Cl. 19—98 **8 Claims**



1 An apparatus for treating fiber and producing a fiber lap therefrom, comprising in combination
- (a) fiber feeding means for advancing fiber material in a feeding direction;
- (b) a carding machine including
  - (1) a licker in assembly disposed downstream of said fiber feeding means as viewed in said feeding direction for receiving the fiber material from said feeding means, said licker-in assembly including at least two licker-ins arranged in a series in said feeding direction, any said licker in cooperating as a take over and opening roll with an immediately upstream-arranged said licker in as viewed in said feeding direction,
  - (2) a main carding cylinder receiving fiber material from said licker in assembly;
  - (3) a plurality of carding flats supported about a circumferential portion of said main carding cylinder and cooperating therewith; and
  - (4) a doffer receiving fiber material from said main carding cylinder, and

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(c) a fiber lap forming device including
  (1) a pneumatic fiber stripping device including blowing means for directing an airstream generally tangentially to the doffer for removing and entraining fiber material from said doffer;
  (2) a hood having an inner face defining a chamber situated above and downstream of said doffer for receiving fiber material carried from said doffer by said airstream;
  (3) an air-pervious receiving member having an upper face and an underside; said receiving member being disposed in said chamber downstream of said doffer;
  (4) means for continuously moving said receiving member; and
  (5) suction means facing said underside of said receiving member for generating an airstream passing through said receiving member in a direction from said upper face to said underside for drawing fiber material in said chamber onto said upper face of said receiving member for forming a fiber lap thereon.

5,737,807
ROTARY TABLE WITH A REDUCED FRICTION COVER PLATE

Hauner Friedrich, Ingolstadt, Germany, assignor to Rieter Ingolstadt Spinnereimaschinenbau AG, Ingolstadt, Germany

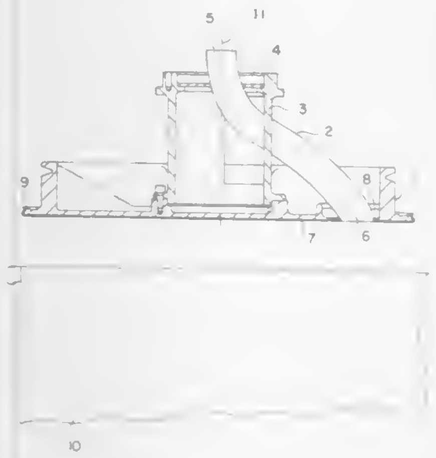
PCT No. PCT/EP92/02786, § 371 Date May 21, 1993, § 102(e) Date May 21, 1993, PCT Pub. No. WO93/11063, PCT Pub. Date Jun. 10, 1993

PCT Filed Dec. 2, 1992, Ser. No. 64,091

Claims priority, application Germany, Dec. 4, 1991, 41 43 345.9; Oct. 5, 1992, 42 33 369.5

Int. Cl.⁶ D04H *11/00*

U.S. Cl. 19—159 R **8 Claims**



1. A rotary plate for a spinning plant preparation machine, said rotary plate for delivering fiber sliver through a sliver channel defined therethrough into a sliver can, said rotary plate comprising an underside with a non-machined rough surface, and a cover fitted flush upon said underside, said cover being formed of a material selected to substantially reduce friction between said cover and fiber sliver built up in a sliver can placed under said cover, said rotary plate underside further including a ring groove defined therearound, said cover comprising a cover plate having a diameter slightly greater than that of said rotary plate underside, the portion of said cover plate diameter extending beyond said rotary plate underside being formed so as to engagingly lock with said ring groove.

5,737,808
CORD FASTENER

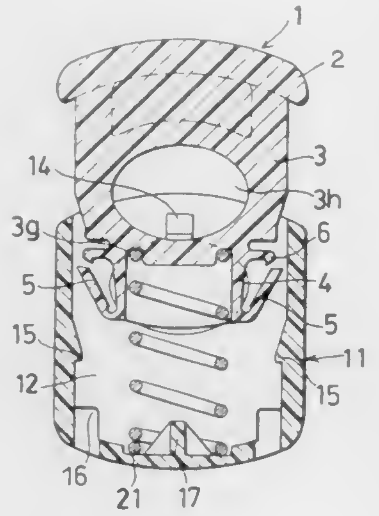
Yasuhiko Ikeda, Toyonaka, Japan, assignor to NIFCO Inc., Yokohama, Japan

Filed Jan. 27, 1997, Ser. No. 789,362

Claims priority, application Japan, Mar. 7, 1996, 8-078145

Int. Cl.⁶ F16G *11/00*

U.S. Cl. 24—115 G **20 Claims**



15. A cord fastener, comprising:
an insert having a longitudinal axis, a transversely extending inner cord hole, and provided at a lower portion thereof with at least one radially movable retaining claw;
a shell having an axially extending insertion hole defined therein for receiving said insert, outer cord holes communicating with said insertion hole and alignable with said inner cord hole of said insert, at least one retainer provided upon an inner surface of said shell, which defines said insertion hole thereof, at a position below said outer cord holes of said shell for engaging a tip of said at least one retaining claw of said insert, when said insert is axially inserted into said shell to a first axial position wherein said inner and outer cord holes of said insert and said shell are substantially aligned with each other, so as to retain said insert at said first axial position within said shell at which said inner and outer cord holes of said insert and said shell are substantially aligned with each other and thereby facilitate the passage of a cord through said inner and outer cord holes of said insert and said shell, and at least one pusher provided upon said inner surface of said shell, which defines said insertion hole thereof, at a position below said at least one retainer for pushing said at least one retaining claw of said insert radially inwardly when said insert is moved axially further into said insertion hole of said shell from said first axial position to a second axial position, thereby causing said at least one retaining claw of said insert to be disposed clear of said at least one retainer so as not to engage said at least one retainer and thereby permit said insert to move in an axial direction opposite to said insertion of said insert into said shell to a third axial position at which said inner and outer cord holes of said insert and said shell are not aligned with each other when it is desired to clampingly engage a cord, passed through said aligned inner and outer cord holes of said insert and said shell when said insert was disposed at said first axial position with respect to said shell, within said cord fastener; and
biasing means disposed within said insertion hole of said shell for biasing said insert in said direction opposite to said insertion of said insert into said shell and to said third axial position so as to cause misalignment of said inner and outer cord holes of said insert and said shell whereby a cord passed through said inner and outer cord holes of said insert and said shell is clampingly engaged within said cord fastener.

5,737,809
LEAD ATTACHMENT DEVICE

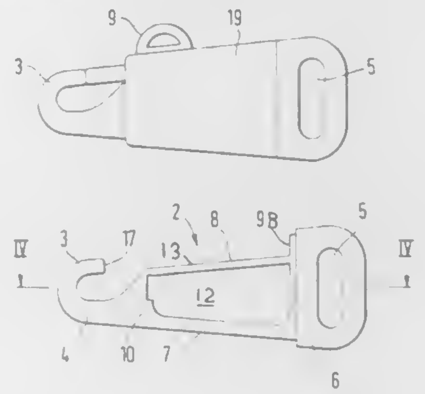
Melvin B. Driver, 23, The Green, Caddington, Bedfordshire, Great Britain, LU1 4HF

Filed Feb. 4, 1997, Ser. No. 795,415

Claims priority, application United Kingdom, Feb. 10, 1996, 9602732

Int. Cl.⁶ A44B *13/00*

U.S. Cl. 24—600.7 **15 Claims**



1. A lead attachment device for use at one end of a lead, the attachment device comprising:
a first component having a first end including an opening for receiving a loop of a lead, an intermediate portion including a laterally recessed region, and a second end including a hook having a tip projecting toward the intermediate portion,
a second component having a first end confronting the tip of the hook, a second end directed toward the first component first end, a projection intermediate the second component first and second ends to permit manipulation of the location of the second component relative to the first component, and a biasing element biasing the second component first end into contact with the first component hook tip, and
a third component enveloping the first component intermediate portion, having an upper surface including a slot receiving the second component projection, and having an inwardly projecting tang engaging the laterally recessed region of the first component to retain the first, second and third components in cooperative engagement.

5,737,810
SIDE RELEASE BUCKLE WITH INCREASED HOLDING STRENGTH

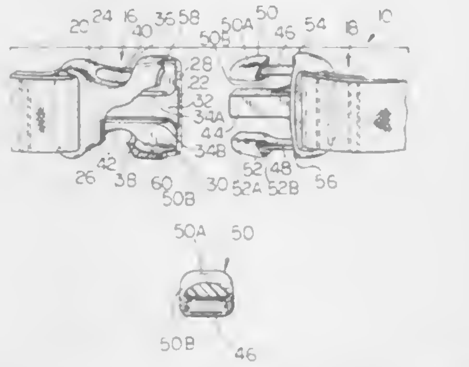
Mark J. Krauss, E. Greenwich, R.I., assignor to American Cord & Webbing Co, Inc., Woonsocket, R.I.

Continuation-in-part of Ser. No. 284,182, Aug. 2, 1994, Pat. No. 5,590,444. This application Oct. 8, 1996, Ser. No. 727,252

Int. Cl.⁶ A44B *11/26*

U.S. Cl. 24—625 **9 Claims**

1. A side release buckle having increased resistance to linear pulling loads and torsional loads, comprising:
a female member having a forward end and a rear end and a top wall, bottom wall and sidewalls defining a cavity and an opening into the cavity at the forward end, the sidewalls each having a recess and an aperture in the recess communicating with the cavity,
a male member having a forward end a rear end and at least one flexible arm having a forward end extending forwardly from the male member rear end for insertion through the opening into the cavity of the female member, a head at the forward end of the arm and adapted to be pivoted outwardly through the aperture when the head is aligned with the aperture, the head having a crescent shaped shoulder for engaging with surfaces of the sidewall recess adjacent the aperture to provide crescent shaped engagement means between the shoulder and the surfaces for increased bearing area to resist pulling loads and to some extent torsional loads thereby lessening the potential failure and premature releasing of the buckle



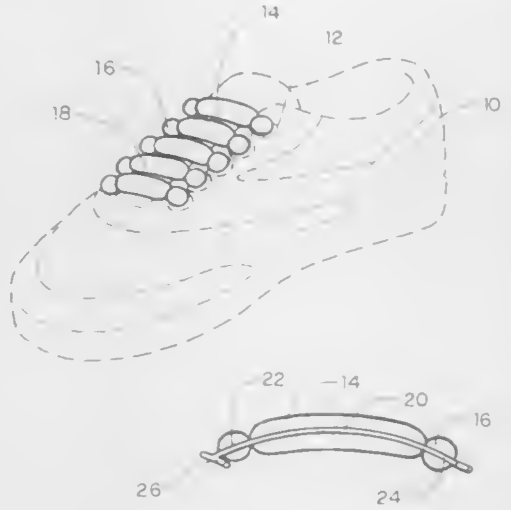
5,737,811
ARTICLE FOR FASTENING OF EYELET SHOES

Haroon Rashid, 72 Van Reipen Ave., Apt. #280, Jersey City, N.J. 07306

Filed Jan. 21, 1997, Ser. No. 781,371

Int. Cl.⁶ A43C *1/00*

U.S. Cl. 24—713 **9 Claims**



1 An Article for the fastening of shoes having successive horizontal pairs of eyelets, the article comprising
(a) an elastomeric cord having an inwardly directed tension, and further having first and seconds ends thereof, said cord proportioned in length to a transverse distance between each eyelet pair;
(b) substantially T-shaped elements secured to each of said ends of said cord, each of said elements proportioned for slip-fit passage thereof through said eyelets of said shoes, and
(c) stop elements secured inwardly of each T-shaped element at each of said ends of said elastomeric cord, said stop elements located at a dimension relative to said T-shaped elements proportioned to the width of each eyelet of each of said successive horizontal pairs thereof

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5,737,812

TRANSPORT DEVICE FOR A MOVING MATERIAL WEB

Jürgen Breil, Grabenstätt, and Manfred Steffl, Grassau, both of Germany, assignors to Brueckner Maschinenbau GmbH, Siegsdorf, Germany

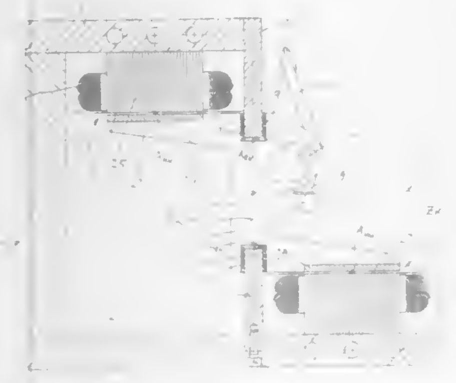
PCT No. PCT/EP96/01114, § 371 Date Nov. 20, 1996, § 102(e) Date Nov. 20, 1996, PCT Pub. No. WO96/29191, PCT Pub. Date Sep. 26, 1996

PCT Filed Mar. 14, 1996, Ser. No. 737,822

Claims priority, application Germany, Mar. 21, 1995, 195 10 141.3

Int. Cl.^{6} D06C *3/04*

U.S. Cl. 26—89 **14 Claims**



1. A transport device for a material web movable in a longitudinal direction, comprising

first and second linear motors provided on opposite sides of the movable material web;

a guide rail system extending generally longitudinally of and generally parallel to the material web including first and second guide rails;

tenter elements movably carried by said guide rail system for clamping and retaining the movable material web;

said first linear motor and said first guide rail being disposed above a plane containing the movable material web and said second linear motor and said second guide rail being disposed below the plane of the movable material web;

the order of the guide rail and the linear motor disposed above the plane of the movable material web in a direction transverse to the longitudinal direction of movement of the movable material web being opposite to the order of the guide rail and the linear motor disposed below the plane of the movable material web in said transverse direction; and

a sliding bearing for at least partly supporting said tenter elements.

5,737,813

METHOD AND APPARATUS FOR STRIPED PATTERNING OF DYED FABRIC BY HYDROJET TREATMENT

Herschel Sternlieb, Brunswick, Me.; Frank E. Malaney, Charlotte, and J. Steve Hines, Gastonia, both of N.C., assignors to International Paper Company, Purchase, N.Y.

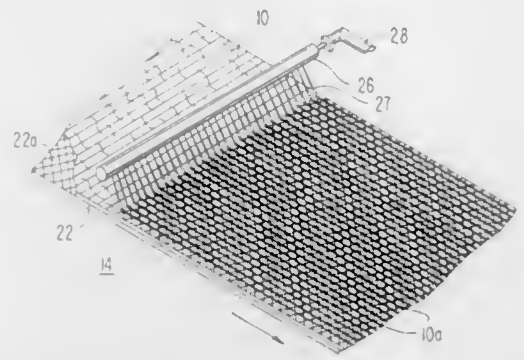
Continuation-in-part of Ser. No. 381,282, Jan. 5, 1995, Pat. No. 5,632,072, which is a continuation of Ser. No. 190,765, Feb. 2, 1994, abandoned, which is a continuation of Ser. No. 660,753, Feb. 25, 1991, abandoned, which is a continuation-in-part of Ser. No. 411,491, Jul. 17, 1989, Pat. No. 4,995,151, and Ser. No. 181,284, Apr. 14, 1988, Pat. No. 4,960,630. This application Feb. 24, 1997, Ser. No. 804,823

Int. Cl.^{6} D06B *1/02*, D06C *23/00*

U.S. Cl. 28—167 **20 Claims**

1. A method for striped patterning of dyed fabric comprising the steps of

conveying a continuous length of dyed fabric of a predetermined width on a support member in a machine direction at a selected line speed;



providing at least one hydrojet manifold over the fabric conveyed on the support member, said manifold having at least one row of hydrojet orifices extending in a cross direction across the width of the dyed fabric, said orifices having a selected gauge and diameter and emitting columnar streams of fluid generated at a selected manifold pressure downwardly onto a facing side of the fabric conveyed on the support member;

impacting the facing side of the fabric with the columnar streams of fluid while conveying it on the support member in the machine direction, said orifice gauge and diameter, manifold pressure, and line speed being selected such that a desired striped patterning is formed on the facing side of the fabric by color washout of dye, and

drying and finishing the fabric.

5,737,814

JUNCTION TYPE WARP PASSING AND DRAWING-IN METHOD AND APPARATUS

Kazunori Kuroyanagi, Inaga-gun, and Toyoshi Ito, Hamamatsu, both of Japan, assignors to Hamamatsu Photonics K.K., Hamamatsu, Japan

Filed Nov. 27, 1996, Ser. No. 757,249

Claims priority, application Japan, Dec. 1, 1995, 7-314187

Int. Cl.^{6} D03J *1/14*

U.S. Cl. 28—203.1 **14 Claims**

1. A method for passing a warp wound around a warp beam through a warp-passing hole of a dropper, a mail of a heald, and a reed eye between reed wires of a reed, comprising the steps of:

disposing said dropper having said warp-passing hole and said heald having said mail in a warp conveying passage provided between said warp beam and said reed,

providing a plurality of suction portions at positions spaced between said warp beam and said reed on said warp conveying passage, said suction portions providing a vacuum suction,

passing a tip portion of said warp subjected to said vacuum suction toward said reed through said warp conveying passage, said warp passing hole, and said mail,

passing said tip portion of said warp through said reed eye between said reed wires,

regulating the passing of said warp to pass said warp at successive increments such that said tip portion stops at said position of a first suction portion on said warp conveying passage after a first successive increment, stopping said vacuum suction provided by said first suction portion, continuing to pass said warp through said warp conveying passage, and stopping said tip portion of said position of a second suction portion.

5,737,815

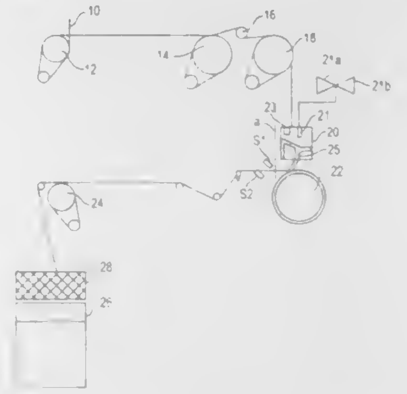
METHOD AND APPARATUS FOR CONTROLLING A TAKE-UP POINT WHEN TEXTURIZING A YARN

Sanh Le, Conyers, Ga., assignor to Fiberco Inc., Wilmington, Del.

Filed Feb. 29, 1996, Ser. No. 609,125

Int. Cl.^{6} D02G *1/00*; D02J *1/00*

U.S. Cl. 28—250 **43 Claims**



1. An automatic control system for controlling tension on a yarn, comprising:

means for sensing a travel path of said yarn at two predetermined positions after said yarn has been subjected to a heated fluid; and

means for varying a temperature of said heated fluid, in response to said sensed travel path of said yarn at said two predetermined positions, to vary said tension of said yarn to maintain a yarn take-up point proximate a target position between said two predetermined positions.

5,737,816

DEVICE FOR THE MOUNTING OF ROTATING BLADES

Peter Hartmann, Untersiggenthal, Switzerland; Michael Hock, Bad Säckingen, Germany; Alfred Krähenbühl, Gipf-Oberfrick, and Beat von Arx, Trimbach, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Mar. 29, 1996, Ser. No. 623,824

Claims priority, application Germany, Jun. 2, 1995, 195 20 274.0

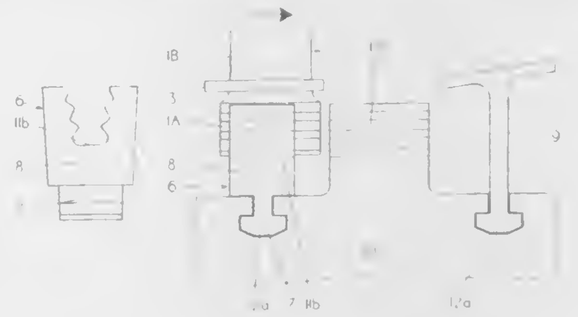
Int. Cl.^{6} B23B *27/14*

U.S. Cl. 29—23.51 **4 Claims**

1. A device for the mounting of rotating blades of a rotor of a turbomachine having an axis, the blades having essentially axial roots for being mounted into corresponding axial grooves of the rotor, comprising:

a radially outer head part having at least one axial groove corresponding essentially to an axial root of one of the rotating blades; and

a radially inner foot part removably mounted in a peripheral groove in the rotor.



5,737,817

Patent Not Issued For This Number

5,737,818

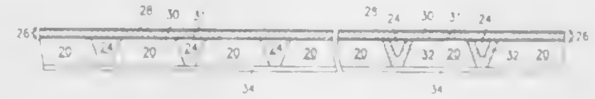
METHOD FOR FORMING ELECTRICAL CONTACT TO THE OPTICAL COATING OF AN INFRARED DETECTOR

Steven N. Frank, McKinney; James F. Belcher; Charles E. Stanford, both of Plano; Robert A. Owen, and Robert J. S. Kyle, both of Rowlett, all of Tex., assignors to Texas Instrument Incorporated, Dallas, Tex.

Continuation of Ser. No. 397,512, Mar. 1, 1995, Pat. No. 5,577,309. This application Aug. 30, 1996, Ser. No. 711,224

Int. Cl.^{6} H01L *31/18*

U.S. Cl. 29—25.42 **5 Claims**



1. A method of forming an electrical contact to a common electrode of an infrared detector, said method comprising:

forming thermal isolation trenches in a substrate;

depositing a first trench filler in said thermal isolation trenches,

forming bias contact areas around a periphery of said substrate;

depositing a common electrode layer over said substrate, said thermal isolation trenches and said bias contact areas,

thinning said substrate to expose said bias contact areas and said trench filler;

depositing a contact metal on said backside of said substrate, said exposed trench filler and said exposed bias contact areas, and

etching said contact metal and said trench filler to form pixel mesas of said contact metal and said substrate

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5,737,819

FASTENING APPARATUS

Stephen E. Sawdon, Marysville; Edwin G. Sawdon, and Gregory K. Allison, both of St. Clair, all of Mich., assignors to BTM Corporation, Marysville, Mich.

Filed May 10, 1995, Ser. No. 438,383

Int. Cl.^{6} B23P *11/00*

U.S. Cl. 29—243.5 **29 Claims**

1. A fastening apparatus comprising:

an anvil having a material contacting surface and external faces, at least one of said external faces being substantially flat,

die blades being movably disposed adjacent to said external faces of said anvil, and

each of a set of longitudinally oriented spring arms engaging a respective one of said die blades for biasing said die blades

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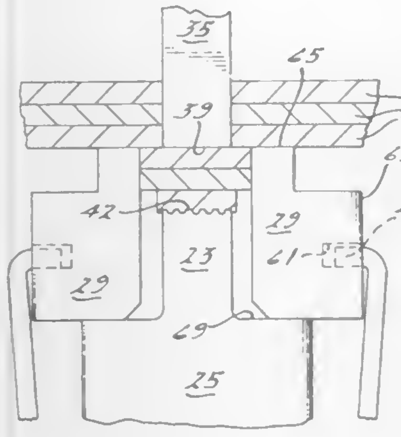


toward said anvil, a bridge joining said spring arms to define a substantially U-shaped member.

5,737,820

TOOL FOR CLAMPING RUNNERS ONTO DRAWERS

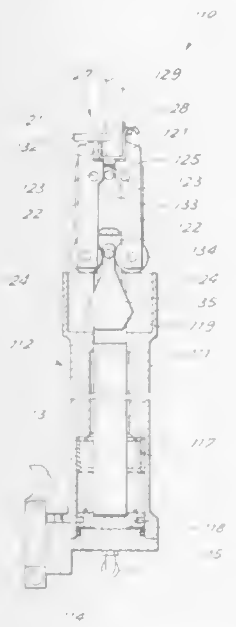
Franco Ferrari, Frazione Deviscio, 2, 22053 Lecco, and Carlo Migli, Lecco, both of Italy, assignors to Franco Ferrari

Filed May 7, 1996, Ser. No. 646,215

Claims priority, application Italy, May 12, 1995, MI950323 U; Jan. 19, 1996, MI960035 U

Int. Cl.^{6} B23P *11/00*

U.S. Cl. 29—243.5 **8 Claims**



1. A clamping tool designed for clamping sheet metal runners onto the side panels of drawers, comprising a housing having thereon a clamp composed of s pair of jaws operable to grip and clamp a clamping area of a runner to the edge of a side panel of the drawer, a wedge-shaped element movable in a linear path toward and away from said clamp, a supporting element housing a pair of levers pivotally mounted intermediate their ends on said supporting element, and an actuator for pushing said wedge-shaped element toward the clamp to effect operation thereof, said jaws of the pair being made each on one end of each of said levers, and each lever having its other end slidingly resting on the wedge-shaped element, and means operative upon actuation of the actuator and sliding movement of the wedge-shaped element on said other ends of the levers to effect a relative lateral movement between the wedge-shaped element and the supporting element and consequent movement of either one of the jaws towards the other.

5,737,821

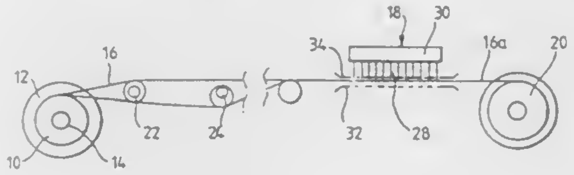
PRODUCTION OF SHAPED FILAMENTARY STRUCTURES

Peter Geoffrey Lawton, Halifax, and Norman Smith, Rugby, both of England, assignors to Aerospace Preforms Limited, West Yorkshire, England

Continuation of Ser. No. 417,454, Apr. 5, 1995, which is a continuation of Ser. No. 184,594, Jan. 21, 1994, abandoned, which is a division of Ser. No. 805,375, Dec. 10, 1991, Pat. No. 5,323,523, which is a continuation of Ser. No. 576,678, Aug. 31, 1990, Pat. No. 5,081,754, which is a division of Ser. No. 6,899, Jan. 27, 1987, Pat. No. 4,955,123. This application Jun. 28, 1996, Ser. No. 671,009

Int. Cl.^{6} B23P *17/00*

U.S. Cl. 29—419.1 **7 Claims**



1. A method of manufacturing a shaped fibrous fabric structure from multiple layers of fibrous material comprising:

a) providing a stack of generally planar layers of fibrous material, one layer built-up on top of another, said stack defining an upwardly facing surface; and

b) needling a part only of the upwardly facing surface of the stack at one particular time during the build up of the stack to interconnect the layers of fibrous material with fibers extending across adjacent layers, with each layer of fibrous material being comprised of a plurality of generally planar pieces, each piece being added separately to the stack, and causing relative movement between needles effecting the needling and the stack such that the pieces of each layer are needled into the stack.

5,737,822

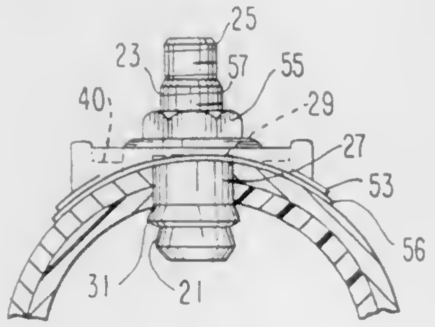
CORPORATION STOP ASSEMBLY

Franklin T. Driver, St. Charles, and Joseph D. Carroll, Lake St. Louis, both of Mo., assignors to Insituform (Netherlands) B.V., Netherlands

Continuation-in-part of Ser. No. 489,492, Jun. 12, 1995, Pat. No. 5,655,283. This application Sep. 26, 1995, Ser. No. 534,045

Int. Cl.^{6} B21D *39/00*

U.S. Cl. 29—450 **20 Claims**



14. A method for installing a corporation stop in an opening provided through an external sidewall of a longitudinally extending conduit lined with a synthetic liner using a standard drilling and tapping machine, said method comprising:

stabilizing said standard drilling and tapping machine on said external sidewall of said conduit about said opening using a saddle member;

providing a threaded stem having an enlarged, conical head portion and a neck portion of reduced size;

coaxially surrounding the neck portion of the stem with a resilient sleeve member having an upper end and having a lower end adapted to accommodate the enlarged, conical head portion of the threaded stem;

placing a compression ring about said neck portion of said threaded stem above said sleeve member, said compression ring having an upper side, a lower side, an outer edge having at least one notch formed radially therein and an opening that is alignable with the opening provided in the external sidewall of the conduit and in the liner, the lower side of the compression ring having a sleeve receiving recess of a diameter greater than that of said opening in said compression ring such that the upper end of said resilient sleeve member is received in said recess; and

engaging a clamp nut to the neck portion of said threaded stem;

wherein said saddle member has an opening shaped to receive said compression ring within said saddle member opening, said saddle member opening having an inner edge with at least one tab projecting radially from said inner edge and shaped to engage said at least one notch in said compression ring;

such that, when said clamp nut is engaged with the neck portion of the threaded stem and said compression ring is inserted within said saddle member, and said clamp nut is tightened, said compression ring is forced against said resilient sleeve member (1) for forcibly moving the upper end of said resilient sleeve member within said sleeve receiving recess of said compression ring to form an external seal between the compression ring and the external sidewall of the conduit, and (2) for forcibly moving the lower end of said resilient sleeve member over the enlarged, conical head portion of the threaded stem to thereby expand the lower end of said sleeve member and form an internal seal with the opening in said lined conduit, and said at least one saddle member tab engages said at least one notch in said compression ring for preventing rotation of said compression ring relative to said saddle member as said clamp nut is engaged on said neck portion of said threaded stem.

5,737,823

TOOL FOR INSTALLING WIRES ON A PUNCH BLOCK

Kenneth Walker, 10211 Jefferson Hill Rd., Fairdale, Ky. 40118

Filed Jul. 18, 1996, Ser. No. 685,189

Int. Cl.^{6} B23P *23/00*

U.S. Cl. 29—566.4 **6 Claims**

1. A tool for installing wires on a punch block having left and right outwardly projecting ears and having a plurality of rows of connectors, comprising:

a frame for mounting the tool on the punch block, said frame including left, right, forward and back sides, said left and right sides defining slots for receiving the left and right ears of a punch block,

a cutter bar mounted on said frame for movement by means that allow left and right and up and down movement relative to said frame; said cutter bar including a plurality of parallel cutting heads aligned along a front-to-back plane for pressing and cutting wires onto a row of the punch block,

wherein said cutter bar moves left and right relative to said frame for aligning the cutting heads with first one row of connectors and then with another row of connectors on the punch block without moving the frame relative to the punch block, and wherein said cutter bar moves up and down relative to said frame for pressing and cutting wires on a row of connectors.

5,737,824

METHOD OF MANUFACTURING ELECTROACOUSTIC TRANSDUCER

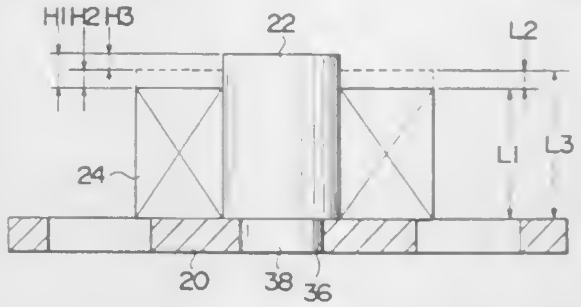
Naoyuki Kigawa, Shizuoka, Japan, assignor to Star Micronics Co., Ltd., Shizuoka-ken, Japan

Filed Sep. 27, 1995, Ser. No. 534,992

Claims priority, application Japan, Oct. 3, 1994, 6-264517

Int. Cl.^{6} H04R *31/00*

U.S. Cl. 29—594 **6 Claims**



1. A method of manufacturing an electroacoustic transducer including a magnetic driving portion composed of a core provided upright on a base and a coil wound around said core comprising, setting a height of said coil lower by a distance, which corresponds to a predetermined amount of thermal expansion of said coil occurring in reflow soldering, then subjecting said coil to heat processing to thermally expand said coil by said predetermined amount so that said coil is set to an optimum height with respect to a height of said core.

5,737,825

METHOD OF MAKING THIN FILM MAGNETIC HEAD INCLUDING A DURABLE WEAR LAYER AND GAP STRUCTURE

G. Robert Gray, Fremont, and Arun Malhotra, San Jose, both of Calif., assignors to AIWA Research & Development, Inc., Fremont, Calif.

Division of Ser. No. 296,840, Aug. 26, 1994, Pat. No. 5,563,754. This application Apr. 16, 1996, Ser. No. 632,823

Int. Cl.^{6} G11B *5/42*

U.S. Cl. 29—603.14 **11 Claims**

1. A method of fabricating a thin film magnetic head on a substrate comprising the steps of:

forming a lower pole member of magnetic material on the substrate, the lower pole member including first and second ends,

forming first and second side pole members of magnetic material at the first and second ends, respectively, of the lower pole member, the first and second side pole members being built up from a plurality of layers of magnetic material deposited

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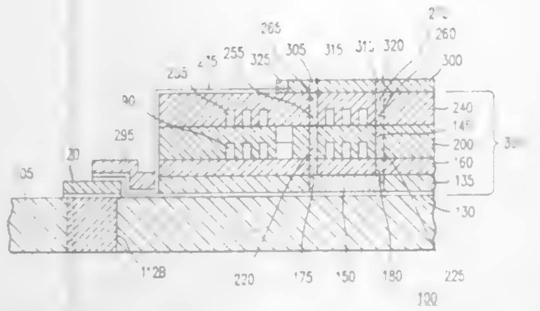


layer upon layer, the first and second side pole members including tops and bottoms,

forming a conductor coil around one of the first and second side pole members while the first and second side pole members are being formed, the conductor coil being separated from the first and second side pole members by insulative layers,

forming an insulative pedestal at the tops of the first and second side pole members, the insulative pedestal extending above the plane of the insulative layers below and surrounding the tops of the first and second side pole members;

depositing a first diamond-like carbon (DLC) layer on the insulative pedestal,

excavating first and second pole wells in the DLC layer to expose the tops of the first and second side pole members, the first and second pole wells being laterally spaced apart to form a DLC gap region between the first and second pole wells, and

forming first and second magnetic poles in the first and second pole wells.

5,737,826

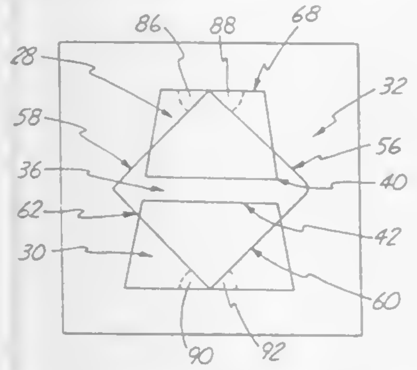
METHOD OF MAKING A THIN-FILM TRANSDUCER DESIGN FOR UNDERSHOOT REDUCTION

Steven B. Slade, New Hope; Brian S. Zak, Excelsior, and Nathan Curland, St. Louis Park, all of Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Division of Ser. No. 481,090, Jun. 7, 1995, Pat. No. 5,615,069. This application Jun. 20, 1996, Ser. No. 667,867

Int. Cl.^{6} G11B *5/42*

U.S. Cl. 29—603.15 **3 Claims**



1. A method for producing a thin-film magnetic head with reshaped pole the method comprising.

constructing a partial thin-film magnetic head by depositing and etching material in a first direction,

cutting through one end of the head in the first direction to form a working surface having pole tip surfaces, the pole tip surfaces forming one end of the pole tips and having linear gap-defining edges;

depositing a layer of photoresist material over the entire working surface;

aligning a mask to the working surface, the mask having opaque areas and clear areas,

passing electromagnetic radiation through the mask and onto the layer of photoresist, the radiation passing through only the clear areas of the mask, the radiation impinging on the layer of photoresist in a pattern nearly identical to the pattern of clear areas in the mask, the radiation changing the bonding characteristics of the portions of the photoresist layer impinged upon relative to the portions not impinged upon;

removing the portions of the photoresist layer which have weaker bonding characteristics relative to other portions of the photoresist layer, the removal leaving a patterned photoresist layer with at least one portion of the patterned photoresist layer aligned with the pole tip surfaces such that two identical sides of the patterned portion are at an acute angle to a gap-defining linear edge of at least one of the pole tip surfaces and are symmetric about and abut at a line in the plane of the photoresist layer that is perpendicular to a gap-defining edge of at least one of the pole tip surfaces, each identical side of the patterned portion crossing an edge of at least one of the pole tip surfaces;

removing head material around the patterned photoresist layer, the removal of head material reshaping portions of the pole tips near the pole tip surfaces, and

removing the patterned photoresist layer

5,737,827

AUTOMATIC ASSEMBLING SYSTEM

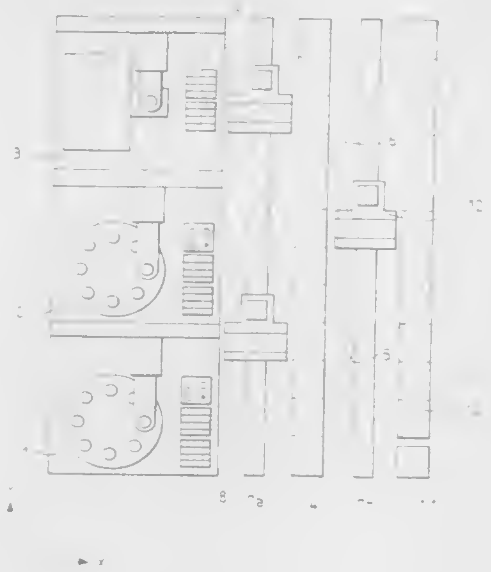
Tsutomu Kuse; Shizuo Yamazaki, both of Odawara; Hiroshi Kato, Hadano; Mikio Rachi; Keisuke Yamaoka, both of Odawara, and Tomoaki Sakata, Hiratsuka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 6, 1995, Ser. No. 524,254

Claims priority, application Japan, Sep. 12, 1994, 6-217536

Int. Cl.^{6} B23P *21/00*

U.S. Cl. 29—701 **17 Claims**



1. An automatic assembling system, comprising:

at least one assembling cell,

at least one inspecting cell,

a common buffer for common storage of pallets transferred with respect to said at least one assembling cell and said at least one inspecting cell, said pallets containing parts for automatic assembly into a product in said at least one assembling cell;

a first running rail extending along said at least one assembling cell, said at least one inspecting cell, and said common buffer, said common buffer being on a side of said first running rail opposite that of said at least one assembling cell and said at least one inspecting cell;

a first stocker crane mounted to said first running rail for travel therealong;

a first pallet transfer mechanism movably mounted to said first stocker crane;

a warehouse unit,

a second running rail located extending along said common buffer and said warehouse unit, said common buffer and said warehouse unit being on opposite sides of said second running rail;

a second stocker crane mounted to said second running rail for travel therealong; and

a second pallet transfer mechanism movably mounted to said second stocker crane.

5,737,828

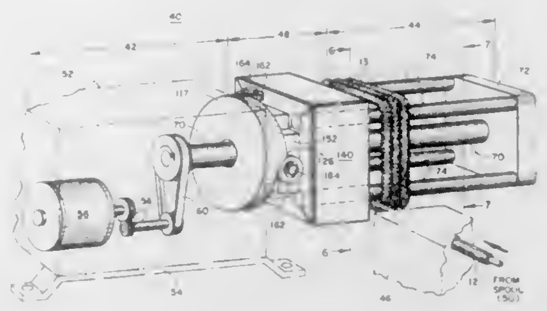
CONTINUOUS HEAT EXCHANGER FORMING APPARATUS

David A. Barnes, Jacksonville, Tex., assignor to American Standard Inc., Piscataway, N.J.

Filed Jun. 19, 1996, Ser. No. 665,933

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—727 **21 Claims**



1. A forming device for continuously forming a heat exchanger comprising:

a rotatable shaft;

motor apparatus operably engaged with the shaft for rotating the shaft;

a mandrel affixed to the shaft and rotating with the shaft,

a helix forming unit, movably engaged with the mandrel so as to rotate with the mandrel, and freely transliterating in a direction generally perpendicular to the direction of rotation; and

a stationary stock guide for feeding spine fin tubing to the helix forming unit.

5,737,829

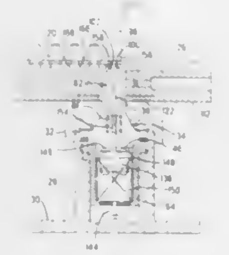
TERMINAL INSERTION MACHINE HAVING POSITION SENSING AND AUTOMATIC ACTUATION DEVICE

Bruce Allen Wolfe, Grantville, and Wilmer Roy Sauder, Harrisburg, both of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Dec. 13, 1996, Ser. No. 764,373

Int. Cl.^{6} H05K *3/30;* B23P *19/04*

U.S. Cl. 29—741 **21 Claims**



1. In a machine for inserting portions of a component into holes in a circuit board, said machine having a frame and an insertion head coupled to said frame, said insertion head arranged to move said component along an insertion axis into inserted engagement with said circuit board,

a circuit board positioning device comprising:

(a) a housing attached to said frame, said housing having an abutting surface for engaging and positioning said circuit board along said insertion axis;

(b) first and second electrical switches coupled to said housing each of which has open and closed states;

(c) lateral sensing means for opening said first switch when said circuit board is out of proper lateral alignment with respect to said insertion axis and for leaving said first switch closed when said circuit board is in proper lateral alignment with respect to said insertion axis; and

(d) axial sensing means for opening said second switch only when said circuit board is in said engagement with said abutting surface,

wherein said insertion head effects said movement of said component into said inserted engagement with said circuit board upon said opening of said second switch only when said first switch is closed

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5,737,830

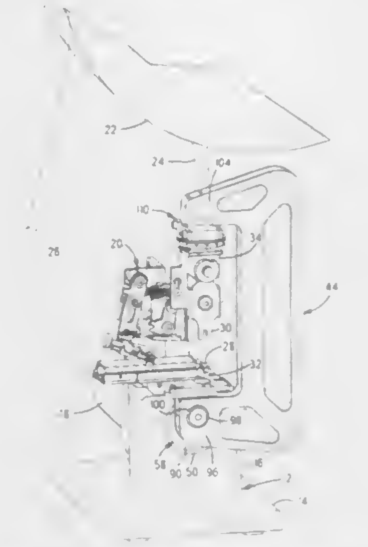
APPARATUS FOR TERMINATING ELECTRICAL WIRES

Michael Anthony Yeomans, Camp Hill, Pa., assignor to The Whitaker Corporation, Wilmington, Del.

Filed Nov. 26, 1996, Ser. No. 756,857

Int. Cl.^{6} H01R *43/048*

U.S. Cl. 29—753 **24 Claims**



1. Apparatus for holding and actuating a terminal applicator in the attachment of terminals to the ends of electrical wires, wherein said applicator includes a housing, lower tooling attached to said housing, a ram slidingly coupled to said housing and carrying upper tooling, said ram arranged to undergo reciprocating motion so that said upper tooling is moved toward and into engagement with said lower tooling for effecting said attachment and away therefrom,

said apparatus comprising

(1) a frame including a base plate and a support housing extending upwardly from said base plate, said frame including a mounting surface for receiving said terminal applicator,

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(2) a crank having a crank body journaled for rotation in said support housing about an axis of rotation;
(3) a power unit attached to said frame and drivingly coupled to said crank body for rotating said crank;
(4) a crank arm having a first end eccentrically coupled to said crank body and a second end drivingly coupled to said ram,
wherein said mounting surface is between said first and second ends of said crank arm and said apparatus is arranged so that when said power unit effects said rotation of said crank, said first end of said crank arm moves eccentrically about said axis of rotation and said crank arm imparts said reciprocating motion to said ram.

5,737,831

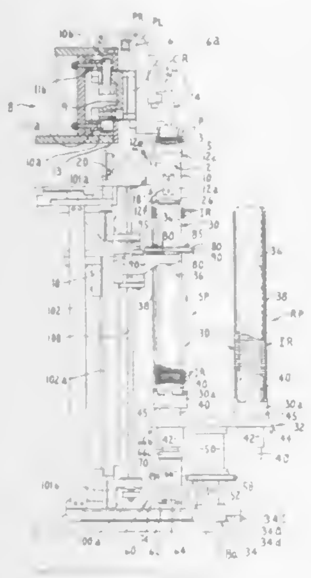
PISTON RING APPARATUS

Deryll L. Liechty, Berne; Michael R. Werling, Decatur, and Jerry D. Sommer, Berne, all of Ind., assignors to Micro-Precision Operations, Inc., Berne, Ind.

Continuation of Ser. No. 418,374, Apr. 7, 1995, abandoned, which is a division of Ser. No. 138,461, Oct. 15, 1993, Pat. No. 5,435,056. This application Jan. 24, 1997, Ser. No. 788,357

Int. Cl.⁶ B23P *21/00*

U.S. Cl. 29—771 **7 Claims**



1. Apparatus for assembling a ring in a groove, comprising means for positioning a member having a circumferential groove to locate said groove in a position to receive a ring, optic switch means proximate said position for directing a light beam tangentially through a partial circumferential portion of said groove at said position in a manner to pass unobstructed through said portion of said groove when a ring is not present therein and to be interrupted by a ring from passing through said groove when a ring is present therein, said optic switch means thereby determining whether a ring is positioned in said groove, and ring moving means for moving a ring relative to said position for placement in said groove in response to a determination that a ring is not present in said groove and for terminating movement of a ring to said position in response to a determination that a ring is present in said groove.

5,737,832

IN AND RELATING TO MACHINES FOR FORMING HELICALLY WOUND LOCK-SEAM TUBING HAVING MULTIPLE WALL THICKNESS

Antony John Bubb, West Clandon, England, assignor to Protol A.G., Glarus, Switzerland

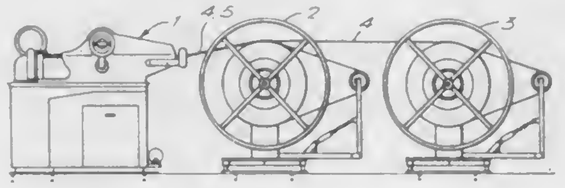
PCT No. PCT/GB93/02057, § 371 Date Jun. 3, 1994, § 102(e) Date Jun. 3, 1994, PCT Pub. No. WO94/07620, PCT Pub. Date Apr. 14, 1994

Continuation of Ser. No. 244,586, Jun. 3, 1994, abandoned. This PCT application Oct. 4, 1993, Ser. No. 685,776

Claims priority, application United Kingdom, Oct. 7, 1992, 9221093

Int. Cl.⁶ B23P *21/00;* B21C *37/12*

U.S. Cl. 29—781 **7 Claims**



1. A machine for forming helical lock-seam tubing, comprising:
means for receiving a plurality of laterally staggered overlapped strips and forming male and female flanges on opposite marginal edges of said strips, said means for receiving and forming including a series of longitudinally adjacent forming rollers;
means for drawing said laterally staggered overlapped strips through said means for receiving and forming, said means for drawing including a pair of drive rollers spaced one above the other downstream of said means for receiving and forming,
means for forming said laterally staggered overlapped strips into a helical configuration while bringing said male and female flanges into interengagement, said means for forming including an external helical forming head located downstream of said means for drawing;
means for clinching said male and female flanges into locking engagement with one another after said male and female flanges have become interengaged with each other and while said laterally staggered overlapped strips maintain their helical configuration, said means for clinching including rollers associated with said external helical forming head,
means for supplying said laterally staggered overlapped strips toward said means for receiving and forming, said means for supplying including longitudinally spaced reels each having a respective one of said strips coiled thereabout and each being located upstream of said means for receiving and forming, such that a first strip supplied from a reel upstream of at least one other reel is brought into a laterally offset contact with a second strip substantially at a point where the first strip becomes tangential to and rests upon the second strip while coiled on said at least one other reel, and then these overlapped strips are supplied towards said means for receiving and forming with said first strip on top of said second strip and laterally offset relative thereto; and
means for guiding said laterally staggered overlapped strips to said means for receiving and forming, said means for guiding being located longitudinally between said means for supplying and said means for receiving and forming, and including a pair of guide rollers located one above the other, with each guide roller provided with radially stepped shoulders so that the overlapped metal strips are passed between said guide rollers with lateral edges of each strip contacting a respective one of said shoulders such that said strips are maintained in their laterally staggered overlapping relationship as they are received and formed by said means for receiving and forming,

wherein said forming rollers of said means for receiving and forming and said guide rollers of said means for guiding are immediately adjacent each other and form a common train of rollers.

5,737,833

METHOD OF PRODUCING A HIGH-DENSITY PRINTED WIRING BOARD FOR MOUNTING

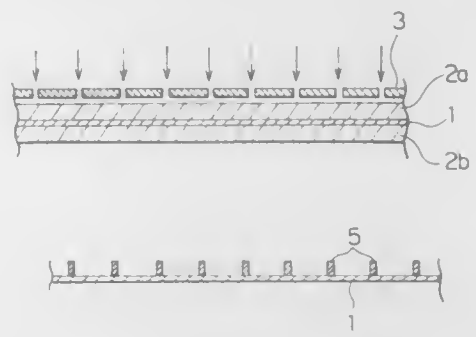
Tomohisa Motomura; Osamu Shimada, both of Tokyo, and Yoshitaka Fukuoka, Kawasaki, all of Japan, assignors to Kahushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 5, 1995, Ser. No. 539,655

Claims priority, application Japan, Oct. 7, 1994, 6-244459

Int. Cl.⁶ H05K *3/36*

U.S. Cl. 29—830 **3 Claims**



1. A method of producing a high-density wiring board for mounting, comprising the steps of:
disposing a photosensitive resist layer on a main surface of an electroconductive metallic foil;
subjecting said photosensitive resist layer to selective exposure and development thereby forming holes for selectively exposing a surface of said electroconductive metallic foil in said photosensitive resist layer;
depositing an electroconductive metal by plating on said exposed surface of said electroconductive metallic foil to form electroconductive bumps;
peeling off a remaining photosensitive layer on the main surface of the electroconductive metallic foil,
superposing a first insulating polymer sheet on a surface forming said electroconductive bumps thereon;
pressing the resultant superposed layers in a direction of thickness thereof so that leading end parts of said electroconductive bumps pierce said first insulating polymer sheet to emerge and form connecting terminal parts;
selectively removing by etching said electroconductive metallic foil thereby forming a first wiring board having a first wiring pattern;
superposing said first wiring board through a second insulating polymer sheet on a second wiring pattern of a second wiring board, said second wiring pattern providing second electroconductive bumps at predescribed positions of said second wiring pattern; and
pressing the resultant superposed layers in a direction of thickness thereof so that leading end parts of said second electroconductive bumps pierce said second insulating polymer sheet to connect with said first wiring pattern of said first wiring board.

5,737,834

PROCESS AND APPARATUS FOR AUTOMATICALLY ASSEMBLING THE TOPS AND BOTTOMS OF CIRCUITBOARDS WITH SMDS

Jens Sabotke, Hildesheim; Ansgar Graen, Diekholzen, and Hans-Walter Heinrich, Hildesheim, all of Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Germany

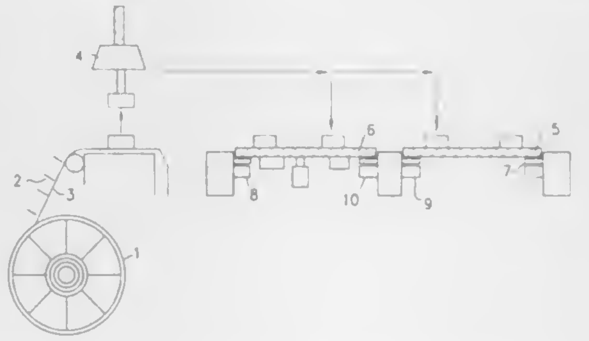
PCT No. PCT/DE95/01121, § 371 Date May 3, 1996, § 102(e) Date May 3, 1996, PCT Pub. No. WO96/09749, PCT Pub. Date Mar. 28, 1996

PCT Filed Aug. 24, 1995, Ser. No. 637,758

Claims priority, application Germany, Sep. 20, 1994, 44 33 378.1

Int. Cl.⁶ H05K *3/34;* B23P *19/00*

U.S. Cl. 29—840 **7 Claims**



1. A process for automatically assembling a plurality of circuit boards using SMDs, each one of the plurality of circuit boards having an associated top side and an associated bottom side, the plurality of circuit boards including first and second circuit boards, the process comprising the steps of:
applying a solder paste to at least a first preselected portion of the top side of the first circuit board.
turning over the second circuit board to expose the bottom side of the second circuit board;
providing at least a second portion of the bottom side of the second circuit board with adhesive spots; and
conveying at least the first and second circuit boards of the plurality of circuit boards in a substantially parallel manner, the first and second circuit boards conveyed at a substantially same velocity, the first and second circuit boards conveyed through a SMD assembly apparatus for forming an assembly panel.

5,737,835

METHOD AND APPARATUS FOR MANUFACTURING A WIRE CRIMPING RECEPTACLE CONNECTOR

Osamu Murata, Shizuoka, Japan, assignor to Murata Kogyo Kabushiki Kaisha, Shizuoka, Japan

PCT No. PCT/JP95/00546, § 371 Date Nov. 3, 1995, § 102(e) Date Nov. 3, 1995, PCT Pub. No. WO95/26583, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 24, 1995, Ser. No. 545,585

Claims priority, application Japan, Mar. 28, 1994, 6-79240; Feb. 1, 1995, 7-34733

Int. Cl.⁶ H01R *43/04*

U.S. Cl. 29—863 **8 Claims**

2. A method of manufacturing a wire crimping receptacle connector comprising a housing, said method comprising the steps of
providing electric conductive contacts having wire barrel portions and a contact holder having a plurality of holes therein.
inserting said contacts into holes of said contact holder;
crimping simultaneously at least tip ends of electric conductive wire cores of wires to said barrel portions of the contacts retained in the contact holder;
inserting simultaneously the contacts to which the wires are crimped and which are retained in the contact holder into holes of the housing by advancing them from the contact

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holder toward the housing to form the receptacle connector, wherein the wires are displaced into the contact holder; and
separating the contact holder from the wires

5,737,836

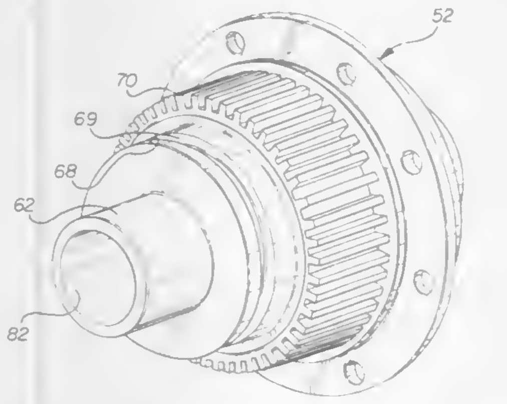
METHOD OF MAKING A SPLINED TURBINE HUB

James W. Finn, Macomb; Christopher Sullivan, Warren, and Michael J. McCarthy, Rochester Hills, all of Mich., assignors to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

Filed May 3, 1996, Ser. No. 644,840

Int. Cl.^{6} B23C *15/00*

U.S. Cl. 29—889.5 **19 Claims**



1. A method of making a splined hub, said method comprising the steps of:

- preparing a cylindrical workpiece for forging;
- forging a plurality of splines on at least a portion of the cylindrical workpiece by applying a deformation force progressively across the circumference of the cylindrical workpiece such that each of the plurality of splines extends in an axial direction relative to the workpiece and about at least a portion of the cylindrical surface thereof.
- machining a piston bearing surface on another portion of the workpiece for receiving a cooperating flange of a clutch piston; and
- hardening the cylindrical workpiece

5,737,837

MANUFACTURING METHOD FOR MAGNETIC HEAD JUNCTION BOARD

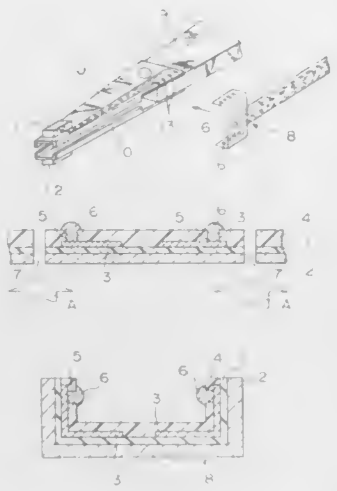
Masaichi Inaba, Ushiku, Japan, assignor to Nippon Mektron Ltd., Tokyo, Japan

Filed Apr. 12, 1996, Ser. No. 631,464

Int. Cl.^{6} H01R *43/16;* **H05K** *1/18, 3/32;* **G11B** *5/127*

U.S. Cl. 29—884 **12 Claims**

1. A manufacturing method for a magnetic head junction board, the board being employed for electrically connecting a magnetic head suspension to a circuit wiring pattern on a read/write amplifier substrate, said method comprising the steps of:



- preparing a laminated plate, in which one surface of a flexible insulating base material abuts a springy metal layer and the other surface supports a conductive layer;
- forming a circuit wiring pattern from the conductive layer of said laminated plate and forming said springy metal layer into a predetermined shape.
- providing the outer surface of said circuit wiring pattern with a surface protecting layer which has holes to partly expose ends of the circuit wiring pattern at the portions thereof which correspond to both ends of said springy metal layer;
- filling said holes with conductive metal to form connecting terminals, first ends of said terminals being electrically connected to said circuit wiring pattern and the opposite ends of said terminals projecting outwardly beyond the surface of said protecting layer; and
- bending said springy metal layer to a predetermined shape so that said connecting terminals at said ends of said metal layer face each other.

5,737,838

METHOD OF MAKING A PISTON UNIT FOR AN INTERNAL COMBUSTION ENGINE

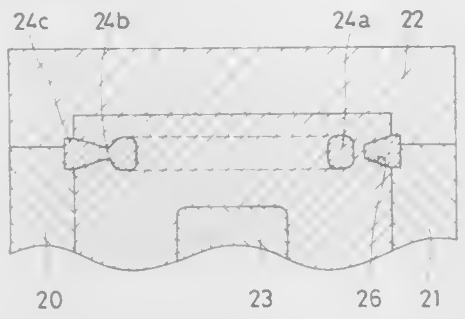
Hiromi Niimi, Kariya; Yasuhiro Kawabata, Anjo; Soichi Hara, Toyota, and Tomohiro Sawada, Nagoya, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi-pref., Japan

Filed Dec. 2, 1996, Ser. No. 758,858

Claims priority, application Japan, Nov. 30, 1995, 7-313124

Int. Cl.^{6} B23P *15/10*

U.S. Cl. 29—888.047 **6 Claims**



1. The method of making a piston unit for an internal combustion engine, comprising the steps of.

- pinching a melting core in a mold cavity of a piston mold, the melting core which includes an inner ring making a ring shaped passage within a piston body, an outer ring and a plurality of coupling portions connected between the inner ring and the outer ring;
- pouring molten metallic alloy into the cavity and solidifying therein;
- removing the outer ring of the melting core therefrom;

- filling a space left by said removal of the outer ring with reinforced material, and
- melting the inner ring and the coupling portions of the melting core.

5,737,839

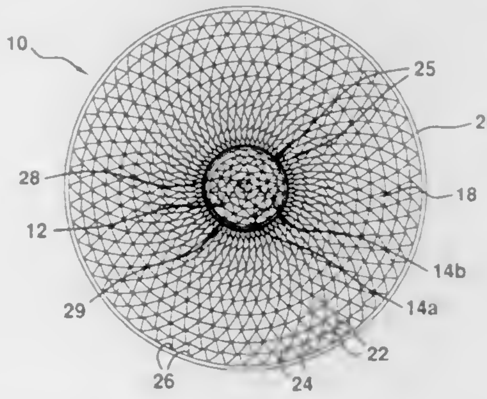
ASSEMBLY AND METHOD FOR MAKING CATALYTIC CONVERTER STRUCTURES

William A. Whittenberger, Leavittsburg; John J. Chelbus, Brookfield, both of Ohio; Joseph E. Kubsh, Silver Spring, Md., and Boris Y. Brodsky, Mayfield Heights, Ohio, assignors to Engelhard Corporation, Iselin, N.J.

Division of Ser. No. 577,616, Dec. 22, 1995. This application Sep. 30, 1996, Ser. No. 720,412

Int. Cl.^{6} B01J *35/04,* **B21D** *11/06*

U.S. Cl. 29—890 **10 Claims**



1. A method of making a converter body comprising

- assembling a first plurality of non-nestable foil leaves, each having opposite proximal and distal ends defining a leaf length, by interconnecting the proximal ends of the foil leaves to provide a continuous flexible strip of overlapping foil leaves in which the distal ends of the leaves extend freely;
- providing a core foil subassembly of a second plurality of non-nestable foil leaves;
- partially connecting the core foil subassembly and the strip of foil leaves;
- arranging the strip of foil leaves and the core foil subassembly into a central core having the foil leaves of the strip lying in curved paths radiating outwardly from the interconnected proximal ends away from the central core to provide flow passages generally transverse to the leaf length; and
- subsequently connecting the distal ends of the foil leaves of the strip to a jacket tube.

5,737,840

METHOD OF MANUFACTURING TUNNEL-PLATE TYPE HEAT PIPES

Hisateru Akachi, 6-5-603, Kamitsuruma 5-chome, Sagamihara-shi, Kanagawa 228, Japan, assignor to Actronics Kabushiki Kaisha, Isehara, and Hisateru Akachi, Sagamihara, both of Japan

Filed Jul. 9, 1996, Ser. No. 678,525

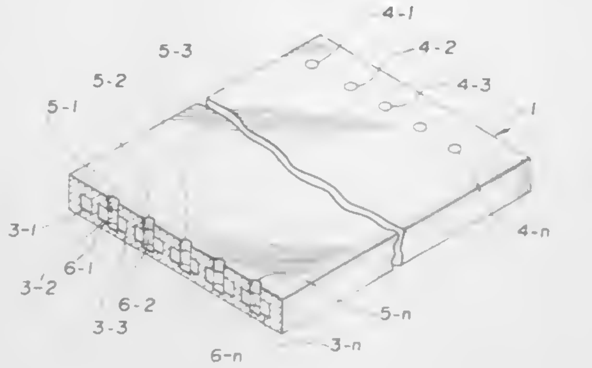
Claims priority, application Japan, Jul. 14, 1995, 7-208966; Aug. 9, 1995, 7-233151

Int. Cl.^{6} B23P *15/00*

U.S. Cl. 29—890.032 **30 Claims**

1. A method of manufacturing a heat pipe out of a tube having capillary parallel tunnels defined by partitions, comprising the steps of

- shaping ends of the tube;
- forming recesses in the partitions in the vicinity of each of said ends of the tube;



- closing said ends of the tube to form a capillary tunnel container;
- cleaning said capillary tunnel container; and
- charging said capillary tunnel container with a predetermined amount of a predetermined working fluid

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5,737,841

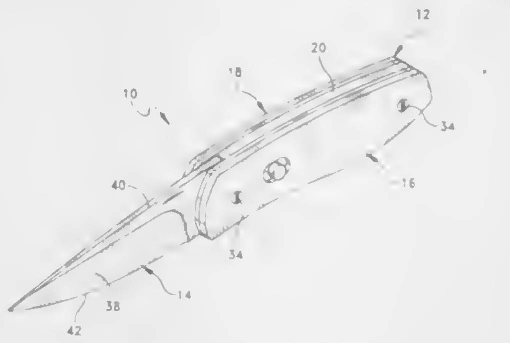
POCKET KNIFE WITH LOCK

William J. McHenry, 265 Carolina Nooseneck Rd., Wyoming, R.I. 02898, and Jason L. Williams, 780 Victory Highway, #45, West Greenwich, R.I. 02817

Filed Jul. 12, 1996, Ser. No. 679,122

Int. Cl.^{6} B26B *1/04*

U.S. Cl. 30—161 **10 Claims**



1. A pocket knife comprising

- a handle having a body portion with an elongate groove formed therein;
- a blade pivotally attached to the body portion of the handle at one end of the body portion, said blade being movable between a closed position in which the blade is received within the groove of the handle and an open position in which the blade is extended away from the handle and exposed, said blade having a blade portion which extends away from the handle when the blade is in its open position and a tang portion which is substantially received within the groove of the handle when the blade is in its open position, said tang portion having a peripheral edge defining a cam;
- a pin having a cylindrically-shaped outer surface and a long axis extending in a direction generally transverse with respect to the direction of the handle and blade, said pin being movable between a first position in which the outer surface of the pin engages the tang portion of blade for locking the blade in its open position, and a second position in which the pin is spaced away from the tang portion of the blade for allowing the blade to move to its closed position, the outer surface of said pin riding upon the cam of the tang portion upon moving the pin to its second position and moving the blade to its open position;
- biasing means for biasing the pin to its first position; and
- moving means for manually moving the pin to its second position from its biased first position

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5,737,842

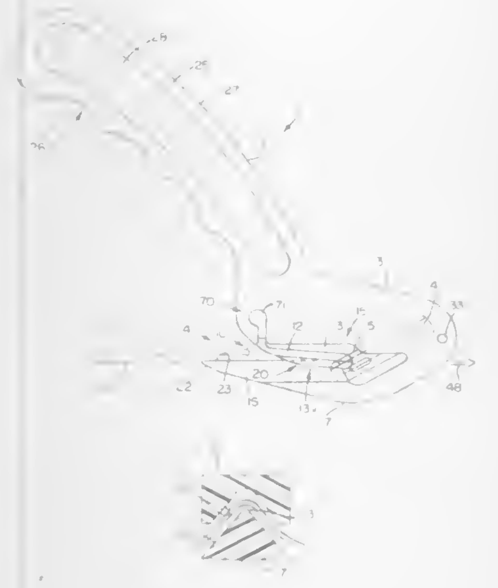
CUTTING TOOL

Melvin S. Freedman, Beachwood, Ohio, assignor to The Spoilage Cutter Company, Green Bay, Wis.

Filed Mar. 11, 1996, Ser. No. 613,906

Int. Cl.^{6} B26B *3/00, 29/06*

U.S. Cl. 30—280 11 Claims



1 A cutting tool, comprising:

a cutting blade for cutting material;

a housing holding the blade in position for cutting, said housing having first surface means for forming a convex area;

second surface means for forming a concave area located relative to the convex area to cooperate with said convex area to bend the material to a curved shape, and said first and second surfaces means and concave and convex areas thereof being located relative to the cutting blade for guiding the material to the cutting blade such that a concave surface of the curved shape material faces the cutting blade for cutting thereby; and

resilient means for resiliently supporting said second surface means relative to said first surface means to urge the material toward said first surface means as material is fed toward the cutting blade.

5,737,843

UNIVERSAL DEVICES FOR PROTECTING THE USER OF A CIRCULAR SAW FROM FLYING DEBRIS

Morris A. Fringer, 430 W. Northcreek Rd., Smyrna, Tenn. 37167, and Daniel L. Fringer, 1784 W. Northfield Blvd., Suite 161, Murfreesboro, Tenn. 37129

Filed Oct. 3, 1996, Ser. No. 743,455

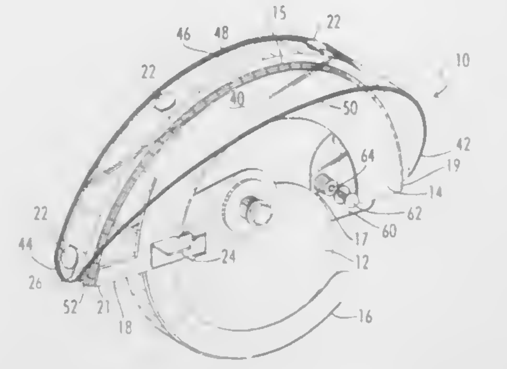
Int. Cl.^{6} B25F *5/02*

U.S. Cl. 30—391 5 Claims

1 A universal device for protecting user of a circular saw from debris wherein said circular saw having a blade and an upper guard partially encircling said blade, said upper guard having an outer arch and an inner base, said device comprising

a. an outer debris shield having a forward edge distal a rearward edge and a midpoint between said forward edge and said rearward edge, said outer debris shield having an attachment edge and a projecting edge wherein said projecting edge extending away from said attachment edge proximal said midpoint;

b. means for attaching said outer debris shield to said outer arch,



c an inner debris shield; and means for attaching said inner debris shield to said inner base.

5,737,844

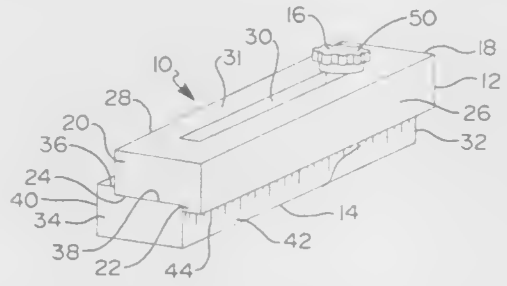
TRIM GAUGE

Philip T. Brumley, 25730 Van Dyke, Centerline, Mich. 48015

Filed Apr. 15, 1996, Ser. No. 633,919

Int. Cl.^{6} G01B *5/14;* **B43L** *13/02;* **E04F** *21/00*

U.S. Cl. 33—194 2 Claims



1 A trim gauge for aiding in the installation and trimming of building windows and doors comprising:

an elongated first member having a first end and a second end and a first engagement surface disposed therebetween;

an elongated second member having a first end and a second end and a second engagement surface disposed therebetween in engagement with the first engagement surface and the second member being equal in length to the first member and being in parallel with the first member and longitudinally adjustable relative thereto and having a side surface engaged by an overlapping side surface of the first member wherein the overlapping side surfaces prevent relative rotation and the first and second members are laterally offset an equal amount with respect to each other; and

a selectively actuable locking mechanism disposed between the first member and the second member, wherein the first and second members each have a side lip projecting from their respective engagement surfaces to define both side surfaces and equal lateral gauges on both sides.

5,737,845

METHOD AND APPARATUS FOR MEASURING DEVIATIONS OF AN AUTOMOBILE VEHICLE SEAT FROM DESIGN SPECIFICATIONS

David Marasus, Rochester, Mich., assignor to Lear Corporation, Southfield, Mich.

Filed Jul. 11, 1996, Ser. No. 680,248

Int. Cl.^{6} G01B *5/25 11/27*

U.S. Cl. 33—545 5 Claims

1 A method for checking dimensions of an automotive seat using a seat buck that simulates a vehicle passenger compartment with optimum dimensions, said buck having a surface plate with seat supporting structure, said method comprising the steps of

mounting a test seat on said supporting structure, said test seat having a hip point location corresponding to the hip axis of a seat occupant;

placing a target block adjacent one side of said seat in proximity to said hip point location;

adjusting a light beam generator supported on said surface plate for movement in the directions of first and second coordinate axes parallel to the passenger compartment centerplane.

aiming a light beam generated by said light beam generator at said target block and adjusting the position of said light beam generator in said directions of said coordinate axes until said light beam illuminates a target point on said target block corresponding to a predetermined target point and zeroing digital read-outs of said first and second coordinates;

removing said target block from the path of said light beam; and

measuring the displacement of said hip point location on said seat from said target point by adjusting said light beam generator in the direction of said coordinate axes until said hip point and said target point coincide, and recording the adjustment of said light beam generator

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5,737,846

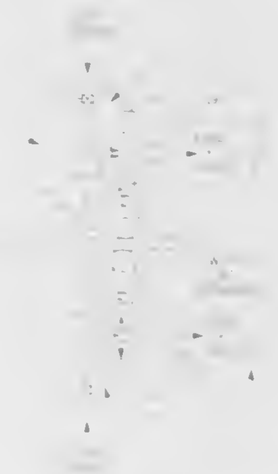
LEAD FRAME DRYER

Waite R. Warren, Jr., Raleigh, and Lou W. Nicholls, Durham, both of N.C., assignors to Mitsubishi Semiconductor America, Inc., Durham, N.C.

Filed Nov. 22, 1996, Ser. No. 755,049

Int. Cl.^{7} F26B *19/00*

U.S. Cl. 34—71 8 Claims



1 A lead frame dryer for a water jet deflasher apparatus wherein the lead frames exit the deflasher apparatus and are stacked together, the lead frame dryer comprising

a) a pair of water absorbing rollers positioned downstream from an exit of said water jet deflasher apparatus and spaced apart from each other to receive a lead frame therebetween to absorb water on said lead frame,

b) a pair of solid rollers, one solid roller positioned adjacent each of said water absorbing rollers, each solid roller moving in a direction opposite to a direction of movement of an adjacent water absorbing roller and compressing said water absorbing roller to remove water therefrom, and

c) a venturi device for producing a vacuum, the venturi device including a conduit positioned adjacent each solid roller to collect said water removed from said water absorbing roller said solid rollers using said vacuum

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5,737,847

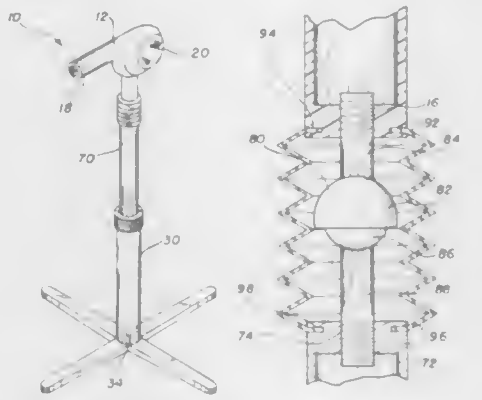
TELESCOPING STAND WITH PIVOTABLE HOLDER FOR A HAND-HELD HAIR DRYER

Doris Britton, 3033 Maple Ave., Altoona, Pa. 16601

Filed Feb. 18, 1997, Ser. No. 800,451

Int. Cl.^{6} A45D *20/14*

U.S. Cl. 34—97 2 Claims



1 A telescoping stand comprising

a stand having a base and a manually and telescopically adjustable pole extending therefrom and terminated at a free end the stand having a tubular upwardly extending sleeve a closed lower end, a threaded open end and a nut threadably secured therearound, and a lower end, the base is formed of a plurality of legs being coupled to the lower end of the stand, and

a ball and socket joint assembly secured to the free end of the pole for removably holding a hand held hair dryer and allowing it to be positioned at different angles for use.

5,737,848

GUIDE ROLL ARRANGEMENT FOR PAPER MACHINE DRYING SECTION

Tri Chau-Huu, and Albrecht Meinecke, both of Heidenheim, Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Germany

Filed Mar. 18, 1996, Ser. No. 617,332

Claims priority, application Germany, Mar. 16, 1995, 195 09 581.2

Int. Cl.^{7} F26B *11/02*

U.S. Cl. 34—114 18 Claims

17 The drying section for drying a traveling web of paper, the drying section including a succession of drying cylinders along the path of the web passing through the drying section

the drying section being divided into a series of successive drying groups, with each of the drying groups having at least one of the drying cylinders therein.

at least one felt or wire belt respectively for each of the drying groups for guiding the traveling web as its travels through the respective drying group.

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at least two successive ones of the drying cylinders in the drying section being spaced apart to define a transfer region for the web between the successive cylinders; the transfer region is between successive drying groups, and the first and the second guide rolls are disposed in the transfer region between the successive drying groups, the first felt is in the first of the two successive drying groups and the second felt is in the second of the two successive drying groups, whereby the transfer region is between two of the drying cylinders at a transfer between two successive groups;

at least two felt or wire belt guide rolls disposed in the transfer region between the two successive drying cylinders, the at least two guide rolls being placed so that the web is guided off the first of the dryer cylinders and passes over the two guide rolls in succession and then over the next drying cylinder in succession and so that the web travels on a meandering path from the first mentioned to the successive drying cylinder in its path through the transfer region,

the first felt wraps around the first of the guide rolls in the transfer region and the second felt wraps around the second of the guide rolls in the transfer region, and the felts supporting the web moving into and then out of the transfer region;

a transfer area defined between the first and second guide rolls, whereby transfer of the web from the first to the second of the felts occurs in the transfer area defined between the first and the second rolls;

at least one additional felt or wire belt guide roll in the transfer region for providing a path of return of at least one of the felts or wire belts to the beginning of the respective drying group after the felt or wire belt has passed over the respective one of the guide rolls in the transfer region.

5,737,849

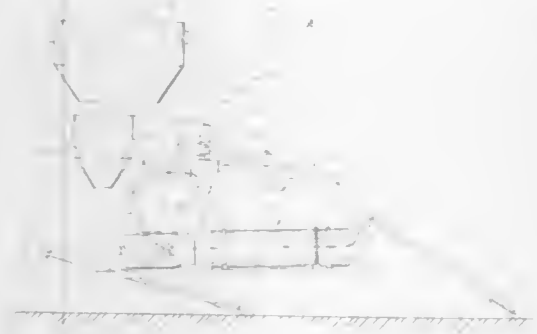
RECYCLE MOISTURE EVAPORATION SYSTEM

Troy R. Morrison, Indianapolis, Ind., and Billy Joe Mullinax, Knotts Island, N.C., assignors to Jat Enterprise Inc. of Indiana, Greenwood, Ind.

Continuation of Ser. No. 573,198, Dec. 15, 1995, Pat. No. 5,579,587. This application Dec. 2, 1996, Ser. No. 753,823

Int. Cl.^{6} F26B *11/02*

U.S. Cl. 34—136 4 Claims



4. A recycled asphalt product (RAP) drying apparatus, comprising:

(a) a counterflow RAP dryer having a first end and a second end, said RAP dryer having a combustion zone at its first end, a drying zone at its second end, and a buffer zone between said combustion zone and said drying zone, said drying zone having a first end and a second end, with the first end of the drying zone being nearest the first end of the dryer and the second end of the drying zone being nearest the second end of the dryer, with a RAP inlet to introduce RAP into the drying zone near its second end, and a RAP outlet to remove RASP from the drying zone near its first end; and

(b) a duct pathway to route hot air from the drying zone back to the buffer zone so that hot air may be recycled through the RAP drying apparatus;

wherein at least a portion of said duct pathway to route hot air from the drying zone back to the buffer zone is positioned adjacent to, and in a heat transferring relationship with, said combustion zone.

5,737,850

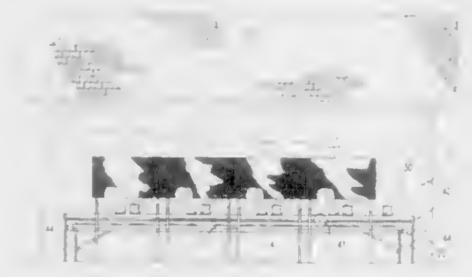
METHOD AND APPARATUS FOR DRYING POULTRY MANURE

Bryan Hendrix, Seymour, Ind., assignor to Rose Acre Farms, Inc., Seymour, Ind.

Filed Oct. 31, 1996, Ser. No. 741,681

Int. Cl.^{6} C26B *7/00*

U.S. Cl. 34—380 17 Claims



1. A chicken manure drying apparatus, comprising:

a platform for receiving chicken manure thereon;

a plowing apparatus positioned over said platform for engaging the chicken manure on said platform; and

at least one drying fan disposed adjacent to said platform for directing air across said platform.

5,737,851

THERMAL PROCESSING UNIT FOR THE PREPARATION OF PLASTISOL-BASED FLOOR COVERINGS

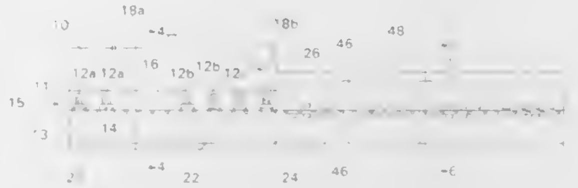
Lawrence J. Novak, Boothwyn, Pa.; Peter J. Rohrbacher, Bordentown, N.J., and Rudolph Kist, III, Elkton, Md., assignors to Congoleum Corporation, Mercerville, N.J.

Filed Mar. 1, 1996, Ser. No. 609,693

Int. Cl.^{6} F26B *7/00*

U.S. Cl. 34—420 10 Claims

1. A method for processing a plastisol-containing article in the manufacture of a plastisol-based floor coverings comprising:



heating an article with substantially only radiant heat transfer to raise the temperature of said article at a rate of at least about 15° F./second to an approach temperature; and

heating said article with substantially only convective heat transfer to the predetermined target temperature of said article at a rate at least about five times less than the rate in said radiant heating step.

5,737,852

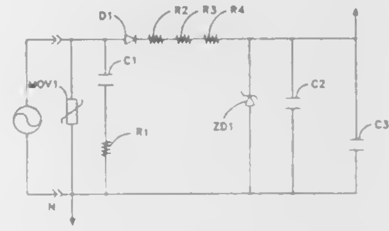
DRYNESS CONTROL FOR CLOTHES DRYER

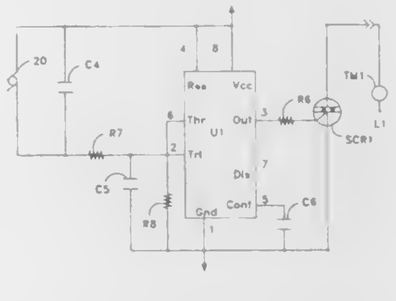
Sanjay P. Shukla, Hilliard, Ohio; Sean F. Myers, Webster City, and William B. Hughett, Fort Dodge, both of Iowa, assignors to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Aug. 5, 1996, Ser. No. 692,439

Int. Cl.^{6} C26B *13/10*

U.S. Cl. 34—528 4 Claims





1. A control circuit for a household clothes dryer timer motor, comprising:

a power supply circuit electrically connected to high voltage AC power and operable to convert the high voltage AC power into low voltage DC power;

a moisture sensing circuit electrically connected to the power supply circuit and including a moisture sensor having pair of electrodes, a time delay circuit, a timer motor controller, wherein said moisture sensor supplies a voltage signal to said time delay circuit indicative of sensed dryness, an output of said time delay circuit is electrically connected to an input of said timer motor controller and said time delay circuit serves as a filter to prevent transient spikes in the sensed dryness signal from affection operation of said timer motor controller, and an output of said timer motor controller is electrically connected to a timer motor, wherein, when the voltage applied at the timer motor controller input is a first value the timer motor is turned off and, when the voltage applied at the timer motor controller input is a second value the timer motor is activated, said first value being different than said second value.

5,737,853

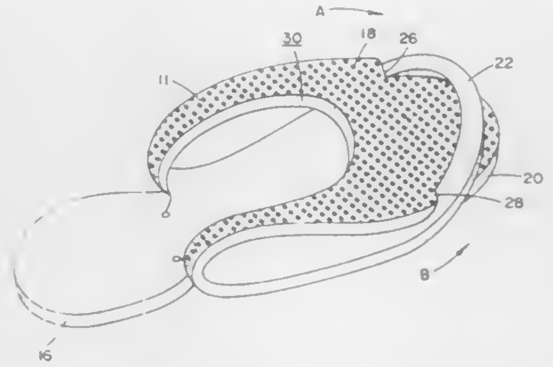
CONVERTIBLE THONG BEACH SHOE

Miroslav Smejkal, 32-14 45th St., Long Island City, N.Y. 11103

Filed Jan. 24, 1997, Ser. No. 788,655

Int. Cl.^{6} A43B *3/12*

U.S. Cl. 36—11.5 7 Claims



1. A convertible shoe construction constituted of a unitary component, said component comprising an initially flexible planar member having the configuration of a shoe sole; including elongate slits in respectively the heel portion and toe portions of said shoe sole forming a strip element at said heel portion and a strip element at said toe portion each having the ends thereof connected to said shoe sole, said strip element at the heel portion having cutouts formed at opposite edges, whereby upon said heel strip element being bent upwardly and forwardly above said shoe sole, said toe strip element is bent upwardly and engages into said cutouts to form a thong-like shoe.

5,737,854

SHOE WITH A CENTRAL CLOSURE

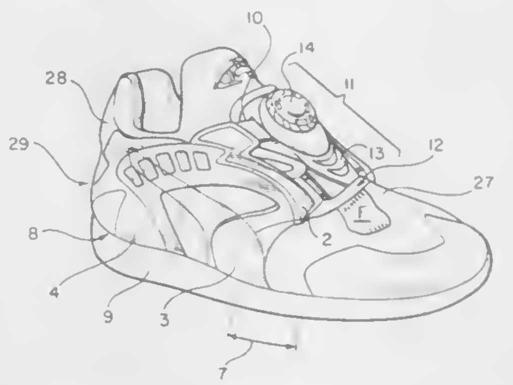
Reinhold Sussmann, Scheinfeld, Germany, assignor to Puma AG Rudolf Dassler Sport, Herzogenaurach, Germany

Filed Aug. 31, 1993, Ser. No. 113,661

Claims priority, application Germany, Aug. 31, 1992, 9211710 U

Int. Cl.^{6} A43C *11/20*; A43B *23/00*

U.S. Cl. 36—50.1 19 Claims



17. Shoe with an upper formed at least in part of an elastically flexible material, a sole to which the upper is attached, an instep cover hinged to the upper at a lower end thereof, a central closure attached to the instep cover in an instep area, a wire-like tightening element coupled with the central closure and running down one side of a throat area of the upper and back up an opposite side thereof to the central closure, at each side of the upper the tightening element running back and forth between guide elements on a tensioning strip and guide elements on the instep cover, each tensioning strip being formed as part of a structural unit for each side of the shoe, said structural unit having at least two supporting straps which run over the upper to at least an edge area of the sole

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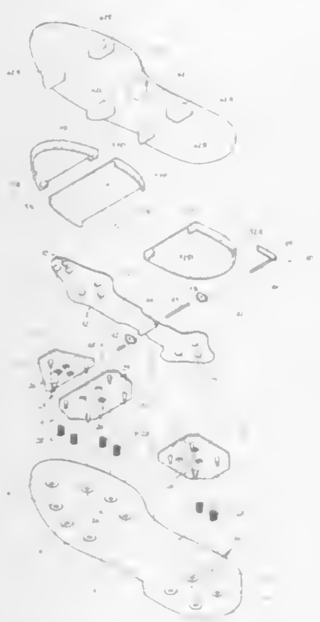
as permanent parts thereof with the tensioning strip, a first of the supporting straps being directed toward an area at least as far rearward as the metatarsophalangeal joints and a second of the supporting straps extending rearwardly to a heel part of the shoe and at least partially encompasses the heel at least in the edge area of the sole; wherein the tensioning strips have a greater stiffness than the supporting straps; and wherein the tensioning strips, at least in an area at which the guide elements are provided thereon, are made of a material that is abrasion-resistant, hard and of a low coefficient of friction.

5,737,855
ATHLETIC SHOE WITH RETRACTABLE SPIKES

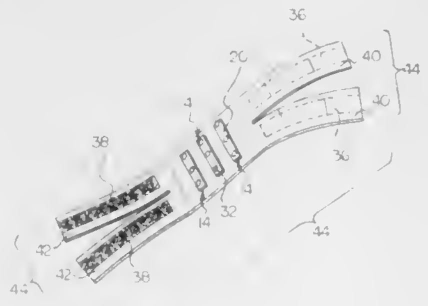
J. Charles Jordan, 1401 Plumstead Rd., Charlotte, N.C. 28216, and Clark S. Smith, Greenville, S.C., assignors to J. Charles Jordan, Charlotte, N.C.
Continuation-in-part of Ser. No. 396,658, Mar. 1, 1995. This application Nov. 20, 1995, Ser. No. 560,893
Int. Cl.^{6} A43C *15/00;15/08*
U.S. Cl. 36—61 8 Claims



1. A spiked athletic shoe, comprising:
(a) a shoe upper;
(b) an outsole housing connected to the shoe upper, and including a bottom wall defining a plurality of spike-receiving openings therein;
(c) spaced-apart rear and front spike plates located within said outsole housing, and residing respectively in a rear heel portion of the shoe and a front portion of the shoe generally in an area adjacent to the ball and toes of the foot during shoe wear, said rear and front spike plates including a plurality of spikes attached thereto for movement between a spike-extended position whereby said plurality of spikes extend outwardly from the bottom wall of said outsole housing, and a spike-retracted position whereby said plurality of spikes are retracted within said outsole housing;
(d) biasing means located within said outsole housing and engaging said rear and front spike plates for normally urging said rear and front spike plates and attached spikes upwardly into the spike-retracted position;
(e) actuating means operatively engaging said rear and front spike plates and cooperating with said biasing means for moving said rear and front spike plates and attached spikes between the spike-retracted position and the spike-extended position, said actuating means comprising an elongated slide member located within said outsole housing and in overlying relation to said rear and front spike plates, and a cam assembly connected to the slide member within said outsole housing and including a manually actuated lever extending outwardly from the shoe, such that upon actuation of the lever, the cam assembly effects longitudinal sliding movement of the slide member over the front and rear spike plates within said outsole housing; and
(f) said slide member comprising a plurality of outwardly extending detents, and said rear and front spike plates including a corresponding plurality of complementary openings, said plurality of detents and openings cooperating upon longitudinal sliding movement of the slide member such that
  (i) upon mating alignment of the detents and openings, said biasing means moves said rear and front spike plates and attached spikes upwardly into the spike-retracted position away from the bottom wall of said outsole housing; and
  (ii) upon offsetting the detents and openings, said rear and front spike plates and attached spikes are urged downwardly towards the bottom wall of said outsole housing into the spike-extended position, and are maintained in the spike-extended position during shoe wear;
(g) spaced-apart rear and front rigid caps located adjacent to the slide member, and residing respectively in the rear portion and the front portion of the outsole housing to provide a rigid support barrier between the slide member and the foot of the wearer during shoe wear, and to define an area within said outsole housing for movement of the rear and front spike plates between the spike-retracted position and the spike-extended position, said rear and front caps including a respective plurality of internally-threaded spacers for receiving a plurality of threaded screws therein, and
(h) rear and front rigid outsole plates located adjacent to the bottom wall of said outsole housing, and defining a plurality of outsole plate openings therein for accommodating the spikes of the rear and front spike plates in the extended position, and defining a plurality of screw holes therein in alignment with the spacers to receive the threaded screws for removably attaching the rear and front outsole plates to said outsole housing of the shoe.

5,737,856
REMOVABLE AND REPLACEABLE CLEAT APPARATUS FOR FOOTWEAR

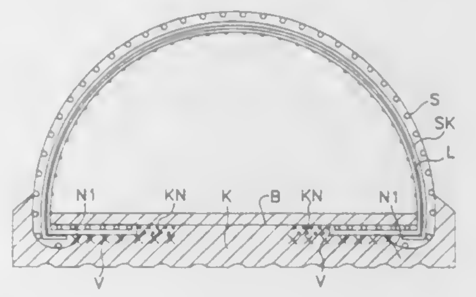
Raymond J. Brockman, P.O. Box 168, Holbrook, N.Y. 11741
Filed Oct. 21, 1996, Ser. No. 734,102
Int. Cl.^{6} A43C *15/00*
U.S. Cl. 36—62 11 Claims



1. A cleat apparatus, comprising:
a longitudinally elastic base assembly,
a plurality of cleat units connected to said base assembly,
a first strap connected to a first side of said base assembly, and
a second strap connected to a second side of said base assembly,
wherein each of said cleat units includes:
a cleat support,
a plurality of individual cleats projecting upward from said cleat support and through said base assembly, and
cleat locks connected to said cleats distal to said cleat support, whereby said cleat locks secure said cleats to said base assembly.

5,737,857
PROTECTIVE SHOE

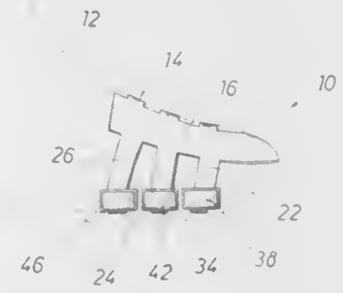
Johann Aumann, Bergham 2, D-83052 Bruckmuhl, Germany
Continuation-in-part of Ser. No. 544,754, Oct. 18, 1995. This application Mar. 5, 1996, Ser. No. 611,042
Claims priority, application Germany, Nov. 15, 1994, 9418347 U
Int. Cl.^{6} A43C *13/14;* **A43B** *23/07*
U.S. Cl. 36—77 R 7 Claims



1. Footwear with:
(a) a leg;
(b) a lining with a waterproof and water vapor permeable microporous functional layer which lines the leg,
(c)an insole which is connected with the lower end area of the lining;
(d) a waterproof outsole which consists of plastic and which is injection molded to the lower area of the leg;
(e) wherein the actual leg material ends at a distance from the lower end of the lining;
(f)wherein the end of the actual leg material is connected to the insole and the lower end of the lining through a porous material which can be penetrated by the outsole material which is still liquid during the injection molding process and which forms a connection material;
characterized by:
(g) a rigid protective cap which is arranged in the toe area between the leg and the porous connection material on the one hand and the lining on the other hand; and
(h) wherein the porous connection material is connected to the circumference of the insole by an adhesive connection at its end facing away from the actual leg material, at least in the toe area.

5,737,858
TRAINING DEVICE FOR SOCCER PLAYERS

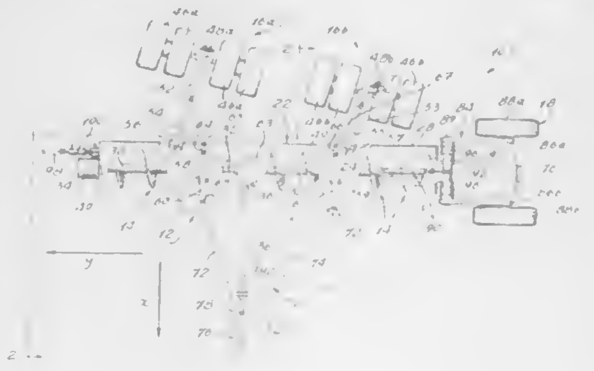
Mark H. Levy, 10050 Westpark #1904, Houston, Tex. 77042
Filed Mar. 15, 1996, Ser. No. 616,205
Int. Cl.^{6} A43B *13/18;5/02*
U.S. Cl. 36—128 14 Claims



1. A training device for an indoor or outdoor soccer shoe having a cleated sole defining inside and outside edges and having a vamp defining toe, instep, inside and outside vamp areas adjacent the sole, said training device assisting soccer players in learning the soft and controlled ball contact that is desirable for trapping and dribbling a soccer ball, said training device comprising:
(a) a flexible retainer for removable assembly about the toe, instep, inside and outside vamp areas and cleated sole of a soccer shoe and having a plurality of interconnected straps defining upper strap means adapted to be received about the toe, instep, inside and outside vamp areas of a soccer shoe and lower strap means adapted to be received about the cleated sole of the soccer shoe and to extend between the cleats of the cleated sole and to lie along the bottom surface of the sole, said upper strap means comprising; and
  (i) a central strap adapted to extend over the toe of the soccer shoe and having connection at one end thereof with said lower strap means; and
  (ii) front, intermediate and rear straps each being interconnected with said central strap and extending transversely therefrom, said front, intermediate and rear straps each being connected to said lower strap means; and
(b) a plurality of relatively hard ball engaging elements being fixed to and projecting outwardly from respective ones of said front, intermediate and rear straps of said upper strap means of said flexible retainer and being positioned on said front, intermediate and rear straps for location adjacent respective inside and outside vamp surface areas of the soccer shoe at locations thereon being near the inside and outside edges of the cleated sole of the soccer shoe and in position for contact with a soccer ball during ball trapping, catching and dribbling activities, said relatively hard ball engaging elements having ball contact surfaces collectively defining ball contact bounce-away strips causing a soccer ball to readily bounce away from the soccer shoe of a soccer player thus enabling the soccer player to learn to yield the ball contacting foot during catching and trapping activity and thus learn the soft feel that is necessary for ball control.

5,737,859
EARTH LEVELING APPARATUS

Jean-Roch Tardif, Riviére-Du-Loup, Canada, assignor to Tardif & Frere (1993), Quebec, Canada
Filed Apr. 15, 1996, Ser. No. 632,096
Int. Cl.^{6} E02F *5/00*
U.S. Cl. 37—389 6 Claims



1. An earth leveling apparatus comprising:
a vehicle having first runner means for movement in an operative direction;
an elongated screw mounted to the vehicle and rotatable on its axis, and extending transversely of the operative direction of movement of the vehicle; and
means for rotating the screw, the screw having a spiral blade with an edge adapted to engage earth to move the earth along the length of the screw, as the vehicle advances in the operative direction, so as to level the earth,
wherein the vehicle is a trailed vehicle adapted to be hauled by a tractor in the operative direction with the first runner means in contact with the ground and downstream of the vehicle relative to the operative direction, a second set of runner

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means in the form of transport wheels is mounted to the vehicle for movement in a transport direction parallel to the axis of the screw,

whereby the vehicle can be hauled on a highway with the elongated screw in a raised position for transport and wherein the first runner means are raised out of contact with the ground and the second runner means are lowered to be in contact with the ground for movement in the transport direction.

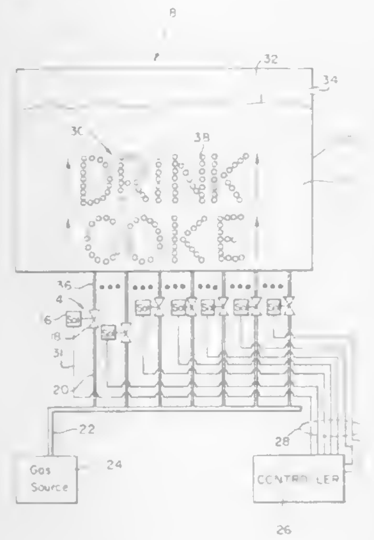
5,737,860
METHOD AND APPARATUS EMPLOYING GRAVITY TO FORM A VARIABLE MESSAGE ON A SIGN

Roger Whigham; Lisa Wandrick, both of Atlanta, and Thomas R. Boston, Fairburn, all of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Continuation of Ser. No. 471,384, Jun. 6, 1995, abandoned. This application Jul. 18, 1997, Ser. No. 896,800

Int. Cl.^{6} G09F *13/24;* **B05B** *17/08*

U.S. Cl. 40—406 **27 Claims**



7. A method of forming a substantially vertical, moving and changeable message for a sign from gas bubbles rising within a tank of liquid, comprising the steps of:

sequentially releasing gas as a plurality of bubble groups within the tank of liquid, bubbles in each of said bubble groups corresponding to multiple locations within said tank, to establish said plurality of bubble groups at different relative depths within said tank of liquid such that a message is intelligible from a total visual relationship between the different relative depths of said bubble groups within said tank of liquid as observed from a side of said tank

each bubble group including at least one gas bubble defining part of the message;

the gas of each of said plurality of bubble groups being less dense than the liquid such that each of said plurality of bubble groups rises uniformly under an effect of gravity.

5,737,861
INTERMITTENT MOTION GEAR BOX

Don Hansen, Anaheim, Calif., assignor to Tri Motion Design, Inc., Alamo, Calif.

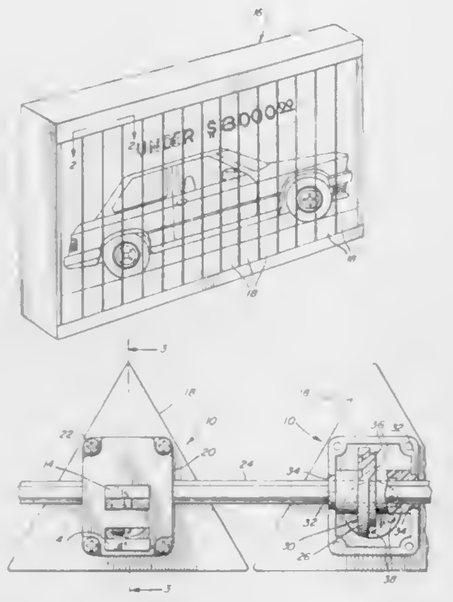
Filed Apr. 23, 1996, Ser. No. 636,875

Int. Cl.^{6} G09F *11/02*

U.S. Cl. 40—505 **5 Claims**

1. A display device having a plurality of display surfaces, comprising, in combination:

a plurality of triangular shaped display elements;



a plurality of gear boxes mounted in said display device;

each of said plurality of gear boxes having a separate housing divided into two parts;

each of said plurality of gear boxes having a partial gear drive means rotatably supported therein;

each of said partial gear drive means having a shaft and being rotatably supported between said two parts of said separate housing by bearing means carried on said shaft;

operating means connected to each of the shafts of said partial gear drive means to synchronously drive each of said partial gear drive means;

each of said shafts is hollow and is shaped so as to mate with said operating means extending therethrough;

pin wheel driven means rotatably mounted in each of said separate housings at an angle of 90 degrees to the respective partial gear drive means held therein;

each of said pin wheel driven means having an upper surface with a plurality of pins thereon and a lower surface with a securing means connected thereto and extending through an opening formed in said separate housing; and

each of said plurality of triangular shaped display elements being connected to one of said securing means on the lower surface of a pin wheel driven means, whereby said operating means will intermittently move said plurality of triangular shaped display means in said display device.

5,737,862
PORTABLE SIGN

Garry T. Cooper, 79 McVeigh Street, Barrie, Ontario, Canada, L4M 7E4, and J. Murray Wright, 3 Springdale Cresent, Barrie, Ontario, Canada, L4M 5A7

Filed Sep. 13, 1996, Ser. No. 713,363

Claims priority, application Canada, Sep. 20, 1995, 2158666

Int. Cl.^{6} G09F *7/04*

U.S. Cl. 40—606 **5 Claims**

1. A portable sign comprising:

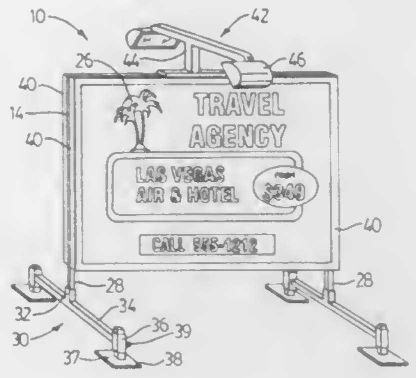
a magnetically attractable signboard presenting a neutral background devoid of any locating indicia and any mechanical securing means;

a frame supporting said signboard;

a support for supporting said frame;

graphic elements cut from a magnetic rubber material releasably securable to said signboard by magnetic attraction without mechanical or visual constraint;

a mesh screen hingedly secured to said frame and movable from an open position permitting access to said graphic elements to a closed position covering said graphic elements to inhibit access to said graphic elements;



said frame releasably attaching to said support by posts extending downwardly from said frame which are received in receptacles extending upwardly from said support;

said support including a pair of horizontal members from each of which one of said receptacles extends;

said support further including adjustable legs upon which said support rests to allow longitudinal and lateral levelling of said support;

said adjustable legs are provided at each end of said horizontal member and include an upright member which is slidably received by a socket at each end of each said horizontal member;

releasable locking means are provided between each said socket and corresponding upright member to releasably secure said socket to said upright member to prevent relative movement therebetween, said upright member being freely slidable in said socket when said releasable locking means is released;

said graphic elements including at least one member from the group consisting of letters, numbers, symbols, background mats and text boxes; and,

said graphic elements are magnetically attracted to each other and to said signboard to allow said graphic elements to be superimposed on one another on said signboard.

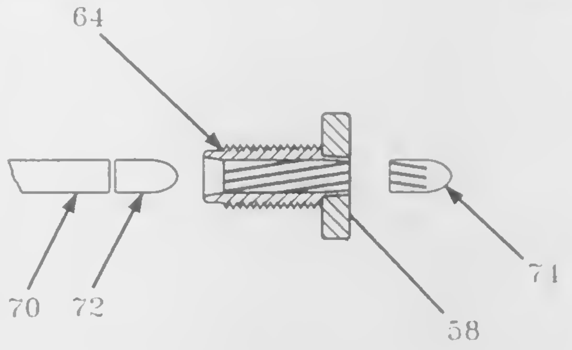
5,737,863
MUZZLE LOADING FIREARM PROJECTILE

William F. Rainey, III, Rt. 1, Box 166-B-81, Galveston, Tex. 77554

Division of Ser. No. 432,799, May 2, 1995, Pat. No. 5,623,779, which is a continuation-in-part of Ser. No. 154,280, Nov. 18, 1993, abandoned. This application Jan. 15, 1997, Ser. No. 784,085

Int. Cl.^{6} F41A *21/18*

U.S. Cl. 42—51 **3 Claims**



1. The combination of a rifled barrel of a muzzle-loading firearm and a muzzle-loading firearm bullet-shaped cylindrical projectile for being fired therefrom, said projectile having uniformly deep rifling grooves pre-formed over its cylindrical surface that matches in number and spiral angle the rifling of the firearm barrel, said rifling grooves of said projectile being wider than the lands of the rifling of the firearm barrel and being of smaller outside diameter than the inside diameter of the firearm barrel so as to provide clearance over the entire barrel length between said projectile and the barrel in both diameter and circumference along the sides of the rifling lands of the firearm barrel and the rifling grooves of said projectile, thereby imparting a stabilizing spin to said projectile when fired from the barrel.

5,737,864
SAFETY-DEVICE FOR LOCKING FIRE-ARMS

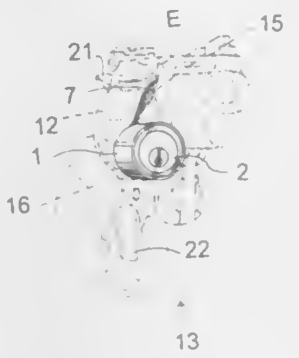
Milton Otto, Rua Serra dos Parceis, 155 - Diadema - SP, Brazil

Filed Dec. 26, 1996, Ser. No. 780,187

Claims priority, application Brazil, Dec. 28, 1995, 9505479

Int. Cl.^{6} F41A *17/00*

U.S. Cl. 42—70.11 **17 Claims**



1. A firearm locking safety device comprising:

a main body having a tubular configuration and a bottom wall,

an axially displaceable keycore disposed within said main body, said keycore adapted to operate a piece, a locking element projecting from said piece; and

a spring that biases said piece and bears against said bottom wall of said main body, said bottom wall comprising a window through which an end of said locking element can project, a claw-shaped flap, a square-profiled flap, and a space between said flaps.

5,737,865
REPEATER SHOT GUN

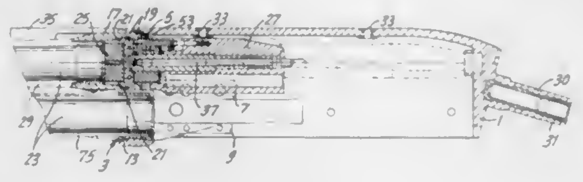
Rudolf Brandl, Dornhan-Weiden, and Heinz Matt, Oberndorf, both of Germany, assignors to Heckler & Koch GmbH, Oberndorf am Neckar, Germany

Filed Mar. 28, 1996, Ser. No. 624,979

Claims priority, application Germany, Mar. 31, 1995, 195 12 178.3

Int. Cl.^{6} F41A *21/00*

U.S. Cl. 42—75.02 **18 Claims**



1. A repeater shot gun comprising

a plastic housing;

at least one barrel rigidly attached to the housing when the gun is assembled;

the barrel having a rear portion;

a coupling including a barrel receiver rigidly positioned in the housing, such that the barrel receiver substantially coaxially surrounds the rear portion of the barrel and the barrel is in close-fitting engagement with the barrel receiver;

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wherein the coupling comprises at least one anchor jut, the anchor jut extending at least partially into the plastic housing; and wherein the at least one anchor juts extends substantially parallel longitudinally within the housing.

5,737,866
DEVICE FOR ADAPTING A SHOOTING AID ONTO AN INDIVIDUAL FIRE-ARM

Jean Minaire, Saint Priest en Jarez, and Jean-Pierre Montgrenier, Veauche, both of France, assignnrs to Giat Industries, France

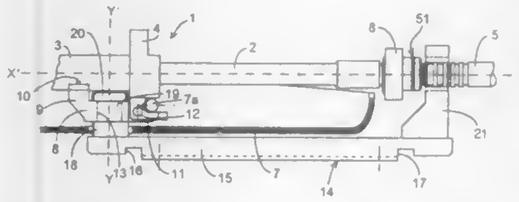
PCT No. PCT/FR96/00757, § 371 Date Apr. 2, 1997, § 102(e) Date Apr. 2, 1997, PCT Pub. No. WO96/37749, PCT Pub. Date Nov. 28, 1996

PCT Filed May 21, 1996, Ser. No. 776,033

Claims priority, applicatinn France, May 23, 1995, 95 06134

Int. Cl.⁶ F41A *35/00;* F41C *3/14;* F41G *1/00*

U.S. Cl. 42—90 **7 Claims**



1. An adapter for mounting shooting accessories to an individual firearm in the vicinity of the front of a barrel, comprising:

- a stationary component rigidly joined to the firearm and located opposite the end of a barrel from which a projectile exits;
- a removable component that can be affixed to the stationary component;
- said removable component having a longitudinal plate with a connector at one end to connect to the stationary component and an attachment element at the other end to attach to the front of the barrel; and
- hookup means whereby said stationary component is rigidly joined to the connector of said removable component by a quick-connect bayonet mount.

5,737,867
FISH-LIKE ARTIFICIAL BAIT

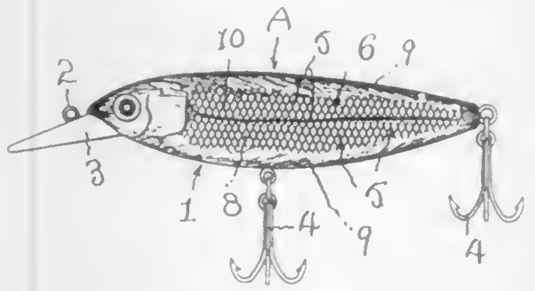
Teruhiro Tsutsumi, and Tomoyuki Moriya, both of Hamamatsu, Japan, assignors to Shintowa Co., Ltd., Shizuoka-ken, Japan

Filed Sep. 13, 1996, Ser. No. 713,728

Claims priority, application Japan, Feb. 26, 1996, 8-037743

Int. Cl.⁶ A01K *75/02*

U.S. Cl. 43—17.6 **5 Claims**



1. A fish-like artificial bait comprising a hollow fish-like main body made of a transparent resin material, a concave groove formed in a surface of said main body and serving as a scale indicating portion, a heat pressure welded layer using a light non-transmitting transfer foil and formed on the surface of said scale indicating portion excepting said concave groove, a light non-transmitting color painted layer formed on the surface of said fish-like main body excepting said scale indicating portion, a light non-transmitting color painted layer formed on the surface of said fish-like main body excepting said scale indicating portion, and a luminous material disposed on an inner side of said fish-like main body and served as a light source for light transmitting through said concave groove.

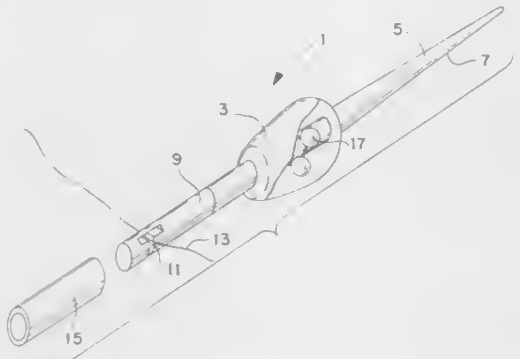
5,737,868
WEIGHTED FISHING BOBBER

Dennis Rikard, P.O. Box 1090, Warsaw, Mo. 65355

Filed Nov. 6, 1996, Ser. No. 744,637

Int. Cl.⁶ A01K *93/00*

U.S. Cl. 43—44.92 **5 Claims**



1. A fishing bobber comprising:

- a floatable elongated body having a lower section with a slot therein, said slot being adapted to receive an insertable fishing line, and having an enlarged section located above said slot, said enlarged section having at least one weighted member therein used to maintain the body in balance while floating in water, said at least one weighted member is made up of three members joined in a triangular configuration; and
- a movable sleeve adapted to slide on said body's lower section to cover said slot whereby any inserted fishing line is held to said body.

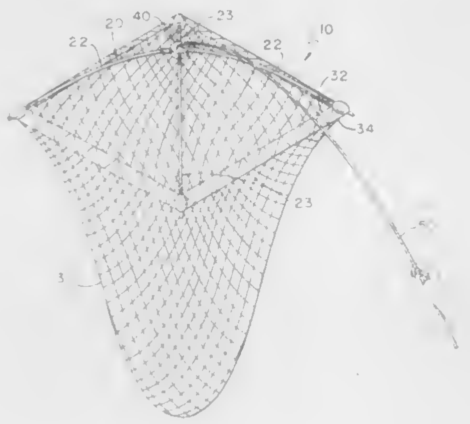
5,737,869
FISHING NET ASSEMBLY

Narciso E. Murguido, 2811 S.W. 21st St., Miami, Fla. 33145

Filed Oct. 31, 1996, Ser. No. 741,725

Int. Cl.⁶ A01K *69/10*

U.S. Cl. 43—100 **4 Claims**



1. A fishing net assembly, comprising:

- A) two elongated resilient members having each first and second ends and being perpendicularly disposed with respect to each other and said resilient members having substantially the same dimensions;
- B) a junction assembly keeping said elongated resilient members rigidly in place and including upper and lower walls, and said junction assembly further includes means for supporting a bait on said lower wall;
- C) four weight members mounted adjacent to said first and second ends having a sufficient weight to sink said fishing net assembly;
- D) tensioning means for keeping said resilient members in an arcuate position including first and second cable members interconnecting said elongated resilient members on opposite sides of said respective weight members wherein said first and second ends define a plane below said lower wall so that a net mounted to said first and second cables obstruct said crustaceans when they attempt to exit,
- E) a net mounted to said tensioning means so that a sac is defined with an opening defined by said tensioning means; and
- F) a leader line attached to said upper wall.

5,737,870
BAIT AND TRAP

Bharat B. Thind, Cranford, Great Britain, assignor to The Minister of Agriculture Fisheries and Food in her Britannic Majesty's Government of the U.K. of Gt. Britain & N. Ireland, United Kingdom

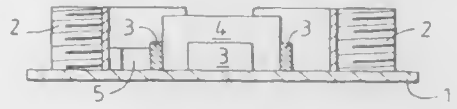
PCT No. PCT/GB94/00916, § 371 Date Nov. 3, 1995, § 102(e) Date Nov. 3, 1995, PCT Pub. No. WO94/24859, PCT Pub. Date Nov. 10, 1994

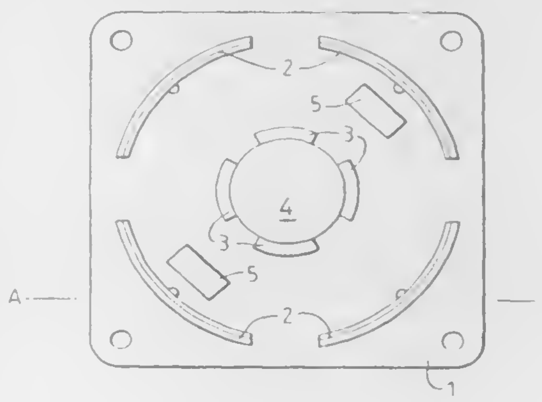
PCT Filed Apr. 29, 1994, Ser. No. 537,692

Claims priority, application United Kingdom, Apr. 29, 1993, 9308868

Int. Cl.⁶ A01M *1/20*

U.S. Cl. 43—107 **25 Claims**





1. A method for assessing the infestation status of an environment with respect to insects and/or arachnid pest animals comprising the steps of:

- (1) placing in the environment a trap which is capable of attracting the pest animals and detaining them therein the trap comprising a housing containing a non-flowing aqueous gel bait which is non-harmful to the pest animals, said housing having adjustable openings to allow access of pest animals and to control the rate of evaporation from the bait, the water content of the bait being sufficient to ensure that the pest animals are detained within the housing;
- (2) maintaining the trap in the environment for a predetermined time sufficient to attract a representative amount of the pest animal population; and thereafter
- (3) removing the trap and relating the number and/or type of animals arrested therein to the infestation status of the environment.

5,737,871
METHOD OF PREPARING AND UTILIZING PETROLEUM FUEL MARKERS

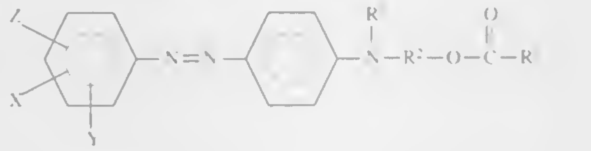
Michael R. Friswell, Wayne, N.J., assignor to Morton International, Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 638,409, Apr. 26, 1996, abandoned. This application Dec. 23, 1996, Ser. No. 771,809

Int. Cl.⁶ C10L *1/22*

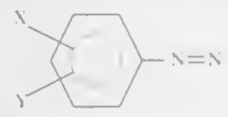
U.S. Cl. 44—328 **6 Claims**

3. A petroleum fuel tagged with a compound having the formula



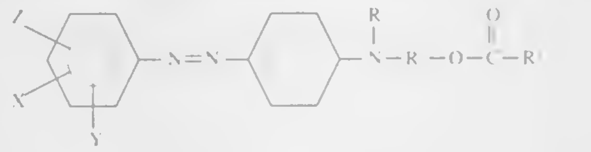
$$Z,X,Y\text{-}C_6H_2-N{=}N-C_6H_4-\overset{\overset{R^1}{|}}{N}-R^2-O-\overset{\overset{O}{\|}}{C}-R^3$$

where R^1 is C_1-C_3-alkyl, R^2 is C_1-C_3-alkylene, and R^3 is C_1-C_2-alkyl, X and Y are the same or different and are selected from H, C_1-C_3-alkyl, C_1-C_3-alkoxy, halogen, and nitro, and Z is H or



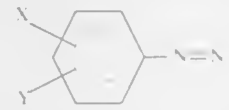
wherein X and Y are as defined above

5. A method of tagging a petroleum fuel and subsequently identifying the tagged petroleum fuel, the method comprising: providing a solution of a compound of the formula



$$Z,X,Y\text{-}C_6H_2-N{=}N-C_6H_4-\overset{\overset{R^1}{|}}{N}-R^2-O-\overset{\overset{O}{\|}}{C}-R^3$$

where R^1 is C_1-C_3-alkyl, R^2 is C_1-C_3-alkylene, and R^3 is C_1-C_2-alkyl, X and Y are the same or different and are selected from H, C_1-C_3-alkyl, C_1-C_3-alkoxy, halogen, and nitro, and Z is H or



wherein X and Y are as defined above, said compound being dissolved in a water-immiscible organic solvent to provide a marker solution,

- tagging said petroleum fuel with said marker solution, and
- subsequently extracting said compound from said petroleum fuel with an acidic aqueous solution, thereby producing a chromophoric reaction of said compound.

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5,737,872

FORMULATION FOR SYNTHETIC SEED

James E. Cunningham; Danielle Julie Carrier, and David I. Dunstan, all of Saskatoon, Canada, assignors to National Research Council of Canada, Ottawa, Canada

Filed Aug. 7, 1996, Ser. No. 692,949

Int. Cl.^{6} A01C *1/06;21/00;1/00;* **A01B** *79/00*

U.S. Cl. 47—57.6 **11 Claims**

1. A synthetic seed comprising, a plant propagule capable of producing an entire plant, and an encapsulating material including a finely divided substantially biologically and chemically inert filler, a binder and water, wherein the encapsulating material is in the form of a matrix comprising silica in an amount of 95 to 99%/w, alginate in an amount of 1 to 5%/w, based upon the total dry weight of the matrix, and water, the synthetic seed having a water activity expressed as percent relative humidity and adjusted to a range that is compatible with the plant propagule, such that propagule viability is maintained and germination will occur when exposed to germination permissive conditions, and to provide sufficient mechanical strength/hardness for use with mechanical seeding devices.

5,737,873

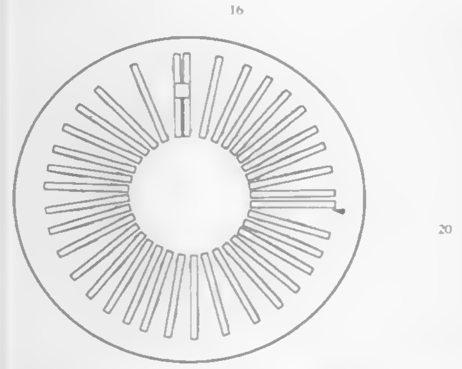
POTTED PLANT PROTECTOR

Kaj Gyr, 1807 NE. 52nd Ave., Portland, Oreg. 97213

Filed Apr. 24, 1996, Ser. No. 637,295

Int. Cl.^{6} A01G *9/02*

U.S. Cl. 47—66.6 **2 Claims**



1. A protector device adapted for use with a flower/plant container of predetermined size and shape, said container when filled with growing medium defining an upper surface of growing medium of predetermined width attractive to children or small animals, said device comprising: a flexible band of material forming a plurality of coils wound around a center axis to create a spiral, said spiral having a diameter less than half of said width but large enough to prevent access to said growing medium whereby said spiral may be placed around a plant in order to prevent children or small animals from getting at said upper surface of said growing medium.

5,737,874

SHUTTER CONSTRUCTION AND METHOD OF ASSEMBLY

Jeffrey J. Sipos, Reddington Shores, and Anthony R. Vross, Odessa, both of Fla., assignors to Simon Roofing and Sheet Metal Corp., Boardman, Ohio

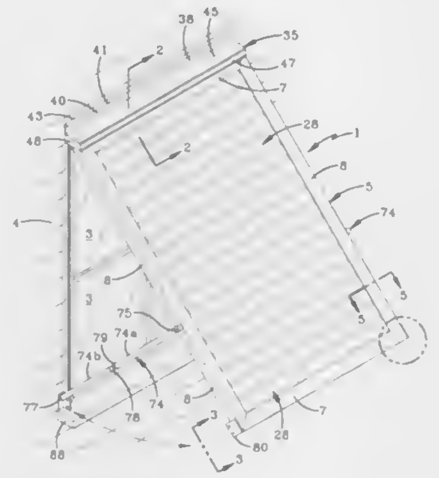
Filed Dec. 15, 1994, Ser. No. 356,152

Int. Cl.^{6} E06B *7/00*

U.S. Cl. 49—67 **26 Claims**

1. A shutter construction including,

an outer rectangular frame defined by horizontal and vertical frame channels, said frame channels being similar to each other, each being U-shaped in cross section defined by an end wall and spaced parallel side walls, and corner braces securing together adjacent ends of said frame channels to form said outer rectangular frame;



an inner rectangular frame defined by horizontal and vertical blade channels, each having side walls, with said inner frame being mounted and contained within the outer frame,

a plurality of blades mounted within the inner frame and extending horizontally between the vertical blade channels, said blades being generally Z-shaped in cross section having a pair of end flanges and a panel extending angularly therebetween, said panel being thinner than said end flanges, whereby said panels will flex upon impact forces being exerted thereon transferring said forces to the said end flanges; and

a plurality of fins formed on the side walls of the vertical blade channels and extending toward adjacent vertical side walls of the outer frame channels to radiate impact forces exerted on the blades into the outer frame channels.

5,737,875

TENSION APPARATUS OF A VEHICLE DOOR POWERED SLIDING DEVICE

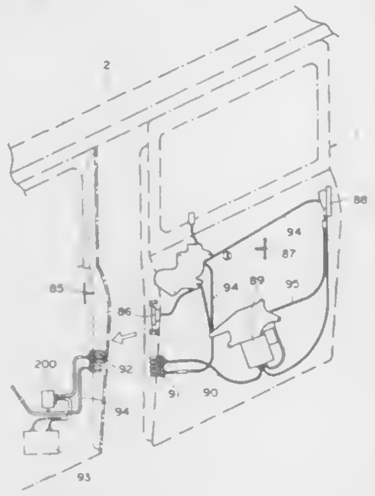
Patrick Dowling, and Manabu Nakajima, both of Yamanashi-ken, Japan, assignors to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 19, 1996, Ser. No. 710,534

Claims priority, application Japan, Sep. 20, 1995, 7-266499

Int. Cl.^{6} E05F *11/00*

U.S. Cl. 49—360 **14 Claims**



1. A tension apparatus of a powered sliding device on a vehicle sliding door, comprising;

a base plate;

a motor fixed to the base plate;

a wire drum mounted to the base plate by a first shaft and rotated by the motor;

a wire cable provided between the vehicle sliding door and the wire drum for pulling the sliding door forward or rearward when the wire drum rotates;

first and second tension arms rotatably mounted on the first shaft, each of said tension arms having a tension roller which makes contact with the wire cable;

at least one intermediate lever rotatably mounted on the first shaft;

an adjusting member for fixing the first tension arm and the intermediate lever so that an angle of the first tension arm and the intermediate lever can be adjusted;

wherein, a tension spring is arranged to act between the intermediate lever and the second tension arm.

5,737,876

CLUTCH MECHANISM OF A POWERED SLIDING DEVICE FOR VEHICLE SLIDING DOORS

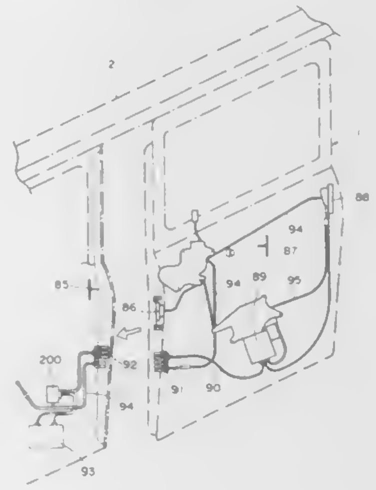
Patrick Dowling, Yamanashi-ken, Japan, assignor to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 11, 1996, Ser. No. 712,473

Claims priority, application Japan, Sep. 12, 1995, 7-259306; Sep. 20, 1995, 7-266498

Int. Cl.^{6} E05F *11/00*

U.S. Cl. 49—360 **16 Claims**



1. A clutch mechanism transmitting power of a motor to a movable member, comprising:

a swingable member rotatably supported to a stationary member by a supporting shaft and held at a neutral position by means of a resilient force of a return spring;

an output gear fixed to an output shaft of the motor;

first gears rotatably supported to the swingable member and engaged with the output gear;

second gears rotatably supported to the swingable member and brought into contact with the first gears with predetermined frictional resistance, respectively, so that they are rotated with said first gears;

rack members fixed to the stationary member and respectively engaged with the second gears;

an input gear for moving the movable member, said input gear engageable with the first gears;

wherein when said first gears and said second gears are rotated by the motor, the swingable member is rotated due to respective engagement of the second gears and the rack members against the resilient force of the return spring so that one of the first gears is engaged with the input gear;

wherein when said motor is not energized, the return spring returns the swingable member to the neutral position.

5,737,877

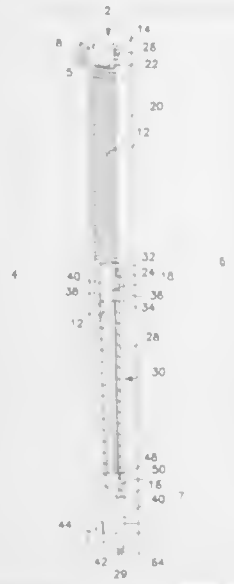
BLOCK AND TACKLE BALANCE WITH INTEGRAL, NON-ROTATING PULLEY SYSTEM

Scott Meunier; Rick Skallerud; Larry VerSteeg, all of Sioux Falls, and Gary Newman, Valley Springs, all of S. Dak., assignors to Amesbury Group, Inc., Amesbury, Mass.

Filed Jul. 26, 1996, Ser. No. 687,684

Int. Cl.^{6} E05F *1/00*

U.S. Cl. 49—445 **25 Claims**



1. A balance system comprising:

a resilient member having a first end spaced along a length from a second end;

a head block including a mechanism for securing said first end of said resilient member and a structure for securing said head block to a jambliner;

a slide block including a first channel defined therein, and a mechanism for securing said second end of said resilient member;

a base block including a second channel defined therein and a first retaining member;

a shoe movably disposed adjacent said base block, including a structure for coupling to a window sash, and a second retaining member; and

a cord slidably disposed within said first channel in said slide block and said second channel in said base block, said cord having a pair of ends retained by said first and second retaining members, such that movement of said shoe causes said cord to slide within said channels causing displacement of said slide block relative to said head block, and a corresponding change in said length of said resilient member

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5,737,878

DOOR FRAME GUARD DEVICE

David B. Raulerson, 2808 W. 12th St., Panama City, Fla. 32401, and Charlie E. Day, Jr., P.O. Box 15055, Panama City, Fla. 32406

Filed Sep. 5, 1996, Ser. No. 707,635

Int. Cl.^{6} B60J *5/00*

U.S. Cl. 49—462 **9 Claims**

1. A door frame guard device to be used in combination with a conventional door jamb have a door hingedly attached thereto and including a first side wall, a second side wall, and a third side wall, said door frame guard device comprising:

at least one component;

said at least one component being removably secured to at least one side wall of a conventional door jamb having a door hingedly attached thereto;

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each component is U-shaped and includes a planar wall having opposite ends, a first member and a second member extends outwardly from each end.

said first member and said second member each include an upper edge and a lower edge;

said upper edge is secured to said planar wall;

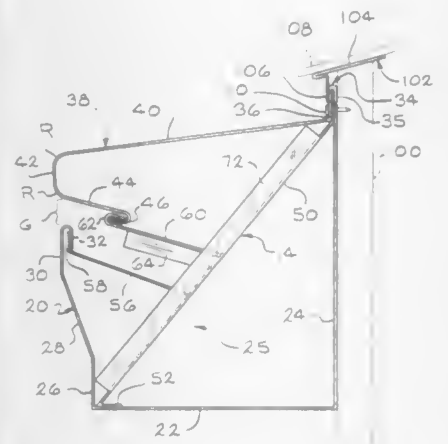
said first member includes a plurality of openings; and

said openings extends to said lower edge of said first member for providing said openings to be a groove and a receiving means for receiving hinges of said door.

5,737,879

DEBRIS BLOCKING GUTTER AND SUPPORT HANGER

Vernon L. Sweet, 6363 Douglas Rd., Lambertville, Mich. 48144
Filed Mar. 31, 1997, Ser. No. 829,653
Int. Cl.⁶ E04D *13/076*
U.S. Cl. 52—12 **17 Claims**

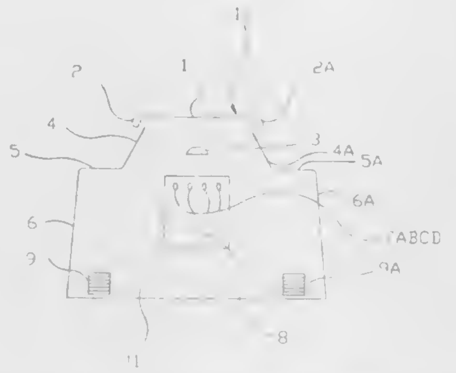


1. A gutter system comprising:
- a gutter having
  - (i) a trough for receiving water formed by a front wall, a bottom wall and a rear wall, and
  - (ii) a shield, integrally formed with the rear wall, covering at least a portion of the trough to prevent debris from entering the trough, the shield including a cover section terminating in a planar, downwardly projecting blocking wall and a rearwardly projecting angled wall, wherein a gap is provided between a lower end of the blocking wall and the front wall; and
- a hanger having a first arm supporting the front wall and a second arm supporting the shield.

5,737,880

RIGID, MULTI-PURPOSE GRILL COVER

Cedric M. Hayes, 1000 Clarksville Rd., Hermitage, Pa. 16148; Ronald Haag, 142 Coal Hill Rd., Greenville, Pa. 16125, and Darren P. O'Neill, 117 Ridge Ave., Sharpsville, Pa. 16150
Filed Nov. 26, 1996, Ser. No. 753,390
Int. Cl.⁶ B65D *85/00*
U.S. Cl. 52—79.1 **1 Claim**



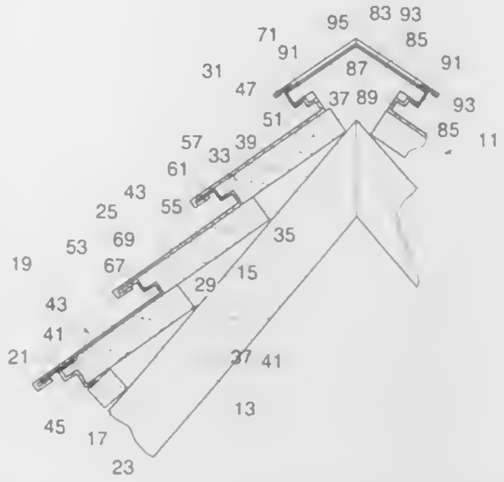
1. A rigid, one-piece, lightweight, plastic or resin, multi-purpose grill covering for encompassing and protecting an outdoor barbecue grill, comprising:
- a front base wall comprising a recessed handle, bottom corners with vents positioned therein, and a recessed vertical surface with accompanying framework and housing therewithin hooks for positioning cooking utensils;
- a rear base wall comprising a recessed handle and bottom corners with vents positioned therein;
- first and second inclined side base walls that extend between the front and rear base walls with a height approximately half the height of the front and rear base walls, the first and second inclined side base walls ending in first and second planar surfaces, respectively, that each include a recessed area to allow for food preparation and service;
- first inclined side wall extending from an inside edge of the first planar surface;
- a second inclined side wall extending from an inside edge of the second planar surface;
- a top wall extending from a top edge of the front and rear base walls and the first and second inclined side walls and comprising a recessed planar area to accommodate food preparation and service; and
- curved handles at the top edge of the first and second side wall, running the width of the top wall, for providing an easy method of positioning the grill covering.

5,737,881

INTERLOCKING ROOF SYSTEM

Richard Stocksieker, Dingle Hill Rd., Andes, N.Y. 13731
Filed Dec. 13, 1996, Ser. No. 764,940
Int. Cl.⁶ E04B *7/00*
U.S. Cl. 52—90.1 **6 Claims**

1. An interlocking roof system having a multiplicity of interlocking panels for use on a structure with sloping rafters, said interlocking roof system comprising:
- rafters which slope downwardly from a peak to a lower edge;
- a riser secured to the lower edge of the rafters;
- multiple tiers of base members mounted horizontally on the rafters, a first tier including a base member with a lower edge mounted on the riser and an upper edge mounted on the rafters, a second tier including a base member with a lower edge mounted on the base member of the first tier and an upper edge mounted on the rafters and successive tiers each including a lower edge on the base member of the successively lower tier and an upper edge on the rafters, each base member having a notch in its lower edge;
- panels, each having an upper edge and a lower edge, being mounted on the base members of the tiers, each panel having a groove at its lower edge and a protrusion and a lip at its upper edge, each panel having a side member and a side lip, the protrusion of each panel being secured within the notch of the base member of the next successive higher tier;
- a tab member having a general Z-shape mounted on the lower edge of the base member of the first tier forming a partial lip, the groove of each panel of the first tier being mounted on the partial lip and the groove of each panel of each successive tier being mounted on the lip of the next succeeding lower tier;
- a clip joiner for mounting on the side lip of two adjoining panels in the same tier;
- a cap mounted at the peak of the rafters, the cap including cap segments with a lower edge affixed to the rafters and extending over the base member of the tiers most adjacent the cap and having indentations at the lower edge, the upper edges of the panels being secured in the indentation, cap members mounted on the cap segments on each side of the peak, each cap member having a slope generally the same as the slope of the panels on the side of the peak where the cap member is located and each cap member having a lower edge, a cap cover located over the cap members and a pair of tab members secured to the lower edge of cap members to secure the cap cover.

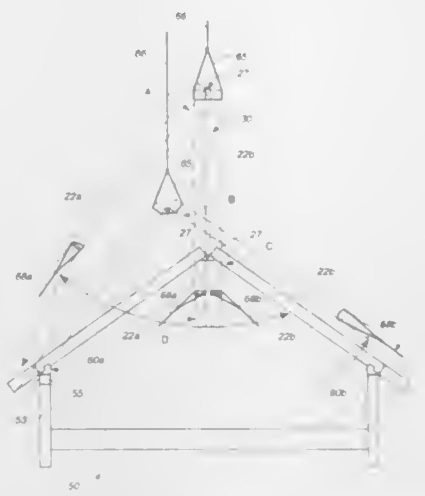


5,737,882

APPARATUS AND METHOD FOR ATTACHING A ROOF TO A BUILDING

John F. Eckert, San Rafael, and Jorge R. de Quesada, San Francisco, both of Calif., assignors to International Village, Inc., Austin, Tex.
Filed Apr. 23, 1996, Ser. No. 636,573
Int. Cl.⁶ E04B *7/04; 7/16*
U.S. Cl. 52—93.2 **16 Claims**

7. A roof, comprising:
- first and second parallel bearing beams,
- a first clip attached to said first bearing beam, said first clip comprising a first ramp and a first blocking tab;
- a second clip attached to said second bearing beam, said second clip comprising a second ramp and a second blocking tab; and
- a roof assembly attached to said first and second bearing beams, said roof assembly comprising a first frame and a second frame pivotally attached, said first frame comprising a first rafter and a first blocking member, said second frame comprising a second rafter and a second blocking member, said first rafter supported by said first ramp and said first blocking member received by and attached to said first blocking tab, and said second rafter supported by said second ramp and said second blocking member received by and attached to said second blocking tab.



5,737,883

ANCHOR FOR A CANOPY FRAMEWORK AND METHOD OF USE

Barbara Rose, 795 Sun Joy Dr., Hemet, Calif. 92543
Filed Feb. 7, 1997, Ser. No. 796,967
Int. Cl.⁶ E02D *27/00*
U.S. Cl. 52—169.9 **17 Claims**

11. An anchor attachable to a leg of a canopy framework, said anchor comprising:
- a bar having a first end and an opposite second end;
- said second end having a foot, said foot extending outward from said bar at a substantially right angle;
- a weight having a first end and an opposite second end, said second end of said weight connected to said first end of said bar; and.
- at least one attaching means for attaching said weight to the leg

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5,737,884

SPIRAL STAIR CASE

Wolfram Schrom, PO Box 656, Live Oak, Fla. 32060
Filed Sep. 17, 1996, Ser. No. 714,845
Int. Cl.⁶ E04F *11/00*
U.S. Cl. 52—187 **1 Claim**

1. A spiral staircase comprising an outside stringer framework formed from a plurality of joined segments, a central column formed from a plurality of joined segments, a plurality of stair

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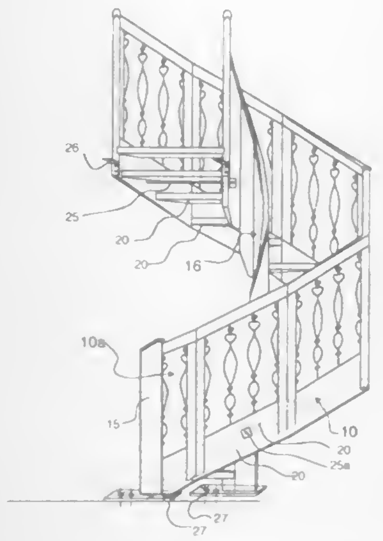


treads supported between the outside stringer framework and the central column, each segment of the outside stringer framework and the central column together forming a polygonal shape with at least two of said stair treads located therebetween, the spiral staircase further comprising:

a) each segment of the outside stringer framework comprising of fascia segments, handrail means, baluster posts, and baluster filler elements all interconnected to form each of said outside stringer segments, wherein each of said fascia segments, handrail means, baluster posts, and baluster filler elements is formed from strait, non-curved elements;

b) each segment of the central column having a top edge for providing an inside handrail;

c) each stair tread being supported at opposing ends by a fascia segment of the outside stringer framework and a segment of the central column without additional stringer means therebetween.

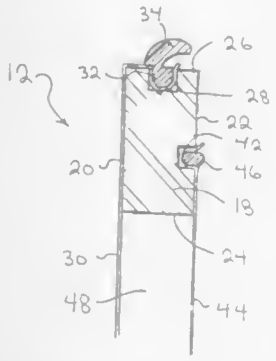
5,737,885
SECONDARY INTERIOR WINDOW

Eckhart Albert Stoyke, Box 30, Site 4, R.R. #1, St. Albert, Alberta, Canada, T8N 1M8

Filed Mar. 29, 1996, Ser. No. 624,970

Int. Cl.^{6} E06B *3/26*

U.S. Cl. 52—202 **1 Claim**



1. A secondary interior window, comprising:

a rectangular frame having a first face, a second face, and an exterior peripheral euge;

a first peripheral groove disposed along the exterior peripheral edge of the rectangular frame;

a first sheet of transparent polymer plastic stretched across the first face of the rectangular frame and disposed in the first peripheral groove;

a first compressible retainer embedded in the first peripheral groove thereby preventing withdrawal of the first sheet of transparent polymer plastic from the first peripheral groove and securing the first sheet of transparent polymer plastic to the frame, the first compressible retainer protruding from the peripheral groove, thereby providing an exterior friction member by means of which the frame is held within an interior window cavity;

a second peripheral groove disposed along the second face of the rectangular frame;

a second sheet of transparent polymer plastic stretched across the second side of the rectangular frame and disposed in the second peripheral groove; and

a second compressible retainer embedded in the second peripheral groove thereby preventing withdrawal of the second sheet of transparent polymer plastic from the second peripheral groove and securing the second sheet of transparent polymer plastic to the frame

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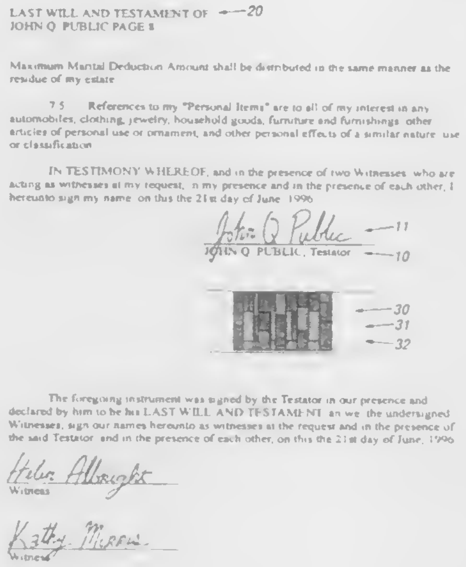
5,737,886
METHOD FOR DETERMINING FORGERIES AND AUTHENTICATING SIGNATURES

Robert J. Kruckemeyer, 808 Travis, Suite 1700, Houston, Tex. 77002

Filed Apr. 4, 1996, Ser. No. 627,600

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—67 **37 Claims**



LAST WILL AND TESTAMENT OF
JOHN Q PUBLIC PAGE 8

Maximum Marital Deduction Amount shall be distributed in the same manner as the residue of my estate

7 5 References to my "Personal Items" are to all of my interest in any automobiles, clothing, jewelry, household goods, furniture and furnishings other articles of personal use or ornament, and other personal effects of a similar nature use or classification

IN TESTIMONY WHEREOF, and in the presence of two Witnesses who are acting as witnesses at my request, in my presence and in the presence of each other, I hereunto sign my name on this the 21st day of June 1996

John Q Public
JOHN Q PUBLIC, Testator

The foregoing instrument was signed by the Testator in our presence and declared by him to be his LAST WILL AND TESTAMENT an we the undersigned Witnesses, sign our names hereunto as witnesses at the request and in the presence of the said Testator and in the presence of each other, on this the 21st day of June, 1996

Helen Albright
Witness

Kathy Morris
Witness

1. A forgery deterrent and authentication system, comprising:

a. the encoding of a principal's personal identification number and separately numbered codes on an information being medium using a central registrar;

b. the placing of the principal's information bearing medium on items signed by the principal with a tamper proof adhesive;

c. the authenticating of the principal's information bearing medium through a reeder;

d. the issuing of a certificate of authenticity of at least one of the items including attaching a duplicate information bearing medium thereto; and

e. the maintaining of a database containing the record of possession of at least one of the items.

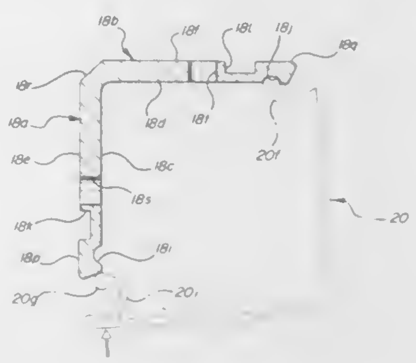
5,737,887
WALL PANEL ASSEMBLY

Paul Allen Smeenge, Ada, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed Jan. 10, 1997, Ser. No. 778,162

Int. Cl.^{6} E04B *1/38*

U.S. Cl. 52—282.2 **18 Claims**



1 A connector assembly for use in releasably attaching upstanding wall panels together in various relative configurations, the assembly including:

upper and lower connector brackets, each bracket having an L configuration defining first and second leg portions adapted for respective attachment to vertical end edges of first and second wall panels arranged in an L configuration, each leg portion having an inside face and an outside face and defining a free vertical end edge, each leg portion defining a vertical socket groove proximate the free end edge of the leg portion opening in the inside face of the leg portion; and

a further connector assembly member having a vertically elongated main body portion defining vertical edges and a vertical flange portion at each edge of the main body portion, each flange portion defining a ball end edge sized to fit in a socket groove of the connector brackets.

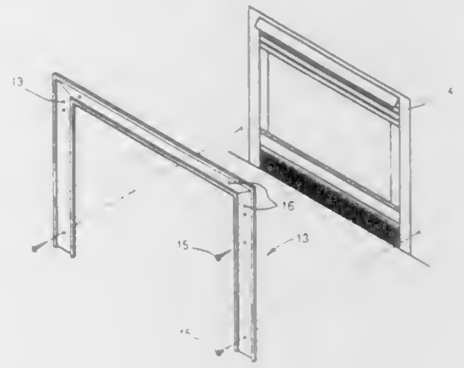
5,737,888
VERSATILE SURROUND TRIM STRUCTURE

Daniel Curtis Shimek, Apple Valley, and Ronald John Shimek, Prior Lake, both of Minn., assignors to Heat-N-Glo Fireplace Products Inc., Savage, Minn.

Filed Jan. 19, 1996, Ser. No. 588,864

Int. Cl.^{6} E04F *19/00*

U.S. Cl. 52—312 **7 Claims**



4 A versatile surround trim mounting device, comprising

a metal surround frame for a fireplace,

said surround frame comprising a pair of vertical legs and a horizontal leg connected together forming a joint between legs,

each said leg of said frame comprising an identical extrusion,

said extrusion having a pair of parallel trim edges separated from each other by having a connecting recess tile support therebetween,

said recess tile support having a base support and two side supports,

said trim edges each having a tile retaining extension extending inward over said base support, and

means for retaining tiles in said recess support by biasing tiles against one of said side supports of said recess tile support.

5,737,889
DEVICE FOR SEALING OF CONCRETE JOINTS

Bent Habberstad, Flateby, and Ivar Aanstad, Oslo, both of Norway, assignors to ING. B. Habberstad AS, Aurskog, Norway

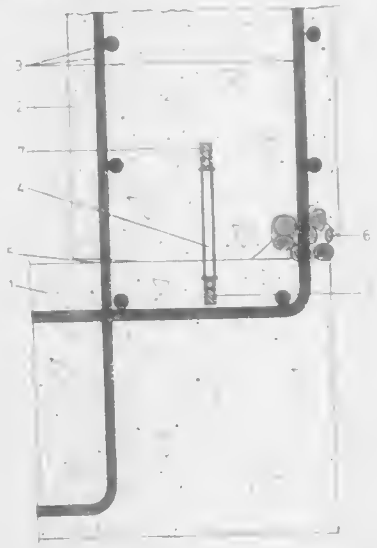
PCT No. PCT/NO94/00176, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO95/13438, PCT Pub. Date May 18, 1995

PCT Filed Nov. 7, 1994, Ser. No. 633,828

Claims priority, application Norway, Nov. 10, 1993, 934070

Int. Cl.^{6} B32B *3/14*, E04C *2/00*

U.S. Cl. 52—396.02 **10 Claims**



1. A device for sealing concrete joints, comprising an elongate section (8) having a larger width than thickness (t), said section (8) having longitudinal edge portions (12, 13) and being intended for casting into two concrete structures (1, 2) for sealing a concrete joint area between the two structures (1,2), and being provided with a swellable material (7, 14) at least at the longitudinal edge portions (12, 13) thereof, characterized in that the section (8) is made of a substantially rigid material and is provided with an internal cavity extending over a major part of its width

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5,737,890
FRAME ASSEMBLY

Marsha Vander Heyden, 151 W. 25th St., New York, N.Y. 10001

Filed Oct. 18, 1995, Ser. No. 544,701

Int. Cl.^{6} E06B *3/70*

U.S. Cl. 52—455 **19 Claims**

1. A frame assembly of the knock-down type including component parts comprising vertical stiles, horizontal rails and connection-disconnection means associated with each of said vertical stiles and said horizontal rails, whereby the component parts can be shipped or transported in a knock-down condition and readily assembled with a minimum of tools or no tools and free of the use of glue, and the component parts can be easily disassembled when desired by moving said horizontal rails and said vertical stiles relative to each other, said frame assembly comprising:

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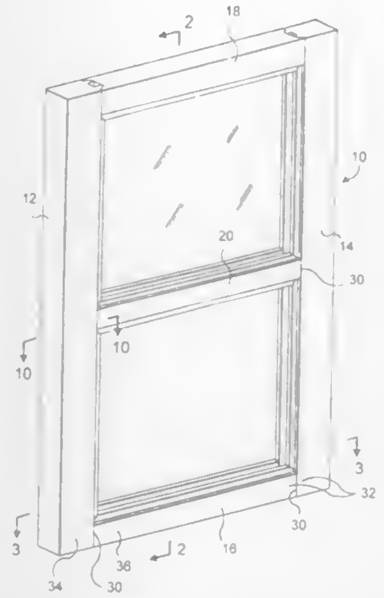


at least one pair of vertical stiles and at least one pair of horizontal rails, said vertical stiles and said horizontal rails being connectable to each other;

connection-disconnection means provided for said horizontal rails and said vertical stiles for connecting one end of each of said horizontal rails to one of said vertical stiles, at least two of said horizontal rails having at each end thereof a horizontal rail end and each of said vertical stiles having at each end thereof a stile corner, said connection-disconnection means including a stationary receiver provided for said stile corner and a slidable connector provided for an end of said horizontal rail to be joined to said stile corner provided with said stationary receiver, said slidable connector being joinable with said stationary receiver for connection of one said horizontal rail end of each said horizontal rail to one said stile corner of an adjacent stile to form a four-sided frame having four sides comprising at least four adjacent connections formed by said connection-disconnection means between said horizontal rails and said vertical stiles including two of said horizontal rails and two of said vertical stiles to form a corner connection between one said stile corner and one said horizontal rail end adjacent to each other by joinder of said stationary receiver and said slidable connector of each said stile corner with said rail end for assembling said horizontal rails and said vertical stiles to form said four-sided frame;

said connection-disconnection means being provided for each adjacent connection of a stile corner and a rail end including for each said adjacent stile corner and said rail end a pair of connectable-disconnectable connecting elements, one of said connectable-disconnectable connecting elements being said stationary receiver and the other of said connecting elements being said slidable connector, and said pair of connectable-disconnectable elements being slidably connected together for joining one of said stile corners with one of said rail ends for each said adjacent connection and being slidably separable from each other for separation of said vertical stiles from said horizontal rails, said connection-disconnection means being connected with said vertical stiles and said horizontal rails internally of said frame where said vertical stiles and said horizontal rails are joined together, and access to said stationary receiver and said slidable connector being available solely when said vertical stiles and said horizontal rails are disconnected from each other, and hidden from view when said vertical stiles and said horizontal rails are joined together; and

each of said vertical stiles and each of said horizontal rails including a panel holding means for receiving an insert portion of a panel, said panel holding means including a panel receiving and holding portion when assembled between said vertical stiles and said horizontal rails adapted to hold said insert portion to each said vertical stile and each said horizontal rail.

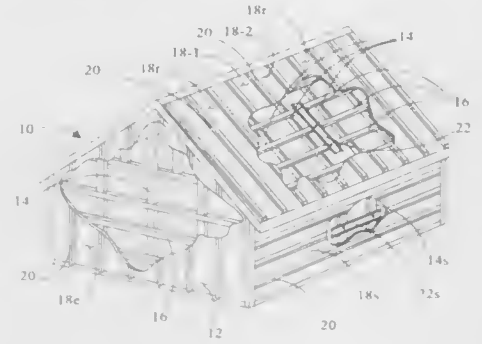
5,737,891
CHANNEL-MOUNTED INTERLOCKING PANEL ROOFING STRUCTURE

Percy Greenberg, St. Louis Park, Minn., assignor to Crown Partnership, Anoka, Minn.

Filed May 17, 1996, Ser. No. 651,043

Int. Cl.^{6} E04D *1/34*

U.S. Cl. 52—469 12 Claims



1 A structure for mounting covering panels to a building substructure comprising:

panel supporting channel means having a fastening portion for securement to a building substructure and shoulder means; and

at least two elongated panels each having a web and side edges formed by upstanding side members extending from the web away from the building substructure, each upstanding side member including slot means therein for receiving the shoulder means, the slot means extending in opposite directions.

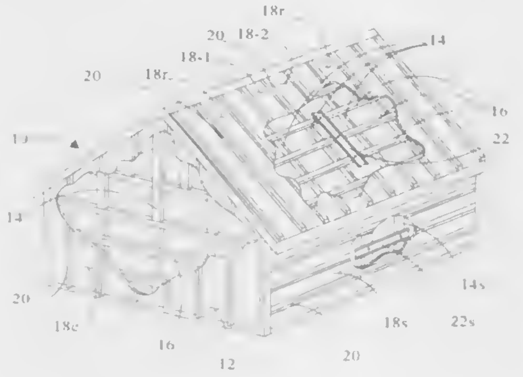
5,737,892
CHANNEL-MOUNTED INTERLOCKING PANEL ROOFING STRUCTURE

Percy Greenberg, St. Louis Park, Minn., assignor to Crown Partnership, Anoka, Minn.

Continuation-in-part of Ser. No. 651,043, May 17, 1996. This application Jul. 23, 1996, Ser. No. 686,219

Int. Cl.^{6} E04D *1/34*

U.S. Cl. 52—469 16 Claims



1. A structure for mounting covering panels to a building roof substructure comprising:

panel supporting channel means forming a gutter for directing moisture entering a seam between adjacent panels and having a fastening portion for securement to a building roof substructure and shoulder members spaced from the fastening portion for restraining the panels from separation from the roof substructure; and

elongated panels each having a web and side edges formed by upstanding side members extending generally the length of the panel, the upstanding side members including slot means

spaced from the panel web by a distance less than the fastening portion to shoulder member spacing of the channel means with the slot means receiving the channel means shoulder members to space the panels from the roof substructure while restraining the panels from separation from the roof substructure.

5,737,893
PANEL CONSTRUCTION AND CONNECTION SYSTEM

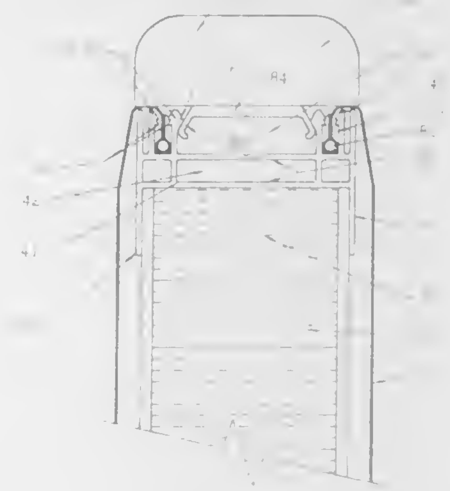
Paul Rossiter, Carleton Place; Steven Jones, Nepean, both of Canada, and Andrew Schoenherr, Milpitas, Calif., assignors to Tetrad Marketing/Sales Ltd., Ontario, Canada

Filed Oct. 23, 1996, Ser. No. 735,642

Claims priority, application Canada, Oct. 26, 1995, 2161459

Int. Cl.^{6} E04C *2/34*

U.S. Cl. 52—481.2 20 Claims



1 A partition panel including a generally rectangular core having opposed major faces, a plurality of corners and a plurality of marginal edges, and a perimeter frame assembly encompassing said core, said perimeter frame assembly comprising a plurality of frame members extending along said marginal edges of the core, and a plurality of corner connectors each located at a respective one of the corners of the core and attaching adjacent ends of said frame members together, said frame members including spaced primary flanges directed generally parallel to said major faces and disposed in flanking relation to marginal edge portions of said core, and said frame members each further including a double-walled web extending between said primary flanges and providing a lengthwise extending hollow cavity, each corner connector including a pair of legs each fitting tightly into respective adjacent ends of the frame members via the associated hollow cavities to secure said frame members together at said corners of the core of the panel and, wherein said frame members include spaced apart groove defining members each of which is adjacent a respective one of said primary flanges and adjacent opposing longitudinal margins of said web with the grooves defined thereby being directed outwardly of the perimeter of the panel, and a flexible covering material overlying the major faces of said core and having marginal edges of said material engaged in said grooves to secure said covering material in overlying relation to said major faces.

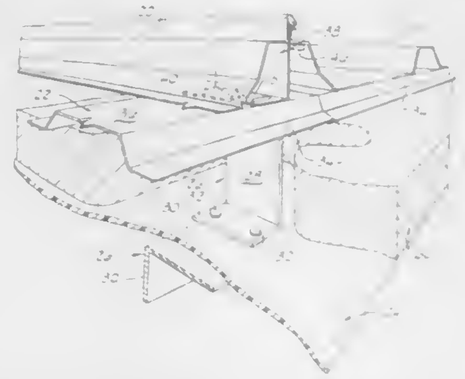
5,737,894
STANDING SEAM ASSEMBLY

Harold G. Simpson, Tulsa, and Leo E. Neyer, Edmond, both of Okla., assignors to Harold Simpson, Inc., Tulsa, Okla.

Continuation-in-part of Ser. No. 185,480, Jan. 21, 1994, and a continuation-in-part of Ser. No. 181,756, Jan. 21, 1994, and a continuation of Ser. No. 846,278, Mar. 2, 1992, Pat. No. 5,303,528, which is a division of Ser. No. 402,901, Sep. 1, 1989, Pat. No. 5,142,838, which is a division of Ser. No. 745,320, Jun. 14, 1985, abandoned, which is a continuation-in-part of Ser. No. 568,083, Jan. 4, 1984, Pat. No. 4,597,234, and a continuation of Ser. No. 604,884, Oct. 26, 1990, abandoned, which is a division of Ser. No. 136,246, Dec. 18, 1987, Pat. No. 4,812,485, which is a continuation-in-part of Ser. No. 90,689, Aug. 28, 1987, abandoned, which is a continuation-in-part of Ser. No. 745,320, Jun. 14, 1985, abandoned, which is a continuation-in-part of Ser. No. 568,083, Jan. 4, 1984, Pat. No. 4,597,234. This application Jun. 7, 1995, Ser. No. 484,975

Int. Cl.^{6} E04B *1/32*

U.S. Cl. 52—520 12 Claims



1 A standing seam roof assembly in which adjacent roof panels are supported by an underlying support structure in overlapping edge relationship to form a standing seam between adjacent roof panels, the standing seam roof assembly comprising:

a first roof panel having a female sidelap portion and a corrugated medial portion;

a second roof panel having a male sidelap portion and a corrugated medial portion, the female sidelap portion and the male sidelap portion of the first roof panel and the second roof panel, respectively, interconnecting to form the standing seam, the standing seam characterized as forming an engaging locking tab and retainer groove means for resisting disengagement of the female sidelap portion and male sidelap portion during uplift forces on the first and second panels so that unfurling of the standing seam is prevented; and

clip means for securing the male sidelap portion of the first roof panel to the underlying support structure, wherein the clip means accommodates expansion and contraction of the first and second roof panels, and wherein the clip means comprises:

a clip base having a C-shaped beam section; and

a hold down clip member slidably attached to the clip base, the hold down clip member having a hook-shaped section attached to the C-shaped beam section of the clip base

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5,737,895
PREFABRICATED CONSTRUCTION PANELS AND MODULES FOR MULTISTORY BUILDINGS AND METHOD FOR THEIR USE

Arthur Perrin, 9950 SW. 120 Ave., Miami, Fla. 33186

Filed Dec. 20, 1995, Ser. No. 575,343

Int. Cl.^{6} E04B *1/00*

U.S. Cl. 52—745.1 32 Claims

1. In a method for constructing a multi-level, multi-unit per level building with a framework including concrete beams, the improvement comprising:

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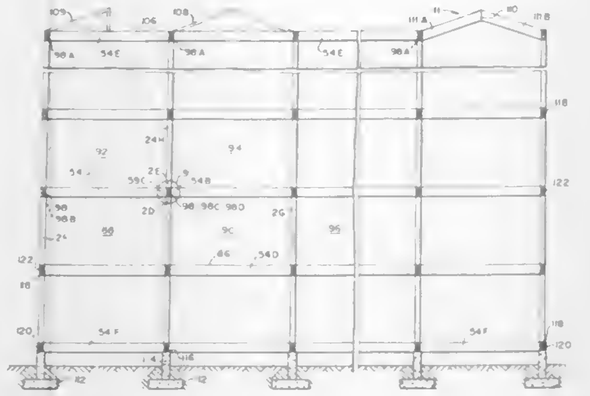
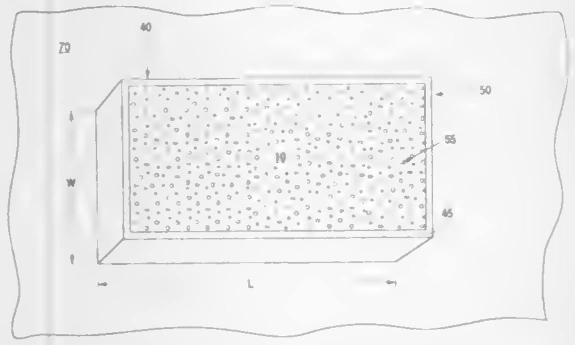


creating said beams, above a first level, without the use of removable forms by the steps of:
erecting wall panels on a specific building level, each said wall panel having a top;
placing ceiling panels on top of said wall panels, said ceiling panels having vertical ends;
positioning said vertical ends of two said ceiling panels so as to lie spaced apart on said top of one of said wall panels;
said vertical ends thereby defining the vertical, spaced apart sides of a volumetric beam void;
said top of said one wall panel defining the base of said volumetric beam void and the top surface of said beam void remaining exposed;
installing reinforcing bars into said beam void, whereby said completed beam is of reinforced concrete;
securing vertically rising, spaced apart supports to said top of said one wall panel;
mounting certain of said reinforcing bars onto said supports;
affixing spacing members to said vertical ends of said ceiling panel;
said spacing members being sized and shaped for abutting sides of said supports when said vertical ends of said ceiling panels are correctly spaced apart for defining said vertical sides of said beam void;
positioning said ceiling panels so that said spacing members abut said supports; and
filling said beam void with concrete to complete said beam.

5,737,896
LIGHTWEIGHT CONCRETE FOR BUILDING CONSTRUCTION COMPONENTS

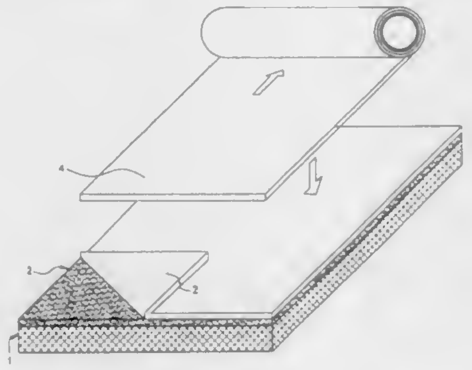
Michael S. Rodgers, 3418 57th St., Lubbock, Tex. 79413
Filed Sep. 5, 1996, Ser. No. 711,414
Int. Cl.⁶ E04B *1/14*
U.S. Cl. 52—745.2 **24 Claims**



19. A method for constructing a building using lightweight concrete panels, said method comprising the steps of:
forming a plurality of lightweight concrete panels, each panel bounded at least partially about a perimeter by a concrete frame, said lightweight concrete mixture being prepared by mixing a slurry having water, a cementing binder and a fine grain aggregate and add-mixing polystyrene pellets to said slurry thereby forming a substantially homogeneous lightweight concrete mixture, said polystyrene pellets comprising a gas-filled cellular interior encased within an exterior skin, said exterior skin being substantially impervious to said slurry;
providing a building foundation with a recess formed about a perimeter thereof, said recess having a width approximately equal to a thickness of said lightweight concrete panels; and
up-ending at least a portion of said plurality of lightweight concrete panels in said recess and coupling together adjacent lightweight concrete panels so that a substantially upright wall of a building is formed about at least a portion of a perimeter of said foundation.

5,737,897
INSULATION BOARD COMPOSITE

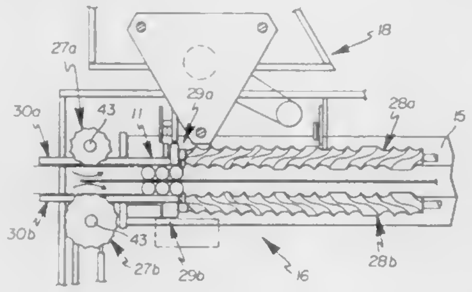
Michael P. Naipawer, III, Bloomingdale, N.J., assignor to Building Materials Corporation of America, Wayne, N.J.
Filed Apr. 7, 1997, Ser. No. 831,259
Int. Cl.⁶ E04D *5/04*
U.S. Cl. 52—796.1 **5 Claims**



1. An insulation board composite capable of peel and stick application of a waterproofing membrane and mechanical fastening to a roof deck comprising:
a rigid, dimensionally stable insulation board,
a tacky pressure sensitive adhesive coating thereon comprising asphalt and styrene-butadiene-styrene (SBS) polymer suitable for cold adherence of said board to said membrane, and
a releasable sheet on said coating.

5,737,898
PACKAGING MACHINERY PRIMING TECHNOLOGY

Dennis C. Grimm; Mitch Lowe, both of Marietta, Ga., and Bruce D. Domino, Nisswa, Minn., assignors to Riverwood International Corporation, Atlanta, Ga.
Filed Apr. 3, 1995, Ser. No. 415,492
Int. Cl.⁶ B65B *21/00*
U.S. Cl. 53—48.1 **1 Claim**

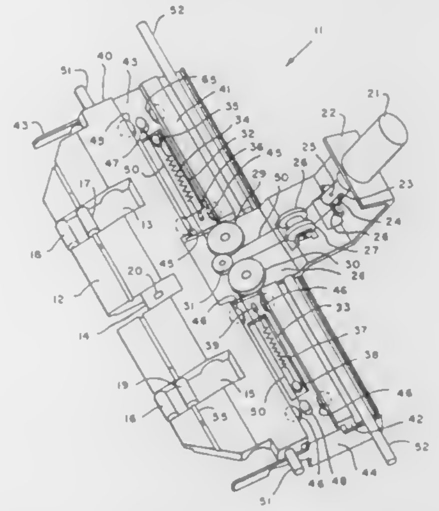


1. An automatic priming packaging apparatus, comprising:

(a) at least one article conveyor having a plurality of article conveyance lanes;
(b) an article grouping mechanism constructed and arranged to meter articles moving in said conveyance lanes into predetermined groups, said article grouping mechanism including at least one metering screw and at least one starwheel selector;
(c) at least one pair of aligned, cylindrical stop posts oriented for extension into each said conveyance lane over said conveyor, said stop posts further being disposed between said at least one starwheel selector and said at least one metering screw, said stop posts further being separate from said article grouping mechanism;
(d) means to actuate said stop posts, whereby said stop posts are extendible and retractable in said article conveyance lane, said stop posts physically blocking and always stopping travel of articles in said lanes when extended and permitting travel of articles in said lanes when retracted;
(e) means to coordinate actuation of said means to actuate and said article grouping mechanism, wherein said means to coordinate controls travel of articles during a startup phase and properly aligns articles with said at least one metering screw, said means to coordinate including the steps of:
  (1) beginning an autoprime mode by initializing a counter and rotating said at least one starwheel selector and said at least one metering screw, wherein articles move past said at least one starwheel selector toward said at least one metering screw;
  (2) actuating said stop posts to temporarily impede the articles for a predetermined time and at a predetermined distance from said at least one metering screw;
  (3) deactivating said stop posts after said at least one starwheel selector rotates a predetermined distance as determined by said counter, whereby said articles pass into said at least one metering screw; and
  (4) terminating said autoprime mode and beginning a machine start, wherein said packaging apparatus runs at full speed, and
(f) means to package article groups.

5,737,899
INSERTION PACKET CENTERING DEVICE

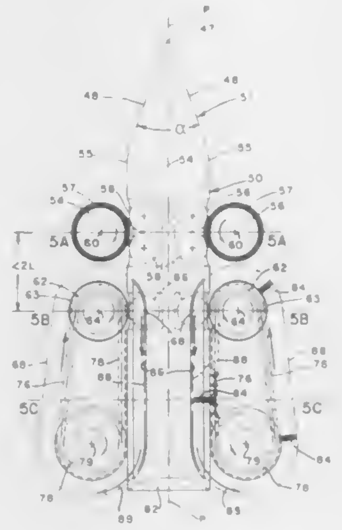
Steven A. Supron, Prospect; Michael D. Ballard, Sandy Hook, and Joseph H. Marzullo, Brookfield, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.
Filed Jul. 26, 1996, Ser. No. 687,308
Int. Cl.⁶ B65B *35/54*
U.S. Cl. 53—155 **8 Claims**



1. An alignment centering device for aligning a first packet, that is moved from a first platform to an accumulation area, with a second packet, that may differ in size, from the first packet, the second packet is moved from a second platform to an accumulation area, said device comprises:
a pair of lateral centering guides,
a solenoid,
a flexible cable connected to said solenoid and to said lateral centering guides to provide efficient transfer of motion from the solenoid to said centering guides so that when said solenoid is energized said centering guides move from a first predetermined position to a second predetermined position to align said first and second packet, and when said solenoid is de-energized said centering guides move from the second position to the first position;
means for opening the throat of an envelope; and
means for inserting said first and second aligned packet into said open envelope.

5,737,900
BANDING METHOD AND APPARATUS WITH ACCELERATION OF BAND ALONG FLOATING MANDREL AIMED TOWARD ARTICLE TO BE BANDED

Anatole E. Konstantin, Norwalk, and Jaroslaw T. Malkowski, Trumhull, both of Conn., assignors to PDC International Corporation, Norwalk, Conn.
Filed Sep. 15, 1995, Ser. No. 529,017
Int. Cl.⁶ B56B *7/28*
U.S. Cl. 53—295 **40 Claims**



1. Apparatus for banding articles with plastic bands torn off from plastic tubing having transverse perforations at predetermined intervals, said banding apparatus comprising:
means for supplying flattened plastic tubing having transverse perforations extending across the tubing at predetermined intervals uniformly spaced at distances L along the tubing,
a floating mandrel sized to fit slidably inside of the tubing for entering the flattened perforated tubing for opening it into opened tubing and for holding open the perforated tubing;
continuously rotating feed rollers for engaging the opened perforated tubing adjacent to the mandrel for continuously feeding the perforated tubing downstream around the mandrel;
said continuously rotating feed rollers having axes, said axes of the feed rollers both lying in a first transverse plane extending transversely with respect to the mandrel;
sets of freely-rotatable upper and lower suspension rollers mounted inside of the mandrel, the upper and lower suspension rollers in each set being spaced above and below said first transverse plane, with a set of said suspension rollers being in opposed relation to each of said feed rollers for suspending the floating mandrel;
said feed rollers in cooperation with their respective sets of upper and lower suspension rollers serving dual functions of

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suspending the mandrel and also of continuously feeding the perforated tubing downwardly around the mandrel;

continuously rotating tear-off rollers positioned downstream from said continuously rotating feed rollers for imparting continuously moving downstream-directed tear-off motion to the opened perforated tubing as the opened perforated tubing continuously moves downstream around the mandrel;

said downstream-directed tear-off motion being sufficiently faster than the feed rollers continuously move the opened perforated tubing downstream around the mandrel for accelerating and tearing off successive lengths L of opened perforated tubing at said transverse perforations for forming successive bands of length L spaced one from another along the mandrel and continuously moving downstream around the mandrel at predetermined higher speed than the opened perforated tubing continuously moves;

said continuously rotating tear-off rollers having axes lying in a second transverse plane extending transversely with respect to the mandrel;

each tear-off roller having an opposed freely-rotatable companion roller mounted inside of the mandrel;

said companion rollers having their axes positioned in said second transverse plane for providing aligned rolling contact of said companion rollers and said tear-off rollers against inner and outer surfaces of each band which is torn off from the opened perforated tubing;

continuously revolving push-off means engaging successive bands at at least two positions around the mandrel for pushing successive bands downstream along the mandrel at higher speed along the mandrel than said perforated tubing continuously moves and then for propelling them off from an end of the mandrel,

thereby advantageously accomplishing these steps all with continuous motion: (i) opening flattened perforated tubing by the mandrel and (ii) feeding perforated tubing downstream along the mandrel and (iii) tearing successive bands off from continuously moving perforated tubing and (iv) pushing successive bands downstream along the mandrel and (v) propelling the bands off from the mandrel.

5,737,901
METHOD AND APPARATUS FOR PACKAGING AGRICULTURAL AND HORTICULTURAL PRODUCE

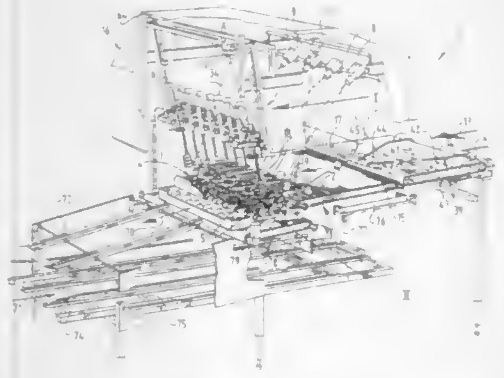
Jacob Hendrik De Greef, Waardenburg, Netherlands, assignor to de Greef's Wagen-, Carrosserie-en Machinebouw, B.V., Tricht, Netherlands

Filed Feb. 15, 1996, Ser. No. 601,959

Claims priority, application Netherlands, Feb. 16, 1995, 9500296

Int. Cl.^{6} B65B *35/56*

U.S. Cl. 53—446 **14 Claims**



1. A method for packaging an agricultural or horticultural product comprising the steps of:

recording images of the product,

comparing at least one of the recorded images with a reference image;

changing a position of the product until the comparison determines that the product is in an acceptable position, and

packing the product in the acceptable position.

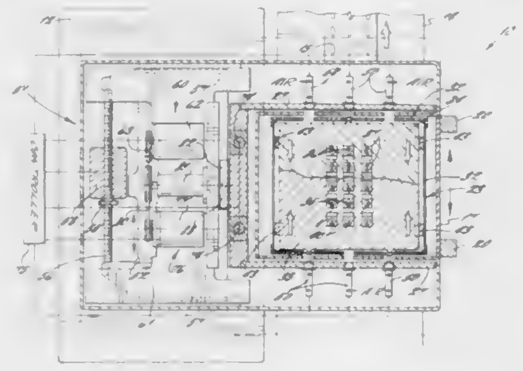
5,737,902
APPARATUS AND METHOD FOR PACKAGING PILLS

John T. Aylward, New Bern, N.C., assignor to Aylward Enterprises, Inc., New Bern, N.C.

Filed Sep. 19, 1996, Ser. No. 715,872

Int. Cl.^{6} B65B *5/10;35/32;35/56*

U.S. Cl. 53—475 **37 Claims**



9. A packaging apparatus for placing pills into a series of pill receptacles moving at a predetermined speed along a predetermined path of travel, said apparatus comprising:

a base frame;

at least one drop chute extending over the predetermined path of travel, said drop chute having an upper end for receiving pills which are to be packaged and a lower end from which pills are sequentially placed into the pill receptacles;

a vertical positioner operatively connected to said base frame and said drop chute for vertically positioning said drop chute and for moving said lower end of said drop chute adjacent to the pill receptacles;

a controllable horizontal positioner operatively connected to said base frame and said drop chute for positioning said drop chute relative to said base frame along a horizontal direction parallel to the predetermined path of travel of the pill receptacles and for moving said lower end of said drop chute in said direction at a speed independent of the speed of the pill receptacles;

a controller for controlling said horizontal positoner in response to the speed and position of the pill receptacles so that the lower end of the drop chute can be moved horizontally with respect to a a pill receptacle while a pill is being placed therein; and

a frame subassembly slidably mounted on said base frame for movement in a horizontal direction parallel to the path of travel and supporting said drop chute, wherein said horizontal positioner further comprises a motor, a threaded nut driven by said motor and a threaded shaft extending through said nut, and wherein one of said nut and said shaft is connected to said base frame and the other is connected to said frame subassembly.

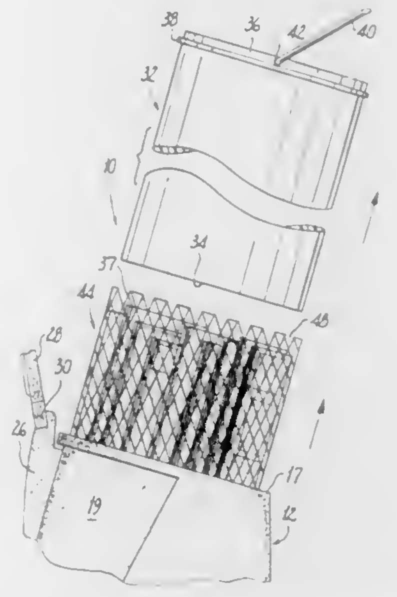
5,737,903
NEWSPAPER RECYCLING DISPOSAL SYSTEM

Thomas Minutillo, 1537-75 St., Brooklyn, N.Y. 11228

Filed Dec. 23, 1996, Ser. No. 816,959

Int. Cl.^{6} B65B *67/04*

U.S. Cl. 53—475 **17 Claims**



17. A method of stacking and bundling used newspapers with a weight while eliminating need for using ties to tie the used newspapers to form a bundle wherein the bundle is compatible with pulping processes used for recycling the used newspapers at paper mills, by virtue of eliminating the ties that are incompatible, and thereby eliminating contaminates which require labor and time to remove which reduces value of the used newspapers that have been bundled, comprising the step of stacking and bundling the used newspapers in a newspaper recycling disposal system which comprises:

a) a generally circular-cylindrically-shaped container having a longitudinal axis, a circular-shaped and open top, and an outer surface;

b) a replaceable and circular-cylindrically-shaped rigid sleeve sitting coaxially and replaceably in said generally circular-cylindrically-shaped container and having the used newspapers stackable therein; said replaceable and circular-cylindrically-shaped rigid sleeve having an open and circular-shaped bottom and an open and circular-shaped top forming an open mouth for receiving the used newspapers being stacked in said replaceable and circular-cylindrically-shaped rigid sleeve; and

c) a circular-cylindrically-shaped mesh bag having a circular-shaped bottom and a circular-shaped and open top forming a mouth for removably receiving said replaceable and circular-cylindrically-shaped rigid sleeve and being manufactured of the material being compatible with the pulping processes used for recycling the used newspapers at the paper mills and thereby eliminating contaminates which require labor and time to remove which reduces the value of the used newspapers that have been bundled, said circular-cylindrically-shaped mesh bag capturing and bundling the used newspapers stacked in said replaceable and circular-cylindrically-shaped rigid sleeve when said replaceable and circular-cylindrically-shaped rigid sleeve is removed from both said generally circular-cylindrically-shaped container and said circular-cylindrically-shaped mesh bag which remains in said generally circular-cylindrically-shaped container with the used newspapers captured therein, by virtue of the weight of the used newspapers impacting on said circular-shaped bottom of said circular-cylindrically-shaped mesh bag, until said circular-cylindrically-shaped mesh bag with the used newspapers captured therein is removed, as the bundle, from said generally circular-cylindrically-shaped container without the need for using the ties to tie the used newspapers to form the bundle which is then disposed of for recycling.

5,737,904
ASSEMBLY OF WEIGHING BUCKETS IN A PACKAGING MACHINE

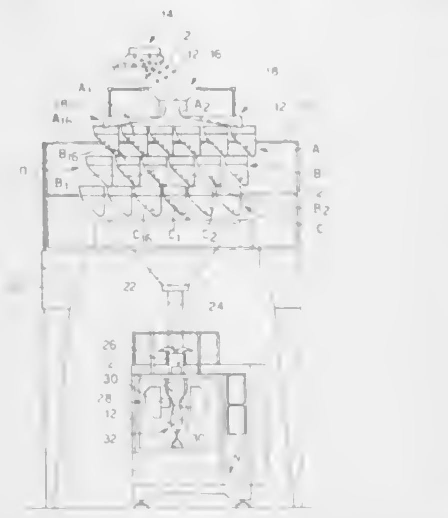
Paolo Simionato, Padova, Italy, assignor to Simionato S.p.A., Mestrino, Italy

Filed May 31, 1996, Ser. No. 655,869

Claims priority, application Italy, Jun. 8, 1995, MI95A1218

Int. Cl.^{6} B65B *1/32;35/12;39/00*

U.S. Cl. 53—502 **7 Claims**



1. Assembly of buckets for weighing a product in a machine for packaging said product, including at least a first and a second and a third row of buckets, wherein each bucket of a row is in communication for the downward passage of the product with a corresponding bucket of the other row; in which each of said buckets has a slanted surface for sliding of the product; and in which the buckets of the rows of buckets in respective communication for the passage of the product are positioned to convey the product along a downwardly conveying path comprising said sliding surfaces of the corresponding buckets, the buckets of each row of buckets being aligned on respective circular lines, said sliding surfaces of the corresponding buckets of the rows of buckets being aligned with each other along a line in the form of a substantially cylindrical spiral, so that relevant vertical fallings of the product are avoided.

5,737,905
METHOD AND APPARATUS FOR PACKAGING PRODUCTS ABSORBING CARBON-DIOXIDE, IN PARTICULAR PERISHABLE FOOD PRODUCTS

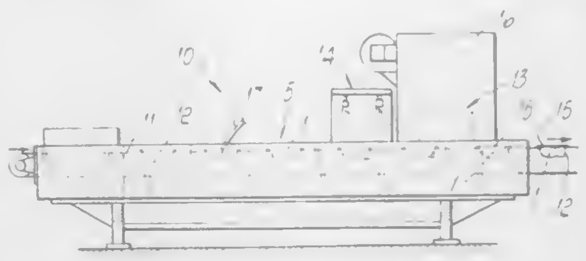
Marco Milani, Lecco, Italy, assignor to Valle Spluga S.p.A., Gordona, Italy

Continuation-in-part of Ser. No. 173,260, Dec. 27, 1993, which is a continuation-in-part of Ser. No. 724,510, Jun. 28, 1991, abandoned, which is a continuation of Ser. No. 429,596, Oct. 31, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 473,822

Claims priority, application Italy, Nov. 8, 1988, 22543/88; May 3, 1989, 20353/89

Int. Cl.^{6} B65B *31/02*

U.S. Cl. 53—512 **16 Claims**



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1. An apparatus for packaging a product in a flexible containment package in which the product is capable of absorbing carbon dioxide, comprising:

means for providing an initial gaseous environment comprising carbon dioxide gas and being at substantially atmospheric pressure in a containment package such that a product capable of absorbing carbon dioxide and said initial gaseous environment are contained in the containment package;

means for providing an amount of solid-phase carbon dioxide in the containment package such that the product and the initial gaseous environment and the solid-phase carbon dioxide are contained in the containment package and such that the amount of solid-phase carbon dioxide is preset according to the amount of carbon dioxide which can be absorbed by the product after packaging; and

means for heat sealing the containment package such that the product and the initial gaseous environment and the solid-phase carbon dioxide are sealed together inside the containment package and such that the containment package has an original shape at the moment of sealing the product and the initial gaseous environment and the solid-phase carbon dioxide together inside the containment package; and wherein

said amount of solid-phase carbon dioxide is provided by said means for providing an amount of solid-phase carbon dioxide such that after the solid-phase carbon dioxide sublimates inside the sealed containment package and the product absorbs carbon dioxide until a final equilibrium condition of the sealed containment package is obtained the sealed containment package has a final shape which is essentially equivalent to the original shape of the containment package.

5,737,906

QUICK PRESSURE REDUCING APPARATUS

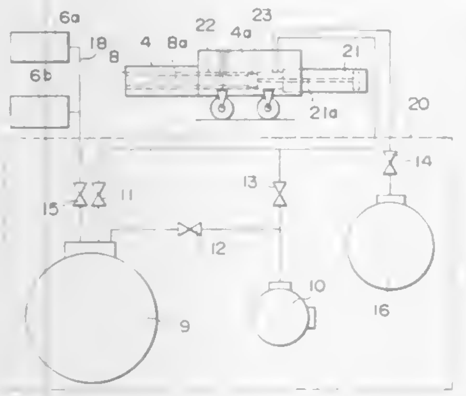
Hajime Ishimaru, Tsukuba, Japan, assignor to Zaidan Houjin Shinku Kagaku, Japan

Filed Aug. 21, 1996, Ser. No. 697,216

Claims priority, application Japan, Feb. 1, 1996, 8-038753

Int. Cl.^{6} B65B *31/00*

U.S. Cl. 53—512 **23 Claims**



1 A quick pressure reducing apparatus comprising:

an adapter having a movable communicating tubular member adapted for insertion into an opening portion of a preservation bag, the movable communicating tubular member having a plurality of small holes formed in a circumferential wall of a front end portion thereof;

a pair of upper and lower holding members for holding the opening portion of the preservation bag after insertion of the movable communicating tubular member into the opening portion of the preservation bag, each of the upper and lower holding members having a seal pad;

a first drive mechanism for adjusting a spacing between the upper and lower holding members;

a second drive mechanism for projecting the front end portion of the movable communicating tubular member from inside of the adapter into the preservation bag;

a reservoir tank connected via a first valve to the movable communicating tubular member of the adapter for reducing the internal pressure of the preservation bag;

a rotary pump connected via a second valve to the reservoir tank; and

a movable heat seal device capable of heating and thereby sealing the opening portion of the preservation bag.

5,737,907

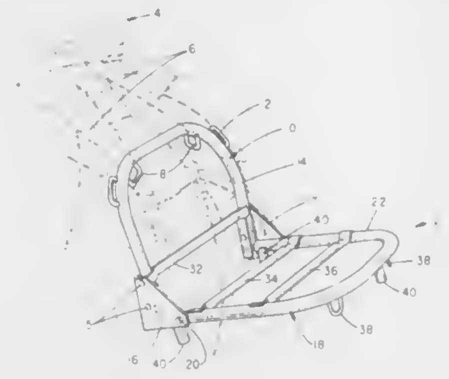
MULTI-PURPOSE HORSE PACK FRAME

M. Orville Riley, P.O. Box 817, Townsend, Mont. 59644

Filed Nov. 20, 1995, Ser. No. 560,819

Int. Cl.^{6} B68C *1/00*

U.S. Cl. 54—37.1 **14 Claims**



12. A saddle pack frame comprising:

a) a harness frame including a first frame section having a plurality of anchor means arrayed about said first section;

b) a support frame including a second frame section having a plurality of anchor means arrayed about said second section and wherein a commode seat mounts to said second frame;

c) hinge means connecting said harness and support frames to one another; and

d) harness means for connecting said harness frame to a pack animal.

5,737,908

CUTTING MACHINE PARTICULARLY FOR USE IN THE PRUNING OR PREPRUNING OF TRELLISED VINES

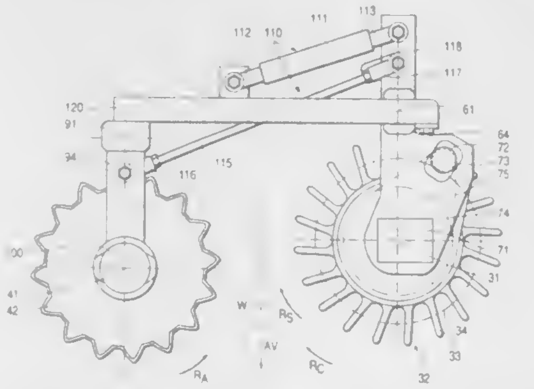
Georges Andelfinger, Niederhergheim, France, assignor to Binger France Sarl, Niederhergheim, France

Filed Aug. 9, 1995, Ser. No. 512,976

Claims priority, application France, Aug. 11, 1994, 94 10059

Int. Cl.^{6} A01D *55/18*

U.S. Cl. 56—235 **23 Claims**



1 A cutting apparatus comprising at least one cutting head, wherein said cutting head comprises:

a shaft;

at least one cutting tool disposed on said shaft,

at least one guard disposed on said shaft, wherein each cutting tool is associated with a guard;

a first motor for rotating said at least one cutting tool; and

a second motor for rotating said at least one guard independent of the rotation of said at least one cutting tool.

5,737,909

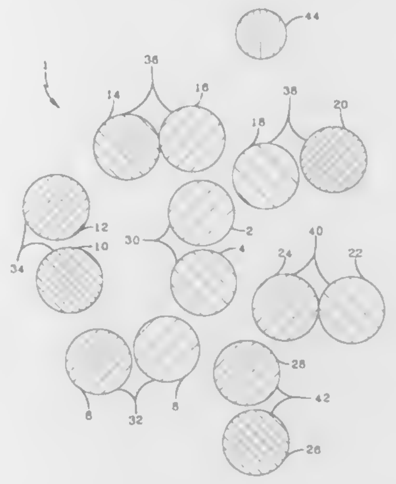
METALLIC CORD FOR THE REINFORCEMENT OF ELASTOMERS

Adam Richard Macklin, Akron, and Italo Marziale Sinupoli, Canton, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 11, 1996, Ser. No. 615,338

Int. Cl.^{6} D07B *1/06*

U.S. Cl. 57—218 **18 Claims**



1 A metallic cord for the reinforcement of elastomers, said metallic cord consisting of a selected one of

(a) seven strands of two filaments wherein one strand is surrounded by six strands and said six strands are twisted in the same direction and have the same lay length in the cord; and

(b) seven strands of two filaments wherein one strand is surrounded by six strands and said six strands are twisted in the same direction and have the same lay length in the cord and a spiral filament wrapped around said seven strands of two filaments.

5,737,910

DIAMOND CUT HOLLOW JEWELRY CHAIN

David Rozenwasser, Savion, Israel, assignor to Avraham Moshe Rozenwasser, Israel

Continuation-in-part of Ser. No. 394,825, Feb. 27, 1995, Pat. No. 5,605,038. This application Dec. 9, 1996, Ser. No. 762,162

Int. Cl.^{6} B21L *15/00*

U.S. Cl. 59—35.1 **4 Claims**

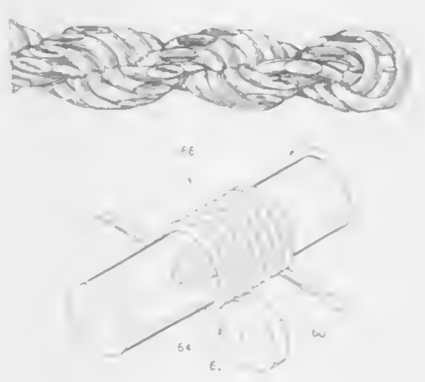
1. A method of manufacturing a faceted jewelry chain having hollow curved chain links, comprising:

tightly winding a jewelry chain having hollow curved chain links about a drum of an ice lathe;

freezing said drum and rotating it with said jewelry chain;

spraying water on said rotating chain in a controlled manner, to freeze at least part of each link of the chain in ice;

applying a continuous rolling force by means of a pressure roller against said links of said chain, thereby at least partially flattening the outer curved walls of said links to form a faceted chain;



melting the ice; and

removing the chain from the drum.

5,737,911

METHOD OF OPERATING COMBINED PLANT

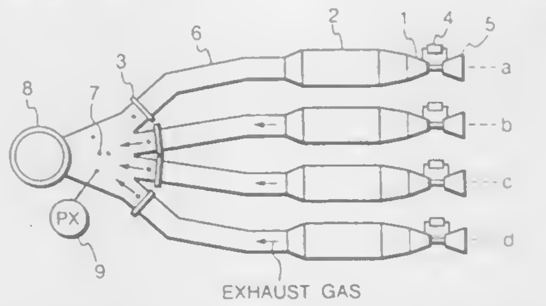
Shinichi Hoizumi; Hideyuki Sato; Satoshi Kusaka; Youichi Hattori, all of Hitachi, and Hitoshi Ishimaru, Takahagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Engineering Co., Ltd., Ibaraki, both of Japan

Filed Jan. 17, 1996, Ser. No. 583,753

Claims priority, application Japan, Jan. 20, 1995, 7-006929

Int. Cl.^{6} F02C *6/18*

U.S. Cl. 60—39.02 **3 Claims**



1. A method of operating a combined plant comprising a plurality of gas turbines, a plurality of exhaust heat recovery boilers that generate steam by exhaust gas from said gas turbines, exhaust gas ducts connected to each of said gas turbines, and a common chimney connected to said exhaust gas ducts, wherein said combined plant discharges said exhaust gas from each of said exhaust heat recovery boilers to said chimney through said exhaust gas ducts;

characterized in that when one of said gas turbines is stopped and others are being operated, a measured atmospheric temperature is more than a preset temperature, loads of said gas turbines being operated are restricted until the measured atmospheric temperature is less than the preset temperature, and then said stopped gas turbine is operated.

5,737,912

METHOD FOR STARTING GAS TURBINE IN COMBINED CYCLE POWER STATION

Wilhelm Krakowitzer, Wettingen, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Sep. 10, 1996, Ser. No. 711,647

Claims priority, application Germany, Oct. 10, 1995, 195 37 637.4

Int. Cl.^{6} F02C *6/18;7/268*

U.S. Cl. 60—39.04 **5 Claims**

1. A method for operating a power station including a gas turbine group, a steam circuit and a steam turbine, the method comprising the steps of:

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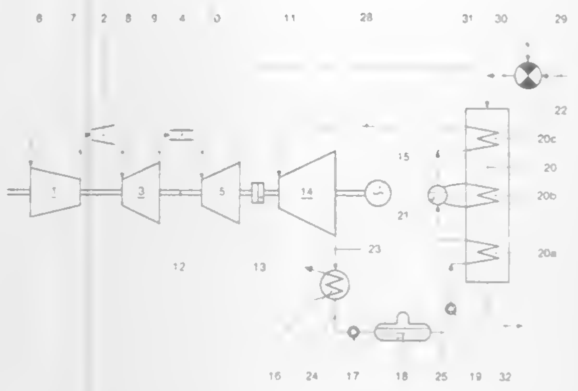


forming a portion of hot gas in an additional firing in connection with a waste-heat steam generator belonging to the steam circuit;

routing the portion of hot gas through the waste-heat steam generator for generating a portion of a first steam quantity;

charging the steam turbine with the portion of the first steam quantity formed in the waste-heat steam generator; and

transferring power resulting from said charging of the steam turbine into the gas turbine group for the purpose of furnishing the necessary start-up power.

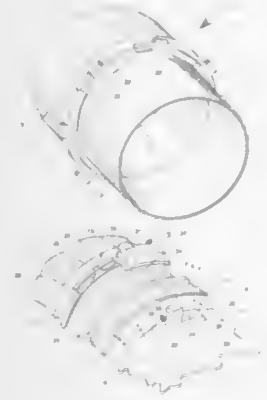
5,737,913
SELF-ALIGNING QUICK RELEASE ENGINE CASE ASSEMBLY

James L. Terry, Huber Heights, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 18, 1996, Ser. No. 739,351

Int. Cl.^{6} F02C *7/20*

U.S. Cl. 60—39.31 **4 Claims**



1. An engine casing structure for connecting axially adjacent sections of a gas turbine engine, comprising:

(a) first and second substantially tubular shaped casing portions joinable axially in abutting relationship at respective abutting ends thereof in an assembled condition of said structure;

(b) an annular flange on the outer surface of said first casing portion, said annular flange spaced a predetermined distance from the abutting end of said first casing portion;

(c) at least one pair of diametrically oppositely disposed first lugs on the outer surface of said second casing portion and spaced a predetermined distance from the abutting end of said second casing portion, each of said first lugs having a circumferential extension in the form of a flanged annular segment which tapers in axial thickness toward the distal end of said segment.

(d) a clamping ring in the shape of an annular flange having an axially extending portion and a radially extending portion, said axially extending portion being sized in inner diameter to snugly receive said annular flange, and said radially extending portion being sized in inner diameter to snugly receive the outer diameter of said first casing portion, said axially extending portion having defined thereon a plurality of diametrically oppositely disposed notches corresponding in number to the number of said first lugs and sized in circumferential length to slideably receive respective said first lugs and said annular segments thereon;

(e) a second lug disposed on the outer surface of said axially extending portion of said clamping ring adjacent each said notch, each said second lug being sized and configured to abut a corresponding said first lug with said first and second casing portions in said assembled condition, each said first and second lugs having means defining bolt holes therethrough for receiving assembly bolts; and

(f) a channel defined on the inner surface of said axially extending portion of said clamping ring beneath each said second lug, each said channel being sized to snugly receive a said annular segment of a said first lug in said assembled condition.

5,737,914
DEVICE FOR FIXING AN AIR INTAKE TO A JET ENGINE AND JET ENGINE INCORPORATING SUCH A DEVICE

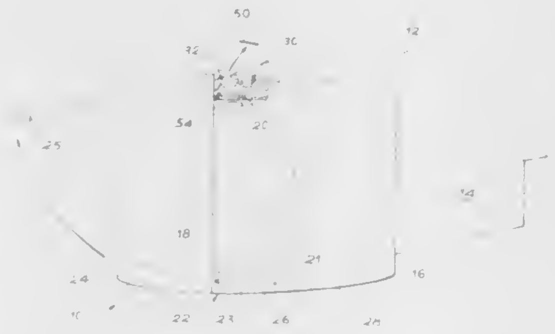
Alain Porte, and Jean-Louis Lasserre, both of Colomiers, France, assignors to Aerospatiale Societe Nationale Industrielle, Paris Cedex, France

Filed Feb. 28, 1996, Ser. No. 608,594

Claims priority, application France, Feb. 28, 1995, 95 02302

Int. Cl.^{6} F02C *7/20; 7/04*

U.S. Cl. 60—226.1 **10 Claims**



1. Device for fixing an air intake having a longitudinal axis to a jet engine installed on a support strut and the jet engine having a fan frame having a longitudinal axis, characterized in that the device incorporates a hinge installed between the air intake and the support strut of the jet engine, in order to support and pivot the air intake between a closed position, where the intake and the fan frame are arranged substantially coaxially, and an open position, where the longitudinal axis of the air intake is angularly disposed with respect to the longitudinal axis of said fan frame at an angle greater than zero degrees, said hinge having an articulation axis substantially orthogonal to the longitudinal axis of the fan frame, and the device having means for locking the air intake to the frame wherein the locking means has at least one rod connecting the air intake to the fan frame, the rod being located in a pod surrounding the fan frame in a position substantially diametrically opposite to the hinge.

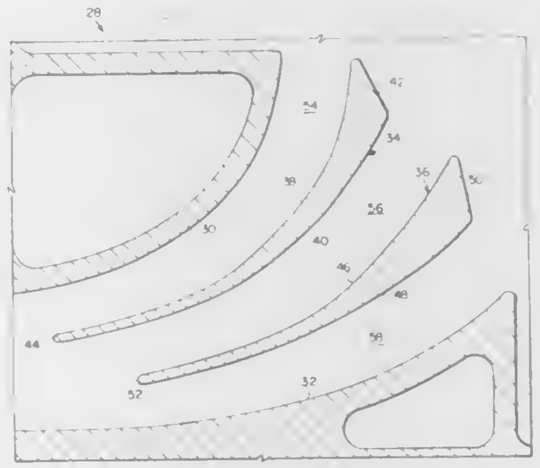
5,737,915
TRI-PASSAGE DIFFUSER FOR A GAS TURBINE

Edward J. C. Lin; Richard Edwin Warren, Jr., both of Schenectady, and Christian L. Vandervort, Voorheesville, all of N.Y., assignors to General Electric Co., Schenectady, N.Y.

Filed Feb. 9, 1996, Ser. No. 598,885

Int. Cl.^{6} F02C *7/00*

U.S. Cl. 60—251 **6 Claims**



1. A compressor discharge diffuser for a gas turbine comprising an internal casing defining a pair of outer diffuser walls flaring outwardly in a direction of compressor discharge air flow; and a pair of baffles within a flow area defined by said pair of outer diffuser walls which divide said flow area into three discrete flow passage, wherein one of said three passages diverts compressor discharge air flow substantially radially; and further wherein another of said three passages diverts compressor discharge flow primarily in an axial direction.

5,737,916
CATALYST DETERIORATION DETECTION DEVICE FOR INTERNAL COMBUSTION ENGINE

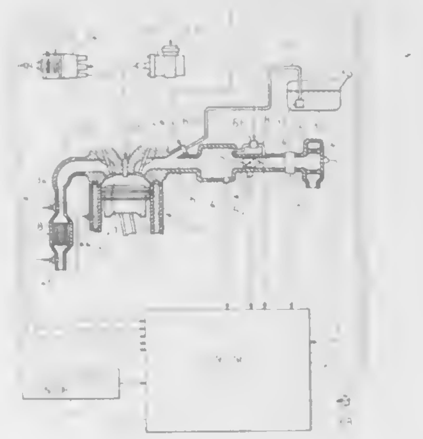
Noritake Mitsutani, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Oct. 24, 1996, Ser. No. 736,548

Claims priority, application Japan, Oct. 26, 1995, 7-279344; Oct. 30, 1995, 7-281803

Int. Cl.^{6} F01N *3/20;* **F02D** *41/14*

U.S. Cl. 60—276 **5 Claims**



1. A catalyst deterioration detection device for an internal combustion engine, comprising:

a three-way catalyst mounted in an exhaust passage of said internal combustion engine and having an O_2 storage capability;

an air-fuel ratio sensor, mounted upstream of said three-way catalyst, for linearly detecting air-fuel ratio;

air-fuel ratio feedback control means for, based on the output of said air-fuel ratio sensor, calculating a feedback correction amount consisting of a proportional term for bringing the air-fuel ratio to stoichiometry and an integral term for bringing an integrated value of an error between the air-fuel ratio and stoichiometry to zero;

an O_2 sensor, mounted downstream of said three way catalyst, for detecting whether the air fuel ratio is rich or lean;

catalyst deterioration determining means for determining deterioration of said three-way catalyst on the basis of the length of a response curve that the output of said O_2 sensor describes during the time that air-fuel ratio feedback control is being performed by said air-fuel ratio feedback control means, and

a response curve length calculation interrupting means for interrupting the calculation of the response curve length being performed by said catalyst deterioration determining means for a predetermined length of time when the output of said air-fuel ratio sensor or the amount of change of said output has exceeded a preset value.

5,737,917
DEVICE FOR JUDGING DETERIORATION OF CATALYST OF ENGINE

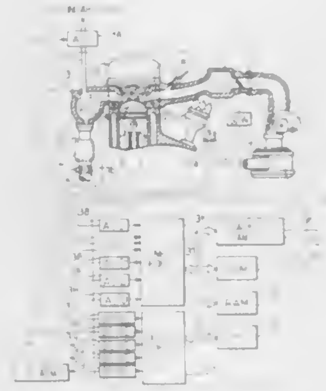
Toshinari Nagai, Shizuoka, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Nov. 29, 1996, Ser. No. 753,737

Claims priority, application Japan, Dec. 7, 1995, 7-319219

Int. Cl.^{6} F01N *3/20*

U.S. Cl. 60—276 **11 Claims**



1. A device for judging the deterioration of a catalyst arranged in an exhaust passage of an engine, comprising

air-fuel ratio detecting means arranged in the exhaust passage and producing an output signal representative of the air fuel ratio;

deterioration degree calculating means for calculating a degree of the deterioration of the catalyst on the basis of the output signal of said air-fuel ratio detecting means;

deterioration judging means for judging that the catalyst deteriorates when said degree of deterioration exceeds a predetermined threshold value;

estimating means for estimating a degree of activation of said air-fuel ratio detecting means; and

threshold value controlling means for controlling said threshold value in response to said degree of activation to lower said threshold value the lower said degree of activation.

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5,737,918

APPARATUS FOR CLEANING EXHAUST GASES OF SOLID PARTICLES, DESIGN OF A UNIT FOR NEUTRALIZING HARMFUL GASEOUS EMISSIONS AND A METHOD FOR THE MANUFACTURE OF THIS UNIT

Alexandr Pavlovich Khinsky; Boris Vladimirovich Farmakovsky; Tatyana Sergeevna Vinogradova, and Mikhail Ivanovich Anisimov, all of St-Petersburg, Russian Federation, assignors to Joint Stock Commercial Bank "Petrovsky", St. Petersburg, Russian Federation

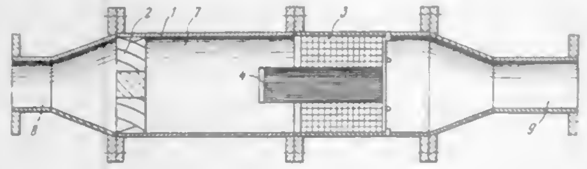
PCT No. PCT/RU94/00302, § 371 Date Aug. 23, 1996, § 102(e) Date Aug. 23, 1996, PCT Pub. No. WO95/19494, PCT Pub. Date Jul. 20, 1995

PCT Filed Dec. 28, 1994, Ser. No. 676,259

Claims priority, application Russian Federation, Jan. 17, 1994, 94001661; Jan. 17, 1994, 94002467

Int. Cl.^{6} F01N *3/28*

U.S. Cl. 60—297 **3 Claims**



1. An apparatus for cleaning exhaust gases of solid particles, said apparatus comprising a rotational combustion chamber with a catalytic unit arranged therein, said apparatus further comprising a swirler and a soot collector separated from one another by a cylindrical separating cavity and located on the same axis downstream the gas flow, and the catalytic unit for neutralizing harmful gaseous emissions is arranged coaxially inside the soot collector wherein the swirler is made in the form of an impeller with an angle of incidence within 25 to 55 degrees.

5,737,919

MASTER CYLINDER WITH IMPROVED SAFETY

Jean Pierre Gautier; Ulysse Verbo, both of Aulnay-Sous-Bois; Miguel Perez Revilla, Argenteuil, and Flavio Cohianchi, Drancy, all of France, assignors to Bosch Systems De Freinage, Drancy, France

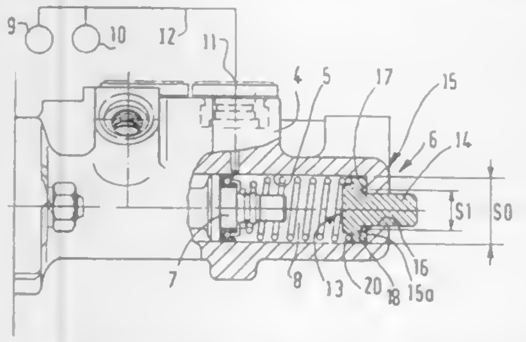
PCT No. PCT/FR95/00467, § 371 Date Mar. 7, 1997, § 102(e) Date Mar. 7, 1997, PCT Pub. No. WO95/32115, PCT Pub. Date Nov. 30, 1995

PCT Filed Apr. 12, 1995, Ser. No. 428,095

Claims priority, application France, May 20, 1994, 94 06142

Int. Cl.^{6} B60R *21/00;* **B60T** *7/00;* **F16D** *65/32*

U.S. Cl. 60—403 **7 Claims**



1. A Master cylinder comprising a body pierced with a bore closed on a first side by an end and on a second side by a piston which slides in said bore to delimiting a pressure chamber, said pressure chamber being connected by a pressure pipe to at least one brake motor through an outlet of said chamber, said chamber and pressure pipe together delimiting a working volume which is filled with a hydraulic fluid, characterized in that said working volume is furthermore partially delimited by a leak-off device, said leak-off device responding to an impact to selectively allow hydraulic fluid to leak off towards the outside of said working volume.

5,737,920

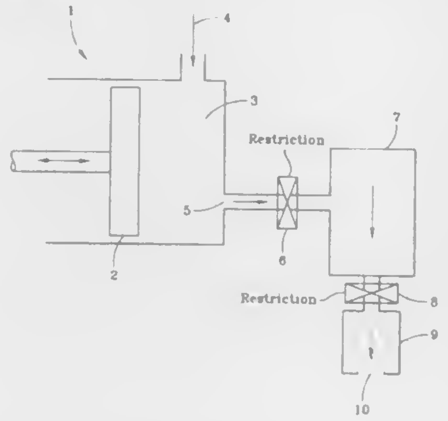
MEANS FOR IMPROVING THE PREVENTION OF ICING IN AIR MOTORS

Stephen D. Able, Bryan, Ohio, assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Continuation-in-part of Ser. No. 425,170, Apr. 20, 1995. This application Oct. 21, 1996, Ser. No. 735,375

Int. Cl.^{6} F16D *31/02*

U.S. Cl. 60—407 **6 Claims**



1. An air motor including.

a working air chamber adjacent a reciprocating piston or diaphragm or the like for continuously extracting work from an air supply at a rate sufficient to form ice in expanded air exhausting said working air chamber, said working air chamber including an inlet for receiving compressed air and an exhaust port including a passage to exhaust said air supply; and

a means for prevention of exhaust flow icing comprising:

restriction means in said passage to exhaust for accurately controlling the discharge pressure and air flow from said working air chamber for controlling the air temperature exiting the exhaust of said working air chamber.

5,737,921

GAS TURBINE ENGINE FUEL INJECTOR

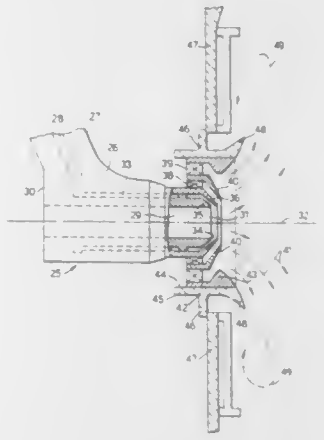
Leighton Jones, Bristol, and John S. Richardson, Nottingham, both of England, assignors to Rolls-Royce plc, London, England

Filed Apr. 20, 1995, Ser. No. 425,401

Claims priority, application United Kingdom, Apr. 20, 1994, 9407820; Apr. 20, 1994, 9407866

Int. Cl.^{6} F23R *3/10;3/14*

U.S. Cl. 60—740 **12 Claims**



1. A gas turbine engine fuel injector comprising a plurality of concentric members defining a plurality of concentric annular passages, including a fuel passage and radially outwardly thereof at least one further passage for the flow therethrough of air, an inwardly directed annular lip portion of a first concentric member defining the downstream end of said further passage, said annular lip portion having a radially inwardly directed curved first surface, a radially outwardly directed curved second surface, said first surface smoothly adjoining said second surface, and a radially outwardly extending curved third surface on the first concentric member, said first and second surfaces defining a cross-sectional shape such that in said further passage, air flowing over said inwardly directed annular lip portion remains attached to the surface of the lip so as to flow in a substantially non-turbulent manner initially in a generally radially inward direction and subsequently in a generally radially outward direction, wherein the second surface intersects the third surface to define an outwardly flared lip.

5,737,922

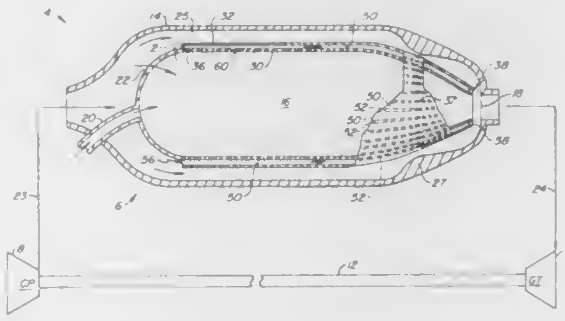
CONVECTIVELY COOLED LINER FOR A COMBUSTOR

Leonard Schoenman, Citrus Heights, and Jerrold E. Franklin, Sacramento, both of Calif., assignors to Aerojet General Corporation, Sacramento, Calif.

Filed Jan. 30, 1995, Ser. No. 380,777

Int. Cl.^{6} F02C *7/12*

U.S. Cl. 60—752 **25 Claims**



1. A combustor comprising:

a casing enclosing a combustion chamber for flow of combustion gases along a hot gas flow direction; and

a combustor liner surrounding at least a portion of the combustion chamber and having coolant channels formed therein, the coolant channels arranged transversely relative to the hot gas flow direction and distributed over the combustor liner in a substantially uniform manner, each said coolant channel terminating at one end in an inlet and at the other end in an outlet;

a supply flow passage common to a plurality of said coolant channels and in fluid communication therewith through said inlets;

a discharge flow passage common to a plurality of said coolant channels and in fluid communication therewith through said outlets; and

means for directing coolant into said supply flow passage.

5,737,923

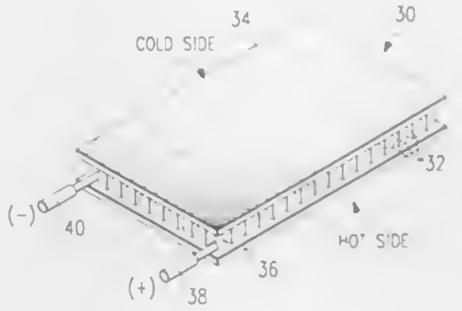
THERMOELECTRIC DEVICE WITH EVAPORATING/CONDENSING HEAT EXCHANGER

Michael D. Gilley, Rowlett, Tex., and Ralph L. Webb, Port Matilda, Pa., assignors to Marlow Industries, Inc., Dallas, Tex.

Filed Oct. 17, 1995, Ser. No. 544,169

Int. Cl.^{6} F25B *21/02*

U.S. Cl. 62—3.7 **32 Claims**



1. A thermoelectric device and heat exchanger comprising

a plurality of thermoelectric elements for transferring thermal energy;

first and second thermally conductive plates having the thermoelectric element disposed therebetween;

a working fluid contained within the heat exchanger;

the heat exchanger having a first, sealed chamber with a first surface for evaporating the working fluid and a second, sealed chamber with a second surface for condensing the working fluid located remote from the first, evaporating surface;

the second, sealed chamber having a plurality of hollow tubes with an enhanced heat transfer surface formed on the interior of each hollow tube;

each hollow tube coupled with a manifold to form a portion of the second, sealed chamber;

a plurality of convection cooling fin disposed on the exterior of the hollow tubes whereby the fins transfer heat from the hollow tubes to an environment surrounding the second, sealed chamber;

the first, evaporating surface comprising an enhanced heat transfer surface to promote boiling of the working fluid on the first evaporating surface, and

the first surface of the heat exchanger thermally coupled with the first conductive plate of the thermoelectric device

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5,737,924

GAS COMPRESSOR EXPANDER

Kenji Taguchi, Gunma; Takahiro Nakamura, Kyoto; Shinichi Matsumura; Yasuyuki Kuwaki, both of Osaka, and Takafumi Nakayama, Hyogo, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 29, 1996, Ser. No. 688,259

Claims priority, application Japan, Sep. 19, 1995, 7-239544

Int. Cl.^{6} F25B *9/00*

U.S. Cl. 62—6 **4 Claims**

1. A gas compressor expander, comprising.

an expansion cylinder;

a displacer reciprocating in an expansion chamber in said expansion cylinder;

a connecting lever having one end coupled to said displacer;

a crank mechanism portion coupled to said connecting lever approximately in the center of said connecting lever for causing said displacer to reciprocate with said connecting lever therebetween;

a compression cylinder provided in a direction crossing the direction of reciprocation of said displacer at a position opposite to said expansion cylinder with said crank mechanism portion therebetween;

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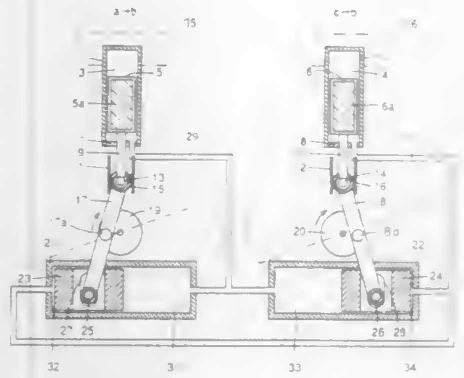


a compression piston coupled to another end of said connecting lever for reciprocating in a compression chamber in said compression cylinder; and

a communicating tube communicating between said expansion chamber and said compression chamber.

5,737,925

FREE PISTON VUILLERMIER MACHINE

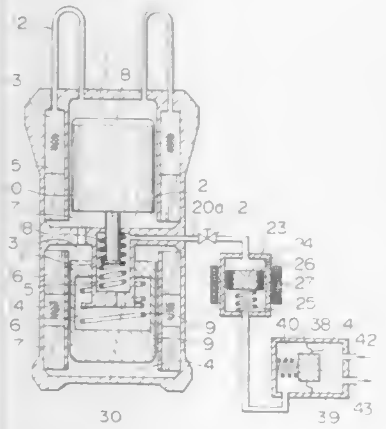
Hiroshi Sekiya, Ota, and Eiji Fukuda, Oizumi-machi, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Nov. 25, 1996, Ser. No. 755,954

Claims priority, application Japan, Nov. 30, 1995, 7-334315; Nov. 30, 1995, 7-334316; Nov. 30, 1995, 7-334317; Nov. 30, 1995, 7-334332

Int. Cl.^{6} F25B *9/00*

U.S. Cl. 62—6 **11 Claims**



1 A free piston Vuillermier machine which is an external combustion heat machine using a regenerative cycle, wherein

a low-temperature displacer is made hollow to form a low-temperature displacer gas spring chamber, a low-temperature displacer rod is made hollow to form a hollow chamber for accommodating therein both a high-temperature displacer rod and a high-temperature displacer gas spring chamber.

5,737,926

CRYOGENIC STERILE NITROGEN SYSTEM

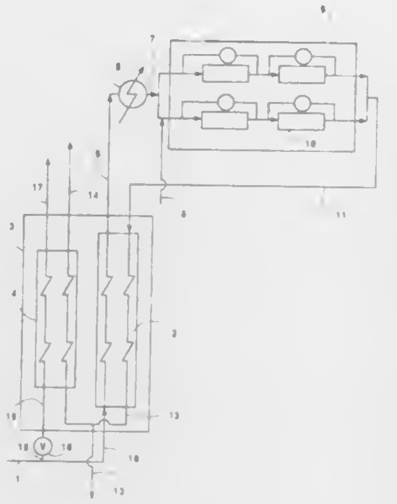
Alan Tat Yan Chen, Livingston, N.J., assignor to Praxair Technology, Inc., Danbury, Conn.

Filed Apr. 17, 1997, Ser. No. 837,409

Int. Cl.^{6} F17C *9/02*

U.S. Cl. 62—50.2 **10 Claims**

1. A method for producing cryogenic sterile nitrogen comprising:



(A) vaporizing liquid nitrogen to produce cold nitrogen vapor;

(B) warming the cold nitrogen vapor to produce warm nitrogen vapor;

(C) sterilizing the warm nitrogen vapor to produce sterile warm nitrogen vapor;

(D) cooling the sterile warm nitrogen vapor by indirect heat exchange with said vaporizing liquid nitrogen to produce cool sterile nitrogen vapor and said cold nitrogen vapor; and

(E) condensing the cool sterile nitrogen vapor to produce product cryogenic sterile nitrogen.

5,737,927

CRYOGENIC COOLING APPARATUS AND CRYOGENIC COOLING METHOD FOR COOLING OBJECT TO VERY LOW TEMPERATURES

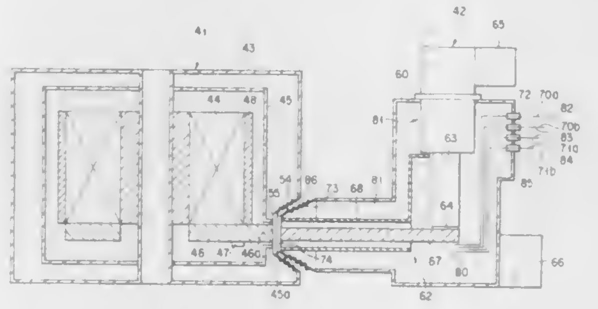
Masahiko Takahashi; Yasumi Ohtani, both of Yokohama; Rohana Chandratilleke, Tokyo; Hideo Hatakeyama, Yokohama; Hideki Nakagome, Tokyo, and Toru Kuriyama, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 14, 1997, Ser. No. 816,737

Claims priority, application Japan, Mar. 18, 1996, 8-061458

Int. Cl.^{6} F25B *19/00*

U.S. Cl. 62—51.1 **33 Claims**



1 A cooling apparatus for cooling an object, said apparatus comprising:

a first vacuum container;

a cooling source housed within the first vacuum container;

a second vacuum container, provided separately from the first vacuum container, for accommodating the object; and

thermal connection and disconnection means for thermally connecting the cooling source and the object when the object is to be cooled by the cooling source, and thermally disconnecting the cooling source and the object when the object is to be thermally insulated.

5,737,928

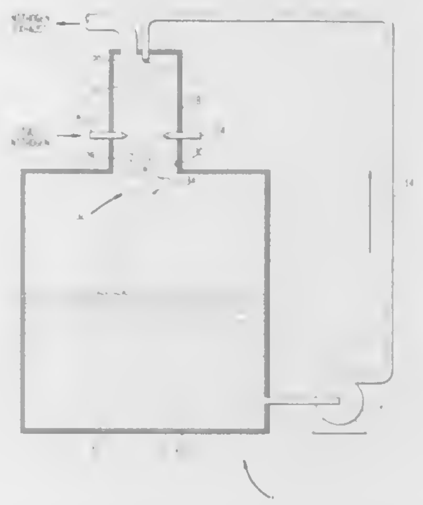
PROCESS FLUID COOLING MEANS AND APPARATUS

Ron C. Lee, Bloomsbury, N.J., and Stephen Clements, West Yorkshire, England, assignors to The BOC Group, Inc., New Providence, N.J.

Filed Mar. 9, 1995, Ser. No. 401,391

Int. Cl.^{6} F25D *3/00*; F25C *1/00*

U.S. Cl. 62—59 **18 Claims**



1. A method of cooling a liquid process fluid comprising.

forming a liquid process stream from said liquid process fluid;

freezing said process fluid contained within said liquid process stream into a conveyable particulate form; and

introducing said conveyable particulate form back into said liquid process fluid.

5,737,929

METHOD AND MEANS FOR SEPARATING OIL AND IMPURITIES FROM A REFRIGERANT IN AN AIR CONDITIONING SYSTEM

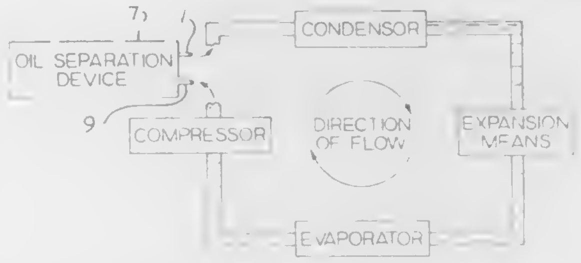
Arvo Siosteen, Saro, and Morgan Henriksson, Goteborg, both of Sweden, assignors to Cool Engineering, Hisingsbacka, Sweden

Continuation of Ser. No. 410,286, Mar. 24, 1995, abandoned. This application Jun. 24, 1996, Ser. No. 668,714

Claims priority, application Sweden, Mar. 28, 1994, 9401027

Int. Cl.^{6} F25B *43/02*

U.S. Cl. 62—84 **7 Claims**



1 The method of removing residual oil from all operating components of a compressor cooling system in an oil separation cleansing cycle before charging with refrigerant for further cooling system operation, comprising in combination, the steps of

temporarily connecting an oil separation device in series with a closed compressor cooling system for circulating refrigerant therethrough for removing residual oil in an oil cleansing cooling system cycle,

separating oil from the circulating refrigerant into an oil separation tank carried by the oil separation device, and

operating the compressor cooling system in the oil cleansing cycle with a refrigerant adapted to carry oil from all operating components of the closed compressor cooling system as the refrigerant circulates through the oil separation device during a compressor cooling cycle to thereby to separate oil and remove oil from said closed system into said separation tank before removing the oil separation device for use in cleansing cycles of other closed compressor cooling systems.

5,737,930

AIR CONDITIONING FLUID CIRCUIT FOR A VEHICLE, GIVING ADJUSTABLE HEATING POWER

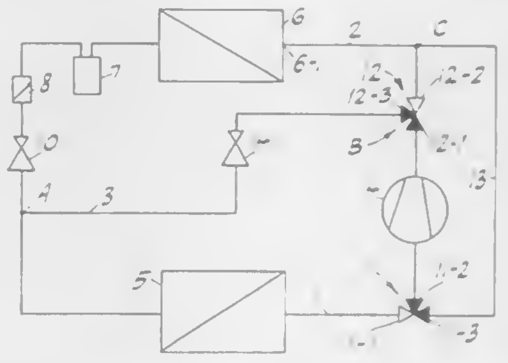
Stefan Karl, Paris, France, assignor to Valeo Climatisation, La Verriere, France

Filed Mar. 22, 1996, Ser. No. 620,388

Claims priority, application France, Mar. 22, 1995, 95.03360

Int. Cl.^{6} F25B *5/00,41/00*

U.S. Cl. 62—117 **9 Claims**



1 An air conditioning apparatus for the cabin of a motor vehicle, comprising a fluid circuit which includes a cooling loop comprising a first branch containing an evaporator, followed by a compressor, and a second branch containing a condenser, the cooling loop also containing a first flow restrictor interposed between the condenser and the evaporator, and means for delivering into the cabin air which has undergone heat exchange with the evaporator, characterised in that it further includes a third branch containing no condenser and arranged in parallel with the second branch, in such a way as to constitute, with the first branch, a heating loop, together with changeover means for controlling the flow of fluid either into the cooling loop or into the heating loop, or into a fluid charging path in which the condenser is connected directly to the inlet of the compressor.

5,737,931

REFRIGERANT CIRCULATING SYSTEM

Yoshio Ueno; Osamu Morimoto; Tomohiko Kasai, and Yoshihiro Sumida, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 21, 1996, Ser. No. 668,155

Claims priority, application Japan, Jun. 23, 1995, 7-157870; Dec. 6, 1995, 7-318216

Int. Cl.^{6} F25B *1/00;41/04*

U.S. Cl. 62—126 **20 Claims**

1 A refrigerant circulating system comprising

a main refrigerant circuit for circulating mixture refrigerant, said main refrigerant circuit including a compressor, a directional control valve, a condenser, a first throttling device and an evaporator;

a bypass circuit diverging from a point between a discharge portion of said compressor and said directional control valve, and connected through a composition detecting heat exchanger and a second throttling device to a point between an intake portion of said compressor and said directional control valve;

first temperature detecting means located to a point between said composition detecting heat-exchanger and said second throt-

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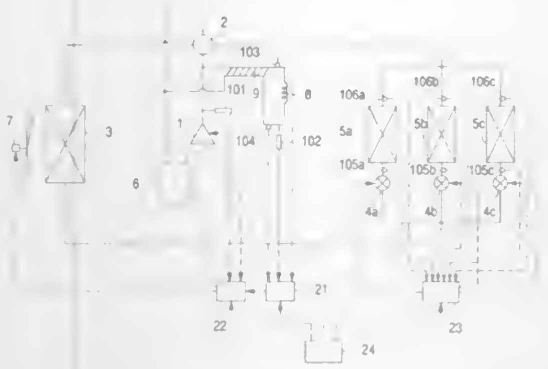


tling device, said first temperature detecting means detecting refrigerant temperature at an upstream of said second throttling device;

second temperature detecting means located to a point between said composition detecting heat-exchanger and said second throttling device, said second temperature detecting means detecting refrigerant temperature at a downstream of said second throttling device;

first pressure detecting means located at an intake side of said compressor, and for detecting a pressure of refrigerant at its located place;

a composition calculating device for calculating a composition of mixture refrigerant on the basis of the detected refrigerant temperature and pressure;

second pressure detecting means located at the discharge side of said compressor, and for detecting the pressure of refrigerant at its located place; and

a main controller for controlling at least compressor speed or fan speed provided to said condenser or evaporator, on the basis of the calculated composition of refrigerant and detected pressure of refrigerant.

5,737,932

REFRIGERATOR HAVING CONTROLLER FOR SUPPLYING WATER FROM A RESERVOIR TO EITHER AN ICE MAKER OR AN OUTSIDE DISPENSER

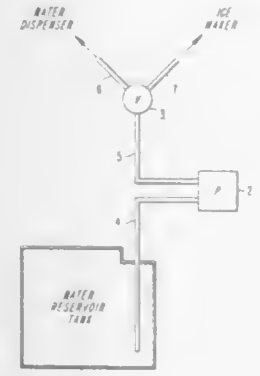
Kun Bin Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 23, 1996, Ser. No. 735,599

Claims priority, application Rep. of Korea, Oct. 31, 1995, 95-38839; Oct. 16, 1996, 96-46384

Int. Cl.^{6} F25C *1/00*

U.S. Cl. 62—135 **3 Claims**



1. A refrigerator comprising:

an automatic ice maker;

a water dispenser for dispensing water to the outside of the refrigerator;

a water reservoir tank;

water supply conduits for supplying water respectively to the ice maker and the dispenser from the reservoir;

a valve for selectively connecting one of the water supply conduits with the reservoir;

a pump disposed upstream of the valve for supplying water from the reservoir;

a first sensor for determining when the ice maker needs water and transmitting a first water-needed signal;

a second sensor for determining when the dispenser needs water, and transmitting a second water-needed signal; and

a controller connected to the valve, the pump, and the first and second sensors for supplying water to the dispenser when a second water-needed signal is being received, regardless of whether a first water-needed signal is also being received, and for supplying water to the ice maker when a first water-needed signal is being received and no second water-needed signal is being received.

5,737,933

ABSORPTION REFRIGERATING MACHINES GROUP APPARATUS

Nobuhiro Idei, Ohra-gun; Yasuo Sakata, Kasukabe; Hideaki Oana, and Yuichi Suzuki, both of Gunma-ken, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

Filed Jul. 9, 1996, Ser. No. 677,592

Claims priority, application Japan, Jul. 11, 1995, 7-175191

Int. Cl.^{6} F24B *15/00*

U.S. Cl. 62—141 **2 Claims**

1. An absorption refrigerating machines-group apparatus comprising a plurality of absorption refrigerating machines arranged at respective required positions, a remotely arranged control panel and an adapter disposed between said refrigerating machines and said control panel for relaying an operation control signal for controlling the operation of a plurality of pumps of feeding cooling water for cooling respective necessary areas of said absorption refrigerating machines, characterized in that it further comprises:

number of pumps selection means for selecting either the shared use of one of said pumps for said plurality of absorption refrigerating machines or the exclusive use of any of said pumps belonging to said respective absorption refrigerating machines, said adapter being provided with an operating section for obtaining a signal responsible for said shared use;

all refrigerating machines suspension commanding means for, when any of said absorption refrigerating machines transmits a signal requiring the suspension of said pump and said signal for said shared use is being obtained, transmitting a command signal to all the other currently operating absorption refrigerating machines from said adapter in order to bring each of said absorption refrigerating machines into a temporary state of requiring said pump to suspend its operation or being capable of suspending the operation of said pump;

temporary state achieving means for achieving said temporary state for all the currently operating absorption refrigerating machines by said command signal and sending out a signal for suspending pumps obtained in said temporary state; and

pump suspending means for controlling the suspension of the operation of said pumps after receiving said signal for suspending pumps from each and every one of said absorption refrigerating machines.

5,737,934

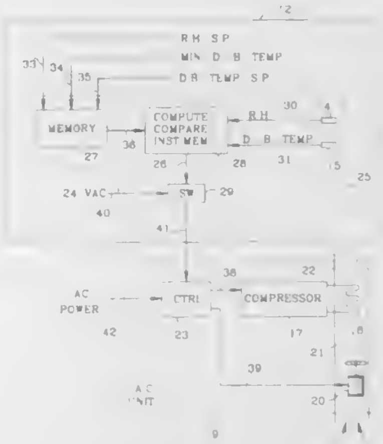
THERMAL COMFORT CONTROLLER

Dipak J. Shah, Eden Prairie, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jun. 12, 1996, Ser. No. 664,012

Int. Cl.^{6} F25B *49/00*; B01F *3/02*

U.S. Cl. 62—176.6 **24 Claims**



1. Apparatus for cooperating with a controller for a climate control system for modifying the temperature and moisture content of air within an enclosure, said controller activating the climate control system responsive to an apparent temperature error value encoded in an apparent temperature error signal, said apparatus comprising:

a) a relative humidity sensor providing a relative humidity signal encoding the relative humidity value;

b) a temperature sensor providing an air temperature signal encoding the dry-bulb temperature value;

c) a memory recording a set point signal encoding an apparent temperature set point value;

d) error computation means receiving the humidity and air temperature signals and the set point signal, for computing the apparent temperature error value as a function of the values encoded in the humidity and air temperature signals and the set point signal, and for encoding the apparent temperature error value in the apparent temperature error signal; and

e) wherein the memory further comprises means for storing a limit dry-bulb temperature value and for providing a signal encoding the limit dry-bulb temperature value in a limit temperature signal, and wherein the error computation means further comprises comparison means receiving the limit temperature signal and the air temperature signal, for comparing the limit temperature signal with the value encoded in the air temperature signal, and for suppressing the demand signal responsive to a predetermined relationship between the limit dry-bulb temperature value and the dry-bulb temperature value.

5,737,935

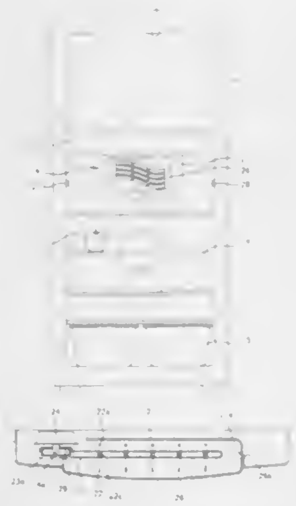
APPARATUS FOR INTENSIVELY COOLING FOOD NEWLY LOADED IN A REFRIGERATOR

Kyung Kil Heo, Kyungsangnam-Do, Rep. of Korea, assignor to LG Electronics, Inc., Seoul, Rep. of Korea

Filed Sep. 27, 1996, Ser. No. 721,905

Int. Cl.^{6} F25D *17/04*

U.S. Cl. 62—186 **5 Claims**



1. An apparatus for directing cooling air toward food newly loaded in a refrigerator having a cooling compartment provided with side walls and a rear wall through which the cooling air is supplied, comprising:

a base plate fixed in an upper portion of the rear wall of the cooling compartment and having a vent opening in a middle thereof;

a plurality of vanes pivotably mounted to the base plate to thereby direct cooling air from the vent opening;

a slide lever connected to the plurality of vanes for pivoting the vanes to the left and right;

a motor for horizontally moving the slide lever;

a limit switch provided adjacent to an end of the slide lever for controlling operation of the motor;

a cover having a plurality of slots therein for passing the cooling air and being mounted to the base plate; and

a pair of temperature sensors fixed on said side walls of the cooling compartment for detecting a temperature variation at one side relative to another side in the cooling compartment caused by food newly loaded therein, the temperature sensors being effective to cause the motor to orient the vanes to direct the cooling air toward the newly loaded food.

5,737,936

AIR CONDITIONING APPARATUS FOR VEHICLE

Junji Takasaki, Okazaki, Japan, assignor to Denso Corporation, Kariya, Japan

Filed Dec. 23, 1996, Ser. No. 771,899

Claims priority, application Japan, Dec. 27, 1995, 7-341458

Int. Cl.^{6} F25D *19/00*

U.S. Cl. 62—298 **10 Claims**

1. An air conditioning apparatus for a vehicle, comprising:

an air conditioning body unit having an opening portion;

an evaporator inserted into said air conditioning body unit through said opening portion, for cooling air passing in said air conditioning body unit;

an inlet pipe extending from the opening portion to the outside of said air conditioning body unit, for introducing a coolant into said evaporator;

an outlet pipe extending from said opening portion to the outside of said air conditioning body unit, for discharging the coolant from said evaporator;

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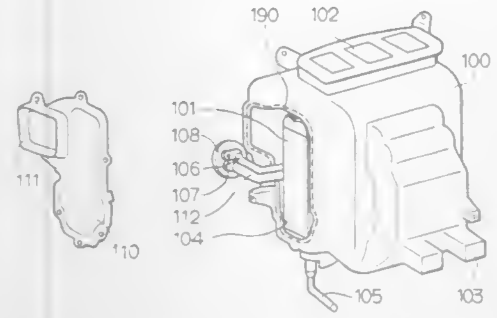


an insulator covering an outer surface of said inlet pipe and an outer surface of said outlet pipe, said insulator being disposed adjacent to an opening edge of said opening portion;

a sealing member formed along a periphery of said opening portion of said air conditioning body unit, said sealing member having a starting end and a terminating end, both of which overlap with said insulator; and

a cover for covering said opening portion of said air conditioning body unit so as to sandwich said sealing member between said cover and said opening portion.

5,737,937

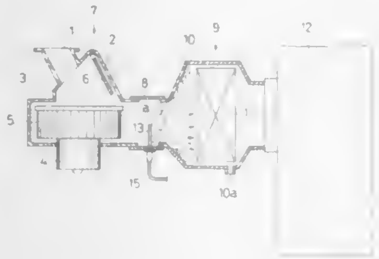
ACCESSORY STRUCTURE FOR SPRAY CLEANING A HEAT EXCHANGER IN A VEHICLE AIR-CONDITIONER

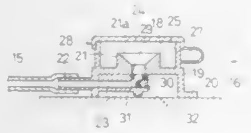
Yasumasa Akazawa, 2-8-14, Higashishinmachi, Matsubara, Osaka, Japan

Filed Oct. 28, 1996, Ser. No. 740,159

Int. Cl.^{6} F28G *9/00*

U.S. Cl. 62—303 **16 Claims**





1. A cleaning apparatus for a vehicle air conditioner comprising an air intake route, said apparatus comprising

at least one injection means disposed at an upstream side of a heat exchanger and in said air intake route for applying a cleaning solvent to clean the heat exchanger;

a solvent feed route for feeding the cleaning solvent to said at least one injection means; and

receiving means separate from a solvent source for receiving the cleaning solvent from the solvent source, said receiving means being connected to communicate with a base end of said solvent feed route and being located in said vehicle

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5,737,938

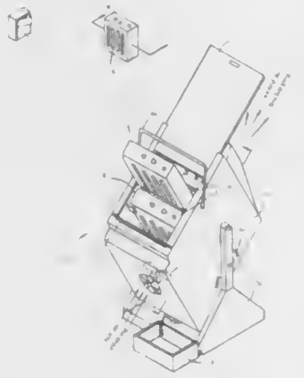
AIR-CONDITIONING SYSTEM WITH PORTABLE AIR-CONDITIONING UNIT

Chunyan Liu, Montville, N.J., assignor to ContinOcean Tech Inc., Montville, N.J.

Filed Jan. 27, 1997, Ser. No. 789,016

Int. Cl.^{6} F25D *3/02*

U.S. Cl. 62—425 **15 Claims**



1. An air-conditioning system with a portable air-conditioning means for cooling and dehumidifying a zone comprising:

(a) a refrigerating means for providing cold source for said air-conditioning system,

(b) a portable air-conditioning unit, which is physically separated from said refrigerating unit, further comprising:

a housing for said portable air-conditioning unit of said air-conditioning system,

coolant absorbing heat from the air of said zone and releasing heat to said refrigerating unit,

one or a plurality of coolant carriers containing said coolant and being placed in said housing when working as a heat exchanger to absorb heat from the air of said zone and being placed in said refrigerating unit for releasing heat to said refrigerating means,

an air-moving means located in said housing for forcing the air of said zone into said housing and for forcing the air passing through the surface of said coolant carriers and also for forcing the air out to said zone from said housing,

(c) a portable air-conditioning means cooling said zone by forcing the air passing through said coolant carriers which are filled with said coolant and can be transported between said refrigerating means and said portable air-conditioning unit for said coolant to release heat to said refrigerating unit and to absorb heat from the air of said zone being cooled,

(d) an adjusting means regulating the length of working time of said portable air-conditioning unit and the total cooling effect that said portable air-conditioning unit supplies by choosing the number of said coolant carriers loaded into said air-conditioning unit,

(e) a coolant transportation means transporting said coolant between said portable air-conditioning unit and said refrigerating means by using one or a plurality of said coolant carriers.

5,737,939

ULTRA LOW TEMPERATURE SPLIT DOOR FREEZER

John H. Valence, Williamstown, and Keith L. Wharton, Parkersburg, both of W. Va., assignors to Forma Scientific, Inc., Marietta, Ohio

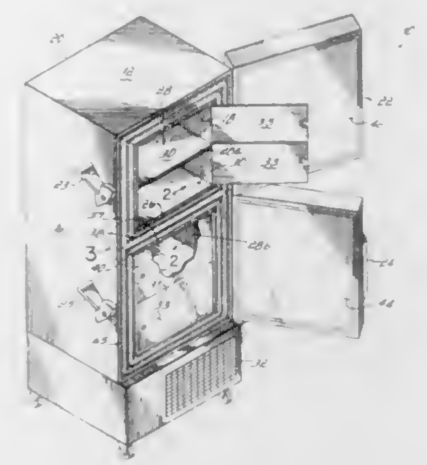
Continuation of Ser. No. 455,040, May 19, 1995, Pat. No. 5,600,966. This application Feb. 11, 1997, Ser. No. 798,888

Int. Cl.^{6} F25D *11/02*; A47B *96/04*

U.S. Cl. 62—441 **5 Claims**

1. An upright freezer comprising:

a freezer chamber having upper and lower chamber portions separated by a solid divider and contained by insulated peripheral walls including a pair of side walls, a top wall, a bottom wall and a rear wall;



a mullion extending between said pair of side walls and between said upper and lower chamber portions;

an upper insulated door and a lower insulated door hingedly secured to one of said side walls and having respective lower and upper edges thereof sealing against said mullion when in closed positions; and,

a refrigeration unit connected to said freezer which cools said chamber to a substantially uniform temperature below about −50° C.

5,737,940

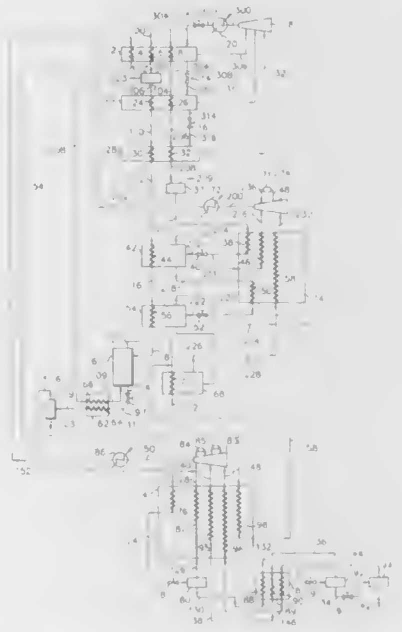
AROMATICS AND/OR HEAVIES REMOVAL FROM A METHANE-BASED FEED BY CONDENSATION AND STRIPPING

Jame Yao, 1151 Gloria Ct., Sugar Land, Tex. 77478; Clarence G. Houser, 3300 Sage Rd. Apt. 6305, Houston, Tex. 77056, and William R. Low, 1000 Grandview Rd., Bartlesville, Okla. 74006

Filed Jun. 7, 1996, Ser. No. 659,732

Int. Cl.^{6} F25J *3/02*

U.S. Cl. 62—620 **54 Claims**



1. A process for removing and concentrating the higher molecular weight hydrocarbon species from a methane-based gas stream comprising the steps of:

(a) condensing a minor portion of the methane-based gas stream thereby producing a two-phase stream;

(b) feeding said two-phase stream into the upper section of a column;

(c) removing from the upper section of said column a heavies depleted gas stream;

(d) removing from the lower section of said column a heavies rich liquid stream;

(e) contacting via indirect heat exchange the heavies-rich liquid stream with a methane-rich stripping gas stream thereby producing a warmed heavies-rich stream and a cooled methane rich stripping gas stream;

(f) feeding said cooled methane-rich stripping gas stream to the lower section of the column; and

(g) contacting the two-phase stream and the cooled methane-rich stripping gas stream in said column thereby producing the heavies-depleted gas stream and the heavies-rich liquid stream.

5,737,941

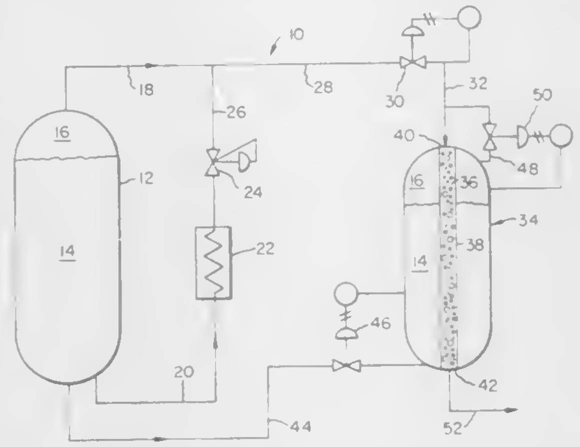
METHOD AND APPARATUS FOR REMOVING TRACE QUANTITIES OF IMPURITIES FROM LIQUIFIED BULK GASES

Thomas Hsiao-Ling Hsiung, Emmaus, Pa.; Jose Rui Souto Machado, San Jose, Calif., and Alexander Schwarz, Bethlehem, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jan. 21, 1997, Ser. No. 786,576

Int. Cl.^{6} F25J *1/00*

U.S. Cl. 62—636 **15 Claims**



1. An apparatus for removal of trace impurities from bulk quantities of gases stored in a storage vessel wherein there is a quantity of liquified gas and a quantity of vaporized gas comprising in combination:

a treatment vessel for holding an adsorbent, said adsorbent of the type to remove said trace impurities from the stored gas, said vessel including means to cool said adsorbent by contact with said stored liquified gas, and means to withdraw vaporized gas from said treatment vessel and introduce said vaporized gas into said adsorbent,

means to withdraw liquified gas from said storage vessel and introduce it into said treatment vessel;

means to withdraw vaporized gas from said storage vessel and introduce said vaporized gas into said adsorbent; and

means to deliver vaporized gas from said adsorbent to a point of use

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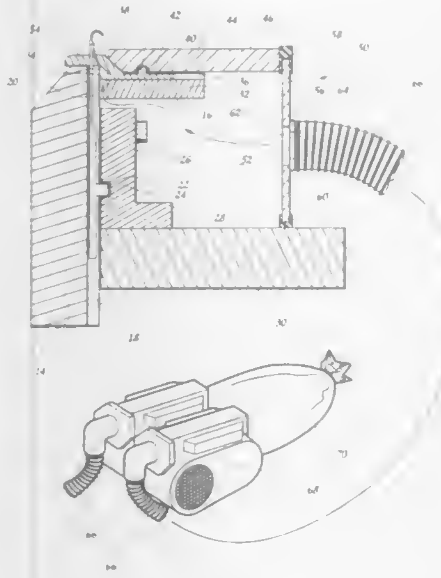
5,737,942
MEANS FOR DETERRING LINT AND DEBRIS ACCUMULATION ON THE KNITTING ELEMENTS OF A CIRCULAR KNITTING MACHINE

Alan Gutschmit, Troy, N.C., assignor to Alandale Industries, Inc., Troy, N.C.

Filed Jul. 3, 1996, Ser. No. 674,625

Int. Cl.⁶ D04B *35/32*

U.S. Cl. 66—168 **41 Claims**



1 In a circular knitting machine having a stationary frame supporting a cylinder and a concentric dial radially outwardly of the cylinder with an annular spacing therebetween for unitary rotation of the cylinder and dial relative to the frame to perform fabric knitting operations, the improvement comprising means mounted to the frame for defining an air chamber spanning between the cylinder and the dial in communication with the annular spacing therebetween and means for delivering a pressurized airstream into the chamber and outwardly therefrom through the annular spacing to deter accumulation of lint and debris on the cylinder and the dial in the area of the annular spacing therebetween.

5,737,943
SEAMLESS PEDORTHIC SOCK AND METHOD OF KNITTING SAME

Frederick S. Bernhardt, Richboro, Pa., assignor to Creative Care, Inc., Langhorne, Pa.

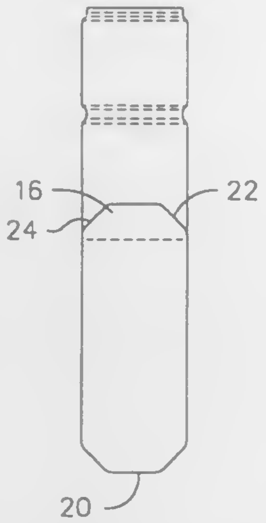
Filed Jul. 26, 1996, Ser. No. 687,695

Int. Cl.⁶ D04B *1/26;* **A41B** *11/00*

U.S. Cl. 66—178 R **14 Claims**

1. A seamless sock, completely finished on a flatbed knitting machine, comprising:

knitted elongate first and second panels of courses of low stretch yarn collapsible flatly against each other having opposite course extremities interconnected to form seamless upper and lower portions for respectively receiving a foot and a leg of a wearer, said lower portion including tapered sides with opposite courses of said panels interconnected to form a seamless closure for bearing against toes of the foot, said upper portion including at least one non-constricting narrow band of courses of substantially elastic yarn between courses of said low stretch yarn for applying sufficient compression to keep said upper portion in a position around the leg, and said upper portion terminating with a finishing course to prevent the top of the sock from rolling down and unraveling.



5,737,944
WASHING MACHINE WITH IMPROVED DRIVE STRUCTURE FOR ROTATABLE TUB AND AGITATOR

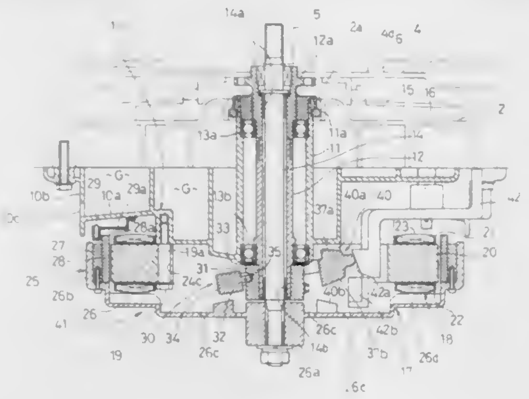
Hiroshi Nishimura, Seto; Masaru Koshimizu, Komaki; Masahiro Imai, Tajimi; Koichi Hosomi, Seto, and Yutaka Inagaki, Fuji, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-Ken, Japan

Filed Sep. 11, 1996, Ser. No. 711,932

Claims priority, applicatinn Japan, Oct. 30, 1995, 7-282002

Int. Cl.⁶ D06F *37/40;39/08*

U.S. Cl. 68—23.7 **13 Claims**



1. A washing machine comprising:

an outer tub;

a rotatable tub rotatably mounted in the outer tub;

an agitator mounted in the rotatable tub;

a hollow tub shaft transmitting a rotating force to the rotatable tub;

an agitator shaft inserted in the tub shaft for transmitting a rotating force to the agitator and having a lower end;

an electric motor including a stator concentric with the agitator shaft and a rotor mounted on the lower end of the agitator shaft;

a clutch for changing between a first mode in which the tub shaft is operatively coupled to the agitator shaft in a dehydration step so that the motor rotor, the agitator shaft and the tub shaft are rotated together and a second mode in which the tub shaft is decoupled from the agitator shaft in a wash step so that the tub shaft is prevented from being rotated with the motor rotor and the agitator shaft, the clutch having a change-over member and changes between the first and second modes on the basis of operation of the change-over member;

a mechanism housing mounted on an outer bottom of the outer tub so that the tub shaft, the agitator shaft, the motor and the clutch are mounted on the mechanism housing to be composed into an integral mechanism unit;

a drain valve provided for discharging wash liquid; and

drain valve drive means for driving the drain valve and for actuating the change-over member of the clutch.

5,737,945
DEVICE FOR SIMULTANEOUS APPLICATION OF A MINIMAL QUANTITY OF A PROCESSING FLUID TO A TEXTILE WEB OF GOODS

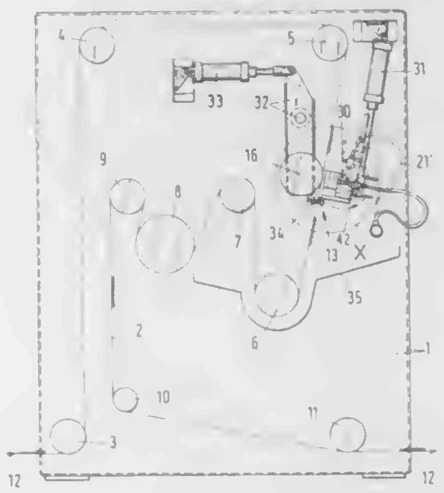
Gerold Fleissner, Zug, Switzerland, assignor to Fleissner GmbH & Co. Maschinenfabrik, Egelsbach, Germany

Filed Nov. 22, 1995, Ser. No. 562,180

Claims priority, application Germany, Nov. 24, 1994, 44 41 805.1

Int. Cl.⁶ D06B *1/08*

U.S. Cl. 68—200 **7 Claims**



1. A device for uniform application of a minimum quantity of a processing or finishing fluid to a passing textile web of goods of a given width, said device comprising an application beam arranged transversely with respect to the web, said beam having an open slot extending over the width of the web and facing said web, means for uniformly supplying the fluid to the slot over the working width of the web, and a support for the web located opposite the slot on the other side of the web; said support being a pressure roller aligned parallel to the application beam, said roller pressing the web passing between the roller and the application beam against lengthwise edges that delimit the slot; the lengthwise edges of the slot being arranged with a vertical space therebetween and a surface of the web to be treated including a nap being compressed between the pressure roller and each of the lengthwise edges, wherein the vertical space is sized and the pressure roller arranged with respect to the vertical space so that the web is initially compressed between the pressure roller and one lengthwise edge, then allowed to breath and receive the fluid in the slot located between the lengthwise edges when freed of the pressure of the pressure roller, and again compressed between the pressure roller and another lengthwise edge so that only a minimal amount of the fluid remains in the nap.

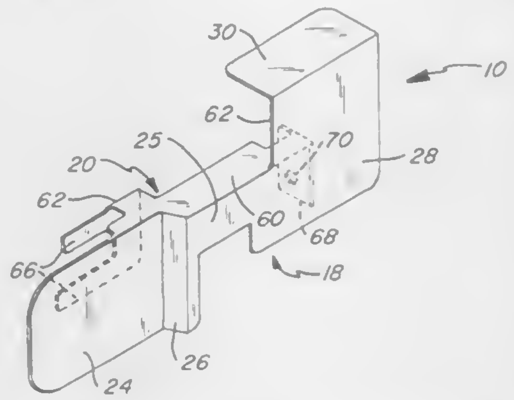
5,737,946
SEMI-TRAILER ANTI-THEFT DEVICE

Jeffrey S. Sole, 440 E. 116th Ave., Northglenn, Colo. 80233, and Harlan K. Sole, 7722 Shoshone St., Denver, Colo. 80221

Filed Sep. 30, 1996, Ser. No. 724,525

Int. Cl.⁶ E05B *67/38*

U.S. Cl. 70—54 **9 Claims**



1. A semi-trailer anti-theft apparatus for inhibiting access to a cargo door, said apparatus comprising:

a latch attached to said cargo door at a pivot point, said latch being pivotable about said pivot point in a plane substantially parallel to the cargo door;

a lock engageable with said latch for locking said latch with respect to the cargo door;

an elongated panel extendable along said latch and over said lock on the cargo door, said elongated panel having a first end and a second end;

a forked member attached to said elongated panel at said first end thereof for engagement with said latch adjacent said pivot point so that said elongated panel is extendable from said pivot point along said latch;

a pivot pin panel located adjacent said first end for covering said pivot point; and

a locking web attached to said elongated panel at said second end thereof and having an aperture through which said lock is engaged.

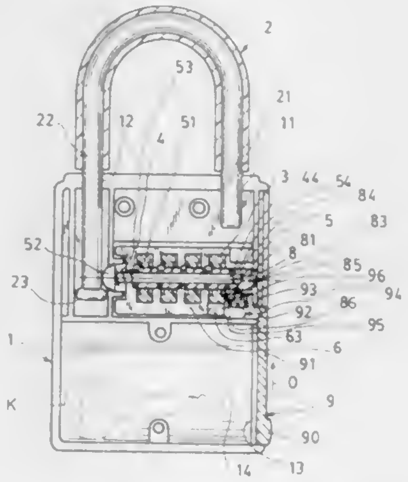
5,737,947
MOTHER-AND-DAUGHTER COMBINATION LOCK

Chong-Kuan Ling, C/O Sinox Co., Ltd. P.O. Box 96-156, Taipei, Taiwan

Filed May 2, 1997, Ser. No. 848,990

Int. Cl.⁶ E05B *65/52*

U.S. Cl. 70—63 **8 Claims**



1. A mother-and-daughter combination lock comprising:

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- a housing having a shackle movably securable in and releasable from a first portion of said housing;
- a security compartment for storing small items therein formed in a second portion of said housing;
- a sliding door means formed in said second portion of said housing, operatively lockable for closing said security compartment and unlockable for opening said security compartment;
- a plurality of dials and sleeves rotatably mounted in said housing about a locking shaft longitudinally disposed in said sleeves, each said sleeve resiliently coupled with each said dial, whereby upon rotation of said dials to a first combination, said locking shaft is locked by said sleeves to lock said shackle; and
- an actuating plate resiliently contacted with and operatively biased by said sleeves, whereby upon a rotation of said dials to the first combination for locking said shackle, said actuating plate is biased to a first position to unlock the sliding door means; and upon a rotation of said dials to a second combination, said sleeves are rotated to bias said actuating plate to a second position to lock the sliding door means, and to unlock said locking shaft for unlocking said shackle

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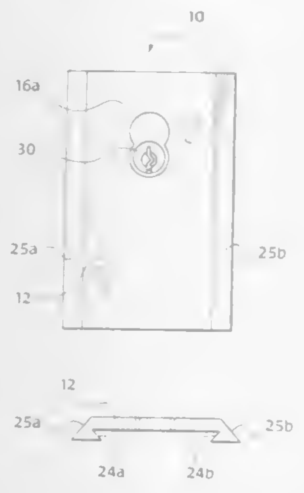
5,737,948
ACCESS CONTROL SYSTEM

Jacob Lefkovits, 1061 53rd St., Brooklyn, N.Y. 11219

Filed Dec. 17, 1996, Ser. No. 767,913

Int. Cl.^{6} B65D *55/14*

U.S. Cl. 70—164 **6 Claims**



1 An access control system for preventing access to the underlying workings of a control panel comprising:

- a base member having an upper surface, a lower surface, and a bore extending from said upper surface to said lower surface;
- a base plate having two opposite sides, a plurality of fastening apertures and a bore, said base plate being fastened to said upper surface of said base member such that said bore in said base plate is aligned with said bore in said base member;
- a cover plate having an upper surface, a lower surface, and a bore extending between said upper and lower surfaces, said bore being aligned with said base plate bore when said cover plate is placed over said base plate;
- a dual key operated cylinder plug having a keyway on one end and connection means for coupling said cylinder plug to a rotation controlled device on the opposite end, said cylinder plug being disposed through said bores in said base member, base plate and cover plate, said dual key operated cylinder plug having a first operational mode that secures said cover plate over said base plate to prevent tampering with said cylinder plug, said first operational mode controlled by a control key that enables removal of the cylinder plug, and a second operational mode determined by a general key for access control.

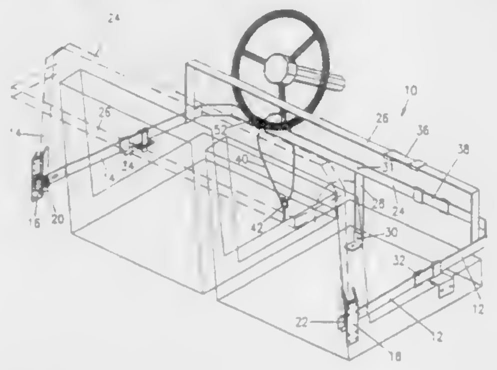
5,737,949
AUTOMOBILE ANTI-THEFT DEVICE

Howard Zenke, 124 Columbia Heights, Brooklyn, N.Y. 11201-1698

Continuation of Ser. No. 370,683, Jan. 10, 1995, abandoned. This application Jul. 16, 1997, Ser. No. 895,339

Int. Cl.^{6} B60R *25/02*

U.S. Cl. 70—209 **30 Claims**



1. An anti-theft device for an automotive vehicle for restricting access to a front seat area and a dashboard area of said vehicle, said device comprising:

- a first pair of side arms and corresponding hinge devices respectively arranged for pivotably attaching proximal ends of said side arms directly to a body of said vehicle adjacent to sides of the front seat area of said vehicle;
- at least a first cross bar attached to distal ends of said side arms, for extending said first cross bar transversely across said front seat area of said vehicle in an armed position; and
- said side arms and said cross bar being pivotable for being positioned away from said front seat area in a storage position during normal use of said vehicle.

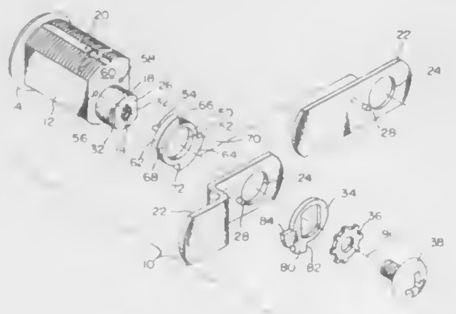
5,737,950
AMBIDEXTROUS VERTICAL INVERTED HANDED CAM LOCK

Hsu Yun-Bin, Taipai, Taiwan, assignor to Olympus Lock, Inc., Seattle, Wash.

Filed Nov. 3, 1995, Ser. No. 552,747

Int. Cl.^{6} E05B *17/04*

U.S. Cl. 70—379 R **4 Claims**



1. An ambidextrous cam lock for cabinet doors and drawers, comprising:

- a cylindrical plug defining front and rear ends and having a longitudinally directed keyway and a plurality of radially directed pin tumblers in communication with the keyway;
- an elongated cylinder having a plurality of radially directed, spring loaded top pins and an off-center, longitudinal bore therein for rotatably receiving the plug;
- a lazy cam journaled for rotation with the plug;
- a selectively positionable bolt rotation limiter having a forwardly projecting pin on the bolt rotation limiter for receipt in two bores angularly displaced on the rear end of the cylinder for selectively mounting the bolt rotation limiter adjacent to the rear end of the cylinder in a plurality of angular positions; and,
- an angularly moveable bolt journaled for rotational movement about the plug, the bolt having a first structure thereon for engagement with the lazy cam and a second structure thereon for engagement with the bolt rotation limiter, wherein the first and second structures are forwardly and rearwardly projecting pins positioned so that the lazy cam drives the bolt and the bolt rotation limiter limits the angular travel of the bolt

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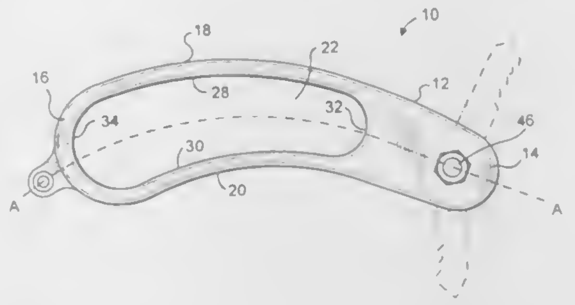
5,737,951
KEY TURNING DEVICE

Adam E. Krass, Hoboken, N.J., assignor to Bel-Art Products, Inc., Pequannock, N.J.

Filed Nov. 8, 1996, Ser. No. 745,953

Int. Cl.^{6} A44B *15/00*

U.S. Cl. 70—456 R **19 Claims**



1. A device facilitating turning a key in a keyhole of a lock, comprising:

- an elongated housing with distal and proximal ends having length substantially exceeding width thereof, said housing including top and bottom walls and having a longitudinal axis extending substantially along said length between said distal and proximal ends;
- at least one keyslot provided at said proximal end, said keyslot adapted to receive a key for movement about a pivotal axis of the housing, a plane of said keyslot being transverse to said pivotal axis;
- a receiving unrestricted opening formed within said housing along said longitudinal axis and extending between said top and bottom walls transversely to said plane of said keyslot,
- whereby in use of said device fingers of a hand of a user are inserted into said receiving unrestricted opening, so that a turning force generated by said fingers is substantially limited by and distributed along said receiving unrestricted opening.

5,737,952
METHOD AND APPARATUS FOR PRODUCING A HEADER WITH OPENINGS

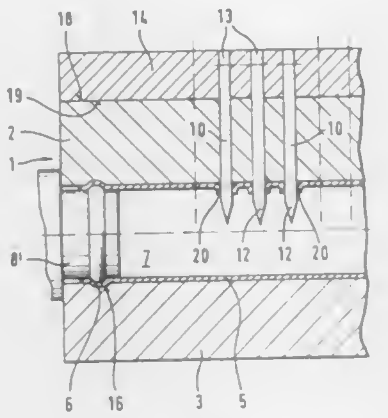
Rainer Baumann, Vaihingen/Enz, and Martin Rilk, Pforzheim, both of Germany, assignors to Behr GmbH & Co., Stuttgart, Germany

Filed Sep. 5, 1996, Ser. No. 708,723

Claims priority, application Germany, Sep. 6, 1995, 195 32 860.4

Int. Cl.^{6} B21D *28/28*

U.S. Cl. 72—55 **21 Claims**



1. A method of forming at least one opening through a tubular heat-exchanger header comprising the steps of:

- inserting the tubular header into a tool die having a chamber dimensioned to receive the header, the chamber substantially conforming to an outer peripheral contour of the header;
- providing at least one guide passage through the tool die for insertion of at least one punch, the guide passage exposing an area of the header to be pierced to form the opening in the header;
- sealing the ends of the tubular header;
- supplying fluid to the tubular header through one of the sealed ends and applying a predetermined internal pressure to a wall of the header with the fluid;
- piercing through the header wall with the punch while the header is pressurized to prevent deformation of the header;
- forming an inwardly directed rim around the opening during insertion of the punch through the header wall; and
- maintaining the pressure in the header during the piercing step by sealingly bearing the rim against the periphery of the punch.

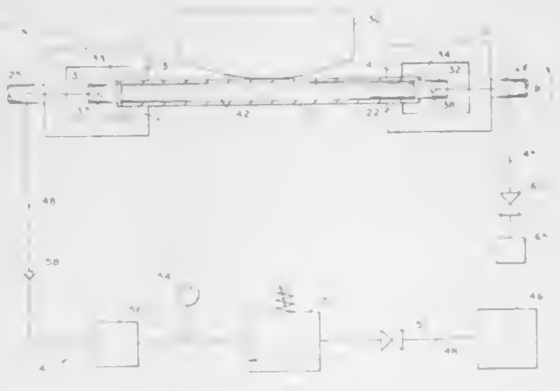
5,737,953
PROCESS FOR STRETCH FORMING HOLLOW METAL BODIES

Blair T. Allison, Cheswick, Pa.; Thomas J. VanSumeren, Waterford, Mich.; Robert P. Evert, Allison Park, and John S. Schultz, McKeesport, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 18, 1997, Ser. No. 819,349

Int. Cl.^{6} B21D *11/02*

U.S. Cl. 72—58 **16 Claims**



1. A process for forming into a desired shape an elongated hollow metal body having opposed longitudinal end portions, comprising:

- (a) gripping said end portions of the body with grippers;
- (b) stretching said body longitudinally by pulling said end portions in opposite directions with sufficient force to exceed an elastic limit and to initiate elongation through plastic deformation;
- (c) while stretching said body longitudinally, bending the body between its ends transversely of the direction of the pulling; and
- (d) after step (c) and while continuing to pull said end portions, pressurizing a hollow interior of the body with an incompress-

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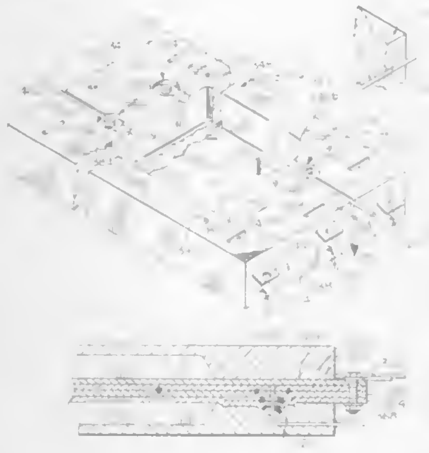
ible fluid means at a pressure sufficient to deform at least part of the body outwardly of said interior.

5,737,954

SUPERPLASTIC FORMING WITH DIRECT ELECTRICAL HEATING

Ken K. Yasui, Huntington Beach, Calif., assignor to McDonnell Douglas Corporation, Huntington Beach, Calif.
Filed Nov. 15, 1996, Ser. No. 749,904
Int. Cl.⁶ B21D *26/02*
U.S. Cl. 72—60 **25 Claims**

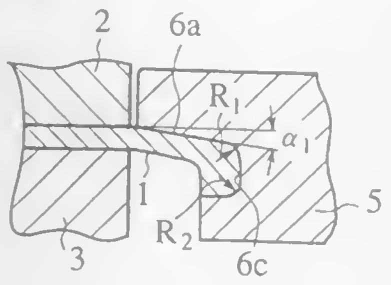


22. A blank for positioning in a die for a superplastic forming process including:
- at least one sheet of superplastically formable, electrically conducting material having:
  - first and second opposite edge portions; and
  - a central portion to be superplastically formed positioned between said first and second edge portions;
- at least one first electrically conducting doubler positioned adjacent said first edge portion; and
- at least one second electrically conducting doubler positioned adjacent said second edge portion, said at least one first and second doublers lowering the electrical resistance at said first and second edge portions so that electrical current applied between said first and second edge portions heats said central portion more than in said first and second edge portions.

5,737,955

METHOD FOR INCLEARING THICKNESS OF OUTER PERIPHERAL PORTION OF DISC, AND METHOD FOR MOLDING DISC MEMBER HAVING TRANSMITTING PORTION IN OUTER PERIPHERY THEREOF

Masakiyo Ohya, and Tamio Totsuka, both of Kosai, Japan, assignors to Fujikiko Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 29, 1996, Ser. No. 705,429
Claims priority, application Japan, Aug. 31, 1995, 7-223911
Int. Cl.⁶ B21H *5/00*
U.S. Cl. 72—102 **11 Claims**

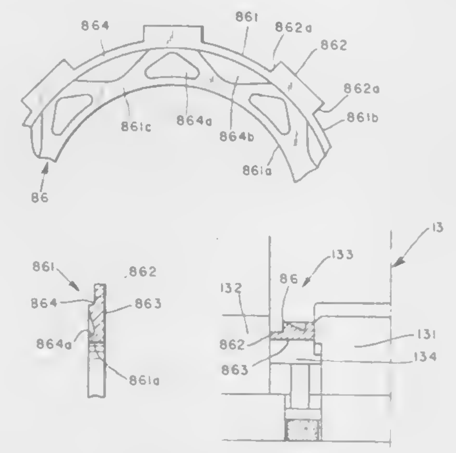


1. A method for increasing the thickness of an outer peripheral portion of a metallic disc material, comprising the steps of:
- clamping a central portion of a metallic disc material by means of a tool;
- preparing a first cylindrical forming die having a first groove portion on an outer periphery thereof for receiving said metallic disc material, said first groove portion having a pair of side walls and a bottom wall therebetween, said side walls having inclined surfaces facing each other so as to increase the width of said first groove portion toward said outer peripheral portion of said metallic disc material.; the inclined surface of one of the side walls having an inclined angle in the range of from 0.5 to 15 degrees with respect to a plane perpendicular to the axis of the metallic disc material;
- pressing the first cylindrical forming die against the outer peripheral portion of the metallic disc material in a radial direction, so that the inclined surface of the one of the side walls is brought into contact with one surface of the outer peripheral portion of the metallic disc material, whereby the outer peripheral portion of the metallic disc material is bent in a direction along the inclined surface of the one of the side walls; and
- further pressing the first cylindrical forming die against the outer peripheral portion of the metallic disc material in the radial direction, so that the outer peripheral portion of the metallic disc material is thickened in said first groove portion.

5,737,956

METHOD FOR MANUFACTURING A FORCE-RECEIVING PLATE FOR FRICTION DEVICE

Shigeo Takahashi; Yoshitaka Soga, both of Anjyo; Tatsuo Ohhashi, Ogaki, and Hirotaka Ito, Gifu-ken, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, and Marujun Seiki Ind. Co., Ltd., Ogaki, both of Japan
Division of Ser. No. 360,575, Dec. 21, 1994, Pat. No. 5,617,941. This application Dec. 10, 1996, Ser. No. 763,145
Claims priority, application Japan, Dec. 22, 1993, 5-323781; Dec. 22, 1993, 5-323782; Dec. 22, 1993, 5-323783
Int. Cl.⁶ B21D *53/88*
U.S. Cl. 72—336 **5 Claims**



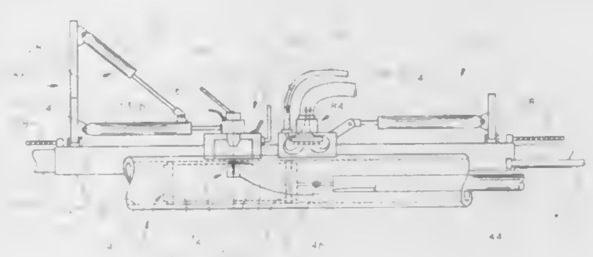
1. A method of manufacturing a pressure receiving plate for a friction device comprising:
- punching a starting plate in a shape of blank having an annular portion for contacting a friction disk engaged with one of a driving member and a driven member, and pawls extending radially inwardly or outwardly from the annular portion for engaging the other of the driving member and the driven member, the annular portion having an inner periphery and an outer periphery.

- and a forming step that includes placing the blank in an apparatus with one of the inner and outer peripheries of the annular portion serving as a guide for the blank the blank being placed in the apparatus so that a first gap exists between the inner periphery of the annular portion and a guide and a second gap exists between the outer periphery of the annular portion and a die with the second gap having a width greater than the width of the first gap the forming step also including crushing the blank in a range of predetermined crush relief so that a portion of the blank that is crushed at least partially fills the first and second gaps.

5,737,957

APPARATUS FOR STRAIGHTENING A CYLINDRICAL MEMBER

Stanley J. Gray, Bixby, Okla., assignor to Baker Hughes Incorporated, Houston, Tex.
Continuation of Ser. No. 495,053, Jun. 26, 1995, abandoned. This application Feb. 26, 1997, Ser. No. 806,819
Int. Cl.⁶ B21D *37/16*
U.S. Cl. 72—342.94 **17 Claims**

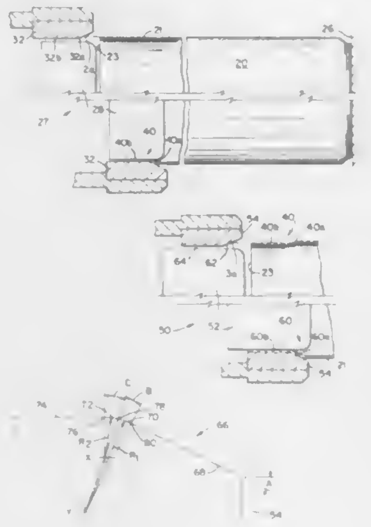


10. An apparatus for straightening a tubular member having a bore, comprising in combination:
- a measuring instrument which is inserted into the bore for measuring the shape of the bore;
- a rotary drive head for causing rotational movement of the tubular member relative to the measuring instrument;
- a measuring instrument positioner for causing relative longitudinal movement between the measuring instrument and the tubular member;
- a plasma arc torch having an arc extending between electrodes and having gas flowing past the arc, wherein the gas is heated and expands into a plasma jet directed toward the tubular member for heating a portion of the tubular member at various locations;
- a quenching head for quenching the heated portion of the tubular member, wherein the heating and subsequent quenching of the portion of the tubular member straightens the tubular member;
- a carriage assembly for moving the plasma arc torch longitudinally along the member; and
- an automated controller for
  - (a) sending control signals to control the relative movement between the measuring instrument and the tubular member;
  - (b) receiving data from the measuring instrument;
  - (c) processing the data from the measuring instrument based on pre-existing data in a database; and
  - (d) sending control signals based on the processed data to the plasma arc torch and the quenching head to control the locations of the plasma arc torch and the quenching head and the amount of heating and quenching.

5,737,958

METHOD FOR NECKING CONTAINERS

Sergio R. Sainz, Henrico County; Donald R. Haulsee, Chesterfield County, and Roger H. Donaldson, Lancaster County, all of Va., assignors to Reynolds Metals Company, Richmond, Va.
Continuation-in-part of Ser. No. 591,877, Jan. 25, 1996, which is a continuation-in-part of Ser. No. 320,999, Oct. 11, 1994, abandoned. This application Jun. 12, 1996, Ser. No. 662,371
Int. Cl.⁶ B21D *22/00;22/21*
U.S. Cl. 72—356 **22 Claims**



1. A multi-stage die-forming method for necking-in the open end of a can body to form a reduced diameter neck having a smooth profile comprising the steps of:
- providing an open-ended can body having a sidewall of substantially cylindrical configuration about a longitudinal central axis, the sidewall defining an open end having a terminal edge;
- at one die-forming station, causing relative axial movement between a first necking-die and the open end of the sidewall to engage the first die against the sidewall to form a first reduced diameter neck having a first contoured portion extending inwardly from said sidewall to a first cylindrical portion terminating at said terminal edge;
- at a next die-forming station, causing relative axial movement between a second necking-die and the first neck to engage the second die against the first neck to form the first neck into a second reduced diameter neck having a second contoured portion extending inwardly from said sidewall to a second cylindrical portion terminating at said terminal edge, the diameter of the second cylindrical portion being less than the diameter of the first cylindrical portion;
- the second contoured portion having a first section extending inwardly from said sidewall at a minimum entrance angle of approximately 26°, a second radiused section joining said first section and curving away from said longitudinal axis on a radius substantially less than 0.900 inches, and a third radiused section curving away from said longitudinal axis and joining said second radiused section to said second cylindrical portion, the radius of said third section being substantially less than the radius of said second section, the angular distance through which said second section extends along the direction of said longitudinal axis being at least equal to the angular distance through which the third section extends, the sum of the angular distances being equal to said entrance angle, and
- at a subsequent die-forming station, causing relative axial movement between a third necking-die and the second neck to engage the third die against the second neck to form the second neck into a third reduced diameter neck having a third contoured portion extending inwardly from said sidewall to a third cylindrical portion terminating at said terminal edge, the

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diameter of the third cylindrical portion being less than the diameter of the second cylindrical portion, the third contoured portion having a profile which is substantially the same as the profile of said second contoured portion.

5,737,959

METHOD OF PLASTIC FORMING OF MATERIALS

Andrzej Korbel, u. Olkuska 8, PL-30-138 Krakow, and Wlodzimierz Bochniak, ul. Pijarska 1/4a, PL-31-015 Krakow, both of Poland

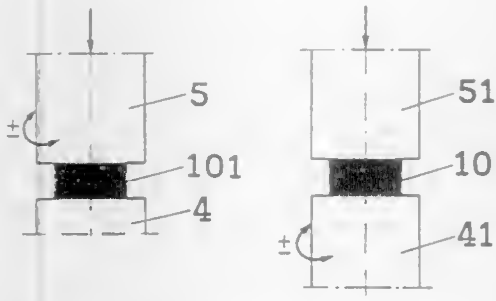
PCT No. PCT/PL95/00006, § 371 Date Jan. 30, 1996, § 102(e) Date Jan. 30, 1996, PCT Pub. No. WO95/32818, PCT Pub. Date Dec. 7, 1995

PCT Filed Apr. 7, 1996, Ser. No. 586,818

Claims priority, application Poland, May 30, 1994, 303571; Aug. 2, 1994, 304546; Oct. 3, 1994, 305305

Int. Cl.^{6} B21D *31/00;* **B21C** *23/00*

U.S. Cl. 72—362 7 Claims



1. In a method for plastic forming of a material by rolling, forging or extrusion by using a tool to exert a force on the material to obtain a product of desired geometry,

the improvement comprising inducing in the material a reversible plastic strain in the form of shear bands localized in a zone of most intense deformation by the tool, by introducing a motion of said tool additional to a tool working motion which produces the desired geometry, said additional motion periodically reversing and transferring motion within the material due to intimate contact between the material and the tool,

said additional motion intruding into the structure of the deformed material and changing plastic flow thereof.

5,737,960

PRESS WITH A COMBINATION TRANSFER SYSTEM

Rudi Brandstetter, Adelberg; Hans Hofele, Goeppingen, both of Germany, and Herbert Plocher, Columbus, Ohio, assignors to Schuler Pressen GmbH & Co., Germany

Filed Nov. 13, 1996, Ser. No. 748,579

Claims priority, application Germany, Nov. 13, 1995, 195 42 205.8

Int. Cl.^{6} B21D *43/05*

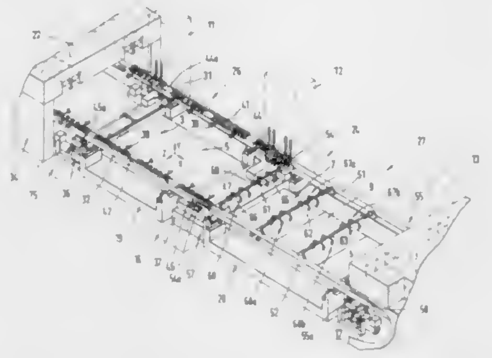
U.S. Cl. 72—405.16 20 Claims

1. A press having a plurality of press stations for serially machining workpieces such as large sheet metal parts in the press stations which are arranged along a transport direction, comprising

substantially parallel gripper rails arranged parallel to the transport direction,

a first driving apparatus for moving the gripper rails toward and away from one another in a second direction, with a constant spacing in a lifting direction situated at a right angle with respect to the transport direction, and in the transport direction,

a first set of gripper devices arranged to be carried by the gripper rails and engageable with and disengageable from the workpieces,



a plurality of parallel transport rails arranged in a second press area downstream of the gripper rails as viewed in the transport direction,

second driving apparatus operable independently of the first drivinq apparatus for moving the transport rails at a constant spacing with respect to one another in the lifting direction and in the transport direction,

traverses arranged substantially transversely to the transport direction and are held on an end side thereof on the transport rails, and

a second set of gripper devices arranged on the traverses to connect the transport rails.

5,737,961

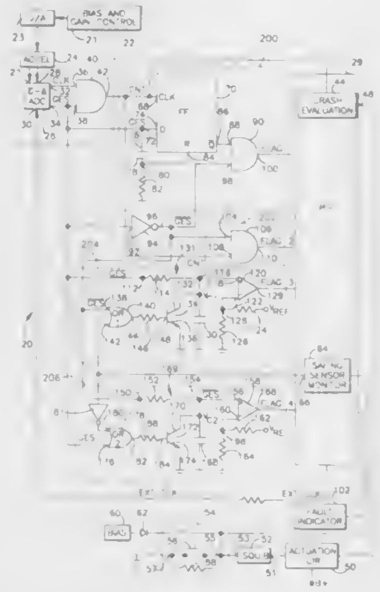
METHOD AND APPARATUS FOR DETECTING OPERATIONAL FAILURE OF A DIGITAL ACCELEROMETER

John Cyril P. Hanisko, Southfield, and Carl A. Munch, Troy, both of Mich., assignors to TRW Inc., Lyndhurst, Ohio

Filed Mar. 26, 1996, Ser. No. 622,705

Int. Cl.^{6} G01P *21/00;15/00*

U.S. Cl. 73—1.38 41 Claims



1. An apparatus comprising:

an accelerometer for providing an analog acceleration signal indicative of sensed acceleration;

A/D converter means operatively connected to said accelerometer for providing a gate enable signal and for providing a plurality of pulse signals when the gate enable signal is in a first state, a pulse-density of the plurality of pulse signals being indicative of a value of the analog acceleration signal; and

means for detecting when at least one of the plurality of pulse signals does not occur when the gate enable signal is in the first state and for providing a signal indicative thereof;

wherein the gate enable signal is a pulse-width modulated signal in which the pulse-width is functionally related to the value of the analog acceleration signal and wherein said A/D converter means further includes means for ANDING said pulse-width modulated signal with a continuous clock signal.

5,737,962

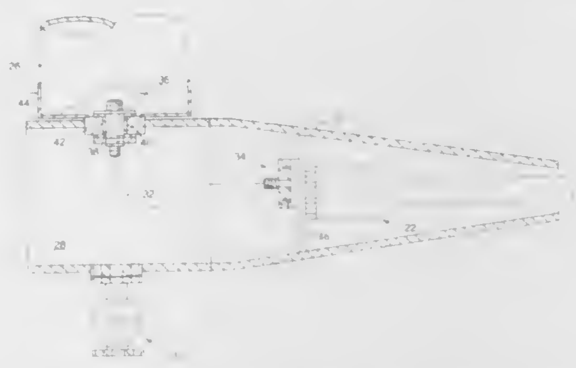
STEAM DELIVERY SYSTEM FOR STATIC TESTING OF GAS DRIVEN TORPEDOES

Stephen E. Turner, Newport, and Peter A. Roy, Warwick, both of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 31, 1996, Ser. No. 682,877

Int. Cl.^{6} G01M *19/00*

U.S. Cl. 73—167 7 Claims



1. A system for static testing torpedoes of the type having a propulsion engine that is normally driven by relatively hot gas products of combustion generated inside the torpedo, said system comprising:

a source of steam provided externally of the torpedo; and

steam delivery means for providing steam at appropriate temperatures and pressures to the torpedo's propulsion engine for operating that engine from hot steam rather than from the hot gas products of combustion.

5,737,963

ULTRASONIC TRANSDUCER

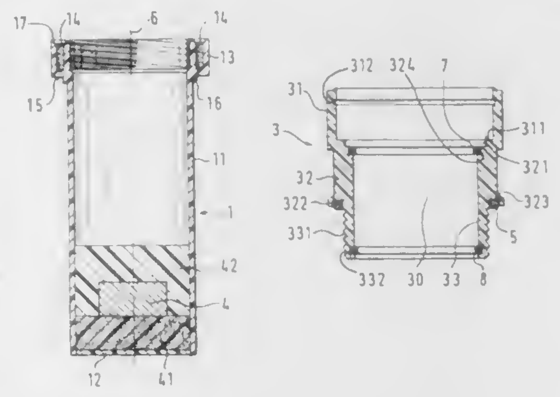
Manfred Eckert, Todtnau; Karl Flögel, and Rolf Schwald, both of Schopfheim, all of Germany, assignors to Endress+Hauser GmbH +Co., Maulburg, Germany

Filed Sep. 27, 1996, Ser. No. 721,731

Claims priority, application European Pat. Off., Sep. 28, 1995, 95115280

Int. Cl.^{6} G01F *1/66*

U.S. Cl. 73—290 V 8 Claims



1. An ultrasonic transducer for measuring a filling level in a container, having

a can-shaped transducer housing (1),

an electronics housing (2) connected to the transducer housing (1),

a transducer element (4), arranged in the transducer hoosing (1), for the transmission and reception of ultrasonic pulses,

a union ring (3) for the sound-decoupling securing of the ultrasonic transducer on the container, the transducer housing (1) is supported coaxially with respect to the union ring (3) and is fixed therein against displacement in the axial direction, and

two resilient elements (7, 8) which are arranged between the transducer housing (1) and the union ring (3) and provide means by which the transducer housing (1) and the union ring (3) are held spaced apart from each other in the radial direction in such a way that there is no direct mechanical coupling between them in the radial direction.

5,737,964

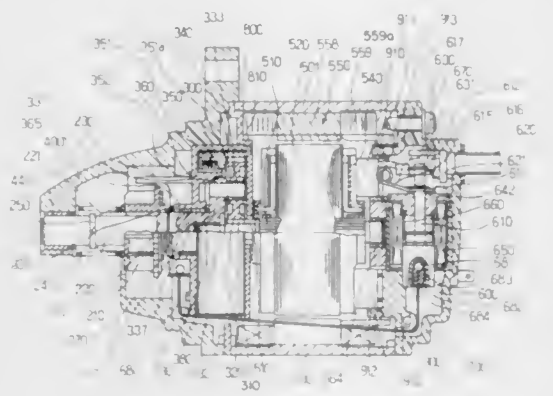
STARTER WITH PLANETARY GEAR SPEED REDUCTION MECHANISM

Tsutomu Shiga, Nukata-gun; Nobuyuki Hayashi, Nagoya; Masanori Ohmi, Anjo, and Sadayoshi Kajino, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 23, 1996, Ser. No. 681,463

Int. Cl.^{6} F02N *11/00;15/06*

U.S. Cl. 74—7 E 6 Claims



1. A starter with a planetary gear speed reduction mechanism, comprising:

a starter motor including an armature shaft for rotatably holding an armature core wound with an armature coil, a commutator connected with said armature coil and arranged generally in parallel with an end portion of said armature core, a brush slidably held on said commutator, and a fixed magnetic field device arranged on an outer circumference of said armature core; and

a planetary gear speed reduction mechanism including a sun gear formed on an outer circumference of said armature shaft of said starter motor, a planetary gear supported at one end of a drive shaft arranged coaxially with said armature shaft and meshing with said sun gear, and an internal gear meshing with said planetary gear,

wherein said fixed magnetic field device of said starter motor has its end portion overlapping at least one of said planetary gear speed reduction mechanism and said brush.

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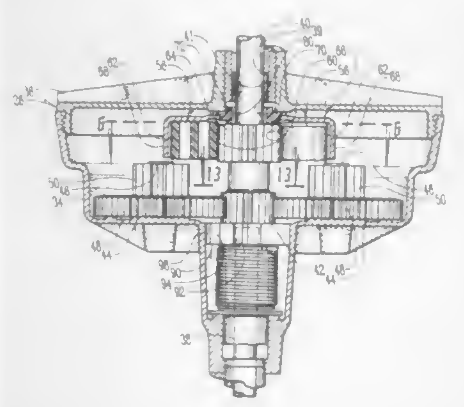
5,737,965
DUAL DRIVE TRANSMISSION

Jack L. Crain, and James C. Jones, both of Marion, Ill., assignors to Maytag Corporation, Newton, Iowa

Continuation-in-part of Ser. No. 541,062, Oct. 11, 1995, Pat. No. 5,638,719. This application Aug. 20, 1996, Ser. No. 700,229

Int. Cl.^{6} F16H *19/08*

U.S. Cl. 74—33 21 Claims



8. A transmission for converting a rotary input into an oscillating output, comprising:
- a housing having a removable cover;
- an input shaft rotatably extending into the housing for inputting rotary motion to the transmission;
- an output shaft rotatably extending into the cover for outputting oscillating motion;
- an output pinion attached to the output shaft inside the housing;
- gearing mounted between the input shaft and the output shaft within the housing, the gearing including a pair of rack gears positioned on opposite sides of and in mesh with the output pinion for converting rotary motion from the input shaft into oscillatory motion of the output shaft;
- the rack gears having opposite inner and outer sides with gear teeth on the inner sides;
- a bushing on the output shaft with clearance therebetween such that the bushing is movable side-to-side relative to the output shaft;
- the teeth of the rack gears being movable side-to-side relative to the output pinion to prevent binding between the rack gears and the output pinion; and
- the cover and the output shaft having clearance therebetween to allow side-to-side movement of the output pinion relative to the rack gears.

14. A method of converting rotary motion to oscillating motion in a transmission having a housing with a removable cover, an input shaft journaled into the housing for inputting rotary motion to the transmission, an output shaft journaled into the cover for outputting oscillating motion, a bushing floatingly journaled on the output shaft, an output gear attached to the output shaft inside the housing, intermediate gearing between the input and output shafts including a pair of rack gears positioned on opposite sides of and in mesh with the output gear for converting rotary motion from the input shaft into oscillatory motion of the output shaft, the method comprising:
- providing clearance between the bushing and the output shaft to allow side-to-side movement of the bushing relative to the output shaft,
- rotating the input shaft in one direction, thereby oscillating the rack gears, the meshed output gear and the output shaft;
- equalizing the loading on each rack gear by allowing the rack gears to move side-to-side relative to the output gear and by allowing the output shaft and output gear to move side-to-side relative to one another while maintaining meshing engagement between the rack gears and the output gear to prevent binding between the rack gears and the output gear.

5,737,966
PRESSING MACHINE WITH RECIPROCATING SLIDE

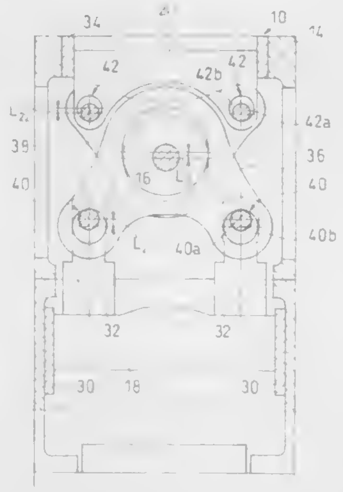
Akihiro Yoshida, Gifu-ken, Japan, assignor to Kabushiki Kaisha Yamada Dobby, Aichi-ken, Japan

Filed Dec. 28, 1995, Ser. No. 580,179

Claims priority, application Japan, Oct. 30, 1995, 7-303376

Int. Cl.^{6} F16H *21/22*

U.S. Cl. 74—44 7 Claims



1. A pressing machine having a slide which is reciprocated by a rotating motion of a crankshaft supported by a frame, the crankshaft having a main body portion and at least one first eccentric portion, the machine comprising: a first connection means carried rotatably on the at least one first eccentric portion of said crankshaft and a second connection means for connecting said first connection means to said slide, said second connection means including at least one first eccentric shaft provided with a first main shaft portion and a first eccentric shaft portion, the first main shaft portion and the first eccentric shaft portion respectively having a first main axis and a first eccentric axis extending substantially in parallel to a rotation axis of said crankshaft, said at least one first eccentric shaft being rotatably connected at the main shaft portion thereof to said slide and rotatably connected at the eccentric shaft portion thereof to said first connection means.

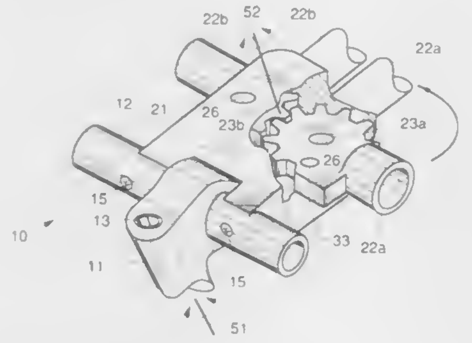
5,737,967
PIVOTING HANDLEBARS

James T. Hartley, 13962 Malena Dr., Tustin, Calif. 92680

Continuation-in-part of Ser. No. 339,657, Nov. 15, 1994, abandoned, which is a continuation of Ser. No. 264,179, Jun. 22, 1994, abandoned, which is a continuation of Ser. No. 68,695, May 27, 1993, abandoned. This application Jan. 11, 1996, Ser. No. 585,289

Int. Cl.^{6} B62K *21/16*

U.S. Cl. 74—551.3 11 Claims



1. Cycling apparatus comprising:
- a body;

- a rotatable steering shaft coupled to a front portion of the body having a steering axis relative to which the cycle is rotated and steered;
- a transverse member coupled to and extending transverse to the body;
- first and second handlebars each having a first end and a second end;
- handlebar rotating apparatus, attached to the first ends of the first and second handlebars and attached to the transverse member, that is rotatable about an axis through the transverse member that extends transverse to the body, and wherein the handlebar rotating apparatus comprises means for rotating the first and second handlebars about respective axes that are substantially perpendicular to a plane extending through the transverse member and the handlebar rotating apparatus, in response to forward and backward motion of the handlebars, to rotate the handlebars in unison between a first position wherein the second ends of the handlebars are disposed distal from the body, and a second position wherein the second ends of the handlebars are disposed forward relative to the first position.

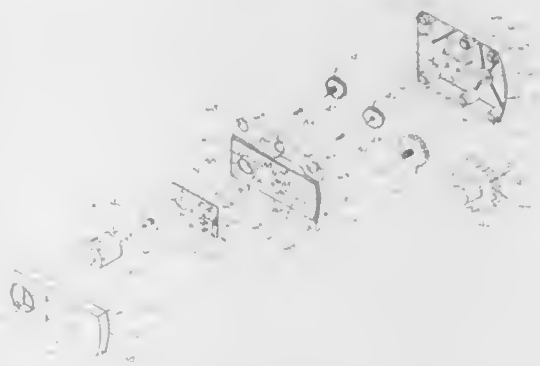
5,737,968
INTEGRATED GEAR MOTOR AND METHOD OF ASSEMBLY

Donald H. Hardey, 1103 Mary Ave., Dixon, Ill. 61021, and William R. Gerhard, 637 N. Quail Dr., Lena, Ill. 61048

Filed May 7, 1996, Ser. No. 646,507

Int. Cl.^{6} F16H *1/20*

U.S. Cl. 74—421 A 11 Claims



1. A gear motor assembly, comprising:
- a uni-directional DC electric motor having an exterior housing,
- a reduction gear train driven by said motor,
- an output shaft rotatably driven by said gear train,
- a circuit board having motor control circuitry powered by a DC power source; and
- a three part housing consisting of a gear case, a gear case cover and a circuit board cover,
- said gear case housing the gear train and output shaft and having a generally planar rear wall bordered by a right angularly related side wall along its periphery,
- said gear case cover being a substantially planar member adapted for sealed connection with said side wall of said gear case in opposed relation with said rear wall whereby to enclose said gear train,
- said gear train being supported for rotation by and between one side of said gear case cover and the generally planar rear wall of said gear case;
- said gear case cover supporting said circuit board and motor on a second side thereof,
- said circuit board cover having a substantially planar front wall integral with an uninterrupted side wall extending outwardly from the periphery of said front wall whereby to provide an enclosure having one open side for encasing said circuit board and motor;
- said motor extending outwardly from said circuit board toward said front wall of said circuit board cover.

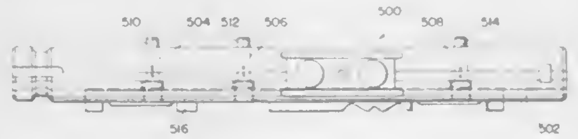
5,737,969
SINGLE SHAFT SHIFTING MECHANISM

Patrick L. Brown, Battle Creek; Michael J. Huggins, Kalamazoo; Joseph D. Reynolds, Climax, and Daniel M. Armock, Sparta, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Apr. 22, 1996, Ser. No. 636,097

Int. Cl.^{6} F16H *61/00*

U.S. Cl. 74—477 23 Claims



1. A single shift shaft mechanism for axially positioning a selected one of two or more selectable engagement members while axially fixing the non-selected ones of said engagement members to a housing, said mechanism comprising a single shift shaft having an outer surface axially and rotationally movable in the housing, shift means axially and rotationally fixed to and extending radially from said outer surface, and interlock means having a first portion rotationally fixed to said shaft and a second portion axially fixed to said housing; said mechanism characterized by
- at least one of said shift means and said interlock means comprising a plurality of individual pins, at least one pin for each engagement member, extending radially outwardly from said outer surface.

5,737,970
SAFETY STEERING COLUMN FOR A MOTOR VEHICLE

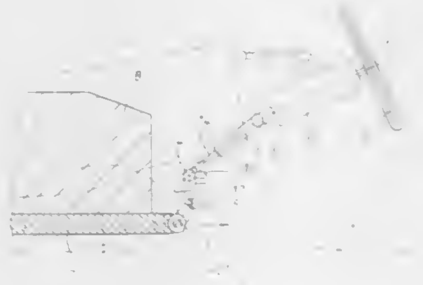
Ulrich Asbrand, Remshalden, and Juergen Class, Illingen, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Jun. 24, 1996, Ser. No. 669,636

Claims priority, application Germany, Jun. 23, 1995, 195 22 389.6

Int. Cl.^{6} B62D *1/19*

U.S. Cl. 74—492 10 Claims



1. A safety steering column for a motor vehicle comprising a multi-member steering spindle arranged between and operatively connected with a steering wheel and an input shaft of a steering gear, a first portion of said steering spindle located toward the steering wheel being hinged to a second portion of said steering spindle located toward said steering gear, said second portion being formed as a deformation member which is constructed to allow axial displacement toward said first portion along a displacement path when the steering gear is displaced rearwardly, said second portion being hinged to said input shaft at an end opposite said first portion, wherein said input shaft is constructed with a desired bending point which allows the input shaft to bend when the steering gear is displaced rearwardly

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5,737,971

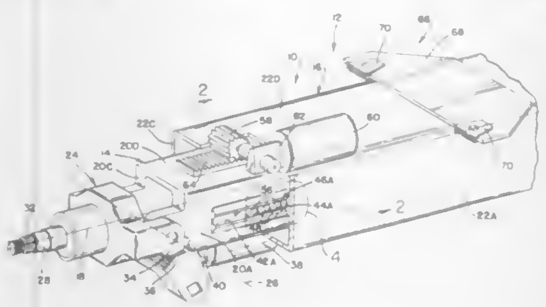
MOTOR VEHICLE STEERING COLUMN

Richard Kremer Riefe; James Richard Salois, both of Saginaw, and Gerald Albert Gaeth, Frankenmuth, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 5, 1996, Ser. No. 695,811

Int. Cl.^{6} B62D *1/18*

U.S. Cl. 74—493 **5 Claims**



: 1. A length adjustable motor vehicle steering column comprising:

a tubular first mast jacket element,

a tubular second mast jacket element telescopically overlapping said first mast jacket element,

a track means on said first mast jacket element,

a track means on said second mast jacket element cooperating with said track means on said first mast jacket element in defining a plurality of linear channels parallel to a longitudinal centerline of said steering column,

a plurality of elastic rolling elements resiliently squeezed in each of said plurality of linear channels to support said first mast jacket element on said second mast jacket element for lash free relative linear translation parallel to said longitudinal centerline of said steering column and spread out parallel to said longitudinal centerline of said steering column to minimize flexure of said steering column perpendicular to said longitudinal centerline thereof,

a plurality of inelastic rolling elements smaller than said elastic rolling elements, and

means operative to suspend said inelastic rolling elements in each of said plurality of linear channels substantially out of contact with said track means on each of said first and said second mast jacket elements so that said inelastic rolling elements define hard stops which positively limit flexure of said steering column perpendicular to said longitudinal centerline thereof without interfering with relative linear translation between said first and said second mast jacket elements.

5,737,972

REARVIEW MIRROR FOR MOTOR VEHICLES

Thomas Jenssen; Jan Schubert; Norbert Kürschner, all of Wedemark, and Dietmar Leder, Barsinghausen, all of Germany, assignors to Bernhard Mittelhäuser, Wedemark, Germany

Filed Jul. 19, 1996, Ser. No. 684,381

Claims priority, application Germany, Jul. 24, 1995, 195 26 991.8

Int. Cl.^{6} F16C *1/10;* **G02B** *7/18*

U.S. Cl. 74—502.1 **11 Claims**

1. A rear view mirror for motor vehicles, said mirror comprising:

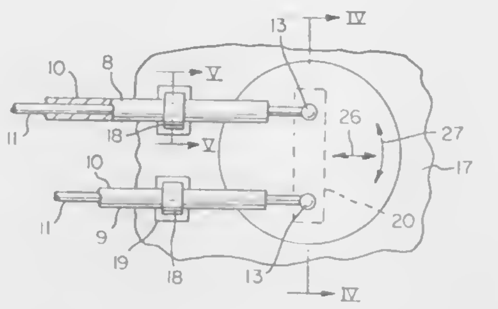
a housing;

a mirror assembly pivotably supported in said housing about a first axis and a second axis extending perpendicular to said first axis,

a first Bowden cable arrangement connected to said mirror assembly at a first point of attack and a second Bowden cable arrangement connected to said mirror assembly at a second point of attack, wherein said first and second points of attack are positioned opposite one another relative to said first axis and on a same side of said mirror assembly relative to said second axis and are equally spaced from said first axis and equally spaced from said second axis;

said first and second Bowden cable arrangements actuatable so as to act alternatively in a same direction for pivoting said mirror assembly about said second axis and in opposite directions for pivoting said mirror assembly about said first axis;

said first and second Bowden cable arrangements each comprising a sleeve and a cable enclosed by said sleeve, wherein said cable is pressure-resistant and pull-resistant and is guided without play in said sleeve.



5,737,973

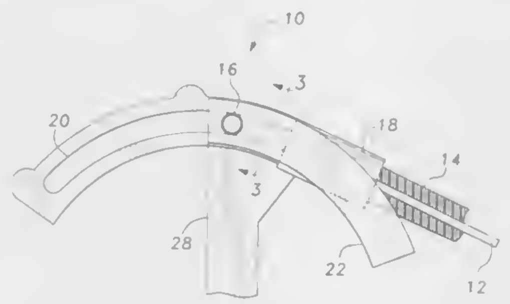
TRAILING COVER TO CAPTURE CORE ELEMENT

Michael Reasoner, Grand Blanc, Mich., assignor to Teleflex Incorporated, Plymouth Meeting, Pa.

Filed Nov. 12, 1996, Ser. No. 747,542

Int. Cl.^{6} F16C *1/10*

U.S. Cl. 74—502.4 **11 Claims**



1. A motion transmitting remote control assembly (**10**) for transmitting motion and comprising:

a flexible core element (**12**) for transmitting motion and having a core cross section,

a terminal (**16**) attached to said core element (**12**) for movement with said core element (**12**), said terminal (**16**) having a terminal cross section larger than the said core cross section;

a conduit (**14**) movably supporting said core element;

said core element (**12**) having an extended length extending from said conduit (**14**) to said terminal (**16**);

an end fitting (**18**) attached to said conduit (**14**) and defining a guideway (**20**) having a guideway cross section larger than said cross section of said core element (**12**) for guiding said terminal (**16**) along said guideway (**20**) during to and from movement of said extended length of said core element (**12**);

said assembly including a collar (**22**) in sliding relationship with said guideway (**20**) along with said core element (**12**) between said terminal (**16**) and said end fitting (**18**) for occupying a first portion (**24**) of the difference in cross section between said core element (**12**) and guideway cross sections along said core element (**12**) between said terminal (**16**) and said end fitting (**18**) to prevent buckling of said extended length of said core element (**12**) as said core element (**12**) extends from said end fitting (**18**) to said terminal (**16**).

5,737,974

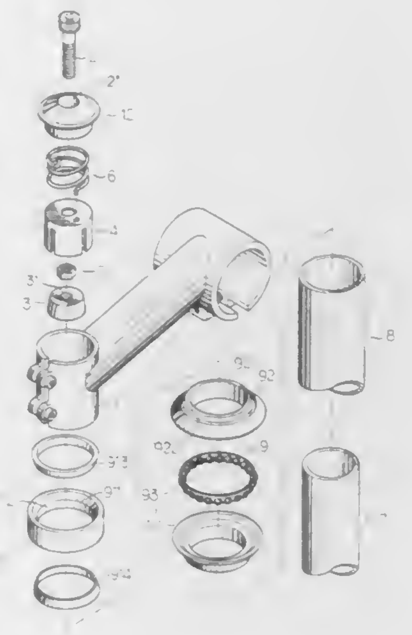
FASTENING ASSEMBLY OF BICYCLE UPRIGHT TUBE

Chia-Lung Chen, 33-4, Pu Kang Road, Chu Shui Village, Pu Yai Hsiang, Changhua, Taiwan

Filed Jul. 25, 1996, Ser. No. 687,177

Int. Cl.^{6} B62K *21/18*

U.S. Cl. 74—551.1 **1 Claim**



1. A bicycle upright tube fastening assembly comprising:

a handlebar upright tube provided at one end thereof with a stop cover having an axial hole;

a bolt engaging said axial hole of said stop cover of said handlebar upright tube;

a tightening head provided with a threaded hole engageable with one end of said bolt;

an arresting tube fitted over said bolt,

a torsion spring fitted over said bolt, said spring connected to said stop cover and said arresting tube;

a nut located in said arresting tube such that said nut is engaged with said bolt;

a head tube;

a front fork tube column fitted into said head tube; and

a bearing set fitted over said front fork tube column such that said bearing set is located between said handlebar upright tube and said head tube;

wherein said bearing set comprises:

a mounting seat provided therein with an upper tapered portion receiving therein an upper fitting ring, said mounting seat further provided therein with a lower tapered portion receiving therein a lower fitting ring;

a ball bowl provided with a straight center hole having at one end thereof a tapered protuberance which is engaged with said lower tapered portion of said mounting seat such that one end of said tapered protuberance urges said lower fitting ring of said mounting seat;

a rolling ball slot seat stopped by said head tube such that said rolling ball slot seat is urged by said head tube when a pressure exerting on said mounting seat is transmitted to said ball bowl; and

a ball nest disposed between said ball bowl and said rolling ball slot seat such that said ball nest is capable of withstanding said pressure exerting on said mounting seat.

5,737,975

BUILT-UP CAMSHAFT HAVING INDUCTION-HARDENED CAMS AND METHOD OF INDUCTIVELY HARDENING THE CAMS

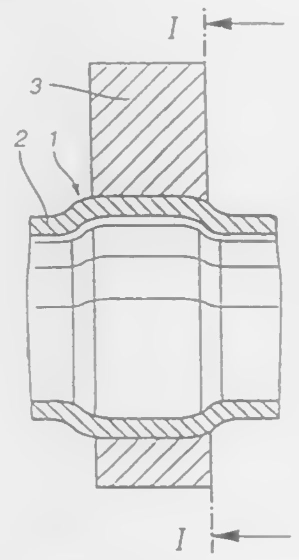
Gustav Hanisch, Hochdorf, and Christoph Duell, Korntal, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Jun. 2, 1995, Ser. No. 458,648

Claims priority, application Germany, Jun. 9, 1994, 44 20 092.7

Int. Cl.^{6} F16H *53/02*

U.S. Cl. 74—567 **6 Claims**



1. A built-up camshaft, comprising:

a tubular shaft body;

at least one separate cam disc having an approximately annular design and having an inductively hardened boundary layer on an outer periphery, said one separate cam disc being secured to said tubular shaft body under mechanical prestress;

wherein a hardened boundary zone near a surface of the outer periphery of said one separate cam disc includes residual compressive stresses before being secured to the tubular shaft body of such a magnitude that superimposed residual tensile stresses induced in said hardened boundary zone by the securing of said one separate cam disc on the tubular shaft body only partially compensates the magnitude of said residual compressive stresses so that said residual compressive stresses remain in the hardened boundary zone near the surface.

5,737,976

CONNECTING ROD AND CRANKSHAFT ASSEMBLY

David F. Haman, Buffalo Grove, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Continuation of Ser. No. 442,787, May 17, 1995, abandoned. This application Apr. 28, 1997, Ser. No. 847,792

Int. Cl.^{6} F16C *7/02, 3/06*

U.S. Cl. 74—579 E **21 Claims**

8. A connecting rod comprising an elongated main body, and a crank pin end portion extending from said main body and including a cylindrical surface which extends along an axis extending perpendicularly to the elongation of said main body and which defines a crank pin aperture, said cylindrical surface including a first cylindrical surface portion located adjacent said main body and extending for an arcuate first distance around said axis and extending along said axis for a first axial distance, and a second cylindrical surface portion located remotely from said main body and extending for an arcuate second distance different from said arcuate first distance around said axis and extending along said axis for a second axial distance less than said first axial distance

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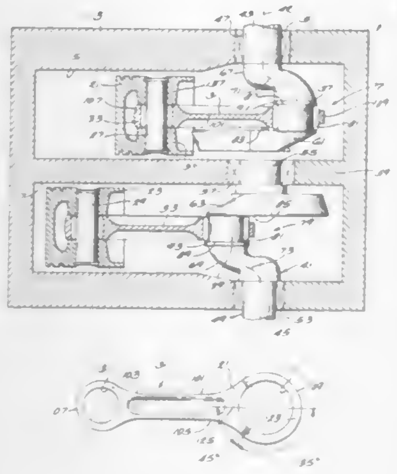
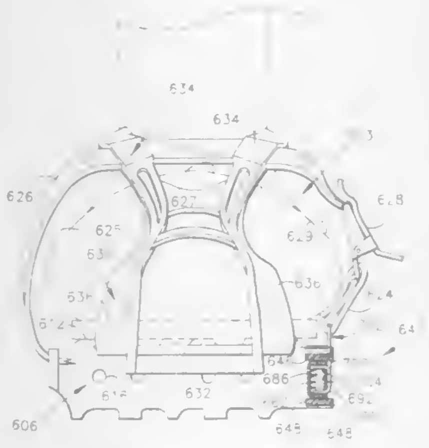


wherein said first and second cylindrical surface portions have the same radii of curvature and define a continuous annular surface around said axis.

5,737,977
SELECTIVELY RELEASABLE TOE CLIP

Richard J. Surdi, 8479 Pioneer Trail, Fishers, Ind. 46038, and Mark L. Stow, 6328 Massachusetts Ave., Indianapolis, Ind. 46218

Filed May 9, 1996, Ser. No. 644,004
Int. Cl.^{6} G05G *1/14*
U.S. Cl. 74—594.6 **17 Claims**



1. A toe clip and pedal for facilitating disengagement of a user's foot, the toe clip comprising:

(a) a foot strap member for capturing a user's foot, the strap member including strap elements for engaging surfaces of the user's foot;

(b) coupling means for selectively coupling the foot strap member to the pedal for facilitating the release of the user's foot from its capture by the toe clip, the coupling means including:

(1) a bracket member coupled to the pedal;

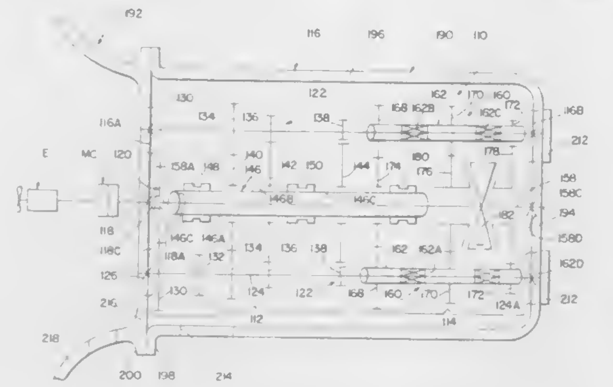
(2) a release member coupled to the foot strap member; and

(3) at least one of (i) a hinge means for hingedly coupling the release member to the bracket member; and (ii) a biasing means for biasing the release member into engagement with the bracket member.

5,737,978
TWO-PIECE HOUSING FOR COMPOUND TRANSMISSION

Alan C. Stine, Kalamazoo, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Apr. 10, 1996, Ser. No. 627,808
Int. Cl.^{6} F16H *57/02*
U.S. Cl. 74—606 R **11 Claims**



1. A transmission housing for a compound transmission comprising a main transmission section (**112**, **302**) connected in series with an auxiliary transmission section (**114**, **304**), said housing having a forward end wall (**116A**) having cavities for receiving bearings supporting shafts extending into said main transmission section, and a rearward end wall (**116B**) having cavities for receiving bearings supporting shafts extending into said auxiliary transmission section, and comprising:

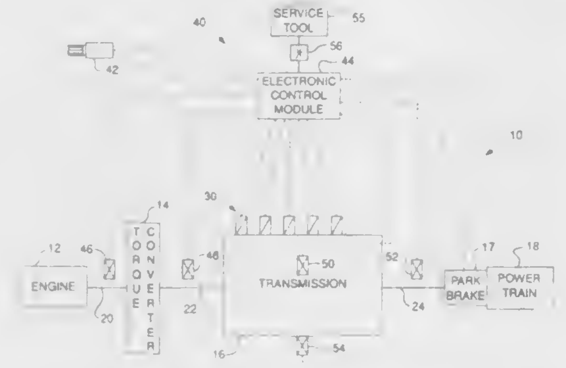
an elongated cup-shaped gear housing piece (**190**) including a base portion (**194**) defining the transmission rearward end wall and a generally tubular portion (**196**) extending from the base portion to a flanged opening (**198**); and

a generally cup-shaped clutch housing portion (**192**) having a flanged base portion (**200**) for mounting to said flanged opening and defining the transmission forward end wall and an outwardly and forwardly flared portion (**218**) for mounting to an engine and defining an enclosure for surrounding a vehicular master clutch.

5,737,979
METHOD OF CALIBRATING CLUTCHES IN A TRANSMISSION

Philip C. McKenzie, and Ashok K. Kajjam, both of Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Sep. 9, 1996, Ser. No. 707,880
Int. Cl.^{6} F16H *61/06*
U.S. Cl. 74—731.1 **8 Claims**



1. A method of calibrating fluid actuated clutches in a multi-speed transmission operably disposed in a machine having a source of pressurized fluid, an engine drivingly connected to the multi-speed transmission and a drive train with an associated park brake operatively connected to the transmission, the multi-speed transmission having an input drive shaft, an output drive shaft and a plurality of gears rotatably housed in the multi-speed transmission in driving relationship with the input and the output drive shafts such that selective engagement of the respective fluid actuated clutches provide various operating output speeds to the power train, each of the fluid actuated clutches being controlled by respective solenoid control valves in response to receipt of an electrical current, the multi-speed transmission further includes an electrical control system having an electronic control module operative in response to a command input signal to control engagement of the fluid actuated clutches by directing an electrical current to the respective solenoid control valves, the method comprises the steps of:

setting the park brake to restrain the machine from moving;

determining a reference machine parameter indicative of torque being applied to the input shaft;

conditioning the electronic control module to a calibration mode;

engaging at least one of the fluid actuated clutches by selectively controlling the level of electrical current to the associated solenoid control valve;

pulsing for a time period the level of the electrical current to the solenoid control valve being calibrated to direct the pressurized fluid to the associated fluid actuated clutch;

changing the level of the electrical current to a hold level that corresponds to a minimum hold pressure level;

allowing time for the clutch being calibrated to fill;

determining if the clutch being calibrated is filled by comparing the current machine parameter to the reference machine parameter;

draining the clutch being calibrated if the current machine parameter is still substantially the same as the reference machine parameter;

increasing the minimum hold pressure level by a predetermined amount by changing the level of the electrical current by a predetermined amount;

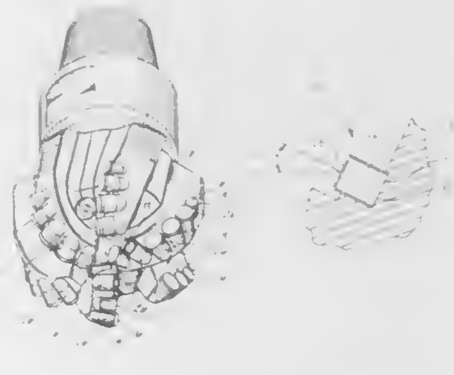
repeating the steps of pulsing the level, changing the level, allowing time, determining, draining and increasing until the current machine parameter is different from the reference machine parameter by a predetermined amount; and

storing the electrical current level in the electronic control module that corresponds to the pressure level required in the clutch being calibrated that is indicative of torque being applied to the input shaft of the transmission.

5,737,980
BRAZING RECEPTACLE FOR IMPROVED PCD CUTTER RETENTION

Carl W. Keith, Spring; Gary R. Chunn, Conroe, and Mark A. Johnson, Montgomery, all of Tex., assignors to Smith International, Inc., Houston, Tex.

Filed Jun. 4, 1996, Ser. No. 658,056
Int. Cl.^{6} E21B *10/46*
U.S. Cl. 76—108.2 **15 Claims**



1. A method for forming a PCD cutter bit body comprising the steps of:

filling a metal alloy thin walled receptacle with filler material;

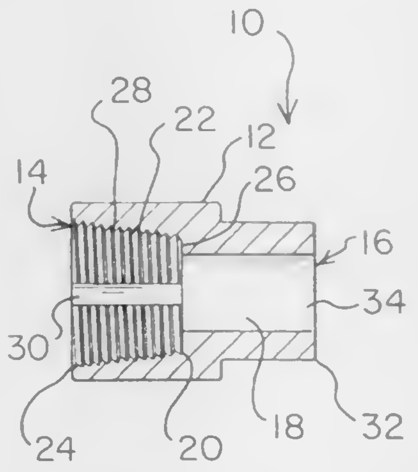
placing the filled receptacles in a mold with the receptacle open ends abutting against preformed cutter locations in the mold;

forming a PCD bit body as a complement to the mold, and

infiltrating the PCD bit body with a binder creating a bond between the body and the receptacles.

5,737,981
REMOVAL DEVICE FOR THREADED CONNECTING DEVICES

David Lewis Hildebrand, 135 Gay St., Longmont, Colo. 80501
Continuation of Ser. No. 531,336, Sep. 20, 1995, abandoned. This application Apr. 2, 1997, Ser. No. 825,885
Int. Cl.^{6} B25B *13/50*
U.S. Cl. 81—53.2 **14 Claims**



1. A removal device adapted for the removal of difficult to remove threaded connecting devices, comprising:

a body having a first end and a second end, the first end including an opening which extends toward the second end of the body;

the opening is defined by an internal surface of the body and is sized to receive a threaded connecting device threaded in a first direction, wherein the internal surface is threaded in a second direction opposite the first direction in which the threaded connecting device is threaded; the opening continuously tapers from a first diameter at the first end to a second diameter as the opening extends toward the second end, where, in the first diameter is larger than the second diameter,

said opening extends only a portion of a distance between the first end and the second end of the body;

said second end includes an opening designed for engagement with conventional connecting elements used in a removal tool where different connecting elements may be secured to the removal tool; and

wherein rotation of the body causes said threading on the internal surface of the removal device to engage the threaded connecting device causing the threaded connecting device to rotate in a direction appropriate for the removal of the threaded connecting device.

5,737,982
RATCHET TOOL CONTROL MECHANISM

Jack Lin, No 103, Nan Kang 3 Road, Nan Kang Industrial Areas, Nan Tou, Taiwan

Filed Oct. 7, 1996, Ser. No. 726,966
Int. Cl.^{6} B25B *13/06*
U.S. Cl. 81—58.3 **4 Claims**

1. A ratchet tool comprising:

a hand grip,

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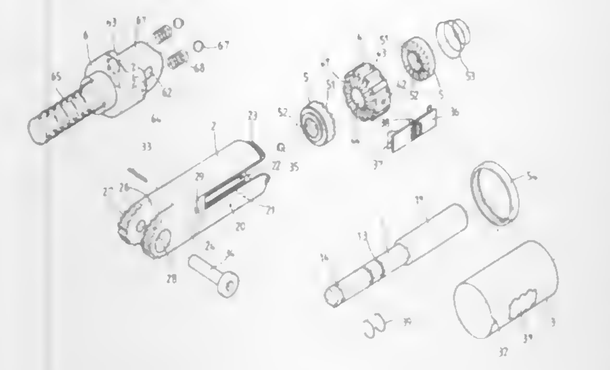


a body including a rear portion secured to said hand grip and a front portion, said front portion of said body including an interior formed therein and including a peripheral portion having a channel formed therein, said body including at least one longitudinal rib formed therein,
a shaft rotatably received in said interior of said body, said shaft including a non-circular cross section,
a pair of retaining rings secured on said shaft,
a barrel including a bore rotatably engaged on said shaft, said bore including a size greater than that of said shaft for allowing said barrel to be rotated relative to said shaft, said barrel including at least one slot for engaging with said longitudinal rib of said body and for allowing said barrel to be moved axially within said body, said barrel including a front portion and a rear portion each having a plurality of first ratchet teeth formed thereon, said bore of said barrel including a size greater than that of said retaining rings for preventing said retaining rings from engaging with said barrel,
a knob slidably engaged in said channel of said body and including a stud extended inward of said body and engaged with said barrel for moving said barrel along said shaft,
a first and a second followers engaged on said shaft and engaged with said front portion and said rear portion of said barrel respectively, said followers each including a non-circular bore for engaging with said shaft and for allowing said followers to be rotated in concert with said shaft, said followers each including a plurality of second ratchet teeth formed thereon for engaging with said first ratchet teeth of said barrel and for allowing said followers to be rotated in an active direction by said barrel respectively, and
means for biasing said first and said second followers to engage with said barrel respectively,
said retaining rings being engaged with said first and said second followers for allowing only one of said first and said second followers to be engaged with said barrel.

5,737,983
DYNAMOMETRIC WRENCH

Gustav Rennerfelt, Lidingo, Sweden, assignor to Torque System Sweden AB, Bromma, Sweden

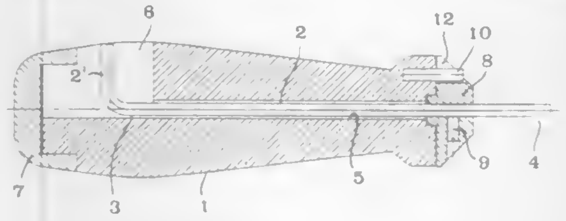
PCT No. PCT/SE95/00327, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO95/26858, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 28, 1995, Ser. No. 718,403

Claims priority, application Sweden, Mar. 31, 1994, 9401096

Int. Cl.⁶ B25B *23/159;23/144*

U.S. Cl. 81—479 **16 Claims**



1. A dynamometric wrench comprising a manually grippable, handle-forming part (**1**) and an elongated torsion body (**2**), which in the region of a first end (**3**) of said body is co-rotatively connected with the handle part (**1**) and in the region of an opposed, second end (**4**) of said body has means for joining the torsion body to a screwable element, the torsion body in the region of said second end (**4**) being co-rotatively connected to a rotatable part (**8**, **8'**, **15**) that is rotatable relative to the handle part when said body is submitted to torsion due to it being loaded with a torque, characterized in that at least one stop element (**10**, **10'**, **10"**, **10'"**) is connected with one of said handle part and rotatable part (**1**, **8**, **8'**, **15**, said stop element being arranged to cooperate with at least one shoulder (**12**, **12'**; **17**, **17'**; **18**, **18'**; **20**, **20'**) on the of said handle part and rotatable part such that the stop element is brought into contact with the shoulder when the screw element has been submitted to a predetermined, optimal torque that gives an elastic, but not a plastic distortion to the torsion body.

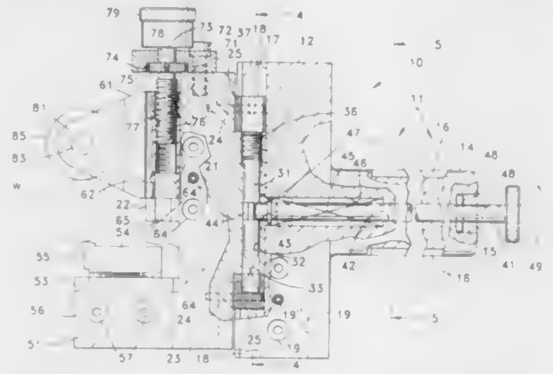
5,737,984
SHAVE TOOL HOLDER ROLLER WORK SUPPORT WITH QUICK-RELEASE PIN AND ADJUSTMENTS

Paul P. Francia, Rochester, N.Y., assignor to C.J. Winter Machine Works, Inc., Rochester, N.Y.

Filed Jul. 3, 1995, Ser. No. 498,675

Int. Cl.⁶ B23B *29/16*

U.S. Cl. 82—157 **16 Claims**



1. A shave tool holder for screw machines, comprising
a body section,
means securing a shaving tool bit to said body section to project from one side thereof,
means for removably mounting a work supporting roller on said body section in spaced, adjustable relation to said tool bit, and
means for removably supporting said body section adjacent the opposite side thereof on a machine cross slide for reciprocable movement thereby transversely of the axis of a rotating workpiece, and into and out of an operative position in which said roller and tool bit are engaged with said workpiece,
said mounting means comprising a roller holder having said work supporting roller mounted on one side thereof for rotation in spaced relation to said tool bit about an axis parallel to the axis of rotation of said workpiece, and being movably connected adjacent its opposite side to said one side of said body section for adjustment thereon in a predetermined path transversely of the axis of rotation of said roller, and
a rotatable adjusting screw connected at one end thereof to said body section and at its opposite end to said holder, and having thereon intermediate its ends a knurled circumferential surface,
said adjusting screw being rotatable selectively in opposite directions about an axis transverse to said axis of rotation of said roller, thereby selectively to move said holder in opposite directions in said path relative to said body section, and thereby to increase or decrease the distance separating said roller and said tool bit, and resilient detent means interposed between said adjusting screw and said body section and resiliently engaged with said knurled surface normally to secure said adjusting screw against rotation about its axis.

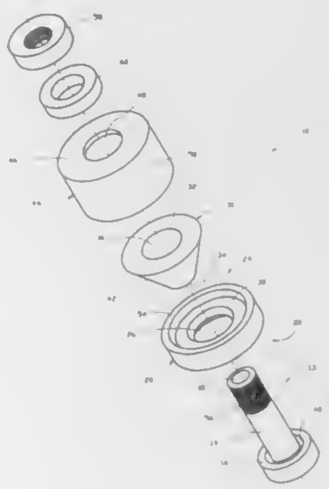
5,737,985
WORK HOLDER ASSEMBLY FOR A LATHE

Charles H. Rimlinger, Jr., 928 Forest Acres Ct., Nashville, Tenn. 37220

Filed Jul. 15, 1996, Ser. No. 680,458

Int. Cl.⁶ B23B *33/00*

U.S. Cl. 82—165 **20 Claims**



1. A work holder assembly for securing a workpiece having a central hole in an end wall thereof on a lathe having a rotary driven shaft, such that said end wall is maintained in a position substantially perpendicular to the axis of rotation of the shaft, said assembly comprising:
(a) an arbor mount comprising a substantially cylindrical tube portion having an enlarged backing plate at one end thereof and having a central bore therethrough such that the axis of the central bore of the arbor mount is substantially coincident with the axis of the tube portion, said central bore of the arbor mount being adapted to receive the shaft in sliding engagement therewith, and said tube portion having an outside diameter that is smaller than the diameter of the central hole in the end wall of the workpiece, and said backing plate being larger than said central hole,
(b) a centering cone having a larger end and a smaller end, and having a central bore therethrough such that the axis of the central bore of the centering cone is substantially coincident with the axis of the cone, said bore of the centering cone being adapted to receive the tube portion of the arbor mount in sliding engagement therewith, said cone having a diameter at its larger end that is larger than the diameter of the central hole in the end wall of the workpiece; and
(c) means for securing the cone against the end wall of the workpiece; and
(d) a compression cup having a base portion and a sidewall extending from the periphery thereof, said base portion having a central hole therethrough that is adapted to receive the tube portion of the arbor mount, and said sidewall terminating in a peripheral edge that is located so as to correspond with the periphery of the backing plate; whereby:
(e) the arbor mount may be positioned over the shaft; and
(f) the workpiece may be positioned over the arbor mount in front of the backing plate; and
(g) the cone may be positioned over the tube portion of the arbor mount with its smaller end preceding its larger end and secured against the end wall of the workpiece; and
(h) the compression cup may be positioned and secured over the arbor mount so that compressive forces may be applied to the end wall of the workpiece between the peripheral edge of the sidewall of the cup and the periphery of the backing plate.

5,737,986
POWER SAW FENCE GUIDE

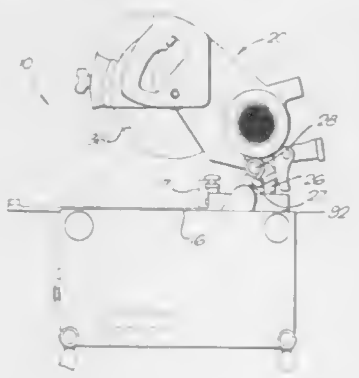
Andrea Garuglieri, Colle Brianza, Italy, assignor to Black & Decker Inc., Newark, Del.

Continuation of Ser. No. 289,730, Aug. 12, 1994, Pat. No. 5,651,297. This application Apr. 9, 1997, Ser. No. 831,553

Claims priority, application United Kingdom, Aug. 12, 1993, 9316728

Int. Cl.⁶ B27B *5/20*

U.S. Cl. 83—13 **13 Claims**



1. A method of positioning an adjustable fence on a saw comprising a table occupying a substantially horizontal plane, a saw blade assembly connected to said table, a saw blade occupying and moveable within a substantially vertical plane and connected to said saw assembly, and said adjustable fence mounted on said table, comprising:
providing a fence guide on said saw, said fence guide being pivotable between first and second positions and having a leading edge substantially equal to the width of cut of said saw blade;
moving said fence guide into said first position;
adjusting said fence based on said first position of said fence guide;
moving said fence guide into said second position; and
moving the saw blade assembly in order to cut a workpiece

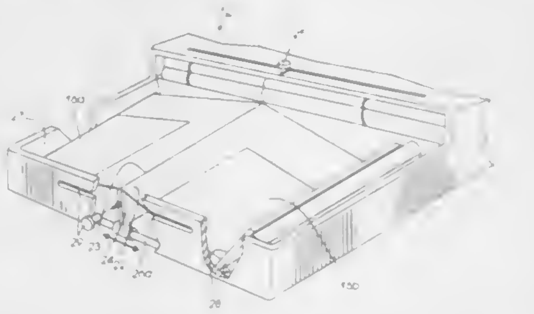
5,737,987
PLURAL MODE STACKING SYSTEM FOR SLIT SHEETS

Steven D. Olson, Rochester, and Roger N. Albright, Fairport, both of N.Y., assignors to Xerox Corporation, Stamford, Cnnn.

Filed Jun. 21, 1996, Ser. No. 667,560

Int. Cl.⁶ B65H *31/20;* **B26D** *1/12,* **G03G** *15/00*

U.S. Cl. 83—89 **1 Claim**



1. In a reproduction system with an output system having an output sheet stacking tray system, said output system further having a slitter with selectable sheet slitting positions in which printed sheets being outputted by said reproduction system into said output system are selectably unslit or slit in their sheet output direction by said slitter into plural slit sheets of selectably variable sheet widths and stacked in said output sheet stacking tray system, which output sheet stacking tray system includes a sheet stacking surface member, the improvement comprising:

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said sheet stacking surface member being flexible for selective repositioning into plural sheet stacking sections having plural differently angled sheet stacking surfaces.

said output sheet stacking tray system further including a repositionable support system supporting said sheet stacking surface member for selectively forming said differently angled sheet stacking surfaces to provide a dual mode output sheet stacking tray system which is selectably convertible between a single sheet stacking position surface mode, wherein said sheet stacking surface is substantially planer for stacking unslit sheets thereon, and a plural slit sheet stacking surfaces mode wherein said sheet stacking surface is repositioned by said repositional support system into said plural sheet stacking sections having said plural differently angled sheet stacking surfaces, wherein in said plural slit sheet stacking surfaces mode said output sheet stacking tray system selectively provides plural said sheet stacking surfaces which are selectably variable in width for cooperation with the selectable sheet slitting position slitter to provide separate stacking of said plural slit sheets on respective said plural sheet stacking surfaces;

wherein said repositionable support system comprises a bial bar extending longitudinally under and supporting said flexible sheet stacking surface member, and wherein said bail bar is movably mounted for movement in a transverse direction for alignment with said selectable sheet slitting positions.

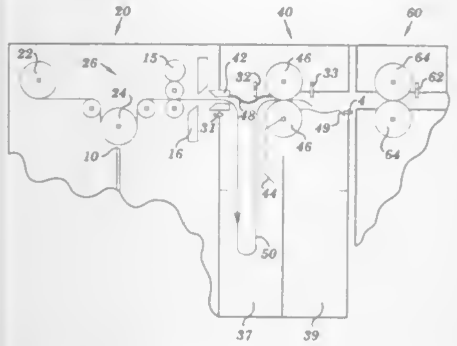
5,737,988
SYSTEM FOR BUFFERING MOVING MATERIAL BETWEEN TWO MODULAR MACHINES

Libor Krupiea, Methuen; Robert A. Goodwin, Topsfield, and Paul W. Morgan, Medford, all of Mass., assignors to Agfa Division, Bayer Corporation, Wilmington, Mass.

Continuation of Ser. No. 106,961, Aug. 16, 1993, abandoned. This application Dec. 19, 1995, Ser. No. 575,183

Int. Cl.⁶ B26B *5/26*

U.S. Cl. 83—367 **12 Claims**



1. A system for buffering moving material between two modular machines, comprising:

(a) a first machine having a first operating speed and a first control means;

(b) a second machine having a second operating speed and a second control means distinct from said first control means;

(c) a material buffer disposed between said first machine and said second machine for taking up a first piece of material from said first machine at said first operating speed and transferring said first piece of material to said second machine at said second operating speed and for taking up a second piece of material from said first machine while said first piece of material is transferring to said second machine, said material buffer including a buffer control means distinct from said first and second control means; and

(d) a communication network connecting said first machine, said second machine, and said material buffer, comprising a first communication module interface between said first control means and said material buffer control means, and a second communication module interface between said second control means and said buffer control means such that information exchanged between said first machine and said second machine passes through said buffer control means.

5,737,989
HYDRAULIC PAPER CUTTING MACHINE

Huang Ming Sung, P.O. Box 63-150, Taichung, Taiwan

Filed Dec. 26, 1996, Ser. No. 773,449

Int. Cl.⁶ B26D *1/08*

U.S. Cl. 83—625 **2 Claims**

1. A hydraulic paper cutting machine, comprising:

a machine body;

a cutter frame having a cutter mounted thereon at a suitable position, said cutter frame being pivotally mounted on said machine body by using link means;

a hydraulic cylinder secured on said machine body and having a piston; and

a linkage device having one end connected to said piston of said hydraulic cylinder, with the other end pivotally mounted on said cutter frame; wherein

said hydraulic cylinder is fixedly secured below said machine body and located below a sheet of paper to be cut, and said piston thereof is provided with a rack; said linkage device comprises a drive gear, a pivot shaft, a transmission gear, a pair of cams and a crank, in which said drive gear is pivotally mounted on said machine body to be just engaging the teeth of said rack on said piston; said pivot shaft has both ends respectively pivotally mounted on said machine body; said transmission gear is fixedly secured on said pivot shaft with a plurality of teeth engaging a plurality of teeth of said drive gear; said cams are fixedly secured on said pivot shaft just located at one side of aid transmission gear, said cams being spaced a predetermined distance from each other and said crank has one end thereof pivotally provided between said cams by use of a pin with the other end thereof pivotally mounted on said cutter frame; whereby when said piston of said hydraulic cylinder reciprocates and, via the linking-up movement of said drive gear, said pivot shaft, said transmission gear, said cams and said crank, causes said cutter frame to move up and down in a reciprocating manner to smoothly accomplishing cutting of the sheet of paper.

5,737,990
APPARATUS FOR MAKING MITER JOINTS

Brian Ellison Freeland, 2 Elm Drive, Sunbury-on-Thames, Middlesex TW16 5NX; Neil Freeland, The Flat 8 The Avenue, Sunbury-on-Thames, Middlesex TW16 5HS, and Stuart Freeland, 42 Acacia Avenue, Shepperton, Middlesex TW17 0AY, all of England

Filed Jan. 17, 1996, Ser. No. 545,652

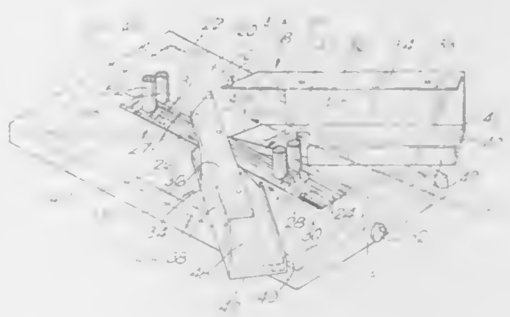
Int. Cl.⁶ B27B *27/06*; B27G *5/02*

U.S. Cl. 83—767 **14 Claims**

1 Mitre joint cutting apparatus, comprising:

a base;

an adjusting member mounted on said base for sliding movement relative to said base to a desired position along the direction of a saw line;



a saw guide mounted above said base for guiding a saw along the saw line when making a mitre cut in a workpiece; and

a workpiece locating mechanism mounted on said base to be adjustable angularly with respect to said saw line;

said workpiece locating mechanism comprising

a pair of elongate guide boxes wherein each guide box comprises a lower lateral wall substantially parallel to said base for supporting a workpiece, said lower lateral wall having a forward end connected to the adjusting member for pivotal movement about a pivot axis, and an upstanding wall extending substantially perpendicular from said lower wall;

wherein the lower lateral wall of each guide box is coupled to the base via a projection on one of said lower wall and said base and a slot in the other of said lower wall and said base to guide the projection for relative sliding movement in the slot, and the forward end of said lower lateral wall is shaped so that an adjustment gap is defined between edges of said forward end and said saw line over a range of angular adjustment settings for the guide boxes so that the guide boxes pivot simultaneously and symmetrically over said range of angular adjustment settings with respect to said saw line by operation of said adjusting member, said settings including an aligned setting at which the guide boxes are perpendicular to the saw line, and settings at either side of said aligned setting at which the guide boxes define a desired internal or external mitre angle cut for a workpiece supported in one position on one of the guide boxes; and

said upstanding wall of each guide box terminating at an inner vertical edge that is spaced radially outward from the pivot axis of the guide box to define a workpiece clearance gap between the inner edge of said upstanding wall and the pivot axis, and

wherein said workpiece clearance gap is of sufficient size so that each of the inner vertical edges of the upstanding walls of the guide boxes remains on the same side of said saw line as the guide boxes are adjusted over said range of angular adjustment settings to enable cutting internal and external angles, and a workpiece supported on one of the guide boxes is movable along a longitudinal direction of the box, over said saw line and through the workpiece clearance gap of the other guide box without interference by the upstanding wall of the other guide box.

5,737,991
WARP BEAD OVEN GASKET

J. Sellers Kite, III, Carefree, Ariz., assignor to Bentley-Harris Inc., Exton, Pa.

Filed Mar. 25, 1996, Ser. No. 621,471

Int. Cl.⁶ D04C *1/00*

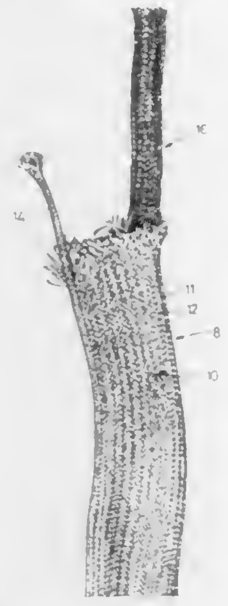
U.S. Cl. 87—9 **8 Claims**

4. A tubular gasket for use in sealing a space between closely adjacent relatively movable surfaces comprising:

a tubular braid of crossing glass fiber yarns;

a resilient wire support member fitted within said tubular braid and extending lengthwise thereof;

a relatively non-stretchable laid-in warp bead inserted between said crossing glass fiber yarns, said warp bead having a diameter which is large in relation to said glass fiber yarns and extending substantially the length of said tubular braid;



said crossing glass fiber yarns being relatively oriented in a position in which said tubular braid is axially compressed and radially expanded; and

said relatively non-stretchable warp bead acting to restrain relative movement of contiguous crossing glass fiber yarns from said position while allowing unrestrained relative movement of said crossing glass fiber yarns which are not contiguous

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5,737,992
METHOD AND DEVICE FOR CONTROLLING A DOUBLE-ACTING CYLINDER ACTUATED BY A PRESSURIZED FLUID

Daniel Octaaf Ghislain Torrekens, Rue de la Station 22, 7850 Enghien, and Didier Paeco, Herne, both of Belgium, assignors to Daniel Octaaf Ghislain Torrekens, Enghien, Belgium

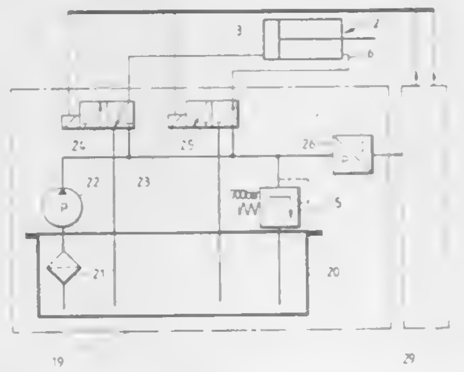
PCT No. PCT/BE94/00079, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/11777, PCT Pub. Date May 4, 1995

PCT Filed Oct. 28, 1994, Ser. No. 635,896

Claims priority, application Belgium, Oct. 29, 1993, 9301196

Int. Cl.⁶ F01C *21/12*, F15B *13/16*

U.S. Cl. 91—59 **9 Claims**



1 A method for controlling a double-acting cylinder actuated by a fluid under pressure in an assembly and a control unit for said assembly in which a to-and-fro movement of a piston may be repeated, an active stroke of said piston providing a desired maximum force in one direction and a passive stroke in a direction opposite to said one direction, said passive stroke causing said piston to return for a repetition of said strokes, said method comprising the steps of:

(a) selecting a set pressure for the fluid, corresponding to the desired maximum force;

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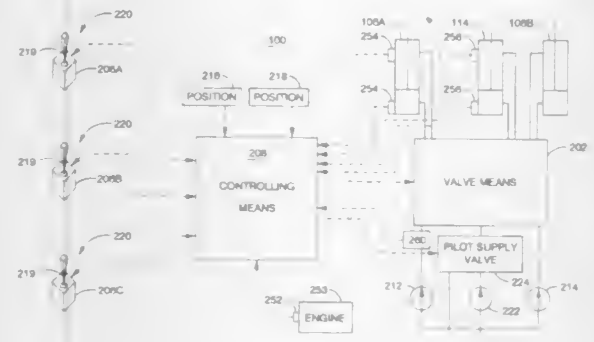
(b) supplying the cylinder with pressurized fluid acting in the direction of the active stroke;
(c) detecting, during the active stroke, when the pressure of the fluid reaches the set pressure;
(d) following said detection, reversely supplying said pressurized fluid to the cylinder, for causing the passive return stroke;
(e) detecting a moment when the piston has completed its passive return stroke;
(f) measuring an elapse of a time period between the start of the reversed supply and a detection of a completion of the passive return stroke;
(g) comparing said elapsed time period with a time period determined as corresponding substantially to a time of a complete passive return stroke; and
(h) repeating the above sequence, until at least said measured elapsed time is substantially less than the determined time.

5,737,993
METHOD AND APPARATUS FOR CONTROLLING AN IMPLEMENT OF A WORK MACHINE

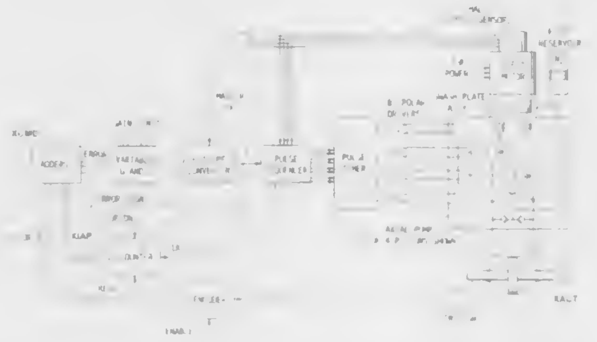
Michael A. Cobo, St. Charles, and John D. Duffy, Peoria, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.
Filed Jun. 24, 1996, Ser. No. 668,783
Int. Cl.^{6} F15B *13/16*
U.S. Cl. 91—361 **15 Claims**



1. An apparatus for controllably moving a work implement of an earth moving machine having an internal combustion engine, the work implement including a boom and a bucket being attached thereto, the work implement including a plurality of work functions that includes a lifting and lowering function where the boom is actuated by a hydraulic lift cylinder and dumping and racking function where the bucket is pivoted by a hydraulic tilt cylinder, comprising:
an operator controlled joystick.
joystick position sensing means for sensing the position of the joystick and responsively generating operator command signals;
scaling means for receiving the operator command signals and converting the operator command signals into velocity command signals.
cylinder velocity sensing means for sensing the velocity of the lift and tilt cylinders, and responsively producing respective cylinder velocity signals.
an engine sensor that senses the speed of the internal combustion engine and produces an engine speed signal.
a cylinder pressure sensing means for sensing the hydraulic pressure associated with the lift and tilt cylinders and responsively producing respective cylinder pressure signals.
controlling means for receiving the engine speed, cylinder pressure, cylinder velocity and velocity command signals: determining the difference between the cylinder velocity and velocity command signals, and responsively producing electrical valve signals in response to the velocity difference, and engine speed and cylinder pressure signals, and
valve means for receiving the electrical valve signals and controllably providing hydraulic fluid flow to the respective hydraulic cylinders to move the respective hydraulic cylinders in accordance with the velocity command signals.

5,737,994
DIGITAL VARIABLE ACTUATION SYSTEM

Alfonso S. Escobosa, 2034 Brittany Pl., Placentia, Calif. 92670
Filed Nov. 27, 1996, Ser. No. 757,854
Int. Cl.^{6} F15B *13/16;13/044*
U.S. Cl. 91—361 **2 Claims**

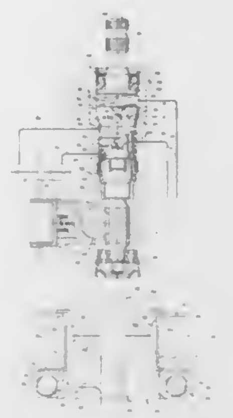


1. A digital-variable actuation system based on a motor driven piston pump, said pump composed of at least one pair of complementary pistons with the output ports of each pair of pistons commutated by two 3-way electromagnetic bistable switches; pole terminals of the switches connected to said output ports, first throw terminals of the two switches connected to one control chamber of a hydraulic actuator and second throw terminals of the switches connected to the opposite control chamber of the actuator; a stationary holding of the actuator position accomplished by a connection between all the first throw terminals to all the second throw terminals, said connection effected with either switch of the complementary pairs of pistons and said connection shorting the output ports of the associated complementary pistons; one incrementation of the actuator initiated by opening the shorting connection with either switch at the instant its associated piston reaches the maximum extended or retracted position, the incrementation terminated by restoring the shorting connection with the same switch at the instant the associated piston reaches the opposite extreme position, the actuator thereafter again held stationary; the selection of a particular switch for the breaking and resorting of the shorting connection required for one incrementation of the actuator dependent in which direction the actuator is to be incremented and on the relative positions of the complementary pistons in line for switching.

5,737,995
POWER STEERING SYSTEM

Marc H. Doolittle, Kingsport, Tenn., assignor to TRW Inc., Lyndhurst, Ohio
Filed Feb. 28, 1996, Ser. No. 608,138
Int. Cl.^{6} F15B *9/10*
U.S. Cl. 91—375 R **13 Claims**

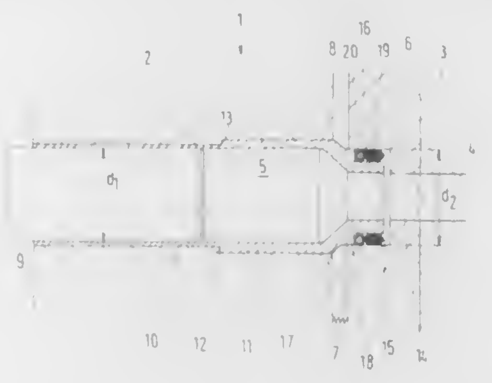
6. An apparatus for use in a vehicle to control a flow of fluid to a power steering motor, said apparatus comprising:
a housing adapted to be connected with a fluid supply conduit, the power steering motor, and a drain conduit;
first and second valve members disposed in said housing and rotatable relative to each other to control fluid flow from the fluid supply conduit to the power steering motor;
means disposed in said housing for providing a force to resist relative rotation between said first and second valve members, said means including means for forming a pressure chamber and force transmitting means for transmitting between said first and second valve members force which varies as a function of variations in fluid pressure in said pressure chamber; and



a secondary valve operable between an open condition venting said pressure chamber to the drain conduit and a closed condition, said secondary valve being operable from the open condition toward the closed condition in response to relative rotation between said first and second valve members;
said first valve member being rotatable about an axis of rotation relative to said second valve member, said force transmitting means includes a movable member which is movable along the axis of rotation of said first valve member upon relative rotation between said first and second valve members, said secondary valve including a valve member which is movable with said movable member relative to said first valve member to reduce the size of an opening through which said pressure chamber is vented.

5,737,996
HYDRAULIC AXIAL PISTON MACHINE

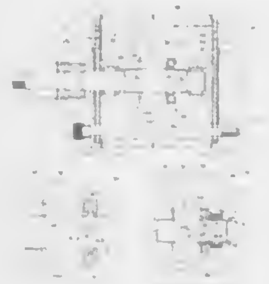
Ove Thorbool Hansen, Nordborg, Denmark, assignor to Danfoss AS, Nordborg, Denmark
PCT No. PCT/DK95/00279, § 371 Date Dec. 26, 1996, § 102(e) Date Dec. 26, 1996, PCT Pub. No. WO96/02758, PCT Pub. Date Feb. 1, 1996
PCT Filed Jun. 30, 1995, Ser. No. 765,413
Claims priority, application Germany, Jul. 13, 1994, 44 24 607.2
Int. Cl.^{6} F01B *3/00*
U.S. Cl. 92—12.2 **13 Claims**



1. A hydraulic axial piston machine having a cylinder drum having at least one cylinder in which a piston is arranged to move back and forth, and having a control plate, which on rotation of the cylinder drum and control plate relative to one another connects the cylinder, in dependence on its position, to a fluid inlet and a fluid outlet, a pressure plate located between the cylinder drum and the control plate and having for each cylinder a fluid path between the control plate and the cylinder drum, the cylinder being lined with a bushing of a friction-reducing plastics material which projects from the cylinder drum and includes a portion which extends into pressure plate.

5,737,997
CAM PLATE SUPPORTING STRUCTURE IN A CAM PLATE TYPE COMPRESSOR

Hirofumi Sato; Tomoji Tarutani; Norikazu Deto, and Masanobu Yokoi, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Japan
Filed Aug. 12, 1996, Ser. No. 694,407
Claims priority, application Japan, Aug. 21, 1995, 7-212204
Int. Cl.^{6} F01B *3/00*
U.S. Cl. 92—71 **11 Claims**



1. A cam plate type compressor comprising
a housing.
a crank chamber formed within the housing;
a drive shaft;
a cam plate supported by the drive shaft and located in the crank chamber, wherein the cam plate has a rotational axis, and wherein the cam plate receives a load in the axial direction when the compressor is assembled;
a boss formed between the cam plate and the drive shaft for supporting the cam plate, the boss having first and second end surfaces axially spaced from one another, wherein the first end surface is flat;
a first bearing seat located to face the first end surface, wherein the first bearing seat is flat,
a second bearing seat located to face the second end surface.
a first bearing located between the first end surface and the first seat;
a second bearing located between the second end surface and the second seat;
a buffer means associated with one of the bearings for absorbing the axial load,
wherein one of the first and second bearings is a rolling bearing and the other is a sliding bearing

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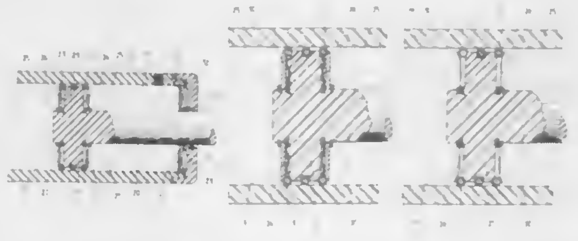
5,737,998
HEAVY-LOAD HYDRAULIC OR AIR CYLINDER

Chiu Nan Wang, No. 50, Alley 97, Lane 354, Sanher Road, Fengyuan City, Taichung County, Taiwan
Filed Nov. 25, 1996, Ser. No. 791,651
Int. Cl.^{6} F01B *11/02*
U.S. Cl. 92—85 B **4 Claims**



1. A heavy-load hydraulic or air cylinder comprising a main body provided therein with a piston having a pressure side and a rod side, an action rod having a driven end adjacent said piston and capable of being actuated by a liquid or air pressure to drive said action rod to move back and forth in said main body; wherein said driven end is provided respectively on both sides of said piston

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with at least one pressure bearing piece, said driven end and said pressure bearing pieces provided therebetween with a leakproof ring enabling a gap to be formed between said pressure bearing pieces and said driven end, said pressure bearing pieces being located by a retaining piece fastened with said action rod, said main body comprising an exit end provided with at least one of said pressure bearing pieces, an exit cap, and one of said leakproof rings located between said exit end pressure bearing piece and said exit cap; wherein said action rod is capable of moving back and forth to bring about a pushing force to act on at least one of said pressure bearing pieces before said pushing force is transferred to act on at least one of said leakproof rings, and wherein at least one of said leakproof rings is squeezed between said driven end and said pressure bearing piece to bring about a reaction force to act on an inner wall surface of said main body

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5,737,999

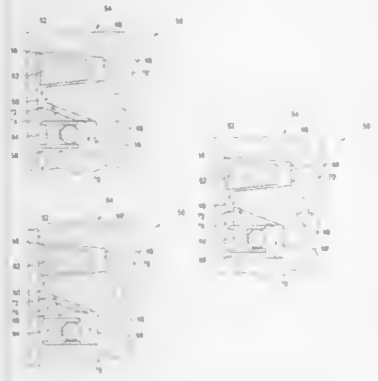
BLOWBY PRESSURE CONTROL ABOVE AN OIL CONTROL RING IN A RECIPROCATING INTERNAL COMBUSTION ENGINE

Susumu Ariga, San Antonio, Tex., assignor to Southwest Research Institute, San Antonio, Tex.

Filed Mar. 14, 1997, Ser. No. 818,540

Int. Cl.^{6} F01B *31/10*

U.S. Cl. 92—158 3 Claims



1. A piston for an internal combustion engine, said piston having a crown end, an outer cylindrical surface having a predetermined diameter, a first annular groove and a second annular groove each being formed in said outer cylindrical surface and having a radially inwardly disposed base defined by a cylindrical wall having a diameter less than the diameter of the outer cylindrical surface of the piston and upper and lower spaced apart radial walls extending between the base of the groove and the outer cylindrical surface of the piston and adapted to receive an annular ring therein, said first annular groove being disposed adjacent said crown end of the piston and adapted to receive a compression ring therein and said second annular groove being disposed at a position spaced from said crown end of the piston and adapted to receive an oil control ring therein, said piston further comprising a plurality of separate passageways that remain open during up and down reciprocating motion of said piston and each of which extend from the outer cylindrical surface of the piston at a position between said first annular groove and the upper radial wall of said second annual groove to a position adjacent the base of said second annular groove.

5,738,000

AXIAL PISTON MACHINE WITH GUIDES FOR THE PISTONS CONTAINED THEREIN

Franz Forster, Karlstadt-Mühlbach, Germany, assignor to Linde Aktiengesellschaft, Germany

Filed Jul. 22, 1996, Ser. No. 681,269

Claims priority, application Germany, Jul. 28, 1995, 195 27 647.7

Int. Cl.^{6} F16J *15/18*

U.S. Cl. 92—165 R 32 Claims

1. An axial piston machine having a housing, an axial rotary shaft mounted in said housing, a plurality of radially spaced cylindrical bores arranged concentrically around said axial shaft, a reciprocal piston located in each of said bores and a swash plate having a peripheral edge, said swash plate located at a predetermined angle of inclination with respect to the axis of said axial shaft, each of said reciprocal pistons having means for operatively connecting an end of said piston to said swash plate, said means including a support body locator connected to said end of said piston and extending around a portion of said peripheral edge of said swash plate, and first and second support bodies in said support body locator contacting said swash plate, wherein at least said first support body has a side facing said support body locator and a side facing said swash plate and said sides of at least said first support body are hydrostatically supported on said support body locator and said swash plate, and including means for preventing rotation of each of said pistons around its center axis, wherein said means for preventing rotation of each of said pistons includes guide means on said support body locator which is effective in the peripheral direction for contacting corresponding guide means on said support body locators of adjacent pistons, elongated guide means on said housing, and means on at least one of said support body locators for cooperation with said elongated guide means on said housing to secure said at least one of said support body locators and said corresponding piston attached thereto against rotation around the center axis of said corresponding piston.

23. An axial piston machine having a housing, an axial rotary shaft mounted in said housing, a plurality of radially spaced cylindrical bores arranged concentrically around said axial shaft, a reciprocal piston located in each of said bores and a swash plate having a peripheral edge, said swash plate located at a predetermined angle of inclination with respect to the axis of said axial shaft, each of said reciprocal pistons having means for operatively connecting an end of said piston to said swash plate, said means including a support body locator connected to said end of said piston and extending around a portion of said peripheral edge of said swash plate, and first and second support bodies in said support body locator contacting said swash plate, including at least a hydrostatic bearing means formed in said housing for supporting said rotary shaft in the axial direction.

5,738,001

COFFEE MACHINE

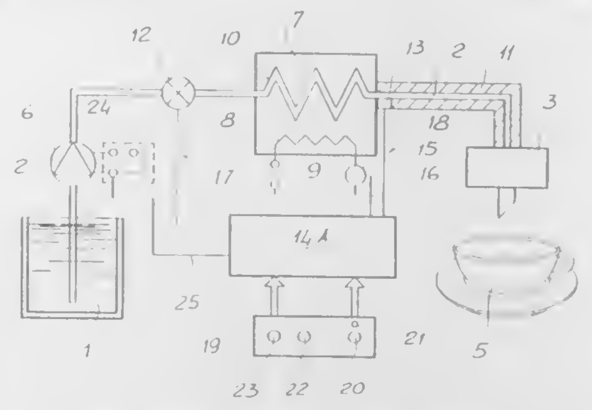
Furio Suggi Liverani, Trieste, Italy, assignor to Illycaffe's S.P.A., Italy

Filed Oct. 22, 1996, Ser. No. 735,115

Claims priority, application European Pat. Off., Oct. 31, 1995, 95830462

Int. Cl.^{6} A47J *31/52;31/54*

U.S. Cl. 99—283 5 Claims



1. In a coffee machine comprising a source of water (1) and an electric pump (6) to transfer water to a brewing chamber (3) after passing through a heat exchanger (7) where it is heated by an electric resistor (8) able to instantly bring the water to the desired reference temperature (Tr), at least one water delivery counter means (12) that instant by instant measures the quantity of water transferred towards said chamber, a temperature sensor (13) that instant by instant detects the temperature reached by the water and a single control device (14A) that receives signals from said temperature sensor (13) set in contact with the water duct (2) downstream and close to the heat exchanger (7), the control device (14 A) being programmed to control instant by instant the pump delivery (6,24) as a function of the signals received from the temperature sensor (13) and separately to control the electric feeding (8,15) of the heat exchanger (7) as a function of the signals received from the water delivery counter (12), the improvement wherein the control device (14 A) processes the signals received from the temperature sensor (13) to control simultaneously instant by instant the pump delivery (6,24) and the electricity feeding (8,15) of the heat exchanger (7) so as to maintain at the reference temperature (Tr) the water exiting the heat exchanger (7).

5,738,002

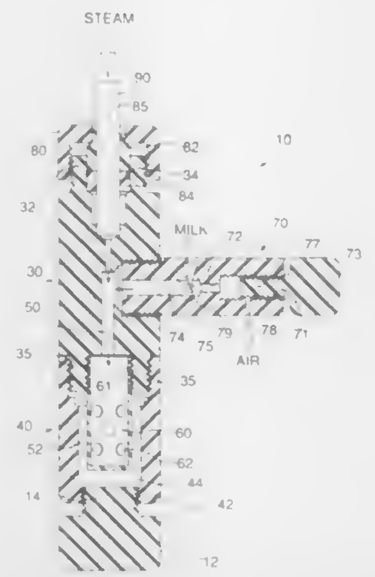
SELF-CLEANING ESPRESSO MACHINE ATTACHMENT FOR PRODUCING FROTHED HOT MILK

Anthony Marano-Ducarne, 8 Childs La., Old Field, N.Y. 11733

Filed Nov. 4, 1996, Ser. No. 743,543

Int. Cl.^{6} A47J *31/40*

U.S. Cl. 99—293 13 Claims



1. A self-cleaning espresso machine attachment for combining steam, milk and air to produce frothed hot milk, said attachment comprising:

an upper frother body having a first fluid conduit formed therethrough and an upper end defining a steam inlet,

a lower frother body coupled to said upper frother body and having a second fluid conduit formed therethrough and a lower end defining a first discharge outlet, said first and second fluid conduits of said upper and lower frother bodies being in fluid communication with one another to establish a fluid passageway between said steam inlet and said first discharge outlet;

a frother nozzle disposed in said fluid passageway between said steam inlet and said first discharge outlet,

means for releasably attaching said steam inlet to a steam supply of an espresso machine;

means for introducing milk and air into said fluid passageway between said steam inlet and said frother nozzle, said means for introducing milk and air comprising a third fluid conduit having a second discharge outlet opening into said fluid passageway, an air inlet opening into said third fluid conduit, and a milk inlet opening into said third fluid conduit;

means for releasably closing said first discharge outlet;

whereby said attachment can be cleaned without disassembly or disconnection from the espresso machine by placing said means for releasably closing said first discharge outlet in a closed position so that the steam supply from the espresso machine is directed in a reverse flow-like flushing manner through said means for introducing milk and air

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5,738,003

COUNTER CURRENT DIFFUSION EXTRACTOR

Timothy R. Lang, Pymble, Australia, assignor to Processing Technologies International Limited, New South Wales, Australia

PCT No. PCT/AU94/00301, § 371 Date Mar. 6, 1996, § 102(e) Date Mar. 6, 1996, PCT Pub. No. WO94/28735, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 7, 1994, Ser. No. 564,196

Claims priority, application Australia, Jun. 7, 1993, PL9199

Int. Cl.^{6} A23N *1/00*

U.S. Cl. 99—513 18 Claims

1. A counter current extractor comprising

an elongate housing;

a screw conveyor provided in said housing,

strainer means at one end of said housing for filtering a liquid phase passing out of the counter current extractor;

clearing means associated with said strainer means for preventing said strainer means from remaining clogged with particulate material, said clearing means including at least one liquid jet which ejects liquid so as to dislodge particulate material

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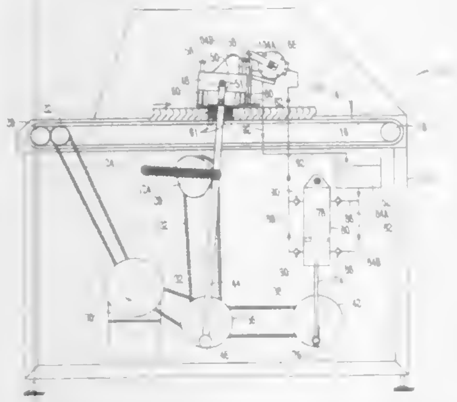
from said strainer means, said strainer means comprising a wire screen having an upstream side and a downstream side and having apertures therein, said wire screen being formed of wedge wire so that a substantially flat profile is created on said, upstream side of said screen and the apertures in said screen are wider on the downstream side of the screen than the upstream side of the screen.

5,738,004
MEANS FOR INJECTING FLUID INTO A MEAT PRODUCT

Ray T. Townsend, 3131 Fleur Dr., Des Moines, Iowa 50321
Division of Ser. No. 718,987, Sep. 26, 1996. This application Apr. 23, 1997, Ser. No. 839,054
Int. Cl.⁶ A22C *17/00;* **A23L** *1/31;3/32;3/34*
U.S. Cl. 99—533 **13 Claims**

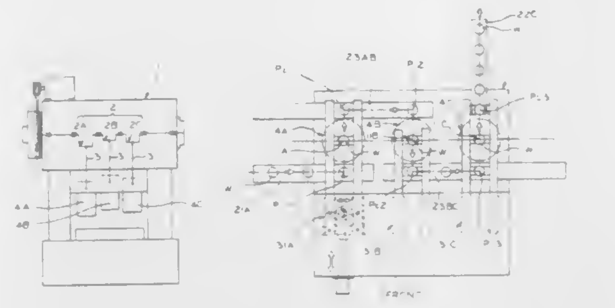


1. A machine for injecting fluid into a meat product, comprising.
a frame.
a meat injection station on said frame.
an elongated conveyor on said frame for carrying a meat product towards and through said injection station.
power means on said frame for operating said conveyor in an operational mode.
a meat injection head on said frame located at said injection station including a plurality of downwardly extending fluid injection needles.
a fluid reservoir on said frame.
a pump on said frame connected to said fluid reservoir and said needles.
power means on said frame for moving said needles into and out of said meat product being moved through said meat injection station while said conveyor is in said operational mode.
and a bypass control circuit on said frame connected to said pump and said fluid reservoir for diverting fluid moving towards said needles from said pump to said fluid reservoir when said needles are out of said meat product

5,738,005
WORKPIECE FEEDING METHOD FOR MULTI-SLIDE PRESS

Hideo Itakura, Sagamihara, Japan, assignor to Aida Engineering Ltd., Kanagawa-ken, Japan
Filed Jul. 1, 1996, Ser. No. 674,595
Int. Cl.⁶ B30B *15/30*
U.S. Cl. 100—35 **4 Claims**

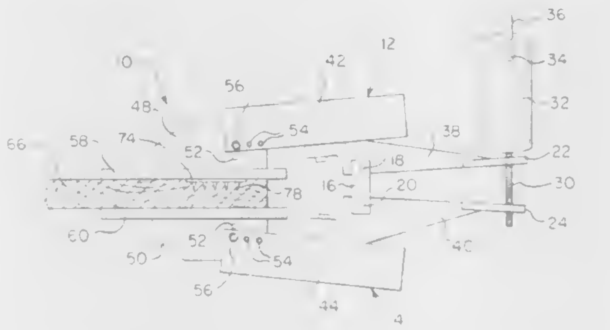
1. A workpiece feeding method for a multi-slide press of the type in which a plurality of slides operating with a difference in phase are arranged in a straight line in the lateral direction of the press and in which workpieces are fed to machining stages provided respectively in the slides and extracted after undergoing stamping at the slides.
wherein each said slide includes a longitudinal feeding means which supplies a workpiece from a workpiece supplying stage



provided in front of or at the back of the press to the machining stage and, after the stamping of the workpiece, extracts it onto a workpiece extracting stage provided at the back of or in front of the press, respectively, and wherein a workpiece is fed for stamping in each slide.

5,738,006
PORTABLE TRUSS REPAIR DEVICE

Kelly D. Stateley, 5399 S. Elati St., Apt. 101, Littleton, Colo. 80120
Filed May 28, 1996, Ser. No. 654,179
Int. Cl.⁶ B30B *1/23*
U.S. Cl. 100—233 **20 Claims**

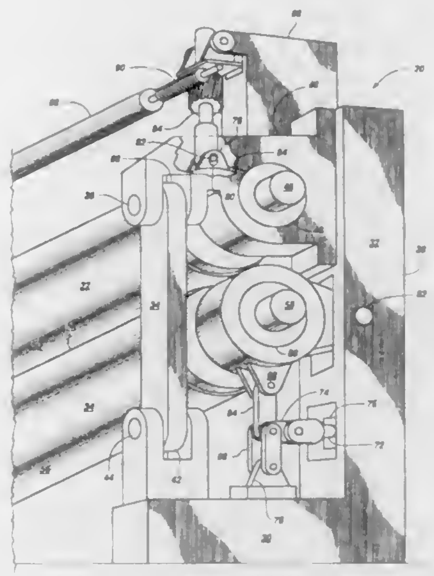


1 A portable press device for repairing truss joints comprising:
jaw members spaced opposite each other and including first and second end portions.
means for interconnecting said jaw members for relative pivotal movement therebetween including a pair of independently operating, spaced bracket plates each of which is pivotally secured at opposite ends to said jaw members to permit relative pivotal and relative longitudinal movement between said jaw members;
a pair of plate members each disposed at a first end portion of one said jaw member, said plate members facing opposite each other for receiving a truss joint therebetween.
lever means disposed at the second end portions of said jaw members to control the relative pivotal movement of said jaw members; and
drive means secured to said lever means to selectively move said second end portions in opposing directions to both close and open said jaw members.

5,738,007
HIGH NIP LOAD CALENDER

Arnold J. Roerig, Gold Canyon, Ariz., and Dale A. Brown, Milton, Wis., assignors to Beloit Technologies, Inc., Wilmington, Del.
Filed Mar. 12, 1996, Ser. No. 596,903
Int. Cl.⁶ B30B *3/04;* **D21G** *1/00*
U.S. Cl. 100—327 **22 Claims**

1 A gloss calender, comprising:

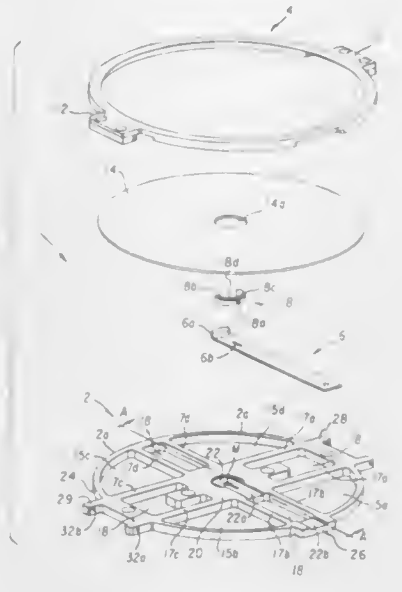


a first roll, wherein the first roll comprises a shell rotatably mounted to a bearing box;
a second roll forming a nip with the first roll;
two spaced apart supports forming an open stack mount for the first and second rolls, the supports having a first side, wherein the first roll and the second roll extend between the two supports and are mounted to the first sides of the supports,
a link removably mounted to each of the supports, wherein the links extend across the nip in spaced relation to the first side such that the first roll and the second roll are positioned between the links and the supports, and wherein the links support tension loads produced by the nip loading between the first roll and the second roll;
a bracket extending from the bearing box;
portions of the bracket which define a vertically extending clevis slot;
a clevis pin which extends through the clevis slot and which is moveable vertically within the clevis slot; and
a screw jack mounted to the support, wherein the clevis pin is engaged with the screw jack, such that rotation of the screw jack elevates the bearing box and the attached shell to thereby support the shell when not in engagement with the second roll, and wherein the clevis pin may be driven downward in the clevis slot so the screw jack is in non-supporting relation to the bearing box when the first roll is engaged with the second roll.

5,738,008
CLAMPING APPARATUS FOR DISK-SHAPED INFORMATION MEDIUM

Michael Freund, Schorndorf, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 8, 1996, Ser. No. 694,367
Claims priority, application Germany, Aug. 31, 1995, 195 32 110.3
Int. Cl.⁶ B41F *17/00*
U.S. Cl. 101—35 **9 Claims**

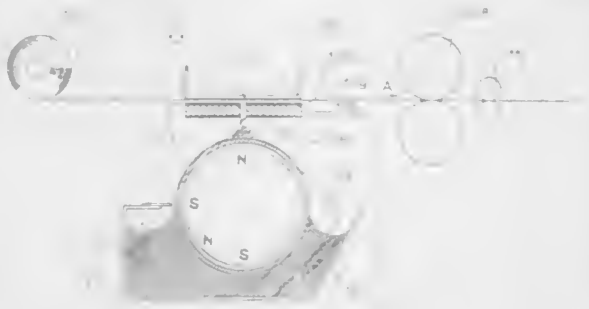
1. Clamping apparatus for a disk-shaped information medium on which information can be printed, the medium being adapted to receive printed information and having a central hole, said clamping apparatus comprises:
(a) a base plate, said base plate having a rim and a circular countersunk recess;
(b) a central centering aid arranged so as to be received by the central hole in the information medium;
(c) a cover having a hinge and adapted to be pivotally mounted on the base plate;



(d) a closure mechanism provided diametrically opposite the hinge;
(e) at least one elastic element mounted radially on said rim and around said circular countersunk recess of the base plate and arranged to receive the information medium and being adapted to be compressed when the cover is closed; and
(f) an annular opening provided in said cover such that said information is printable through said annular opening whilst the cover is closed.

5,738,009
METHOD FOR DIRECT ELECTROSTATIC PRINTING (DEP)

Guido Desie, Herent, and Herman Debie, Mol, both of Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium
Filed Apr. 3, 1996, Ser. No. 626,936
Claims priority, application European Pat. Off., Apr. 3, 1995, 95200834
Int. Cl.⁶ B41M *1/12;* **B41J** *2/41*
U.S. Cl. 101—129 **4 Claims**



1 A method for direct electrostatic printing with reduced banding, comprising the steps of:
(a) creating a potential difference between a back electrode and a magnetic brush assembly having a stationary mounted core and a sleeve rotatably mounted around said core and rotating said sleeve at a rotational speed V_{sl} higher than 100 rotations per minute;
(b) applying a developer with toner particles and magnetically attractable carrier particles on said magnetic brush assembly,
(c) creating a flow of toner particles directly from said magnetic brush assembly to said back electrode;
(d) interposing a printhead structure, having printing apertures and control electrodes around said printing apertures, between

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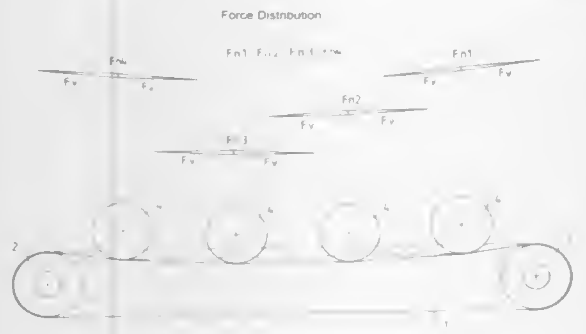
said magnetic brush assembly and said back electrode, for image wise controlling said flow of toner particles;
(e) passing a substrate a a speed V_{sub} being equal to or larger than 10 cm/min between said printhead structure and said back electrode;
(f) image wise depositing toner particles on said substrate through said printing apertures and
(g) fixing said toner particles to said substrate;
wherein said sleeve of said magnetic brush assembly is rotated at a speed V_{rot} so that $V_{rot}/V_{sub} \geqq 2$.

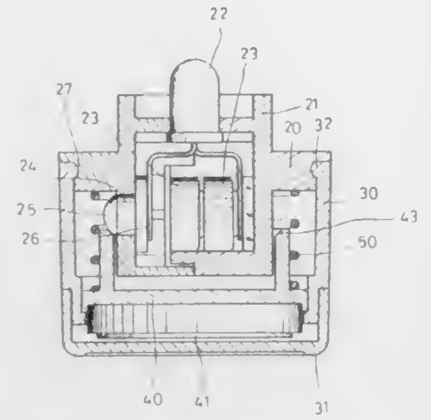
5,738,010
PRINTING PRESS AND METHOD OF CONVEYING SHEETS ALONG MULTIPLE FORM CYLINDERS
Martin Greive, Heidelberg, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Filed Sep. 27, 1996, Ser. No. 722,369
Claims priority, application Germany, Sep. 29, 1995, 195 36 359.0
Int. Cl.^{6} B41T *13/24*
U.S. Cl. 101—232 8 Claims



1. A method for creating contact pressure forces between printing substrates conveyed on an endless conveyor belt and multiple ink transfer devices spaced from one another in tandem along said conveyor belt, said ink transfer devices having respective cylindrically curved surfaces located opposite said conveyor belt, the method which comprises:
creating the contact pressure forces through the use of a prestress applied to the conveyor belt;
partially looping the substrates on the curved surfaces of the ink transfer devices with said conveyor belt; and
commonly setting the contact pressure forces by setting the prestress of the conveyor belt.

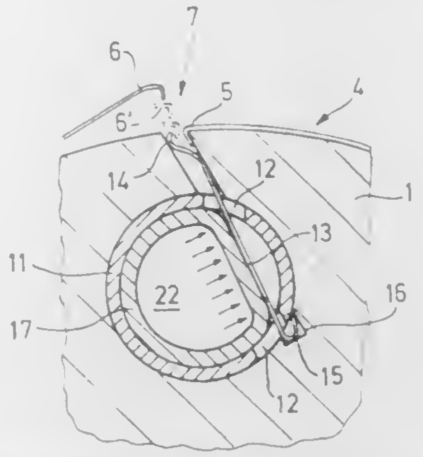
5,738,011
AMUSEMENT STAMP
Hsu Ming Tay, No. 3, Chung Tai Rd., Chun-Li, Taoyuan Hsien, Taiwan
Filed Jan. 27, 1997, Ser. No. 787,338
Int. Cl.^{6} B41L *47/02*
U.S. Cl. 101—368 1 Claim

1. An amusement stamp, comprising a light-pervious ornament, an ornament seat, an outer ring member, a retractable stamp seat having a design-bearing lower head, a spring, and a bottom cover for closing a lower opening of said outer ring member;
said ornament having an lower inner recess and a hole with reduced diameter centered at a top of said recess;
said ornament seat having an upward projected ring portion defining a round space thereinside, a small bulb centered in said round space, batteries mounted inside said ornament seat for supplying power to said small bulb, and a pushbutton mounted on a side wall of said ornament seat with a round head sideward projected from said side wall; said ornament seat also having an annular groove formed around an outer periphery thereof;
said outer ring member having two open ends and being formed on an inner wall surface near a top edge with an annular rib having round head and near a bottom edge with an annular flange; and
said retractable stamp seat with said design-bearing lower head including a lower flange portion which has an outer diameter smaller than an internal diameter of said outer ring member but larger than an internal diameter of said flange near bottom edge of said outer ring member, and an upper ring portion above said flange portion; said ring portion having an inner top edge forming an inward and downward inclined surface;
wherein said retractable stamp seat being disposed in said outer ring member with said lower flange portion of said stamp seat supported on said annular flange of said outer ring member, said spring being disposed in said outer ring member with a lower end pressing against said lower flange portion of said retractable stamp seat, said ornament seat being connected to said outer ring member by engaging said groove around the outer periphery of said ornament seat with said rounded rib around the inner top edge of said outer ring member and thereby normally compressing said spring disposed in said outer ring member against said lower flange portion of said retractable stamp seat, said ornament being put on said ornament seat with said lower inner recess tightly fitting around the upward projected ring portion of said ornament seat and said small bulb extending into said hole centered at the top of said recess, and said bottom cover being removably covered to the lower opening of said outer ring member to protectively seal said design-bearing lower head of said retractable stamp seat;
whereby when said amusement stamp is in use, said design-bearing lower head of said retractable stamp seat is pushed upward with the inclined inner top edge thereof contacting with and pressing said round head of said pushbutton inward to lighten said small bulb, and when said amusement stamp is not in use, said design-bearing lower head of said retractable stamp seat is pushed down by said spring, said pushbutton is released, and said small bulb extinguishes.



5,738,012
DEVICE FOR FIXING A FLEXIBLE PRINTING FORM ON A FORM CYLINDER
Jacques Mètrope, Laigneville, France, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany, and Heidelberg Harris S.A., Montataire Cedex, France
Filed Nov. 20, 1995, Ser. No. 560,735
Claims prinrity, application France, Nov. 24, 1994, 94 14093
Int. Cl.^{6} B41F *1/28*
U.S. Cl. 101—415.1 12 Claims

1. Device for fixing a flexible printing form on a form cylinder of a printing press, the form cylinder having at least one axially extending slit formed therein, and at least one leaf-shaped element disposed in the slit, the leaf-shaped element having a rounded end portion for securing a bent portion of a flexible form, comprising a tubular support wherein the leaf shaped element is disposed so as to form a fastening element, said tubular support accommodating an actuating member capable of resiliently deforming said fastening element.



5,738,013
METHOD OF MAKING A LITHOGRAPHIC PRINTING PLATE WITH AN INK JET FLUID MATERIAL
Richard M. Kellett, Long Meadow, Mass., assignor to New England Science & Specialty Products, Inc., Long Meadow, Mass.
Filed May 14, 1996, Ser. No. 645,747
Int. Cl.^{6} B41C *1/10*
U.S. Cl. 101—463.1 37 Claims

19. A method of preparing an imaged lithographic printing plate, comprising providing a lithographic plate blank having a support that bears a receiving layer comprising at least one hydrophilic material and forming an image on said layer of the plate blank with an ink jet printer wherein an ink jet fluid marking material utilized in said ink jet printer comprises a liquid carrier medium and at least one transition metal complex reactive component, said reactive component reacting upon exposure to an energy source after ink jet printing, thereby forming an effective amount of an oleophilic, water-insoluble, and substantially non-metallic pattern on said plate blank

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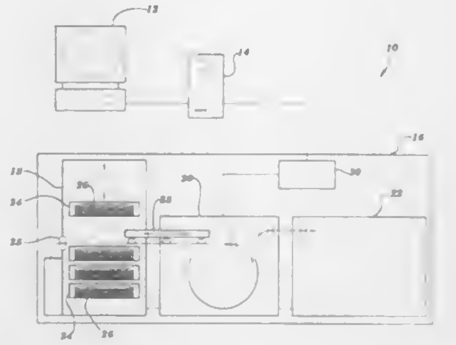
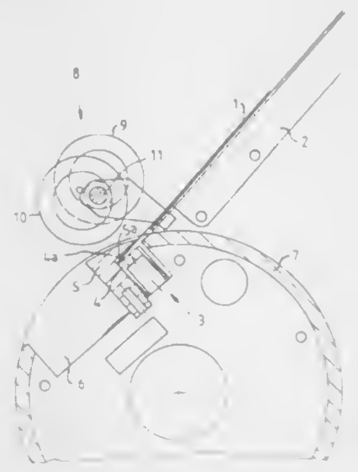
5,738,014
METHOD AND APPARATUS FOR MAKING LITHOGRAPHIC PRINTING PLATES IN AN AUTOMATED COMPUTER TO PLATE IMAGING SYSTEM
Philip A. Rombult, Bradford; Libor Krupica, Methuen; David B. Larsen, Woburn, all of Mass., and Pedro Beildeck, Chester, N.H., assignors to Agfa Division, Bayer Corporation, Wilmington, Mass.
Filed Jul. 31, 1996, Ser. No. 690,699
Int. Cl.^{6} B41F *27/06*
U.S. Cl. 101—477 30 Claims

1. A method for making printing plates in an automated computer to plate imaging system, comprising the steps of:
a. transferring a digital file representing an image to be printed from a front end server to a RIP;
b. processing the digital file in the RIP to a job to be outputted by an automated platesetter;
c. sending the processed job from the RIP to an imaging engine in the platesetter;
d. informing a plate handler in the platesetter of a plate size required by the job in the imaging engine;
e. automatically positioning a plurality of stacks of plates stored in the plate handler to place a stack of the plate size required by the job in an access position relative to the imaging engine;



f. automatically removing a single plate from the stack of plates in the access position and delivering the plate to the imaging engine;
g. imaging the job onto the plate in the engine in the image represented by the digital file; and
h. processing the imaged plate in a processing device

5,738,015
DEVICE FOR GUIDING A PRINT CARRIER
Hans-Jürgen Kusch, Neckargemünd; Rudi Stellberger, Kronau, and Bernd Ruf, Weiterstadt, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Continuation of Ser. No. 429,314, Apr. 26, 1995, abandoned.
This application Dec. 23, 1996, Ser. No. 772,975
Claims priority, application Germany, Apr. 26, 1994, 44 14 443.1
Int. Cl.^{6} B41F *21/00*
U.S. Cl. 101—477 9 Claims



1. Device for guiding a print carrier while the print carrier is respectively fed to and removed from a plate cylinder of a printing press, said device comprising:
first and second guide elements arranged in parallel with the axis of said plate cylinder;
a setting mechanism for positioning said guide elements; and
said guide elements being formed as rollers, said first guide element, during feeding of a print carrier to the plate cylinder, being set to form a defined guide space between said plate cylinder and said first guide element while said second guide element is set to a non-engaging position and, during removal of the print carrier from said plate cylinder, said second guide element being set to form a defined guide space between said plate cylinder and said second guide element while said first guide element is set to a non-engaging position

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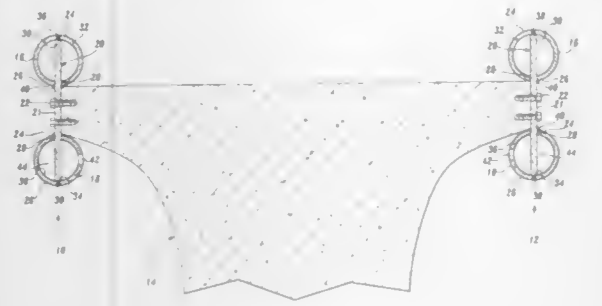
5,738,016
LIGHT RAIL AND WHEEL CARRIAGE SYSTEM

Charles Scott, 9300 Parksville Drive, No. 208, Richmond, British Columbia, Canada, V7E 4W3

Filed Oct. 17, 1996, Ser. No. 733,163

Int. Cl.^{6} E01B *25/10*

U.S. Cl. 104—107 **18 Claims**



1. A light rail assembly, comprising:
first and second rail assemblies; and
a plurality of support members secured to the first and second rail assemblies thereby maintaining the rail assemblies in spaced parallel disposition, wherein each of the first and second rail assemblies comprises:
first and second elongate tubular rail members, the first rail member defining a longitudinal upper load bearing surface, the second rail member defining a longitudinal lower load bearing surface;
a vertical flange having an upper edge secured longitudinally to the first rail member and a lower edge secured longitudinally to the second rail member thereby securing the rail members in a fixed parallel disposition, the vertical flange longitudinally spanning the length of each rail member thereby defining a center web section extending from the first rail member to the second rail member, the vertical flange rigidizing the rail assembly in a vertical direction while permitting a predetermined degree of longitudinal flexibility about a vertical axis.

5,738,017
RAIL VEHICLE REVERSE MOVEMENT PREVENTION ASSEMBLY

Georg Behringer, Denzlingen, Germany, assignor to Heinrich Mack GmbH & Co., Waldkirch, Germany

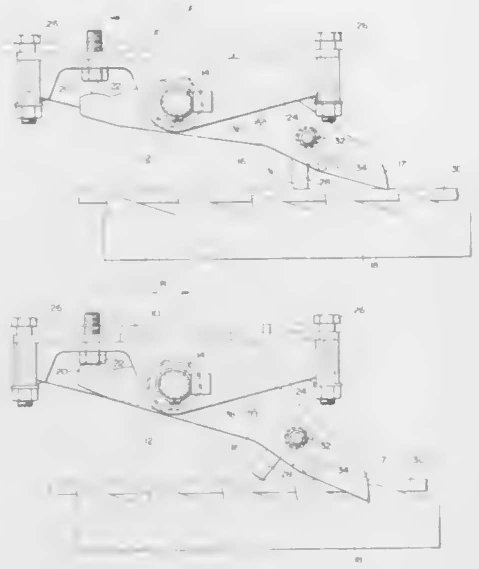
Filed Jul. 11, 1996, Ser. No. 678,189

Claims priority, application Germany, Jul. 15, 1995, 195 25 845.2

Int. Cl.^{6} B61K *7/00*

U.S. Cl. 104—250 **19 Claims**

1. In a gravity-actuated reverse movement preventing assembly for a railway having a toothed rack extending along its length, a rail vehicle mounted for travel in a forward direction along the railway and a locking latch having first and second ends eccentrically pivotally mounted on the rail vehicle so that gravity tends to rotate a distal end of said locking latch into engagement with the rack to prevent movement of the rail vehicle in a reverse direction, the improvement comprising a rocker arm having an upper end pivotally mounted at one end on said locking latch and having a lower end spaced from said upper end, a slideway having a relatively flat upper surface extending lengthwise of said railway and positioned beneath said rocker arm so that said lower end of said rocker arm is urged into contact with said relatively flat upper surface and forward movement of the rail vehicle rotates the rocker arm in a first direction to a first position in which the rocker arm lifts and maintained the locking latch so that the locking latch is disengaged from the rack but wherein the initiation of reverse movement of the rail vehicle results in pivotal movement of the rocker arm in a reverse direction to permit the locking latch to be urged by gravity downwardly to move said distal end into engagement with the rack to prevent further reverse movement of the rail vehicle.



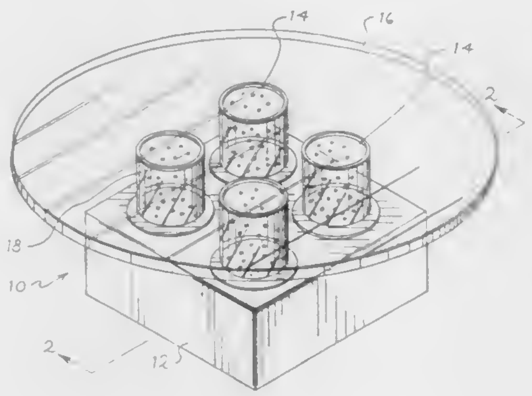
5,738,018
TABLE WITH RISING BUBBLE DISPLAY

Kenneth Burnett, Lincolnwood, Ill., assignor to Midwest Tropical, Inc., Lincolnwood, Ill.

Filed Jan. 23, 1997, Ser. No. 787,970

Int. Cl.^{6} A47B *85/00*

U.S. Cl. 108—23 **31 Claims**



1. A table comprising:
a top;
a set of legs supporting the top, at least one of said legs comprising:
  a translucent column adapted to contain a liquid; and
  a bubble source mounted in the column to introduce bubbles into the liquid, said bubble source having an array of apertures; and
  a pump coupled to the bubble source to supply a pressurized fluid to the bubble source such that the fluid forms bubbles which rise through the liquid and are visible from outside the column;
said top having an upper surface, said column having a cross-section parallel to the upper surface, said upper surface having an area substantially greater than said cross-section.

5,738,019
ADJUSTABLE SHELF ASSEMBLY FOR MERCHANDISING DISPLAY STAND

Nigel Ian Parker, Harlow, United Kingdom, assignor to PPE Limited, Harlow, England

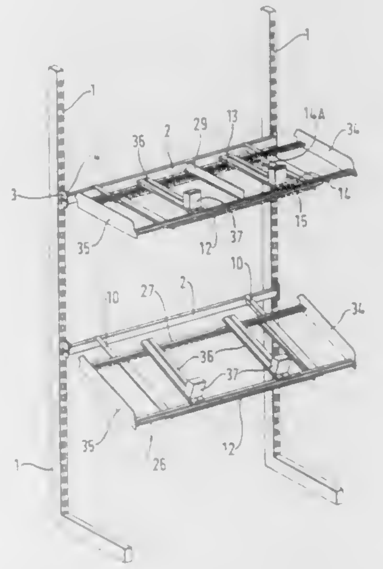
PCT No. PCT/GB94/02387, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/13003, PCT Pub. Date May 18, 1995

PCT Filed Oct. 31, 1994, Ser. No. 596,301

Claims priority, application United Kingdom, Nov. 1, 1993, 9322492

Int. Cl.^{6} A47B *9/00*

U.S. Cl. 108—108 **21 Claims**



1. An angularly adjustable and extendable shelf assembly adapted to be removably mounted on slotted uprights of a merchandising display stand comprising a shelf mounted on shelf support means, shelf angle adjusting means between the shelf and the slotted uprights for enabling the angular orientation of the shelf to be selectively adjusted, shelf extending means attached to said shelf and the shelf support means and operable so that the shelf can be extended or retracted, and manually operable locking means operable to permit the shelf to be incrementally extended or retracted to a selected one of several incrementally spaced positions between rear and forward positions of the shelf when the locking means are released, said locking means retaining the shelf in its selected position when re-engaged.

5,738,020
LOCK BOX AND MOUNTING DEVICE

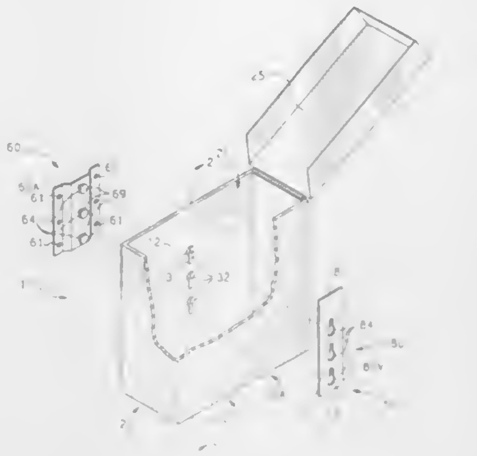
Lewis A. Correia, 513 S. Nevada St., Oceanside, Calif. 92054

Filed Sep. 12, 1995, Ser. No. 526,947

Int. Cl.^{6} E05G *1/04*

U.S. Cl. 109—51 **20 Claims**

1. In combination:
a lock box defining a closed cavity and having an opening on its back wall; and
a mounting device comprising
  a mounting bracket to be secured to a supporting surface; said mounting bracket including:
    a shaft extending from said mounting bracket and through said opening of said lock box, and
  a locking plate inserted into said cavity of said lock box; said locking plate having an opening to receive said shaft of said mounting bracket and locking said lock box to said mounting plate.



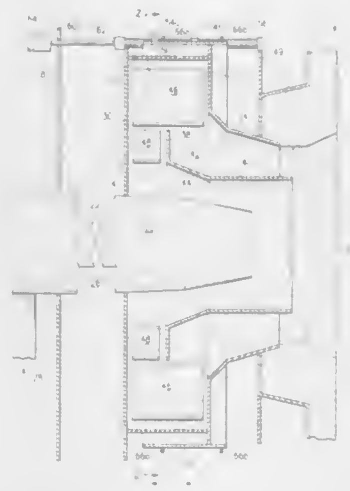
5,738,021
ADJUSTABLE SLEEVE DAMPER ASSEMBLY FOR A COAL-FIRED FURNACE

Joel Vatsky, West Orange, and Walter Van Dyke, Wyckoff, both of N.J., assignors to Foster Wheeler Energy International, Inc., Clinton, N.J.

Filed Feb. 6, 1996, Ser. No. 597,588

Int. Cl.^{6} F23L *9/00;3/00*

U.S. Cl. 110—163 **9 Claims**



9. A burner assembly including an air damper comprising two spaced walls, a damper sleeve mounted for movement relative to said walls in a manner to define an air inlet with one of the walls, a pair of spaced apart threaded support members connected to move with and suspend said damper sleeve on a threaded shaft in threaded engagement with said support members so that rotation of said shaft causes corresponding movement of said support members, and therefore said damper sleeve, to vary the size of said inlet, a nozzle directing air and fuel toward an adjacent furnace opening, a pair of air flow passages concentrically surrounding the nozzle and extending from the inlet to the adjacent furnace opening and means in each of the passages being adjustable to impart a swirl to air moving through said passages to said furnace opening in a combustion supporting relationship with the air and fuel exiting from said nozzle

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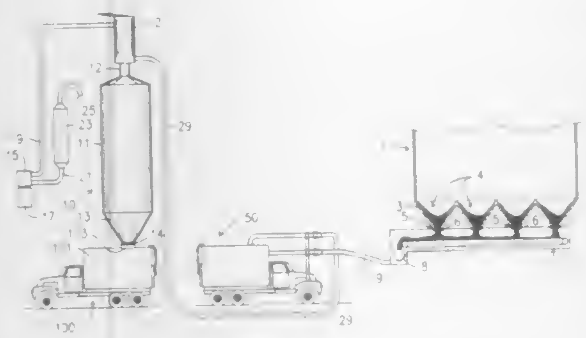
5,738,022
COAL ASH COLLECTING VEHICLE

William P. Reilly, Dunellon, Fla., assignor to Florida Power Corporation, St. Pete, Fla.

Division of Ser. No. 657,049, May 29, 1996. This application Apr. 11, 1997, Ser. No. 833,975

Int. Cl.⁶ B60P *1/60;* **F23J** *1/00*

U.S. Cl. 110—165 R **4 Claims**



1. A vehicle for use in collecting coal ash, the vehicle comprising,

- a storage container and including a first pipe having an inlet adapted to be coupled to a first conduit first coupling outside the vehicle, the first pipe having an outlet within the storage container,
- a second pipe having an inlet within the storage container and an outlet adjacent the first pipe inlet adapted to be coupled to a second conduit second coupling outside the vehicle,
- the vehicle adapted to be movable into adjacency with the first and second coupling whereby the inlet of the first pipe is coupled to the first conduit coupling and the outlet of the second pipe is coupled to the second conduit second coupling,
- the first pipe adapted to pass through an opening in a top wall of the vehicle and the second pipe adapted to pass through an opening in a front wall of the vehicle, the first and second pipe mounted on a bracket attached to the vehicle, and
- the vehicle having a means for hydraulicly facilitating emptying the coal ash and a means for laterally lifting the container hydraulically.

5,738,023
COMBUSTION APPARATUS WITH GAS FILTERING AND HEAT EXCHANGING MEANS

Bernhardt Diedrich Mennink, Coehoornsingel 76, NL-7201 AE Zutphen, Netherlands

PCT No. PCT/NL94/00035, § 371 Date Sep. 29, 1995, § 102(e) Date Sep. 29, 1995, PCT Pub. No. WO94/18508, PCT Pub. Date Aug. 18, 1994

PCT Filed Feb. 11, 1994, Ser. No. 501,012

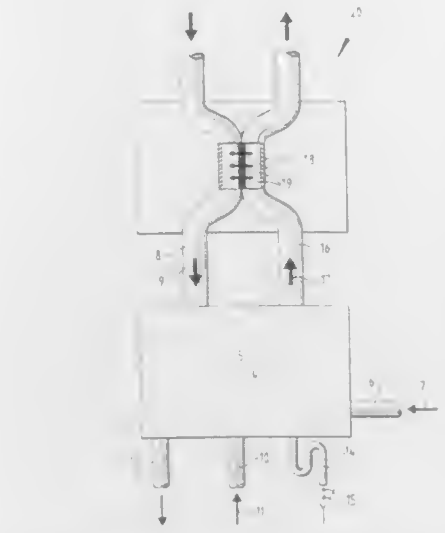
Claims priority, application Netherlands, Feb. 12, 1993, 9300282

Int. Cl.⁶ F23C *9/00*

U.S. Cl. 110—216 **4 Claims**

1. An apparatus for burning fossil fuel, which apparatus comprises:

- combustion means for burning the fuel;
- converting means for converting the in energy produced in the combustion into a desired form of energy;
- a supply conduit for combustion air;
- a discharge conduit for flue gases; and
- a water vapour exchanging system having a membrane,
- wherein the supply conduit for combustion air and the discharge conduit for flue gases are mutually communicating via the membrane in the water vapour exchanging system such that at least a part of the water vapour present in the flue gases is transferred to the incoming combustion air, with a vapour pressure difference between the flue gases and combustion air acting as a driving force for water vapour exchange,



- wherein the membrane is a gas separating membrane having a gas separating layer facing the flue gases, and
- wherein the water vapour exchanging system is also adapted for exchanging heat between the combustion air and the flue gases.

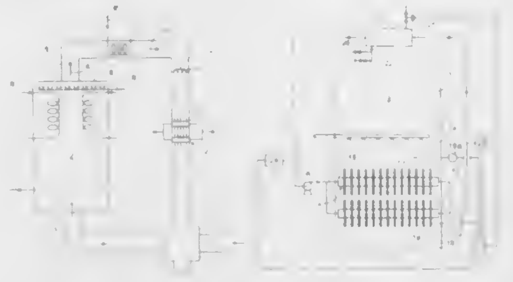
5,738,024
CATALYTIC REDUCTION APPARATUS FOR NO_x REDUCTION

Phillip Winegar, 11 Riverside Dr., New York, N.Y. 10023

Filed Apr. 19, 1996, Ser. No. 634,775

Int. Cl.⁶ B01J *8/18;* **B01D** *53/36*

U.S. Cl. 110—345 **9 Claims**



1. A constant temperature selective catalyst reduction apparatus comprising:

- at least one heat exchange element having extended surfaces, an SCR catalyst disposed at least on the extended surfaces thereof,
- means for providing a cooling medium to the heat exchange element for removing heat from the catalyst, and
- temperature control means for controlling the cooling medium and thereby controlling the temperature of the catalyst, so as to maintain the catalyst at or near a temperature optimum for the conversion of NO_x to nitrogen and water.

5,738,025
METHOD AND APPARATUS FOR THERMAL CRACKING OF WASTE PLASTICS

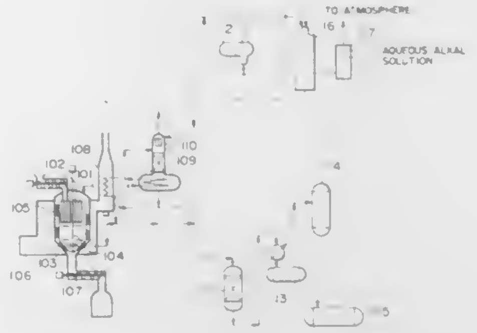
Takashi Tachibana, Iho-gun, Japan, assignor to Fuji Recycle Industry K.K., Hyogo, Japan

Filed Mar. 29, 1995, Ser. No. 412,742

Claims priority, application Japan, Mar. 30, 1994, 6-095379

Int. Cl.⁶ F23G *5/00*

U.S. Cl. 110—346 **3 Claims**



1. A thermal cracking method for waste plastics, which method comprises introducing undermelted waste plastics which have not been completely melted from the exterior of a thermal cracking vessel into a container provided in an upper position within said thermal cracking vessel and having a net-like opening, allowing the plastics to melt within said container, allowing the resulting plastic melt to drop into the thermal cracking vessel through said net-like opening, cracking the plastic melt thermally within the thermal cracking vessel, introducing the resulting vaporous products into a fractional distillation column to separate high-boiling products from harmful gases, non-condensable hydrocarbon gases and low-boiling products, introducing the harmful gases, non-condensable hydrocarbon gases and low-boiling products into a halogen-containing incinerator, while re-heating the high-boiling products, recycling a portion of the re-heated high-boiling products to said thermal cracking vessel, introducing the remaining portion into a zeolite catalyst bed for catalytic conversion, and withdrawing from the lower portion of the thermal cracking vessel the residue resulting from the thermal cracking of the waste plastics in the thermal cracking step.

5,738,026
DEVICE FOR SEWING TWO ARTICLES, IN PARTICULAR LEATHER ARTICLES WITH OVERLAPPED EDGES

Mario Ciucani, Via S. Girolamo, Fermo (Ascoli Piceno), Italy

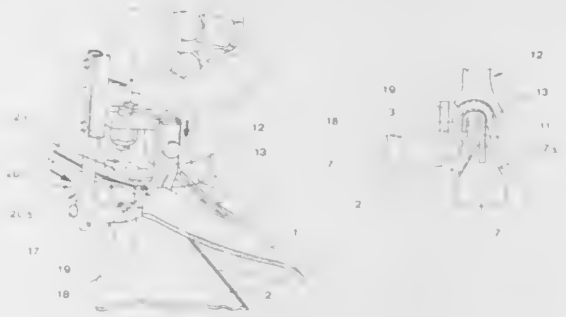
PCT No. PCT/IB95/01145, § 371 Date May 27, 1997, § 102(e) Date May 27, 1997, PCT Pub. No. WO96/20306, PCT Pub. Date Jul. 4, 1996

PCT Filed Dec. 20, 1995, Ser. No. 849,019

Claims priority, application Italy, Dec. 23, 1994, MC940031 U

Int. Cl.⁶ D05B *15/02;27/20;35/10*

U.S. Cl. 112—49 **7 Claims**



1. An improved device for sewing two articles, particularly leather articles with overlapped edges, characterized in that it includes a longitudinal guide (7), a part of which is laterally delimited by two inclined flat surfaces (7*a*,7*b*), upwardly convergent, on which a first article (1) and a second article (2) to be sewn together are moved;

- a curved winglet (11), made integral with the top of said longitudinal guide (7) and bent downwards to overhang an inclined surface (7*b*) of the same guide (7);
- a folding over member (12), moved vertically over the longitudinal guide (7) so as to clamp and release an edge (3) of said first article (1) on said curved winglet (11), overfolding the same edge (3) so as to overlap an edge of said second article (2), while a needle (20) makes a stitch (4); and
- a support element (17), equipped with a foot (18), provided for pressing the edge of said second article against one of said inclined surfaces (7*b*) of the guide (7)

5,738,027
TUFTING PROCESS AND TUFTING DEVICE SUITABLE FOR IMPLEMENTATION OF THIS PROCESS

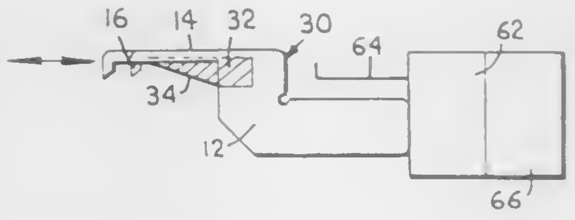
Derek White, Preston, Great Britain, assignor to Jos. Zimmermann GmbH & Co. KG, Aachen, Germany

Filed Sep. 29, 1995, Ser. No. 536,393

Claims priority, application Germany, Oct. 6, 1994, 44 35 723.0

Int. Cl.⁶ D05C *15/24*

U.S. Cl. 112—80.55 **13 Claims**



9. A tufting device comprising,

- a looper block and a row of loopers arranged side by side and carried by said looper block,
- said loopers being movable to-and-fro for the purpose of looping the pile material,
- each said looper including a base installed in said looper block and a shaft,
- each said shaft including a shaft portion which extends from the base and a nose for collecting the yarn disposed in spaced relationship relative to said base,
- each said looper further including a detachable cutting blade mounted adjacent said shaft, which blade has a cutting edge that is inclined towards the direction of movement of the looper and which is configured so as to perform the cutting process on its own, and means for superimposing a vibrational movement to said loopers on top of said to-and-fro motion.

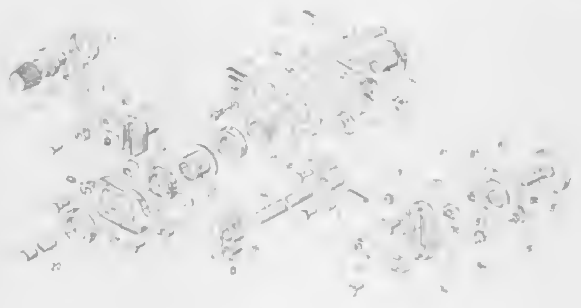
5,738,028
DIFFERENTIAL FEEDING DEVICE FOR SEWING MACHINE

Shui Nu Wang, No. 6, Nan Pin Road, Taichung, Taiwan

Filed Feb. 27, 1997, Ser. No. 807,360

Int. Cl.⁶ D05B *27/08*

U.S. Cl. 112—313 **1 Claim**



1. A differential feeding device for a sewing machine comprising:

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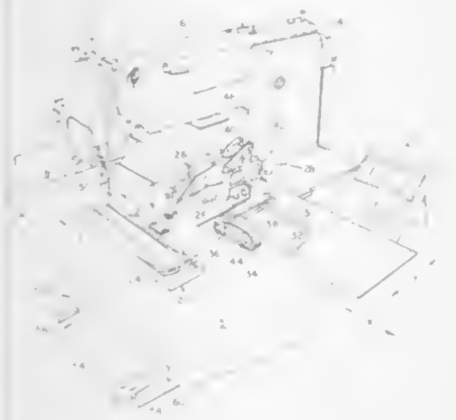
- a spindle and a shaft rotatably supported in parallel to each other,
- a first cam and a second cam fixed on said spindle,
- a first guide and a second guide rotatably engaged on said first cam and said second cam respectively and each including a square outer shape,
- a first follower including a first rectangular opening for slidably receiving said first guide and for allowing said first cam to move said first follower up and down, said first follower including a first end and a second end,
- a plate rotatably supported at a stud and including a slot,
- a first block pivotally coupled to said first end of said first follower and slidably received in said slot of said plate,
- means for rotating said plate and for adjusting an inclination of said slot,
- a second follower and a third follower each including a first end and a second end, and each including a first rectangular opening for slidably receiving said second guide and for allowing said second cam to move said second follower and said third follower up and down, said third follower including a middle portion having an oblong hole,
- two pawls secured on said first ends of said second and said third followers respectively,
- a first lever and a second lever each including a middle portion secured to said shaft, said first lever including a first end pivotally coupled to said second end of said first follower for allowing said first follower to swing said shaft and said first lever and said second lever, said second lever including a first end pivotally coupled to said second end of said second follower at a pin and including a second end, said pin being slidably engaged in said oblong hole of said third follower for allowing said third follower to be moved relative to said second follower,
- a third lever including a first end pivotally coupled to said second end of said third follower and including a middle portion having a groove, said third lever including a second end pivotally coupled to said second end of said second lever,
- a second block slidably receiving in said groove of said third lever for allowing said second lever to rotate said third lever about said second block, and
- means for moving said second block along said groove of said third lever and for adjusting relative movement between said second and said third followers.

5,738,029
METHOD AND APPARATUS FOR SEWING HANDLES ON SIDE PANELS ON A BOX SPRING

Michael R. Porter, Topsfield, Mass., and Steven Marcangelo, Derry, N.H., assignors to Porter Sewing Machines, Inc., Beverly, Mass.

Filed Mar. 21, 1996, Ser. No. 621,427
Int. Cl.^{6} D05B *21/00;3/12*
U.S. Cl. 112—470.07 **5 Claims**



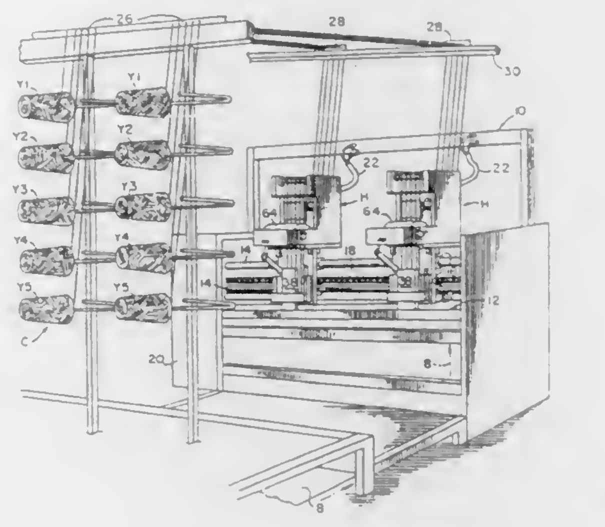
1. An X-Y programmable sewing machine for attaching cloth handles to the elongated side panel of a mattress or box spring, each cloth handle being elongated in a direction generally parallel to the direction of elongation of the side panel, each handle having a length in the direction of elongation of the handle and a width in a direction generally perpendicular to the direction of elongation of the handle, the sewing machine comprising:
- a sewing table for supporting a side panel;
- a single sewing needle;
- a rectangular clamp for holding the cloth handles in place on a side panel of a mattress or box spring disposed on said sewing table, said clamp being elongated in a direction parallel to the direction of elongation of the side panel, said clamp having two spaced side members extending generally in the direction of elongation of the side panels and two spaced transverse members extending in a direction generally transverse of the direction of elongation of the side panel, the clamp having an interior length between said two spaced transverse members generally equal to the length of the handle to be mounted and an interior width between said two spaced side members of said clamp generally equal to the width of the handle, said side and transverse members enclosing the handle within said clamp when said clamp is pressed against a side panel to assist in preventing movement of the handle with respect to said clamp and the side panel during a stitching operation;
- a lip disposed on each of said side members and on each of said transverse members of said clamp, said lip extending inwardly toward a center of said clamp to overlie said sewing table and being spaced from said sewing table a distance at least equal to a thickness of the handle when said clamp is pressed against said sewing table;
- means for changing a position of said clamp and said sewing needle with respect to one another in two orthogonal directions in a single plane which is generally perpendicular to a direction of movement of said sewing needle; and
- a controller for controlling movement of said clamp and said sewing needle with respect to one another, said controller being programmed to form a first stitch to stitch one end of the handle to a side panel at one end of the clamp, and to thereafter automatically change a position of the clamp and the needle with respect to one another in the direction of elongation of the clamp so that the needle is positioned adjacent to a second end of the clamp spaced from said one end of the clamp to form a second stitch to stitch another end of the handle to the side panel at the second end of the clamp, the first stitch being spaced sufficiently far from the second stitch to permit manual grasping of the handle therebetween.

5,738,030
PATTERN METHOD FOR MULTICOLOR DESIGNS

Thol Ok, Chattanooga, Tenn., assignor to General Design, Inc. Rossville, Ga.

Filed Mar. 11, 1996, Ser. No. 614,295
Int. Cl.^{6} D05C *15/26;15/30*
U.S. Cl. 112—475.23 **18 Claims**

1. In a machine for placing a plurality of colors of threads into a backing web to form a desired pattern having (a) a plurality of thread placement tools for placing a selected thread color from a plurality of thread color supply sources into the backing web; (b) a control means responsive to an instruction set for carrying out sequential operations to produce a desired pattern; (c) means for accurately relatively positioning the thread placement tools relative to the backing web in response to commands from said control means and (d) means for selective placement of said thread colors into said backing web in response to commands from said control means, a method for placing said thread colors into said backing web to form said desired pattern comprising the steps of:
- supplying at least two thread colors to a first thread placement tool and supplying at least one color different from the colors supplied to the first thread placement tool to a second thread placement tool, each of said first and second placement tools being positionable relative to an overlapping region of said backing web and being supplied fewer than the total number of colors to be used within the overlapping region of the backing web,

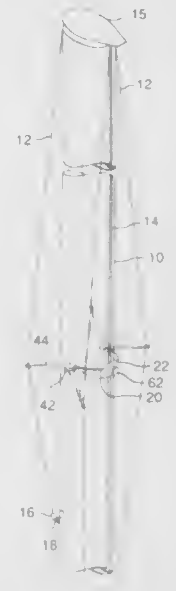


- relatively positioning said first tool at a selected location with respect to said backing web and within said overlapping region in response to commands from said control means;
- placing said selected one or more thread colors into said backing web at said selected location in response to commands from said control means;
- relatively positioning said second tool with respect to said backing web over a selected location on said backing web within the overlapping region which requires a thread color available from said second tool but not said first tool; and placing selected one or more of the thread colors supplied to said second thread placement tool into said backing web at said selected location in said overlapping region in response to commands from said control means.

5,738,031
HALYARD RETAINER

George Malina, 9 City Road, Etobicoke, Ontario, Canada, M8V 2H3

Filed Aug. 28, 1996, Ser. No. 697,669
Int. Cl.^{6} B63H *9/04*
U.S. Cl. 114—102 **16 Claims**

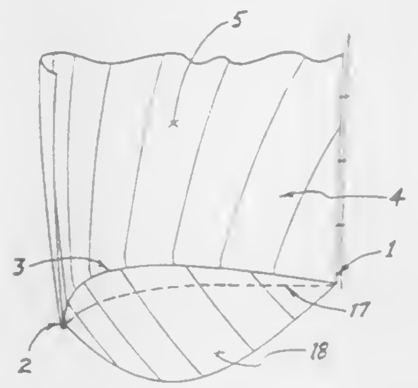


1. A halyard retaining device for securing a plurality of halyards to a mast track in a rearward side of an elongate mast, the device comprising:
- a collar having a plurality of shoulders;
- clamping means, on the collar, for releasably slidably mounting the collar at any selected position along the mast track;
- a plurality of arms each having: a base end pivotally mounted to an associated shoulder; and a distal end each having halyard detent means, the arms being independently pivotable to an extended position wherein a plurality of said halyard detent means are radially spaced about the mast at a lateral distance therefrom; and
- locking means, mounted to each of the shoulders and associated arm base ends, for releasably locking each arm in an independently selected extended position relative to the associated shoulder of the collar

5,738,032
COMPOUND SAIL FOOT CONSTRUCTION FOR IMPROVED KINETICS

Jerry E. Cox, 310 E. 74th St., New York, N.Y. 10021

Filed Aug. 22, 1996, Ser. No. 701,598
Int. Cl.^{6} B63H *9/04*
U.S. Cl. 114—103 **16 Claims**



1. A panel to couple to a sail, said sail including a tack and clew and a foot chord edge essentially positioned between the tack and clew, comprising: a first are having a first end and a second end, a second arc having a first end and a second end, said first ends of said first and second arcs meeting at a first point and said second ends of said first and second arcs meeting at a second point, a chord positioned essentially between said first and second points dividing said panel into a first region and a second region in a lengthwise direction, said length of each region being greater than its width, said first arc of said panel being attached essentially between said tack and clew substantially along said foot chord of said sail, the first point of said arcs being positioned substantially towards said tack and said second point of said arcs being substantially positioned towards said clew, said first region being essentially positioned toward said sail and said second region being essentially positioned away from said sail, said second region having a surface area and said first region having a surface area, the surface area of said second region being not greater than 65% of the surface area of the first region.

5,738,033
BUMPER AND SLING ARRANGEMENT TO ASSIST BOAT DOCKING

Kimberly M. Pryor, and Kelly E. Pryor, both of 19225 Greenwood Ridge Rd., Lebanon, Mo. 65536

Filed Mar. 18, 1997, Ser. No. 820,010
Int. Cl.^{6} B63B *59/02*
U.S. Cl. 114—219 **9 Claims**

1. A bumper and sling arrangement to assist docking a boat securely against a docking object, comprising:
- a generally tubular bumper terminating between opposite cap portions and formed from an elastic material to define a

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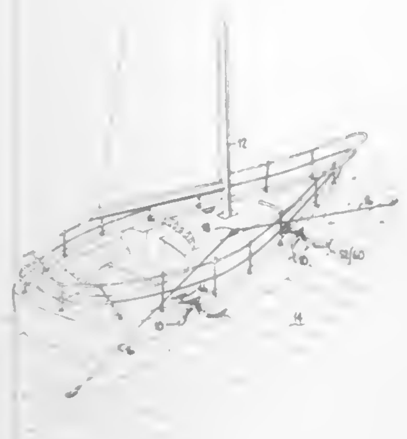


hollow and compressible body, at least one cap portion having a flange portion formed with an opening;
a sling that extends between opposite ends adapted for releasably attaching between a given mooring structure on the boat and another given mooring structure on the docking object;
unidirectional tightening means coupled to the sling between its ends and operative at least uni-directionally for tightening slackness out of the sling between its ends by a hand operation;
wherein the flange portion of the bumper is sized and arranged for the opening therein to allow sliding passage of the sling therethrough such that the bumper suspends from the sling when the sling ends are attached between the boat and the docking object and so gravitates to a position between the boat and docking object; whereby operation by a user of the unidirectional tightening means removes slackness out of the sling and pulls the boat into the docking object until the bumper is compressed therebetween to constrain and cushion relative movement between the boat and docking object.

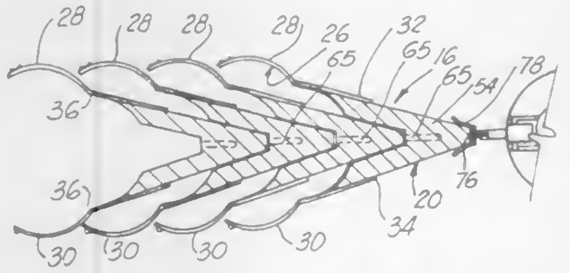
5,738,034
FAIRING SYSTEM FOR SUBSEA DRILLING RIGS AND METHOD FOR INSTALLATION AND REMOVAL

Christian V. Wolff, Houston, and Drew A. Weathers, Katy, both of Tex., assignors to Reading & Bates Development Co., Houston, Tex.

Filed Oct. 23, 1996, Ser. No. 735,682

Int. Cl.^{6} F15D *1/10*

U.S. Cl. 114—243 **23 Claims**



1. A streamlined marine fairing, comprising:
a) an elongated fairing section adapted for assembly around an elongated marine body;
b) the fairing section including a front portion extending along the length of the body, and a rear portion projecting from the front portion, the rear portion inducting side walls that project away from the front portion;
c) the fairing section being configured to define an opening extending along the fairing section, adapted to fit around an elongated marine body, and further including at least one door extending along the front portion movable between open and closed positions for allowing the fairing section to be installed on and removed from the marine body when the door is in its open position;
d) a closure for holding the door in the closed position;
e) the rear portion including an internal, elongated open portion shaped to receive the rear portion of another similarly-shaped fairing section when the door is in the open position for nesting a plurality of fairing sections one-in-the-other.

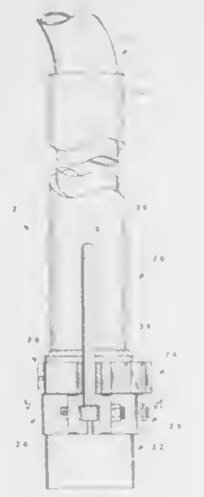
5,738,035
OUTRIGGER SYSTEMS FOR MOTORBOATS

Herbert E. Rupp, II, Port Salerno, Fla., assignor to Rupp Marine Inc., Port Salerno, Fla.

Filed Nov. 26, 1996, Ser. No. 756,611

Int. Cl.^{6} B63B *35/14*

U.S. Cl. 114—255 **5 Claims**



1. In an outrigger device installed on a T-top equipped motorboat having an outrigger pole supported by its bottom end portion above said T-top and which permits said outrigger pole to be moved by rotation of said lower end portion from a stowage position to a trolling position and vis versa by a person safely standing in said motorboat in the shelter of said T-top by manipulation of locking means,
the improvement in said locking means which comprises:
a tubular member that extends through said T-top is defined by a longitudinal axis, an upper end portion and a lower end portion joined integrally to a central portion,
a cylindrical collar axially aligned with said tubular member defined by an outside surface, an inside surface, an upper end, a lower end and an integral central portion, said collar being fixed to said lower end portion of said tubular member,
indexing means comprising a ring-like piece having an inner arcuate surface, an outer arcuate surface and at least one split portion therein,
compression means to clamp said indexing means in fixed position upon said central portion of said cylindrical collar and to release said indexing means for repositioning thereof circumferentially relative to said cylindrical collar,
said indexing means including a plurality of lugs that project laterally from said outer arcuate surface with said lugs defining a plurality of lateral opening cavities,
rotation means in the form of a ring defined by an external surface and an internal surface rotatably carried upon said central portion of said cylindrical collar,
a pair of opposed flanges that project laterally from said external surface, aligned bores in said flanges, a pin carried in said bores and a locking lever rotatably carried at one end upon said pin permitting said locking lever to be moved into a vertical position to enter said lateral opening cavities or a horizontal position clearing said cavities,

a horizontal slot extending through said cylindrical collar from said outside surface to said inside surface having a length substantially less than the circumference of said cylindrical collar,
a rotation pin having an internal end and an external end by which said pin is carried by said rotation means extending horizontally through said horizontal slot inwardly of said cylindrical collar,
an arcuate tube defined by a bottom portion axially aligned with said longitudinal axis and rotatably carried in said tubular member and a top portion extending beyond said upper end portion and at an angle relative to said longitudinal axis of said tubular member, said bottom portion containing a lateral hole through which said internal end of said rotation pin extends.

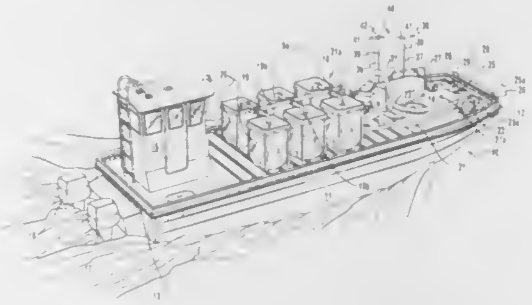
5,738,036
PLATFORM AND SUPPORTING STRUCTURES FOR A BOAT

Nathan Jones, 2436 W. 500 S., Salt Lake City, Utah 84104

Filed Apr. 30, 1997, Ser. No. 841,350

Int. Cl.^{6} B63B *35/14*

U.S. Cl. 114—255 **12 Claims**



1. A platform and system for maintaining and supporting it to a boat for use with a boom for harvesting a life form or substance found in a body of water comprising, a platform having a flat deck, upstanding sides secured to said deck, and an upstanding rear wall; at least one port formed through one of said sides or rear wall that connects to and is open into a harvesting manifold body; a harvesting manifold body that connects, respectively, to said port and is for connection to an end of a harvesting hose; a harvesting hose that is open therethrough and connects, respectively, to said harvesting manifold body and to a means for pulling a slurry passed from said harvesting manifold body for delivery into a container means; bracket means secured to extend from said platform, side, sides, or rear wall for mounting said harvesting manifold body and for vertically pivotally mounting a straight boom roller thereto; at least one guide means secured to extend from said platform rear wall and projects at a right angle outwardly from a rear wall top edge; a locking means for mounting said guide means to at least one bracket means; at least one bracket means for mounting to extend outwardly from a harvest boat and is arranged to receive and pass said guide means therein and, with said locking means, maintains positioning of said guide means to said bracket means; and winch means arranged to reel in a winch cable, with pulley systems for guiding said winch cable to alternatively assist in raising or lowering said platform, or to move a conventional boom across said straight vertical boom roller; and means for connecting, respectively, an end of said winch cable to said platform or to said conventional boom.

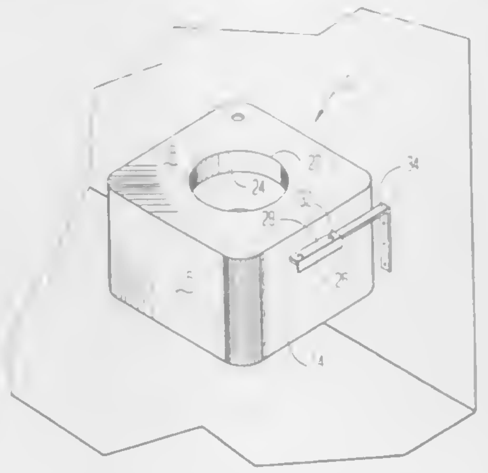
5,738,037
WATERING TROUGH FOR HORSES AND OTHER ANIMALS

Joe B. Mahan, P.O. Box 694, Bartlett, Tex. 76511

Filed Apr. 30, 1996, Ser. No. 640,041

Int. Cl.^{6} A01K *7/00*

U.S. Cl. 119—72 **4 Claims**



1. A trailer having a watering trough for use during transportation of a horse having a muzzle, said trough comprising
- a. a vessel having
  - i. a bottom,
  - ii. four sides, and
  - iii. a top, parallel to and, spaced a height distance from the bottom,
- b. a muzzle hole with a perimeter in the top having a diameter sufficient for he entry of a muzzle of a horse,
- c. a tube extending from the hole perimeter into the vessel, said tube having a tube length of as much as ¼ the hole diameter,
- d. said height distance being as much as twice the tube length,
- e. two handles, one on each side and one on another side, each of said handles having holes therethrough,
- f. said vessel mounted in said trailer, by
- g. two brackets attached to a side of the trailer, said vessel mounted on the brackets,
- h. a pin extending through one of the holes in one of the handles and through the bracket to hold the vessel in place

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5,738,038
WATER COOLER FOR PETS

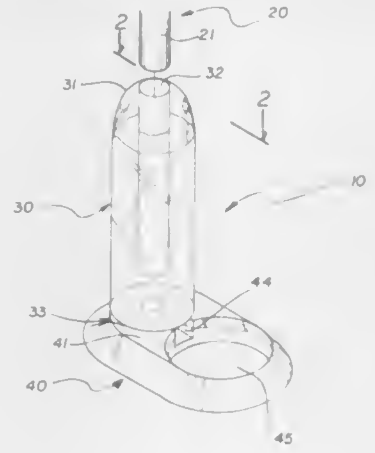
Barbara A. Barton, 3571 E. Woodhaven St., Simi, Calif. 93063

Filed Apr. 24, 1997, Ser. No. 839,956

Int. Cl.^{6} A01K *7/00*

U.S. Cl. 119—73 **9 Claims**

1. A cool water dispensing system for an animal, comprising



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a cooling member;

a bottle having a top and a bottom, said bottle including a neck portion extending downward from said bottom thereof, said neck portion having an open end,

said bottle having a cavity open to said top thereof, said cavity adapted for removably receiving and holding said cooling member; and

a base member releasably coupled to said bottle, said base member including a port adapted for receiving said neck portion of said bottle, a water basin, and a channel interconnecting said port and said water basin,

said cooling member cooling water disposed within said bottle whereby when said animal consumes water from said water basin, said water basin is replenished with cooled water from said bottle.

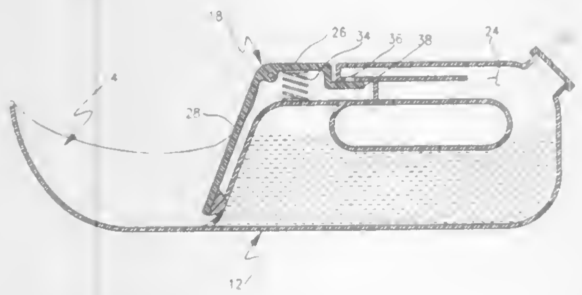
5,738,039
PORTABLE PET BOWL

Paul Berman, 1133 N. Clark St., #203, Los Angeles, Calif. 90069; Darrell Greenland, 934 Fourth St., #21, Santa Monica, Calif. 90403, and John Woods, 8033 Sunset Blvd., Suite 983, Los Angeles, Calif. 90046

Continuation-in-part of Ser. No. 499,936, Jul. 10, 1995, abandoned. This application May 3, 1996, Ser. No. 646,748

Int. Cl.^{6} A01K *7/00*

U.S. Cl. 119—77 7 Claims



1 A portable pet bowl device comprising:

a fluid reservoir for containing a volume of fluid:

an open bowl coupled to and extending from the fluid reservoir, the bowl being separated from the reservoir by a shared wall, the shared wall having a fluid aperture directed therethrough permitting communication between an interior of the reservoir and the bowl;

a valve means movably mounted relative to the fluid reservoir for selectively manually controlling fluid communication between the fluid reservoir and the open bowl through the fluid aperture in the shared wall; said valve means comprising an actuating lever pivotally mounted relative to the fluid reservoir; a fluid aperture cover plate extending from the actuating lever and including a sealing plug projecting into the fluid aperture directed through the shared wall; a spring interposed between the actuating lever and a portion of the fluid reservoir so as to bias the fluid aperture cover plate and the sealing plug towards the fluid aperture to preclude fluid communication across the shared wall.

5,738,040
VENTILATED CAT LITTER BOX

Joseph M. Simmons, 10769 Valor Pl., Santee, Calif. 92071

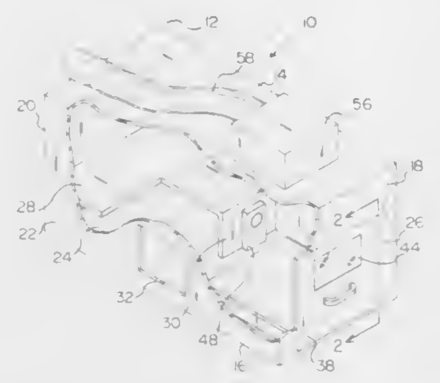
Filed Oct. 18, 1996, Ser. No. 730,905

Int. Cl.^{6} A01K *29/00*

U.S. Cl. 119—165 7 Claims

2 A ventilated cat litter box comprising:

a housing having an opening through a front wall thereof, the housing having an open doorway, the housing having an L-shaped shelf disposed therein, the L-shaped shelf having a front portion extending downwardly from a front edge thereof for securement of a deodorizer thereto;



a pull out drawer slidably disposed within the opening in the front wall of the housing; and

an exhaust fan secured within a top wall of the housing, the exhaust fan directing air outwardly of the housing, the exhaust fan having a hose extending outwardly therefrom.

5,738,041

Patent Not Issued For This Number

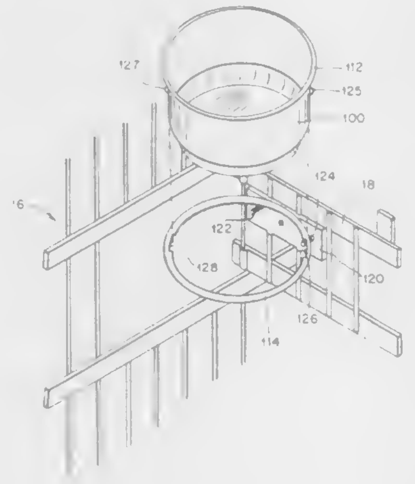
5,738,042
REMOVABLE BIRD CAGE BOWL WITH A LOCKING MOUNT

Richard King, 105 West La., Sayville, N.Y. 11782

Filed Feb. 26, 1996, Ser. No. 606,572

Int. Cl.^{6} A01K *39/01;39/02;39/04*

U.S. Cl. 119—464 3 Claims



1. A readily removable bird feeding bowl for use with a supporting ring into which said bird feeding bowl may be placed and from which said bird feeding bowl may be removed, said bird feeding bowl comprising:

a bowl comprising a closed bottom, an open top, and an upper supporting lid for engaging an upper surface of the supporting ring; and

a generally radially extending helical ridge in the form of a screw thread spaced below said lip for engaging a lower surface of said supporting ring, said helical ridge dimensioned to engage the supporting ring and make a screw-like connection when said bowl is rotated, whereby said bowl is restrained from being readily lifted out of the supporting ring.

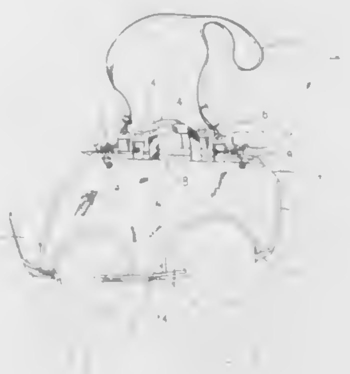
5,738,043
SMALL ANIMAL CARRIER

Kathy Manuel, 1349 Emerald Dr., Crystal Beach, Tex. 77650

Filed Dec. 14, 1995, Ser. No. 572,735

Int. Cl.^{6} A01K *29/00*

U.S. Cl. 119—497 2 Claims



1 A multi-functional pet carrier capable of serving (1) as a wearable garment for a very small four-legged pet, (2) as a carrier for carrying it around, and (3) as a collarless pet leash for walking and restraining the pet said carrier comprising:

(1) a body portion made of a flexible material defining a bottom belly panel and a pair of left and right side opposite panels extending from and being unitary with opposite longitudinal edges of said belly panel, each side panel having a longitudinal edge, front and rear side edges, and a pair of longitudinally spaced cutouts for accepting the pet's front and hind legs therethrough, and

(2) releasable, longitudinally-spaced, connecting means having front and rear portions thereof on said opposite longitudinal edges of said left and right side panels; and

said garment, in use, being drawn up to said pet from below,

with its legs protruding freely through said cutouts, and

with said opposite longitudinal edges being releasably joined together in opposing relation near to said pet's back, so that its neck can freely extend through a front opening formed between said joined opposite front side edges of said panels, and its tail can freely extend through a rear opening between said rear side edges of said panels, thereby allowing said garment wearing pet to run around freely and unrestricted in the movements of its neck, legs, and tail; and

an elongated multi-functional strap means having front and rear portions thereof

releasably attached to said front and rear portions of said connecting means, respectively, thereby converting said garment into said carrier for supporting and carrying said pet around in a natural position on said strap means from the shoulder of its handler, while said pet's front and hind legs remain substantially equidistant from the ground free to move externally of said garment, and

when said rear portion of said strap means is released from said rear portion of said connecting means, said carrier converts into said collarless pet leash for walking and restraining said pet with said released rear portion of said strap means.

5,738,044
MULTIPLEXED GANGABLE ANIMAL BATHING STATIONS

Glen Philip Gaylinn, 35 M Aher Dr., Norwalk, Conn. 06850

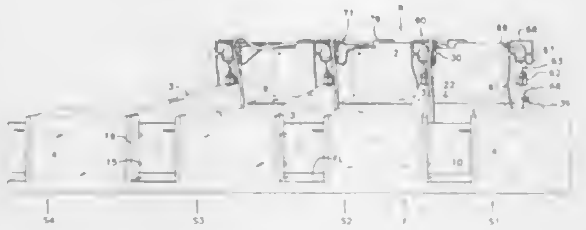
Filed Jan. 25, 1996, Ser. No. 612,659

Int. Cl.^{6} A01K *13/00*

U.S. Cl. 119—671 2 Claims

1. An animal bathing station, comprising:

a multistation structure having multiple bathing stations each sharing a common station floor with a rear end and a front end and sharing a common back splash wall affixed to and extending upwardly from said rear end of said common station floor, each of said bathing stations having courtesy walls spaced apart from each other and affixed to said common station floor and said back splash wall, said courtesy walls extending between said rear and front ends and each having an extended side wall that terminates above said common station floor at an elevation that is higher than an elevation of an adjacent remainder of said courtesy walls so as to confine splash, waste water and debris and is opaque to isolate acoustically and visually adjacent ones of said multiple bathing stations from each other;



a platform spaced above said common station floor and affixed to and extending between two of said extended side walls and separated from said common back splash wall by a gap dimensioned to allow waste water, hair and debris arising from washing the animal to fall through the gap to said common stationary floor instead of accumulating on said platform, said platform being angled rearward toward said back splash wall and downward toward said common station floor; and

drainage set in the rear end of said station floor to allow effective draining of the waste water, hair and debris that falls down through the gap onto said stationary floor, said stationary floor being angled to slope downwardly toward said drainage.

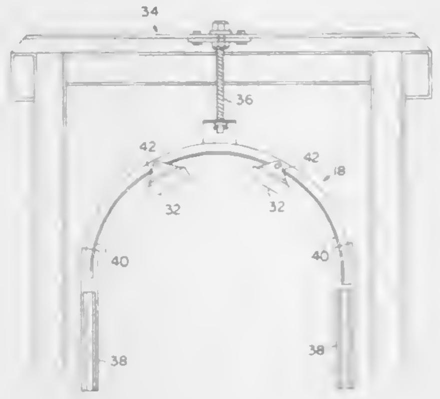
5,738,045
ANIMAL RESTRAINT DEVICE

Gary W. Bleacher, Lambertville, N.J., assignor to American Cyanamid Company, Madison, N.J.

Continuation-in-part of Ser. No. 999,492, Dec. 31, 1992, Pat. No. 5,383,425. This application Jan. 23, 1995, Ser. No. 376,351

Int. Cl.^{6} A01K *1/06*

U.S. Cl. 119—751 20 Claims



1. An animal restraint device comprising:

a housing defining a pair of stationary elements for supporting an animal restrained within said housing:

at least one restraining element bridging said supporting stationary elements; and

at least one longitudinally extending slat mounted to said at least one restraining element, said slat being adapted to engage an animal restrained within said housing.

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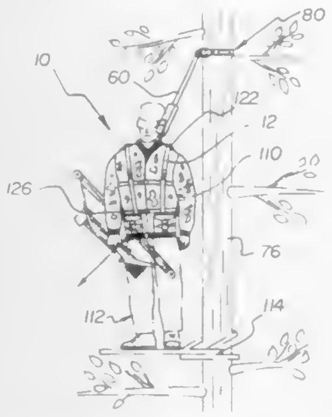
5,738,046
SAFETY JACKET AND HARNESS SYSTEM

Tommie Ann Williams, and David A. Williams, both of 4474 County Rd. 30, Clanton, Ala. 35045

Filed Jul. 22, 1996, Ser. No. 695,682

Int. Cl.⁶ A62B *35/00*

U.S. Cl. 119—770 **10 Claims**



2. A new and improved safety jacket and harness system comprising:

a body harness being formed by a pair of torso bands being fixedly attached to a pair of shoulder straps, the torso bands forming an upper torso band and a lower torso band, each torso band having a fastening member being attached to end portions thereof, the pair of shoulder straps each having a first shoulder strap portion and a second shoulder strap portion with each being coupled together by a fastening member when each shoulder strap being attached to the pair of torso bands;

a center strap being fixedly attached to the pair of torso bands and having a locking member at a top end;

a linearly extending safety strap having a first safety strap end capable of coupling with the locking member of the center strap, and a second safety strap end capable of being looped and fastened around a tree trunk;

an escape strap being attached to the safety strap; and

a jacket receiving the body harness when worn by a hunter using a tree stand with the center strap of the harness being coupled to the safety strap looped around the tree trunk.

5,738,047
EQUIDAE MANURE/URINE CATCHER

William John McNamara, Kerrie, Australia, assignor to Equinap Pty Ltd, Melbourne, Australia

PCT No. PCT/AU94/00709, § 371 Date May 20, 1996, § 102(e) Date May 20, 1996, PCT Pub. No. WO95/13695, PCT Pub. Date May 26, 1995

PCT Filed Nov. 17, 1994, Ser. No. 648,095

Claims priority, application Australia, Nov. 19, 1993, PM2530; Sep. 29, 1994, PM8463

Int. Cl.⁶ A01K *23/00*

U.S. Cl. 119—869 **7 Claims**

1. An equidae manure and urine catcher/holder system for both male (entire or gelded) and female (entire or spayed) animals, the system including:

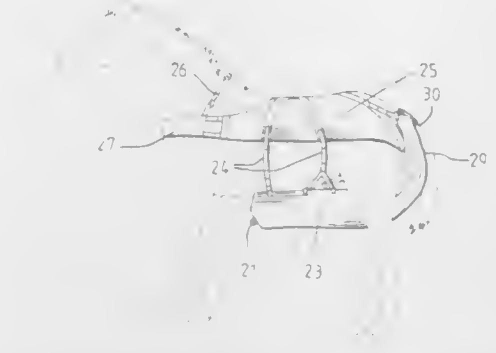
a flexible elongated pouch substantially conformable to the animal's belly and extendible forwardly from the rear to or towards the rib area, and

fastening means enabling the animal to carry said pouch,

a flexible funnel or sleeve of which a wider end portion is secured around the inside of a rear opening of said pouch, the remainder of the sleeve being extendible into the pouch under the weight of excreted matter failing into said opening to admit such matter to the pouch via a narrow inner end of said sleeve, and in the event of back pressure tending to extrude matter back through the opening, to crush and collapse under said pressure so as effectively to close said opening, and

a fluid excrement receptacle and/or container located forwardly of a urine and/or manure bag which is the or a main part of the system and positionable below the animal's tail and substantially between its rear legs, and

means for emptying the sytem without unfastening the system or any part thereof.



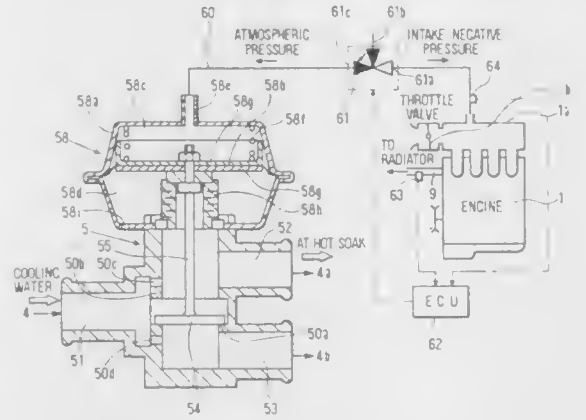
5,738,048
COOLING APPARATUS FOR COOLING AN ENGINE

Kazutaka Suzuki; Yasutoshi Yamanaka, both of Kariya; Yoshimitsu Inoue, Toynake, and Hiroyuki Fukunaga, Nishio, all of Japan, assignors to Denso Corporation, Kariya, and Nippon Soken, Inc., Nishio, both of Japan

Filed Jan. 29, 1997, Ser. No. 791,776

Int. Cl.⁶ F01P *7/14*

U.S. Cl. 123—41.1 **14 Claims**



1. A cooling apparatus for cooling a water-cooled engine using cooling water, said apparatus comprising:

a cooling water circuit connected to the engine for defining a circulation path for said cooling water to and from the engine;

a radiator connected to said cooling water circuit, for cooling the cooling water;

a water pump connected to said cooling water circuit, for circulating the cooling water in said cooling water circuit,

a thermostat connected to said cooling water circuit and having a first thermosensitive member for sensing a temperature of the cooling water and a first valve element which is movable by said thermosensitive member, for opening and closing a water passage in said cooling water circuit between said radiator and said engine; and

a cooling water passage switching valve connected to a portion of said cooling water circuit which receives said cooling water as said cooling water exits said engine, said cooling water passage switching valve being arranged so as to direct said cooling water from said engine toward said thermosensitive member of said thermostat when said cooling water passage switching valve is in a first switch position, wherein, said cooling water passage switching valve is responsive to engine operation, for placing said cooling water passage switch valve in said first switch position when said engine is in a high-load operating condition and when said cooling water is at a temperature which is at least equal to a predetermined value.

5,738,049
APPARATUS FOR DETECTING A MALFUNCTION IN A RADIATOR FAN SYSTEM

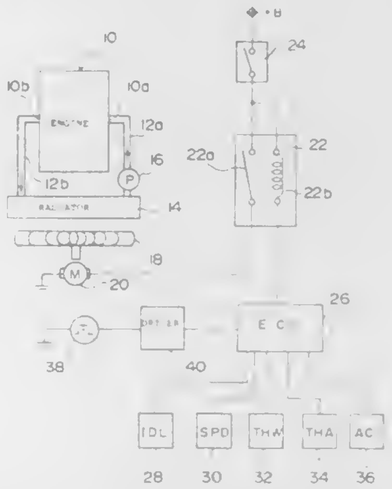
Masahito Ninomiya, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi-Ken, Japan

Filed Sep. 3, 1996, Ser. No. 697,896

Claims priority, application Japan, Sep. 11, 1995, 7-232799

Int. Cl.⁶ F01P *5/14*

U.S. Cl. 123—41.15 **15 Claims**



1. An apparatus for detecting a malfunction in a radiator fan system which controls a cooling fan in response to a temperature of cooling water circulated in an internal combustion engine, comprising:

a fan controller for generating a control signal to start rotation of the cooling fan:

a temperature sensor for sensing the temperature of the cooling water; and

a control unit for determining whether an operating condition of the engine is in a steady state, wherein the control unit, which is coupled to the temperature sensor, detects a malfunction in the radiator fan system when a change in the cooling water temperature is smaller than a reference value during a predetermined period of time during which the operating condition of the engine is in the steady state, wherein the predetermined period of time begins after the control signal is output.

5,738,050
CONTROLLED TWO-STROKE INTERNAL COMBUSTION ENGINE

Kurt König, Am kappengrund 32, 86946 Vilgertschofen-Issing, Germany

PCT No. PCT/EP94/04061, § 371 Date Oct. 23, 1996, § 102(e) Date Oct. 23, 1996, PCT Pub. No. WO95/16113, PCT Pub. Date Jun. 15, 1995

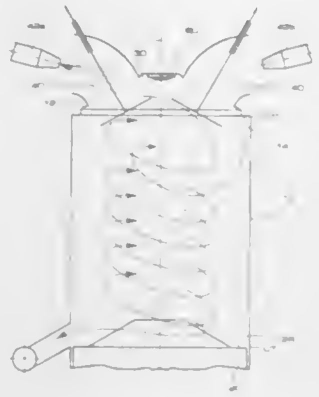
PCT Filed Dec. 6, 1994, Ser. No. 652,583

Claims priority, application Germany, Dec. 8, 1993, 43 41 885.6

Int. Cl.⁶ F02B *75/02*

U.S. Cl. 123—65 VD **20 Claims**

1. A two-stroke internal combustion engine including at least one cylinder (**10**) with a piston (**20**) reciprocating therein and first and second inlet ducts (**40**) and at least one exhaust duct (**70**), wherein the inlet ducts (**40**) are arranged in relation to the exhaust duct (**70**) in accordance with the uniflow scavenging process in such a way that the inlet ducts (**40**) open into the cylinder (**10**) in the region of the combustion chamber (**30**), wherein a regulating element (**50**) is arranged in the mouth opening region of the respective inlet ducts (**40**) and wherein each inlet duct (**40**) is provided with an injection valve (**42***a*, **42***b*), characterized in that inlet ducts (**40**) open tangentially into the cylinder **10**, that a regulating element (**80**) which is also controllable is arranged in the mouth opening region of the exhaust duct (**70**), wherein a mixture containing only little fuel passes into the combustion chamber (**30**) by means of the first injection valve (**42***a*) arranged in the first inlet duct (**40**) and a rich mixture passes into the combustion chamber (**30**) by means of the second injection valve (**42***b*) arranged in the second inlet duct (**40**).



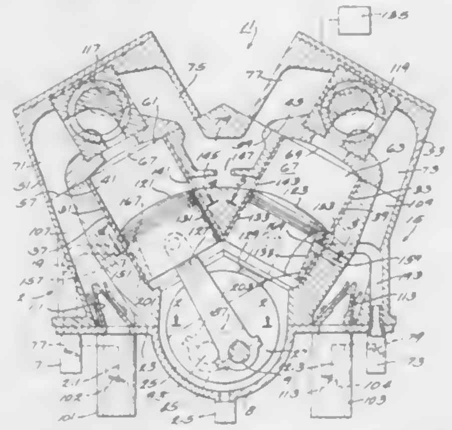
5,738,051
FOUR-CYCLE MARINE ENGINE

Gregory J. Binversie, Grayslake; George L. Broughton, Zion, both of Ill.; Paul W. Breckenfeld, Kenosha, Wis.; William D. Dunham, Waukegan; Stephen J. Towner, Libertyville, both of Ill., and James A. Nettles, Mountain Home, Ark., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Mar. 6, 1996, Ser. No. 610,553

Int. Cl.⁶ F01L *7/00*

U.S. Cl. 123—80 BA **25 Claims**



1. A four-stroke internal combustion engine comprising a common crankcase, a crankshaft extending in said crankcase, first and second cylinders respectively extending from said common crankcase in acute angular relation to each other and respectively including first and second cylinder walls respectively including first and second exhaust gas discharge ports, a passage connecting said first and second exhaust gas discharge ports, first and second pistons respectively located in said first and second cylinders and respectively connected to said crankshaft for reciprocating movement toward and away from said crankshaft and between top dead center and bottom dead center positions, first and second cylinder heads respectively connected to said first and second cylinders, respec-

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tively partially defining first and second combustion chambers, and respectively including first and second mixture inlet passages respectively communicating with said first and second combustion chambers, first and second exhaust gas outlet passages respectively communicating with said first and second combustion chambers, and first and second rotary valves respectively located in said first and second mixture inlet passages and in said first and second exhaust gas outlet passages, first and second primary carburetors adapted to form fuel/air mixtures, and first and second mixture supply passages respectively communicating with said first and second primary carburetors and with said first and second mixture inlet passages and respectively including therein first and second reed valves.

5,738,052
COMPOSITE CAMSHAFT FOR INTERNAL COMBUSTION ENGINE

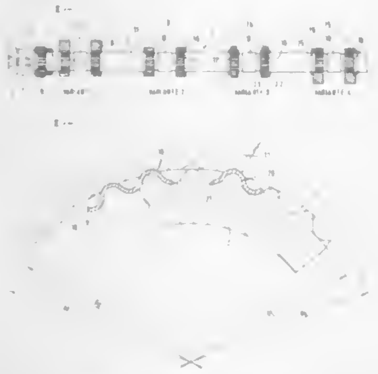
Josef Meurer, Troisdorf, Germany; Edmund Lenerz, Hatfield Peverel, England; Hans-Walter Metz, Pulheim, and Gottfried Weber, Cologne, both of Germany, assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jun. 3, 1996, Ser. No. 659,468

Claims priority, application Germany, Jun. 2, 1995, 195 20 306.2

Int. Cl.^{6} F01L *1/04*

U.S. Cl. 123—90.6 **6 Claims**



1. A composite camshaft for combustion engines, comprising:
a shaft member (**2**) having a corrugated external tooth system (**17**) formed in a plurality of cam-receiving regions;
a plurality of cam members (**12**, **13**, **14** and **15**) mounted upon the shaft member, with each cam member having a partially formed corrugated internal tooth system on an internal bore (**18**) thereof; and
a plurality of clamping sleeves (**16**), with each formed as a split sleeve (**16**) having a corrugated profile (**20**), and with each clamping sleeve interposed between and cooperating with the corresponding external and internal tooth systems (**17** and **19**) of said shaft member and a respective one of said cam members.

5,738,053
MALFUNCTION DETECTION APPARATUS FOR VALVE TIMING CONTROL DEVICE FOR ENGINE

Senji Kato, Aichi-ken, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Aug. 21, 1996, Ser. No. 700,889

Claims priority, application Japan, Aug. 25, 1995, 7-217697

Int. Cl.^{6} F01L *1/34*; **F02D** *13/02*

U.S. Cl. 123—90.15 **23 Claims**

1. A malfunction detection apparatus for a valve control device for an engine having an air intake passage for introducing air to a combustion chamber and an air exhaust passage for exhausting gas from the combustion chamber, said air intake passage and said air exhaust passage having an intake valve and an exhaust valve respectively, the valves being alternately opened and closed with a valve timing synchronized with the rotation of a crank shaft of the engine, and said control device having a first adjusting means for adjusting the valve timing of at least one of the intake valve and the exhaust valve, a first detecting means for detecting a running condition of the engine, wherein said running condition includes rotation speed of the crank shaft as a parameter, a computing means for computing a target value representing the valve timing based on the detected running condition, a second detecting means for detecting an actual value representing the valve timing adjusted by the first adjusting means, and a control means for controlling the first adjusting means to converge the detected actual value to the computed target value so as to obtain a valve timing according to a condition of the engine, said apparatus including:
first deciding means for deciding whether a stall has occurred in the engine based on the detected running condition;
second deciding means for deciding whether the detected actual value corresponds to a specific state indicating a possibility of a malfunction related to the control device; and
third deciding means for deciding that the malfunction related to the control device has occurred when the first deciding means decides that a stall has occurred in the engine, and the second deciding means decides that the detected actual value corresponds to a specific state indicating a possibility of a malfunction related to the control device.

5,738,054
ENGINE VALVE HAVING ADJUSTABLE LIFT

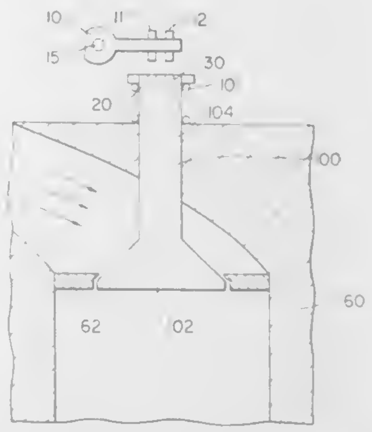
Gyu-Wan Kim, Seoul, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Dec. 20, 1996, Ser. No. 771,251

Claims priority, application Rep. of Korea, Dec. 22, 1995, 95-54834/1995

Int. Cl.^{6} F01L *1/10*

U.S. Cl. 123—90.15 **24 Claims**



1. A valve system for an internal combustion engine, comprising
a valve member having a head and a stem extending from the head, the head being capable of forming a seal with a valve seat of the internal combustion engine and the stem having at least one cylinder in an end portion thereof;
a component for contacting a portion of a rocker arm of the engine, the component being movable in the cylinder between a first position and a second position closer to the rocker arm than the first position; and
means for moving the component between the first position and the second position to change lift of the valve member.

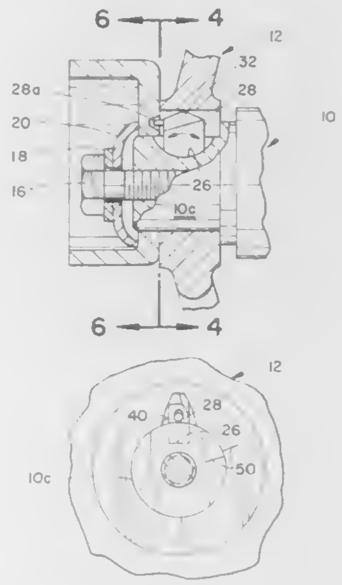
5,738,055
ADJUSTABLE CAMSHAFT TIMING DEVICE

Timothy R. Allen, Paris, Ark., assignor to Cloyes Gear and Products, Inc., Mentor, Ohio

Filed Apr. 1, 1997, Ser. No. 831,390

Int. Cl.^{6} F01L *1/34*; **F16H** *35/06; 53/04*

U.S. Cl. 123—90.17 **16 Claims**



1. Apparatus comprising:
a shaft having a longitudinal axis and mounted for rotation about said axis;
a circular drive member carried by said shaft; and,
an adjustable key assembly between said shaft and said drive member for conducting drive forces therebetween while permitting selective relative angular adjustment, said adjustable key assembly including a key member having a first end pivotally engaged with one of said shaft and said drive member and a second end slidably engaged with said other of said shaft and said drive member, said second end of said key and said other of said shaft and said drive member having cooperating inclined surfaces for producing relative angular movement between said shaft and said drive member when said key member is selectively pivoted about said first end.

5,738,056
VARIABLE VALVE TIMING MECHANISM FOR INTERNAL COMBUSTION ENGINE

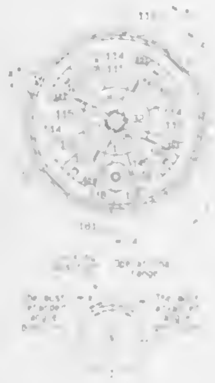
Kazuhisa Mikame, Nagoya, and Tatsuo Iida, Toyota, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi-ken, Japan

Filed Apr. 3, 1997, Ser. No. 832,264

Claims priority, application Japan, Apr. 4, 1996, 8-82619

Int. Cl.^{6} F01L *1/344*

U.S. Cl. 123—90.17 **18 Claims**



2. A variable valve timing mechanism for an internal combustion engine, the engine having at least one valve, which is driven by a driven shaft, and a drive shaft, the variable valve timing mechanism serving to vary the timing of the engine valve by varying the rotational phase of the driven shaft with respect to the drive shaft, wherein the variable valve timing mechanism includes a first rotary member for rotating in fixed synchronism with the drive shaft, a second rotary member for rotating in fixed synchronism with the driven shaft, and a hydraulic actuating mechanism for varying the position of the first rotary member with respect to the second rotary member, which changes the phase of the driven shaft with respect to the drive shaft, the hydraulic actuating mechanism comprising:
a movable actuator that is movable in two opposite directions between a valve advance limit position, at which the actuator is stopped at a position where the valve timing is advanced to a maximum degree, and a valve retard limit position, at which the actuator is stopped at a position where the valve timing is retarded to a maximum degree, wherein movement of the actuator causes the first rotary member to rotate with respect to the second rotary member thus changing the rotary phase of the drive shaft with respect to the driven shaft,
a first hydraulic chamber located on one side of the actuator,
a second hydraulic chamber located on the opposite side of the actuator;
means for selectively applying hydraulic fluid pressure to the first and second pressure chambers to cause the actuator to move in a selected direction;
a lock member for locking the first rotary member to the second rotary member at a predetermined position for fixing the phase of the driven shaft with respect to the drive shaft, wherein the lock member has a locked position, at which the first rotary member is fixed with respect to the second rotary member and the actuator is fixed with respect to the hydraulic pressure chambers, and an unlocked position, at which the actuator may move with respect to the hydraulic pressure chambers to permit relative movement between the first and second rotary members, wherein the lock member is biased such that the locking member is moved toward its locked position when the engine is not running, and wherein the actuator is spaced from both limit positions when the locking means is locked.

5. A variable valve timing mechanism for an internal combustion engine for varying a timing of a valve actuated by a driven shaft by varying a rotational phase of the driven shaft with respect to a rotational phase of a drive shaft of the engine, the mechanism comprising:

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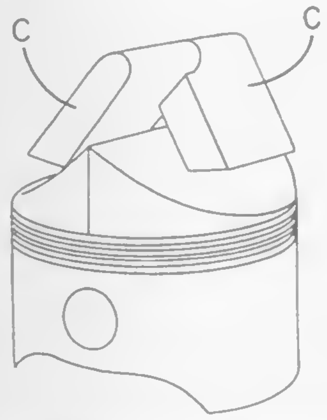
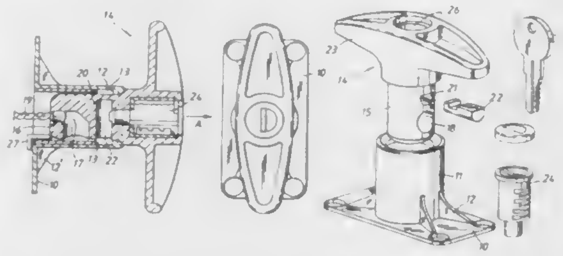
- a first rotary member for rotating in synchronism with one of the drive shaft and the driven shaft and having at least one recess therein;
- a second rotary member located within the first rotary member for rotating integrally with the other of the driven shaft and the drive shaft, the second rotary member having a vane associated with the recess, the vane being movable between two limit positions within the recess and dividing the recess into first and second pressure chambers;
- actuating means for causing relative rotation of the second rotary member with respect to the first rotary member by selectively applying pressures to the first and second pressure chambers to move the vane; and
- lock means for locking the relative rotation of the second rotary member to the first rotary member such that the vane is kept between the two limit positions when the engine starts with the phase of the second rotary member being fixed with respect to the reference rotational phase and for releasing the lock means after the engine reaches a predetermined running condition.

5,738,057
LOW PROFILE INTERNAL COMBUSTION ENGINE
Tony E. Vallejos, Spokane, Wash., assignor to Alto Automotive, Inc., Deerfield, Ill.
Filed Sep. 29, 1995, Ser. No. 536,422
Int. Cl.⁶ F02B *23/00*
U.S. Cl. 123—193.5 7 Claims



1. An internal combustion engine having a block including a piston cylinder having a longitudinal axis, and with a piston reciprocable therein, the combination comprising a cylinder head secured to the block and serving as a closure for the compression end of the cylinder, a piston crown, the crown being tapered to a zenith coincident with the longitudinal axis of the piston, an interior surface in the cylinder head that is adjacent the compression end of the cylinder, the interior surface having a shape that is complemental to the piston crown for receiving the piston crown at the top of its stroke, a thin upstanding combustion chamber disposed vertically above the compression end of the cylinder and including a throat in communication with the interior surface, the combustion chamber including two adjacent sections, each section having a longitudinal axis, such that the longitudinal axes are at an angle to each other greater than zero, and each section being spaced apart with respect to each other relative to the longitudinal axis of the piston for dividing a combusting charge into separate entities, the adjacent sections being directed toward opposing regions on the piston crown to induce a horizontal swirling of the exiting charge, a poppet valve associated with each adjacent section, each poppet valve mounted for reciprocation in a direction transverse of the longitudinal axis, a port in the face of each adjacent section, each poppet valve including a head engaging the port and a valve neck extending across the adjacent section with which the valve is associated, the valve neck being a source of induced swirl to a compressing charge in each of the sections, and to a combusting charge in each of the sections, whereby vertical swirl is induced in the respective charges when they circulate around the valve necks.

5,738,058
DEVICE FOR INHIBITING THE THEFT OF PULL-START INTERNAL COMBUSTION ENGINES
Raymond Gotto, Tyreso, Sweden, assignor to Ray Gotto, Javea, and Victor James Wyatt, Moraira, both of Spain
PCT No. PCT/SE94/00716, § 371 Date Aug. 27, 1996, § 102(e) Date Aug. 27, 1996, PCT Pub. No. WO95/14859, PCT Pub. Date Jun. 1, 1995
PCT Filed Jul. 29, 1994, Ser. No. 617,745
Claims priority, application Sweden, Nov. 24, 1993, 9303890
Int. Cl.⁶ F02P *1/00*
U.S. Cl. 123—146.5 B 6 Claims

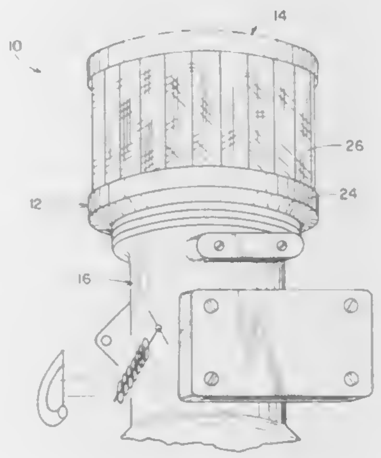


1. A device for use with internal combustion engines which are started with the aid of a pull-cord having first and second ends where the first end is wound onto and connected to a rotatable magnet on the engine and the second end is firmly attached to a handgrip, wherein a pull on the handgrip will cause the magnet to rotate and therewith generate an ignition spark in the spark plug or spark plugs, characterized by a cylindrical body (**15**) which is connected to the handgrip (**14**) and guided for movement in a tubular guide (**11**); a key-operated lock plug (**24**) mounted within the handgrip (**14**); and a locking member (**22**) which cooperates with the lock plug (**24**), wherein rotation of the lock plug (**24**) entrains the locking member (**22**) and moves said device from a first position in which the handgrip (**14**) can be pulled out to a second position in which the handgrip (**14**) is prevented from being pulled out, or vice versa.

5,738,059
QUICK DISCONNECT COUPLING
G. L. Van Dyne, II, 4501 S. Crystal Way, #D, Aurora, Colo. 80015
Continuation-in-part of Ser. No. 427,290, Apr. 21, 1995, Pat. No. 5,575,250. This application Nov. 15, 1996, Ser. No. 751,101
Int. Cl.⁶ F02M *35/10*
U.S. Cl. 123—184.46 26 Claims

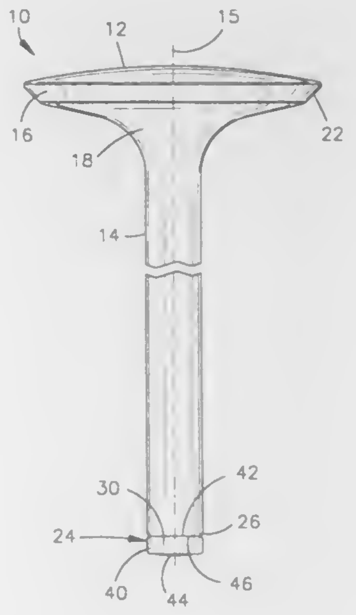
1. A quick disconnect coupling for releasably interconnecting first and second fluid flow members each having a fluid opening, said coupling comprising:

- a base member having a bottom surface, an annular attachment collar defining an inner fluid port axially through said base member and including an outer cylindrical side wall, and an annular shoulder surrounding said attachment collar;
- means for mounting said base member bottom surface to said first fluid flow member to align said fluid port with the fluid opening of said first fluid flow member;
- a connecting plate having a top and bottom surface and a central aperture defining an inner cylindrical sleeve sized for journaling about said attachment collar side wall for limited rotation thereabout, and an annular shoulder defined along said bottom surface radially outwardly of said sleeve, said connecting plate upper surface being adapted for connection to said second fluid flow member;



- spring means adapted for resilient compression when said connecting plate is journaled about said attachment collar; and
- means for releasably locking said connecting plate to said base member upon rotation of said plate about said collar.

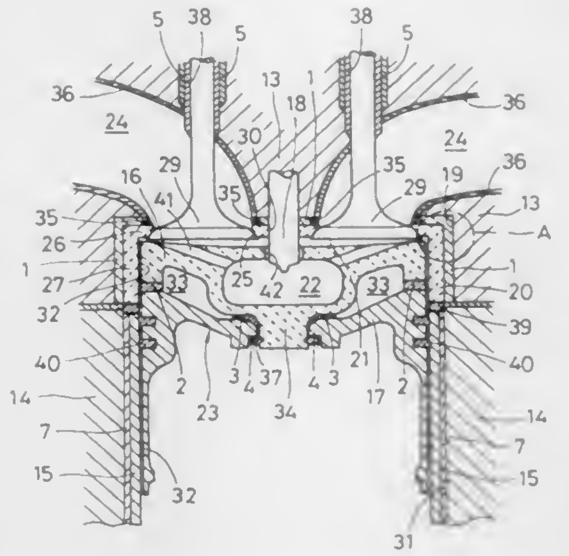
5,738,060
POPPET VALVE AND METHOD OF MAKING THE POPPET VALVE
Robert J. Colo, Painsville, and William Neumann, Lakewood, both of Ohio, assignors to TRW Inc., Lyndhurst, Ohio
Filed May 29, 1997, Ser. No. 865,201
Int. Cl.⁶ F01L *3/02*
U.S. Cl. 123—188.3 6 Claims



1. A poppet valve comprising:

- an elongated valve stem having first and second ends;
- a valve head at said first end of said stem, and
- a valve tip fixed to said second end of said stem, said tip comprising an axially compressed piece of steel wire.

5,738,061
ENGINE HAVING SOUND ABSORPTION STRUCTURES ON THE OUTER SIDES OF COMBUSTION CHAMBERS
Hideo Kawamura, Samukawa-machi, Japan, assignor to Isuzu Ceramics Research Institute Co., Ltd., Kanagawa-ken, Japan
Filed Jul. 3, 1996, Ser. No. 675,071
Claims priority, application Japan, Jul. 6, 1995, 7-192649; Jul. 6, 1995, 7-192650
Int. Cl.⁶ F02B *77/11*
U.S. Cl. 123—193.1 19 Claims



1. A sound absorption structure-carrying engine comprising a cylinder head fixed to a cylinder block, cylinder liners provided in bores in said cylinder block and forming cylinders, pistons moved reciprocatingly in said cylinders, and combustion chamber members forming combustion chambers provided in cavities in said cylinder head, said pistons comprising piston heads and piston skirts fixed to said piston heads, intermediate members being provided between said combustion chamber members and said cylinder head, and between said piston heads and said piston skirts,

- wherein said intermediate members are adapted to absorb the vibration occurring in said combustion chambers and have a sound absorption layer capable of minimizing the transmission of vibration.

5,738,062
OPERATOR CARRIED POWER TOOL HAVING A FOUR-CYCLE ENGINE
Robert G. Everts, Chandler, Ariz., assignor to Ryobi Outdoor Products, Inc., Chandler, Ariz.
Continuation of Ser. No. 651,154, May 21, 1996, abandoned, which is a continuation of Ser. No. 65,576, May 2, 1993, Pat. No. 5,558,057, and Ser. No. 801,026, Dec. 2, 1991, Pat. No. 5,241,932. This application Jul. 16, 1997, Ser. No. 895,345
Int. Cl.⁶ F02F *7/00*
U.S. Cl. 123—195 R 14 Claims

1. A hand-held power tool to be carried by an operator while in use, comprising:

- a frame, including a handle to be carried by an operator;
- an implement cooperating with the frame and having a rotary driven input member;
- a four-stroke cycle, internal-combustion engine attached to the frame, said engine having
- a crankshaft having an axial shaft with an output end adapted to be attached to the implement input member and an input end coupled to a parallel radially offset crankpin and a counterweight;

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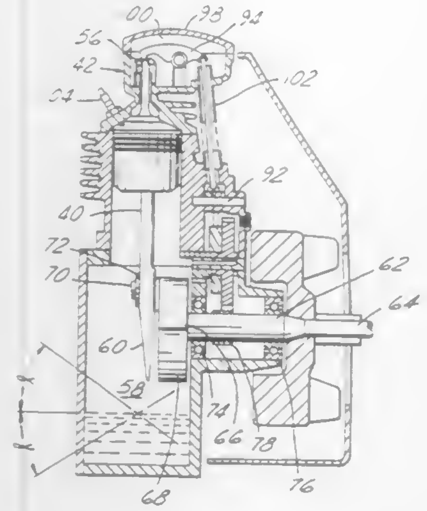


- a lightweight aluminum engine block having a cylindrical bore. an enclosed oil reservoir located in fluid communication with the cylindrical bore. and a bearing located below the cylindrical bore for rotatably supporting the crankshaft;
- a piston reciprocally cooperating within the bore:
- a connecting rod including a first end having a bearing pivotally cooperating with said piston. a second end having a bearing pivotally cooperating with said crankshaft thus forming a piston-connecting rod crankshaft assembly. a splasher driven by said piston-connecting rod-crankshaft assembly for intermittently engaging oil within the enclosed oil reservoir to create an oil mist to lubricate the engine:
- a cam rotatably supported by the engine block and driven by the crankshaft at one-half engine speed:
- a cylinder head assembly attached to the block to define a combustion chamber in cooperation with the cylinder bore and the piston having a displacement falling within the range of 20 to 40 cc. said cylinder head assembly having overhead intake and exhaust ports. and a spark plug hole extending into the combustion chamber with an intake valve. an exhaust valve and a spark plug respectively cooperating therewith.
- a valve train operatively connecting the cam to the intake and exhaust valves:
- a valve cover attached to the cylinder head to define a valve chamber therebetween at least partially enclosing the valve train: and
- a head lubrication system including a first passageway connecting the oil reservoir to the valve chamber to provide an oil mist to lubricate the valve train:
- a second passageway connecting the valve chamber to the oil reservoir and means for sequentially opening and closing said passageways to induce the circulation of oil-ladened mist between the oil reservoir and the valve chamber.

5,738,063
METHOD FOR OPERATING A FUEL INJECTION SYSTEM

Berthold Pfuhl, Markgroningen; Rainer Burkel, Asperg, and Wilhelm Eyberg, Leonberg, all of Germany, assignors to Robert Bosch, GmbH, Stuttgart, Germany

PCT No. PCT/DE96/00985, § 371 Date May 14, 1997, § 102(e) Date May 14, 1997, PCT Pub. No. WO97/10423, PCT Pub. Date Mar. 20, 1997

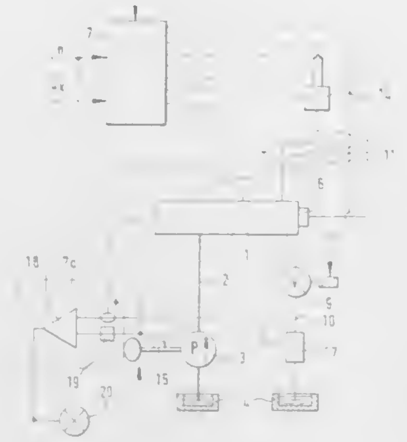
PCT Filed Jun. 5, 1997, Ser. No. 836,585

Claims priority, application Germany, Sep. 14, 1995, 195 34 051.5

Int. Cl.^{6} F02B *77/00;* **F02M** *41/00*

U.S. Cl. 123—198 D **6 Claims**

1 A fuel injection system comprising a high-pressure feed pump (3), means for driving said high pressure feed pump at a constant feed rate to force fuel under high pressure into a high-pressure



reservoir (1). said high pressure reservoir communicates fuel via a plurality of pressure lines (11), one each for fuel injection valve (14). electrically controlled valves. the inflow to the various injection valves (14) being effected through said electrically controlled valves. the high-pressure reservoir (1) moreover being relievable via a fuel return line (10) that has a pressure control valve (9) controlled as a function of the pressure in the high-pressure reservoir. a flow quantity measuring device (17) disposed in the fuel return line (10). said quantity measuring device communicates with a control unit (7. 7*a*. 18. 19). a device (19) for detecting the volume of fuel fed by the high-pressure feed pump (3) in a period of time. a device (7) for detecting the fuel quantity injected in the period of time and a comparator (18) for ascertaining a difference between the fuel quantity fed into the high-pressure reservoir and the sum of the fuel quantities detected by the flow quantity measuring device and the fuel quantity injected in the period of time and for forming a signal for display or indication or for varying the operation of the fuel injection system if a difference occurs

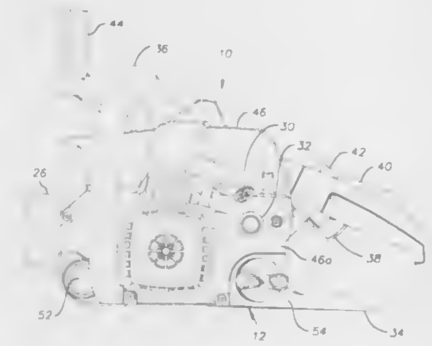
5,738,064
VIBRATION WELD CHASSIS ASSEMBLY

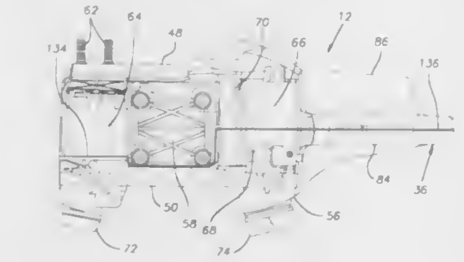
Jon E. Lowe, Charlotte, N.C., and Kevin F. Beaulieu, Shreveport, La., assignors to WCI Outdoor Products, Inc., Cleveland, Ohio

Filed Nov. 15, 1995, Ser. No. 559,447

Int. Cl.^{6} F01P *1/02*

U.S. Cl. 123—198 E **20 Claims**





1 A portable power tool comprising:

- a chassis defining an integrally molded rear handle forming a closed loop at a rear end of said chassis, a first chamber for lubricating oil generally at a front end of said chassis, a second chamber for fuel generally at a rear end of said chassis, and a recess between said first and second chambers, said chassis including right and left chassis sections which are joined together, wherein each of said chassis sections is molded of a plastic and said chassis sections are welded together only at said rear handle. said first chamber, said second chamber, and said recess;
- an internal combustion engine secured to said chassis within said recess; and
- a front handle secured to said chassis; and
- a chain saw unit secured to the front end of said chassis and operably connected to said engine.

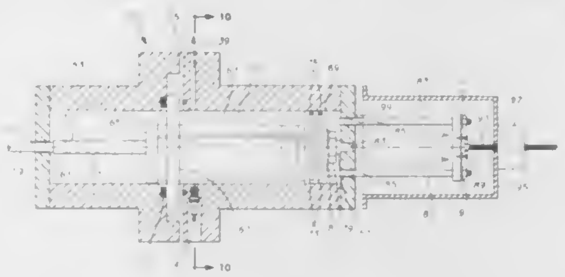
5,738,065
VARIABLE ROTARY ENGINE

Jean Linnel, 9458 Firstone Blvd., Apartment 7, Downey, Calif. 90241

Filed Aug. 30, 1996, Ser. No. 697,787

Int. Cl.^{6} F02B *53/00*

U.S. Cl. 123—242 **14 Claims**



1. A variable displacement rotary engine comprising:
- an engine housing having an internal space and an internal wall;
- a non-rotating reducing piston laterally displaceable within said internal space;
- a rotor rotatably supported by said reducing piston and said engine housing. and laterally displaceable with said reducing piston; and
- a rotor plate surrounding said rotor. said rotor slidably and sealably displaceable with respect to said rotor plate. said rotor plate rotatable within said engine housing and sealably engaged with said engine housing to define a combustion volume between said rotor plate. said rotor. said reducing piston and said internal wall of said engine housing. said displacement of said reducing piston to vary said combustion volume of said engine.

5,738,066
PISTON STRUCTURE WITH HEAT INSULATED COMBUSTION CHAMBER

Hiroshi Matsuoka, Yamato, and Takahiro Tsubonuma, Yokohama, both of Japan, assignors to Isuzu Motors Limited, Tokyo, Japan

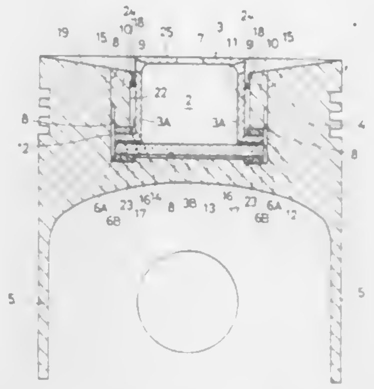
Filed Dec. 13, 1996, Ser. No. 766,669

Claims priority, application Japan, Dec. 20, 1995, 7-348571

Int. Cl.^{6} F02F *3/26;* **F02B** *23/06*

U.S. Cl. 123—254 **20 Claims**

1. A piston structure with a heat insulated combustion chamber, comprising
- a piston body provided with a cavity in a top portion thereof and formed out of a metal material,
- a combustion chamber structure provided in said cavity and formed out of a heat resisting material,
- a flange integral with said combustion chamber structure and projecting from an outer circumferential portion of a bottom wall thereof, and



- a holding member firmly fitted in said piston body and positioned on the outer side of an outer circumferential surface of said combustion chamber structure and above said flange.
- wherein said holding member is deformed plastically so that compressive residual stress is imparted in said holding member,
- whereby said holding member is able to hold elastically said flange of said combustion chamber structure, and
- said holding member being firmly pressed so that said flange is pressed by said holding member against a bottom surface of said cavity of said piston body.

5,738,067
COSMETICS CONTAINER

Josef Landwehr, Lohne, Germany, and Melvin Edwin Kamen, Highlands, N.J., assignors to Revlon Consumer Products Corporation, New York, N.Y.

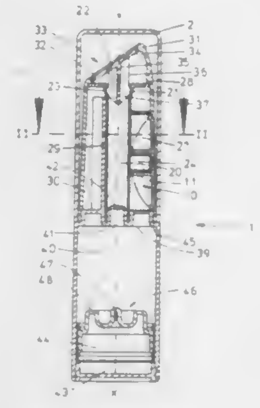
PCT No. PCT/EP95/01838, § 371 Date Feb. 21, 1997, § 102(e) Date Feb. 21, 1997, PCT Pub. No. WO95/31121, PCT Pub. Date Nov. 23, 1995

PCT Filed May 16, 1995, Ser. No. 737,453

Claims priority, application Germany, May 16, 1994, 9407891.2 U

Int. Cl.^{6} A45D *40/26*

U.S. Cl. 132—320 **15 Claims**



1. A cosmetics container comprising.
- a housing coverable with a cap. the housing configured to protectively contain a pasty to viscous preparation for application to the skin;
- a skin contact member of elastic thermoplastic material secured to said housing, the skin contact member having a flat application surface;
- an actuation element mounted in the skin contact member. said actuation element operable to cause a displacement of the preparation toward said application surface; and
- a dispenser valve operable to dispense to said application surface an amount of preparation delivered by said actuation element. the application surface disposed in a plane which is slanted relative to a longitudinal axis of the housing.

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5,738,068

METHOD AND APPARATUS FOR CONTROLLING INTERNAL COMBUSTION ENGINE FOR AUTOMOTIVE VEHICLE

Masakatsu Fujishita, Mito; Shoji Sasaki, Hitachinaka; Masaru Shibano, Hitachinaka, and Yoshihiko Akagi, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., and Hitachi Car Engineering Co., Ltd., both of Japan

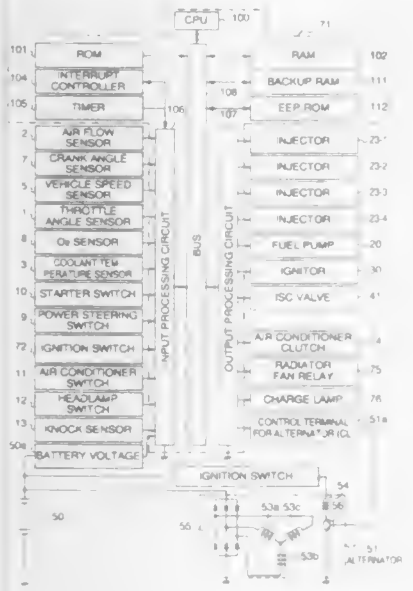
PCT No. PCT/JP96/03010, § 371 Date Jun. 20, 1997, § 102(e) Date Jun. 20, 1997, PCT Pub. No. WO97/14878, PCT Pub. Date Apr. 24, 1997

PCT Filed Oct. 17, 1996, Ser. No. 860,018

Claims priority, application Japan, Oct. 20, 1995, 7-272291

Int. Cl.^{6} F02M *3/00*

U.S. Cl. 123—339.14 **20 Claims**



1. An apparatus for controlling an internal combustion engine for a vehicle comprising:

driving condition detecting means for detecting a driving condition of said internal combustion engine and outputting a driving condition value indicative of the driving condition;

an input circuit inputting a driving condition value from the driving condition value from said driving condition detecting means, detecting said driving condition value and outputting as a driving condition detection value;

a reference power source circuit generating a reference voltage for operating said control apparatus on the basis of a battery voltage from a battery;

memory means for storing a correction data for correcting an error of the driving condition detected value detected by said input circuit caused by at least one of an error of the reference voltage from said reference power source circuit and an error of the output of said input circuit;

correcting means for correcting the driving condition detected value from said input circuit with said correction data stored in said memory means to obtain a correct driving condition detected value; and

means for controlling said internal combustion engine on the basis of the correct driving condition detected value thus obtained.

5,738,069

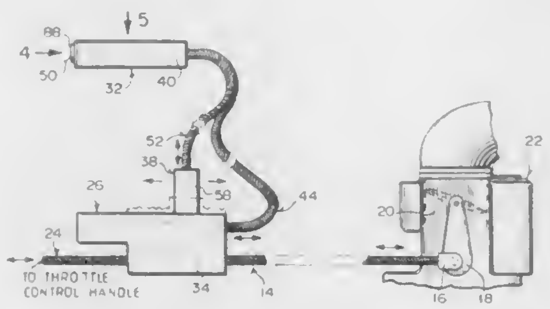
ADJUSTABLE SPEED CONTROL SYSTEM FOR A MOTOR VEHICLE

Romeo David St. Pierre, P.O. Box 115, Carmel, Me. 04419; Michael E. Lawrence, 4703 Coventry Pkwy., Ft. Wayne, Ind. 46804; Kevin C. Gatti, P.O. Box 975, Avon, Conn. 06001, and Richard B. Rodgerson, 243 North Rd., Winterport, Me. 04496

Filed Oct. 25, 1996, Ser. No. 738,298

Int. Cl.^{6} F02D *11/04*

U.S. Cl. 123—342 **16 Claims**



1. An adjustable speed control system for a motor vehicle comprising:

a) a first flexible cable having a first end connected to a throttle lever on a carburetor in an internal combustion engine of the motor vehicle;

b) a second flexible cable having a first end connected to a throttle control handle of the motor vehicle;

c) a casing mounted within the motor vehicle;

d) a cable connector carried within said casing to retain together the second ends of said first and second flexible cables;

e) a speed control assembly extending into said casing to engage with and limit the movement of said cable connector within said casing;

f) a housing having a speed adjustment assembly, and a speed engagement assembly carried therein; and

g) a third flexible cable having a first end connected to said speed control assembly within said casing and a second end connected to said speed adjustment assembly, and a fourth flexible cable having a first end connected to said speed control assembly and a second end connected to said speed engagement assembly.

5,738,070

METHOD AND APPARATUS FOR OPERATION OF A SPEED-GOVERNED LEAN BURN ENGINE TO IMPROVE LOAD RESPONSE

George E. Donaldson, and William H. Lane, both of Chillicothe, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Dec. 11, 1996, Ser. No. 766,550

Int. Cl.^{6} F02D *41/14*

U.S. Cl. 123—352 **7 Claims**

1. A speed-governed engine and a low NOx fuel system therefor comprising:

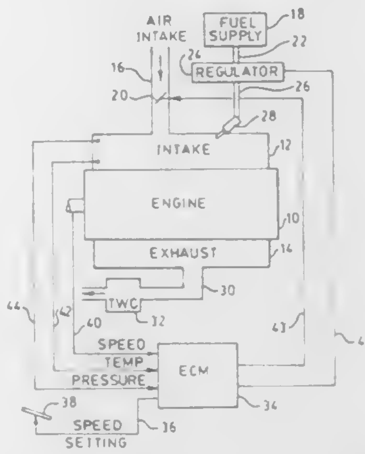
an engine having a plurality of cylinders providing a like plurality of combustion chambers;

fuel and air delivery apparatus communicating with the respective combustion chambers;

exhaust apparatus including a catalyst for minimizing NOx emissions from the engine;

an adjustable speed setting device that can be set to a desired engine speed; and

a control unit for maintaining the engine at the desired engine speed regardless of load variations, said control unit being arranged to receive a plurality of signals including signals representing the desired engine speed and actual engine speed, and to apply one or more control signals to the fuel and air delivery apparatus to adjust the ratio of air to fuel and the quantity of fuel delivered by the fuel and air delivery apparatus, said control unit being operative to regulate the ratio of air to fuel either substantially at a stoichiometric ratio in which said catalyst is effective to minimize NOx emissions or at a lean burn ratio at which NOx emissions are also minimal.



5,738,071

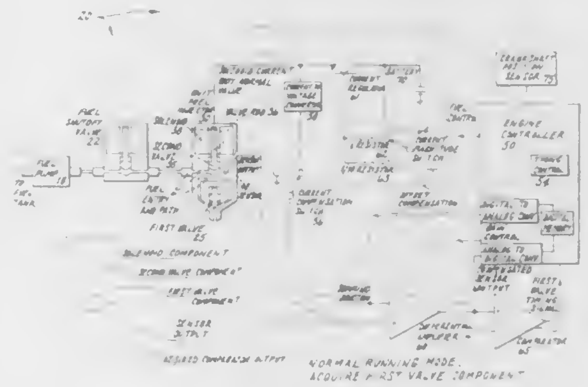
APPARATUS AND METHOD FOR SENSING MOVEMENT OF FUEL INJECTOR VALVE

Marshall E. Smith, Jr., Eaton Park; Peter U. Wolff, and Richard W. Stettler, both of Winter Haven, all of Fla., assignors to Wolff Controls Corporation, Winter Haven, Fla.

Filed Dec. 3, 1996, Ser. No. 760,104

Int. Cl.^{6} F02D *31/00;* F16K *37/00*

U.S. Cl. 123—357 **31 Claims**



1. An apparatus for sensing movement of a fuel injector valve, the apparatus comprising:

a fuel pump for pumping fuel to flow to a combustion chamber of an engine;

first valve means positioned in fluid communication with said fuel pump for allowing fuel to flow directly into the combustion chamber when in an open position;

second valve means positioned in fluid communication with said first valve means and said fuel pump for allowing fuel to flow to said first valve means when in an open position;

second valve actuating means responsive to desired fuel injection for actuating said second valve means;

sensing means positioned responsive to movement of said first and second valve means and to actuation of said second valve actuating means for sensing movement of said first and second valve means and actuation of said second valve actuating means; and

movement differentiating means responsive to said sensing means for differentiating a time of movement of only said first valve means from movement of said second valve means and actuation of said second valve actuating means.

5,738,072

DEVICE FOR ACTUATING A CONTROL MEMBER

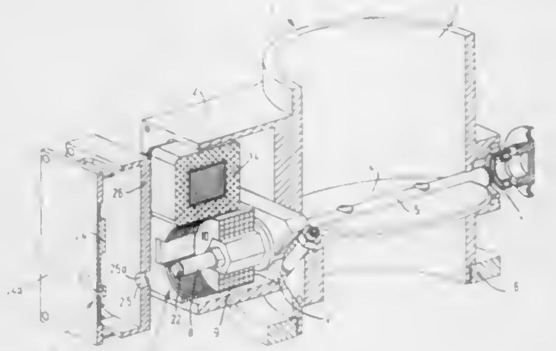
Ekkehard Bolte, Aachen; Leo Bertram, Stolberg, and Matthias Wendt, Würselen, all of German Dem. Rep., assignors to U.S. Philips Corporation, New York, N.Y.

PCT No. PCT/IB96/00104, § 371 Date Oct. 7, 1996, § 102(e) Date Oct. 7, 1996, PCT Pub. No. WO96/24761, PCT Pub. Date Aug. 15, 1996

PCT Filed Feb. 9, 1996, Ser. No. 722,129

Int. Cl.^{6} F02D *11/10;* G01B *7/30*

U.S. Cl. 123—399 **4 Claims**



1. A device for actuating a control member, particularly a throttle valve (**4**) in a gas conduit (**3**), such as for example an intake of an internal-combustion engine; which valve is pivotable into operating positions by means of a valve shaft (**5**), said valve shaft having at least one freely projecting end (**8**),

said device comprising:

a housing (**2**),

an actuator, which actuator comprises:

a rotor body, serving as an actuator body (**9**) and arranged on the valve shaft (**5**), and

an electrically energizable excitation section (**11**), which cooperates with said rotor body, and

a position sensor (**20**) for detecting angular positions of the valve shaft (**5**), which comprises a pair of angular-position elements,

one of which being an angular-position generator (**22**) and

the other of which being an angular-position detector (**23**),

one of the angular-position elements being carried on the valve shaft, and thus being rotatable,

the other of the angular-position elements being stationarily mounted on the housing (**2**) of the device,

characterized in that

the valve shaft (**5**), in the proximity of the freely projecting end (**8**), has a mechanical guide (**25**) constructed in such a manner that

the mechanical guide (**25**) is not in contact with the valve shaft (**5**) under normal operating conditions

but enters into contact and thus supports the valve shaft (**5**) under abnormal operating conditions,

which support ensures that the displacement of the shaft end remains within a tolerance range.

5,738,073

ENGINE OPERATION CONTROL SYSTEM

Takashi Koike, and Kazumasa Itoh, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Nov. 8, 1996, Ser. No. 745,125

Claims priority, application Japan, Nov. 8, 1995, 7-289789

Int. Cl.^{6} F02P *5/14*

U.S. Cl. 123—421 **11 Claims**

1. An engine operation control system for use with an engine having at least one variable volume combustion chamber and an ignition element for initiating combustion of an air/fuel mixture within said chamber, said operation control system comprising means for detecting an engine overheat condition, a means for

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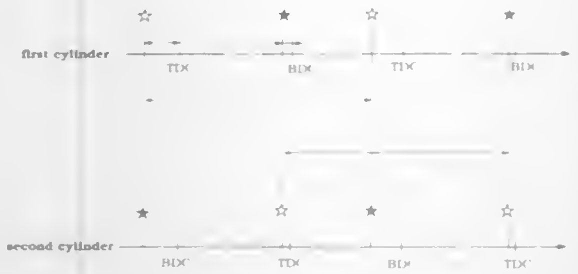


providing an adjusted firing advance in response to said means for detecting indicating an overheat condition, a means for misfiring said ignition element based upon said adjusted firing advance and means for retarding the opening of an exhaust port controlling the flow of exhaust from said chamber upon detection of an overheat condition.

5,738,074
ENGINE CONTROL SYSTEM AND METHOD

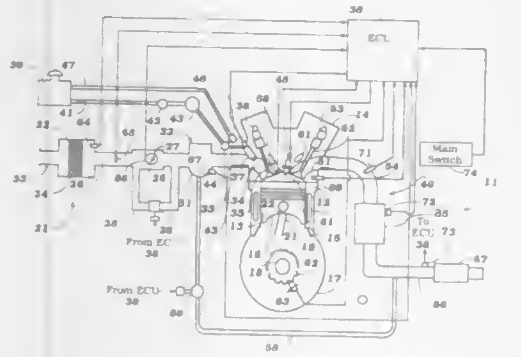
Michihisa Nakamura, and Noritaka Matsuo, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Oct. 2, 1996, Ser. No. 725,065

Claims priority, application Japan, Oct. 2, 1995, 7-254847; Oct. 10, 1995, 7-292255; Nov. 10, 1995, 7-292258; Nov. 10, 1995, 7-292259; Nov. 10, 1995, 7-292644

Int. Cl.⁶ F02P *5/14*

U.S. Cl. 123—425 **58 Claims**



1 A method for controlling an internal combustion engine having at least one variable volume chamber in which combustion occurs, an induction system for delivering an air charge to said chamber, a fuel charging system for delivering a fuel charge to said chamber for combustion therein, an exhaust system for discharging combustion products from said chamber, said method comprising the steps of sensing the rate of combustion in said chamber at at least one relative volume of said chamber, comparing the measured rate of combustion with a target value, and adjusting at least one of said systems in a direction to establish the target value of rate of combustion.

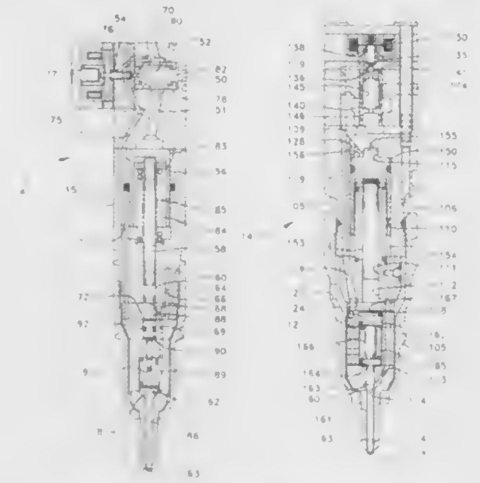
5,738,075
HYDRAULICALLY-ACTUATED FUEL INJECTOR WITH DIRECT CONTROL NEEDLE VALVE

Shikui K. Chen, Peoria, and Gregory W. Hefler, Chillicothe, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Continuation of Ser. No. 707,804, Aug. 30, 1996, Pat. No. 5,687,693, which is a continuation-in-part of Ser. No. 668,552, Jun. 21, 1996, Pat. No. 5,697,342, which is a continuation-in-part of Ser. No. 489,660, Jun. 12, 1995, Pat. No. 5,673,669, which is a continuation of Ser. No. 283,232, Jul. 29, 1994, Pat. No. 5,463,996. This application May 28, 1997, Ser. No. 864,606

Int. Cl.⁶ F02M *7/00;37/04*

U.S. Cl. 123—446 **20 Claims**



1 A hydraulically actuated fuel injector comprising:

an injector body defining an actuation fluid inlet, an actuation fluid cavity, a nozzle outlet, and a needle control chamber;

a single two-way solenoid attached to said injector body;

a first valve member mounted in said injector body and being movable by said solenoid between a first position in which said actuation fluid inlet is open to said actuation fluid cavity and a second position in which said actuation fluid inlet is closed to said actuation fluid cavity;

a needle valve member mounted in said injector body and being movable between an open position in which said nozzle outlet is open and a closed position in which said nozzle outlet is blocked, and said needle valve member having a closing hydraulic surface exposed to pressure in said needle control chamber; and

a second valve member mounted in said injector body and being movable by said solenoid between an off position in which said needle control chamber is opened to a source of high pressure fluid and an on position in which said needle control chamber is opened to a low pressure passage.

5,738,076
COMPRESSED NATURAL GAS ENGINE

Jong Woo Kim, Seoul, Rep. of Korea, assignor to Daewoo Motor Co., Ltd., Inchon, Rep. of Korea

PCT No. PCT/KR95/00128, § 371 Date Jun. 13, 1996, § 102(e) Date Jun. 13, 1996, PCT Pub. No. WO96/12102, PCT Pub. Date Apr. 25, 1996

PCT Filed Sep. 27, 1995, Ser. No. 666,422

Claims priority, application Rep. of Korea, Oct. 15, 1994, 1994/26438

Int. Cl.⁶ F02M *21/00*

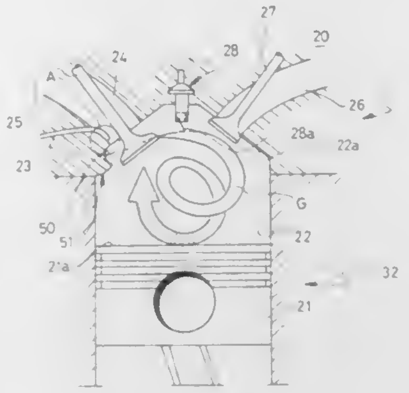
U.S. Cl. 123—527 **13 Claims**

1 A compressed natural gas engine comprising.

a cylinder head and cylinder block in which a piston reciprocates forming a combustion chamber,

said cylinder head having an intake port for receiving gas from an injector supplied to the chamber through a gas injection tube fixed to one part of the intake port, an exhaust port and a spark plug, power being obtained by the burn of the gas in the combustion chamber ignited by said spark plug;

a flow generating head mask having a concavity guiding the gas injected through the gas injection tube to the spark plug, the flow generating head mask protrudently formed at one side of the inner wall of the cylinder head



5,738,077
FUEL INJECTION SYSTEM FOR A VEHICLE

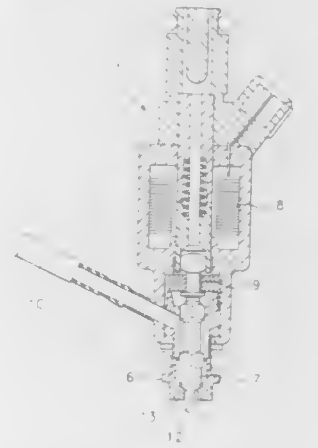
Myong-Hwan Kim, Seoul, Rep. of Korea, assignor to Kia Motors Corporation, Seoul, Rep. of Korea

Filed Jul. 16, 1996, Ser. No. 682,061

Claims priority, application Rep. of Korea, Apr. 18, 1996, 1996-11740

Int. Cl.⁶ F02B *23/00*

U.S. Cl. 123—585 **6 Claims**



1 A fuel injection system comprising:

an air intake manifold adapted to have air passing therethrough in a streamwise direction,

a fuel injector operatively connected to said manifold;

a subsidiary air tube operatively connected at one end to said manifold upstream of said connected fuel injector and at the other end to said fuel injector;

wherein said fuel injector comprises two passageways, one of which is adapted to pass fuel and the other of which is adapted to pass air;

a first valve assembly operatively associated with said fuel passageway;

a second valve assembly operatively associated with said air passageway; and

means for opening and closing each of said valve assemblies;

wherein said second valve opening and closing means is operative to open said air passageway during at least some of the time that said first valve assembly, and therefore said fuel passageway, is open;

whereby said system being adapted to preliminarily mix fuel with air from said secondary air tube, to inject said preliminary mixture into admixture with additional air from said air intake manifold to form a final air-fuel mixture, and to inject said final mixture into operative proximity to an ignition system.

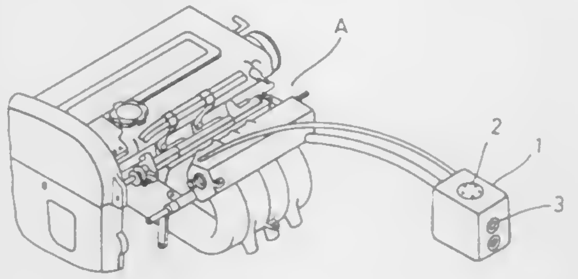
5,738,078
BURNING EFFECT BOOSTER FOR AN ENGINE

Kuei-Lan Chen, P.O. Box 90, Tainan City 704, Taiwan

Filed May 30, 1997, Ser. No. 866,409

Int. Cl.⁶ F02M *23/00*

U.S. Cl. 123—587 **5 Claims**



1 A burning effect booster for an engine comprising:

a body having a vertical passageway and a vertical chamber located on said passageway, two sidewise recessed holes provided in one vertical side, two sidewise recessed chambers provided in the other vertical side and located in line with said recessed holes, a threaded hole extending inward from a bottom of each said sidewise recessed hole and communicating with said passageway, a connect hole extending inward from a bottom of each said recessed chamber and communicating with said passageway;

a filter device located in said chamber of said body;

two elongate adjusting screws respectively having a male threaded rod, respectively disposed in each said recessed holes, having a pointed portion extending in inward from said male threaded rod;

two vacuum units respectively disposed in each said recessed chambers of said body, respectively consisting of a nozzle, a spring, a piston and a cylindrical threaded member, each said piston having a right pointed end facing said pointed portion of each said adjusting screw, each said piston further having a front hollow cylindrical portion for said spring to extend therein, said front hollow cylindrical portion having several air holes:

said booster being fixed on a proper location on a cylinder of an engine of an automobile after being assembled together, said two nozzles respectively connected with a soft tube tightly with a front end and a rear end of an intake manifold of said engine, said adjusting screws properly adjusted for controlling filtered clean air to pass through said passageway depending on air intake volume, compression rate and the number of throttles of said engine, said pistons receiving sucking force in accordance with vacuity in said intake manifold produced by said engine, said pistons then sliding back and forth in said cylindrical threaded members so as to permit proper filtered clean air flow through said nozzles in said intake manifold of said engine in due time as to supplement air needed so that gas in the engine may burn completely, subsequently boosting horsepower of said engine, and exhausted waste gas may be reduced, with air pollution being reduced accordingly to obtain effect in saving energy

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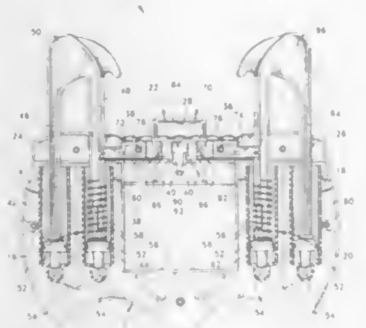
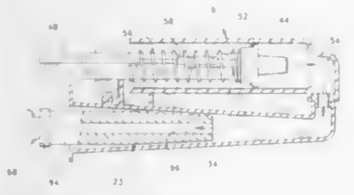
5,738,079
PROJECTILE LAUNCHER
Bryan R. Keller; Robert Louis Brown, both of Cincinnati, Ohio; Daniel G. Meiser, Butler, Ky., and Kurt Wierwille, Cincinnati, Ohio, assignors to Hasbro, Inc., Pawtucket, R.I.
Filed Jun. 29, 1995, Ser. No. 496,791
Int. Cl.^{6} F41B *11/14*
U.S. Cl. 124—66 **7 Claims**





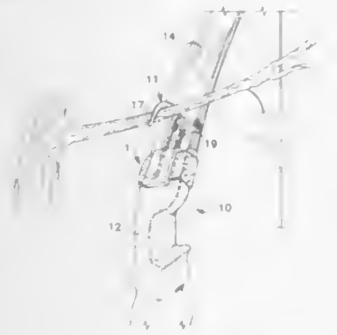
1. A toy projectile launcher comprising:

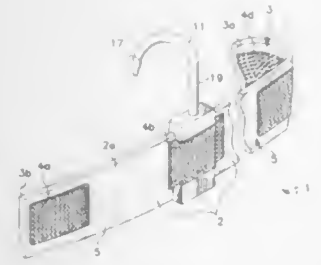
a body portion;

first, second, third and fourth launching means on said body portion for launching first, second, third and fourth projectiles therefrom; and

actuating means comprising a single trigger element which is operative for simultaneously actuating said first, second, third and fourth launching means to simultaneously launch said first, second, third and fourth projectiles from said body portion.

5,738,080
BOW HANGER FOR AN ARCHERY BOW
Philip M. Brocco, Jr., R.D. #1, Box 107B, Dawson, Pa. 15428
Filed Feb. 9, 1996, Ser. No. 598,895
Int. Cl.^{6} F41B *5/14*
U.S. Cl. 124—86 **8 Claims**





1. A bow hanger for an archery bow, said bow hanger comprising:

means for supporting an archery bow;

said supporting means having a first portion and a second portion;

said first portion of said supporting means comprising a hook;

said second portion of said supporting means comprising a flexible material;

means for releasably attaching said supporting means substantially adjacent an upper portion of an archery bow;

said means for releasably attaching being disposed on at least one of:

said flexible material of said supporting means; and

substantially adjacent an upper portion of an archery bow;

said means for releasably attaching said supporting means comprising a plurality of complementary hook and eyelet fastening strips, said hook and eyelet fastening strips being pressure sensitive with respect to one another;

said plurality of hook and eyelet fastening strips comprising at least one hook portion;

said plurality of hook and eyelet fastening strips further comprising at least one eyelet portion;

said at least one hook portion being disposed on one of: said flexible material of said supporting means, and substantially adjacent an upper portion of an archery bow;

said at least one eyelet portion being disposed on the other of. said flexible material of said supporting means, and substantially adjacent an upper portion of an archery bow;

means for fastening said at least one hook portion onto said one of: said flexible material of said supporting means, and substantially adjacent an upper portion of an archery bow;

means for fastening said at least one eyelet portion onto the other of: said flexible material of said supporting means, and substantially adjacent an upper portion of an archery bow;

said hook of said supporting means comprising a straight portion and a curved portion;

said flexible material of said supporting means comprising a flexible strap;

said flexible strap extending substantially perpendicular to said hook of said supporting means;

said flexible strap of said supporting means having a first side and a second side;

said first side of said flexible strap facing toward said curved portion of said hook of said supporting means;

said second side of said flexible strap facing away from said first side of said flexible strap;

said flexible strap comprising said at least one hook portion disposed on said second side of said flexible strap;

said at least one eyelet portion being disposed adjacent an upper portion of an archery bow;

said flexible strap comprising said means for fastening said at least one hook portion;

said means for fastening said at least one hook portion comprising at least one of:

means for glueing said at least one hook portion onto said second side of said flexible strap; and

means for stitching said at least one hook portion onto said second side of said flexible strap;

said means for fastening said at least one eyelet portion for being disposed substantially adjacent an upper portion of an archery bow;

said means for fastening said at least one eyelet portion comprising means for glueing said at least one eyelet portion substantially adjacent an upper portion of an archery bow;

said at least one hook portion comprising a plurality of hook portions;

said second side of said flexible strap having a first end and a second end;

said flexible strap having a central portion disposed substantially between said first end and said second end of said second side of said flexible strap;

said plurality of hook portions comprising a first hook portion disposed adjacent said first end of said second side of said flexible strap;

said plurality of hook portions further comprising a second hook portion disposed adjacent said central portion of said second side of said flexible strap;

said plurality of hook portions further comprising a third hook portion disposed adjacent said second end of said second side of said flexible strap;

said first side of said flexible strap having a first end and a second end;

said second end of said first side of said flexible strap comprising an additional eyelet portion;

means for fastening said additional eyelet portion onto said second end of said first side of said flexible strap;

said at least one eyelet portion of an archery bow comprising a first portion and a second portion;

said first portion of said at least one eyelet portion of an archery bow being disposed on a belly of an archery bow.

said second portion of said at least one eyelet portion of an archery bow being disposed on a back of an archery bow;

said second hook portion of said flexible strap for being disposed on, and engaged with, said first portion of said at least one eyelet portion of an archery bow;

said flexible strap for being wrapped around an archery bow;

said third hook portion of said flexible strap for being disposed on, and engaged with, said second portion of said at least one eyelet portion of an archery bow; and

said first hook portion of said flexible strap for being disposed on, and engaged with, said additional eyelet portion of said second end of said first side of said flexible strap.

5. An archery bow comprising:

a handle section having an upper end and a lower end;

said handle section defining a longitudinal axis extending substantially between said upper end and said lower end of said handle section;

an upper limb section extending from said upper end of said handle section;

a lower limb section extending from said lower end of said handle section;

said upper limb section and said lower limb section each having a free end facing away from said handle section;

a bowstring extending between said free end of said upper limb section and said free end of said lower limb section;

said bowstring being disposed rearwardly of said handle section;

means for supporting said archery bow;

said supporting means having an upper portion and a lower portion;

said upper portion of said supporting means comprising a hook;

said hook being disposed substantially parallel to said longitudinal axis;

said lower portion of said supporting means comprising a flexible material;

means for releasably attaching said supporting means substantially adjacent said upper end of said handle section of said archery bow;

said means for releasably attaching being disposed on at least one of:

said flexible material of said supporting means; and

substantially adjacent said upper end of said handle section of said archery bow;

said means for releasably attaching said supporting means comprising a plurality of hook and eyelet fastening strips, said hook and eyelet fastening strips being pressure sensitive with respect to one another;

said plurality of hook and eyelet fastening strips comprising at least one hook portion;

said plurality of hook and eyelet fastening strips further comprising at least one eyelet portion;

said at least one hook portion being disposed on one of: said flexible material of said supporting means, and substantially adjacent said upper end of said handle section of said archery bow;

said at least one eyelet portion being disposed on the other of: said flexible material of said supporting means, and substantially adjacent said upper end of said handle section of said archery bow;

means for fastening said at least one hook portion onto said one of: said flexible material of said supporting means, and substantially adjacent said upper end of said handle section of said archery bow;

means for fastening said at least one eyelet portion onto the other of: said flexible material of said supporting means, and substantially adjacent said upper end of said handle section of said archery bow;

said hook of said supporting means comprising a straight portion and a curved portion;

said flexible material of said supporting means comprising a flexible strap;

said flexible strap extending substantially perpendicular to said hook of said supporting means;

said flexible strap of said supporting means having a first side and a second side;

said first side of said flexible strap facing toward said curved portion of said hook of said supporting means;

said second side of said flexible strap facing away from said first side of said flexible strap;

said flexible strap comprising said at least one hook portion disposed on said second side of said flexible strap.

said at least one eyelet portion being disposed adjacent said upper end of said handle section of said archery bow;

said flexible strap comprising said means for fastening said at least one hook portion;

said means for fastening said at least one hook portion comprising at least one of:

means for glueing said at least one hook portion onto said second side of said flexible strap; and

means for stitching said at least one hook portion onto said second side of said flexible strap;

said means for fastening said at least one eyelet portion being disposed substantially adjacent said upper end of said handle section of said archery bow;

said means for fastening said at least one eyelet portion comprising means for glueing said at least one eyelet portion substantially adjacent said upper end of said handle section of said archery bow;

said at least one hook portion comprising a plurality of hook portions;

said second side of said flexible strap having a first end and a second end;

said flexible strap having a central portion disposed substantially between said first end and said second end of said second side of said flexible strap;

said plurality of hook portions comprising a first hook portion disposed adjacent said first end of said second side of said flexible strap;

said plurality of hook portions further comprising a second hook portion disposed adjacent said central portion of said second side of said flexible strap;

said plurality of hook portions further comprising a third hook portion disposed adjacent said second end of said second side of said flexible strap;

said first side of said flexible strap having a first end and a second end;

said second end of said first side of said flexible strap comprising an additional eyelet portion;

means for fastening said additional eyelet portion onto said second end of said first side of said flexible strap;

said at least one eyelet portion of an archery bow comprising a first portion and a second portion;

said archery bow comprising a belly portion;

said first portion of said at least one eyelet portion of said archery bow being disposed on said belly portion of said archery bow;

said archery bow comprising a back portion;

said second portion of said at least one eyelet portion of said archery bow being disposed on said back portion of said archery bow;

said second hook portion of said flexible strap for being disposed on, and engaged with, said first portion of said at least one eyelet portion of said archery bow;

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said flexible strap being wrapped around said back portion of said archery bow;

said third hook portion of said flexible strap for being disposed on, and engaged with, said second portion of said at least one eyelet portion of said archery bow, and

said first hook portion of said flexible strap being disposed on, and engaged with, said additional eyelet portion of said second end of said first side of said flexible strap.

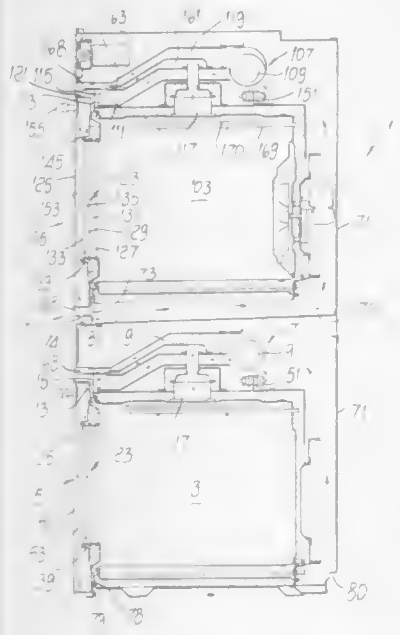
5,738,081
SELF-CLEANING DOUBLE OVEN

Orio Puricelli, Gallarate, Italy, assignor to Fulgor S.P.A., Gallarate, Italy

Filed May 31, 1996, Ser. No. 656,521

Int. Cl.⁶ A21B *1/00*

U.S. Cl. 126—21 A **11 Claims**



1. A self-cleaning double oven with improved venting system comprising a bottom oven portion, a top oven portion, a back wall and a front member, said top oven portion and said bottom oven portion being separated by an inclined screen wall, said inclined screen wall being associated with said back wall and with said front member,

said top oven portion comprising a top cooking compartment and a top venting assembly including a top fan, said bottom oven portion comprising a bottom cooking compartment and a bottom venting assembly including a bottom fan,

said front member having a partition adapted to prevent ambient air from reaching said bottom fan directly through said front member,

said bottom oven portion comprising a bottom front member having an opening adapted to allow ambient air to reach said bottom fan through lower and back sides of said bottom cooking compartment a further opening being provided at said back wall

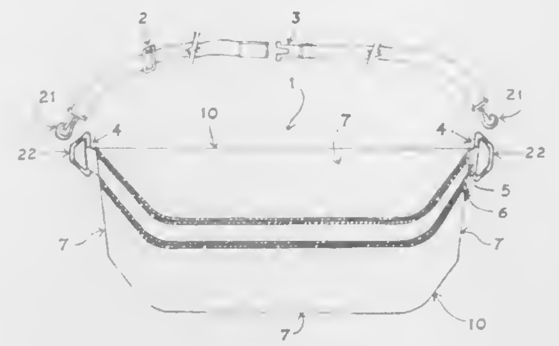
5,738,082
PORTABLE BABY WIPES WARMER AND CARRIER

Glenn A. Page, and Marie L. Page, both of 4738 Anaconda Rd., Bensalem, Pa. 19020

Filed Jul. 19, 1995, Ser. No. 503,982

Int. Cl.⁶ F24J *1/00*

U.S. Cl. 126—263.01 **13 Claims**



1. A portable baby wipes warmer and carrier comprising a container made of a soft fabric material that has at least two compartments with a common heat conducting wall between and a means for carrying the container, a portable heating unit that is stored in one of the compartments, and baby wipes that are stored in the other compartment wherein the portable heating unit is so positioned in heat conveying proximity so that heat is conveyed through the common wall of the compartments so that the baby wipes are heated and kept warm for a substantial period of time.

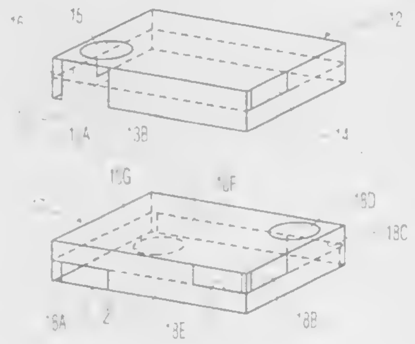
5,738,083
FLOW DEFLECTOR FOR FILTRATION HOOD

Pierluigi Pettinari, Cerreto d'Esi, Italy, assignor to Turboaire S.p.a., Fabriano, Italy

Filed Jan. 11, 1996, Ser. No. 585,193

Int. Cl.⁶ F24C *15/20*

U.S. Cl. 126—299 D **17 Claims**



1. Suction and/or filtration hood, having a flow deflection device comprising

an outer envelope having one or more inlets and one or more outlets, and

a hollow means having a plurality of apertures in communication with a chamber defined therein through which air can pass

said hollow means being mountable within said outer envelope in a plurality of positions whereat only one inlet of the envelope is in alignment with one aperture of the hollow means and only one outlet of the envelope is in alignment with another aperture of the hollow means, said envelope obstructing all apertures of said hollow means other than said one aperture and said another aperture, and said hollow means obstructing all inlets and outlets of said envelope other than said one inlet and said one outlet, whereby air can flow through said chamber only between said one inlet and said one outlet.

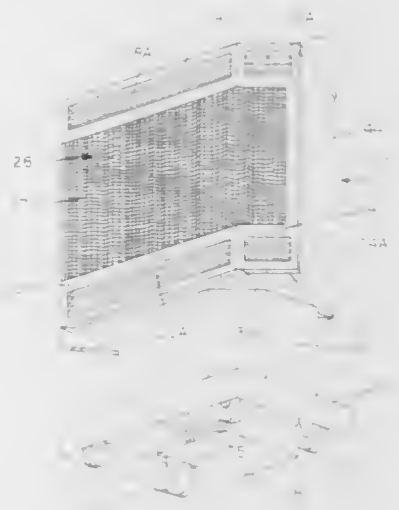
5,738,084
VENTLESS PATIO FIREPLACE

Dudley D. Hussong, Lakefield, Minn., assignor to Hussong Manufacturing Co., Inc., Lakefield, Minn.

Filed Oct. 24, 1995, Ser. No. 547,495

Int. Cl.⁶ F24C *3/00*

U.S. Cl. 126—512 **13 Claims**



1. A portable ventless fireplace comprising a fireplace housing having outer walls:

a combustion chamber defined in said fireplace housing for supporting a burner, the combustion chamber having walls spaced inwardly from the outer walls of the fireplace housing, said combustion chamber walls being heated by the burner, and a fan for circulating air through the space between the combustion chamber walls and the fireplace housing walls,

a support for said fireplace to position the fireplace housing above a supporting surface;

a source of fuel for the burner mounted on the support; and

wheels on the support for permitting movement of the fireplace housing along a supporting surface.

5,738,085
SOLAR COLLECTOR APPARATUS

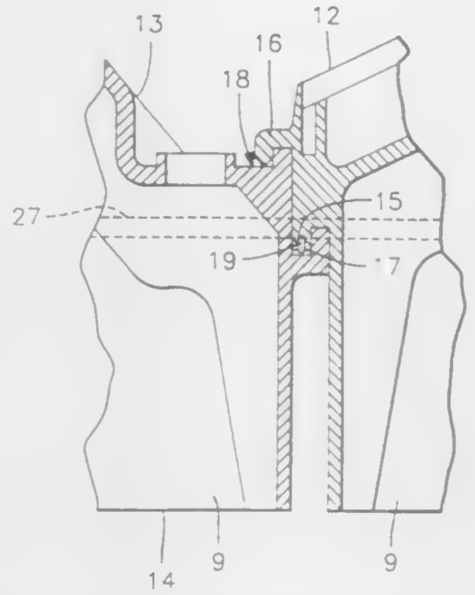
Leonhard Kirchmayer, Gabelsbergerstr. 77, 2.Rueckgebaude II, Muenchen D-80333, Germany

Continuation of Ser. No. 367,261, Jan. 3, 1995, abandoned. This application Dec. 9, 1996, Ser. No. 762,248

Claims priority, application Germany, Jul. 1, 1992, 42 21 633.8

Int. Cl.⁷ F24J *2/46*

U.S. Cl. 126—704 **12 Claims**



1. A basic structural body for each collector element of a solar collector apparatus, said basic structural body being securely mountable on a support surface regardless of inclination thereof and comprising:

at least two mutually parallel lateral sides, a first of said lateral sides having a first coupling rail member which projects transversely with respect to a body plane of said basic structural body and which serves for fixed anchoring of said basic structural body to a laterally adjacent and similar basic structural body in such a manner as to provide a sealing effect with respect to the support surface, an opposite of said lateral sides having a first coupling groove, the dimensions of which correspond to those of the first coupling rail member, which first coupling groove serves to accommodate the first coupling rail member of a laterally adjacent basic structural body, wherein,

the first of said lateral sides further includes a second coupling rail member which projects in the same direction as the first coupling rail member, and wherein the opposite of said lateral sides further includes a second coupling groove which is associated with the second coupling rail member and has dimensions corresponding to those of said second coupling rail member.

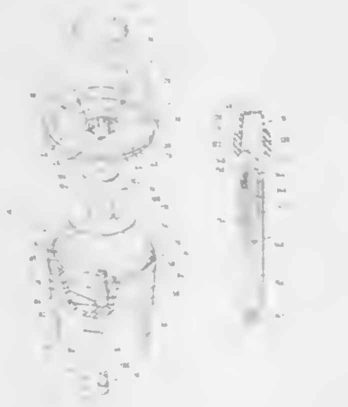
5,738,086
METHOD OF INSTALLING AN ANTI-SIPHON FLOW RESTRICTER FOR A NEBULIZER

Michael David McMahon, Anaheim Hills, and Andre Maurice Rustad, Etiwanda, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Division of Ser. No. 190,626, Feb. 2, 1994. This application May 11, 1995, Ser. No. 439,390

Int. Cl.⁷ A61M *11/00*·*15/00*; A62B *9/02*; F16K *43/00*

U.S. Cl. 128—200.21 **8 Claims**



1. A method of installing an anti-siphon flow restricter into a gas flow lumen of a nebulizer comprising the steps of

a) providing a nebulizer having a housing having an aerosol outlet and a wall defining a reservoir for a liquid, a gas jet extending through the wall, a gas inlet connected to the gas jet having a lengthwise gas flow lumen, a liquid nozzle mounted relative to the gas nozzle for nebulization of liquid sprayed from the liquid nozzle and a liquid passageway extending between the reservoir and the liquid nozzle to provide a liquid flow therebetween;

b) providing an anti-siphon flow restricter having a side wall conforming to a cross section of the gas flow lumen first and second ends at opposite ends of the side wall and a planar elastomeric diaphragm closing the first end of the side wall;

c) axially inserting the anti-siphon flow restricter with the planar diaphragm leading into the gas flow lumen; and

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d) during or after step c), slitting the planar diaphragm; and
e) allowing the planar diaphragm slit to self-bias closed.

5,738,087

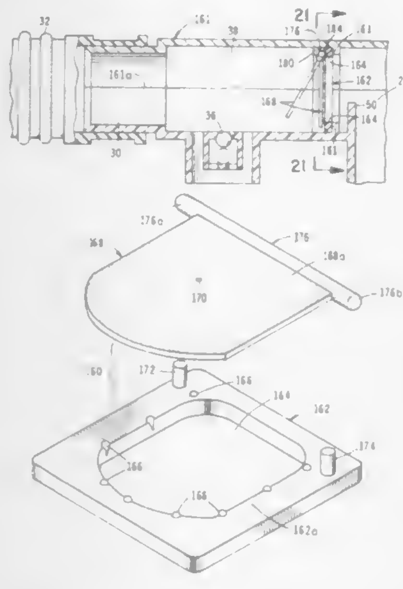
AEROSOL MEDICATION DELIVERY SYSTEM

Russell W. King, 4501 Littlejohn St., Baldwin Park, Calif. 91706

Continuation-in-part of Ser. No. 531,697, Sep. 21, 1995, Pat. No. 5,617,844. This application Dec. 13, 1996, Ser. No. 766,812

Int. Cl.⁶ A61M *11/00*

U.S. Cl. 128—200.23 18 Claims



1 A fluid delivery apparatus comprising:
(a) a housing having interconnecting first and second chambers;
(b) means connected to said housing for introducing a fluid into said first chamber of said housing; and
(c) flow control means carried by said housing for controlling passage of fluid between said first and second chambers, said flow control means comprising:
  (i) a base having an opening therethrough;
  (ii) pivot defining means connected to said base proximate said opening comprising a pair of outwardly extending pivot posts defining a pair of spaced-apart pivot points; and
  (iii) a valve member pivotally movable relative to said pivot-defining means between a first position wherein said valve member is superimposed over said opening to a second valve open position wherein said valve member is spaced apart from said opening to a second valve open position, said valve member including a pivot arm having end portions pivotally supported by said outwardly extending pivot posts.

5,738,088

BREATHING APPARATUS

Paul Townsend, Newcastle-upon-Tyne, United Kingdom, assignor to Draeger Limited, Blyth, United Kingdom

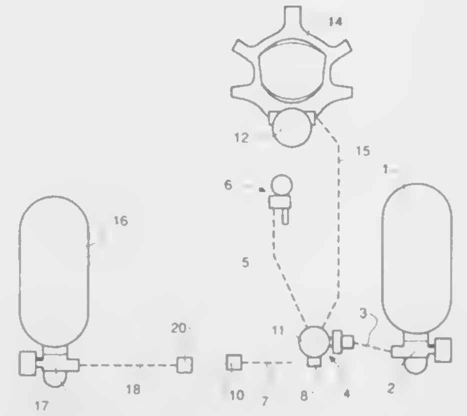
Filed Jul. 29, 1996, Ser. No. 688,664

Claims priority, application United Kingdom, Aug. 23, 1995, 9517242

Int. Cl.⁶ A62B *9/04*

U.S. Cl. 128—202.27 8 Claims

1. Breathing apparatus comprising a manifold having.
a first inlet connected to a portable breathing gas supply tank;
an outlet for the passage of breathing gas from the supply tank for inhalation by a user of the apparatus;



a second inlet provided with a connector for connecting the manifold to a source of pressurized breathing gas; and
a non-return valve responsive only to gas pressure which permits flow in the direction from the connector to the supply tank and which prevents flow in the direction from the supply tank to the connector.

5,738,089

EQUIPMENT FOR ASSISTING RESPIRATION AND SYSTEM FOR ASSISTING RESPIRATION

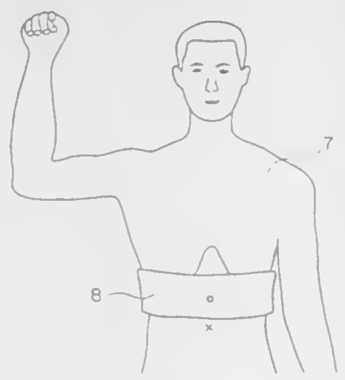
Hiroki Hoshi, Saiwai-machi; Hajime Kurosawa; Kimito Maeda, both of Sendai; Hitomi Iwasa, Osaka; Go Yurimoto, Osaka; Satoko Nanzyo, Osaka, and Katsumi Ito, Osaka, all of Japan, assignors to Hiroki Hoshi, Sendai, Japan

Filed Oct. 29, 1996, Ser. No. 739,433

Claims priority, application Japan, Nov. 6, 1995, 7-311537

Int. Cl.⁶ A61H *31/00*

U.S. Cl. 128—204.18 3 Claims



1. A system for assisting respiration, comprising:
a flat tube made of rubber, having a belt shape, and being equipped with a valve for introducing air, said flat tube having an outer side comprising a layer of a rubber sheet having a high modulus of elasticity and an inner side comprising a layer of a rubber sheet having a low modulus of elasticity, and said flat tube being attachable to a part of a lower breast to an upper abdomen portion of a patient for intermittently pressing the part of the lower breast to the upper abdomen portion of the patient responsive to air being introduced into the flat tube;
a belt which has a same width as that of the flat tube and a length longer than that of the flat tube, said belt being laminated to the flat tube at the outside of the flat tube;
a flow sensor for detecting inspiration and expiration of a patient;
a compressor for supplying compressed air to the flat tube during a period of inspiration of the patient;
a pressure regulator for regulating a pressure of the compressed air supplied to the flat tube;

a valve for increasing the pressure of the compressed air supplied to the flat tube; and
a release valve for releasing pressure in the flat tube at an early time in a period of expiration of the patient.

5,738,090

RESPIRATORY SYSTEM FOR DETERMINING AN OPENING PRESSURE OF A LONG SYSTEM AND MAINTAINING THE LUNG SYSTEM OPEN

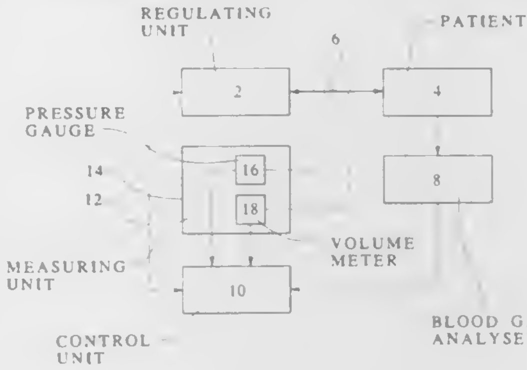
Burkhard Lachmann, Lindenstr. 47a, D261 23 Oldenburg, Germany; Govinda Rajan, Rochelle Park, N.J., and Stephan Böhm, Bergisch Gladbach, Germany, assignors to Burkhard Lachmann, Oldenburg, Germany

Filed May 22, 1996, Ser. No. 651,608

Claims priority, application Sweden, Jun. 2, 1995, 9502032

Int. Cl.⁶ A61M *16/00*

U.S. Cl. 128—204.23 7 Claims



1 A respiratory apparatus comprising:
respiratory gas regulating means for delivering at least one predetermined inspiration pulse of respiratory gas to the lung system of a subject;
blood gas analyzer means, interacting with the circulatory system of the subject, for measuring a partial pressure of oxygen in the blood of said circulatory system and for emitting a measured signal indicative of said partial pressure of oxygen; and
control means, supplied with said measured signal, for determining an opening pressure of said lung system based on said measured signal and for controlling said regulating unit for altering said at least one predetermined inspiration pulse of respiratory gas as necessary to maintain said lung system open.

5,738,091

SUCTION CATHETER CONNECTION ARRANGEMENTS WITH AUTOMATICALLY OPERATED VALVE

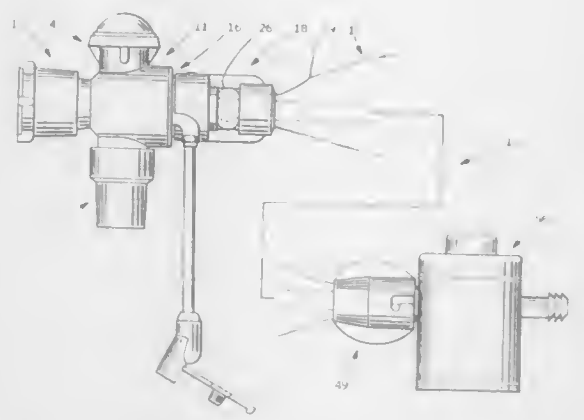
Kok-Hiong Kee; James G. Schneider; Neal G. Koller, all of St. Louis, Mo., and Robert H. Bruno, Avon, Conn., assignors to Sherwood Medical Company, St. Louis, Mo.

Continuation of Ser. No. 161,001, Dec. 3, 1993, abandoned, which is a division of Ser. No. 962,756, Oct. 19, 1992, Pat. No. 5,309,902. This application Jun. 7, 1995, Ser. No. 479,239

Int. Cl.⁶ A62B *7/10;9/04;* A61M *16/00;5/00*

U.S. Cl. 128—205.12 23 Claims

1. A suction catheter device for use with a respiratory support system including a ventilator and a suction source, said device comprising:
  a catheter having a proximal end and a distal end:
  a distal end connector slidably attached to said catheter for connecting said catheter device to a ventilator of a respiratory support system;
  a proximal end connector fixedly attached to said proximal end of said catheter for connecting said suction catheter device to a suction source; and



said proximal end connection including a normally closed valve for preventing fluid flow through said catheter when said proximal end connector is not attached to a suction source, and for allowing fluid flow through said catheter when said proximal end connector is attached to a suction source, said normally closed valve automatically being placed in an open position responsive to said proximal end connector being engaged to a suction source.

5,738,092

DEVICE FOR MONITORING PORTABLE BREATHING APPARATUS

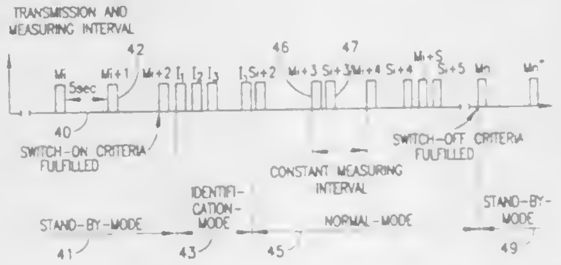
Markus Mock, Uster, and Ernst B. Voellm, Kilchberg, both of Switzerland, assignors to UWATEC AG, Switzerland

Continuation of Ser. No. 311,150, Sep. 23, 1994, abandoned, which is a division of Ser. No. 861,832, Aug. 17, 1992, Pat. No. 5,392,771. This application Sep. 26, 1996, Ser. No. 720,215

Claims priority, application Germany, Oct. 19, 1990, 40 33 292.6

Int. Cl.⁶ A62B *7/00;9/00;* H04Q *9/00*

U.S. Cl. 128—205.23 25 Claims



25. A method for monitoring a portable breathing apparatus with a gas/oxygen mixture stored in pressure containers, having a monitoring device which has a means for measuring pressure, a transmitter including a first microprocessor device having a memory and a receiver, wherein the method comprises: the first microprocessor device records the measured pressure signal and converts the measured pressure signal and other signals to be transmitted into a transmission signal, the transmitter transmits the transmission signals at predetermined timed transmission intervals, and wherein an identification signal is transmitted at each transmission interval, the receiver compares the transmitted identification signal with an identification comparison signal stored in a memory of the receiver and further processes the transmitted pressure data and, optionally further data, only if the identification signal emitted by the transmitter and the identification comparison signal stored in the receiver are identical;
  wherein at least one of the identification signals stored in the transmitter and the identification comparison signal stored in the receiver is variable, in order to match the identification signal of the transmitter and the identification comparison signal of the receiver with one another; and

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modification of the identification signal is started by switching at least one microprocessor of the transmitter and the receiver into an identification change mode, and that the respective identification signal or identification comparison signal is stored in a memory when the modification of the identification signal or the identification comparison signal is confirmed by a user.

5,738,093
FLEXIBLE HYPERBARIC CHAMBER

Giunio Guido Santi, Trieste, Italy, assignor to GSE Giunio Santi Engineering S.R.L., Trieste, Italy

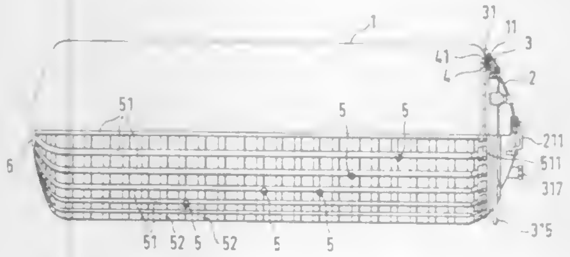
PCT No. PCT/EP96/01055, § 371 Date Nov. 12, 1996, § 102(e) Date Nov. 12, 1996, PCT Pub. No. WO96/28341, PCT Pub. Date Sep. 19, 1996

PCT Filed Mar. 13, 1996, Ser. No. 737,809

Claims priority, application Italy, Mar. 16, 1995, MI95A0516

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 128—205.26 **12 Claims**



1. A flexible hyperbaric chamber, comprising:

a flexible air tight fabric vessel equipped with one opening at one or each end

a mobile door for closing said fabric vessel;

a metallic shield provided adjacent to said opening outside said fabric vessel, said metallic shield defining a support into which the mobile door latches;

a metallic collar provided adjacent to said opening inside said fabric vessel, said metallic shield and said metallic collar cooperating to define vice means for holding fabric of said fabric vessel, said fabric of the flexible fabric vessel being inserted into said vice means;

a series of bolts with a predetermined torque for tightening said vice means, and

a flexible containment cage made by flat textile straps arranged in a discrete number of radial rings and a discrete number of longitudinal members, each intersection of radial rings and longitudinal members being fixed together to guarantee the consistency of the geometry of said cage, said flexible vessel equipped with said metallic shield and said metallic collar being inserted and contained within said cage

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5,738,094
ANESTHESIA/RESPIRATOR MASK WITH REDUCED NASAL SECTION ENCLOSURE AND INFLATABLE CUFF

Moshe Hoftman, 22205 Dardenne Ave., Calabasas, Calif. 91302

Filed Aug. 30, 1996, Ser. No. 697,861

Int. Cl.^{6} A62B *18/08; 18/02*

U.S. Cl. 128—206.26 **22 Claims**

1. A respirator or anesthesia mask comprising:

(a) a support shell with a generally dome shape;

(b) an inflatable cuff,

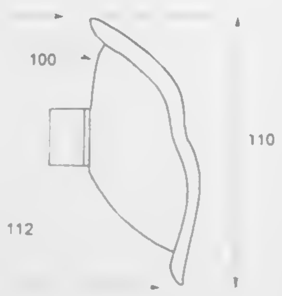
(c) cuff attachment means arranged at an outer edge of the support shell adapted to sealingly attach the inflatable cuff to the support shell and with a reduced nose bridge to lower orbicularis oris muscle distance whereby placement of the mask on a face of a person effectively situates a top edge of the cuff attachment means above a highest medial facial prominence or a most inferior external extension of the person's nasal bone and situates a bottom edge of the cuff attachment means above a lower portion of the orbicularis oris muscle;

(d) a top edge of a cuff extension means and the attached cuff are adapted to extend down the sides of the nose bridge to the maxilla in the most direct manner, thereby defining a nasal bridge section;

(e) the cuff attachment means of a nasal bridge section are adapted to be chamfered upwardly in relation to a facial surface contacted by the inflatable cuff in the nasal bridge section and outwardly in relation to the edge of the support shell;

(f) the cuff attachment means are chamfered upwardly and outwardly in a mandible section; and

(e) a chamfering of the cuff attachment means in the nasal bridge section is adapted to form a chamfering angle between the facial surface contacted by the inflatable cuff in the nasal bridge section with a chamfering direction of the cuff extension means in the range of from about 5–45 degrees.



5,738,095
TRACHEOSTOMA DEVICE

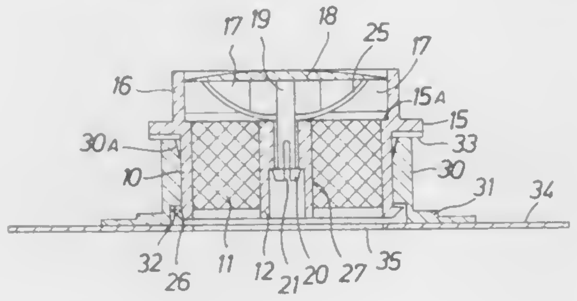
Jan-Ove Persson, Hoor, Sweden, assignor to Atos Medical AB, Horby, Sweden

Filed Jun. 24, 1996, Ser. No. 668,733

Claims priority, application Sweden, Dec. 23, 1993, 9304273

Int. Cl.^{6} A61M *16/00*

U.S. Cl. 128—207.14 **8 Claims**



1. Device to be connected to a tracheostoma, comprising a filter housing having a first opening at one end thereof to be connected to the tracheostoma, and at least one second opening at the opposite end of the filter housing; a moisture and heat exchanging filter mounted in said filter housing between said first and second openings; a valve member at said second opening of the filter housing; and means resiliently biasing said valve member to an open position, said valve member being adapted to be manually actuated against said bias for closing said second opening.

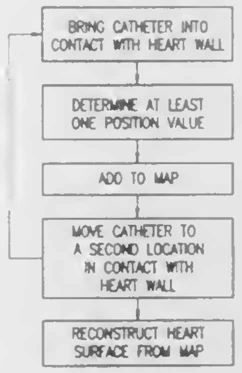
5,738,096
CARDIAC ELECTROMECHANICS

Shlomo Ben-Haim, Haifa, Israel, assignor to Biosense, Inc., Orangeburg, N.Y.

Continuation-in-part of Ser. No. 293,859, Aug. 19, 1994, abandoned, and Ser. No. 311,593, Sep. 23, 1994, Pat. No. 5,546,951, which is a division of Ser. No. 94,539, Jul. 20, 1993, Pat. No. 5,391,199. This application Feb. 1, 1996, Ser. No. 595,365

Int. Cl.^{6} A61B *5/05*

U.S. Cl. 128—653.1 **119 Claims**


BRING CATHETER INTO CONTACT WITH HEART WALL
DETERMINE AT LEAST ONE POSITION VALUE
ADD TO MAP
MOVE CATHETER TO A SECOND LOCATION IN CONTACT WITH HEART WALL
RECONSTRUCT HEART SURFACE FROM MAP

1. A method of constructing a map of the heart having a heart cycle comprising:

(a) bringing a probe into contact with a location on a wall of the heart;

(b) determining a position of the probe at the location;

(c) repeating (a) and (b) for a multiplicity of locations of the heart; and

(d) combining the determined positions of the probe to determine a structural map of at least a portion of the heart.

5,738,097
VECTOR DOPPLER SYSTEM FOR STROKE SCREENING

Kirk Beach, Seattle; Gerald J. McMorrow, Kirkland, and William L. Barnard, Seattle, all of Wash., assignors to Diagnostics Ultrasound Corporation, Redmond, Wash.

Filed Nov. 8, 1996, Ser. No. 745,271

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 128—661.09 **22 Claims**

1. An apparatus for determining velocity of blood through that portion of a sample region traversed by a blood vessel in which the blood is flowing, comprising:

means for transmitting a first ultrasound signal burst having a first carrier frequency into a plurality of voxel portions of the sample region;

means for transmitting a second ultrasound signal burst having a second carrier frequency which is orthogonal relative to the first carrier frequency into said voxel portions of the sample region;

means for receiving echo signals from blood flowing in said voxel portions for both first and second ultrasound signal bursts;

means for processing the echo signals from said first and second ultrasound bursts to obtain blood velocity component values from each of said voxel portions in said sample region; and

means for combining the velocity component values for each of said voxel portions to produce true blood velocity information for each of said voxel portions.

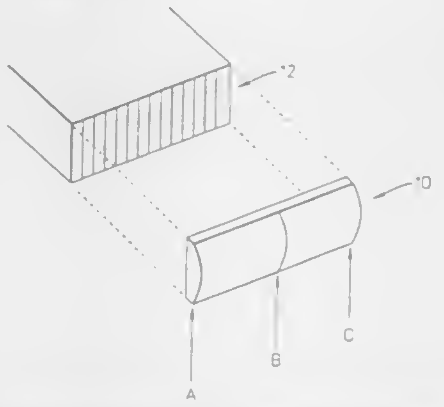
5,738,098
MULTI-FOCUS ULTRASOUND LENS

George A. Brock-Fisher, Andover, Mass., and Gregory G. Vogel, Eliot, Me., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 21, 1995, Ser. No. 505,508

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 128—662.03 **4 Claims**



1. A transducer assembly having a varying focal depth comprising:

a phased transducer array, having an acoustic face; and

a focussing element having a first end and a second end, positioned over the acoustic face, having at least two different radii of curvature, wherein each radii of curvature has a unique focal length;

wherein when a portion of the transducer array is energized, one of the unique focal lengths is selected.

5,738,099
PORTABLE ULTRASONIC DIAGNOSTIC APPARATUS

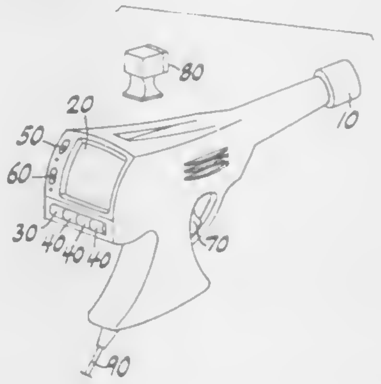
Seong Ho Chang, Seoul, Rep. of Korea, assignor to Medison Co., Ltd., Kangwon-do, Rep. of Korea

Filed Sep. 11, 1996, Ser. No. 712,295

Claims priority, application Rep. of Korea, Sep. 13, 1995, 95-29912

Int. Cl.^{6} A61B *8/00*

U.S. Cl. 128—662.03 **7 Claims**



1. A portable ultrasonic diagnostic apparatus, comprising:

a pistol-shaped housing;

a probe positioned in a muzzle of the pistol-shaped housing;

an electronic circuit installed in the housing, the circuit capable of converting a frequency signal supplied from the probe into a video signal to be displayed;

a liquid crystal display (LCD) installed in a portion of the housing opposite the probe, the display capable of displaying the video signal supplied by the electronic circuit;

a brightness control key installed in a portion of the housing to enable a user to adjust the brightness of an image displayed on the LCD;

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a contrast control key installed in a portion of the housing to enable a user to adjust the contrast of shape of the image displayed on the LCD; and

a user manipulation keypad installed in a portion of the housing to enable a user to operate or select various functions of the ultrasonic diagnostic apparatus.

5,738,100
ULTRASONIC IMAGING CATHETER

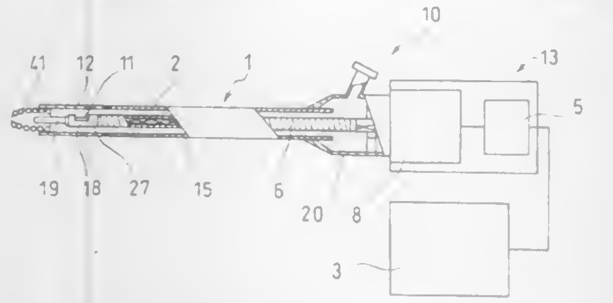
Hiroyuki Yagami; Hiroshi Katsumata, both of Nakai-machi, and Hideshi Obitsu, Fujinomiya, all of Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 27, 1996, Ser. No. 672,119

Claims priority, application Japan, Jun. 30, 1995, 7-165598; Jun. 30, 1995, 7-165619

Int. Cl.⁶ A61B *8/12*

U.S. Cl. 128—662.06 **26 Claims**



1. An ultrasonic imaging catheter comprising:

an outer sheath insertable into a body cavity, said outer sheath having a tip side and a tip portion;

a drive shaft positioned in the outer sheath for transmitting mechanical driving force from a proximal side to a tip side of the drive shaft, the drive shaft being rotatable by an outer driving source;

a housing secured to the drive shaft in which an ultrasonic wave oscillator or both the ultrasonic wave oscillator and an ultrasonic wave reflector are disposed, the housing having a tip portion and the housing being located inside the outer sheath at the tip side of the outer sheath,

a first elastic member disposed at the tip portion of the outer sheath, and

a second elastic member disposed at the tip portion of the housing, the second elastic member extending toward a tip side of the catheter and up to a position inside the first elastic member so that a tip portion of the second elastic member is located inside of the first elastic member to reinforce the first elastic member.

5,738,101
OPTICAL IMAGING THROUGH TURBID MEDIA WITH A DEGENERATE FOUR-WAVE MIXING CORRELATION TIME GATE

Andrew D. Sappey, Golden, Colo., assignor to The Regents of the University of California, Los Alamos, N. Mex.

Filed Jan. 18, 1996, Ser. No. 588,171

Int. Cl.⁶ A61B *6/00*

U.S. Cl. 128—665 **12 Claims**

1. An apparatus for imaging structure in a turbid medium, which comprises in combination:

a. means for generating first, pulsed electromagnetic radiation having a chosen wavelength and coherence time;

b. means for separating the first, pulsed electromagnetic radiation into a probe beam and a pump beam;

c. an optical cell containing a chosen material such that a portion of the first, pulsed electromagnetic radiation entering said optical cell is absorbed, while the remainder thereof may exit said optical cell;

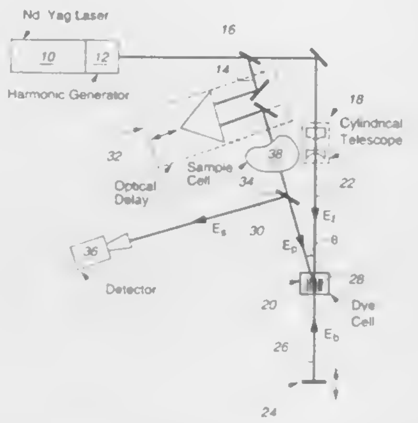
d. means for directing the pump beam into said optical cell,

e. means for directing the probe beam through the turbid medium, whereby the portion of the probe beam which exits the turbid medium and which contains ballistic and snake components, which maintain information concerning the structure, and a diffusive component which has lost such information, enters said optical cell such that the probe beam and the pump beam may interfere with one another, creating thereby a grating having sinusoidal spatial variation in refractive index at the chosen wavelength of first pulsed electromagnetic radiation in the material;

f. means for introducing an optical delay into the probe beam to compensate for path differences between the probe beam and the pump beam;

g. means for generating a second, pulsed electromagnetic radiation having a chosen wavelength and directing the second, pulsed electromagnetic radiation into said optical cell approximately collinear to, but in the opposite direction to the pump beam, whereby the second, pulsed electromagnetic radiation is scattered by the grating formed in the chosen material in said optical cell; and

h. means for detecting the scattered electromagnetic radiation, whereby an ultrafast time gate is generated in the chosen material in said cell which discriminates between the ballistic and snake components, and the diffusive component of the probe beam which exit the turbid medium.



5,738,102
PATIENT MONITORING SYSTEM

Jerome H. Lemelson, Suite 286, Unit 802 930 Tahoe Blvd., Incline Village, Nev. 89451-9436

Continuation of Ser. No. 221,045, Mar. 31, 1994, abandoned. This application Jul. 31, 1996, Ser. No. 690,028

Int. Cl.⁶ A61B *5/0205*

U.S. Cl. 128—671 **20 Claims**

1. A system for monitoring physiological variables of a patient and evaluating the patient's condition from the information contained therein comprising:

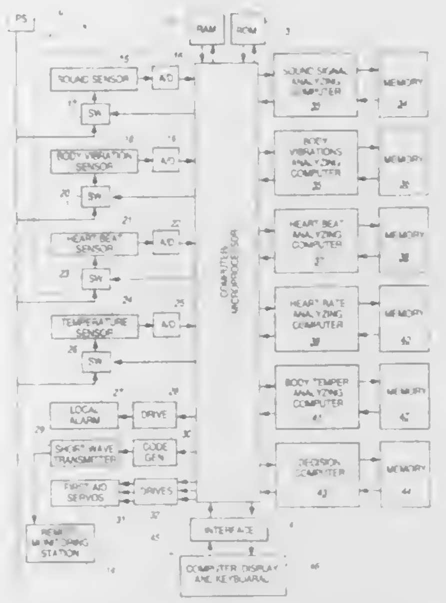
a sensor for transducing select physiological variables used to detect the onset of a select physical malady in said patient and producing analog signals in accordance therewith;

circuitry for processing said analog signals and converting same to digital signals;

a signal analysis computer in proximity with said patient, said signal analysis computer is used for analyzing said digital signals by comparing same with reference signals corresponding to the same physiological variable and said signal analysis computer is used to detect the onset of said select physical malady in said patient and producing first code signals in accordance with the comparison;

a decision computer for processing the first code signals produced by the signal analysis computer, evaluating same to determine if the onset of a physical malady will affect the patient's condition requiring medical treatment, and generating coded control signals indicative of the condition if such determination is made; and

a short wave transmitter for receiving said coded control signals and short wave transmitting said coded signals to a monitor station wherein medical personnel will be alerted as to the onset of said select physical malady by an alarm.



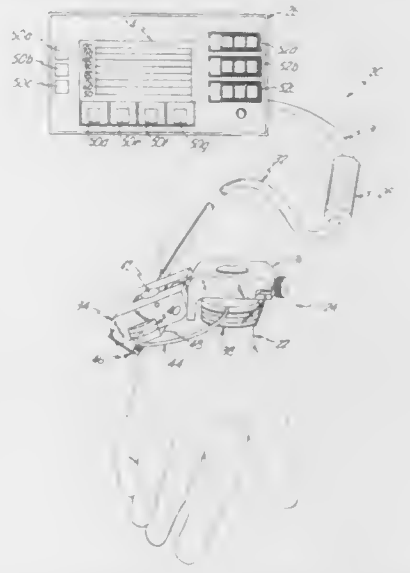
5,738,103
SEGMENTED ESTIMATION METHOD

Marius O. Poliac, St. Paul, Minn., assignor to Medwave, Inc., Arden Hills, Minn.

Filed Jul. 31, 1996, Ser. No. 690,617

Int. Cl.⁶ A61B *5/02*

U.S. Cl. 128—672 **14 Claims**



1 A method for determining blood pressure of an artery, the method comprising:

applying pressure to the artery;

sensing pressure data produced by the artery;

deriving parameters from the sensed pressure data;

generating a first blood pressure estimate from the derived parameters using a first parameter function based upon a first pressure range of possible blood pressure values;

generating at least one second blood pressure estimate from the derived parameters using at least one second parameter function based upon a second pressure range of possible blood pressure values, in which the second pressure range is different from the first pressure range; and

determining a blood pressure value based upon the first blood pressure estimate and said at least one second blood pressure estimate.

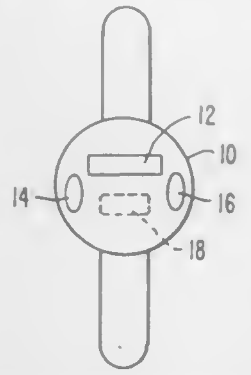
5,738,104
EKG BASED HEART RATE MONITOR

Thomas Ying-Ching Lo, Fremont, Calif., and Yuh Snow Tsai, Nashville, Tenn., assignors to Salutron, Inc., Hayward, Calif.

Filed Nov. 8, 1995, Ser. No. 554,373

Int. Cl.⁶ A61B *5/04; 5/0402; 5/0404*

U.S. Cl. 128—706 **24 Claims**



1. A heart rate monitor for sensing EKG signals and displaying a heart rate based upon the frequency of occurrence of ORS complexes in said EKG waveform, comprising:

at least two electrical contacts for making electrical contact with different areas of a user's body;

an amplifier coupled to said at least two electrical contacts for amplifying any signals picked up by said contacts and suppressing any common mode noise,

a plurality of bandpass filters coupled to receive the output of said amplifier, each bandpass filter having a passband from approximately 5 to 40 Hertz, each said bandpass filter comprising a low pass analog filter having a first order rolloff characteristic with a corner frequency between 25 and 40 Hertz, and a high pass analog filter having a second order rolloff characteristic with a corner frequency between 5 and 15 Hertz;

an amplifier coupled to receive the output of said bandpass filter(s);

an analog-to-digital converter coupled to receive the output signal of said amplifier and convert said output signal to a plurality of digital samples;

a computer coupled to receive said digital samples and programmed to process said digital samples by digitally filtering said samples to suppress frequencies below about 5-15 Hertz and to suppress frequencies of about 25–40 Hertz and above to generate filtered data, and programmed to process said filtered data so as to suppress artifacts while enhancing or at least not suppressing R peaks in QRS waveforms in EKG signals picked up by said electrical contact and encoded in said filtered data to generate enhanced data, and programmed to process said enhanced data to find R peaks therein which have a heart rate period which is within a range from about 40 to about 220 beats per minute and which is not changing by more than about 12.5% between adjacent beats, and programmed to learn the background noise characteristics of the enhanced data and the maximum amplitude and heart rate period characteristics of said R peaks so located in said enhanced data and programmed to set the level of an adaptive discrimination threshold using said learned characteristics, and, after said characteristics are learned, programmed to use said adaptive threshold to locate further candidate peaks in new incoming enhanced data which are possibly R peaks in a QRS complex and subject said candidate peaks to a plurality of validity tests to determine which candidate peaks are

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probably actual R peaks and programmed to compute an average maximum amplitude and an average head rate period and a refractory period for a plurality of R peaks that pass said validity tests, and to use the results of at least said average maximum amplitude computation to adjust the level of said adaptive discrimination threshold and said refractory period, and to continue to compute a running average maximum amplitude and a running average heart rate period and new refractory periods for each new R peak that passes said validity tests on an ongoing basis, and for outputting for display heart rate data encoding at least said head rate period, said validity tests to which candidate peaks are subjected including at least a test to determine whether the new heart rate period which is defined by a new candidate peak represents more than a predetermined change from the average head rate period previously determined;

a display coupled to receive said head rate data from said computer and to display a head rate indication encoded in said head rate data* and further comprising a wristwatch housing said heart rate monitor, said wristwatch having a face a back, and wherein said said at least two electrical contacts comprise three electrical contacts and wherein at least two of said three electrical contacts are on said face of said wristwatch and wherein at least one of said three electrical contact is on said back of said wristwatch.

5,738,105
METHOD AND APPARATUS FOR SENSING R-WAVES USING BOTH NEAR FIELD AND FAR FIELD SENSING SIMULTANEOUSLY

Mark W. Kroll, Minnetonka, Minn., assignor to Angeion Corporation, Plymouth, Minn.

Filed Oct. 24, 1995, Ser. No. 547,275

Int. Cl.^{6} A61B *5/0456*

U.S. Cl. 128—708 20 Claims

1. An R-wave sensing system for an implantable cardiac arrythmia therapy device, the system comprising:

local detection electrodes that sense a local electrical signal representing cardiac activity in a local area of a patient's heart;

global detection electrodes that sense a global electrical signal representing cardiac activity in a global area of the patient's heart;

a first filter that filters the local electrical signal so as to generate a masking pulse;

a second filter that filters the global electrical signal; and

means for combining the masking pulse with the filtered global electrical signal to produce a correlation signal representative of an R-wave sensed in the patient's heart.

5,738,106
CAPNOMETER

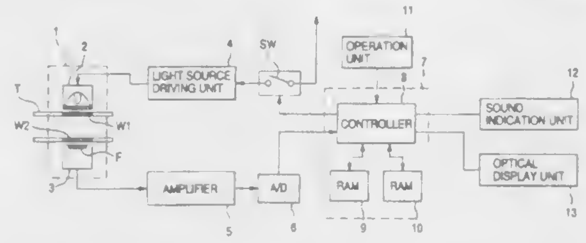
Shinji Yamamori; Kohei Ono; Masami Ito; Hiromitsu Kasuya; Masayuki Inoue, and Masaki Sugiura, all of Tokyo, Japan, assignors to Nihon Kohden Corporation, Tokyo, Japan

Filed Feb. 23, 1996, Ser. No. 605,928

Claims priority, application Japan, Feb. 23, 1995, 7-034967

Int. Cl.^{6} A61B *5/008*

U.S. Cl. 128—719 8 Claims



1. A capnometer comprising:

carbon dioxide concentration calculating means for detecting a concentration signal corresponding to a carbon dioxide concentration for each expiration, for comparing said concentration signal with concentrations respectively corresponding to a plurality of predetermined concentration ranges, and for outputting a control signal, from among different control signals respectively corresponding to said predetermined concentration ranges, corresponding to a detected carbon dioxide concentration; and

beeper means for outputting a sound corresponding to the detected carbon dioxide concentration in accordance with said control signal;

wherein said beeper means outputs an intermittent sound for each respiration in response to said control signal, said intermittent sound having a predetermined number of delay intervals, each of said concentration ranges having an associated intermittent sound with a predetermined number of delay intervals.

5,738,107
MEASUREMENT OF MOISTURE CONTENT IN SKIN

Orjan G. Martinsen, Fagerstrandvn. 30, N-1320 Stabekk, and Sverre Grimnes, Uranienborgvn. 10, N-0258 Oslo, both of Norway

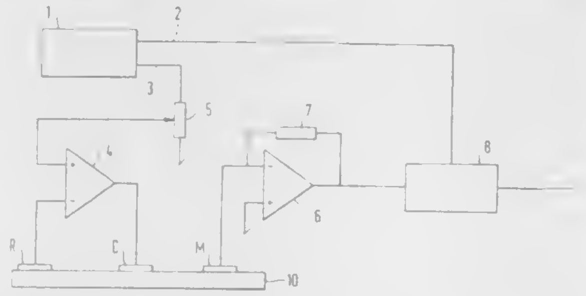
PCT No. PCT/NO95/00184, § 371 Date Apr. 10, 1997, § 102(e) Date Apr. 10, 1997, PCT Pub. No. WO96/10951, PCT Pub. Date Apr. 18, 1996

PCT Filed Oct. 9, 1995, Ser. No. 817,350

Claims priority, application Norway, Oct. 11, 1994, 943840

Int. Cl.^{6} A61B *5/05*

U.S. Cl. 128—734 14 Claims



1. A method for measuring the moisture content in skin, comprising:

contacting the skin with three electrodes, wherein at least one measuring electrode is placed on the skin where the moisture has to be measured and the remaining two electrodes on the skin adjacent thereto;

applying a periodic voltage with a frequency of less than 50 kHz to the electrodes; and

measuring the susceptance in the skin under at least one electrode

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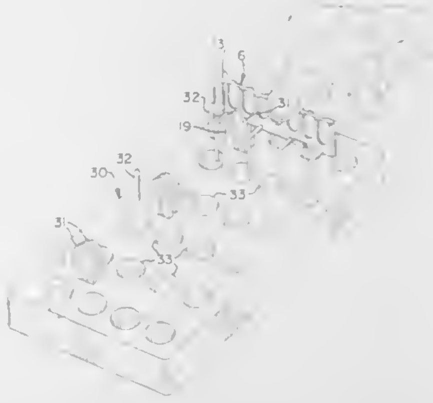
5,738,108
SYSTEM FOR MULTI-SITE SKIN TESTING AND COMPONENTS THEREOF

Gary L. Hein, Oakley, Ill., assignor to Lincoln Diagnostics, Inc., Decatur, Ill.

Continuation-in-part of Ser. No. 583,771, Jan. 11, 1996. This application Mar. 14, 1997, Ser. No. 818,218

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 128—743 10 Claims



1. In the combination comprising (1) an applicator for simultaneously making multiple skin tests on spaced sites on a person's skin comprising an elongated handle and a plurality of limbs branching outwardly and downwardly from opposite sides of said handle and terminating in downwardly facing, generally co-planar distal ends having clustered multiple skin-puncturing liquid pick-up points thereon, said distal ends being arrayed in a pattern of parallel rows extending along opposite sides of said handle, and (2) a dipwell tray for holding relatively large volumes of skin test substances in its dipwells to be withdrawn therefrom by said distal ends on said applicator limbs in relatively small increments and having at least one group of dipwells arrayed in a pattern which matches said pattern in which said distal ends are arrayed,

the improvements comprising, at least one set of co-operable interengaging orienting formations on said elongated handle and said dipwell tray for orienting said handle in one, and only one, particular relationship with said dipwell tray comprising at least one pair of upstanding formations on said dipwell tray for receiving and orienting said handle therebetween and thereby between parallel rows of said dipwells and at least one additional formation on said handle co-operable with at least one of said pair of upstanding formations to prevent said handle from being inserted in the wrong endwise direction therebetween.

5,738,109
CATHETER WITH SIMUTANEOUS BRUSH CYTOLOGY AND SCRAPE BIOPSY CAPABILITY

Vinod K. Parasher, 162-B, De-Laresse-Straat, 1075 HM Amsterdam, Netherlands

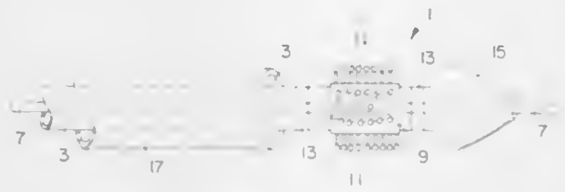
Division of Ser. No. 178,112, Jan. 6, 1994, Pat. No. 5,535,756. This application Jun. 7, 1995, Ser. No. 472,122

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 128—756 5 Claims

1. A device for collecting cells from a duct, comprising:

a catheter forming a hollow tube with a brush located adjacent a distal end of the catheter, for insertion into the duct, wherein the brush is fabricated of a base web attached to the hollow tube, the base web having a plurality of radially extending, semi-rigid bristles that protrude from the base web, the



bristles having irregular shaped tips whereby the cells are collected in the bristles by scraping the brush over an inner wall of the duct.

5,738,110
DEVICE FOR THE DIAGNOSIS OF CERTAIN GASTROINTESTINAL PATHOGENS

Charles B. Beal, 1312 Bellair Way, Menlo Park, Calif. 94025; Leonard O. Ross, 799 Wolfe Rd., Sunnyvale, Calif. 94086, and Mark A. Hughes, 4524 Felter Rd., Milpitas, Calif. 95035

Filed May 29, 1996, Ser. No. 655,029

Int. Cl.^{6} A61B *10/00*

U.S. Cl. 128—769 15 Claims

1. A gastrointestinal sampling device, comprising

a dissolvable pharmaceutical capsule having a perforated opening,

a malleable drag material within the capsule, and

a line embedded in the drag material and running through the perforated opening of the capsule

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5,738,111
METHOD FOR PREVENTING TRANSMISSION OF VIRAL PATHOGENS

William K. Weimer, Woodbury; Gretchen E. Keenan, Edina; Robert J. Kinney, Woodbury; James S. Mrozinski, Oakdale, and Philip D. Radovanovic, Minneapolis, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 384,079, Feb. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 105,430, Aug. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 962,416, Oct. 16, 1992, abandoned, which is a continuation-in-part of Ser. No. 779,014, Oct. 18, 1991, abandoned. This application Dec. 23, 1996, Ser. No. 771,890

Int. Cl.^{6} A61B *19/00*, A61F *5/37*

U.S. Cl. 128—849 38 Claims

1. A method of preventing transmission of viral pathogens between a source of viral pathogens and a target of said viral pathogens comprising positioning between said source and said target a microporous membrane material comprising (1) a thermoplastic polymer or polytetrafluoroethylene and (2) a water-and oil-repellent fluorochemical compound which provides said microporous membrane material with oleophobic, hydrophobic and viral barrier properties.

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5,738,112
TOILET SAFETY DEVICE INCORPORATING RETRACTABLE BELTS

Walter V. Brod, 1310 E. 22nd St., Minneapolis, Minn. 55404
Filed Oct. 2, 1996, Ser. No. 720,861
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 128—869 **14 Claims**

1. A safety device for mounting on a wall behind a toilet, the safety device comprising:

- a housing defining a first opening spaced from a second opening, the housing including connecting structure for connecting the housing to the wall at a location above the toilet;
- a first belt retractably mounted within the housing, the first belt being constructed and arranged to be withdrawn from the housing and retracted into the housing through the first opening;
- a first coupling structure connected to the first belt;
- a second belt retractably mounted within the housing, the second belt being constructed and arranged to be withdrawn from the housing and retracted into the housing through the second opening;
- a second coupling structure connected to the second belt, the second coupling structure being arranged and configured to be selectively coupled with the first coupling structure; and
- a third coupling structure fixedly connected to the housing, the third coupling structure being arranged and configured to be selectively coupled with the first coupling structure.

5,738,113
CARIES TREATMENT METHOD WITH FLUORIDE

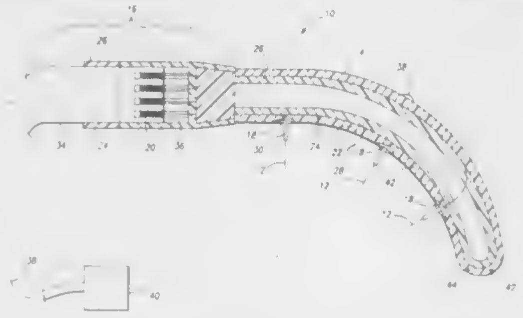
John Jude Connelly, Ottawa, Canada, assignor to Knowell Therapeutic Technologies, Inc., Ontario, Canada
Filed Mar. 12, 1996, Ser. No. 614,145
Int. Cl.^{6} A61B *19/00*
U.S. Cl. 128—898 **24 Claims**

1. A method for the diagnosis, control and reduction of dental caries, the method comprising testing for *Streptococcus mutans* in an oral cavity of a patient and determining the patient's risk level for developing dental caries, to establish what treatment, if any, the patient requires in accordance with the following guidelines:

- a. objectively measuring the level of *Streptococcus mutans* in a patient's oral cavity;
- b. for a patient assessed at medium risk for *Streptococcus mutans* in the oral cavity, the following treatments are given to the patient:
  - (i) one initial treatment with an antimicrobial agent in the first month of treatment and then one treatment with an antimicrobial agent at each 6 month recall visit thereafter; and
  - (ii) daily fluoride treatments for a period of sixty days after each antimicrobial treatment identified in step (b)(i);
- c. for a patient assessed to be at high risk of *Streptococcus mutans* in the oral cavity, the following treatments are given to the patient:
  - (i) at least two treatments with an antimicrobial agent in the first month of treatment and then one treatment with the antimicrobial agent at each 4–6 month recall visit thereafter; and
  - (ii) daily fluoride treatments for a period of up to 120 days after each antimicrobial treatment identified in step (c)(i);
- d. for a patient assessed at lower risk for *Streptococcus mutans* in the oral cavity, the patient does not receive a treatment with an antimicrobial agent and the patient is given daily fluoride treatments for a period of 60 days following the measurement of the *Streptococcus mutans* levels.

5,738,114
METHOD AND APPARATUS FOR TREATMENT OF AIR WAY OBSTRUCTIONS

Stuart D. Edwards, Los Altos, Calif., assignor to Somnus Medical Technologies, Inc., Sunnyvale, Calif.
Continuation-in-part of Ser. No. 642,053, May 3, 1996, which is a continuation-in-part of Ser. No. 606,195, Feb. 23, 1996, Pat. No. 5,683,360. This application May 22, 1996, Ser. No. 651,378
Int. Cl.^{6} A61B *17/39*
U.S. Cl. 128—898 **50 Claims**

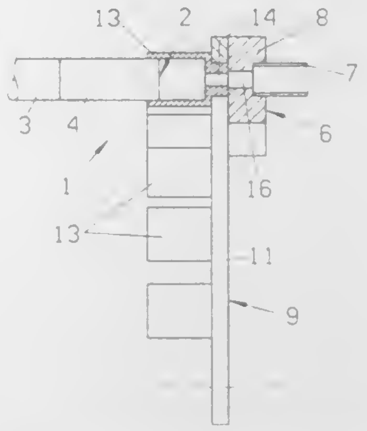


1. A method for reducing a volume of a tongue in an oral cavity, comprising:

- providing an ablation apparatus including a source of electromagnetic energy and an enrgy delivery device comprising one or more electromagnetic energy delivery electrodes coupled to the electromagnetic energy source;
- introducing a distal end of the ablation apparatus into the oral cavity;
- positioning the distal end of the ablation apparatus outside of an oral cavity gag response zone;
- advancing at least one electrode into an interior of the tongue;
- delivering a sufficient amount of electromagnetic energy from the electrode into the interior of the tongue to debulk a section of the tongue without permanently damaging a main branch of a hypoglossal nerve; and
- retracting the electrode from the interior of the tongue.

5,738,115
METHOD OF AND APPARATUS FOR DECONTAMINATING THE EXPOSED SURFACES OF FILTER MOUTHPIECES IN SMOKERS PRODUCTS

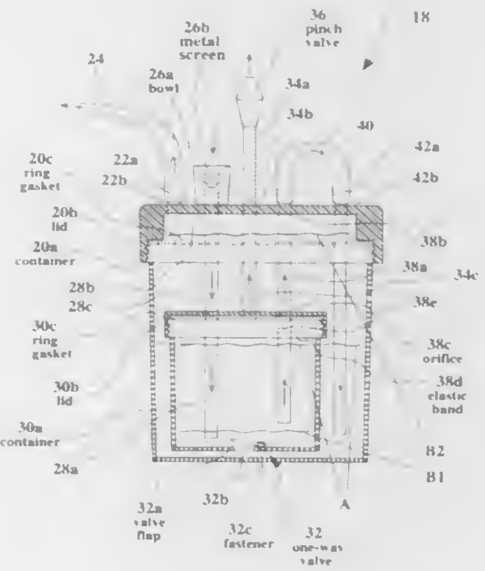
Firdausia Chehab, Hamburg; Stefan Fietkau, Westerau; Peter-Franz Arnold, Hamburg; Thomas Jusehus, Hamburg, and Clemens Sehmiek, Geesthacht, all of Germany, assignors to Hauni Maschinenbau AG, Hamburg, Germany
Division of Ser. No. 618,965, Mar. 20, 1996, Pat. No. 5,645,087. This application Oct. 3, 1996, Ser. No. 725,372
Claims priority, application Germany, Apr. 5, 1995, 195 12 732.3
Int. Cl.^{6} A24C *5/60*
U.S. Cl. 131—88 **7 Claims**



1. A method of processing smokers' products wherein a plurality of aligned rod-shaped components include at least one multiple-unit-length filter rod section containing plastic fibers and a pair of tobacco-containing components flanking the at least one section, comprising the steps of severing the products across their sections so that the severed sections develop pairs of mouthpieces having end faces at which at least some of the fibers tend to become separated from the respective mouthpieces; and preventing uncontrolled separation of fibers from the respective mouthpieces including intentionally removing said at least some fibers from the respective mouthpieces, said removing step including pneumatically separating said at least some fibers from the respective mouthpieces by suction.

5,738,116
FLUID-COOLED SMOKING DEVICE

Michael T. Truelove, 7641 Victor Pike, Bloomington, Ind. 47403
Filed Jan. 17, 1995, Ser. No. 373,113
Int. Cl.^{6} A24F *1/14*
U.S. Cl. 131—173 **10 Claims**

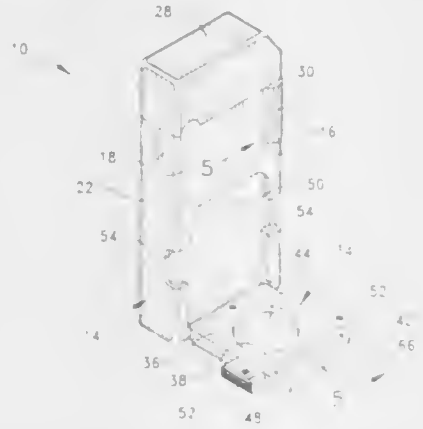


1. A fluid-cooled smoking device comprising:

- (a) housing means, for containing a volume of fluid;
- (b) a second housing means for containing a volume of fluid;
- (c) means for containing a supply of tobacco or/and medicinal herbs to be smoked;
- (d) means operatively connected to said tobacco or/and medicinal herb container means for introducing smoke below the surface level of said fluid in said first housing;
- (e) tubular means connecting said first housing to said second housing, wherein one end of tubular means extends below the surface of said fluid in said first housing and that the other end of said tubular means extends below the surface of said fluid in said second housing;
- (f) means operatively connected to said second housing and projecting outwardly therefrom for withdrawing said smoke from said second housing;
- (g) means operatively connected to said first housing and to said second housing for allowing the flow of said fluid from said second housing to said first housing, unless said withdrawing smoke means is engaged;
- (h) means operatively connected to said first housing for venting said first housing.

5,738,117
COMBINATION CIGAR CUTTER AND LIGHTER DEVICE

Walter G. Fontaine, Jr., Narragansett, R.I., assignor to Colibri Corporation, Providence, R.I.
Filed Dec. 30, 1996, Ser. No. 774,757
Int. Cl.^{6} A24F *13/24*
U.S. Cl. 131—249 **5 Claims**



1. A combination cigar cutter and lighter device for cutting off an end of a cigar and lighting same, said device comprising:

- a box-like casing having lighting means therein for producing a flame adjacent one end of the casing, said casing comprising a plurality of substantially flat walls;
- one of said walls having a recessed cavity therein located adjacent the other end of the casing;
- a cigar cutter having a planar ring member with a central opening and a thin slot formed therein extending generally transverse with respect to said opening, and a thin blade holder assembly positioned within said thin slot, said blade holder assembly being movable between a first position wherein the blade of said assembly is positioned so as not to cover said opening and a second position wherein the blade has slid across the opening to cut off the end of a cigar positioned in said opening;
- said planar ring member fitting snugly within said recessed cavity so as to form a substantially flush continuation of said one wall surface; and
- hinge means securing said planar ring member to said casing at the bottom edge of said one wall whereby said planar ring member may be swung outwardly from said recessed cavity when it is desired to perform the aforesaid cutting operation.

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5,738,118
APPARATUS FOR COLLECTING CIGARETTE SMOKE, ASH AND CIGARETTE ENDS

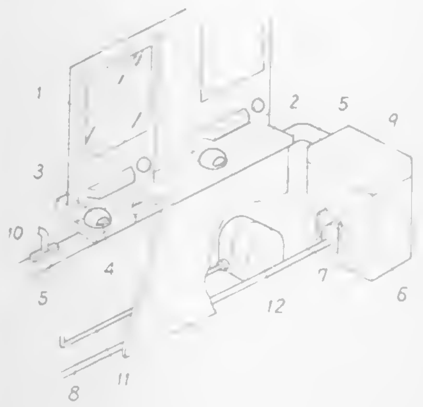
Kenji Ikoma, Kitakyushu, Japan, assignor to Profix Co., Ltd., Fukuoka-ken, Japan

Filed Jan. 7, 1997, Ser. No. 779,891

Claims priority, application Japan, Apr. 4, 1996, 8-110157

Int. Cl.^{6} A24F *13/00;* **A61J** *19/04*

U.S. Cl. 131—328 **11 Claims**



1. An apparatus for collecting cigarette smoke, cigarette ends and cigarette ash comprising:
- a water path tube disposed below a base plate and having an appropriate inclination angle;
- ash tray sections disposed on a surface of said base plate at appropriate intervals;
- dropping sections disposed in a middle part of an underside of each of said ash tray sections for dropping cigarette ends and ash;
- a hole part drilled at the middle of said dropping sections;
- a chute depending from each of said dropping sections of said ash tray sections;
- a water tank disposed at a downstream side of said water path tube;
- a pump for feeding water from said water tank into said water path tube;
- a water feeding tube connecting said pump with said water path tube;
- at least one suction port disposed on the upper surface of said water path tube;
- a suction tube connected to said at least one suction port; and
- a suction section comprising a blower connected to said suction tube.

5,738,119
FILTER MATERIALS

William B. Edwards, III, Richmond; Navin Gautam, Midlothian; Paul N. Gauvin, Chesterfield; Donald E. Laslie, Midlothian; Kenneth A. Newman, Prince George, all of Va., and Calvin R. Woodings, Nuneaton, United Kingdom, assignors to Courtaulds Fibres (Holdings) Limited, London, United Kingdom

PCT No. PCT/US95/08841, § 371 Date Feb. 21, 1997, § 102(e) Date Feb. 21, 1997, PCT Pub. No. WO95/35044, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 19, 1995, Ser. No. 765,278

Claims priority, application United Kingdom, Jun. 20, 1994, 9412311

Int. Cl.^{6} A24D *3/10*

U.S. Cl. 131—331 **20 Claims**

1. A cigarette filter, characterised in that the body of the filter comprises a hydroentangled fabric which comprises lyocell staple fibres.

5,738,120
SMOKING ARTICLES

Brian Chester Chard, Saltford, Great Britain, assignor to Imperial Tobacco Limited, Bristol, Great Britain

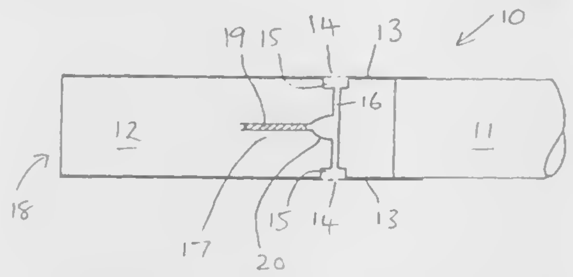
PCT No. PCT/GB94/02339, § 371 Date Jun. 6, 1996, § 102(e) Date Jun. 6, 1996, PCT Pub. No. WO95/10952, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 21, 1994, Ser. No. 628,618

Claims priority, application United Kingdom, Oct. 23, 1993, 9321911; Jun. 17, 1994, 9412195

Int. Cl.^{6} A24D *3/06*

U.S. Cl. 131—335 **35 Claims**



1. A smoking article comprising a smokable rod and a ventilation means located within said smokable article and communicating with the outside of said article, viscous fluid in said ventilation means closing or partially closing said ventilation means, said viscous fluid being displaceable during use of said smoking article enabling ventilation to occur.

5,738,121
HAIR STYLING BRUSH

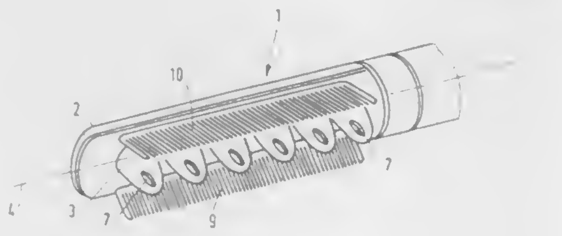
Hendrik J. Westerveld, and Albart J. Kip, both of Groningen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 10, 1995, Ser. No. 541,381

Claims priority, application European Pat. Off., Oct. 10, 1994, 94202920

Int. Cl.^{6} A45D *24/00;20/52*

U.S. Cl. 132—113 **4 Claims**



1. A hair styling brush for use in combination with a hot air source, comprising an elongate hollow body having a row of hollow teeth, which extend substantially perpendicularly to the longitudinal axis of the hollow body, the interior of the hollow body being in open communication with the interior of each of the hollow teeth, each of which hollow teeth has outlet apertures on opposing surfaces thereof for an air flow directed substantially perpendicularly to the longitudinal axis of the hollow body, characterised in that a row of solid prongs is situated at either side of the row of hollow teeth, opposite the outlet apertures.

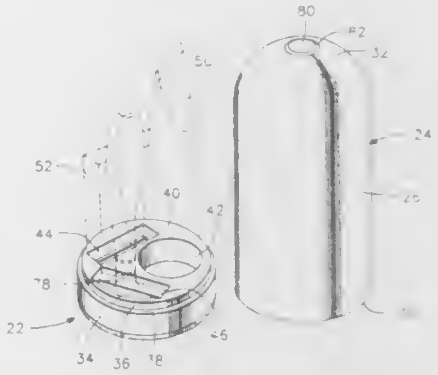
5,738,122
STORAGE CANISTER FOR SHAVING ITEMS

Joseph M. Armbruster, and Sue B. Armbruster, both of 2700 NE. 47 St., Lighthouse Point, Fla. 33064

Filed May 3, 1995, Ser. No. 433,016

Int. Cl.^{6} A45D *27/16;27/18*

U.S. Cl. 132—290 **8 Claims**



1. A storage canister for shaving items comprising a rigid base having a flat planar bottom surface for positioning on a generally horizontal support, said base including a flat upper surface provided with a plurality of vertically opening recesses for telescopically receiving and retaining a plurality of vertically oriented shaving items, and a removable cover mounted on said base, said cover being vertically disposed and sufficient in length to encompass said shaving items, said base including a plurality of drain openings extending between the bottom of one of said recesses and the bottom surface of the base to drain excessive moisture from a razor head positioned in said one of said recesses.

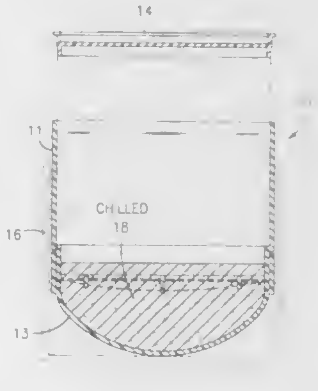
5,738,123
SAMPLER APPLICATOR

Alex Szekely, Manalapan, N.J., assignor to The Plastek Group, Erie, Pa.

Filed Jun. 7, 1996, Ser. No. 660,143

Int. Cl.^{6} A45D *40/24*

U.S. Cl. 132—318 **8 Claims**



1. An applicator, comprising:
- a barrel having a first open end and a second open end;
- a grid fixed within said barrel;
- a mass of molded material extending from said first open end and extending into said barrel beyond said grid toward said second open end whereby said mass of molded material engages said grid;
- a first cap releasably enclosing said first open end; and
- a second cap enclosing said second open end.

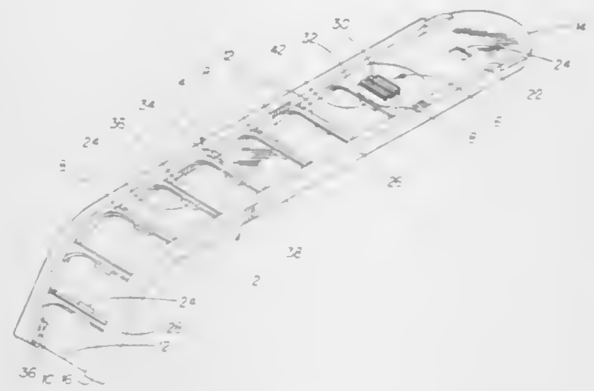
5,738,124
DENTAL FLOSS HOLDER AND METHOD OF USE THEREOF

Aldo Cervato, London, England, assignor to Harry J. Burns, Kitchener, Canada

Filed Jun. 3, 1996, Ser. No. 657,441

Int. Cl.^{6} A61C *15/00*

U.S. Cl. 132—323 **13 Claims**



1. A dental floss holder comprising:
- (a) an elongated casing having an input end and an output end,
- (b) an elongated cartridge having a plurality of interconnected segments, each segment having a mouth with a length of dental floss suspended across said mouth;
- (c) said casing and cartridge having a corresponding size and shape, said cartridge being in position in said casing so that said cartridge is slidable within said casing from said input end to beyond said output end with each of said segments being oriented so that each mouth extends toward said output end; and
- (d) a first segment in said cartridge being a lead segment, each lead segment being severable from said cartridge when each lead segment extends beyond said output end.

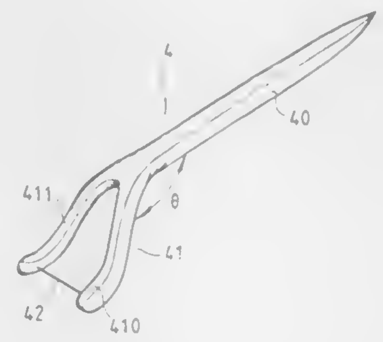
5,738,125
DENTAL FLOSSER

Jyh-Sheng Lin, 184, Ching-Yun Rd., Tuu-Cherng City, Taipei, Taiwan

Filed Jul. 3, 1996, Ser. No. 674,106

Int. Cl.^{6} A61C *15/00*

U.S. Cl. 132—323 **12 Claims**



1. A dental flosser comprising:
- a holder having an operation end, the operation end having a contact angle with the holder of preferably around 150 to 170 degrees, the holder having two ribs which form an arch to form the operation end of the holder, said operation end having a frontal horizontal section; and
- a floss mounted between said two ribs, the floss being perpendicular to said holder.

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5,738,126
APPARATUS FOR CONTROLLING A DIESEL ENGINE WITH EXHAUST

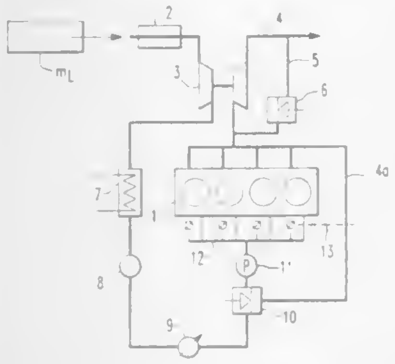
Hans Fausten, Winterbach, Germany, assignor to Mercedes-Benz AG, Stuttgart, Germany

Filed Apr. 7, 1997, Ser. No. 835,376

Claims priority, application Germany, Apr. 19, 1996, 196 15 545.2

Int. Cl.⁶ F02M *25/07;* **F02D** *9/08*

U.S. Cl. 123—569 3 Claims



1. An apparatus for controlling a Diesel engine with exhaust gas recirculation and intake air flow throttling, comprising:

a control circuit for controlling the rate of exhaust gas circulation by means of an exhaust gas recirculation control member using an engine intake air mass flow as a control value, and

a control circuit for controlling the intake air flow pressure by means of intake air throttling including a means for determining the desired intake air pressure for the throttling of the intake air and for determining charge air pressure such that the desired intake air pressure comprises the sum of a desired engine operating point-dependent base pressure value and a desired supplemental pressure value which is obtained by a multiplication of a desired engine speed dependent supplemental pressure raw value which is dependent on the engine speed and the fresh intake air mass flow control difference of the exhaust gas recirculation control, by a factor which depends on the opening degree of the exhaust gas recirculation control member.

5,738,127
PROCESS FOR REMOVING CONTAMINATING COATINGS FROM METAL SURFACES

Peter Heymanns, Essen; Waldemar Kascha; Ernst Prott, both of Oberhausen, and Horst Scholz, Wesel, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Apr. 16, 1996, Ser. No. 631,894

Claims priority, application Germany, Apr. 25, 1995, 195 15 086.4

Int. Cl.⁶ B08B *7/00;* **C03C** *23/00;* **C23D** *17/00*

U.S. Cl. 134—2 10 Claims

1. A process for removing contaminating coatings from metal surfaces comprising contacting at a temperature of at least 50° C. the metal surfaces to be cleaned with an aqueous alkaline, additive-containing solution, wherein the aqueous alkaline solution contains as additive 1 to 10% by weight, based on the aqueous alkaline solution, an additive mixture consisting essentially of

a) 70–99.9% by weight, based on the mixture, of at least one compound of the formula

$$R^1—O—(CH_2—CHR^3—O—)_xR^2 \qquad \text{I}$$

in which R^1 and R^2 are individually alkyl of 1 to 15 carbon atoms, R^3 is hydrogen or methyl and x is an integer from 1 to 25, and

b) 0.1 to 30% by weight, based on the mixture, of at least one compound of the formula

$$R^1—O—(CH_2—CHR^3—O—)_xH \qquad \text{II}$$

in which R^1 is alkyl of 1 to 15 carbon atoms and R^3 is hydrogen or methyl and x is an integer from 1 to 25 wherein a phase separation into an upper organic phase and a lower aqueous phase occurs.

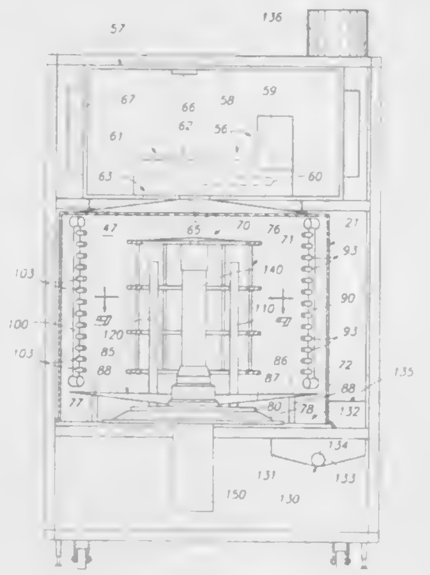
5,738,128
CENTRIFUGAL WAFER CARRIER CLEANING APPARATUS

Raymon F. Thompson, Lakeside, and Aleksander Owczarz, Kalispell, both of Mont., assignors to Semitool, Inc., Kalispell, Mont.

Continuation of Ser. No. 360,724, Feb. 21, 1995, Pat. No. 5,562,113, which is a continuation of Ser. No. 901,614, Jun. 15, 1992, Pat. No. 5,224,503. This application Oct. 8, 1996, Ser. No. 727,271

Int. Cl.⁶ B08B *3/02*

U.S. Cl. 134—95.2 24 Claims



1. A centrifugal cleaner for cleaning carriers used in semiconductor processing, comprising:

a processing vessel defining a process chamber therewithin;

at least one port formed in a sidewall of the processing vessel to allow passage of carriers relative to the process chamber;

at least one door for controllably opening and closing said port;

a rotor mounted for rotation within the process chamber;

at least one carrier support which is accessible through said at least one port; said at least one carrier support being connected to said rotor for holding carriers during centrifugal cleaning;

a rotor drive for controllably rotating said rotor;

a plurality of supplies for directing fluid against the at least one carrier support; said plurality of supplies including at least one outer supply for directing fluid from positions outward of the carrier support; said plurality of supplies including at least one inner supply for directing fluid against the at least one carrier support from positions inward of the carrier support;

at least one means for supplying drying gas to the process chamber.

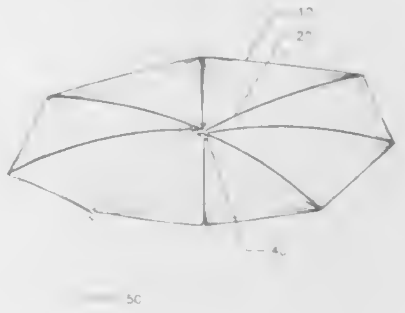
5,738,129
RADIAL FOLDING UMBRELLA

Wolfgang Vogt, 12529 27th Ave, Surrey, British Columbia, Canada, V4A 2M6

Filed Mar. 20, 1997, Ser. No. 820,839

Int. Cl.⁶ A45B *19/00*

U.S. Cl. 135—19.5 1 Claim



1. An umbrella folding in a radial manner, comprising:

a horizontal support shaft;

a fabric cover associated with the fabric support ribs;

a plurality of support ribs which are made of a flexible material and which extend outward from an attached plate;

and wherein said plate attaches pivotally to said support shaft and to which a plurality of support ribs is connected, comprising a rotating assembly;

and wherein said support shaft defines the opening and closing of the fabric covering;

and wherein said support shaft functions as a supporting rib;

and wherein the fabric cover is fastened in a looped manner around said support shaft with a hook and loop fastener means, whereby in response to strong winds detachment occurs.

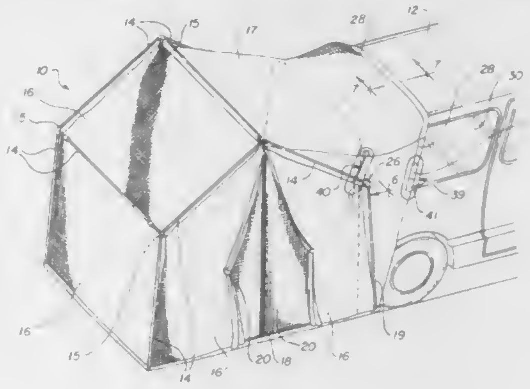
5,738,130
VEHICLE SUPPORTED TENT

William Thomas, Utica Rte., Hobson, Mont. 59452

Filed Jan. 6, 1997, Ser. No. 779,369

Int. Cl.⁶ E04H *15/06*

U.S. Cl. 135—88.13 25 Claims



1. A tent having a frame, roof, and walls, said tent for use in combination with a vehicle having a roof, first and second side panels, a rear end and at least one door hingedly attached to said rear end, said tent comprising:

a) a plurality of poles adapted to be interconnected to one another for forming said frame of said tent;

b) a plurality of first fabric panels adapted to be stretched between and attached to said poles for forming some of said walls and a portion of said roof of said tent;

c) at least one second fabric panel attached to at least one of said first fabric panels and portions of which are adapted to be positioned in at least partially covering relation to said roof and said first and second side panels of said vehicle;

d) magnetic attachment means for maintaining at least said second fabric panel in attached relation to said roof and side panels of said vehicle; and

e) pressurized attachment means for maintaining said second fabric panel in attached relation to said side panels of said vehicle.

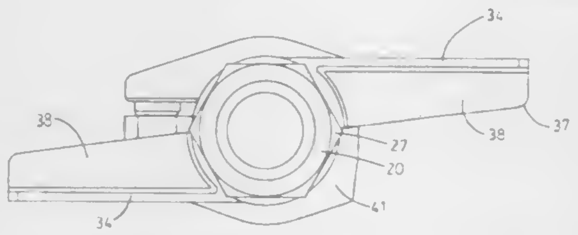
5,738,131
VALVE COUPLING METHOD AND APPARATUS

Larry W. Wiley, Los Banos; William P. Moreau, Fresno, and John S. Williams, Coarsegold, all of Calif., assignors to Buckner, Inc., Fresno, Calif.

Filed Oct. 31, 1996, Ser. No. 742,082

Int. Cl.⁶ F16L *55/18*

U.S. Cl. 137—15 16 Claims



1. A method for providing resistance to the rotational and vertical forces encountered by a sub-surface water line coupling apparatus comprising the steps of:

a. attaching a hollow open-ended vertically oriented cylindrical sleeve having a spring-loaded valve inside, to a water supply line using a set of helical threads inside the lower end of said sleeve, said sleeve including a pair of integral outwardly extending vertically oriented flanges, said flanges originating at diametrically opposite locations on said sleeve and extending tangentially out therefrom, each of said flanges also including at least one horizontal shelf thereon;

b. burying said sleeve and flanges just below the surface of the ground so that said flanges engage with sub-surface material to provide rotational stability to said sleeve;

c. firmly packing down the material surrounding said buried sleeve and flanges so that said each shelf engages with sub-surface material to provide lateral stability to said sleeve

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5,738,132
ROLL OVER VENT VALVE

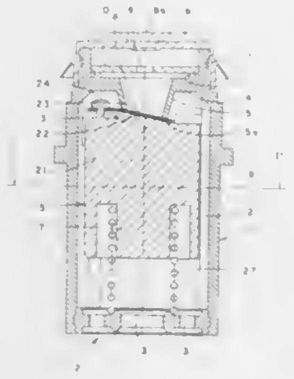
Avi Zakai, Rishon-LeZion, and Asaf Halamish, Karkur, both of Israel, assignors to Raviv Precision Injection Molding, Israeli, co., Halutza, Israel

Filed Jan. 25, 1996, Ser. No. 591,360

Claims priority, application Israel, Jan. 25, 1995, 112444

Int. Cl.⁶ F16K *24/04*

U.S. Cl. 137—43 5 Claims



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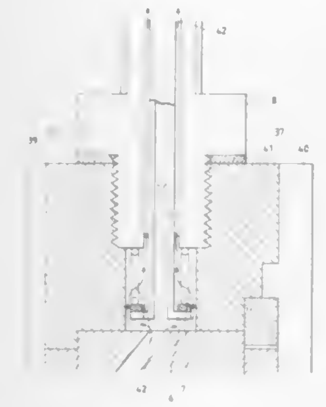
1. A roll over vent valve comprising:

a housing, a fluid inlet for said housing, a fluid outlet of said housing comprising a substantially elongated slit-like outlet aperture of said housing; a valve seating bounding said outlet aperture; a float member located in said housing and axially displaceable within said housing between said inlet and said outlet; an elongated flexible closure membrane strip anchored at one end thereof to an end of said float member adjacent said outlet and at a portion thereof offset with respect to said outlet; spring biassing means located within said housing and bearing on said float member so as to bias it in the direction of said outlet; whereby said spring biassing together with buoyancy forces acting on said float member tend to press said membrane strip into sealing engagement with said outlet aperture whilst gravity forces acting on said float member tend to displace said float member away from said outlet so as to progressively detach said strip from sealing engagement with said outlet.

5,738,133
LIQUID ANALYZING APPARATUS

Kiwao Seki, Hitachinaka, and Sadabumi Ohnuma, Hitachi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 28, 1995, Ser. No. 583,152
Claims priority, application Japan, Dec. 28, 1994, 6-326632
Int. Cl.^{6} F16K *17/04;* G01N *21/00*
U.S. Cl. 137—115.26 **15 Claims**



1. A liquid analyzing apparatus comprising:

a liquid supplying passage;

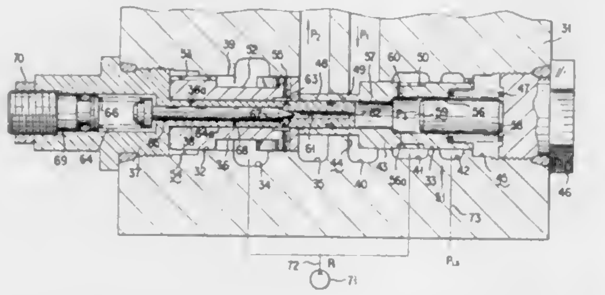
a liquid discharging passage; and

a liquid flow passage formed by providing a liquid analyzing flow cell between said liquid supplying passage and said liquid discharging passage; wherein a pressure release port is provided in said liquid flow passage, said pressure release port squeezing out pressure exceeding a certain value of pressure outside said liquid supplying passage with the pressing force of the pressure when the pressure exceeding the certain value of pressure is applied to said flow cell, said liquid supplying passage or said liquid discharging passage.

5,738,134
PRESSURE COMPENSATION VALVE

Naoki Ishizaki, and Mitsumasa Akashi, both of Tochigi-ken, Japan, assignors to Komatsu Ltd., Japan
PCT No. PCT/JP95/01378, § 371 Date Jan. 3, 1997, § 102(e) Date Jan. 3, 1997, PCT Pub. No. WO96/01952, PCT Pub. Date Jan. 25, 1996
PCT Filed Jul. 11, 1995, Ser. No. 765,193
Claims priority, application Japan, Jul. 12, 1994, 6-159902
Int. Cl.^{6} F15B *11/05*
U.S. Cl. 137—118.07 **3 Claims**

1. A pressure compensation valve comprising.



a check valve portion constructed by forming a check valve bore with an inlet port and an outlet port in a valve body, and slidably disposing a valve in said check valve bore for establishing and blocking communication between said inlet port and said outlet port;

a pressure reduction valve portion constructed by forming a pressure reducing valve bore having a first port, a second port and a third port and being coaxial with said check valve bore in said valve body, slidably disposing a spool in said pressure reduction valve bore to define a first pressure chamber communicating with said first port and a second pressure chamber communicating with said third port at both sides, making said second port communicate with said third port by a pressure of said first pressure chamber, and blocking communication between said second port and said third port by the pressure in said second pressure chamber;

said spool being pushed in a direction for blocking communication between said second port and said third port by a spring to cause pressure contact with said valve to push said valve in a valve closing direction,

wherein said pressure receiving valve further comprising:

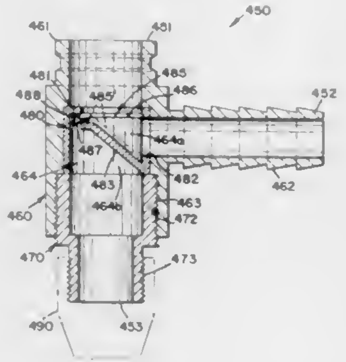
a pressure receiving chamber communicating with said second port via an orifice and pushing said spool in a direction for blocking communication by the pressure therein;

a fluid passage for establishing communication between said pressure receiving chamber and said outlet port when said valve is in a communicating position, and

pressure adjusting means for adjustably setting a pressure in said pressure receiving chamber.

5,738,135
DISPENSING APPARATUS WITH LINE PRESSURE DIVERTER

Robert E. Johnson, St. Paul, Minn., assignor to Ecolab Inc., St. Paul, Minn.
Continuation-in-part of Ser. No. 358,778, Dec. 19, 1994. This application Jun. 21, 1995, Ser. No. 493,259
Int. Cl.^{6} F16K *11/052*
U.S. Cl. 137—119.06 **21 Claims**



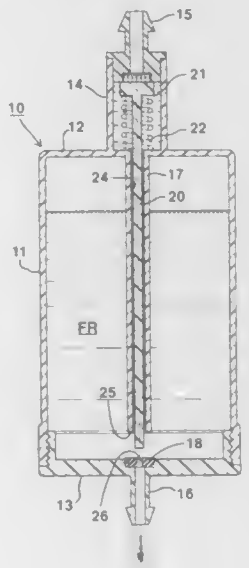
1. A dispensing apparatus comprising:

(a) a chemical product dispenser for dispensing a chemical product mixed with a diluent, the chemical product dispenser including a diluent inlet line for receiving a flow of diluent from a diluent supply, and a control valve for controlling the flow of diluent to the dispenser; and

(b) a line pressure diverter, interposed between the diluent inlet line of the chemical product dispenser and the diluent supply, for diverting line pressure from the diluent supply when the control valve of the chemical product dispenser is closed, wherein the line pressure diverter includes:
  (1) an inlet, in fluid communication with the diluent supply;
  (2) a first outlet, in fluid communication with the inlet and the diluent inlet line of the chemical product dispenser; and
  (3) a second outlet, in fluid communication with the inlet through a pressure relief means for diverting diluent to the second outlet when pressure downstream of the diluent supply exceeds a predetermined level, wherein the pressure relief means includes a fulcrumed diverter member pivotally connected within the line pressure diverter to pivot between first and second positions, wherein when the control valve is not activated the diverter member pivots to the first position to place the inlet in fluid communication with the second outlet, and wherein when the control valve is activated the diverter member pivots to the second position to block the flow of diluent to the second outlet.

5,738,136
PULSATOR DEVICE AND METHOD

Peretz Rosenberg, Moshav Beit Shearim, Israel, assignor to Super Disc Filters Ltd., Natania, Israel
Filed May 3, 1996, Ser. No. 655,370
Claims priority, application Israel, Jun. 2, 1995, 114001
Int. Cl.^{6} F17D *3/00*
U.S. Cl. 137—12 **13 Claims**



10. A method of producing fluid pulses, comprising:

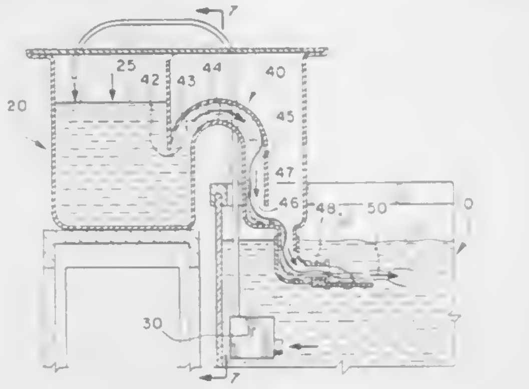
providing a housing defining a fluid reservoir, an inlet at one end of said fluid reservoir, an outlet at the opposite end of said fluid reservoir coaxial with said inlet, and a valve rod extending through said inlet, coaxial with said inlet and outlet, and movable towards and away from said outlet to close and open said outlet;

said valve rod including a biassing spring which urges said valve rod to its open position by a predetermined biassing force, and a surface exposed to the inlet pressure to move the valve rod to its closed position when subject to an inlet pressure greater than said biassing force;

continuously introducing fluid via said inlet into said fluid reservoir at a slow rate while said outlet is closed by said valve rod, to gradually build up the pressure within said fluid reservoir; when the pressure in the fluid reservoir has built up to a predetermined value, equal to the inlet pressure less the predetermined biassing force, automatically opening said outlet to discharge a fluid pulse therefrom at a high rate, and when the pressure within the fluid reservoir has dropped below said predetermined value, automatically closing said outlet to terminate the discharge of said fluid pulse, and to start another build-up of the pressure within the fluid reservoir for the generation of the next pulse to be discharged therefrom.

5,738,137
APPARATUS FOR CREATING SURGES IN AN AQUARIUM

Mark A. Reinke, P.O. Box 37531, Denver, Colo. 80237
Filed Nov. 27, 1996, Ser. No. 757,577
Int. Cl.^{6} F04F *10/00*
U.S. Cl. 137—132 **8 Claims**



1. An apparatus for creating surges in an aquarium comprising:

a tank;

a secondary basin having an outlet for discharging water from said secondary basin into said aquarium;

a pump for pumping water from said aquarium into said tank, and

a siphon tube having:
  (a) an inlet at a predetermined elevation in said tank;
  (b) an outlet for discharging water from said tank into said secondary basin, said outlet having an elevation below said inlet; and
  (c) a high point between said inlet and said outlet with an elevation above said inlet; and

said siphon tube allowing water to surge from said tank through said secondary basin and into said aquarium when the level of water pumped into said tank rises above said high point, and continuing until said water level falls below said inlet.

5,738,138
REDUCED WATER HAMMER CONTROL VALVE

Jordan Bryce Grunert, Beaver, and James R. Shannon, Pittsburgh, both of Pa., assignors to The Horton Company, Pittsburgh, Pa.
Filed Mar. 10, 1997, Ser. No. 814,782
Int. Cl.^{6} F16K *31/385;31/40*
U.S. Cl. 137—245 **16 Claims**

1. A control valve assembly for selectively controlling a flow of fluid through a fluid flow system comprising:

a valve housing having a fluid inlet and a fluid outlet,

a valve seat positioned about said fluid outlet,

a sealing diaphragm for cooperating with said valve seat for selectively sealing off fluid communication between said fluid inlet and said fluid outlet, said diaphragm fluidically separating a pressure chamber and a control chamber from one another within said housing and reciprocal between an open position and a closed position; said diaphragm including a

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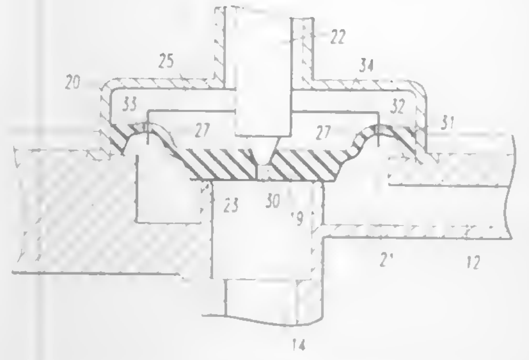
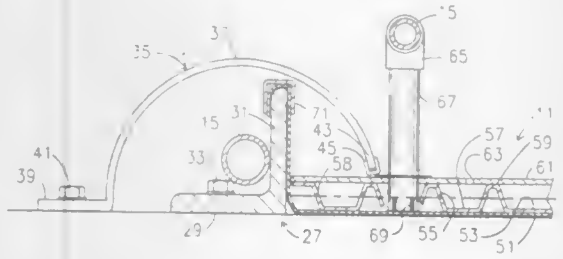


reciprocal central region, a fixed outer periphery and an intermediate flexing region bridging said central region and said outer periphery;
a central control orifice formed in said diaphragm fluidically communicating between said control chamber and said fluid outlet;
an armature reciprocally received in said housing for selectively sealing off fluid communication between said control chamber and said fluid outlet;
at least two bleed orifices formed in said intermediate flexing region of said diaphragm fluidically communicating between said pressure chamber and said control chamber; and
a freely movable metering element extending across said diaphragm and into each of said bleed orifices for controlling a flow of fluid between said pressure chamber and said control chamber; said metering element being continuously received in each of said bleed orifices during the reciprocal movement of said sealing diaphragm for continuously cleaning said bleed orifices.

5,738,139
WASTE WATER RECOVERY SYSTEM
Albert DeChard, 502 S. Fremont Ave., Ste. 433, Tampa, Fla. 33607

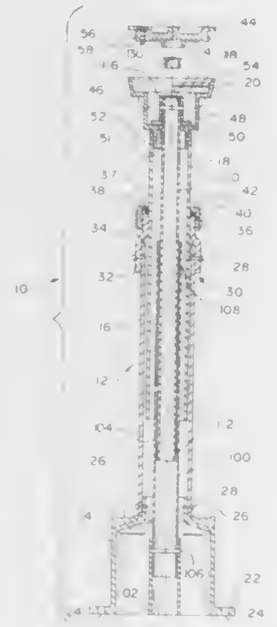
Filed Mar. 4, 1996, Ser. No. 610,426
Int. Cl.^{6} E03B *7/08;* **F16L** *55/07*
U.S. Cl. 137—312 **17 Claims**



1. a) a frame adapted to be placed upon a ground surface and having an upstanding wall, said frame enclosing a space on a ground surface;
b) a fluid impervious barrier layer clamped to said wall and covering said space;
c) a fluid capturing tray mounted above and along said barrier layer and extending to said wall;
d) a work surface layer mounted over and supported by said tray and extending to said wall, said work surface layer having a plurality of openings therethrough communicating with the tray allowing fluid to pass therethrough to be collected in at least a portion of said tray;
e) a means extending through said work surface layer and into said at least a portion of said tray for removing fluid; and
f) a means to pump fluid from said at least a portion of the fluid capturing tray to an outlet.

5,738,140
ADJUSTABLE HEIGHT EXTENSION STEM AND VALVE BOX ASSEMBLY
Jerry Thomas Mann, Birmingham, Ala., assignor to American Cast Iron Pipe Company, Birmingham, Ala.

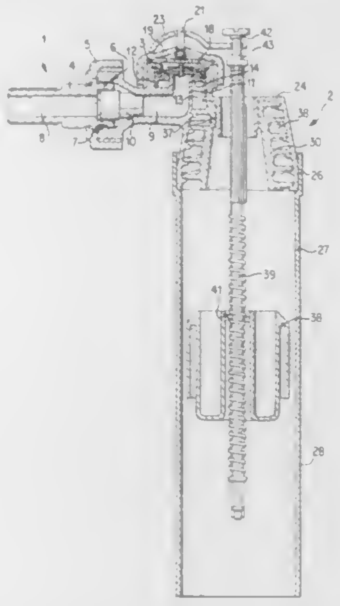
Filed Dec. 26, 1996, Ser. No. 773,779
Int. Cl.^{6} F16K *37/00;* **F16L** *27/08;27/12*
U.S. Cl. 137—369 **20 Claims**



1. An adjustable-height extension stem and valve box assembly comprising:
valve box upper section having a predetermined length, said valve box upper section being open at its interior along said predetermined length, and having an exterior surface of substantially constant and continuous cross-sectional dimension over substantially the entire length thereof;
a valve box lower section having a predetermined length, said valve box lower section being open at its interior along said predetermined length and being sized to receive said valve box upper section into slid interior in a telescoping manner;
a reducer coupling disposed at an upper end of said valve box lower section, said reducer coupling having a reduced internal dimension portion that closely surrounds said exterior surface of said valve box upper member, said reducer coupling further having an O-ring seat at its upper extent, and facing said valve box upper member;
an O-ring seated in said O-ring seat and being of a size such that, in an uncompressed state, said O-ring extends partially beyond said O-ring seat;
a reducer cap, said reducer cap having an inwardly extending flange defining an opening of substantially the same dimension as that of said reduced internal dimension portion of said reducer coupling, said reducer cap and said reducer coupling being so constructed and arranged to allow said reducer cap to releaseably engage said reducer coupling in a manner such that said reducer cap flange is in a locking position immediately adjacent art upper surface of said reducer coupling and such that said reducer cap flange compresses said O-ring disposed in said O-ring seat in said locking position, said O-ring sealingly engaging said exterior surface of said valve box upper section when compressed, wherein when said reducer cap is moved away slightly from said locking position, said O-ring returns to an uncompressed state that allows substantially free movement of said valve box upper section within said valve box lower section; and
an extension stem assembly comprising an extension stem upper section and an extension stem lower section, said extension stem upper and lower sections being so constructed and arranged to move in a telescoping manner relative to each other when said valve box upper and lower sections are moved in a telescoping manner,
said extension stem upper section having a wrench nut adapted to be engaged by a wrench used to rotate said extension stem assembly in operating a buried valve, and said extension stem lower section having a valve nut coupling adapted to engage a valve nut of a buried valve.

5,738,141
WC-CISTERN FILLING VALVE
Willfried Blanke; Norbert Fuchs, both of Minden, and Gerhard Pieper, Porta Westfalica, all of Germany, assignors to Rost GmbH & Co. KG, Porta Westfalica, Germany

Filed Mar. 4, 1996, Ser. No. 610,753
Claims priority, application Germany, Mar. 8, 1995, 195 08 258.3
Int. Cl.^{6} F16K *31/34;31/385;47/02*
U.S. Cl. 137—414 **12 Claims**

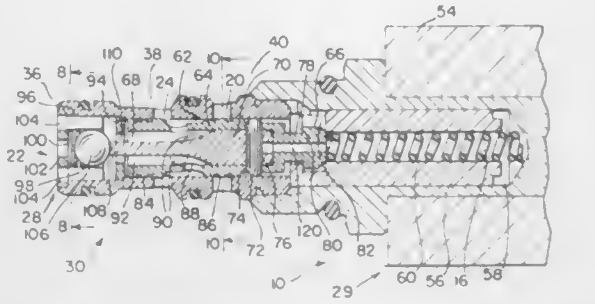


1. A WC-cistern filling valve comprising:
a liquid inlet for receiving liquid from a supply line,
a liquid outlet for discharging liquid to the cistern;
a closing element arranged in a valve passage opening between the liquid inlet and the liquid outlet, the closing element operable between an open position and a closed position in accordance with a filing level within the cistern;
a threaded screw member within the liquid outlet which discharges the liquid in a swirl when the closing element is in the opened position, the screw member having a central opening; and
a control rod for operating the closing element, the control rod passing through the central opening of the threaded screw member and at least a portion of the liquid outlet, wherein the control rod operates the closing element in response to a liquid level in the liquid outlet.

5,738,142
PRESSURE HOLDING DIRECTIONAL CONTROL VALVE
Craig R. Eike, DeKalb, and Guy T. Stoever, Naperville, both of Ill., assignors to Case Corporation, Racine, Wis.

Filed Aug. 9, 1996, Ser. No. 694,559
Int. Cl.^{6} F15B *13/044*
U.S. Cl. 137—596.17 **20 Claims**

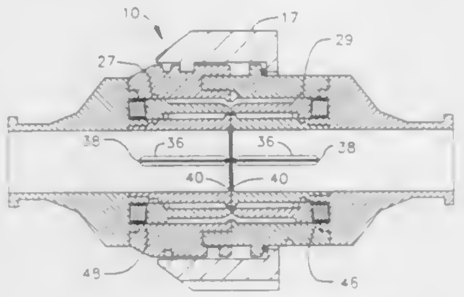
1. A reverse flow preventing hydraulic directional control valve comprising:
a valve body having pressure, drain and actuator ports;



a spool assembly slidable within the valve body between a first position wherein a flow path is defined between the pressure port and the actuator port, and a second position wherein a flow path is defined between the actuator port and the drain port;
an armature coupled to the spool assembly;
a solenoid coil supported relative to the armature, and energizable and de-energizable to move the armature such that the spool assembly is moved between the first and second positions; and
a normally closed check valve supported within the valve body to open in response to fluid flow from the pressure port to the actuator port.

5,738,143
BUTTERFLY ACTUATED QUICK COUPLING CONNECTOR VALVE
Jim A. Faughn, Bel Air, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 8, 1996, Ser. No. 700,558
Int. Cl.^{6} F16L *29/00*
U.S. Cl. 137—614.03 **16 Claims**



1. A quick coupling connector valve, comprising.
(a) a first connector; and
(b) a second connector for mating with said first connector, each of said first and second connectors comprising:
  (i) a valve housing having an interior surface defining a passageway having a longitudinal axis of symmetry;
  (ii) engagement means, mounted on said valve housing, for coupling and uncoupling the first and second connectors together;
  (iii) a plate-like valve member;
  (iv) means for supporting said plate-like valve member within said valve housing so as to be slidable axially between a first position and a second position along said axis of symmetry and rotatable about a radial axis orthogonal to said axis of symmetry, said radial axis being located at said second position intercepting said axis of symmetry, said plate-like valve member fitting against said interior surface of said valve housing to close said passageway when said plate-like valve member is oriented orthogonal to said axis of symmetry and said plate-like valve member opening said passageway when said plate-like valve member is oriented parallel to said axis of symmetry to allow fluid flow through said passageway;

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(v) means, responsive to operation of said engagement means to couple and uncouple the first and second connectors together, for sliding said plate-like valve member axially along said longitudinal axis of symmetry; and

(vi) means for rotating said plate-like valve member at said second position about said radial axis which is orthogonal to said longitudinal axis of symmetry.

5,738,144

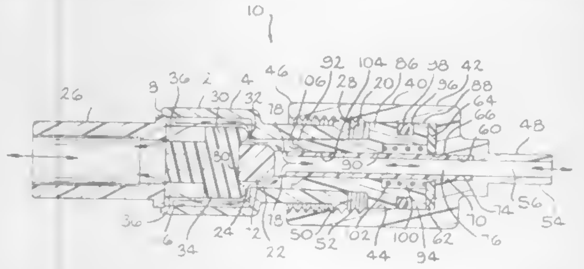
LUER CONNECTING COUPLING

Russell L. Rogers, Munith, Mich., assignor to Aeroquip Corporation, Maumee, Ohio

Filed Oct. 11, 1996, Ser. No. 729,402

Int. Cl.^{6} F16L *37/28*

U.S. Cl. 137—614.03 **18 Claims**



1. A luer body member having an exterior surface and an interior surface, said interior surface defining a passageway having a shoulder;

a resilient seal positioned in said passageway adjacent said shoulder for sealing said passageway;

a second body member having an outer surface and an inner surface, said inner surface defining a chamber;

a tubular valve having a seal end and a body end positioned in said chamber, said valve including a channel extending between said seal end and said body end, said valve defining at least one fluid opening in communication with said channel adjacent said seal end, said seal end being in communication with said resilient seal to respectively unseat and seat said resilient seal with respect to said shoulder; and

a valve sleeve in communication with said tubular valve, said sleeve being movable between a first position and a second position to respectively close and open said fluid opening of said valve.

5,738,145

VALVE ASSEMBLY FOR GAS CYLINDER

Norio Daicho, Amagasaki; Keitaro Yonezawa, Knbe; Masakatsu Kawahara, Amagasaki; Noriaki Arai, Amagasaki, and Teruo Hatori, Amagasaki, all of Japan, assignors to Kabushiki Kaisha Neriki, Hyogn, Japan

Continuation of Ser. No. 488,784, Jun. 8, 1995, abandoned. This application May 9, 1997, Ser. No. 853,414

Claims priority, application Japan, Jun. 24, 1994, 6-142736; Oct. 5, 1994, 6-241093

Int. Cl.^{6} B65B *31/06*

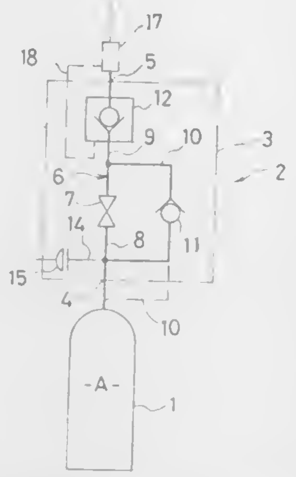
U.S. Cl. 137—878 **12 Claims**

1. A valve assembly for a gas cylinder comprising:

a valve casing (**3**) within which a stop valve (**7**) including a stop valve closure (**26**) in a stop valve chamber (**25**) is arranged between a gas inlet (**4**) and a gas outlet (**5**), the gas outlet (**5**) being suitable for attaching a gas charging mouthpiece (**17**);

a gas charging passage (**10**) adapted to communicate the gas outlet (**5**) with an interior space (A) of a gas cylinder (**1**) and arranged in parallel to the stop valve (**7**); and

a first check valve (**11**) arranged in the gas charging passage (**10**) and serving to normally block a flow from the interior space (A) of the gas cylinder (**1**) to the stop valve chamber (**25**) and the gas outlet (**5**); and



a second check valve (**12**) disposed between the first check valve (**11**) and the outlet (**5**) serving to normally block a flow from the outlet (**5**) to the stop valve chamber (**25**) and the first check valve (**11**).

5,738,146

METHOD FOR REHABILITATION OF UNDERGROUND PIPING

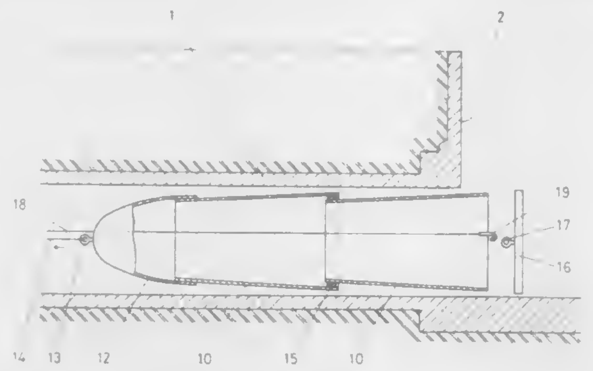
Kaoru Abe, Kawabe-gun, Japan, assignor to Sekishin Sangyo Co., Ltd., Itami, Japan

Filed Feb. 13, 1997, Ser. No. 800,282

Claims priority, application Japan, Feb. 16, 1996, 8-053821

Int. Cl.^{6} F16L *55/162*

U.S. Cl. 138—97 **4 Claims**



1. A method of rehabilitating existing underground piping extending between a first manhole and a second manhole, the method comprising:

inserting a first unit pipe into the existing underground piping from the first manhole in a direction toward the second manhole, wherein said first unit pipe comprises a tapered pipe having a diameter which gradually increases from a leading end to a trailing end without a stepped portion for a joint being formed along the entire length of said first unit pipe;

wrapping a packing material on a smaller diameter leading end of a second unit pipe, wherein said packing material comprises a rubber material which swells upon absorption of water, and said second unit pipe comprises a tapered pipe having a diameter which gradually increases from said smaller diameter leading end to a larger diameter trailing end without a stepped portion for a joint being formed along the entire length of said second unit pipe;

inserting said second unit pipe into the existing underground piping from the first manhole such that said leading end of said second unit pipe is inserted into said trailing larger diameter end of said first unit pipe; and

repeatedly inserting subsequent, unit pipes into the existing underground piping from the first manhole until said first unit

pipe reaches the second manhole such that said first, second, and subsequent pipes form a new piping inside of the existing underground piping,

wherein each of said subsequent unit pipes includes said packing and comprises a tapered pipe halving a diameter which gradually increases from a smaller diameter leading end to a larger diameter trailing end without a stepped portion for a joint being formed along the entire length of said subsequent unit pipes.

5,738,147

MODULAR, CONDUIT-ENGAGING END-FRAME

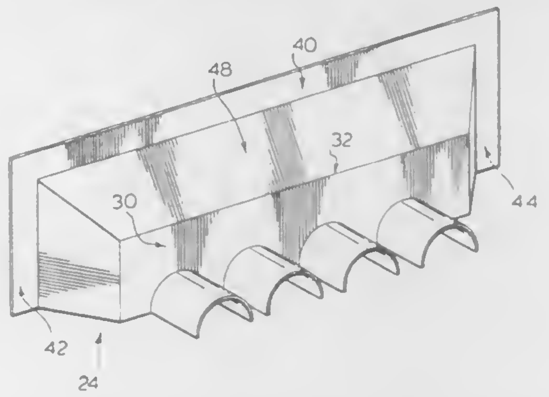
James Mestres, Kirkland, Canada, assignor to Ipex Inc., Don Mills, Canada

Continuation-in-part of Ser. No. 262,878, Aug. 11, 1994, abandoned. This application Oct. 5, 1995, Ser. No. 539,690

Claims priority, application Canada, May 6, 1994, 2123045

Int. Cl.^{6} F16L *39/00*

U.S. Cl. 138—112 **26 Claims**



1. A modular, fill-flow-preventing, conduit-engaging end-frame, without conduit extending therefrom except for conduit that engages the end-frame as defined herein, comprising:

(a) a first peripheral modular element comprising:

a substantially-rectangular, planar face member having first and second side edges and first and second end edges and having substantially no openings transversely therethrough except as defined below;

at least one flange-like member extending outwardly from the first side edge of the face member and/or from each of the end edges of the face member, and wherein the flange-like member is not rearward of the face member;

a plurality of substantially semi-circular, transverse openings through the face member and spaced along the second side edge of the face member; and

a hollow, substantially semi-cylindrical member conforming in shape to and extending rearwardly from each semi-circular opening in the face member, and wherein each semi-circular member extends transversely from the face member; and

(b) at least one intermediate modular element, wherein each intermediate modular element comprises:

a substantially-rectangular, planar face member having first and second side edges and first and second end edges and having substantially no openings transversely therethrough except as defined below;

a flange-like member extending outwardly from each of the first and second end edges of the face member of the intermediate modular element;

a plurality of substantially semi-circular, transverse openings through the face member of the intermediate modular element and spaced along the first side edge of the face member of the intermediate modular element;

a plurality of substantially semi-circular, transverse openings through the face member of the intermediate modular element and spaced along the second side edge of the face member of the intermediate modular element;

a hollow, substantially semi-cylindrical member conforming in shape to and extending rearwardly from each semi-circular opening in the face member of the intermediate modular element, and wherein each semicircular member extends transversely from the face member of the intermediate modular element; and

(c) a plurality of cylindrical, conduit-engaging members for engaging conduit, each having a conduit-sized inner diameter and each formed by a pair of opposed semi-cylindrical members of adjacent modular elements;

wherein the face member of each modular element is aligned in a first plane;

wherein the first side edge of a first of the at least one intermediate modular elements abuts against the second side edge of the first peripheral modular element;

wherein each of the intermediate modular elements is aligned adjacently one to another such that the first side edge of a next intermediate modular element abuts against the second side edge of an adjacent intermediate modular element;

wherein at least one of the flange-like members of each modular element has at least one portion through which a securing means may readily be passed; and

wherein each flange-like member of each modular element is positioned parallel to or forward of a most forward opening in the face member of the respective modular element.

5,738,148

UNIVERSAL CONNECTOR HOSE FOR JOINING AN EXTRACTOR TO AN ELEMENT FOR EXTRACTING FUMES FROM A FACTORY WORKPLACE

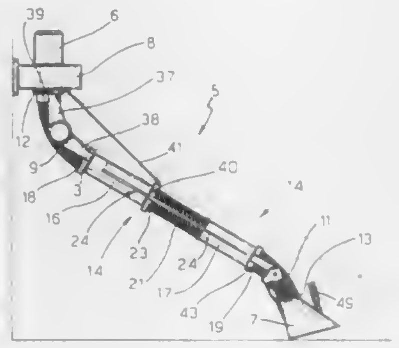
Nevio Coral; Luciano Coral, and Claudio Coral, all of Leini, Italy, assignors to Coral S.p.A., Leini, Italy

Filed Jun. 25, 1996, Ser. No. 669,918

Claims priority, application Italy, Jun. 27, 1995, TO950146 U

Int. Cl.^{6} F16L *11/00;* **B08B** *15/04*

U.S. Cl. 138—120 **12 Claims**



3. A universal connector hose for joining a suction unit and a fume-guide for extracting fumes from a workplace, comprising two flexible portions connectable respectively to the suction unit and to the fume-guide, and a straight portion disposed between the two flexible portions, the straight portion being pivotally connected to the suction unit and the fume-guide; wherein the straight portion is axially extensible and comprises two rigid tubes connected by an extensible bellows tube, and wherein the rigid tubes are held in coaxial relationship by sliding means; the sliding means comprising a pair of rectilinear guides fixed to one of the rigid tubes, and a pair of slides fixed to the other of the rigid tubes, the slides being slidably engaged by the guides.

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5,738,149

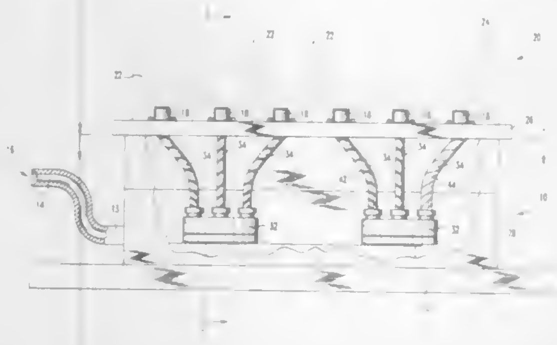
CONDUIT FOR FLEXIBLE HOT MANIFOLD ASSEMBLY FOR INJECTION MOLDING MACHINES

Charles J. Brun, Jr., Xenia, and Anthony F. Newport, New Carlisle, both of Ohio, assignors to Electra Form, Inc., Vandalia, Ohio

Division of Ser. No. 435,941, May 5, 1995, Pat. No. 5,536,164. This application Apr. 25, 1996, Ser. No. 637,613

Int. Cl.⁶ F16L *11/14*

U.S. Cl. 138—134 **11 Claims**



1. A conduit for use in transporting plastic resin from a plasticator injection unit to an injection mold cavity, the conduit comprising a metal tube having two ends and a smooth interior surface of a selected diameter, and including at least one flexible curved portion having a finite radius of curvature several times the tube diameter for permitting thermally induced changes in the radius of curvature and curvilinear length of the at least one flexible curved portion while maintaining a constant relative position of the two ends.

5,738,150

WEAVING MACHINE COVER

Kristof Roelstraete, Zwevegem, Belgium, assignor to Picanol N.V., Leper, Belgium

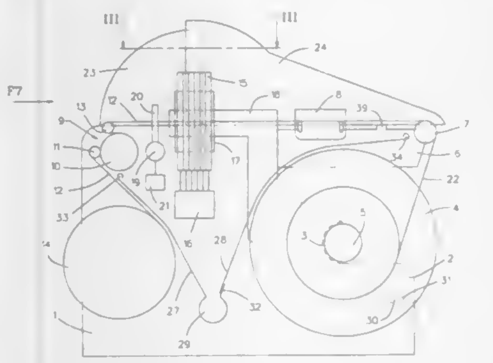
PCT No. PCT/EP95/02226, § 371 Date Mar. 18, 1997, § 102(e) Date Mar. 18, 1997, PCT Pub. No. WO95/34701, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 9, 1995, Ser. No. 750,528

Claims priority, application Belgium, Jun. 15, 1994, 09400575

Int. Cl.⁶ D03D *49/02*; D03J *1/00*

U.S. Cl. 139—1 C **17 Claims**



1. A weaving machine including a back rest and also including two separable major assemblies, a first one of said two assemblies including a device for removing a manufactured fabric and the second one of said assemblies including a support for a warp beam;

- at least one shield located between the back rest and the device for removing the fabric;
- said at least one shield comprising a pair of covers, each cover of said pair being mounted on one of said major assemblies so as to be separable from the other cover with a respective assembly when the assemblies are separated;
- said covers arranged to cooperate with each other to shield a portion of the weaving machine when major assemblies are joined together.

5,738,151

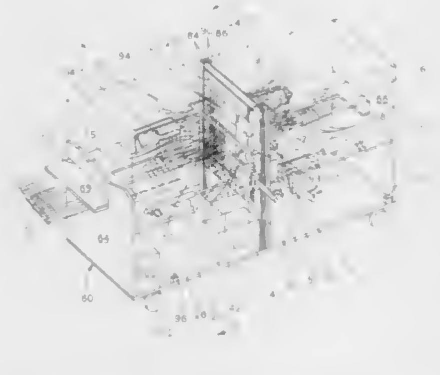
SEAM LOOP FORMATION DEVICE AND METHOD OF OPERATION

Henry J. Lee, Greenville, S.C., assignor to Asten, Inc., Charleston, S.C.

Filed Aug. 13, 1996, Ser. No. 696,055

Int. Cl.⁶ D03D *41/00*; D03J *1/14*

U.S. Cl. 139—383 AA **11 Claims**



1. A shed formation device for forming seam loops and seam finished ends on an end of an open ended fabric which is positioned adjacent the shed formation device, the fabric having cross machine direction (CMD) yarns interwoven with machine direction (MD) yarns, each of the MD yarns having a portion in a fabric body and a portion in a fabric fringe at the end of the fabric, the shed formation device comprising:

- a frame member;
- at least two movable harnesses connected to the frame member, each harness having a plurality of heddles for receiving CMD yarns;
- means for moving the harnesses to form shed openings;
- spreader means for expanding the shed openings;
- means for unweaving a portion of each MD yarn adjacent the fabric fringe;
- leasing means for temporarily retaining a portion of the unwoven MD yarns;
- means for removing select CMD yarns from the fabric body adjacent the fabric fringe;
- means for selectively presenting additional CMD yarns to the fabric body adjacent to the fabric fringe; and
- means for weaving the additional CMD yarns with selected MD yarns to selectively form seam loops and seam finished ends which will intermesh with seam loops and seam finished ends on a second end of the fabric.

5,738,152

COMPACT HAND OPERATED PNEUMATIC STRAPPING TOOL

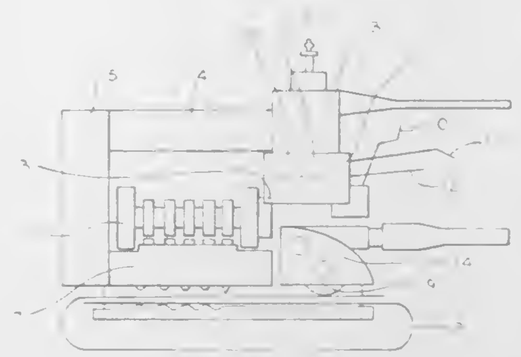
David Crittenden, Schaumburg, Ill., assignor to Illinois Tool Works Inc., Glenview, Ill.

Continuation of Ser. No. 509,356, Jul. 31, 1995, abandoned. This application Feb. 18, 1997, Ser. No. 801,175

Int. Cl.⁶ B21F *15/04*

U.S. Cl. 140—93.4 **4 Claims**

1. A compact hand-operated pneumatic strapping tool for the tensioning and sealing of a pair of overlapping strap sections around an object comprising:



- A strap tensioning means for tensioning the overlapping sections of straps thereby defining a tensioning step, said tensioning means comprised of a pneumatic strap tensioning motor that includes a gear housing assembly connected to a tension wheel, said tension motor controlled by a tension lever that engages a tension valve, said tension valve for regulating air into said tensioning motor;
- a sealer means for punching a plurality of interlocking slits through the overlapping strap sections thereby defining a sealing step, the sealer means comprised of a pneumatic strap sealing motor that includes a gear box, said gear box connected to a cam shaft having a sealer cam and a release cam attached thereto, said sealer motor controlled by a sealer lever that engages a spring-biased sealer valve, said sealer valve regulating air into said sealer motor upon downward depression of said sealer lever, thereby overcoming said spring bias, said sealer cam and release cam each having a respective cam surface, said release cam including a tooth thereon, said release cam located on a distal end of said cam shaft opposite of said gear box, wherein said sealer means includes a sealer follower module for sealing the overlapping strap sections, said sealer follower module in contact against said sealer and release cam surfaces;
- a valve module for housing the sealer valve and the tension valve, each of said valves having an on and an off position,
- a sealer disengagement means for terminating the sealing step, the sealer disengagement means interposed between the release cam and the sealer valve, said sealer disengagement means disengaging the sealing of the overlapping strap sections by closing the sealer valve, the sealer disengagement means comprised of a spring-biased pawl having a release tooth with a release tooth surface and a sealer valve support with a sealer valve support surface, the tooth of the release cam in operative contact with the release tooth surface of the pawl when said sealer valve is closed, the sealer valve support surface of the pawl in operative contact with the sealer valve when said sealer valve is opened on a downward depression of the sealer lever, whereby an open condition of the sealer valve causes activation of said sealer motor, said sealer cam and said release cam, thereby causing a revolution of said release cam, whereby
- the release cam tooth engages against the release tooth surface of the pawl and overcomes said pawl bias to rotate the pawl in a manner which disengages the sealer valve support surface with the sealer valve and causes termination of the sealing step, and wherein a successive downward depression of the sealed lever causes disengagement of the release cam tooth with the release tooth surface of the pawl, allowing the pawl bias to rotate the pawl such that the sealer valve support surface holds the sealer valve in the open and on position, causing a beginning of the next successive sealing step.

5,738,153

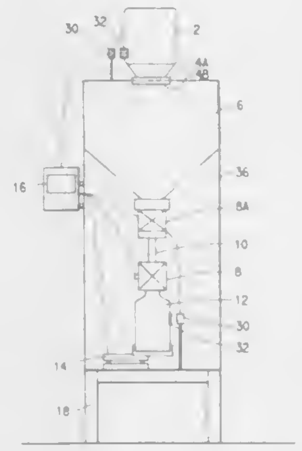
MEASURING AND DISPENSING SYSTEM FOR SOLID DRY FLOWABLE MATERIALS

Joseph Francis Gerling, West Grove, Pa.; Paul Allen Nolte, Memphis, Tenn., and Laurence Alfred Shaul, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 1, 1996, Ser. No. 740,813

Int. Cl.⁶ B65B *1/04*

U.S. Cl. 141—83 **10 Claims**



10. A method for measuring and dispensing solid dry flowable materials comprising

- placing a quantity of solid dry materials into a refill container
- discharging a portion of the materials therefrom through a transfer valve into a hopper;
- further discharging a portion of the materials residing in the hopper through a control valve into a transfer container; and
- weighing the amount of materials residing in the transfer container;
- wherein means is provided for identifying both said refill container and said transfer container in order to regulate the flow of material between said refill container and said hopper, and said hopper and said transfer container, respectively

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5,738,154

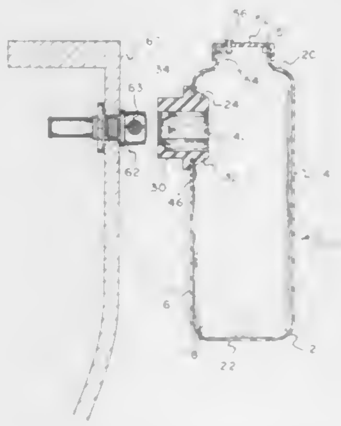
GASOLINE SPILL ELIMINATOR

Thomas G. Garvey, III, 44 Washburne Ave., Berlin, N.J. 08009

Filed Feb. 3, 1997, Ser. No. 792,396

Int. Cl.⁶ B65B *3/04*

U.S. Cl. 141—86 **8 Claims**



1. A gasoline spill eliminator for attachment to the hull of a boat and over an overflow vent stack extending therefrom comprising

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a container for collecting and storing fuel emitted from said overflow vent stack, said container having a rear wall and a top wall, said rear wall having an inlet opening therein;

a flexible connector member having a first section, a second section, an outer surface and an inner surface, said inner surface defining a bore, said first section being adapted to extend into said container through said inlet opening in said rear wall thereof, said second section being adapted to overlie said overflow vent stack, which extends from said boat, and frictionally engages the same, and

means for securing said connector member to said rear wall of said container wherein said securing means includes a groove located around the outer surface of said connector member between said first and second sections thereof, said rear wall extending into and around said groove in said connector member.

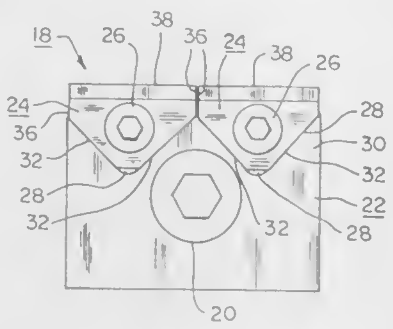
5,738,155
TREE STUMP CUTTING APPARATUS
Gary Cochran, 3052 N. Forrest Lakes, Wichita, Kans. 67205
Filed Jan. 10, 1997, Ser. No. 781,239
Int. Cl.^{6} A01G *23/06*
U.S. Cl. 144—24.12 **24 Claims**

1. An auxiliary tree stump cutting apparatus for attachment to a skid steer front loader construction vehicle, the skid steer front loader construction vehicle having parallel left and right lift arms, the left and right lift arms each having a front end and a pivoting end, the pivoting ends of the left and right lift arms being respectively pivotally mounted upon opposing left and right sides of the skid steer front loader construction vehicle the skid steer front loader construction vehicle having an operator's seat mounted thereon and positioned between the left and right lift arms, and the skid steer front loader construction vehicle having an hydraulic power system; the auxiliary tree stump cutting apparatus comprising:

(A) A support structure having a front side, a back side, a right side, and a left side, the back side of support structure having a plurality of attachment means adapting the support structure for fixed attachment to the front ends of the left and right lift arms of the skid steer front loader construction vehicle so that the support structure may span between and may be supported by said left and right lift arms, and,

(B) A cutting wheel extension arm having a base and a front end, the base of the cutting wheel extension arm being pivotally mounted upon the support structure and being positioned thereon so that, upon attachment of the support structure to span between the front ends of the left and right lift arms of the skid steer front loader construction vehicle, the operator's seat will lie between one of the lift arms and a vertical plane the vertical plane being parallel to the lift arms, and the vertical plane passing through the base of the cutting wheel extension arm.

5,738,156
REMOVABLE CUTTING BLADES FOR A HELICAL CUTTERHEAD
John S. Stewart, 6921 Charnel La., Climax, N.C. 27233
Continuation-in-part of Ser. No. 559,024, Nov. 16, 1995, Pat. No. 5,603,365. This application Nov. 13, 1996, Ser. No. 748,633
Int. Cl.^{6} B27L *1/00;* B27C *1/00;* B26D *1/00*
U.S. Cl. 144—373 **16 Claims**



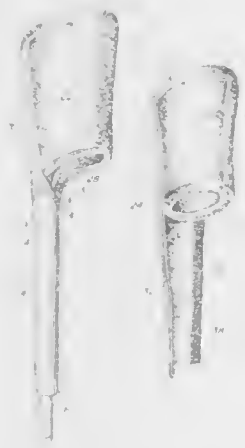
1. A cutterhead for an industrial woodworking machine, the cutterhead including a generally cylindrical portion, a plurality of circumferential, spaced grooves extending into the cutterhead body from the periphery of the cylindrical portion, said grooves including a plurality of blade unit mounting cavities, and means for removably securing each of the removable blade units in its respective mounting cavity in the grooves, the blade unit mounting cavity comprising:

a hole to receive the means for removably securing the blade unit in its respective mounting cavity in the grooves, and

at least one flat raised portion,

said blade units each including at least one blade edge and configured to have said blade edges disposed to align with blade edges of other blade units in other mounting cavities to form a substantially helical blade when said blade units are secured to said blade unit securements in a cutterhead, said blade units each including a flat side that abuts one of said flat raised portions of said blade unit mounting cavity, wherein said mounting cavity further includes flat raised portions and said blade units are triangular with cut-off corners so that adjacent blade units have adjacent cut-off corners and include a flat side that abuts one of said flat raised portions.

5,738,157
GOLF CLUB HEAD COVER AND SHAFT PROTECTOR
John Gaffney, 4420 E. Osborn, Phoenix, Ariz. 85018
Filed Oct. 21, 1996, Ser. No. 729,639
Int. Cl. A63B *57/00*
U.S. Cl. 150—160 **18 Claims**

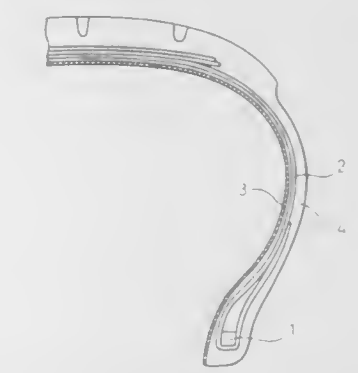


13. A golf club head cover including in combination:

a generally hollow cylindrically shaped head cover for the head of a golf club, said head cover comprising a first portion having an upper end and a lower end, said upper end being closed and said lower end being open; and

an elongated shaft protector having a predetermined length, with first and second edges and made of flexible martial, with said first and second edges of said shaft protector secured respectively to the outside of said first portion near the upper end thereof and extending downwardly beyond said open lower end of said first member of said head cover a predetermined distance below said lower end of said first member, said shaft protector being normally open throughout the length thereof and including closure means thereon for closing said shaft protector around a shaft of a golf club.

5,738,158
PNEUMATIC TIRE WITH AIR PERMEATION PREVENTION LAYER
Osamu Ozawa; Noriaki Kuroda; Jiro Watanabe; Masahirn Ikawa, and Tetsuji Kawazura, all of Hiratsuka, Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan
Filed Jan. 24, 1996, Ser. No. 590,894
Claims priority, application Japan, Jan. 25, 1995, 7-009850; Mar. 15, 1995, 7-055930
Int. Cl.^{6} B60C *5/14*
U.S. Cl. 152—510 **10 Claims**



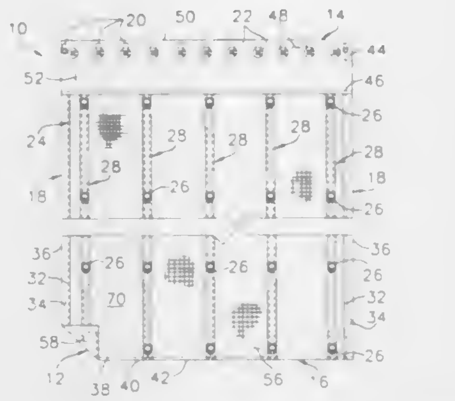
1. A pneumatic tire having an air permeation prevention layer therein, said layer comprising a thin film of a resin composition including at least 20% by weight of a thermoplastic polyester elastomer comprised of a block copolymer of polybutylene terephthalate and polyoxyalkylene diimide diacid at a weight ratio of polybutylene terephthalate/polyoxyalkylene diimide diacid of 85/15 or less.

5,738,159
WINDOW DRAPE WITH SELECTIVELY ADJUSTABLE APPEARANCE
Jane H. O'Brien, 4606 Edgefield Rd., Bethesda, Md. 20814
Filed Dec. 17, 1996, Ser. No. 768,240
Int. Cl.^{6} A47H *5/00*
U.S. Cl. 160—84.01 **14 Claims**

1. A window drape comprising

a face panel having front and back sides; and

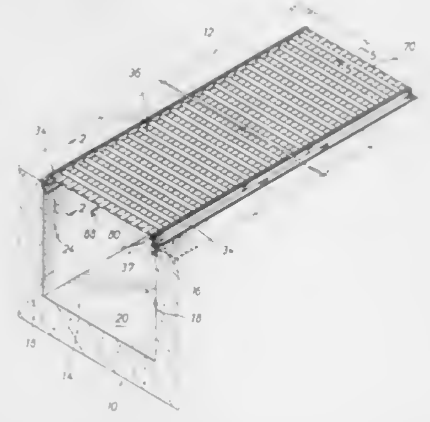
a liner having marginal and intramarginal portions positioned against said back side of said face panel, said liner carrying plural lengths of shirring tape oriented to extend between top and bottom marginal portions of said liner at a respective plurality of laterally spaced locations across a width of said liner and a plurality of guide elements arranged in a plurality of rows and columns, each length of tape defining a channel between said top and bottom marginal portions of said liner and including a drawstring secured at a lower end to said liner and extending through said channel to an upper end disposed adjacent said top marginal portion of said liner;



said face panel having a pair of laterally opposed marginal portions folded against laterally opposed marginal portions of said liner and secured along respective vertically extending lines to define a pair of finished lateral edges for the drape, a lower marginal portion folded against said bottom marginal portion of said liner and secured along a laterally extending line to define a finished lower edge for the drape, and an upper marginal portion folded against said top marginal portion of said liner and secured along a pair of first and second laterally extending parallel lines to define an upper hem between a finished upper edge of the drape and said first line of securement and a rod pocket between said first line of securement and said second line of securement;

wherein said intramarginal portion of said liner is not secured to said face panel so that only marginal portions of said liner transmit lifting forces to said face panel thereby permitting arrangement of said window drape in a plurality of free-hanging and gathered styles without detracting from the overall appearance of the drape.

5,738,160
REMOVABLE COVER FOR AUTOMOBILE SERVICE PIT AND METHOD OF INSTALLATION
Ben K. Rice, Houston, Tex., assignor to BRW Unlimited Services, Inc., Houston, Tex.
Continuation-in-part of Ser. No. 354,555, Dec. 13, 1994, abandoned. This application Nov. 18, 1996, Ser. No. 746,862
Int. Cl.^{6} E06B *9/06*
U.S. Cl. 160—84.06 **13 Claims**



1. For an automotive service pit having a generally rectangular floor opening: an improved covering device for covering the rectangular floor opening comprising:

a pair of longitudinally extending cover support members for securement along said rectangular opening;

a flexible cover for said rectangular opening of a width less than the width of said rectangular opening and supported on said pair of support members; said cover comprising a web net

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formed of a fabric material and including a plurality of spaced transverse webs connected to a plurality of spaced longitudinal webs;
a plurality of anchor members having an outer end mounted on said cover support members for sliding movement along said cover support members, said anchor members having inner ends thereof mounted on selected transverse webs for supporting said cover for manual sliding movement along said cover support members;
said transverse webs having loops on opposed ends thereof and said anchor members being received within said loops;
adjustable means on said anchor members to adjust the length of said anchor members to provide a desired tautness to said selected transverse webs; and
means for removably securing one end of said cover to permit movement of said anchor members and cover between covered and uncovered positions of said floor opening.

5,738,161

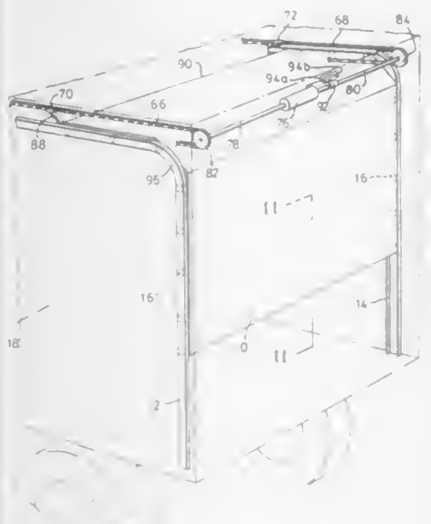
ROLL UP DOOR

John C. Martin, Toronto, Canada, assignor to Diesel Equipment Limited, Ontario, Canada

Filed Sep. 9, 1996, Ser. No. 711,205

Int. Cl.⁶ E05D *15/06*

U.S. Cl. 160—201 **9 Claims**



1. A roll up door system, comprising:
a roll up door having plurality of panels in spaced edge-to-edge relation;
a flexible sheet having a face which is adjacent an outer face of each of said panels, said sheet joined to each of said panels such that said sheet acts as an outer hinge for said plurality of panels;
a pair of generally inverted L-shaped guide channels, each having a linear lower section, a curved middle section and a linear upper section;
a roller extending from each end of each of said panels, with rollers extending from a given end of said panels being received within one of said guide channels;
a flexible belt joined to each pair of adjacent panels at an inner face of each panel of said each pair of adjacent panels
arranged such that when said rollers of said pair of panels to which said flexible belt is joined ride in said lower section of said guide channels, said flexible belt is taut and when the rollers of one of said pair of panels to which said flexible belt is joined ride in said lower section of said guide channels and another of said pair of panels to which said flexible belt is joined ride in said middle section or said upper section of said guide channels, said flexible belt is collapsed, whereby said flexible belt acts as an inner hinge.

5,738,162

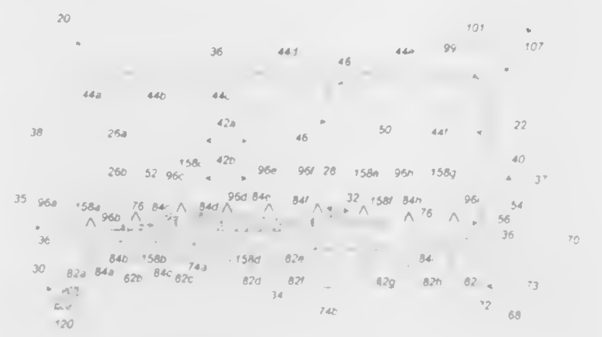
TERRACED FLUIDIZED BED

Scott P. Crafton, Marietta, Ga., assignor to Consolidated Engineering Company, Inc., Kennesaw, Ga.

Filed Feb. 20, 1997, Ser. No. 803,413

Int. Cl.⁶ B22D *29/00;* **B02C** *19/12*

U.S. Cl. 164—5 **20 Claims**



1. A method for heat treating a casting having sand core material attached thereto and reclaiming sand from the sand core material, the sand core material comprising sand particles bound together by a combustible binder material, and the method comprising steps of:
conveying the casting through a furnace chamber that defines a plurality of zones that are spatially displaced from one another,
heating the core materials within the casting whereby, over time portions of the sand core material are loosened and fall from the casting such that the distribution of sand core materials across the plurality of zones is varied; and
reclaiming sand from the fallen sand core materials including a step of compensating for the varied distribution of sand core materials by terracing said sand core material in said plurality of zones.

17. A furnace system for heat treating a casting having sand core material attached thereto and reclaiming sand from the sand core material, the sand core material comprising sand particles bound together by a binder material, the sand core material defining a cavity within the casting, and the furnace system comprising:
a heating work chamber for receiving the casting therewithin;
heating means for heating said heating work chamber to a temperature sufficient to heat treat the casting and dislodge portions of the sand core material from the casting, whereby portions of the sand core material fall from the casting while the casting is within said heating work chamber;
a receptacle for receiving the fallen portions of the sand core material and in gaseous and heat communication with said heating work chamber, said receptacle including
  a bottom, and
  a plurality of walls extending upward from said bottom and cooperating with said bottom to define a cavity disposed above said bottom and partially bounded by said plurality of walls;
a fluidizer for fluidizing the sand core material within said receptacle to reclaim sand; and
a plurality of weir conduits in said cavity wherein each weir conduit of said plurality of weir conduits defines an elongated passage and includes
  a first end including a weir edge that defines an upper weir opening that is open to said passage, wherein sand flows over said weir edge into said passage to exit the receptacle, and wherein said opening is disposed above said bottom to define a weir height, and
  a second end, wherein said passage is open at said second end and the sand flows from said second end to exit said receptacle, and
wherein said weir conduits of said plurality of weir conduits define different weir heights.

5,738,163

LEVITATION MELTING METHOD AND A LEVITATION MELTING AND CASTING DEVICE

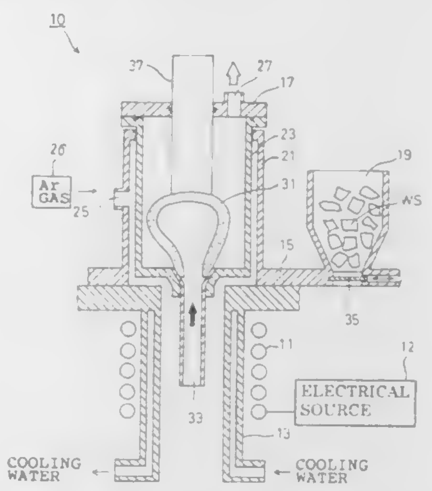
Noboru Demukai, Gifu-ken; Masayuki Yamamoto, and Junji Yamada, both of Nagoya, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan

Filed Apr. 3, 1996, Ser. No. 628,582

Claims priority, application Japan, Jun. 26, 1995, 7-159215

Int. Cl.⁶ B22D *27/02;27/15*

U.S. Cl. 164—493 **17 Claims**



1. In a levitation method of melting metal, in a water cooled copper crucible having an induction heating coil wound therearound, without contacting an inner surface of said water cooled copper crucible, the improved method comprising the steps of:
(a) delivering a portion of said molten metal to a casting mold for molding a desired product while a portion of said molten metal is still remaining in said water cooled copper crucible;
(b) adding additional metal pieces, from a metal holder, to said molten metal remaining in said water cooled copper crucible;
(c) melting said additional metal pieces to obtain molten metal such that molten metal is prevented from contacting an inner wall surface of said water cooled copper crucible;
(d) repeating said steps (a), (b) and (c).

5,738,164

ARRANGEMENT FOR EFFECTING AN ENERGY EXCHANGE BETWEEN EARTH SOIL AND AN ENERGY EXCHANGER

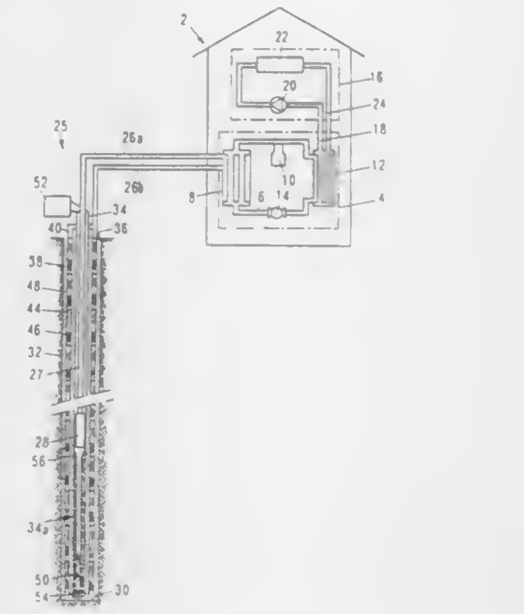
Hans Hildebrand, Baar, Switzerland, assignor to Geohil AG, Hunenberg, Switzerland

Filed Nov. 15, 1996, Ser. No. 751,135

Int. Cl.⁶ F28D *15/00*

U.S. Cl. 165—45 **12 Claims**

1. An arrangement for effecting an energy exchange between earth soil and an energy exchanger, the arrangement comprising:
a soil heat exchanger; and
supply and return flow conduits for connecting the soil heat exchanger with the energy exchanger,
wherein the soil heat exchanger comprises:
a thermoinsulated supply flow duct arranged in a borehole formed in ground;
a pump provided at an end of the flow duct;
a shroud pipe surrounding the flow duct and the pump and having a section with a reduced inner cross-sectional area located beneath the pump and provided with a plurality of lateral inlet openings; and
a return flow region for return water located radially outwardly of the shroud pipe and including return flow pipe means, connectable with the return flow conduit, and a porous filling, the return flow region communicating, in a vicinity of a borehole bottom, with an interior of the shroud pipe through the lateral inlet openings provided in the shroud pipe section with the reduced inner cross-sectional area.



5,738,165

SUBSTRATE HOLDING APPARATUS

Yuji Imai, Ohmiya, Japan, assignor to Nikon Corporation, Tokyo, Japan

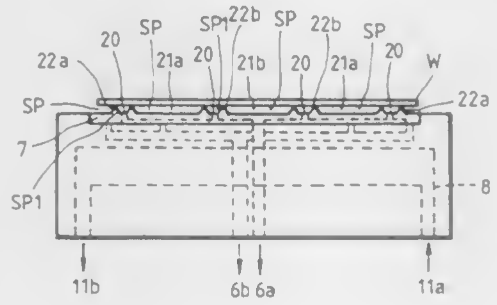
Continuation of Ser. No. 175,124, Dec. 29, 1993, abandoned.

This application Jun. 5, 1995, Ser. No. 462,589

Claims priority, application Japan, May 7, 1993, 5-106469

Int. Cl.⁶ F28F *7/00*

U.S. Cl. 165—80.2 **16 Claims**



1. An exposure apparatus that forms patterns of a mask in plural shot areas on a substrate by an operating cycle involving repeated exposure and displacement of said substrate, and that includes a substrate holding apparatus comprising:
a) a substrate holding unit having plural protruding portions to support said substrate thereon for exposure and displacement,
b) a temperature regulating unit that absorbs heat accumulated in said substrate holding unit by contact with said substrate holding unit;
c) a temperature control unit that controls temperature of said temperature regulating unit by removing heat from said temperature regulating unit during said operating cycle; and
d) a fixation unit which releasably holds said temperature regulating unit contact with said substrate holding unit,
e) wherein said substrate holding unit is formed as a thin plate effective to ensure that localized heat formed on said substrate upon exposure is dissipated to achieve a substantially uniform thermal distribution.

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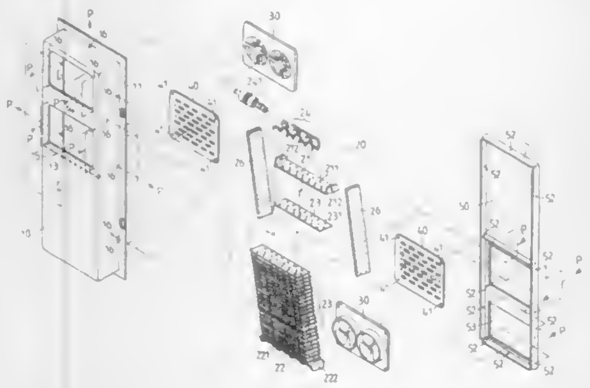
5,738,166
HEAT EXCHANGER

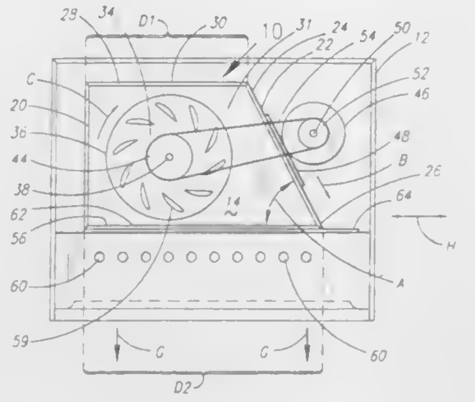
Ching-Long Chou, 58, Ma Yuan West St., Taichung, Taiwan
Continuation-in-part of Ser. No. 594,431, Jan. 31, 1996, abandoned. This application Jan. 21, 1997, Ser. No. 786,802
Int. Cl.⁶ F28D *15/02*
U.S. Cl. 165—104.21 **1 Claim**



1. A heat exchanger comprising:
a hollow main body coupling with a positioning plate to define an interior of said hollow main body;
said hollow main body having a peripheral base plate, a first air exhaust exit and a first fan opening formed on an upper surface of said main body;
said first air exhaust exit disposed below said first fan opening;
a blocking wall disposed transversely in said main body below said first air exhaust exit;
said blocking wall and a condensing device dividing said interior of said main body into an upper and a lower chamber;
said positioning plate having a peripheral flange to be inserted in said main body; a second air exhaust exit, and a second fan opening disposed below said second air exhaust exit;
first and second fans positioned on said first fan opening and said second fan opening, respectively;
first and second filter plates positioned on said first air exhaust exit and said second air exhaust exit, respectively;
said condensing device disposed in said main body slantwise, upper end of said condensing device leaning on said main body just above said first air exhaust exit, a lower end of said condensing device leaning on said positioning plate just below said second air exhaust exit;
said condensing device having an upper plate, a lower plate, a plurality of radiation fins disposed between said upper plate and said lower plate spacedly, and a winding cooling pipe passing through said radiation fins vertically;
a vacuum ejector connected to an end of said winding cooling pipe;
a plurality of first through holes formed on said upper plate;
a plurality of second through holes formed on said lower plate;
each of said radiation fins having a plurality of penetration holes to be passed through by said winding cooling pipe; and
two heat-insulated sponge pads sealing two opposite sides of said condensing device.

5,738,167
BLOWER FAN HOUSING ASSEMBLY

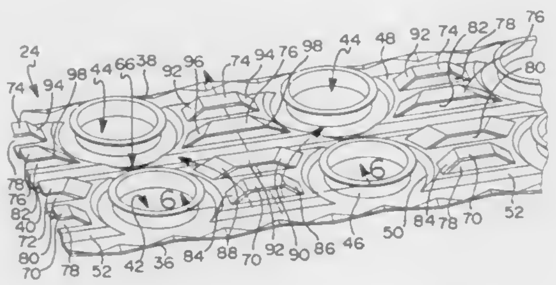
Norman H. Ashjornson, and Henry C. Bierwirth, both of Tulsa, Okla., assignors to Aaon, Inc., Tulsa, Okla.
Filed Feb. 8, 1996, Ser. No. 598,371
Int. Cl.⁶ F28F *13/12*; **F04D** *29/44*
U.S. Cl. 165—122 **14 Claims**



1. An energy efficient, improved blower fan housing assembly employing a backwardly inclined blower fan for use in a commercial heating ventilation and air conditioning unit comprising,
four walls attached at their side edges so as to define an enclosed area therebetween, edges of a top plate attaching to upper edges of said four walls, at least one wall of said four walls being oriented at an angle from horizontal so that an upper end of said at least one wall is a shorter distance to an opposite wall of the four walls than a second distance measured between a lower end of said at least one wall and said opposite wall,
lower extremities of said four walls forming a bottom discharge opening which communicates with said enclosed area, and
a front wall of said four walls being provided with a front inlet opening which communicates with a center cavity of a backwardly inclined blower fan rotatably mounted within said enclosed area.

5,738,168
FIN TUBE HEAT EXCHANGER

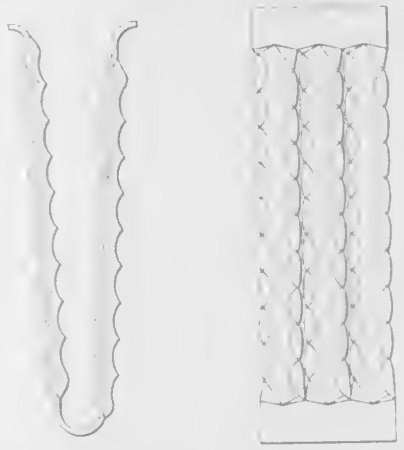
Ramchandra L. Patel, Southgate, and Shyr-ing Hu, Bloomfield Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Dec. 8, 1995, Ser. No. 569,545
Int. Cl.⁶ F28D *1/04*
U.S. Cl. 165—151 **15 Claims**



1. A conductive fin for a heat exchanger comprising:
an elongated fin member having a pair of longitudinally extending edges and a centerline extending between said edges and bisecting said fin member;
said fin member having two rows of tube receiving apertures extending the length of said fin member with one of said two rows located on either side of said centerline so as to form a series of closely spaced pairs of apertures located in-line and substantially parallel to the flow of air across the heat exchanger;
said tube receiving apertures including circular collars extending from the plane defined by said fin member for engaging heat exchanging tubes, said fin members including platform portions bent from the plane of said fin member and located between adjacent tube receiving apertures in each of said two rows of tube receiving apertures, each of said platform portions including arcuate flow surfaces which are spaced from but follow the contour of said circular collars of said tube receiving apertures to aid in channeling air between respective pairs of said tube receiving apertures;
two rows of raised members extending the length of said fin member with one of said two rows of raised members located on either side of said centerline bisecting said fin member so as to form a series of closely spaced pairs located between any two tube receiving apertures in each of said rows of tube receiving apertures, each one of said respective pairs of said raised members arranged so as to be symmetrical about said centerline;
each of said raised members being offset relative to the plane of said fin member so as to define two openings adapted to accommodate the flow of air over said fin member and to reduce a velocity boundary layer thereof with one of said two openings being smaller than the other and the larger of said two openings located adjacent said centerline of said fin member; and
each of said raised members defining a pair of legs extending from the plane of said fin member and positioned to channel air flowing between said raised member and said tube receiving aperture into the space between each respective pair of apertures so as to increase the coefficient of heat transfer therebetween.

5,738,169
HEAT EXCHANGER WITH TURBULATED LOUVERED FIN, MANUFACTURING APPARATUS AND METHOD

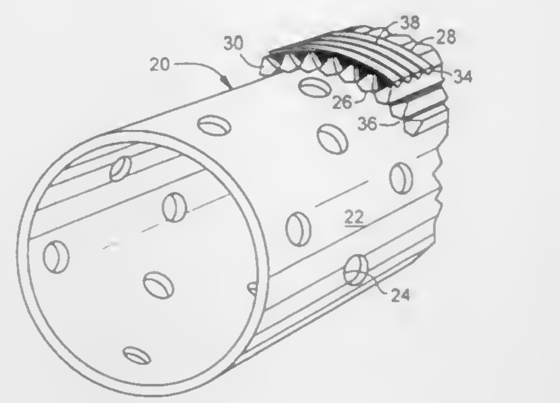
Richard P. Stoynoff, Woodhaven, Mich., assignor to Livernois Research & Development Co., Dearborn, Mich.
Filed Nov. 7, 1995, Ser. No. 554,482
Int. Cl.⁶ F28D *1/02*
U.S. Cl. 165—152 **8 Claims**



1. A heat exchanger comprising:
at least one row of flattened tubes through which a heat exchange medium may pass:
a serpentine fin supported between adjacent tubes, the fin defining a plurality of louvers therein, each louver forming an elongated slit through which a fluid to be heated or cooled by the medium may pass; and
a corrugated edge that extends from a generally flat basal portion of one or more of the louvers for creating turbulence in the fluid, thereby disturbing laminar flow of the fluid across the louvers and promoting transfer of thermal energy between the medium in the tubes and the fluid.

5,738,170
COMPACT DOUBLE SCREEN ASSEMBLY

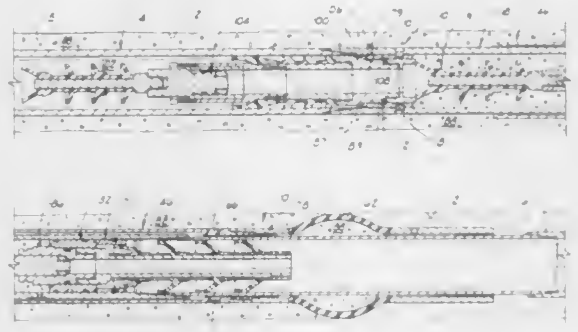
Philippe O. Lavernhe, Poitiers, France, assignor to United States Filter Corporation, Palm Desert, Calif.
Filed Sep. 3, 1996, Ser. No. 707,300
Int. Cl.⁶ E21B *43/08*
U.S. Cl. 166—228 **15 Claims**



1. A generally cylindrical double screen assembly comprising a plurality of parallel rods extending essentially parallel to and spaced from the central axis of the screen assembly, and adjacent ones of said parallel rods being separated by an inter-rod spacing distance or rod slot opening dimension X, the rods having a wire helically wound thereabout and welded thereto so that adjacent wire segments have an inter-wire segment or wire slot opening dimension Y, wherein the improvement comprises X being between 80–120% of Y and wherein a porous media is located in the internal cavity formed between the wire and the sidewall portions of the rods which are located above the point at which adjacent rods are closest to each other.

5,738,171
WELL CEMENTING INFLATION PACKER TOOLS AND METHODS

David D. Szarka, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.
Filed Jan. 9, 1997, Ser. No. 775,534
Int. Cl.⁶ E21B *33/13*
U.S. Cl. 166—289 **20 Claims**



1. An improved cementing tool which includes an inflatable formation packer for use in a well bore comprising:
(a) an elongate tubular housing adapted to be connected in a string of pipe to be cemented in said well bore, said tubular housing including a packer inflating port disposed in a wall thereof;
(b) an internal opening sleeve slidably disposed within said housing and movable between a first position whereby said packer inflating port is closed and a second position whereby said packer inflating port is open, said opening sleeve being adapted to receive a first cementing plug in sealing and locking engagement therewith;
(c) an external packer sleeve having a pressurized fluid inflatable packer element attached thereto sealingly disposed over the outer surface of said housing and said packer inflating port therein, said packer sleeve having an internal diameter greater than the external diameter of said housing thereby providing a passageway between said housing and said packer sleeve from said packer inflating port to said inflatable packer element, and said packer sleeve including a cementing port disposed in a wall thereof between said packer element attached thereto and said packer inflating port in said housing;
(d) check valve means disposed in said passageway between said packer element and said cementing port for allowing a

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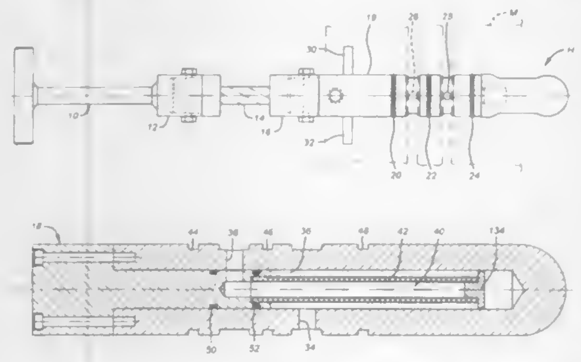
packer inflating fluid to flow from said packer inflating port to said packer element while preventing reverse flow therebetween; and

(e) a fluid pressure rupturable member having a predetermined rupture pressure sealingly attached to said packer sleeve over said cementing port therein.

5,738,172
FILTER FOR FLUID CIRCUITS

Brian J. van Mook; Mario R. Lugo, both of Houston; Larry D. Douglas, Cypress, and Terry Lee McInturff, Tomball, all of Tex., assignors to Oceaneering International, Inc., Tomball, Tex.

Filed Apr. 30, 1996, Ser. No. 640,065
Int. Cl.⁶ E21B *34/10;43/01;43/08*
U.S. Cl. 166—344 **19 Claims**



1. A method of filtering within a fluid control system for a well comprising:
putting at least one filter element in a housing;
securing the housing in the control system where it is selectively removable;
forming said housing as part of a hot stab assembly;
inserting or removing said housing in a subsea manifold.

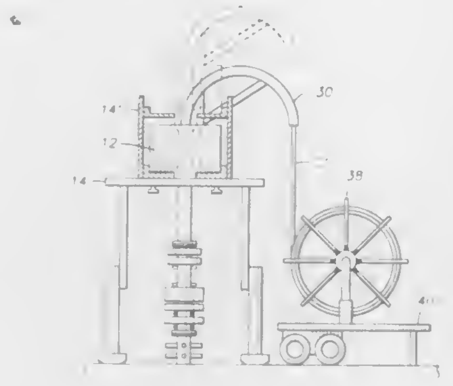
4. A method of filtering within a fluid control system for a well comprising:
putting at least one filter element in a housing;
securing the housing in the control system where it is selectively removable;
providing a barrier into said filter that opens at a predetermined differential pressure;
allowing said barrier to break when the pressure drop across said filter exceeds a predetermined value;
bypassing said filter within said housing when said barrier is broken.

5,738,173
UNIVERSAL PIPE AND TUBING INJECTION APPARATUS AND METHOD

Philip Burge; Peter Fontana; Glenn Leroux, all of London, United Kingdom, and Friedhelm Makohl, Hermannsburg, Germany, assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 402,117, Mar. 10, 1995, abandoned, Ser. No. 524,984, Sep. 8, 1995, and Ser. No. 543,683, Oct. 16, 1995. This application Feb. 13, 1996, Ser. No. 600,842
Int. Cl.⁶ E21B *19/08*
U.S. Cl. 166—385 **30 Claims**

1. An improved injection apparatus for running both jointed and coiled tubular members into and out of a well bore in the earth, said apparatus comprising:
a support structure adjacent to a well bore;
an injector carried by said support structure in an operative position, said injector being capable of releasably gripping a

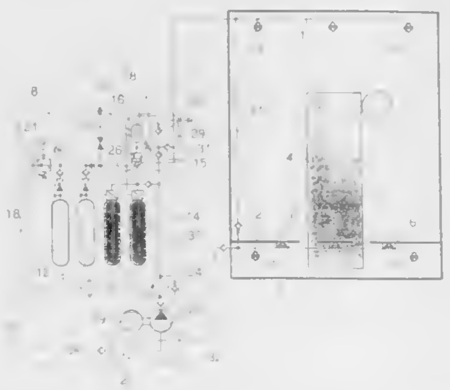


selected jointed or coiled tubular member and selectively conveying said tubular member vertically relative to the well bore, while in said operative position;
a working platform secured to said support structure, said working platform being positioned relative to said injector so as to provide access to the tubular member above said working platform for personnel working while supported on said working platform, with said injector held in said operative position;
a reel support for rotatably carrying a reel of coiled tubing adjacent to said injector; and
a tubing guide member positioned above said working platform and extending generally between said injector and said reel support for directing tubing between said injector and the reel;
wherein said guide member has two ends and holds the coiled tubing in a generally arched configuration, with a first said end being disposed generally toward said injector, and a second said end being disposed generally toward said reel support.

5,738,174
GAS-DRIVEN METHOD FOR FIGHTING FIRE

Göran Sundholm, Ilmari Kiannon kuja 3, FIN-04310 Tuusula, Finland

PCT No. PCT/FI94/00400, § 371 Date Feb. 29, 1996, § 102(e) Date Feb. 29, 1996, PCT Pub. No. WO95/07116, PCT Pub. Date Mar. 16, 1995
PCT Filed Sep. 12, 1994, Ser. No. 605,108
Claims priority, application Finland, Sep. 10, 1993, 933997
Int. Cl.⁶ A62C *3/10*
U.S. Cl. 169—46 **10 Claims**



7. A method of fighting a fire, the method comprising
first driving a first fire-extinguishing liquid from at least one spray head or sprinkler (5, 6, 7) at a fire with a low-pressure pump (19, 20);
thereafter driving a second fire-extinguishing liquid from a liquid container (14) and the spray head or sprinkler at the fire with a first propellant gas from at least one gas container (12, 13), at least some of the first propellent gas remaining in the gas container after all of the second fire-extinguishing liquid has been driven from the liquid container;
still thereafter again driving the first fire-extinguishing liquid from the spray head or sprinkler at the fire with the low-pressure pump, the low-pressure pump being driven by the first propellant gas that was remaining in the gas container

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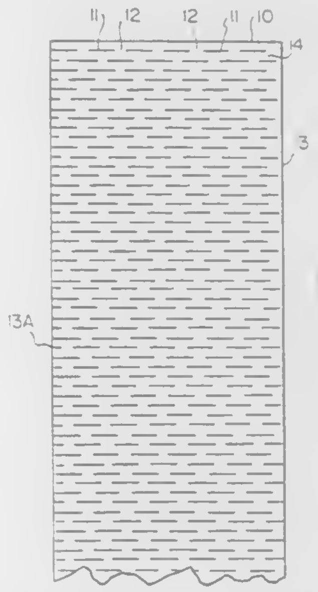
5,738,175
COMPOSITIONS OF MATTER FOR STOPPING FIRES, EXPLOSIONS AND OXIDATIONS OF MATERIALS AND BUILD UP OF ELECTROSTATIC CHARGES AND METHOD AND APPARATUS FOR MAKING SAME

Ghaleb Mohammad Yassin Alhamad, P.O. Box 31590, Riyadh, 11418, Saudi Arabia

Continuation of Ser. No. 414,106, Mar. 31, 1995, abandoned, which is a continuation-in-part of Ser. No. 806,901, Dec. 12, 1991, Pat. No. 5,402,852, which is a division of Ser. No. 674,277, Mar. 19, 1991, Pat. No. 5,097,907, which is a division of Ser. No. 417,696, Oct. 5, 1989, Pat. No. 5,001,017, which is a continuation of Ser. No. 280,317, Dec. 6, 1988, abandoned. This application Apr. 30, 1997, Ser. No. 848,954
Int. Cl.⁶ A62C *2/00;3/00*
U.S. Cl. 169—46 **14 Claims**



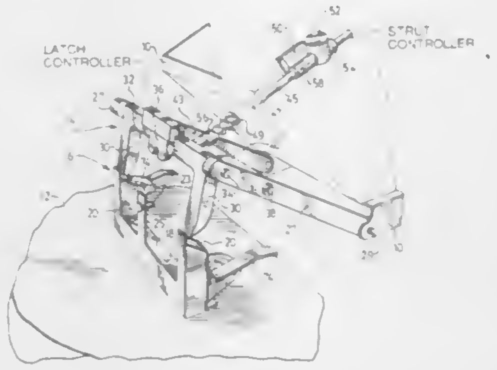
1. An expanded metal net for use in flame arresting and in protecting against fires and explosions, comprising a continuous sheet of metal foil having discontinuous slits in spaced apart parallel lines, characterized in that said metal foil comprises an alloy of magnesium with zirconium and strontium.

5,738,176
AUTOMATIC HITCHING SYSTEM

Newton Roy Gingerich, 565 Snyders Rd East, Baden, Canada, N0B 1G0

PCT No. PCT/CA94/00147, § 371 Date Sep. 20, 1995, § 102(e) Date Sep. 20, 1995, PCT Pub. No. WO94/21106, PCT Pub. Date Sep. 29, 1994
PCT Filed Mar. 18, 1994, Ser. No. 525,765
Claims priority, application United Kingdom, Mar. 22, 1993, 9305934
Int. Cl.⁶ A01B *59/06*
U.S. Cl. 172—274 **12 Claims**

1. Hitching system for hitching an accessory to a tractor, wherein:
the system comprises an accessory component and a tractor component;



the tractor component includes a tractor frame by means of which the tractor component may be attached to the tractor;
the tractor component includes an arm, and includes a pivot mount for pivotably mounting the arm with respect to the tractor;
the tractor component includes a power-operated variable length strut, and includes an operable means which is effective, when operated, to vary the length of the strut;
the variable length strut comprises a means for raising and lowering the arm;
the accessory component of the system includes an accessory frame by means of which the accessory component may be attached to the accessory;
one of the components includes a socket member end the other component includes a peg member;
the socket member is formed with an open mouth, into which the peg member can enter;
the peg member and the socket member have complementary dimensions, whereby the peg member can slide freely into the socket member and can fit snugly therein;
the power-operated variable length strut is so arranged in the hitching system that varying the length of the strut, when the peg is poised in alignment with the mouth of the socket, is effective to drive the peg member into the socket member;
the arrangement of the hitching system is such that the driver of the tractor can so position the tractor that the peg member is poised in alignment with the mouth of the socket member;
the system includes an operable latch which is effective, when operated, to latch the peg member into the socket member;
the position and arrangement of the latch is such that, when the peg member is latched into the socket member, the peg member is engaged fully into the socket member;
the system includes an operable latch release means, which is effective, when operated, to release the latch, whereby the peg member can be withdrawn from the socket member;
the physical structure of the accessory component is such that the accessory component is adapted for, and is suited for, a manner of operational use in relation to the tractor component, in which the accessory component is operationally urged bodily, as a whole structure, in a horizontal direction;
the open mouth of the socket member faces vertically in a first vertical sense and the peg member is aligned vertically in the opposite vertical sense;
the arrangement of the arm, and of the member on the tractor component, is such that lowering the arm downwards is effective to drive that member downwards, and into engagement with the member on the accessory components;
and the alignment of engagement of the peg member and socket member, when latched, is vertical, whereby forces acting between the tractor component and the accessory component in the horizontal direction have substantially no effect to urge relative movement of the peg and socket members, during operation, against the latch

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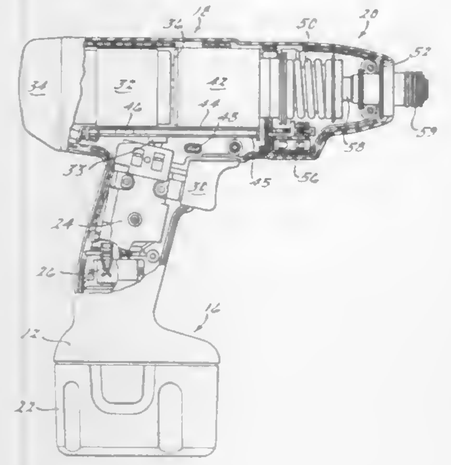
5,738,177
PRODUCTION ASSEMBLY TOOL

Craig A. Schell, Baltimore; James R. Parks, Timonium, both of Md.; Todd A. Hagan, Windsor, Pa.; Pradeep Kumar Nandam, Chelmsford, Mass., and Rouse R. Bailey, Jr., New Park, Pa., assignors to Black & Decker Inc., Newark, Del.

Filed Jul. 25, 1996, Ser. No. 687,309
Int. Cl.⁶ B25B *23/14*

U.S. Cl. 173—178 **17 Claims**



9. An electrically powered tool for driving a fastener to a predetermined torque level including a housing, a motor disposed within the housing for rotatably driving an output spindle journalled with respect to the housing and adapted for drivingly engaging the fastener, a clutch disposed between the motor and the output spindle and movable in response to the torque applied to the output spindle attaining said predetermined torque level from an engaged position wherein torque from the motor is applied to the output spindle to a disengaged position wherein torque from the motor is not substantially applied to the output spindle, and a clutch switch operatively associated with the clutch and responsive to movement of the clutch for switching from a first state when the clutch is in the engaged position to a second state when the clutch is in the disengaged position:

- the improvement comprising control circuit means for controlling the energization of the motor in response to the position of said clutch switch, said control circuit means energizing said motor when said clutch switch is in said first state, detecting that said clutch switch has remained in said first state for a predetermined period of time and de-energizing said motor when the clutch switch switches to said second state.

5,738,178
METHOD AND APPARATUS FOR NAVIGATIONAL DRILLING WITH A DOWNHOLE MOTOR EMPLOYING INDEPENDENT DRILL STRING AND BOTTOMHOLE ASSEMBLY ROTARY ORIENTATION AND ROTATION

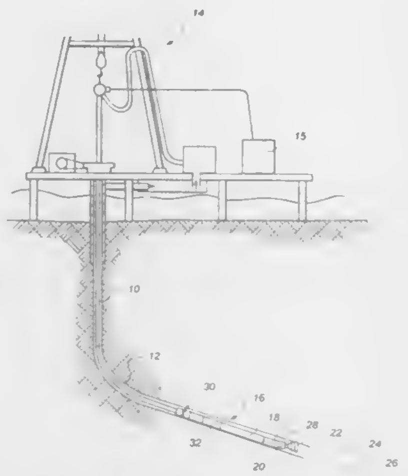
Michael P. Williams, The Woodlands, Tex., and Ralph Ehlers, Winsen, Germany, assignors to Baker Hughes Incorporated, Houston, Tex.

Filed Nov. 17, 1995, Ser. No. 560,070
Int. Cl.⁶ E21B *4/00; 7/04*

U.S. Cl. 175—61 **24 Claims**

1. A drilling assembly for optionally drilling contiguous substantially linear and nonlinear wellbore segments through a subterranean formation, comprising:

- a drill string having a longitudinal axis,
- a bottomhole assembly, including:
  - a downhole motor adapted to be driven by a flow of drilling fluid supplied to said bottomhole assembly through said drill string and having an output shaft;
  - a drill bit having a longitudinal axis and connected to said output shaft;



  - a deflection structure for inducing said bottom hole assembly to drill a nonlinear wellbore segment; and
  - a torque compensation assembly for providing right-hand torque to said bottomhole assembly responsive to a portion of said drilling fluid flow, said torque compensation assembly further including a valve assembly for varying the magnitude of said portion of said supplied drilling fluid flow to vary the degree of torque compensation provided to said bottomhole assembly; and
- a swivel assembly interposed between and connected to a lower end of said drill string and an upper end of said bottomhole assembly to permit mutual rotational motion therebetween.

5,738,179
HOOD MECHANISM FOR A WORK VEHICLE

Akio Matsui, Sakai, Japan, assignor to Kubota Corporation, Japan

Filed Oct. 30, 1995, Ser. No. 549,965
Claims priority, application Japan, Nov. 18, 1994, 6-283908
Int. Cl.⁶ B62D *25/10*

U.S. Cl. 180—69.21 **18 Claims**

6. A work vehicle having an engine hood which may be opened and closed, said vehicle comprises:

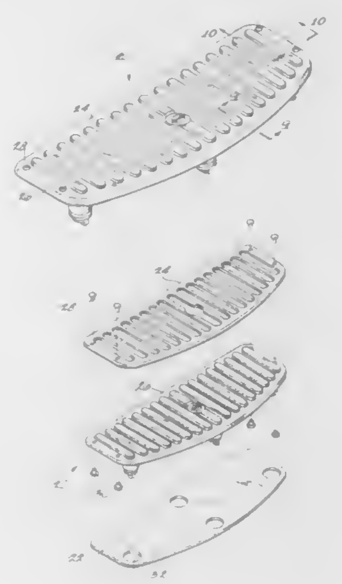
- a connecting mechanism for connecting said engine hood with a vehicle body which extends substantially along a horizontal reference line in a forward/rearward direction of said vehicle body said connecting mechanism connecting said engine hood with said vehicle body in such a manner as to allow said engine hood to be moved substantially in the forward or rearward direction relative to said vehicle body from a closed position to a maximum displaced position in the forward or rearward direction of said vehicle body and then to allow an upward pivotal movement of said engine hood relative to said vehicle body after said engine hood has reached a maximum displaced position in the forward or rearward direction of said vehicle body, wherein a maximum vertical distance (Hm) of said connecting mechanism from said horizontal reference line of said vehicle body with said engine hood in said maximum displaced position in the forward or rearward direction of said vehicle body is less than or equal to a maximum vertical distance (Hm) of said connecting mechanism from said horizontal reference line of said vehicle body with said engine hood in said closed position; and
- a movement restricting mechanism for restricting movements of said engine hood under a closed condition in the right and left and upward directions relative to said vehicle body, said movement restricting mechanism includes an engaging portion fixedly provided on said engine hood and an engaged portion provided on said vehicle body for restricting movements of said engaging portion.

5,738,180
FOOTBOARD ASSEMBLY

James L. Hofmann, Mukwonago, and Roy Rosario, Waterford, both of Wis., assignors to Harley-Davidson Motor Company, Milwaukee, Wis.

Continuation-in-part of Ser. No. 505,801, Jul. 21, 1995, abandoned. This application Aug. 16, 1996, Ser. No. 699,013
Int. Cl.⁶ B62J *25/00;* G05G *1/18*

U.S. Cl. 180—291 **18 Claims**



1. A footboard assembly for securing to a motorcycle, comprising:

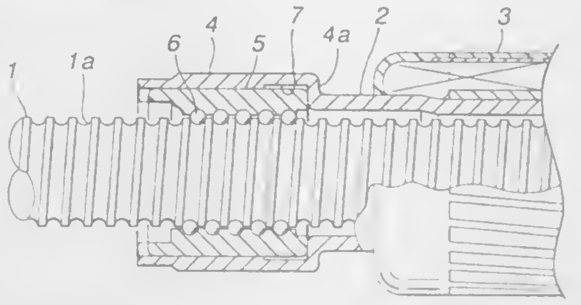
- a platform;
- a resilient pad having a planar portion and a lip portion extending outward from said planar portion,
- a shaker mount integrally formed with said resilient pad, said shaker mount being positioned between said resilient pad and said platform, said platform being mounted in a groove of said shaker mount such that said resilient pad is mounted in spaced relation to said platform, and
- a cover member positioned over said resilient pad, wherein said lip portion extends laterally outward further than an outer perimeter of said cover member such that said cover member is substantially prevented from contacting said platform.

5,738,181
PRESS FIT ARRANGEMENT OF A NUT MEMBER IN AN ENLARGED END PORTION OF A HOLLOW SHAFT

Jun-ichi Kato, Gunma-ken, Japan, assignor to Mitsuba Electric Mfg. Co., Ltd., Gunma-Ken, Japan

Filed Oct. 20, 1995, Ser. No. 546,161
Claims priority, application Japan, Nov. 9, 1994, 6-299059
Int. Cl.⁶ B62D *5/04*

U.S. Cl. 180—400 **8 Claims**



1. In a press fit arrangement of a tubular nut member in an end portion of a hollow shaft, an annular shoulder being defined at an inner end of said end portion, and said tubular nut member threadably meshing with a drive shaft which is coaxially received in said tubular nut and said hollow shaft, and provided with a corresponding screw thread, wherein:

- a region of loose fit is provided in a part of an interface between said tubular nut member and said end portion, adjacent to said annular shoulder.

5,738,182
POWER STEERING APPARATUS FOR MOTOR VEHICLE AND METHOD FOR MAKING THE SAME

Joel Edward Birsching, Unionville; Michael Paul Richardson, Saginaw, and Thomas Arthur Perry, Washington, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 17, 1996, Ser. No. 687,077
Int. Cl.⁶ B62D *5/08*

U.S. Cl. 180—422 **4 Claims**

1. A vehicle power steering apparatus comprising, in combination:

- a cylindrical housing made of a magnetic material and having a small diameter portion at an inboard end thereof and a large diameter portion at an outboard end thereof,
- a spool shaft extending from the outboard end of the housing through the large diameter portion thereof and into the small diameter portion thereof and having an outboard end coupled to a vehicle steering wheel for rotation therewith, an internal bore and an outer cylindrical surface,
- a torsion rod having an outboard end coupled to the outboard end of the spool shaft for rotation therewith and extending through the bore to an inboard end within the small diameter portion of the housing, the inboard end of the torsion rod being coupled to a vehicle wheel for steering rotation therewith.

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a magnetic cylindrical valve member surrounding a spool valve portion of the spool shaft within the small diameter portion of the housing, the cylindrical valve member having an inboard end coupled to the inboard end of the torsion rod for rotation therewith and being rotatable relative to the spool valve portion of the spool shaft to vary valve openings therebetween for the metering of a power steering fluid assist boost pressure, the cylindrical valve member having a pair of axially separated internal sleeve portions riding on the outer cylindrical surface of the spool shaft with a radial clearance therebetween sufficiently small to allow relative rotation therebetween but form a hydraulic seal therewith;

an electric coil disposed at the inboard end of the large diameter portion of the housing;

the cylindrical valve member further having an extension comprising a hub portion extending axially therefrom through the electric coil toward the outboard end of the housing and a tooth portion extending radially outward along the outboard side of the electric coil and ending in a first plurality of teeth extending radially outwardly and ending in tooth faces;

an outer pole member having a non-magnetic hub portion affixed to the outer surface of the spool shaft for rotation therewith and extending radially outwardly on the outboard side of and radially beyond the tooth portion of the cylindrical valve member and a magnetic tooth portion extending axially from the non-magnetic hub portion in the inboard direction toward the electric coil and between the first plurality of teeth and the large diameter portion of the housing, the magnetic tooth portion comprising a second plurality of teeth equal in number to and projecting radially inwardly toward the first plurality of teeth and ending in tooth faces opposing the tooth faces of the first plurality of teeth, whereby an air gap is provided between the opposing tooth faces of the first and second pluralities of teeth axially adjacent the electric coil and coupled magnetically with the housing in a magnetic circuit surrounding the electric coil; and

the radial clearance between the internal sleeve portions of the valve body and the outer cylindrical surface of the spool shaft being significantly smaller than the air gap so that the opposing tooth surfaces of the first and second pluralities of teeth are accurately located radially relative to the outer surface of the spool shaft and thus relative to each other for air gap minimization.

5,738,183
MOTOR OPERATED POWER STEERING DEVICE

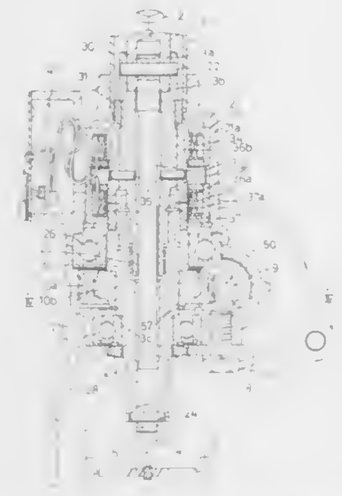
Terukazu Nakajima, Yamatotakada, and Manabu Takaoka, Kashiba, both of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Jun. 4, 1996, Ser. No. 658,125

Claims priority, application Japan, Jun. 14, 1995, 7-172734

Int. Cl.^{6} B62D *5/04*

U.S. Cl. 180—444 4 Claims



1. A motor-operated power steering device, comprising

a housing having a motor fitting opening;

a motor for generating power to assist steering, the motor being fitted to the housing so as to close the motor fitting opening;

a drive shaft which can be rotated by the motor, the drive shaft having first and second flanges;

a drive shaft accommodation hole formed in the housing so as to communicate with the motor fitting opening;

first and second rolling bearings for supporting the drive shaft at two separate points surrounding both the first and second flanges along the axial direction in the drive shaft accommodation hole the first and second rolling bearings including:

- (a) first and second inner rings that contact the first and second flanges, respectively;
- (b) first balls and second balls respectively; and
- (c) first and second outer rings contacting the housing and a pre-load applying member, respectively;

a driving gear provided around the circumference of the drive shaft;

a driven gear that meshes with the driving gear.

a steering shaft linked to the driven gear;

a female threaded hole, formed in the housing concentrically with the drive shaft accommodation hole, in a space between the motor and the first and second rolling beatings;

the pre-load applying member, formed in the shape of a ring around the outside of the drive shaft and having a male threaded section formed around its outer circumference so as to be screwed into the female threaded hole in the housing so that a pre-load can be applied along the axial direction from the pre-load applying member through: the second outer ring, the second balls, the second inner ring, the second flange, the drive shaft, the first flange, the first inner ring, the first balls, and the first outer ring, to the housing, so as to prevent axial displacement of the drive shaft and rolling bearings; and

a lock nut that is screwed onto the male threaded section around the outer circumference of the pre-load applying member.

5,738,184
MUFFLER FOR A TWO-STROKE ENGINE

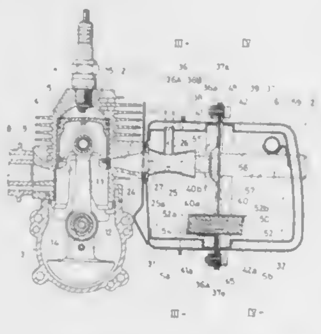
Isao Masuda, Tachikawa; Shigeru Sato, Sayama; Yasuharu Sato, Fussa, and Kengo Kubo, Hamura, all of Japan, assignors to Kioritz Corporation, Tokyo, Japan

Filed Dec. 26, 1996, Ser. No. 773,978

Claims priority, application Japan, Apr. 5, 1996, 8-084324

Int. Cl.^{6} F01N *1/08*

U.S. Cl. 181—262 6 Claims



1. A muffler for a two-stroke internal combustion engine, comprising:

an expansion chamber, at least a portion of the expansion chamber having a double wall including an inner wall panel and an outer wall panel which is spaced apart from the inner wall panel,

a partition plate in the expansion chamber dividing the expansion chamber into a first expansion subchamber and a second expansion subchamber, the partition plate having a passage communicating the first expansion subchamber and the second expansion subchamber,

an exhaust gas introducing port communicating the first expansion subchamber with an exhaust port of the engine for introducing a rush of exhaust gas from the exhaust port of the engine into the first expansion subchamber;

an external air intake means proximate to the exhaust gas introducing port for inducting by suction due to the rush of the introduced exhaust gas external air into the first expansion subchamber, and

an exhaust gas cleaner mounted in the passage through the partition plate.

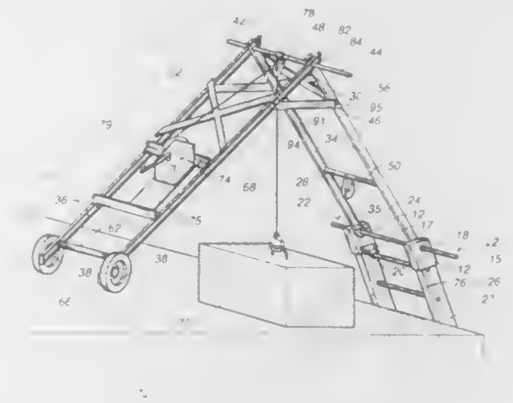
5,738,185
PORTABLE SWIVELING LIFT DEVICE

Michael R. Sears, 244 Canal La., Winnfield, La. 71483

Continuation-in-part of Ser. No. 389,245, Feb. 16, 1995, abandoned. This application Sep. 17, 1996, Ser. No. 715,015

Int. Cl.^{6} E04G *1/08*

U.S. Cl. 182—102 12 Claims



1. A lifting apparatus comprising:

a frame having a first bracing member and a second bracing member pivotally connected together, said second bracing member having a ladder receptacle means affixed to an end of said second bracing member opposite the pivotal connection with said first bracing member, said ladder receptacle means for receiving an end of a ladder therein, said second bracing member comprising:

a first brace;

a second brace extending in parallel relationship with said first brace; and

a cross brace affixed to and extending between said first and second braces;

said ladder receptacle means comprising:

a first ladder sheath pivotally connected to an end of said first brace opposite the pivotal connection of said first bracing member with said second bracing member;

a second ladder sheath pivotally connected to an end of said second brace opposite the pivotal connection of said first bracing member with said second bracing member;

a bracket connected to at least one of said first and second ladder sheaths; and

a U-bolt means connected to said bracket, said U-bolt means for extending around a rung of said ladder; and

a pulley means affixed to said frame, said pulley means for receiving a cable therein such that a portion of said cable extends vertically downwardly between said first and second bracing members.

5,738,186
EXTENSIBLE LADDER

Ronald Barry Thomas Jones, Glen Maye, Isle of Man, assignor to Foxdale Developments Limited, Glen Maye, Isle of Man

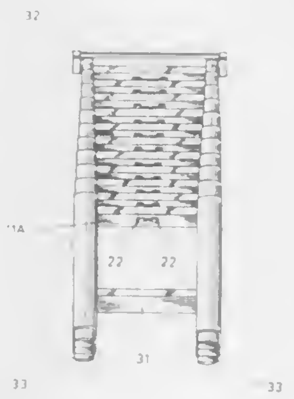
PCT No. PCT/GB95/00429, § 371 Date Sep. 12, 1996, § 102(e) Date Sep. 12, 1996, PCT Pub. No. WO95/23907, PCT Pub. Date Sep. 8, 1995

PCT Filed Feb. 28, 1995, Ser. No. 704,525

Claims priority, application United Kingdom, Mar. 1, 1994, 9403863; Nov. 17, 1994, 9423238

Int. Cl.^{6} E06C *1/00*

U.S. Cl. 182—195 11 Claims



1. An extensible ladder comprising a plurality of sections, each section having a pair of tubular uprights which comprise substantially flat parallel side walls and convex front and rear walls, the side walls of the respective uprights of each section being connected by a rung, with the uprights of each section being telescopically engaged with the corresponding uprights of an adjacent section, the uprights being formed with longitudinally extending grooves which reduce the area of sliding contact between adjacent sections.

5,738,187
FORK LEVEL INDICATOR FOR LIFT TRUCKS

Ned E. Dammeyer, New Bremen; Todd M. Fullenkamp, Coldwater, and Harold A. Stammen, New Bremen, all of Ohio, assignors to Crown Equipment Corporation, New Bremen, Ohio

Division of Ser. No. 439,985, May 12, 1995, Pat. No. 5,586,620. This application Aug. 5, 1996, Ser. No. 692,409

Int. Cl.^{6} B66F *9/16; 9/24*

U.S. Cl. 187—222 6 Claims

1. A fork lift truck including

a pair of forks for supporting a load,

means for raising and lowering said forks,

means for tilting said forks relative to a body of the truck,

a level sensor mounted on at least one of said forks for providing an indication of the level of said forks with respect to a horizontal plane,

a display terminal including a screen mounted for viewing by an operator, and

means responsive to said level sensor for displaying an indication of the level position of said forks with respect to the horizontal plane on said display terminal, including a reference bar on said screen representing the horizontal plane, and an indicator on said screen for showing the actual position of said forks with respect to the horizontal plane, thereby to

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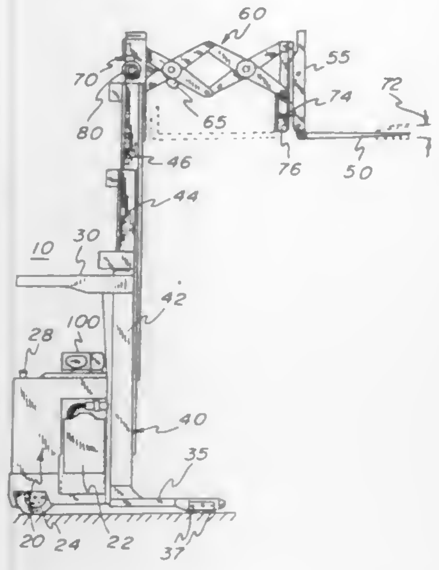


assist the operator in adjusting the level of said forks prior to loading, moving or unloading a load from said forks.

5,738,188

BRAKE APPARATUS HAVING TOE-IN SETTING MEMBER BETWEEN BRAKE SHOE AND CLAMPING MECHANISM FOR USE FOR CYCLE

Yasushi Nishimura, Sakai, Japan, assignor to Shimano Inc., Sakai, Japan

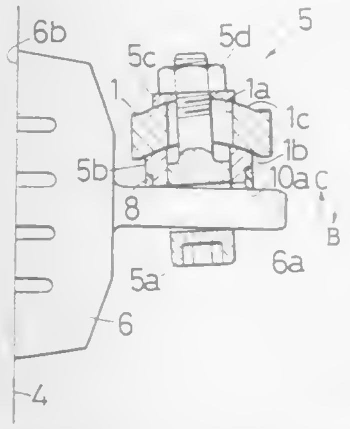
PCT No. PCT/JP95/00048, § 371 Date Aug. 2, 1995, § 102(e) Date Aug. 2, 1995, PCT Pub. No. WO96/22476, PCT Pub. Date Jul. 25, 1996

PCT Filed Jan. 19, 1995, Ser. No. 495,680

Int. Cl.^{6} B62L *1/08*

U.S. Cl. 188—24.19 **5 Claims**

(a)



1. A brake apparatus for a cycle in which a support member (**1**) for a brake shoe (**6**) is operated to approach a wheel rim (**4**), thereby pressing said brake shoe (**6**) against said wheel rim (**4**), said brake apparatus comprising:

a clamping mechanism (**5** or **15**) for connecting said brake shoe (**6**) to said support member (**1**) by clamping in such a manner that an angle at which said brake shoe (**6**) is attached to said support member (**1**) is changeable; and

a toe-in setting member (**8** or **6***c*) which is more readily deformable than other parts in said clamping mechanism (**5** or **15**) for setting a toe-in angle (A) of said brake shoe (**6**), said toe-in setting member (**8** or **6***c*) being deformed by clamping force of said clamping mechanism **5** or **15**), thereby creating a set state of said brake shoe (**6**) in which said brake shoe (**6**) contacts said wheel rim (**4**) with said toe-in angle (A).

5,738,189

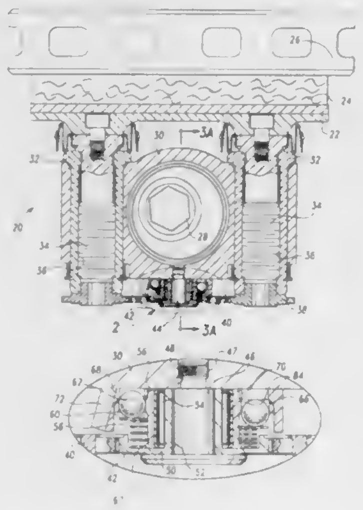
ADJUSTMENT MECHANISM FOR DISC BRAKE, WITH IMPROVED OVER-TORQUE CLUTCH

John L. Bennett, 952 Wesley Dr., Troy, Mich. 48098, and Mark L. Frost, 2945 Fox Hill Dr., Sterling Heights, Mich. 48310

Filed Feb. 27, 1997, Ser. No. 808,539

Int. Cl.^{6} F16D *65/38*

U.S. Cl. 188—196 BA **17 Claims**



1. A disc brake mechanism comprising:

a backing plate and friction material which may be selectively moved toward and away from a member to be stopped;

an actuation mechanism to be rotated, and to in turn move said backing plate toward and away from the member to be stopped;

an adjustment mechanism for advancing said backing plate closer to the member to be stopped to accommodate wear on said friction material;

said adjustment mechanism including a central gear, said central gear being associated with outer gears, rotation of said central gear causing rotation of said outer gears, said outer gears being adapted to advance said backing plate towards the member to be stopped upon receiving rotation from said central gear; and

an over-torque clutch placed between an adjustment member associated with said actuation mechanism, and said central gear, said over-torque clutch including inner and outer over-torque members, which rotate about an axis and torque transmission members being forced into openings in both said inner and outer-torque members by an axial bias force acting along said axis to transmit rotation between said inner and outer over-torque members, and said torque transmission members being moveable out of said openings in at least one of said inner and outer over-torque members to allow said inner and outer over-torque members to rotate relative to each other such that rotation is not transmitted to said central gear.

5,738,190

FLEXING DISC-BLOW OFF ASSEMBLY FOR USE IN A SHOCK ABSORBER

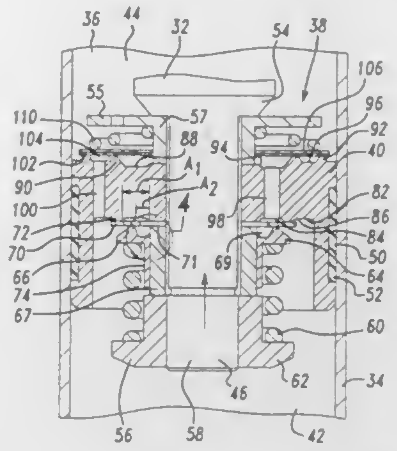
Stefan Deferme, Heusden-Zolder, Belgium, assignor to Monroe Auto Equipment Company, Monroe, Mich.

Filed Mar. 20, 1996, Ser. No. 619,963

Int. Cl.^{6} F16F *9/49*

U.S. Cl. 188—280 **21 Claims**

1. A shock absorber comprising:



a pressure tube defining an axis, said pressure tube forming a working chamber;

a piston slidably disposed within said working chamber and dividing said working chamber into an upper portion and a lower portion, said piston defining an aperture allowing flow of hydraulic fluid between said upper and lower portions of said working chamber;

an elongated piston rod having first and second ends, said first end being attached to said piston, said second end of said elongated piston rod extending along the axis of said pressure tube through said upper portion of said working chamber and out one end of said pressure tube;

a spring seat fitted to and axially movable with respect to said elongated piston rod, said spring seat defining a ridge;

a flexing rebound valve disc positioned between said ridge of said spring seat and said piston, said disc prohibiting fluid flow through said aperture, and

a fluid passage defined between said disc and said piston, said fluid passage being in communication with said aperture and being opened by said disc flexing with respect to said ridge on said spring seat.

5,738,191

VIBRATION DAMPER

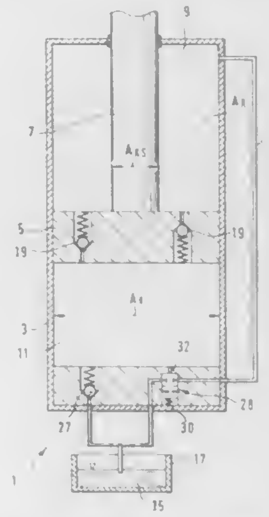
Andreas Förster, Schweinfurt, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Apr. 5, 1996, Ser. No. 628,522

Claims priority, application Germany, Apr. 6, 1995, 195 12 866.4

Int. Cl.^{6} F16F *9/48;9/516;* **B60G** *17/08*

U.S. Cl. 188—318 **20 Claims**



1. A vibration damper, said vibration damper comprising:

a pressure tube having a longitudinal axis;

a piston disposed within said pressure tube and dividing said pressure tube into a first working chamber and a second working chamber;

said pressure tube having a first pressure tube end closing said first working chamber and a second pressure tube end closing said second working chamber;

a piston rod connected to said piston and extending through said first working chamber and said first pressure tube end to a position exterior of said pressure tube;

said piston being displaceable within said pressure tube along said longitudinal axis of said pressure tube;

a hydraulic fluid contained in both of said first and second working chambers;

an equalization chamber for containing a reservoir of said hydraulic fluid;

a first damping valve arrangement provided on said piston for providing a first damped flow path through said piston at least from said first working chamber to said second working chamber;

an intermediate tube;

said intermediate tube being disposed substantially concentric to said pressure tube;

a first hydraulic connection between said first working chamber and said equalization chamber;

said first hydraulic connection comprising a passageway for said hydraulic fluid;

said intermediate tube and said pressure tube being disposed to form a space;

said passageway of said first hydraulic connection comprising said space formed by said intermediate tube and said pressure tube;

a port valve disposed in said first hydraulic connection between said first working chamber and said equalization chamber, said port valve having a substantially greater resistance to flow through said first hydraulic connection in a direction from said first working chamber toward said equalization chamber than to flow through said first hydraulic connection in a direction from said equalization chamber toward said first working chamber;

said port valve being disposed to form at least a part of a wall of said space;

a second hydraulic connection between said second working chamber and said equalization chamber;

a directional flow valve arrangement positioned within said second hydraulic connection for permitting flow from said equalization chamber to said second working chamber and for substantially restraining flow from said second working chamber to said equalization chamber;

a third hydraulic connection between said second working chamber and said equalization chamber; and

at least one additional damping valve arrangement, said at least one additional damping valve arrangement being positioned within said third hydraulic connection, said at least one additional damping valve arrangement providing an additional damped flow path from said second working chamber to said equalization chamber

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5,738,192

POWER TOOL DRIVES

Montie H. Miner, 2205 Robert, Granite City, Ill. 62040

Filed Sep. 18, 1996, Ser. No. 715,439

Int. Cl.^{6} B25B *13/46*

U.S. Cl. 192—43.1 **7 Claims**

1. A tool comprising

a yoke provided with an annular bore and first and second spaced chambers each of which open into said bore,

an annular gear rotatably disposed in said bore and being provided along its outer periphery with a plurality of teeth, each tooth being rounded at its outer extremity and each gap between adjacent teeth being rounded in such manner that the outwardly presented angle of each gap is greater than the inwardly presented angle of each tooth.

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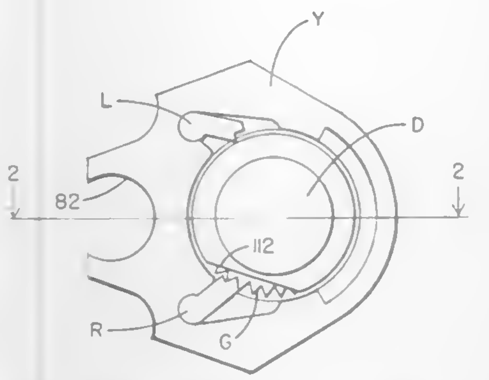


a first pawl pivotally disposed in said first chamber and including a first pawl tooth sized for snug fitting disposition in any of the gaps on the gear, said first pawl also including a second pawl tooth which is sized and shaped for cooperating with an adjacent gear tooth to urge the first pawl tooth snugly into a gap on the gear as the first pawl is pivoted toward the gear,

a second pawl pivotally disposed in said second chamber and including a third pawl tooth sized for snug fitting disposition in any of the gaps on the gear, said second pawl also including a fourth pawl tooth which is sized and shaped for cooperating with an adjacent gear tooth to urge the third pawl snugly into a gap on the gear as the second pawl is pivoted toward the gear,

first biasing means in the first chamber for urging the first pawl towards the gear, and

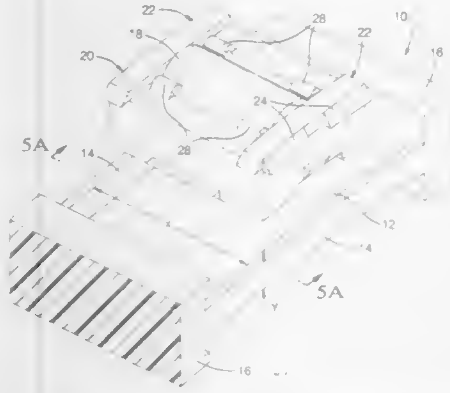
second biasing means in the second chamber for urging the second pawl towards the gear,

and control means for selectively allowing only one of the two pawls to engage the gear as the yoke is moved with respect to the gear.

5,738,193
ROLLER CLUTCH WITH SNAP FIT ROLLER CONTROL CARS

Albert David Johnston, Huron, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 19, 1996, Ser. No. 684,961
Int. Cl.^{6} F16D *41/06*
U.S. Cl. 192—45 3 Claims



1. A one way roller clutch of the type having a plurality of rollers that roll circumferentially back and forth over an arcuate travel path during clutch operation, comprising,

a generally annular cage having a plurality of evenly circumferentially spaced roller pockets, each of which is defined by a pair of circumferentially extending, axially spaced and parallel side rails deployed generally along said roller travel path, said side rails having a predetermined free state axial separation with at least one said side rail of each pair being resiliently axially flexible relative to the other,

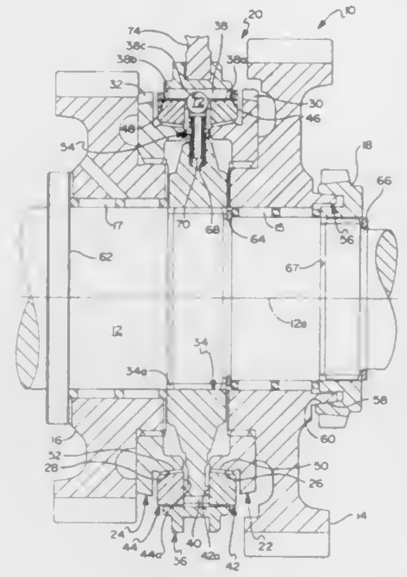
a plurality of substantially rigid roller control cars, each of which has a pair of axially spaced end bars with a basic axial width substantially equal to the free state separation of said pair of pocket side rails, said end bars further having a track thereon extending axially past the basic axial width of said pocket side rails and closely but freely radially interfitting with said side rails,

whereby each of said roller cars may be fitted within a roller pocket by radially forcing said control car end bars between said pocket side rails, thereby resiliently flexing said side rails axially apart until said track means radially interfits with said side rails, after which said roller car may slide axially back and forth on said side rails without separation from said cage.

5,738,194
SYNCHRONIZER

Douglas A. Hughes, Wixom, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 20, 1996, Ser. No. 717,008
Int. Cl.^{6} F16D *47/00*
U.S. Cl. 192—48.4 16 Claims



1. A synchronizer for frictionally and positively connecting first and second drives disposed for relative rotation about a common axis; the synchronizer comprises:

a first drive and a second drive, and a drive gear defining the second drive;

an assembly mounting the drive gear for rotation on the first drive about the common axis;

a first jaw member rotatable with the first drive and axially movable from a neutral position to an engaged position with a second jaw member for positive connecting the first drive and the drive gear in response to engaging movement of the first jaw member by an axially directed first shift force;

a first friction member axially movable into engagement with a second friction member in response to the engaging movement of the first jaw member for producing an initial synchronizing torque;

blocker surfaces moveable into engagement in response to the initial synchronizing torque for preventing asynchronous engagement of the jaw members, for transmitting the shift force to the first friction member, and for producing a torque counter to the synchronizing torque for moving the blocker surfaces out of engagement as synchronization is reached; characterized by:

the assembly allowing axial movement of the drive gear relative to the first drive;

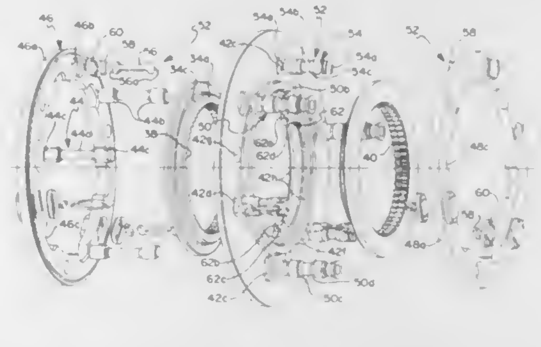
a third friction member affixed against axial and rotational movement relative to the first drive; and

a fourth friction member affixed for rotation with the drive gear and axially moveable into engagement with the third friction member in response to axial movement of the drive gear effected by engagement of the first and second friction members.

5,738,195
PIN-TYPE SYNCHRONIZER

James D. Gluys, Portage, and Timothy S. Smith, Kalamazoo, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Sep. 16, 1996, Ser. No. 714,732
Int. Cl.^{6} F16D *23/06*
U.S. Cl. 192—53.31 4 Claims



1. A pin-type synchronizer selectively operative to frictionally synchronize and positive connect either of first and second drives mounted for relative rotation about an axis of a shaft; the synchronizer including:

first and second jaw members affixed respectively to the first and second drives and respectively engagable with axially movable third and fourth jaw members positioned between the drives, the third and fourth jaw members having internal splines slidably mating for non-relative rotation with external splines affixed to the shaft;

first and second cone friction rings respectively secured for rotation with the first and second drives and third and fourth cone friction rings concentric to the shaft and axially movable between the drives for frictional engagement respectively with the first and second friction rings to provide a synchronizing torque for synchronizing the drives with the shaft;

a radially extending flange having axially oppositely facing sides positioned between the third and fourth jaw members and between the third and fourth friction rings for axially moving the jaw members and rings into said engagement in response to an axial bidirectional shift force applied to the flange;

blocker means operative when engaged for preventing engagement of the jaw members prior to the synchronizing, the blocker means including a plurality of circumferentially spaced apart pins rigidly extending axially between the third and fourth friction rings and into a first set of openings in the flange, each of the pins having a blocker shoulder engagable with a blocker shoulder defined about the associated opening;

first means securing the flange against axial movement relative to the third and fourth jaw members;

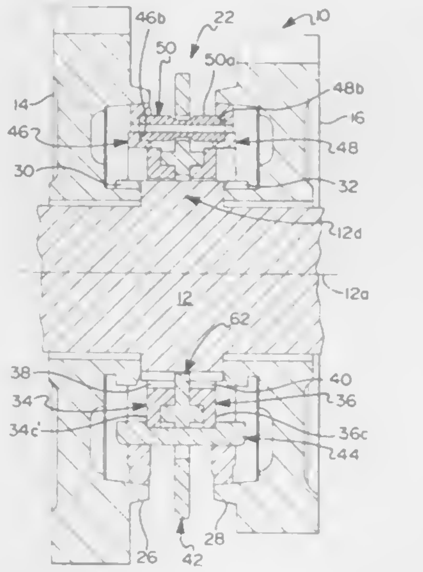
second means allowing limited circumferential movement of the flange relative to the third and fourth jaw members and the shaft, the second means including first and second ramps respectively affixed against axial and radial movement relative to the flange and shaft, said first and second ramps engagable in response to the synchronizing torque for producing an axial additive force (F_a) on the flange in the direction of the shift force for increasing the total force engaging the friction rings; the improvement comprising:

the flange including an annular stiffener ring extending axially from at least one axially facing side of the flange.

5,738,196
PIN-TYPE SYNCHRONIZER

James D. Gluys, Portage, and Timothy S. Smith, Kalamazoo, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Sep. 16, 1996, Ser. No. 714,731
Int. Cl.^{6} F16D *23/06*
U.S. Cl. 192—53.331 9 Claims



1. A pin-type synchronizer selectively operative to frictionally synchronize and positive connect either of first and second drives mounted for relative rotation about an axis of a shaft; the synchronizer including:

first and second jaw members affixed respectively to the first and second drives and respectively engagable with axially movable third and fourth jaw members positioned between the drives, the third and fourth jaw members having internal splines slidably mating for non-relative rotation with external splines affixed to the shaft;

first and second cone friction rings respectively secured for rotation with the first and second drives and third and fourth cone friction rings concentric to the shaft and axially movable between the drives for frictional engagement respectively with the first and second friction rings to provide a synchronizing torque for synchronizing the drives with the shaft;

a radially extending flange having axially oppositely facing sides positioned between the third and fourth jaw members and between the third and fourth friction rings for axially moving the jaw members and rings into said engagement in response to an axial bidirectional shift force (F_o) applied to the flange,

blocker means operative when engaged for preventing engagement of the jaw members prior to the synchronizing, the blocker means including a plurality of circumferentially spaced apart pins rigidly extending axially between the third and forth friction rings and into a first set of openings in the flange, each of the pins having a blocker shoulder engagable with a blocker shoulder defined about the associated opening,

first means securing the flange against axial movement relative to the third and fourth jaw members; the improvement comprising:

the first means including a plurality of circumferentially spaced apart retainers, each retainer having an axially extending portion disposed about a radially outward portion of the third and fourth jaw members and axially spaced apart and radially inwardly extending portions embracing axially oppositely facing portions of the third and fourth jaw members, and each axially extending portion having axially spaced apart and radially outwardly facing portions disposed in relatively close

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sliding rotation with radially inward portions of the third and fourth friction rings for limiting radially outward movement of the retainers.

5,738,197
FREEWHEEL HUB FOR BICYCLES

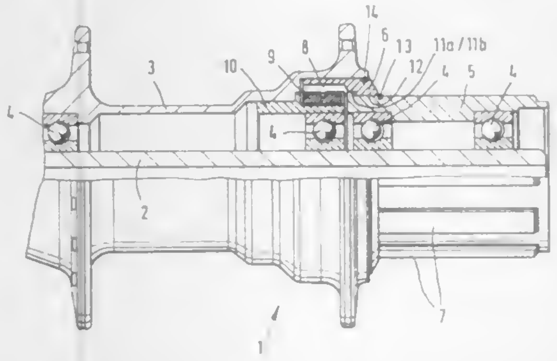
Peter Kröger, Schweinfurt; Klaus König, Mühlhausen, and Guillaume Crosnier, Bergrheinfeld, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

Filed May 22, 1996, Ser. No. 653,955

Claims priority, application Germany, May 22, 1995, 195 18 676.1

Int. Cl.⁶ F16D *41/30*

U.S. Cl. 192—64 10 Claims



1 A bicycle freewheel hub, said bicycle freewheel hub comprising:

a hub axle defining a longitudinal axis;

a hub sleeve;

bearings for mounting said hub sleeve on said hub axle;

a bicycle sprocket carrier for receiving bicycle sprockets;

said bicycle sprocket carrier being disposed on said hub axle;

said bicycle sprocket carrier having outer driving projections to mesh with bicycle sprockets;

a pawl carrier connected to said hub sleeve;

at least one detent pawl disposed on said pawl carrier;

a drive sleeve having inner driving projections;

said inner driving projections of said drive sleeve being configured to non-rotationally mesh with said outer driving projections of said bicycle sprocket carrier;

said bicycle sprocket carrier comprising collar means;

said drive sleeve comprising recess means;

said drive sleeve being axially fixed in position, in a first axial direction with respect to the longitudinal axis of said hub axle, by said recess means of said drive sleeve;

said recess means being disposed in contact with said collar means of said bicycle sprocket carrier;

means for fixing said drive sleeve in a second axial direction with respect to the longitudinal axis of said hub axle;

the second axial direction being opposite to the first axial direction;

said means for fixing said drive sleeve in a second axial direction comprising a first groove and a first gasket;

said first groove being disposed substantially above said outer driving projections of said bicycle sprocket carrier;

said drive sleeve comprising an end surface;

said end surface of said drive sleeve being disposed adjacent to said inner driving projections of said drive sleeve;

said first gasket being disposed in said first groove; and

said first gasket being disposed adjacent to said end surface of said drive sleeve.

5,738,198
FRICTION ELEMENT FOR USE IN CLUTCHES

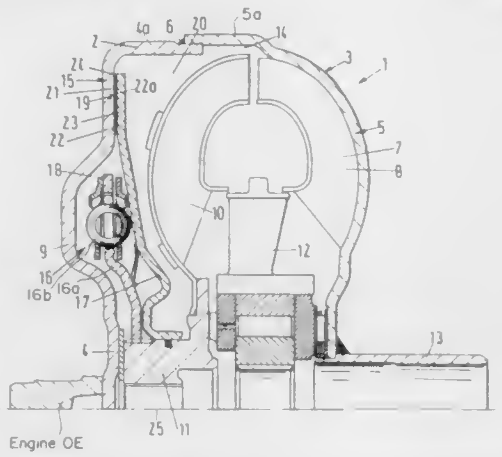
Ernst Walth, and Georg Weidner, both of Bühl, Germany, assignors to Luk Getriebe-Systeme GmbH, Bühl, Germany

Filed Jan. 20, 1995, Ser. No. 375,913

Claims priority, application Germany, Jan. 21, 1994, 44 91 656.5

Int. Cl.⁶ F16H *45/02;* F16D *13/72*

U.S. Cl. 192—113.36 8 Claims



1. As a novel article of manufacture, a friction element for use in an engageable and disengageable lockup clutch of a hydrokinetic torque converter including a housing for said clutch, for a turbine and for a pump and having a chamber including first and second fluid-containing compartments partially separable from each other by a piston forming part of the lockup clutch and having a first friction face engageable with a second friction face of the clutch in response to engagement of the clutch, said housing and said piston being rotatable about a common axis and one of said compartments being disposed radially inwardly of said friction faces, one of said friction faces being provided on a substantially washer-like part of the friction element and having inner and outer annular portions, said friction element further having at least one elongated fluid conveying channel provided in said one friction face and extending between said annular portions to establish at least one path for the flow of fluid between said compartments in the engaged condition of said clutch, said at least one channel having at least one fluid flow restricting portion which determines the rate of fluid flow between said compartments along said at least one path.

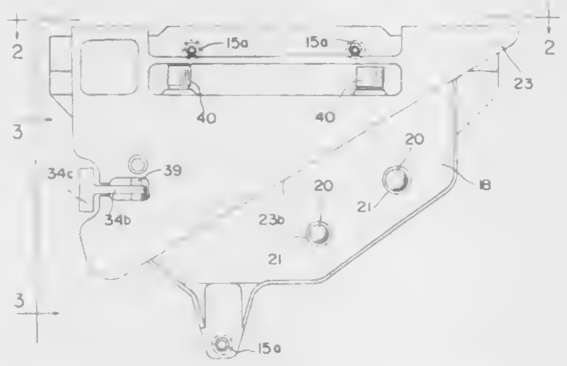
5,738,199
DIVERTER ROLLER ASSEMBLY FOR LOADING AND UNLOADING CARGO IN A VEHICLE

Edward Moradians, Canoga Park, Calif., assignor to Ancra International Corporation, Hawthorne, Calif.

Filed Nov. 22, 1995, Ser. No. 561,892

Int. Cl.⁶ B65G *13/00*

U.S. Cl. 193—35 R 7 Claims



1. A roller assembly for use in loading and unloading cargo in a vehicle comprising:

a floor unit adapted to be mounted on the floor of a vehicle;

an erectable unit pivotally supported on said floor unit;

spring means mounted on said assembly for urging said erectable unit towards an erected position substantially normal to the top surface of said floor unit,

latch means for retaining said erectable unit in a retracted position in opposing relationship to said floor unit, said latch means being releasable to enable the spring means to drive said erectable unit to the erected position,

said erectable unit having a cargo guide surface which runs in a first direction and a cargo guide edge which runs in a second direction which is at an acute angle to said first direction, and

wheel means mounted on said floor unit for facilitating the movement of cargo thereon;

said cargo guide surface providing a directional guide for cargo when the erectable unit is in the erected position, said cargo guide edge providing a directional guide for cargo when the erectable unit is in its retracted position.

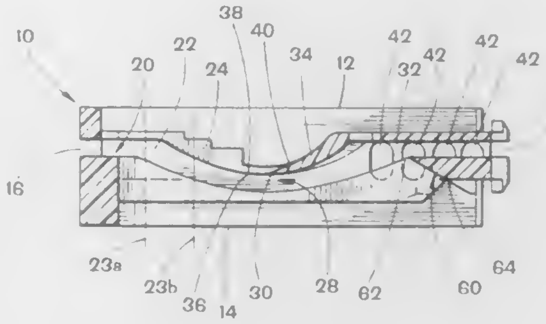
5,738,200
COIN RECEIVING ASSEMBLY FOR SEPARATING LIQUIDS FROM COINS

Philemon L. Bruner, Katy, Tex., assignor to Imonex Services, Inc., Katy, Tex.

Filed Aug. 9, 1995, Ser. No. 512,781

Int. Cl.⁶ G07F *1/04*

U.S. Cl. 194—348 14 Claims



1 A coin receiving assembly, comprising:

a housing assembly defining a generally downwardly sloping coin race, said coin race including a generally downwardly sloping race floor, and having a generally arcuate path defined in part by protrusion around which a coin must pass to traverse said coin race, said coin race further defined in part by first and second pluralities of elongated guide members on each side of said race, said guide members established in spaced relation to generally retain a coin in an on-edge orientation while defining first and second pluralities of apertures between said race and a location generally exterior to said housing.

5,738,201
COMPOSITE COVER PLATE FOR ESCALATOR STEP

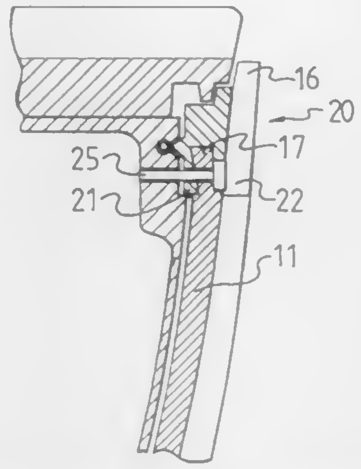
Alexander Findlay, and Neil Forrest Reid, both of Auckland, New Zealand, assignors to Escalator Advertising Limited, Auckland, New Zealand

Filed Apr. 24, 1996, Ser. No. 637,104

Claims priority, application New Zealand, Apr. 28, 1995, 272022

Int. Cl.⁶ B66B *23/12*

U.S. Cl. 198—333 7 Claims



1. A cover (10) adapted for mounting on a step of a passenger conveying device such as an escalator or travelator, having an external profile complementary to an external profile of said step, characterised in that said cover is comprised of an at least partially transparent or translucent panel (11) and a beading (20) fastened along at least one edge of said panel, said beading being comprised of a wear-resistant material

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5,738,202
METHODS AND APPARATUS FOR ESTABLISHING A DESIRED POSITIONAL RELATIONSHIP BETWEEN RANDOM-LENGTH ARTICLES CONVEYED IN SINGLE FILE

Edward Ydoate, and Goro Okada, both of Louisville, Ky., assignors to Sandvik Sorting Systems, Inc., Louisville, Ky.

Filed Dec. 21, 1995, Ser. No. 576,475

Int. Cl.⁶ B65G *47/26*

U.S. Cl. 198—460.1 19 Claims

1 A method of longitudinally conveying random-length articles in single file while establishing a minimum front to front distance between successive leading and trailing articles, comprising the steps of

A) transferring the leading and trailing articles sequentially from a driven upstream conveyor to a driven variable speed downstream conveyor while driving the downstream conveyor faster than the upstream conveyor, to create an initial rear-to-front gap between the leading and trailing articles,

B) transferring, subsequent to step A, the leading article onto a receiver conveyor,

C) sensing, subsequent to step A and prior to step B, front and rear ends of the leading article and determining an actual length thereof and an actual front to front distance between the leading and trailing articles,

D) comparing, subsequent to step C and prior to step B, the actual length of the leading article with a minimum front to front distance value

E) comparing, subsequent to step C and prior to step B, the minimum front-to-front distance value with the actual front to front distance;

F) controlling, subsequent to step B, the speed of the downstream conveyor on which the trailing article is disposed, to make the actual front to front distance equal to the minimum front to front distance value, when the minimum front-to-front distance value exceeds the actual length of the leading article and

G) controlling, subsequent to step B, the speed of the downstream conveyor on which the trailing article is disposed, to make the actual front-to-front distance equal to the actual

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length of the leading article, when such actual length exceeds the minimum front-to-front distance value.

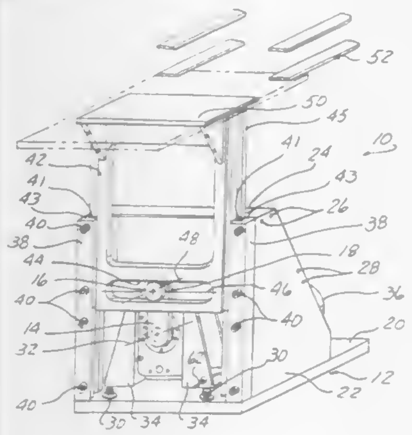
5,738,203
APPARATUS FOR TRANSLATING HARMONIC MOTION

David J. Crorey, Utica, Mich., assignor to ISI Norgren Inc., Anoka, Minn.

Filed Sep. 26, 1995, Ser. No. 534,240

Int. Cl.⁶ B65G *47/34*

U.S. Cl. 198—463.3 **19 Claims**



1. An apparatus comprising:

means for rotating an elongated unitary rotary member about a fixed rotational axis through at least 360°;

means, cooperatively engaging said rotary member, for transferring an article from a first position to a second position, where said first position corresponds to a 0° position of said rotary member and said second position corresponds to a 180° position of said rotary member; and

means for converting rotational movement of said rotary member to harmonic linear motion of said article transfer means for moving said article transfer means in a single back and forth cycle between said first position and said second position for every single 360° turn of said rotary member, said converting means including a follower connected to said unitary rotary member at a first distance from said rotational axis and cooperatively engaging with a cam surface defining a slot having a first end and a second end, where said follower is disposed substantially midway between said first and second ends when said unitary rotary member is at said first position and said second position

5,738,204
CONVEYOR MEANS AND USE THEREOF

Michael Baumgartner, Rekingen, Switzerland, assignor to Elpatronic AG, Zug, Switzerland

Filed Feb. 27, 1996, Ser. No. 607,706

Claims priority, application Switzerland, Mar. 20, 1995, 587/95

Int. Cl.⁶ B56G *19/26*

U.S. Cl. 198—732 **4 Claims**

1. A conveyor comprising:

a toothed belt for movement along a non-rectilinear path;

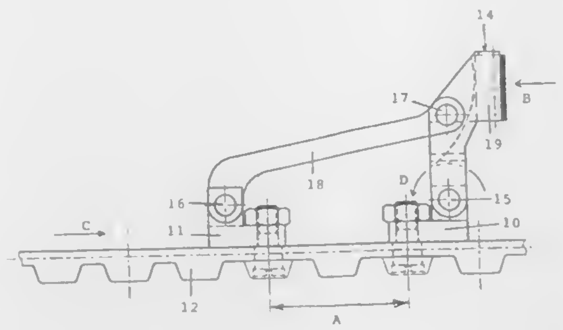
at least one pusher coupled to the toothed belt for acting upon an item to be conveyed, the at least one pusher including:

a first pusher foot fixedly mounted on an outer flat side of the belt at a first location;

a second pusher foot fixedly mounted on the outer flat side of the belt at a second location;

a pusher body pivotally mounted about a first pivot axis arranged on the first pusher foot; and

a rocking lever pivotally coupled at one end to the second pusher foot and pivotable about a second pivot axis arranged on the second pusher foot, and the rocking lever pivotally coupled at another end to the pusher body and pivotable about a third pivot axis on the pusher body located in spaced relation from the first pivot axis in such a way as to impact to the pusher body in the region of deflection of the belt from a straight path a motion which is superimposed on the deflection motion



5,738,205
CONVEYOR CHAIN HAVING A SUPPORTING FACE CONSITITUTED BY CHAIN LINKS TRANSVERSAL TO THE LONGITUDINAL DIRECTION OF THE CHAIN

Jorgen Draebel, Glasvej 8A, DK-2400 Copenhagen NV, Denmark

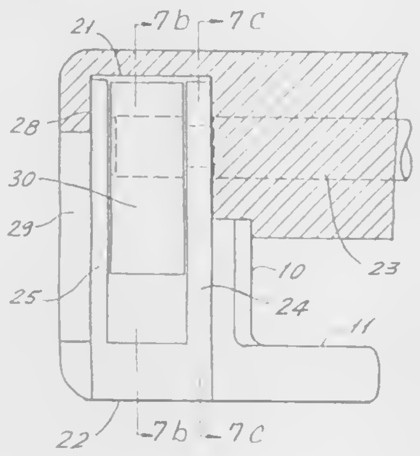
PCT No. PCT/DK95/00156, § 371 Date Dec. 15, 1995, § 102(e) Date Dec. 15, 1995, PCT Pub. No. WO95/28343, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 12, 1995, Ser. No. 564,113

Claims priority, application Denmark, Apr. 15, 1994, 0440/94; Aug. 4, 1994, 0908/94

Int. Cl.⁶ B65G *17/06*

U.S. Cl. 198—852 **13 Claims**



1. A side-flexing conveyor belt, comprising a load carrying top surface, which is assembled from links extending sidewards across the width of the belt, including eyeparts and connection parts, where the eyeparts at the first row are provided with alignment tabs and rod-supporting tabs, and with where the eyeparts at the first row have sidewards aligning holes for insert of connection rods, and where the eyeparts at the second row of eyeparts are provided with sidwards aligning slots, in which the connection rods can move freely inside the connection parts in the direction of first rows eyeparts, and where the side links are provided with L-shaped guide tabs, designed to guide the side-flexing conveyor belt in horizontal as well as in vertical direction, and by means of which the conveyor belt can be retained in the supporting members, characterized in that the side links have downwards extensions, perpendicular to the load carrying top surface of the conveyor belt, and which incorporate cavities, through which the connection rods can be inserted, and into which guide/lock inserts, incorporating snap-fit parts to engage with the corresponding connection rods.

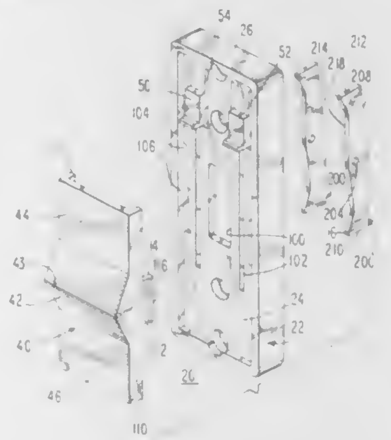
5,738,206
CHILD RESISTANT SWITCH LOCK

Michael A. Souza, Fall River, Mass., assignor to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Filed Apr. 16, 1997, Ser. No. 840,319

Int. Cl.⁶ H01H *3/20*

U.S. Cl. 200—43.16 **18 Claims**



1. A child resistant switch lock to restrict a child from operating a switch over which said switch lock is applied comprising:

a) a lock body having a body panel, said body panel having a front face and a rear face, said lock body further having a top wall, a bottom wall and two parallel, spaced apart side walls, said top wall, said bottom wall and said two side walls are joined to said rear face of said body panel to form a five-sided enclosure open at the rear face;

b) a slide member mounted upon said lock body and able to move between a first position adjacent said bottom wall and a second position adjacent said top wall, said slide member having a front face and a rear face;

c) said slide member having operating means to operate said switch, over which said switch lock is placed, between on and off conditions; and

d) selectively positionable stop means on said lock body having a first position engaging said slide member front face when said slide member is in said first position to prevent said slide member being moved to said second position and said stop means having a second position to permit said slide member to be moved to said second position, whereby when said selectively positionable stop means is in said first position, said slide means is also held in said first position and said switch over which said switch lock is applied is held in its off condition and when said selectively positionable stop means is in said second position, said slide means is able to be moved to said second position and said switch over which said switch lock is applied is moved to its on condition.

5,738,207
RIGID HINGED-LID PACKET FOR ELONGATED ITEMS PARTICULARLY CIGARETTES

Carlo Trimani, Bologna, Italy, assignor to G.D. Societa' Per Azioni, Bologna, Italy

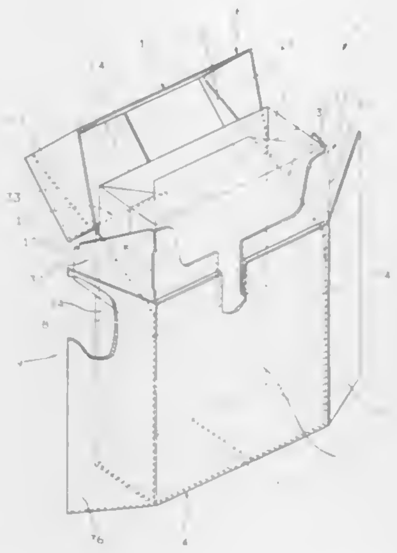
Filed Dec. 1, 1995, Ser. No. 566,182

Claims priority, application Italy, Dec. 6, 1994, BO94A0538

Int. Cl.⁶ B65D *85/10*

U.S. Cl. 206—268 **2 Claims**

1. A rigid hinged-lid packet for elongated tobacco articles, the packet comprising a cup-shaped container open at one end, said open end having a rear edge; a cup-shaped lid hinged to said rear edge for closing said open end, and a collar inserted inside the container and projecting outwards of the container through said open end; the packet being formed by folding a flat blank comprising a number of panels having respective pairs of longitudinal edges, and a longitudinal wing located outwards of each longitudinal edge of each panel, said longitudinal wings having substantially a same width; a first and second of said panels, having respective pairs of respective first and second said wings, defining the front wall of the collar and the front wall of the container; a longitudinal appendix connecting the first and second panels, and being folded inside the second panel so that the first panel partly contacts the inner surface of the second panel; and a third and fourth of said panels, having respective pairs of respective third and fourth said wings, respectively defining the rear wall of the container and the rear wall of the lid, said rear walls being connected to each other by a hinge connecting said lid to said container; each fourth wing being coplanar with the corresponding first wing and partially defining a recess for receiving a first portion of the corresponding first wing; a second portion of each first wing being gripped between the corresponding second wing of said second panel and the corresponding third wing of said third panel.



5,738,208
ACCESSORY DEVICE AND METHOD FOR PROTECTING GOLF CLUBS

Paul J. Roubal, 5866 Carmen Ct., E., Orchard Lake, Mich. 48324

Filed Jun. 27, 1996, Ser. No. 670,173

Int. Cl.⁶ A63B *55/00;57/00*

U.S. Cl. 206—315.4 **14 Claims**

1. An accessory device for use with a golf set including a set of golf clubs and a golf bag for receiving the clubs with the lower ends of the clubs positioned on a base of the bag and the clubs extending upwardly within the bag to position at least some of the club heads at a level above the top of the bag, the device including:

a head member defining a solid lower face having a size and configuration approximating the cross-sectional configuration of the golf bag and including a central region and a circumferential region in surrounding relation to the central region,

an elongated extensible rod assembly having upper and lower ends and a central axis extending between the ends and adapted to be positioned in the golf bag with the lower end thereof positioned on the base of the golf bag and the rod assembly extending upwardly in the bag to position the upper end thereof at a location proximate the upper end of the bag;

attachment means positioned on the central region of the lower face and operative to releasably secure the head member to the upper end of the rod assembly with the circumferential

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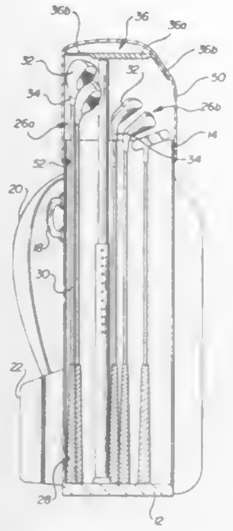


region positioned in surrounding relation to the central axis of the rod assembly; and

means operative to selectively move the rod assembly between an extended travel configuration having a length greater than the length of the longest club of the set of clubs, whereby the head member may be releasably attached to the upper end of the rod assembly so as to position the solid lower face in protective overlying relation to the head of the longest club to provide protection for the clubs in travel scenarios, and a retracted play configuration having a length less than the length of the longest club, whereby the head member may be removed from the rod assembly so that the rod assembly may reside unobtrusively in the bag during golf play.

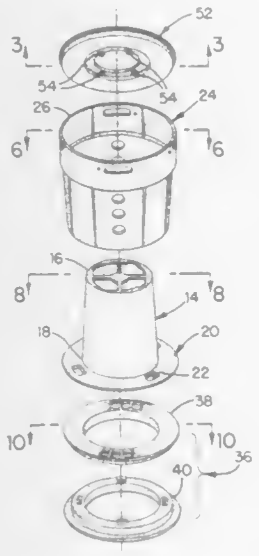
5,738,209
CABLE STORAGE CONTAINER

Ronald Wayne Burr, Clinton, Miss., and James Patrick Calcagni, Canfield, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 23, 1996, Ser. No. 772,607

Int. Cl.⁶ B65D *85/04; 21/04*

U.S. Cl. 206—397 **7 Claims**



1 A cable storage container comprising.

a conical core with a top and a bottom, the bottom having a larger diameter than the top;

an annular core base plate joined to the bottom of the core;

a conical outer cover, the outer cover retaining stored cable between the outer cover and the core, the outer cover having a top and a bottom with the top having a larger diameter than the bottom; and

an annular outer cover base plate joined to the outer cover, the outer cover base plate having an opening fitted around the bottom of the core.

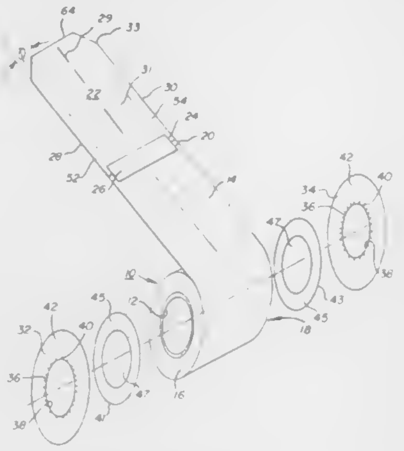
5,738,210
LIGHT-TIGHT PACKAGE

Thomas J. Kausch, Rochester; Kevin T. Kennedy, Hilton, and Arthur N. Malone, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1995, Ser. No. 572,477

Int. Cl.⁶ B65D *85/66*

U.S. Cl. 206—416 **20 Claims**



1. A light-tight package comprising:

a core having opposite ends:

a length of light-sensitive web material wound about the core to form a roll, the roll having end surfaces at the opposite ends of the core and an outer diameter, the web material having a leading end and a length having a first width;

a flexible opaque leader attached to the leading end of the web material and wound about the roll through at least a first convolution, the leader having a second width substantially equal to the first width, a length greater than a circumference of the roll, and opposite lateral edges separated by the second width;

a pair of rigid disks having an outer diameter less than or equal to the outer diameter of the roll;

a pair of flexible opaque end disks covering the end surfaces, the rigid disks positioned intermediate the end disks and the end surfaces, a central portion of each flexible end disk being attached to the core and a peripheral portion of each flexible end disk being folded over a circumferential edge of the leader, each folded over portion having an outer surface and a circumferential edge; and

at least one strip of adhesive tape having an edge, the at least one strip adhering to the outer surface of the folded over portion and to the outer surface of the leader for at least one convolution.

5,738,211
PACKAGING BAG

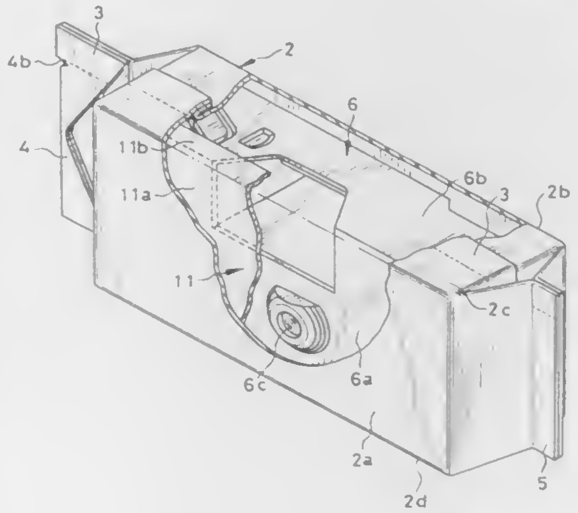
Shuichi Ichino; Toshihide Nagasaka, and Fumio Mitsuhashi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 25, 1996, Ser. No. 736,814

Claims priority, application Japan, Oct. 25, 1995, 7-277581

Int. Cl.⁶ B65D *85/38*

U.S. Cl. 206—316.2 **9 Claims**



1. A package for a product having an outwardly extended projection on one side thereof, the package comprising:

a sheet material formed into a generally rectangular tube, a first side of said tube being sealed at a side margin sealing portion and opposing ends of said tube being sealed at respective end margin sealing portions;

a notch in one of said end margin sealing portions near said side margin sealing portion for opening said first side substantially to the other of said end margin sealing portions which thereby forms a hole for removal of the product through said first side of the package; and

a tray having a bottom portion which faces a second side of said tube which is adjacent said first side, said tray being slidably removable from the package through said hole in said first side when said first side has been opened, whereby said tray prevents the outwardly extended projection on one side of the package from contacting said sheet material when the one side of the product is placed face down on said tray in the package.

8. A combination of a package and a film unit, the combination comprising:

said film unit having an outwardly extended taking lens on a front face thereof and a side face adjacent thereto which is smaller than said front face;

said package containing said film unit and comprising a sheet material formed into a generally rectangular tube which has a rectangular first side between larger rectangular second sides, said first side of said tube being sealed at a side margin sealing portion and opposing ends of said second sides being sealed at respective end margin sealing portions;

a notch in one of said end margin sealing portions near said side margin sealing portion for tearing open said first side along interfaces between said first side and said second sides substantially to the other of said end margin sealing portions, a hole being formed when said first side is torn open, said hole being larger than said side face of said film unit for allowing removal of said film unit through said first side of said package when said first side has been torn open; and

a tray with said film unit therein, said tray having a bottom which is slightly larger than said front face of said film unit and which faces one of said second sides of said tube, said tray being slidably removable from said package through said hole in said first side when said first side has been torn open, said taking lens facing said bottom for preventing said taking lens from contacting said sheet material.

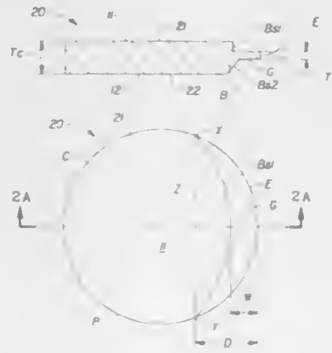
5,738,212
FIBROUS PAD AND A DISPENSING PACKAGE THEREFOR

Ricky Alan Pollard, Moscow, and Charles John Berg, Jr., Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 4, 1996, Ser. No. 725,449

Int. Cl.⁶ B65D *83/10*

U.S. Cl. 206—362 **22 Claims**



1. A fibrous pads package including a dispensing package and fibrous pads in combination, said fibrous pads package comprising.

a lightweight dispensing package having a dispensing opening therein; and

a plurality of discrete fibrous pads sequentially disposed in said dispensing package in an abutting relationship with each other, each of said plurality of discrete fibrous pads comprising:

at least one cleansing portion having a cleansing portion thickness Tc and a cleansing portion flexural rigidity Rc, and

at least one gripping portion of predetermined size and shape, said at least one gripping portion having a gripping portion thickness Tg, a gripping portion flexural rigidity Rg, and a gripping portion width W of not less than 0.25 inches,

said cleansing portion thickness Tc being at least about 50% greater than said gripping portion thickness Tg, and

said cleansing portion flexural rigidity Rc being at least about 100% less than said gripping portion flexural rigidity Rg.

said at least one gripping portion of each of said plurality of discrete fibrous pads having a gripping edge associated with said at least one gripping portion, said gripping edges being separable from one another such that said gripping edges can be spaced apart for dispensing.

5,738,213
GUIDEWIRE HOLDER WITH EASY GUIDEWIRE ACCESS

John Whiting, Salt Lake City; Brian W. Stevens, Pleasant Grove; William Padilla, Sandy; Garlyn W. Hendry, Salt Lake City, and Fred P. Lampropoulos, Sandy, all of Utah, assignors to Merit Medical Systems, Inc., South Jordan, Utah

Filed Mar. 22, 1996, Ser. No. 620,267

Int. Cl.⁶ B65D *83/10;* **A61B** *5/00*

U.S. Cl. 206—364 **17 Claims**

1. A guidewire holder for storage and retrieval of at least one coiled guidewire, the guidewire holder comprising

a) housing means for defining a partially covered chamber which is adapted to retain at least one guidewire substantially immersed in a storage fluid, the housing means comprising a

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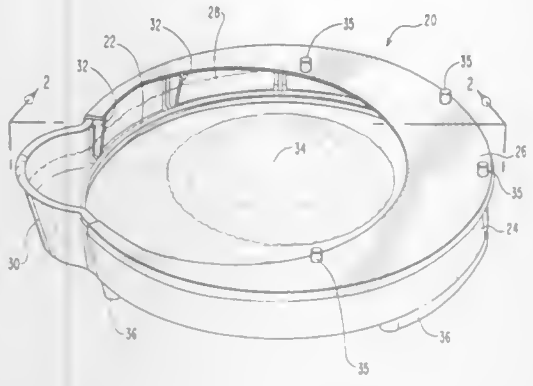


pan means for defining a bottom portion with an outer periphery of the housing means, and a cover means for defining a separate top portion of the housing means;

b) said pan means comprising channel means for holding a sufficient quantity of the storage fluid therein to permit the at least one guidewire to be immersed therein, and said pan means further comprising means for retaining the at least one guidewire immersed in the storage fluid by suspending the at least one guidewire so that it does not contact the outer periphery of said bottom portion; and

c) said pan means and said cover means together defining:
  first access means defining a first access opening in said cover means which is large enough to permit a coiled guidewire to be easily inserted and withdrawn therethrough, but said first access opening being small enough so that said cover means substantially covers the channel means in which the storage fluid is held and in which the guidewire is retained; and second access means in the form of an offset nose portion defined is said pan means for facilitating grasping the guidewire by hand for removal from said channel means.

9. A stackable system of guidewire holders for storage and retrieval of a plurality of guidewires each separately held by one of the guidewire holders, each guidewire holder comprising:

a) housing means for defining a partially covered chamber which is adapted to retain at least one guidewire substantially immersed in a storage fluid, the housing means comprising a pan means for defining a bottom portion with an outer periphery of the housing means, and a cover means for defining a top portion of the housing means;

b) said pan means comprising channel means for holding a sufficient quantity of the storage fluid therein to permit the at least one guidewire to be immersed therein, and said pan means further comprising means for retaining the at least one guidewire immersed in the storage fluid by suspending the guidewire so that it does not contact the outer periphery of said bottom portion;

c) said pan means and said cover means together defining:
  first access means defining a first access opening in said cover means which is large enough to permit a coiled guidewire to be easily inserted and withdrawn therethrough, but said first access opening being small enough so that said cover means substantially covers the channel means in which the storage fluid is held and in which the guidewire is retained; and
  second access means in the form of an offset nose means defined in said pan means for forming a second access opening which facilitates grasping the guidewire by hand for removal from said channel means and through said first access opening; and

d) means for stacking at least one of said guidewire holders on top of another guidewire holder, but without substantially obscuring either of said first and second access means.

5,738,214

PART FOR A TWOPARTITE BOX, A BOX OF TWO SUCH PARTS AND A SET OF SUCH PARTS

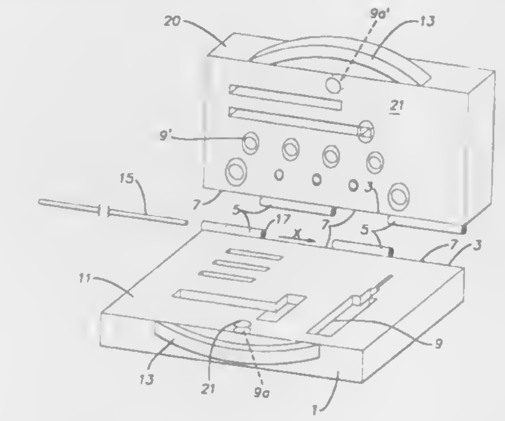
Patrick Wyss, Starrkirch, Switzerland, assignor to Impex Patrick Wyss, Monchaltorf, Switzerland

Filed Nov. 16, 1995, Ser. No. 559,336

Claims priority, application European Pat. Off., Oct. 6, 1995, 95115787

Int. Cl.⁶ B65D *85/28*

U.S. Cl. 206—373 **10 Claims**



1. A set of at least three halves of a plastic material box, at least two of said halves comprising compartments, each of said compartments adapted to snugly receive specific products of a predetermined shape, said products forming a product set respectively for said at least two of said halves, each of said at least three halves comprising a linearly extending hinge portion having first and second ends, said hinge portion comprising a first hinge knuckle at said first end of said hinge portion and at least one second hinge knuckle spaced from the second end of said hinge portion by a first distance and wherein of said knuckles have a first length which is equal to a space between adjacent knuckles and wherein said first distance is equal to or greater than said first length, so that each of said at least three halves may be pivotally hinged to any of the remaining at least two halves along their respective hinge portions and a first product set stored in one of said at least three halves may be freely combined with another product set stored in another of said at least three halves in a box formed by two of said at least three halves.

5,738,215

WRAPPING MATERIAL HAVING A PULL TAB AND METHOD

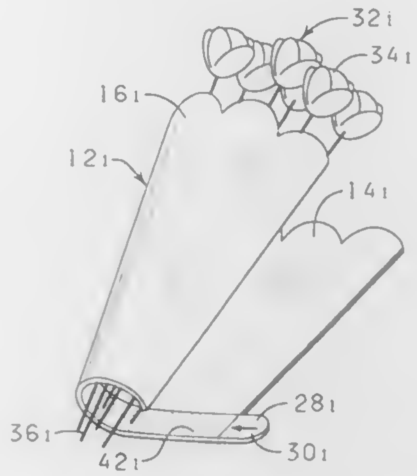
Donald E. Weder; Joseph G. Straeter, both of Highland, and William F. Straeter, Breese, all of Ill., assignors to Southpac Trust International, Inc., not individually , but as trustee of The Family Trust U/T/A dated Dec. 8, 1995.

Continuation of Ser. No. 463,656, Jun. 5, 1995, Pat. No. 5,636,739, which is a continuation of Ser. No. 373,821, Jan. 17, 1995, abandoned, which is a division of Ser. No. 963,882, Oct. 20, 1992, Pat. No. 5,408,803, which is a continuation-in-part of Ser. No. 865,563, Apr. 9, 1992, Pat. No. 5,245,814, which is a continuation of Ser. No. 649,379, Jan. 31, 1991, Pat. No. 5,111,638, which is a continuation of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 963,882 is a continuation-in-part of Ser. No. 893,586, Jun. 2, 1992, Pat. No. 5,181,364, which is a continuation of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 391,463, Aug. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned. This application Jan. 30, 1997, Ser. No. 791,280

Int. Cl.⁶ B65D *85/50;* **B65B** *11/04;25/02;* **A01G** *9/02*

U.S. Cl. 206—423 **20 Claims**

1 An assembly, comprising:



a sheet of material having an upper surface, a lower surface and an outer periphery, the sheet of material further comprising a pull tab, the pull tab extending outward a distance from the sheet of material, the Dull tab having a bonding material disposed on at least a portion thereof, the pull tab sized to be grasped by an operator's fingers, the sheet of material sized to wrap about and substantially surround and encompass at least a stem portion of a floral arrangement; and

a floral arrangement having an upper end consisting of a flower portion and a lower end consisting of the stem portion, at least the stem portion of the floral arrangement being wrapped in the sheet of material by overlapping at least one portion of the sheet of material with at least one other portion of the sheet of material, the portions of the sheet of material overlapped so that the pull tab is exposed on the outside of the wrapping, at least a portion of the pull tab overlapping portions of the sheet of material, the bonding material on the pull tab contacting and connecting to at least one overlapping portion of the sheet of material thereby forming a wrapper about at least the stem portion of the floral arrangement.

9 A method for wrapping a sheet of material about a floral arrangement to produce a cover which extends about at least a portion of a stem end of the floral arrangement, comprising the steps of:

providing a sheet of material having an upper surface, a lower surface, a first side, a second side and a pull tab connected at one end to at least a portion of the first side of the sheet of material such that a second end of the pull tab extends outward a distance from the first side of the sheet of material, the pull tab having a bonding material disposed on at least a portion thereof;

wrapping the sheet of material about at least the stem end of the floral arrangement; and

securing the sheet of material about at least the stem end of the floral arrangement by bondingly connecting at least the second end of the pull tab to at least a portion of the sheet of material disposed substantially adjacent the first side of the sheet of material when the sheet of material is wrapped about at least the stem end of the floral arrangement so that the sheet of material is secured about at least the stem end of the floral arrangement

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5,738,216

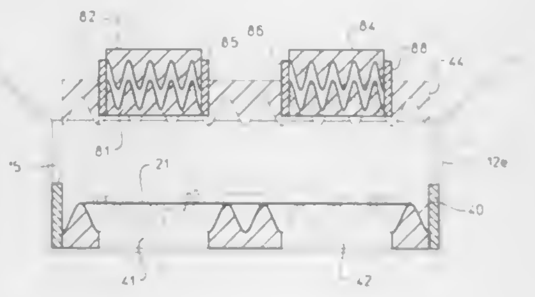
ADJUSTABLE AND REUSABLE PROTECTIVE PACKAGING SYSTEM

Gary J. Warner, Weimar, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 490,842, Jun. 15, 1995, Pat. No. 5,641,068. This application Feb. 25, 1997, Ser. No. 805,797

Int. Cl.⁶ B65D *81/02*

U.S. Cl. 206—523 **10 Claims**



1 A reusable shipping container assembly for protecting a plurality of articles during shipping, said reusable shipping container assembly comprising:

a semi-rigid rectangular corrugated box providing a top wall, a bottom wall and side walls; and,

a plurality, equal in number to said plurality of articles, of interlocking cushioning devices disposed within said semi-rigid rectangular corrugated box, each interlocking cushioning device comprising:
  a convoluted foam set including a pair of rectangular-shaped interlocking convoluted foam cushions, each interlocking convoluted foam cushion having at least one convoluted side for engaging a convoluted side of its corresponding pair, said pair of rectangular-shaped interlocking convoluted foam cushions for cushioning therebetween one of said plurality of articles, and
  a rectangularly-shaped cushion sleeve adapted to snugly enclose said convoluted foam set on four sides and to retain said interlocking convoluted foam cushions in place,

wherein the shape of each of said interlocking cushioning device relative to the overall dimensions of said semi-rigid rectangular corrugated box being such that when disposed within said semi-rigid rectangular corrugated box only a single recess is produced between the top wall of said semi-rigid rectangular corrugated box and said interlocking cushioning devices thus providing a region of expansion for compensating bulging produced by said articles within said interlocking cushioning devices.

5,738,217

COMBINED FOOD AND BEVERAGE CONTAINER CARRIER AND ADVERTISING VEHICLE

Anthony L. Hunter, P.O. Box 4262, Mission Viejo, Calif. 92690

Filed Nov. 7, 1996, Ser. No. 745,033

Int. Cl.⁶ B65D *5/50,85/62*

U.S. Cl. 206—549 **16 Claims**

1. A bottomless foldable carrier for transporting a plurality of beverage containers, said bottomless carrier comprising.

(a) a handle portion;

(b) a first cup supporting panel, said first cup supporting panel including at least a first opening therein and having a first upper surface;

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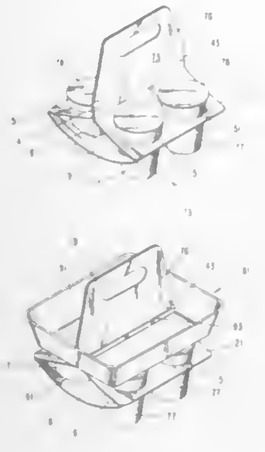


(c) a second cup supporting panel, said second cup supporting panel including at least a second opening therein and having a second upper surface;

(d) means to connect said handle portion to both said first and said second cup supporting panels between said first and second upper surfaces, said connecting means being flexible to permit said handle portion to be moved between a position where said handle portion is perpendicular to said first and second upper surfaces and a position where said handle portion is substantially parallel with one of said first and second upper surfaces; and

(e) means, connected to both said first and second cup supporting panels, for limiting the movement of said first cup supporting panel towards said second cup supporting panel when beverage containers are placed in and carried by said first and second openings, said means for limiting movement including at least third and fourth openings therein, said third opening being in substantial alignment with said first opening, and said fourth opening being substantially aligned with said second opening, said first, said second, said third and said fourth openings being elliptical openings, each said elliptical opening having a major axis, said major axis of said first opening being substantially perpendicular to said major axis of said third opening, said major axis of said second opening being substantially perpendicular to said major axis of said fourth opening.

5,738,218
FOLDABLE PROTECTIVE PACKAGING

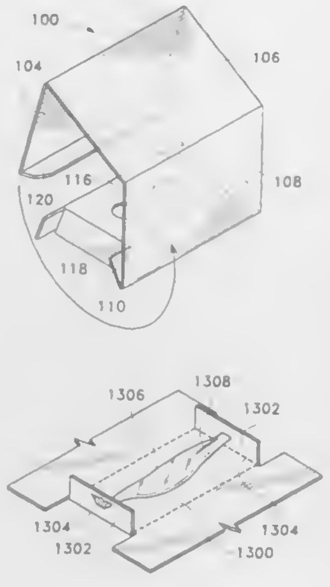
Juanita A. Gonzales, 490 Cambridge Ave., Palo Alto, Calif. 94306

Filed Oct. 30, 1996, Ser. No. 741,092
Int. Cl.^{6} B65D *85/30*

U.S. Cl. 206—583 **9 Claims**

1. A protective container of:

a.) a foldable sheet which upon folding forms a protective container comprising
  - i.) a plurality of container walls which upon said folding, form said protective container having an outer surface, an inner volume, inner surfaces defining said inner volume, and container wall fold lines adjacent said container walls and
  - ii.) a support platform having edges at least two of which support platform edges are opposing, a support platform field spaced away from said support platform edges, and at least one edge foldably attached to a spacer panel, and
  - iii.) said spacer panel foldably attached to at least one edge of said support platform wherein upon said folding, said spacer panel positions said two opposing edges of the support platform against said container walls and spaces the support platform field away from said containing walls, and wherein upon said folding said spacer panel extends to a container wall fold line, and



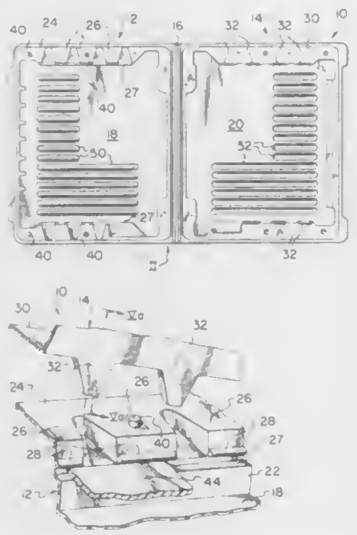
b.) a retainer independent of and attached to said foldable sheet for retaining and positioning said at least one object with respect to said support platform field.

5,738,219
PROTECTIVE PLASTIC PACKAGE FOR PRINTED CIRCUIT BOARDS

Biagio Arsena; Randall C. Gordon, both of Durham; Steve D. Tadge, Hillsborough, all of N.C., and Anthony H. J. Robinson, Richmond Hill, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Feb. 28, 1997, Ser. No. 807,682
Int. Cl.^{6} B65D *85/30;43/16*

U.S. Cl. 206—706 **5 Claims**



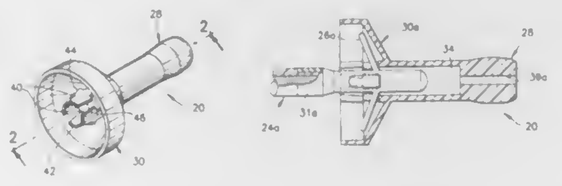
1. A protective molded resiliently flexible plastic package for a printed circuit board comprising a base member and a cover member, the cover and base members being closeable to define an enclosed chamber for containing and securely holding a printed circuit board, each member having a generally planar main chamber defining portion and a border region around the main chamber defining portion, the border regions of the two members comprising mutually engageable locking means to detachably hold the members together in their closed condition, the border region of one member having a chamber boundary wall extending from edges of and out of the plane of its main chamber defining portion, the wall defining a step surface for contacting a marginal region of one major surface of the board and a resiliently deflectable projection spaced from the step surface to engage a marginal edge region of the other major surface of the board when this lies in contact with the step surface, and the other member having a substantially rigid board engaging element which, with the members closed together, lies within the chamber in a position to engage the marginal edge region of the other major surface.

5,738,220
DISTAL TIP PROTECTOR CAP

David M. Geszler, Moorpark, Calif., assignor to Pacesetter, Inc., Sylmar, Calif.

Filed Sep. 30, 1996, Ser. No. 723,735
Int. Cl.^{6} B65D *85/00*

U.S. Cl. 206—726 **32 Claims**



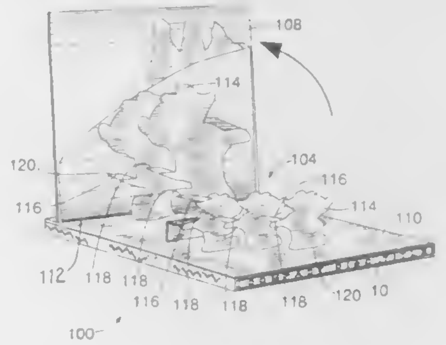
1. A protective device for the distal electrode of an implantable medical lead having a plurality of outward angularly extending tines comprising:
  - a cap member extending between a nose end having a chamber for freely receiving therein the distal electrode of the medical lead and a tail end distant from said nose end; and
  - retention means at said tail end for releasably positively gripping the tines of the medical lead preventing relative rotation between said cap member and the distal electrode and inhibiting unintended removal of said cap member from the distal electrode.

5,738,221
COMPACT DISC HOLDER PACKAGE CONTAINING A THREE-DIMENSIONAL POP-UP DISPLAY

Peter Van Witt, Westport; Paul Zalon, Southport, both of Conn., and David Burton, New York, N.Y., assignors to Popshots intellectual Property, LLC, Westport, Conn.

Filed Jun. 9, 1995, Ser. No. 489,306
Int. Cl.^{6} A65D *85/30*

U.S. Cl. 206—768 **34 Claims**



1. A compact disc holder package containing a three-dimensional pop-up display, comprising:
  - a tray for retaining a compact disc; and
  - a pop-up display structure overlaying said tray, said display structure including a first panel and a second panel hingedly connected to each other such that they are movable between a folded generally flat configuration and an opened configuration in which said panels are generally perpendicular, said display structure also including vertical and horizontal pop-up elements disposed between said panels wherein at least one of said vertical elements is hingedly connected to said second panel and at least one of said horizontal elements is hingedly connected to said first panel and wherein each of said horizontal elements is hingedly connected to one of said vertical elements and each of said vertical elements is hingedly connected to one of said horizontal elements such that when said panels are in the folded configuration, the pop-up elements are collapsed and generally flat and when said panels are moved to the opened configuration, said pop-up elements form a self-erected three-dimensional display, wherein said second panel is hingedly connected to said tray such that said second panel is movable between a position in which said second panel covers said tray and a position in which said tray is exposed and the compact disc is accessible.

5,738,222
PROCESS FOR SEPARATING SOLIDS MIXTURES OF DIFFERING DENSITY, SEPARATING LIQUID AND DEVICE FOR IMPLEMENTING THE PROCESS

Ingeborg Pagenkopf, Gülzower Strasse 45, D-12619 Berlin, and Manfred Allies, Berlin, both of Germany, assignors to Ingeborg Pagenkopf

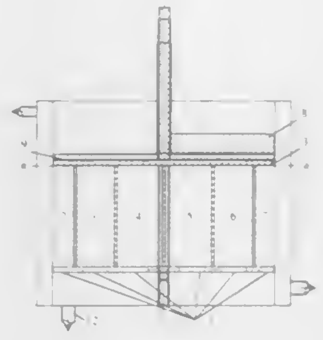
PCT No. PCT/DE94/00313, § 371 Date Aug. 9, 1995, § 102(e) Date Aug. 9, 1995, PCT Pub. No. WO94/21382, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 17, 1994, Ser. No. 505,238

Claims priority, application Germany, Mar. 18, 1993, 43 09 325.6; Mar. 18, 1993, 43 09 326.4

Int. Cl.^{6} B03B *1/00*

U.S. Cl. 209—7 **12 Claims**



1. Stabilized heavy medium composition for the density separation of metal-containing, non-mineral waste products belonging to the group of plastics, glass and electrical scrap and mixtures thereof, comprising
  - an aqueous solution of
    - (1) an alkali metal salt or an alkaline-earth metal salt of dihydrogendodecawolframate having a concentration in the range of 1% to 80% by weight based upon the total solution weight; and
    - (2) an oxidant selected from the group consisting of the chromate, dichromate, permanganate, nitrate, peracids, perester group, having a concentration of 0.05% to 0.5% by weight based upon the weight of the salt of dihydrogendodecawolframate.

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5,738,223
SCREEN CONVEYOR BELT

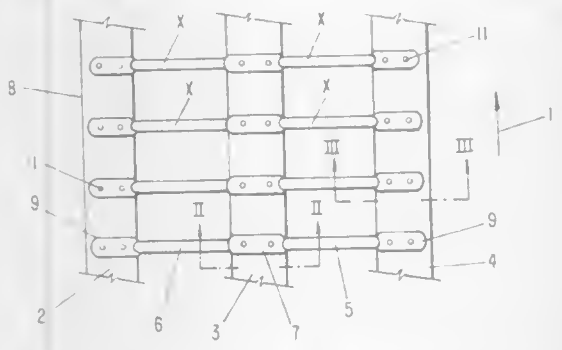
Friederich Röhrs, Celle, Germany, assignor to Gummi-Jäger KG GmbH & Cie, Hanover, Germany

Filed Jan. 20, 1995, Ser. No. 376,105

Claims priority, application Germany, Jan. 20, 1994, 44 01 586.0

Int. Cl.^{6} B07B *1/10*

U.S. Cl. 209—307 **14 Claims**



1 A screen conveyor belt for farm equipment. said screen belt comprising:

a plurality of flat belt members having a longitudinal extension in a direction of travel of said screen conveyor belt and arranged parallel to one another;

rod members extending perpendicular to the direction of travel and being spaced from one another in the direction of travel so as to form therebetween openings of said screen conveyor belt;

said rod members comprising a first and a second flat end sections and a central operative portion located between said first and second flat end sections, wherein between said central operative portion and said first and second flat end sections respectively a transition portion is located;

said first and second flat end sections of each one of said rod members positioned respectively on two adjacent ones of said flat belt members;

fasteners for connecting said flat end sections to said flat belt members, wherein said fasteners penetrate said flat end sections; and

wherein a thickness of said flat end sections is greater adjacent to said transition portion than at a free end of said flat end sections.

5,738,224
METHOD AND APPARATUS FOR THE SEPARATION OF MATERIALS USING PENETRATING ELECTROMAGNETIC RADIATION

Edward J. Sommer, Jr., Nashville; Michael A. Kittel, Unionville, and James R. Peatman, Nashville, all of Tenn., assignors to National Recovery Technologies, Inc., Nashville, Tenn.

Continuation of Ser. No. 292,954, Aug. 22, 1994, Pat. No. 5,518,124, which is a continuation of Ser. No. 777,718, Oct. 21, 1991, Pat. No. 5,339,962, which is a continuation-in-part of Ser. No. 605,993, Oct. 29, 1990, Pat. No. 5,260,576. This application May 20, 1996, Ser. No. 650,851

Int. Cl.^{6} B07C *5/00*

U.S. Cl. 209—588 **6 Claims**

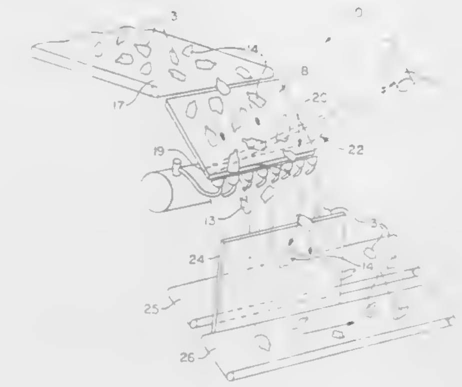
1. A system for sorting different materials using x-ray radiation, the system comprising:

a conveyor for conveying a non-singulated stream of material items along a feed path;

a transmission/detection arrangement to transmit x-ray radiation to material items in the feed path, detect x-ray radiation received from different portions of each material item, and generate signals corresponding to radiation received from different portions of each material item;

a circuit to average at least a portion of said signals to produce an averaged signal and to analyze the averaged signal to determine at least one physical property of each material item based on analysis of the averaged signal; and

a sorting assembly to sort the material items based on analysis of the averaged signal.



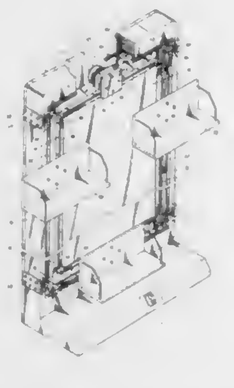
5,738,225
DEVICE IN WHICH A BOOKRACK MOVES VERTICALLY AND HORIZONTALLY

Bongki Kim, O-yang Daeyon Yangji Apt. 2-407, 1536-12, Daeyon 6 dong, Namku Pusan, Rep. of Korea

Filed Oct. 21, 1996, Ser. No. 734,739

Int. Cl.^{6} A47F *5/02*

U.S. Cl. 211—1.57 **1 Claim**



1 A device in which a bookrack moves vertically and horizontally, comprising:

a base frame having a projecting step on which operation switches are mounted,

a pair of vertical frames attached to each of the left and right sides of the base frame;

an upper frame connecting the top ends of the pair of vertical frames, the upper frame, pair of vertical frames and base frame forming an outer frame;

a central frame positioned within the outer frame and secured to the outer frame by a rear cover and reinforcing strips,

a moving body guide formed in the outer frame having inclined planes at an angle of 45° at the corners of the moving body guide, a rack gear insertion jaw and a double-chain contact jaw formed at the rear of the moving body guide, a step provided with a pin support metal contact step, a pin moving groove and fastening means for securing to the back of the moving body guide, and linear bearings attached to the front and rear of the moving body guide;

an inner moving body guide formed on the center frame having inclined planes at an angle of 45° at each corner and linear friction bearings attached to the front and rear of the inner moving body guide;

a rack gear within the rack gear mounting jaw, each of the corners of the rack gear forming a circular arc;

an attachment double chain having inner and outer chains provided with a pin and a pin support, the pin positioned within and movable through the pin moving groove in the outer frame;

a chain cover attached to the outer frame having an inner pin moving grove formed on the inner side, and the four corners each forming a circular arc;

housing means within the base frame for containing a bracket on which a reduction motor having a motor chain gear is mounted, the motor being operated by the operation switches, and a rotary wheel having a wheel axis mounted in a boss having a bearing in the bracket, the rotary wheel having a first wheel chain gear connected to the motor chain gear by a drive chain and a coaxial second wheel chain gear having the same number of teeth as the first wheel chain gear, the rotary mounted such that the second wheel chain gear is in communication with the outer chain of the attachment double chain;

a moving body having an octagonal axis formed between a pair of square plates, the octagonal axis oriented between the moving body guide and the inner moving body guide, the moving body further having a circular axis connected to one of the square plates within the outer frame, a body rotary wheel rotatably mounted on the circular axis having a body chain gear with the same number of teeth as the first chain wheel gear in communication with the inner chain of the attachment double chain, and a second body gear in communication with the rack gear;

a bookrack attached to the other of the square plates on the outside of the outer frame, whereby, when the motor is operated by the operation switches, the motor chain gear rotates, causing the first wheel chain gear to rotate, thereby driving the second wheel chain gear and moving the attachment double chain, such that the movement of the inner chain of the double attachment chain causes the body rotary wheel to turn, and the second body gear drives the moving body and bookrack on the octagonal axis between the moving body guides by interaction with the rack gear, the bookrack maintaining a horizontal position during the horizontal and vertical movement of the octagonal axis.

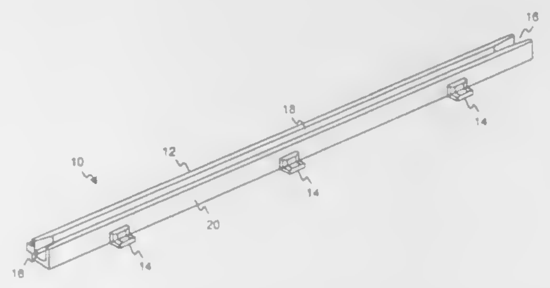
5,738,226
GUIDE PIECE AND METHOD FOR MOUNTING TO A CHASSIS IN MULTIPLE ORIENTATIONS

Ronald P. Dean, Ft. Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1996, Ser. No. 741,499

Int. Cl.^{6} A47G *19/08;* H05K *7/14*

U.S. Cl. 211—41.17 **11 Claims**



1. A guide piece for mounting in a chassis in multiple orientations, said guide piece comprising:

an elongated body;

a U-shaped channel extending along the entire length of said elongated body, said U-shaped channel having an end opening at each of two ends of said elongated body; and

a first outer surface extending along a length of a first leg of said U-shaped channel, said first outer surface having a plurality of raised tabs affixed thereto wherein each of said raised tabs further comprises

a first raised tab leg extending parallel to said first outer surface and perpendicular to a long dimension of said elongated body, and

a second raised tab leg extending perpendicular to said first outer surface and perpendicular to said first raised tab leg, wherein said first and second raised tab legs join to form an L-shape, wherein said L-shape faces in a same direction as said U-shaped channel.

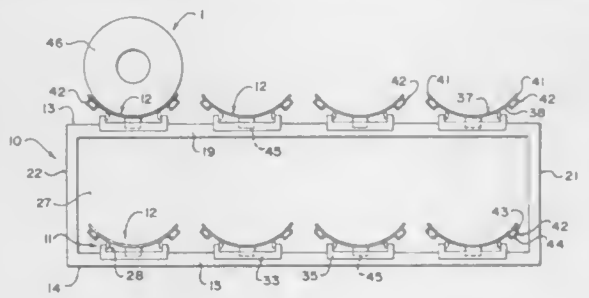
5,738,227
DISPLAY RACK FOR FLOOR COVERING

James N. Duff, 181 Ragsdill Road, Winnipeg Manitoba, Canada, R2G 4C9, and Randy McHolm, 18 Arklie Place, Winnipeg Manitoba, Canada

Filed Jan. 27, 1997, Ser. No. 788,999

Int. Cl.^{6} A47F *5/00*

U.S. Cl. 211—60.1 **11 Claims**



1. A display rack for floor covering comprising:

a structural member comprising a base, a top and four sides;

a plurality of tracks extending longitudinally across the base and the top of the structural member spaced laterally along the base and the top of the structural member;

a plurality of cradles, said cradles comprising a support member, said support member having a base, a length, a width and a substantially concave shape for supporting a roll of floor covering thereon; and

wheeled means arranged for rolling motion of the cradles on the tracks of the structural member,

wherein the wheeled means support the cradles for rolling motion thereon such that the cradles slide on the tracks between storage positions wherein the cradles are located within the structural member and display positions wherein the cradles are located at positions partly forward of the top and the base of the structural member, respectively.

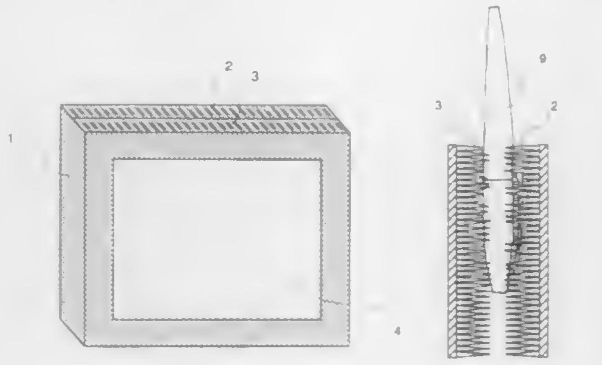
5,738,228
OBJECT HOLDER

Andrew H. Bittinger, W1515 Pine Rd., Eleva, Wis. 54738

Filed May 24, 1996, Ser. No. 653,420

Int. Cl.^{6} A47F *5/00*

U.S. Cl. 211—69.1 **8 Claims**



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1. A device for holding articles, comprising:
a rigid rectilinear housing with one or more openings to receive articles; and
a plurality of flexible bristles formed on at least one inside surface of said rectilinear housing for gripping and holding articles inserted into said one or more openings of said rigid rectilinear housing,
wherein said rigid rectilinear housing and said plurality of flexible bristles formed thereon are injection molded in a single mold.

5,738,229
DISPLAY RACK

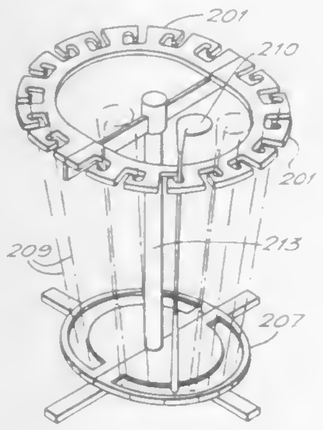
Brian Don Fairweather, 88 Kidmore End Road., Emmer Green, Reading, Berkshire RG4 8SL, United Kingdom

Filed May 21, 1996, Ser. No. 652,013

Claims priority, application United Kingdom, May 30, 1995, 9510869

Int. Cl.^{6} A47F *7/00*

U.S. Cl. 211—70.2 31 Claims



1. A display comprising:
a base and a display rack supported above the base;
the display rack comprising a support and a row of arms which extend in respective forward directions away from the support, each arm having a tip which points back towards the support for hooking an elongate object to retain it in a slot between the arm and the support; and
the display rack being positioned relative to the base so as to define a plurality of notional display axes for the elongate objects, each notional display axis extending upwards from the base and extending upwards and forwards through a respective one of the slots of the display rack.

5,738,230
FOLDING FURNITURE WITH HIDDEN INTERNAL HINGE

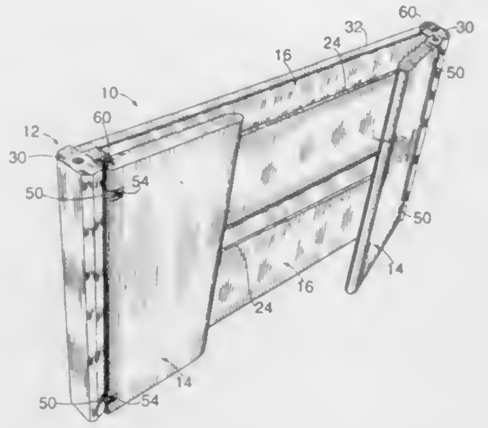
Jaime Abraham Berdichevsky Goldstein, Paul Harris 10170, Las Condes-Santiago, Chile

Filed Mar. 11, 1996, Ser. No. 613,855

Claims priority, application Chile, Mar. 15, 1995, UM 387 95 U

Int. Cl.^{6} A47F *5/00*

U.S. Cl. 211—149 15 Claims



1. In a folding article of furniture comprising:
(A) a vertically extending back piece;
(B) at least one vertically extending side piece secured to said back piece and pivotable over a 90° angle relative to said back piece between a parallel or collapsed orientation and a perpendicular or use orientation; and
(C) a vertically spaced plurality of shelves, each shelf being secured to said back piece and pivotable over a 90° angle relative to said back piece between a parallel or collapsed vertical orientation and a perpendicular or use horizontal orientation;
the improvement wherein
said side piece and said back piece are secured together by at least one hidden internal hinge.

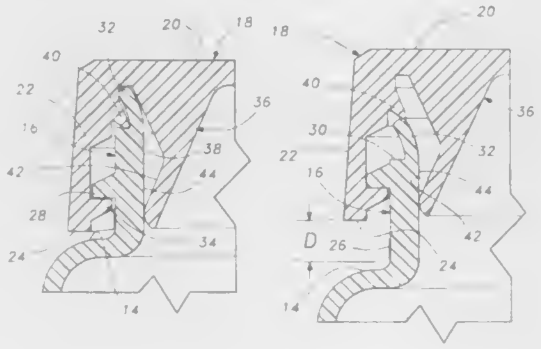
5,738,231
TAMPER INDICATING THREADED CLOSURE-CONTAINER PACKAGE

Gary V. Montgomery, Evansville, Id., assignor to Rexam Closures, Inc., Evansville, Ind.

Filed Apr. 19, 1996, Ser. No. 635,371

Int. Cl.^{6} B65D *1/02*

U.S. Cl. 215—44 * 22 Claims



1. A threaded tamper indicating closure-container package comprising:
a container having a shoulder and a neck extending upward from said shoulder, said neck having an external thread;
a closure having a top and a cylindrical skirt depending from the periphery of said top, said skirt having an internal thread complementary to said container neck thread;
one of said closure and container having an axially extending annular flange and the other of said closure and container having first and second abutment surfaces;
said closure being initially threaded onto said container neck to pass said second abutment surface and engage said first abutment surface to deflect said annular flange radially to a new configuration at which the bottom of said closure skirt assumes a first position adjacent said container shoulder and said annular flange takes a permanent set to assume said new configuration upon removal of said closure from said container; and
said closure being removable from said container neck and reapplied to said container neck during which time, said annular flange remains substantially in said new configuration and engages said second abutment surface to limit closing movement so that the bottom of said closure skirt will assume a second position vertically above said first position to indicate that said closure has been previously opened.

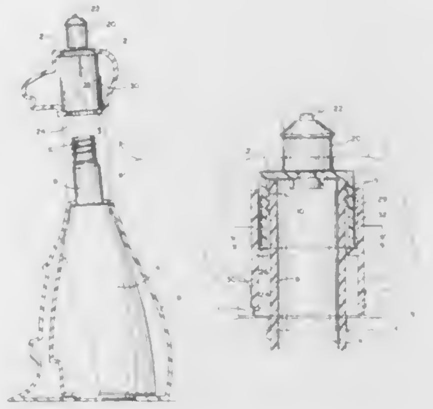
5,738,232
CLUTCH ADAPTER TO PREVENT OVER-TIGHTENING AN END CAP TO A FLUID RESERVOIR

Anthony V. Roberts, Rolling Hills Estates, and William R. Reece, Irvine, both of Calif., assignors to The CDM Company, Inc., Newport Beach, Calif.

Filed Jan. 5, 1996, Ser. No. 583,333

Int. Cl.^{6} B67D *3/00*

U.S. Cl. 215—228 10 Claims



1. A combination, comprising:
a fluid reservoir having an open neck extending outwardly therefrom, said neck having a screw threaded end at which to receive a correspondingly screw threaded end cap so as to close said neck;
a hollow clutch adapter being a hollow body with two open ends, said clutch adapter surrounding the end cap, said clutch adapter having means extending inwardly thereof by which to engage the end cap such that a rotational force applied to said clutch adapter is imparted to the end cap to cause the end cap to be rotated into tightened engagement against the screw threaded end of said neck of said fluid reservoir, said clutch adapter being adapted to rotate around the end cap once the end cap is rotated into tightened engagement against said neck to prevent an over-tightening of the end cap against said neck in response to a continued rotation of said clutch adapter;
a hollow head surrounding said clutch adapter and affixed thereto, such that a rotational force applied to said hollow head is imparted to the end cap by way of said clutch adapter so as to cause the end cap to be rotated into tightened engagement against the screw threaded end of said neck of said fluid reservoir; and
a hollow outer body having first and second openings formed therein and surrounding said fluid reservoir, said hollow head being rotatable relative to said hollow outer body,
said hollow outer body and said fluid reservoir being flexible so that a compressive force applied to said hollow outer body is transferred to said fluid reservoir to compress said fluid reservoir, said flexible fluid reservoir being compressed and pushed through said first opening in said hollow outer body so as to be surrounded by said hollow outer body such that the neck of said fluid reservoir projects outwardly from said hollow outer body via said second opening formed therein.

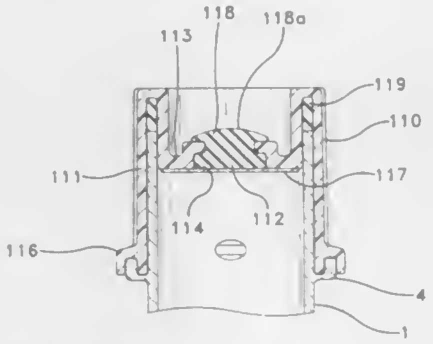
5,738,233
COMBINATION STOPPER-SHIELD CLOSURE

James A. Burns, Elizabeth, N.J., assignor to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 58,854, May 6, 1993. This application Jul. 26, 1994, Ser. No. 280,621

Int. Cl.^{6} B65D *41/62*

U.S. Cl. 215—247 3 Claims



1. A closure for sealing an open end of a body fluid collection tube comprising:
a shield having a central aperture surrounded by a wall and an outer skirt with a plurality of cam followers extending from the bottom of said outer skirt that interact with a plurality of cams on an outer wall of a body fluid collection tube to facilitate removing said closure from an open end of the tube.
a sealing element for sealing the tube having an upper flange that is received in said shield, wherein said upper flange in conjunction with said wall of said shield form a well and said upper flange includes a convex surface that directs residue body fluid from said convex surface of said upper flange towards said wall and a body fluid trap between said wall and said convex surface that collects body fluid being directed from said convex surface towards said wall; and
a gas-barrier member bonded to said sealing element and said shield to minimize the thickness of said sealing element, reduce needle penetration force through said sealing element, and improve vacuum retention within the tube.

5,738,234
CONTAINER INSERT FOR VOLUME REDUCTION AND TABLET STABILITY

John E. Harrold, Bloomsbury Borough, N.J., assignor to Pakmax, Inc., Easton, Pa.

Filed Jul. 12, 1996, Ser. No. 679,176

Int. Cl.^{6} B65D *23/00*, A61J *1/03*

U.S. Cl. 215—386 22 Claims

1. A container insert for a container comprising:

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- (a) a container having a base, a neck and an open mouth, said container having an outer side and an inner side; and
- (b) a container insert being confined within said container, said container insert comprising a flexible cup member and a rigid hollow stem member, said cup member being defined by a plurality of corollate petal-like members, said cup member having an upper side and a lower side opposite said upper side, said hollow rigid stem member having a first end and a second end, said stem member being connected to said flexible cup member at said first end, said stem member having an outer sidewall surface and an inner sidewall surface.

5,738,235
TANK FOR VERY COLD FLUIDS, ESPECIALLY LIQUID NATURAL GAS

Kåre Rygg Johnsen, Jar, Norway, assignor to Kvaerner Moss Technology a.s., Lysaker, Norway

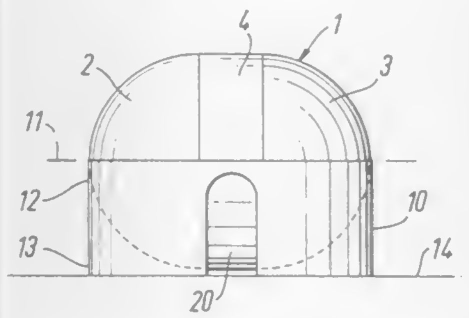
PCT No. PCT/NO95/00019, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO95/20519, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 25, 1995, Ser. No. 682,701

Claims priority, application Norway, Jan. 28, 1994, 940316

Int. Cl.^{6} B67B *25/00*

U.S. Cl. 220—4.12 **20 Claims**



1. A tank assembly includes a tank for very cold fluids, and a skirt supporting said tank, said tank assembly comprising:

a skirt having an approximately central vertical axis
a first hemispherical section;
a second hemispherical section which is substantially identical to said first hemispherical section; and
a cylindrical section, having an approximately central horizontal axis, connecting said first and second hemispherical sections to form said tank;
wherein said skirt supports said tank by engaging at least said first and second hemispherical sections.

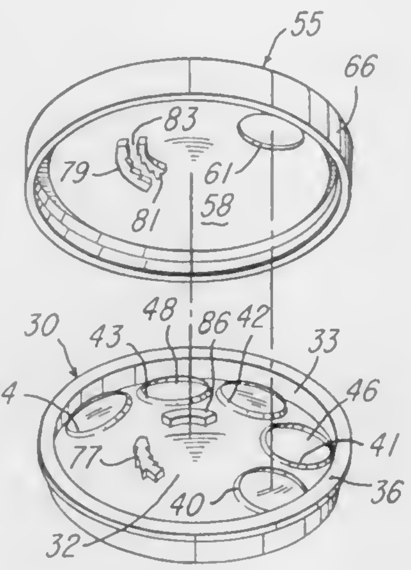
5,738,236
RECYCLABLE CONTAINER AND ROTATABLE CLOSURE OF PLASTICS MATERIAL

Charles J. Brun, Jr., Xenia, Ohio, assignor to Electra Form, Inc., Vandalia, Ohio

Continuation of Ser. No. 524,341, Sep. 6, 1995, Pat. No. 5,601,203, which is a continuation of Ser. No. 209,704, Mar. 14, 1994, Pat. No. 5,449,085. This application Feb. 11, 1997, Ser. No. 798,977

Int. Cl.^{6} B65D *47/02; 51/18*

U.S. Cl. 220—253 **14 Claims**



1. A portable container adapted to receive and retain a fluid and to provide for conveniently opening and closing said container, comprising a hollow body defining a chamber for receiving the fluid and including an upper annular neck portion defining an open top for said body, a cap member covering said open top and including a peripheral portion adjacent said neck portion, a fluid-tight connection between said neck portion of said body and said peripheral portion of said cap member, a rotary closure member supported for rotation relative to said cap member and said body, said cap member and said closure member each being formed of a plastics material, an opening within said cap member and an opening within said closure member, said openings being generally aligned at a rotary open position of said closure member to provide for the free flow of fluid from said chamber, said openings being out of alignment at a first rotary closed position of said closure member, an annular sealing member between said closure member and said cap member and surrounding said opening within said cap member, said sealing member forming a fluid-tight seal between said closure member and said cap member, stop members for limiting rotation of said closure member after rotating said closure member from said first closed position to said open position, said closure member being rotatable to a second closed position closing said opening within said cap member, and said stop members provide for reverse rotation of said closure member between said second closed position and said open position.

5,738,237
EASY OPEN CONTAINER END, METHOD OF MANUFACTURE, AND TOOLING

Carl McEldowney, Russia, Ohio, assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jun. 7, 1995, Ser. No. 476,406

Int. Cl.^{6} B65D *17/34*

U.S. Cl. 220—269 **18 Claims**

1 In an easy-open end for a container, said end having a tear panel defined by a fracture score surrounding a portion of the periphery of said tear panel, said fracture score defining a region where said tear panel is to be separated from the remainder of the end to form an opening through said end, an operating tab, and an integral rivet attaching said tab to said end adjacent said fracture score on the opposite side of said fracture score from said tear panel, said fracture score including a vent region adjacent said rivet constructed and arranged to open initially at said vent region in response to lifting of said rivet by said tab; the improvement comprising:

an anti-missile score formed in said tear panel to one side of said rivet and adjacent said vent region of said fracture score and having a length extending along a least a part of said vent region and wherein the anti-missile score includes a pair of opposed side walls which define an included angle of between about 55 and 65 degrees.

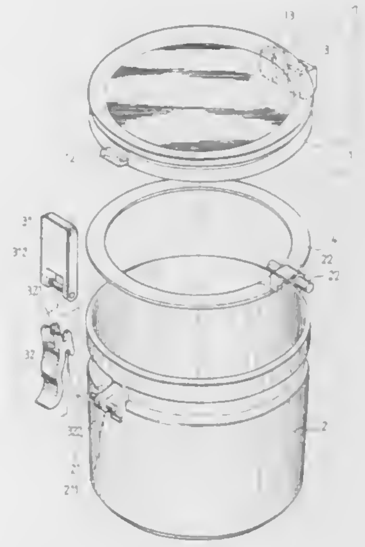
5,738,238
CONTAINER FOR PRESERVING FOOD

Hsiu-Jen Yang, No. 20, Pei Pao I St., Jen Te Shiang, Tainan Hsien, Taiwan

Filed Oct. 9, 1996, Ser. No. 728,172

Int. Cl.^{6} B65D *51/16*

U.S. Cl. 220—337 **1 Claim**



1. A sealed container comprising.

a container body having a first projecting block and a second projecting block respectively raised from the periphery near a top opening thereof at two opposite sides, a first pair of pivot pins raised from two opposite sides of said first projecting block, and a second pair of pivot pins raised from two opposite sides of said second projecting block;
a container cover adapted for covering on the top opening of said container body, having a downward flange raised from a bottom side thereof and mounted with a packing ring for sealing the top opening of said container body, a hook and a pair of symmetrical axle receptacles raised from the periphery at two opposite sides, said axle receptacles being spaced from each other and coupled to the second pair of pivot pins of the second projecting block of said container body for permitting said container cover to be turned thereabout; and,
a fastener pivoted to the first pair of pivot pins of the first projecting block of said container body and controlled to hook up with the hook of said container cover, said fastener comprising a hook plate and an actuating plate, said hook plate comprising a hook near a top side thereof adapted for hooking on the hook of said container cover to hold it down, and a transverse pivot at a bottom side thereof, said actuating plate comprising a first pair of transversely aligned recessed holes press-fit into engagement with the transverse pivot of said hook plate for permitting said actuating plate to be turned about the transverse pivot of said hook plate, and a second pair of transversely aligned recessed holes press-fit into engagement with the first pair of pivot pins of the first projecting block of said container body for permitting said actuating plate to be turned about the first pair of pivot pins of the first projecting block of said container body.

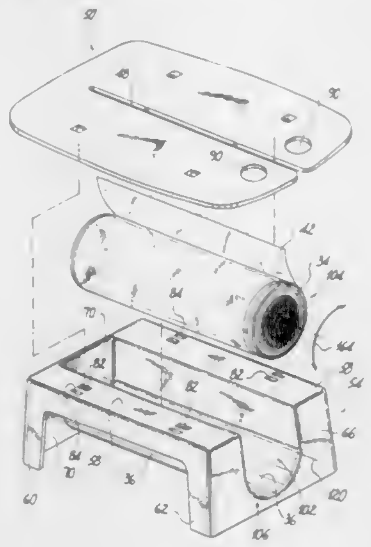
5,738,239
TRASH CONTAINER LINER DISPENSING SYSTEM

Benito Triglia, Peekskill, N.Y., assignor to Innovative Product Development Corp., Yorktown Heights, N.Y.

Filed Nov. 4, 1996, Ser. No. 743,282

Int. Cl.^{6} B65D *25/16*

U.S. Cl. 220—407 **12 Claims**



1. A container liner dispensing system comprising:

a base,
a panel,
said panel being mounted on said base and comprising molded as a unit with said panel a first fastener means,
said base comprising molded as a unit with said base a trough having a first end, a second end, a top, and second fastener means aligned with said first fastener means on said panel for fastening said panel on said base,
said panel and said trough together forming a tube having a length, an axis, an open first end and a blocked second end,
said panel comprising a slot through said panel over said trough generally lengthwise with said tube, said slot having a first end that is open through an end of the panel, and a second end that is closed.

5,738,240
COMPOSITE SHIPPING CONTAINER WITH TUBULAR MEMBER PALLET

Elaine Kay Vavra, Crete; Scott Charles Higgins, and Dwight E. Nichols, both of Beatrice, all of Nebr., assignors to Hoover Group, Inc,, Alpharetta, Ga.

Filed Sep. 13, 1996, Ser. No. 718,004

Int. Cl.^{6} B65D *21/00*

U.S. Cl. 220—410 **1 Claim**

1. A shipping container having a removable inner tank for transporting bulk liquid materials and comprising a bottom structure having an upper support surface for supporting the tank, a housing including upright side walls having upper and lower periphery, said side walls being supported on said support surface and substantially encircling the tank therein, said housing also including a top in engagement with said upper periphery of said side walls thereby enclosing the tank within said housing, securing means for releasably securing said top to said upper periphery of said side walls and for securing said base member to said lower

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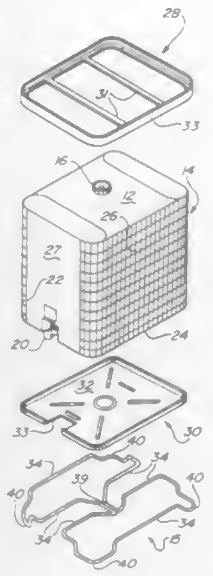


periphery of said side walls, a tubular pallet located below and in a supporting relation with said base member, said pallet being comprised of a unitary tubular member shaped to form substantially horizontal co-planar support sections engagable with the bottom surface of said base member at positions near the center and close to the periphery of said base member, said tubular member being further shaped to form four individual foot sections located at the four corners of said base member and extending downwardly from said support sections thereby enabling said shipping container to freely stand on a horizontal floor surface, said unitary tubular member further being shaped to form a fifth foot section located substantially at the center of said pallet, said support sections and said fifth foot section cooperating to form an H-shape tubular pallet when viewed from above.

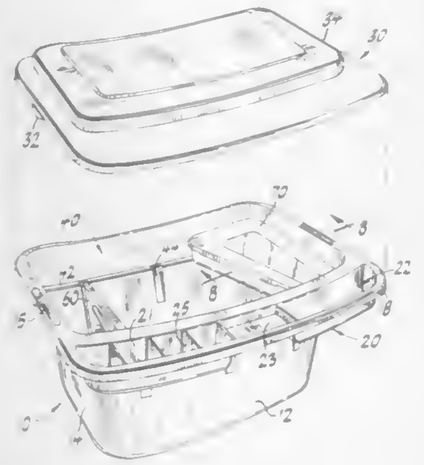
5,738,241
MULTI-PURPOSE COMPARTMENTALIZED CRAFT BOX

Kathryn M. McEntee, Washington, N.C., assignor to Zeta Consumer Products Corp., Little Falls, N.J.

Filed Feb. 12, 1996, Ser. No. 600,395

Int. Cl.^{6} B65D *1/24*

U.S. Cl. 220—532 **9 Claims**



1 A multi-purpose craft box, comprising:
- a substantially rectangular box having a bottom surface, side walls, and convexly-curved front and back walls, said front, back and side walls surrounding a main compartment;
- the inner surface of said front and back walls having a shoulder situated towards the top portion of each wall, so that a container may be supported thereupon;
- at least one pair of grooves opposingly located in said shoulder on said front wall and on said back wall such that a partition may be inserted into a respective one of said pair of grooves to subdivide the main compartment;
- a front tray extending outwards from the upper portion of said convexly-curved front wall; and
- a contoured lid for covering both said main compartment and said front tray.

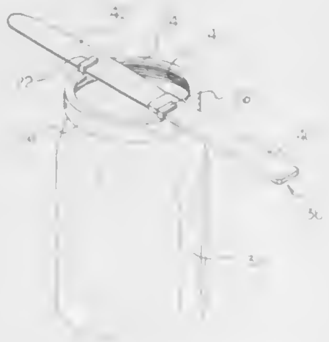
5,738,242
CONTAINER-MOUNTED IMPLEMENT HOLDER APPARATUS

Shane L. Paris, 27 Starsdale Cir., Greenville, S.C. 29609

Filed Sep. 23, 1996, Ser. No. 717,685

Int. Cl.^{6} B65D *65/00*

U.S. Cl. 220—735 **4 Claims**



1. An implement holder apparatus for use with a container which has top rim which has an outer rim diameter which has an exterior rim surface, the implement holder apparatus comprising:
- a base portion which has an inner base diameter which is greater than an outer rim diameter of a top rim of a container, wherein said base portion has an open area which permits access to an interior of the container, the base portion having a threaded interior surface;
- a first implement retainer portion connected to a top side of said base portion, the first implement retainer portion extending orthogonally upward from the base portion;
- a second implement retainer portion connected to a top side of said base portion, the second implement retainer portion extending orthogonally upward from the base portion, whereby an elongated utensil can be removably coupled with both the first and second implement retainer portions so as to extend over the open area of the base portion.

5,738,243
SMALL PARTS VENDING MACHINE FOR AIRPLANES

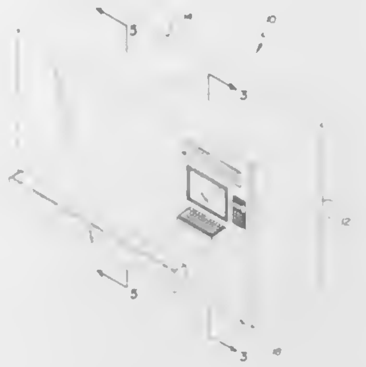
Glenn G. Broadstreet, 163 Pleasant Ave. #3, Auburn, Calif. 95603

Filed Oct. 31, 1996, Ser. No. 742,215

Int. Cl.^{6} G07F *11/00*

U.S. Cl. 221—2 **1 Claim**

1. A small parts vending machine for airplanes comprising, in combination:
- a housing having a generally rectangular configuration, the housing having a top wall, a bottom wall, a front wall, a rear wall, two side walls, and a hollow interior, the bottom wall having four legs secured thereto to support the housing, the front wall having an opening therethrough in a lower portion thereof spanning more than half of a length of the housing, the housing including a dispensing ramp secured within the hollow interior, the dispensing ramp comprising a horizontal planar portion having a first end secured to the rear wall, the dispensing ramp including an arcuate portion having an upper end secured to a second end of the planar portion, a lower end of the arcuate portion terminating at the opening in the front wall, an anti-theft bar comprising a planar member secured to an inner surface of the front wall disposed above the opening therethrough in an angular orientation, a dispensing bin secured to the front wall disposed under the opening therethrough;
- a powering and programming means secured within the hollow interior of the housing to the rear wall thereof, wherein an electric cord extends outwardly from the powering and programming means out of the rear wall of the housing to couple within an electric outlet;
- an input means comprised of a computer screen and key board secured to the front wall of the housing, the computer screen and key board being electrically coupled with the powering and programming means;
- a credit card input portion secured to the front wall of the housing, the credit card input portion comprised of an input slot, a keyboard, and a receipt dispenser, the credit card input portion being electrically coupled with the powering and programming means, whereby a user may slip a credit card into the input slot and use the keyboard to enter a personal identification number;
- a plurality of dispensing coils each having a generally U-shaped housing, each of the coils secured within the hollow interior of the housing to the rear wall thereof, the dispensing coils being operably coupled with the powering and programming means;
- a plurality of airplane parts removably disposed within the plurality of dispensing coils; and
- an instruction panel disposed on the front wall above the computer screen to provide user guidance



5,738,244
DISPENSING INSTRUMENT FOR FLUID MONITORING SENSORS

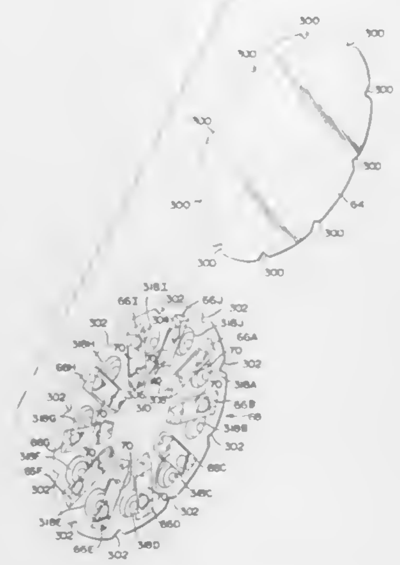
Steven C. Charlton, Osceola, Ind.; Anne T. Miller, Cambridge, United Kingdom; Joseph L. Moulton, Mishawaka, Ind.; Matthew A. Schumann, Cambridge, United Kingdom; Dennis Slomski, South Bend, and Frank W. Wogoman, Granger, both of Ind., assignors to Bayer Corporation, Pittsburgh, Pa.

Division of Ser. No. 372,304, Jan. 13, 1995. This application Jun. 10, 1996, Ser. No. 660,874

Int. Cl.^{6} B65H *3/58*

U.S. Cl. 221—26 **40 Claims**

1. A sensor dispensing instrument for handling of a plurality of fluid sensors comprising:
- an outer housing;
- a sensor pack having a plurality of sensor retaining means, each of which sensor retaining means being adapted to accommodate one of said plurality of fluid sensors and is at least partially enclosed by enclosure means, said sensor pack being disposed in said housing such that one of said sensor retaining means is disposed in a feed position;
- a feed means disposed in said housing and movable between a first position and a second position, said feed means piercing said enclosure means to enter one of said plurality of sensor retaining means that is in said feed position and advancing said sensor from said sensor retaining means into a testing position as said feed means is moved from said first position toward said second position; and
- holding means to maintain said sensor in said testing position.



5,738,245
COMMODITY DISCHARGING DEVICE IN AUTOMATIC VENDING MACHINE

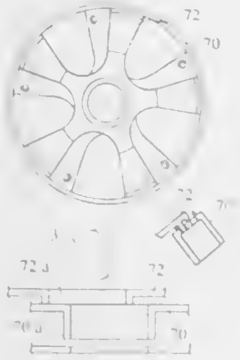
Akira Tomioka, Tokyo, Japan, assignor to Tomy Co., Ltd., Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,525

Claims priority, application Japan, Feb. 6, 1995, 7-041236

Int. Cl.^{6} B65G *59/00*

U.S. Cl. 221—207 **7 Claims**



1. A commodity discharging device in an automatic vending machine comprising:
- a drum which is rotatable on a shaft extending in a vertical direction and is provided with a commodity discharging opening penetrating in a vertical direction, for discharging a commodity through the commodity discharging opening by rotating the drum through a predetermined angle;
- an approximately disc-shaped opening regulating member which is rotatable on the shaft and slidable axially and is provided with a commodity discharging hole having approximately the same shape as the discharging opening at a position corresponding to the discharging opening, for changing the effective opening area of the commodity discharging opening which depends on the degree of overlap caused by a rotation thereof; and

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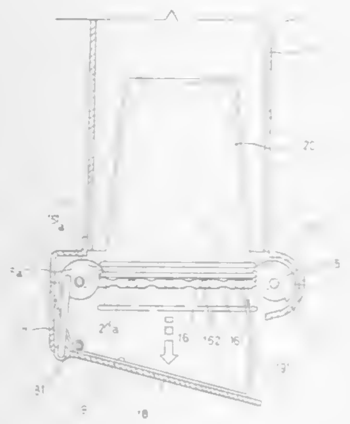
a spring provided around the shaft, for giving the opening regulating member a biasing force to press it against the drum,

wherein one of the opening regulating member and the drum comprises a positioning projection and the other comprises a plurality of positioning holes for engaging the positioning projection at a position to keep predetermined effective opening area, and change of the effective opening area is carried out by sliding the open regulating member axially away from the drum against the biasing force of the spring and by rotating the open regulating member to engage the positioning projection with another positioning hole.

5,738,246
DISPOSABLE CUP DISPENSING DEVICE
Chih-Wen Chung, P. O. Box 82-144, Taipei, Taiwan
Filed Jul. 26, 1996, Ser. No. 690,386
Int. Cl.⁶ B65H *3/28*
U.S. Cl. 221—222 2 Claims



1. A disposable cup dispensing device comprising:

a base, said base comprised of an upper annular member and a bottom annular member vertically attached together, said upper annular member comprising an upright annular flange raised from a top side thereof, a bottom annular groove disposed at a bottom side thereof, and

a plurality of radial grooves respectively extending from said bottom annular groove, said bottom annular member comprising a top annular groove disposed at a top side thereof and attached to the bottom annular groove of said upper annular member, a plurality of radial grooves respectively extending from said top annular groove in communication with the radial grooves of the upper annular member, and a block raised from the periphery on the outside,

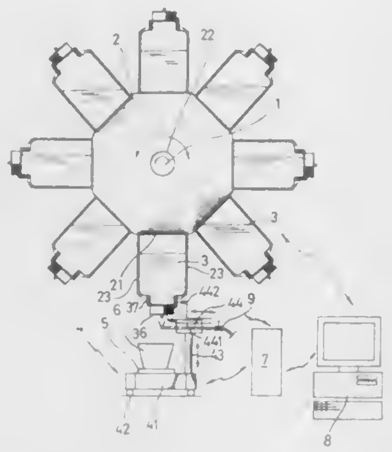
a barrel mounted on said upper annular member around said upright annular flange and adapted for holding disposable cups, said barrel having a bottom open end coupled to the top annular member of said base, a top open end, and a pivoted lid covered on said top open end;

a bottom cover pivotably connected to the block of said bottom annular member by a pivot to close the bottom open end of said barrel, said bottom cover comprising a plurality of lugs pivotably connected to the block of said bottom annular member by a pivot, a curved spring member turned about said pivot, and an eye adjacent to said pivot;

an endless cord mounted within the bottom annular groove of said upper annular member and the top annular groove of said bottom annular member and retained between said upper annular member and said bottom annular member, having a plurality of actuating plates secured thereto and respectively received in the radial grooves of said upper annular member and said bottom annular member, each of said actuating plates having two smoothly curved hooked portions raised from the periphery at two opposite sides, and a link received in one radial groove of said bottom annular member and connected between the eye of said bottom cover and one of said actuating plates;

where in said link is lifted to twist said endless cord and to turn said actuating plates when said bottom cover is opened, thereby causing the smoothly curved hooked portions of said actuating plates to pull one disposable cup downwards from said barrel, permitting it to fall onto said curved spring member of said bottom cover.

5,738,247
AUTOMATIC LIQUID MATERIAL METERING SYSTEM
Ching Fu Kuan, No. 12, Alley 18, Lane 136, Er Jiu Rd., Ta Pu Lee, San Hsia, Taipei Hsien, Taiwan
Filed Sep. 25, 1996, Ser. No. 719,654
Int. Cl.⁶ G01G *13/00*
U.S. Cl. 222—77 13 Claims



1. An automatic liquid material metering system comprising:

a main shaft disposed in a horizontal position and turned clockwise and counter-clockwise by a power drive;

at least one rotary wheel mounted around said main shaft and turned with it, each of said at least one rotary wheel having a plurality of peripheral sides;

a plurality of storage tanks respectively fastened to the peripheral sides of said at least one rotary wheel and holding a respective liquid material, each of said storage tanks having a neck at an outer side remote from the respective peripheral side of the respective rotary wheel, and a dispensing control device detachably mounted on said neck by fastening means, said dispensing control device comprising a valve port disposed in communication with said neck, and a control switch unit controlled to close and open said valve port;

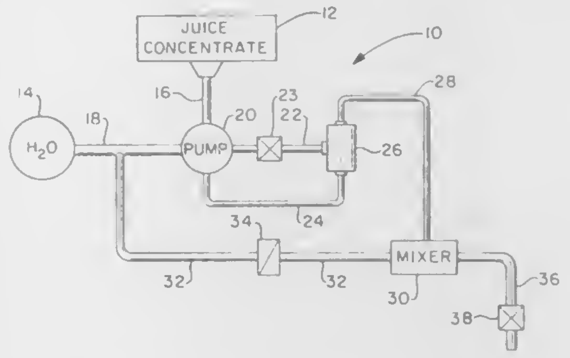
a pulley block system, said pulley block system comprising a track transversely disposed in parallel to said main shaft at a lower elevation, a carriage moved along said track, a lifting rack mounted on said carriage at one side and controlled to move up and down relative to said carriage, a horizontal slide mounted on said lifting rack and controlled to move horizontally relative to said lifting rack, and a contact switch installed in said horizontal slide, said contact switch being moved with said pulley block system relative to the control switch unit of the dispensing control device of one of said storage tanks which is moved to a vertical position, causing the control switch unit of the dispensing control device of the corresponding storage tank to open/close the respective valve port'

an electronic scale mounted on said carriage;

a receptacle mounted on said electronic scale and adapted for holding a liquid material discharged from one of said storage tanks, permitting the received liquid material to be measured by said electronic scale; and,

a control interface and a microprocessor adapted for receiving signal from said electronic scale and input data from an input device so as to control the rotation of said main shaft, and the movement of said pulley block system subject to the signal and data received.

5,738,248
JUICE BEVERAGE DISPENSER
Thomas S. Green, Atwater, Ohio, assignor to ABC Dispensing Technologies, Inc., Akron, Ohio
Filed Aug. 26, 1996, Ser. No. 701,786
Int. Cl.⁶ B67D *5/56*
U.S. Cl. 222—129.2 19 Claims



1. A juice beverage dispenser, comprising:

a source of juice concentrate;

a source of water;

a fixed ratio pump connected to said source of juice concentrate and water and producing outputs of juice concentrate and water in a set ratio characteristic of said pump;

mixing means connected to said outputs for receiving said juice concentrate and water and blending the same into a juice beverage; and

augmentation supply means interposed between one of said sources of juice and water and said mixing means for altering a ratio of juice concentrate and water in said juice beverage from said set ratio.

5,738,249
QUANTITATIVE POWDER FEEDER CAPABLE OF FEEDING POWDER BY FIXED AMOUNTS
Yoshiaki Kikuchi; Tomohiro Arase; Shotaro Matsuda, and Ryoichi Yamamoto, all of Kuga-gun, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan
Filed Aug. 8, 1996, Ser. No. 694,258
Claims priority, application Japan, Sep. 7, 1995, 7-230049
Int. Cl.⁶ G01F *11/10*
U.S. Cl. 222—148 7 Claims

1. A quantitative powder feeder capable of feeding powder by fixed amounts, which comprises:

an operating shaft capable of rotating on its axis;

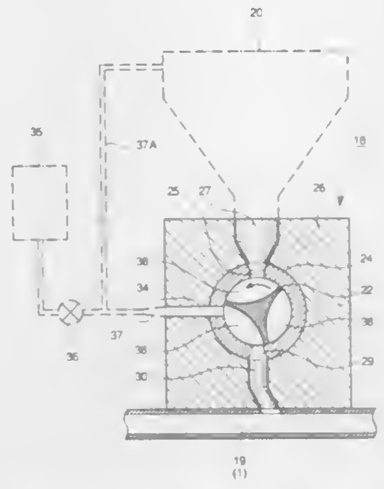
a rotor provided integrally with the operating shaft;

a casing having a rotor accommodating part adapted to accommodate the rotor, said rotor accommodating part being provided with an internal circular surface arranged in continuous contact with a circumferential surface of the rotor while permitting sliding rotation of the rotor;

a powder feed part provided in a position of the casing above the rotor, said powder feed part opening downwardly into the rotor accommodating part of the casing;

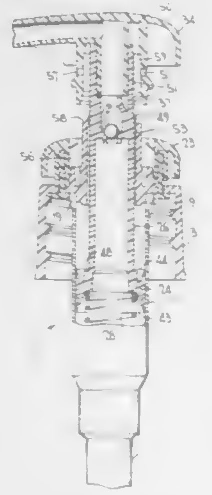
a powder drop part provided in a position of the casing under the rotor, said powder drop part opening upwardly into the rotor accommodating part; and

at least one quantity-measuring recessed part formed in the circumferential surface of the rotor, said quantity-measuring recessed part being adapted to separately open into the powder feed part and the powder drop part in succession during the rotation of the rotor,



wherein a carrier gas introducing passage is provided which is adapted to communicate with the quantity-measuring recessed part while the quantity-measuring recessed part is opening into the powder drop part.

5,738,250
LIQUID DISPENSING PUMP HAVING WATER SEAL
James R. Gillingham, Hacienda Heights; Tanny Li, Walnut, and Kenneth D. Siegel, Redondo Beach, all of Calif., assignors to Calmar Inc., City of Industry, Calif.
Filed Apr. 7, 1997, Ser. No. 826,702
Int. Cl.⁶ B67D *5/42*
U.S. Cl. 222—153.13 10 Claims



1. A manually operated liquid dispensing pump adapted to be mounted on a container of liquid to be dispensed, including a piston having a stem extending through a pump collar, the piston being reciprocable within a pump cylinder during a pumping operation to therewith define a variable volume pump chamber, said cylinder having a container vent port selectively venting the liquid in the container, said piston having a vent control means and a discharge valve for controlling a discharge of liquid from said chamber, a plunger head mounted on said stem having a discharge opening in communication with said valve, said head having a depending skirt surrounding an upper portion of said stem in spaced relation therewith, another portion of said stem being directly exposed to the atmosphere, the improvement wherein the pump includes liquid seal means mounted on said cylinder for sealing the vent port closed during the pumping operation to avoid ingress of a foreign liquid into the container via the vent port when

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using the pump in a wet environment, said seal means including an annular lip seal in sliding sealing engagement with said another portion of said stem; means on said upper portion of said stem substantially beneath said plunger head skirt for interrupting the sealing engagement at or near an end of each piston compression stroke to create vent passage means for opening the vent port, said interrupting means being maintained substantially moisture-free by said skirt when using the pump in the wet environment to avoid the ingress of said foreign liquid into the container in an open condition of the vent port.

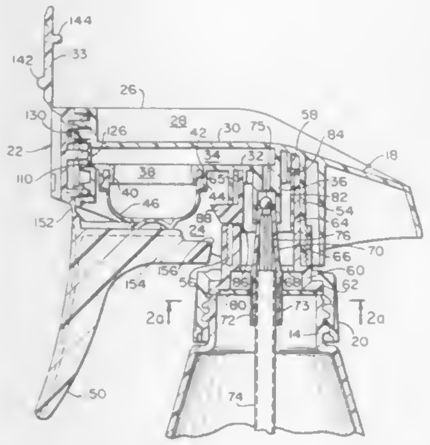
5,738,251
TRIGGER SPRAYER

Alfred von Schuckmann, Kevelaer, Germany, assignor to Owens-Illinois Closure Inc., Toledo, Ohio

Continuation of Ser. No. 352,146, Dec. 19, 1994, Pat. No. 5,603,434. This application Dec. 13, 1996, Ser. No. 768,096

Int. Cl.⁶ B67D *5/32*

U.S. Cl. 222—153.14 19 Claims



1 A dispensing pump for attachment to a supply container having a mouth comprising:

a. a pump housing having a discharge end and a mounting end, the mounting end having a downward tubular support body adapted to communicate with and be sealingly secured to the mouth of the container, the support body being formed with a vent opening facing the discharge end,

b. a seal in the body normally sealing the vent opening, the seal being formed with a projection extending through the opening, the projection extending toward the discharge end,

c. a passage in the housing extending from an outlet in the discharge end toward the mounting end and into the body and terminating in downward dip tube adapted to extend into the container,

d. a pump in the housing and connected in the passage,

e a pump actuator attached to the pump housing at the discharge end and including an operating lever pivotable toward the support body from an extended position to a retracted position and having a rigid leg adapted to engage and operate the pump when the lever is pivoted, the leg adapted when the lever is pivoted to laterally engage the projection on the seal to depress it and break the seat between the seal and the inside of the tubular body to permit the venting of air into such container.

19 The method of venting a trigger sprayer container having a discharge housing and a tubular support for the housing the support communicating with the head space of the container and a pivoted lever on the housing, the lever having a leg extending toward the support, the leg adapted to work a bellows-type pump in the housing when the lever is pivoted, the method including:

a. providing a vent opening in the tubular support normally sealed by a tubular seal about the inside of the support and covering the vent, the seal having an integral actuator extending through the opening in a direction toward the lever, and

b. extending the lever toward the tubular support so that when the lever is pivoted, the distal end of the leg brushes against the actuator and opens the seal to vent the container.

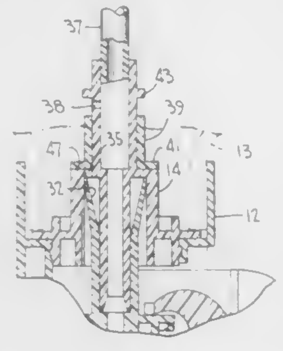
5,738,252
UPRIGHT/INVERTED SPRAYER

Joseph K. Dodd, Lee's Summit, Mo., and John P. McKernan, Leawood, Kans., assignors to Calmar Inc., City of Industry, Calif.

Filed Apr. 28, 1997, Ser. No. 848,030

Int. Cl.⁶ B67D *5/40*

U.S. Cl. 222—376 9 Claims



1. A manually actuated liquid pump sprayer capable of being operated in both an upright position and in an inverted position, comprising a pump body having means for mounting the body to a container of liquid to be dispensed, means in said body defining a pump chamber, said body having means defining a primary liquid inlet passage extending to said chamber and means defining a liquid discharge passage extending from said chamber, the sprayer having a container vent passage including a vent port establishing communication between an interior of the container and the atmosphere during operation of the sprayer in the upright position, an auxiliary liquid inlet passage including an inlet port extending between the interior of the container at an upper end thereof and said primary passage, the improvement wherein a slider valve is mounted on said primary inlet passage means for sliding movement for blocking the inlet port in the upright position and for blocking the vent port in the inverted position.

5,738,253
PRESSURIZING THIN WALLED BARRIER CAN WITH MIXED PROPELLANTS

George B. Diamond, Glen Gardner, N.J., assignor to Dispensing Containers Corporation, Glen Gardner, N.J.

Filed Oct. 15, 1996, Ser. No. 730,235

Int. Cl.⁶ B67D *5/42*

U.S. Cl. 222—389 6 Claims

1 A propellant mixture for use in a barrier-type, pressurized can for dispensing fluent materials, wherein the barrier can includes a closed can having a dispensing nozzle, the barrier in the can is movable along the can toward the nozzle, the fluent material to be dispensed is in a fluent material chamber between the barrier and the nozzle, and the propellant mixture is in a propellant chamber in the can below the barrier; the propellant mixture comprising

at least a first and a second propellant in the propellant chamber, the propellants being of such type and in sufficient respective quantities as to provide sufficient pressure at the ambient temperature to which the propellant chamber is exposed to supply sufficient pressure to the barrier to shift the barrier to urge the fluent material contents out through the nozzle;

the first propellant having higher volatility than and evaporating more rapidly at higher temperatures than the second propellant, so as to leave a mixture of propellants within the container having a lower equilibrium pressure at higher temperatures to which the propellant chamber is exposed than would be the equilibrium pressure of the original propellant mixture in the propellant chamber before the more rapid evaporation of the first propellant.

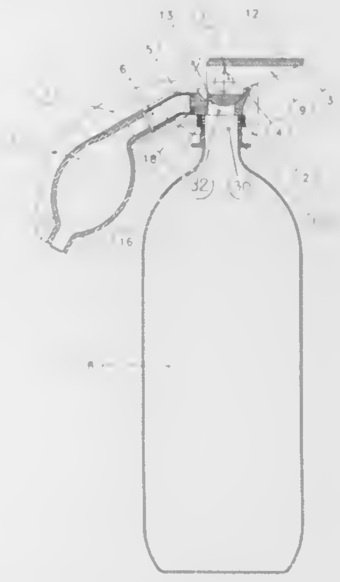
5,738,254
REPRESSURIZING BEVERAGE DISPENSER FOR ATTACHMENT TO CARBONATED BEVERAGE BOTTLES

Mario F. de la Guardia, 13211 SW. 39 Ter., Miami, Fla. 33175

Filed Aug. 13, 1996, Ser. No. 696,350

Int. Cl.⁶ B65D *83/00*

U.S. Cl. 222—400.8 7 Claims



1. A pressurizing dispenser device for removable attachment to a carbonated beverage bottle to the type including a threaded neck surrounding a discharge opening in fluid communication with an interior storage chamber, said device comprising:

a housing including an integrally formed handle and a hollow collar,

thread means within said collar for threaded engagement with the threaded neck of the bottle,

seal means within said collar for providing an air tight seal when said device is attached to the neck of the bottle, said seal means including a through aperture disposed in alignment with the discharge opening of the bottle,

manually operated pump means on said handle for introducing air into said interior storage chamber of said bottle,

air delivery means interconnecting to said pump means for directing air flow from said pump means to said interior storage chamber of said bottle, and

a valve including:

a half ball-shaped member movably fitted within said housing adjacent to said seal means,

a through passage structured and disposed to permit flow of contents of the bottle therethrough,

a lever extending from the half ball-shaped member to facilitate movement of the valve between a closed position and an open position, and

wherein said closed position is defined by said half ball-shaped member disposed in blocking relation to the through opening of the seal means to prevent release of air and liquid from within the interior chamber of the bottle, and wherein the open position is defined by said through passage of said valve disposed in axial alignment with said through opening of said seal means and the discharge opening of the bottle, thereby permitting discharge of the contents of the bottle.

5,738,255
COAT HANGER

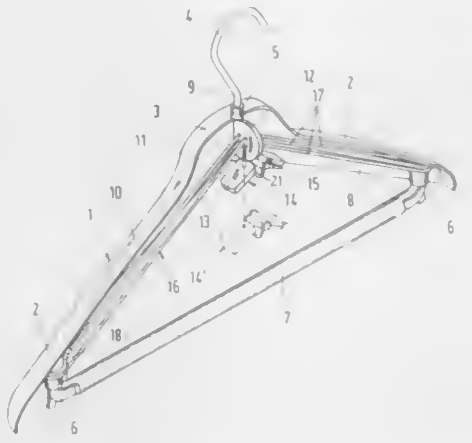
Heinrich Wilms, Balkenkampsweg 21, 49328 Melle, Germany

Division of Ser. No. 596,854, Feb. 5, 1996, abandoned. This application May 8, 1997, Ser. No. 855,739

Claims priority, application Germany, Mar. 16, 1995, 295 04 469 U; European Pat. Off., May 19, 1995, 95107655

Int. Cl.⁶ A47G *25/14*

U.S. Cl. 223—92 24 Claims



1 A clothing hanger for hanging clothing which is to be tried on by a wearer comprising a hanger unit on which said clothing is adapted to be hung, said hanger unit including an electronic information storage means storing clothing specific data, said hanger unit also including fastening means adapted to be fastened onto the clothing hung on the hanger and operable to enable the clothing to be removed from the hanger and to be moved away from the hanger to try-on positions for trying on of the removed clothing by a wearer while said clothing remains fastened to said fastening means.

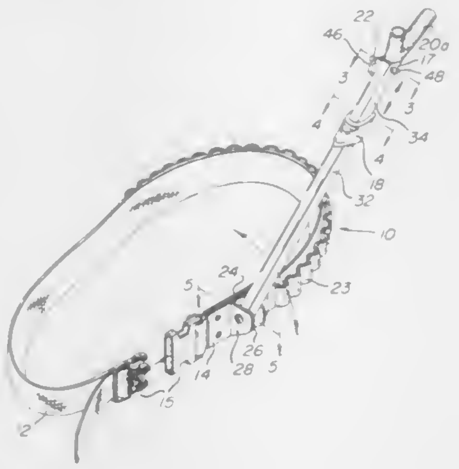
5,738,256
ADAPTABLE AIMING SUPPORT

Jerry Alan Goff, and Sherwood Lunsford Goff, both of 21595 Yankee Town Rd., Saucier, Miss. 39574

Filed Jul. 2, 1996, Ser. No. 674,385

Int. Cl.⁶ A45F *5/00*

U.S. Cl. 224—185 15 Claims



1 An aiming support comprising:

a waist belt;

a base plate affixed to the belt;

a bracket mounted on the base plate and including opposing side walls extending outwardly substantially perpendicularly from the base plate;

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an extendable/retractable support rod including a primary tube, a secondary tube in telescoping engagement with the primary tube, and means for retaining the secondary tube in an adjusted position with the primary tube, the secondary tube having a distal end adapted to receive one of a set of interchangeable endpieces for supporting a device to be aimed;

a quick release pin for retaining the one of a set of interchangeable endpieces in the distal end of the secondary tube; and

means for pivotally mounting the primary tube between the side walls of the bracket.

5,738,257
FISHING ROD SUPPORT

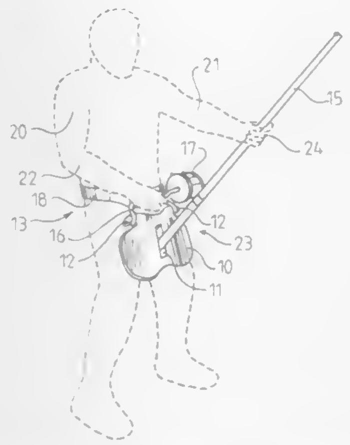
Lewis Alexander McConnell, Tokoroa, New Zealand, assignor to Equaliser Tackle Limited, Auckland, New Zealand

Filed Sep. 15, 1995, Ser. No. 528,985

Claims priority, application New Zealand, Oct. 20, 1994, 264742

Int. Cl.⁶ A01K *97/10*

U.S. Cl. 224—200 **10 Claims**



1. A fishing rod support comprising a substantially rigid apron dimensioned and adapted to traverse and bear upon the front of an angler's thighs, means for attaching the apron to a belt of the angler, a pivot point on the apron including means for receiving a butt end of a fishing rod, and located behind that surface of the apron which is to bear on the front of the angler's thighs, so that the pivot point will be positioned, in use, between and behind the front of the thighs, and a rearward projection of the apron adapted, in use, to project between the thighs of the angler.

5,738,258
MULTI-SPORT ROOF RACK SYSTEM

Paul H. Farrow, Concord, Mass., and Dale W. Vetter, Nashua, N.H., assignors to Walden Products, Inc., Concord, Mass.

Filed Oct. 22, 1996, Ser. No. 734,884

Int. Cl.⁶ B60R *9/10;9/08*

U.S. Cl. 224—324 **32 Claims**

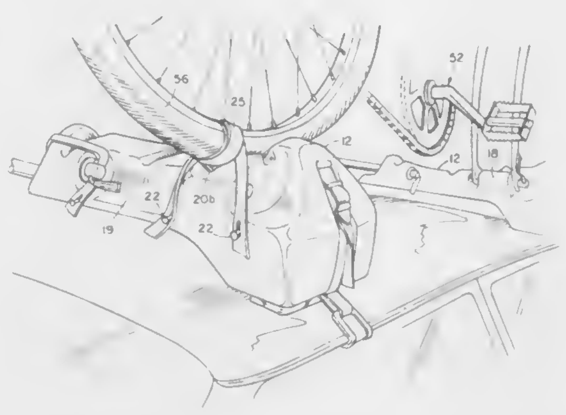
1. A rack system for a motor vehicle comprising:

a pair of rack members for mounting on a roof of a motor vehicle, disposed in spaced apart relationship and approximately parallel to one another in the transverse direction of the vehicle, each rack member including a carrying pod comprising:

a contact portion along a bottom surface for contacting the roof;

a top portion having at least one longitudinal slot formed therein for receiving equipment thereon;

a recessed portion along a rear surface having at least one shoulder projecting therefrom, the at least one shoulder including a fork mounting mechanism for mounting equipment thereto; and



an attaching mechanism along a lateral surface for attaching the carrying pod to the motor vehicle.

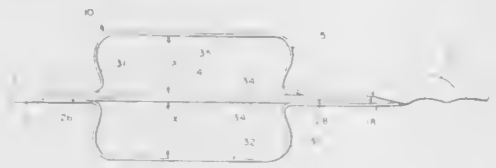
5,738,259
STRAP TENSIONING SYSTEM

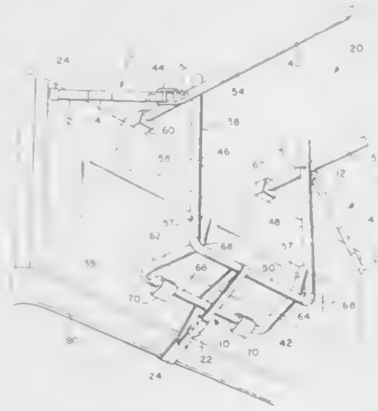
Alexander R. Allen, 29 Devens St., Concord, Mass. 01742

Continuation of Ser. No. 238,781, May 5, 1994, abandoned, which is a continuation of Ser. No. 90,616, Jul. 12, 1993, abandoned, which is a continuation of Ser. No. 801,439, Dec. 2, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 476,664

Int. Cl.⁶ B60R *9/10*

U.S. Cl. 224—493 **11 Claims**





1. A system for carrying at least one bicycle on a motor vehicle, said system comprising:

(a) a carrier means for carrying at least one bicycle, said carrier means configured to be mounted on a motor vehicle;

(b) a strap means for securing said carrier means to the motor vehicle, said strap means including a strap and a tension means, said strap having a first end and a second end, said tension means having a first end and a second end, both of said first end and said second end of said tension means being affixed to said strap, said tension means having contracted, relaxed and expanded, stretched states, said tension means configured to continuously cycle between said contracted and expanded states during jarring of said carrier means, said tension means having a first length when in said relaxed state and a second length when in said stretched state, said second length being at least one and one-half times greater than said first length, said tension means being in tension when said carrier means is secured to said motor vehicle by said strap means, said tension means being connected to said strap intermediate said first end and said second end of said strap such that the length of said strap between the ends of said tension means is greater than the length of said tension means when said tension means is in its relaxed state so that an open loop is formed in said strap between the ends of said tension means, the distance between adjacent surfaces of said tension means and said loop continuously indicating the tension or slackness in said strap means, said adjacent surfaces being separated when said strap means is relaxed and juxtaposed in substantially surface-to-surface contact when said strap means is in tension; and

(c) a hook means attached to said first end of said strap, said second end of said strap attached to said carrier means, said hook means configured for engagement and disengagement with a bumper of the motor vehicle, said carrier means being pulled downwardly into firm contact with the motor vehicle by tension on said tension means when said hook means engages the bumper and said tension means is in tension, said tension means maintaining tension on said strap means during jarring of said carrier means and preventing disengagement of said hook means from the bumper.

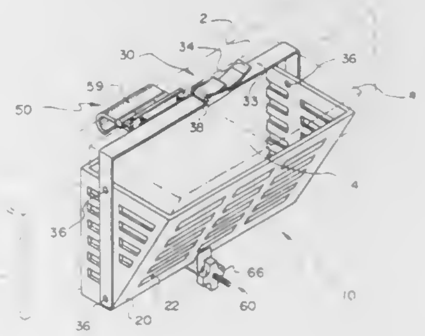
5,738,260
WHEEL CHOCK STORAGE DEVICE

Kenneth P. Kirtland, 90 Los Cabos La., Ventura, Calif. 93001

Filed Aug. 30, 1996, Ser. No. 704,913

Int. Cl.⁶ B60R *9/06*

U.S. Cl. 224—515 **10 Claims**



1. A Wheel Chock Storage Device for storing a wheel chock having a wedge-shaped profile on an automobile bumper, comprising:

a wheel chock storage container adapted to receive said wheel chock, said wheel chock storage container having a top and a bottom, and including a bottom wall having a front edge, a back edge, and a pair of side edges, a pair of sidewalls extending upward from said pair of side edges of said bottom wall, a back wall extending upward from said back edge of said bottom wall, and a front wall extending upward from said front edge of said bottom wall and diverging from said back wall, wherein said wheel chock storage container is open at said top thereof, and wherein said wheel chock storage container generally conforms to said wedge-shaped profile of said wheel chock;

a wheel chock retention means for retaining said wheel chock in said wheel chock storage container; and

a bumper attachment means for removably and adjustably attaching said wheel chock storage container to said automobile bumper, wherein said back wall of said wheel chock storage container abuts said automobile bumper.

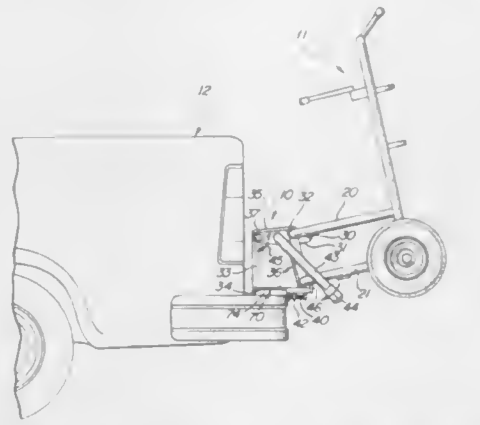
5,738,261
VEHICLE HITCH FOR SECURING A HAND TRUCK, CART OR OTHER SMALL LOAD

Tom Dula, 5102 Valencia Dr., Orange, Calif. 92869

Filed Oct. 8, 1996, Ser. No. 727,059

Int. Cl.⁶ B60R *9/11;11/00*

U.S. Cl. 224—533 **20 Claims**



20. A vehicle hitch for securing a cart or other load having an upper tube and a lower tube, said hitch comprising:

a support having means for attachment to a vehicle and a lower channel for receiving said lower tube;

a pair of pivotal latch arms having means for captivating said upper tube against said support in a raised position and releasing said upper tube in a lowered position;

a handle coupled to said latch arms movable downwardly to lower said latch arms and upwardly to raise said latch arms, and

spring means coupled to said latch arms urging said latch arms upwardly.

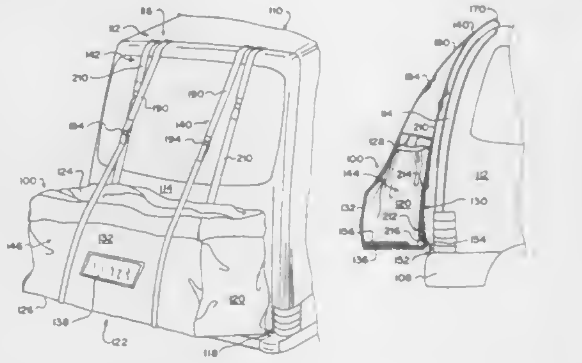
5,738,262
REAR MOUNTED STORAGE UNIT

Jeffrey L. Andrini, 815 Jackson Ave., St. Charles, Ill. 60174

Filed Jun. 5, 1997, Ser. No. 869,615

Int. Cl.⁶ B60R *9/06*

U.S. Cl. 224—572 **19 Claims**



1. A storage unit adapted for attachment to a rear portion of a vehicle, the storage unit comprising:

(a) a container and a strap apparatus combining to provide the storage unit;

(b) the container being formed of flexible material;

(c) the strap apparatus being adapted to secure the container to the rear portion of the vehicle;

(d) the strap apparatus including a first strap assembly and a second strap assembly;

(e) the first strap assembly being similar in structure to the second strap assembly;

(f) the first strap assembly including a first strap mechanism and a second strap mechanism;

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(g) the first strap mechanism being secured at a first point to a rear panel of the container;
(h) the second strap mechanism being slidably mounted through the rear panel of the container;
(i) the first strap mechanism extending from the rear panel of the container and being secured around a bottom of the container; and
(j) the first strap mechanism extending from the bottom of the container around the front of the container.

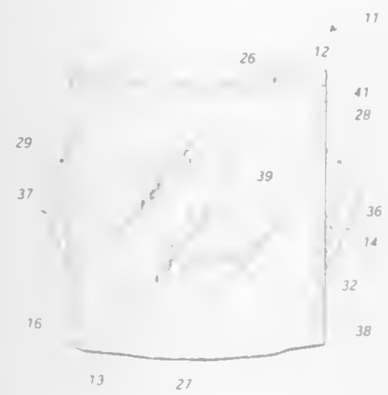
5,738,263
TWO PIECE DISPOSABLE PROMOTIONAL BACK PACK AND METHOD OF FABRICATING SAME

Ann Lewis, 712 Cristy Ct., Woodstock, Ga. 30188

Continuation-in-part of Ser. No. 504,248, Jul. 19, 1995, Pat. No. 5,570,828. This application Nov. 4, 1996, Ser. No. 740,866

Int. Cl.^{6} A45F *3/04*

U.S. Cl. 224—627 14 Claims



8. A method of fabricating a disposable back pack adapted to be worn on the back of a wearer, said method comprising the steps of:
(a) providing a sheet of plastics material, said sheet including a body portion having a top edge, a bottom edge, a first end and a second end, and an elongated tail portion extending from the bottom edge of said body portion;
(b) dividing said tail portion into two adjacent sections, each section having a distal end;
(c) folding said body portion over onto itself along a first fold line spaced from the first end and folding said body portion over onto itself along a second fold line spaced from the first end to form a folded body portion and an unfolded body portion, the first and second ends being substantially adjacent to each other along a line intermediate said fold lines,
(d) folding said first and second sections of said tail portion over said folded body portion;
(e) twisting said first and second sections inward a half turn toward said line intermediate said fold lines so that the distal ends of said first and second sections are substantially adjacent to and aligned with the top edge of said folded body portion;
(f) sealing said folded body portion to said unfolded body portion along the top and bottom edges to form a pouch with the sealed together top and bottom edges of the body portion forming the top and bottom of the pouch, with the fold lines forming the sides of the pouch, and with the ends of the body portion forming a slot for access to the pouch; and
(g) sealing the distal ends of said first and second tail sections to the top edge of said folded body portion to form first and second shoulder straps, whereby the pouch can be worn as a back pack on the back of the wearer so that the slot is positioned against the wearer's back.

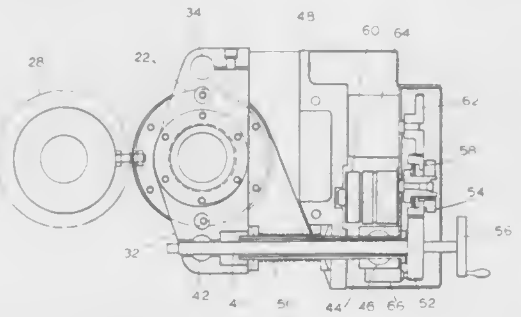
5,738,264
AUTOMATED FOLDER NIPPING ROLLER ADJUSTMENT

John C. Jackson; Peter A. Donaldson, and Ian A. Sharples, all of Preston, United Kingdom, assignors to Goss Graphic Systems, Inc., Westmont, Ill.

Filed Oct. 11, 1996, Ser. No. 730,532

Int. Cl.^{6} B65H *20/00; 26/00*

U.S. Cl. 226—177 12 Claims



1 Feed apparatus for transport of continuous web material including:
(a) first and second nip rollers disposed in coacting peripheral relationship and operatively driven for controlled feed of the web material therebetween;
(b) means mounting the first roller for lateral displacement relative to the second roller;
(c) adjustable stop means co-acting with said mounting means to limit movement of the first roller towards the second roller and so determine the operative minimum nip gap between said peripheries; and
(d) resilient means urging the mounting means towards engagement with the stop means under predetermined loading so permitting the nip gap to increase when an overload condition occurs:
wherein the improvement comprises a control system including power drive means for selective adjustment of the stop means, a first sensor operation to monitor said adjustment, a second sensor operating to monitor relative movement between the stop means and mounting means, and programmable setting means for receiving and processing signals from said sensors and regulating actuation of the drive means in response to those signals.

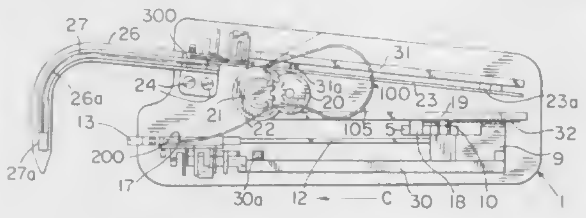
5,738,265
FASTENER GUN AND FASTENER ASSEMBLY FOR TAG HANGING

Tomoyuki Hirai, and Shoichi Fukami, both of Tokyo, Japan, assignors to J.E. Co., Ltd., Tokyo, Japan, and Ben Clements & Sons, Inc., Hackensack, N.J.

Filed May 17, 1996, Ser. No. 649,373

Int. Cl.^{6} B25B *25/00*

U.S. Cl. 227—67 15 Claims



1 A loop pin attaching device for tag hanging, comprising:
a drive lever, said drive lever selectively moveable between a first, unactivated position and a second, activated position;
a link rotatably connected with said drive lever, said link connected to said drive lever at a first end of said link, said link selectively moveable between a first, unactivated position and a second, activated position.

a piston member connected to a second end of said link, said piston member being selectively moveable between a first, unactivated position and a second, activated position;
a pressing body fixed to a front face of said piston member, said pressing body being formed with a pipe shape;
an insertion guide, said insertion guide dimensioned to allow said pressing body to slide therethrough when said piston member is moved from said first position to said second position and to receive an insertion portion of a loop pin;
a rack gear rotatably fixed to said link adjacent said second end of said link;
a gear group which meshingly engages said rack gear, said gear group being formed of at least a first, smaller diameter gear and a second, larger diameter gear, said rack gear engaging said smaller diameter gear;
a belt which engagingly meshes with said larger diameter gear of said gear group, said belt adapted to move a receiving portion of a loop pin; and
a reception guide dimensioned to guide a receiving portion of a loop pin when said guide lever is moved from said first position to said second position, wherein said insertion guide and said receiving guide are adapted to deliver an insertion portion and a receiving portion, respectively, of a loop pin to a common location to form a loop.

5,738,266
GUIDE MECHANISM FOR USE IN NAILING MACHINE USING SERIES-CONNECTED NAILS

Tatsushi Ogawa, Tokyo, Japan, assignor to Max Co., Ltd., Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,328

Claims priority, application Japan, Apr. 28, 1995, 7-129482

Int. Cl.^{6} B25C *1/04*

U.S. Cl. 227—128 4 Claims

1 A guide mechanism for a nailing machine in which series-connected nails are fed from a magazine to a nose portion and the foremost nail of the series-connected nails is driven from a nail ejecting outlet of the nose portion by a driver, said guide mechanism comprising:
a stationary wall formed between the nose portion and the magazine;
a door pivotable with respect to said stationary wall,
a nail guide passage is defined by said stationary wall and by said door, for guiding the series-connected nails from the magazine to the nose portion;
a head guide attached to said door, said head guide being abutted against a side surface of the head of each of the series-connected nails to guide the head of each nail;
a shank guide which comprises an upper ratchet and a lower ratchet attached to said door, for guiding the shank of each nail, said shank guide including at least one of said ratchets being movable towards and away from said stationary wall to vary the width of said nail guide passage; and
a guide piece attached to said upper ratchet of shank guide, said guide piece protruding towards said stationary wall rather than towards said head guide, to engage with a lower surface of the head of each of said series-connected nails to support each nail.

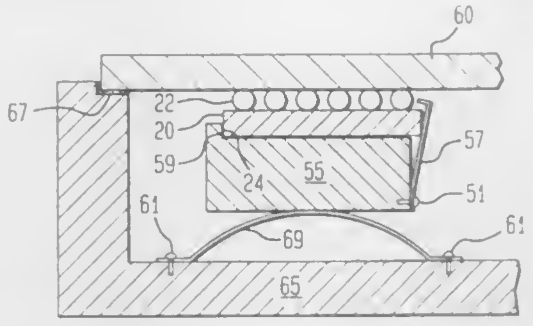
5,738,267
APPARATUS AND METHOD FOR REMOVING KNOWN GOOD DIE USING HOT SHEAR PROCESS

David Charles Olson, Poughkeepsie, and Robert Phillips, III, Staatsburg, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 462,369, Jun. 5, 1995, Pat. No. 5,636,781, which is a division of Ser. No. 315,319, Sep. 29, 1994, Pat. No. 5,556,024. This application Oct. 18, 1996, Ser. No. 733,585

Int. Cl.^{6} B23K *3/00*

U.S. Cl. 228—13 8 Claims



1 An apparatus for separating an active or passive device from a device carrier, said apparatus comprises:
(a) a separating means for separating fusible electrical connections that electrically connect said device to said device carrier, wherein said separating means is secured to said device,
(b) a means for holding said device carrier along with said device and said separating means and forming an assembly, such that said separating means provides a pulling motion to said device,
(c) placing said assembly in a thermal environment and heating said assembly until said electrical connections reach the liquidus state, whereupon said separating means pulls said device away from said device carrier, and
(d) means for securing at least a portion of at least one strip to said separating means, and wherein at least a portion of said strip is in contact with said device, and wherein said at least one strip clamps onto said device when said strip is heated, thereby separating said device from said device carrier

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5,738,268
METHOD FOR PREPARING TUBE WELD SAMPLE FOR INTERNAL VISUAL INSPECTION

Jerald VanderPol, Shingle Springs, and Clement Tremblay, Citrus Heights, both of Calif., assignors to TRI Tool Inc., Rancho Cordova, Calif.

Filed Mar. 28, 1996, Ser. No. 623,571

Int. Cl.^{6} B23K *31/12;* **G01N** *3/20*

U.S. Cl. 228—103 7 Claims

1 A process for preparing a tubular weld coupon from a sample of butt-welded tube lengths joined by a circumferential full depth weld comprising:
diagonally cutting the sample partially through its transverse dimension so as to leave an uncut circumferential bending strip having a circumferential length sufficiently less than the tube diametric dimension so as to enable bending the cut sample in an opening direction about said strip,
carrying out the cutting step so that the cut intersects and severs the circumferential weld at at least one peripheral location and

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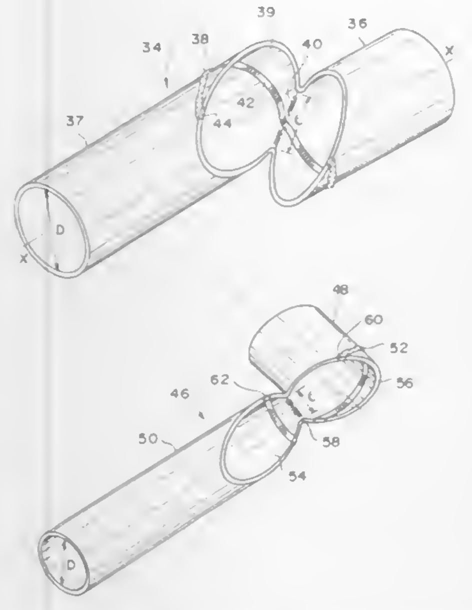


such that the cut diagonally extends from one axial side of the weld adjacent the weld to the other adjacent axial side of the weld.

5. A process for preparing and inspecting tubular weld coupons comprising:

preparing a sample of welded tube lengths of given diameter by butt welding a pair of tube lengths together with full depth weld penetration;

diagonally cutting the sample partially through its transverse dimension so as to leave an uncut circumferential bending strip having a circumferential length sufficiently less than the tube diametric dimension so as to enable bending the cut sample in an opening direction about said strip;

carrying out the cutting step so that the cut intersects and severs the circumferential weld at at least one peripheral location and such that the cut diagonally extends from one axial side of the weld adjacent the weld to the other adjacent axial side of the weld;

bending the sample open along the bending strip so as to expose the interior of the weld along its entire circumferential length for visual inspection on either side of the cut;

visually inspecting the interior of the weld along its full circumferential length.

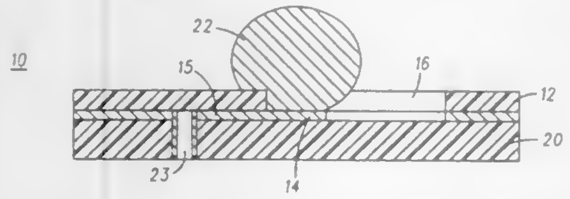
5,738,269
METHOD FOR FORMING A SOLDER BUMP

Patrick J. Masterton, Carol Stream, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 19, 1996, Ser. No. 635,111

Int. Cl.^{6} H01L *21/60;* H05K *3/34*

U.S. Cl. 228—248.1 **10 Claims**



1. A method for forming a solder bump, comprising the steps of:

providing a device having a substantially conductive region, a slot projecting from the substantially conductive region, and a solder resist region, the solder resist region at least in part surrounding the conductive region and the slot;

depositing a volume of solder paste onto the device, the solder paste comprising a solder and a flux, the solder paste substantially covering the conductive region and at least a portion of the solder resist region;

heating the solder paste to a temperature below a melting point of the solder for at least one minute, at least a portion of the flux flowing from the substantially conductive region into the slot; and

after the flux has become substantially inactive, heating the solder paste at at least a melting point of the solder to form the solder bump on the conductive region and at least a portion of the solder resist region.

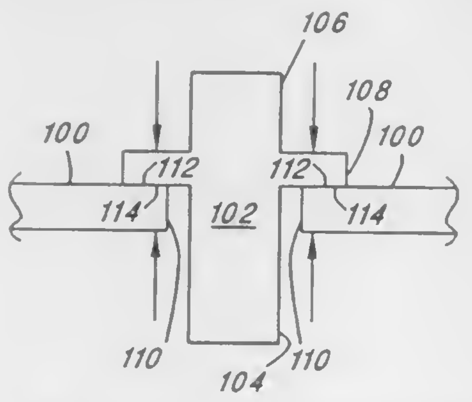
5,738,270
BRAZELESS CERAMIC-TO-METAL BONDING FOR USE IN IMPLANTABLE DEVICES

Richard P. Malmgren, Castaic, Calif., assignor to Advanced Bionics Corporation, Sylmar, Calif.

Continuation-in-part of Ser. No. 319,580, Oct. 7, 1994, Pat. No. 5,513,793. This application Mar. 25, 1996, Ser. No. 625,513

Int. Cl.^{6} B23K *20/00*

U.S. Cl. 228—193 19 Claims



1. A method of forming a hermetically sealed electrical feedthrough comprising:

positioning a feedthrough in a hole, the hole passing through a structure, the feedthrough including a first material and the structure including a second material;

applying a compressive force to the feedthrough, the compressive force being directed at the structure;

applying an equal force to the structure, the equal force being directed at the feedthrough and being in a direction opposite the compressive force; and

heating the feedthrough and the structure to a diffusion temperature whereat the first material and the second material undergo diffusion so as to cause a hermetically sealed bond between the first and second materials;

whereby the hermetically sealed bond is formed between the feedthrough and the structure.

5,738,271
FILE FOLDER HAVING A CLIP DEVICE DISPOSED THERETO

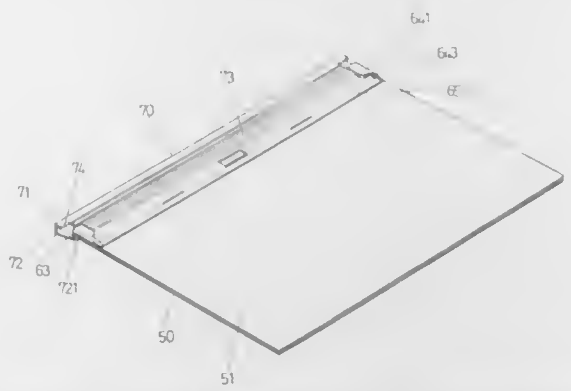
Nobuaki Hatano, 9 Pinewood Cir., Wellesely, Mass. 02181, and Hsieh Feng-Chuan, 11F-2, No. 378, Sec. 1, Weh Hsin Rd., Taichung, Taiwan

Filed Nov. 19, 1996, Ser. No. 751,989

Int. Cl.^{6} B65D *27/28*

U.S. Cl. 229—67.4 **3 Claims**

1. A file folder comprising a first sheet, a second sheet and a clip device to which said first sheet and said second sheet are respectively connected, said clip device comprising a longitudinal plate and a slidable member, said longitudinal plate having an upper surface, a bottom surface, a first side and a second side, said longitudinal plate having a first flange extending perpendicularly



from said first side of said upper surface thereof, said longitudinal plate having an end wall extending perpendicularly from each one of two ends of said bottom surface thereof, each of said end walls having a first end, a second end and a free side, a horizontal plate extending transversely from said free side of each of said end walls, each of said horizontal plates having a first stop extending from one end thereof to connect to said first side of said longitudinal plate;

said first sheet having one side thereof fixedly connected along said second side of said upper surface of said longitudinal plate and said second sheet having one side thereof fixedly connected along said first side of said upper surface of said longitudinal plate;

said slidable member being a C-shaped member and including a middle portion, a first portion and a second portion wherein said first portion and said second portion respectively extend transversely from two longitudinal sides of said middle portion, said first portion having a hook portion formed to a free side thereof and said second portion having two protrusions respectively extending longitudinally from both ends of a free side thereof such that said longitudinal plate is slidably received between said first portion and said second portion with said two protrusions respectively inserted between said corresponding pair of horizontal plate and said bottom surface of said longitudinal plate.

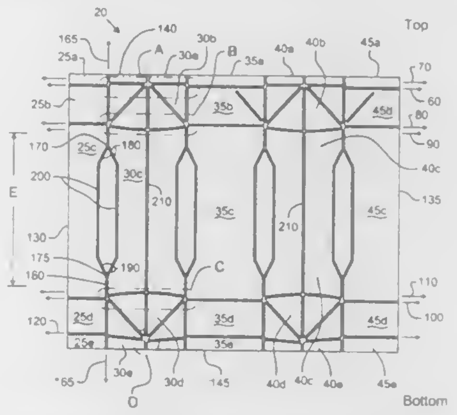
5,738,272
GABLE TOP CARTON AND CARTON BLANK HAVING REDUCED SURFACE AREA PER UNIT VOLUME

David Anchor, Itasca, Ill., and Tommy Bo Göran Ljungström, Höör, Sweden, assignors to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

Filed Mar. 21, 1996, Ser. No. 620,698

Int. Cl.^{6} B65D *5/02*

U.S. Cl. 229—109 **19 Claims**



1. A blank for forming a gable top carton comprising:

first, second, third, fourth, and fifth top fin panels;

first, second, third, fourth, and fifth top flaps, the second and fourth top flaps each having a pair of diagonal score lines joining at an apex;

first, second, third, fourth, and fifth side panels,

first, second, third, fourth, and fifth bottom flaps, the second and fourth bottom flaps each having a pair of diagonal score lines joining at an apex;

a first plurality of horizontally disposed score lines dividing the top fin panels from the respective top flaps,

a second plurality of horizontally disposed score lines dividing the top flaps from the respective side panels;

a third plurality of horizontally disposed score lines dividing the side panels from the respective bottom flaps;

a first vertical score line dividing the first and second top fin panels, the first and second top flaps, and partially dividing the first and second side panels;

a second vertical score line dividing the second and third top fin panels, the second and third top flaps, and partially dividing the second and third side panels;

a third vertical score line dividing the third and fourth top fin panels, the third and fourth top flaps, and partially dividing the third and fourth side panels;

a fourth vertical score line dividing the fourth and fifth top fin panels, the fourth and fifth top flaps, and partially dividing the fourth and fifth side; panels;

a fifth vertical score line dividing the first and second bottom flaps, and partially dividing the first and second side panels, endpoints of the first and fifth vertical score lines being disposed a distance from one another;

a sixth vertical score line dividing the second and third bottom flaps, and partially dividing the second and third side panels, endpoints of the second and sixth vertical score lines being disposed a distance from one another;

a seventh vertical score line dividing the third and fourth bottom flaps, and partially dividing the third and fourth side panels, endpoints of the third and seventh vertical score lines being disposed a distance from one another;

an eighth vertical score line dividing the fourth and fifth bottom flaps, and partially dividing the fourth and fifth side panels, endpoints of the fourth and eighth vertical score lines being disposed a distance from one another;

a ninth vertical score line extending along the entire length of the blank, the ninth vertical score line generally bisecting the second side panel and joining the apices of the diagonal score lines of the second top flap and the second bottom flap;

a tenth vertical score line extending along the entire length of the blank, the tenth vertical score line generally bisecting the fourth side panel and joining the apices of the diagonal score lines of the fourth top flap and the fourth bottom flap

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5,738,273
CARTON FOR BEVERAGE CONTAINERS WITH STRAP TYPE CARRYING HANDLE

Jean-Michel Auclair, Chateauroux, France, assignor to The Mead Corporation, Dayton, Ohio

PCT No. PCT/US95/09430, § 371 Date Jan. 7, 1997, § 102(e) Date Jan. 7, 1997, PCT Pub. No. WO96/01770, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 7, 1995, Ser. No. 765,879

Claims priority, application United Kingdom, Jul. 8, 1994, 9413862

Int. Cl.^{6} B65O *5/462*

U.S. Cl. 229—117.13 16 Claims

1. A carton comprising:

a plurality of main panels hinged together to form a sleeve having opposite end openings, one of said main panels having a handle access aperture formed therein;

a pair of end closure panels for closing at least in part said opposite end openings respectively, said end closure panels being hinged to said one main panel along a pair of opposed fold lines respectively so that said end closure panels are movable between an opened position where said end closure panels are coplanar with said one main panel and a closed position where said end closure panels close said opposite end openings at least in part; and

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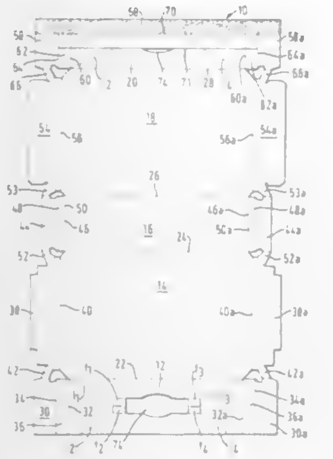
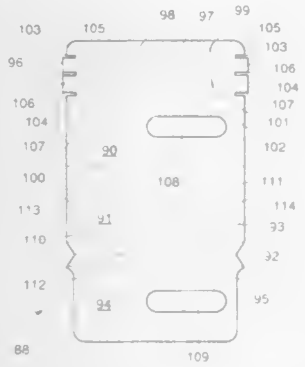


a handle strap having opposite extreme ends secured respectively to said end closure panels such that when said end closure panels are in said opened position, said handle strap is flat and includes a central user portion exposed to view within said handle access aperture and the other portions in face to face contacting relationship with respective inside surfaces of said one main panel and said end closure panels, whereby said handle strap becomes slack and protrudes externally through said handle access aperture when said end closure panels are brought into said closed position.

5,738,274
REUSABLE REPLY ENVELOPE

Michael Stude, 1021 S. Grove Ave., Barrington, Ill. 60010
PCT No. PCT/US94/11705, § 371 Date Nov. 8, 1996, § 102(e) Date Nov. 8, 1996, PCT Pub. No. WO96/11853, PCT Pub. Date Apr. 25, 1996
Continuation of Ser. No. 24,733, Mar. 1, 1993, Pat. No. 5,400,957. This PCT application Oct. 14, 1994, Ser. No. 750,815
Int. Cl.^{6} B65D *27/06*
U.S. Cl. 229—301 16 Claims



1. A reusable mailing envelope constructed from a blank comprising:

a front panel having an inner surface and an outer surface,

a rear panel having an inner surface and an outer surface and being connected to said front panel along a first fold line,

a seal flap formation coupled to one of said front and rear panels along a second line spaced from said first fold line and including a seal flap having adhesive means on an surface thereof which is adapted to face one of said rear or front panels for adhering said seal flap to one of said rear or front panels in a first mailing condition, said seal flap formation further including a first seal flap section having an inner surface and an outer surface and being connected along a third line to said seal flap and a second seal flap section having an inner surface and an outer surface and being connected along a fold line which is not a tear line to said first seal flap section and being coupled along said second line to one of said front or rear panels,

said first seal flap section being folded downwardly along said fold line,

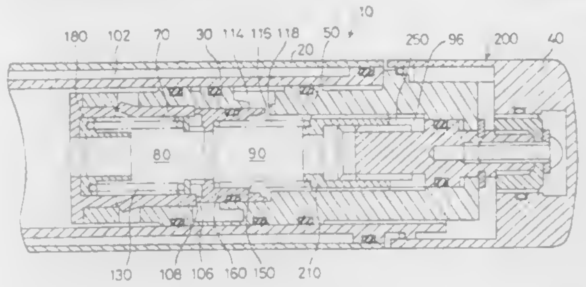
said envelope having an end opening on at least one side edge thereof above said second fold line, between said fold line on the top and said second line on the bottom and laterally, between said first and second seal flap sections,

structure for securing said front and rear panels together along adjacent side edges thereof, and

reusable structure, for allowing the envelope to be reused as a mailing envelope, coupled to one of said panels, said reusable structure including at least a part of said first and second seal flap sections, and said reusable structure establishing a second mailing condition where at least a portion of each one of said seal flap sections of said reusable structure forms a resealing flap which is sealed to at least one surface of said envelope for remailing said reusable envelope, said first and second seal flap sections having adhesive on and extending at least partially across said inner surface thereof generally parallel to said third line and said fold line, said seal flap sections not being adhered to each other in the first or second mailing conditions, and at least a part of said seal flap formation being detachable from said envelope.

5,738,275
COMBINATION FAUCET DEVICE

Masatoshi Enoki; Osamu Tokunaga; Setsuo Ito; Masaaki Itoh, and Hirofumi Takeuchi, all of Kitakyushu, Japan, assignors to Toto Ltd., Fukuoka, Japan
Division of Ser. No. 290,807, Aug. 8, 1994, Pat. No. 5,579,992. This application Aug. 19, 1996, Ser. No. 699,486
Claims priority, application Japan, Dec. 25, 1992, 4-359492 P; Jun. 30, 1993, 5-189162 P
Int. Cl.^{6} G05D *23/13*
U.S. Cl. 236—12.21 21 Claims



1. A combination faucet device for mixing high-temperature water with low-temperature water and making water mixture of a predetermined target temperature flown through said combination faucet device, said combination faucet device comprising

a casing member comprising a hot water port for supplying said high-temperature water therethrough, a cold water port for supplying said low-temperature water therethrough, and a sliding chamber connecting to both of said hot water port and said cold water port,

a movable valve member slidably fitted into said sliding chamber formed in said casing member for adjusting a mixing ratio of said high-temperature water flown through said hot water port to said low-temperature water flown through said cold water port,

a temperature sensitive spring having a first end and a second end of a certain shape and being mainly composed of a material having a spring constant varied according to a temperature change within a predetermined temperature range, said temperature sensitive spring pressing said movable valve member in a first direction for decreasing the ratio of said high temperature water to said low-temperature water when an actual temperature of said water mixture becomes greater than said predetermined target temperature,

a bias spring for pressing said movable valve member in a second direction opposite to said first direction, and

a temperature-sensitive spring receiving member having a spring receiving recess formed to receive said certain shape of said second end of said temperature-sensitive spring such that a force generated by said temperature sensitive spring is properly imposed upon said movable valve member

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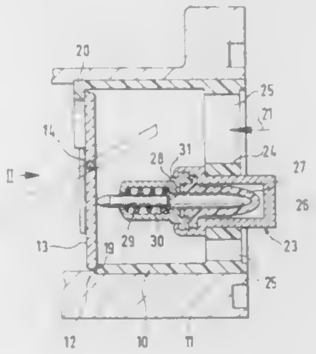
5,738,276
VALVE

Roland Saur, Stuttgart, Germany, assignor to Behr-Thomson Dehnstoffregler GmbH & Co., Kornwestheim, Germany
Filed Mar. 22, 1996, Ser. No. 620,656
Claims priority, application Germany, Mar. 31, 1995, 195 12 046.9; European Pat. Off., Dec. 7, 1995, 95119289
Int. Cl.^{6} G05D *27/00*
U.S. Cl. 236—92 C 14 Claims



1 A valve assembly comprising:

a movable closing member disposed to control a fluid flow opening,

a thermostatic working element operably engaged with the closing member to control opening movements of the closing member as a function of fluid flow temperature,

and an overpressure response member operably engaged with the closing member to permit opening of the closing member in response to excess fluid flow pressure acting on the closing member, said overpressure response member being operable independently of said thermostatic working element,

wherein the closing member is a flap with a swivel shaft arranged at a spacing from the center of gravity of the flap and to which the thermostatic working element is applied at a spacing from the swivel shaft.

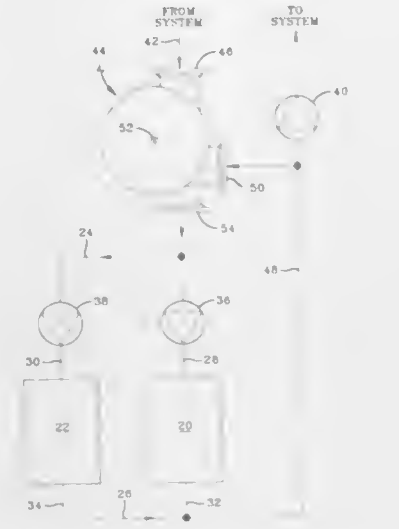
5,738,277
WATER HEATING AND COOLING SYSTEM HAVING A DUAL WATER MIXING AND AIR SEPARATOR APPARATUS

Terrence J. Muses, Cincinnati, Ohio, assignor to Systecon, Inc., Wester Chester, Ohio
Filed Aug. 12, 1996, Ser. No. 695,659
Int. Cl.^{6} E24D *3/10*
U.S. Cl. 237—66 3 Claims

1. A closed loop variable volume water heating or cooling system of the type including one or more work units having outlets for supplying either cooled or heated water to a building system and having return water from said building system supplied to the inlet of said work units, comprising:

an air separator and water mixing vessel including,

a) a closed vessel including generally cylindrical side walls and a top and bottom wall;



b) a first water inlet port and a second water inlet port disposed in said side walls in circumferentially spaced relationship to one another and at a predetermined elevation intermediate the top and bottom walls of said vessel, said inlet ports being offset relative to the vertical center line of said vessel;

c) a water outlet port disposed in said side walls at an elevation lower than said first and second inlets;

d) a vented air valve disposed in said top wall to permit air separating from water streams entering said inlets to exit said vessel; and

e) a first conduit communicating return water from said building system to said first water inlet port in said vessel, a second conduit forming a bypass communicating said outlet from said one or more work units to said second water inlet port of said vessel, and a third conduit communicating said water outlet port of said vessel to said inlet of said one or more work units.

5,738,278
ANCHOR SLEEVE FOR COMPOSITE ANCHORS AND METHOD OF PREPARING CORROSION-RESISTANT ANCHORAGES

Popp Franz, Buchloe, Germany, and Rudolph Martin, Nüziders, Austria, assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein
Filed Jan. 7, 1997, Ser. No. 779,600
Claims priority, application Germany, Jan. 19, 1996, 196 01 810.2
Int. Cl.^{6} E01B *9/18*
U.S. Cl. 238—377 15 Claims

1 An anchor sleeve for composite anchors comprising an axially extending internally threaded sleeve (2) to be anchored in a borehole (B) prepared in a concrete tie for rails and similar receiving materials by at least one of an organic and inorganic mortar (M), said sleeve (2) having a leading end inserted first into the borehole and a trailing end with an axially extending trailing end region extending from the trailing end and an axially extending leading end region extending from the leading end, said sleeve (2) has two concentrically and consecutively arranged sealing elements (7, 9)

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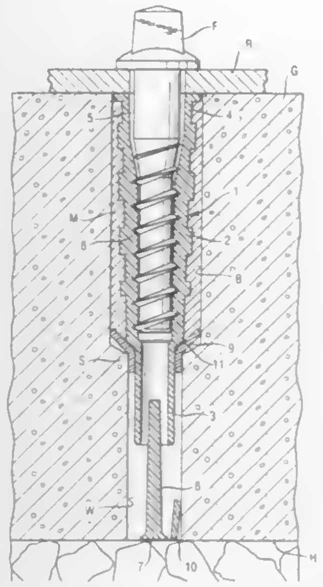


sealing the leading end, and said sealing elements (7, 9) being arranged for consecutive displacement from said leading end.

5,738,279
ELASTIC TRACK FOUNDATION

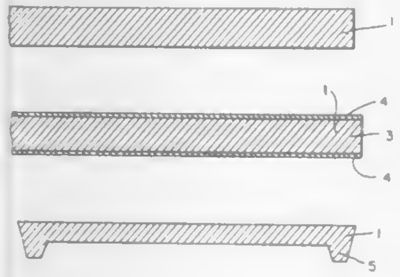
Erich Ihle, and Heinz Völker, both of Wadern, Germany, assignors to Saar-Gummiwerk GmbH, Wadern-Büschfeld, Germany

Filed Jan. 28, 1994, Ser. No. 188,315

Claims priority, application Germany, Jan. 28, 1993, 43 02 298.7

Int. Cl.^{6} E01B *9/00*

U.S. Cl. 238—382 **8 Claims**



1. Elastic, essentially plate-shaped track foundation of foamed material, characterized in that the track foundation (1) consists of a closed-pored foamed and crosslinked rubber material.

5,738,280
CENTERFED DEVICE FOR CREATING DECORATIVE WATERFALLS

Douglas Ruthenberg, 10453 Tillery Rd., Spring Hill, Fla. 34608

Filed Aug. 19, 1996, Ser. No. 699,265

Int. Cl.^{6} B05B *17/08*

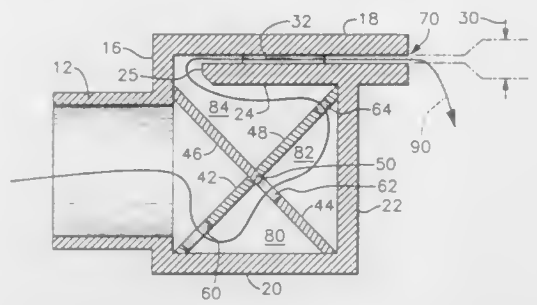
U.S. Cl. 239—17 **10 Claims**

1. A device for producing decorative waterfalls, comprising:

an elongate housing;

said elongate housing including a rear wall, a bottom wall, a forward wall, a top wall, an interior top wall disposed in spaced apart, parallel relation to said top wall, and a pair of end walls;

said interior top wall having a trailing edge disposed in spaced relation to said rear wall;



an elongate water discharge opening defined between a leading edge of said top wall and a leading edge of said interior top wall;

an elongate turbulence-suppressor disposed within said housing;

said elongate turbulence suppressor having a transverse cross-section comprising "T"-shaped or "X"-shaped configuration, and including a lower rearward wall, a lower forward wall, an upper rearward wall, and an upper forward wall;

a plurality of openings formed in said lower rearward wall, said lower forward wall, and said upper forward wall of said turbulence suppressor;

a rearward chamber defined by said rear wall of said housing and said lower rearward and upper rearward walls of said turbulence suppressor;

a lower chamber defined by said housing bottom wall and said lower rearward and lower forward walls of said turbulence suppressor;

a forward chamber defined by said housing forward wall and said lower forward and upper forward walls of said turbulence suppressor;

an upper chamber defined by said housing interior top wall and said upper rearward and upper forward walls of said turbulence suppressor;

whereby water from said source of water under pressure initially enters said rearward chamber, is constrained to flow sequentially into said lower chamber through said openings formed in said lower rearward wall, into said forward chamber through said openings formed in said lower forward wall, into said upper chamber through said openings formed in said upper forward wall, through said space between the trailing edge of said interior top wall and said rear wall, and through said discharge opening.

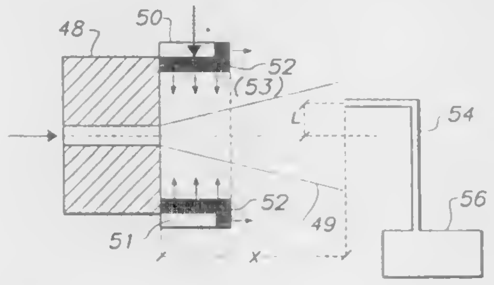
5,738,281
PROCESS AND APPARATUS FOR SHROUDING A TURBULENT GAS JET

Zbigniew Zurecki, Macungie; John Joseph Kaiser, Whitehall, and John Lewis Green, Palmerton, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation of Ser. No. 368,565, Jan. 4, 1995, Pat. No. 5,662,266. This application May 8, 1997, Ser. No. 848,418

Int. Cl.^{6} B05B *1/28*

U.S. Cl. 239—290 **6 Claims**



1. Apparatus for producing a shrouded gas jet comprising:

(a) gas conduit means terminating in an orifice through which a turbulent gas jet can issue along an axis into an aspiration zone,

(b) shroud gas manifold means disposed annularly around said orifice and at least a portion of said aspiration zone, said manifold means extending from said orifice to a point downstream thereof,

(c) a wall of porous media positioned in the flow path between said manifold means and said aspiration zone so that shroud gas in said manifold means must pass through said porous media in a direction normal to the aspiration zone side of the wall on its way to said aspiration zone, and

(d) means for introducing shroud gas into said manifold means: wherein said means for introducing shroud gas is disposed to introduce shroud gas tangentially into said manifold means so that said shroud gas does not forcibly impinge directly on said porous media.

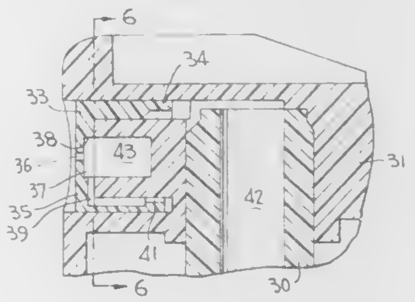
5,738,282
PUMP SPRAYER NOZZLE FOR PRODUCING A SOLID SPRAY PATTERN

R. Pat Grogan, Downey, Calif., assignor to Calmar Inc., City of Industry, Calif.

Filed Mar. 20, 1996, Ser. No. 620,855

Int. Cl.^{6} B05B *1/34*

U.S. Cl. 239—492 **4 Claims**



1. A manually actuated pump sprayer comprising, a pump body having a fluid discharge passage and a probe, a nozzle cap on said probe, said cap having a discharge orifice and means comprising a spin chamber for imparting a spin at a given velocity to fluid to be discharged through said orifice in a predetermined spray pattern, said spin chamber means communicating with said orifice and with said fluid discharge passage, the improvement wherein

an end of said probe confronting said spin chamber has a generally cylindrical closed fluid flow dampening chamber therein in open communication and coaxial with said spin chamber, said dampening chamber being viscous fluid coupled with said spin chamber, and said dampening chamber having a non-smooth sidewall defined by at least one projection extending toward the axis of said dampening chamber, whereby fluid enters said chambers and spins about the central axis of said dampening chamber developing spin energy which drives the fluid out of the orifice forming a spray, the spin energy being dampened within the spin chamber due to the viscous fluid couple formed with the fluid in the dampening chamber where energy loss occurs as rotational flow of the fluid encounters said at least one projection for reducing the spin energy to effect a solid spray cone of fluid having a consistently round pattern with uniform particle dispersion exiting said orifice.

5,738,283
FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

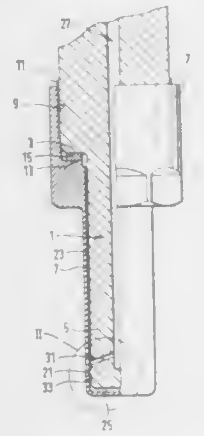
Detlev Potz, Stuttgart; Guenter Lewentz, Hemmingen; Uwe Gordon, Markgroeningen; Stefan Haug, Leinfelden-Echterdingen, and Christian Schmeisser, Esslingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Sep. 30, 1996, Ser. No. 723,412

Claims priority, application Germany, Sep. 29, 1995, 195 36 330.2

Int. Cl.^{6} F02M *47/00;* **B05B** *1/30*

U.S. Cl. 239—533.3 **16 Claims**



1. A fuel injection valve for internal combustion engines, comprising a valve body (1) and an expansion sleeve (7) surrounding and cooperating with said valve body, a pressure chamber (23) defined between the expansion sleeve (7) and the valve body (1), a high-pressure conduit (27) in said valve body discharges into said pressure chamber and communicates, via an opening cross section that is opened at high pressure between the expansion sleeve (7) and the valve body (1) with an injection cross section opening into the combustion chamber of the engine, the expansion sleeve (7), at least partially surrounds a circumferential jacket face of the valve body (1), and is braced axially against said jacket face, and a portion of the expansion sleeve (7) is embodied as a fastening element on the valve body (1).

5,738,284
INVERTED COIL

Robert S. Gruendl, Grafton, and Stephen C. Cranford, Newport News, both of Va., assignors to Siemens Automotive Corporation, Auburn Hills, Mich.

Continuation of Ser. No. 469,394, Jun. 6, 1995, abandoned. This application Apr. 14, 1997, Ser. No. 839,535

Int. Cl.^{6} F02M *51/00*

U.S. Cl. 239—585.4 **1 Claim**

1. In an electromechanically operated top feed fuel injector having a tubular housing with at least two axially spaced apart upper and lower O-rings respectively located at each end of the housing, the upper O-ring for sealingly locating the inlet of the fuel injector in a fuel rail and the lower O-ring for sealingly locating the outlet end of the fuel injector in an engine manifold, a connector axially located between the O-rings and having terminals for receiving electrical signals for operating the injector, an overmold encapsulating the housing and connector and axially extending between the upper and lower O-rings, wherein the improvement comprises:

a solenoid inside the housing and having a tubular bobbin member with a coil wound on said bobbin and each end of said coil connected respectively to the terminals of the connector at one end of said bobbin nearest the lower O-ring for locating the connector closer to the lower O-ring and between

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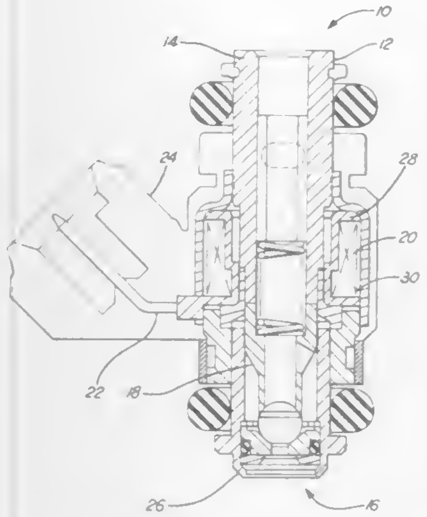

the O-rings thereby reducing the axial spacing between the O-rings for reducing the length of the injector

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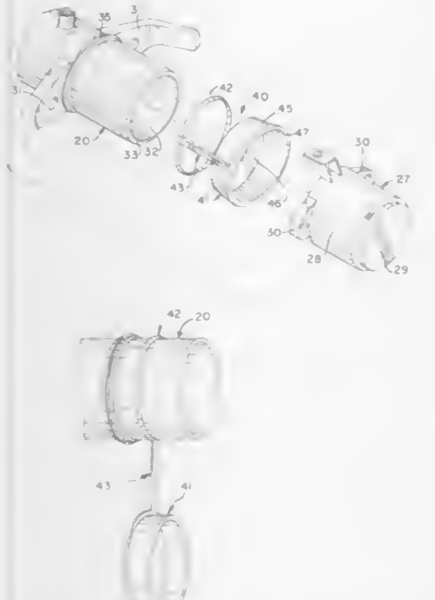
5,738,285
SECONDARY SEAL FOR THE PNEUMATIC DISCHARGE NOZZLE OF A COVERED HOPPER CAR

John D. Anderson, Aurora, Ill., assignor to Zeftek, Inc., Montgomery, Ill.

Filed Aug. 30, 1995, Ser. No. 521,468

Int. Cl.^{6} A01C *00/00;* F16L *55/10;* B65D *51/18*

U.S. Cl. 239—654 **7 Claims**



1 In a covered hopper car for carrying granular material, wherein the car includes a substantially horizontally extending cylindrical pneumatic discharge nozzle connecting to the compartment and having an open end for discharging the material from the car, a cap for closing the open end of the nozzle, a seal on the nozzle coacting with the cap, the improvement being in a secondary seal device for preventing spillage of material when the device is removed from the nozzle to allow discharge of material from the nozzle, said device comprising a plug member matingly received in the open end of the nozzle and having means for maintaining material in such spaced relation from the open end of the nozzle upon removal of the plug member that spillage of material from the nozzle that previously leaked into the nozzle from the compartment is prevented, said plug member further including a cup-shaped body and lip means for engaging the terminal end of the nozzle to preposition the body when the device is fully inserted in the nozzle, said body being formed to mate with the nozzle and extend into the nozzle a given depth to prevent material within the nozzle and at the body from spilling out the open end of the nozzle, and a tab means on the body for grasping to facilitate removal of the plug member from the open end of the nozzle.

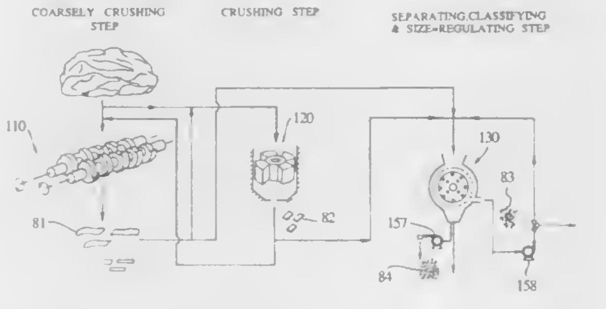
5,738,286
RESIN MATERIAL RECOVERED FROM INDUSTRIAL WASTES OF PLASTIC FILM, METHOD AND APPARATUS FOR RECOVERING RESIN MATERIAL FROM INDUSTRIAL WASTES OF PLASTIC FILM

Sadao Nishibori, Tokyo, Japan, assignor to EIN Engineering Co., Ltd., Tokoy, Japan

Filed Feb. 23, 1996, Ser. No. 606,318

Int. Cl.^{6} B02C *19/12;23/08*

U.S. Cl. 241—24.14 **11 Claims**



1. A method for recovering a resin material from industrial waste of plastic film by separating foreign objects adhering thereto comprising the steps of:

- coarsely crushing waste film into a plurality of coarsely crushed pieces;
- crushing the coarsely crushed pieces into crushed small pieces to be treated; and applying a scraping impact force to the individual crushed small pieces to separate the resin material and the adhering foreign objects and regulating the sizes of the crushed small pieces of the resin material by scraping said crushed small pieces of resin material between fixed and movable pins, while removing the separated adherent foreign objects by passing said foreign objects through the screen by a centrifugal effect of the movable pins and by remaining the resin material on the screen without being scraped into smaller pieces to pass the screen; and
- larger adhering foreign objects that do not pass through the screen are returned to the step off applying a scraping impact force by compressed air.

5,738,287
BALE SEPARATOR

Ed Vanderberg, Coalhurst, Canada, assignor to Fastec Manufacturing Ltd., Fort MacLeod

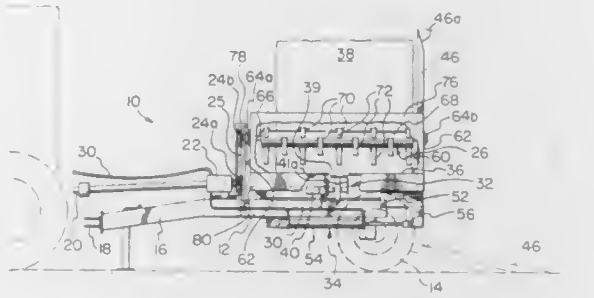
Continuation of Ser. No. 588,819, Jan. 19, 1996, abandoned. This application Jul. 18, 1997, Ser. No. 897,010

Int. Cl.^{6} B02C *18/06;21/02*

U.S. Cl. 241—101.76 **13 Claims**

10 A portable apparatus for separating a bale of crop materials, said apparatus comprising:

- a movable support member;
- a bale loading means for loading a bale into said apparatus;
- a bale separating mechanism including:
  - a substantially planar deck for supporting at least one bale;
  - an elongate rotatable member having a central shaft substantially parallel to said deck at an end of said deck;
  - drive means for driving said rotatable member;
  - finger means pivotally mounted on said rotatable member for separating said bale, wherein said bale is confined between said deck and said rotatable member for acting on said bale and for discharging separated material, and
- movable barrier means for continuously advancing a bale slidingly on said deck into contact with said finger means.



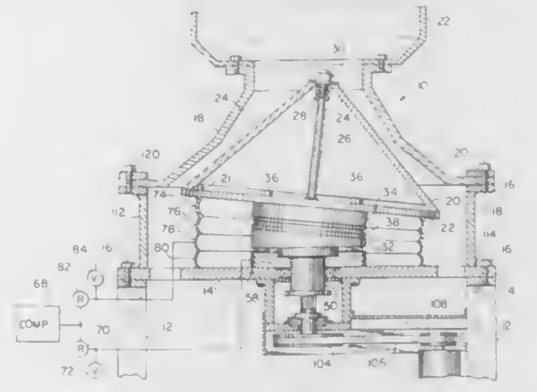
5,738,288
CONICAL CRUSHER HAVING A SINGLE PIECE INNER CRUSHING MEMBER

Vijia Kumar Karra, Franklin, Wis., assignor to Nordberg Incorporated, Milwaukee, Wis.

Filed Jun. 5, 1996, Ser. No. 658,353

Int. Cl.^{6} B02C *2/04*

U.S. Cl. 241—207 **22 Claims**



1. A crusher comprising:

- a main support member ;
- a crusher head including a generally planar base plate and a one piece, generally conically shaped, downwardly spreading, inner crushing member having a bottom supported by said base plate, said crusher head being movably supported with respect to said main support member; and
- a generally frustoconically shaped, downwardly spreading, outer crushing member supported on said main support member in a spaced relationship to said conically shaped crushing member such that material passing between said inner crushing member and said outer crushing member is crushed

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5,738,289
CRUSHER

Itsuo Tagawa, Tokyo, Japan, assignor to Sangojuuki Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/00150, § 371 Date Oct. 1, 1996, § 102(e) Date Oct. 1, 1996, PCT Pub. No. WO96/23944, PCT Pub. Date Aug. 8, 1996

PCT Filed Jan. 26, 1996, Ser. No. 718,391

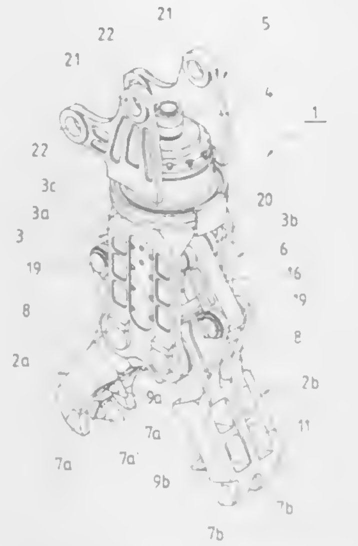
Claims priority, application Japan, Feb. 1, 1995, 7-034731

Int. Cl.^{6} B02C *1/06*

U.S. Cl. 241—266 **6 Claims**

1. A crusher for crushing and shearing an object, comprising:

- a bracket adapted to be attached to a construction machine;
- an arm support rotatably mounted on said bracket;



- a pair of arms, each pivotally supported at its central portion on said arm support, for squashing the object by opening and closing actions, each of said pair of arms having a plurality of through holes between a front end thereof and said pivotally supported portion; and
- a hydraulic cylinder operatively connected to a rear end of each of said pair of arms for driving said arms to open and close;

wherein said front end of each of said pair of arms is divided into a plurality of fingers each having a claw, a central one of said claws of one of said arms is more inwardly inclined to said pivotally supported portion of said one arm than the remaining claws, and said arm support and said pair of arms are balanced in weight with respect to a central axis of rotation of said arm support.

5,738,290
YARN POSITIONING MECHANISM OF AN AUTOMATIC TRAVELING PACKAGE DOFFER

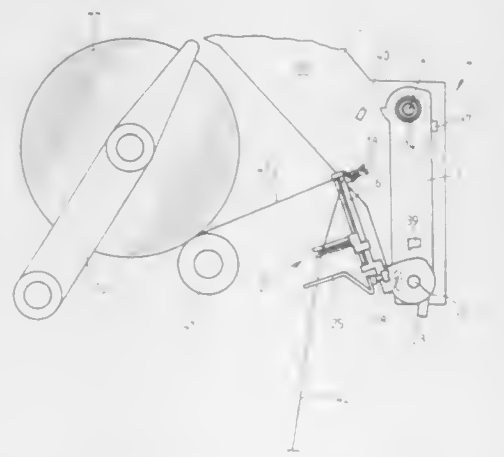
Paul Straaten, Kerken; Ulrich Fechter; Jürgen Enger, both of Mönchengladbach, and Norbert Corres, Wegberg, all of Germany, assignors to W. Schlafhorst AG & Co., Monchen-Gladbach, Germany

Filed Sep. 13, 1996, Ser. No. 713,793

Claims priority, application Germany, Sep. 13, 1995, 195 33 833.2

Int. Cl.^{6} B65H *54/00;54/02*

U.S. Cl. 242—18 PW **10 Claims**



1. A yarn positioning mechanism of an automatic traveling package doffer that travels along stations of a yarn processing machine, doffs full wound packages, places empty tubes for wind

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ing yarn, and positions a supply yarn on the empty tube for winding thereon, comprising:

- a doffer housing that travels along the stations of a yarn processing machine,
- a yarn engaging device movably mounted on said doffer housing for movement relative to said doffer housing in opposite directions parallel to the travel path of said doffer housing and engageable with the end of a supply yarn for positioning the yarn on an empty tube at one of the stations,
- a travel limiting device mounted on said doffer housing including a clamp assembly and clampable to the yarn engaging device when said yarn engaging device is at a first predefined position with respect to said one of the stations and movable relative to said doffer housing in said opposite directions, and
- a first stop element attached to said doffer housing for engagement of said clamp assembly and said clamped yarn engaging device in a first one of said directions for stopping movement of said clamp assembly and said clamped yarn engaging device at a second predefined position with respect to said one of the stations for precise positioning of the supply yarn for producing a reserve winding on the empty tube.

5,738,291
YARN BRAKING DEVICE AND YARN STORAGE AND FEED DEVICE

Lars Helge Gottfrid Tholander, Ulricehamn, Sweden, assignor to IRO AB, Ulricehamn, Sweden

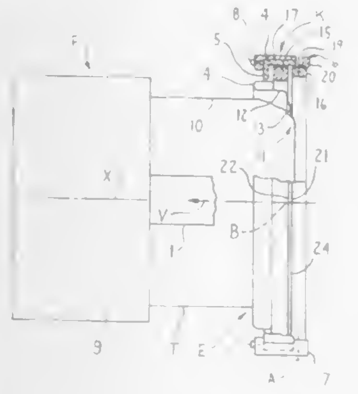
PCT No. PCT/EP95/00880, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/24355, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 9, 1995, Ser. No. 704,527

Claims priority, application Germany, Mar. 9, 1994, 44 07 958.3

Int. Cl.⁶ B65H *51/00;* **D03D** *47/36*

U.S. Cl. 242—47.01 **27 Claims**



1. In a yarn braking device comprising a yarn storage drum which defines a circular draw-off area, and an annular braking element which is of an elastic and deformable material and defines a circumferentially continuous braking surface, said braking surface being disposed close to an inner periphery of said braking element, and said braking element being supported on an annular carrier which is disposed proximate an outer periphery of said braking element, said yarn braking device further including a Cardan holding device supported in a stationary manner relative to said storage drum which includes support means for movably supporting said braking element on said Cardan holding device so that said braking element is tiltable about first and second Cardan axes, said first and second Cardan axes extending approximately at right angles to a longitudinal axis of said annular carrier, said Cardan holding device including biasing means for applying an axial biasing force to said braking element which biases said braking element axially toward said storage drum, comprising the improvement wherein said Cardan holding device includes a support ring supported by said support means such that said support ring is tiltable about said first Cardan axis, said support means further comprising a pair of spaced first contact areas on said annular carrier and a pair of spaced second contact areas on said support ring, each of said first contact areas being disposed in opposing contact with one of said second contact areas to define said second Cardan axis, said first and second contact areas being detachable from one another and being pressed axially onto one another by said axial biasing force, said annular carrier and said support ring being in contact with each other only by said first and second contact areas such that said annular carrier is tiltable relative to said support ring about said second Cardan axis.

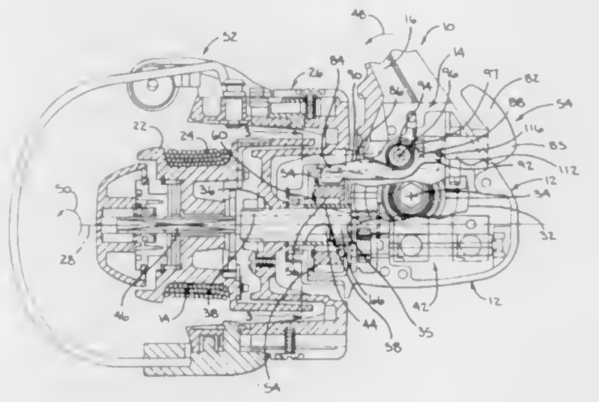
5,738,292
SELECTIVE CONTINUOUS ANTI-REVERSE MECHANISM FOR A FISHING REEL

Young J. Kang, Tulsa, Okla., and John Wayne Chapman, Franksville, Wis., assignors to Zebco Division of Brunswick Corporation, Tulsa, Okla.

Filed Jul. 12, 1995, Ser. No. 501,312

Int. Cl.⁶ A01K *89/02*

U.S. Cl. 242—247 **10 Claims**



1. A fishing reel comprising:

a frame; and

an operating mechanism on the frame including a line carrying spool, a first element for directing line onto the line carrying spool, first means cooperating between the first element and frame for mounting the first element for rotation relative to the frame in a first direction about a first axis as an incident of which line is wrapped around the line carrying spool, and second means for selectively preventing the first element from rotating oppositely to the first direction around the first axis,

wherein the second means comprises a clutch assembly having inner and outer rings, third means cooperating between the first element and the inner ring for keying the inner ring to the first element so that the inner ring is fixed against rotation relative to the first element around the first axis, fourth means cooperating between the inner and outer rings for a) permitting rotation of the outer ring relative to the inner ring in one direction around the first axis and b) preventing rotation of the outer ring relative to the inner ring oppositely to the one direction around the first axis, and fifth means cooperating between the frame and clutch assembly for selectively c) limiting rotation of the outer ring relative to the frame and d) permitting continuous rotation of the outer ring relative to the frame,

wherein the fifth means comprises an actuator, means for mounting the actuator to the frame for movement selectively relative to the frame around an axis that is parallel to the first axis between first and second positions, and means cooperating between the actuator and the outer ring for limiting rotation of the outer ring relative to the frame with the actuator in the first position and permitting continuous rotation of the outer ring relative to the frame with the actuator in the second position,

wherein the means cooperating between the actuator and outer ring comprises an intermediate member having a finger thereon and means for mounting the intermediate member to the frame for movement relative to the frame between engaged and disengaged positions, the finger acting against the outer ring to thereby limit rotation of the outer ring relative to the frame with the intermediate member in the engaged position, the outer ring being rotatable relative to the frame with the intermediate member in the disengaged position,

there further being means cooperating between the actuator and intermediate member for moving the intermediate member from its disengaged position into its engaged position as an incident of the actuator moving from its second position into its first position,

wherein the means for mounting the intermediate member to the frame comprises means for mounting the intermediate member to the frame for rotation about an axis that is transverse to the first axis.

5,738,293
BELT RETRACTOR WITH A BELT PRETENSIONER AND A FORCE LIMITING MEANS

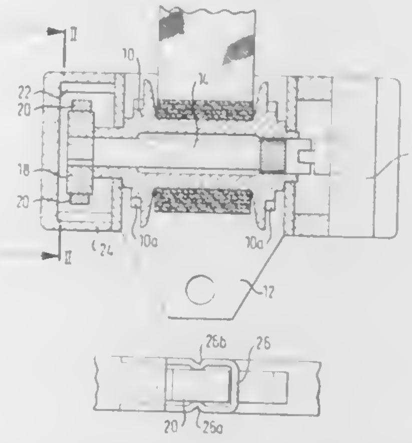
Artur Föhl, Schorndorf, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany

Filed Oct. 8, 1996, Ser. No. 727,014

Claims priority, application Germany, Oct. 20, 1995, 295 16 628.2

Int. Cl.⁶ B65H *75/48;* **B60R** *22/28;22/34*

U.S. Cl. 242—374 **6 Claims**



1. A safety belt retractor comprising a frame, a belt drum rotatably mounted in said frame, a rotary pretensioner drive adapted to be drivingly coupled to said belt drum, a force limiting member connected to said belt drum for joint rotation, at least one blocking pawl pivotally mounted on said force limiting member, an internally toothed ring rigidly connected to said frame and surrounding said blocking pawl, a spring biasing said blocking pawl to a neutral position out of engagement with said toothed ring, and retarding means acting on said blocking pawl to retard movement of said blocking pawl from a belt drum blocking position in engagement with said toothed ring to said neutral position.

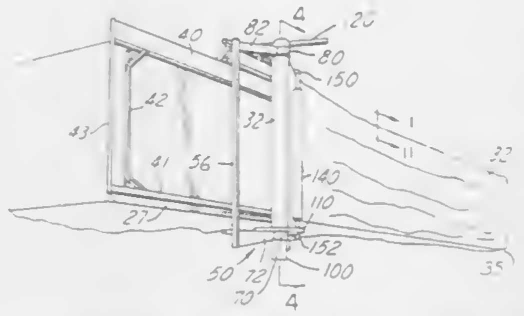
5,738,294
MOVABLE APPARATUS FOR INSTALLING FLEXIBLE SIGN PANELS

Vladimir Yasnogorodskiy, Oak Park, and David U. Hillstrom, Novi, both of Mich., assignors to Marketing Displays, Inc., Farmington Hills, Mich.

Division of Ser. No. 251,592, May 31, 1994. This application Sep. 11, 1996, Ser. No. 712,069

Int. Cl.⁶ B65H *16/06,* **A47G** *5/02*

U.S. Cl. 242—396.1 **13 Claims**



1. A trolley member for use in installing a flexible sign panel member on a frame structure, said frame structure having a pair of elongated substantially parallel frame members on which the trolley member is adapted to be positioned and moved along, said sign panel member being installed from a roll of sign panel material adapted to be positioned on said trolley member, said trolley member comprising:

- a housing structure,
- roller means on said housing structure for allowing movement of said trolley on said frame structure, said roller means comprising a first roller mechanism adapted to be positioned on a first one of said pair of parallel frame members and a second roller mechanism adapted to be positioned on the other one of said pair of parallel frame members,
- at least one releasable securing member on said housing structure for selectively locking said trolley member on said frame structure at one or more locations,
- a pair of spaced apart collar members positioned on said housing structure and adapted to enclose and hold a roll of sign panel material on said housing structure and allow said roll of sign panel material to be unrolled for installation on said frame structure, and
- means for stretching said sign panel material on said housing structure.

5,738,295
PROCESS AND APPARATUS FOR TENSIONING A TRAVELING THREAD IN A TEXTILE MACHINE BY MEANS OF A COMB TENSIONER

Franz-Josef Flamm, Stolberg, and Christian Sturm, Krefeld, both of Germany, assignors to W. Schlafhorst AG & Co., Moenchengladbach, Germany

Filed Nov. 12, 1996, Ser. No. 748,129

Claims priority, application Germany, Nov. 28, 1995, 195 44 202.4

Int. Cl.⁶ B65H *77/00*

U.S. Cl. 242—419.1 **6 Claims**

1. A process for tensioning a traveling thread y in a textile machine by means of a comb tensioner having thread guide elements which are stationary and thread guide elements which are displaceable in a defined manner in respect to the stationary guide elements, the process comprising the steps of moving the displace-

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able thread guide elements into tensioning contact with the traveling thread by means of an electrodynamic drive mechanism which exerts a force proportional to electrical current input thereto, delivering a current supply to the electrodynamic drive mechanism in order to achieve a thread tension force existing downstream of the comb tensioner of a set value, determining an actual value of the thread tension force as a function of reactive forces of the displaceable thread guide elements of the comb tensioner acting on the electrodynamic drive mechanism and as a function of the position of the displaceable thread guide elements of the comb tensioner, comparing the actual value of the thread tension force with the set value of the thread tension force, and, in case of deviations between the actual value and the set value of the thread tension force, issuing adjusting signals to change the amount of current supplied to the drive mechanism.

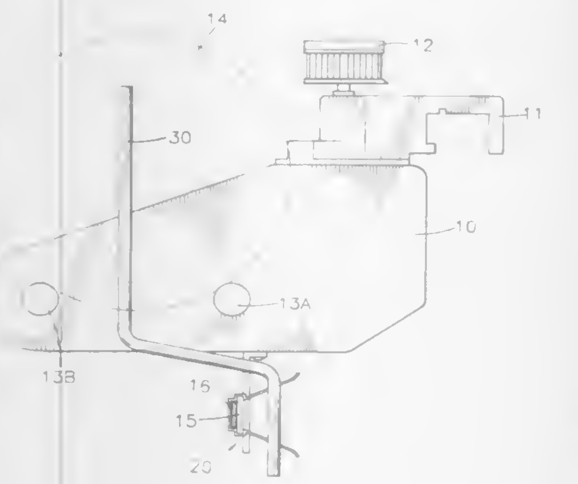
5,738,296
THREAD FEEDER WITH VERTICALLY-EXTENDABLE SPOOL PROTECTOR FOR KNITTING MACHINES

Sze-Tsang Wu, Taipei, Taiwan, assignor to Jen Hui Chen, Taipei, Taiwan

Filed Nov. 13, 1996, Ser. No. 747,609

Int. Cl.⁶ B65H *57/18*

U.S. Cl. 242—566 **3 Claims**



1. A spool protector for protecting at least a spool on a yearn feeder, comprising:

a) a fixed mounting piece installed near a bottom portion of the spool to be protected,
b) a supportive piece fastened to said fixed mounting piece and a securing portion positioned on the supportive piece,
c) a protection beam including an upper segment, a middle segment and a bottom segment, the bottom segment of said protection beam penetrating said securing portion on said supportive piece to be securely locked in position thereby, and the protective beam being extendably vertically upwards to place the upper segment in position for protection of the spool;
d) said securing portion having a first and a second position;

wherein

when the securing portion is in the first position a securing means is urged forcibly against the bottom segment of said protection beam such that said protection beam is secured in position; and

when the securing portion is in the second position the securing means urges no force against the bottom segment of said protection beam, thereby releasing said protection beam for free vertical adjustment to allow the upper segment of said protection beam to be positioned for protection of the spool.

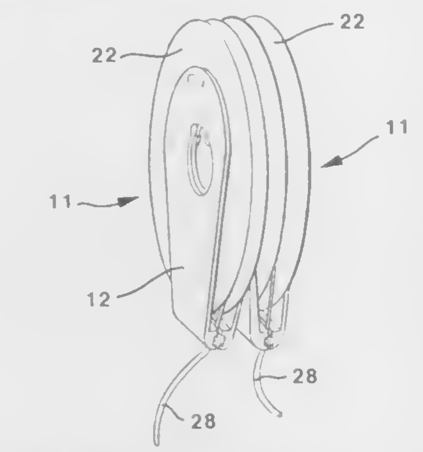
5,738,297
LEADER DISPENSER

John Bailey, Livingston, Mont.; Luke Mak, Hong Kong, Hong Kong, and Eiji Hamachi, Osaka, Japan, assignors to Dan Bailey, Livingston, Mont.

Filed Jul. 22, 1996, Ser. No. 659,196

Int. Cl.⁶ B65H *49/14;75/02;* **A01K** *97/06*

U.S. Cl. 242—594.3 **12 Claims**



1. A leader dispenser comprising:

a leader spool having leader wrapped thereon;
a yoke having opposite first and second wings;
the wings being joined with a hinge;
the wings further having clasping means for releasably clasping the spool between the wings when the wings are folded together on each side of the spool; and
a decurling means, located on the hinge, for decurling leader led through the decurling means as the leader is pulled from the spool and for preventing the remaining leader on the spool from unreeling.

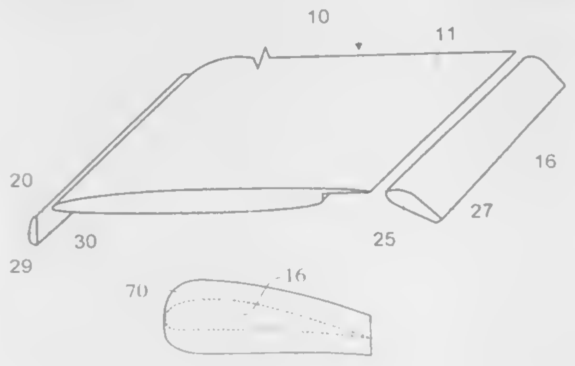
5,738,298
TIP FENCE FOR REDUCTION OF LIFT-GENERATED AIRFRAME NOISE

James C. Ross, Oakland, and Bruce L. Storms, Moutain View, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 8, 1995, Ser. No. 482,459

Int. Cl.⁶ B64C *3/58;9/00*

U.S. Cl. 244—1 N **16 Claims**



1. An aircraft wing comprising in combination:

a high-lift system formed of a plurality of flaps, at least some of which having an outboard tip and an inboard tip; and
a lift-generated noise reduction tip fence secured to at least one of said outboard tip and inboard tip of at least one of said flaps, and said tip fence moving with said at least one of said flaps, for reducing airframe aerodynamic noise generated at said one of said outboard tip and inboard tip.

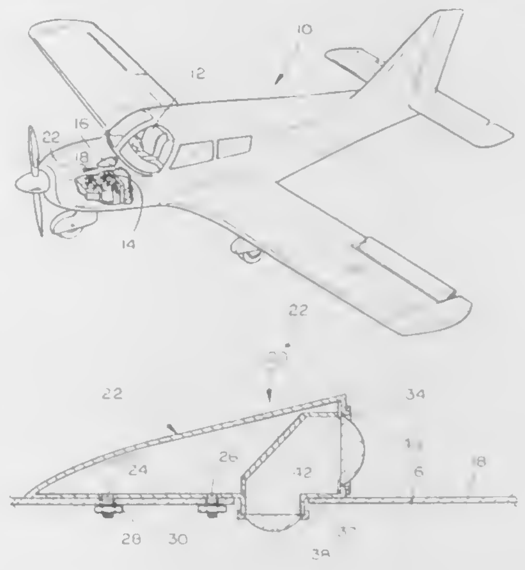
5,738,299
VISUAL INDICATOR MEANS FOR WARNING A PILOT OF AN ENGINE COMPARTMENT FIRE

Michael C. Martin, 5527 Stonecliffe Dr., Lincoln, Nebr. 68516

Filed Jul. 27, 1994, Ser. No. 280,950

Int. Cl.⁶ B64D *47/02*

U.S. Cl. 244—1 R **8 Claims**



1. In combination:

an airplane having an engine cowling;
said cowling having a top portion which is visible to the pilot of the airplane;
a light transmission means having an inner end in communication with the interior of said cowling and an outer end positioned on said top portion of said cowling which is visible to the pilot of the airplane so that if a fire should occur within the engine cowling, the light from the fire within the cowling will be visible to the pilot.

5,738,300
HELICOPTER AUTOPILOT PROVIDING AIRSPEED CONTROL

Bernard Durand, Chemin Vidal, Route d'Arles, 13300 Salon-de-Provence, France

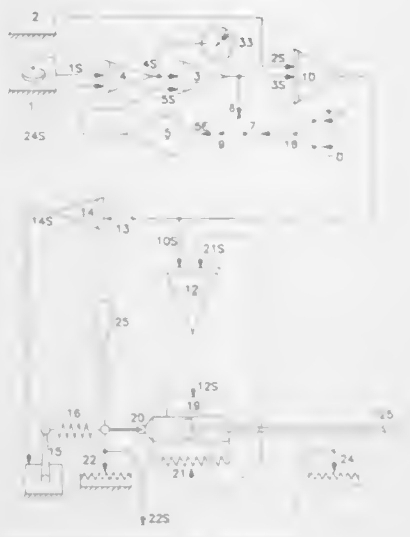
PCT No. PCT/FR95/00033, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/19592, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 11, 1995, Ser. No. 682,505

Claims priority, application France, Jan. 12, 1994, 94 00497

Int. Cl.⁶ B64C *27/57;* **G05D** *1/08;13/08*

U.S. Cl. 244—17.13 **8 Claims**



1. Apparatus for assisting automatic piloting of rotating wing aircraft for the purpose of keeping the lateral and longitudinal components of the airspeed equal to desired reference values therefore, the apparatus comprising two systems, one for roll and the other for pitch, each of said systems having means (**1**) for generating a signal (**1S**) that is a function of the trim of the fuselage, summing means having one input receiving said signal that is a function of the trim of the fuselage, integrator means (**5**) for generating a reference signal (**5S**), said reference signal being applied as an input of the summing means, means for actuating cyclic flight controls as a function of an output signal of the summing means, cyclic position means (**24**) for generating a signal (**24S**) that is a function of the position of the cyclic control for the blades of at least one main rotor the apparatus being characterized in that the output of said cyclic position means (**24**) is connected to the input of the summing means (**4**, **3**, **10**), the summing means (**4**, **3**, **10**) producing a weighted sum of the signal (**15**) of the trim of the fuselage and of the signal (**24S**) that is a function of the position of the cyclic control, the integrator means (**5**) being such that the output signal of said integrator means (**5**) is representative of a reference airspeed.

5,738,301
ROTARY-WING AIRCRAFT OF THE COMPOUND TYPE, AND REAR STRUCTURAL ELEMENT FOR SUCH AN AIRCRAFT

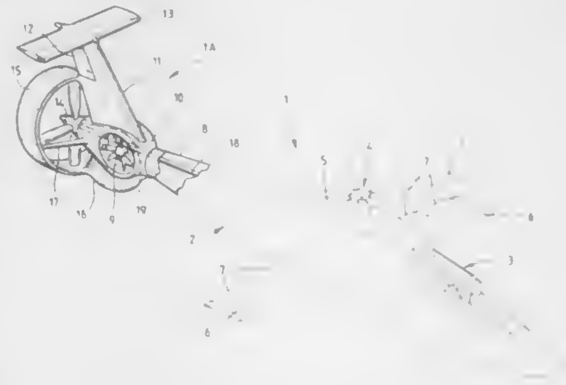
Daniel Claude Francois, Cornillon, and Marc Jean-Luc Rieugnie, Marignane, both of France, assignors to Eurocopter France, Marignane Cedex, France

Filed Jul. 17, 1996, Ser. No. 678,750

Claims priority, application France, Jul. 21, 1995, 95 08854

Int. Cl.⁶ B64C *27/82*

U.S. Cl. 244—17.19 **13 Claims**



1. A rotary wing aircraft, especially such as a helicopter, of the compound type including:

a fuselage (**2**),
fixed-wing elements (**6**) arranged on either side of said fuselage (**2**),
at least one main rotor (**4**),
an anti-torque rear rotor (**9**) having a shroud (**10**), and
a rear thruster propeller (**14**), arranged at the end of the tail boom (**8**) of said fuselage (**2**) and having a shroud (**15**).

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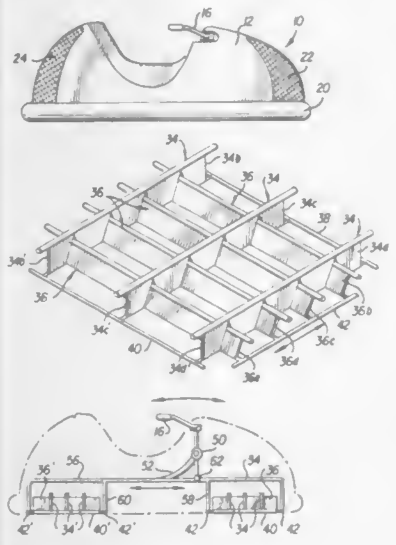
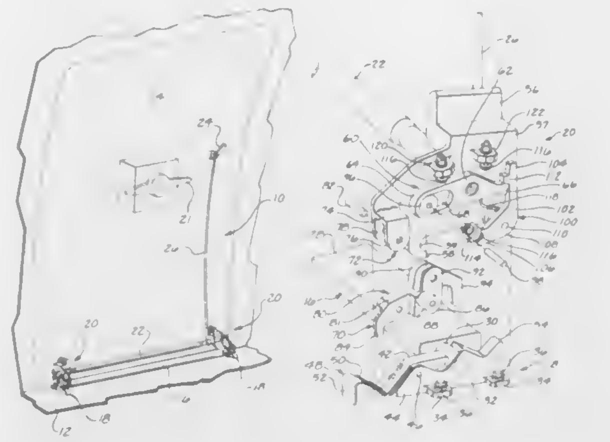
wherein said shroud (10) of said anti-torque rotor (9) and said shroud (15) of said thruster propeller (14) are linked by a vertical empennage (11) to form a structural assembly.

5,738,302
AIRBORNE VEHICLE
Verne L. Freeland, P.O. Box 693652, Miami, Fla. 33269-0652
Filed Apr. 2, 1996, Ser. No. 626,853
Int. Cl.⁶ B64C *39/00*
U.S. Cl. 244—23 R **26 Claims**



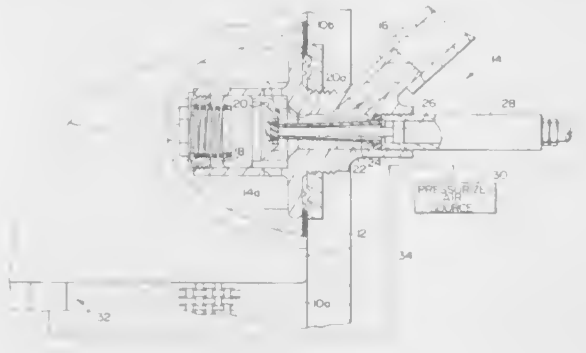
1. An airborne vehicle, comprising:
a body;
lifting means connected to said body for lifting said vehicle; and
steering means operable by a user for steering said vehicle;
wherein said lifting means comprises a first propeller mounted in a front end of said body and a second propeller mounted in a rear end of said body, said first propeller and said second propeller rotating in a horizontal plane and said first propeller rotating in a direction opposite to a rotating direction of said second propeller so as to lift said vehicle in a vertical direction perpendicular to said horizontal plane; and
wherein said steering means comprises a plurality of louvers mounted in said body of said vehicle below said first and second propellers and a single steering control operable by the user for adjusting inclinations of all of said louvers so as to deflect air passing through said louvers, whereby to steer said vehicle.

5,738,303
MECHANISM FOR ARMING, DISARMING AND ACTIVATING AIRPLANE EMERGENCY SLIDE EVACUATION SYSTEMS
Tomio Hamatani, Seattle; David Brockmeyer, Bellevue, both of Wash.; Katsuya Ikeda, Kanuma, and Hisao Kondo, Nagoya, both of Japan, assignors to The Boeing Company, Seattle, Wash.
Filed May 15, 1995, Ser. No. 441,283
Int. Cl.⁶ B64D *25/14;* B64C *1/34*
U.S. Cl. 244—129.1 **18 Claims**



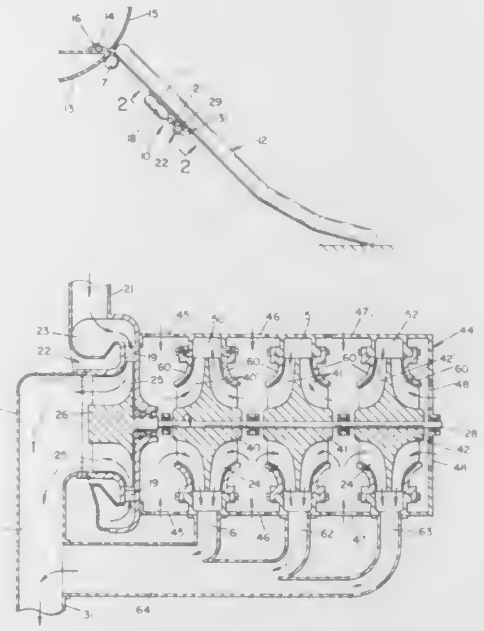
15. A device for indicating whether the emergency evacuation slide system in an airplane is armed, the system including a floor fitting mounted to the fuselage below a door of the airplane, the floor fitting including a pawl rotatable between a locked position and an unlocked position, the pawl being rotated about a horizontal axis extending longitudinally of the airplane to the locked position when the system is armed, and the pawl being rotated about said axis to the unlocked position when the system is unarmed, the device comprising a flag having an arm mountable to the pawl so as to extend inward, away from the door, toward the interior of the airplane to a location a substantial distance inward of the pawl and the floor fitting, the arm being mounted for swinging with the pawl and having an inner end, remote from the pawl and the floor fitting, located and adapted to provide a readily visible indication of the position of the pawl, wherein the flag's position visually indicates whether the system is armed.

5,738,304
EMERGENCY AIRCRAFT FUEL SYSTEM
John B. Tavano, 28 Edgewood Dr., Torrington, Conn. 06790
Filed Jan. 10, 1997, Ser. No. 780,944
Int. Cl.⁶ B64D *37/32*
U.S. Cl. 244—135 B **6 Claims**



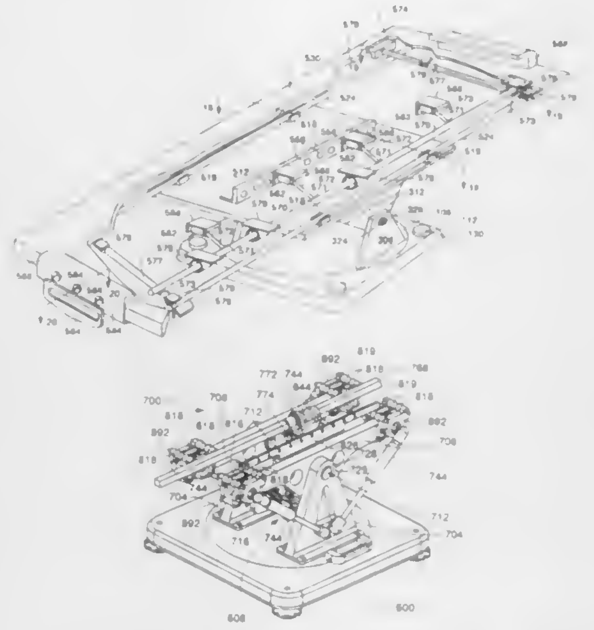
1. In an aircraft fuel system, the improvement comprising:
a fuel tank having an envelope surrounding the tank, and said envelope being in communication with a source of gas under pressure,
a fuel line for providing fuel from the tank to an aircraft engine,
a valve located adjacent the fuel tank for selectively interrupting the fuel flow from the tank into said fuel line, said valve being normally closed, and said valve being opened in response to a gas under pressure supplied to said valve,
a source of gas under pressure provided both to said envelope and to said valve, whereby loss of gas pressure in said envelope results in closing of the valve and isolation of the fuel in the tank from said fuel line.

5,738,305
INFLATION SYSTEM
Christopher Brian Pruitt, Phoenix, Ariz., assignor to The B.F. Goodrich Company, Akron, Ohio
Filed Feb. 22, 1995, Ser. No. 393,101
Int. Cl.⁶ A62B *1/20;* B65G *11/10*
U.S. Cl. 244—137.2 **18 Claims**



1. An inflation system comprising an inflatable foldable escape slide for use in the evacuation of passengers in an emergency from an aircraft, an opening in said escape slide, a bottle member containing pressurized fluids mounted on said escape slide, said bottle member having a discharge opening, a housing mounted on said escape slide, a bottle member containing pressurized fluids mounted on said escape slide, said bottle member having a discharge opening, a housing mounted on said escape slide, a turbine means keyed to a central shaft for rotation in said housing, said housing cooperative with said turbine means to provide an inlet means and an outlet means for said turbine means, said outlet means being connected to said opening of said escape slide, said inlet means operatively connected to said discharge opening of said bottle member, centrifugal compressor means keyed to said central shaft for rotation in said housing, said housing having air intake means communicating with said compressor means, said housing having passageway means spaced from said inlet means of said turbine means operatively interconnecting the pressurized output of said compressor means to said opening to direct pressurized air to said escape slide to augment the pressurized fluids from said outlet means, and said turbine means via said central shaft drives said compressor means upon actuation of said bottle member to release pressurized fluids therefrom.

5,738,306
ARTICULATING PATIENT LOADING SYSTEM AND TRANSPORT DEVICE FOR AIRCRAFT
Jeff M. Moss, Golden, and Roger R. B. Thibault, Colorado Springs, both of Colo., assignors to Air Methods Corporation, Englewood, Colo.
Continuation-in-part of Ser. No. 542,598, Oct. 13, 1995. This application May 6, 1996, Ser. No. 643,399
Int. Cl.⁶ B64D *9/00;* A61G *1/06*
U.S. Cl. 244—137.2 **21 Claims**



1. A patient system and transport device for aircraft comprising:
a base assembly mountable to the floor of an aircraft;
a platform assembly for supportably receiving a patient thereupon; and
interconnecting assembly for portably interconnecting said platform assembly to said base assembly and for selectably tilting said platform assembly relative to said base assembly, wherein said interconnecting assembly includes a means for selectively tilting said platform assembly relative to said base assembly to one of a plurality of tilt positions, said means for selectively tilting comprising a retractable locking subassembly for locking said platform assembly in at least one of said plurality of tilt positions relative to said base assembly

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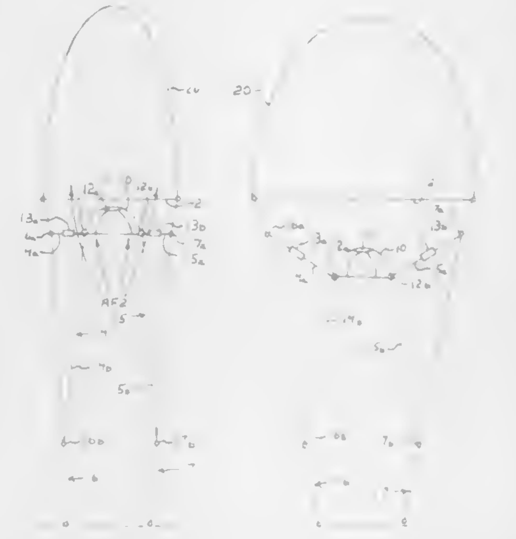
5,738,307
PARACHUTE WITH SLIDABLE AUXILIARY CANOPY FOR OPENING ASSIST
David B. Webb, Fort Erie, Canada, assignor to Irvin Industries Canada, Ltd., Fort Erie, Canada
Filed Mar. 22, 1996, Ser. No. 622,451
Int. Cl.⁶ B64D *17/36*
U.S. Cl. 244—152 **22 Claims**



1. In a parachute, the combination comprising a main canopy arranged generally about a central axis and having a perimeter defining a mouth; a plurality of suspension lines extending from about the perimeter of the main canopy downwardly toward a load when the main canopy is fully extended; an auxiliary canopy, arranged about a central axis of the mouth of said main canopy, comprising a plurality of slider means spaced along about its perimeter; a plurality of restrictor lines, spaced to engage slider means, a restrictor line being connected at an upper end to an

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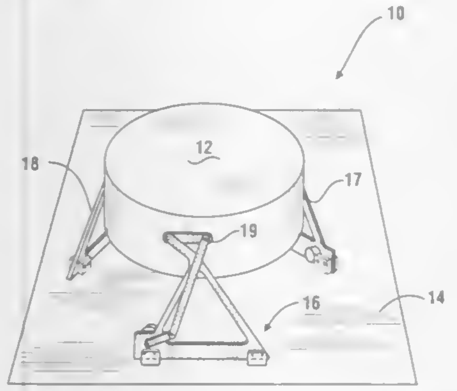
upper part of a corresponding suspension line and at a lower end to a lower part of said corresponding suspension line; stop means, arranged along an upper portion of a restrictor line; wherein said stop means, is spaced from the perimeter of the mouth of said main canopy and restrains said slider means from sliding to said perimeter of said mouth of said main canopy.

5,738,308
ION THRUSTER SUPPORT AND POSITIONING SYSTEM

Thomas W. Haag, N. Olmsted, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 24, 1996, Ser. No. 695,685
Int. Cl.^{6} B64G *1/26*
U.S. Cl. 244—169 **23 Claims**



1 A system for supporting and selectively positioning an ion thruster on a spacecraft, comprising:

a frame in operative connection with said spacecraft;

a thruster attachment pin member, wherein the thruster attachment pin member is in operative connection with a body of said thruster and extends in a generally radially outward direction relative to said body in the area of the ion optics of said ion thruster;

a stabilizer member, said stabilizer member having a first end and a second end, wherein said first end is rotatably mounted in operative connection with said frame, and wherein said second end is rotatably mounted in operative connection with said thruster attachment pin member;

a movable actuator member, wherein said actuator member includes a distal end, and wherein said distal end is in rotatably movable connection with said thruster attachment pin member; and

an actuator in operative connection with said actuator member, and wherein said actuator is operative to selectively move said actuator member, whereby said actuator selectively moves said stabilizer member and said thruster attachment pin member to position said thruster relative to said spacecraft.

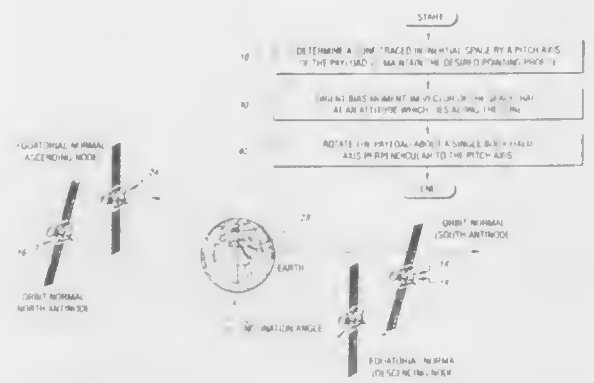
5,738,309
SINGLE AXIS CORRECTION FOR ORBIT INCLINATION

Richard A. Fowell, Culver City, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Feb. 28, 1996, Ser. No. 608,238
Int. Cl.^{6} B64G *1/28; 1/36*
U.S. Cl. 244—171 **18 Claims**

1 A method of orienting a payload of an orbiting spacecraft including a bias momentum storage means to maintain a desired pointing profile other than at Earth center in a presence of orbit inclination, the method comprising the steps of:

determining a cone which is traced in inertial space by a pitch axis of the payload in order to maintain the desired pointing profile throughout an orbit;



orienting a bias momentum vector of the spacecraft at an attitude which lies in the cone and outside of a plane spanned by an orbit normal vector and an equatorial normal vector; and

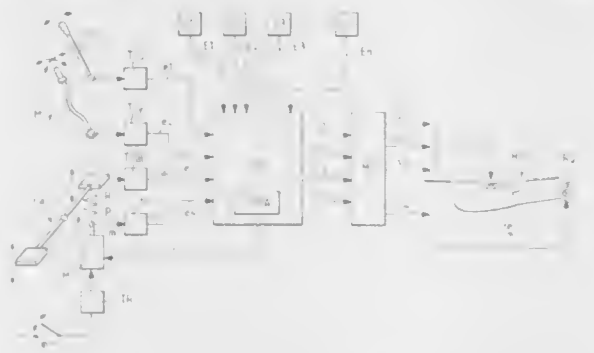
varying an angle between the payload pitch axis and the bias momentum vector about a single body-fixed axis skewed in a roll-yaw plane by an angle variation means to maintain the payload pitch axis in the desired pointing profile;

wherein the attitude of the bias momentum vector and the single body-fixed axis are chosen to be consistent with maintaining the desired pointing profile.

5,738,310
RUDDER BAR SYSTEM WITH FORCE GRADIENT FOR A HELICOPTER

Philippe Alain Jean Rollet, Velaux, and Jacques Serge Louis Bellera, Traverse Notre-Dame, both of France, assignors to Eurocopter France, France

Filed Dec. 22, 1995, Ser. No. 577,131
Claims priority, application France, Dec. 22, 1994, 94 15465
Int. Cl.^{6} B64C *13/06; 13/08*
U.S. Cl. 244—195 **11 Claims**



1. A rudder bar system for a helicopter which has a yaw axis, the helicopter comprising a control device on the yaw axis for piloting the helicopter in yaw and sensor means for continuously delivering parameters representative of a current flight status of said helicopter, said system comprising:

a rudder bar, receiving an actuation from a pilot, for controlling said control device on the yaw axis to pilot the helicopter in said yaw;

elastic means for exerting an actuation on the rudder bar counter to the actuation exerted by said pilot on said rudder bar;

a movable member attached to the elastic means at an attachment point;

a motor for displacing the movable member;

first position sensing means for sensing a position of the rudder bar and for outputting a first electrical signal indicating the position of the rudder bar;

second position sensing means for sensing a position of the attachment point and for outputting a second electrical signal indicating the position of the attachment point;

difference calculating means for calculating a difference between the first electrical signal and the second electrical signal;

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link means for supplying a signal representing said difference to said motor to control the motor to displace the movable member to cancel out the actuation exerted on the rudder bar by the elastic means;

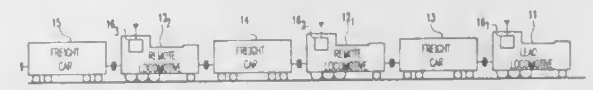
a first controllable switch for selectively opening and closing so as to prevent said link means from supplying the signal representing the difference to the motor when the first controllable switch is open and to allow said link means to supply the signal representing the difference to the motor when the first controllable switch is closed, and

switch controlling means, receiving the parameters representative of the current flight status from said sensor means, for controlling the first controllable switch to open or close in accordance with the parameters.

5,738,311
DISTRIBUTED POWER TRAIN SEPARATION DETECTION

Emilio A. Fernandez, Rockville, Md., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Feb. 13, 1997, Ser. No. 799,882
Int. Cl.^{6} B61L *3/00*
U.S. Cl. 246—168 **8 Claims**



1 A train separation detector for a distributed power system in a railroad train having multiple locomotives separated by a plurality of freight cars, said train separation detector comprising:

a first communication and control unit in a lead locomotive of the railroad train, said first communication and control unit including a first microprocessor control circuit and a first transceiver, the first microprocessor control circuit periodically computing speed for the lead locomotive and the first transceiver periodically receiving status messages from remote locomotives; and

a second communication and control unit in a remote locomotive of the railroad train, the second communication and control unit including a second microprocessor control circuit and a second transceiver, the second microprocessor control circuit periodically computing speed for the remote locomotive and the second transceiver periodically transmitting computed speed of the remote locomotive as a part of status messages to the first transceiver, the first microprocessor control circuit of the first communication and control unit comparing a speed received in a status message from the remote locomotive to the computed speed of the lead locomotive and, if the comparison is not within predetermined limits, declaring a train separation.

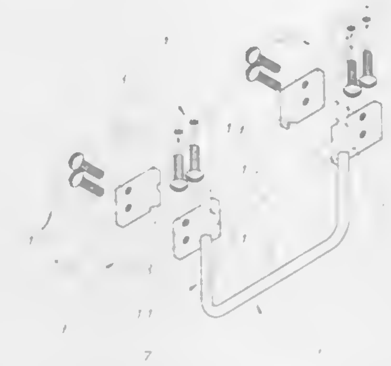
5,738,312
"D" RING ADAPTABLE EXTENDER

Mark A. Koch, 185 Concord Plz., St. Louis, Mo. 63128

Filed Nov. 15, 1995, Ser. No. 559,293
Int. Cl.^{6} F16L *3/22*
U.S. Cl. 248—68.1 **15 Claims**

1. A "D" ring adaptable extender for substantially expanding the capacity of a conventional "D" ring comprising:

a substantially U-shaped member, having an open end, a closed end, and a mounting system, said mounting system comprising one or more clamping first halves, rigidly attached to said open end, and one or more clamping second halves removably rigidly attached to said one or more clamping first halves, whereby said removable rigid attachment of said one or more clamping first halves and said one or more clamping second halves are capable of clamping and securing a conventional "D" ring closed end; and

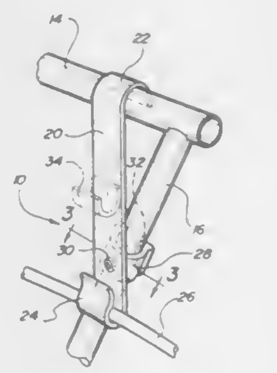


said one or more clamping first halves and said one or more clamping second halves having one or more recessed portions which follow a substantially ninety degree path and are capable of contacting said conventional "D" ring.

5,738,313
CABLE HOLDER

Alvin F. Rinke, 9124 Lambs, Goodells, Mich. 48027

Filed Feb. 22, 1996, Ser. No. 605,354
Int. Cl.^{6} F16L *3/08*
U.S. Cl. 248—74.2 **8 Claims**



1. For use in conjunction with a boat having a deck hand rail and at least one support rail extending downwardly from and supporting the hand rail, a cable holder comprising:

an elongated body having a first end and a second end, said body having a first side and a second side, said first side being opposite from said second side,

a first hook formed on said first end of said body so that said first hook extends outwardly from said first side of said body, said first hook adapted to receive the top rail,

a second hook on said second end of said body so that second hook extends outwardly from said second side of said body, said hook adapted to receive and support at least one electric cable,

a third hook secured to a midpoint of said body, said third hook extending outwardly from said first side of said body, said third hook adapted to releasably engage and lock onto the support rail;

a fourth hook secured to a midpoint of said body at a position spaced from said second hook, and

wherein said fourth hook is on a side of said body opposite from said third hook.

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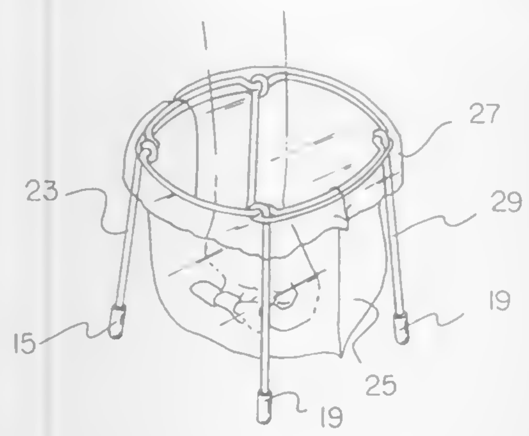
5,738,314
COLLAPSIBLE BAG HOLDER APPARATUS

Jodi Davis, 240 E. Robindale Rd., Las Vegas, Nev. 89123
Filed May 16, 1996, Ser. No. 648,727
Int. Cl.⁶ A63B *55/04*
U.S. Cl. 248—97 11 Claims

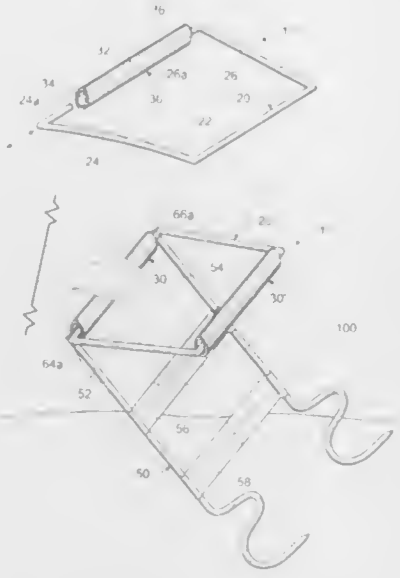


1. A collapsible bag holder apparatus, comprising:
an annular fence member,
first and second leg members,
hinge members connected between each of said leg members and said fence member, wherein said hinge members permit each of said leg members to be oriented with respect to said fence member in either an erect orientation or a collapsed orientation,
first and second angle-control members for contacting a portion of said annular fence member for limiting an orientation angle between said fence member and said leg members when said leg members are in said erect orientation,
wherein said annular fence member includes indent portions for receiving said hinge members and for defining said portion of said annular fence member contacted by each said angle-control member, respectively,
wherein said first and second leg members each include respectively a first leg portion, a second leg portion, and a corresponding angle-control member joined integrally between said first leg portion and said second leg portion by means of a first hinge member and a second hinge member respectively, and
wherein said first and second hinge members each includes a curved portion connected between a corresponding leg portion and said angle-control member, said curved portion being received at least partially within a corresponding indent portion of said fence member.

5,738,315
PORTABLE HOLDER FOR A REFUSE BAG

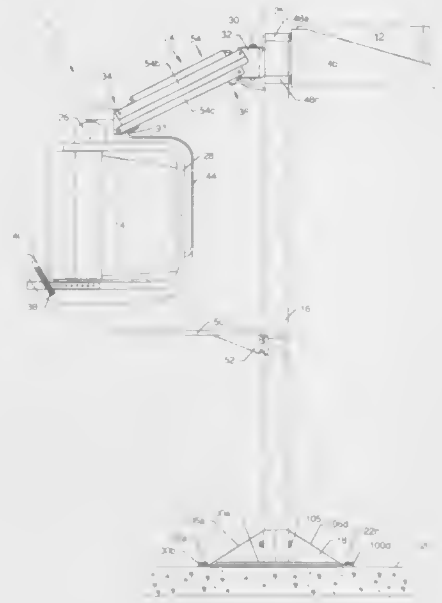
John E. Kent, Jr., 900 Siskiyou Blvd. #A-3, Medford, Oreg. 97504
Filed Jan. 13, 1997, Ser. No. 782,602
Int. Cl.⁶ A63B *55/00*
U.S. Cl. 248—97 17 Claims

1. A holder for a holding a refuse bag, the holder comprising
a tube having opposite first and second openings;
a C-shaped rod having facing first and second ends, the ends being deflectable and removably inserted into the openings in said tube, whereby said tube and said rod form a perimeter structure, and the bag can be inserted into, folded over, and held by the perimeter structure formed by said rod and said tube; and
a U-shaped rod having a middle portion and a pair of oppositely-extending legs, said middle portion being captured within said tube along with said facing first and second ends of said C-shaped rod.



5,738,316
VERTICAL WORK CENTER

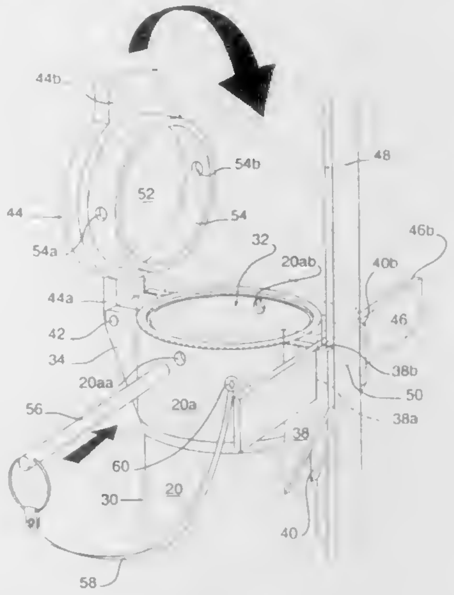
Harry C. Sweere, Minneapolis, and Donald M. Voeller, Eagan, both of Minn., assignors to Ergotron, Inc., St. Paul, Minn.
Filed Apr. 3, 1995, Ser. No. 415,660
Int. Cl.⁶ F16L *3/00*
U.S. Cl. 248—123.11 30 Claims



1. A vertical work center comprising:
a. a base,
b. a column connected to said base;
c. a bracket connected to said column;
d. a positionable arm having an upper arm assembly end connected to said bracket and including gas springs connected between approximate ends of said positionable arm; and,
e. a tilt/swivel means with at least one UHMWP washer connected to a lower arm assembly end for supporting a caddy.

5,738,317
RESILIENT SIGNALLING POST ASSEMBLY

Denis Hugron, 1855, rue George, St-Hubert (Québec), Canada, J4T 1W2
Filed Sep. 21, 1995, Ser. No. 531,757
Int. Cl.⁶ F16M *11/00;* **G09F** *15/00*
U.S. Cl. 248—176.1 7 Claims



1. A road sign post assembly comprising:
(a) a tubular post member, having a bottom portion, a top rim circumscribing a mouth, and an inner hollow accessed by said mouth for storing a rigid road sign support frame in a folded condition;
(b) a ground base member, engaged by said post member bottom portion and supporting said post member in generally upright position over ground;
(c) a closure cap member, having an integral tubular section sized to fit into the top mouth of the post member in a closed condition thereof for closing said inner hollow; and
(d) seat means for releasably supporting said rigid road sign support frame in extended condition radially outwardly from said post member and carried by said top rim;
wherein said closure cap member includes an integral abutment member, cooperating with said seat means in said cap member closed condition for preventing accidental release of said road sign support frame from said post member; further including mounting means for mounting said closure cap member to said post member top rim for relative movement of said cap member between an open position, axially clearing the post member mouth, to a closed position, sealing the mouth;
wherein said seat means includes a pair of upwardly opening U-shape members, transversely registering with one another, said U-shape members sized to receive and support a horizontally extending frame part from said road sign support frame.

5,738,318
CHAIR WITH VERTICALLY SHIFTABLE HEIGHT ADJUSTMENT

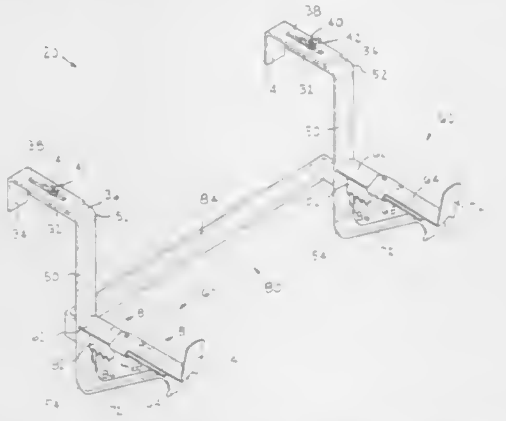
Douglas M. Thole, Grandville, and Larry A. Wilkerson, Comstock Park, both of Mich., assignors to Haworth, Inc., Holland, Mich.
Filed Jun. 7, 1996, Ser. No. 660,459
Int. Cl.⁶ F16M *11/26*
U.S. Cl. 248—188.5 22 Claims

1. In a chair having a base adapted for support on a floor, a seat-back arrangement for accommodating an occupant, and an upright height adjustable pedestal assembly connected vertically between said base and said seat-back arrangement for supporting

the latter and permitting the height thereof to be vertically adjusted, the improvement wherein said height adjustable pedestal assembly comprises:
a first height adjusting mechanism having a predetermined vertical stroke defined between upper and lower stroke limiting positions for permitting the height of the seat-back arrangement to be adjusted to any position along said stroke;
a second height adjusting mechanism defining at least upper and lower vertically-displaced and predefined range positions for said stroke for permitting the vertical length of the pedestal assembly to be respectively increased and decreased, whereby said seat-back arrangement is movable along said stroke of said first height adjustment mechanism when said stroke is disposed in said upper range position and when said stroke is disposed in said lower range position; and
said first and second height adjusting mechanisms being connected vertically in series, and each being independently operable.

5,738,319
ADJUSTABLE PLANTER BOX HANGER

Walter L. Grassi, 2410 Speyside Drive, Mississauga, Ontario, Canada, L5K 1X6
Filed Mar. 10, 1997, Ser. No. 814,581
Int. Cl.⁶ A47B *96/06*
U.S. Cl. 248—215 11 Claims



1. An adjustable planter box hanger for hanging a planter box at a selected angular position from a support structure having front and rear faces adjoined by a top brim portion, said planter box hanger comprising:
left and right hanging support brackets, each having a support structure engaging top portion for engaging said top brim portion of a support structure, and terminating in a downwardly turned lip portion for engaging the rear face of a support structure; a main downwardly depending leg having top and bottom ends and depending from said support struc-

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ture engaging top portion, and an outwardly projecting support arm for receiving a planter box thereon, said outwardly projecting support arm terminating in an upwardly turned lip portion;

an angle adjustment member having left and right bracket engagement means terminating at inner ends that are coterminous with and interconnected by a substantially straight cross member, for engaging, in use, the front face of a support structure; each of said left and right bracket engagement means extending forwardly from said cross member;

wherein said left and right bracket engagement means are engagable forwardly and rearwardly along said bracket engagement means in selectively adjustable relation with the respective left and right hanging support brackets, such that any one of a plurality of fore and aft support positions can be selected, whereby each left and right hanging support bracket is displaced a selected distance from the front face of a support structure, thus permitting said downwardly depending leg to be disposed substantially vertically and said outwardly projecting support arm to be disposed substantially horizontally.

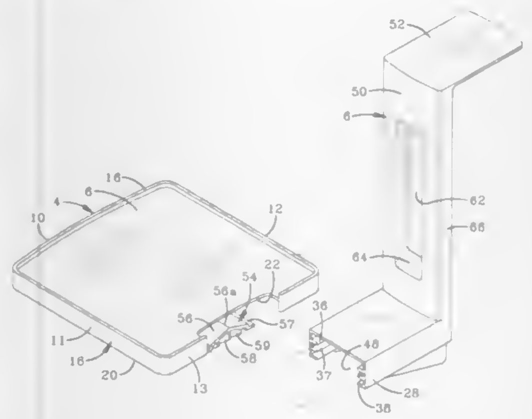
5,738,320
SUPPORT SHELF FOR COMPUTER MONITORS

Brian E. Matos, Canton; James T. Weisburn, Massillon, and Christopher G. Gallagher, Akron, all of Ohio, assignors to Fellowes Manufacturing Company, Itasca, Ill.

Filed May 13, 1996, Ser. No. 645,285

Int. Cl.⁶ A47B *57/04*

U.S. Cl. 248—242 **14 Claims**



9 A support shelf for supporting an item on a monitor, said shelf including:

an upright having a longitudinal axis adapted to extend adjacent to a side of the monitor;

a base mounted on and extending outwardly from the upright and adapted to extend above a work surface; and

attachment means for adjustably mounting the base on the upright, said attachment means includes a pair of spaced walls formed on one of the upright and base and a plurality of spaced tabs extending inwardly toward each other from said walls forming a plurality of spaced channels, and flanges formed on the other of said upright and base and selectively engageable in certain of the channels for positively securing said base in a fixed position on the upright with the base extending at an angular relationship with respect to the longitudinal axis of the upright.

5,738,321
MAGNETIC RECORDING AND REPRODUCING DEVICE

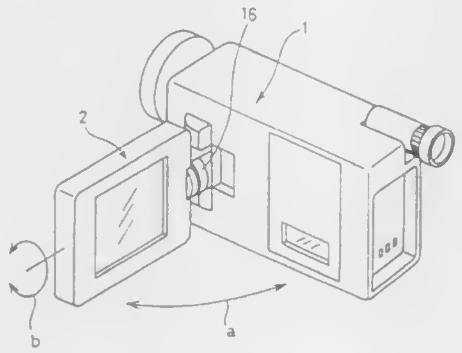
Yoshitada Moriyasu, Katano, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

Filed Apr. 29, 1996, Ser. No. 639,608

Claims priority, application Japan, May 8, 1995, 7-109283

Int. Cl.⁶ E04G *3/00*

U.S. Cl. 248—274.1 **5 Claims**



1 A magnetic recording and reproducing device wherein a second casing containing a monitor image section is supported for rotation relative to a first casing containing a VTR section, said device comprising

a support shaft member centrally hollowed and fixed to the first casing, a rotatable member centrally hollowed and engaged with said support shaft member and fixed to the second casing,

elastic members disposed between said support shaft member and said rotatable member to produce rotation load,

wherein a wire for electrical connection between the VTR section and the monitor image section is packaged such that it is drawn from the second casing through the hollow portions of said rotatable member and support shaft member into the first casing.

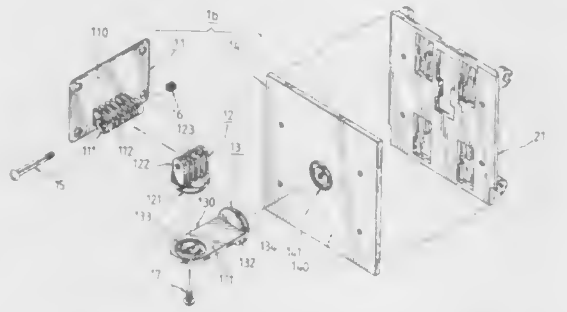
5,738,322
MOUNTING FRAME FOR ARTICLES RACK IN THE CAR

Tzu-ping Huang, 4th Floor, 12-1, Alley 15, Lane 214, Chung Hsin Road, Sec. 4, Sanchung City, Taipei Hsien, Taiwan, 241

Filed Oct. 6, 1995, Ser. No. 539,867

Int. Cl.⁶ E04G *3/00*

U.S. Cl. 248—278.1 **5 Claims**



1. A mounting frame for an article rack in a car, said mounting frame comprising:

a locking plate including a plate body and a hinge shaft sleeve on one side of the plate body,

a first connecting element including a gear at one end thereof and a hinge shaft sleeve on the back of the gear, and the first connecting element and the locking plate being pivotally connected to each other through the hinge shaft sleeve on the first connecting element and the hinge shaft sleeve on the locking plate.

a second connecting element including a lateral T-shaped plate body having an internal gear at one end of the T-shaped plate body and a gear at an outer end of the T-shaped plate body, and the first and second connecting elements being pivotally connected to each other through the internal gear on the second connecting element and the gear on the first connecting element.

a mounting plate for supporting an article to be mounted in the car, a length and a width of said locking plate being less than a length and a width of said mounting plate for mounting the article in the car in a confined mounting space, and

a first mounting frame for mounting articles in the car including the locking plate, the first connecting element and the mounting plate pivotally connected together, and a second mounting frame for mounting articles in the car including the locking plate, the first connecting element, the second connecting element and the mounting plate pivotally connected together.

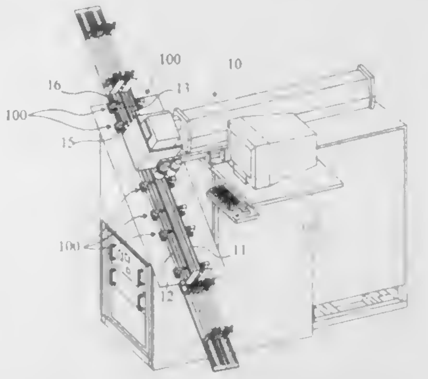
5,738,323
POSITIONER FOR OVERHANGING COMPONENTS

Tony Ibarra, Boise, Id., assignor to Micron Electronics, Inc., Nampa, Id.

Filed Sep. 3, 1996, Ser. No. 707,159

Int. Cl.⁶ A47G *5/00*

U.S. Cl. 248—288.11 **15 Claims**



1. A bracket for holding a first component in an overhanging orientation over a second component which comprises.

a base member being fixable in a stationary position relative to the second component;

a pivotal bracket member being pivotally attached to the base member;

an arm being attached to the pivotal bracket member and extending generally radially outward therefrom, the arm having an attachment point for the first component; and

a pivotal registration mechanism operatively attached between the base member and the pivotal bracket member, the registration mechanism being configured to selectively stop and hold the pivotal bracket member in an angular position with respect to the base member.

5,738,324
MOUNTING ASSEMBLY

James E. Van Hout, Auburn Hills; Lee M. Dziekan, Metamora, and Paul Walker, Rochester Hills, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Nov. 6, 1995, Ser. No. 554,022

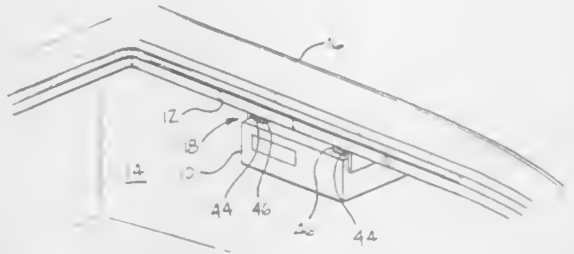
Int. Cl.⁶ A47H *1/10*

U.S. Cl. 248—317 **20 Claims**

1. A mounting assembly for mounting a unit to a structure having a bottom surface, said mounting assembly comprising.

a first plate having a first surface adapted to be secured to the bottom surface of the structure and a second surface opposite said first surface;

a second plate removably securable to said first plate; and



said first plate including an open sided pocket struck out from said first plate and having one opening formed by a cut through said first plate whereby said pocket receives a blade portion of said second plate therein securing said second plate adjacent said first plate to maintain the integrity of the bottom surface of the structure.

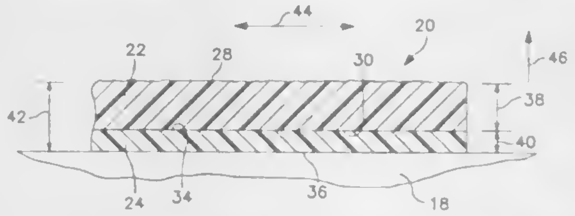
5,738,325
COMPUTER MOUSE PAD APPARATUS

Matthew P. Brown, Shelbyville, Ind., assignor to Williams Industries, Inc.

Filed Jan. 24, 1995, Ser. No. 377,515

Int. Cl.⁶ A47G *23/00*

U.S. Cl. 248—346.01 **12 Claims**



1. An apparatus for facilitating operation of a computer input device which includes a tracking member, the apparatus comprising:

a sheet made from a thermoplastic material and having a textured top surface configured to grip and operate the tracking member and a bottom surface; and

a removable adhesive means located on the bottom surface of the sheet to temporarily secure the sheet to a support surface while permitting relocation and resecurement of the sheet to a support surface.

5,738,326
SEAT STEM POSITIONING STRUCTURE OF A CHAIR FOR DRUMMER

Tsun-Chi Liao, Taichung, Taiwan, assignor to Hwa Shin Musical Instrument Co. Ltd., Taichung, Taiwan

Filed Oct. 16, 1996, Ser. No. 731,479

Int. Cl.⁶ F16M *11/26*

U.S. Cl. 248—405 **3 Claims**

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1 A seat stem positioning structure for a chair, comprising an internally threaded seat stem connector having a stepped tube configuration with an internally threaded top extension tube defining an external step, said internally threaded seat stem connector being fastened to a tubular central shaft and equipped with pivoted leg for supporting the chair on the ground, a threaded seat stem having a screw section threaded into said seat stem connector to hold a seat for sitting, and a clamping device clamped around said seat stem connector and said threaded seat stem to firmly secure them together, wherein:

said seat stem connector comprises two locating notches formed in said step at two opposite locations; and,

said clamping device comprises a first clamping plate, a second clamping plate, a first fastening device, and a second fastening device, each of said first and second clamping plates comprising a respective arched upper section fitting over the periphery of said threaded seat stem, a respective arched lower section fitting over the periphery of the top extension tube of said internally threaded seat stem connector, threads disposed on the respective arched upper sections at inner sides to engage the screw section of said threaded seat stem, a respective downward locating rod extending axially downwardly from each of the respective arched lower sections to engage the locating notches of the step of said internally threaded seat stem connector respectively, a coupling section and a connecting plate extending laterally from the respective arched upper section and arched lower section at opposite sides, and a respective locating hole through the respective connecting plate, the coupling sections of said clamping plates being fastened together by said first fastening device, said second fastening device comprising a screw inserted through the locating holes of the connecting plates of said clamping plates, and a wing nut threaded onto said screw to secure the connecting plates of said clamping plates together.

5,738,327
VEHICULAR SEAT ADJUSTER

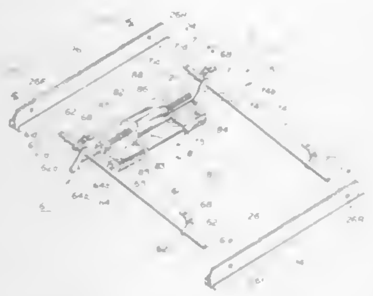
Yuji Tanaka, and Koichi Iwasaki, both of Ayase, Japan, assignors to Ikeda Bussan Co., Ltd., Ayase, Japan

Filed Feb. 22, 1996, Ser. No. 605,740

Claims priority, application Japan, Feb. 28, 1995, 7-063535

Int. Cl.^{6} F16M *13/00*

U.S. Cl. 248—419 **8 Claims**



1. A seat adjuster for a vehicular seat, comprising:

a rail unit for adjustably sliding the vehicular seat in the fore-and-aft direction, said rail unit including a floor rail fixed on a floor of a vehicle body and a seat rail engaged with said floor rail so as to be slidable in the fore-and-aft direction of the vehicle; and

a seat lifting mechanism fixed on said seat rail, said seat lifting mechanism including a lifting drive unit operated according to a request of a seat occupant, a front lifting unit disposed under a front portion of the seat for vertically moving the seat front portion according to the operation of said lifting drive unit, and a rear lifting unit disposed under a rear portion of the seat for vertically moving the seat rear portion according to the operation of said lifting drive unit;

wherein each of said front and rear lifting units includes a shaft member supported to said seat rail and having a supporting link interconnected to the seat, said shaft member having a first stopper integral with said shaft member and a second stopper constituted by a groove portion and a stopping part set to the groove portion, the first stopper being formed by bulging a portion of the shaft member, the stopping part of the second stopper being a stopper ring, a supporting portion of said seat rail being disposed between the bulged portion of the shaft member and the stopper ring

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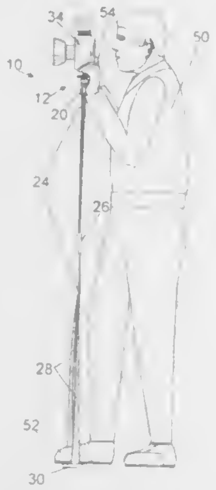
5,738,328
MULTIPLE USE STABILIZER LANYARD WITH STIRRUP

Dave O'Farrill, 530 Pine St., Chico, Calif. 95928

Filed Oct. 27, 1995, Ser. No. 548,965

Int. Cl.^{6} A47B *97/00*

U.S. Cl. 248—500 **4 Claims**



1 A stabilizer lanyard for attaching a piece of equipment to a device having industry standard sized threads in receivers on still cameras, video cameras, firearms, and the like, said stabilizer lanyard comprising:

a strap having a bottom portion formed into a stirrup;

means for adjusting the length of the strap;

means for maintaining an opened looped end on said stirrup;

means for swiveling attachment of said stabilizer lanyard to a receiver on said piece of equipment; and

said means for maintaining the opened looped end further includes a ground plate having a plurality of openings at each end thereof threadably receiving the strap therethrough for holding the stirrup in an open position to sufficiently allow a users' foot to fit into said opened looped end.

5,738,329
CUT TREE OR ARTIFICIAL TREE STAND WITH CHAIN LATCHING MECHANISM

Robert W. Woodard, R.R. 2 Box 94, Frankfort, Kans. 66427

Filed Dec. 3, 1996, Ser. No. 753,960

Int. Cl.^{6} F16M *13/00*

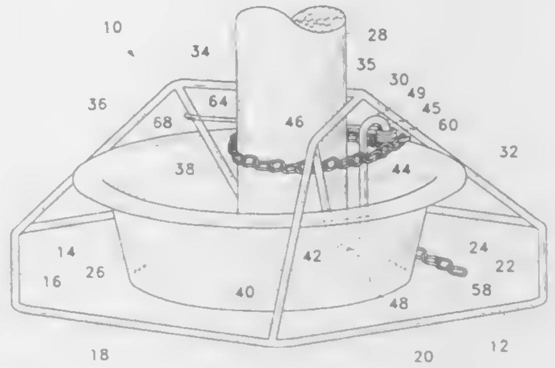
U.S. Cl. 248—523 **20 Claims**

1 A cut tree stand comprising:

a a base comprising a plurality of members connected to form a closed polygon;

b. a plurality of legs extending upwardly and inwardly of a perimeter of said base, each said leg having a lower end connected to said base;

c. a V-shaped cradle attached to an upper end of each said leg, said V-shaped cradle further comprising a plurality of superposed upper and lower cradle arms for contacting the trunk of a cut tree; and



d. means for securing the tree trunk to said cradle connected to said V-shaped cradle

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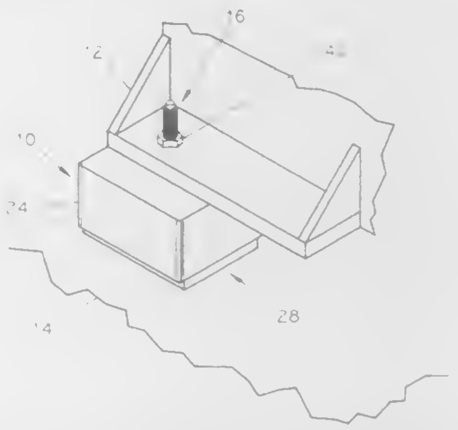
5,738,330
MACHINERY MOUNT WITH DAMPING MEANS

Jerry D. Folkens; Harold E. Reinke, both of DuPage County, and Wayne A. Fetters, Will County, all of Ill., assignors to Vibro/Dynamics Corp., Broadview, Ill.

Filed Dec. 11, 1995, Ser. No. 570,485

Int. Cl.^{6} F16M *11/00*

U.S. Cl. 248—632 **29 Claims**



1 An improved machinery mount for supporting at least a portion of a load on a substructure, comprising (a) a support member adopted to be engaged with at least a portion of said load, (b) a bearing member disposed beneath said support member and spaced therefrom; (c) means for maintaining said spaced relationship between said support member and said bearing member; and (d) damping means for disposition between said bearing member and said substructure, said damping means comprising a plurality of compressible resilient members and a rigid member interposed between said resilient members and being vertically arrayed, the uppermost resilient member disposed adjacent said bearing member and the lowermost resilient member disposed adjacent said substructure.

5,738,331
AIRCRAFT CROSSWIND CONTROL APPARATUS

Paul A. Woolley, 706 Collier Dr., Spearman, Tex. 79081

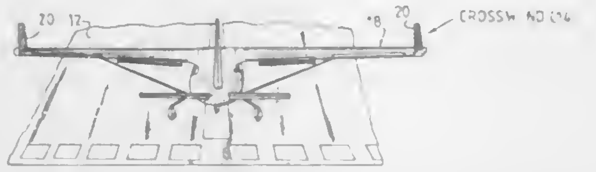
Filed Oct. 21, 1994, Ser. No. 327,437

Int. Cl.^{6} B64C *5/08;5/10;13/16*

U.S. Cl. 244—82 **4 Claims**

1 The method of landing a fixed wing aircraft having a fuselage with a wing member extending laterally therefrom and a rudder assembly mounted at the rear of said fuselage, the method comprising the steps of:

in addition to said rudder assembly mounted at the rear of said fuselage mounting on the outside of said wing member a pair



of identical vertically extending airfoil shaped members on opposite sides of and equidistant from said fuselage for rotational movement of the whole members about a vertical axis located between the leading and trailing edges of said members,

remotely actuating while landing said aircraft in a crosswind said members to rotate about said axes in unison to an angular position which maintains said aircraft in a straight-in approach with the wing member level

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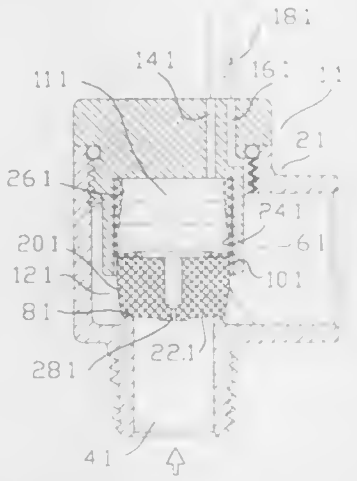
5,738,332
FLOW VALVE OPERATED BY FLOW TRANSFER MEANS WHICH REGULATE SMALL FLOWS OF CONTROL

Sergio Perez Corbalan, Estado 235, of 511, Santiago, Chile

Filed Oct. 20, 1995, Ser. No. 545,890

Int. Cl.^{6} F16K *31/12*

U.S. Cl. 251—45 **32 Claims**



1 A flow valve operated by flow transfer means which regulate small flows of control, comprising

a) a valve body which has an inlet opening of the flow, a valve seat in the internal part of said flow inlet, a flow outlet oriented in a substantially cross way to said flow inlet, a main cavity of constant section, cylindrical preferably, arranged between said inlet and outlet of flow, coaxially oriented to the flow inlet; said main cavity having a ring-shaped broadening in the zone communicating with said flow outlet over the valve seat, said main cavity being in the farthest zone of the flow inlet, communicated with an inlet of control flow, the flow outlet being communicated with one or more outlets of the control flow,

b) an elastomeric body of constant cross section, cylindrical preferably, which is hollow and open in its upper base, being located inside said main cavity, being slightly compressed in axial direction, so that it exerts a force over the valve seat, the elastomeric body being made up of two coaxial zones, where

i) a first sealing zone of said elastomeric body is located at the lower base of said elastomeric body, being formed by a relatively thick mass body with a slightly lower section than the section of the main cavity and with a slightly greater height than the ring-shaped broadening height of the main cavity, so that this zone does not significantly collapse in the axial direction before the working pressures, said lower base having a central hole allowing the transfer of flow from said inlet of the flow to said main cavity and vice

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versa; said lower surface of said first sealing zone having a slightly greater section than the section of the valve seat and the upper surface of said zone having a section which is equal to or greater than its lower surface;

ii) a second radial sealing zone of said elastomeric body, which acts on the side walls of said main cavity, being located in the section of the upper, open base of said elastomeric body, being made up of portions of thick wall that do not significantly collapse in axial direction before the working pressures; the external surface of said radial sealing zone being of a geometry which is similar to that of the surface of the main cavity; the open end of the elastomeric body being free to move in the axial direction of said main cavity;

c) a compressing spring located inside said elastomeric body, one of the ends of the spring being in contact with the internal wall of the first sealing zone, and the other end of the spring being in contact with the main cavity of the valve body.

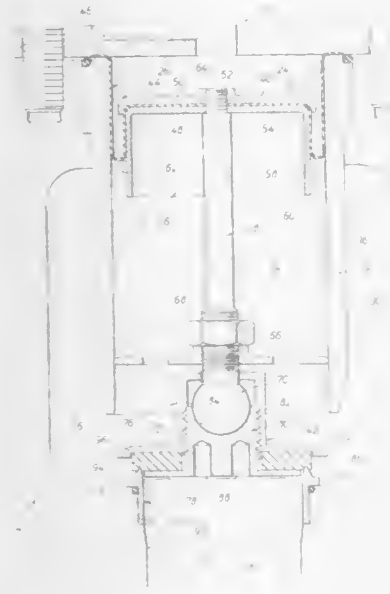
5,738,333
RELIEF VALVE

Michael L. Cognevich, and Neal Murray, both of Hamburg, N.Y., assignors to Flow Safe, Inc., Orchard Park, N.Y.

Filed Jun. 13, 1996, Ser. No. 662,691

Int. Cl.⁶ F16K *31/45*

U.S. Cl. 251—61.2 **4 Claims**



1. A pilot operated relief valve for operation at low fluid pressures comprising:

a valve body having a main valve chamber, an outlet, and a fluid inlet;

a fixed annular seat about said fluid inlet,

a separate cylindrical housing mounted on said body within said valve chamber and having an axially extending bore therethrough;

an elongated valve stem mounted within said housing along the longitudinal axis of said housing having a diaphragm assembly mounted on its outer end and a seat assembly mounted at its opposite inner end, said seat assembly including an inner seat member for seating on said fixed seat about said fluid inlet in sealing relation in a closed position; said diaphragm assembly including inner and outer sandwiching members secured to the outer end of said stem for termination of said stem thereat and a diaphragm secured between said sandwiching members; said inner sandwiching member defining a piston member mounted within said housing for reciprocal movement;

an outer cover plate removably mounted on said valve body over said valve chamber and said cylindrical housing to removably secure said housing within said valve body;

a dome chamber between said outer cover plate and said piston member; and

a pilot valve in fluid communication with said dome chamber for the exhaust and supply of fluid to said dome chamber for effecting movement of said piston member;

said diaphragm having an outer marginal portion thereof secured between said cover plate and said cylindrical housing and including an unsecured portion between said sandwiching members and securement of said outer marginal portion by said cover plate and said housing, said unsecured portion comprising a rolling loop which follows an inner surface of said housing upon movement of said valve stem and piston member between open and closed positions of said seat assembly for assisting in guiding said valve stem during movement thereof; and

a circular plate guide threaded on said valve stem between said diaphragm assembly and said seat assembly for movement therewith, said plate guide having a diameter greater than said piston member and received within said cylindrical housing for contacting an inner surface of said cylindrical housing during movement of said valve stem to guide said valve stem and piston member in an axial direction.

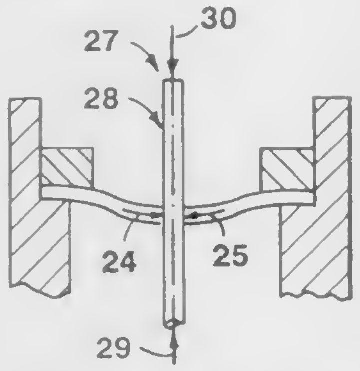
5,738,334
DIAPHRAGM FLOW CONTROL ASSEMBLY

Oscar Proni, Hollywood, Fla., assignor to Safegrip Inc., Tequesta, Fla.

Continuation-in-part of Ser. No. 139,126, Oct. 21, 1993, Pat. No. 5,580,030. This application May 10, 1996, Ser. No. 644,864

Int. Cl.⁶ F16L *37/28*

U.S. Cl. 251—149.1 **11 Claims**



1. A diaphragm fluid flow control assembly, comprising:

a conduit having an elongated channel centrally disposed about a longitudinal axis and having a shoulder, located at a predetermined distance from an end of said conduit, protruding from an internal surface of said conduit and encircling the longitudinal axis;

a perforated circular diaphragm disk having a preformed hole therethrough, which is inserted into said conduit and held in a position adjoining said shoulder within said conduit so that said diaphragm disk is squeezed against said shoulder along a periphery of said diaphragm disk so as to form a fluid-tight seal with said shoulder along the periphery of said diaphragm disk, said diaphragm disk having a diameter prior to insertion into said conduit greater than the largest internal diameter of said conduit;

a ring, secured within said conduit and encircling the longitudinal axis, dimensioned so as to overlay the periphery of said diaphragm disk and squeeze the edge of said diaphragm disk against said shoulder of said conduit; and

a tube or hollow needle having a cylindrical outer surface inserted through the pre-formed hole in said diaphragm disk, the opening of said tube or needle forming a plane substantially at a 90 degree angle to the outer surface of said tube or hollow needle, wherein the compressive forces cause the pre-formed hole in said diaphragm disk to form a fluid-tight sealing engagement with said tube or hollow needle inserted through said diaphragm disk.

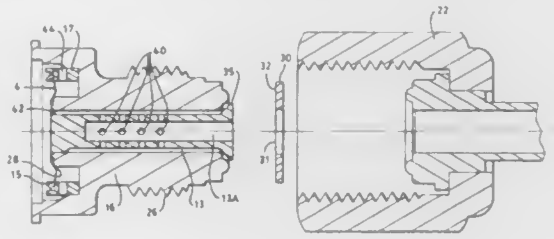
5,738,335
APPARATUS FOR ISOLATING AND CONTAINING REACTIVE MEDIUM

Roger R. Coutu, Hooksett, N.H., assignor to Millipore Corporation, Bedford, Mass.

Filed Sep. 10, 1996, Ser. No. 711,525

Int. Cl.⁶ F16L *29/00*

U.S. Cl. 251—149.4 **12 Claims**



1. Apparatus for isolating and containing gas reactive materials comprising:

a housing having an inlet and an outlet fitting adapted for connecting said housing to a supply of gas;

a gas reactive material contained within said housing;

said inlet and said outlet fitting each including actuator means connected to a preloaded metal diaphragm within said housing, said diaphragm being biased to engage a metal seat when said apparatus is not connected to said gas supply to seal said reactive material from the ambient environment;

said actuator means including a gas passageway for fluid communication between said housing and said gas supply, and said actuator means extending beyond said fitting at an end remote from said housing such that when said apparatus is connected to said gas supply said actuator means is displaced with sufficient force to overcome the preloaded force of said diaphragm thereby exposing said gas supply to said reactive material.

5,738,336
OILFIELD VALVE

Devereux J. McKnight, 1471 Old Spanish Trail, Broussard, La. 70518; Brent H. McKnight, 4424 Hannigan, Corpus Christi, Tex. 78408, and James A. Cunningham, Patterson, La., assignors to Devereux J. McKnight, and Brent H. McKnight, by James A. Cunningham

Division of Ser. No. 615,108, Mar. 14, 1996, Pat. No. 5,628,493, which is a division of Ser. No. 328,831, Oct. 24, 1994, Pat. No. 5,529,285, which is a division of Ser. No. 906,055, Jun. 29, 1992, Pat. No. 5,246,203. This application Apr. 9, 1997, Ser. No. 835,615

Int. Cl.⁶ F16K *37/00*

U.S. Cl. 251—304 **3 Claims**

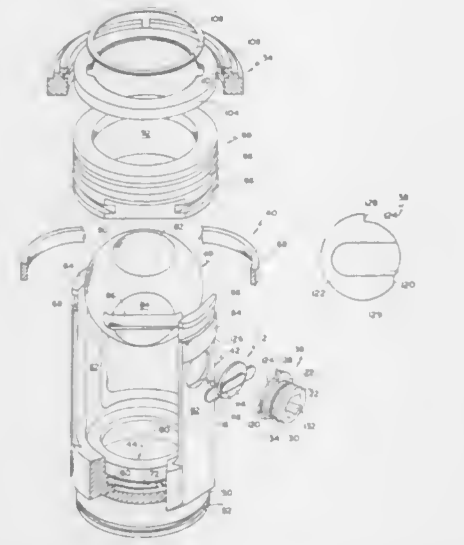
1. A valve comprising

a housing having an axial passage therethrough, a lateral passage opening into the axial passage and first and second indicia designating whether the valve is open or closed;

a valve mechanism including a lower valve seat, an upper valve seat, a valve ball abutting the lower and upper valve seats, and a connector engaging the valve ball for rotating the valve ball;

an actuator extending through the lateral passage having an indicator for pointing at the first or at the second indicia; and

a tongue and groove connector attaching the actuator to the connector, the tongue comprising an elongate rib and the groove comprising a notch having only one open end for receiving the rib from only one direction.



5,738,337
POPPET DAMPER IN EXHAUST GAS DUCT

Satoshi Yamazaki, Akashi, Japan, assignor to ABB Fläkt AB, Stockholm, Sweden

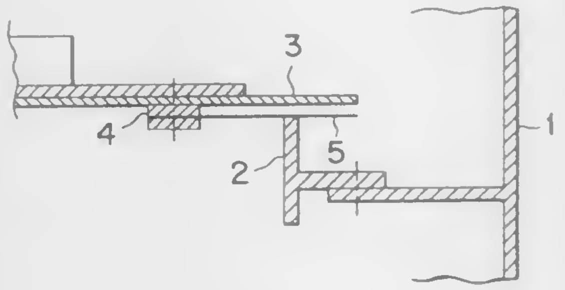
PCT No. PCT/SE95/01086, § 371 Date Apr. 15, 1997, § 102(e) Date Apr. 15, 1997, PCT Pub. No. WO96/10144, PCT Pub. Date Apr. 4, 1996

PCT Filed Sep. 25, 1995, Ser. No. 809,780

Claims priority, application Japan, Sep. 28, 1994, 6-257295

Int. Cl.⁶ F16K *1/32*

U.S. Cl. 251—333 **9 Claims**



1. A poppet damper comprising:

a damper seat;

a poppet plate for controlling exhaust gas flow by adjustment of a gap between said poppet plate and said damper seat,

driving means for reciprocatingly driving said poppet plate;

a seal plate mounted to said poppet plate, said seal plate being separated by a gap of predetermined size from said poppet plate, said seal plate being in contact with said damper seat when said poppet damper is closed; and

a spacer interposed between said poppet plate and said seal plate to separate said seal plate from said poppet plate by said gap of predetermined size,

said seal plate and said poppet plate both having larger outside diameters than said spacer.

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5,738,338

INSTALLING AN OPTICAL FIBRE LINE IN A DUCT

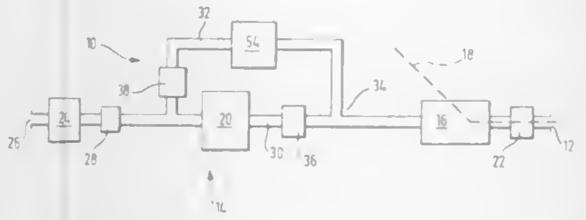
Ralph Sutehall, Gwent, Wales, assignor to Pirelli General plc, England

Filed Oct. 15, 1996, Ser. No. 729,871

Claims priority, application United Kingdom, Oct. 24, 1995, 9521776

Int. Cl.^{6} B65H *59/00*

U.S. Cl. 254—134.4 **16 Claims**



1 A method of installing an optical fibre line in a duct comprising propelling the line along the duct by gas flow, adding moisture to said gas upstream of said duct, monitoring the moisture content of said gas entering said duct, and adjusting said moisture content such that it is within a predetermined range

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5,738,339

ROPE TRACTION DEVICE WITH CONNECTED LOCKING UNITS

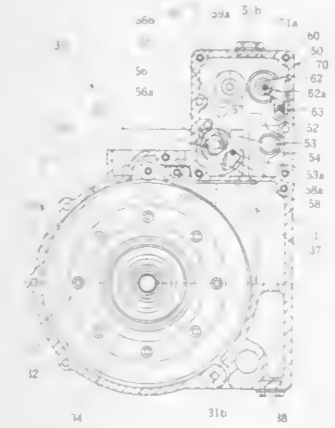
Shizuka Kuryu, Tokyo, Japan, assignor to Nihon Biso Co., Ltd., Tokyo, Japan

Filed Mar. 21, 1996, Ser. No. 619,406

Claims priority, application Japan, Mar. 30, 1995, 7-097853

Int. Cl.^{6} B66D *1/48*

U.S. Cl. 254—267 **1 Claim**



1 A rope traction device having a sheave (**32**) which is driven and rotated to cause a traction rope (**5**) to be wound on the sheave and said rope traction device thereby moving along the traction rope, said rope traction device comprising:

a traction rope inlet (5l*b*) for feeding in the traction rope;

a traction rope outlet (**38**) for feeding out the traction rope,

traction rope locking means (**50**) provided in the vicinity of said traction rope inlet (**51***b*) for detecting increase in relative moving speed of the traction rope (**5**) and thereupon locking the traction rope;.

auxiliary rope locking means (**70**) provided in the vicinity of said traction rope inlet for detecting relative moving speed of an auxiliary rode (**8**) suspended from above the rope traction device and thereupon locking the auxiliary rope;

connecting means (**80**) connecting said traction rope locking means (**50**) with said auxiliary rope locking means (**70**) in such a manner that said traction rope locking means is adapted to detect an increase in the relative moving speeds of the respective ropes independently from each other and both of said locking means are brought to a locking state when either one of said locking means has detected increase in the relative moving speed, wherein

each of said traction rope locking means and said auxiliary rope locking means comprises:

a case (**51**);

a speed detection roller (**59**) having a rotary shaft (**59***a*) and being rotatably supported on such case (**51**), said speed detection roller being rotated by said traction rope or said auxiliary rope;

a governor (**64**) mounted on said rotary shaft of said speed detection roller (**59**) and having a weight (**64***b*) which is pivotably supported on said governor and is pivoted radially outwardly when the relative moving speed of said traction rope (**5**) or said auxiliary rope (**8**) has exceeded a predetermined value;

a lever (**65**) having a rotary shaft (**65***b*) being rotatably supported on said case (**51**) with one end portion thereof becoming engaged by said weight (**64***b*) of said governor when said weight is rotated radially outwardly and the other end portion thereof having an engaging portion (**65***a*);

a cam shaft (**56**) being rotatably supported on said case and having an engaging portion (**56***a*) with which said engaging portion (**65***a*) of said lever (**65**) can be engaged when said lever is rotated by said weight (**64***b*);

a stationary wedge member (**52**) provided below said speed detection roller (**59**);

a movable wedge member (**53**) provided below said speed detection roller (**59**) and having a cam surface which is in contact with said cam shaft (**56**), said movable wedge member (**53**) being moved toward said stationary wedge member (**52**) when said cam shaft (**56**), is rotated by said lever (**65**), said traction rope or said auxiliary rope running between said stationary wedge member and said movable wedge member when said movable wedge member is not moved toward said stationary wedge member and being clamped and locked by said movable wedge member and said stationary wedge member when said movable wedge member is moved toward said stationary member; and

said connecting means (**80**) comprises:

engaging portion (**81**) provided in opposite end portion of said rotary shafts (**65***b*) of said levers (**65**) in said traction rope locking means (**5O**) and said auxiliary rode locking means (**70**), wherein said connecting means further comprises:

an axially extending groove formed in each of said cam shafts (**56**) of said traction rope locking means (**50**) and said auxiliary rope locking means (**70**); and

an operation rod (**82**, **69**) mounted on said case (**51**) axially slidably and having a length extending though the cam shafts (**56**) and also having pins (**82***a*, **69***a*) which can engage with said grooves (**56***b*) of said locking means (**50**, **70**); and

spring means for urging said operation rod (**82**, **69**) in a direction in which said pins (**82***a*, **69***a*) of said operation rod are out of engagement with said grooves (**56***b*),

said pins (**82***a*, **69***a*) being out of engagement with said grooves (**56***b*) of said cam shafts (**56**) when said operation rod (**82**) is not operated and said pins are engaged with said grooves when said operation rod is operated whereby cam shafts can be rotated by operating said operating shaft for bringing said traction rope locking means (**50**) and said auxiliary rope locking means (**70**) to a reset state simultaneously.

5,738,340

STIRRUP DEVICE AND METHOD

Charles U. Brantner, R.R. 1, Moorhead, Minn. 56560

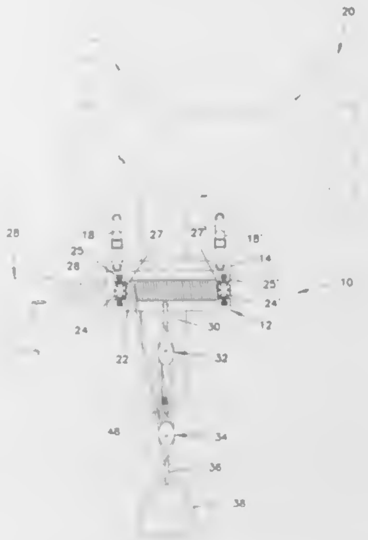
Filed Sep. 20, 1996, Ser. No. 717,089

Int. Cl.^{6} B66D *1/00*

U.S. Cl. 254—337 **17 Claims**

1 A stirrup device for lifting a person comprising

a mounting piece;



a drum rotatably connected to the mounting piece;

a pulley system;

a cable engaging the drum and the pulley system;

a stirrup supported by the cable and pulley arrangement; and

a motor configured and arranged to rotate the drum.

5,738,341

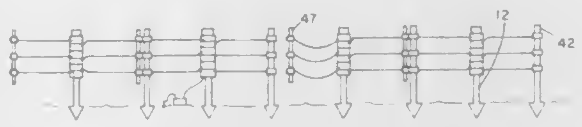
RETRACTABLE ELECTRIC FENCE SYSTEM

Joann R. Lease, 805 Barts Church Rd., Hanover, Pa. 17331

Filed Apr. 3, 1997, Ser. No. 825,754

Int. Cl.^{6} A01K *3/00*; E04H *17/14*

U.S. Cl. 256—10 **2 Claims**



2. A retractable electric fence system comprising:

a plurality of primary posts;

a plurality of first secondary posts each comprising an elongated rectangular plate with a top end and a bottom end, the bottom end adapted to be secured vertically in the ground, each first secondary post having a plurality of spaced female connectors coupled thereto, wherein the female connectors are electrically connected via at least one wire to a primary post; and

a plurality of second secondary posts each comprising an elongated rectangular plate with a top free end and a bottom free end, each second secondary post having a plurality of spaced male connectors coupled thereto, wherein the male connectors are electrically connected via at least one wire to a primary post;

whereby the primary posts are planted in the ground and the secondary posts are situated therebetween with the female conductors releasably coupled with the male conductors for providing a closed periphery and a closed circuit through which current may flow;

wherein the first and second secondary posts are situated in a close spaced parallel relationship when interconnected.

5,738,342

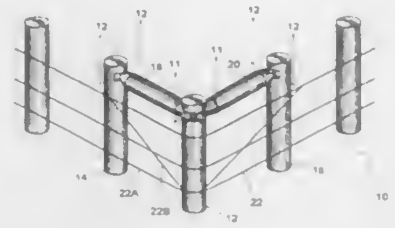
FENCE CORNER ARRANGEMENT WITH INTERLOCKING POSTS AND BRACES

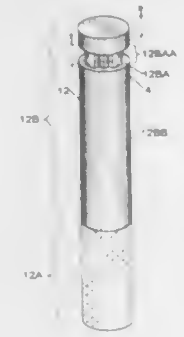
Lonnie Van Winkle, 2116 F St., Ord, Nebr. 68862

Filed Apr. 15, 1996, Ser. No. 631,998

Int. Cl.^{6} E04H *17/14*

U.S. Cl. 256—65 **13 Claims**





1 A fence corner arrangement, comprising:

a) a corner post having a corner post upper portion with a corner post upper portion perimeter, said corner post upper portion containing a corner post upper portion recess disposed along the entire said corner post upper portion perimeter;

b) at least two corner post tongues disposed within said corner post upper portion recess and projecting towards said corner post upper portion perimeter;

c) a first end post disposed a distance from said corner post and having a first end post upper portion with a first end post upper portion perimeter, said first end post upper portion containing a first end post upper portion recess disposed a part of said first end post upper portion perimeter;

d) a first end post tongue disposed within said first end post upper portion recess and projecting towards said first end post upper portion perimeter in the direction of one of said at least two corner post tongues;

e) a second end post disposed a distance from said corner post and said first end post, said second end post having a second end post upper portion with a second end post upper portion perimeter, said second end post upper portion containing a second end post upper portion recess disposed a part of said second end post upper portion perimeter;

f) a second end post tongue disposed within said second end post upper portion recess and projecting towards said second end post upper portion perimeter in the direction of another of said at least two corner post tongues;

g) a first brace having a first brace first end containing a first brace first end slot interlocking with said first end post tongue, said first brace having a first brace second end containing a first brace second end slot interlocking with said one of said at least two corner post tongues; and

h) a second brace having a second brace first end containing a second brace first end slot interlocking with said second end post tongue, said second brace having a second brace second end containing a second brace second end slot interlocking with said another of said at least two corner post tongues

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5,738,343
VIUBRATION ISOLATING APPARATUS

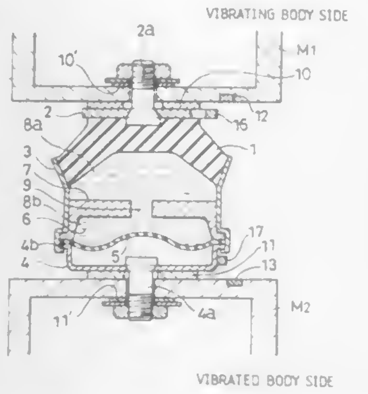
Zenji Nakajima, Aichi, and Yoichi Shimahara, Osaka, both of Japan, assignors to Toyo Tire & Rubber Co., Ltd., Osaka, and Toyota Jidosha Kabushiki Kaisha, Aichi, both of Japan

Continuation of Ser. No. 653,802, May 28, 1996, abandoned, which is a continuation of Ser. No. 406,812, Mar. 17, 1995, abandoned, which is a continuation of Ser. No. 78,489, Jun. 16, 1993, abandoned, which is a continuation of Ser. No. 677,541, Mar. 29, 1991, abandoned. This application Jun. 27, 1997, Ser. No. 884,313

Claims priority, application Japan, Apr. 3, 1990, 2-89576

Int. Cl.^{6} B60G *13/00*

U.S. Cl. 267—219 10 Claims



1. A vibration isolating apparatus to be interposed between a vibrating body and a vibrated body, comprising:

a vibration isolating device;

a piezoelectric insert;

said piezoelectric insert being interposed between and in substantially inelastic engagement with said vibration isolating device and at least one of the vibrating body and the vibrated body;

a fastener means for coupling together said vibration isolating device and said at least one of the vibrating body and the vibrated body, said fastener means having a spring constant K;

said fastener means including a resilient member to effect an elastic coupling of said vibration isolating device and said at least one of the vibrating body and the vibrated body, said resilient member being disposed outside a path of engagement of said piezoelectric insert with said vibration isolating device and said at least one of the vibrating body and the vibrated body, said spring constant K being represented by the following formula.

$$K \leq Lmax\left(\frac{1}{Dr} \quad \alpha\frac{1}{Dmax}\right)$$

where:

$\alpha=1$ if $\gamma\leq 1$,

$\alpha=\gamma$ if $\gamma>1$,

$\gamma=\gamma_L/\gamma_D$, $\gamma_L=L_1/Lmax$,

$\gamma_D=Dr/Dmax$,

[K]: the spring constant of a fastener means,

Lmax: a maximum output force of the piezoelectric insert,

Dmax; a maximum displacement of the piezoelectric insert,

Dr: a required amount of displacement of the piezoelectric insert,

L_1: a sum of a loading force and a fastening force which act on the piezoelectric insert; and

said piezoelectric insert expanding and contracting to effect a size displacement of said piezoelectric insert equal to said required amount of displacement of the piezoelectric insert Dr which in turn effects a displacement of said vibration isolating device relative to said at least one of the vibrating body and the vibrated body equal to said required amount of displacement of the piezoelectric insert Dr.

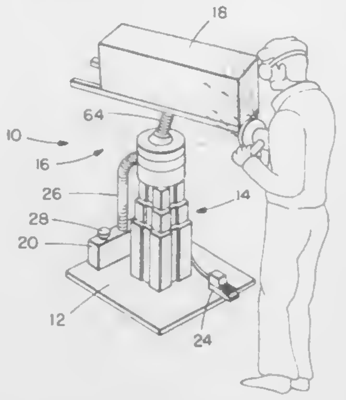
5,738,344
ERGONOMIC WORKPIECE POSITIONER

Erland Hagman, 11 Old Newtown Rd., New Fairfield, Conn. 06811

Filed Apr. 1, 1996, Ser. No. 625,871

Int. Cl.^{6} B23Q *1/04*

U.S. Cl. 269—75 12 Claims



1. A workpiece positioner comprising.

a cylindrical base member;

cylindrical piston means having an upper section and a lower section;

said piston upper section and said piston lower section being secured together and adapted to move as a unitary unit;

said cylindrical base member being partially positioned between said piston upper section and said piston lower section;

workpiece holding means

friction means positioned between the piston means and the workpiece holding means;

spring means positioned between said base member and said piston upper section to urge said piston upward to hold said workpiece holding means in a fixed position; and

a fluid chamber in operative relation between said base member and the said piston lower section to urge the said piston downward to release said workpiece holding means when fluid pressure is admitted to said fluid chamber.

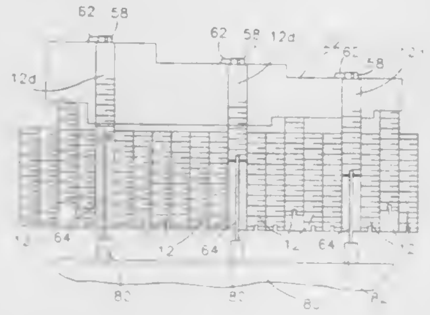
5,738,345
DEVICE FOR GENERATING A FIXTURE

Thaddeus Schroeder, Rochester Hills, and Robin Stevenson, Bloomfield Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 9,703, Jan. 27, 1993, Pat. No. 5,513,972. This application Dec. 4, 1995, Ser. No. 567,381

Int. Cl.^{6} B25B *1/24*

U.S. Cl. 269—266 7 Claims



1. A fixture for supporting an article having a predetermined contour, the fixture comprising:

a structural support member having an interior surface, the interior surface having threads formed thereon;

threaded members supported within the structural support member, each of the threaded members having a thread formed thereon, the threaded members being oriented substantially parallel with each other such that adjacent ends of the threaded members define a fixturing surface on one side of the structural support member, the threads formed on each of the threaded members being threadably engaged with the threads of each adjacent threaded member, the threads formed on the threaded members located adjacent the interior surface of the structural support member being threadably engaged with the threads of the interior surface, such that longitudinal positioning of an individual threaded member relative to its adjacent threaded members and the structural support member can be achieved by rotating the individual threaded member; and

means adjustably mounted to at least one of the threaded members for locating the article on the fixturing surface;

whereby appropriate longitudinally positioning of at least one of the threaded members relative to its respective adjacent threaded members can be performed such that the threaded member supports at least a portion of the article.

5,738,346
APPARATUS FOR STITCHING COLLATED SHEETS

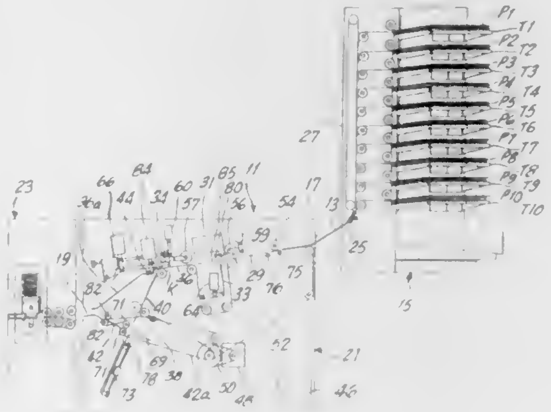
Katsunori Ishida, Kyoto, Japan, assignor to Horizon International Inc., Shiga, Japan

Filed Nov. 20, 1996, Ser. No. 754,289

Claims priority, application Japan, Mar. 13, 1996, 8-097284

Int. Cl.^{6} B65H *39/02*

U.S. Cl. 270—58.07 4 Claims



1. An apparatus for stitching collated sheets, said apparatus receiving a set of collated sheets (**13**) at a sheet supply inlet (**17**) thereof, transporting the collated sheets (**13**) to a sheet stitching station (**80**), stitching the collated sheets (**13**) along the center line thereof or along an end line or at a corner thereof by means of a stitching head (**31**) disposed at the sheet stitching station (**80**), and delivering the sheets stitched along the end line or at the corner thereof from at least one sheet eject outlet thereof, while delivering the sheets stitched along the center line thereof from at least one sheet eject outlet after transport to a sheet bending station (**38**) so as to bend the stitched sheets double along the center line, characterized in that said apparatus comprises:

a first transport path portion (**29**) for transporting the collated sheets (**13**) from said sheet supply inlet (**17**) to said sheet stitching station (**80**);

a first stopper (**33**) arranged at said sheet stitching station (**80**) for positioning the sheets to be stitched along the end line or at the corner thereof;

a second stopper (**34**) arranged at said sheet stitching station (**80**) for positioning the sheets to be stitched along the center line thereof;

a second transport path portion (**36**) for transporting the stitched sheets from said sheet stitching station (**80**) to a branch (K);

a fifth transport path portion for transporting the stitched sheets from said branch (K) to a sheet eject outlet (**19**);

a third transport path portion (**40**) for transporting the stitched sheets from said branch (K) to said sheet bending station (**38**);

a switching gate plate (**44**) arranged at said branch (K) for selectively connecting said second transport path portion (**36**) to said third transport path portion (**40**) or said fifth transport path portion;

a third stopper (**73**) arranged at said sheet bending station (**38**) for positioning the sheets stitched along the center line thereof;

sheet bend means arranged at said sheet bending station (**38**) for bending the stitched sheets double along the center line thereof; and

a fourth transport path portion (**42**) for transporting the stitched sheets bent double from said sheet bending station (**38**) to said sheet eject outlet (**19**).

5,738,347
DEVICE FOR ADJUSTING THE SUCTION HEIGHT OF A SUCTION LIFTER IN THE FEEDER OF A SHEET-PROCESSING MACHINE

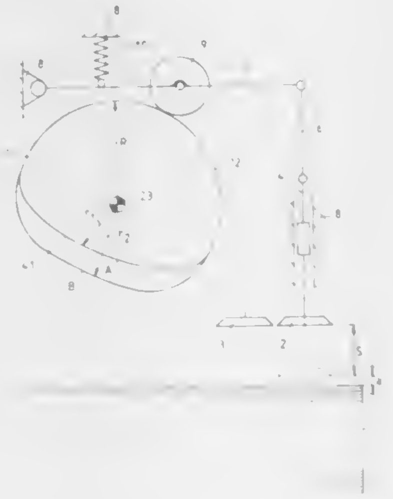
Michael Tognino, Walldorf, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Jun. 24, 1996, Ser. No. 671,795

Claims priority, application Germany, Jun. 23, 1995, 295 10 214 U

Int. Cl.^{6} B65H *3/46*

U.S. Cl. 271—106 12 Claims



1. A device for cyclically reciprocating a suction lifter in a sheet processing machine, comprising:

a suction lifter drive operatively connected to a suction lifter for cyclically aspirating and lifting sheets in a sheet processing machine;

said drive including a control cylinder rotatingly driven around a cylinder axis, said control cylinder being axially shiftable along said axis for infinitely varying a suction height of the suction lifter.

5,738,348
SHEET FEEDER

Takuya Yasue; Koichiro Yokoyama; Masaki Shimomura; Toshikazu Kotaka; Kazutoshi Kashiwabara, and Takeo Kishida, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Dec. 26, 1995, Ser. No. 578,817

Claims priority, application Japan, Dec. 26, 1994, 6-337299

Int. Cl.^{6} B65H *3/06*

U.S. Cl. 271—118 22 Claims

1. A sheet feeder assembly comprising:

a sheet support having a top surface for supporting at least a portion of at least one sheet of paper thereon;

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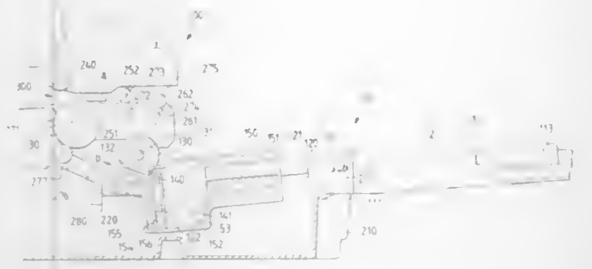
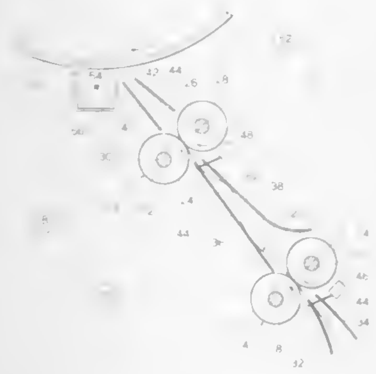


- a sheet feed roller spaced apart from the sheet support and positioned to feed a sheet of paper from the sheet support in a sheet feeding direction from a rear edge of a sheet of paper on the sheet support towards a leading edge of said sheet of paper;
- a stop on said sheet support positioned to contact the rear edge of said sheet of paper and prevent said sheet of paper from moving in a direction substantially opposite to said sheet feeding direction while said sheet of paper is supported on said support surface;
- at least one hopper located between the sheet support and the sheet feed roller. the hopper having a hopper support surface adapted to support at least a portion of said sheet of paper. said hopper support surface being displaceable between a first position spaced apart from said sheet feed roller so that a sheet of paper supported on said hopper does not contact said sheet feed roller and at least a second position where a front portion of said sheet of paper will contact said sheet feed roller; said hopper support surface and said sheet support top surface separated by a first offset distance, when said hopper support surface is at said first position and a second offset distance, when said hopper support surface is at said second position. the roller, hopper and sheet support constructed and arranged such that the leading edge of a sheet of paper with its rear edge against the stop is closer, in the paper path from the stop, to the roller, when the hopper support surface is in the second position than when it is in the first position, said first offset distance being greater than said second offset distance;
- whereby a leading edge of said sheet of paper is urged in the sheet feeding direction when the hopper support surface is moved from said first position to said second position.

5,738,349
DEVICE FOR CONVEYING SHEET MEMBERS

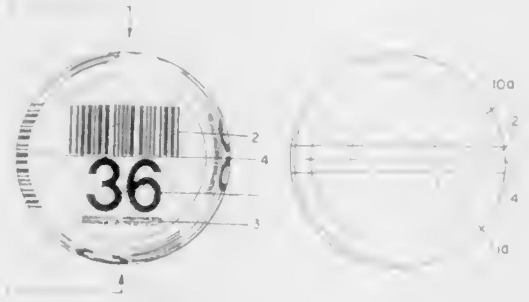
Seiichi Shirasaki, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan
Filed Sep. 27, 1995, Ser. No. 534,320
Claims priority, application Japan, Sep. 30, 1994, 6-238217
Int. Cl.⁶ B65H *9/04*
U.S. Cl. 271—242 **8 Claims**



1 A device for conveying sheet member in a direction of conveyance. said device comprising means for introducing a sheet member having a length SL. a pair of feed rollers. a pair of resist rollers disposed on the downstream side of the pair of feed rollers by a predetermined conveyer passage length TL which is shorter than the length SL of the sheet member in the direction of conveyance. and drive control means for controlling driving of the pair of feed rollers and the pair of resist rollers. wherein said drive control means starts driving the pair of feed rollers when the pair of resist rollers are not driven. in a primary conveyance interval. stops driving the pair of feed rollers to stop rotation of the pair of feed rollers after the front end of the sheet member conveyed by the action of the pair of feed rollers has come into contact with the nip of the pair of resist rollers and a loop of a length RL has been formed in the conveyed sheet member between the pair of feed rollers and the pair of resist rollers. and then starts driving the pair of resist rollers and the pair of feed rollers in a secondary conveyance interval. and wherein during the secondary conveyance interval said drive control means first starts driving the pair of resist rollers and, after a predetermined delay time has passed, starts driving the pair of feed rollers. the predetermined delay time being such that the loop formed in the conveyed sheet member during the primary conveyance interval does not increase excessively does not substantially extinguish before the rear end of the sheet member separates from the pair of feed rollers.

5,738,350
GAMING BALL

Cheng Lai, 11858 Preston Trails, Northridge, Calif. 91326
Filed Nov. 21, 1996, Ser. No. 754,394
Int. Cl.⁶ A63B *71/00*
U.S. Cl. 273—139 **6 Claims**

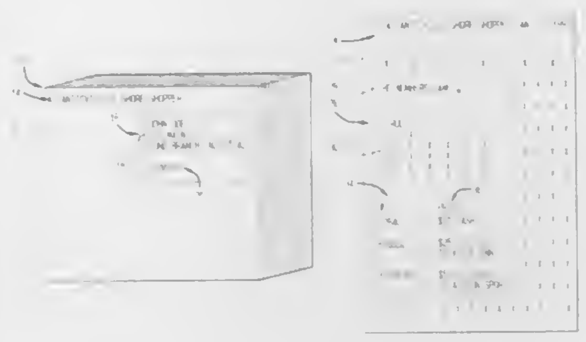


1 A gaming ball having.
- an inner surface with a seam which weighs more than [illegible] of the weight of the ball. said seam extending around the entire inner circumference of the ball said seam for aligning said ball. on a blowing support surface; and.
- a bar code printed along the seam on the outside surface of the ball and along said seam.

5,738,351
APPARATUS AND METHOD OF PLAYING A PUBLICATION GAME

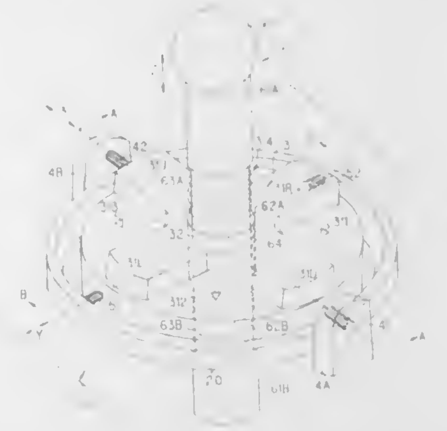
Michael J. Booth, Long Branch, N.J., assignor to Atlanticville Communications, Inc., Long Branch, N.J.
Filed Apr. 2, 1997, Ser. No. 831,220
Int. Cl.⁶ A63F *3/06*
U.S. Cl. 273—139 **12 Claims**

1 A game of chance comprising:
- a publication including at least one page;
- prize information identifying a prize printed on said at least one page;
- first indicia also printed on said at least one page corresponding to said prize information,
- a mailing label affixed to said publication so that it is visible from the outside of said publication. said mailing label including a recipient's address to assure delivery of said publication via mail and second indicia printed thereon. said second indicia corresponding to said first indicia and thus being winning indicia. whereby a recipient who receives a copy of said publication including said winning indicia can immediately claim the prize identified by said prize information.



5,738,352
GAME MACHINE CONTROLLER

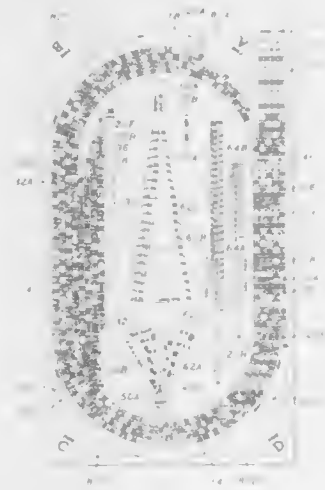
Yuuichi Ohkubo, and Takashi Yamaguchi, both of Shizuoka, Japan, assignors to Sugiyama Electron Co., Ltd., Japan
Division of Ser. No. 401,551, Mar. 9, 1995, Pat. No. 5,624,117.
This application Jan. 9, 1997, Ser. No. 780,969
Claims priority, application Japan, Jul. 28. 1994, 196127/1994; Sep. 29, 1994, 259510/1994
Int. Cl.⁶ A63F *9/22*
U.S. Cl. 273—148 B **10 Claims**



6. A game machine controller comprising:
- keys for controlling the movement of an image subject displayed on a monitor screen in an X-axis direction and a Y-axis direction;
- a first and second controller section coupled to each other by a coupling member, with relative displacement information of the first and second controller sections with respect to the coupling member being detected, and situation of the game contents being controlled based o the displacement information;
- a base mount supporting said first and second controller sections;.
- a plate-shaped member constituting a key section provided on at least either of the first and second controller sections such that the X-axis direction and Y-axis direction are designated by depressing end portions of a cross key provided on top of the plate-shaped member and that a mid angle direction is designated by designating a predetermined portion of the plate-shaped member between said X-axis direction and Y-axis direction key sections;
- diametrically opposed portions of the outer circumference of the key section being freely rotatable mounted via respective first shafts in respective diametrically opposed portions of the inner circumference of an outer ring; and
- diametrically opposed portions of the outer circumference of the outer ring being at a predetermined angle with respect to the positions of mounting of the first shafts that are mounted freely rotatably via the second shafts which are held in shaft retainers secured to the base mount

5,738,353
TRACK STAR RELAYS

Kerry L. Belcher, P.O. Box 1313, Chino, Calif. 91708
Filed Apr. 2, 1997, Ser. No. 831,192
Int. Cl.⁶ A63F *3/00*
U.S. Cl. 273—244 **4 Claims**



1 A board game to simulate professional track and field sports competition comprising.
- a playing board having a generally oval shaped track with a plurality of lanes being equal in length. for a plurality of players. having two straight sides and two convex curves. one said straight side having an offshoot of said lanes. providing a secondary finish line for a 100 meter sprint and a 100 meter hurdles. one said convex curve having a staggered cascading configuration so as to provide a common primary finish line for a plurality of running relay events;
- a detour of said lanes providing a steeplechase. being surrounded by and adjacent to said oval track;
- a plurality of starting blocks being inscribed on said lanes;
- a plurality of symbols representing numerous chances. being inscribed on said lanes;
- a plurality of chance cards being represented by said symbols.
- a plurality of areas providing field events being surrounded by said track;
- a plurality of teams of four relay runner figurines. representing players so as to be moved on said playing board.
- a pair of dice providing numbers. means for movement of said relay runner figurines;
- a plurality of distinctive mathematical formulas comprising;
- numerous groups of four. being inscribed on said relay runners. so as to be multiplied and added with said numbers of said dice;
- a plurality of play money. to award players.

5,738,354
EDUCATIONAL BOARD GAME

Aaron G. Easley, 505 Bredin Ave., Butler, Pa. 16001
Filed Sep. 9, 1996, Ser. No. 709,309
Int. Cl.⁶ A63F *3/00; 9/18*
U.S. Cl. 273—249 **7 Claims**

7 A board game for play by a plurality of players. the board game comprising:
- a playing board having a playing surface upon which a playing course is represented in the shape of a five-pointed star for defining a path of travel for the players;
- the playing course including a plurality of joined playing spaces.

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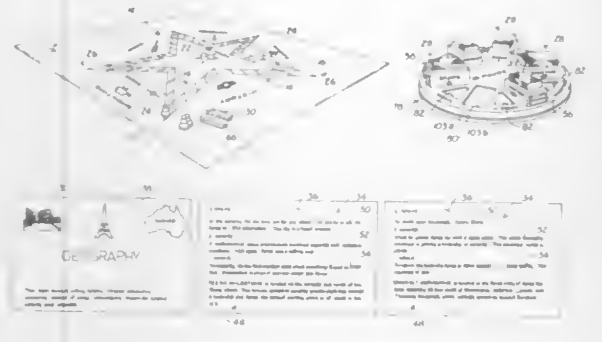


a majority of the playing spaces containing indicia denoting a representative question category selected from a plurality of question categories and at least one playing space containing indicia for denoting that playing space as the space on which play of the game is to commence;

a plurality of question card sets with each question card set representing one particular question category corresponding to one of the question categories denoted on the playing spaces;

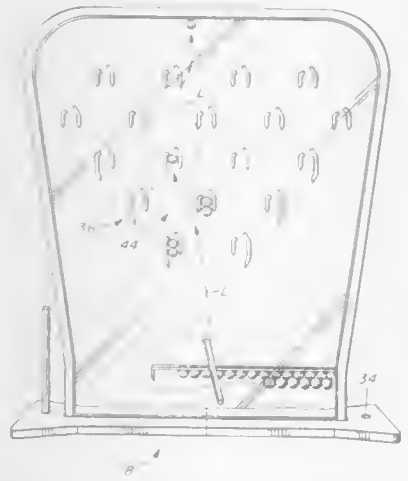
a plurality of question cards for each question card set each of which contains a plurality of questions arranged in a descending order of difficulty from most difficult level to least difficult level so that correct answers to questions from one level can be used as clues to answer questions for the next level;

token means for use by the players disposed on the playing course for forward or backward movement thereon during play of the game.

a plurality of question card boxes with each question card box capable of receiving and holding therein one question card set; and

a rotatable question card box holder having a plurality of compartments so that each compartment can receive and hold therein one question card box.

5,738,355
GAME
Kevin D. Gibson, R.R. #6, Site 666 C-1, Courtenay, British Columbia, Canada, V9N 8H9
Filed Feb. 18, 1997, Ser. No. 802,414
Int. Cl.^{6} A63F *9/00*
U.S. Cl. 273—457 **14 Claims**



1 A game comprising.

a pair of walls extending parallel to one another and defining a space therebetween:

at least one of said walls being transparent to permit viewing of said space from the exterior of the game;

a liquid-tight seal extending around the peripheries of said walls and sealingly enclosing said space:

a liquid retained in said space by said seal;

a plurality of balls immersed in said liquid. said balls being buoyant in said liquid and comprising a ferromagnetic material;

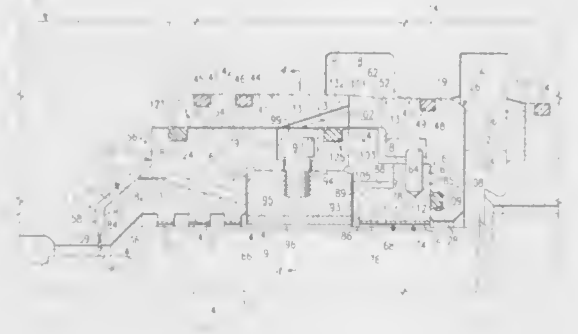
a retainer for releasably retaining said balls:

a magnet at the exterior of said space. said magnet being manipulatable for displacing said balls from said retainer: and

a plurality of mutually spaced-apart ball receptacles located in said space:

said receptacles each having a downwardly facing ball reception opening dimensioned to receive said balls therein as said balls rise buoyantly through said space on release of said balls by said magnet.

5,738,356
SHAFT SUPPORT STRUCTURE FOR TURBOMACHINE
Dale Fred Marshall, R.D. 2 Box 73F1, Friendship, N.Y. 14739
Filed May 9, 1996, Ser. No. 647,045
Int. Cl.^{6} F16J *15/16*
U.S. Cl. 277—27 **23 Claims**



1. A turbomachine comprising:

a rotatable shaft having a longitudinal axis:

a housing having a housing bore therein for receiving said rotatable shaft so that the longitudinal axis of said rotatable shaft is at least generally parallel to a longitudinal axis of said housing bore; said housing having an annular cavity formed therein encircling said housing bore and open to said housing bore: said cavity being defined by an outboard endwall, an inboard endwall axially spaced from said outboard endwall. and an annular sidewall extending generally longitudinally between said outboard endwall and said inboard endwall: a portion of said rotatable shaft inboard of said cavity being adapted to be exposed to a process fluid at a first pressure:

a first annular seal ring mounted within said cavity and having a longitudinal axis which is generally parallel to the longitudinal axis of said housing bore: said first annular seal ring having an outboard axial end. an inboard axial end. and an outer annular surface extending generally longitudinally between said outboard axial end and said inboard axial end: said outer annular surface being adjacent to said annular sidewall of said cavity: said outboard axial end of said first annular seal ring being adjacent to said outboard endwall of said cavity;

an annular land formed on one of said outboard endwall of said cavity and said outboard axial end of said first annular seal ring so as to provide a leakage pathway between said outboard endwall of said cavity and said outboard axial end of said first annular seal ring; said outboard axial end of said first annular seal ring having an outboard axial pressure-balance surface located generally radially outwardly of said annular land and facing toward and spaced from said outboard endwall of said cavity to thereby define a first annular pressure

chamber extending generally radially outwardly of said annular land: said outboard axial pressure-balance surface being of a first area:

said inboard axial end of said first annular seal ring having an inboard axial pressure-balance surface facing toward and spaced from said inboard endwall of said cavity to form a second annular pressure chamber: said inboard axial pressure-balance surface being of a second area: said first area being greater than said second area:

said first annular seal ring having a first central bore formed therethrough along the longitudinal axis of said first annular seal ring: said first central bore having a longitudinal axis; said first central bore being sized to rotatably receive said rotatable shaft with the longitudinal axis of said rotatable shaft being at least substantially coaxial with the longitudinal axis of said first central bore: said first annular seal ring having an radially inner annular longitudinally extending sealing surface adjacent to said rotatable shaft so as to define a first annular lubricant pathway between said inner annular sealing surface and said rotatable shaft:

said first annular seal ring having an annular ring chamber formed around said first central bore and open to said first central bore for a portion of a longitudinal length of said first annular seal ring: a bearing mounted in said annular chamber for providing bearing support engagement with said rotatable shaft:

first and second annular grooves and first and second annular members of resilient material: each of said first and second annular members being positioned in a respective one of said first and second annular grooves: each of said first and second annular grooves being formed in one of said annular sidewall of said cavity and said outer annular surface of said first annular seal ring at locations which are spaced apart from each other along the longitudinal axis of said first annular seal ring so that each annular member contacts the respective other of said annular sidewall of said cavity and said outer annular surface of said first annular seal ring to thereby form an annular squeeze film chamber defined radially by said annular sidewall of said cavity and said outer annular surface of said first annular seal ring and axially by the thus spaced apart annular members. whereby lubricant in said annular squeeze film chamber damps lateral movement of said rotatable shaft.

a supply chamber formed in said housing for supplying lubricant at a second pressure which is higher than said first pressure:

a first passageway for passing lubricant. received from said supply chamber. to said second annular pressure chamber. to thereby apply pressure against said inboard axial pressure-balance surface. and to said first annular lubricant pathway. to thereby provide lubricant between said rotatable shaft and said inner annular longitudinally extending sealing surface of said first annular seal ring:

a second passageway for passing lubricant. received from said supply chamber. to said first annular pressure chamber to provide a fluid pressure in said first annular pressure chamber. to thereby apply pressure against said outboard axial pressure-balance surface and to provide an outflow of lubricant through said leakage pathway with said first annular seal ring being at least substantially balanced axially by pressure forces acting on said outboard axial pressure-balance surface and said inboard axial pressure-balance surface so that said first annular seal ring can move laterally with said rotatable shaft when said rotatable shaft moves laterally: and

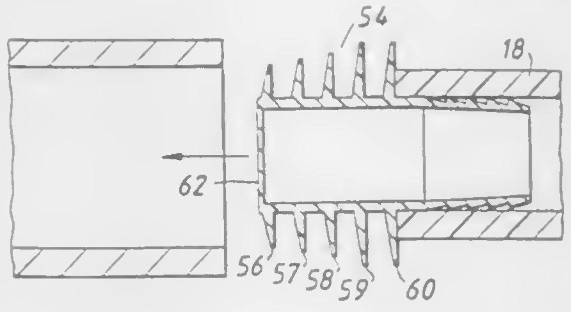
a third passageway for passing lubricant. received from said supply chamber. to said annular squeeze film chamber to damp lateral movement of said rotatable shaft.

5,738,357
SEAL FOR ENHANCING PIPES
John Taylor, South Godstone; Michael Hicks, Woking; Richard Lamb, Worcester Park; Robert Neal Bennett, Hextable; Keith Nixon, Biggin Hill; Ian Ashcroft, Purley; Adrian Sydney Parkes, Burgess Hill, and John Philip Smith, Sevenoaks, all of Great Britain, assignors to British Gas plc, London, Great Britain

Contiouation of Ser. No. 336,049, Nov. 4, 1994, Pat. No. 5,551,704, which is a division of Ser. No. 566,411, Oct. 23, 1990, Pat. No. 5,482,076. This application Jan. 31, 1996, Ser. No. 594,232

Claims priority, application United Kingdom, Dec. 23, 1988, 8830111

Int. Cl.^{6} F16J *15/10*
U.S. Cl. 277—208 **19 Claims**



1 A seal for use in replacing an existing fluid-carrying pipe with a replacement pipe. the seal comprising:

a tubular body of a flexible material. the body having a rear portion for connection to the leading end of the replacement pipe and a front portion providing a barrier to the flow of fluid along an annular gap between the internal wall of the existing pipe and the external wall of the replacement pipe. the seal also having a seal member preventing the flow of fluid through the bore of the seal. wherein the seal member comprises one of a puncturable seal member and a removable seal member permitting the flow of fluid through the seal. the front portion has a plurality of vanes disposed only around an external wall of the front portion. the vanes providing a barrier to the flow of fluid along the annular gap. and wherein the front portion includes an abutment and said abutment comprises one of a rear portion of one of said plurality of vanes and a rear shoulder of said front portion which is abuttable against a front edge of the replacement pipe

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5,738,358
EXTRUSION RESISTANT HYDRODYNAMICALLY LUBRICATED MULTIPLE MODULUS ROTARY SHAFT SEAL
Manmohan S. Kalsi, Houston, and Lannie Dietle, Sugar Land, both of Tex., assignors to Kalsi Engineering, Inc., Sugar Land, Tex.
Filed Jan. 2, 1996, Ser. No. 582,086
Int. Cl.^{6} F16J *15/32*
U.S. Cl. 277—544 **28 Claims**

1 A circular interference type extrusion resistant hydrodynamic seal for location within a housing defining a lubricant chamber and for dynamic sealing engagement with a relatively rotatable surface and for serving as a partition between the lubricant chamber and a contaminated environment, and for controlling seal deformation and interfacial contact force between the seal and the relatively

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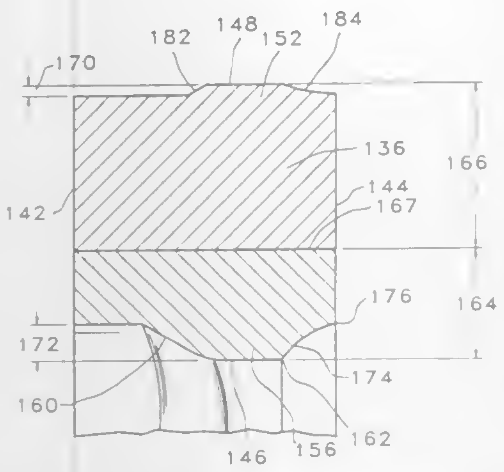

rotatable surface and thus regulate lubricant film thickness between the seal and the relatively rotatable surface, and having a lubricant end and an environmental end, comprising:

- (a) a first circular ring-like seal section being composed of resilient material and having a predetermined modulus of elasticity;
- (b) a second circular ring-like seal section being composed of flexible material having a modulus of elasticity greater than said predetermined modulus of elasticity of said first circular ring-like seal section, said second circular ring-like seal section being connected integral with said first circular ring-like seal section and resisting lubricant pressure induced extrusion of said second circular ring-like seal section between said housing and said relatively rotatable surface; and
- (c) a circular dynamic sealing lip being defined by said second circular ring-like seal section and projecting radially therefrom, said circular dynamic sealing lip having a peripheral sealing surface for sealing engagement with said relatively rotatable surface, said dynamic sealing lip further defining a hydrodynamic geometry at one axial extremity thereof having an axially varying hydrodynamic edge for facing said lubricant chamber and for hydrodynamically wedging a film of lubricant between said dynamic sealing lip and said relatively rotatable surface;
- (d) an abrupt axially nonvarying exclusionary geometry being defined at the opposite axial extremity of said dynamic sealing lip; and
- (e) means, comprising said greater modulus of elasticity of said second circular ring-like seal section than said predetermined modulus of elasticity of said first circular ring-like seal section for minimizing contact force of said dynamic sealing lip of said second circular ring-like seal section with said relatively rotatable surface and minimizing compression induced distortion of said hydrodynamic geometry of said circular dynamic sealing lip for controlling hydrodynamic wedging of said film of lubricant and controlling the thickness of the film of lubricant between said peripheral sealing surface of said dynamic sealing lip and said relatively rotatable surface

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5,738,359
EXPANDABLE BAND AND LOCKING MECHANISM FOR INSTALLING A FLEXIBLE SEALING ELEMENT

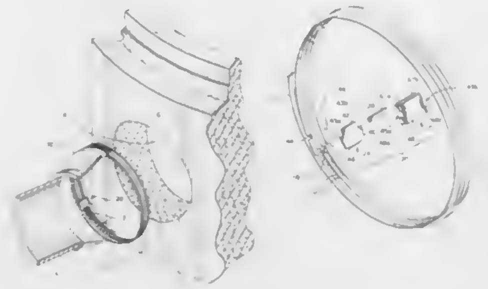
William P. Gundy, Milford, N.H., assignor to NPC Acquisition Corp., Milford, N.H.

Filed Feb. 14, 1997, Ser. No. 801,945

Int. Cl.⁶ F16J *15/06*

U.S. Cl. 277—606 **24 Claims**

1. An expandable band locking mechanism, for locking an expandable band against at least one sealing element, said expandable band locking mechanism comprising:



- a locking member having a first locking end, for locking with a first locking region in said expandable band, and having a second locking end for locking with a second locking region in said expandable band;
- a housing, for at least partially covering said locking member and for engaging with at least a portion of said expandable band; and
- an intermediate biasing member, positioned between said locking member and said housing, for biasing said locking member into a locked position.

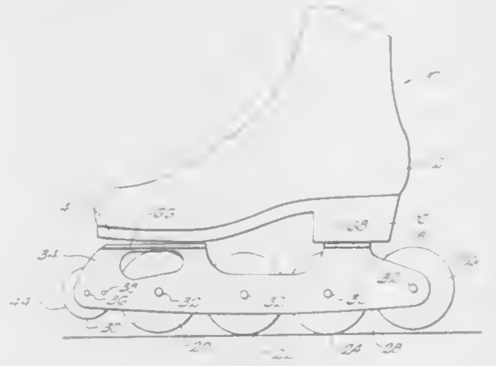
5,738,360
TOE PICK AND SKATE FRAME FOR IN-LINE SKATES

John J. Petell, Malden, Mass., and Nicolas A. Perna, Manassas, Va., assignors to Harmony Sports, Inc., Malden, Mass.

Filed Aug. 29, 1995, Ser. No. 520,653

Int. Cl.⁶ A63C *17/14*

U.S. Cl. 280—11.22 **23 Claims**



1. A toe pick and frame for an in-line skate, comprising

- a frame for carrying a plurality of wheels substantially in line and in a common plane between two opposing rails, including a toe wheel and a heel wheel, and a toe frame portion of the opposing rails extending forward of the toe wheel, and
- a substantially cylindrical disk, having a contact surface for contacting the skating surface, the cylindrical disk being mounted between the opposing rats of the toe frame portion and secured to the opposing rails to prevent rotation of the disk and contact surface with respect to the opposing rails, and
- wherein the cylindrical disk is sized and positioned so that the contact surface does not contact the skating surface during normal skating action and so that the contact surface first contacts the horizontal skating surface upon a skater rotating forward on the toe wheel when an axis passing through the axles of the front and rear wheels form an angle of between 5 and 15 with the horizontal skating surface, and
- wherein the frame comprises a metal extrusion having elongated opposing side surfaces and an elongated plate surface substantially perpendicular to the opposing side surfaces, and
- wherein the opposing rails are machined from the opposing side surfaces, and a toe mounting plate is machined from the plate surface at a constant location along the plate surface to maintain the cylindrical disk at substantially the same distance from the toe of the boot, for mounting the frame to the toe portion of a boot, and a heel mounting plate is machined from the plate surface at a location along the plate surface relative to the toe mounting plate accommodate mounting the frame to a given size boot.

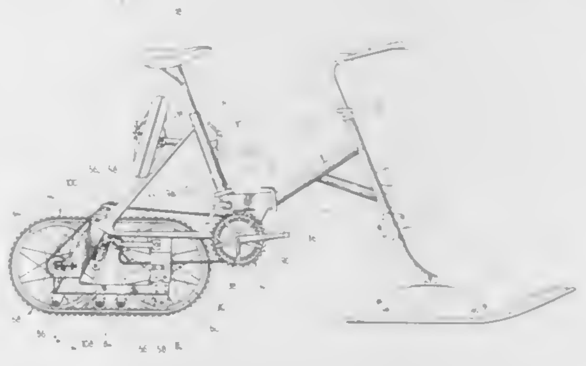
5,738,361
SNOW BICYCLE

Angelo Landucci, 16350, chemin St-Roch, Tracy, Québec, Canada, J3P 5N3

Filed May 13, 1997, Ser. No. 855,135

Int. Cl.⁶ B62B *15/00*

U.S. Cl. 280—12.14 **19 Claims**



1. A snow bicycle comprising:

- a main frame having a front head tube and a rear chain stay, the rear chain stay comprising a left and a right pipe;
- a front steerable supporting assembly operatively connected to the head tube to support the front of the frame when the bicycle is on the ground.
- a pedal drive assembly operatively connected to the frame;
- a rear drive wheel unit comprising.
  - a drive wheel frame having two parallel sections respectively aligned with the left and the right pipe of the chain stay, each section comprising an oblique member downwardly projecting towards the rear and a horizontal member having a rear end connected to a lower end of the corresponding oblique member;
  - a connecting means for removably connecting the drive wheel frame to the chain stay.
  - a first longitudinally-oriented wheel operatively connected between the two sections of the drive wheel frame;
  - a second longitudinally-oriented wheel operatively connected between the two sections of the drive wheel frame and longitudinally aligned with the first wheel, the front wheel and the second wheel having a substantially identical diameter;
  - a track belt having an inner side winded around the first and second wheel; and
  - two parallel sets of rollers, each set comprising a plurality of spaced-apart rollers operatively connected to and extending downwardly from a respective horizontal member, each roller being in engagement with the inner side of the track belt to support the rear of the frame when the bicycle is on the ground; and
- a transmission mechanism to mechanically connect the pedal drive assembly to the second wheel.

5,738,362
ROTATING STEP FOR A TRAILER HITCH

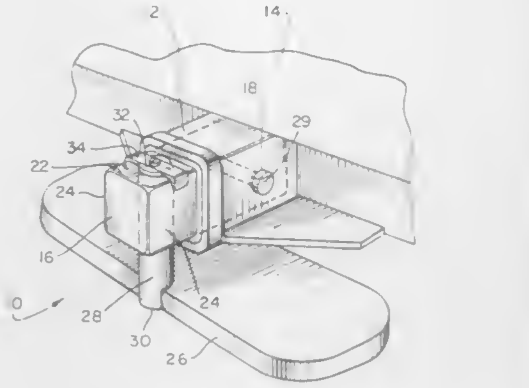
Lanny E. Ludwick, 1005 12th St., Huntington Beach, Calif. 92648

Filed Jul. 2, 1996, Ser. No. 678,402

Int. Cl.⁶ B60R *3/02*

U.S. Cl. 280—166 **15 Claims**

1. A step means for use at a rear portion of a vehicle, comprising, in combination:



- a mounting means adapted to secure said step means to a trailer hitch held to said rear portion of said vehicle,
- a substantially flat step means adjustably secured to said mounting means;
- a post having a first end and a second end; said post movably held in said mounting means and secured by said first end to said substantially flat step means, and
- said second end of said post including a locking means fixed thereto and adapted to contact said mounting means for preventing rotational movement of said substantially flat step means when in contact with said mounting means; said locking means being a U-shaped element secured to said post, and said mounting means including an upper surface cooperating with said U-shaped element to normally prevent said post and said substantially flat step means from movement between closed and opened positions.

5,738,363
HITCH ASSEMBLY

Kenneth M. Larkin, 342 SE. Evergreen Ave., Redmond, Oreg. 97756

Continuation-in-part of Ser. No. 441,445, May 15, 1995, Pat. No. 5,571,270. This application Jul. 1, 1996, Ser. No. 674,135

Int. Cl.⁶ B60D *1/54*

U.S. Cl. 280—491.1 **20 Claims**

1. A hitch assembly for use in coupling the towing vehicle with a trailer, said hitch assembly comprising:

- a hitch base plate configured for attachment to the towing vehicle, said hitch base plate including a support surface contoured substantially similar to a body contour of the towing vehicle;
- a hitch mount configured for selected extension from said hitch base plate to provide a seat for a matching trailer mount, and
- a safety chain connector configured for selected extension from said hitch base plate to provide a seat for a trailer-connected safety chain;
- said hitch mount and said safety chain connector being configurable to provide a hitch assembly which conforms generally

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to the body contour of the towing vehicle when said hitch assembly is not in use.

5,738,364

SKI BINDING

Johann Zotter, Vienna; Friedrich Leichtfried, Traiskirchen; Klaus Hoelzl, Vienna; Henry Freisinger, Vienna; Alois Himmetsberger, Vienna; Reinhold Wawra, Vienna, and Hubert Wuerthner, Hainburg/Donau, all of Austria, assignors to HTM Sport- und Freizeitgeraete Aktiengesellschaft, Schwechat, Austria

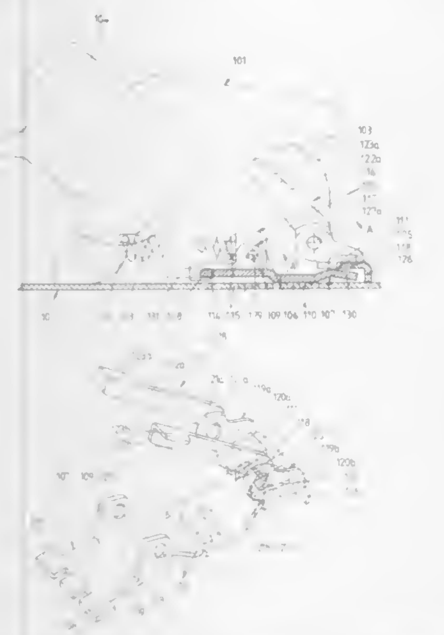
PCT No. PCT/EP95/01900, § 371 Date Jan. 29, 1996, § 102(e) Date Jan. 29, 1996, PCT Pub. No. WO95/32772, PCT Pub. Date Dec. 7, 1995

PCT Filed May 19, 1995, Ser. No. 591,648

Claims priority, application Austria, May 30, 1994, 1099/94

Int. Cl.⁶ A63C *9/084*

U.S. Cl. 280—633 **4 Claims**



1. A ski binding having a heel part adapted to be displaced in a longitudinal direction relative to a guide fixed to an upper side of a ski and secured in different positions, there being mounted, in a housing, a locking means which, being displaceable in the longitudinal direction, is pressed, by means of a spring, against a stop fixed to the housing and pivoted about the stop to a limited extent, the locking means having latching means receivable in mating latching means of the guide, and the locking means with its latching means being pivoted toward the mating latching means by the spring acting on said locking means at a location above the stop, and having at least one two-armed opening lever which is mounted in the housing and of which a first lever arm is provided with a hand grip and a second lever arm engages a rear end of the locking means, the locking means being pivoted away from the guide and the latching means being released when the opening lever is pivoted, the second lever arm being an essentially U-shaped member, as viewed from behind, having a connecting arm and two legs, of said lever acting at the connecting arm engaging a rear end of the locking means remote from the stop from beneath, the two legs of the opening lever extending upward from the connecting arm and are, adjacent their upper ends, pivotally supported on the housing, one leg of the opening lever having the first lever arm extending therefrom along a side of the housing, forming a leg section which, at its free end section, bears the hand grip in the form of an outwardly projecting handle extension, wherein the connecting arm is an essentially U-shaped member, as viewed in plan view, the rear end of the locking means having a bent portion engaging the U-shaped connecting arm in each position of the opening lever, and wherein the connecting arm has a bent segment extending in a direction toward the upper side of the ski, to form a supporting and protecting web which, in the latched state, terminates flush with the upper side of the guide fixed to a ski.

5,738,365

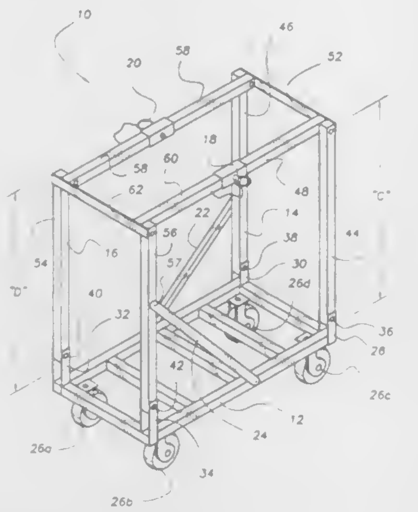
COLLAPSIBLE CART

Phillip R. McCarthy, 19270 Greeno Rd. #68, Fairhope, Ala. 36532

Filed Jan. 11, 1996, Ser. No. 584,263

Int. Cl.⁶ B62B *3/02*

U.S. Cl. 280—651 **1 Claim**



1. A collapsible cart comprising:

a base member, supported by four swivel mounted wheel assemblies, having first and second pivot supports, each of a first predetermined length, and third and fourth pivot supports, each of a second predetermined length greater than said first predetermined length;

a first double L-shaped bracket member having first and second pivot sections of a third predetermined length, and first and second linking sections, said first and second pivot sections being rigidly connected together by a first crossbar and having a base connection end that is pivotally secured to one of said first and second pivot supports in a manner such that said first and second pivot sections pivot in unison with respect to said base member, each first and second linking section being pivotally connected to a far end of one of said first and second pivoting sections and having a linking end having a pair of concentrically aligned locking pin receiving apertures, said first and second linking sections pivoting in parallel planes;

a second double L-shaped bracket member having third and fourth pivot sections of a fourth predetermined length, and third and fourth linking sections, said third and fourth pivot sections being rigidly connected together by a second crossbar and having a base connection end that is pivotally secured to one of said third and fourth pivot supports in a manner such that said third and fourth pivot sections pivot in unison with respect to said base member, each third and fourth linking section being pivotally connected to a far end of one of said third and fourth pivoting sections and having a linking end mechanism having an inner cavity for receiving therein said linking end of one of said first and second linking sections and having a pair of concentrically aligned locking pin receiving apertures, said third and fourth linking sections pivoting in parallel planes;

a first and second locking pin sized to pass at least partially through said locking pin receiving apertures, said first locking pin being secured to said third linking section with a first flexible member, said second locking pin being secured to said fourth linking section with a second flexible member; and

at least one locking bar member pivotally connectable simultaneously between said base member and one of said L-shaped bracket members in a manner such that said L-shaped bracket does not pivot with respect to said base member.

5,738,366

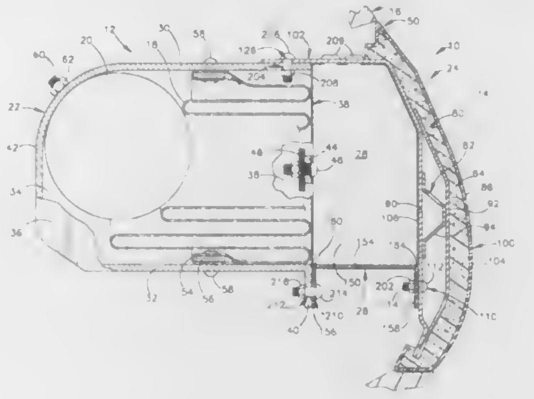
CHUTE STRUCTURE FOR AN INFLATABLE VEHICLE OCCUPANT RESTRAINT

Jack A. Phillion, Shelby Township, Mich., assignor to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Jun. 29, 1995, Ser. No. 496,621

Int. Cl.⁶ B60R *21/20;21/22*

U.S. Cl. 280—728.2 **13 Claims**



1. Apparatus for use with an inflatable vehicle occupant restraint, said apparatus comprising:

a pivotal deployment door panel; and

chute means for defining a chute passage through which the restraint moves toward said door panel when inflating;

said chute means comprising a plurality of chute panels having installed positions in which said chute panels define peripheral sides of said passage;

said chute means further comprising means for defining a plurality of fold lines along which adjacent pairs of said chute panels are joined together, said chute panels being pivotal about said fold lines relative to each other upon installation of said chute panels in said installed positions;

said passage having a generally rectangular peripheral shape with four sides, said chute panels including first, second and third chute panels for defining first, second and third sides of said passage, respectively;

said chute means further comprising a structure projecting inward from said door panel, said structure defining a fourth side of said passage.

5,738,367

AUTOMOTIVE INTERIOR TRIM PIECE HAVING AN ARRANGEMENT FOR FORMING AN AIR BAG DEPLOYMENT OPENING

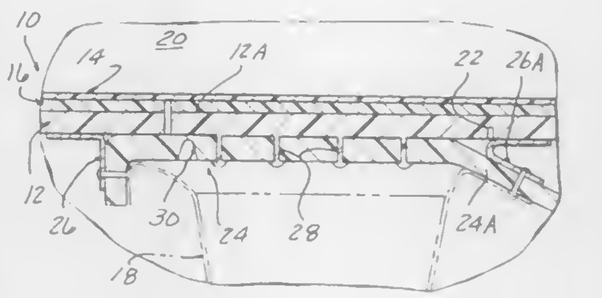
Andrew W. Zichichi, Bloomfield Hills; David J. Bauer, deceased, late of West Bloomfield; John W. Bauer, Jr., legal representative, Allen Park; Kenneth J. Barnes, Shelby Township, and Michael P. Towler, Ann Arbor, all of Mich., assignors to Tip Engineering Group, Inc., Farmington Hills, Mich.

Continuation of Ser. No. 490,735, Jun. 15, 1995, abandoned. This application Feb. 13, 1997, Ser. No. 799,989

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 280—728.3 **18 Claims**

1. In combination with an automotive trim piece mounted in a passenger compartment, said trim piece formed by a hard plastic substrate panel having an outer cosmetic surface treatment on an outer side thereof, an arrangement for forming an air bag deployment door comprising:



said substrate panel having a section defined by a preweakening groove pattern formed in an inner side of said substrate panel but not extending through said cosmetic surface treatment, said section defining at least in part an air bag deployment door in said substrate panel;

a reinforcing patch panel fixedly attached to said inner side of said substrate panel, said patch panel having an inner portion substantially coextensive with said substrate panel section which is fixedly attached thereto all across said substrate panel section to reinforce said substrate panel section, said patch panel also having an outer perimeter portion lying beyond said preweakening groove pattern and immediately beneath adjacent regions of said substrate panel outside said preweakening groove pattern so as to bridge said preweakening groove pattern and to reinforce said substrate panel across said preweakening groove pattern in said substrate panel, said patch panel also having one side fixed to structure anchored in said passenger compartment so as to define a hinging axis.

5,738,368

RESTRAINT SYSTEM FOR REAR SEAT OCCUPANT

Kimberly Jean Hammond, Troy; Timothy Wayne Hill, Sterling Heights; Brian Hugh Frantz, Royal Oak, all of Mich., and Gert Hans Erik Nilson, Wuppertal, Germany, assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 29, 1996, Ser. No. 704,958

Int. Cl.⁶ B60R *21/22*

U.S. Cl. 280—730.1 **22 Claims**

1. An air bag restraint system for restraining a rear seat occupant having an upper head portion and a lower knee portion, the restraint system comprising:

a front seat including an upstanding seat frame;

a reaction plate attached to the seat frame;

an inflator mounted on the reaction plate, the inflator for discharging inflator gas;

an air bag mounted on the reaction plate and in fluid communication with the inflator for receiving inflator gas therein to inflate the air bag; and

a deployment door mounted rearward the reaction plate, inflator and air bag, the deployment door being movably secured to the reaction plate and being releasably secured to the seat, the deployment door being a rearward trim panel for the seat.

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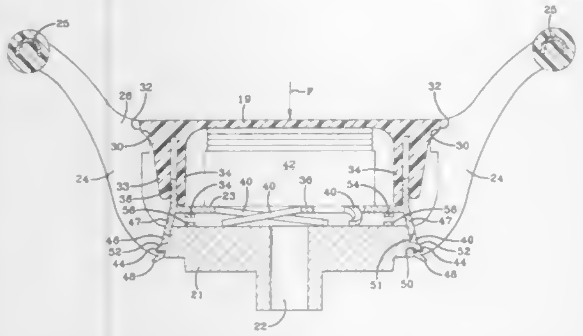
5,738,369
SNAP-ON AIR BAG AND HORN SWITCH MODULE

Sheryar Durrani, Canton, Mich., assignor to Breed Automotive Technology, Inc., Lakeland, Fla.

Filed Oct. 9, 1996, Ser. No. 727,908

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 280—731 **15 Claims**



1. A steering wheel comprising:

a steering wheel hub having a central bore to be attached to a vehicle steering column, said central bore having a central axis;

a plate secured to said steering wheel hub, said plate being movable axially along said central axis between actuated and non-actuated positions, springs fixed to said plate and biasing said plate towards said non-actuated position; and

switch components to actuate a horn switch function when said plate is moved to said actuated position.

5,738,370
MOUNTING STRUCTURE AND METHOD FOR STEERING WHEEL

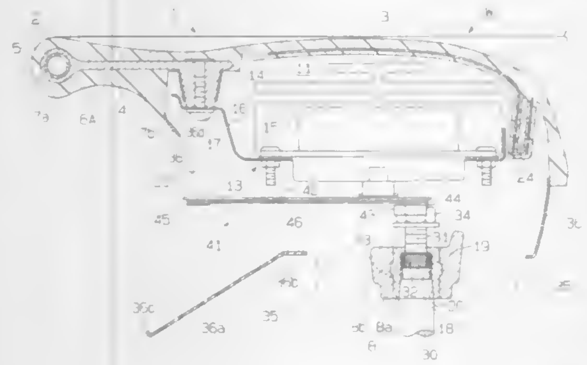
Akio Hosoi, Komaki; Atsushi Nagata, Inazawa, and Katsunobu Sakane, Ichinomiya, all of Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-ken, Japan

Filed Dec. 24, 1996, Ser. No. 772,546

Claims priority, application Japan, Dec. 27, 1995, 7-340728

Int. Cl.⁶ B60R *21/16*

U.S. Cl. 280—731 **10 Claims**



7. A system for mounting a steering wheel onto a steering shaft, said steering wheel having a body and a boss, comprising:

said body including a ring portion, a spoke portion and a pad portion, said ring portion having a ring core covered by a ring surface layer, said spoke portion having a spoke core covered by a spoke surface layer continuously formed with said ring surface layer, and said pad portion being positioned in a central portion of the ring portion and integrally formed with said ring and spoke surface layers;

said boss being integrally connected to said spoke core so that a space is defined between said body and said boss, said space opening adjacent said body, said boss including a through hole having an inner peripheral surface provided with a first serration;

said steering shaft having a bolt portion at a distal end and a second serration capable of engaging said first serration; and

a tool releasably holding a nut that can position the nut over said distal end, once said distal end is inserted into said through hole with the first and second serrations meshed together, so that said tool can initially fasten the nut to said bolt portion.

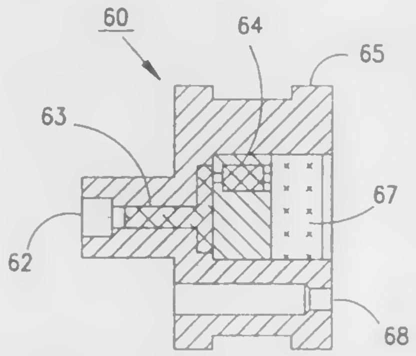
5,738,371
HYBRID AIRBAG INFLATOR

Robert D. Blackshire, Glendale; Milan L. Storch, Tempe, and Clyde L. Jones, Laveen, all of Ariz., assignors to Ad Astam Scientific, L.L.C., Scottsdale, Ariz.

Division of Ser. No. 259,617, Jun. 14, 1994, Pat. No. 5,538,278. This application Feb. 16, 1996, Ser. No. 601,340

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—736 **7 Claims**



1. An apparatus for inflating an inflatable vehicle occupant restraint comprising:

a container for storing a compressed gas, said container including a rupturable wall which is rupturable to define a gas exit opening in fluid communication with said inflatable vehicle occupant restraint;

a pyrotechnic gas generator having a combustion gas outlet directed into said compressed gas container for mixing a gas output of said pyrotechnic gas generator with said compressed gas;

a pyrotechnic delay train having an input end and an output end, said output end capable of initiating combustion of said pyrotechnic gas generator at a predetermined period after initiation of said input end, said pyrotechnic delay train including a pyrotechnic delay column; and

an initiator capable of rupturing said rupturable wall and initiating said input end of said pyrotechnic delay train, whereby said initiator ruptures said rupturable wall to begin a flow of compressed gas and also initiates said pyrotechnic delay train for initiating said pyrotechnic gas generator after a predetermined delay.

5,738,372
DEVICE FOR PRESSURE RELIEF DURING BONFIRE AND TELL-TALE OF COMPRESSED GAS

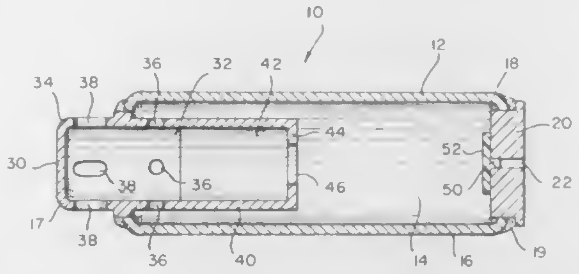
Wm. Gregory Lowe, and Joseph D. Francis, both of Ogden, Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed May 15, 1996, Ser. No. 648,459

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—736 **3 Claims**

1. A device for sealing a gas fill port of an inflator of a vehicle restraint system, and for providing pressure relief of gases during bonfire of the inflator, comprising:



means for sealing the fill port of the inflator, the sealing means being made of a material which melts at or just below an auto-ignition temperature of the inflator during bonfire to allow gases to vent from the inflator, thereby preventing the inflator from experiencing extremely high internal pressures, and wherein the sealing means deforms an amount which is proportional to the amount of gas present in the inflator prior to deployment, and the amount of deformation can be examined after functioning of the inflator to determine the amount of gas present in the inflator.

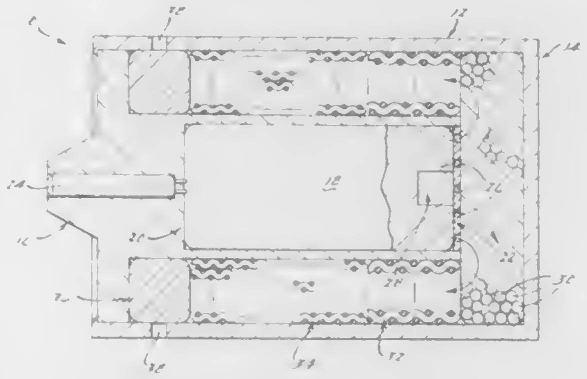
5,738,373
GAS INFLATOR WITH CERAMIC FOAM BALLS

Shahid A. Siddiqui, Canton, Mich., assignor to Automotive Systems Laboratory, Inc., Farmington Hills, Mich.

Filed Nov. 13, 1996, Ser. No. 747,753

Int. Cl.⁶ B60R *21/26*

U.S. Cl. 280—740 **3 Claims**



1. A gas generator comprising

a housing having a plurality of gas discharge nozzles,

a propellant chamber located within said housing for holding a propellant charge, said chamber having a plurality of apertures which are in fluid communication with said plurality of gas discharge nozzles;

means for igniting said propellant charge; and

a multistage filter in fluid communication with said plurality of apertures and said plurality of gas discharge nozzles, said multistage filter comprising:

a first filtration stage comprising a bed of ceramic foam balls;

a second filtration stage comprising a first wire mesh metallic filter;

a third filtration stage comprising a second wire mesh metallic filter; and

a fourth filtration stage comprising a ceramic filter,

wherein gasses produced by ignition of said propellant charge flow through said plurality of apertures into said ceramic foam balls for cooling thereof, thence through said first wire mesh metallic filter, thence through said second wire mesh metallic filter, and thence through said ceramic filter and outward through said discharge nozzles in said generator housing.

5,738,374
PYROTECHNIC GAS GENERATOR FOR INFLATABLE AIR-BAG OF A MOTOR VEHICLE

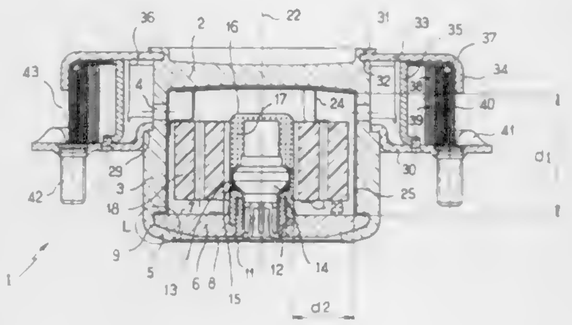
Benoit Marsaud, Neaufles Saint Martin; Christian Perotto, Ballancourt; Daniel Duvacquier, Bordeaux, and Michel Kozyreff, Bonsecours, all of France, assignors to SNC Livbag, Vert Le Petit, France

Filed Feb. 5, 1996, Ser. No. 609,000

Claims priority, application France, Feb. 23, 1995, 95 02100

Int. Cl.⁶ B60R *21/28*

U.S. Cl. 280—741 **10 Claims**



1. Pyrotechnic gas generator (1) for an air bag intended to protect the occupants of a motor vehicle, comprising in particular:

i) a hollow cylindrical body consisting of a circular base (2) extended by a cylindrical lateral wall (3) having, in proximity to the base (2), orifices (4) which connect inside and outside of the said hollow body, said wall (3) being terminated by a thinned end (5) and having an external shoulder (29) located under the orifices (4);

ii) a circular closure ring (6) crimped into said thinned end (5) of the lateral wall (3), said ring having a central orifice (11) in which a cylindrical ignition device (14, 16, 17) which penetrates inside said hollow body is fixed in a gas-tight manner,

iii) a pyrotechnic charge (18) in the form of an annular block, arranged inside said hollow body around the ignition device (14, 16, 17) and consisting essentially of a silicone binder and of a mixture of ammonium perchlorate and sodium nitrate, a height (h) of said annular charge (18) being less than a distance (d1) existing inside said hollow body between inner surfaces of the closure ring (6) and of the base (2), and a maximum thickness (em) of said annular charge (18) being less than a radial distance (d2) separating, inside said hollow body, the lateral wall (3) and the ignition device (14, 16, 17), so that the pyrotechnic charge (18) presents free surfaces which can all be covered by the gases originating from said ignition device (14, 16, 17);

iv) wedging means (23, 24) which allow the gases to circulate and which are arranged between the closure ring (6) and the charge (18) and between the base (2) and the charge (18);

v) a thin metal casing (25) interposed, inside said hollow body, between said charge (18) and both said lateral wall (3) and said base (2) so as to close off said orifices (4) in a gas-tight manner;

vi) a deflector (35) and a condenser (38, 39, 40) which are wedged between an outer ring (30) supported by said external shoulder (29) and an external diffuser (33) crimped onto circumference of the base (2).

5,738,375

Patent Not Issued For This Number

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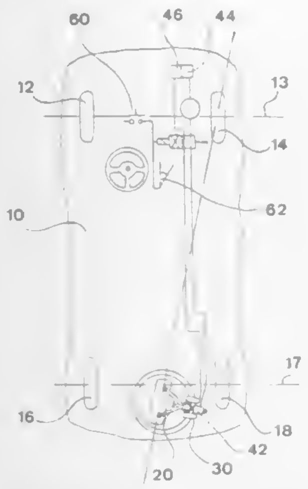
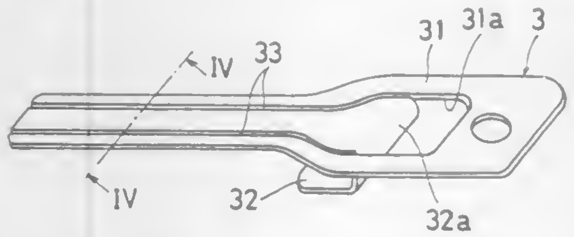
5,738,376
AUTOMOBILE PARKING AID MECHANISM
Itshak Marom, 4 HOF Hashenhav, 34980 Haifa, Israel
Continuation of Ser. No. 328,770, Oct. 27, 1994, abandoned. This application Jan. 11, 1996, Ser. No. 585,141
Int. Cl.⁶ B60S *9/16*
U.S. Cl. 280—761 **17 Claims**



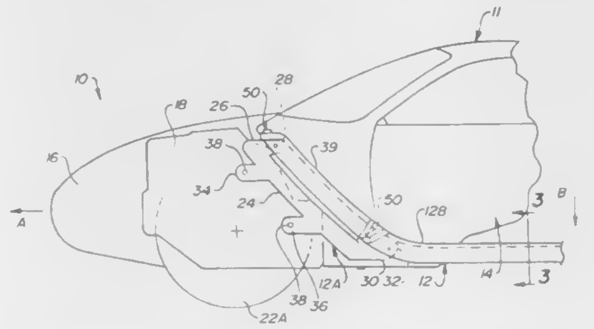
1. An automobile of improved maneuvering capability, such as during parking, comprising:
- (a) a first pair of automobile wheels;
- (b) a second powered pair of automobile wheels; and
- (c) a single mechanism for improving maneuverability of the automobile, said mechanism including:
  - (i) an arm having an upper end and a lower end, said upper end being rotatably fixedly connectable to the automobile at a location substantially intermediate between said first pair of automobile wheels, the axis of rotation of said arm being permanently substantially angled to a line connecting the centers of said wheels of said first pair of wheels so as to intersect a line connecting the centers of said wheels of said second pair of wheels at or near one or the other of said second pair of automobile wheels;
  - (ii) at least one passive auxiliary wheel connected to said lower end of said arm, the axis of rotation of said at least one passive auxiliary wheel being substantially parallel to the axis of rotation of said upper end of said arm; and
  - (iii) an arm rotating mechanism for rotating said arm so as to cause said at least one passive auxiliary wheel to first contact the ground and then lift the first pair of automobile wheels off the ground.

5,738,377
SHOCK ABSORBING PLATE FOR A VEHICLE STEERING WHEEL
Akio Sugiki, Brussels, Belgium, and Toshiyuki Sasaki, Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Sep. 6, 1996, Ser. No. 709,033
Claims priority, application Japan, Sep. 13, 1995, 7-235259
Int. Cl.⁶ B62D *1/19*
U.S. Cl. 280—777 **2 Claims**



1. A shock absorbing plate for mounting a vehicle steering column which is movable in an axial direction on a vehicle body comprising:
- said plate having a first portion for connection to a vehicle body and a second portion for connection to a steering column; and
- a pair of grooves formed in the plate and defining the second portion therebetween whereby the second portion may be torn from the first portion when excess force is applied to the steering column in said axial direction;
- wherein said grooves are substantially parallel to each other at opposite end portions of the grooves and converge toward each other in said axial direction intermediate said end portions to continue resistance to separation of said second portion from said first portion.

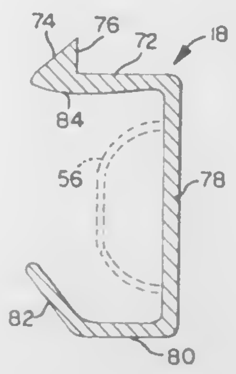
5,738,378
SAFETY VEHICLE
Raymond V. Yazejian, 1085 Dorchester, Bloomfield Hills, Mich. 48302
Filed Apr. 1, 1996, Ser. No. 625,097
Int. Cl.⁶ B62D *21/15*
U.S. Cl. 280—784 **16 Claims**



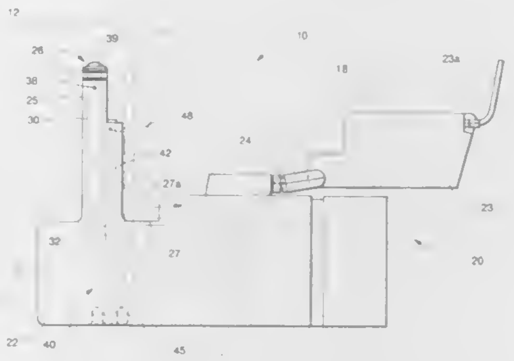
1. In an automotive vehicle including a chassis, an engine and a body having a forward portion and a passenger compartment, the improvement comprising a safety arrangement including:
- a chassis member fixedly attached to the passenger compartment;
- a first connecting member interconnecting the engine and said chassis member, said first connecting member being slidingly engaged with said chassis member; and
- a securing element interconnecting said first connecting member and said chassis member, said securing element being adapted to fixedly retain said first connecting member relative to said chassis member under normal operating conditions of the automotive vehicle and further adapted to fail under a predetermined load so as to permit said chassis member to slide forwardly and upwardly relative to said first connecting member, a second connecting member slidingly engaged with said chassis member, said chassis member at least partially defining a channel for telescopically receiving a portion of each of said first and second connecting members.

5,738,379
TRAILER FRAME MEMBER
Wayne Floe, HCR 3 Box 609, McGregor, Minn. 55760
Continuation of Ser. No. 344,369, Nov. 23, 1994, abandoned, which is a division of Ser. No. 943,312, Sep. 10, 1992, Pat. No. 5,421,612. This application Aug. 21, 1996, Ser. No. 697,266
Int. Cl.⁶ B62D *21/20*
U.S. Cl. 280—789 **17 Claims**

1. For use as part of a trailer frame constructed of joined frame members for supporting an associated portion of a trailer deck, an integrally formed loading frame member comprising:
- a deck support member having a predetermined length, a lower longitudinal surfacer and an associated longitudinal deck support surface;
- a ramp member joined to said deck support member in a cooperative relation to said longitudinal deck support surface, said ramp member having a length substantially equal to said predetermined length, a deck edge protecting surface extending upwardly from said deck support surface and having an upper edge, a lower portion having a longitudinal edge, and having a ramp surface disposed between said upper edge and said longitudinal edge at a predetermined angle less than ninety degrees to said deck support surface and arranged to protect an edge of a deck to be supported by said deck support surface; and
- a web member joined to said deck support member, along said predetermined length,
- whereby said ramp member provides ease of sliding objects to the trailer deck while it protects the associated trailer deck edge from damage during loading or unloading of the trailer deck.

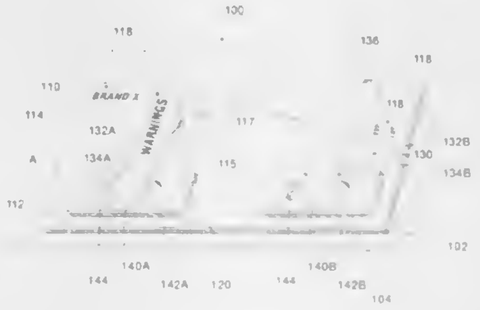


5,738,380
FUEL FILL DEVICE FOR TRACTORS
Randall E. Zipser, Lititz; Dennis L. White, and Edward J. Hines, both of Lancaster, all of Pa., assignors to New Holland North America, Inc., New Holland, Pa.
Filed Sep. 9, 1994, Ser. No. 302,452
Int. Cl.⁶ B60K *15/03, 15/063*; B65B *3/22*
U.S. Cl. 280—834 **26 Claims**



1. In a tractor having a wheeled chassis adapted for movement over the ground; an engine supported on said chassis to provide operational power therefor; a fuel tank apparatus for holding a supply of fuel for said engine, said fuel tank apparatus including a first tank portion having an inlet opening and a second tank portion in flow communication with said first tank portion, said second tank portion defining a cavity separated from said first tank portion by a barrier such that said cavity is closed off from said first tank portion when the fuel level within said fuel tank apparatus reaches said barrier, said fuel tank apparatus further including a fuel fill neck connected to said first tank portion in flow communication therewith for the introduction of fuel from an external source of fuel through said inlet opening into said fuel tank apparatus, the improvement comprising:
- a filler tube positioned within said fuel fill neck and terminating internally within said fuel tank apparatus, said filler tube having a smaller diameter than said fuel fill neck and being sealed against the inlet opening of said fuel fill neck such that the introduction of fuel into said fuel tank apparatus must pass through said filler tube, said filler tube being operable to direct gaseous bubbles within said fuel into said first tank portion to collect within said fuel tank apparatus outside of said filler tube, said filler tube being provided with a flange at said inlet opening, said tractor further comprising an adapter releasably connected to said fuel fill neck to sealingly compress said flange between said adapter and said fuel fill neck.

5,738,381
HANGER LABEL
Carl W. Treleaven, 3817 Buncombe Dr., Greensboro, N.C. 27407, and Glenn A. Grosskopf, 269 Pohlman Ct., Lake Zurich, Ill. 60047
Continuation-in-part of Ser. No. 533,082, Sep. 25, 1995. This application May 3, 1996, Ser. No. 647,466
Int. Cl.⁶ B42D *15/00*
U.S. Cl. 283—81 **48 Claims**



1. A label for displaying information regarding a container and suspending the container from a support, said label comprising
- a) a base label having a longitudinal edge, an upper surface and a lower surface;
- b) a base adhesive disposed on said lower surface for affixing said label to the container;
- c) a hanger having at least two interconnected legs defining an opening therebetween, each of said legs having a respective end;
- d) a plurality of spaced apart foot portions, each said foot portion substantially permanently secured to said upper surface of said base label along said longitudinal edge by a respective adhesive patch;
- e) said foot portions defining at least one gap therebetween, said gap separating adjacent said foot portions and disposed adjacent an interior area defined between two of said legs.
- f) each of said ends of said legs secured to a respective said foot portion;
- g) said hanger foldable about said ends between a stored position wherein said hanger lies adjacent said upper surface of said base label and a hanging position wherein said hanger is folded away from said base label for receiving the support through said opening, and
- h) a remaining portion of said upper surface of said base label, said remaining portion not covered by either of said foot portions and said hanger when said hanger is in said stored position

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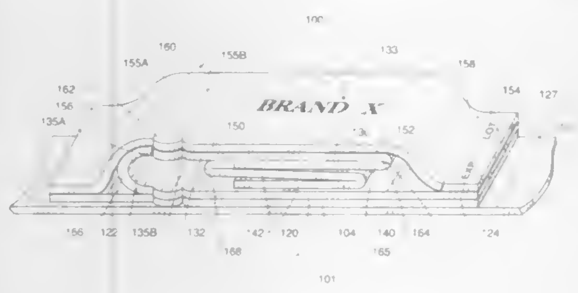
5,738,382
LAMINATED PACKAGE LABEL

Glenn A. Grosskopf, Lake Zurich, Ill., and Carl W. Treleaven, Greensboro, N.C., assignors to Pharmagraphics (Midwest), L.L.C., and Pharmagraphics (Southeast), L.L.C., both of Greensboro, N.C.

Filed Feb. 9, 1996, Ser. No. 598,799

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—81 **33 Claims**



5. A label for displaying information regarding a package, comprising:

a) a bottom panel having an upper surface and a lower surface;

b) a top panel overlying and connected to said bottom panel along a first fold line;

c) at least one interior panel connected to one of said bottom panel and said top panel along a second fold line, and a marginal extended flap extending outwardly from the other of said bottom panel and said top panel, said marginal extended flap having an upper surface and a lower surface;

d) said interior panel having a terminal edge opposite said second fold line and spaced apart from said first fold line;

e) an adhesive layer disposed on said lower surface of said bottom panel and said lower surface of said marginal extended flap for securing said label to the package, said adhesive layer extending continuously from at least said first fold line to said marginal extended flap;

f) each of said bottom panel and said top panel having a marginal portion extending between said first fold line and said terminal edge of said interior panel, said marginal portion of said top panel directly overlying said marginal portion of said bottom panel;

g) a laminate cover having a lower surface and a laminate adhesive coating the substantial entirety of said lower surface, said laminate cover overlying said top panel and said marginal extended flap and secured to said top panel and said marginal extended flap by said laminate adhesive;

h) first and second access tear lines each formed in said marginal portion of said top panel, each of said first and second access tear lines directly overlying said marginal portion of said bottom panel and spaced apart from one another, said first and second access tear lines defining a tear strip therebetween, said tear strip disposed adjacent said first fold line and directly overlying said marginal portion of said bottom panel, and wherein no portion of any said interior panel underlies said tear strip;

i) first and second laminate tear lines formed in said laminate cover overlying said first and second access tear lines, respectively;

j) a removal tear line adjacent said second fold line; and

k) indicia disposed on said upper surface of said marginal extended flap and corresponding indicia disposed on said upper surface of said bottom panel.

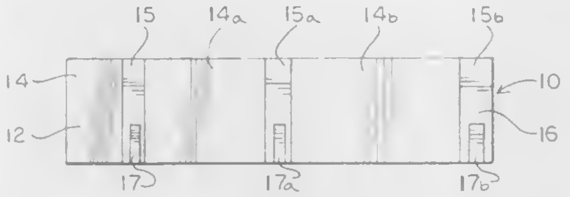
5,738,383
LABEL ASSEMBLY WITH PATTERNED ADHESIVE BANDS

George W. Main, Essex Junction, and Jean Claude LaLande, Colchester, both of Vt., assignors to KoBel, Inc., Milton, Vt.

Filed Nov. 20, 1996, Ser. No. 752,784

Int. Cl.^{6} B42D *15/00*

U.S. Cl. 283—81 **5 Claims**



1. A label assembly with patterned adhesive bands, for use in creating a label on demand to allow for cutting of the label after printing or dispensing without fouling the cutting implement, comprising:

a single sheet of material;

said single sheet of material having a first side and a second side, the first side having a printable areas for printing of labels;

said second side of said single sheet of material having a permanent adhesive coating located thereon,

said second side of said single sheet of material further having indicator means for identifying the areas having the adhesive coating for permitting the machinery to accurately identify those areas; and

said permanent adhesive coating comprising first means of a strip of permanent adhesive coating and second means of a strip having no adhesive coating, said first means and said second means comprising an alternating pattern of adhesive coating and material having a perimeter containing no permanent adhesive coating.

5,738,384
TUBE CONNECTION SECURING CLIP

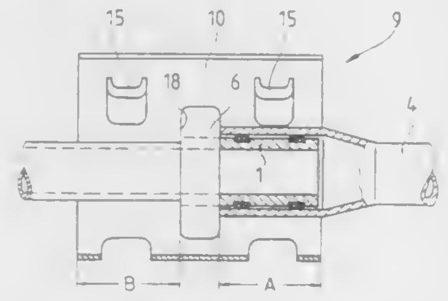
Dietmar Boehme, Duisburg, Germany, assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jun. 7, 1996, Ser. No. 660,365

Claims priority, application Germany, Apr. 7, 1995, 195 13 158.8

Int. Cl.^{6} F16L *21/06*

U.S. Cl. 285—114 **5 Claims**



1. A clip for securing together a pair of overlapping tube ends in which an axial end of a first tube is inserted into an axial end of a second tube, the first tube including a flange member spaced a predetermined distance from a terminal edge of the first tube, the clip comprising:

a pair of generally arcuate, elongate elements formed integrally as a one piece member connected together by a living hinge and being pivotable from a first open position to a second clamped position, each of the elements including:

a first contact region adapted to contact said axial end of the second tube over a predetermined area;

a second contact region adapted to contact the exterior of said first tube opposite said flange member over a predetermined area, said second contact member having grooved depressions formed therein, said second contact region being operable to firmly engage the exterior of the first tube when said clip is in the clamped position;

the first and second contact regions being operable to secure the tube ends in mutually axially aligned, non-tiltable positions when the clip is in the clamped position; and

a middle region including an opening configured to matingly engage said flange member when said clip is in said clamped position, said opening comprising an aperture formed between said first and second contact regions and configured to positively retain said flange member therein to prevent axial displacement of said clip; and

a locking mechanism for securing the pair elements together in the clamped position.

5,738,385
DEVICE FOR JOINING THE END OF A HELICALLY CORRUGATED METAL TUBE TO ANOTHER BODY

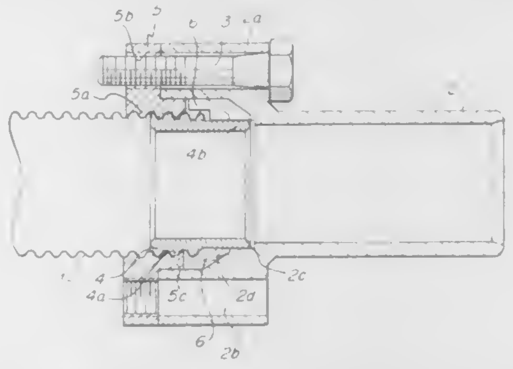
Jorn Homann, and Hartmut Krüger, both of Hanover, Germany, assignors to BRUGG Rohrsysteme GmbH, Germany

Filed Nov. 18, 1996, Ser. No. 746,933

Claims priority, application Germany, Nov. 25, 1995, 295 18 712.3

Int. Cl.^{6} F16L *21/04*

U.S. Cl. 285—226 **13 Claims**



1. An arrangement for connecting an end of a helically corrugated metal tube to another body, which comprises:

a) a back-up ring with an external thread, which extends over part of its outer surface area and is screwed into the end of the helically corrugated metal tube;

b) a pressure ring with an internal thread screwed far enough over the end of the helically corrugated metal tube so that the end of the helically corrugated metal tube protrudes from the pressure ring;

c) means connecting the another body to the pressure ring,

d) a sealing ring made of graphite and located between the back-up ring, the pressure ring and the connect means; and

e) means for compressing the sealing ring by axially pulling of the pressure ring and said connect means toward each other.

5,738,386
LIGHTWEIGHT PIPE CLAMP

Roy Stephen Barefoot, Hayes; Robert Myles, Port Haywood, and Rodger L. Willett, Gloucester, all of Va., assignors to Newport News Shipbuilding and Dry Dock Co., Newport News, Va.

Filed Feb. 28, 1996, Ser. No. 608,588

Int. Cl.^{6} B23K *37/053;37/04;* **F16L** *13/013*

U.S. Cl. 285—284.1 **6 Claims**

1. A lightweight, portable clamping device circumferentially mountable on the ends of a pipe for reforming and aligning the outside diameter comprising:

a pair of semicircular clamp halves, each said clamp half having a substantially smooth inner surface, an outer surface, and a pair of end surfaces;

a plurality of access ports around the perimeter of each said clamp half for receiving a welding electrode, wherein said plurality of access ports consist of a plurality of elongated openings disposed between said inner surface and said outer surface of said clamp half, said elongated openings including port sleeves disposed therein, said sleeves having substantially the same shape as said openings and being in frictional engagement with said openings; and

means for drawing one said clamp half toward said other clamp half to mate said respective pairs of end surfaces.

5,738,387
TUBE COUPLINGS

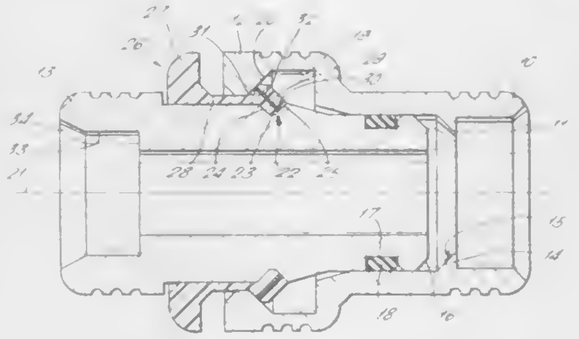
John Derek Guest, 'Iona', Cannon Hill Way, Bray, Maidenhead, Berkshire SL6 2EX, United Kingdom

Filed Sep. 20, 1996, Ser. No. 717,488

Claims priority, application United Kingdom, Sep. 20, 1995, 9519199

Int. Cl.^{6} F16L *35/00;21/06*

U.S. Cl. 285—322 **14 Claims**



1. A tube coupling comprising a coupling body having a throughway open at one end for receiving a tube extending into the throughway, a collet located in the open end of the throughway for holding a said tube in the throughway and comprising an annular head located outside the throughway, said collet having a plurality of arms extending into the throughway and terminating in enlarged heads located in an end part of the throughway, the inner side of the throughway having a tapered cam surface which reduces towards the open end of the throughway, the heads having inner and outer faces which are parallel to one another and to said tapered cam surface for engaging with both said tapered cam

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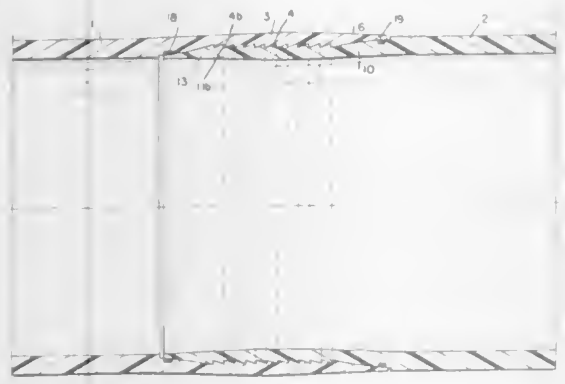
surface and a parallel tapered cam surface on a said tube such that the heads are subjected solely to compression in resisting withdrawal of a said tube from the throughway.

5,738,388
DEVICE FOR PERMANENT JOINING OF TUBES

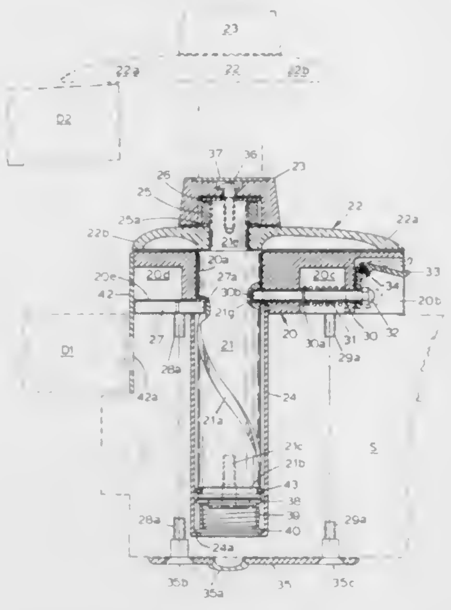
Johan Christian Sundelin, Skarpnaek, Sweden, assignor to Atlas Copco Craelius AB, Sweden
PCT No. PCT/SE95/00254, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/25239, PCT Pub. Date Sep. 21, 1995
PCT Filed Mar. 13, 1995, Ser. No. 700,463
Claims priority, application Sweden, Mar. 15, 1994, 9400867
Int. Cl.^{6} F16L *13/14*
U.S. Cl. 285—382 **14 Claims**



1. A device for permanent joining of tubes (1, 2) made of flexible materials for use as covering or lining tubes when drilling holes in the ground, the device including a female portion (3) on a first tube (1) and a male portion (10) interacting therewith on a second tube (2), the male portion being provided with annular projections (**11***a*-**1**) and recesses (**12***a*-**1**) round its outer circumference and the female portion being provided with annular projections (**4***a*-**1**) and recesses (**11***a*-**1**) around its inner circumference, which projections during radial deformation thereof are arranged to pass each other and to be inserted said in annular recesses, the annular projections (**11***a*-**1**) of the male portion (**10**) and female portion being flexible and axially spaced, and the recesses (**5***a*-**1**) of the female portion (**3**) and male portion being spaced at a distance from each other corresponding to the distance between said projections and in which, in the joining position, the projections of the male portion (**10**) are inserted with, the projections (**11***a*-**1**, **4***a*-**1**) and the recesses (**12***a*-**1**, **5***a*-**1**) of the male portion (**10**) and the female portion (**3**) forming in cross section, a sawtooth pattern, where each projection has two intersecting surfaces, of which a first surface forms an acute angle (β) with the radial plane and a second surface forms an acute angle (α) with the axial plane, characterized in that, in the joining position, the male portion (**10**) continuously presses the female portion (**3**) radially outwards under deformation of at least one of the male and female portions, in that at least some of the projections (**4***a*-**1**), (**11***a*-**1**) of at least one of the male portion (**10**) and the female portion (**3**) each have a diameter which results in interference engagement between said projections and recesses (**12***a*-**1**) (**5***a*-**1**) of the at least one of the female portion (**3**) and the male portion (**10**) thereby producing said deformation and also serving for transmitting axial and torsional forces therebetween, and in, both the male portion (**10**) as well as the female portion (**3**), said first surface is situated on that side of a diametrical plane through said surfaces' intersection which is opposite to the respective portion's free end.

5,738,389
DOOR SECURING DEVICE

Chester J. Marks, Lafayette, La., assignor to Marks Family Partnership, LLC of Louisiana, Lafayette, La.
Continuation-in-part of Ser. No. 239,679, May 9, 1994, abandoned. This application Mar. 25, 1996, Ser. No. 621,319
Int. Cl.^{6} E05C *5/00*
U.S. Cl. 292—63 **13 Claims**



1. A door locking device for attachment to a door frame to limit opening of an associated door toward an access side of said door frame, comprising:

a) a body with a base plane arranged for attachment to said door frame on said access side, having a bore extending generally perpendicular to said plane and a cam lug extending radially into said bore;

b) an arbor adapted to slideably fit said bore for axial and rotary movement therein, surfaces on said arbor defining a cam groove adapted to cooperate with said cam lug and to permit said arbor to move, from a stowed or first position, a first increment of axial distance to a second position, continuing peripherally around said arbor via a peripheral groove to allow said arbor to rotate to a third position, and proceed axially a second increment of axial distance to allow said arbor to extend to a fourth position relative to said body; and

c) a barrier plate rotationally and axially attached to an end of said arbor on said access side for movement therewith and shaped relative to said arbor such that when said arbor is in said first position said plate lies near said body generally parallel to said plane, and when said arbor is rotated to said third arbor position said barrier plate extends beyond said plane a preselected amount to limit the opening of said door, said plate movable when said arbor is in said fourth arbor position to allow limited opening of said door.

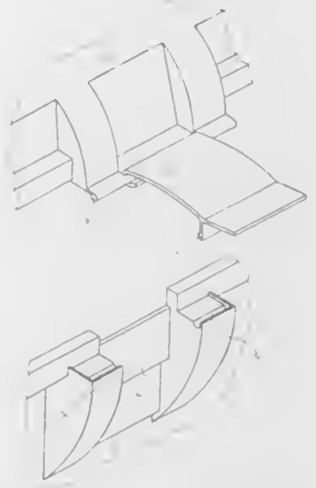
5,738,390
HINGEABLE LATCH

Evi Yemini, Tel-Aviv, Israel, assignor to Zag Ltd., Rosh Haayin, Israel
Filed Mar. 12, 1997, Ser. No. 815,542
Int. Cl.^{6} E05C *19/06*
U.S. Cl. 292—87 **4 Claims**

1. A hingeable latch utilizing a single mobile element for detachably or hingedly connecting a base and a cover, comprising:

(a) a single rod connected to, or integrally formed with, the cover;

(b) a latch plate mounted on said rod so that said latch plate is rotatable relative to said rod;

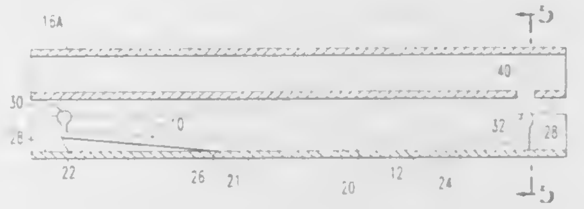


(c) a latch catch connected to, or integrally formed with, the base, said latch catch including a lip designed to engage a protrusion of said latch plate, being at a substantially acute angle to said latch plate, so as to connect the base and cover; and

(d) a rod seat connected to, or integrally formed with, the base, said rod seat designed to hingedly freely accommodate at least a portion of said rod so that when said latch plate and said latch catch are engaged, said rod is rotatable in said rod seat to permit the cover to be hinged relative to the base, wherein portions of said rod extend beyond said latch plate and wherein said rod seat hingedly accommodates said portions of said rod.

5,738,391
FULCRUM WINDOW LOCK

Michael T. Chaney, Middletown; Joseph J. Levangie, Franklin; Ray Garries, Springboro, and David R. Kirchner, Camden, all of Ohio, assignors to Dayton Technologies, Inc., Monroe, Ohio
Filed Jul. 24, 1996, Ser. No. 685,734
Int. Cl.^{6} E05C *3/06*
U.S. Cl. 292—198 **4 Claims**



1. In combination, an outer window frame, a window sash including a frame mounted in said outer frame, said outer frame having a lower sill, and a fulcrum lock for preventing substantial movement of the window sash in the outer frame when wind forces are directed against the sash,

said fulcrum lock having an elongated main body portion provided with a fulcrum surface on a side thereof and on which the lock pivots, located between ends of the main body portion and with each of said ends including a leg extending generally perpendicular to the main body portion from a side of the main body portion opposite that on which the fulcrum surface is located,

said fulcrum lock being located in one of the sash or outer window frame, with one of the legs projecting to engage a surface of the other of the sash or outer frame, the other of said sash or outer flame is also provided with an opening located to receive the other of the legs of the fulcrum lock when the one leg is engaged by the surface of the sash or outer frame containing the opening

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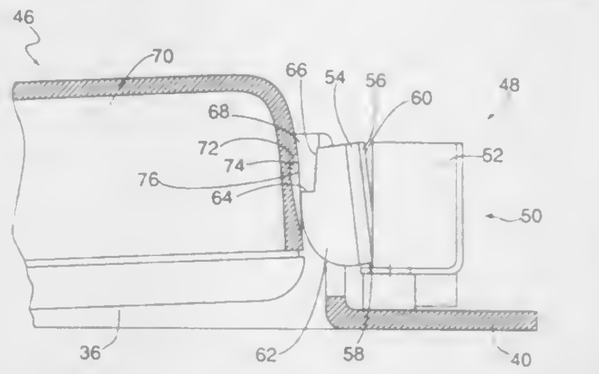
5,738,392
LATCH FOR SECURING AN AIRCRAFT VIDEO DEVICE

John R. Portman, Anahiem, Calif., assignor to Sony Corporation, Tokyo, Japan, and Sony Transcom, Inc., Irvine, Calif.
Filed Oct. 12, 1995, Ser. No. 542,365
Int. Cl.^{6} E05C *3/06*
U.S. Cl. 292—201 **25 Claims**



1. A fail safe latch device for securing a viewing element in a horizontal position, wherein said viewing element is rotatable between said horizontal position and a downward position and wherein said viewing element, when not in use, is held in a retracted position by a drive mechanism to stop undesirable downward rotation of said viewing element to said downward position, comprising:

a hinged element having a cutout portion, said cutout portion having a first mating surface;

rotating means for rotating said hinged element between a closed position wherein said hinged element is in a vertical orientation and an open position wherein said hinged element is rotated away from said vertical orientation, wherein said hinged element is adapted to rotate to said open position in response to a failure of said drive mechanism; and

a notch for being formed in said viewing element, said notch having a second mating surface wherein when said hinged element is in said open position and said viewing element is in said horizontal position, said second mating surface rests upon said first mating surface thereby latching said viewing element in said horizontal position and stopping undesirable downward rotation of said viewing element to said downward position when said drive mechanism fails and said hinged element is in said open position

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5,738,393
AUTOMOTIVE HOOD LATCH HAVING REMOTE ACTUATOR

Yi J. Chao, West Bloomfield, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Nov. 8, 1996, Ser. No. 745,231
Int. Cl.^{6} E05C *3/26*
U.S. Cl. 292—216 **14 Claims**

1 An automotive hood latch, comprising

a movable striker having a lowered fully latched position, an intermediate partially latched position, and a raised unlatched position;

a primary latching member adapted to hold said striker in its lowered position; spring means continually exerting a lifting force on said primary latching member;

a secondary latching member adapted to hold said striker in its intermediate position; and

a remotely-operated control means for said latching members, said control means comprising a cable operator and a reciprocatable detent mechanism connected thereto, said detent mechanism having a fixed length stroke between an operating position and a retracted position;

said detent mechanism having a disengageable detent connection with said primary latching member and a cam and slot means provided on said secondary latching member for pro-

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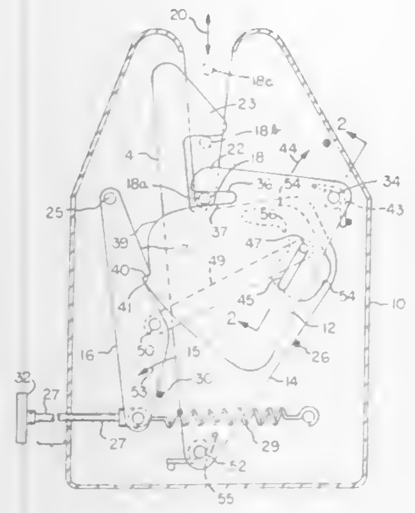
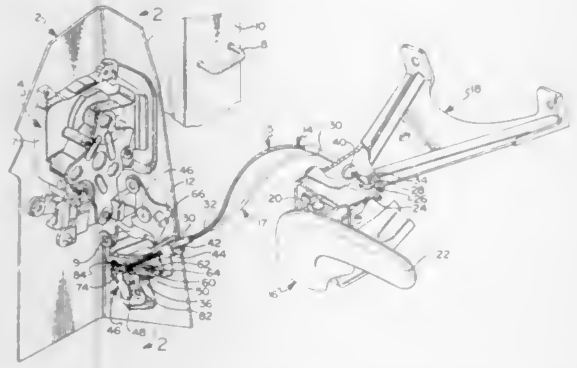


viding a lost motion drive connection with said secondary latching member, whereby during a first reciprocation of said cable operator, the primary latching member is released from said detent mechanism to lift the striker from its lowered position to its intermediate position; and during a second reciprocation of said cable operator, the secondary latching member is disengaged from said striker to enable said primary latching member to lift the striker to its raised position.

5,738,394
CHILD-PROOF DOOR LATCH

Frank Joseph Arabia, Jr., Macomb Township, Mich.; Colby Lenn Bellew, Berkeley, Calif., and Ian Martin, Pontiac, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 26, 1996, Ser. No. 756,021
Int. Cl.^{6} E05C *3/06;3/16;* **B60R** *25/00*
U.S. Cl. 292—216 **7 Claims**

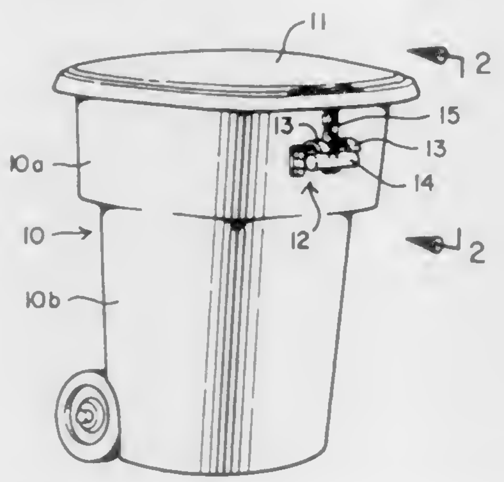


1. In a cable-driven door latch and handle mechanism comprising a latchbolt for engaging a striker on a doorframe to prevent unintended opening of the door associated with said latch, a trigger for actuating said latchbolt, a handle remote from said trigger for actuating said trigger, a flexible cable extending between said handle and said door latch, and a flexible sheath encasing said cable for actuating said trigger when said cable is tensioned by said handle, a first end of said cable affixed to said handle for movement with said handle, a first end of said sheath anchored against movement adjacent said first end of said cable, and a second end of said sheath affixed to said trigger, the improvement comprising: a second end of said cable being selectively (1) anchored against longitudinal movement when the ability to actuate said trigger by said sheath is enabled, and (2) released for movement with respect to said trigger when the ability to actuate said trigger by said sheath is disabled.

5,738,395
DUMPABLE RUBBISH CONTAINER WITH AUTOMATICALLY RELEASABLE CLOSURE LATCH

Evan Probst, 4375 W. 8500 North, Delta, Utah 84624

Filed Oct. 30, 1996, Ser. No. 740,495
Int. Cl.^{6} E05C *3/06*
U.S. Cl. 292—230 **6 Claims**

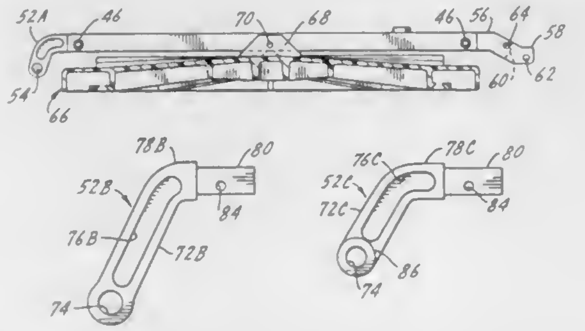


1. A dumpable waste container for normally standing upright but adapted to be lifted and tilted toward and into dumping position by a waste collecting device carried by an automated garbage truck, said container comprising a hinged lid and automatic latching and unlatching means between said lid and the container, said means comprising at least one keeper member attached to said container, projecting outwardly therefrom, and being open for entry of a latching member, at least one latching member for entry into said keeper member, and at least one length of flexible material suspending a corresponding one of said at least one latching member from said lid so as to automatically enter a corresponding one of said at least one keeper member by gravity when the container is standing substantially upright and so as to automatically release said latching member by gravity when the container is lifted and tipped toward and into dumping position by said waste collecting device.

5,738,396
UNIVERSAL LATCH SYSTEM FOR RAILROAD CAR HATCH COVERS

David A. Oestermeyer, Downers Grove; Brian D. Putnam, Bolingbrook, and William F. Burian, Downers Grove, all of Ill., assignors to Salco Products, Inc., Lemont, Ill.

Filed May 1, 1996, Ser. No. 637,926
Int. Cl.^{6} E05B *65/00*
U.S. Cl. 292—256.5 **11 Claims**



1. A latch system for connecting railroad car hatch covers to a loading nozzle equipped with a catch bolt and a hinge bracket, comprising:

an elongated arm having first and second ends and cover attachment means intermediate the ends of the arm for connecting the arm to a hatch cover, and the arm further including first and second attachment elements at the first and second ends of the arm, respectively;

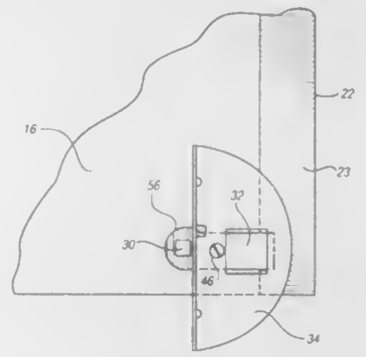
a hinge adaptor having a connector and a coupler, the connector being removably attached to the first attachment element of the arm, the coupler being arranged to pivotably connect to a particular car manufacturer's hinge bracket; and

a catch adaptor removably attached to the second attachment element of the arm and arranged to be engageable with the catch bolt attached to the loading nozzle.

5,738,397
SHELL DOOR LOCKING DEVICE

Steven Grody, 427 Coyton St., #250, Los Angeles, Calif. 90013, and Jeffrey Atherton, 5396 Alhambra Ave., Los Angeles, Calif. 90032

Filed Nov. 14, 1995, Ser. No. 555,881
Int. Cl.^{6} B65D *45/00*
U.S. Cl. 292—258 **5 Claims**



5. A locking device in combination with a pick-up truck shell, the combination comprising:

a shell body defining a shell interior;

a shell door hinged to the shell body for movement relative to the shell body between a closed position and an open position;

at least one latch mechanism coupled to the shell door and having a pivotal plate moveable between a first position and a second position, wherein the pivotal plate overlaps a portion of the shell body upon the pivotal plate being in the first position and the shell door being in a closed position, and wherein the pivotal plate does not overlap a portion of the shell body upon the pivotal plate being in the second position;

a substantially rigid body;

securing means for selectively securing the substantially rigid body to the pivotal plate and selectively detaching the substantially rigid body from the pivotal plate from inside of the shell interior;

wherein the substantially rigid body has a body portion which overlaps a portion of the shell body upon the substantially rigid body being secured to the pivotal plate while the shell door is in the closed position and while the pivotal plate is in the second position.

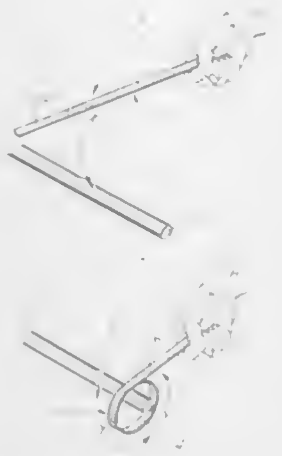
5,738,398
SELF-WRAPPING CARRYING DEVICE

R. Ross Miano, P.O. Box 429, Reserve, La. 70084

Filed May 9, 1996, Ser. No. 647,065
Int. Cl.^{6} B65D *63/00*
U.S. Cl. 294—1.1 **17 Claims**

1. An apparatus for grasping and carrying substantially cylindrical objects, comprising:

(a) a self-rolling spring strip of a metallic substance with opposing concave and convex surfaces which is biased to an uncoiled position such that when said strip is subjected to a



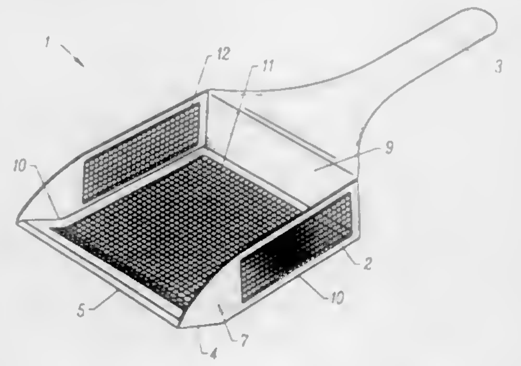
slapping motion about a substantially cylindrical object, said opposing surfaces flatten out and said strip coils around the object; and,

(b) a pair of fastening means fixedly attached on said opposing surfaces such that when said strip is in a coiled position, said fastening means prevent said strip from uncoiling.

5,738,399
CAT LITTER SCOOP

Melanie Mitchell, 6624 Wildwood Ct., San Jose, Calif. 95120

Filed Oct. 23, 1996, Ser. No. 735,519
Int. Cl.^{6} A01K *29/00*
U.S. Cl. 294—1.3 **4 Claims**



1. A cat litter scoop for removing clumped waste material from a cat litter container, said scoop comprising:

a base, including a bottom and sides each having at least a mesh portion for holding and sifting a mixture of cat litter and said clumped material, said mesh portion being of a size sufficiently large enough to allow clean litter to pass through said mesh portion and small enough to prevent said clumped material from falling through said mesh portion, said base being substantially comprised of metal;

an arched handle at a slight angle with respect to the bottom of said base;

a front beveled angled edge of said base for scraping the sides or bottom of said cat litter container;

a second angle at the bottom front of said base angled upwardly to primarily facilitate the scooping of said mixture into said base; and,

a smooth top side edge angled to curve smoothly with respect to said front beveled edge to facilitate in cleaning the corners of said cat litter container, and

wherein said base is shaped so that the front of said base is wider than the back of said base and the back portion is deeper than the front portion so as to create a funnel-like structure for tunneling clumped material from the front edge of said scoop into the deeper main base portion and wherein the depth of said base near the back

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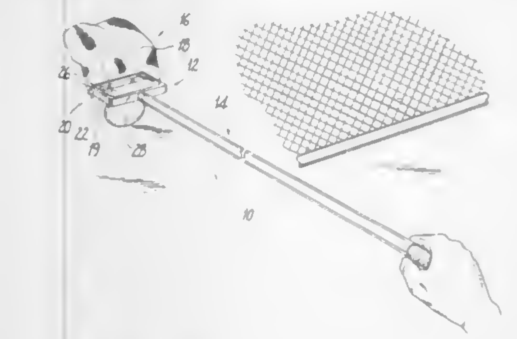
portion is sufficient so as to prevent the mixture from falling out of said base at the front edge during sifting and wherein the depth is not so large so as the base interferes with the cleaning and sifting of said cat litter container.

5,738,400
EGG RETRIEVER

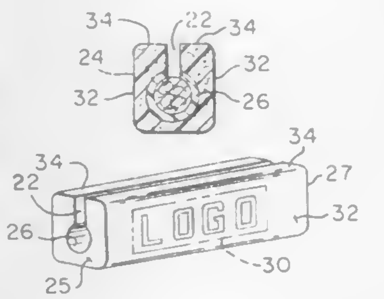
Jack Chambless, Rte. 1, Box 210, Buchanan Dam, Tex. 78609
Filed Nov. 7, 1996, Ser. No. 745,908
Int. Cl.⁶ B25J *1/04*
U.S. Cl. 294—19.1 **12 Claims**



1. A retrieval apparatus comprising:
- a rim having a scoop portion thereon and defining an opening therein, the scoop portion including a blade pivotably mounted to said rim and operatively associated with a control mechanism for pivoting said blade; and
- a holding pouch positioned adjacent a periphery of the rim in alignment with the opening.

5,738,401
PALM-PROTECTOR: HAND GRIP FOR SHOPPING BAGS AND PACKAGES

George S. Fan, 32 Quidnic Rd., Newton, Mass. 02168
Filed Jul. 21, 1995, Ser. Nn. 505,675
Int. Cl.⁶ A45F *5/10*; B65D *33/06*
U.S. Cl. 294—171 **6 Claims**



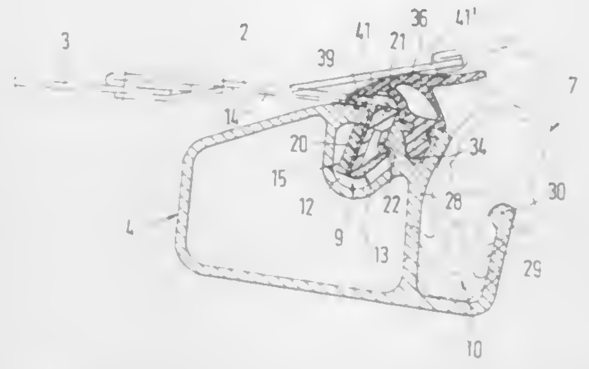
1. A shopping package carrying hand grip replaceably attachable to at least one of hand straps of a package, a string of a tied package, and a rope of a tied package, that prevents injury to a palm of a shopper when the shopper is carrying the package regardless if said shopping package carrying hand grip is rotated longitudinally, comprising:

a) a one-piece, elongated, and rectangular-parallelepiped-shaped outer shell of a soft, flexible material; said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell having a length, an approximate longitudinal centerline, a pair of flat, opposing and parallel longitudinal faces, a flat front face with a top edge, a flat back face disposed behind, and parallel to, said flat front face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell and having a top edge; said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell further having a flat top face extending perpendicularly from said top edge of said flat front face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell to said top edge of said flat back face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell and having a longitudinal centerline; said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell further having a circular-cylindrically-shaped throughbore extending longitudinally therethrough, along said approximate longitudinal centerline of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell from, and opening into, said flat front face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell to, and opening into, said flat back face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell further having a narrow and rectangular-parallelepiped-shaped throughslot for guiding reception of the at least one of the hand straps of the package, the string of the tied package, and the rope of the tied package into said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell extending perpendicularly downwardly from, and opening into, said longitudinal centerline of said flat top face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell to, and opening into, said circular-cylindrically-shaped throughbore of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell further extending from, and opening into, said flat front face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell to, and opening into, said flat back face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell and being defined by a pair of flat, opposing, and parallel faces being parallel to, and disposed between, said pair of flat, opposing, and parallel longitudinal faces of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; and

b) a one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member being fixedly contained in said circular-cylindrically-shaped throughbore of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member having a length equal to said length of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell, a circular-cylindrically-shaped outer surface being fixedly attached to, and coincident with, entire said circular-cylindrically-shaped throughbore of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell, a circular-cylindrically-shaped inner surface being concentric with, and inward of, said circular-cylindrically-shaped outer surface of said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member, an open front face being co-planar with said flat front face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell, an open back face being co-planar with said flat back face of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell; said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member further having a narrow and rectangular-parallelepiped-shaped throughslot for guiding the reception of the at least one of the hand straps of the package, the string of the tied package, and the rope of the tied package, into said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member; said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member extending along said length of, and radially from, and opening into, said circular-cylindrically-shaped outer surface of said one-piece, sturdy, inflexible, hollow, and circular cylindrically shaped inner tubular member to, and opening into, said circular-cylindrically-shaped inner surface of said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member and being defined by a pair of flat, parallel, and opposing faces being co-planar and continuous with said pair of flat, parallel, and opposing faces of said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped shaped outer shell, so that the at least one of the hand straps of the package, the string of the tied package, and the rope of the tied package can contact and force apart said pair of flat, opposing, and parallel faces of said narrow and rectangular-parallelepiped-shaped throughslot of said one piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell, and then be readily and easily guided into said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell, and then be readily and easily guided into said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member, and thereby allow said pair of flat, opposing, and parallel faces of said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell to close, and then readily and easily seek a lowest point on said circular-cylindrically-shaped inner surface of said one-piece, sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member as a result of gravity and thereby protecting the palm of the shopper from injury caused by the at least one of the hand straps of the package, the string of the tied package, and the rope of the tied package when the shopper is carrying the package regardless if said shopping package carrying hand grip is longitudinally rotated since said sturdy, inflexible, hollow, and circular-cylindrically-shaped inner tubular member contacts entire of said circular-cylindrically-shaped throughbore of said soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell and said narrow and rectangular-parallelepiped-shaped throughslot of said one-piece, soft, flexible, elongated, and rectangular-parallelepiped-shaped outer shell is closed, and the at least one of the hand straps of the package, the string of the tied package, and the rope of the tied package is prevented from escaping from said shopping package carrying hand grip even after the package has been set down.

5,738,402
FOLDING TOP FOR VEHICLES

Matthias Aydt, Eberdingen; Kurt Pfertner, Wimsheim; Jan Just, Leonberg; Christof Blech, Renningen, and Dominik Beierl, Korntal-Münchingen, all of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany
Continuation of Ser. No. 561,968, Nov. 22, 1995, abandoned.
This application Feb. 18, 1997, Ser. No. 802,417
Claims priority, application Germany, Nov. 23, 1994, 44 41 669.5
Int. Cl.⁶ B60J *7/12*
U.S. Cl. 296—118 **20 Claims**



1. Folding top for vehicles having a folding top structure and a folding top covering, an edge area of the folding top covering being fastened on a rear-side tensioning bow of the folding top structure, and a sealing body being mounted on the tensioning bow and being in an operative connection with an adjoining vehicle body part, wherein separate receiving devices for fastening the edge area of the folding top covering and for holding the sealing body are provided on the tensioning bow, and wherein the edge area of the folding top covering is removable from the rear-side tensioning bow without removing the sealing body

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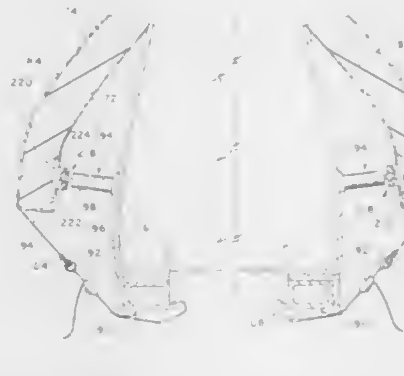
5,738,403
VEHICLE PROTECTIVE COVER

Carolyn L. Tyson, 6649 Columbine Way, Plano, Tex. 75093
Filed Apr. 26, 1996, Ser. No. 638,433
Int. Cl.⁶ B60J *11/00*
U.S. Cl. 296—136 **20 Claims**



1. A protective vehicle cover for protecting a motor vehicle from hard objects comprising:
- a depending panel portion extending along a side of said vehicle, said depending panel portion including a layer having a lower edge and being constructed of a shock absorbing material having a predetermined thickness, said depending panel portion further including a flexible skirt having a thickness substantially less than the thickness of the layer, said skirt extending beyond the lower edge in a tensioned, stand off position from said side of said vehicle

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5,738,404
WIND DEFLECTING DEVICE FOR A CONVERTIBLE

Bernd Stadler, Weissach; Dieter Reuter, Ehningen, and Matthias Aydt, Eberdingen, all of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany
Filed Dec. 6, 1996, Ser. No. 761,786
Claims priority, application Germany, Dec. 6, 1995, 195 45 405.7
Int. Cl.⁶ B62D *35/00*
U.S. Cl. 296—180.1 **17 Claims**

1. Wind deflection device for a convertible which is arranged behind a row of seats in a vehicle interior and, in its operative position, comprises a first upright part which extends beyond the seats in the upward direction and along the whole width of the interior and which, with its lower edge, ends approximately at a level of a vehicle belt line and is connected there by way of hinges to an approximately horizontal covering which covers an opening behind the seats in the upward direction.

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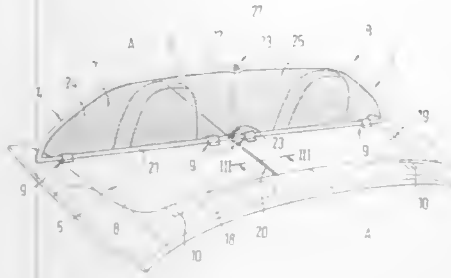


wherein the first part is formed by a flexible net mounted in a frame, and

wherein the covering is constructed as a plate-shaped covering which in an in use position precludes visibility from above of objects behind the seats.

5,738,405

OFF-ROAD VEHICLE HAVING A TWO-PART ROOF STRUCTURE

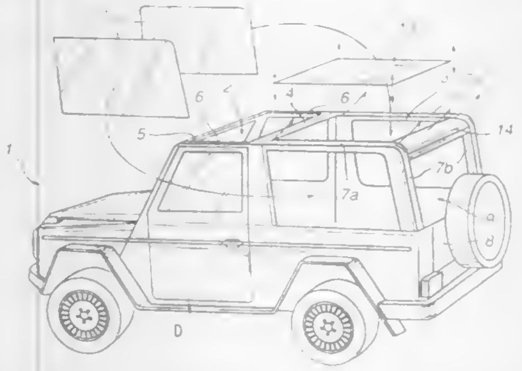
Volker Richters, Sindelfingen; Erich Rühringer, Magstadt, and Wolfgang Müller, Sindelfingen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Feb. 14, 1995, Ser. No. 388,027

Claims priority, application Germany, Feb. 14, 1994, 44 04 619.7

Int. Cl.⁶ B62D *25/08*

U.S. Cl. 296—196 26 Claims



1 Roof structure for an off-road vehicle which includes vehicle supporting structure, comprising:

a front roof part including a rollover bar integrated into the vehicle supporting structure,

a rear roof part of rigid construction which in use adjoins the rollover bar and includes at least two rear roof frame parts forming a supporting frame which is releasably fastenable to the vehicle supporting structure by releasable fasteners, and

removable side windows, insertable behind the rollover bar and connectable with respective ones of said rear roof frame parts by releasable connectors

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5,738,406

AIR, GEL OR WATER FILLED BICYCLE SEAT

Janet Lee Deus, 4265 Tara Ave. #8, Las Vegas, Nev. 89102

Filed Sep. 30, 1996, Ser. No. 722,997

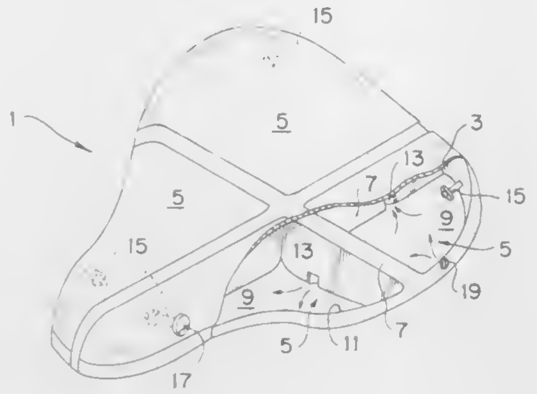
Int. Cl.⁶ B62J *1/26*

U.S. Cl. 297—200 3 Claims

1. A custom fitted seat comprising:

an upper seat portion having a partially hollow interior;

a plurality of fluid tight walled adjoining compartments in said upper seat's hollow interior, each compartment being capable of receiving a pressurized fluid introduced therein and being in fluid communication with the other compartments.



each adjoining compartment wall having a one-way fluid valve located in its walls to permit fluid to exit therefrom into the adjoining compartment;

an inlet port located on said seat which is in fluid communication with at least one of said compartments;

a source of pressurized fluid for introducing fluid under pressure into one of said compartments through said inlet port; and

a normally closed relief valve in each of said compartments for permitting the release of excess fluid pressure in that compartment from the seat to adjust the compartment's fluid pressure.

5,738,407

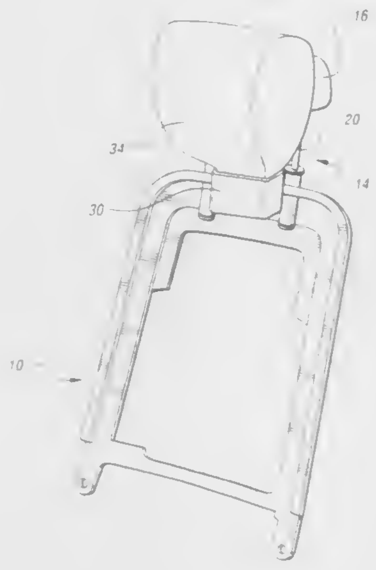
HEAD RESTRAINT AIRBAG ASSEMBLY

Gerald S. Locke, Lake Orion, Mich., assignor to Lear Corporation, Southfield, Mich.

Filed Jan. 14, 1997, Ser. No. 783,223

Int. Cl.⁶ B60R *21/22*

U.S. Cl. 297—216.12 9 Claims



1 A vehicle seat assembly, comprising:

a seat back frame;

a headrest movable with respect to the back frame; and

an airbag positioned on the back frame and deployable vertically with respect to the back frame such that the airbag is positioned forward-in-vehicle from the headrest when fully deployed, wherein said airbag is positioned beneath the headrest such that the airbag will engage the headrest when deployed to force the headrest upward, thereby properly positioning the headrest for head support in a high-energy impact.

5,738,408

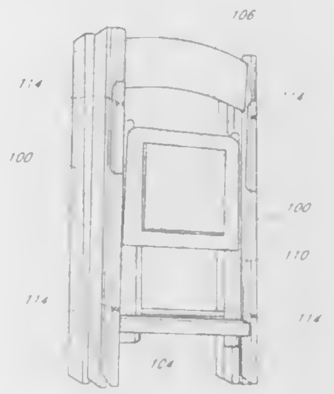
STACKABLE FOLDING CHAIR

Henry Wu, 23441 Golden Springs Dr. #370, Diamond Bar, Calif. 91765

Filed Aug. 30, 1996, Ser. No. 706,346

Int. Cl.⁶ A47C *3/04, 4/10*

U.S. Cl. 297—239 15 Claims



1 A first stackable folding chair of a plurality of substantially identical stackable folding chairs, which comprises:

a first set of leg members that are connected to each other to maintain a first spaced distance from each other;

a second set of leg members that are connected to each other to maintain a second spaced distance from each other wherein said second set of leg members are pivotally connected to said first set of leg members so that said first and said second set of leg members can be positioned with a bottom end of each member spaced from each other to thereby retain said stackable chair in an upright position;

a seat coupled to said leg members that is configured to receive a person in a sitting position when said stackable chair is in said upright position wherein said first set of leg members, said second set of leg members and said seat can be oriented into a stackable configuration;

one or more protrusions integrally formed on a first face of at least one of said first set of leg members so as to extend outward from said first face of said at least one of said leg members said protrusions having a first shape and a first cross-sectional area; and

one or more indentations integrally formed on a second face of at least one of said first set of leg members so as to be positioned opposite said one or more protrusions, wherein said one or more indentations include a first region positioned adjacent the second face of said leg member having a cross-sectioned area greater than said first cross-sectional area of said protrusion and having a second region positioned inward of said first region that has a cross-sectional area substantially equal to said first cross-sectional area of said protrusion wherein said one or more indentations are configured to receive said one or more protrusions on a second stackable chair of said plurality of substantially identical stackable chairs so that a user stacking said first and second chairs can initially position said protrusions in said first region of said indentations and then subsequently slightly move said first and said second chairs relative to each other to thereby position said protrusions on said second chair into said first region of said indentations in said first chair so that said second chair and said first chair can be stacked together.

5,738,409

ROCKING CHAIR CONSTRUCTION

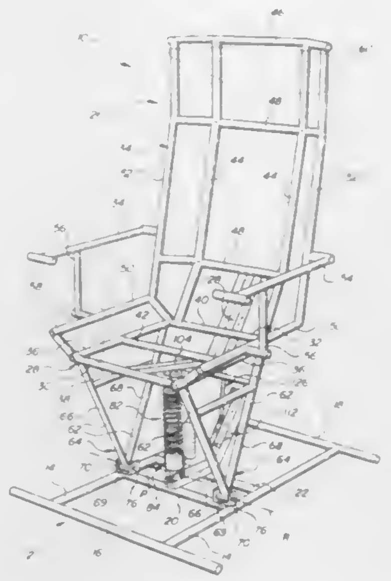
Thomas A. Bursik, 1427 W. King St., Owosso, Mich. 48867

Filed Jan. 8, 1997, Ser. No. 780,547

Int. Cl.⁶ A47C *3/02*

U.S. Cl. 297—265.1 14 Claims

13 A rocking chair construction comprising:



a stationary base frame including a pair of laterally spaced side rail members and a plurality of spaced cross brace members interconnecting said side rail members along their lengths, said side rail and cross brace members being generally coplaner and having a lower support surface supporting said base frame horizontally on a support surface, said base frame including a pair of laterally spaced mounting brackets defining a horizontal rocking axis extending laterally across said base frame in close proximity to said lower support surface of said base frame;

a rigid chair frame supported on said base frame including a seat portion having front and back edges and a backrest portion projecting upwardly from said seat portion adjacent said back edge of said seat portion, and a pair of laterally spaced support legs secured rigidly to said seat portion and projecting downwardly therefrom to lower ends, said lower ends being spaced substantially below said seat portion and disposed about midway between said front and back edges of said seat portion;

pivot pins interconnecting said mounting brackets of said base frame and said lower ends of said support legs enabling seat portion of said chair frame to rock about said rocking axis longitudinally along an arcuate path concentric with said rocking axis;

a rigid reaction lever coupled pivotally to said base frame enabling said lever to pivot relative to said base frame about a pivot axis parallel to said rocking axis, said lever including a first longitudinal arm extending rearwardly of said pivot axis and a second longitudinal arm extending forwardly of said pivot axis;

a rigid tie rod linkage having an upper end thereof coupled to said chair frame rearwardly of said rocking axis and a lower end coupled to said first arm of said lever rearwardly of said pivot axis such that rocking movement of said chair frame about said rocking axis causes corresponding pivotal movement of said lever about said pivot axis; and

a spring shock assembly mounted in generally upright position beneath said seat portion having an upper end thereof coupled pivotally to said seat portion for movement therewith about said rocking axis while being supported by said chair frame against axial movement, said spring shock assembly having a lower end thereof coupled pivotally to said second arm of said lever forwardly of said rocking axis, said spring shock assembly having a compression spring and a shock absorber, said spring constantly biasing said reaction lever toward forward rotation urging said chair frame constantly forwardly about said rocking axis, said shock absorber having a fully extended condition limiting the forward travel of the chair frame and defining a forward-most upright position of said chair frame, said spring opposing rearward rocking of said chair frame from said forward most position to a reclined position until such time as a rearward rocking force is applied to said chair

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frame sufficient to apply enough leverage force to said first arm to rock said lever arm rearwardly and compress said spring, said spring acting to return said chair frame toward said forward-most position upon removal of said rearward rocking force, said shock absorber acting to dampen said movement of said chair frame when rocked between said forward-most and said reclined positions, said tie rod being adjustable in its position of attachment to at least said first arm of said lever to adjust said leverage force.

5,738,410

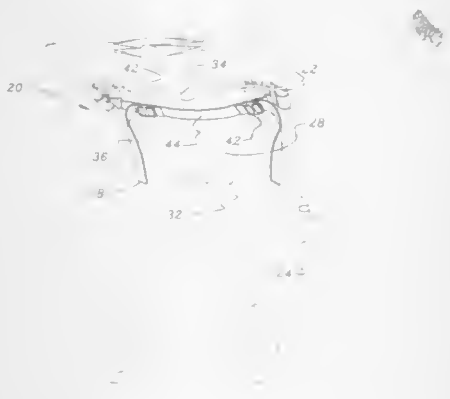
COLLAPSIBLE THREE WHEELED STROLLER WITH ADJUSTABLE BACKREST

David J. Stroud, Dayton, and Cheri Wagner, Covington, both of Ohio, assignors to Lisco, Inc., Tampa, Fla.

Filed Oct. 25, 1996, Ser. No. 736,745

Int. Cl.^{6} B60N *2/02*

U.S. Cl. 297—354.12 **2 Claims**



1. A new and improved stroller seat with easy adjustment capabilities comprising:

a frame portion having a horizontal component, a generally upwardly extending component, and a lower frame component;

a generally horizontal seat component secured to the horizontal component of the frame;

a back component made from a uniformly flexible material having a lower end positioned adjacent to the seat component and lower frame component and having an upper component located between the lateral extents of the upper frame component; and

a flexible strap secured to each upper frame component, each flexible strap having a distal end, a buckle slidably secured to each strap such that each buckle has a first orientation proximate to the upper frame component and a second orientation remote from the upper frame component, a central strap having two free ends, each of the free ends secured to a buckle, the central strap being interconnected to the stroller seat only by way of the buckles, whereby the central strap can be pulled to slidably position the buckles remote from the upper frame component and thereby recline the flexible back at a variety of angles, and the distal ends of each flexible strap can be utilized to locate the buckles proximate to the upper frame component to thereby bring the flexible back to an upright orientation.

5,738,411

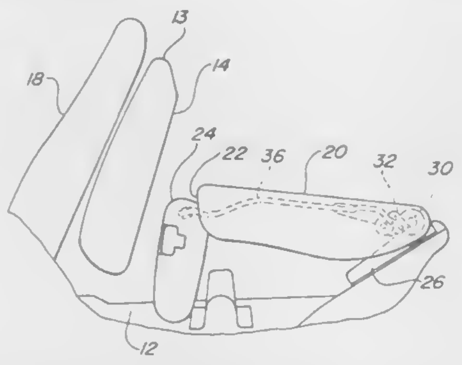
VEHICLE SEAT ASSEMBLY

Mark Sutton, Westland; Donald Cannell, Walled Lake; Joseph Prosniewski, Brownstown Township, and Raghu Nannapaneni, Southfield, all of Mich., assignors to Hoover Universal, Inc., Plymouth, Mich.

Filed Jan. 23, 1997, Ser. No. 787,626

Int. Cl.^{6} B60N *2/02*

U.S. Cl. 297—378.12 **11 Claims**



7. A vehicle seat assembly comprising:

a generally horizontal seat cushion having a rear end;

a seat back including a backrest with lower and upper ends having a use position extending upwardly from the rear end of the seat cushion to an upper end and against which a seat occupant rests their torso, the seat back further including a headrest mounted at the upper end of the backrest, the head rest having a use position extending upwardly from the upper end of the backrest, the backrest being forwardly rotatable from its use position to a stored position;

a releasable seat back latch for holding the backrest in its upwardly extending use position;

the headrest being pivotally mounted to the backrest for rotation about a transverse axis to lower the headrest from its upwardly extending use position to a lower stored position relative to the backrest;

a releasable headrest latch for holding the headrest in its upwardly extending use position;

an operating handle pivotally mounted to the headrest and having a grip portion for grasping by a seat user; and

connect means for operably connecting the handle to both the seat back latch and the headrest latch for releasing both latches upon rotation of the handle.

5,738,412

HEADREST FOR AN AUTOMOTIVE VEHICLE

Christophe Aufrere, Marcoussis, France; Patrick Daniel, Paris, France, and Adolfo Castro, Fresnes, France, assignors to Bertrand Faure Equipements S.A., Boulogne Cedex, France

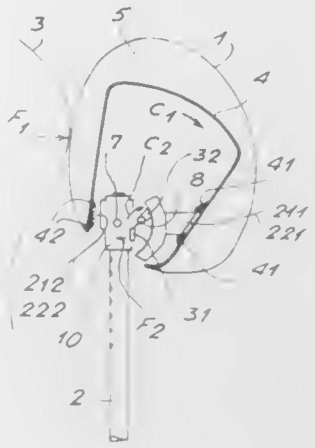
Filed Mar. 11, 1997, Ser. No. 815,106

Claims priority, application France, Mar. 18, 1996, 96 03484

Int. Cl.^{6} A47C *7/36*

U.S. Cl. 297—408 **10 Claims**

1. Headrest (**1**) for an automotive vehicle seat comprising means for adjusting the height of the headrest and means for adjusting the headrest in the fore and aft direction by rotating the headrest around a horizontal axis (**7**), characterized in that it comprises at least one guidance assembly (**10**) for translationally guiding the headrest along a spindle (**2**) attached to the seat back and an articulation assembly (**20**) mounted pivotally on the said guidance assembly, around an articulation axis (**7**) that is orthogonal to the axial direction of the spindle (**2**), and in that it comprises a locking member (**30**) pivotally mounted on the guidance assembly around an axis (**8**) that is parallel to the said articulation axis (**7**), between a locked and an unlocked position, the locking member comprising a tightening pad (**31**) that conforms to the shape of, and presses against, the spindle (**2**) in the locked position, and a head (**32**) that is shaped to lock onto, in the locked position, a curved section (**23**) that is part of the articulation assembly so that, in said locked position, a rotation force on the headrest in a first direction corresponding to moving the headrest towards the back of the seat will create by engagement of the curved section (**23**) with the head (**32**) of the locking member (**30**), a rotation torque (C2) that will rotate the said locking member so that the pad (**31**) is pressed against the spindle (**2**).



5,738,413

HEADREST FOR MOTOR VEHICLE SEATS

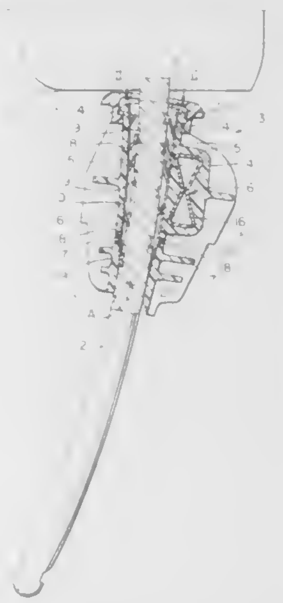
Emilio De Filippo, Bruzolo, Italy, assignor to Gestind-M.B. Manifattura di Bruzolo S.p.A., Bruzolo, Italy

Filed Dec. 12, 1996, Ser. No. 766,205

Claims priority, application Italy, Jul. 16, 1996, TO96A0614

Int. Cl.^{6} A47C *7/36*

U.S. Cl. 297—410 **7 Claims**



1. A headrest for a motor vehicle seat having a backrest with a bearing structure, comprising a resilient body, a pair of parallel support rods having respective lower ends projecting from the resilient body, a pair of tubular guide elements to be rigidly connected to said structure of the seat backrest and through which said support rods are frictionally slidable, wherein said tubular guide elements are provided with releasable restraining means co-operating with positioning notches formed on said support rods so as to prevent sliding thereof, and wherein said support rods are slack fitted through said tubular guide elements so as to be forwardly and rearwardly tiltable substantially around a transverse axis placed in proximity of said lower ends of said tubular guide elements, resilient means being interposed between said tubular guide elements and said support rods so as to keep said support rods in a substantially centered equilibrium position within said tubular guide elements, and said restraining means being formed by stationary retaining members also interposed between said tubular guide elements and said support rods and susceptible to engage said positioning notches of said support rods only following forward or rearward tilting thereof around said transverse axis.

5,738,414

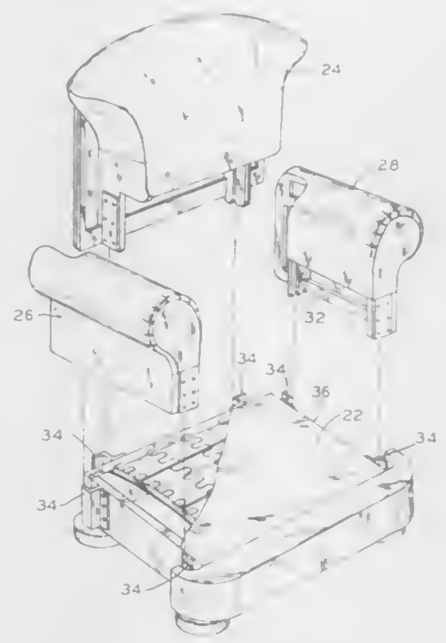
MODULAR FURNITURE WITH INTERLOCKING COMPONENTS

Roy M. Wieland, Fort Wayne; Joel D. Alberda, Leo, and Donald E. Neufer, Auburn, all of Ind., assignors to R.M. Wieland Company, Inc., Grabill, Ind.

Filed Mar. 15, 1996, Ser. No. 618,465

Int. Cl.^{6} A47C *7/00*

U.S. Cl. 297—440.1 **18 Claims**



1. A modular furniture assembly comprising

a frame having a plurality of walls,

a back mounted on and surrounding a first wall of said frame,

first and second arms mounted on and surrounding respective second and third walls of said frame, and

means for interlocking said back, said first arm, and said second arm with said frame, said interlocking means located within interior regions of said back and said first and second arms.

5,738,415

PICK HOLDER AND FIXING SLEEVE FOR AN EXTRACTION MACHINE

George Albert Parrott, Barnsley, England, assignor to Minnovation Limited, Barnsley, United Kingdom

PCT No. PCT/GB94/02815, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO95/18914, PCT Pub. Date Jul. 13, 1995

PCT Filed Dec. 23, 1994, Ser. No. 666,555

Claims priority, application United Kingdom, Jan. 5, 1994, 9400114

Int. Cl.^{6} E21C *35/197*

U.S. Cl. 299—104 **14 Claims**

1. A pick box and sleeve combination comprising

(i) a sleeve receiving aperture in the box,

(ii) a replaceable liner sleeve located in the aperture and adapted, in use, to receive the shank of a mineral cutter pick,

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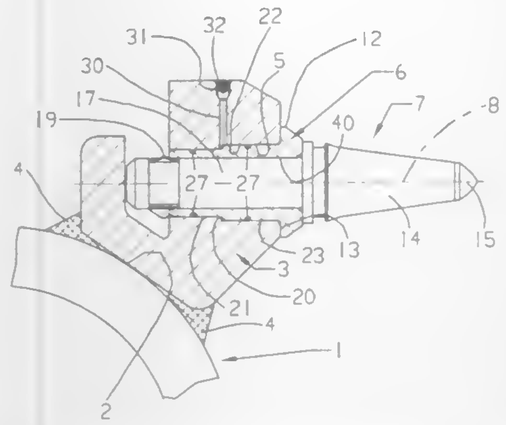
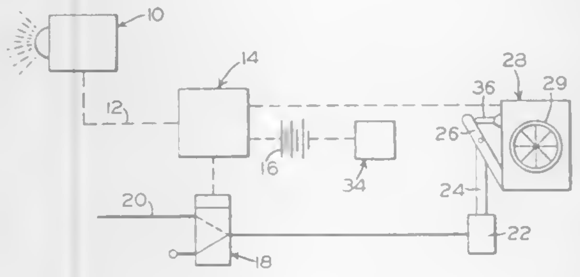


(iii) a zone of differential area provided between the external periphery of the sleeve and the aperture;
(iv) a fluid seal located to each side of the zone of differential area; and
(v) a hydraulic fluid entry bore located intermediate the two fluid seals and in fluid flow communication with the zone of differential area, whereby upon admission of hydraulic fluid under sufficient pressure to the zone of differential area via the entry bore, the fluid, being confined by the seals, effects hydraulic axial displacement of the sleeve with respect to the box.

5,738,416
RAILWAY BRAKING APPARATUS TO EFFECT A CHANGE IN A HANDBRAKE

Wajih Kanjo, Lockport, Ill.; Eric Smith, Burlington, Canada; Thomas J. Demoise, Export, Pa.; Michael Girotti, Thorold; Thomas McCabe, Dorval, both of Canada; Charles B. Fessler, Lancaster, Pa., and Scott Natschke, Kankakee, Ill., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Jul. 22, 1994, Ser. No. 278,937
Int. Cl.^{6} B60T *13/00*
U.S. Cl. 303—7 **9 Claims**

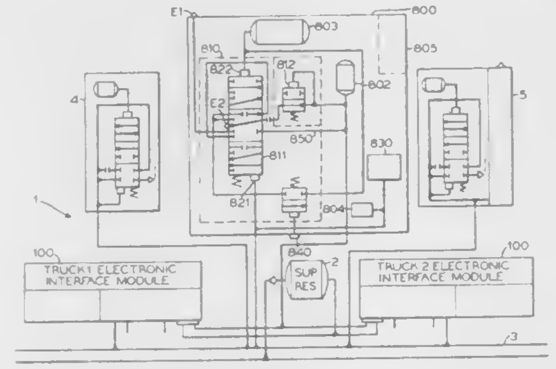


1. An apparatus for effecting a change in a condition of a hand brake system disposed on a railway car equipped with both a hand brake system and a service brake system, said change being effected in response to at least one of a predetermined group of response triggering conditions, said apparatus comprising:
(a) a first means for detecting at least one of such response triggering conditions requiring a change in such hand brake system;
(b) a second means operatively associated with said first means for producing a predetermined signal indicating that such response triggering condition requiring a change in such hand brake system has been detected, said second means further including means for preventing said predetermined signal unless a brake pipe of such railway car is charged,
(c) a quick release mechanism for releasing such hand brake, and
(d) a third means responsive to said predetermined signal for operating such quick release mechanism to release such hand brake, said third means including both an electrical signal and an electromechanical means for operating such quick release mechanism.

5,738,417
BRAKE PIPE SENSING UNIT

James A. Wood, Spartanburg, and Richard J. Mazur, Greer, both of S.C., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Jan. 29, 1997, Ser. No. 790,575
Int. Cl.^{6} B60T *13/00*
U.S. Cl. 303—7 **22 Claims**

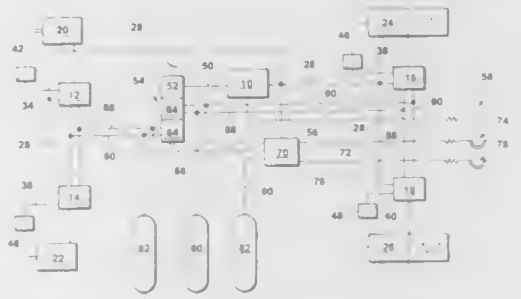

E1
800
803
805
810
822
812
802
E2
850
811
830
821
804
840
SUP RES
TRUCK 1 ELECTRONIC INTERFACE MODULE
TRUCK 2 ELECTRONIC INTERFACE MODULE
100
100
4
5
3

1. A brake pipe sensing unit for use with a universal pneumatic brake control unit of a rail vehicle, said brake pipe sensing unit comprising:
(a) a control reservoir within which gas under pressure may stored and from which gas under pressure may be supplied;
(b) an auxiliary reservoir in communication with a supply port of said universal unit and with a first and a second route of said brake pipe sensing unit;
(c) a three state valve having a first pilot port in communication with a brake pipe of said rail vehicle, a second pilot port in communication with said control reservoir, and first and second exhaust ports both of which connect to atmosphere, said three state valve for operating in:
(i) an apply position when pressure at said first pilot port drops relative to pressure at said second pilot port thereby allowing flow from said brake pipe through said three state valve and said first route both to said auxiliary reservoir and to said supply port and from said control reservoir through said three state valve and said second route both to said auxiliary reservoir and to said supply port,
(ii) a release position when pressure at said first pilot port increases relative to pressure at said second pilot port thereby allowing flow from said brake pipe through said three state valve to said control reservoir and from both said auxiliary reservoir and said supply port through said first and said second routes through said three state valve to atmosphere via said first and said second exhaust ports, and
(iii) a lap position when pressure at said first pilot port equalizes relative to pressure at said second pilot port thereby allowing flow from said brake pipe to said control reservoir and from both said auxiliary reservoir and said supply port through said first route and said three state valve to atmosphere via said second exhaust port;
(d) a quick service valve connected within said first route and having a service pilot port in communication with both said auxiliary reservoir and said supply port such that said quick service valve closes said first route when pressure at said service pilot port exceeds a preselected level;
(e) a brake pipe transducer for converting pressure within said brake pipe to an electrical brake command signal; and
(f) a transmission means for communicating said brake command signal received from said brake pipe transducer to a brake control bus on said rail vehicle.

5,738,418
PROCESS AND APPARATUS FOR CONTROLLING THE BRAKE SYSTEM OF A VEHICLE

Werner Stumpe, Stuttgart; Bernhard Schwendemann, Schorndorf, and Matthias Horn, Hardheim, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 29, 1996, Ser. No. 607,877
Claims priority, application Germany, Jun. 16, 1995, 195 21 872.8
Int. Cl.^{6} B60T *7/00*
U.S. Cl. 303—15 **10 Claims**



1. Process for controlling the brake system of a vehicle having brakes which are subjected to brake tensioning forces by controlling an operating parameter of said brake system, and an electronic control unit which can adjust the brake tensioning forces, said process comprising
determining deceleration of the vehicle,
determining at least one of brake application and brake release based on deceleration of the vehicle, and
determining an operating parameter of said brake system at at least one of said brake application and said brake release,
adjusting brake tensioning forces by means of said electronic control unit based on said at least one of the value of said operating parameter at brake application and the value of said operating parameter at brake release

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5,738,419
ANTI-LOCK FLUID PRESSURE CONTROL APPARATUS WITH FAIL-SAFE MECHANISM

Akihiko Sekiguchi, Saitama, Japan, assignor to Akebono Brake Industry Co., Ltd., Tokyo, Japan

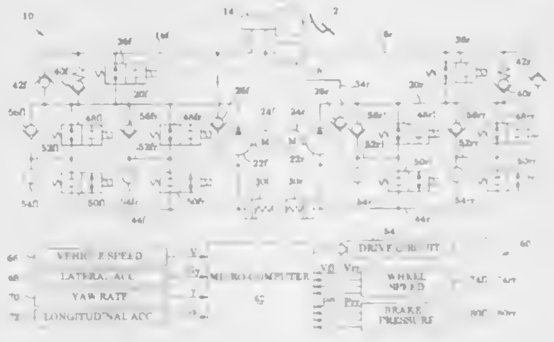
Filed Aug. 28, 1996, Ser. No. 705,879
Claims priority, application Japan, Aug. 28, 1995, 7-218724
Int. Cl.^{6} B60T *8/02;8/48;13/16*
U.S. Cl. 303—115.4 **8 Claims**

1. An anti-lock fluid pressure control apparatus provided in a brake line connecting a master cylinder and a wheel cylinder, comprising:
a first fluid pressure control mechanism having a first cylinder and a first piston, said first piston dividing said first cylinder to form a first fluid chamber and a second fluid chamber,
a second fluid pressure control mechanism having a second cylinder and a second piston, said second piston dividing said second cylinder to form a fluid chamber and a spring storage chamber; and
a fail safe mechanism which increases and decreases the volume of said fluid chambers in said first fluid pressure control mechanism to control the brake fluid pressure,
wherein said fail-safe mechanism comprises:
a housing;
a piston provided movably in said housing;
a first valve and a second valve opened and closed by the movement of said piston;
a fluid pressure chamber formed in said housing in such a manner that said housing is divided by said piston, and
a spring for urging said piston to said fluid pressure chamber,
wherein said fail-safe mechanism acts as follows,
(i) normal brake operation: said piston of said fail-safe mechanism is made to open both said first and second valves by an urging force of said spring and fluid pressure in said fluid pressure chamber to make said master cylinder communicate with said wheel cylinder and make said wheel cylinder communicate with said second fluid chamber of said first fluid pressure control mechanism;
(ii) at the time of anti-lock control, said piston of said fail-safe mechanism closes said first valve as the brake fluid pressure increases to block the communication between said master cylinder and wheel cylinder to thereby feed brake fluid from said wheel cylinder back into said second fluid chamber in said first fluid pressure control mechanism only through said second valve so as to control the brake fluid pressure, and
(iii) at the time of a decrease of the brake fluid pressure as a result of a failure said piston into said fail-safe mechanism is moved to said fluid pressure chamber by the urging force of said spring to open said first valve and close said second valve to block the communication between said wheel cylinder and second fluid chamber of said first fluid pressure control mechanism while making said master cylinder communicate with said wheel cylinder directly only through said first valve.

5,738,420
SPIN SUPPRESS CONTROL DEVICE OF VEHICLE OPERATIVE WITH YAW MOMENT FREE PRECAUTION BRAKING

Hiroshi Kawaguchi, and Akio Okada, both of Mishima, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 15, 1996, Ser. No. 680,043
Claims priority, application Japan, Aug. 25, 1995, 7-240559
Int. Cl.^{6} B00T *13/74*
U.S. Cl. 303—146 **6 Claims**



1. A spin suppress control device of a vehicle having a vehicle body and wheels, comprising a means for estimating a spin quantity of the vehicle to represent a liability of a spinning thereof, and a means for selectively and variably braking each of said wheels according to said spin quantity, wherein the device actuates said

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braking means so as to decelerate the vehicle within a range of generating no substantial yaw moment in the vehicle by the actuation of said braking means when said spin quantity exceeds a first threshold value therefor, and to provide the vehicle with an anti-spin moment when said spin quantity exceeds a second threshold value therefor greater than said first threshold value.

5,738,421
HYDRAULIC CHAIN TENSIONING MEANS FOR TENSIONING THE CRAWLER CHAINS OF CRAWLER VEHICLES

Helmut Neymans, Moers, and Michael Schmitz, Kamp-Lintfort, both of Germany, assignors to Krupp Fordertechnik GmbH, Duisburg, Germany

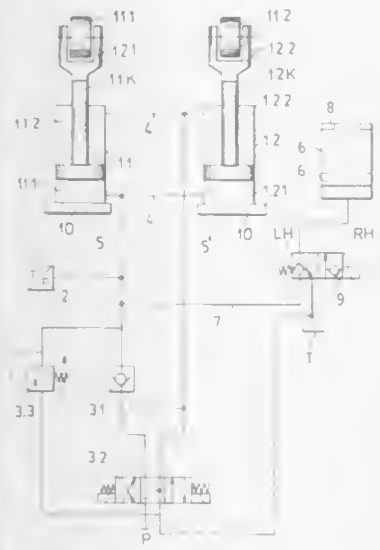
PCT No. PCT/EP94/00727, § 371 Date Sep. 20, 1995, § 102(e) Date Sep. 20, 1995, PCT Pub. No. WO94/22707, PCT Pub. Date Oct. 13, 1994

PCT Filed Mar. 9, 1994, Ser. No. 530,143

Claims priority, application Germany, Mar. 26, 1993, 43 09 746.4

Int. Cl.^{6} B62D *55/112*

U.S. Cl. 305—144 **4 Claims**



1 A hydraulic chain tensioner for automatically tensioning chains of a crawler vehicle, comprising

two tensioning cylinders having respective pistons supporting leading wheels of respective crawler chains of the vehicle and being fastened to a chassis thereof, said cylinders having first compartments behind said pistons and second compartments ahead of said pistons;

a first duct interconnecting said first compartments, a second duct interconnecting said second compartments;

a plurality of valves connected to said tensioning cylinders via said first duct and including:

a pressure relief valve setting a maximum tensioning pressure p_{max} of said tensioning cylinders corresponding to a maximum tension applicable by said tensioning cylinders to said chains, and

a further valve connected to said first and second ducts and supplied from a source of hydraulic pressure for selectively pressurizing said first compartments to said maximum tensioning pressure p_{max}; and

a soft spring connected in parallel to said tensioning cylinders for applying only a reduced tension to said chains at a start of load application to said tensioning cylinders, said soft spring comprising a hydropneumatic piston-type accumulator having:

a hydraulic chamber connected by a third duct communicating with said first duct between said first compartments and said valves,

a gas space separated from said hydraulic chamber by an accumulator piston, said gas space being precompressed to a preliminary pressure p_i prior to operation of the chain tensioner of 2 to 10% of said maximum tensioning pressure p_{max}, and

a mechanical end stop for said accumulator piston at an end of said accumulator opposite said hydraulic chamber

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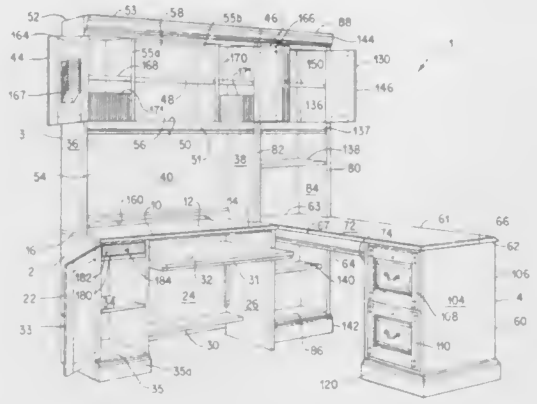
5,738,422
COMPUTER WORK STATION

Earl Dalton Welborn, Jr., Davidson County, N.C., and Henry Pyron Long, Jr., Henry County, Va., assignors to Hooker Furniture Corporation, Martinsville, Va.

Filed Oct. 10, 1996, Ser. No. 728,436

Int. Cl.^{6} A47B *87/00*

U.S. Cl. 312—198 **16 Claims**



1. A work station comprising:

a. a first desk unit having a first desktop, an outer side wall spaced apart from a first vertical side panel, and a first vertical back panel that is connected to the rear surfaces of the outer side wall and the first vertical side panel, the first desktop having a top surface with a front shaped edge;

b. a shelf unit located immediately above the first desktop and having spaced apart second and third vertical side panels that are connected to a second vertical back panel and a top panel, and

c a second desk unit having a file cabinet having spaced apart first and second file cabinet walls, a second desktop and a bookcase, the second desktop having spaced apart first and second ends, and spaced apart first and second sides, the first and second sides and the first end having first, second and third shaped edges, respectively, the first and second shaped edges extending from the first end along the first and second sides, respectively, and terminating at first and second squared edges of the first and second sides, respectively, the first and second squared edges extending further along the first and second sides, respectively, until terminating at first and second grooved sections of the first and second sides, respectively, the first and second grooved sections extending along the first and second sides until terminating at the second end, the second end and the first and second grooved sections of the second desktop being inserted into the bookcase, wherein the bookcase has first and second bookcase walls, a bookcase back wall, a bookcase top panel, and a rail that is attached to the inside surface of the bookcase back wall, the first and second bookcase walls being connected to the bookcase back wall and to the bookcase top panel, the second end of the second desktop being placed upon the rail and the first end of the second desktop being placed upon the file cabinet.

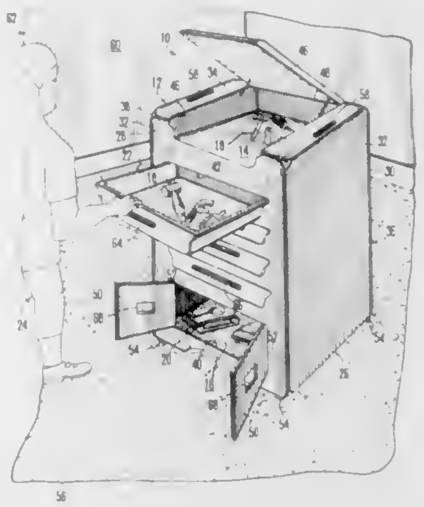
5,738,423
CHILD'S TOY TOOL CABINET

Kathy Alfaro, 2312 Thaddeous Ct., Escalon, Calif. 95320

Filed Dec. 9, 1996, Ser. No. 761,846

Int. Cl.^{6} A47B *81/00*

U.S. Cl. 312—290 **2 Claims**



1. A child's toy tool cabinet in combination with toy tools comprising:

a) a housing having a top compartment and a bottom front compartment for holding various play tools and toys therein, said housing comprising a bottom wall, a front wall extending upwardly from said bottom wall, a rear wall extending upwardly from said bottom wall, a pair of side walls extending upwardly from said bottom wall, and a top wall over said bottom wall, said front wall, said rear wall, and said side walls forming an upstanding rectangular shaped box configuration with rounded corners for safety;

b) a plurality of tote tray drawers carried in said housing between said top compartment and said bottom front compartment for holding additional play tools therein, so that a child can play with and utilize the play tools and toys in a safe manner;

c) said front wall having a bottom front aperture for access into said bottom front compartment and a plurality of front open chambers to accommodate all of said tote tray drawers therein, and said top wall having a top opening for access into said top compartment wherein said top compartment is shaped to accommodate one of said tote tray drawers, said bottom front aperture having a pair of bottom front doors hinged at opposite sides of said bottom front aperture for closing said bottom front compartment,

d) a top lid hinged rearwardly to said top wall at said top opening for closing said top compartment even with one of said tote tray drawers placed into said top compartment;

e) means for permitting convenient movement of said cabinet comprising a caster located at each bottom corner of said housing and a recess in said top wall adjacent each of said side walls for permitting said child to maneuver said housing along a generally flat horizontal surface.

f) each of said tote tray drawer having a front panel and said bottom front drawers containing means for permitting viewing of the contents of the drawer and functioning as a pull out handle comprising a horizontal slot larger enough for such use;

g) a hook or loop fastener pad affixed to the bottom of each said tote tray drawer and a corresponding loop or hook fastener affixed to each said play tool to hold said play tools in stationary positions within the drawer when said tote tray drawer is removed from its compartment

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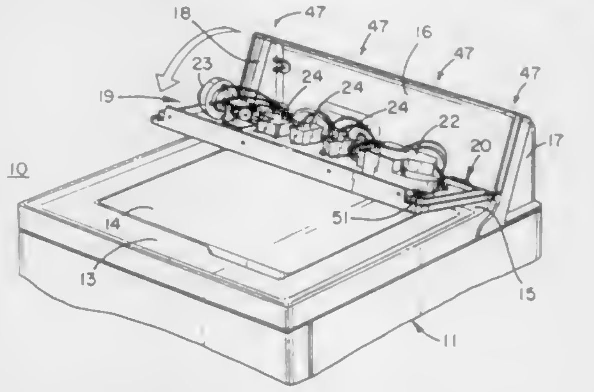
5,738,424
APPLIANCE BACKSPLASH ASSEMBLY

Jonathan Marc Katz; Scott Alan Calvert; Seana Michelle Hopson; Reynaldo Estrellado, Jr., and Lowell Douglas Hughes, all of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Apr. 4, 1995, Ser. No. 416,172

Int. Cl.^{6} G12B *9/00*

U.S. Cl. 312—293.3 **2 Claims**



1 An appliance backsplash assembly including:

an appliance top member having a rear portion, said rear portion being upturned and having a plurality of spaced apart slots formed therein;

a control housing including a rear wall and a pair of end caps mounted adjacent said rear portion of said appliance top member;

said control housing also including a control panel assembly including a cover with a generally planar body having top and bottom edges, a flange projecting perpendicularly along its top edge and a plurality of tabs depending from its bottom edge;

said control panel assembly also including a control mounting plate with a generally planar body having top and bottom edges, a flange projecting perpendicularly along its top edge and a plurality of spaced apart tabs depending from its bottom edge, each of said mounting plate tabs having a slot therein;

said mounting plate and said cover being assembled with said mounting plate flange positioned against said cover flange and said cover tabs received through said slots in said mounting plate tabs and bent over to secure said mounting plate and said cover together;

said mounting plate tabs being received through corresponding ones of said slots in said rear portion of said top member for selective pivotal movement of said control panel assembly between a closed position engaging said rear wall and end caps and an open position away from said rear wall and end caps, said mounting plate tabs engaging said rear portion of said top member to support said control panel assembly in its open position,

said control mounting plate body having one face exposed when said panel assembly is in its open position, and

at least one control mounted to said mounting plate from said one face to be removable when said control panel assembly is in its open position

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5,738,425
ADJUSTABLE DRAWER ORGANIZER

Gayle Rosenberg, Harmon Cove Towers, Suite 4, Secaucus, N.J. 07094; Eli Pine, 370 River Rd., Apartment G, Nutley, N.J. 07110, and Dale C. Gledhill, 31 N. Eaglewood Dr., Salt Lake City, Utah 84054

Filed Aug. 9, 1996, Ser. No. 689,554

Int. Cl.^{6} A47B *88/20*

U.S. Cl. 312—348.3 **4 Claims**

1 A structure for segregating a plurality of items, the structure comprising

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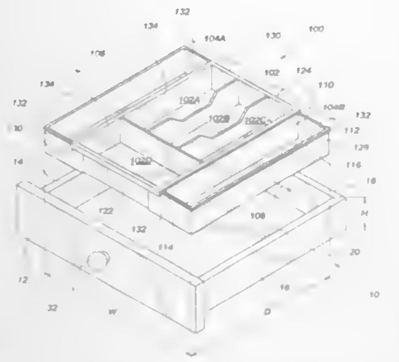


a drawer having a drawer width, a drawer depth, a drawer height, and a drawer bottom;

a main compartment disposed on the drawer bottom, the main compartment having a front side, a back side, a first side, a second side, and a main width, the second side oriented in the same direction as the first side, and the front side oriented substantially parallel to the back side, the main compartment having a plurality of individual compartments,

a first side compartment disposed on the drawer bottom, the first side compartment positioned adjacent to the first side of the main compartment and having a first width and a first depth, the first side compartment having a front wall and a back wall and one side wall;

a first channel formed in a ledge along the front side of the main compartment;

a first ridge formed along the front wall of the first side compartment, the first ridge being positioned in sliding engagement with the first channel and at least partially surrounded by the first channel such that the ridge is covered by the channel and such that the distance between the first side of the main compartment and the side wall of the first side compartment is varied as the first ridge slides within the first channel such that the first width of the first side compartment is changed, but remains fixed unless selectively changed, and such that the combined first width and main width together substantially match the drawer width of the drawer such that the entire drawer width of the drawer is substantially occupied by at least the main compartment and the first side compartment so that the drawer is efficiently used.

5,738,426
PROJECTION TYPE DISPLAY APPARATUS AND MULTI-VISION PROJECTION TYPE DISPLAY APPARATUS

Akira Daijogo; Shinji Okamori; Hiroshi Kida, and Shinsuke Shikama, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 5, 1996, Ser. No. 759,634

Claims priority, application Japan, Dec. 8, 1995, 7-320535

Int. Cl.^{6} G03B *21/14*

U.S. Cl. 353—31 **20 Claims**

1 A projection type display apparatus, comprising.

a light source emitting light;

a color separator separating the light emitted from said light source into light of three primary colors,

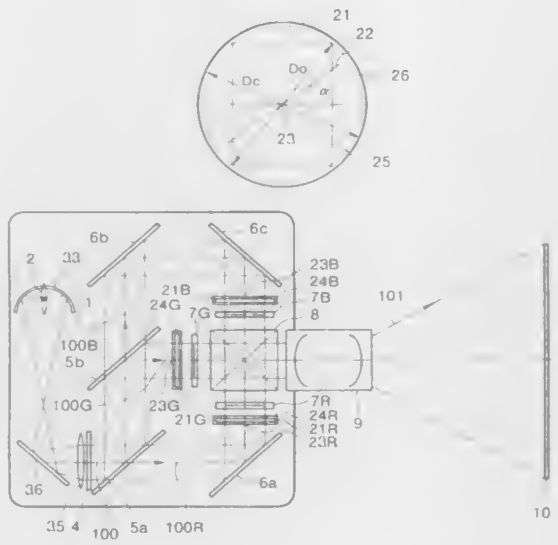
a plurality of light valves, each light valve receiving light of one of the three primary colors from said color separator to form a color image;

a color synthesizer synthesizing the color images from said plurality of light valves into a single full-color image;

a projection lens which enlarges and projects the single full-color image resulting from said color synthesizer and

a half wave plate placed in at least one path of the light resulting from said color separator, said half-wave plate causing the plane of vibration of the light passing therethrough to rotate a predetermined angle,

wherein said half-wave plate is of a disc shape having a diameter and a rectangular effective area through which the light passes to illuminate one of said plurality of light valves, the effective area having a diagonal dimension, and the diameter being equal to or greater than the diagonal dimension.



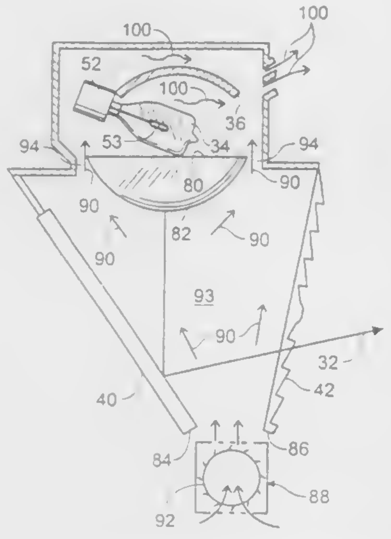
5,738,427
PROJECTOR COOLING SYSTEM

David K. Booth, Tigard, and Arlie R. Conner, Tualatin, both of Oreg., assignors to Lightware, Inc., Beaverton, Oreg.

Continuation of Ser. No. 541,325, Oct. 10, 1995, Pat. No. 5,628,553. This application Apr. 14, 1997, Ser. No. 839,686

Int. Cl.^{6} G03B *21/16*

U.S. Cl. 353—57 **21 Claims**



1 In a display projector having a condenser lens that receives light from an illumination source and directs the light along an optic axis toward an image source to form a projection display image, the condenser lens including first and second generally opposed surfaces and the light from the illumination source passing along the optic axis into the first surface and out the second surface, the improvement comprising.

a cooling system for directing an axial flow of cooling air generally along the optic axis over the second surface of the condenser lens.

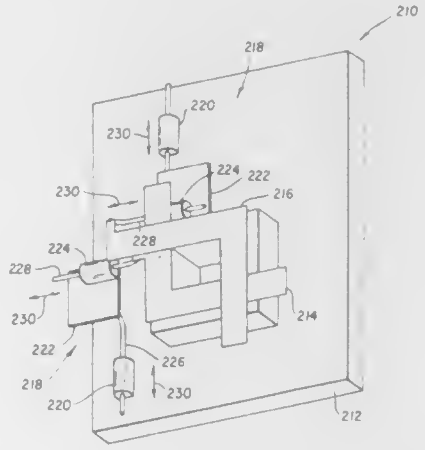
5,738,428
FORMATTING PROJECTOR

Dale F. McIntyre; Daniel M. Pagano, both of Honeoye Falls; David L. Patton, Webster, and Edward Weissberger, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 31, 1996, Ser. No. 775,816

Int. Cl.^{6} G03B *21/14*

U.S. Cl. 353—97 **6 Claims**



1 A film projector, for use with processed photographic film having magnetically recorded image format data physically associated with individual image frames, said projector comprising.

a light source emitting a collimated beam;

a film holder disposed to hold individual frames of said film in said beam;

a formatter displaceable between at least two different formatting positions, said formatter partially blocking said beam in at least one of said formatting positions;

a projection lens system receiving said beam propagated through said film;

a sensor disposed to read said frame-associated image format data, said sensor producing a signal responsive to said frame associated image format data;

a drive operatively connected to said formatter, said drive displacing said formatter between said formatting positions responsive to said signal.

5,738,429
PORTABLE PROJECTION DISPLAY APPARATUS

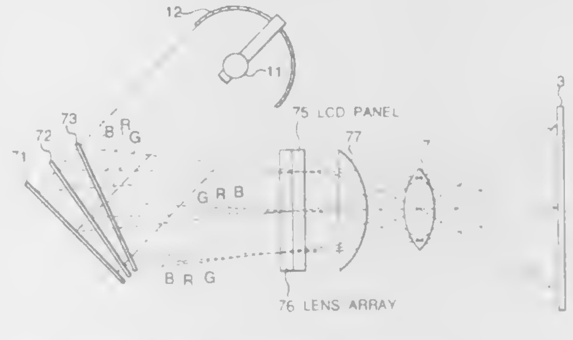
Takao Tagawa, Kashihara; Masayuki Katagiri, Ikoma, and Hitoshi Nohno, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 5, 1995, Ser. No. 462,882

Claims priority, application Japan, Jun. 28, 1994, 6-146257; Apr. 28, 1995, 7-106188

Int. Cl.^{6} G03B *21/14*

U.S. Cl. 353—122 **37 Claims**



31 A projection display apparatus comprising

display image forming means for forming a color display image to be projected on a projection screen.

luminescent spot image forming means, having an illumination source for signal input use, for forming a luminescent spot image by projecting light from the illumination source for input use on the projection screen.

color separating means for separating light from a projecting source providing light to said display image forming means into constituent color portions and delivering said constituent color portions to said display image forming means at differing angles thereto;

image focusing means, provided between the display image forming means and the projection screen, for focusing a display image on the projection screen upon receiving light from the display image forming means, and receiving reflection light from the projection screen;

luminescent spot image extracting means for extracting light from the luminescent spot image out of a received incident light from the image focusing means;

luminescent spot image detecting means for detecting the luminescent spot image upon receiving the light from the luminescent spot image extracted by the luminescent spot image extracting means; and

display control means, responsive to a detection signal representing the luminescent spot image detecting by the luminescent spot image detecting means, for controlling a display image forming operation of the display image forming means based on the detection signal.

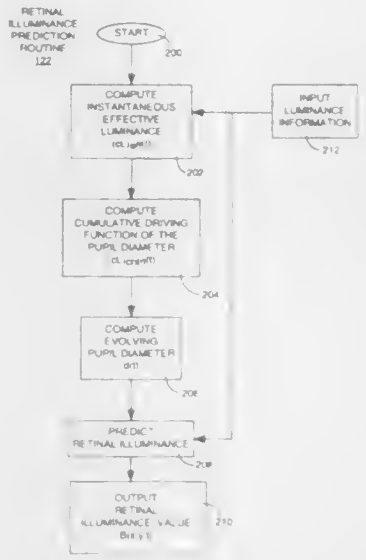
5,738,430
METHOD AND APPARATUS FOR PREDICTING RETINAL ILLUMINANCE

Michael Henry Brill, Morrisville, Pa., assignor to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Aug. 7, 1996, Ser. No. 693,725

Int. Cl.^{6} G03B *21/14*

U.S. Cl. 353—122 **10 Claims**


RETINAL ILLUMINANCE PREDICTION ROUTINE 122
START
200
COMPUTE INSTANTANEOUS EFFECTIVE LUMINANCE
202
INPUT LUMINANCE INFORMATION
212
COMPUTE CUMULATIVE DRIVING FUNCTION OF THE PUPIL DIAMETER
204
COMPUTE EVOLVING PUPIL DIAMETER
206
PREDICT RETINAL ILLUMINANCE
208
OUTPUT RETINAL ILLUMINANCE VALUE
210

8 A method for predicting retinal illuminance with regard to a video image depicted on a video display comprising the steps of

a) generating an instantaneous effective luminance in response to luminance information representing luminance of each pixel in said video image by evaluating

$$(eL)_{eff}(t)=5.7037D^{-1}\int dx\,dy\,L(x,y,t)(x^2+y^2)^{-1/2}$$

where $(eL)_{eff}(t)$ is the instantaneous effective luminance, D is a viewing distance from a virtual observer to said video image, x and y are pixel location coordinates for each pixel in said video image, and L(x,y,t) is a luminance value of each pixel.

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b) computing a cumulative driving function of pupil diameter in response to the instantaneous effective luminance by evaluating

$$(cL)_{cntrl}(t)=\int dt'\, g(t-t')(cL)_{eff}(t')$$

where $(cL)_{cntrl}(t)$ is the cumulative driving function of pupil diameter, and g(t) is an open-loop pupil-response function that is computed by evaluating

$$g(t)=0.5\,c^{-3}(t-b)^{2}e^{-(t-b)/c}u(t-b)$$

where b is 0.18 seconds, c is 0.1 seconds, and u is a unit step function;

c) computing evolving pupil diameter in response to the cumulative driving function of pupil diameter by evaluating

$$d(t)=5-3\tanh\{0.4\log_{10}[(cL)_{cntrl}(t)]\}$$

where d(t) is the evolving pupil diameter; and

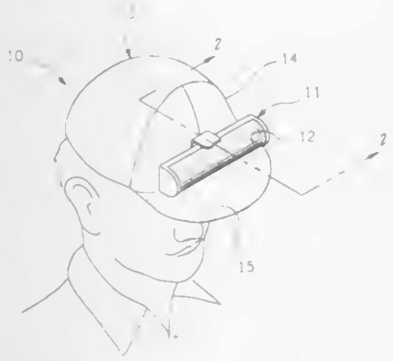
d) predicting retinal illuminance from the luminance information and the evolving pupil diameter by evaluating

$$B(x,y,t)=L(x,y,t)\pi[d(t)/2]^{2}$$

where B(x,y,t) is the retinal illuminance

5,738,431
CAP WITH REMOVABLE HALOGEN LIGHT

Banning G. Lary, 6280 Sunset Dr., Suite 411, Miami, Fla. 33143
Continuation-in-part of Ser. No. 402,860, Mar. 13, 1995, Pat. No. 5,567,038. This application Oct. 21, 1996, Ser. No. 731,863
Int. Cl.^{6} F21L *15/14*
U.S. Cl. 362—106 12 Claims



1. A lighting apparatus for illuminating darkness which comprises:

a cap having a crown and a bill;

said cap having a first series of fixedly attached hooks engaged to said crown and said bill; and

a halogen lighting device having a second series of fixedly attached hooks which is removably attached to said first series of fixedly attached hooks.

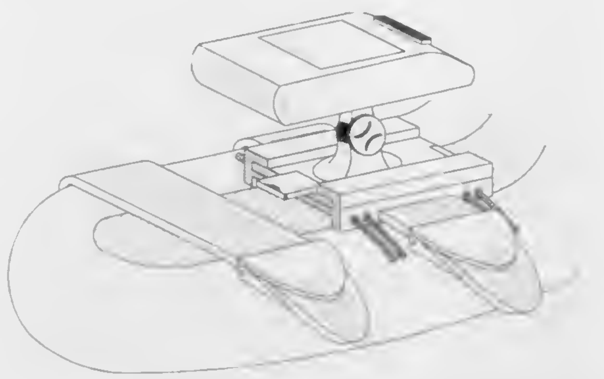
5,738,432
ILLUMINATION DEVICE AND A METHOD

Koussay Okko; Maad Okko, and Nagib Okko, all of 1124 E. Balboa Blvd., Newport Beach, Calif. 92661
Filed Dec. 4, 1996, Ser. No. 759,383
Int. Cl.^{6} F21L *15/08; 7/00*
U.S. Cl. 362—103 20 Claims

1. An adjustable portable illumination device, removably attachable to a user's shoe or garment, enabling hands-free operation, and allowing the user to see and be seen, comprising

a light housing;

a light assembly having an illumination means, encapsulated in the light housing;



a power source for providing power to the illumination means;

a movable plate, attached to the light housing, having a plate latch means and a swivel means attached to the movable date for selectively positioning the illumination means in order to direct a beam of light from the illumination means forwardly of and downwardly from said light housing, wherein the swivel means comprises a leg having a tilt knee, a tilt knee knob, a top section, and a bottom section, and wherein said top section and said bottom section are pivotally connected with the tilt knee and fastened with the tilt knee knob, for vertical positioning of the light housing at an adjustable angle relative to ground;

a light housing attaching means for removably attaching the light housing to a top frontal area of the user's shoe, or on an other article of clothing; and

wherein the device is sized for use with shoes, boots and articles of clothing.

5,738,433
LIGHTED FISHING POLE

Kevin D. Sparks, 1468 E. Zinnia Dr., Bloomington, Ind. 47401
Filed Sep. 12, 1996, Ser. No. 712,853
Int. Cl.^{6} A01K *75/02;* F21V *33/00*
U.S. Cl. 362—109 2 Claims

1. A lighted fishing pole comprising:

an elongated rod having a length and first and second ends;

a handle attached to said first end of said elongated rod;

a fishing reel mounted to said handle, said fishing reel including fishing line strung along the length of said elongated rod;

a power source mounted internally within said handle;

a first light emitting element mounted on said handle and adapted to illuminate in a first direction which is opposite to a second direction in which said elongated rod projects from said handle;

a second light emitting element mounted on one of said handle and said elongated rod, said second light emitting element structured and arranged to illuminate substantially the entire length of said elongated rod upon energization;

a sensor for identifying a fish strike-level force input on said fishing line, said sensor electrically circuited with said second light emitting element to allow energization of said second light emitting element upon sensing the fish strike-level force input on said fishing line and to prevent energization of said second light emitting element absent sensing of the fish strike-level force input on said fishing line;

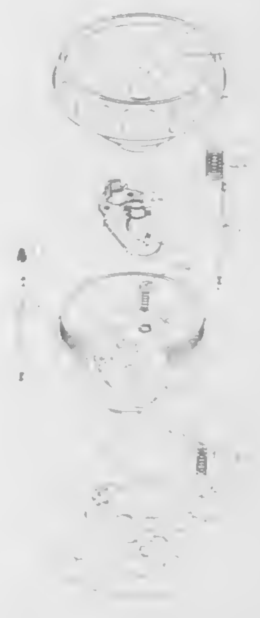
a manually operable switch connected with said power source and both of said first and second light emitting elements, said switch shiftable to a first position and a second position;

wherein said power source is circuited with said first light emitting element to illuminate said first light emitting element when said switch is arranged in said first position; and

wherein said power source is circuited with said second light emitting element to illuminate said second light emitting element when said switch is arranged in said second position and said sensor identifies the fish strike-level force input on said fishing line, whereby substantially the entire length of said elongated rod is illuminated.

5,738,434
FLASH LIGHT

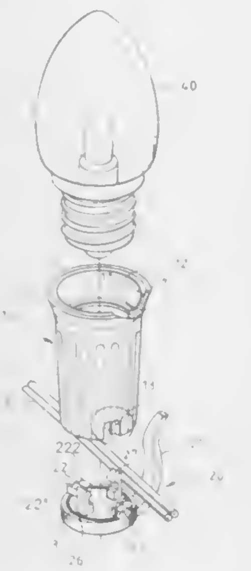
Pel Chang Sun, Taichung, Taiwan, assignor to Regitar Power Co., Ltd., Taichung, Taiwan
Filed Feb. 20, 1996, Ser. No. 603,421
Int. Cl.^{6} F21L *7/00*
U.S. Cl. 362—199 2 Claims



1. A flash light comprising a hollow cylindrical handle, a rotary positioning mechanism, a lamp head holder rotatably mounted on said handle and retained in any of a series of angular positions by said rotary positioning mechanism, a lamp bulb holder being mounted within said lamp head holder, a lamp head secured on said lamp head holder to hold a lamp bulb on said lamp bulb holder, two conductors connected to said lamp bulb, said lamp head holder having a sloping bottom wall, said hollow cylindrical handle having a sloping top wall disposed in contact with said sloping bottom wall of said lamp head holder, said rotary positioning mechanism including a curved stub tube extending upwardly from said sloping bottom wall of said lamp head holder, said curved stub tube having an internally threaded, straight top end and a straight bottom end extending from said top end at an angle and perpendicularly intersecting said sloping bottom wall of said lamp head holder, a plurality of circular recesses formed in said sloping top wall of said hollow cylindrical handle and radially spaced around a central portion of said sloping top wall, a spring mounted within said top end of said curved stub tube, a first steel ball mounted in said bottom end of said curved stub tube, a second steel ball mounted within the curved stub tube and disposed between said first steel ball and said spring, and a hold down screw threaded into said top end of said curved stub tube to hold said spring within said curved stub tube and to force said first steel ball into engagement with one of said plurality of circular recesses.

5,738,435
WATERPROOF LAMPHOLDER

Mei-Mei Lin, and Li-Wen Liu, both of P.O. Box 55-175, Taichung, Taiwan
Filed Sep. 9, 1996, Ser. No. 711,634
Int. Cl.^{6} F21V *21/00;* H01R *4/24*
U.S. Cl. 362—249 1 Claim



1. A waterproof lampholder comprising

a lamp receptacle having a hollow cylinder body with a bottom and a trumpet opening, an annular extension obliguely projected from an internal wall, a pair of roughly M-shaped slots symmetrically formed in opposing circumferential walls of the bottom, an annular protrudent projection of inverse V-shaped section projected from an outer surface of the bottom and a pair of cavities symmetrically formed in the bottom perpendicular to the M-shaped slots which have a pair of semi-circular recesses juxtaposed therein;

a cap member axially engaged in the bottom of said lamp receptacle, said member having a pair of slotted projection symmetrically projected upward from opposing circumferential edges aligned with the M-shaped slots, an annular groove of a V-shaped section formed in an upper surface of the cap member engageable with the inverse V-shaped annular projection, and a pair of hook members symmetrically formed on the bottom of said cap member perpendicular to the slotted projections and engageable within the cavities in the bottom of said lamp receptacle thereof

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5,738,436
MODULAR LIGHTING FIXTURE

John H. Cummings, Santa Ana, and Alan I. Fujii, Huntington Beach, both of Calif., assignors to M.G. Products, Inc., San Antonio, Tex.
Continuation-in-part of Ser. No. 714,940, Sep. 17, 1996, abandoned. This application May 23, 1997, Ser. No. 862,334
Int. Cl.^{6} F21V *29/00*
U.S. Cl. 362—294 22 Claims

10. A lighting fixture for mounting in an opening in a predefined surface, comprising:

an electrical power module having a first means for piercing the insulation of two wires of a continuous insulated cable, a second means for receiving an electric lamp and maintaining said lamp in a fixed position with respect to said power module, and separate first and second electrical circuits extending between said first means and said second means and providing respective separate electrical communication therebetween, wherein at least one of said first and second

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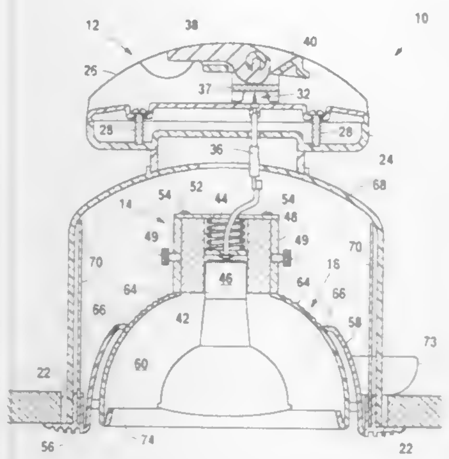


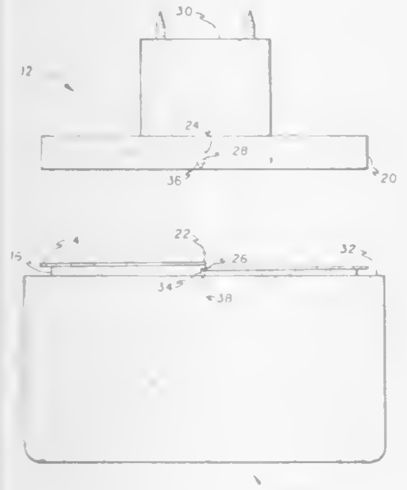
electrical circuits comprises an elongated strip formed of an electrically conductive metallic material having a portion of said first means integrally formed on a first end of the strip and a portion of said second means integrally formed on a second end of said strip; and

a lamp shield module having a first portion attachable to said electrical power module in fixed relationship therewith, and a means for retaining the lighting fixture in fixed relationship with the opening in said predefined mounting surface when said lighting fixture is mounted in the opening.

5,738,437
ATTACHMENT FOR LIGHT FIXTURE COVER

Artemio M. Ilagan, 346 Hernan Cortes, No. 6, Agana, Guam, 96934

Filed Aug. 27, 1996, Ser. No. 697,601
Int. Cl.^{6} F21S *1/02*
U.S. Cl. 362—363 **16 Claims**



1 A circular light fixture assembly, including

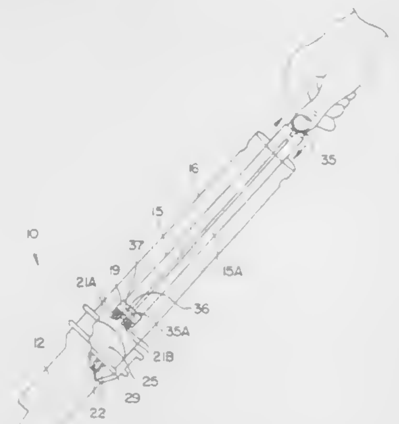
a light fixture base having a rim including a circumferential helical channel formed therearound, said channel having a leading end and an opposite trailing end, and

a light fixture cover removably attachable to said base, said cover having an edge including a circumferential helical flange formed therearound, said flange of said cover being configured to fit closely with said channel of said base and to seal tightly therewith when said flange of said cover is completely engaged with said channel of said base, said flange having a leading end and a trailing end, said trailing end of said flange having a detent formed thereacross, said detent contacting said trailing end of said channel when said flange of said cover is completely engaged with said channel of said base thereby precluding said cover from rotating further with respect to said base, said base and said cover being devoid of additional means providing for the attachment of said cover to said base.

5,738,438
HAND-HELD FLUORESCENT LIGHT

Donald N. Hesprich, Charlotte, N.C., assignor to Jameson Corporation

Continuation of Ser. No. 425,395, Apr. 21, 1995, Pat. No. 5,564,821, which is a division of Ser. No. 285,417, Aug. 30, 1994, abandoned. This application Oct. 15, 1996, Ser. No. 704,309
Int. Cl.^{6} F21V *21/00*
U.S. Cl. 362—374 **8 Claims**



1 In combination with a hand-held light assembly comprising an elongated light-transmitting housing having a proximal end thereof and a free end thereof, an elongated bulb received within said housing, and a cap removably attached to the free end of said housing for containing the bulb therein, the improvement comprising a longitudinally extending pull strip having a first end thereof attached to a first end of said bulb, and a second end thereof located adjacent to the free end of the housing, the second end being positioned for ready access by a user upon removal of the cap, whereby the bulb is removed from the housing through the open free end by gripping the second end of said pull strip and pulling outwardly in a direction away from the proximal end of the housing

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5,738,439
MIXING APPARATUS

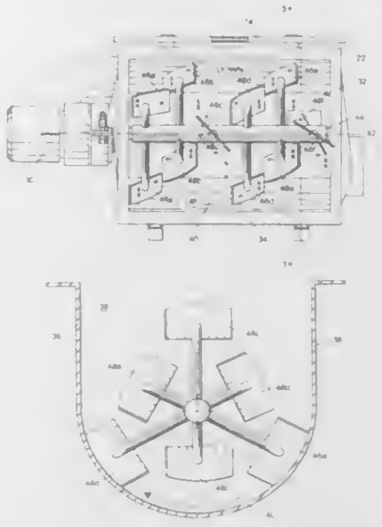
Arnold B. Flower, 164 Wilson Drive, Milton, Ontario, Canada, L9T 3J9

Filed Nov. 20, 1996, Ser. No. 752,105
Int. Cl.^{6} B01F *7/04*
U.S. Cl. 366—325.92 **4 Claims**

1 A single shaft mixer for mixing particulates, the mixer having.

a housing including parallel side walls and end walls arranged orthogonally with respect to the side walls, and a cylindrical curved bottom wall meeting the side walls tangentially and extending between the end walls, the bottom wall being curved about a longitudinal axis passing through the end walls;

a mixing element including a shaft mounted for rotation about said axis and extending between the end walls, and a plurality of inner and outer paddles coupled to the shaft for rotation with the shaft one of the outer paddles nearest the end wall towards which the outer paddles drive the particulates and the one of the inner paddles nearest the other end wall being angled relative to said axis at an angle of about 30 degrees,



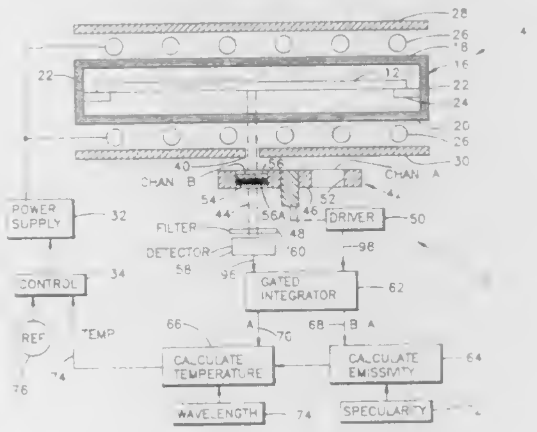
and the majority of outer paddles and inner paddles being angled relative to said axis at an angle of about 45 degrees; and

the mixer defining a series of mixing zones spaced axially along said shaft, each of the mixing zones including at least one of said outer paddles angled relative to said axis to drive particulates in a first axial direction, and at least one of said inner paddles angled relative to said axis to drive particulates in the opposite axial direction, whereby at least some of the particulates in a said zone move in said axial direction under the influence of said outer paddle and in the opposite axial direction under the influence of said inner paddle, and the zones combine to effect mixing of the particulates.

5,738,440
COMBINED EMISSIVITY AND RADIANCE MEASUREMENT FOR THE DETERMINATION OF THE TEMPERATURE OF A RADIANT OBJECT

James Anthony O'Neill, New City, and Jyothi Singh, Hopewell Junction, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 23, 1994, Ser. No. 363,143
Int. Cl.^{6} G01J *5/08;5/62;* G01N *25/00*
U.S. Cl. 374—9 **6 Claims**



1 A system for measuring emissivity and radiance of a radiant object, comprising:

a detector of radiant energy emitted by said object, said detector being positioned for receipt of radiant energy propagating along an optical path substantially normal to a surface of said object;

a shutter assembly comprising a first region which is transparent to the radiant energy, and a second region which is partially reflective and partially transmissive to the radiant energy, said shutter assembly being operative to interpose alternately said first region and said second region in said optical path at a location between said object and said detector, said detector outputting a first signal upon interception of said optical path by said first region and a second signal upon interception of said optical path by said second region, said first signal being stronger than said second signal;

means for dividing the second signal by the first signal to provide a reflectance of said object, the first signal serving as a measure of radiance of said object; and

means for deriving the emissivity of said object from the reflectance.

5 A method for measuring emissivity and radiance of a radiant object, comprising steps of.

positioning a detector for detecting radiant energy emitted by said object and propagating along an optical path substantially normal to a surface of said object,

placing alternately a first shutter region and a second shutter region in said optical path at a location between said object and said detector, said first region being transparent to the radiant energy, and said second region being partially reflective and partially transmissive to the radiant energy,

outputting by means of said detector a first signal upon interception of said optical path by said first region and a second signal upon interception of said optical path by said second region, said first signal being stronger than said second signal, and

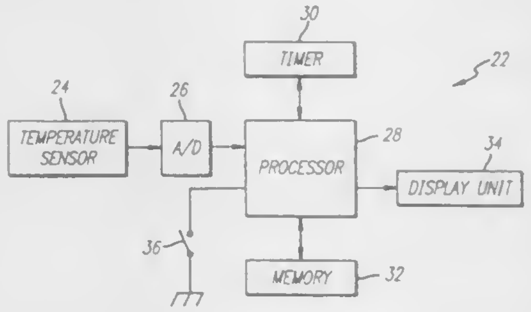
dividing the second signal by the first signal to provide a reflectance of said object, the first signal serving as a measure of radiance of said object, and

deriving the emissivity of said object from the reflectance

5,738,441
ELECTRONIC CLINICAL PREDICTIVE THERMOMETER USING LOGARITHM FOR TEMPERATURE PREDICTION

Vivien J. Cambridge, Slidell, La.; Thomas L. Koger, St. Louis, Mich.; William L. Nail, Picayune, Mich., and Patrick Diaz, D'Iberville, Mich., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jul. 11, 1995, Ser. No. 500,806
Int. Cl.^{6} G01K *3/00*
U.S. Cl. 374—102 **42 Claims**



1 A thermometer for determining the temperature of an object, comprising:

a sensor that provides temperature signals in response to sensing the temperature of the object, the temperature signals varying in time, and

a processor that receives the temperature signals, selects a first time frame from a time period occurring before the sensor reaches the temperature of the object, monitors the temperature signals over the first selected time frame, determines a selected characteristic of the temperature signals of the first time frame, calculates the logarithm of the characteristic of the temperature signals and uses the logarithm to calculate a prediction of the temperature of the object prior to the sensor reaching the temperature of the object

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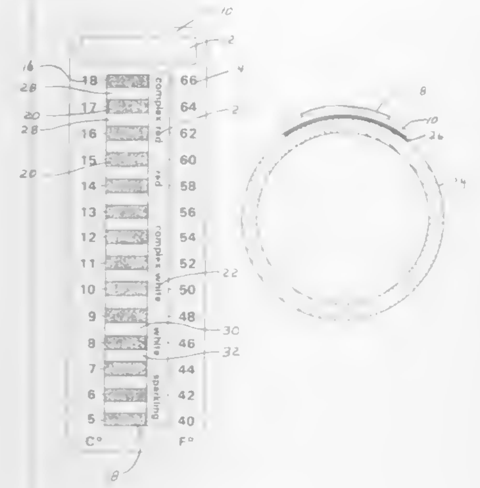
5,738,442
WINE THERMOMETER

Todd C. Paron, 318 Frederick, #6, San Francisco, Calif. 94117, and Amy C. Fritz, 3140 22nd St., San Francisco, Calif. 94110

Filed Aug. 13, 1996, Ser. No. 696,109

Int. Cl.⁶ G01K *11/12; 1/14*

U.S. Cl. 374—162 **1 Claim**



1 A wine thermometer comprising

an adhesive backed flexible substrate;

a liquid crystal temperature panel having a predetermined color and mounted on the substrate;

at least one temperature scale mounted on the substrate adjacent to the panel; and

plural quick reference category ranges corresponding to specific wine categories mounted on the substrate adjacent to the panel;

the liquid crystal temperature panel having a composition differing along the panel so that at a specific panel temperature, a first contrasting color appears in the panel at a location adjacent the corresponding specific panel temperature on the scale and corresponding quick reference category range; and wherein

the liquid crystal temperature panel comprises indicator bands having said predetermined color and corresponding to the temperature scale, the first contrasting color appears in an indicator band adjacent the corresponding specific panel temperature on the scale and corresponding quick reference category range; and wherein

at said specific panel temperature, second colors appear in the adjacent indicator band above and adjacent indicator band below the indicator band of the first contrasting color, the second colors contrasting with the first contrasting color and with the predetermined color of the other indicator bands.

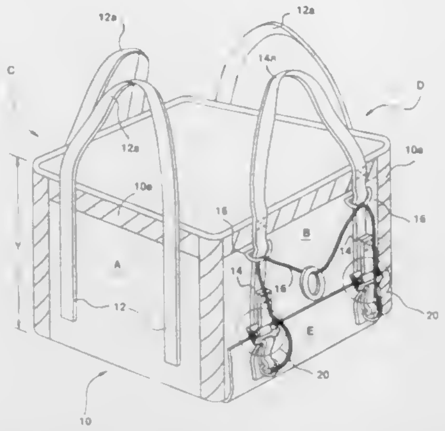
5,738,443
FLEXIBLE FABRIC CONTAINER

Jean-Jacques Renaud, 1001 Autumn Woods La. #111, Virginia Beach, Va. 23454

Filed Oct. 18, 1996, Ser. No. 733,987

Int. Cl.⁶ B65D *30/10; 33/10*

U.S. Cl. 383—67 **12 Claims**



1. A flexible fabric container for being loaded with bulk material, lifted by machinery, and activated to discharge the bulk material, said container comprising:

an upright, substantially-tubularly-shaped, perimeter sidewall defining upper and lower open ends of the sidewall and a releasable bottom flap attached along a lower edge of the sidewall for selectively covering the lower open end, said sidewall being constructed of a flexible fabric;

narrow elongated pieces of side webbing, each piece having opposite end portions thereof fastened to the sidewall of the container along substantially an entire height of the sidewall and each piece having an intermediate portion forming a loop extending above an upper edge of the sidewall, said loops adapted to be engaged by machinery for lifting the container, said elongated pieces of side webbing being constructed of flexible fabric;

the bottom flap being rotatable at its attachment with the lower edge of the sidewall between an uncovering position in which it uncovers substantially the entire lower open end of the sidewall for discharging material from the container and a covering position in which it covers substantially the entire lower open end of the sidewall for retaining material in the container, said bottom flap also having an overlap portion for, when said bottom flap is in the covering position, overlapping a lower bottom edge portion of the sidewall, opposite the attachment of the bottom flap along the lower edge of the sidewall;

self-tensioning quick release buckle assemblies attached to end portions of one of the pieces of the side webbing where they are fastened to the sidewall, each including a quick release buckle;

narrow elongated pieces of flap webbing, each having a first portion attached to the flap and an opposite, free, second end portion for passing through one of the quick release buckles;

wherein each of said buckle assemblies comprises said self-tensioning quick-release buckle and a loop of webbing, said loop of webbing having overlapping ends attached to one of said pieces of the side webbing and a non-attached, free loop portion extending away from the attachment at the overlapping ends encircling a part of the quick-release buckle, wherein the length of the free loop portion is sufficient to allow it, and the quick release buckle it encircles, to be easily rotated upwardly, away from the sidewall, for allowing the quick-release buckle to release the free, second, end of the flap webbing when the container is placed on a supporting surface, thereby releasing the bottom flap to allow the container to discharge its contents when the container is lifted from the supporting surface

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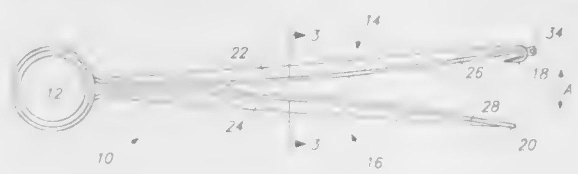
5,738,444
COMBINATION BAG CLOSURE AND SCOOP APPARATUS

Stephen Lantz, and Patricia Lantz, both of Incline Village, Nev., assignors to Conceptual Marketing & Development, Inc., Lincoln, Calif.

Filed Oct. 3, 1996, Ser. No. 725,543

Int. Cl.⁶ B65D *33/16*

U.S. Cl. 383—68 **15 Claims**



1 A combination bag closure and scoop apparatus comprising:

a cup;

an elongated handle member attached to the cup and generally extending radially outward therefrom; and

an elongated clamp member having a first end rigidly attached to the elongated handle member and a second end releasably attachable to the handle member such that when the second end is attached to the handle member the clamp member extends substantially parallel to the handle member for releasably securing a flattened portion of a bag therebetween.

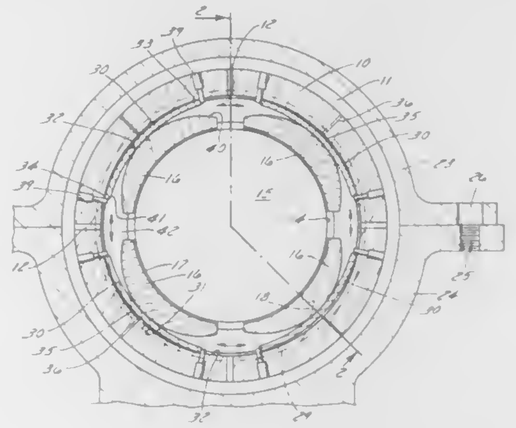
5,738,445
JOURNAL BEARING HAVING VIBRATION DAMPING ELEMENTS

Willis W. Gardner, Waukesha, Wis., assignor to Delaware Capital Formation, Inc., Waukesha, Wis.

Filed Feb. 21, 1997, Ser. No. 801,850

Int. Cl.⁶ F16C *17/03*

U.S. Cl. 384—99 **3 Claims**



1 An oil lubricated journal bearing adapted for damping vibrations of a shaft in the bearing, the bearing comprising:

a fixedly supported member having an axially extending opening defined by an inside circular surface having a predetermined radius of curvature for a shaft to extend through said opening and allow an annular space between the periphery of the shaft and said circular surface, the member having a peripheral channel for conducting pressurized oil,

a plurality of spring beams secured in circumferentially spaced apart positions adjacent said circular surface, each spring beam having opposite circumferentially spaced apart axially extending edges and having an inside surface facing radially inwardly of said opening, an outside surface facing radially outwardly of said opening for said edges to make contact with said circular surface and having a radius of curvature greater than said radius of curvature of the circular surface such that when said edges at the outside surface of said spring beam are in contact with said circular surface, a cavity for containing oil is defined between said circular surface and said outside surface of the spring beam,

a bearing pad interposed between the inside surface of each spring beam and said shaft,

a small radially directed oil conduction hole through said fixedly supported member at each of the cavities to provide for supplying oil to said cavities from said pressurized oil conducting channel.

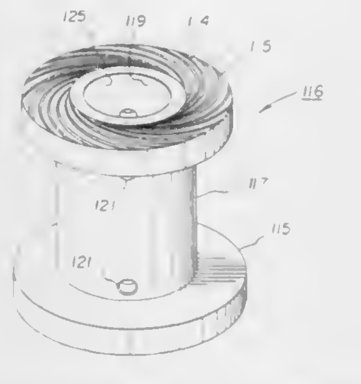
5,738,446
AIR LUBRICATED HYDRODYNAMIC CERAMIC BEARINGS

Syamal K. Ghosh; Dilip K. Chatterjee, and Theodore Richard Kolb, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 23, 1996, Ser. No. 701,944

Int. Cl.⁶ F16C *17/10*

U.S. Cl. 384—112 **6 Claims**



1 An air lubricated hydrodynamic bearing assemblage comprising,

a generally cylindrical body, said body having a bore opening therethrough and an interior wall defining a bearing surface extending lengthwise through said bore opening,

at least two air inlet ports formed in a circumferential portion of said generally cylindrical body,

an end flange portion arranged on opposite ends of said generally cylindrical body, at least one of said end flange portions having air channels arranged in fluid communications with said air inlet ports;

a shaft arranged in rotating contact with said bearing surface, and,

wherein said body of said bearing and said shaft comprise a ceramic material, said ceramic material comprising tetragonal zirconia ceramic material.

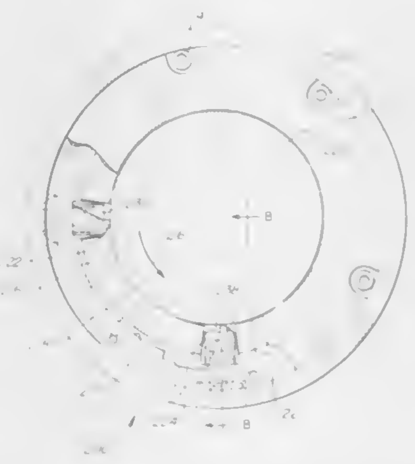
5,738,447
PAD BEARING ASSEMBLY WITH FLUID SPRAY AND BLOCKER BAR

John C. Nicholas, Wellsville, N.Y., assignor to Rotating Machinery Technology, Inc., Wellsville, N.Y.

Filed Apr. 1, 1997, Ser. No. 828,759

Int. Cl.⁶ F16C *17/03*

U.S. Cl. 384—117 **12 Claims**



1 A bearing assembly for supporting a rotatable member, which comprises:

a bearing casing having an inner surface and a fluid drain outlet,

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a plurality of pads mounted on said inner surface of said bearing casing, each pad having a face facing the rotatable member and having a leading edge and a trailing edge with respect to the rotation of the rotatable member;

a spray bar positioned adjacent said leading edge of each said pad, said spray bar having a fluid ejecting conduit positioned to forcibly eject fluid toward said leading edge and onto said pad face;

said spray bar including a fluid blocking segment adjacent the rotatable member for blocking heated fluid from being carried by the rotation of the rotatable member to said leading edge of next said pad in the direction of the rotation; and

said spray bar including a fluid removal segment in fluid communication with said fluid drain outlet, said fluid removal segment obtusely inclined with respect to said fluid blocking segment for directing the heated fluid to said fluid drain outlet to expedite removal of the heated fluid from the bearing assembly.

5,738,448

RIBBON CASSETTE FOR PRINTER

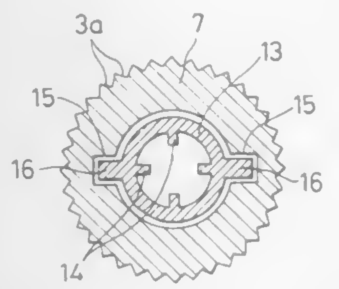
Kozo Hara, and Hajime Yamamoto, both of Tagata, Japan, assignors to Kabushiki Kaisha Tec, Shizuoka, Japan

Filed May 23, 1996, Ser. No. 652,415

Claims priority, application Japan, May 26, 1995, 7-126956

Int. Cl.^{6} B41J *33/14*; F16D *9/00*

U.S. Cl. 400—231 7 Claims



1. A ribbon cassette for use with a printer, comprising

a cassette case adapted to be detachably mounted in said printer;

an ink ribbon stored in said cassette case and partially exposed to face a print head provided in said printer;

a ribbon take-up member rotatably supported in said cassette case;

a driven member rotatably supported in said cassette case and meshing with said ribbon take-up member through said ink ribbon; and

a power transmitting member provided in said ribbon take-up member to connect said ribbon take-up member to a ribbon driving shaft provided in said printer, a breaking strength of said power transmitting member against a load from said ink ribbon being set smaller than that of said ribbon driving shaft, said power transmitting member having a connecting portion including at least one radially extending projection connected with said ribbon take-up member and an engaging portion including at least one axially extending rib for engaging with said ribbon driving shaft.

5,738,449

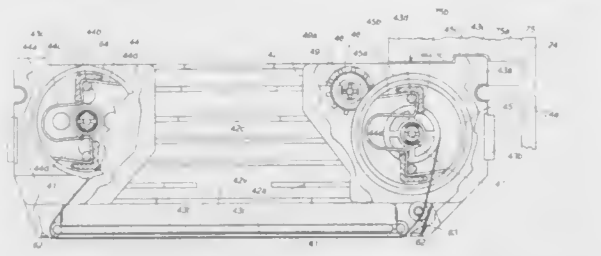
HOT STAMPER FOIL TAPE CARTRIDGE AND METHOD OF LOADING THE CARTRIDGE

Charles T. Groswith, III, Los Altos, Calif.; William A. Banks, Carrollton, Tex.; Eugene F. Duval, Menlo Park, Calif.; Roger M. Gray, Lewisville, Tex.; Raymond D. Heistand, II, Flower Mound, Tex.; Barry C. Kockler, Lewisville, Tex.; Warren K. Shannon, Highland Village, Tex.; Robert E. Smith, Woodside, Calif., and William J. Usitalo, Farmers Branch, Tex., assignors to Taurus Impressions, Inc., Mountain View, Calif.

Division of Ser. No. 78,792, Jun. 17, 1993, Pat. No. 5,441,589. This application May 23, 1995, Ser. No. 449,515

Int. Cl.^{6} B41J *33/52*

U.S. Cl. 400—234 5 Claims



1. A hot stamper foil tape cartridge comprising a generally-rectangular casing having aligned strike windows in upper and bottom sides of the casing and forming a casing side indentation;

a first supply reel including a first reel shaft journalled in said casing;

a second take-up reel including a second reel shaft journalled in said casing, a heat and pressure transferable foil tape being wound on said supply reel;

means for driving said take-up reel;

means for conveying said foil tape to a position between said reels at said bottom strike window; and means fixed with respect to said casing including a sinuous spring for preventing back rotation of at least one of said reels; and

wherein said reels include an inner peripheral surface and wherein said spring includes distal ends which frictionally engage said surface.

5,738,450

KEYBOARD WITH SIMPLIFIED SWITCH PAD HAVING A STABILIZATION ELEMENT

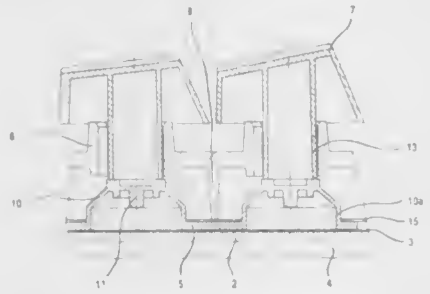
Klaus-Dieter Lukosch, Hirschau, Germany, assignor to Cherry Mikroschaller GmbH, Auerbach, Germany

Filed Aug. 5, 1996, Ser. No. 691,819

Claims priority, application Germany, Aug. 10, 1995, 195 29 492.0

Int. Cl.^{6} B41J *5/12*

U.S. Cl. 400—495 3 Claims



1. A keyboard comprising a housing including lower and upper housing parts, a metal plate form-lockingly disposed in said lower housing part, a switch foil set disposed in said lower housing part on top of said metal plate, keyboard keys supported in said upper housing part so as to be movable therein, a switch pad disposed on top of said switch foil set and having resilient switch domes disposed below said keys and projecting upwardly for resiliently

supporting said keys, said switch pad having openings formed therein between said resilient domes such that said switch pad comprises a net-like structure with narrow webs disposed between said resilient switch domes, and a flat plate-like stabilization element disposed on said switch pad and having openings at the locations of said switch domes, said stabilization element receiving said switch domes and firmly retaining said switch domes in proper positions below said keys.

5,738,451

Patent Not Issued For This Number

5,738,452

SHEET SEPARATION DEVICE IN A SUPPLYING APPARATUS

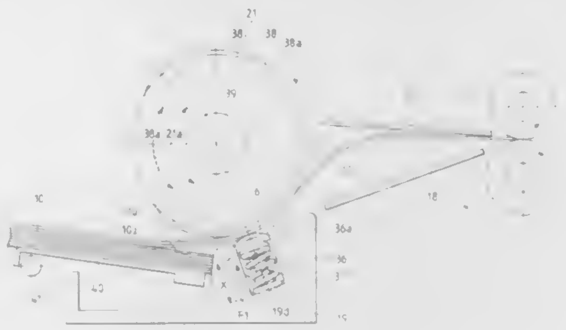
Haruo Uchida, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 27, 1994, Ser. No. 364,725

Claims priority, application Japan, Dec. 29, 1993, 5-352984; Aug. 1, 1994, 6-199066

Int. Cl.^{6} B41J *11/58*

U.S. Cl. 400—624 17 Claims



1. A recording apparatus comprising

a sheet supply roller provided at its periphery with a cylindrical portion for supplying a sheet and a cut out portion having a radial distance smaller than a radius of said cylindrical portion, said sheet supply roller being rotatable to supply a sheet,

friction separation means movable toward and away from said sheet supply roller to separate sheets one by one by cooperating with said cylindrical portion of said sheet supply roller,

biasing means for biasing said friction separation means toward said sheet supply roller;

rotation control means for stopping said sheet supply roller so that the cut-out portion is opposed to said friction separation means after the sheet is supplied by said cylindrical portion;

pinch means for pinching the sheet fed out by said sheet supply roller together with said friction separation means when said sheet supply roller is stopped by said rotation control means;

supporting means for supporting said pinch means to be shifted in a same direction as movement of said friction separation means when said pinch means guides the sheet, said supporting means having a positioning pin provided on one of a side surface of said sheet supply roller and said pinch means and a slit provided on the other of them to slidingly receive said positioning pin; and

recording means for effecting recording on the sheet fed out by said sheet supply roller.

5,738,453

SHEET SUPPLYING APPARATUS

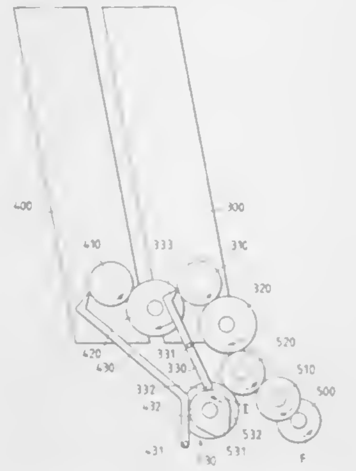
Kenichi Tsuburaya, Ibaraki-ken; Shoichi Kan; Nozomu Nishiberi, both of Yokohama, and Hiroshi Suzuki, Ibaraki-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1994, Ser. No. 365,675

Claims priority, application Japan, Dec. 30, 1993, 5-354507

Int. Cl.^{6} B41J *13/036*

U.S. Cl. 400—624 17 Claims



1. A recording apparatus for recording an image on a sheet supplied from a plurality of sheet supply portions by a recording means and having a common drive source for driving the sheet supply portions, each of said sheet supplying portions comprising

sheet supporting means for supporting sheets,

rotatable sheet supply means for supplying the sheets supported on said sheet supporting means,

drive transmitting means for transmitting a driving force of said common drive source to said sheet supply means;

a spring clutch disposed in said drive transmitting means for transmitting or interrupting the driving force, wherein said spring clutch has a spring which is tightened or loosened, a control ring engaged by said spring and a control pawl which regulates said control ring to loosen said spring, wherein the drive force is transmitted from said common drive source to said sheet supply means when said spring is tightened and the drive force is interrupted when said spring is loosened, and

control means having a rotatable cam and cam follower slidingly contacting a cam surface of said cam, said cam follower shifts said control pawl between a regulating position on which regulates said control ring and a not-regulating position when the cam is rotated,

wherein the cams of the plurality of sheet supplying portions having different cam surfaces so that one of said spring is loosened while the other spring is tightened when the cams are rotated in predetermined rotational amount.

5,738,454

MULTIPLE-FUNCTION PRINTER WITH COMMON OUTPUT PATH MECHANISM WITH FLOATING GUIDE RIBS TO ACCOMMODATE MEDIA AND DOCUMENTS OF DIFFERENT THICKNESS

Caroline M. Zepeda, San Marcos, and Samuel A. Stodder, Encinitas, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 585,058, Jan. 11, 1996, Pat. No. 5,651,623, which is a continuation-in-part of Ser. No. 145,355, Oct. 29, 1993, abandoned. This application Oct. 1, 1996, Ser. No. 724,642

Int. Cl.^{6} B41J *13/036*

U.S. Cl. 400—625 15 Claims

1. An exit mechanism for printed media and documents exiting from a print station of a printer comprising

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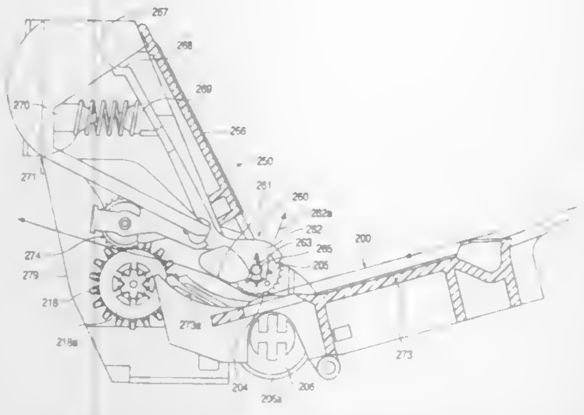


an exit chassis, said chassis including a longitudinal first edge;

a series of spaced guide ribs including an integral beam pivotably mounted adjacent to said first edge; and

spring members extending between said chassis and said beams for providing a normal force on said guide ribs and on the printed media and documents, whereby printed media of one thickness and printed media or documents of a greater thickness conveyed past said beams are accommodated by pivoted movement of said beams compressing said spring members, with respect to the printed media or documents of the greater thickness.

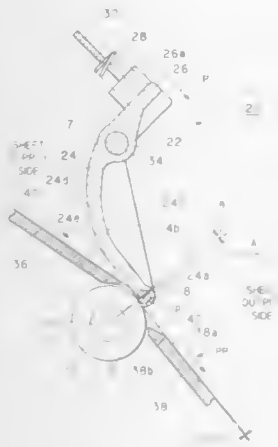
5,738,455
SHEET FEEDING DEVICE
Takaichiro Umeda, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Oct. 3, 1996, Ser. No. 726,409

Claims priority, application Japan, Oct. 3, 1995, 7-256435

Int. Cl.⁶ G41J *13/076*

U.S. Cl. 400—636 **13 Claims**



1. A sheet feeding device for feeding sheets from a sheet input side to a sheet output side, the sheet feeding device comprising:

a rotatable sheet feed roller;

a pressing roller disposed in confrontation with the sheet feed roller so that a sheet sandwiched between the pressing roller and the sheet feed roller contacts the sheet feed roller at a contact position and is fed from the sheet input side to the sheet output side by rotational force of the sheet feed roller, a tangential plane passing through the contact position dividing space between a sheet feed roller side and a pressing roller side;

a reference surface disposed at the sheet output side in intersection with the tangential plane;

an arm swingably supporting the pressing roller in confrontation with the sheet feed roller, wherein the arm is provided with a guide surface for guiding sheets to the contact position;

a swinging axis swingably supporting the arm and disposed at the sheet input side and at the pressing roller side; and

a support member forming a sheet transport pathway, wherein the support member includes a tip portion facing the sheet feed roller, the support member is disposed on the sheet supply side of the contact position so that an imaginary line extending from the tip portion of the support member and parallel to the support member intersects the guide surface of the arm.

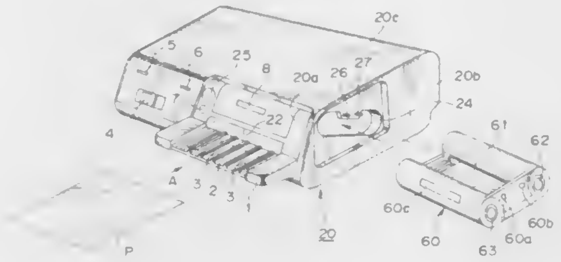
5,738,456
PRINTER DEVICE
Makoto Tanahashi; Koichi Numata, both of Kanagawa, and Takahiro Tsuge, Saitama, all of Japan, assignors to Sony Corporation, Japan

Filed Aug. 13, 1996, Ser. No. 696,182

Claims priority, application Japan, Aug. 31, 1995, 7-223997

Int. Cl.⁶ B41J *13/10*

U.S. Cl. 400—642 **18 Claims**



1. A printer device comprising:

(a) a main body portion having a printing unit, a sheet feed port on a front surface of the main body portion for supplying printing sheets to said printing unit and at least one actuating switch adapted for controlling the operation of a control circuit adapted for driving the printing unit; and

(b) a lid rotatably mounted on a lower portion of the front side of said main body portion;

(c) said lid at a first rotational position having a major vertical component and closing said sheet feed port of said main body portion and hiding said actuating switches for disabling the operation of the at least one actuating switch;

(d) said lid at a second rotational position having a major horizontal component and rotated a pre-set angle from said first rotational position not hiding the actuating switches for enabling the operation of the control circuit;

(e) said lid at said second rotational position supporting the printing sheet supplied to said sheet feed port for guiding the sheet to said printing unit by driving means.

5,738,457
PAPER SIZE DETERMINING METHOD AND PRINTER IN WHICH THE METHOD IS USED
Hiroshi Ishida; Naoto Yamaguchi; Yukihiro Uchiyama; Kazuhiko Yamaguchi, and Masayuki Kumazaki, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Nov. 17, 1995, Ser. No. 559,955

Claims priority, application Japan, Nov. 18, 1994, 6-309629

Int. Cl.⁶ B41J *29/44*

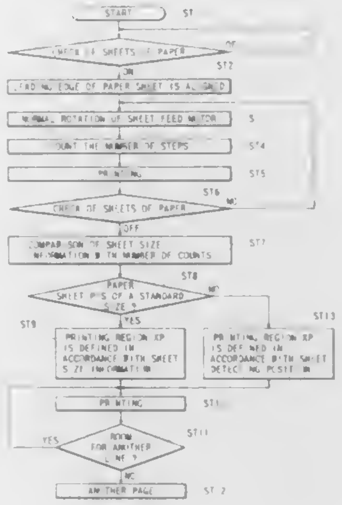
U.S. Cl. 400—706 **15 Claims**

1. A method of printing on a recording medium, comprising the steps of

providing a printing head for printing on a recording medium;

aligning a recording medium with a nip portion between a platen and a pinch roller;

conveying a recording medium in a first direction by a conveyer from said nip portion;



providing a detector positioned adjacent said printing head in the upstream direction of said direction of conveying of a recording medium;

detecting a trailing edge of a recording medium by a detector;

computing an amount of a recording medium which has already been conveyed upon the detection of said trailing edge;

determining whether a recording medium is of a standard size; and

defining a printing region on a recording medium in accordance with the size of a recording medium if a recording medium is a standard size

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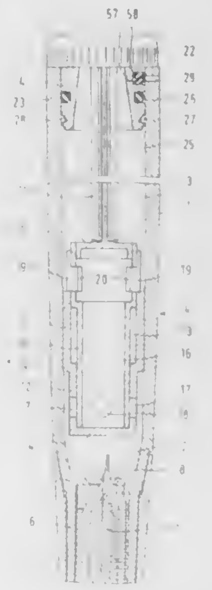
5,738,458
LIQUID-DEPOSITING IMPLEMENT FOR WRITING, DRAWING, PAINTING, FOR COSMETICS AND THE LIKE
Günter Ulrich, Hanover, Germany, assignor to Pelikan GmbH, Hanover, Germany

Filed Apr. 29, 1996, Ser. No. 638,735

Claims priority, application Germany, May 23, 1995, 195 18 814.4

Int. Cl.⁶ B43K *8/02*

U.S. Cl. 401—151 **20 Claims**



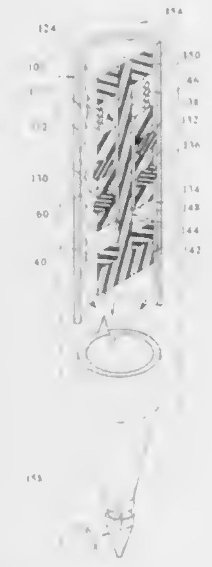
1. A liquid-depositing implement comprising a tubular case containing a supply chamber and a reservoir isolated from said supply chamber, both said supply chamber and said reservoir being fillable with a deposition liquid, a deposition element mounted on said case and connected to said supply chamber, said supply chamber including a cell with a valve-system interrupting communication between said cell and said reservoir when said cell communicates with said deposition element, and interrupting communication between said cell and said deposition element when said cell communicates with said reservoir; said valve-system including two mutually telescoping and tightly adjoining bushes enclosing a cavity forming said cell, said cavity having at each of its axial ends at least one base affixed to one of said inner or outer bush, and two sets of cooperating valve apertures present in walls of said bushes and/or said bases wherein by moving one bush relative to the other bush, one of said sets of valve apertures will pass from a communicating position having said valve apertures of both bushes overlap into a closed position having said wall of one bush seal said valve aperture in the other bush and the other set of valve apertures passes from said closed position into said communicating position, all of said valve apertures being sealed in a valve-system position which is intermediate to said two communicating positions.

5,738,459
"PRESSURIZED REFILL WITH MULTIPLE SEAL VALVE CORE PLUG AND A METHOD FOR PRESSURIZING A REFILL"
Paul A. Smith, Glenview, Ill., assignor to Eversharp Pen Company, Franklin Park, Ill.

Continuation-in-part of Ser. No. 437,017, May 8, 1995, Pat. No. 5,628,576. This application May 2, 1996, Ser. No. 641,738

Int. Cl.⁶ B43K *7/03*

U.S. Cl. 401—190 **16 Claims**



1. A refill pressurized with a gas, the refill comprising

a barrel having a wall defining an interior defined by the wall extending between a first end and a second end, the first end terminating in a writing tip wherein the interior contains ink therein;

a plug having an interior defined between a first end and a second end wherein the second end of the plug is insertable into the second end of the barrel wherein the barrel has a plurality of seals around the periphery of the plug to seal the plug against the wall in the interior of the barrel.

a cap removably secured to the second end of the barrel wherein removal of the cap does not affect the ink sealed in the barrel by the plug; and

valve means constructed and arranged to selectively permit the gas to enter the interior of the barrel through the interior of the plug wherein the valve means has a stem extending through the interior of the plug and further wherein the stem includes a spring associated with the valve means and biased to maintain the valve means in a closed position wherein the spring is

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arranged between the first end of the plug and a point intermediate the first end and the second end of the plug

5,738,460

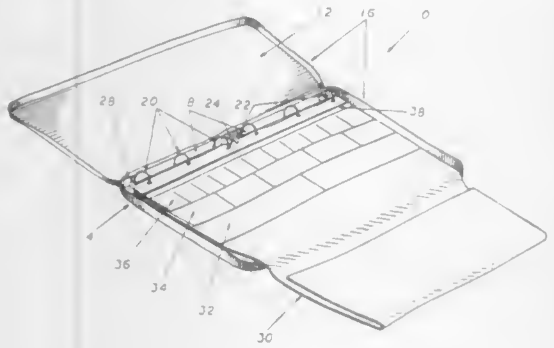
BLUEPRINT CARRIER

Dallas Edward Flynn, Rte. 4 Box 30 B, Detroit Lakes, Minn. 56501

Filed Sep. 6, 1996, Ser. No. 706,724

Int. Cl.^{6} B42F *13/00*

U.S. Cl. 402—73 **13 Claims**



1. A document carrying case comprising:

- A book style case having an upper and lower case side so as to be positioned one above the other with each respective side having a top edge;
- A flat rigid document insertion stick substantially the length of said top edge;
- A connecting portion about the top edge of each of said upper and lower case forming a four sided center spine connecting portion said spine connecting portion further forming a pocket having at least one open side for removably receiving said document insertion stick;
- A rigid spine portion having a plurality of openable binder rings fixedly attached to said rigid spine portion;
- A means of opening said binder rings; and
- A means of removably attaching said rigid spine portion to said spine connecting portion attachment means.

5,738,461

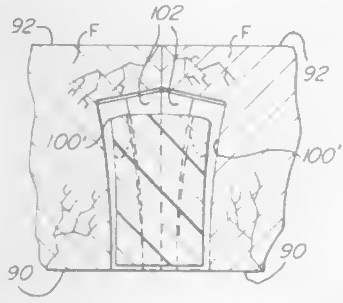
FRAME FASTENING SYSTEM AND METHOD

Vincent T. Kozyrski, Plainville, Conn., and William Hursey, Picayune, Miss., assignors to The Fletcher-Terry Company, Farmington, Conn.

Filed Mar. 7, 1996, Ser. No. 612,218

Int. Cl.^{6} A47G *1/10;* **F16B** *2/14*

U.S. Cl. 403—294 **26 Claims**



1. A frame assembly comprising at least two frame pieces assembled in a coplanar relationship to one another and having generally planar end faces in mutual contact, each of said frame pieces having a length from a proximal end to a distal end, a width from side to side, and a thickness from front to rear, and having, formed in the proximal end portion thereof, an elongate channel extending, from an entrance at a rear surface of said piece, in the thickness direction substantially in a plane perpendicular to said end face, said channel being comprised of a relatively narrow slot portion, opening on said end face, and a groove portion spaced from said end face and extending, substantially in said perpendicular plane, along a groove path that extends both forwardly from said rear surface, in the thickness direction, and also away from said end face in the length direction of said frame piece, whereby said groove paths of said assembled frame pieces diverge from one another, said groove portion being of enlarged cross section, relative to said slot portion, taken in planes transverse to said groove path, and being defined in part by a V-shaped tapered section which is formed by flat surfaces that mutually diverge, in said transverse planes, from said slot portion, said slot portions of said channels of said two pieces being disposed in substantial registry with one another; and a fastening peg inserted into said channels of said frame pieces and securing said frame pieces in such assembly, said peg having a length, with trailing and leading ends at the top and bottom thereof, respectively, and having a lateral width and a transverse thickness, said peg being comprised of two lateral engagement portions, extending lengthwise thereof, and an interconnecting panel portion between said engagement portions and dimensioned and configured to reside in the passageway formed by said mutually registered slot portions of said frame piece channels, said engagement portions of said peg being enlarged, relative to said panel portion, in planes that extend transversely and widthwise through said peg, and being dimensioned and configured for engagement in said groove portions of said channels, each of said engagement portions having a V-shaped shoulder section defined by flat surfaces that diverge mutually, in said transverse and widthwise extending planes, from said panel portion of said peg, the taper of said shoulder sections of said engagement portions of said peg matching the taper of said tapered sections of said groove portions of said channels, said engagement portions being separated from one another by a distance that is substantially constant along the length of said peg and that is substantially equal to the distance between said groove portions of said channels at said entrances thereto, said panel portion extending at least substantially to said leading end of said peg and serving to reinforce said peg against distortion and fracture under the increasing levels of lateral stress that are generated thereon, by the divergence of said groove paths, as said peg is inserted more deeply into said frame piece channels with said shoulder sections of said peg bearing upon said tapered sections of said channels.

5,738,462

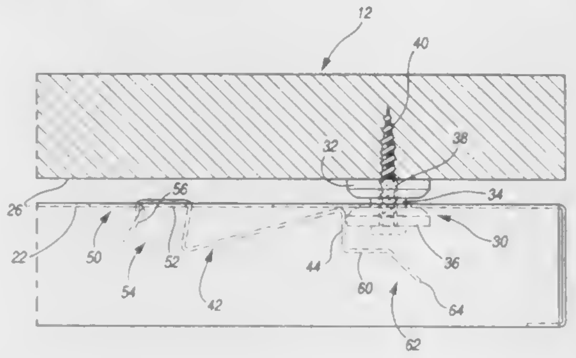
LOCKING CLIP SYSTEM FOR SECURING PANELS TOGETHER

Kirk A. Petersen, and Mark L. Wubben, both of Muscatine, Iowa, assignors to Hon Industries Inc., Muscatine, Iowa

Filed Nov. 4, 1996, Ser. No. 742,288

Int. Cl.^{6} F16B *2/00;21/18;* **A47B** *47/00;96/18*

U.S. Cl. 403—353 **4 Claims**



1. A system for interlocking together panel members in intimate relation comprising:

a first panel member;

- a washer having a first washer portion connected by a necked down portion to a second washer portion and having a bore running through said washer and necked down portions, said bore dimensioned and configured to receive a fastener for securely fastening said washer member to a side of said first panel member;
- a second panel member;
- a keyhole slot formed in said second panel member, said slot having a first enlarged opening portion leading to a second reduced opening portion, said reduced opening portion being smaller in size than said second washer portion and larger in size than said necked down portion of said washer member, said keyhole slot having a longitudinal axis;
- an aperture formed in said second panel member having a central axis aligned with said longitudinal axis of said keyhole slot and spaced from said keyhole slot to define a bridge portion of said second panel member between said aperture and said slot; and
- a clip member having a first end provided with an abutment portion and a second end provided with a generally U-shaped portion for snapping over and engaging said bridge portion;
- wherein when said clip member is attached to said bridge portion, a central portion of said clip member spans said keyhole slot and said abutment portion is in position to urge said second washer portion into locked position within said reduced opening portion of said keyhole slot.

5,738,463

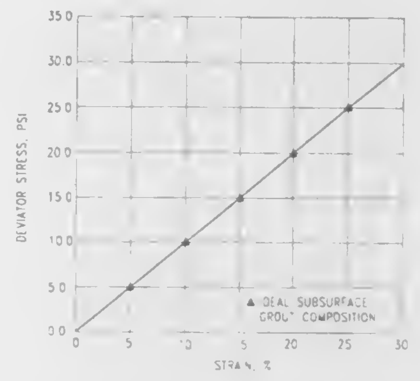
ELASTOMERIC GROUTING OF SUBSURFACE CONDUITS

David D. Onan, Lawton, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Aug. 15, 1996, Ser. No. 698,376

Int. Cl.^{6} F16L *57/00*

U.S. Cl. 405—154 **23 Claims**



1. A method of grouting a subsurface conduit whereby the hardened grout resists stress failures comprising the steps of:

- forming a hardenable grout composition having elastomeric properties upon hardening comprised of an aqueous rubber latex, a vulcanizing agent for said rubber and a vulcanization activator;
- placing said hardenable grout composition around the outside of said conduit whereby upon hardening said grout composition forms an elastomeric solid support for said conduit; and
- allowing said hardenable grout composition to harden into an elastomeric solid mass.

5,738,464

CURVATURE LIMITER FOR A PIPE RUNNING IN A MARINE ENVIRONMENT

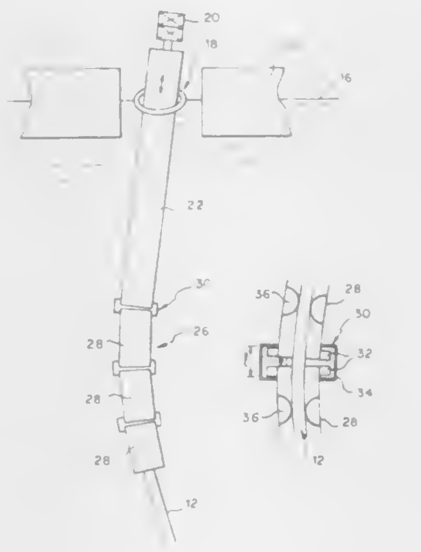
Jean-Luc Delrieu, Pau, France, assignor to Elf Aquitaine Production, France

Filed Sep. 24, 1996, Ser. No. 710,942

Claims priority, application France, Sep. 27, 1995, 95 11329

Int. Cl.^{6} E02B *17/00;* **F16L** *1/12*

U.S. Cl. 405—202 **3 Claims**



1. Curvature limiter for a pipe running in a marine environment comprising at least two elements which are substantially tubular and arranged around the pipe, these elements being joined together by an interconnection which serves to limit the angle of separation between the elements, wherein each end of an element has a radial flange projecting from its outer wall, the interconnection comprising an annular collar arranged around a pair of adjacent flanges placed on two consecutive elements in order to limit the angle of separation between the flanges.

5,738,465

DEVICE FOR THE IN-SITU PRODUCTION OF COLUMNS OF STABILIZED AND COMPACTED SOIL

Jean-Claude Gessay, Roissy en Brie, and Alain Deniau, Creteil, both of France, assignors to Sondages Injections Forages "S.I.F." Entreprise Bachy, Rueil Malmaison Cedex, France

Continuation of Ser. No. 370,244, Jan. 9, 1995, abandoned. This application Aug. 13, 1996, Ser. No. 696,117

Claims priority, application France, Jan. 14, 1994, 94 00380

Int. Cl.^{6} E02D *3/12,* **E21C** *1/00*

U.S. Cl. 405—266 **4 Claims**

1. Device for the in-situ production of columns of stabilized and compacted soil, which comprises at least four parallel shafts, each shaft driving in rotation one auger, each auger being fitted at its opposite end to a drive shaft with a loosening drill head, the distance between the axes of adjacent augers being less than the diameter of each of said augers, the shaft and the shank of each of said auger including a bore and at least one orifice communicating with said bore being provided on the shank of each auger in order to discharge a filler material, said device including means to maintain a non-deviant path of travel, even in soft soil, said means comprising adjacent augers having opposite hands and means for driving said adjacent augers in counterrotation, with the number of said augers being an even number n, at least equal to 4, and arranged so that, as seen in cross section the axes of said augers

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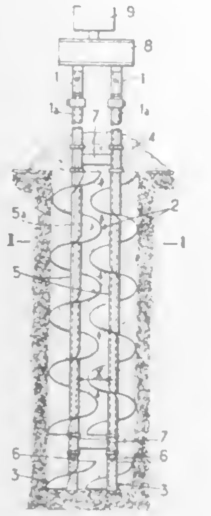


are centered at the vertices of a regular n-sided polygon, said device furthermore comprises means for reversing the direction of rotation of the augers.

5,738,466
RIBBED FLEXIBLE MEMBER FOR CASTING INTO AN ANCHORAGE MEDIUM

Peter Stuart Ashmore, and John Mawson Walton, both of Doncaster, England, assignors to Bridon plc, South Yorkshire, England

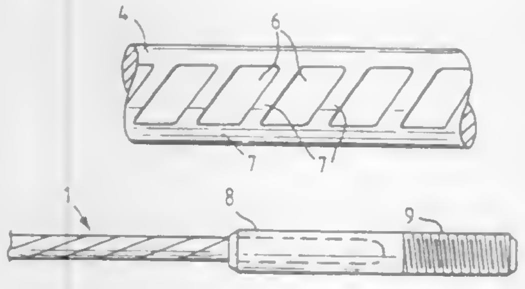
PCT No. PCT/GB94/01726, § 371 Date Jul. 26, 1995, § 102(e) Date Jul. 26, 1995, PCT Pub. No. WO95/05526, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 5, 1994, Ser. No. 424,317

Claims priority, application United Kingdom, Aug. 16, 1993, 9317017

Int. Cl.^{6} E21D *21/00;* **F16B** *39/36*

U.S. Cl. 405—302.2 **9 Claims**



1. A ribbed flexible member for casting into an anchorage medium, comprising a strand including outer wires extending helically, in which the exposed surfaces of a plurality of the outer wires are indented, the indentations being distributed along the length of the strand to receive the anchorage medium.

5,738,467
APPARATUS FOR THE FEEDING OF ARTICLES AT VARIABLE SPEEDS

Samuel S. Aidlin; Stephen A. Aidlin; Kenneth J. Cordonnier, and Steven A. Zittel, all of c/o Aidlin Automation Corporation, P.O. Box 13125, Sarasota, Fla. 34278-3125

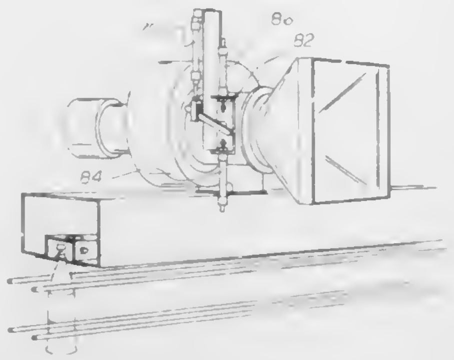
Continuation-in-part of Ser. No. 11,897, Feb. 1, 1993, abandoned. This application Jun. 28, 1993, Ser. No. 83,916

Int. Cl.^{6} B65G *51/02*

U.S. Cl. 406—86 **1 Claim**

1. A system for conveying articles along a path of travel at any one of a plurality of varying speeds comprising in combination:

a pneumatic conveyor for supporting the articles to be conveyed;
a fan operatively coupled to the pneumatic conveyor to provide air under pressure to the pneumatic conveyor to convey articles in the path of travel therealong;
a damper to restrict flow of air through the fan;
control means responsive to a signal to vary positioning of the damper and thereby vary the flow of air to the fan and consequently vary a speed of the articles being conveyed along the path of travel, the control means being an actuator coupled to the damper to pivot the damper between a first position and a second position;
adjustable stop means to vary the first position and the second position; and
additional actuator means to vary the stop means whereby the damper may pivot to any of four positions.



5,738,468
SHIM FOR CUTTING TOOL WITH REPLACEABLE CUTTING INSERT

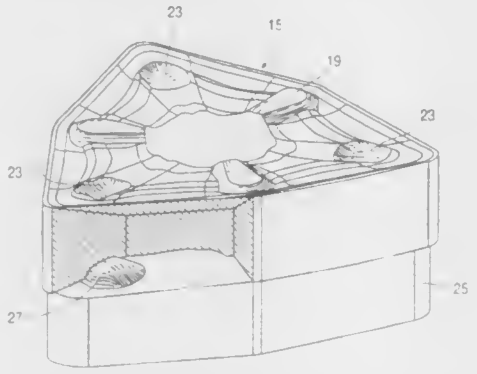
Gideon Boianjiu, Kfar Havradim, Israel, assignor to Iscar, Ltd., Tefen, Israel

Division of Ser. No. 734,368, Oct. 16, 1996, which is a continuation of Ser. No. 341,616, Dec. 29, 1993, abandoned. This application Jan. 8, 1997, Ser. No. 778,222

Claims priority, application Israel, Dec. 30, 1992, 104273

Int. Cl.^{6} B23B *27/16*

U.S. Cl. 407—103 **15 Claims**



1. A shim for use in a cutting tool assembly, said cutting tool assembly comprising a tool holder formed with a cutting insert retaining pocket having a pocket base wall designed to support said shim and an indexable double sided cutting insert to be supported by said shim, said shim comprising:

a substantially prismatic body substantially corresponding in shape and in size to said pocket base wall and having a plurality of shim corners and
an upper shim surface with at least one insert supporting projection formed thereon;
wherein said insert supporting projection has an uppermost portion disposed adjacent to only one of said plurality of shim corners.

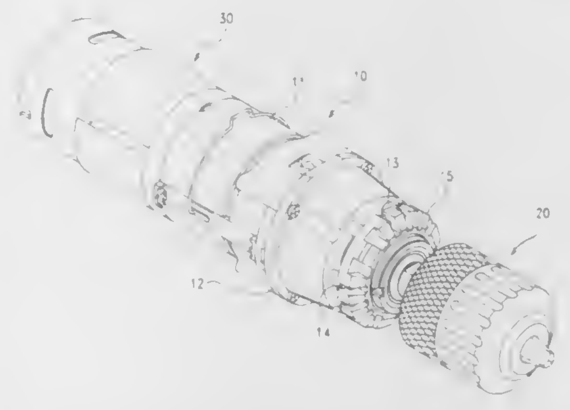
5,738,469
TORQUE ADJUSTMENT CONTROL MECHANISM OF A HAND DRILL

Hung-Ming Hsu, Yun-Lin Hsien, Taiwan, assignor to Regitar Power Tools Co., Ltd., Taiwan

Filed Feb. 8, 1996, Ser. No. 597,411

Int. Cl.^{6} B23B *45/00*

U.S. Cl. 408—139 **6 Claims**



1. A torque adjustment control mechanism coupled between a motor housing base and chuck of a hand drill to hold a transmission shaft thereof and controlled to adjust its output torque, the torque adjustment control mechanism comprising:

a connecting barrel connected to the motor housing base;
a hollow, cylindrical coupling member mounted within said connecting barrel, said coupling member having an annular track at a front end thereof, a plurality of raised portions raised from said annular track, and an internal gear coupled to the motor housing base;
a hollow, cylindrical holder base fixedly connected to one end of said connecting barrel remote from the motor housing base to hold the transmission shaft, said holder base having a plurality of longitudinally directed through holes formed around a border thereof, and an externally threaded tubular front neck,
a plurality of hold down spring devices respectively mounted in said longitudinally directed through holes of said holder base and stopped at said annular track of said coupling member;
an index ring mounted around said tubular front neck of said holder base and prohibited from rotary motion relative to said tubular front neck of said holder base and stopped against said hold down spring devices, said index ring having a plurality of equiangularly spaced indexing holes; and
an adjustment cap threaded onto said tubular front neck of said holder base to hold said index ring against said hold down spring devices and to hold at least one steel ball on an inside of said adjustment cap and in said indexing holes;
wherein an output torque of the hand drill is adjusted by changing a hold down pressure of said hold down spring devices by turning said adjustment cap forwards or backwards on said tubular front neck of said holder base.

5,738,470
GUIDE DEVICE FOR CUTTING A GROOVE

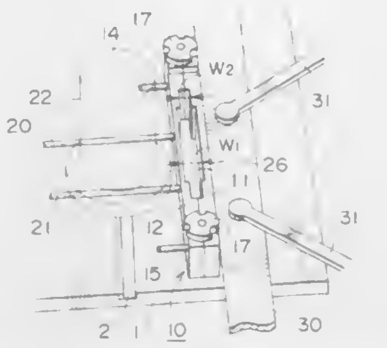
Toyohisa Sugita, Tokyo, Japan, assignor to Kabushiki Kaisha Mirai, Tokyo, Japan

Filed Dec. 13, 1996, Ser. No. 766,823

Int. Cl.^{6} B23C *1/20*

U.S. Cl. 409—178 **6 Claims**

1. A guide device for cutting a groove which includes a rectilinear guide member (**10**) for guiding a router (**22**) provided with a rotary bit (**100**) having a predetermined diameter, wherein said rectilinear guide member (**10**) comprises a pair of first and second guide members (**11, 12**) which are connected to be freely slidable in relation to each other and an opening (**26**) formed between said guide members when they are in contact with each other having a width (W_1, W_2) equal to a diameter (D_1) of said rotary bit (**100**)



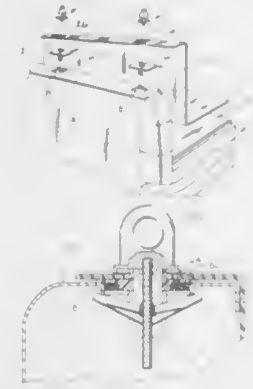
5,738,471
TIE DOWN ASSEMBLY

Edward Zentner, Clarkston, and Jerry J. McCammon, Rochester Hills, both of Mich., assignors to Durakon Industries, Inc., Lapeer, Mich.

Filed Jan. 5, 1996, Ser. No. 583,237

Int. Cl.^{6} B60P *7/08*

U.S. Cl. 410—110 **21 Claims**



1. A tie down assembly for installation in a stake opening of a truck comprising, in combination,

a base member having a flange portion, a projection extending from said flange portion for disposition in such stake opening, an opening extending through said flange portion and said projection and a pair of spaced-apart members extending from said projection and defining a pair of opposed slots,
a tie down member defining an eyelet and having a threaded member and a toggle assembly having a pair of wings disposed on said threaded member,
whereby said toggle assembly and said threaded member may be inserted into said opening and said wings of said toggle assembly are disposed in said opposed slots to retain said tie down member in said base member

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5,738,472
MODIFIED LOCKING THREAD FORM FOR FASTENER

Roopnarine, New York, N.Y., and John D. Vranish, Crofton, Md., assignors to Honeybee Robotics Inc., New York, N.Y.

Filed Oct. 17, 1996, Ser. No. 733,345

Int. Cl.^{6} F16B *35/04; 39/30*

U.S. Cl. 411—309 **18 Claims**

1. A threaded fastener comprising:

a first fastener part having a uniformly repeating pattern of threads, wherein said threads have a standard thread form characterized by thread walls which are symmetrically inclined with a predetermined standard included angle and by

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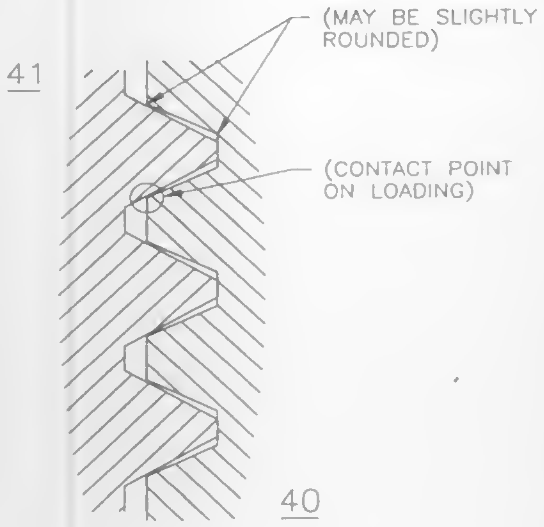


a cross-sectional profile having a first thread crest portion and a first thread root portion; and

a second fastener part complementary to the first fastener part having a uniformly repeating pattern of corresponding threads, wherein said corresponding threads have a modified thread form characterized by thread walls which are symmetrically inclined with a modified single-included angle that is different from the standard included angle of the first fastener part's thread walls and by a cross-sectional profile having a second thread crest portion and a second thread root portion;

wherein said modified single-inclined angle and crest and root profile of the thread walls of said second fastener part are formed relative to those of said first fastener part such that the crest portions of one fastener part have a clearance with the root portions of the other fastener part prior to pre-loading, and the crest portions of the one fastener part then elastically deform into wedged contact with the root portions of the other fastener part upon preloading of the complementary fastener parts.

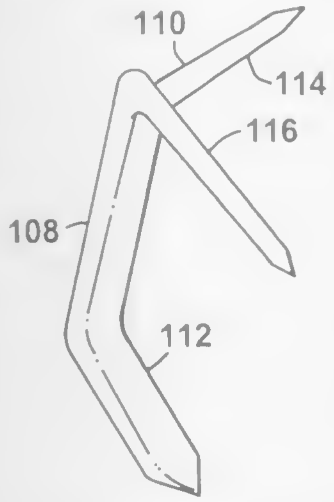
5,738,473
DECK FASTENERS

Glenn J. Tebo, P.O. Box 754, Kingston, N.H. 03848

Filed Jun. 21, 1996, Ser. No. 667,389

Int. Cl.^{6} F16B *15/02*

U.S. Cl. 411—460 **5 Claims**



1 Fastener for securing boards to joists thereunder, comprising

a first member located in a first plane having two parallel sharp, pointed prongs, one of said prongs for being driven into a first board and the other of said prongs for being driven into a joist thereunder, and

a third sharp, pointed prong located in a second plane and extending from said first member at an angle in the range of about 35-55 degrees for being driven into an adjacent board for securing the adjacent board on top of said joist to the first board.

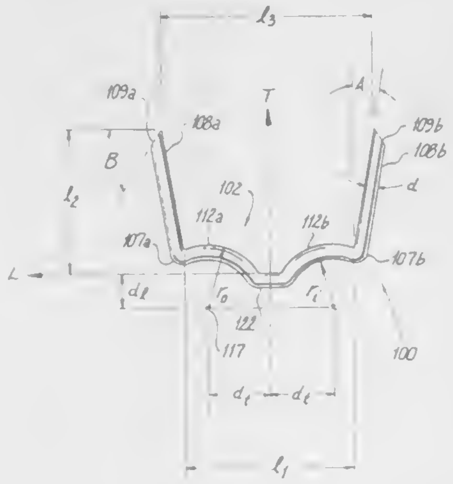
5,738,474
SURGICAL STAPLE AND STAPLE DRIVE MEMBER

Jeffrey J. Blewett, 86 Parkview Dr., Plantsville, Conn. 06479

Division of Ser. No. 449,637, May 24, 1995, Pat. No. 5,630,540. This application Mar. 3, 1997, Ser. No. 811,445

Int. Cl.^{6} F16B *15/02;* **A61B** *17/08;* **A61D** *1/00*

U.S. Cl. 411—473 **9 Claims**



1. A surgical staple comprising.

a) a bridge portion having at least two adjacent arcuate sections, each defining a constant radius of curvature along an arc length thereof;

b) transition portions disposed at opposed end portions of the bridge portion each having a curved profile and defining a first lateral spacing therebetween, and

c) legs having first end portions connected to the transition portions and second end portions extending therefrom defining a second lateral spacing therebetween, wherein the second lateral spacing is at least equal to the first lateral spacing, the staple being constructed such that the legs are adapted to be moved between an undeformed position substantially transverse to the bridge portion and a deformed position in which at least a portion of each of the legs is in approximation with the bridge portion.

5,738,475
ADJUSTABLE EXPANSION RIVET

Philip A. Chaban, Grass Lake, Mich., assignor to Lear Corporation, Southfield, Mich.

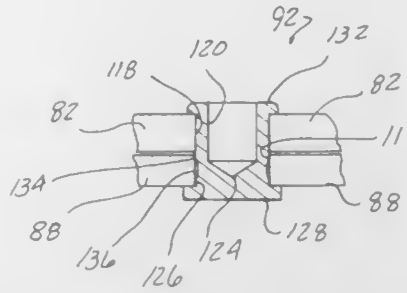
Filed Dec. 20, 1996, Ser. No. 771,279

Int. Cl.^{6} F16B *19/08;* **E05D** *13/00*

U.S. Cl. 411—501 **12 Claims**

1 An adjustable expansion pivot rivet connecting a movable member to a fixed member at aligning apertures therein comprising:

a generally cylindrical outer surface having a hollow portion and a solid portion, wherein said hollow portion extends through said fixed member and said solid portion extends into said movable member, said outer surface coated with a lubricant; and



said hollow portion has an end defining a terminating portion, the terminating portion confining expansion of the hollow portion into contact with the movable member leaving a gap between the solid portion and the movable member defining a lubrication reservoir.

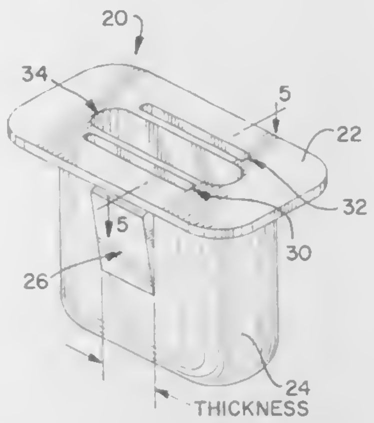
5,738,476
FASTENER

Angelo Assimakopoulos, Bridgeview, Ill., assignor to MacLean-Fogg Company, Mundelein, Ill.

Continuation of Ser. No. 448,775, May 24, 1995, abandoned. This application Nov. 14, 1996, Ser. No. 749,064

Int. Cl.^{6} F16B *19/00*

U.S. Cl. 411—508 **9 Claims**



1. A fastener for securing a molding or the like to the frame of a vehicle or the like, comprising.

a) an elongated fastener body made of sturdy but pliable plastic material;

b) a flange formed unitarily with, and encircling one end of said body, said body being elongated in a direction away from said flange:

c) a major slot for receiving a connector formed into said body from said one end of said body, said slot extending from an open end at said one end of said body through a major portion of the length of said body and forming a closed passage from said open end to a closed end;

d) two minor slots formed in said body from said one end of said body and extending through a portion of the length of said body, said major slot being disposed between said minor slots and

e) a coupling structure including an elongated, wedge-shaped protrusion formed on each of two opposite sides of said body, bracketing said minor slots,

f) each of said elongated, wedge-shaped protrusions being attached to said body along at least a substantial portion of its length, the length of each wedge-shaped protrusion being greater than the length of the corresponding minor slot and each wedge-shaped protrusion being narrower than the width of the corresponding minor slot.

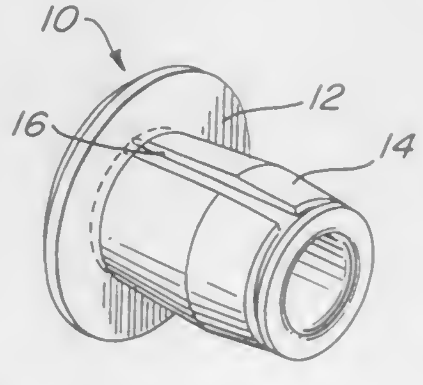
5,738,477
PANEL SNAP FASTENER ASSEMBLY

Daniel J. McCorkle, Irvine; Robert L. Waits, Riverside, and Heinrich Rehburg, Orange, all of Calif., assignors to Shur-Lok Corporation, Irvine, Calif.

Continuation of Ser. No. 422,351, Apr. 14, 1995, Pat. No. 5,613,818. This application Mar. 13, 1997, Ser. No. 815,965

Int. Cl.^{6} A61B *19/00*

U.S. Cl. 411—509 **7 Claims**



1 A system for attaching and removing protective panels to side walls of an aircraft having bores of a predetermined dimension, comprising:

an apertured panel,

a removable two-part fastener extending through the apertured panel and providing a frictional fit with a bore in the side wall of the aircraft, the fastener including,

a stud member having an enlarged head at one end, which is dimensioned to receive both an insertion force and an extraction force and to retain the apertured panel and a retaining head at the other end of a dimension to pass through the bore, the enlarged head and retaining head are interconnected by a longitudinal shaft that is smaller in circumference than an outer edge of the retaining head; and

a spring retainer member, having a longitudinal hollow open-ended core with an exterior longitudinal slit aperture extending into the core, is permanently mounted on and substantially encloses the longitudinal shaft, the length of the spring retainer member is less than the length of the longitudinal shaft so that the spring retainer member can slide along the longitudinal shaft from the enlarged head to the retaining head during insertion and extraction of the fastener, an outer circumference portion of the spring retainer member is greater than an inner circumference of the bore, whereby the spring retainer member is compressed as an insertion force is applied to the enlarged head to thereby contact one end of the spring retainer member and force the spring retainer member into the bore, the spring retainer member is also compressed when an extraction force is applied to the enlarged head to thereby cause the retaining head to contact the other end of the spring retainer member and force the spring retainer member to be compressed as it is extracted from the bore, whereby the stud member enables the insertion and retraction of the fastener while the spring retainer member provides the actual fastening force with the bore in the wall, and

an extraction tool for engaging the enlarged head to pry the stud member away from a fastened position

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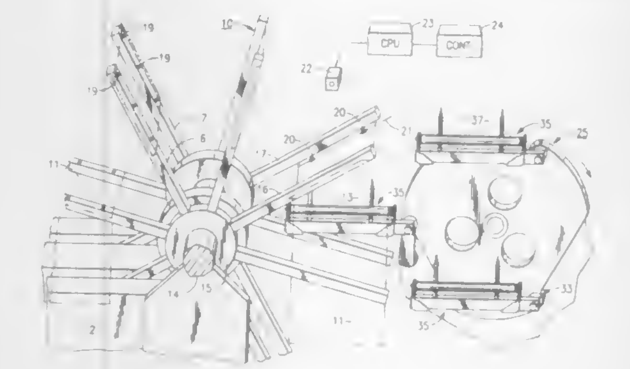
5,738,478
AUTOMATIC WICKETING APPARATUS

Gordon F. Pickering, Lyons; Richard E. Partch, Palmyra, both of N.Y.; Stewart L. Fluent, Cedar Falls, Iowa, and Colin R. Hart, St. Joseph, Mo., assignors to Huntsman Design Products Corporation, Macedon, N.Y.

Continuation-in-part of Ser. No. 438,782, May 11, 1995, Pat. No. 5,522,690. This application May 2, 1996, Ser. No. 641,899

Int. Cl.⁶ B65G *29/00*

U.S. Cl. 414—27 **17 Claims**



13. An apparatus for picking up and placing a stack of bags having wicket receiving holes onto a wicket, comprising:

a pick-up head which comprises.
- alignment means for receiving and maintaining alignment oft he stack of bags having a top bag and a bottom bag.
- a pair of jaws comprising a restraining jaw and a rear jaw for restraining the stack of bags on the alignment means.
- wherein the rear jaw is also for pushing the stack of bags off the alignment means;
- and wherein the restraining jaw and the rear jaw are in opposed positions relative to the top and bottom bags when the stack of bags is restrained between the pair of jaws.

5,738,479
SYSTEM AND APPARATUS FOR CONVERTING A RAILCAR OR TRUCK TRAILER TO MULTIPLE USES

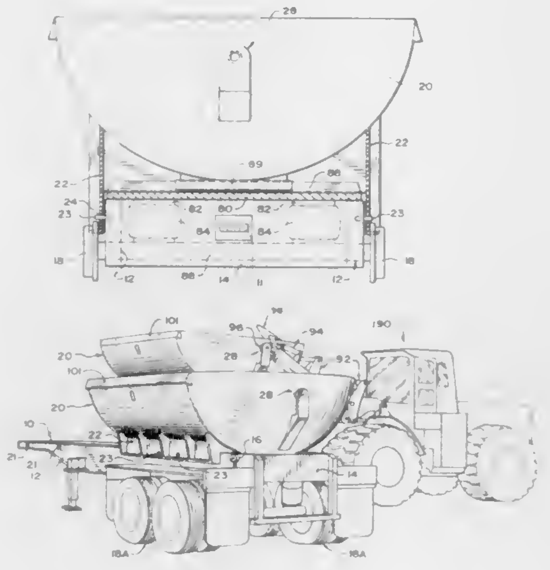
Donald Dougals Gordon Glen, and Bradley Dunald David Glen, both of Box 39, Lunbreck, Alberta, Canada, T0K 1H0

Filed Feb. 24, 1995, Ser. No. 393,808

Int. Cl.⁶ B60P *7/08;* **B65G** *67/02*

U.S. Cl. 414—373 **14 Claims**

1 A load transportation system comprising a wheeled vehicle adapted for carrying one of a plurality of transport modules, said vehicle comprising:
- a) a frame having a plurality of holes extending from the interior surface through to the exterior surface thereof;
- b) two or more wheeled axles secured in said frame;
- c) means for aligning a transport module on said frame;
- d) a plurality of movable locking pins mounted on the interior of said frame;
- e) power means for extending and retracting said locking pins through said holes in said frame from a first extended position to a second retracted position.
- f) air suspension means supported by said axles for receiving said module, comprising a plurality of pneumatic cushions on said frame, wherein said frame is provided with a load-bearing plate bearing on said cushions for receiving said load-carrying transport module; and



- g) air pressure measuring and displaying means for measuring the air pressure in said air suspension means.

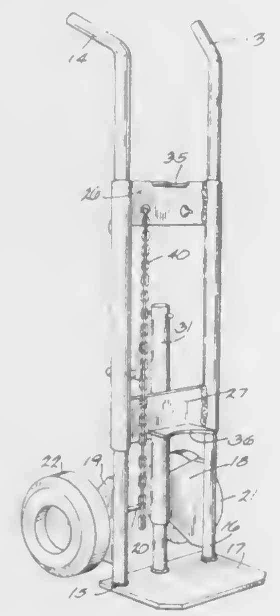
5,738,480
TWO-WHEELED DOLLY FOR MOVING HEAVY OBJECTS

Michael J. Butzen, 5311 County J, Sheboygan, Wis. 53083

Filed Apr. 15, 1996, Ser. No. 632,766

Int. Cl.⁶ B62B *1/14*

U.S. Cl. 414—490 **9 Claims**



1 In a hand truck having at least two wheels for moving heavy objects, comprising:
- (a) a frame.
- (b) a foot plate extending transversely from said frame and secured thereto.
- (c) a bracket slideably mounted on said frame above said foot plate, said bracket having spaced apart cross-members.
- (d) a cradle extending traversely from each of said cross-members, each of said cradles having an arcuate recess.
- (e) an elevator having one end fastened to said bracket and the opposite end fastened to said foot plate.

- (f) operating means for actuating said elevator so as to raise said bracket above said foot plate.

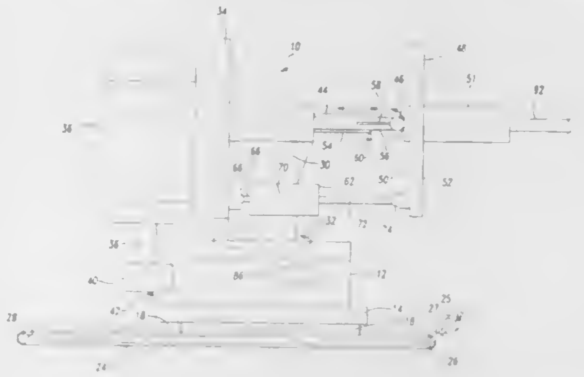
5,738,481
UNIVERSALLY ACTUABLE ROBOT ASSEMBLY

Vincent Rogers, 44155 Bayview Ave., Clinton Township, Mich. 48038

Filed Dec. 2, 1996, Ser. No. 759,315

Int. Cl.⁶ B25J *5/00*

U.S. Cl. 414—744.6 **13 Claims**



1 An improved universally actuable robot assembly, comprising
- a pedestal base support;
- a body swivelably mounted atop said pedestal base support and means for driving said body in a rotating manner about said base;
- a linearly extending engaging member and means for universally actuating said engaging member, said universally actuating means comprising:
- a main support arm extending substantially horizontally from said body at a generally centralized location, said main support arm terminating in a first universally swivelable member which connects to a first face of a generally vertically oriented intermediate plate member; and
- at least first and second linearly actuable driving arms extending from said body in generally parallel fashion and at spaced apart distances with respect to said main support arm and connecting via a first pair of forwardly positioned universally swivelable members to said first face of said intermediate plate member at first and second spaced locations from said first universally swivelable member of said main support arm, a first and a second linearly actuable cylinder pivotally mounted to said body by a second pair of rearwardly positioned universally swivelable members and receiving said first and second driving arms, respectively, for adjusting an overall length of said driving arms;
- said linearly extending engaging member fixedly secured to and extending from a second face of said intermediate plate member and said plate member being responsive to manipulative motion of said driving arms in a universal manner about a pivot point established by said main support arm to universally position said engaging member.

5,738,482
APPARATUS FOR GRIPPING AND TRANSPORTING SLABS OF GREAT DIMENSIONS HAVING FEEDING SUCKERS

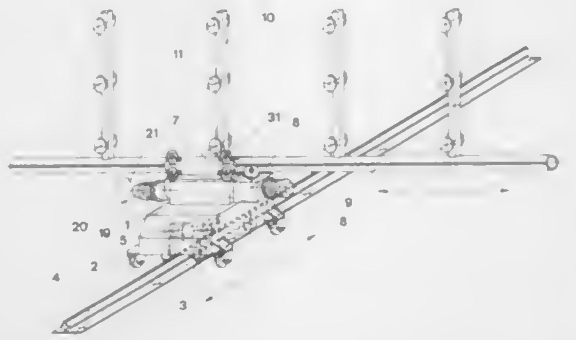
Antonio Piazza, Via Tuzzi, 87, Schio (Vicenza), Italy

Filed Feb. 1, 1996, Ser. No. 595,575

Claims priority, application Italy, Feb. 3, 1995, VI95A0018

Int. Cl.⁶ B65G *1/04*

U.S. Cl. 414—752 **10 Claims**



1 An apparatus for gripping slabs of great dimensions, said slabs having a product thereon, said slabs being inserted or removed from a storehouse for the purpose of disposing said slabs on a transportation means for depositing said slabs on a machine for working said product, the apparatus comprising a carriage (**1**), guiding rails (**4**), said carriage being movable on said guiding rails, a plurality of rollers (**3**) on said carriage said rollers sliding on said rails (**4**), a rotation group (**6**) mounted on said carriage for turning over said slabs, a guiding group (**7**) (**12**) (**23**) (**24**) fixed on top of said rotation group, a control system (**30**) for controlling the motion of said carriage along said rails, said guiding group having an interior, a rod (**9**) sliding longitudinally in said interior of said guiding group (**7**), (**12**) (**23**) **24**), a transfer group, a gripping system including a plurality of feeding suckers (**11**) (**15.16**) (**28**) (**29**) disposed on uprights attached to said rod, said feeding suckers gripping said slabs for the purpose of inserting or removing said slabs from the storehouse.

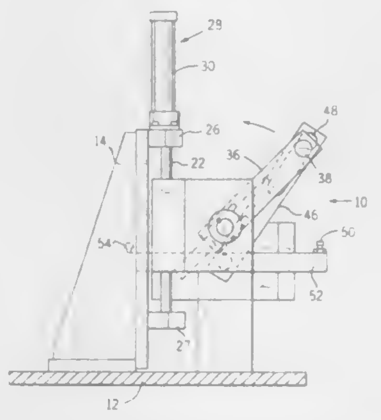
5,738,483
LIFT AND INVERT MECHANISM

Paul D. Terpstra, Janesville, Wis., assignor to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed Sep. 11, 1996, Ser. No. 711,469

Int. Cl.⁶ B25B *11/00*

U.S. Cl. 414—758 **19 Claims**



1 A mechanical system for lifting a workpiece from an operating position, inverting the workpiece, and returning it to an inverted operating position, comprising:
- a vertically moveable support member, moveable between a lower operating position and a raised position,
- a horizontal shaft rotatably supported by said vertically moveable support member, the workpiece being supported by said horizontal shaft,
- a first drive device for urging said vertically moveable support member from the lower operating position to the raised position,
- a first lever arm having first and second ends, said first lever arm secured adjacent said first end to said horizontal shaft for rotation thereof,
- a second lever arm having first and second ends, said second lever arm coupled to said first lever arm,

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a second drive device for rotating said second lever arm about its first end, and

an energy control device for controlling the supply of energy to said second drive device, the supply of energy to said second drive device causing said second lever arm to be rotated, thereby causing said first lever arm to be rotated, so as to raise, invert, and lower the workpiece.

5,738,484

PALLETISER

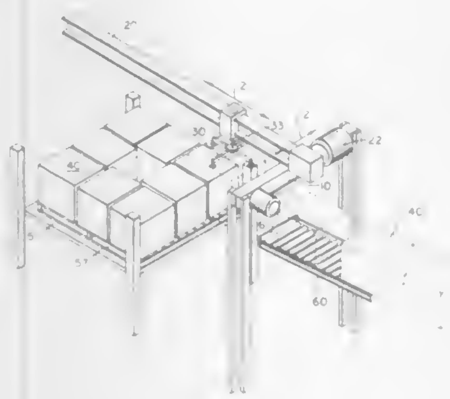
Ellis John Taylor, West Pennant Hills, Australia, assignor to McNeall Engineering Pty. Ltd., New South Wales, Australia

Continuation of Ser. No. 661,118, Jun. 10, 1996, abandoned, which is a continuation of Ser. No. 137,513, Oct. 18, 1993, Pat. No. 5,525,029. This application Apr. 24, 1997, Ser. No. 839,967

Claims priority, application Australia, Dec. 3, 1992, PL6177; Mar. 3, 1993, PL7616

Int. Cl.⁶ B65G *57/03, 57/14;* **B66C** *1/22*

U.S. Cl. 414—788.1 **4 Claims**



1 A system for transporting articles from at least one conveyor onto at least one pallet, comprising

a at least one substantially horizontal elongate first track;

b. a substantially horizontal elongate second track extending at substantially a right angle to said at least one first track;

c means for moving said at least one first track along length of said second track,

d. at least one carriage movably supported on said first track, said at least one carriage having gripper means for laterally adjusting a position of an article to be palletized;

e at least one pallet support means;

f. means for adjusting a vertical position of said at least one pallet support means; and

g. means effective during loading of articles onto said pallet for controlling:

(1) lateral movement of said at least one first track and said second track to position each article laterally above a predetermined location for each said article at a height above that of the top of the article being placed onto said pallet, and

(2) vertical movement of the pallet support means by an amount substantially corresponding to the vertical height of layers of articles on said pallet,

whereby each of a layer of said articles to be placed on said pallet will, for each of the successive layers of said articles positioned on said pallet, be released onto said pallet and whereby vertical movement of the article as it travels between the respective conveyor and said pallet is minimized.

5,738,485

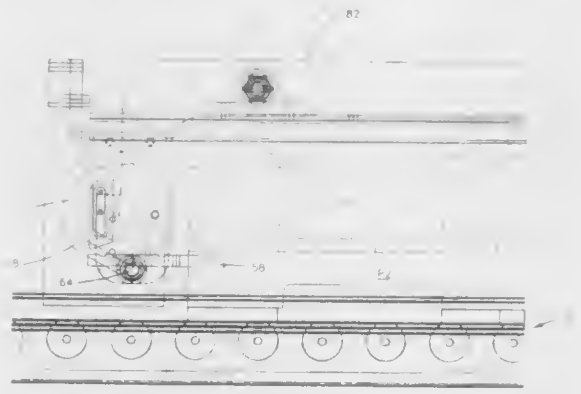
PALLET HANDLING APPARATUS

Jean-Denis Bedard, and Michael Fennel, both of Brossard, Canada, assignors to Coprodev Inc., Quebec, Canada

Filed Dec. 16, 1996, Ser. No. 767,219

Int. Cl.⁶ B65G *59/06*

U.S. Cl. 414—795.4 **10 Claims**



1 A pallet dispensing apparatus comprising a frame, a carriage assembly and drive means connected to said carriage assembly for reciprocally driving said carriage assembly in a vertical direction, said frame including four vertical posts, a wear guide assembly mounted within each of said posts, each of said wear guide assemblies being operatively connected to said drive means and said carriage, said carriage assembly having first and second transversely extending rails, at least one supporting member secured to each of said transversely extending rails, a cam member located at each end of said rails, a cam guide designed to receive each of said cam members, each of said cam guides having inner and outer generally vertically oriented cam guide tracks, an upper cam guide track extending between upper portions of said inner and outer cam guide tracks, and a lower cam guide track extending between lower portions of said inner and outer cam guide tracks, said cam guide tracks being adapted to guide said cam member and said carriage assembly during movement thereof.

5,738,486

APPARATUS FOR UNLOADING BLOCKS OF BLANKS THAT ARE STACKED ON PALLETS, WITH SEPARATORS BEING INTERPOSED BETWEEN THE BLOCKS

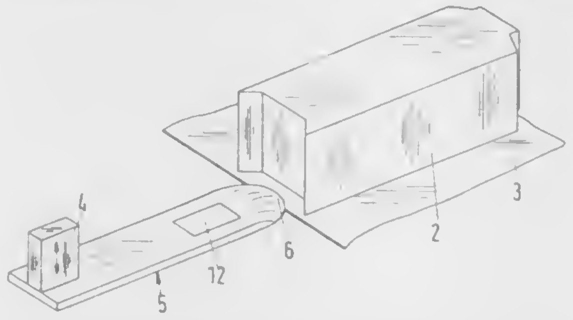
Arno Schroeder, Iserlohn-Letmathe, Germany, assignor to Topack Verpackungstechnik GmbH, Schwarzenbek, Germany

Filed May 17, 1996, Ser. No. 650,141

Claims priority, application Germany, May 18, 1995, 195 18 256.1

Int. Cl.⁶ B65G *59/02*

U.S. Cl. 414—796 **6 Claims**



1 An apparatus for unloading blocks of blanks that are stacked on pallets, with separators being interposed between the blocks, said apparatus comprising:

a three-dimensionally controlled and movable pick-up head;

an approximately horizontally oriented insertion tool that is disposed on said pick-up head and terminates in a pointed insertion tip, said insertion tool being adapted via a horizontal movement to extend below and to take up one of said blocks of blanks that is to be removed,

a reflective element that is disposed on an underside of said insertion tool; and

a sensor unit that is disposed beyond said pallet, whereby the sensor unit cooperates with said reflective element and is not disposed on said insertion tool, said sensor unit having a transmitting element, which is designed for said reflective element, as well as an associated receiving element all for detecting an error during the unloading of blanks.

5,738,487

STACKING BOARD FOR DEPOSITING A STACK OF SHEETS, AND AUTOMATIC HANDLING APPARATUS FOR STACKING BOARDS OF THIS TYPE

Johannes Georg Schaede, Wuerzburg, and Thilo Fritsche, Obernburg, both of Germany, assignors to De La Rue Giori S.A., Switzerland

Division of Ser. No. 560,300, Nov. 17, 1995, Pat. No. 5,664,934. This application May 1, 1997, Ser. No. 846,862

Claims priority, application Switzerland, Dec. 2, 1994, 3658/94

Int. Cl.⁶ B65G *1/18*

U.S. Cl. 414—799 **4 Claims**

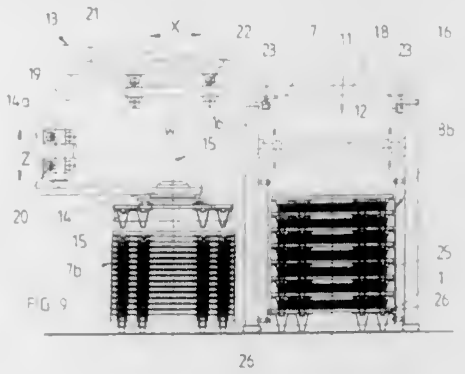


FIG 9

1. An automatic handling apparatus in combination with a pallet designed to be handled by the handling apparatus, the pallets each, comprising a stacking board for depositing a stack of sheets, wherein the stacking board is designed as a stackable pallet having a carrying panel and having lateral support elements, and wherein the support elements which are configured differently on two mutually opposite sides of the pallet are stacked one upon the other, adjacent pallets assume, with respect to one another, either a first relative position, in order to form a closely packed storage stack, or a second relative position, in order to form a self-supporting working stack in which the carrying panels of adjacent pallets are spaced apart from one another by a predetermined distance; the handling apparatus comprising a carrying arm with means for seizing a pallet from above and raising it up, and wherein said carrying arm, by means of an actuating mechanism, can be adjusted along two orthogonal horizontal axes (X, Y) and along a vertical axis (Z) and, moreover, can be rotated about a vertical axis (W) located at least approximately in the center of the carrying arm, such that the respectively uppermost pallet of a closely packed storage stack can be raised up, can be displaced horizontally in two directions, can be rotated if appropriate and can be set down on a working stack, on whose uppermost pallet a complete stack of sheets has already been deposited

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5,738,488

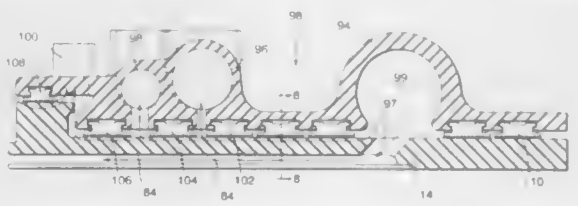
GLAND FOR TRANSFERRING COOLING MEDIUM TO THE ROTOR OF A GAS TURBINE

Clement Gazzillo, Schenectady; Steven John Croft, Ballston Spa; San-Dar Gau, Schenectady, and Denise Marie Parent, Clifton Park, all of N.Y., assignors to General Electric Co., Schenectady, N.Y.

Filed Nov. 12, 1996, Ser. No. 745,542

Int. Cl.⁶ F01D *11/02; 11/04*

U.S. Cl. 415—112 **12 Claims**



11 A gas turbine comprising

a rotor carrying hot gas path components for rotation about a rotor axis, a passage through said rotor for supplying a cooling medium to said components, and a plurality of cooling medium entry slots opening generally radially about said rotor in communication with said rotor passage,

a cooling medium gland for transferring cooling medium from a fixed supply to the passage of the rotating rotor:

a fixed cooling medium inlet supply scroll about said rotor for supplying cooling medium to said slots;

a pair of seals axially spaced from said scroll and about said rotor; and

at least one cooling medium extraction port between the seals of said pair thereof maintained at a pressure sufficient to extract cooling medium leakage past a seal of said pair of seals,

said scroll being disposed about the rotor such that the cooling medium is supplied to the cooling medium entry slots in a substantially tangential direction relative to said rotor, the cross-sectional area of the scroll being sized to provide a cooling medium flow velocity which substantially matches the rotor tangential velocity.

5,738,489

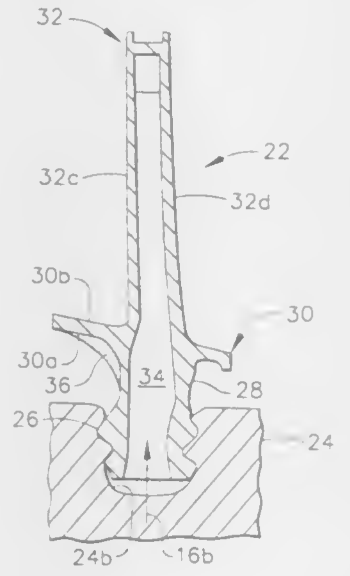
COOLED TURBINE BLADE PLATFORM

Ching-Pang Lee, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Jan. 3, 1997, Ser. No. 778,565

Int. Cl.⁶ F01D *25/14*

U.S. Cl. 415—177 **8 Claims**



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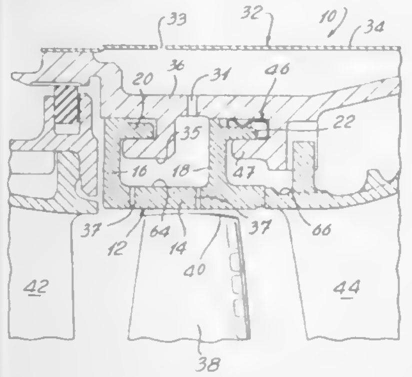
1. A turbine blade comprising:
a dovetail for mounting said blade to a rotor disk.
a shank extending from said dovetail;
a platform joined to said shank, and having a lower surface facing downwardly toward said shank, and an opposite upper surface defining a radially inner flowpath;
an airfoil extending upwardly from said platform over which is flowable combustion gas;
a cooling circuit extending radially upwardly through said dovetail, shank, platform, and airfoil for circulating a coolant therethrough for cooling said blade; and
a thermal conductor disposed on said platform lower surface for conducting heat from said platform to said shank for removal by said coolant in said cooling circuit.

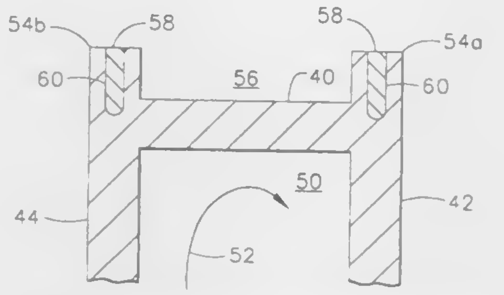
5,738,490
GAS TURBINE ENGINE SHROUD SEALS
Antonio Pizzi, Nun's Island, Canada, assignor to Pratt & Whitney Canada, Inc., Longueuil, Canada
Filed May 20, 1996, Ser. No. 650,441
Int. Cl.^{6} F01D *9/04; 11/08*
U.S. Cl. 415—139 **4 Claims**



3. A ring seal for a turbine blade tip shroud for a gas turbine engine having a hot gas path and an outer casing, wherein the shroud is located between the hot gas path and a cooling gas conduit formed between the shroud and the outer casing, the shroud including an axially extending platform for engaging a mounting structure within the engine casing to form an annular gap having an axial and a radial component between the shroud and the mounting structure, the annular gap having opposed radially spaced walls formed on the shroud and the mounting structure, the ring seal comprising a "C" portion having a greater radial dimension than that of the axially extending platform and less than the radial dimension of the gap, the "C" portion for location in the radial component of the annular gap with the "C" portion of the ring seal having a leg extending axially within the annular component of the gap, the leg including a wavy pattern with alternating peaks for contact with the opposed radially spaced walls of the annular gap to provide a gas seal at the joint between the shroud and the mounting structure.

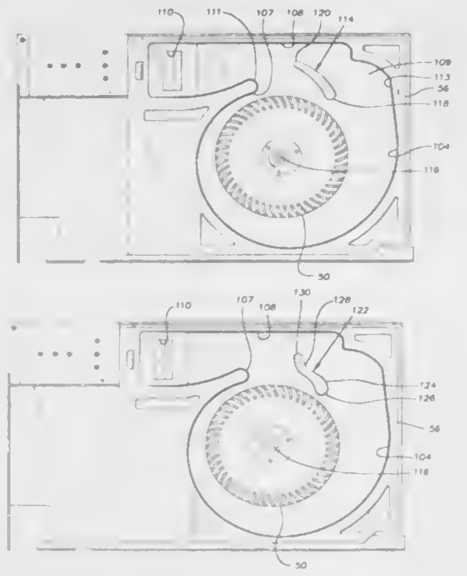
5,738,491
CONDUCTION BLADE TIP
Ching-Pang Lee, Cincinnati; Brent A. Gregory, Loveland, both of Ohio, and Ariel C. P. Jacala, Scotia, N.Y., assignors to General Electric Company, Cincinnati, Ohio
Filed Jan. 3, 1997, Ser. No. 778,529
Int. Cl.^{6} F01D *25/14*
U.S. Cl. 415—177 **13 Claims**

1. A turbine blade comprising:
a dovetail for mounting said blade to a rotor disk;
an airfoil having a root joined to said dovetail, a radially opposite tip cap, and laterally opposite pressure and suction sides extending between a leading edge and an opposite trailing edge;



said airfoil further including an internal cooling circuit extending from said tip cap to said root and through said dovetail for circulating a coolant therethrough for cooling said blade;
said airfoil additionally including a pair of squealer tips extending radially upwardly from said tip cap along respective ones of said pressure and suction sides, and spaced apart from said leading to trailing edges to define an upwardly open tip cavity; and
a thermal conductor fixedly joined to said squealer tips and extending radially inwardly to said tip cap for conducting heat thereto for removal by said coolant, with said conductor having a greater thermal conductivity than said squealer tips.

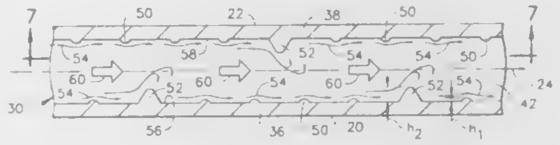
5,738,492
CONSTANT VELOCITY AIR FOIL
John Stanko, Bayonne, and Scott Febo, Union Beach, both of N.J., assignors to White Consolidated Industries, Inc., Cleveland, Ohio
Filed Jul. 9, 1996, Ser. No. 677,106
Int. Cl.^{6} F01D *1/02*
U.S. Cl. 415—211.1 **21 Claims**



1. An air-conditioning unit comprising:
a centrifugal blower for centrifugally blowing air having a generally horizontal and longitudinally extending axis a rotation; and
a scroll including an elongated and laterally extending discharge plenum above said blower and having first and second ends, said first and second ends of said discharge plenum being in fluid flow communication, an air guide about said blower for directing air exiting said blower to said discharge plenum through a discharge port having first and second ends, said air guide having a radius from said rotational axis of said blower which increases from a cutoff point near said first end of said discharge port to said second end of said discharge port, and a curved, tangential air foil located above said blower and extending from a rear wall of said air guide, said air foil having a leading edge near said blower and a trailing edge in said discharge plenum effective to divert a portion of air exiting said blower toward said second end of said discharge port to equally distribute air laterally across said discharge plenum.

16. An air-conditioning unit comprising:
a centrifugal blower for centrifugally blowing air having a generally horizontal axis a rotation; and
a scroll including an elongated discharge plenum above said blower, an air guide about said blower for directing air exiting said blower to said discharge plenum through a discharge port having first and second ends, said air guide having a radius from said rotational axis of said blower which increases from a cutoff point near said first end of said discharge port to said second end of said discharge port, and a double-curved air foil effective to divert a portion of air exiting said blower toward said second end of said discharge port to equally distribute air across said discharge plenum, wherein at least a portion of said air foil is rearwardly curved and forming a trailing edge.

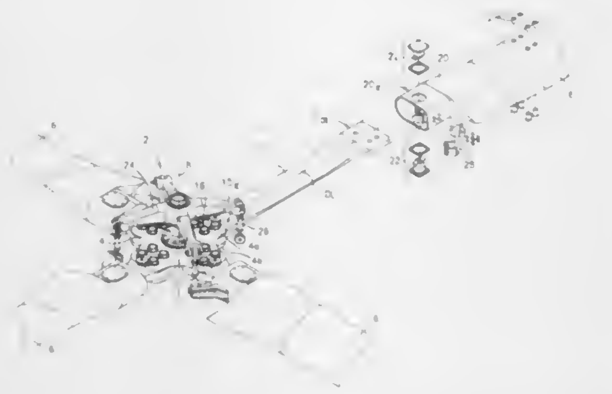
5,738,493
TURBULATOR CONFIGURATION FOR COOLING PASSAGES OF AN AIRFOIL IN A GAS TURBINE ENGINE
Ching-Pang Lee, and David B. Knable, both of Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio
Filed Jan. 3, 1997, Ser. No. 778,596
Int. Cl.^{6} F04D *29/58*
U.S. Cl. 416—97 R **18 Claims**



1. In a cooling passage of a rotor blade having an upstream end, a downstream end, and a longitudinal axis therethrough, wherein a flow of coolant passes through said cooling passage so as to define a core flow region located generally within a center area of said cooling passage and a thermal boundary layer located generally adjacent an inner surface of each wall forming said cooling passage, a turbulator configuration being formed on at least one of said cooling passage inner surfaces, comprising:
(a) a first set of longitudinally spaced turbulators having a specified height and length for tripping said thermal boundary layer along said cooling passage inner surface to enhance heat transfer between said coolant and said cooling passage wall; and
(b) a second set of longitudinally spaced turbulators having a specified height and length for generating turbulence in said core flow region of said cooling passage to reduce the thickness of said thermal boundary layer downstream therefrom.

5,738,494
OPTIMIZED COMPOSITE FLEXBEAM FOR HELICOPTER ROTORS
David N. Schmaling, Oxford, Conn., assignor to Sikorsky Aircraft Corporation, Stratford, Conn.
Filed Jul. 18, 1996, Ser. No. 683,489
Int. Cl.^{6} B64C *27/38*
U.S. Cl. 416—134 A **5 Claims**

1. An optimized composite flexbeam (**10**) having a plurality of adjoining regions including a hub attachment region (HAR), a blade attachment region (BAR), a pitch region (PR) and an outboard transition region (OTR) disposed between and adjoining the



pitch region and blade attachment regions (PR, BAR), the optimized composite flexbeam (**10**) further comprising.
an inboard transition region (ITR) disposed between and adjoining the pitch and hub attachment regions (PR, HAR) and having a combination of unidirectional and off-axis composite materials (U, O) defining a total material composition and a percent %O of off-axis composite material (O) relative thereto, said inboard transition region (ITR) further including:
a first transition subregion (ITR-**1**) defined by a thickness transition; and
a second transition subregion (ITR-**2**) defined by a width and thickness transition and defining a width conic, said second transition subregion (ITR-**2**) defining a critical width transition subregion (CR_{wt});
said width conic defining conic slope angles θ_{wc}.
said critical width transition subregion (CR_{wt}) corresponding to conic slope angles θ_{wc} between 0 degrees to about 10 degrees,
said percent %O of off-axis composite material (O) defined by an optimized curve (**76**), said optimized curve (**70**) in said critical transition subregion subregion (CR_{wt}) being defined by the expression:

$$\% O = C + \sqrt{900 - [k\theta_{wc} - 30]^2}$$

wherein C is a constant between about 14.4 to about 21.6, and k is a constant equal to 1.0 degrees^{-1}

5,738,495
DEVICE FOR CONTOLLING THE WATER PRESSURE AND FLOW IN A WATER SUPPLY UNIT
Claudio Carmignani, Via della Chiesa Trav. I; Ugo Ciurlo, Via di Mnriano 1625, both of Lucca, Italy, 55100; Luciano Maruni, Via di Campagna La Rotta, 76 Pontedera, Italy; Martin Nimbach, Oscar-von-Miller-Strass 26, 86956 Schongau, Germany, and Luca Pinoli, Via Egola, 15, S. Miniato, Pisa, Italy
Filed Nov. 18, 1996, Ser. No. 722,100
Claims priority, application Germany, Feb. 2, 1995, 195 03 403.1
Int. Cl.^{6} F04B *49/06*
U.S. Cl. 417—44.1 **4 Claims**

1. A control device for automatically and constantly controlling the water pressure and the water flow in a water supply system comprising:
an electronic pump connected to a water main.
a pressure switch connected to said water main and an electronic control system, said switch switching on said pump if the pressure falls below a predetermined value measured in a turbine connected with said water main and acting as a flow sensor in conjunction with a rotary signal detector and transmitter connected to said electronic control system, whereby

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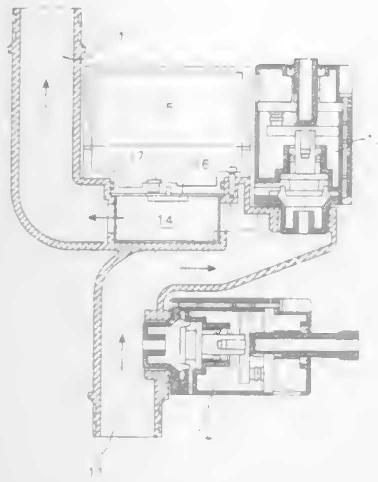

said pump is kept in operation after said switching on as long as said flow sensor senses water flow

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5,738,496

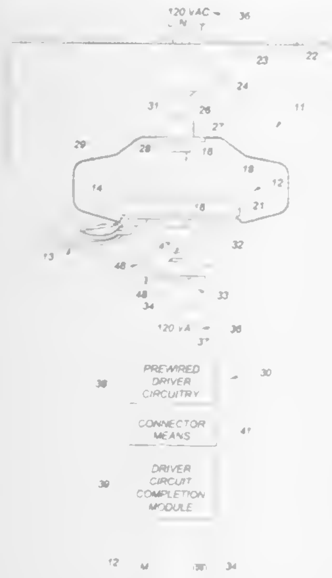
INTERCHANGEABLE PLUG-IN CIRCUIT COMPLETION MODULES FOR VARYING THE ELECTRICAL CIRCUITRY OF A CEILING FAN

Vinay Mehta, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

Filed Dec. 23, 1996, Ser. No. 773,488

Int. Cl.⁶ G04B *49/06*

U.S. Cl. 417—44.1 **13 Claims**



1 An add-on remote control module for converting a non-remote controlled ceiling fan into a remote controlled ceiling fan, said non-remote controlled ceiling fan having a motor and a portion of its driver control circuitry prewired in a switch housing, said prewired portion including motor impedance means, an electrical connector and wiring means for electrically interconnecting said motor and said motor impedance means to an A.C. power source, said wiring means terminating in said electrical connector, said add-on remote control module comprising:

(a) a speed control switching device for enabling a user to remotely select between different motor speeds, said speed control switching device utilizing said motor impedance means in said prewired portion;

(b) a receiver unit, electrically connected to said speed control switching device, for controlling said speed control switching device, and

(c) connector means for electrically interconnecting said add-on remote control module to said electrical connector in said prewired portion of said driver control circuitry, said electrical interconnection converting said non-remote controlled ceiling fan into said remote controlled ceiling fan.

13 A ceiling fan having selectively connectable electrical circuitry for forming at least one driver control circuit, said ceiling fan comprising:

(a) a motor;

(b) a driver control circuit assembly electrically connected to said motor for controlling the operation of said motor, said driver control circuit assembly including

(i) a prewired portion having first connector means; and

(ii) an interchangeable plug-in driver circuit completion module containing selectively designed circuitry for completing at least one driver control circuit in said driver control circuit assembly, said selectively designed circuitry including second connector means adapted for ready interconnection and disconnection from said first connector means, said interconnection establishing electrical communication between said circuitry in said module and said prewired portion to complete said at least one driver control circuit.

5,738,497

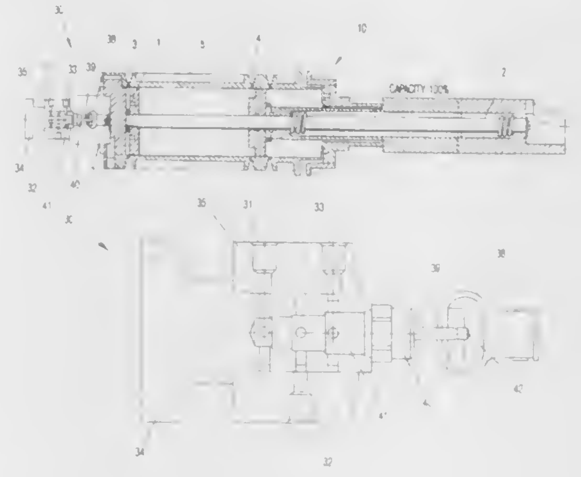
APPARATUS AND METHOD FOR CONTROLLING A ROTARY SCREW COMPRESSOR

Paul D. Hensley, 3005 N. 15th St., Broken Arrow, Okla. 74012

Filed Feb. 2, 1996, Ser. No. 595,635

Int. Cl.⁶ F01C *1/16;* **F04B** *49/00*

U.S. Cl. 417—53 **15 Claims**



1 A method of controlling a rotary screw compressor comprising the steps of

(a) rotating a valve body within a stationary housing;

(b) rotating a rotary valve with the valve body; and

(c) returning the valve body to a limit of between 10% and approximately 25% compressor capacity when the compressor stops above a predetermined capacity,

wherein selective rotation of the valve body and the rotary valve pneumatically controls capacity of the rotary screw compressor

5,738,498

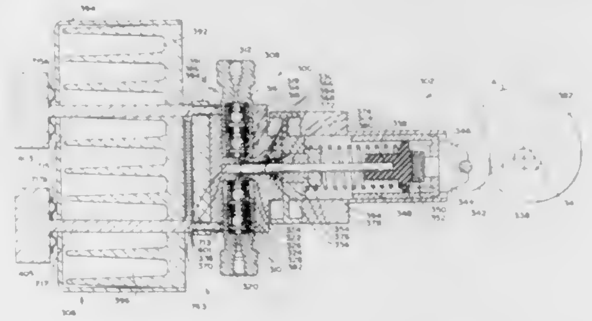
APPARATUS AND METHOD FOR THERMOELECTRIC COOLING OF AN EXTRACTION FLUID PUMP

Robert William Allington; Daniel Gene Jameson, both of Lincoln; Dale A. Davison, Greenwood; Dale Clay, Lincoln, all of Nebr.; Robin R. Winter, Newburg, Oreg., and Yoossef Tehrani, Lincoln, Nebr., assignors to Isco, Inc., Lincoln, Nebr.

Division of Ser. No. 208,121, Mar. 8, 1994, Pat. No. 5,635,070, which is a continuation-in-part of Ser. No. 134,033, Oct. 2, 1993, abandoned, which is a division of Ser. No. 27,257, Mar. 5, 1993, Pat. No. 5,268,103, which is a continuation-in-part of Ser. No. 908,458, Jul. 6, 1992, Pat. No. 5,198,197, which is a division of Ser. No. 795,987, Nov. 22, 1991, Pat. No. 5,160,624, which is a continuation-in-part of Ser. No. 553,119, Jul. 13, 1990, Pat. No. 5,094,753. This application Jun. 27, 1996, Ser. No. 673,202

Int. Cl.⁶ F04B *39/06;* **F25B** *21/02*

U.S. Cl. 417—53 **10 Claims**



9 A method of pumping comprising the steps of

pumping an extraction fluid through an inlet means of a pumphead block, said inlet means being connected to a source of said extraction fluid;

pumping said extraction fluid from an outlet means of the pumphead block, wherein the outlet means is adapted to provide the extraction fluid to a pressure vessel, and

cooling said inlet means and pumphead block using only an air-cooled thermoelectric-cooled heat exchanger without a cooling liquid

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5,738,499

AUTOMOTIVE FLUID EXTRACTION AND DELIVERY DEVICE

Gary W. Evans, 147 Crocus La., Jackson, Mo. 63755

Filed Jan. 27, 1997, Ser. No. 791,452

Int. Cl.⁶ F04F *3/00*

U.S. Cl. 417—148 **4 Claims**

1 In combination with an automobile having an internal combustion engine, a vacuum port in the engine, and a reservoir of fluids: a fluid extractor for removing fluid from said reservoir; said fluid extractor including

a sealed container having a bottom, sides, and top defining a chamber, said top having a first port and a second port therein, a dip tube extending from said first port into said container, said tube extending substantially to the bottom of said first chamber, a first flexible hose extending from said first port externally of said container, said first hose being sufficiently long to extend substantially to the bottom of said reservoir of fluid to place said reservoir in fluid communication with said chamber; and a second hose extending externally from said second port, said second hose being operably connected to said vacuum to place said vacuum in fluid communication with said chamber, said first hose being in fluid communication with said dip tube;

said container comprises a body, a bottom member, and a top member;

said bottom member comprising a base and upwardly extending side walls which define an upwardly opening space sized to receive said body,

said top member comprising an annular member and a cap which closes said annular member;

said annular member having a lower portion sized to receive said tube and an upper portion sized to receive said cap, said cap having a surface sized to fit over said tube, a first fitting extending through said surface to have a portion which extends above said surface and a portion which extends below said surface, and a second fitting which extends above said surface; said first and second ports comprising said first and second fittings, respectfully, said dip tube being connected to said lower portion of said first fitting;

whereby operation of said engine will create a vacuum at said vacuum port, said vacuum port inducing a vacuum in said container chamber which will draw fluid from said reservoir while said engine is being operated.

5,738,500

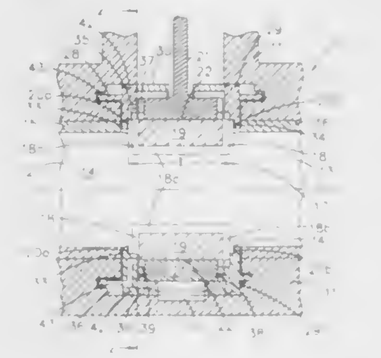
VARIABLE DISPLACEMENT VANE PUMP HAVING LOW ACTUATION FRICTION CAM SEAL

Jack G. Sundberg, Meriden; Raymond D. Zagranski, Somers, both of Conn., and Martin Thomas Books, Columbus, Ind., assignors to Coltec Industries, Inc., New York, N.Y.

Filed Oct. 17, 1995, Ser. No. 544,374

Int. Cl.⁶ F04B *23/10;* **F04C** *2/344 15/04*

U.S. Cl. 417—204 **7 Claims**



1 A durable, vane pump comprising:

(a) a rotor member having journal ends and a cylindrical central vane section comprising a plurality of radial vane slots uniformly spaced around the central circumference thereof, said vane slots being elongate in the axial direction and having a central vane supporting portion with axial vane slot extensions at each end thereof, extending beyond said central vane section;

(b) a plurality of vane elements, each slidably-engaged within the central vane-supporting portion of a said slot for radial movement therewithin, leaving said vane slot extensions at each end thereof,

(c) an adjustable unitary cam member having a uniform width and opposed faces and a bore therethrough forming a cam chamber having a continuous interior cam surface, the central vane supporting portion of the cylindrical vane section of said

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rotor member being supported within said cam chamber so that the outer tip surfaces of all of the vane elements make contact with said continuous interior cam surface during rotation of said rotor member between a low pressure inlet arc segment, a high pressure outlet arc segment and intermediate seal arc segments of said cam chamber; the opposed faces of said cam member having at least one liquid inlet groove in the low pressure inlet arc segment thereof, and arcuate slots in corresponding areas of the high pressure outlet arc segments thereof, each said slot containing an elongate arcuate sealing member which is biased outwardly from its slot, said vane slot extensions of the rotor member extending axially beyond said cam chamber;

(d) an outer cylindrical cam enclosure or spacer having a larger diameter than the cam member and having a width which is slightly greater than the width of the cam member;

(e) an opposed pair of bearings rotatably supporting the journal ends of said rotor member; and

(f) an opposed pair of cylindrical cam seal elements, one each between a said bearing and a face of said cam member, each said seal element having an outer radial face surface which tightly engages an edge of said cam enclosure or spacer to support an inner radial face surface of each cam seal element closely spaced from a face of said cam member except in the area of the high pressure outlet arc segments of each seal element, where the radial face surfaces of each cam seal element make sealing engagement with said arcuate sealing members on the opposed faces of the cam member, each cam seal element having an inner circumferential surface which overlaps the vane slot extensions of the central vane section of the rotor member; each said seal element further including liquid-conveying passages which open to the vane slot extensions and communicate with the cam chamber, the first said passage being located in the inlet arc segment of each seal element and being open to at least one said liquid-inlet groove in the surface of the cam faces, and the second said passage being located in the discharge arc segment of each seal element and being open to a liquid discharge conduit, to permit the continuous supply and pressure discharge of a liquid through said pump while minimizing leakage thereof, whereby the adjacent faces of the cam seal elements and of the cam member are fixed in closely-spaced, friction-free relation, except in the areas of engagement between said arcuate sealing members and said opposed faces of the cam member, to provide a low actuation force, variable displacement pump.

5,738,501
INTERNAL GEAR PUMP

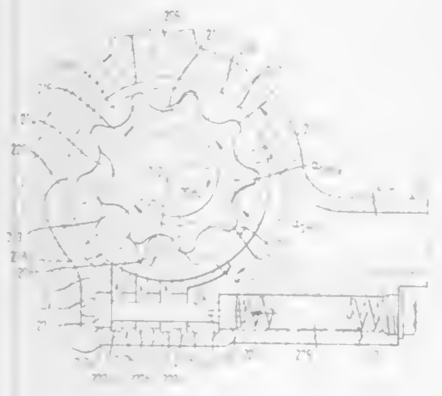
Siegfried Eisenmann, Aulendorf, Germany, assignor to Mr. Hermann Harle, Aulesdorf, Germany

Filed Oct. 17, 1995, Ser. No. 544,074

Claims priority, application Germany, Oct. 17, 1994, 44 37 076.8; Jun. 28, 1995, 195 23 533.9

Int. Cl. F04C *15/04*

U.S. Cl. 417—310 **13 Claims**



1 An internal gear pump comprising

a) a housing (**201**) having a gear chamber (**206**),

b) a ring gear (**202**) in said housing (**201**)

c) a pinion (**203**) arranged in said ring gear (**202**) to mesh therewith, which has at least one tooth less than said ring gear (**202**) and together with which forms a sequence of pockets (**210, 211, 212, 213, 214, 215, 216**) for the working fluid, each sealed off from the other by the mesh, and

d) at least one inlet passage (**204**) and at least one outlet passage (**205**) for the working fluid in said housing (**201**),

e) said working fluid being supplied from said inlet passage via at least one inlet port (**207, 208***a*, **208***b*, **208***c*) to the suction region of said gear chamber (**206**) and discharged via at least one outlet port (**209**) from the pressure region of said gear chamber (**206**) into said outlet passage (**205**),

characterized by

f) a means (**220, 221, 222**) which with increasing pressure in the pressure region supplies a controlled amount of working fluid from said outlet port (**209**) to at least one inlet port (**208***a*, **208***b*, **208***c*) whilst simultaneously interrupting the supply of working fluid from said inlet passage (**204**) into said inlet port (**208***a*, **208***b*, **208***c*).

5,738,502
VALVE KEEPER FOR A VALVE OF A RECIPROCATING COMPRESSOR

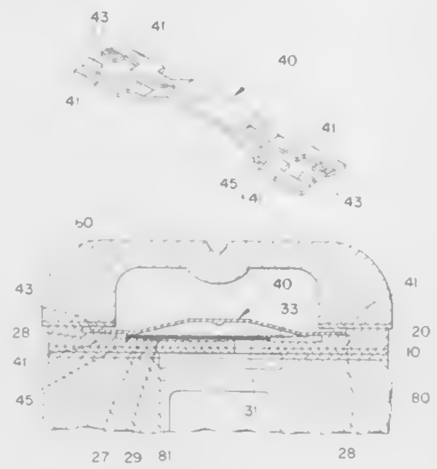
Tae-Kyung Lee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 685,019

Claims priority, application Rep. of Korea, Jul. 26, 1995, 95-22347

Int. Cl.^{6} F04B *39/10*

U.S. Cl. 417—569 **1 Claim**



1 A cylinder assembly of a reciprocating compressor, the cylinder assembly comprising:

a cylinder body forming a bore for receiving a reciprocable piston;

a valve seat formed with a suction port and an exhaust port, and disposed at an end of the bore;

a suction valve plate having a suction valve reed for opening and closing the suction port;

an exhaust valve reed for opening and closing the exhaust port;

an elastic stopper for guiding a bending movement of the exhaust valve reed, the stopper having a fixed end and a free end, the fixed end including a surface facing away from the valve seat,

a keeper having two opposite longitudinally spaced ends engaging the valve seat, each end being slit along a slit line in a longitudinal direction of the keeper to form therein a pair of elastically deformable claws bent away from the valve seat in their relaxed state, the keeper further including a protuberance spaced from the claws and engaging the surface of the fixed end of the stopper; and

a cylinder head pressed against the claws for elastically deforming the claws against the valve seat and pushing the protuberance against the surface of the fixed end of the stopper

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5,738,503
METHOD FOR BALANCING AN ELECTRICALLY DRIVEN AIR BLOWER UNIT

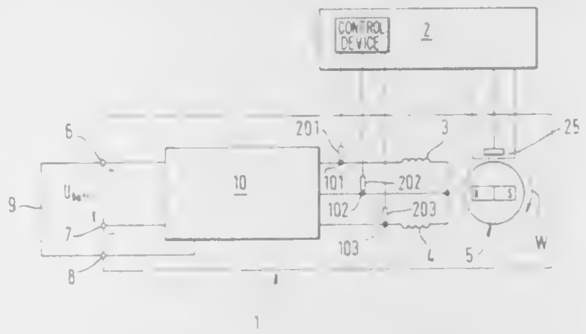
Otfried Schmidt-Marloh, Buehlertal; Claudius Muschelknautz, Lauf; Johann Bohnert, Sasbach; Guenter Bauer; Juergen Herp, both of Buehl; Kay Kroeger, Ottersweier; Josef Wehberg, Hanover; Gerd Knoepfel, Buehl; Jochen Goehre, Karlsruhe; Henning Schroeder, Baden-Baden, and Hans Kobschaetzky, Renchen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 24, 1996, Ser. No. 590,825

Claims priority, application Germany, Jan. 24, 1995, 195 01 959.8

Int. Cl.^{6} F04B *9/02;35/04*

U.S. Cl. 417—423.7 **8 Claims**



1 A method for balancing an electrically driven air blower unit comprising a radial blower and a high-speed, electronically commuted d.c. motor, including connected motor electronics, which drives the radial blower and which is of external rotor design, utilizing a balancing device which is provided with a control device for the motor of the air blower unit and with a device for bridging the motor electronics of the air blower unit itself, said method comprising inserting the completely mounted air blower unit, without a housing lid, into the balancing device and making electrical contact therewith to bridge the motor electronics of the air blower unit itself and in order to drive the part to be balanced of the air blower unit using its electromechanical transducer which, for this purpose, is actuated by the control device provided in the balancing device; and carrying out the balancing process essentially in first and second compensation planes which are spaced axially from one another and are parallel with one another, with the balancing process being carried out in the first compensation plane, which is the plane of the radial blower, with possible erosion of material, and in the second compensation plane, which lies opposite in region of an end wall of the external rotor with possible attachment of material.

5,738,504
ROTATION PREVENTING DEVICE FOR ORBITING MEMBER OF FLUID DISPLACEMENT APPARATUS

Norio Kitano, Fujioka, Japan, assignor to Sanden Corporation, Gunma, Japan

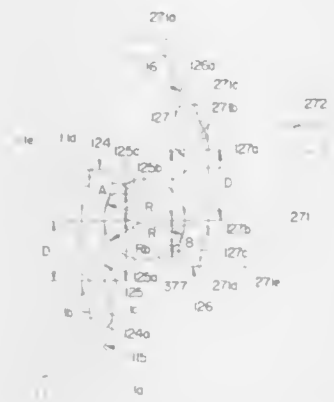
Filed Aug. 5, 1996, Ser. No. 692,433

Claims priority, application Japan, Aug. 3, 1995, 7-216563

Int. Cl.^{6} F01C *1/04*, **F16D** *3/04*

U.S. Cl. 418—55.3 **14 Claims**

1 A thrust bearing and coupling component for simultaneously coupling an orbiting scroll member having a predetermined orbit radius and a fixed scroll member in a predetermined angular relationship with said orbiting scroll member, orbiting with respect to said fixed scroll member and supporting axial loads imposed on said scroll members, comprising,



a fixed ring fastened to an inner surface of said housing and an orbiting ring fastened to an axial end surface of said end plate of said orbiting member facing said fixed ring, each of said fixed and orbiting rings having a plurality of corresponding pockets, each pocket on said fixed ring facing a pocket on said orbiting ring correspondence in size, pitch, and radial distance;

a bearing element placed within each facing pair of said corresponding pockets, said corresponding pockets including a predetermined number of rotation preventing pockets on each of said fixed and orbiting rings for interacting with said bearing elements to prevent rotation of said orbiting member during orbital motion;

said pockets having an open end and including a rounded edge portion formed at said open end thereof to prevent abrasive interaction between said open end and said bearing element

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5,738,505
PERFECTED TWIN-SCREW PUMP, PARTICULARLY SUITABLE FOR THE PUMPING OF BIPHASE FLUIDS IN A SUBMERGED ENVIRONMENT

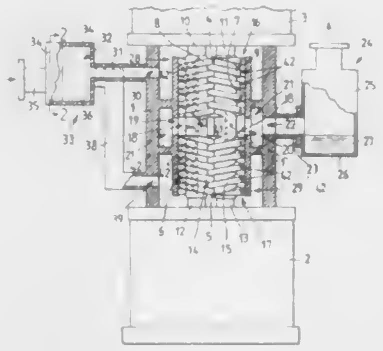
Vasco Mezzedimi, Poggibonsi, and Giampietro Ferrari Aggradi, Florence, both of Italy, assignors to Nuovo Pignone S.p.A., Florence, Italy

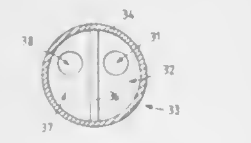
Filed Aug. 21, 1996, Ser. No. 700,859

Claims priority, application Italy, Sep. 5, 1995, MI95A1864

Int. Cl.^{6} F04C *2/16;13/00*

U.S. Cl. 418—102 **2 Claims**





1 A twin-screw pump comprising

a suction pipe for receiving a main stream of fluid;

a horizontal stream divider connected to said suction pipe which divides the main stream of fluid received by said suction pipe into a first stream and a second stream after the stream of fluid enters said suction pipe;

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- a housing enclosing a pumping chamber, wherein said pumping chamber includes a first pair and a second pair of screws vertically and rotatably mounted therein, each said screw of each said pair of screws including threads which interlock the two screws of each said pair of screws, each said screw including a shaft which extends axially through each screw, wherein the shafts of the first pair of screws are co-axially connected in series with the shafts of the second pair of screws at the center of said pumping chamber thus forming two vertical shafts which connect the first and second pairs of screws, and further wherein the screws may be rotated in synchronism such that each said pair of screws propels toward the center of said pumping chamber any fluid delivered to first or second pairs of screws;
- a motor which rotates said screws in synchronism;
- a first feeding mouth connecting said horizontal stream divider to said pumping chamber such that said first stream of fluid is fed to said first pair of screws;
- a second feeding mouth connecting said horizontal stream divider to said pumping chamber such that said second stream of fluid is fed to said second pair of screws,
- a delivery chamber located at the center of said pumping chamber which receives the fluid propelled by said screws, said delivery chamber including a mouth from which the fluid exits the pumping chamber; and
- a liquid seal generator connected to the mouth of said delivery chamber;

wherein each said vertical shaft of said screws include a radial channel connecting from the delivery chamber to a central axial channel in each shaft which connects to a plurality of radial channels which extend to the ends of the threads of said screws, such that fluid from the liquid seal generator may be delivered through the axial and radial channels to the ends of the threads of said screws.

5,738,506
MOTOR VEHICLE HEATING DEVICE

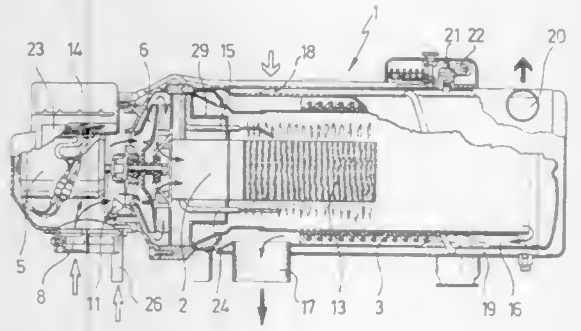
Ernst Mosig, Penzberg; Günter Kahnau, Starnberg, both of Germany; Shahrzad Rahbar, Thornhill, Canada; Helmut Schmitter, Burlington, Canada; Chris Kulaga, Mississauga, Canada, and Frank David Williamson, Scarbouough, Canada, assignors to Webasto Thermosysteme GmbH, Stockdorf, Germany, and Webasto Thermosystems Ltd., Burlington, Canada

Filed Oct. 21, 1996, Ser. No. 734,168

Claims priority, application Germany, Oct. 19, 1995, 195 38 947.6

Int. Cl.^{6} F23N *5/24*

U.S. Cl. 431—90 **7 Claims**



1. Motor vehicle heating device comprising a burner, a fan for supplying a mixture of combustion air and fuel to the burner, a fuel gas supply line for supplying fuel gas to an intake side of the fan, and pressure responsive flow control means for controlling delivery of the fuel gas from said supply line to said fan as a function of a pressure differential between the intake side of the fan and a delivery side of the fan, wherein the flow control means directly adjoins the fuel gas supply line and automatically terminates delivery of the fuel gas from said supply line to said intake side of the fan when said pressure differential is insufficient to produce a negative pressure at said intake side which is below atmospheric pressure by a predetermined amount.

5,738,507
GAS IGNITER

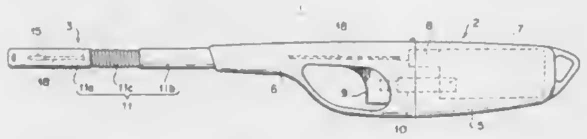
Hideo Mifune; Noriyuki Serizawa, and Takayuki Suzuki, all of Shizuoka-ken, Japan, assignors to Tokai Corporation, Shizuoka-ken, Japan

Filed Oct. 28, 1996, Ser. No. 738,887

Claims priority, application Japan, Nov. 9, 1995, 7-291136

Int. Cl.^{6} F23D *14/28; 14/48*

U.S. Cl. 431—344 **5 Claims**



1. A gas igniter comprising:
- a main body provided with a gas tank for storing liquified gas to be used as a fuel,
- a front pipe in the form of a hollow bar extending from said main body,
- a jetting nozzle for jetting out a gas, said nozzle disposed at a front part of said front pipe, and
- a gas pipe connected between said main body and said jetting nozzle;

wherein at least a part of said front pipe, excluding the front part thereof where said jetting nozzle is disposed, is formed by a flexible member having a restoring force permitting the flexible member to be bent so that a direction in which said front part is pointed is changed when an external force is applied to the front part of the gaspipe and to be restored automatically to an original state in which the flexible member is at the time when the external force is not applied to the front part of the gaspipe after the external force is released

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5,738,508
BURNER

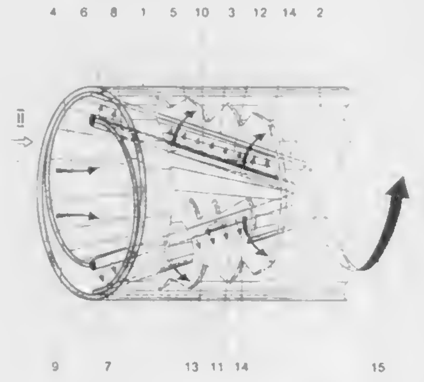
Klaus Döbbeling, Windisch; Hans Peter Knöpfel, Besenbüren; Wolfgang Polifke, Windisch, all of Switzerland, and Peter Senior, Leicester, Great Britain, assignors to ABB Research Ltd., Zurich, Switzerland

Filed Feb. 5, 1996, Ser. No. 597,029

Claims priority, application Germany, Apr. 25, 1995, 195 15 082.1

Int. Cl.^{6} F23D *14/46*

U.S. Cl. 431—350 **9 Claims**



1. A burner for a heat generator, comprising:
- a swirl generator for producing a swirled flow of combustion air, the swirl generator comprising at least two hollow, conical sectional bodies nested adjacent one another to define an interior space that narrows in a longitudinal direction of flow, respective longitudinal symmetry axes of the sectional bodies being mutually offset so that adjacent walls of the sectional bodies form ducts extending longitudinally to allow a tangentially directed combustion-air flow from the interior space,
- a mixing tube connected to receive the swirled flow from the swirl generator, and

means for injecting a fuel in the combustion air flow.

5,738,509
PREMIX BURNER HAVING AXIAL OR RADIAL AIR INFLOW

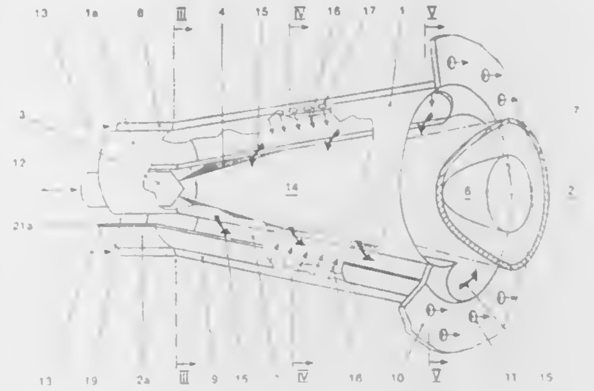
Tino-Martin Marling, Filderstadt-Bernhausen, Germany; Burkhard Schulte-Werning, Basel, and Thomas Zlerer, Ennetbaden, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Mar. 14, 1996, Ser. No. 615,803

Claims priority, application Germany, May 8, 1995, 195 16 798.8

Int. Cl.^{6} F23D *14/46*

U.S. Cl. 431—352 **8 Claims**



1. In a premix burner in which a plenum is arranged upstream of the burner inlet in the direction of flow, wherein fuel is mixed with the combustion air as it flows through the burner, the invention comprising:
- a perforated component disposed in the plenum upstream of the combustion air inlet, said perforated component having a predetermined wall thickness (s) and being perforated with a multiplicity of openings having a predetermined diameter (d), the openings being mutually spaced at a predetermined distance (t), wherein said component is disposed so that combustion air flows through said component into the burner inlet, wherein said component splits the combustion air flowing therethrough into small defined jets which reunite after a certain running length (l) into a uniform air inlet flow, wherein a ratio of the wall thickness (s) to the diameter (d) of the openings is at least one, and wherein a ratio of a total through flow area of the perforated component and a burner inlet flow area is at least one

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5,738,510
ROTARY KILN COOLER

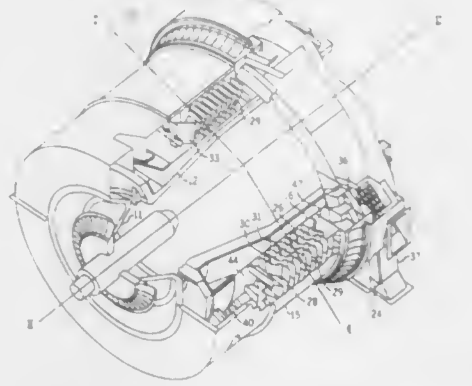
Daniel McDonald, 110 Regent Avenue, Beaconsfield, Quebec, Canada, H9W-5A7

Filed Nov. 13, 1996, Ser. No. 748,418

Int. Cl.^{6} F27D *15/02*

U.S. Cl. 432—80 **6 Claims**

1. An annular cooler in combination with an inclined rotary kiln for processing material comprising,
- a kiln having a cylindrical shell having an opening adjacent its lower end,



- a pair of radially spaced cylindrical shrouds surrounding said shell,
- the radial inner shroud being attached to said shell,
- a series of longitudinally extending spacer plates arcuately spaced between said shrouds to form a series of longitudinally extending cooling tubes,
- the lower end of said radially inner shroud having an opening in communication with said opening in said kiln shell for receiving hot clinkers into said cooler,
- each said tube having a series of longitudinally spaced neutral flights connected to one of said spacer plates and extending into the tube at a right angle to said tube axis,
- each said tube having a series of longitudinally spaced propeller flights connected to the other of said spacer plates and extending initially directly toward an opposing neutral flights and then at an angle upward relative to said neutral flight and then directly at the next neutral flight to propel some of said clinkers upward through said tubes,
- said spacer plates, said shrouds and said flights combining to form a series of adjacent sectors,
- said propeller flights having an opening at its inner edge to allow some of said clinkers to drop back into the adjacent lower sector,
- each of said neutral flights having an opening in its inner edge to allow some of the clinker to pass downward into the next lower sector,
- means connected to the upper ends at said tubes to enable a cooling medium to flow downward through said cooling tubes and then into the interior at said kiln for use in the combustion process within said kiln
- said shell having an opening near its upper end to discharge said clinkers
- each of said tubes having an opening in said outer shroud at its upper end in communication with said opening in said shell through which clinkers can be discharged, and
- mean for collecting said clinkers as they are discharged.

5,738,511
VERTICAL SHAFT KILN

Umesh Chandra Borah; Pranab Barkakati; Dilip Kumar Dutta; Jayanta Jyoti Bora; Paran Phukan; Ne Dey; Wahid Ahmed; Subodh Chandra Kalita; Dipak Bordoloi, and Ajit Baruah, all of Assam, India, assignors to Council of Scientific & Industrial Research, New Delhi, India

Filed Jun. 7, 1996, Ser. No. 660,117

Int. Cl.^{6} F27D *1/08*

U.S. Cl. 432—95 **2 Claims**

1. A vertical shaft kiln (VSK) useful for manufacturing cement and other allied products and having a base, which comprises a rotary nodule feeder for feeding raw materials, fitted above a kiln bed for uniform distribution of nodules of the raw materials, an air blower being placed at the base of the kiln for feeding air through an inlet duct to a common air header having a plurality of outlet air ducts including a first outlet air duct, a second outlet air duct, a third outlet air duct and a fourth outlet air duct, the first outlet air duct being connected to an air cone placed inside an armoured

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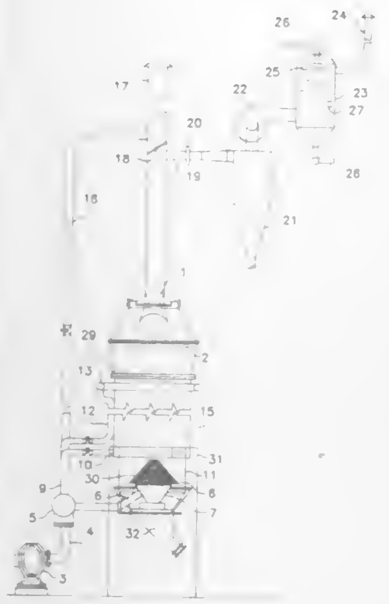


shell of the VSK, said air cone being provided with a grate assembly having a plurality of peripheral air slots, the second air duct being connected to an air box placed above said armoured shell, said air box having perforations on its inside vertical wall, the third air duct being connected to an air header having air entry nozzles placed in such a manner so as to supply air just below a sintering zone of the VSK, the fourth air duct being connected to a chimney of the VSK, said chimney being provided with a butterfly valve below the fourth air duct, the chimney being further provided with a bypass duct below said butterfly valve, the bypass duct being connected through a connecting means to a cyclone separator fitted with a fan for drawing the stack gases, an outlet of the cyclone separator being connected to an outlet duct through a scrubber, a sensor alarm being provided on the VSK body to indicate fire bed level, the products being removed through a discharge chute.

5,738,512
TOOL FOR FASTENING RINGS TO AN ORTHODONTIC BRACKET AND METHOD THEREFOR

Kwang Hyun Cho, 3249 Hawkwood Rd., Diamond Bar, Calif. 91765

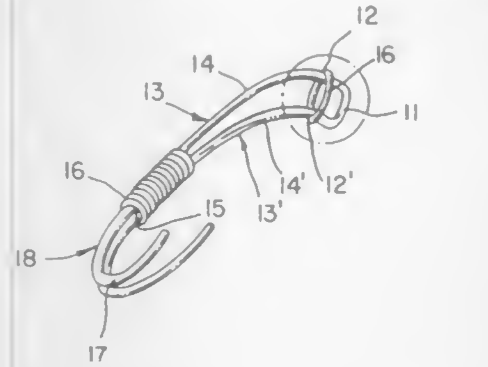
PCT No. PCT/US93/06787, § 371 Date Apr. 25, 1995, § 102(e) Date Apr. 25, 1995, PCT Pub. No. WO94/07427, PCT Pub. Date Apr. 14, 1994

PCT Filed Jul. 20, 1993, Ser. No. 374,501

Claims priority, application Rep. of Korea, Jul. 21, 1992, 92-13485

Int. Cl.⁶ A61C *7/02*

U.S. Cl. 433—3 **17 Claims**



1. A tool for mounting an elastic ring onto a bracket for orthodontic treatment, comprising:

a plurality of elastic rings;

a body configured with a U-shaped head portion, and an elongated portion extending from said head portion,

said head portion including two sides each configured with an indentation that receives said ring and stretches said ring across said sides; and

said elongated portion being contiguous with said sides, said plurality of elastic rings stored on said elongated portion.

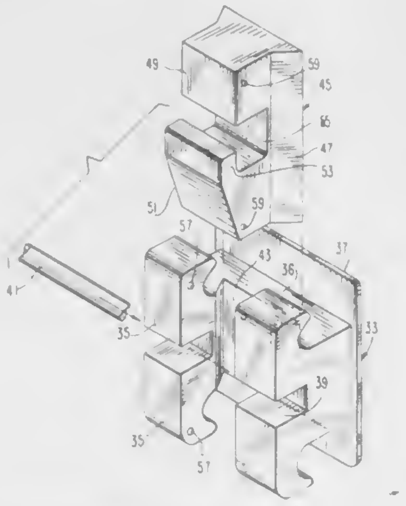
5,738,513
ARCHWIRE LOCKING DEVICE FOR ORTHODONTIC BRACKET

Lawrence Hermann, 180 W. End Ave., Apt. 28R, New York, N.Y. 10023

Filed Nov. 9, 1995, Ser. No. 555,775

Int. Cl.⁶ A61C *3/00*

U.S. Cl. 433—13 **32 Claims**



1. An orthodontic system comprising:

a twin edgewise bracket for engagement with a tooth, said bracket comprising a base which leads into two pairs of wing tips with each pair depending from either side of said base, and thereby defining a longitudinal at least partially continuous groove running between said pairs, each of said pairs further defining a laterally continuous extending slot for selectively receiving an orthodontic archwire; and

an archwire locking device for maintaining said archwire within said laterally extending slot, said locking device being pivotally rotatable between a first locked position within said longitudinal groove and between said wing tip pairs for capturing said archwire, and a second unlocked position away from said longitudinal groove;

said locking device being pivotally rotatable by means of a pivot pin connected thereto and removably disposed underneath one of said pairs of wing tips.

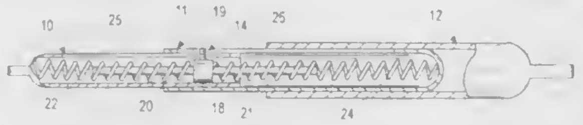
5,738,514
RESILIENTLY EXPANDABLE ORTHODONTIC DEVICE

John DeVincenzo, 1312 Garden St., and Steven P. Prins, 826 Alyssum Ct., both of San Luis Obispo, Calif. 93401

Filed Mar. 17, 1997, Ser. No. 818,433

Int. Cl.⁶ A61C *3/00*

U.S. Cl. 433—19 **10 Claims**



1. An orthodontic appliance comprising a first substantially rigid cylinder having a first end and a second end, a second substantially

rigid cylinder having a first end and a second end, said first cylinder being slidably received within said second cylinder, said second end of said first cylinder being open and said first end of said second cylinder being open, and a spring means within said cylinders extending from said first cylinder to said second cylinder, said first end of said first cylinder being closed for receiving one end of said spring means, and said second end of said second cylinder being closed for receiving the opposite end of said spring means, stop means for limiting sliding motion between said first and said second cylinders, and attachment means for fixing said appliance to a patient's teeth.

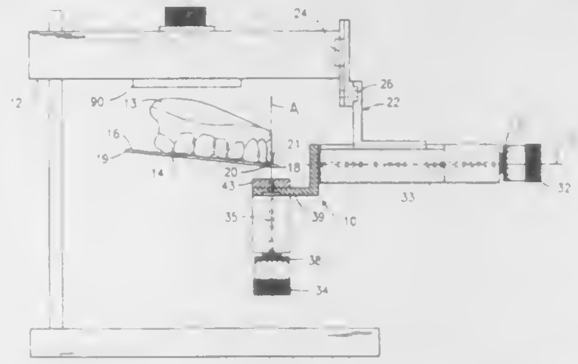
5,738,515
APPARATUS AND METHOD FOR POSITIONING A MIXILLARY DENTAL ARCH MODEL IN AN ARTICULATOR

David L. Leever, 9806 N. 56th St., Temple Terrace, Fla. 33617

Continuation-in-part of Ser. No. 594,047, Jan. 30, 1996, abandoned. This application Feb. 10, 1997, Ser. No. 798,220

Int. Cl.⁶ A61C *11/00*

U.S. Cl. 433—55 **20 Claims**



1. A maxillary transfer apparatus primarily intended for positioning a maxillary dental arch model in a dental articulator to simulate the positioning of a maxillary dental arch in a skull, said apparatus comprising:

an adjustable platform for receiving the maxillary dental arch model, said platform having a generally planar top surface and a front edge with a fulcrum positioned proximal to said front edge of said platform;

an arm attached to said platform to position said fulcrum at a predetermined position, said arm being dimensioned and configured for removable attachment to the articulator; and

means for adjustably rotating said top surface of said platform about three generally mutually perpendicular axes that intersect at said fulcrum, said arm including means to linearly adjust said fulcrum along at least one of said axes, whereby the platform may be adjusted to simulate the positioning of the occlusal contact plane of a maxillary dental arch

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5,738,516
ADJUSTABLE MOUNTING DEVICE FOR A DENTAL ARTICULATOR

Alain Landry, 4369 Ave. des Fauvettes, Charlesbourg, Québec, Canada, G1G 4S5

Filed Dec. 16, 1996, Ser. No. 768,080

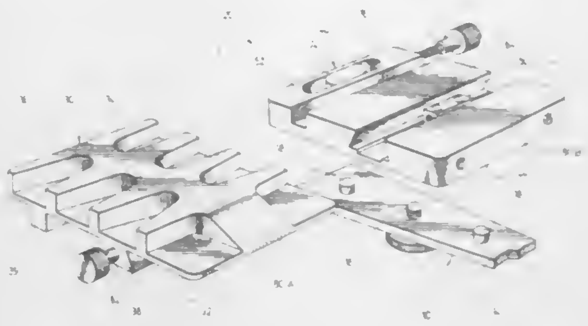
Int. Cl.⁶ A61C *11/00*

U.S. Cl. 433—60 **3 Claims**

1. An adjustable mounting device for use with a dental articulator of the type having two opposite arms, at least one arm being provided with a pivot screw and an adjacent peg, the mounting device comprising

a first plate having opposite first and second sides,

a second plate having opposite first and second sides, the first side of the first plate being superposed on the first side of the



second plate and in a sliding relationship therewith, the second side of the second plate comprising a threaded pivot bore for receiving the pivot screw of the dental articulator,

a first screw mechanism to selectively slide and lock in position the first plate relative to the second plate, the first mechanism comprising a first screw operatively connected either to the first or the second plate and in mesh with a threaded element rigidly attached respectively to the second or the first plate so that the first plate is slid relative to the second plate upon rotation of the first screw;

a second screw mechanism to selectively rotate and lock in position the second plate relative to the dental articulator, the second mechanism comprising a second screw in mesh with the second plate and operatively connected to a holding element located at one free end of the second screw the holding element being connected to one peg of the dental articulator so that the second plate is pivoted relative to the dental articulator upon rotation of the second screw;

a first graduated scale for measuring displacements of the first plate relative to the second plate, and

a second graduated scale for measuring angular displacements of the second plate relative to the dental articulator

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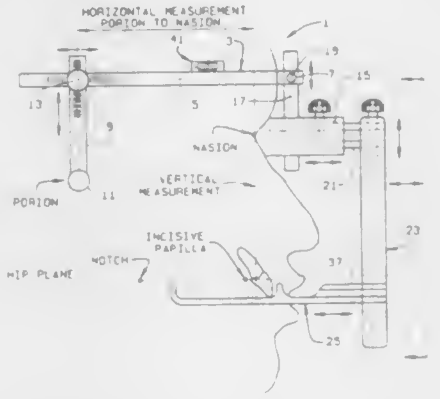
5,738,517
APPARATUS AND METHOD OF FIXED REFERENCE EXAMINATION OF DENTAL PATIENTS

Duane C. Keller, 8930 Eden Ave., St. Louis, Mo. 63123

Filed Oct. 23, 1995, Ser. No. 546,922

Int. Cl.⁶ A61C *19/04*

U.S. Cl. 433—73 **9 Claims**



1. An cephalometric evaluation reference determining apparatus for use on a dental patient comprising a face bow adapted to extend generally from one of the patient's ears forwardly along the patient's temples, across the front of the patient's head, and along the other side of the patient's head along the temple to the patient's other ear, a pair of ear pieces adjustably connected to said face bow, each said ear piece being adapted to be inserted into a respective one of the patient's ear openings, a nose piece adjustably carried by the portion of said face bow extending across the front of the patient's face, said nose piece having a portion thereof

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adapted to engage the patient's nasion, and a level for reproducibly establishing the position of the patient's ear openings and nasion relative to a true horizontal reference plane

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5,738,518

METHOD OF PRODUCING A DENTAL MODEL AS WELL AS A FASTENING ELEMENT, A MODEL BASEPLATE, A POSITIONING PLATE AND FASTENING SYSTEMS TO CARRY OUT THE METHOD

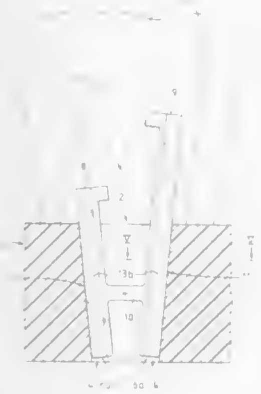
Claude Nowak, Dorfstrasse 30d, CH-5430 Wettingen, Switzerland

Filed May 31, 1996, Ser. No. 657,876

Claims priority, application Switzerland, Jun. 2, 1995, 1620/95

Int. Cl.⁶ A61C *19/00;9/00*

U.S. Cl. 433—74 **25 Claims**



1 A method of producing a dental working model, in which an impression of a jaw or part of a jaw is made, comprising:

- filling an impression with molding compound;
- arranging fastening elements to be removable in a model baseplate;
- pressing the model baseplate onto the molding compound so that the fastening elements respectively penetrate at least partially into the molding compound,
- hardening the molding compound to fix the position of each fastening element and form a working model,
- separating the working model from the impression and releasing the working model from the model baseplate; wherein
- the fastening elements respectively comprise at least two parts which are connected to each other by an intermediate piece and are movable relative to one another, and in that both parts of each fastening element are embedded so far in the molding compound that their mutual position is fixed after hardening of the molding compound.

5,738,519

DENTAL SUCTION DEVICE

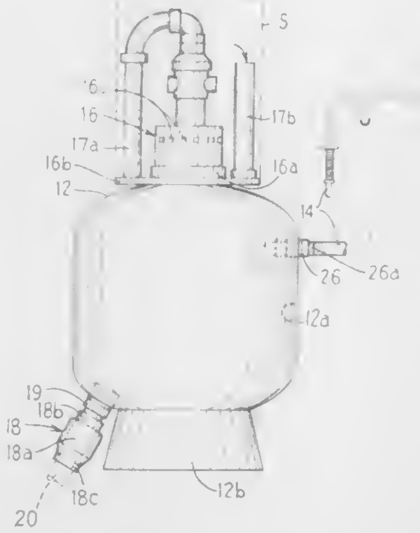
James R. Tenniswood, 1008 8th Ave., Okeechobee, Fla. 34972

Filed Mar. 21, 1995, Ser. No. 407,223

Int. Cl.⁶ A61C *17/06*

U.S. Cl. 433—92 **7 Claims**

1 A dental suction device comprising a floatless collection tank having a lower annular tank wall, a tank inlet conduit communicated to an aspirator and terminating in said collection tank in an inverted conduit elbow that deflects entering fluid and solid debris from said aspirator downwardly toward said lower tank wall for collection proximate a bottom of said collection tank, a motor operably associated with said collection tank for generating a relative vacuum therein, and a flapper release valve disposed inside a downwardly extending drain conduit disposed on and communicated to said collection tank and opening in a downward direction for draining the fluid and solid debris collected in said collection tank through said drain conduit when said motor is inoperative.



said collection tank comprising a reinforced plastic tank having an enlarged internal capacity of at least about 35 gallons to provide at least day-long collection such that there is no interruption in the operation of said motor during a working day, whereby said suction device can collect said entering fluid and solid debris without the need for interruption of said motor during a working day.

5,738,520

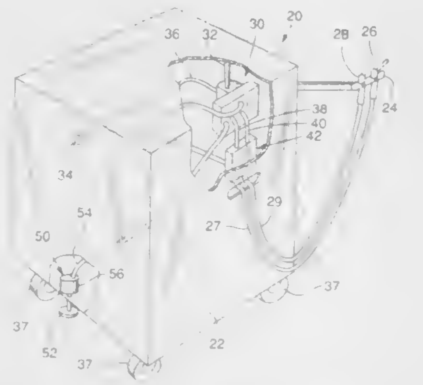
THREE-WAY PNEUMATIC VALVE SYSTEM

George K. Austin, Jr., and Paul D. Sturges, both of Newberg, Oreg., assignors to A-Dec, Inc., Newberg, Oreg.

Filed Apr. 21, 1995, Ser. No. 426,613

Int. Cl.⁶ A61G *15/00*

U.S. Cl. 433—98 **13 Claims**



1 A portable dental pneumatic system comprising:

- a first pneumatically driven dental handpiece;
- a base member for supporting said first dental handpiece, said base member having rotatable wheels positioned at a bottom surface of the base member;
- at least one air driven support assembly mounted at a bottom surface of the base member, said support assembly having a retractable piston which is activated by pressurized air to extend from the base member to lift the base member wheels off the floor; and
- a pneumatic control system supported by said base member for receiving air from a pressurized source and controlling the operation of said first pneumatically driven dental handpiece and said air driven support assembly, wherein said pneumatic control system includes a manually actuated valve assembly having a neutral position in which neither the first handpiece nor the support assembly is activated and a first position in which the first handpiece and the support assembly are activated.

5,738,521

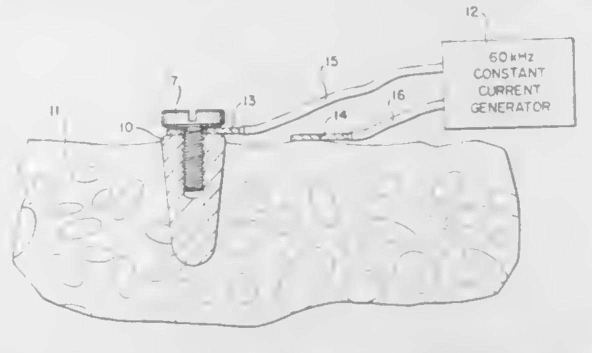
METHOD FOR ACCELERATING OSSEOINTEGRATION OF METAL BONE IMPLANTS USING ELECTRICAL STIMULATION

Richard S. Dugot, New York, N.Y., assignor to Biolectron, Inc., Hackensack, N.J.

Filed Jul. 19, 1996, Ser. No. 684,379

Int. Cl.⁶ A61C *8/00*

U.S. Cl. 433—173 **11 Claims**



1 A method for accelerating osseointegration of a metal bone implant to anchor it in bone of a mammal comprising the steps of connecting at least one electrode with the implant and the other electrode with the skin in proximity to the implant, supplying to said electrodes an alternating electric signal of symmetrical wave form and of substantially constant amplitude having a frequency in the range of from about 40 to 100 KHz and providing a constant effective current in the range of from 10 to 100 microamperes rms and continuing the application of the signal to said electrodes for periods of time sufficient to accelerate the osseointegration.

5,738,522

APPARATUS AND METHODS FOR ACCURATELY SENSING LOCATIONS ON A SURFACE

Adi Sussholz, Tel Aviv, and Yoram Goren, Petach Tikva, both of Israel, assignors to N.C.C. Network Communications and Computer Systems, Tel Aviv, Israel

Filed May 8, 1995, Ser. No. 437,615

Int. Cl.⁶ F41G *3/26*

U.S. Cl. 434—22 **7 Claims**

1 Apparatus for sensing an indication of a location on a surface at a first resolution using a video camera with a second resolution which is less than said first resolution, the apparatus comprising

- a large vicinity generator operative to provide an indication of a vicinity of the location which is large in comparison to the second resolution; and
- a large vicinity processor operative to process the indication of the vicinity in order to find a central location therewithin at a resolution which is at least equal to said first resolution, thereby to sense an indication of the location on the surface at a resolution which is at least equal to the first resolution

5 A method for sensing an indication of location on a surface at a first resolution using a video camera with a second resolution which is less than said first resolution, the method comprising

- providing an indication of a vicinity of the location which is large in comparison to the second resolution; and
- processing the indication of the vicinity in order to find a central location therewithin at a resolution which is at least equal to said first resolution, thereby to sense an indication of the location on the surface at a resolution which is at least equal to the first resolution

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5,738,523

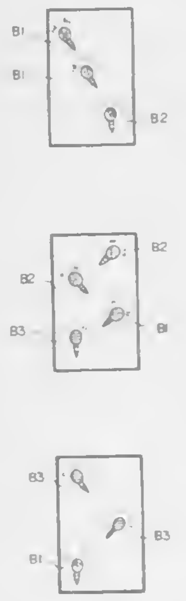
WRITTEN COMPOSITION TEACHING METHODS AND AIDS THEREFOR

Susan Lentz Wagoner, 11620 Ayreshire Rd., and Judy Cottam Rhodes, 10305 Hickory Forest Dr., both of Oakton, Va. 22124

Filed May 20, 1996, Ser. No. 650,786

Int. Cl.⁶ G09B *1/34*

U.S. Cl. 434—170 **14 Claims**



11 A teaching aid for writing a composition having a plurality of paragraphs and sentences within those paragraphs arranged in a selected order of writing themes comprising:

- a plurality of discrete articles each representing a paragraph of the written composition;
- first means on said articles for representing respective different paragraph themes;
- second means on each article for representing different sentence themes, said second means being arranged on each article in an order matching at least part of the selected order of writing themes and including beginning means and ending means for representing beginning and ending sentence themes, respectively, for the paragraph represented by said article
- said ending means on each article for representing an ending sentence theme matching a beginning means on another article for representing a beginning sentence theme of a beginning sentence of a next subsequent paragraph of the written composition, thereby enabling, by matching with one another said ending means and said beginning means of said second means of said articles having matching sentence themes, an arrangement of the articles in the selected order of writing themes for the composition.

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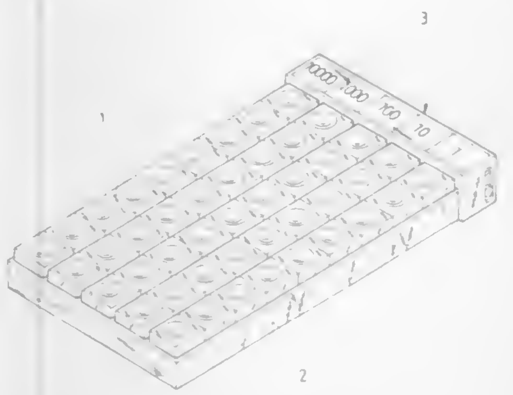
5,738,524
MULTI-FUNCTION TEACHING GAME BOX

Chin-Chen Tsao, No. 152, Tung Pei Street, Chung Shan Distric, Taipei City, Taiwan
Filed Mar. 13, 1997, Ser. No. 816,242
Int. Cl.^{6} G09B *1/06*
U.S. Cl. 434—210 3 Claims



1. A multi-function teaching game box comprising:
- a plurality of cubes (1),
- a cube container (2) including a plurality of columns, at least one of said columns contains markings for numbers 1 to 10, said markings are spaced according to a size of said cubes (1), and said columns are of a length chosen so as to hold no more than ten of said cubes (1),
- a stopper lid (3) with means to movably fasten said stopper lid (3) to an upper end of said cube container (2), a designation means (32) is affixed to said stopper lid (3), said designation means indicates a mathematical value of each cube placed in a given column; such that
- addition and subtraction functions are performed by transferring cubes (1) between said columns

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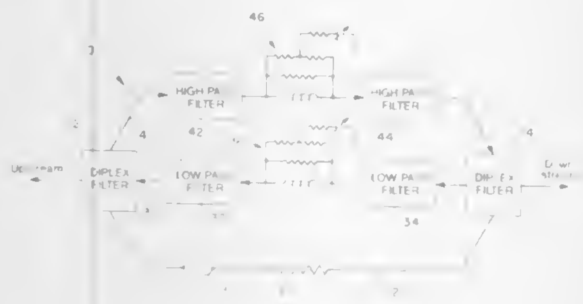
5,738,525
CABLE ATTENUATION SIMULATOR FOR TRAINING CATV TECHNICIANS

Robert Daniel Davies, Two Harbors, Minn., assignor to Versacom, Inc., Littleton, Colo.
Filed Jun. 18, 1996, Ser. No. 665,793
Int. Cl.^{6} G09B *19/00*
U.S. Cl. 434—219 17 Claims



1. A simulator for simulating the attenuation characteristics of a length of cable in a cable television (CATV) network carrying CATV signals and a low-frequency AC voltage, said simulator comprising:
- an AC power path having a resistance selected to simulate the DC loop resistance of said cable;
- at least one CATV signal path in parallel with said AC power path having an attenuation selected to simulate said cable at CATV frequencies; and
- filter means for separating signals by frequency between said AC power path and said CATV signal path.

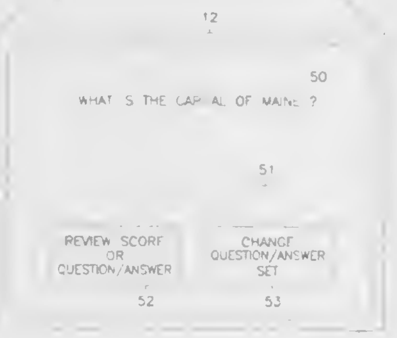
5,738,526
EDUCATIONAL TOY DOLL WITH LCD DIGITAL DISPLAY WATCH

Juan J. Cerda, 15205 S.W. 77 CT, Miami, Fla. 33157, and Jose Berenguer, Ctra. de Alicante, 8, 03430 Onil, Spain
Continuation-in-part of Ser. No. 493,859, Jun. 22, 1995, abandoned. This application Aug. 5, 1996, Ser. No. 692,282
Int. Cl.^{6} G09B *19/12*, A63H *3/28*
U.S. Cl. 434—304 4 Claims

1. A toy doll for teaching time of day and time relationships for daily activities comprising:
- a hollow body housing a speaker and an associated memory including controls for storage of selected words for announcement by said speaker;
- a display unit attached to the exterior of said toy doll including individually selectable display figures;
- operator control buttons attached to the exterior of said doll for activating said speaker and said display unit,
- means for activating, on demand, a combination of a time of day display and an announcement of daily activities corresponding to the time of day to be displayed the particular combination of display and announcement being preselected by operator;
- and means for activating display and announcement of preset alarms on demand for review purposes and for education of the intended user.

5,738,527
SCREEN SAVER

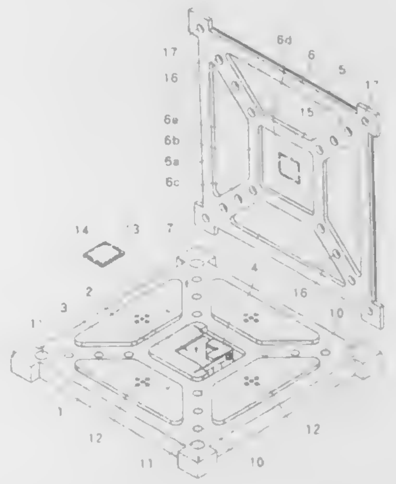
Steven W. Lundberg, 4611 Wooddale, Edina, Minn. 55424
Filed Aug. 8, 1996, Ser. No. 694,154
Int. Cl.^{6} G09B *3/00*; *7/00*
U.S. Cl. 434—322 4 Claims


12
50
WHAT IS THE CAPITAL OF MAINE ?
51
REVIEW SCORE OR QUESTION/ANSWER
CHANGE QUESTION/ANSWER SET
52
53

1. A screen saver computer program including a database of questions and answers, the screen saver computer program stored on a computer executing at least one other program which receives input from a user of the computer, a display device of the computer displaying one or more images generated by the computer under the control of the other program, wherein the computer activates the screen saver program to perform a question and answer session in the absence of user-generated input to the computer for a period of time, the period of time occurring while the images are displayed under the control of the other program, the activated screen saver program operation on the computer to generate one or more screen saver images displayed on the display device in place of all or a substantial portion of the images displayed under the control of the other program, wherein at least one or more of the screen saver images provide that a substantial portion of display elements of the screen display are rested or altered at least occasionally to save the display elements in the absence of input activity to the computer, and further operational to display a question from the database in one or more of the screen saver images, and to receive an answer responsive to the displayed question from a user of the computer entered through an input device of the computer, the activated screen saver program being deactivated so that control of the display is returned to the other program after the completion of the question and answer session so that the screen saver images are replaced with images generated under the control of the other program.

5,738,528
IC CARRIER

Noriyuki Matsuoka, Yokohama, and Kazumi Uratsuji, Tokyo, both of Japan, assignors to Yamaichi Electronics Co., Ltd., Tokyo, Japan
Filed Apr. 17, 1996, Ser. No. 633,548
Claims priority, application Japan, Apr. 17, 1995, 7-116513
Int. Cl.^{6} H01R *13/60*
U.S. Cl. 439—41 8 Claims



1. An IC carrier for use in retaining an IC, said IC carrier comprising:
- a carrier body having, at a center portion thereof, an IC receiving portion;
- an IC positioning and retaining device provided in said IC receiving portion of said carrier body;
- a flexible wiring sheet removably mounted on said carrier body such that, when an IC is retained in said IC receiving portion by said IC positioning and retaining device, the IC is interposed between a center portion of said wiring sheet and said IC receiving portion of said carrier body,
- wherein said carrier body has wiring sheet mounting portions located outwardly of said IC receiving portion, and
- wherein suction holes are formed in said wiring sheet mounting portions of said carrier body outwardly of said IC receiving portion for providing suction to draw outer portions of said flexible wiring sheet to said wiring sheet mounting portions so as to retain said wiring sheet in position relative to said carrier body such that a center portion of said wiring sheet is brought into contact with the IC when the IC is retained in said IC receiving portion by said IC positioning and retaining device

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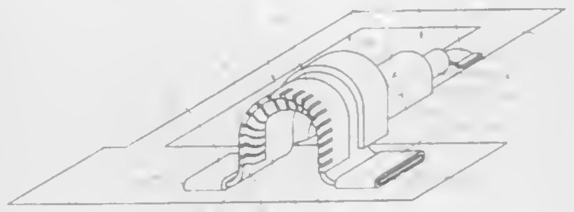
5,738,529
CABLE CONNECTOR SYSTEM

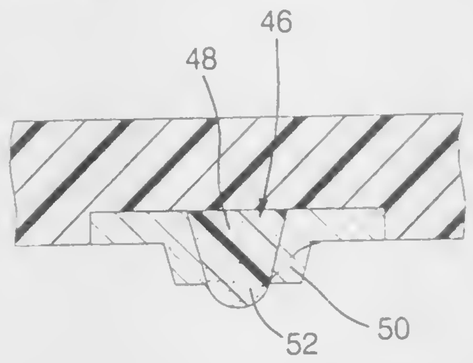
Howard O. Wedell, Oak Forest, and Gerald J. Ingles, Big Rock, both of Ill., assignors to Methode Electronics, Inc., Chicago, Ill.
Filed Feb. 29, 1996, Ser. No. 617,955
Int. Cl.^{6} H01R *9/09*, H01Q *1/50*
U.S. Cl. 439—63 12 Claims



1. A connector system comprising:
- a carrier strip having a generally U-shaped area, mounting tabs having solder adhered thereto for mounting the carrier strip to the substrate and a retention strip mounted at the U-shaped area; and
- a center contact mounted to a substrate a predetermined distance from the carrier strip wherein a cable inserted through the carrier strip is received by the center contact.

5,738,530
CONTACT PAD HAVING METALLICALLY ANCHORED ELASTOMERIC ELECTRICAL CONTACTS

Chris M. Schreiber, Lake Elsinore, and Bao Le, Santa Ana, both of Calif., assignors to Packard Hughes Interconnect Company, Irvine, Calif.
Filed May 28, 1996, Ser. No. 654,509
Int. Cl.^{6} H01R *9/09*
U.S. Cl. 439—66 4 Claims



1. In a printed-circuit-type electrical contact pad having a dielectric substrate, a contact face on said substrate carrying an array of electrically conductive metal traces and a plurality of miniature protuberant electrically conductive contacts projecting from said traces, the improvement wherein said contacts each comprises: (1) an electrically conductive elastomeric protuberance retained by and projecting from a said trace, said protuberance having (a) a base portion anchored in a hollow truncated portion of said trace upstanding from said face, and (b) a denuded tip portion extending

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from said base portion outside said truncated portion and adapted to resiliently contact a site on an adjacent electrical device to which it is connected wherein said base portion is larger than said tip portion and is embedded in a said truncated portion which is narrower adjacent said tip than adjacent said substrate.

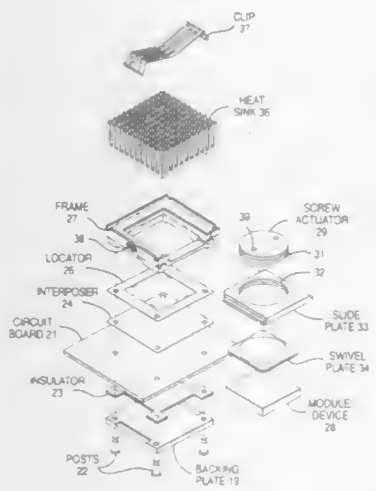
5,738,531
SELF-ALLIGNING LOW PROFILE SOCKET FOR CONNECTING BALL GRID ARRAY DEVICES THROUGH A DENDRITIC INTERPOSER

Daniel Paul Beaman; John Saunders Corbin, Jr., both of Austin, and Danny Edward Massey, Georgetown, all nf Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 9, 1996, Ser. No. 709,960

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—71 **11 Claims**



1. A socket, comprising:
- a planar interposer composed of dielectric material having a multiplicity of vias or pads covered with dendrites, which vias or pads are distributed in a pattern substantially conforming to an electronic ball grid array device;
- means for aligning pads or vias of the interposer to contact regions on a printed circuit board;
- means for locating a pattern of balls on a surface of the ball grid array device to align the pattern of balls to pads or vias of the interposer;
- a frame member affixable to the printed circuit board;
- actuation means mounted in the frame member for adjustably compressing the planar interposer as aligned between the circuit board and the electronic ball grid array device, wherein the actuation means comprises:
  - a first substantially planar thermally conductive member having a first side with a planar surface suitable to contact a surface of the electrical ball grid array device not having a pattern of balls and a second side with a surface of convex or concave contour;
  - a second substantially planar thermally conductive member having a side with a surface of
  - complementing match to the convex or concave surface of the first member; and
  - means for connecting a heat sink to establish thermal contact with the second member in the actuation means.

5,738,532
CONNECTOR PIN CONTACT

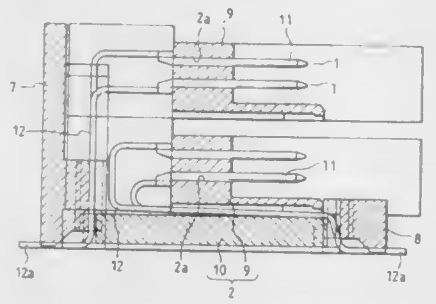
Yasunari Takano; Hidehiro Nakamura; Shin Yoshida; Akito Miura; Koichi Takahashi, and Kazuki Satou, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

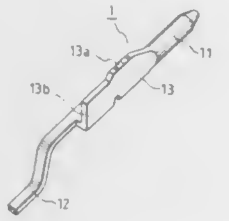
Filed Feb. 16, 1996, Ser. No. 602,201

Claims priority, application Japan, Mar. 8, 1995, 7-048811; Sep. 6, 1995, 7-229326

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—79 **2 Claims**





1. A pin contact for a connector, the pin contact comprising:
- a contact section including:
  - an elongated raised portion having a first end and a second end, the second end including a rear edge forming a jig receiving surface, the elongated raised portion also including a first side edge and a second side edge, and a locking section formed on the first side edge, and
  - a cylindrical portion connected to the first end of the raised portion; and
  - a terminal section having a base connected to the second side edge adjacent the second end of the raised portion, the base extending at an approximately right angle from the raised portion;
  - wherein the raised portion and the terminal section are formed by bending a plate such that the raised portion and the terminal section have a uniform thickness.

5,738,533
ELECTRICAL CONNECTOR FASTENED TO A RIGID MEMBER FOR IMPROVED CONNECTOR RIGIDITY

David M. Furay, Boulder, Colo., assignor to Integral Peripherals, Inc., Boulder, Colo., and Samsung Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Oct. 8, 1996, Ser. No. 727,069

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—79 **23 Claims**

1. A connector assembly comprising:
- a connector having a first surface and a second surface;
- a printed wiring board coupled to said connector;
- a head disk assembly attached to said connector; and
- a plurality of rigid members, said rigid members passing through said printed wiring board, said connector from said first surface to said second surface, and said head disk assembly,

wherein said rigid members transfer forces applied on said connector to said head disk assembly and reduce stress placed on said printed wiring board.

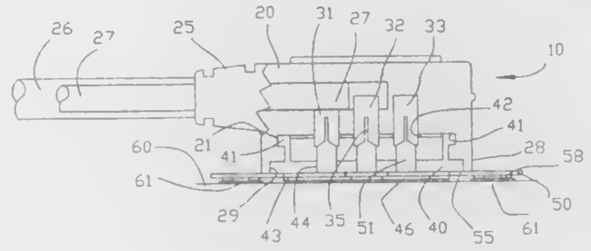
5,738,534
MULTI-FUNCTION ELECTRICAL CONNECTOR

Gerald J. Ingles, R.R. #1, Granart Rd., Big Rock, Ill. 60511; Howard O. Wedell, 15336 Maple, Oak Forest, Ill. 60452; Michael Burman, 401 Pine St., New Lenox, Ill. 60451, and Mario Garritano, 5324 West Kimball, Oak Lawn, Ill. 60453

Filed Jun. 25, 1996, Ser. No. 670,399

Int. Cl.^{6} H01R *9/09*

U.S. Cl. 439—83 **11 Claims**



1. An electrical connector comprising:
- a housing including a base and contact receptacles mounted therein,
- electrical cables inserted within the housing attached to the contact receptacles; and contacts having a planar blade portion mounted parallel to the base of the housing having a solder pad and a contact pin protruding perpendicular from the blade and inserted into the contact receptacle.

5,738,535
UNDERWATER CONNECTOR

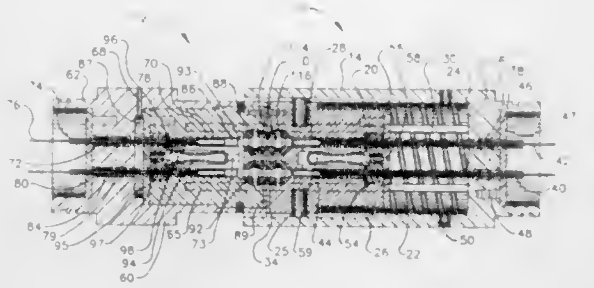
James L. Cairns, Ormond Beach, Fla., assignor to Ocean Design, Inc., Ormond Beach, Fla.

Filed Mar. 7, 1996, Ser. No. 612,371

Int. Cl.^{6} H01R *13/44*

U.S. Cl. 439—138 **33 Claims**

1. A connector assembly comprising:
- a receptacle unit having a rear end, a front end, and a longitudinal axis, at least one bore extending inwardly from the front end of the receptacle unit,
- the front end of the receptacle unit having at least one recessed seat and said bore terminating in said seat,
- a receptacle contact element mounted in said bore,



- a seal member movably mounted in said seat, the seal member having at least one through bore, and being movable in a non-axial direction relative to said receptacle unit between a first, closed position in which said through bore is offset from said receptacle bore and the end of said receptacle bore is sealed, and a second, open position in which said seal through bore is aligned with said receptacle bore; and
- a plug unit having a rear end and a front end for engagement with the front end of the receptacle unit, the front end of the plug unit having at least one opening aligned with the bore in the receptacle unit and a contact element slidably mounted in the plug unit for projecting out of the opening and through the seal member bore into the receptacle unit bore to contact the receptacle contact element when the seal member is in the open position.

5,738,536
PORTABLE ELECTRONIC APPARATUS HAVING A CONNECTOR COVER WHICH CAN BE HOUSED IN A CASE

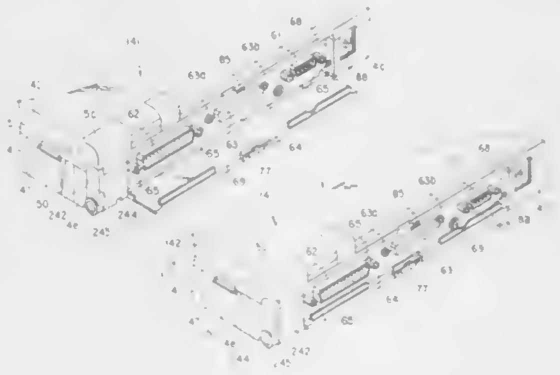
Keizo Ohgami; Kazuyuki Matsuda; Takaichi Kobayashi; Kazuya Shibasaki; Hiroshi Nakamura; Shigeru Sekine; Hironori Ito; Kenichi Ishikawa; Tadamichi Shimohira, all of Tokyo, and Moriya Gibo, Ichikawa, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 291,906, Aug. 17, 1994, Pat. No. 5,592,362. This application Sep. 20, 1996, Ser. No. 717,096

Claims priority, application Japan, Oct. 29, 1993, 5-292488; Feb. 18, 1994, 6-020981

Int. Cl.^{6} H01R *13/447*

U.S. Cl. 439—142 **30 Claims**



1. A portable electronic apparatus comprising:
- a case including a peripheral wall having a connector port and a storing portion arranged therewithin;
- a connector arranged in said case, said connector being positioned in said connector port; and
- a connector cover supported by said case, said connector cover being movable between a closed position wherein said connector is covered, an open position wherein said connector is exposed to the outside of said case and a storing position wherein said connector cover is housed in the storing portion

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5,738,537

EXTERNAL EXTENSION APPARATUS FOR EXTENDING THE FUNCTION OF A PORTABLE ELECTRONIC APPARATUS

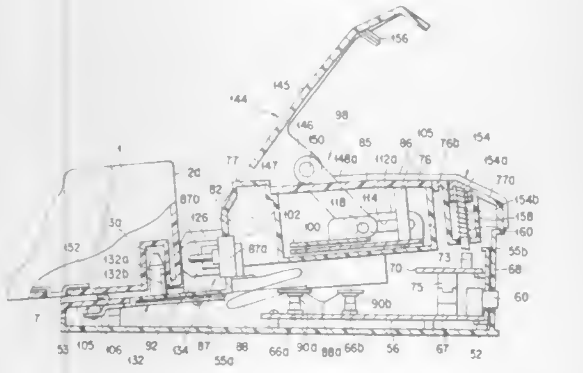
Mitsuharu Setoguchi, and Masami Honda, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 17, 1996, Ser. No. 587,404

Claims priority, application Japan, Apr. 28, 1995, 7-106240

Int. Cl.^{6} H01R *13/62*

U.S. Cl. 439—159 **10 Claims**



1. An external expanding apparatus for expanding the function of a portable electronic device having a device body provided with a first connector, said apparatus comprising:

- an apparatus body having a bearing surface on which the device body is to be placed, and a connector setting surface for opposing the first connector when the device body placed on the bearing surface;
- a second connector mounted on the connector setting surface and connectable with the first connector;
- an engaging portion provided at the bearing surface and movable between a first position in which the engaging portion adjoins the connector setting surface and a second position in which the engaging portion is separated from the connector setting surface, for engaging the device body on the bearing surface;
- operating means connected to the engaging portion and including an operating member provided on the apparatus body so as to be movable between a home position, a release position, and a connection completion position between the home and release positions, for moving the engaging portion from the second position to the first position, thereby causing the first connector to engage the second connector as the operating member is moved from the release position to the connection completion position, and for moving the engaging portion from the first position to the second position, thereby causing the first and second connectors to be disconnected from each other as the operating member is moved from the connection completion position to the release position;
- sensing means for detecting the movement of the operating member between the home position and the release position, and
- output means for delivering a warning signal to the portable electronic device through the first and second connectors when the movement of the operating member from the home position to the connection completion position is detected by the sensing means.

5,738,538

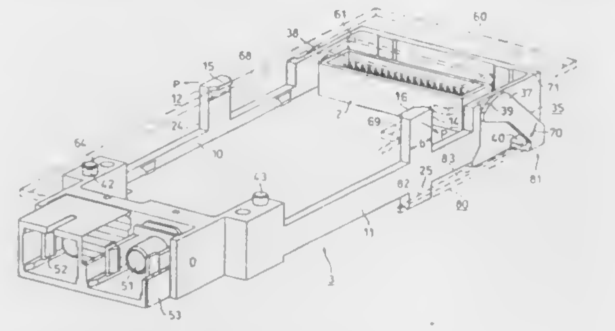
ELECTRICAL UNIT

Helmut Bruch; Michael Kneier; Karl Schrödinger, and Klaus Schulz, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Apr. 25, 1996, Ser. No. 639,295

Int. Cl.^{6} H01R *13/62*

U.S. Cl. 439—160 **9 Claims**



1. An electrical unit, comprising:

- a printed circuit board having a multi-pole plug;
- a main board having body edges and having a plug to be connected to said multi-pole plug in a plug connection;
- a frame for receiving said printed circuit board, said frame having opposed sides, catch lugs being disposed on said opposed sides, said catch lugs having catch elements, said catch lugs being elastically deformed by said body edges upon connection of said plug of said main board to said multi-pole plug;
- a release lever being supported on said frame and having at least one pressure surface to be pivoted out of a connected position in which said catch elements are latched fixingly to said main board and into a release position in which said at least one pressure surface is braced against said main board for generating a force to undo said plug connection; and
- actuation surfaces associated with said catch lugs for receiving manual forces in said release position to unlatch said catch elements.

5,738,539

CONNECTOR MOUNTING RECEPTACLE

Jack Edward Caveney, 546 Dalewood La., Hinsdale, Ill. 60521; Dale Alan Block, 2325 Grand Ave., Schererville, Ind. 46375; Karl Erik Falkstrom, 1415 Partridge La., #5, Arlington Heights, Ill. 60004; Kris B. Lindley, 11421 Kluth Dr., Mokena, Ill. 60448; Michael Joseph McGrath, 1635 Pine Rd., Homewood, Ill. 60430, and Walter John Moehle, 908 White La., New Lenox, Ill. 60451

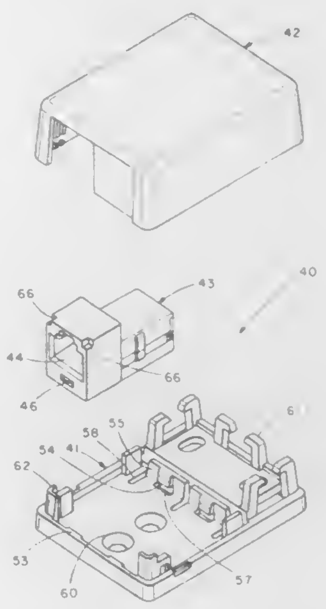
Division of Ser. No. 493,439, Jun. 22, 1995, Pat. No. 5,672,074. This application Feb. 14, 1997, Ser. No. 802,174

Int. Cl.^{6} H01R *13/60*

U.S. Cl. 439—535 **2 Claims**

1. A receptacle for mounting a modular connector having front and rear mounting slots disposed on front and back surfaces of the connector, comprising:

- a planar base;
- latch means integrally formed in the base for releasably securing the connector to the base including;
- a front latch tooth formed in the base disposed to engage the front mounting slot of the connector, a resiliently mounted rear latch tooth formed on a latch wall and aligned with and spaced from the front latch tooth such that the rear latch tooth is disposed to engage the rear mounting slot of the connector secured by the latch means, the latch wall formed perpendicular at the end of a resilient cantilever base arm formed in the plane of the base, wherein the rear latch tooth is disposed to resiliently latch the connector to the base such that the connector can be released from the base by depressing the cantilever base arm, which rotates the latch wall and latch tooth away from the connector to disengage the rear latch tooth from the rear slot in the connector.



5,738,540

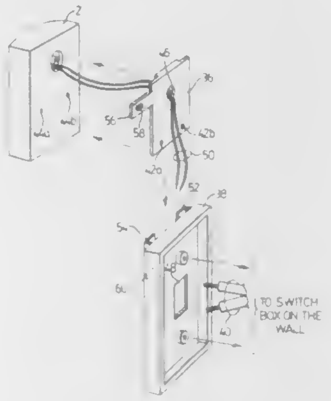
APPARATUS FOR COUPLING A DEVICE TO AN ELECTRICAL RECEPTACLE

Michael Warnett Hetherington, R.R. 1, Mount Albert, Ontario, Canada, L0G 1M0

Filed Jun. 1, 1995, Ser. No. 457,687

Int. Cl.^{6} H01R *13/60*

U.S. Cl. 439—536 **4 Claims**



1. An apparatus for mounting an electronic device to an electrical box, said apparatus comprising

(a) a plate having means for fastening to said electronic device;

(b) a receptacle cover having means for coupling to said electrical box;

(c) said receptacle cover having means for receiving said plate and means for engaging said plate in a lock position; and

(d) said plate having actuating means for disengaging said plate from said lock position so that said plate and said electronic device fastened to said plate are removable from said receptacle cover.

5,738,541

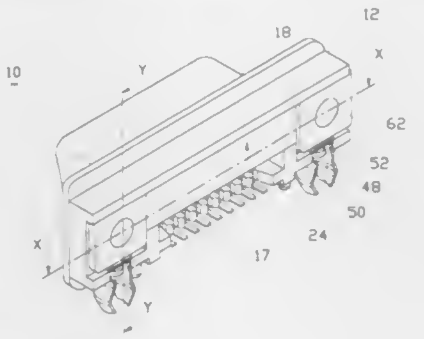
ASSEMBLING MECHANISM OF CONNECTOR HAVING BOARDLOCK AND SPACER

Green Tseng, Taipei Hsien, Taiwan, assignor to Hon Hai Precision Ind. Co., Ltd., Taiwan

Filed Apr. 9, 1996, Ser. No. 629,553

Int. Cl.^{6} H01R *13/66*

U.S. Cl. 439—567 **11 Claims**



1. A connector comprising:

- an insulative housing having a plurality of passageways extending therethrough in a front-to-end direction for receiving a corresponding number of contacts therein;
- a spacer having a pair of blocks positionable at two opposite ends thereof;
- a boardlock positioned on either end of the housing, and
- a rivet positioned at either end of the housing with a vertical plate thereof;
- wherein at least one block of the spacer is substantially sandwiched between one rivet and the corresponding end of the housing.

5,738,542

ELECTRICAL CONNECTOR WITH TWO STEP POSITIVE CONTACT RETENTION

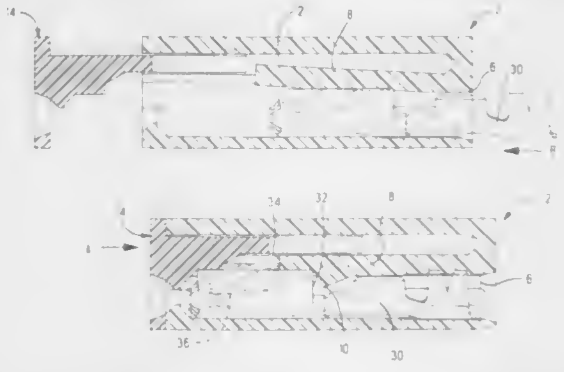
Erich Dietmar Jakobeit, Rüsselsheim, and Ralf Jaklin, Liederbach, both of Germany, assignors to The Whitaker Corporation, Wilmington, Del.

Filed Jul. 12, 1996, Ser. No. 678,878

Claims priority, application United Kingdom, Jul. 19, 1995, 9514797

Int. Cl.^{6} H01R *13/422*

U.S. Cl. 439—595 **5 Claims**



1. An electrical connector comprising a housing having at least two contact receiving passageways with contacts therein and a locking member for positively retaining the contacts therein, the locking member having an unlocked position where the contacts may be received in the passageways and a locked position where the contacts are positively retained within the passageways, the locking member has a preliminary position corresponding to the locked position, the locking member is displaceable upon the housing in a longitudinal direction corresponding to the contact receiving passageways to an intermediate position wherein one of

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the contacts would be positively locked in a first passageway therein while the other contact would be free to be inserted or removed from a second passageway the locking member being further displaceable transversely to the longitudinal direction into the locked position.

5,738,543

CONNECTOR WITH TERMINAL POSITION ASSURANCE MEMBER

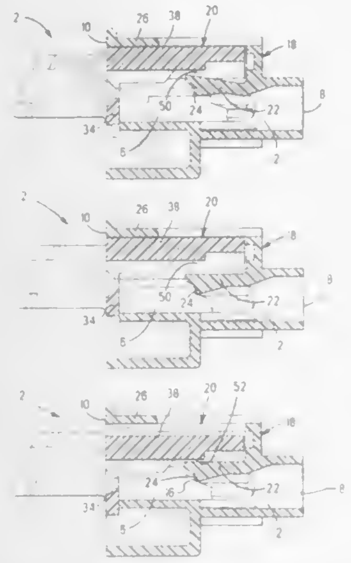
Brian Rollins, Cheshunt, and Richard Johnathon Howells, St. Albans, both of Great Britain, assignors to The Whitaker Corporation, Wilmington, Del.

Filed Apr. 1, 1997, Ser. No. 831,032

Claims priority, application United Kingdom, Apr. 26, 1996, 9608746

Int. Cl.^{6} H01R *13/422*

U.S. Cl. 439—595 **11 Claims**



1. A connector comprising a housing having terminal receiving cavities extending therethrough from a terminal receiving end to a mating end, and locking lances for locking terminals in the cavities; the connector having a first housing member and a terminal position assurance member mountable in the first housing member in a pre-assembly position such that terminals can be inserted into the housing cavities, and moveable to a fully locked position adjacent the locking lances such that unlocking of the terminals by biasing of the lances is prevented, characterized in that the position assurance member is moveable transversely to a mating direction of the connector from the pre-assembly to the locked position, the position assurance member being surrounded and protected by outer walls of the first housing member that prevent external objects from accidentally displacing the assurance member when it is in the pre assembly position.

5,738,544

SHIELDED ELECTRICAL CONNECTOR

Wayne Samuel Davis, Harrisburg, Pa., assignor to The Whitaker Corporation, Wilmington, Del.

Filed Jun. 27, 1996, Ser. No. 673,224

Int. Cl.^{7} H01R *13/648*

U.S. Cl. 439—607 **4 Claims**

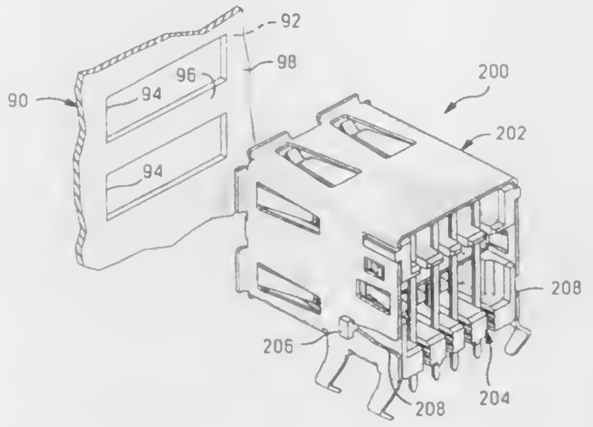
1. An electrical connector of the type mountable at a cutout of a conductive panel of an electronic apparatus, comprising

an insulative housing having plug receiving cavities extending rearwardly from a mating face and aligned with the cutout for receipt of respective plug connectors thereinto for connector mating, with an array of contacts secured therein all within a metal shell for shielding thereof, with the metal shell having a forward end associated with the panel cutout and exposing plug receiving cavities of the housing in alignment with the cutout for mating with respective plug connectors,

the metal shell having an array of panel-engaging flanges disposed about the forward end thereof to establish electrical connections with the periphery of the panel cutout, and

the metal shell further including a pair of tabs at its forward end traversing the mating face angled forwardly and inwardly toward each other between the plug-receiving cavities,

whereby shielding is enhanced by ground connections established by the metal shell with the conductive panel intermediate the plug-receiving cavities when the panel cutout comprises a pair of cutouts separated by an integral strip joining opposed sides of the panel cutout periphery.



5,738,545

CONNECTION DEVICE WHICH IS ELECTROMAGNETICALLY SHIELDED WITH SIMPLE STRUCTURE

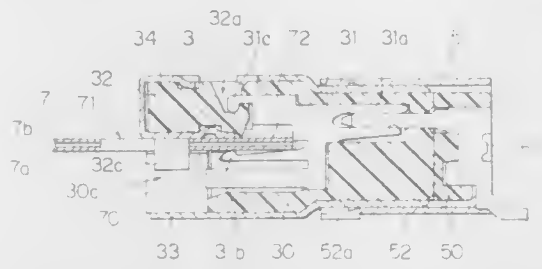
Isao Igarashi, and Nobukazu Kato, both of Tokyo, Japan, assignors to Japan Aviation Electronics Industry, Limited, Tokyo, Japan

Filed Feb. 5, 1997, Ser. No. 795,600

Claims priority, application Japan, Feb. 21, 1996, 8-033975

Int. Cl.^{6} H01R *13/648*

U.S. Cl. 439—607 **10 Claims**



1. A connection device for connecting a flat cable with a connection object, said flat cable having a main pattern on a main surface thereof and a supplementary pattern on a supplementary surface thereof opposite to said main surface, said connection object having a main pattern and a supplementary pattern, said connection device comprising a first connector and a second connector adapted to be connected to said first connector in a predetermined direction, said first connector comprising:

a first insulator having an opening for receiving said flat cable,

a first contact held to said first insulator,

a pressing member movably connected to said first insulator for pressing said flat cable to make said main pattern of the flat cable become in contact with said first contact with said pressing member being moved relative to said first insulator;

a first conductive shell covering said first insulator; and

a second conductive shell covering said pressing member for being connected to said supplementary pattern of the flat cable, said second conductive shell being brought into contact with said first conductive shell when said pressing member presses said flat cable;

said second connector comprising:

a second insulator;

a second contact held to said second insulator for being connected to said main pattern of the connection object, said second contact being brought into contact with said first contact when said first and said second connectors are connected to each other; and

a third conductive shell covering said second insulator for being connected to said supplementary pattern of the connection object, said third conductive shell being brought into contact with said first conductive shell when said first and said second connectors are connected to each other.

5,738,546

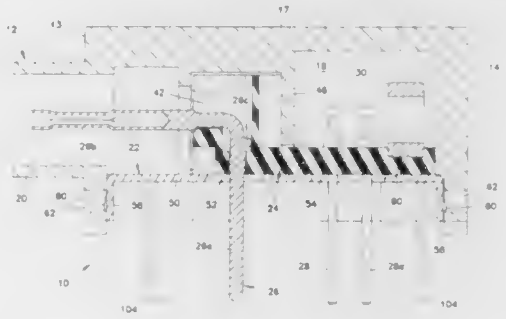
PRINTED CIRCUIT BOARD MOUNTED JACK

Dennis M. Burroughs, Savage, and Edward F. Sansone, Coon Rapids, both of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Filed Dec. 1, 1994, Ser. No. 347,879

Int. Cl.^{6} H01R *17/04*

U.S. Cl. 439—620 **5 Claims**



1. A coaxial jack for mounting on a printed circuit board, said jack comprising:

an electrically conductive housing having an interior;

a port disposed on said housing and in communication with said interior, said port sized to receive a coaxial jack plug;

a center conductor having a pin receiving end and a lead end;

a dielectric support sized received within said interior and hold said center conductor in spaced relation to said housing with said pin receiving end disposed to receive a center pin of a jack plug inserted within said port, said center conductor further having a lead end within said dielectric support sized to pass said lead end out of said housing;

a retaining clip sized to be secured within said housing in a predetermined position;

said retaining clip, said dielectric support and said housing having a plurality of mutually opposing surfaces for said support to be secured in a predetermined position within said housing when said clip is secured to said housing;

a plurality of terminating pins secured to said dielectric support with said terminating pins extending through said housing;

circuit means contained within said interior including a circuit path connected to said pins for receiving a coaxial signal and converting said coaxial signal to a twisted pair signal.

5,738,547

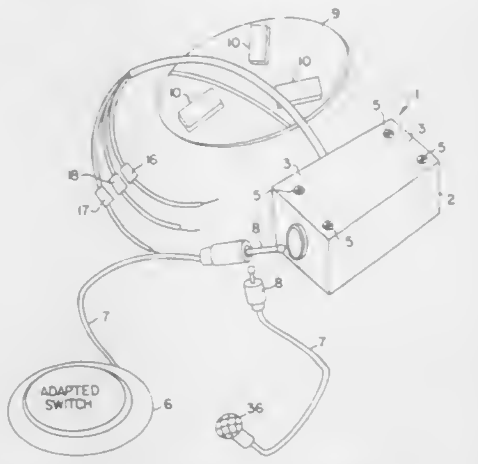
TOY CONVERSION STRUCTURE

Ernest Russo, P.O. Box 137, Stow, N.Y. 14785

Filed Sep. 20, 1996, Ser. No. 718,213

Int. Cl.^{6} H01R *13/66*

U.S. Cl. 439—620 **3 Claims**



1. A conversion structure having means to convert a battery powered vehicle from a foot pedal operated vehicle to a hand operated vehicle, said structure comprising a protective housing, an electrical relay means and a conventional phone jack, said phone jack attached to said housing and extending completely through a wall of said housing, said electrical relay means contained in said housing and electrically connected to said phone jack, said housing having a plurality of electrical wires extending therefrom, at least two of said electrical wires attached on one end to said relay means and unattached on their opposite end, at least another one of said electrical wires attached on one end to said phone jack and unattached on an opposite end, all of said electrical wires extending from within said housing through an opening in a wall of said housing, said housing having on an outside surface thereof means to removably attach said conversion structure to said battery powered vehicle and wherein said phone jack is adapted to connect to an activation means.

5,738,548

WALL MOUNTED RECEPTACLE WITH RETRACTABLE EXTENSION CORD

Philip M. Rutulante, 3 Dubois Rd., New Paltz, N.Y. 12561

Filed Sep. 16, 1996, Ser. No. 716,811

Int. Cl.^{6} H01R *25/00;27/02;31/00,33/88*

U.S. Cl. 439—652 **1 Claim**

1. A new and improved wall mounted receptacle with retractable extension cord comprising, in combination:

a housing having a front face with a square configuration and a first surface area, a rear face with a square configuration and a second surface area greater than the first surface area, and four side faces extending between side edges of the front face and side edges of the rear face wherein the side faces define a skewed periphery which, in turn, defines an interior space, the front face having a circular aperture centrally formed therein and an annular recess formed about the aperture, the rear face including a support post with a generally cylindrical configuration perpendicularly coupled to the rear face at the center thereof within the interior space and extending to a point coextensive with the circular aperture of the front face, the support post having a bore axially formed therein, the rear face further including an annular flange formed about the support post on the rear face of the housing within the interior space thereof, wherein the periphery has a cut out formed therein;

a primary mounting plug unit including a pair of prongs fixed to and extending perpendicularly from an outer surface of the rear face of the housing for inserting within a conventional

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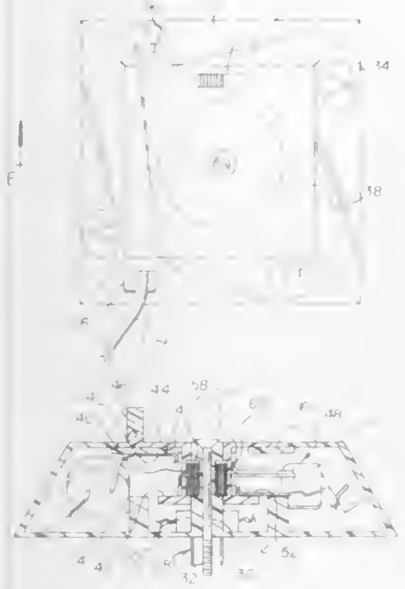


electrical receptacle, the primary mounting plug unit also having a screw adapted to be inserted within the bore of the support post and further screwably coupled within a standard threaded aperture of the receptacle;

a plurality of sockets formed on each of the side faces of the housing for allowing the coupling with standard electrical plugs associated with an electric appliance, each socket having a pair of conductive slots each electrically connected to a respective prong of the primary mounting plug unit for receiving power therefrom;

a manual spool reel assembly including a hollow intermediate spool cylinder rotatably coupled about the support post wherein the spool cylinder resides coaxially with respect to the support post, a first spool retainer with a first diameter integrally formed on an inboard end of the spool cylinder with an outer periphery thereof nearly abutting an outboard end of the annular flange of the housing, and a second spool retainer with a second diameter twice that of the first spool retainer, the second spool retainer integrally formed on an outboard end of the spool cylinder wherein the second spool retainer resides in the annular recess of the front face of the housing, the second spool retainer further including a collapsible reel lever pivotally coupled thereto with a first upright orientation for allowing manual rotation of the spool and further a collapsed orientation;

an extension cord assembly including a pair of cylindrical contact rings coupled about the spool cylinder adjacent a respective spool retainer, a pair of contact strips including a first contact strip coupled to the outboard end of the annular flange of the housing and further in slidable abutment with the cylindrical contact ring situated adjacent the first spool retainer and a second contact strip coupled to the front face of the housing within the interior space thereof and further in slidable abutment with the cylindrical contact ring situated adjacent the second spool retainer, and an extension cord extending through the cut out of the housing with a first end having a standard receptacle fixed thereto for coupling with an electrical appliance and a second end with a pair of wires each coupled to separate cylindrical contacts, whereby the contact strips are further electrically connected to a respective prong of the primary mounting plug unit for receiving power therefrom;

an automatic spool retraction assembly including a coiled spring situated within a space formed between the support post of the housing and the spool cylinder of the spool reel assembly with a first end coupled to the support post and a second end coupled to the intermediate spool cylinder, wherein the spring has an unbiased orientation with the extension cord fully wrapped about the spool cylinder and a biased orientation with the extension cord fully extended exterior of the housing; and

whereby the extension cord may be selectively ravelled and unravelled both automatically and manually and the extension cord and sockets work in conjunction to provide electricity to a plurality of appliances.

5,738,549

ELECTRICAL CONNECTOR WITH TERMINAL RETENTION MEMBER AND BRIDGING CONTACTS

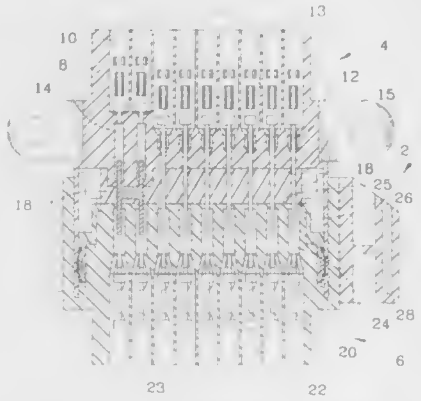
Jacques Laquerbe, Sartrouville, France, assignor to The Whitaker Corporation, Wilmington, Del.

Filed Jul. 3, 1996, Ser. No. 674,386

Claims priority, application France, Jul. 11, 1995, 95 08374

Int. Cl.^{6} H01R *11/09*

U.S. Cl. 439—724 7 Claims



1. An electrical connection assembly comprising a first connector, having an insulative first housing with cavities extending therethrough from a terminal receiving face to a mating face, and terminals retained in the cavities by locking lances, the first connector further comprising a secondary locking housing mountable to the first housing and having lance back-up walls that are engageable against the locking lances when fully mounted for preventing outward biasing thereof to retain the terminals securely in the cavities, wherein bridging contacts are mounted to the secondary housing, the bridging contacts having a plurality of contact portions for short circuiting two or more terminals and wherein the bridging contacts comprise a base portion mounted in the secondary housing, and pin contacts extending in opposing directions therefrom, the pin contacts having portions extending beyond a mating side of the secondary locking housing for coupling with terminals of a second connector matable therewith.

5,738,550

PRESS-FIT PIN FITTING IN A MINIATURIZED THROUGH HOLE FORMED IN A CIRCUIT BOARD

Masahiko Sakuraoka; Takeshi Okuyama; Hidehisa Sakai, and Takeshi Nishiyama, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 397,842, Mar. 2, 1995, abandoned.

This application Nov. 13, 1996, Ser. No. 748,121

Claims priority, application Japan, Mar. 4, 1994, 6-035078

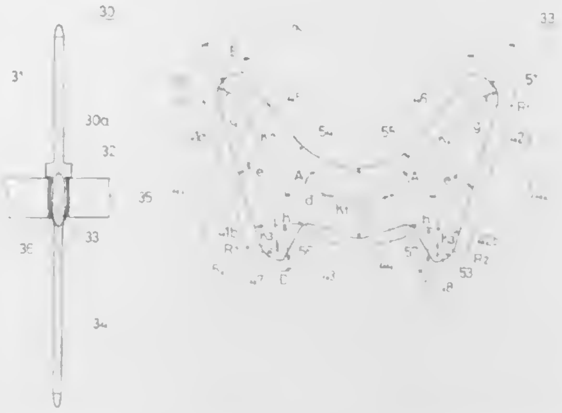
Int. Cl.^{6} H01R *13/42*

U.S. Cl. 439—751 8 Claims

1. A press-fit pin having a press-fitting portion to be press fit into a through hoe, said press-fitting portion comprising:

a first beam extending along a longitudinal axis of said press-fitting portion; said first beam having a first larger beam and a first smaller beam, each of which is elastically bent along a line parallel to the longitudinal axis of said press-fitting portion when said press-fitting portion is press fit into said through hole,

a second beam extending along the longitudinal axis of said press-fitting portion, said second beam having a second larger beam and a second smaller beam, each of which is elastically



bent along a line parallel to the longitudinal axis of said press-fitting portion when said press-fitting portion is press fit into said through hole; and

a cross portion extending along the longitudinal axis of said press-fitting portion so as to connect said first beam and said second beam, said cross portion being elastically bent along a line parallel to the longitudinal axis of said press fitting portion when said press-fitting portion is press fit into said through hole, said cross portion having a substantially uniform thickness;

wherein said first beam is connected to said second beam with said cross portion therebetween so that said second beam is symmetric with said first beam with respect to a line including the longitudinal axis of said press-fitting portion, said first larger beam and said second larger beam extending upward from said cross portion so as to form an upper portion of a V, said first smaller beam and said second smaller beam extending downward from said cross portion.

5,738,551

RETAINING ELECTRICAL CONNECTOR

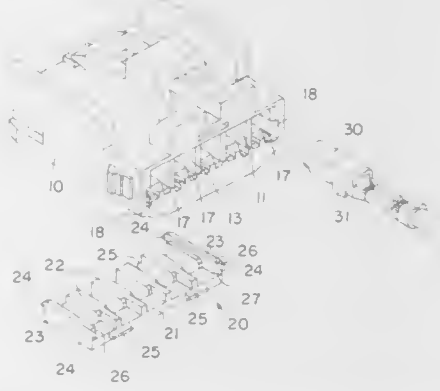
Hiroyuki Matsuoka, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Feb. 14, 1997, Ser. No. 800,334

Claims priority, application Japan, Feb. 14, 1996, 8-026355

Int. Cl.^{6} H01R *13/436*

U.S. Cl. 439—752 6 Claims



1. An electrical connector comprising a housing having a plurality of cavities, each of said cavities extending through said housing in an insertion direction from an inlet, into which a terminal is to be inserted, to a front opening, into which a mating terminal to be inserted,

a retainer, adapted for insertion into said housing in a retaining direction perpendicular to said insertion direction, said retainer having a holding position, engaging said housing and wherein insertion and withdrawal of said terminal is not prevented, and a locked position wherein a respective holding block on said retainer extends into each of said cavities and prevents withdrawal of the respective terminal from said cavity,

said retainer having a pair of substantially planar end walls extending parallel to said insertion direction, each of said walls having a front extremity facing said front opening and a rear extremity facing said inlet, one holding projection on said rear extremity and another holding projection on said front extremity, said one projection and said other projection each engaging a detent on said housing when said retainer is in said holding position, said one projection having a receiving plane which inclines inwardly transverse to said cavities at a first angle in said insertion direction

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5,738,552

BATTERY TERMINAL

Paul Gerhard Halbach, Wuppertal, and Rainer Gutenschwager, Marl, both of Germany, assignors to Delphi Automotive Systems Deutschland GmbH, Wuppertal, Germany

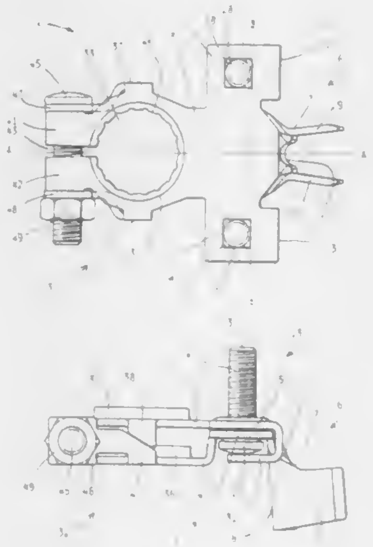
PCT No. PCT/DE96/00670, § 371 Date Dec. 18, 1996, § 102(e) Date Dec. 18, 1996, PCT Pub. No. WO96/33525, PCT Pub. Date Oct. 24, 1996

PCT Filed Apr. 17, 1996, Ser. No. 750,660

Claims priority, application Germany, Apr. 20, 1995, 295 06 699 U

Int. Cl.^{6} H01R *4/42*

U.S. Cl. 439—762 8 Claims



1. Two-layer, single piece, electrical battery terminal (1), stamped and shaped from metal sheet

with a terminal area (32) designed for connection to one pole of a motor vehicle battery consisting of

an upper layer (3) with a moulded, slot location hole (33),

a lower layer (4), separated by a gap from the upper layer (3), which lower layer (4) has a moulded, slot location hole (34),

two bridges (41, 42), bent into a U-shape, linking the upper layer (3) with the lower layer (4),

a cavity (44) formed between the upper layer (3) and the lower layer (4) bordering the bridges (41, 42), into which a screw (45) can be inserted, which by reducing the size of the location holes (33, 34) secures the battery terminal (1) on the pole, and

with a connection area (5) fitted with at least a first connection element (6) for the connection of electrical cables,

a bent-down, two-layer crimp (7) consisting of a cable holder (8) formed from the lower layer (4) and

a contact tongue (11) projecting into the cable holder (8) and formed in the upper layer (3),

characterized

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in that a second and a third connection elements (12, 13) are arranged in the connection area (5), whereby the upper layer (3) and/or the lower layer (4) are each formed with two extensions (14, 15, 16, 17) with punched holes (18, 19, 20, 21), into which threaded bolts (22, 23) can be fitted, and

that the first connection element (6) is arranged along a longitudinal axis (A) and the second and third connection element (12, 13) are arranged symmetrically to the longitudinal axis (A) of the battery terminal (1).

5,738,553
CLAMP FOR CONNECTING THE POLES OF A BATTERY

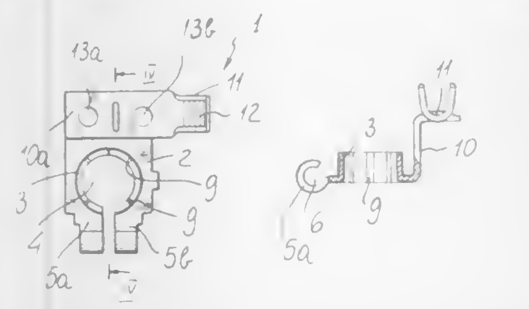
Gianluigi Pilotti, Via Roma, 31, 15023 Felizzano (Alessandria), Italy

Filed May 6, 1996, Ser. No. 643,579

Claims priority, application Italy, Nov. 22, 1995, MI950806 U

Int. Cl.⁶ H01R *4/42*

U.S. Cl. 439—763 **3 Claims**



1 A battery post connecting clamp, wherein said connecting clamp is made in a single piece by shearing and cold bending a tinned brass material, said clamp comprising a central portion therefrom extends a mantle provided with a seat for receiving a post of a battery, said mantle being cut off at a portion thereof therefrom extend two opposite legs defining a passage for receiving a clamping bolt, said mantle having an inner surface defining said seat for said post of said battery and including a plurality of spaced coined portions, wherein said clamp is moreover provided, on an opposite portion from said clamping bolt, with a laterally extending contoured leg, said contoured leg being provided with a clamping portion for receiving different cross-section electric cables and with holes for connecting terminals of further electric cables for supplying auxiliary services, and wherein said clamping portion and holes of said contoured leg are defined on a region of said contoured leg overlaying said mantle defining said seat for said post of the battery

5,738,554
ELECTRICAL CONNECTION ELEMENT FOR A HEATED AUTOMOBILE GLAZING

Manfred Borger, and Heiner Emonts, both of Aachen, Germany, assignors to Saint-Gobain Vitrage International, Courbevoie, France

Continuation of Ser. No. 959,539, Oct. 13, 1992, abandoned, which is a continuation of Ser. No. 758,123, Feb. 12, 1991, abandoned. This application Oct. 21, 1993, Ser. No. 139,072

Claims priority, application Germany, Sep. 21, 1990, 90 13 380 U

Int. Cl.⁶ H01R *4/02*

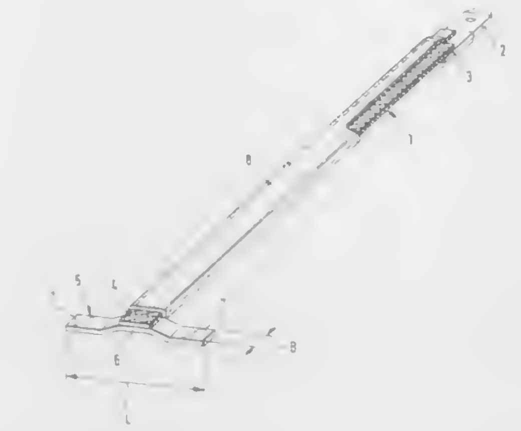
U.S. Cl. 439—874 **3 Claims**

1 Electrical connection element to be brazed on a conductive layer placed on an electrically heated automobile glazing, comprising,

a segment of flexible metal braid;

a plug mounted on one end of the braid, and

a connecting piece to be brazed mounted on another end of the braid;



wherein the connection piece comprises a piece of rigid sheet metal connected to the segment of flexible metal braid by ultrasound soldering, and

wherein the piece of sheet metal forming the connection piece comprises a middle section and two end sections, and the middle section is bent so as to take the shape of a bridge element so that only the end sections are braze mounted to the conductive layer

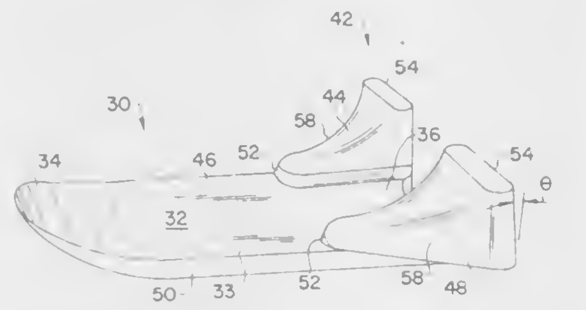
5,738,555
ATTACHMENT ASSEMBLY FOR SECURING A HYDRODYNAMIC PROPULSION SURFACE TO A BODY BOARD

Abdolhamid Saghri, 8207 Stone Trail Dr., Bethesda, Md. 20817, assignor to Abdolhamid Saghri, Bethesda, Md.

Filed Dec. 2, 1996, Ser. No. 756,919

Int. Cl.⁶ A63C *15/00*

U.S. Cl. 441—65 **20 Claims**



1 A body board comprising:

a body member having a bow and a stern, said body member providing a surface capable of supporting a person lying thereon; and

a first extension and a second extension selectively coupled to said body member such that an entirety of each extension is maintained in a substantially fixed position relative to said body member, each of said first and said second extensions providing a rearward-facing surface generally facing away from said stern of said body member so that fluid delivered in a direction generally from said stern toward said bow of said body member exerts a force against said rearward-facing surface to propel said body board, each of said first and said second extensions being shaped so that an area defined by said rearward facing surface is substantially equivalent to a maximum cross-sectional area of said extension, wherein a cross-sectional area of each of said first and said second extensions is defined by a plane generally perpendicular to a longitudinal axis of said body member, and each of said first and said second extensions being shaped so that said maximum cross sectional area is only located proximate to said stern of said body member;

a first tongue and groove attachment assembly for removably securing said first extension to said body member at a first edge portion thereof, and

a second tongue and groove attachment assembly for removably securing said second extension to said body member at a second edge portion thereof, each first and second tongue and groove attachment assembly including a tongue disposed on one of said body member and an associated extension and a groove defined in a remaining other of said body member and said associated extension, said tongue and said groove in said first and second tongue and groove attachment assemblies having matching configurations such that for each of said first and said second tongue and groove attachment assembly said tongue fits within said groove to provide an engaged relationship therebetween.

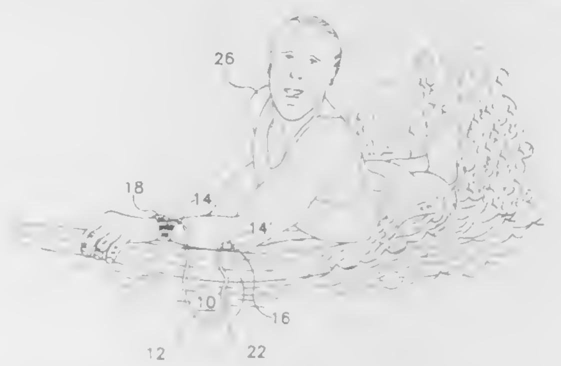
5,738,556
LEASH FOR AN AQUATIC SPORTS BOARD

Gregory G. Palmieri, 1332 E. Ticonderoga Dr., Fresno, Calif. 93270

Filed Aug. 15, 1996, Ser. No. 698,179

Int. Cl.⁶ A63C *15/00*

U.S. Cl. 441—75 **9 Claims**



1 An aquatic board leash comprising:

a flexible solid core molded cord having a first solid core molded body at one end and a second solid core molded body at an end opposite said one end, each of the first and second solid core molded bodies integrally connected to the flexible solid core molded cord by molding the bodies and cord simultaneously, each of the first and second solid core molded bodies having a bore therethrough with first and second openings,

a first flexible connector positioned within said bore and extending outwardly from the openings in the first solid core molded body for attaching to the aquatic board,

a second flexible connector positioned within said bore and extending outwardly from the second solid core molded body for attaching to a strap, the strap adapted to be secured to a person.

5,738,557
POCKET-SIZED, EMERGENCY FLOTATION DEVICE

Bradley A. Biesecker, 1316 School St., Clarks Summit, Pa. 18411

Filed May 30, 1996, Ser. No. 655,651

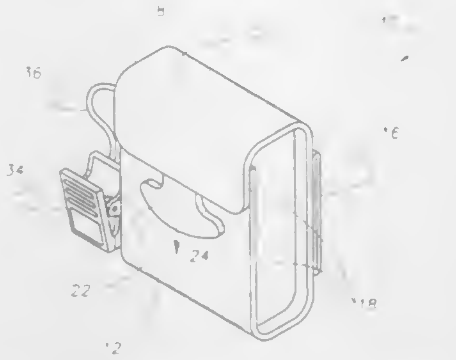
Int. Cl.⁶ B63C *9/15*

U.S. Cl. 441—92 **15 Claims**

1 A pocket-sized, portable flotation device, comprising:

a carrying case which can be easily worn or carried about many different areas of one's person due to its small size;

a flotation collar folded within said carrying case in a deflated position, said flotation collar expanding into a diamond shape for the purpose of fitting snugly about a user's neck in order to keep the user's head afloat, said flotation collar comprising



a plurality of inflatable chambers, with each chamber receiving inflatable gas from its adjacent chamber via means defining an internal orifice disposed between respective adjacent chambers, said orifices being substantially pinched off to prevent or reduce passage of gas out of each respective chamber when said collar inflates into said diamond shape, whereby accidental deflation of all of the chambers is prevented, in the event that one of said plurality of chambers loses gas;

a gas cartridge disposed inside said carrying case, and having inflatable communication with said plurality of inflatable chambers of said flotation collar; and

actuation means connected to said gas cartridge and supported by said carrying case, for actuating said gas cartridge to expel its gas and inflate said flotation collar to form said diamond shape

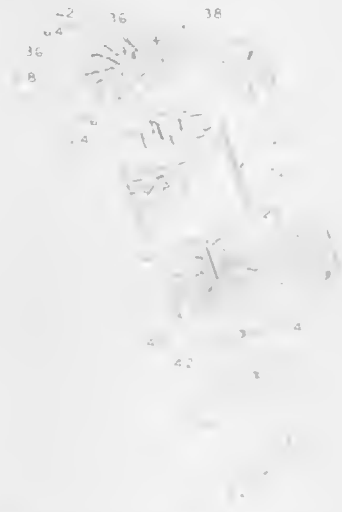
5,738,558
MOTOR FOR TOY CONSTRUCTION SYSTEM

John Zimmer, Blue Bell, and Michael DiLabio, Limerick, both of Pa., assignors to Connector Set Limited Partnership, Hatfield, Pa.

Filed Feb. 5, 1997, Ser. No. 795,013

Int. Cl.⁶ A63H *33/04*

U.S. Cl. 446—90 **10 Claims**



1 A motor assembly for use in combination with a toy construction set, comprising:

(a) a housing body having opposed ends,

(b) a motor within said housing body comprising an output shaft aligned with a center axis of said housing body and extending through a first end of said opposed ends,

(c) the toy construction set being of the type having a plurality of connector elements and rod-like struts engagable with said connector elements to form a coherent structure wherein said connector elements have a center hub portion with a plurality of pairs of spaced-apart gripping arms disposed radially there

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around defining socket-forming recesses adapted for lateral snap-in engagement of said struts, and wherein said connector elements have cavities disposed radially around said hub portion between said hub portion and said socket-forming recesses;

(d) a plurality of sets of projections extending from said opposed ends of said housing body including a first set of projections disposed around said output shaft and spaced radially therefrom, each projection of said sets thereof being adapted for tight frictional engagement with one of said cavities of said connector elements; and

(e) said projections of each set being located such that a first of said connector elements mounted thereon is adapted to be interconnected, by another of said connector elements and said struts of said toy construction set, to a second of said connector elements mounted on another of said sets of projections.

5,738,559

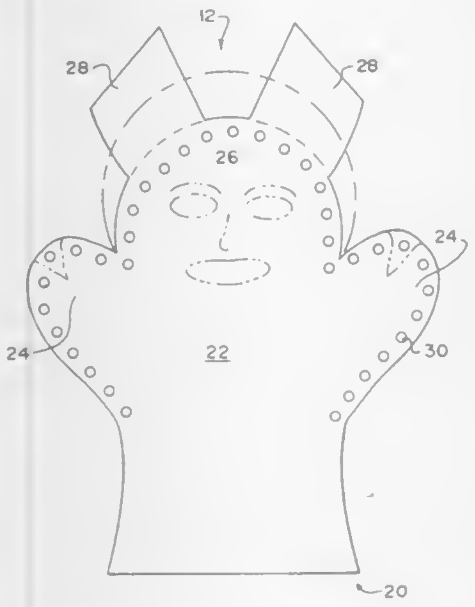
PERSONALIZED NEEDLELESS PUPPET BLANK KIT

Leah Beth Levin Ostrar, 8041 N. Kedvale, Skokie, Ill. 60076-3227

Filed Aug. 26, 1996, Ser. No. 701,765

Int. Cl.⁶ A63H *3/14*

U.S. Cl. 446—100 **9 Claims**



1 A personalized needleless hand puppet kit for creating a hand puppet defining at least one desired character, the kit comprising:

- at least two generic puppet blanks, each including a head portion, a body portion, two arm portions extending from the body portion, two ear portions extending from the head portion, the body portion and head portion having a continuous periphery along which a line of holes is provided wherein at least the ear portions are trimmable for enhancing character features: and
- a lace made of yarn, the lace having a leading end, and a collar of heat shrink material being engaged about the leading end for ease in threading the lace through the line of holes in the blanks when placed to overlie each other identically for lacing the blanks together to create a hand engaging pocket therebetween, without requiring use of a threading needle.

5,738,560

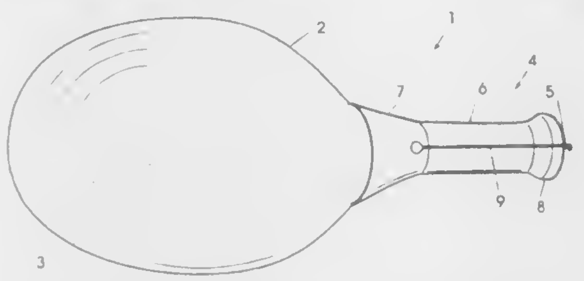
SOUND PRODUCING AMUSEMENT DEVICE

James Bears, 3317 Nixon Rd., Osgoode Ont., Canada, K0A 2W0

Filed May 10, 1996, Ser. No. 644,171

Int. Cl.⁶ A63H *3/06,5/00*

U.S. Cl. 446—220 **12 Claims**



1 An amusement device comprising:

- an inflatable member made of an elastic resilient material, said inflatable member having an inner wall and an end with an opening for introducing a gas for inflation;
- a handle for supporting and manipulating the inflatable member, said handle comprising an annular wall portion defining an open end for receiving one end of the inflatable member, and an opposite end wall having a slot for receiving the end of the inflatable member for retention thereof within the handle, and wherein the open end of the handle has a diameter of not less than ⅕ of the diameter of the inflatable member, when inflated; and
- an inner rollable sound generating member for placement within the inflatable member, said inner member having an irregular surface defining a plurality of points for making contact with the inner wall of the inflatable member and wherein the inner member includes a loose element retained adjacent the surface thereof, the inner member being operative upon manipulating the handle with the inflatable member inflated and retained thereby, to produce sound upon rolling contact with the inner wall of the inflatable member.

5,738,561

TALKING DOLL

Victor Manuel Pracas, Waroona, Australia, assignor to Concepts Development Australia Pty. Ltd., Perth, Australia

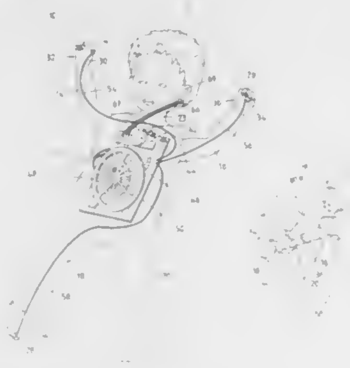
PCT No. PCT/AU94/00585, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO95/09036, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 29, 1994, Ser. No. 619,743

Claims priority, application Australia, Sep. 30, 1993, PM1530

Int. Cl.⁶ A63H *3/28*

U.S. Cl. 446—297 **8 Claims**



1 A doll comprising:

- a digital sound recording means for recording sounds in a first operational condition of the doll;

- sound playback means for playing back sounds recorded in said digital sound recording means in a second operational condition of the doll;
- first activation means actuable to activate said digital sound recording means in said first operational condition of the doll;
- second activation means actuable to active said sound playback means in said second operational condition of the doll;
- a light provided on the doll in a location which is visible to the user, said light being operatively connected to said first activation means and adapted to illuminate when said first activation means is actuated to activate said digital sound recording means in said first operational condition of the doll; and,
- a torso with a head attached to said torso and wherein said light is located on the head of the doll, and further wherein said light is provided on an ear of the doll's head so as to give the appearance of an earring or ear stud, and
- wherein said doll is provided with limbs attached to said torso and said first activation means comprises a first contact and a second contact provided on a first limb and a second limb respectively of said doll, said first and second limbs being resiliently attached to said torso to permit said first and second limbs to move toward one another so as to bring said first and second contacts into contact whereby, in use, the doll can be switched from a non-operational condition to said first operational condition, and
- wherein said second activation means comprises said second contact and a third contact provided on a third limb of said doll, said third limb being resiliently attached to said torso to permit said second and third limbs to move toward one another so as to bring said second and third contact into contact whereby, in use, the doll can be switched from a non-operational condition to said second operational condition.

5,738,562

APPARATUS AND METHOD FOR PLANAR END-POINT DETECTION DURING CHEMICAL-MECHANICAL POLISHING

Trung Tri Doan; Gurtej Singh Sandhu, both of Boise, Id., and Malcolm K. Grief, Chandler, Ariz., assignors to Micron Technology, Inc., Boise, Id.

Filed Jan. 24, 1996, Ser. No. 590,541

Int. Cl.⁶ B24B *49/16*

U.S. Cl. 451—5 **41 Claims**

1. A polishing apparatus comprising:

- a platen having a substantially planar surface;
- a polishing pad attached to the platen's substantially planar surface;
- a wafer carrier positioned in close proximity to the platen, the wafer carrier having a substantially planar surface to which one side of a semiconductor wafer is removably attachable so that an opposing side of the semiconductor wafer is disposed against the polishing pad,
- an actuator for imparting a motion to one of the platen and the wafer carrier so that the polishing pad moves relative to and in polishing contact with the semiconductor wafer the imparted motion having a maximum translational distance that changes in magnitude when the coefficient of friction between the wafer and the polishing pad changes, and
- a sensor for detecting a change in the maximum translational distance in the imparted motion resulting from a change in the coefficient of friction between the polishing pad and the opposing side of the semiconductor wafer indicative of a planar end-point on the opposing side of the semiconductor wafer.

5,738,563

SUBSTRATE CHAMFERING MACHINE

Manabu Shibata, Ichikai-machi, Japan, assignor to Kao Corporation, Tokyo, Japan

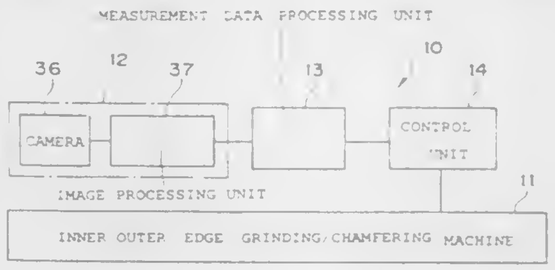
PCT No. PCT/JP96/00380, § 371 Date Nov. 7, 1996, § 102(e) Date Nov. 7, 1996, PCT Pub. No. WO96/27479, PCT Pub. Date Sep. 12, 1996

PCT Filed Feb. 20, 1996, Ser. No. 737,139

Claims priority, application Japan, Mar. 7, 1995, 7-072512

Int. Cl.⁶ B24B *49/00*

U.S. Cl. 451—5 **12 Claims**


MEASUREMENT DATA PROCESSING UNIT
10
36
12
37
13
14
CAMERA
CONTROL UNIT
IMAGE PROCESSING UNIT
11
INNER OUTER EDGE GRINDING/CHAMFERING MACHINE

1. A substrate chamfering machine for forming chamfers in a substrate edge comprising:

- a chamfering machine including a grinding wheel for chamfering the substrate edge;
- a measuring unit for successively measuring a chamfer length of substrates worked by the chamfering machine;
- a measurement data processing unit for calculating a correction amount with respect to a feed amount of the grinding wheel according to the measuring result of the measuring unit; and
- a control unit for controlling the operation of the chamfering machine and correcting the feed amount of the grinding wheel according to the correction amount calculated by the measurement data processing unit

5,738,564

NUMERICALLY CONTROLLED GRINDING MACHINE FOR GRINDING WORKPIECES, IN PARTICULAR TOOLS

Hans-Joachim Helle, Tübingen, and Adolf Nill, Hechingen, both of Germany, assignors to Walter AG, Tubingen, Germany

Continuation of Ser. No. 164,129, Dec. 8, 1993, abandoned.

This application Oct. 21, 1996, Ser. No. 734,734

Claims priority, application Germany, Dec. 18, 1992, 42 42 906.4

Int. Cl.⁶ B24B *21/06*

U.S. Cl. 451—11 **15 Claims**

1. A numerically controlled grinding machine for precision grinding of workpieces, comprising:

- a machine bed;
- a workpiece carrier mounted to said machine bed, ..
- a grinding spindle carrier having a driven grinding spindle with a grinding wheel attached thereto;
- two side stands spaced from each other and fixedly connected to said machine bed.

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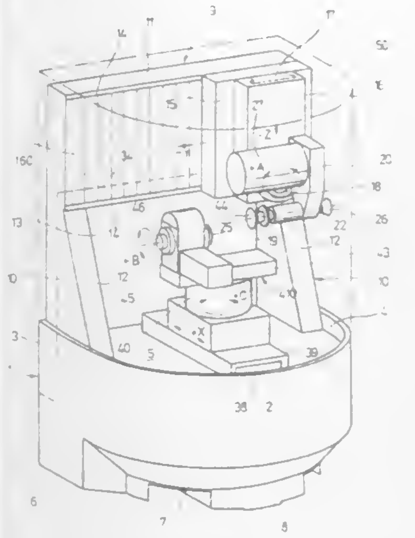


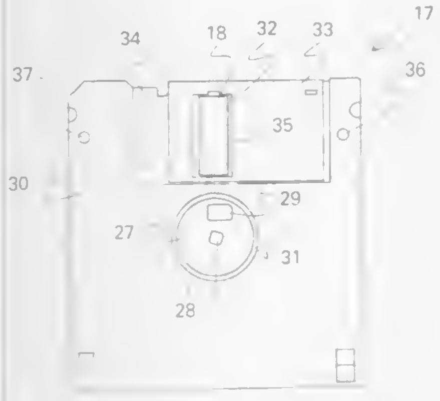
- a bridge spaced by a given distance above said machine bed and fixedly connected to both of said side stands, said grinding spindle carrier being movably mounted to said bridge above and over said machine bed;
- a reinforcing and stiffening rear wall rigidly connected to said machine bed, said bridge and said two side stands to form an integral support unit for said grinding spindle carrier such that a frontally-open workspace is defined by said two side stands, said machine bed, said bridge and said rear wall into which said grinding wheel and said workpiece can extend from the front of said workspace to be controllably moved for carrying out the precision grinding.

5,738,565

DEVICE FOR CLEANING COMPUTER HEADS

Michael S. Shebanow, 4414 E. Calle Del Conde, Tucson, Ariz. 85718

Filed May 10, 1996, Ser. No. 644,356
Int. Cl.^{6} B24B *1/00*
U.S. Cl. 451—28 **15 Claims**



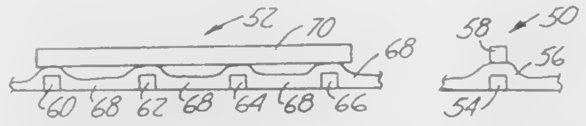
1. A device for cleaning a head of an apparatus having a holder for an information storage medium which is readable by or recordable on by the head when engaged by the holder, said device comprising an abrasive assembly engageable by the holder so as to permit abrasion of foreign matter from the head, said assembly including a pair of abrasive members having opposite major surfaces with external peripheries and means located centrally of said abrasive members for spacing said abrasive members to form an air gap extending inwardly from said external peripheries to said spacing means between said surfaces.

5,738,566

LAPPING GUIDE SYSTEM, METHOD AND ARTICLE OF MANUFACTURE

Zhihao Li, St. Paul, Minn.; Ganesan Doraisami, Westboro, Mass., and Beat G. Keel, Prior Lake, Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Mar. 31, 1997, Ser. No. 829,219
Int. Cl.^{6} B24B *1/00*
U.S. Cl. 451—28 **24 Claims**



17. A method of machining a magnetic transducer to a desired throat height, the method comprising:

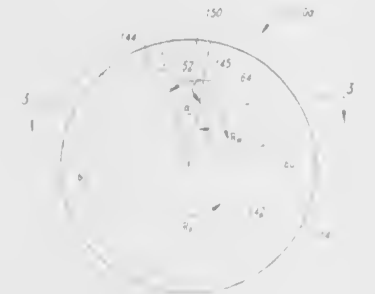
- fabricating a plurality of lap switch fingers of a lapping guide and a bottom pole of the transducer, wherein each finger of the plurality of fingers has a height and a width substantially identical to a height and a weight of the bottom pole;
- fabricating an insulating layer on the plurality of lap switch fingers and on the bottom pole;
- fabricating a top conductor of the lapping guide on the insulating layer above the plurality of lap switch fingers and a top pole of the transducer on the insulating layer above the bottom pole of the transducer; and
- machining the lapping guide and transducer until the lapping guide indicates that the desired throat height of the transducer has been reached.

5,738,567

POLISHING PAD FOR CHEMICAL-MECHANICAL PLANARIZATION OF A SEMICONDUCTOR WAFER

Adam Manzonie, Austin, Tex., and Salman Akram, Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Aug. 20, 1996, Ser. No. 700,114
Int. Cl.^{6} B24B *1/00*
U.S. Cl. 451—41 **27 Claims**



1. A polishing pad for planarization of a semiconductor wafer, comprising:

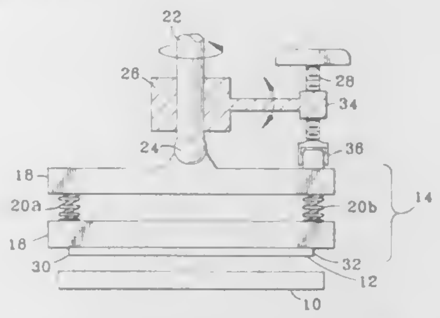
- a polishing body having a planarizing surface facing the wafer, a basin formed in at least a portion of the body, and an opening at the planarizing surface defined by the basin, the planarizing surface being engageable with the wafer in the presence of a slurry, and
- a cleaning element positioned in the basin, the cleaning element having a non-abrasive cleaning surface positioned in the opening proximate to a plane defined by the planarizing surface to periodically engage the wafer during planarization on the pad in a manner that removes residual material from the wafer without abrading the wafer.

5,738,568

FLEXIBLE TILTED WAFER CARRIER

Robert A. Jurjevic, Williston; Richard J. Lebel, Colchester, and Matthew K. Miller, Burlington, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 4, 1996, Ser. No. 726,103
Int. Cl.^{6} B24B *1/00*
U.S. Cl. 451—41 **23 Claims**



21. A method of polishing a surface of a workpiece with a polishing apparatus having a carrier assembly, a device for tilting said carrier assembly, and a rotation shaft, wherein said carrier assembly is pivotally mounted to said rotation shaft, and said tilting device is rotationally positionable around said rotation shaft, said method comprising the steps of:

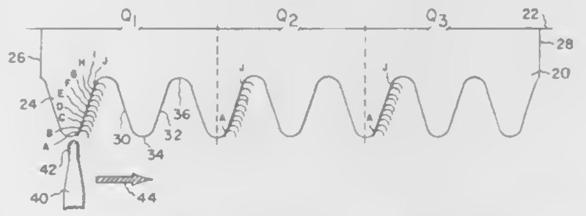
- a) mounting said workpiece on a lower surface of said carrier assembly;
- b) positioning said tilting device at a predetermined position on a top surface of the carrier assembly;
- c) adjusting said tilting device to create a predetermined angle of attack of the carrier assembly; and
- d) rotatably contacting the workpiece with a rotating polishing pad to effect a polishing action across the workpiece.

5,738,569

THREADED GRINDING WHEEL, AND METHOD OF DRESSING

Roman Mackowsky, East Brunswick, N.J., assignor to The Gleason Works, Rochester, N.Y.

Division of Ser. No. 214,885, Mar. 16, 1994, Pat. No. 5,573,449. This application Jul. 30, 1996, Ser. No. 688,341
Int. Cl.^{6} B24B *53/06*
U.S. Cl. 451—56 **19 Claims**



1. A method of dressing a threaded grinding wheel, said grinding wheel comprising an axis of rotation, a width extending in the direction of said axis of rotation, and at least one ribbed grinding surface having two flank surfaces, a top surface and a root portion with said ribbed grinding surface being generally helically arranged about said grinding wheel and extending along said width, said method comprising:

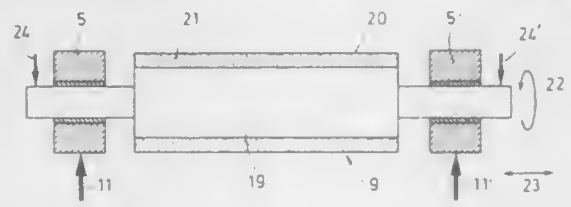
- assigning a plurality of axial sections along the width of said grinding wheel,
- rotating said grinding wheel about said axis of rotation,
- contacting a point on one flank of said at least one grinding rib with a rotating dressing tool,
- traversing said dressing tool through said axial sections along the width of said grinding wheel, said dressing tool maintaining contact with said point during said traversing to remove stock material at said point on said flank along the width of the grinding wheel,
- controlling the amount of stock material removed during said traversing at said point in each of said axial sections whereby different amounts of stock may be removed in each of said axial sections at said point.

5,738,570

ARRANGEMENT FOR MACHINING ROLLS DURING THE ROLLING OPERATION

Dieter Rosenthal, Niederfischbach, and Günter Kneppe, Hilchenbach, both of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany

Filed Mar. 17, 1995, Ser. No. 406,031
Claims priority, application Germany, Mar. 18, 1994, 44 09 300.4
Int. Cl.^{6} B24B *7/00*
U.S. Cl. 451—119 **9 Claims**



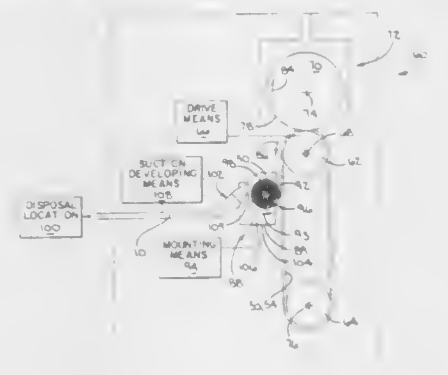
1. An arrangement for grinding contours of rolls during a rolling operation, wherein the rolls are an adjustable grinding roller for each roll to be subjected to grinding, the adjustable roller having bearings, the adjustable roller being mounted through the bearings in the chocks of the roll, the roller comprising an abrasive, wherein the roller is adjustable through the bearings relative to the roll, and wherein the roller has a sleeve of elastic construction, and wherein the abrasive is incorporated into the sleeve.

5,738,571

APPARATUS AND METHOD FOR FORMING RIBS ON A BELT/BELT SLEEVE

Koji Kitahama, Hyogo; Yuji Okiyoshi, Komaki; Masahiko Kawashima, Hyogo; Shinji Aono, and Osamu Miyajima, both of Komaki, all of Japan, assignors to Mitsuboshi Belting Ltd., Kobe, Japan

Continuation of Ser. No. 302,124, Sep. 7, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 746,584
Claims priority, application Japan, Sep. 9, 1993, 5-249777
Int. Cl.^{6} B24B *19/11*
U.S. Cl. 451—188 **21 Claims**



1. An apparatus for forming at least one of a rib and groove on one surface of an endless power transmission belt element having at least one of a rib and a groove on another surface, said apparatus comprising:

- first and second spaced supports rotatable around first and second substantially parallel axes on which an endless power transmission belt element can be mounted for movement

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around both the first and second supports in an endless path, at least one of said first and second spaced supports being selectively movable relative to the other of the first and second spaced supports for providing a selected tension on an endless power transmission belt element mounted for movement around both supports;

first means on the first support for reinforcing an endless power transmission belt element mounted on the first and second supports against movement and deformation of an endless power transmission belt element relative to the first support transversely to the endless path as an endless power transmission belt element moves in the endless path;

second means on the second support for reinforcing an endless power transmission belt element mounted on the first and second supports against movement and deformation of an endless power transmission belt element relative to the second support transversely to the endless path as an endless power transmission belt element moves in the endless path; and

means for forming at least one of the one rib and groove on a surface of an endless power transmission belt element as an endless power transmission belt element mounted on and extending continuously around the spaced first and second supports moves in the endless path, at least one of the first and second means comprising means for selectively shifting the endless path parallel to the first and second axes on at least one of the first and second supports.

5,738,572
GRINDING MACHINE

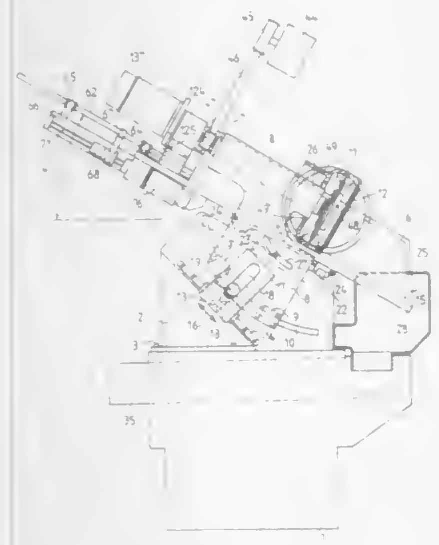
Karl-Heinz Giebmanns, 10 Cedardale Ct., Palm Coast, Fla. 32137

Filed Apr. 19, 1996, Ser. No. 634,799

Claims priority, application Germany, Apr. 19, 1995, 195 14 390.6

Int. Cl.⁶ B24B *3/00*

U.S. Cl. 451—221 **12 Claims**



1. A grinding machine comprising:

a machine frame having a horizontal support surface;

a grinding spindle support positioned on said horizontal support surface of said machine frame;

at least one grinding spindle having an axis arranged downwardly slanted relative to said horizontal support surface at said grinding spindle support,

a grinding wheel connected to said grinding spindle;

a workpiece holder connected to said machine frame so as to extend parallel to the axis of said grinding spindle,

said workpiece holder displaceable in the axial direction of said grinding spindle and perpendicular to the axial direction of said grinding spindle;

a housing positioned at a slant parallel to the axis of said grinding spindle and enclosing said workpiece holder and said grinding wheel;

said housing having an outlet opening for a cooling liquid at a lowermost point of said housing;

drive means, for effecting a linear movement of said workpiece holder and a rotational movement of said grinding wheel and the workpiece, positioned exterior to said housing.

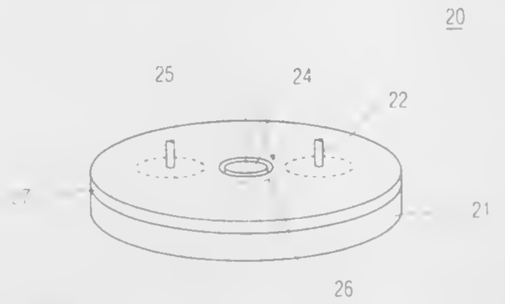
5,738,573
SEMICONDUCTOR WAFER POLISHING APPARATUS

William Yueh, P.O. Box 5874, Fullerton, Calif. 92838

Filed Jan. 29, 1997, Ser. No. 789,840

Int. Cl.⁶ B24B *7/22*

U.S. Cl. 451—287 **7 Claims**



1. Apparatus for polishing semiconductor wafers, said apparatus including a platen, said platen comprising an annular-shaped, planar member and means for rotating said platen in a plane of movement about a first axis normal to said plane of movement, said platen having a polishing pad mounted on a top surface thereof said apparatus also including a center core about which said annular member rotates, said center core having a central axis coincident with said first axis and being non-rotating

5,738,574
CONTINUOUS PROCESSING SYSTEM FOR CHEMICAL MECHANICAL POLISHING

Robert D. Tolles, Santa Clara; Norm Shendon, San Carlos; Sasson Somekh, Los Altos Hills; Ilya Perlov; Eugene Gantvarg, both of Santa Clara, and Harry Q. Lee, Mountain View, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Oct. 27, 1995, Ser. No. 549,336

Int. Cl.⁶ B24B *5/00*

U.S. Cl. 451—288 **41 Claims**

17. A serial polishing process, comprising the steps of

mounting a plurality of substrates on respective ones of a plurality of substrate heads, said substrates heads being supported at respective angular positions on a rotatable carousel.

mounting a plurality of polishing surfaces on respective rotatable members supported on a support structure;

rotating said carousel in a number of discrete angular steps to sequentially position each of said substrates adjacent to at least two of said polishing surfaces,

providing relative motion between at least one of said substrates and one of said polishing surfaces to polish a surface of said one substrate

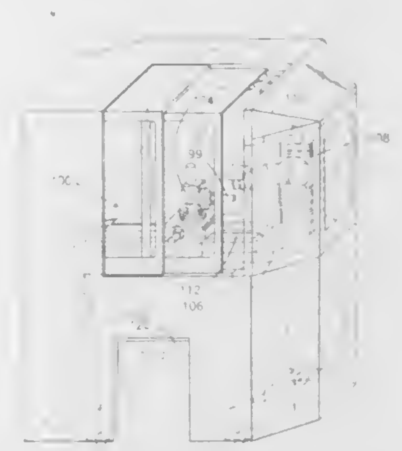
5,738,575
ORBITALLY VIBRATING METHOD AND APPARATUS FOR INTERPROXIMAL PLAQUE REMOVAL

Robert T. Bock, R.D. 6 Drovers La., Brewster, N.Y. 10509

Filed Aug. 30, 1996, Ser. No. 705,766

Int. Cl.⁶ A61C *15/00*

U.S. Cl. 433—216 **7 Claims**



1. A dental device for removing plaque from interproximal areas of the dental anatomy and from periodontal pockets, comprising

A. a rigid elongated member having a handle portion and a bristle portion, said dental device having a central axis extending through said handle portion and said bristle portion;

B. means located within said handle portion for creating orbital vibration of said dental device about said central axis,

C. said bristle portion adapted for insertion into said interproximal areas between adjacent teeth and for insertion into said periodontal pockets having one or more bristle tufts, said bristle tufts comprising of bristles having diameters in a range between 0.03 mm and 0.40 mm, the longitudinal axis of said bristles oriented substantially in line with said central axis of said dental device;

D. said tuft of bristles activated by said orbital vibration imparting frictional forces to remove plaque through contact of said bristles with said plaque on surfaces of said teeth in said interproximal areas between said teeth and surfaces of said teeth and said gum in periodontal pockets

5,738,576
LAPPING TAPE WITH ABRASIVE LIQUID FOR FORMING A CONVEX TIP ON A WORKPIECE

Kenichi Ohno; Torahiko Kanda, and Masashige Mitsuhashi, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

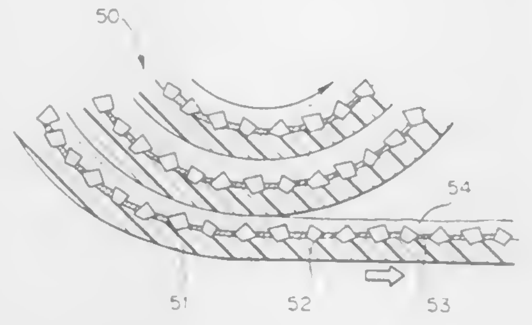
Division of Ser. No. 684,615, Jul. 22, 1996. This application Jan. 28, 1997, Ser. No. 789,136

Claims priority, application Japan, Jul. 21, 1995, 7-207646; Mar. 29, 1996, 8-075779; Apr. 10, 1996, 8-088026

Int. Cl.⁶ B24D *11/00*

U.S. Cl. 451—539 **5 Claims**

1. A wound lapping tape for forming a convex tip on an end of a workpiece, comprising



a thin base in a form of a webbing;

abrasive grain affixed to a front of said base by a binder; and

an abrasive liquid deposited in a layer on the front of said base to which said abrasive grain is affixed,

wherein the lapping tape has said abrasive liquid deposited thereon before the lapping tape is wound

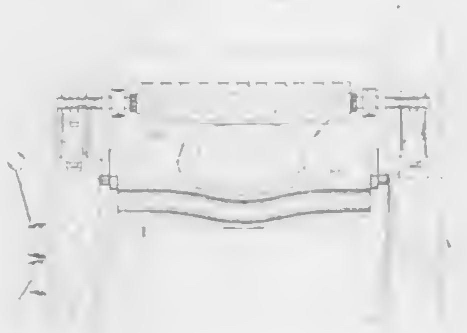
5,738,577
AUTOMATIC BUTT SKINNING MACHINE

John W. Long, Omaha, Nebr., assignor to MAJA-Maschinenfabrik Hermen Schill GmbH, Tullastrasse, Germany

Filed Jul. 7, 1995, Ser. No. 499,665

Int. Cl.⁶ A23B *5/16*

U.S. Cl. 452—127 **11 Claims**



1. An upper conveyor and trimming means assembly kit for installation on an automatic trimmer wherein a layer of material conforming with the shape of a trimming means blade is trimmed from a meat product, the automatic trimmer including a base frame, a lower conveyer extending forwardly of the trimming means, for transporting the meat product, in cooperation with an upper conveyer, into trimming engagement with the trimming means, drive means for driving the upper and lower conveyors, and a discharge means for discharging the trimmed meat product, the upper conveyor and trimming means assembly kit comprising

an upper conveyor frame for mounting and supporting the upper conveyor,

means for mounting said upper conveyor frame on said automatic trimmer base frame in a vertically spaced relation above a lower conveyer,

first and second shafts mounted adjacent each end of said upper conveyor frame, said first shaft being engagable with and rotatable by a drive means,

an upper conveyor means mounted between and engaged with said first and second shafts on said upper conveyor frame such that rotation of said first shaft by said drive means causes circulation of said conveyor means;

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trimming means mounted on said base frame for trimming unwanted material from the meat product, the trimming means having, a flexible blade;
a base plate having a base curved surface of a size and shape for removably receiving said blade;
a clamping plate adapted to be removably secured to said base plate and having a clamping curved surface substantially conforming to said base curved surface,
means for removably securing said clamping plate to said base plate thereby to removably secure the blade between said base and clamping plates and to bend said blade to conform to said base and clamping curved surfaces; and
means for mounting said trimming means on the automatic skinning machine base frame wherein cooperative movement of said upper and lower conveyor means and said feed means is operative to transport said meat product into trimming engagement with said trimming means such that a portion of material conforming to the curve of said trimming means is trimmed therefrom

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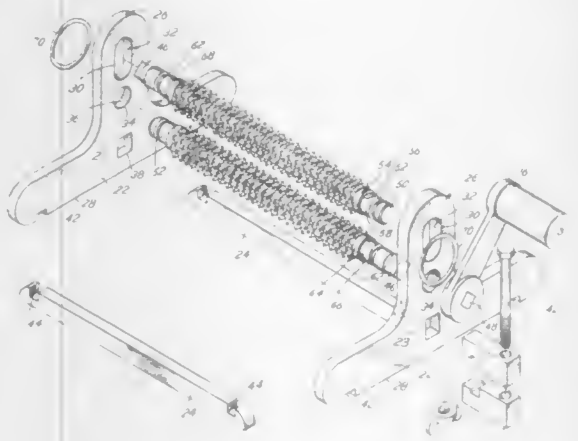
5,738,578
MODULAR FOOD PROCESSING ASSEMBLY

Jerry J. Marchese, Oakbrook, Ill., assignor to Mister Tenderizer, Inc., Chicago, Ill.

Continuation of Ser. No. 591,110, Jan. 25, 1996, abandoned, which is a continuation of Ser. No. 235,683, Apr. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 143,918, Oct. 27, 1993. This application Oct. 9, 1996, Ser. No. 728,335

Int. Cl.^{6} A22C *9/00*

U.S. Cl. 452—142 **6 Claims**



1. A modular food processing assembly including means for switching the assembly for use in at least two configurations, the first configuration being belt driven and the second configuration being gear driven, comprising, in combination: a vertically oriented rigid support frame including opposed support plates, each support plate having a vertically extended slot defining an extended internal shoulder in the end plate, and further having a generally circular opening defining a second internal shoulder in the end plate vertically spaced from the extended internal shoulder; at least two elongated horizontally oriented generally cylindrical rollers being rotatably and releasably supported by the plates proximate the ends of the rollers, the rollers further being oriented generally parallel to each other; a hand crank frictionally and removably connected to an end of one of the rollers for translating rotation of the crank into rotation of the rollers; the rollers being connected proximate the ends of the rollers in the first configuration by unified translation and compression means, and in the second configuration by engaged gears, said switching means comprising bearing surfaces on the rollers in both configurations proximate the ends of the rollers, the bearing surfaces having a diameter smaller than the extended slot in the support plate, the roller in the extended slot being movable while it is seated therein in the vertical direction relative to the roller in the circular opening.

5,738,579
HEATING VENTILATING AND/OR AIR CONDITIONING APPARATUS, ESPECIALLY FOR MOTOR VEHICLES

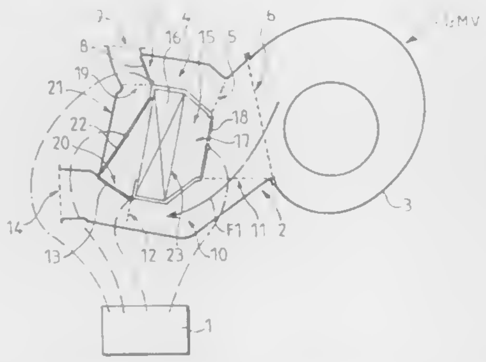
Didier Pommier, Maintenon, and Gilles Elliot, Courcouronnes, both of France, assignors to Valeo Climatisation, La Verriere, France

Filed Dec. 19, 1996, Ser. No. 771,396

Claims priority, application France, Dec. 22, 1995, 95 15427

Int. Cl.^{6} B60H *1/06*

U.S. Cl. 454—160 **11 Claims**



1. Apparatus for a motor vehicle having a cabin, for heating and ventilating the cabin, and including: a motorised fan unit having a delivery side; a heating and air distribution unit having an open inlet connected to the delivery side of the motorised fan unit; and a heat exchanger contained in the heating and air distribution unit, said unit comprising a casing defining a feet outlet for delivering air towards a lower region of the cabin, and a ventilation outlet for delivering air into the cabin, said unit further including a first valve upstream of the feet outlet of the casing for controlling access of air to said feet outlet, and a second valve upstream of the ventilation outlet of the casing for controlling access of air to said ventilation outlet, wherein said casing defines within it three ducts, namely a first duct, a second duct, and a third duct having a central region, the heat exchanger being mounted in said central region of the third duct, the first duct defining an upstream end thereof open at said inlet of the casing, and a downstream end communicating with said feet outlet of the casing, said first valve being mounted in the downstream end of the first duct, the second duct having an upstream end open at the inlet of the casing and a downstream end communicating with the ventilation outlet of the casing, said second valve being mounted in the downstream end of the second duct, the third duct having an upstream end upstream of the heat exchanger and a third valve in said upstream end, said upstream end of the third duct being arranged for selective communication with the inlet of the casing under the control of the said third valve, the third duct further defining, downstream of the heat exchanger, a feet outlet of the third duct and a ventilation outlet of the third duct, adjacent to the feet outlet and ventilation outlet respectively of the casing, whereby to communicate selectively, under the control of the said first and second valves respectively, with the feet outlet and ventilation outlet respectively of the casing, the apparatus further including control means connected with the said valves for putting the valves into selected positions, further including a fourth valve connected with said control means and disposed between the heat exchanger and said downstream ends of the third duct, whereby to adjust, in response to command signals form the control means, the proportion of hot air emitted by the heat exchanger to be distributed between said outlets of the third duct.

5,738,580
AIR BLOWING DIRECTION ADJUSTING APPARATUS FOR AN AIR CONDITIONER

Chul-Ho Back, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Feb. 18, 1997, Ser. No. 800,559

Claims priority, application Rep. of Korea, Mar. 21, 1996, U 96-5546; Mar. 21, 1996, P 96-7776; Dec. 3, 1996, P 96-61290

Int. Cl.^{6} F24F *7/00*

U.S. Cl. 454—285 **5 Claims**

1. An air blowing direction adjusting apparatus for an air conditioner having a discharge outlet, and a plurality of blades installed in the discharge outlet for changing the discharging direction of the air, the apparatus comprising:
guide pins installed in a first cam and a second cam, respectively, wherein each cam receives driving force generated from single driving means to be driven; and
first and second groups of blades divided into two groups for changing rotational positions of the blades independently for said each group or simultaneously for said two groups, in response to the actions of the guide pins.

5,738,581
ROOF VENTILATION ELEMENT

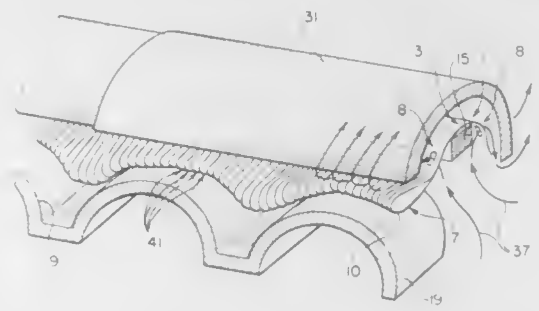
Hubert Rickert, Nagold, Germany, and Fritz Gödl, Ennetbürgen, Switzerland, assignors to Norm A.M.C. AG, Erstfeld, Switzerland

Filed Jan. 24, 1997, Ser. No. 788,662

Claims priority, application Germany, Jan. 27, 1996, 196 02 979.1; European Pat. Off., May 28, 1996, 96108425

Int. Cl.^{6} F24F *7/02*

U.S. Cl. 454—365 **13 Claims**



10. Process for producing a roof ventilation element having a vent cap for mounting in a ridge, slope, or arris region of a roof and at least one elastically flexible sealing member which adjoins the vent cap edge areas and which has a hollow body that is closed in a free end area thereof which is remote from the vent cap and in an area thereof which is adjacent to the vent cap, comprising the steps.
extruding the vent cap and a flat base material for the sealing member;
joining the flat base material of the sealing member to an edge area of the vent cap, and
forming a hollow body from the flat base material of the sealing member by folding the flat base material and joining a free side of the base material to one of the edge area of the vent cap and an area of the base material which adjoins the edge area of the vent cap

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5,738,582

Patent Not Issued For This Number

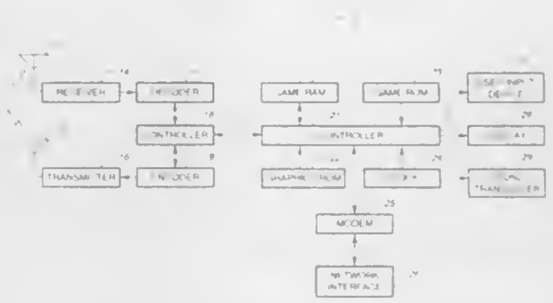
5,738,583
INTERACTIVE WIRELESS GAMING SYSTEM

Nelson R. Comas, Coral Springs, Fla.; Alan Gil, Grapevine, Tex., and Christopher L. McCarley, Boca Raton, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 2, 1996, Ser. No. 594,602

Int. Cl.^{6} A63F *9/22*

U.S. Cl. 463—40 **14 Claims**



1. An interactive wireless gaming system comprising.
a plurality of wireless gaming units operating alternately as a host device and a guest device, wherein said gaming units further comprise:
a receiver for receiving wireless messages including gaming information generated by said gaming units, the gaming information comprising data signals which are periodically updated, the data signals indicating a present position of a plurality of moveable objects moving periodically as the data signals are updated,
a display for displaying the gaming information received in a form of graphic characterizations depicting moveable objects,
a processor for providing updated gaming information at the gaming units, said processor comprising
a memory for storing the data signals,
a decoder coupled to said receiver for generating control signals in response to the gaming information,
a clock coupled to said decoder,
a controller coupled to said decoder, said display, and said memory and responsive to the control signals for effecting a sequential storage of the data signals, and further for effecting a recall for display of a last of the data signals stored in said memory, and
a network interface coupled between said controller and said game server, and
a transmitter for transmitting wireless responses to provide the updated gaming information.

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5,738,584
KIT FOR DEVELOPING ATTRACTIONS IN A SHOOTING GAME SYSTEM

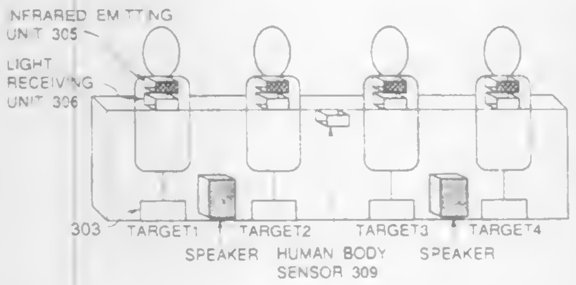
Shinichi Ikematsu; Hiroshi Kawakami; Satoshi Nakano; Tatsuya Kouno; Keisuke Hiromi, and Masakazu Yoshimoto, all of Ohta-Ku, Japan, assignors to Sega Enterprises, Ltd., Tokyo, Japan

Division of Ser. No. 418,029, Apr. 6, 1995, Pat. No. 5,613,913. This application Jul. 23, 1996, Ser. No. 681,514

Claims priority, application Japan, Apr. 6, 1994, 6-90761

Int. Cl.^{6} A63F *9/22*

U.S. Cl. 463—52 **5 Claims**



1. A shooting game kit comprising:

targets formed by combining fundamental mechanisms;

control equipment which controls said targets;

target unit cases; and

means for embedding said targets and control equipment in respective ones of said target unit cases, wherein said target unit cases are adapted to serve as at least one of partitions and posts when located at respective desired positions.

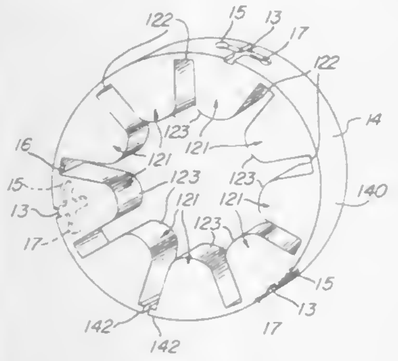
5,738,585
COMPACT FLEXIBLE COUPLINGS WITH INSIDE DIAMETER BELT SUPPORT AND LOCK-ON FEATURES

Raymond Earl Hoyt, III, 26602 Via Gaviota, Mission Viejo, Calif. 92691; Jerry L. Hauck, 504 Huval St., Broussard, La. 70518, and Tom Artunian, 16291 Sundance La., Huntington Beach, Calif. 92649

Continuation of Ser. No. 340,528, Nov. 16, 1994, abandoned, which is a continuation-in-part of Ser. No. 321,518, Oct. 12, 1994, abandoned. This application Aug. 8, 1996, Ser. No. 695,675

Int. Cl.^{6} F16D *3/54*

U.S. Cl. 464—88 **30 Claims**



1. Flexible coupling apparatus comprising

a split, flexible belt having a plurality of projections thereon, each projection having first and second sides and terminating in a rounded end,

a pair of hubs, each having a plurality of receptacle means, each receptacle means for receiving a respective corresponding one of said plurality of projections, each receptacle means conforming generally to the shape of its corresponding projection and having a rounded floor portion lying adjacent the corresponding rounded end, each said hub further having a central axis and a central bore formed about said axis for receiving a mounting shaft;

an endless metal retainer band means for holding said belt in place about said pair of hubs; and

wherein each said rounded floor portion has a flat inner wall at an inner end thereof, each flat inner wall lying in a first plane and each rounded floor portion further being bounded at an outer end thereof by a second plane parallel to said first plane, said first plane intersecting and lying perpendicular to said bore, said second plane defining the end of said bore

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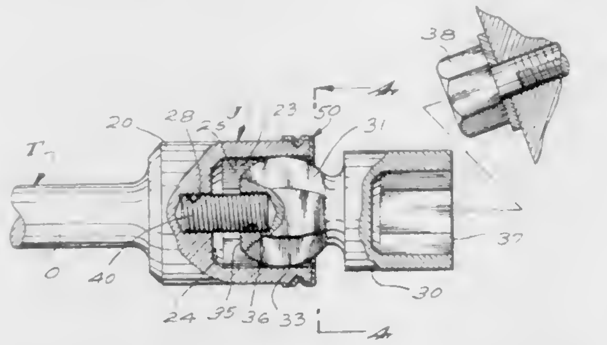
5,738,586
SEMI-UNIVERSAL TORQUE COUPLING

Jorge Arriaga, Ontario, Calif., assignor to Consolidated Devices Inc., City of Industry, Calif.

Filed Sep. 9, 1994, Ser. No. 303,687

Int. Cl.^{6} F16D *3/00*

U.S. Cl. 464—106 **7 Claims**



1. A semi-universal torque coupling comprising an elongate axially rotatable female part with front and rear ends and a forwardly opening elongate polygonal socket opening entering its front end, the socket opening has a plurality of circumferentially spaced radially inwardly disposed longitudinally extending flats and a forwardly disposed bottom at its rear end; an elongate axially rotatable male part with inner and outer end portions and normally axially aligned with and extending forwardly from the female part, the inner end portion of the male part is a semi-spherical polygonal ball corresponding in cross-section with and slidable engaged in the socket opening in the female part in rotary driving and axial pivotal engagement therewith; and, an elongate coupling spring positioned centrally within the socket opening and normally concentric with the male and female parts, the spring being helically wound with closed convolutions so as to be axially non-compressible, axially yielding extendable and laterally yielding deflectable, the spring has a rear end fixedly connected with the female part at the bottom of the socket opening and a front end fixedly connected with the ball, the spring yieldingly maintains the female and male parts in axial alignment and in predetermined axial position relative to each other

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5,738,587
MACHINE FOR PRODUCING OPTICAL ILLUSIONS

Frank Dykstra, 231 Cherokee Dr., Apt. 15, Beaver Dam, Wis. 53916

Filed Aug. 12, 1996, Ser. No. 695,935

Int. Cl.^{6} A63G *31/00*

U.S. Cl. 472—61 **6 Claims**

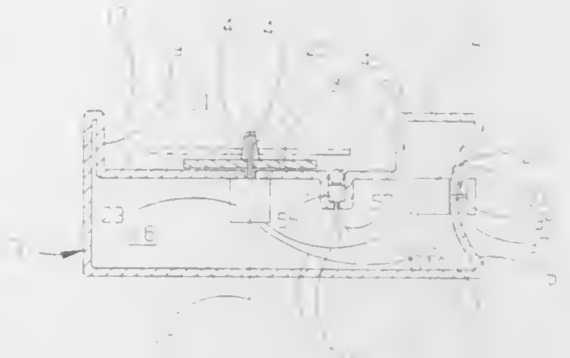
1. A machine for producing optical illusions comprising:

a. a housing comprising:

  i. a first end wall,

  ii. opposed side walls,

  iii. a second end wall having a semi-circular shape that defines a longitudinal centerline, and



  iv. top and bottom walls parallel to each other and connecting the first and second end walls and the side walls, the housing top wall having a recess partially defined by an intermediate wall parallel to the top and bottom walls, the housing recess being circular in shape and having a centerline that is concentric with the longitudinal centerline of the housing second end wall;

b. a variable speed motor secured to the housing, the motor having a shaft, the motor shaft having a centerline that is concentric with the longitudinal centerline of the housing second end wall;

c. a turntable connected to the motor shaft the turntable having a periphery and located within the housing recess; and

d. means for rotating the motor and turntable at a selected speed,

so that an illusionary disk placed on the turntable and rotated therewith at the selected speed produces an optical illusion.

5,738,588
PLAYING FIELD BOUNDARY

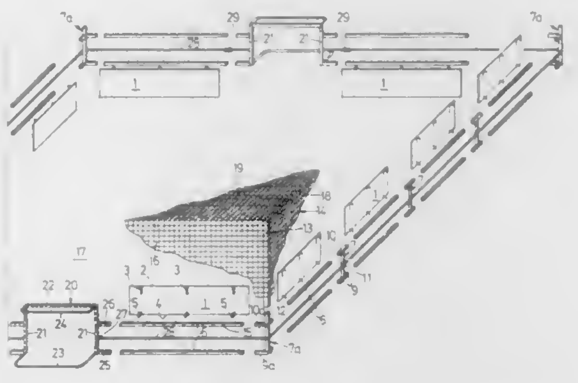
Ralf Esser, Hennef, Germany, assignor to Erhard Sport International GmbH & Co., Ruthenberg o.d. Tauber, Germany

Filed Oct. 18, 1996, Ser. No. 730,898

Claims priority, application Germany, Oct. 21, 1995, 195 39 280.9

Int. Cl.^{6} A63G *33/00*

U.S. Cl. 472—92 **13 Claims**



1. A playing field boundary for ball games comprising:

a peripheral, vertical band including a plurality of band elements (1) indirectly or directly connectable to one another form-fittingly and

a peripheral, tensible belt arrangement (28) encompassing the band elements (1):

wherein the band elements (1) are connected form-fittingly to one another by connecting elements (7, 7*a*);

wherein belt-guiding loops (11) are disposed on an outwardly-facing side of the connecting elements (7, 7*a*).

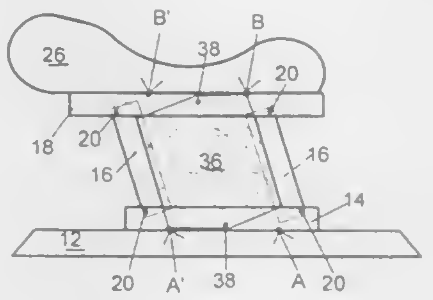
5,738,589
RIDING TOY

Thomas A. Hall, 17300 SW. Rider La., Beaverton, Oreg. 97007

Filed Jul. 15, 1996, Ser. No. 680,185

Int. Cl.^{6} A63G *13/08*; A63H *33/00*; A63B *21/04*

U.S. Cl. 472—103 **9 Claims**



1. A riding toy comprising:

a base having a longitudinal extension, a transverse extension, a lower surface and an upper surface;

a pair of beam-like braces fixedly attached to said upper surface in a mutually parallel relationship along said longitudinal extension, and extending in a transverse dimension of said braces vertically upward from said base;

at least two pairs of struts extending upwardly and being rotatably attached in a mutually parallel relationship having mutually facing sides to respective forward and rearward positions along said longitudinal extension to said pair of braces, the members of each said pair of struts being mutually parallel, and one each of each of said pairs of struts being attached at proximal ends thereof to one each of said pair of braces;

a platform having a top surface and downwardly-extending, longitudinally extending and mutually parallel sides rotatably attached near forward and rearward ends thereof to distal ends of said at least two pairs of struts, one each of said mutually parallel sides being so attached to one each of said members of each said at least two pairs of struts;

a riding structure having a longitudinal extension and a transverse extension and being fixedly mounted in a longitudinal disposition along said top surface of said platform;

at least one spring rotatably attached in a nearly horizontal disposition between said corresponding mutually facing sides of at least one member of each of said at least two pairs of struts; and

a pair of planar safety shields each having an elongate, nearly vertical extension and an extension transverse to said nearly vertical extension, each of said safety shields being rotatably attached at an upper end thereof to respective ones of said downwardly-extending sides of said platform, and being rotatably attached at lower ends thereof to a corresponding one of said braces, in each case at a longitudinal disposition between said forward and rearward positions, said nearly vertical extension and said extension transverse thereto being of sufficient dimension to cover over respective regions between each of said at least two pairs of struts.

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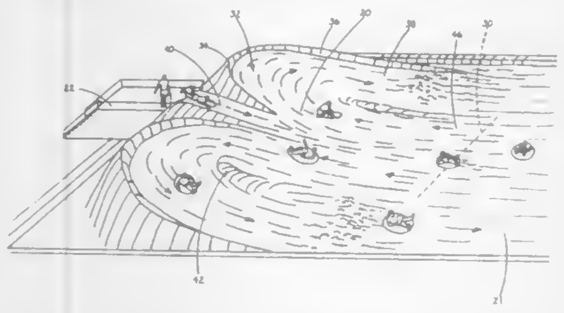
5,738,590
METHOD AND APPARATUS FOR A SHEET FLOW WATER RIDE IN A SINGLE CONTAINER

Thomas J. Lochtefeld, 5508 Pacifica Dr., La Jolla, Calif. 92037-7251

Continuation of Ser. No. 295,701, Nov. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 846,204, Mar. 4, 1992, Pat. No. 5,271,692, which is a continuation-in-part of Ser. No. 722,890, Jun. 28, 1991, Pat. No. 5,229,465, which is a continuation-in-part of Ser. No. 577,741, Sep. 4, 1990, Pat. No. 5,236,280, which is a continuation-in-part of Ser. No. 286,964, Dec. 19, 1988, Pat. No. 4,954,014, which is a continuation-in-part of Ser. No. 54,521, May 27, 1987, Pat. No. 4,792,260. This application Sep. 18, 1996, Ser. No. 715,136

Int. Cl.^{6} A63G *21/18*

U.S. Cl. 472—117 22 Claims



1. A water ride for water parks and amusement parks suitable for use in or near an adjacent body of water, comprising:

a ride surface adapted to be installed in or near said adjacent body of water;

at least one water jet sized and configured so as to be placed in fluid communication with said adjacent body of water for providing a continuous sheet flow of super-critical water on said ride surface, said sheet flow of water permitting a rider to perform water skimming maneuvers thereon; and

said ride surface comprising, relative to said sheet flow of water, a declined upstream portion and an inclined downstream portion, said ride surface forming an embanked turn whereby water from said adjacent body of water is propelled onto said ride surface and then transitions around said embanked mm and is returned downward reentering said adjacent body of water.

5,738,591
QUEUING SYSTEM

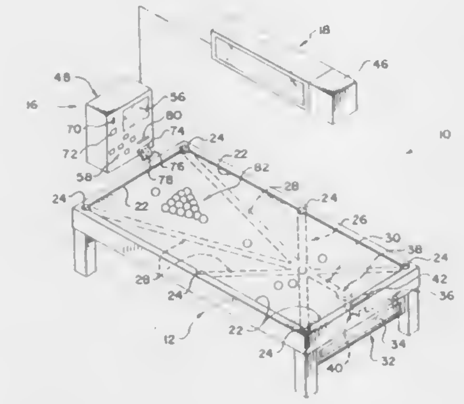
David R. Opsal, 48 Athabaska Crescent, Saskatoon, Saskatchewan, Canada, S7K 1G8

PCT No. PCT/CA93/00191, § 371 Date Jan. 16, 1996, § 102(e) Date Jan. 16, 1996, PCT Pub. No. WO94/25126, PCT Pub. Date Nov. 10, 1994

PCT Filed May 4, 1993, Ser. No. 545,609

Int. Cl.^{6} A63D *15/00;15/20*

U.S. Cl. 473—4 11 Claims



1. A queuing system for a game apparatus having a game ending condition, comprising:

game end sensor means for generating a game end signal in response to detection of the game ending condition;

data entry and recording means for:

- receiving player identification data identifying each of a plurality of players;
- recording the player identification data in a sequence.
- recording a player identifier upon recording each player identification datum;

means for recording each identifier on a record medium;

record medium delivery means for delivering the record medium from the system;

display means for displaying a single player identification datum; and player identification data indexing means operatively connected to the data entry and recording means, the display means and the game end sensor means for causing the display means display the next player identification datum in said sequence in response to a game end signal; and

identifier record medium reader means for reading the record media and determining whether the identifier carried thereby corresponds to a player identification datum displayed by the display means and game apparatus enabling and disabling means for normally disabling the game apparatus and responsive to a determination by the identifier record medium reader means that the identifier carried by a record medium corresponds to the display player identification datum for enabling the game apparatus.

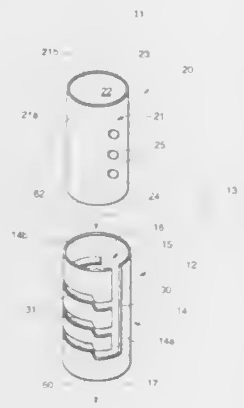
5,738,592
INTERCHANGEABLE AND ROTATABLE FINGER INSERT FOR A BOWLING BALL

James P. Saunders, 17 Carraige Run, Lincoln University, Pa. 19352

Filed Jan. 22, 1997, Ser. No. 786,272

Int. Cl.^{6} A63B *37/00*

U.S. Cl. 473—130 18 Claims



1. A finger insert for a bowling ball comprising:

an outer sleeve fixedly insertable in a socket within said bowling ball, said outer sleeve comprising a top, a bottom, a wall having an inner wall surface, an outer wall surface, a longitudinal channel grooved in the inner wall surface of the outer sleeve wall, extending from the top towards the bottom of the outer sleeve, and at least one lateral channel grooved in the inner wall surface of the outer sleeve wall, extending from the longitudinal channel for a predetermined distance; and

an inner sleeve rotatably and removably mounted in said outer sleeve, said inner sleeve comprising a top, a bottom, a wall having an interior sized to contain a bowler's finger, and an outer wall surface having at least one tip extending therefrom and adapted to slidably ride within the longitudinal and lateral channels on the inner wall surface of the outer sleeve

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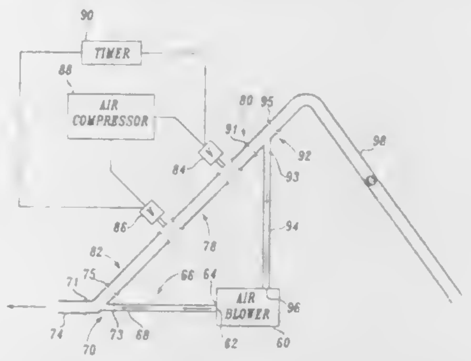
5,738,593
APPARATUS AND METHOD FOR INTRODUCING GOLF BALLS TO AN AIR DRIVEN TRANSPORTATION SYSTEM

Michael P. Coury, Gig Harbor, and Philip S. Coury, Tacoma, both of Wash., assignors to Airball Enterprises L.L.C., Gig Harbor, Wash.

Filed Jan. 21, 1997, Ser. No. 785,879

Int. Cl.^{6} A63B *69/36*

U.S. Cl. 473—135 16 Claims



1. An apparatus for delivering golf balls to a transportation conduit at a first location, the transportation conduit transporting the balls from the first location to a second location remote from the first location using a stream of air flowing through the transportation conduit, the apparatus comprising:

a delivery conduit for receiving balls and delivering the balls to the transportation conduit via a stream of air flowing in the delivery conduit;

a feed conduit having an entrance end an exit end, the feed conduit intermediate the entrance end and the exit end including a first valve and a second valve spaced from the first valve, a staging section defined between the first valve and the second valve, the staging section being open to the to the entrance end when the first valve is open such that balls may pass through from the entrance end into the staging section, the staging section being open to the exit end when the second valve is open such that balls may pass from the staging section through the exit end, the first valve when closed separating the entrance end from the staging section such that balls cannot pass through the entrance end into the staging section, the second valve when closed separating the staging section from the exit end such that balls cannot pass from the staging section through the exit end, the exit end of the feed conduit connected to the delivery conduit; and

a valve control system for maintaining the first valve open a period of time sufficient to permit more than one ball to collect in the staging section while the second valve is closed.

5,738,594
GOLF GAME

Dale Kinney, 575 ET Richardson Rd., Nakina, N.C. 28455

Filed Jan. 21, 1996, Ser. No. 735,803

Int. Cl.^{6} A63B *67/02*

U.S. Cl. 473—171 1 Claim

1. A golf game apparatus including a mat for use with a club and a ball, a boundary line marked on a top surface of the mat dividing the top surface into a first scoring zone and a second scoring zone, each of the first and second scoring zones having a plurality of rows and columns of scoring areas therein, the rows being parallel to the boundary line and the columns being perpendicular to the boundary line, each of the scoring areas having a scoring number therein, wherein each of the scoring numbers in the first scoring zone appears upright when viewed from a position across the boundary line from the first scoring zone, and each of the scoring numbers in the second scoring zone appears upright when viewed from a position across the boundary line from the second scoring zone, and wherein in each column, the scoring number in the scoring area furthest from the boundary line is lower than the scoring number in the scoring area closest to the boundary line, and wherein in each row, the scoring number in the scoring area most central with respect to the mat is lower than the scoring numbers least central with respect to the mat

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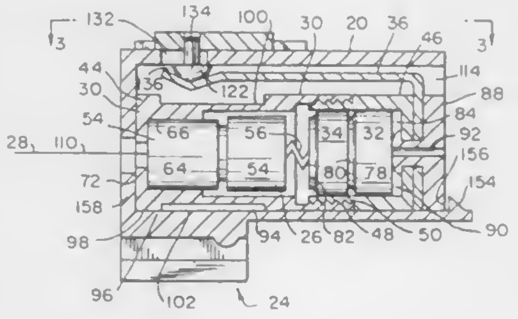
5,738,595
LASER AIMING DEVICE

William P. Carney, 4 High Ridge La., Oyster Bay, N.Y. 11771

Continuation-in-part of Ser. No. 572,867, Dec. 14, 1995, which is a continuation-in-part of Ser. No. 543,442, Oct. 16, 1995, Pat. No. 5,611,739. This application Apr. 1, 1996, Ser. No. 625,237

Int. Cl.^{6} A63B *69/36;* **G01C** *5/00;* **A63D** *15/08;* **F21K** *7/00*

U.S. Cl. 473—209 15 Claims



1. A laser aiming device projecting an alignment beam, said laser device comprising, a hand held laser pointer including a laser module emitting a laser beam, a casing, a power source, and a normally open switch having an on position and an off position controlling said laser module, such that a sustained force is required to maintain said switch in an on position; an adapter on which said laser pointer is removably affixed; means for maintaining said laser pointer in said on position on said adapter; and means for affixing said adapter on selected apparatus such that when said laser pointer is installed on said adapter, said laser beam emitted therefrom is projected in a predetermined relation with respect to said selected apparatus

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5,738,596
IRON-TYPE GOLF CLUBHEAD

Dean E. Meyer, LaGrange Park, Ill., assignor to Prince Sports Group, Inc., Bordentown, N.J.

Filed Feb. 12, 1996, Ser. No. 599,886

Int. Cl.^{6} A63B *53/04*

U.S. Cl. 473—350 24 Claims

1. An iron-type golf clubhead, comprising a blade, having a heel end and a toe, and a planar blade face extending from the heel end towards the toe for striking a ball; a hosel for securing the clubhead to a shaft; and a junction extending from the heel end of the blade face initially in a generally toe-to-heel direction and connecting the blade to the hosel; wherein the blade includes a rearwardly facing blade cavity, extending generally in a heel-to-toe direction, defined

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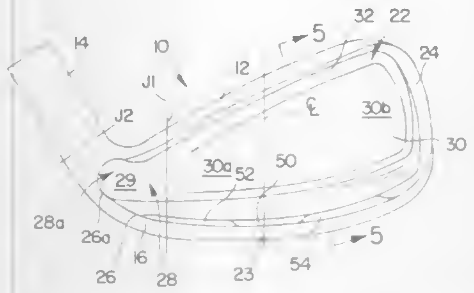


by a blade cavity perimeter wall; and wherein the junction includes a rearwardly facing junction cavity that is coextensive with said blade cavity and is defined by a junction cavity perimeter wall which is a continuation of the blade cavity perimeter wall.

5,738,597

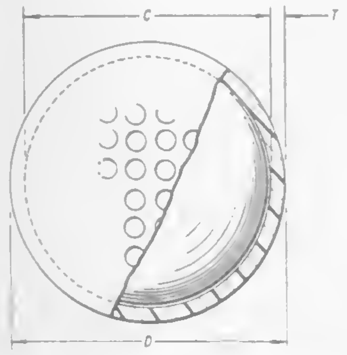
GOLF BALL

Michael J. Sullivan, Chicopee; Dennis Nesbitt, Westfield, and Mark Binette, Ludlow, all of Mass., assignors to Lisco, Inc., Tampa, Fla.

Continuation-in-part of Ser. No. 530,851, Sep. 20, 1995, which is a division of Ser. No. 171,956, Dec. 22, 1993, Pat. No. 5,503,397, which is a continuation of Ser. No. 8,198, Jan. 25, 1993, abandoned. This application Jan. 10, 1997, Ser. No. 782,199

Int. Cl.⁶ A63B *37/06;37/12*

U.S. Cl. 473—377 **8 Claims**



1. A golf ball of improved playing characteristics comprising a core and an outer cover;

said cover having a hardness of Shore D60 or greater;

said cover having a thickness of 0.125 inches or greater; and

the outside diameter of said ball having a diameter between 1.73 and 1.75 inches.

5,738,598

STRUCTURE OF TEE FOR GOLF

Ching-Chang Wu, No. 35-1, Jih Hsin Street, Tu Cheng Hsiang, Taipei Hsien, Taiwan

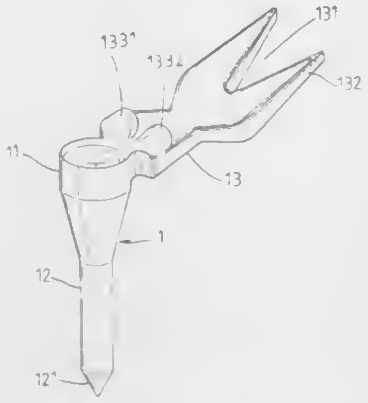
Filed Mar. 12, 1997, Ser. No. 815,705

Int. Cl.⁶ A63B *57/00*

U.S. Cl. 473—392 **2 Claims**

1. A golf tee comprising a cylindrical shaft having a bottom end terminating in a pointed tip for positioning the golf tee in soil, a top including a recessed cylindrical opening including a cylindrical rim at an uppermost portion thereof, a truncated cone shaped solid structure arranged between the top and the cylindrical shaft, and a projecting guide strip extending outwardly from the top relative to the cylindrical opening.

the projecting guide strip having two smoothly curved raised portions intersecting the cylindrical rim, and two prongs including pointed ends extending in a direction away from the cylindrical opening, the two prongs forming a V-shaped notch therebetween, the cylindrical rim and the two smoothly curved raised portions adapted to hold a golf ball; and the two prongs and the two smoothly curved raised portions adapted for holding a cigarette, guiding a struck gold ball and loosening and flattening the soil.



5,738,599

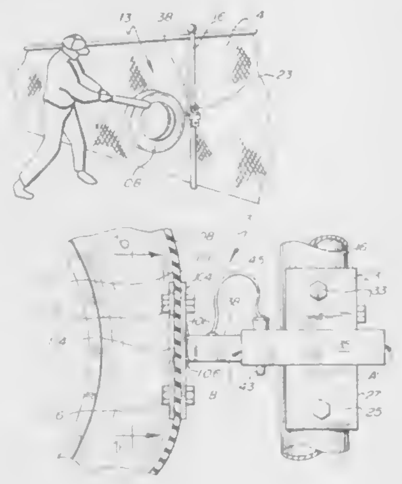
BATTING PRACTICE DEVICE WITH TIRE

Lonnie D. Malwitz, 9840 250th St. W., Lakeville, Minn. 55044

Continuation-in-part of Ser. No. 368,864, Jan. 5, 1995, abandoned, which is a continuation-in-part of Ser. No. 153,320, Nov. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 988,772, Dec. 10, 1992, Pat. No. 5,271,618. This application Jul. 21, 1995, Ser. No. 505,698

Int. Cl.⁶ A63B *69/40*

U.S. Cl. 473—423 **5 Claims**



1. A batting practice device, comprising:

(a) a vertical permanently fixed post;

(b) a mount bracket immovably attachable to said post, the bracket supporting a receiving tube;

(c) a rod receivable in said tube and interlockable therein by a pin and apertures arrangement, the rod having a portion extending from said mount bracket in a cantilevered horizontal fashion, said tube and rod being substantially parallel to each other;

(d) a first metal support plate transversely mounted on said rod portion extending from said mount bracket;

(e) a tire with a tread face and an inside wall, the tread face abutting the metal plate;

(f) a second metal support plate on the inside wall aligned with the first plate as to sandwich the tire; and

(g) fastening means to secure the plates together sandwiching the tire in a stationary position for hitting the tread face of the tire with a bat.

5,738,600

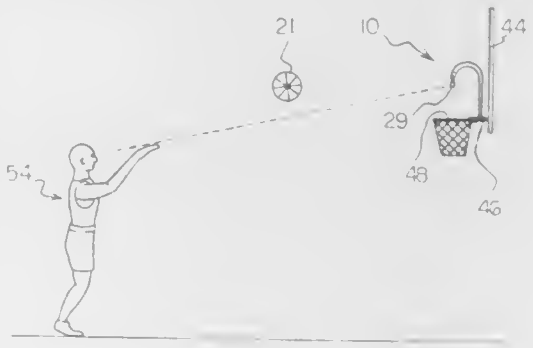
BASKETBALL SHOOTING IMPROVEMENT APPARATUS

Clyde Fouts, and Marian Smith, both of 2140 Rock Glen, Escondido, Calif. 92026

Filed Apr. 14, 1997, Ser. No. 838,890

Int. Cl.⁶ A63B *69/00*

U.S. Cl. 473—448 **5 Claims**



1. A basketball shooting improvement apparatus, comprising:

a base member which includes a front side, a rear side, and two transverse sides extending between said front side and said rear side, wherein said base member is oriented in a first plane,

hook members connected to said base member, wherein said hook members include downwardly descending hook ends which descend below said first plane, and wherein said hook members extend beyond said front side of said base member,

a tension clamp assembly connected to said base member,

a riser member, supported by said base member, which extends upward from said base member, wherein said riser member includes a distal end, and

a check point assembly connected to said distal end of said riser member, wherein said check point assembly includes a check point member located above said base member by an elevation distance.

5,738,601

HEIGHT ADJUSTABLE BASKETBALL GOAL ASSEMBLY

Todd R. Hughes, 905 Crescent St., Scott City, Kans. 67871

Filed Mar. 14, 1996, Ser. No. 615,975

Int. Cl.⁶ A63B *63/08*

U.S. Cl. 473—484 **13 Claims**

1. A basketball goal apparatus comprising:

a basketball goal including a backboard and a hoop attached to the backboard;

a generally upright stand;

a support assembly for supporting the goal on the stand at various adjusted heights spaced from the ground,

said support assembly including an elongated support member attached medially along the length thereof to the stand for swinging movement about a generally horizontal axis;

a locking assembly for releasably locking the goal at the various adjusted heights, wherein

said locking assembly includes

an extendable and retractable link connected between the stand and the support member and having a pair of relatively shiftable portions for adjusting the length of the link,

said link and the basketball goal being pivotally connected to the support member adjacent opposite ends thereof such that extension and retraction of the link swings the support member and thereby adjusts the height of the goal,

said link including a shiftable counterbalance portion moveable with the support member, and a guide portion pivotally anchored at one end to the stand and shiftably coupled at an opposite end with the counterbalance portion,

said counterbalance portion being of sufficient weight to substantially counterbalance the gravitation force of the basketball goal exerted on the support member, and

mechanism for selectively preventing extension and retraction of the link for maintaining the adjusted height of the basketball goal.

5,738,602

OIL PRESSURE CONTROL SYSTEM FOR AUTOMATIC VEHICLE TRANSMISSION

Yukio Morita, and Tsunefumi Niiyama, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1996, Ser. No. 734,597

Claims priority, application Japan, Oct. 24, 1995, 7-299050

Int. Cl.⁶ F16H *61/04;61/08*

U.S. Cl. 475—127 **18 Claims**

1. A system for controlling oil pressure of an automatic transmission mounted on a vehicle, including:

a selector lever for selecting one among a plurality of gear ranges in the transmission;

a plurality of frictional engaging elements installed in the transmission for establishing a gear in a gear train in the selected gear range;

an oil pump for pumping oil from an oil reservoir to generate pressurized oil;

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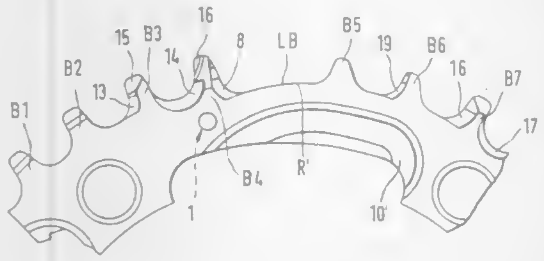
a plurality of solenoid valves at least one of which opens to supply the pressurized oil to at least one of the frictional engaging elements;
a switching valve whose spool moves in response to the selection of the selector lever for supplying the pressurized oil to the frictional engaging element outputted from the solenoid valve when the shift lever selects one gear range, while supplying the pressurized oil to the frictional engaging element bypassing the solenoid valve when the selector lever selects another gear range; and
a regulating valve placed between the frictional engaging element and the switching valve for regulating pressure of the pressurized oil to be supplied to the frictional engaging element in response to the pressurized oil outputted from the solenoid valve;
wherein the improvement comprises:
the regulating valve regulates the pressure of the pressurized oil to be supplied to the frictional engaging element in response to the pressurized oil supplied from the switching valve.

5,738,603
DERAILLEUR

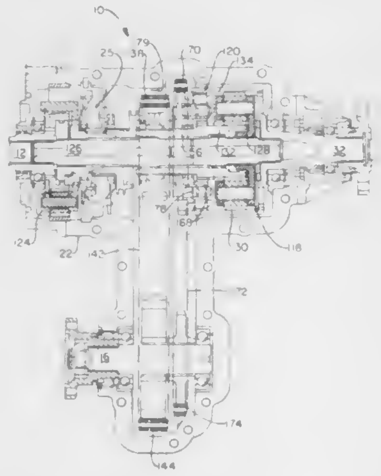
Frank Schmidt; Jörg Bodmer, and Andreas Neuer, all of Schweinfurt, Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany
Filed Dec. 15, 1995, Ser. No. 573,204
Claims priority, application Germany, Dec. 16, 1994, 44 45 035.4
Int. Cl.^{6} F16H *55/30*, **B62M** *9/12*
U.S. Cl. 474—158 **20 Claims**



1. A sprocket assembly, such as for a bicycle, for driving a link chain, said sprocket assembly including a plurality of sprockets and being adapted for use in conjunction with a derailleur for shifting the link chain between said plurality of sprockets, said sprocket assembly comprising:
a first sprocket member;
a second sprocket member;
said first and second sprocket members having a common substantially central axis of rotation;
said first and second sprocket members both having a common direction of forward rotation about said substantially central axis of rotation;
each of said first and second sprocket members being a substantially planar member extending radially outward from said common substantially central axis of rotation;
said first sprocket member being disposed in a first sprocket plane, and said second sprocket member being disposed in a second sprocket plane substantially parallel to said first sprocket plane, each of said first sprocket plane and said second sprocket plane being aligned at a substantially right angle with respect to said common substantially central axis of rotation;
said first sprocket member having an inner face facing said second sprocket member and an outer face opposite to said second sprocket member;
said first sprocket member having a first substantially circular sprocket periphery and first sprocket teeth projecting radially outward from said common substantially central axis of rotation, said first sprocket teeth being disposed about the circumference of said first sprocket periphery;
said second sprocket member having a second substantially circular sprocket periphery and second sprocket teeth projecting radially outward from said common substantially central axis of rotation, said second sprocket teeth being disposed about the circumference of said second sprocket periphery;
said first sprocket member having a substantially greater diameter than said second sprocket member;
a chain transfer assistance member projecting from said inner face of said first sprocket member toward said second sprocket member;
said chain transfer assistance member being disposed between said first sprocket teeth and said common substantially central axis of rotation;
said chain transfer assistance member having a substantially curvilinear outer perimeter disposed in a plane substantially parallel to said first sprocket plane;
said first sprocket periphery comprising a normal portion and a chain upshifting portion;
said normal portion of said first sprocket periphery comprising a multiplicity of said first sprocket teeth disposed along said first sprocket periphery at positions of substantially equal tooth pitch; and
said chain upshifting portion of said first sprocket periphery comprising:
  a tooth space disposed at a position of said substantially equal tooth pitch with respect to said multiplicity of said first sprocket teeth; and
  a capture tooth positioned adjacent said tooth space, and trailing said tooth space along said circumference of said first sprocket member in said direction of forward rotation, said capture tooth having a beveled tooth tip, said beveled tooth tip having a beveled surface on said outer face of said first sprocket member opposite to said second sprocket member;
  said beveled surface extending from said outer face of said first sprocket member opposite said second sprocket member in a direction toward said second sprocket member.

5,738,604
FOUR-WHEEL MOTOR VEHICLE DRIVE TRANSFER CASE WITH LIMITED DIFFERENTIATION

Wesley M. Dick, Ft. Wayne, Ind., assignor to Dana Corporation, Toledo, Ohio
Filed Jul. 30, 1996, Ser. No. 690,642
Int. Cl.^{6} F16H *48/02;48/24*
U.S. Cl. 475—206 **27 Claims**

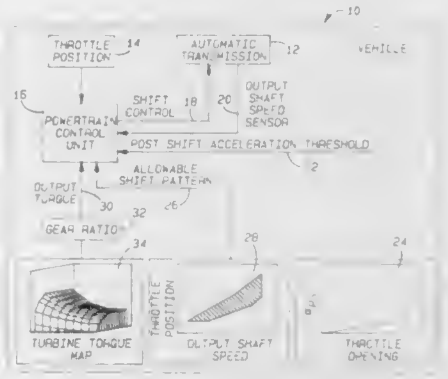


1. A four-wheel drive system for a vehicle having an engine and a transmission and including a torque transfer case for dividing torque for front and rear axles of the vehicle, said torque transfer case comprising:
an input shaft coupled to the transmission to be rotatably driven thereby;

a first output shaft to transmit torque to a first axle of the vehicle;
a second output shaft to transmit torque to second axle of the vehicle;
an interaxle differential disposed between said input shaft and said first and second output shafts for transmitting torque from said input shaft to said first and second output shafts, and allowing said first and second output shafts to rotate differentially with respect to one another;
a first one-way clutch to selectively lock said interaxle differential such that said first and second output shafts are rotatably coupled to one another when said second output shaft over runs said first output shaft; and
a second one-way clutch to selectively lock said interaxle differential such that said first and second output shafts are rotatably coupled to one another when said first output shaft overruns said second output shaft by a predetermined amount.

5,738,605
ANTI-HUNT STRATEGY FOR AN AUTOMATIC TRANSMISSION

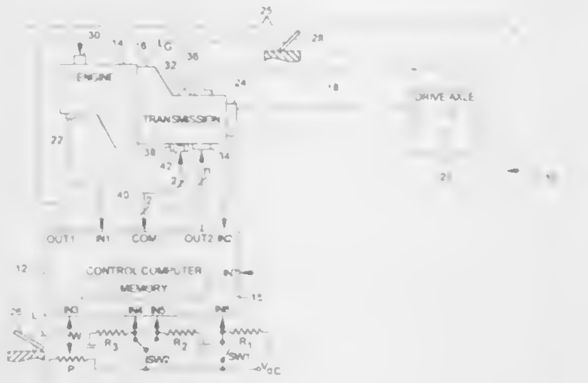
Steven R. Fliearman, Howell; Kenneth J. Potter, Almont, and Dennis R. Zeiger, Oak, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.
Filed Jun. 28, 1996, Ser. No. 672,883
Int. Cl.^{6} B60K *41/04*
U.S. Cl. 477—108 **14 Claims**



1. A method of adaptively controlling transmission gear upshifts in an automatic transmission of a vehicle so as to prevent shift hunting, said method comprising the steps of:
determining if an upshift condition is in progress;
determining output torque of an automatic transmission after an upshift condition is detected and after expiration of a predetermined time period;
predicting output torque for an upshift condition of the automatic transmission;
predicting post shift acceleration that is available from a transmission upshift as a function of the predicted output torque;
comparing the predicted post shift acceleration with a threshold value; and
inhibiting a transmission upshift when the predicted post shift acceleration does not exceed the threshold value, and allowing the transmission upshift when the predicted available post shift acceleration exceeds the threshold value.

5,738,606
CONTROL SYSTEM FOR REGULATING OUTPUT TORQUE OF AN INTERNAL COMBUSTION ENGINE

Steven M. Bellinger, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.
Filed Sep. 30, 1996, Ser. No. 723,526
Int. Cl.^{6} B60K *41/04*
U.S. Cl. 477—111 **24 Claims**



1. A method of regulating torque applied to an automotive drive train by an internal combustion engine, the engine producing the torque in accordance with a fueling rate provided to a fueling system thereof, the drive train including a transmission coupled to the engine and having a plurality of engageable gear ratios, a drive axle and a propeller shaft coupling the transmission to the drive axle, the method comprising the steps of:
determining a first engine fueling rate at which the resulting engine torque is limited by a maximum input torque capacity of a presently engaged gear ratio of the transmission;
determining a second engine fueling rate at which the resulting engine torque is limited by a maximum operating torque capacity of the propeller shaft;
defining an actual engine fueling rate as a minimum of said first and second engine fueling rates, and
fueling the engine in accordance with said actual engine fueling rate.

5,738,607
CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION FOR VEHICLE

Noboru Kondo, and Kenzo Nishida, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 31, 1996, Ser. No. 597,519
Claims priority, application Japan, Feb. 1, 1995, 7-015092
Int. Cl.^{6} F16H *61/16*
U.S. Cl. 477—125 **16 Claims**

1. A control system for an automatic transmission for a vehicle for controlling a gear ratio of the automatic transmission based on an output from a vehicle speed detecting means for detecting a value corresponding to a vehicle speed and an output from an engine load detecting means for detecting a value corresponding to an engine load, said system comprising:
a shifting command means for outputting a predetermined shifting command by a manual operation for changing the gear ratio;
judging means for judging whether or not an operational state of the vehicle is brought into a prohibiting range, in which the execution of the shifting command is prohibited in order to prevent occurrence of over-revolution or stalling of the engine, based on at least one of an output from said vehicle speed detecting means and an output from said engine load detecting means, when said shifting command is output;
prohibiting means for prohibiting execution of said shifting command when said judging means judges that the operational state of the vehicle is in said prohibiting range; and

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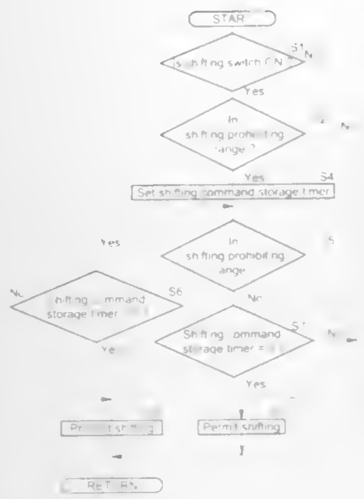

START
Shifting switch ON
In shifting prohibiting range?
Yes
No
Set shifting command storage timer
Yes
In shifting prohibiting range
Shifting command storage timer
Yes
Permit shifting
RETURN

cancelling means for cancelling said shifting command when a time, which has passed since said shifting command means output said shifting command, exceeds a predetermined period of time.

5,738,608

HYDRAULIC CONTROL FOR A MULTI-RATIO TRANSMISSION

Charles Francis Long, Pittsboro, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 19, 1996, Ser. No. 700,751

Int. Cl.^{6} F16H *61/26*

U.S. Cl. 477—130 **2 Claims**

1. A hydraulic control for a multi ratio transmission comprising hydraulic pump means

a variable pressure regulator valve in fluid communication with said pump means for establishing a main pressure fluid in the hydraulic control including a control bias area;

first, second and third relay valve means;

first and second variable pressure TRIM control valves;

a plurality of selectively engageable friction torque transmitting mechanisms disposed to receive main pressure fluid for engagement thereof to selectively establish a plurality of forward speed ratios and a reverse speed ratio;

fluid passage means interconnecting members of said control comprising said pump means, said variable pressure regulator valve, said relay valve means, said TRIM control valves and said friction torque transmitting mechanisms for distributing hydraulic fluid thereto as directed by the interconnected members;

said first, second and third relay valve means having a pressure set position and a spring set position, said first and second relay valve means being spring set to establish one forward speed ratio, said third relay valve means being pressure set during said one forward ratio to receive a variable pressure from said second TRIM control valve via said first relay valve means and to deliver said variable pressure to said control bias area via said second relay valve means to affect controlling of the main pressure fluid during the one forward ratio.

5,738,609

CLUTCH CONTROL SYSTEM

Charles John Jones, Coventry; Mark Stanley Willows, Kenilworth, and Katharine Dianna Bowker, Leamington Spa, all of United Kingdom, assignors to Automotive Products, PLC, Warwickshire, United Kingdom

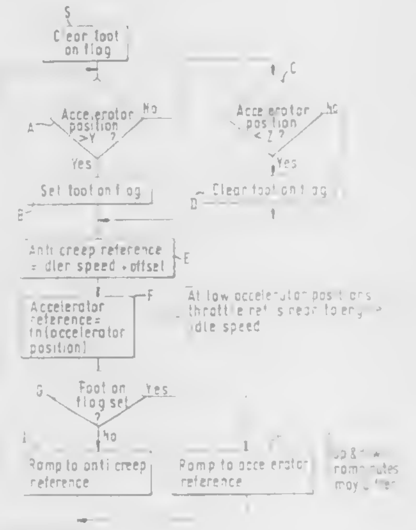
PCT No. PCT/GB95/02480, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO96/12626, PCT Pub. Date May 2, 1996

PCT Filed Oct. 20, 1995, Ser. No. 682,692

Claims priority, application United Kingdom, Oct. 22, 1994, 94 21324.6

Int. Cl.^{6} B60K *41/02*

U.S. Cl. 477—175 **13 Claims**


S
Clear foot on flag
A
C
Accelerator position > Y ?
No
Accelerator position < Z ?
Yes
Yes
Set foot on flag
Clear foot on flag
B
D
E
Anti creep reference = idler speed + offset
Accelerator reference = f(accelerator position)
F
At low accelerator positions throttle ref is near to engine idle speed
G
Foot on flag set
Yes
No
Ramp to anti creep reference
Ramp to accelerator reference

1. A clutch control system for an automatic control of a clutch of a motor vehicle, which control system connects an engine with a multi-ratio gearbox under the control of a ratio selector means, the control system including an electronic control unit which controls initial clutch take-up on starting of the vehicle, clutch re-engagement following each ratio change, clutch disengagement on operation of the ratio selector means to change the operative ratio of the gearbox, and clutch disengagement upon coming to rest of the vehicle, the level of clutch engagement being controlled by the control unit in response to an engine speed error signal derived from a comparison of, a sensed current engine speed and a reference speed signal generated by the control unit and the control system also including sensing means to detect a "foot-off" condition of an engine controlling accelerator pedal and to provide an indication of a full range of movement of the accelerator pedal from the "foot off" condition to a fully depressed position, the system being characterized in that the electronic control unit responds to a detected accelerator pedal "foot-off" condition by setting said reference speed signal higher than an engine idle signal by a predetermined amount to prevent creeping of the motor vehicle due to partial clutch engagement at engine idle and said control unit responds to a detected "foot-on" condition of the accelerator pedal at predetermined low levels of accelerator pedal depression by setting said reference speed signal to a level substantially equivalent to an engine idle speed which is a function of the accelerator pedal position, such that at said predetermined low levels of pedal depression, the clutch will engage to a torque transmitting level allowing the vehicle to be maneuvered at low engine speeds.

5,738,610

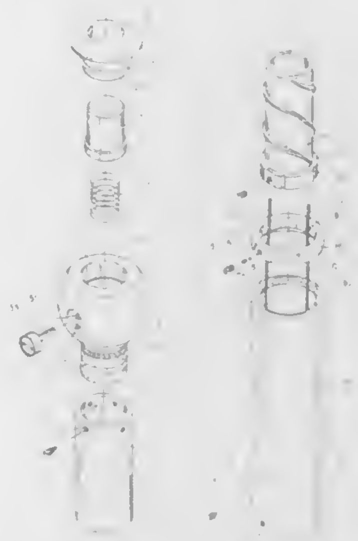
HAND-CONTROLLED ACCELERATOR FOR AUTOMOBILES

Ching Hsiung Hung, P.O. Box 82-144, Taipei, Taiwan

Filed Aug. 30, 1996, Ser. No. 708,059

Int. Cl.^{6} B60K *41/20*

U.S. Cl. 477—209 **3 Claims**



1. A hand-controlled accelerator for automobiles comprising:

an inner tubular member formed with a spiral projection on an outer surface thereof and an enlarged base at a lower end thereof;

an accelerating cable having an upper end fastened in said base,

a brake cable having an upper end fastened in said base;

an intermediate tubular member in which is fitted said inner tubular member, said intermediate tubular member being formed at an inner surface thereof with a spiral groove adapted to receive said spiral projection;

a handle having a tubular neck at a lower portion thereof, said tubular neck having a plurality of recesses and an annular groove below said recesses and fixedly connected to an upper end of said intermediate tubular member;

an outer tubular member in which is fitted said intermediate tubular member; and

an annular ring-like member having two opposite threaded holes in each of which is arranged a steel ball, a spring having an end bearing against said steel ball, and a screw bearing against another end of said spring, said annular ring-like member being fitted over said tubular neck.

5,738,611

AEROBIC AND STRENGTH EXERCISE APPARATUS

Ted R. Ehrenfried, and Scott Alan Ehrenfried, both of Suffolk, Va., assignors to The Ehrenfried Company, Suffolk, Va. Continuation-in-part of Ser. No. 70,744, Jun. 2, 1993, abandoned. This application Dec. 1, 1994, Ser. No. 352,170

Int. Cl.^{6} A63B *21/005*

U.S. Cl. 482—6 **53 Claims**

1. An apparatus for generating a resistive force in response to the action of a user, comprising:

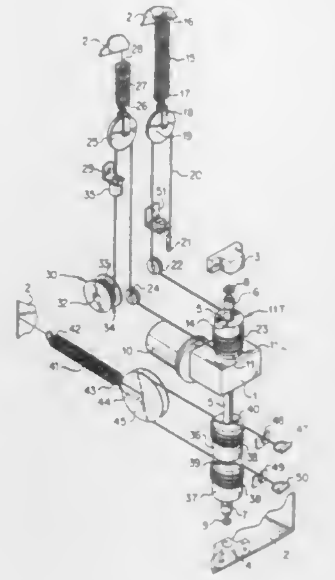
a shaft;

a rotatable shaft driver for rotating the shaft at a selected speed in a first rotational sense with respect to the shaft driver;

a first drum connected to the shaft driver for rotation therewith,

a force generator;

a linkage which connects the first drum to the force generator so that rotation of the first drum causes a change in the level of force generated by the force generator and wherein said change in force is transmitted via said linkage to the first drum;



at least a second drum rotatably connected to the shaft via a connection which permits the shaft to rotate in the first directional sense with respect to the second drum but which does not permit the second drum to rotate in that sense with respect to the shaft; and

a first cable having a first end and a second end, a length of said cable intermediate the first and second ends being wound onto the second drum so that by extracting cable from the second drum, the second drum can be made to rotate,

whereby movement of the first cable at a sufficiently high speed causes the second drum about which it is partially wound to rotate faster than the selected speed of rotation of the shaft driver, which causes the first drum to rotate and thereby engage the force generator.

5,738,612

EXERCISE APPARATUS HAVING EXERCISE-LOAD CHANGING FUNCTION

Hideichi Tsuda, Komaki, Japan, assignor to Colin Corporation, Komaki, Japan

Filed Dec. 4, 1996, Ser. No. 760,600

Int. Cl.^{6} A63B *21/00*

U.S. Cl. 482—8 **9 Claims**

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1. An exercise apparatus comprising.
- an exercise-load applying device which applies an exercise load to a person;
- an exercise-load changing device which changes the exercise load applied to the person by said exercise-load applying device;
- a pulse-rate measuring device which successively measures a pulse rate of the person in synchronism with a heartbeat of the person;
- a blood-pressure measuring device which successively and non-invasively measures a blood pressure of the person in synchronism with the heartbeat of the person;
- a calculating device which successively calculates a product of said pulse rate and said blood pressure in synchronism with the heartbeat of the person; and
- a control device which controls said exercise-load changing device to change the exercise load applied to the person by said exercise-load applying device, so that the products successively calculated by said calculating device substantially coincide with a predetermined target value.

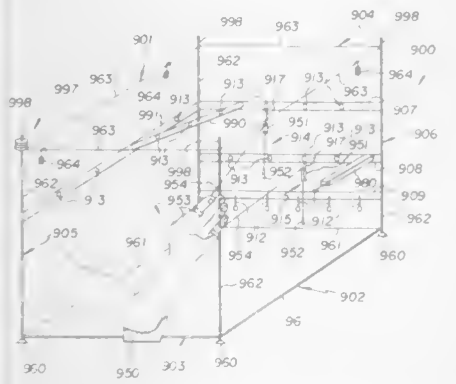
5,738,613
DEVICE AND METHOD FOR EXERCISING THE MUSCLES OF THE FINGERS AND HAND USING WEIGHTS

Tom Clayton, 3412 Baywood, Nacogdoches, Tex. 75961

Continuation-in-part of Ser. No. 284,141, Aug. 2, 1994, abandoned. This application Feb. 8, 1996, Ser. No. 598,321

Int. Cl.⁶ A63B ***23/16***

U.S. Cl. 482—47 **13 Claims**



1. A device for training hand and finger muscles comprising:
- a plurality of resistance members, each including
  - (a) a weight for providing a fixed resistance.
  - (b) a cable or rope having a first end attached to said weight. and
  - (c) a finger engaging element attached to a second end of said cable or rope for moving said weight in response to movement of a finger therein, said finger engaging element being positionable at any point along a length of a finger;
- a box-shaped frame comprising a top, a bottom, a front, a back and two sides, at least said front being open whereby a forearm of a user is completely insertable into an interior portion of said frame, said frame including at least one back support member positioned on each of said sides, each of said back and side support members having multiple connection points thereon at varying horizontal or vertical positions with respect to one another;
- a plurality of attachment means for removably attaching said resistance members to said multiple connections at varying horizontal and vertical positions with respect to one another for allowing a user to individually exercise all fingers on one hand in a position in which respective palm of a user is facing upward, downward or at any position therebetween such that said resistance members do not interfere with one another; and
- support means positioned inside said box-shaped frame for supporting a forearm of a user substantially completely inside said box-shaped frame in at least one position ranging from a 45 to a 90 degree angle with respect to a surface on which said frame is positioned.

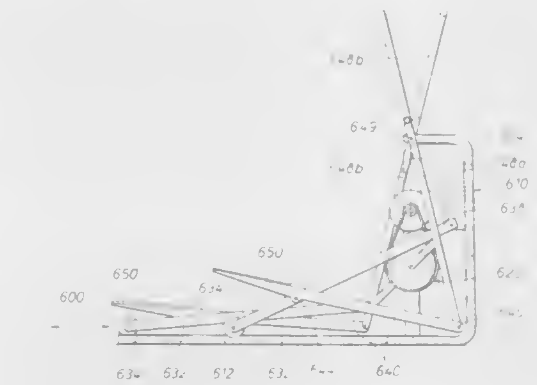
5,738,614
STATIONARY EXERCISE APPARATUS WITH RETRACTABLE ARM MEMBERS

Robert E. Rodgers, Jr., 8011 Meadowcroft, Houston, Tex. 77063

Continuation-in-part of Ser. No. 377,846, Jan. 25, 1995, Pat. No. 5,573,480. This application May 24, 1996, Ser. No. 653,333

Int. Cl.⁶ A63B ***69/16;22/04***

U.S. Cl. 482—51 **6 Claims**



1 An apparatus for exercising comprising:
- a frame having a base portion adapted to be supported by a floor;
- first and second reciprocating members, each reciprocating member having a first end and a second end, a portion of said first and second reciprocating members adapted for substantially linear motion;
- a coupling member having (i) a pulley supported by said frame defining a pivot axis, and (ii) means for attaching said second ends of said first and second reciprocating members to said pulley so that rotation of said pulley results in the rotation of said second ends of said first and second reciprocating members in a substantially circular path about said pivot axis while a portion of each of said first and second reciprocating members distal said second end of each said first and second reciprocating member moves in a reciprocating pattern;
- first and second pivotal linkage assemblies operatively associated with said reciprocating members for orienting the feet of the user of the apparatus so that each foot of the user follows a substantially elliptical path during operation of the apparatus,
- said first pivotal linkage assembly being pivotally connected proximate one end between the first and second ends of said first reciprocating member proximate said first end of said first reciprocating member, and said second pivotal linkage assembly being pivotally connected proximate one end between the first and second ends of said second reciprocating member proximate said first end of said second reciprocating member, each linkage assembly being pivotally attached at its other end to said frame distally from said coupling member;
- said first and second linkage assemblies having a handle portion proximate said pivotal connection to said frame so that the user of said apparatus may grip the handle portions during use of the apparatus enabling a substantially arcuate movement of said handle portions; and
- means for disengaging said handle portions.

5,738,615
APPARATUS FOR INITIALLY POSITIONING A WEIGHT LIFTING HANDLE

Robert P. McCollum, 34 Linda Dr., Transfer, Pa. 16154; Jerry K. Leipheimer, 103 Oak La., Jamestown, Pa. 16134, and Gregory T. Telesz, R.D. 3 Box 206, Volant, Pa. 16156

Filed Feb. 22, 1995, Ser. No. 393,100

Int. Cl.⁶ A63B ***21/06***

U.S. Cl. 482—101 **31 Claims**

1. In a weight resistance exercise machine having a manually engageable mechanism which a user manually engages during performance of a weight resistance exercise, the manually engageable mechanism being movable along a predetermined path of movement wherein the manually engageable mechanism is anchorable to a weight mechanism such that the weight mechanism resists movement of the manually engageable mechanism, an apparatus for positioning the manually engageable mechanism in a selected initial position along the path of movement without resistance from the weight mechanism, the apparatus comprising:
- an elongated rod having a first mesh mechanism;
- a sleeve receiving the rod, the sleeve having a second complementary mesh mechanism;
- the first and second mesh mechanisms being controllably meshable and unmeshable with each other by actuation of a remote manual actuator mounted on the manually engageable mechanism;
- the manually engageable mechanism being movable along the predetermined path of movement without resistance from the weight mechanism when the mesh mechanisms are unmeshed.

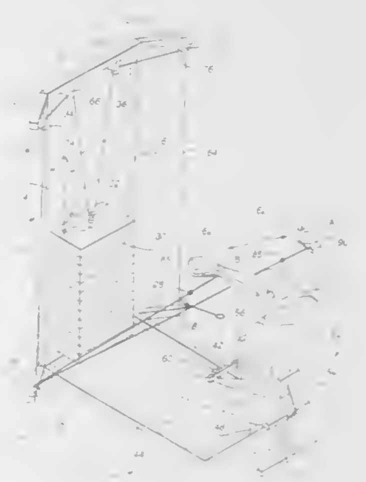
5,738,616
ROTATOR CUFF EXERCISE MACHINE

Richard C. Robertson, 515 N. Lyle, E. Wenatchee, Wash. 98802

Filed May 8, 1995, Ser. No. 436,578

Int. Cl.⁶ A63B ***23/12***

U.S. Cl. 482—102 **3 Claims**



2. A machine for exercising the rotator cuff, comprising:
- (a) a frame having a right side and a left side, the right side having an upper right side end and a lower right side end, the left side having an upper left side end and a lower left side end;
- (b) a graduated weight resistance supported on the frame for movement along a working stroke from a rest position against a gravitational force to a displaced position;
- (c) a body support member spaced apart from the frame and including a seat for supporting a user in a seated position facing the frame;
- (d) a carrier passing through the graduated weight resistance:
- (e) a center pulley mounted to said carrier;
- (f) an upper right pulley mounted proximate to the upper right side end of the frame, and a lower right pulley mounted proximate to the lower right side end of the right side of the frame;
- (g) an upper left pulley mounted proximate to the upper left side end of the frame, and a lower left pulley mounted proximate to the lower left side end of the left side of the frame; and
- (h) a cable having a left cable end and a right cable end, the cable being threaded from the left cable end around the lower left pulley, the upper left pulley, the center pulley, the upper right pulley, and the lower right pulley.
- (i) gripping means for gripping the cable near at least one of the left cable end and the right cable end, the gripping means being adapted for use by one arm of the user so that the user, when seated on the seat and engaging the gripping means with one arm may simulate a throwing motion by drawing the cable end from a first position in front of the user to a second position diagonally upwards of the first position, the first position corresponding to a release point of a throwing motion, the second position corresponding to a starting point of a throwing motion,
- wherein said body support member includes handles mounted in front of the seat and adjustable vertically.

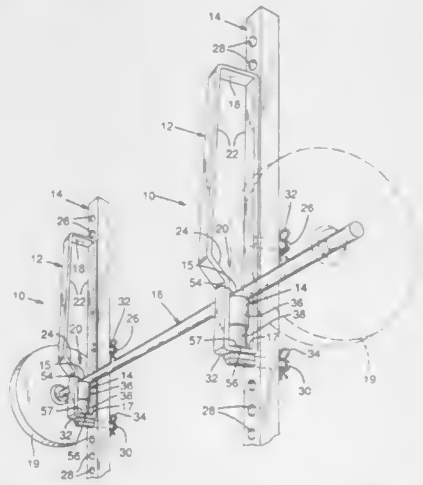
5,738,617
LIFTING SYSTEM

Douglas E. Watson, Milwaukie, Oreg., assignor to Forrest Bennett, Gladstone, Oreg.

Continuation of Ser. No. 951,172, Sep. 24, 1992, abandoned, which is a division of Ser. No. 659,831, Feb. 22, 1991, Pat. No. 5,162,031. This application Mar. 14, 1995, Ser. No. 404,163

Int. Cl.⁶ A63B ***21/078***

U.S. Cl. 482—104 **22 Claims**



1. A weight lifting apparatus for assisting a weight lifter comprising:
- a weight carrying bar;
- a bracket which includes a lower portion which defines a lower channel and an upper portion which is wider than the lower channel, the bracket adapted to guide the bar as it is moved between the lower and upper portions; and

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- a resilient lift assembly positioned below the upper portion in a position to store energy from the weighted bar as the weighted bar is lowered onto the resilient lift assembly and to release energy as the weighted bar is raised from the lift assembly.

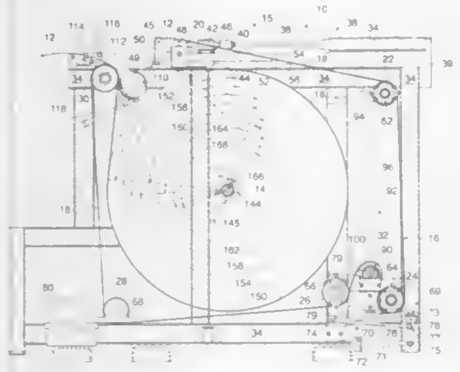
5,738,618
BLANKET SEALING BAG MACHINE

Sean K. Lemerand, Seymour, Wis.; Wim Verbeiren, Lede, Belgium; Paul W. Staab, Manlius, N.Y.; Ronald L. Lotto, Bonduel, and Danford C. Anderson, Green Bay, both of Wis., assignors to FMC Corporation, Chicago, Ill.

Continuation of Ser. No. 595,720, Feb. 2, 1996, abandoned. This application Jun. 23, 1997, Ser. No. 880,876

Int. Cl.^{6} B31B *1/64*

U.S. Cl. 493—208 **20 Claims**



1. A sealing drum and blanket assembly comprising a sealing drum having a variable sealing drum diameter, said sealing drum comprising an axle, a first plurality of spindles disposed at a first end of said axle and a second plurality of spindles disposed at a second opposing end of said axle, said first and second plurality of spindles each being greater than sixteen spindles, each of said spindles extending radially from said axle; at least one seal bar assembly disposed on one of said spindles;

- a blanket assembly comprising a blanket surrounding at least a portion of said sealing drum disposed such that a web of film is held directly against said blanket for at least 180 degrees;
- a first blanket roller disposed at one side of a mouth region where said web of film enters between said sealing drum and said blanket assembly and a second blanket roller disposed at an opposing end of said mouth; and
- a first tension assembly connected to said first blanket roller for applying a first tension force to said web of film against said sealing drum, said first tension assembly being retractable;
- wherein said blanket assembly further comprises a second tension assembly for applying a second tension force less than said first tension force to said web of film against said sealing drum in order to maintain a taut tension equilibrium around said sealing drum when said drum changes diameter.

5,738,619
METHOD OF MANUFACTURING BULK BAGS

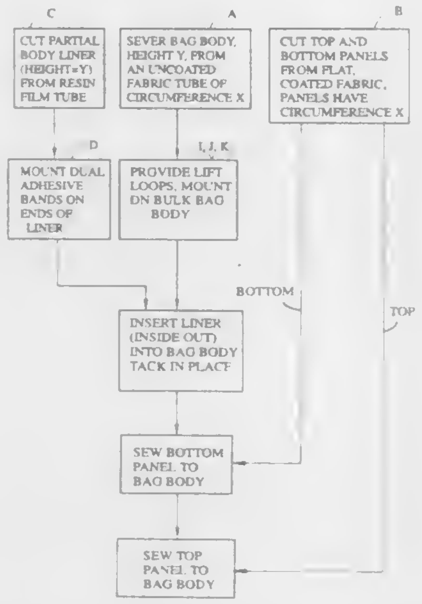
Peter J. Nattrass, Barrington Hills, Ill., assignor to Bulk Lift International Incorporated, Carpentersville, Ill.

Division of Ser. No. 208,579, Mar. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 115,113, Sep. 2, 1993, Pat. No. 5,415,614. This application Aug. 14, 1995, Ser. No. 514,860

Int. Cl.^{6} B31B *21/00*

U.S. Cl. 493—226 **10 Claims**

1 The method of manufacturing a bulk bag suitable for shipping powder without requiring a full film liner for the bulk bag, the bulk bag having a height Y and a circumferential length X, the method comprising the following steps:


C
A
B
CUT PARTIAL BODY LINER (HEIGHT=Y) FROM RESIN FILM TUBE
SEVER BAG BODY, HEIGHT Y, FROM AN UNCOATED FABRIC TUBE OF CIRCUMFERENCE X
CUT TOP AND BOTTOM PANELS FROM FLAT, COATED FABRIC, PANELS HAVE CIRCUMFERENCE X
D
I, J, K
MOUNT DUAL ADHESIVE BANDS ON ENDS OF LINER
PROVIDE LIFT LOOPS, MOUNT ON BULK BAG BODY
BOTTOM
TOP
INSERT LINER (INSIDE OUT) INTO BAG BODY TACK IN PLACE
SEW BOTTOM PANEL TO BAG BODY
SEW TOP PANEL TO BAG BODY

- A. severing a bag body of height Y from a seamless, uncoated flexible fabric tube of circumference X having an imprint-receptive outer surface, the fabric of the tube being of woven resin and being at least partially pervious to powder;
- B. cutting a bottom wall panel of polygon shape from a web of coated, woven fabric, substantially impervious to powder, the bottom wall panel having a circumferential length at least equal to X;
- C. severing a body liner of height Y from a tube of resin film of circumference X, the resin film being substantially impervious to powder;
- D. adhesively mounting two powder-impervious resin tapes on the body liner, each tape encompassing one end of the body liner;
- E. inserting the body liner into the bag body;
- F. stitching the bottom wall panel into the bag body with stitching that extends through the tape at the bottom of the bag liner; and
- G. stitching the top of the bag liner to the bag body with stitching that extends through the tape at the top of the bag liner.

5,738,620
DEVICE FOR FOLDING SHEETS

Arno Ebner, Ammerbuch, and Juregen Ries, Ostfildern, both of Germany, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 15, 1996, Ser. No. 749,255

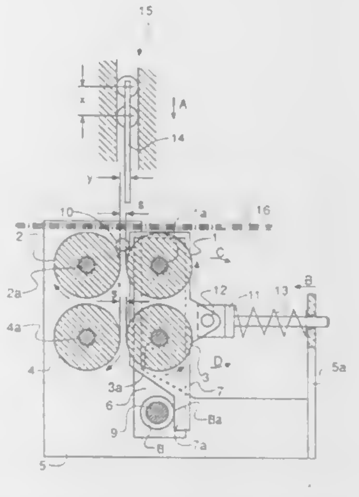
Claims priority, application Germany, Nov. 18, 1995, 195 43 152.9

Int. Cl.^{6} B65H *45/16*

U.S. Cl. 493—445 **3 Claims**

1 A device for folding of at least one sheet, with driveable pre-folding rollers and pinch rollers (**1**, **2**, **3**, and **4**) arranged parallel and in pairs and located one behind another in a folding direction (A) and rotatably mounted, in which a first pre-folding roller (**1**) and a first pinch roller (**3**) are mounted on connecting arms (**7**) pivotably linked to a bearing (**1***a*) of said first pre-folding roller (**1**) and spring-loaded (**13**) substantially transverse to said folding direction (A), and in which said bearing (**1***a*) of said first pre-folding roller (**1**) is rotatably arranged at one end of lever arms (**6**) whose other ends are pivotably linked, in said folding direction (A), behind said first pinch roller (**3**) on a stationary bearing (**8**), with said device having a folding knife (**14**) pushing said sheet between said pre-folding rollers (**1**, **2**) creating a roof-like formation in a folding area, characterized in that

- a second pre-folding roller (**2**) and a second pinch roller (**4**) are stationarily and rotatably mounted in said folding device,



- said connecting arms (**7**), arranged between said first pre-folding roller (**1**) and said first pinch roller (**3**), at their two ends, contact two stationary stops (**8***a*, **10**) respectively, due to such spring loading, said two stops being positioned such that opposed rollers of said pre-folding roller or pinch roller pairs (**1**, **2**, **3**, and **4**) do not touch, and
- one of said two stationary stops (**8***a*) is located, in said folding direction (A), behind the bearing (**3***a*) of said first pinch roller (**3**) and the other of said two stationary stops (**10**) is located adjacent to an entry area of said pre-folding rollers (**1**, **2**) such that pivoting movement (C) of said first pre-folding roller (**1**) about said stationary bearing (**8**) causes a forced pivoting movement of said first pinch roller in the same direction as pivoting movement (C) of said first pre-folding roller (**1**), said pivoting movement of said first pinch roller setting a roller gap (s') at said pinch rollers (**3**, **4**).

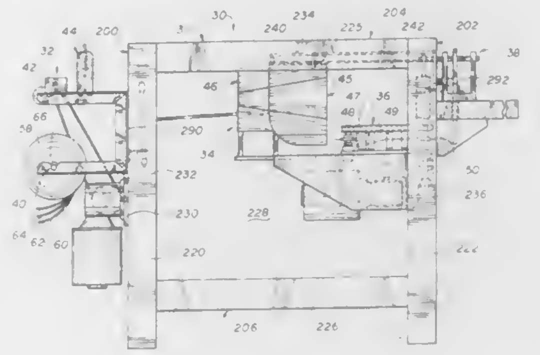
5,738,621
CUSHIONING CONVERSION MACHINE AND METHOD FOR A CUSHIONING PRODUCT HAVING A TAB PORTION

James A. Simmons, 340 Fanwood Dr., Painesville Township, Ohio 44077

Continuation of Ser. No. 482,649, Jun. 7, 1995, Pat. No. 5,643,167, which is a continuation-in-part of Ser. No. 221,624, Apr. 1, 1994. This application Jun. 7, 1995, Ser. No. 483,106

Int. Cl.^{6} B31F *5/02; 1/00*

U.S. Cl. 493—464 **27 Claims**



13 A cushioning conversion machine for converting sheet stock material into a cushioning product, the machine comprising:

- a frame;
- conversion assemblies mounted to the frame which convert the stock material into a continuous strip of dunnage having a pillow-shaped portion and a tab portion;
- a stock supply assembly, positioned upstream of the conversion assemblies, which supplies stock material to the conversion assemblies, the stock material having at least one shell ply and at least one stuffing ply; and
- wherein the conversion assemblies include a folding device having a series of flat walls which coordinate to fold a pair of distal portions over a pair of proximate portions of a flat section of the at least one shell ply to form the tab portion, and
- wherein the pillow-shaped portion is formed by both the at least one shell ply and the at least one stuffing ply.

5,738,622
CENTRIFUGAL SEPARATOR AND A METHOD OF DETECTING UNBALANCE OF A ROTOR

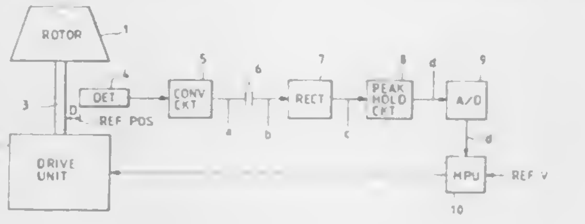
Yoshitaka Niinai; Shoji Kusumoto; Tsutomu Takamura, and Noriyasu Matsufuji, all of Hitachinaka, Japan, assignors to Hitachi Koki Co., Ltd., Japan

Filed May 22, 1996, Ser. No. 651,590

Claims priority, application Japan, Jun. 16, 1995, 7-150727

Int. Cl.^{6} B04B *13/00*

U.S. Cl. 494—7 **5 Claims**



1 A centrifugal separator comprising

- a rotor for containing a sample to be separated;
- rotating means for rotating said rotor;
- detection means for detecting a distance between a reference position of said detection means and a position of said rotor, and generating a distance detection signal indicative of said distance;
- a half-wave rectifying circuit for half-wave rectifying said distance detection signal;
- judging means for judging said distance detection signal from said half-wave rectifying circuit; and
- control means for controlling said rotating means in accordance with a judging result of said judging means

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5,738,623
APPLICATION OF DRY SPREADABLE WATER DISPERSIBLE GRANULE COMPOSITIONS

Stanley John Kostka; Patrick Michael Holroyd, both of Cherry Hill; Mark David Einziger, Manalapan; Edward G. Fu, Kinnelon, and Alan Joseph Stern, Plainsboro, all of N.J., assignors to Aquatrols Corporation of America, Inc., Cherry Hill, and Rhone-Poulenc Inc., Cransbury, both of N.J.

Filed May 22, 1996, Ser. No. 651,076

Int. Cl.^{6} A62D *3/00;* B09C *1/08*

U.S. Cl. 588—249 **9 Claims**

3 A method of reducing undesirable bioactivity in a site contaminated with a pesticide comprising the steps of

- 1) spreading upon the site a bioactivity-reducingly effective amount of a granular composition comprising
  - a) from 60 to 90 weight percent of activated charcoal having an internal surface area of greater than 300 square meters per gram and a mean pore diameter of less than 100 angstroms; and
  - b) from 5 to 40 weight percent of a surfactant composition wherein said surfactant composition comprises
    - i) from 3 to 20 weight percent of a high molecular weight polymeric nonionic or anionic surfactant dispersant,
    - ii) from 2 to 20 weight percent of a low molecular weight non-polymeric nonionic or anionic surfactant wetting agent; and

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iii) from 0 to 10 weight percent of a binder; wherein the weight percents are based on the total weight of the granular composition.

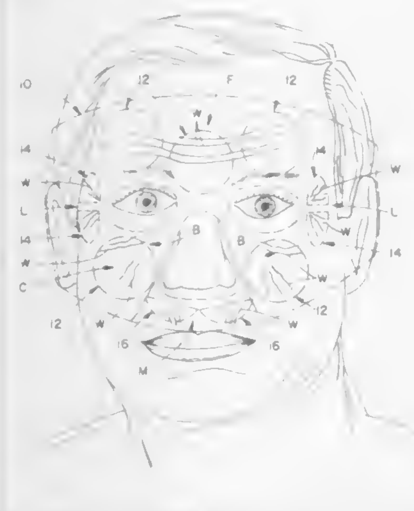
5,738,624
MASK FOR APPLYING A MAGNETIC FLUX FIELD TO FACIAL SKIN

Charles Zablotsky, 5821 Quiet Oak La., Fort Lauderdale, Fla. 33312, and Theodore J. Zablotsky, 44 Miamis Rd., West Hartford, Conn. 06117

Continuation of Ser. No. 75,723, Jun. 14, 1993, abandoned. This application Aug. 18, 1994, Ser. No. 292,697

Int. Cl.^{6} A61N *2/00*

U.S. Cl. 600—9 19 Claims



1. A face mask for applying a magnetic flux field to the face of a human being, said face mask having a peripheral edge and comprising front and back sheets of flexible material joined together to provide said peripheral edge, said back sheet being adapted to overlie a portion of the face of a person when said mask is applied to said face portion of said person, formable means between said front and back sheets and within said peripheral edge for conforming said back sheet to the contour of said face portion, and permanent magnetic means on said face mask contiguous with said back sheet for generating said magnetic flux field.

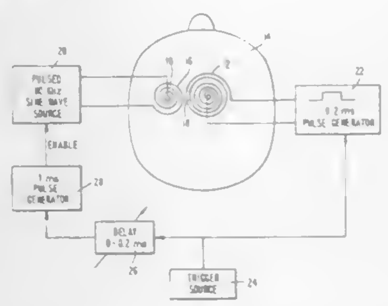
5,738,625
METHOD OF AND APPARATUS FOR MAGNETICALLY STIMULATING NEURAL CELLS

Daniel S. Gluck, 528 Sprague Rd., Penn Valley, Pa. 19072

Continuation-in-part of Ser. No. 74,507, Jun. 11, 1993, abandoned. This application Jul. 28, 1995, Ser. No. 508,650

Int. Cl.^{6} A61N *2/00*

U.S. Cl. 600—9 79 Claims



1. A method of stimulating a neural cell having potentials ranging from a polarized quiescent state to an active depolarized state, the cell active depolarized state having a transmembrane potential substantially different from the quiescent state transmembrane potential, comprising applying a first energy field to the cell to change the cell potential from the quiescent state so the cell transmembrane potential differs from both said states, while the transmembrane potential differs from both said states applying a field including a cyclic magnetic component to the cell, the cyclic magnetic component having a frequency and amplitude and being combined with effects from the first energy field such that each cycle of the cyclic magnetic component causes an incremental change in transmembrane potential of the cell without changing the cell from the quiescent to the active state, applying the cyclic magnetic component to the cell so it has a duration and amplitude and is combined with the effects of the first energy field so there is an accumulation of the incremental changes to change the cell state from the quiescent to the active state

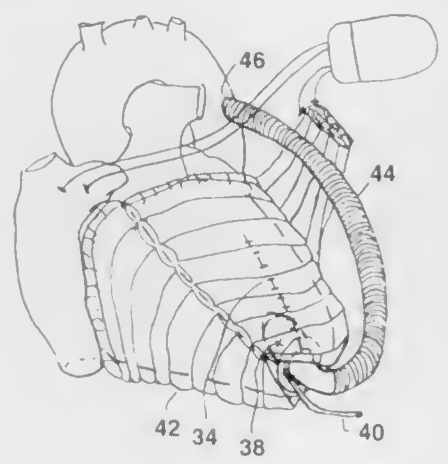
5,738,626
TWO-STEP CARDIOMYOPLASTY WITH VENTRICULAR REDUCTION

Robert Jarvik, 124 W. 60th. St., New York, N.Y. 10023

Filed Jun. 14, 1996, Ser. No. 661,342

Int. Cl.^{6} A61N *1/362*

U.S. Cl. 600—16 3 Claims



2. The method of two-step surgical treatment of dilated congestive heart failure comprised of;

a) excising a portion of the dilated left ventricular myocardial tissue,

b) partially suturing the myocardial tissue closed so as to significantly reduce the diameter of the left ventricular chamber while leaving an opening,

c) implanting a mechanical left ventricular assist device including a tubular conduit, utilizing said opening as a route for said assist device to pump blood from the left ventricle through said conduit into the aorta,

d) performing a cardiomyoplasty,

e) running said left ventricular assist device during the period of cardiomyoplasty conditioning, and,

f) re-operating and removing the left ventricle assist device after myoplasty conditioning.

5,738,627
BI-VENTRICULAR CARDIAC ASSIST DEVICE

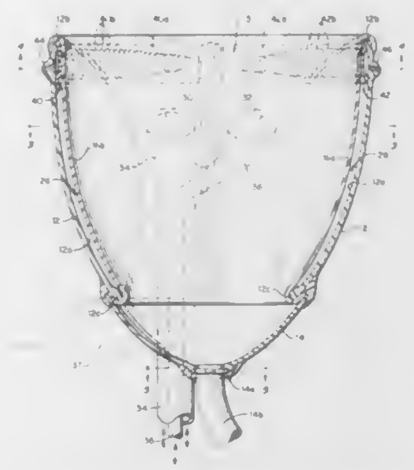
Stephen G. Kovacs, and James E. Lowe, both of Durham, N.C., assignors to Duke University, Durham, N.C.

Continuation-in-part of Ser. No. 655,310, May 21, 1996, which is a continuation of Ser. No. 292,726, Aug. 18, 1994, abandoned. This application Jan. 15, 1997, Ser. No. 784,130

Int. Cl.^{6} A61M *1/10*

U.S. Cl. 600—16 39 Claims

1. A biventricular cardiac assist device comprising:



(a) a self-supporting cup-shaped outer shell having opposed upper and lower ends, and an inner surface which establishes an interior cavity for receiving a heart therein;

(b) a diametrically opposed pair of slots oriented generally longitudinally between said upper and lower ends of said outer shell;

(c) an annular diaphragm conformably shaped, and disposed adjacent, to said inner surface of said outer shell,

(d) said diaphragm including upper and lower edges bonded to said outer shell at said upper and lower ends thereof; and

(e) said diaphragm including a diametrically opposed, generally longitudinally oriented connection flanges each coupled to a respective one of said slots and bonded to said outer shell so that said diaphragm defines a pair of semi-annular fluid chambers with said inner surface of said outer shell.

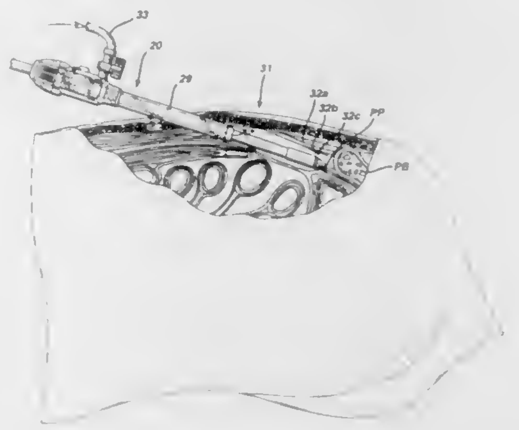
5,738,628
SURGICAL DISSECTOR AND METHOD FOR ITS USE

Thomas J. Sierocuk; Lynetta J. Freeman, both of West Chester; Michel A. Paul, Cincinnati, all of Ohio, and Francis J. Kramer, Fort Thomas, Ky., assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio

Filed Mar. 24, 1995, Ser. No. 409,564

Int. Cl.^{6} A61B *1/00*

U.S. Cl. 600—104 9 Claims



1. An improved surgical method for creating an operative space for performing a surgical procedure on a patient, the method having the steps of providing an instrument with an elongated shaft and a blunt tip at the shaft distal end, introducing the tip of the instrument adjacent to a first layer of internal bodily tissue desired to be dissected from adjacent layers of the tissue, and manually dissecting the first layer from the adjacent layers so as to create the operative space by advancing the instrument in a direction generally parallel to and between the first layer and the adjacent layers, wherein the improvement comprises,

insufflating the operative space with a pressurizing fluid concurrently with the step of manually dissecting so as to create an insufflated operative space, and

removing the instrument from the patient after the insufflated operative space has been created for performing a surgical procedure within the insufflated operative space with another surgical instrument inserted into the insufflated operative space between the first layer and the adjacent layers of tissue.

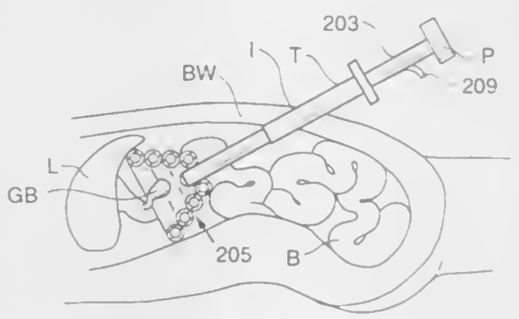
5,738,629
SELF-RETRACTING ENDOSCOPE

Frederic H. Moll, San Francisco, and Albert K. Chin, Palo Alto, both of Calif., assignors to Origin Medsystems, Inc., Menlo Park, Calif.

Continuation of Ser. No. 212,352, Mar. 14, 1994, abandoned, which is a division of Ser. No. 877,995, May 4, 1992, Pat. No. 5,361,752, which is a continuation-in-part of Ser. No. 794,590, Nov. 19, 1991, Pat. No. 5,309,896, which is a continuation-in-part of Ser. No. 706,781, May 29, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 461,183

Int. Cl.^{6} A61B *12/00*

U.S. Cl. 600—116 12 Claims



10. Apparatus for observing a tissue inside the body comprising:

an endoscope having a distal end adapted to be inserted into the body and having a field of view extending distally from the distal end;

an inflatable chamber having a toroidal shape with a central passage therethrough and having a collapsed condition and an inflated condition, wherein the inflatable chamber is attached to the endoscope adjacent to the distal end thereof such that the field of view of the endoscope extends through the central passage, wherein the inflatable chamber in the collapsed condition surrounds the distal end of the endoscope outside of the field of view such that the distal end of the endoscope extends distally beyond the distal end of the collapsed inflatable chamber, and wherein the inflatable chamber in the inflated condition has an expanded shape that extends distally and radially from the distal end of the endoscope outside of the field of view; and

means for inflating the inflatable chamber.

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5,738,630

ENDOSCOPE SYSTEM INCLUDING ENDOSCOPE AND PROTECTION COVER

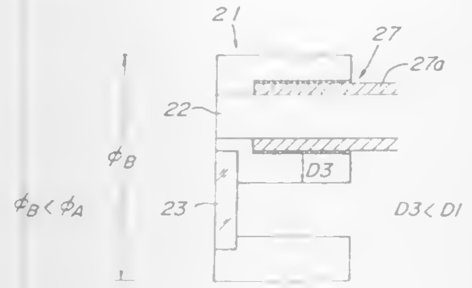
Akira Suzuki, Kitatsuru-Gun; Hisao Yabe; Yoshihiro Iida, both of Hachioji; Hideo Ito, Akishima; Yoshio Tashiro, Hino; Minoru Yamazaki, Hachioji; Osamu Tamada, Hachioji; Hiroshi Ishii, Hachinji; Jin Kira, Nakano-ku, and Takeshi Yokoi, Hino, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Division of Ser. No. 361,678, Dec. 22, 1994, Pat. No. 5,674,182, which is a continuation-in-part of Ser. No. 38,092, Mar. 30, 1993, abandoned. This application Jan. 30, 1996, Ser. No. 593,844

Claims priority, application Japan, Feb. 26, 1993, 5-007455; Feb. 26, 1993, 5-007456; Mar. 1, 1993, 5-007890; Dec. 22, 1993, 5-325311; Dec. 27, 1993, 5-331839; Dec. 28, 1993, 5-337227

Int. Cl.^{6} A61B *1/04*

U.S. Cl. 600—121 4 Claims



1. An endoscope system comprising:

an endoscope including an insertion section having a proximal end and a distal end and being insertable into a cavity under inspection, and an operation section connected to the proximal end of the insertion section; and

a protection cover which covers the insertion section of the endoscope, said protection cover having a proximal end and a distal end, said distal end of said protection cover having a through hole, said protection cover further including a channel tube which extends between the proximal end and the distal end of the protection cover, a distal end member provided at the distal end of the protection cover, and an optical window member arranged at an end surface of said distal end member;

wherein said channel tube has a tube end which is in communication with said through hole and which is connected to the distal end member of the protection cover at a location which is situated behind the optical window member relative to a longitudinal direction of said protection cover.

5,738,631

RATCHET CONTROL MECHANISM FOR AN ENDOSCOPE

Gregory S. Konstorum, Stamford, Conn., assignor to Circon Corporation, Santa Barbara, Calif.

Filed Oct. 27, 1994, Ser. No. 330,314

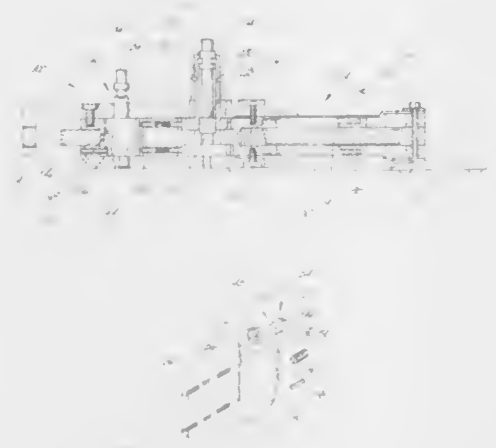
Int. Cl.^{7} A61B *1/00; 1/005*

U.S. Cl. 600—148 17 Claims

1. A ratchet control mechanism for an endoscope having a generally elongated flexible shaft extending between a control head having an outer surface and a hollowed out central area at a proximal end thereof and an objective assembly at the distal end thereof, said control mechanism comprising:

an inner shaft having one end thereof which terminates in a first driving end and a second end which is operatively connected to a first spur gear;

an outer shaft having an opening extending therethrough which encloses said inner shaft, said outer shaft having one end thereof which terminates in a second driving member and having a second end which is operatively connected to a second spur gear, said outer shaft rotatably supporting said inner shaft wherein said first spur gear on the second end of said inner shaft is in a spaced opposed relationship from said second spur gear on the second end of said outer shaft,



means defining a ratchet mechanism having

a rotatable ratchet member having an outer cam surface defining at selected locations thereon at least one of a continuous surface, a first indentation and a second indentation, said ratchet member being positioned substantially perpendicular to and spaced from said first spur gear and said second spur gear; and

means defining a pair of resilient actuation members having a compressed state and an uncompressed state positioned in the space between said first and second spur gears and the outer cam surface of said ratchet shaft and when said ratchet member is in a first position each of said pair of resilient actuation members communicate with one of said continuous surface, said first indentation and second indentation enabling the resilient actuation members to be in an uncompressed state such that said inner shaft and said outer shaft are rotatable with the first and second spur gears being out of ratchet engagement with said pair of resilient actuation members and wherein said ratchet member is in one of the second and third positions at least one of said first and second spring loaded pins is restricted from extending partially into one of said first and second indentations and engage the cam outer surface causing at least one of said first and second spring loaded pins to be urged into a compressed state and into engagement with at least of one said first spur gear and second spur gear forming a ratchet engagement therebetween such that rotation of at least one of said inner shaft and said outer shaft occurs under ratchet control to inhibit reversal of motion.

5,738,632

DEVICE FOR USE IN COMBINATION WITH A MAGNETIC RESONANCE IMAGING APPARATUS

Masaru Karasawa, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 16, 1995, Ser. No. 405,203

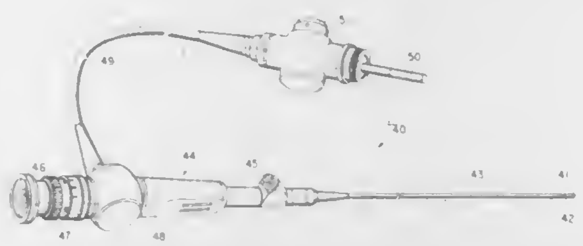
Claims priority, application Japan, Mar. 18, 1994, 6-049097; Mar. 9, 1995, 7-049501

Int. Cl.^{6} A61B *5/055*

U.S. Cl. 600—410 8 Claims

1. A device for use in combination with a magnetic resonance imaging apparatus which generates a static magnetic field and detects magnetic resonance in a living body placed in the static magnetic field, said device comprising:

a first distal end portion enterable into a region to be imaged by the apparatus and having at least one of a magnetic susceptibility and a magnetic permeability which has a value such that a uniformity of the static magnetic field generated by the apparatus remains substantially undistorted as the first portion is moved in a desired manner in the static magnetic field;



the first distal end portion including an antenna housing portion and a magnetic resonance signal-receiving antenna, the antenna housing portion having a portion which houses the magnetic resonance signal-receiving antenna, and the first distal end portion being formed of a material having a dielectric constant which decreases an attenuation of an electromagnetic wave having a magnetic resonance frequency; and

a second proximal end portion unable to enter a body cavity and having at least one of a magnetic susceptibility and a magnetic permeability which is higher in a value thereof than a magnetic susceptibility and magnetic permeability of the first distal end portion and has a value such that the second proximal portion is not attracted to the static magnetic field; and

a third intermediate portion unable to enter the region to be imaged, able to enter the body cavity, and having at least one of a magnetic susceptibility and a magnetic permeability which has a value higher than the value of the first distal end portion and lower than the value of the second proximal end portion and has at least one of the magnetic susceptibility and magnetic permeability such that disturbances in a uniformity of the static magnetic field are small, the third intermediate portion being connected at one end with said first distal end portion and connected at an opposite end with said second proximal end portion so as to be intermediate said first distal end portion and said second proximal end portion.

5,738,633

OTO-ACOUSTIC EMISSION ANALYSER

Christian Christiansen, Herley, Denmark, assignor to Madsen Electronics A/S, Taastrup, Denmark

PCT No. PCT/DK94/00458, § 371 Date Jun. 6, 1996, § 102(e) Date Jun. 6, 1996, PCT Pub. No. WO95/15712, PCT Pub. Date Jun. 15, 1995

PCT Filed Dec. 6, 1994, Ser. No. 646,336

Claims priority, application Denmark, Dec. 10, 1993, 1387/93

Int. Cl.^{5} A61B *5/00*

U.S. Cl. 600—559 10 Claims

1. Apparatus for measuring oto acoustic emission from a person's inner ear, comprising:

a measuring probe having at least one signal generator, and at least one signal receiver, the measuring probe adapted for introduction into the person's outer ear,

an electronic circuit for generating stimulus signals, including acoustic signals, and for measuring and processing signals emitted by the person's inner ear in response to a stimulus signal from the at least one signal generator,

a display to display values of the signals,

a power supply unit to supply electrical power to the measuring probe, the electronic circuit and the display, and

a housing to hold the measuring probe, the electronic circuit, the display and the power supply unit, the housing being adapted to be held in a user's hand.

5,738,634

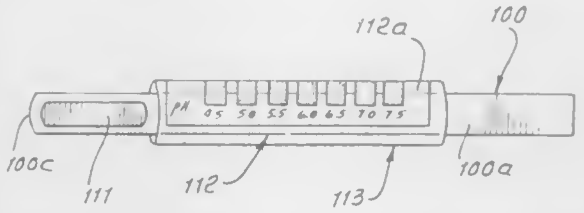
PH MEASUREMENT OF BODY FLUID

James C. Caillouette, 685 Oak Knoll Cir., Pasadena, Calif. 91106

Continuation-in-part of Ser. No. 376,830, Jan. 23, 1995, Pat. No. 5,664,579, which is a continuation-in-part of Ser. No. 295,399, Aug. 25, 1994, Pat. No. 5,425,377. This application Mar. 3, 1997, Ser. No. 810,347

Int. Cl.^{6} A61B *5/00*

U.S. Cl. 600—572 25 Claims



1. In the method for detecting pH of vaginal moisture, the steps that include

a) providing an elongated first carrier,

b) providing a pH detector on the carrier at an end portion thereof,

c) manipulating said carrier to effect exposure of said detector to vaginal moisture, thereby to cause said detector to exhibit a color change,

d) providing a pH correlating color comparison measurement means having an elongation direction, and relatively moving said color comparison means and said carrier generally parallel to said elongation direction to effect relative movement of said color comparison means, in sufficiently close association with said detector to allow visual comparison of the changed color exhibited by said detector with a pH correlated color provided by said measurement means

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5,738,635

ADJUSTABLE FOCUSING THERAPEUTIC APPARATUS WITH NO SECONDARY FOCUSING

Jean-Yves Chapelon, Villeurbanne; Dominique Cathignol, Genas, and Emmanuel Blanc, St.-Genis-Laval, all of France, assignors to Technomed Medical Systems, Vaux En Velin, France

Continuation of Ser. No. 307,719, Nov. 30, 1994, abandoned. This application Apr. 10, 1996, Ser. No. 629,922

Claims priority, application France, Jan. 22, 1993, 93 00662

Int. Cl.^{6} A61B *17/22*

U.S. Cl. 601—2 16 Claims

1. A method of electronically focussing a transducer having a plurality of piezoelectric elements, for treating living tissue, the method comprising the steps of: placing the living tissue in a position to be treated by the transducer, generating an electronic signal by a signal generator, said electronic signal having a Dirac-type autocorrelation function;

supplying the electronic signal to the plurality of piezoelectric elements such that the electronic signal supplied to each piezoelectric element is a delayed electronic signal delayed in

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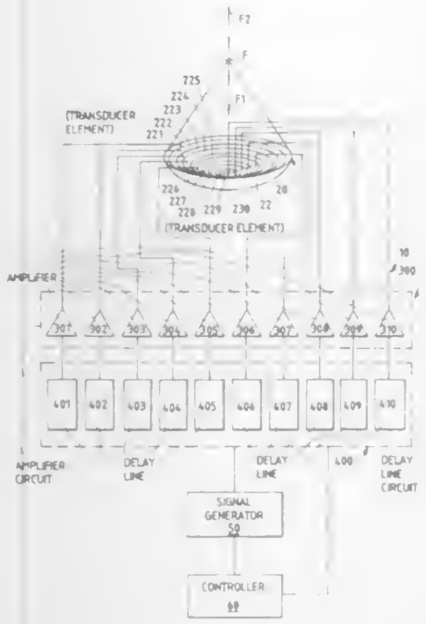


time by a predetermined amount relative to the electronic signals supplied to the other piezoelectric elements and;

activating the piezoelectric elements with the delayed electronic signals such that the delayed electronic signals cause a secondary focusing of the transducer to be eliminated or minimized relative to a primary focusing of the transducer.

5,738,636
CONTINUOUS PASSIVE MOTION DEVICES FOR JOINTS

John H. Saringer, Markham, and Jeffrey J. Culhane, Pickering, both of Canada, assignors to Ortholngic Corporation, Phoenix, Ariz.

Filed Nov. 21, 1995, Ser. No. 561,193

Int. Cl.⁶ A61H *1/02*

U.S. Cl. 601—5 **33 Claims**

1. A device for providing continuous passive motion of an anatomical joint, comprising:

a first support member adapted to engage a first limb portion on one side of a joint;

a second support member adapted to engage a second limb portion on another side of said joint.

an actuator and a shaft with distal and proximal end portions, said shaft being pivotally movably by said actuator at said proximal end portion, said actuator being operable to pivot said shaft in sideways motion;

positioning means attached to said first support member and adapted to extend at least partially about the first limb portion, said actuator being adjustably mounted to said positioning means so that said actuator can be moved in an arcuate path relative to said joint, and locking means for releasibly locking said actuator in a selected position to said positioning means; and

said second support member being adjustably attached at the distal end portion of said shaft so that a position of attachment of said second support member to said shaft can be adjusted responsive to the selected position of said actuator relative to the limb.

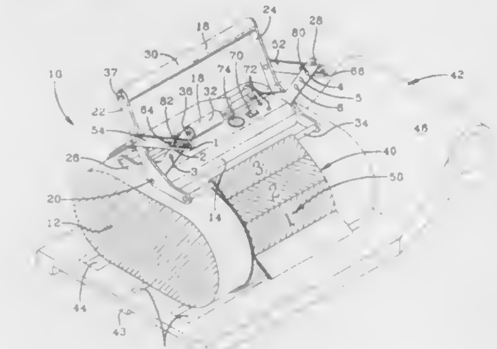
5,738,637
CHEST COMPRESSION APPARATUS FOR CARDIAC ARREST

Kevin A. Kelly, Galloway; Thomas E. Lach; Ralph D. Lach, both of Columbus, and Arthur W. Handshy, Worthington, all of Ohio, assignors to Deca-Medics, Inc., Hilliard, Ohio

Filed Dec. 15, 1995, Ser. No. 573,465

Int. Cl.⁶ A61H *31/00*

U.S. Cl. 601—41 **68 Claims**



1. A CPR apparatus for increasing the flow of blood in a patient, the apparatus comprising:

(a) a base contoured to seat near a central region of the patient's chest;

(b) a manual actuator;

(c) a substantially inelastic belt for wrapping around the chest; and

(d) a force converter mounted on the base, connected to the actuator and having belt connectors coupled to opposite first and second extremities of the belt, for converting a force manually applied to the actuator and directed inwardly toward the chest into (1) a chest compressing resultant directed through the base toward the chest and (2) belt tightening resultants applied to the belt connectors directed tangential to the chest whereby the inwardly and tangentially directed force increases the blood flow in the natural direction.

5,738,638
PUMP POWERED MASSAGE APPARATUS HAVING A WATER PERMEABLE MEMBRANE

Melvyn Lane Henkin, 5011 Donna Ave., Tarzana, Calif. 91356, and Jordan Myron Laby, 3038 Bayshore, Ventura, Calif. 93001

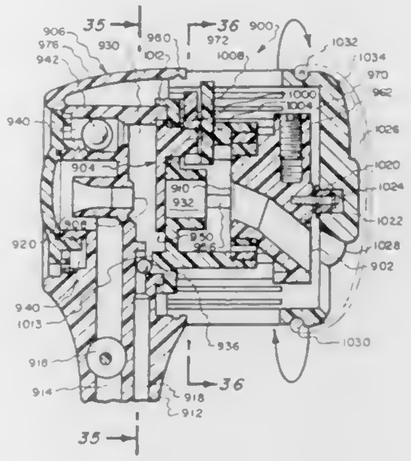
Continuation-in-part of Ser. No. 48,356, Apr. 15, 1993, Pat. No. 5,634,888. This application Feb. 23, 1994, Ser. No. 200,350

Int. Cl.⁶ A61H *9/00*

U.S. Cl. 601—148 **18 Claims**

1. Hydromassage apparatus useful in combination with a water tub and an electric pump source supplying water drawn from a pool in said tub, said apparatus comprising:

a water supply port configured for coupling to said pump source;



a hydromassage passageway defining an entrance orifice and a discharge orifice for discharging a hydromassage stream therefrom;

a nozzle means responsive to a supplied water flow from said pump source for providing a high velocity water flow to said entrance orifice;

a flexible water permeable cloth membrane having front and rear faces, said membrane mounted proximate to said discharge orifice with said rear face oriented to be impacted by said hydromassage stream and said front face oriented to engage a user's body to allow said stream to pass through said membrane and impact against said user's body; and

means for supplying water proximate to said entrance orifice for entrainment by said high velocity water flow.

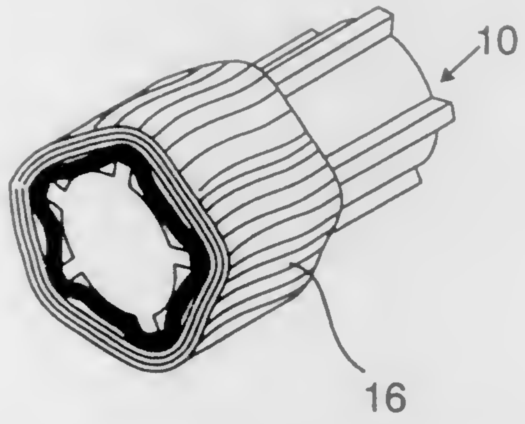
5,738,639
TREATED CORE FOR FACILITATING ORTHOPEDIC CASTING

Glenn F. Cueman; Henry L. Richbourg, Jr., both of Davidson, and Tony A. Williamson, Troutman, all of N.C., assignors to Clinitex Medical Corporation, Huntersville, N.C.

Filed May 3, 1996, Ser. No. 642,625

Int. Cl.⁶ A61F *5/00*

U.S. Cl. 602—6 **9 Claims**



1. An orthopedic casting material comprising:

a water-impermeable elongated core coated with a water soluble agent, said water soluble agent selected from the group consisting of alkali salts of fatty acids and compounds having a hydrophobic hydrocarbon end plus a sulfonate or sulfate ionic end;

a fabric substrate wrapped about said core; and

a reactive fluid prepolymer resin in contact with said fabric substrate.

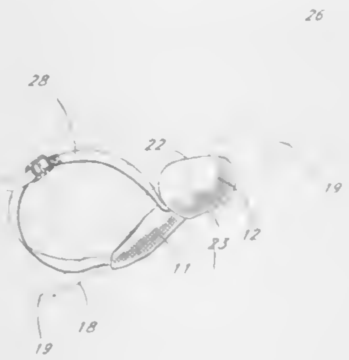
5,738,640
UPPER SPINE AND NECK SUPPORT CUSHION

Diane Carlson-Orsi, 20360 Holt Ave., Covina, Calif. 91724

Continuation of Ser. No. 699,926, Aug. 20, 1996, abandoned. This application Aug. 25, 1997, Ser. No. 917,160

Int. Cl.⁶ A61F *5/00*

U.S. Cl. 602—19 **1 Claim**



1. An upper spine and neck support cushion consisting essentially of:

a generally vertical spine support pillow having a length from about four inches to about eight inches, said spine support pillow having a bottom, a spine contacting surface, sides and a furniture contacting side and a top, said spine support pillow being constructed from a soft pliant material.

a generally horizontal neck support pillow attached to the top of said spine support pillow, said generally horizontal neck support pillow having a neck contacting surface and a furniture contacting surface, a top surface and a bottom surface, a right end and a left end, said neck support pillow being configured and sized to be free of any head support means whereby the user's head will be supported by the surface upon which a user may rest and not the neck support pillow; and

means for holding said upper spine and neck support pillow to a human wearer wherein said means for holding said upper spine and neck support pillow to a human wearer comprises a right hand strap having a lower end affixed to said spine support pillow near the bottom thereof and an upper end affixed to a right hand side of said neck support pillow and a left hand strap having a lower end affixed to said spine support pillow near the bottom thereof and an upper end affixed to a left hand side of said neck support pillow and length adjusting means between the upper and lower ends of each strap.

5,738,641
BLOOD WITHDRAWAL PATCH

Robert L. Watson, 1704 Singletree Way, Bowling Green, Ky. 42103, and William R. Knepshield, 889 S. Matlack St., West Chester, Pa. 19382

Filed Jul. 31, 1996, Ser. No. 688,845

Int. Cl.⁶ A61F *13/00*

U.S. Cl. 602—43 **9 Claims**

1. A patch for facilitating injection into or withdrawal of blood from a patient and for confining blood from the needle wound comprising

an absorbent pad having a first surface to be placed against the skin of a patient around an intended penetration site for injection or withdrawal and a central opening;

a transparent, elastomeric, self-sealing membrane through which a needle can penetrate; and

a transparent cover layer having an outer surface and an adhesive surface for holding said membrane in said central opening of said pad and for adhering said patch to skin of a patient, and having a central opening substantially aligned with the

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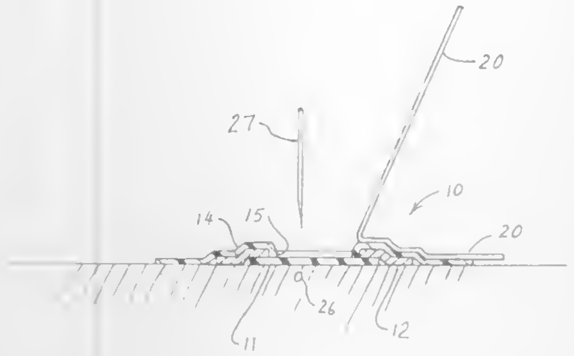


central opening of said pad to expose a central portion of the membrane allowing visual identification of a selected penetration site whereby a blood vessel can be located through the membrane and cover and a needle can be passed through said membrane and the patient's skin into a vessel for injection or blood withdrawal, and whereby, after injection or withdrawal, the needle is extracted, the membrane wipes the needle and forms a cavity with the pad and the patient's skin to contain blood from the penetration site until after hemostasis.

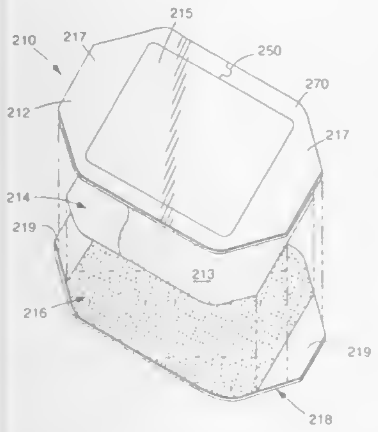
5,738,642
CARRIER DELIVERED DRESSING AND METHOD OF MANUFACTURE

Steven B. Heinecke, New Richmond, Wis., and Donald G. Peterson, Shoreview, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 258,789, Jun. 13, 1994, Pat. No. 5,531,855, which is a continuation-in-part of Ser. No. 34,306, Mar. 22, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 463,788

Int. Cl.^{6} A61F *13/00;15/00;13/02*

U.S. Cl. 602—58 18 Claims



1 An adhesive composite dressing comprising:
(a) a conformable backing having top and bottom faces.
(b) a low adhesion coating on at least a portion of the top face of the backing:
(c) a pressure sensitive adhesive coated on at least a portion of the bottom face of the backing:
(d) a liner releasably adhered to the pressure sensitive adhesive opposite the backing, and
(e) a carrier releasably attached to at least a portion of the top face of the backing and the low adhesion coating, the carrier including a cut substantially defining a window proximate a center of the backing and a carrier frame proximate a perimeter of the backing. the carrier frame including a non-linear cut connecting the perimeter of the carrier to the cut defining the window and the carrier further being formed of material substantially more rigid than the backing to provide rigidity to the backing and the pressure sensitive adhesive after removal of the liner.

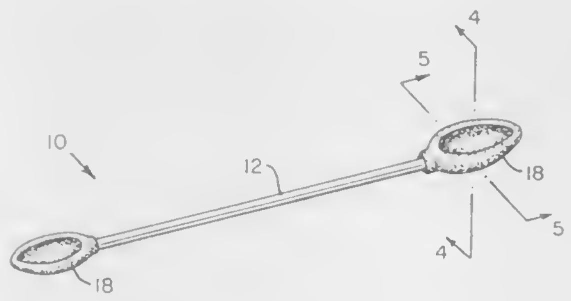
5,738,643
SWAB

Prince-Allen Stredic, III, P.O. Box 7047, Austin, Tex. 78713

Filed Apr. 2, 1996, Ser. No. 626,518

Int. Cl.^{6} A61M *35/00*

U.S. Cl. 604—1 20 Claims



1. A swab. comprising:
a handle having opposing ends:
a cup secured to one of said opposing ends of said handle. said cup having a concave upper surface and a convex lower surface: and,
an absorbent material positioned over and bonded to said concave upper surface and said convex lower surface of said cup.

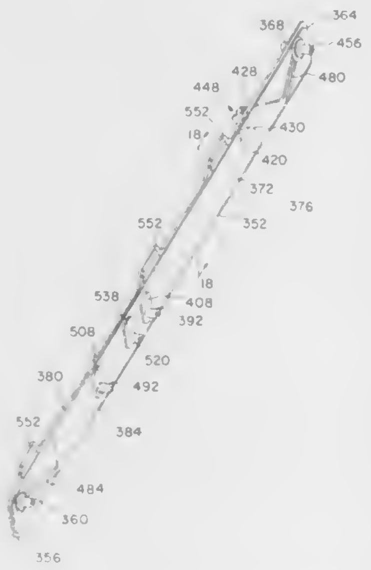
5,738,644
EXTRACORPOREAL BLOOD PROCESSING METHODS AND APPARATUS

Brian M. Holmes, Evergreen; Jeffrey J. Blakeslee, Arvada; Marlene Adele Bainbridge, and Frank Corbin, III, both of Littleton, all of Colo., assignors to Cobe Laboratories, Inc., Arvada, Colo.

Filed Jun. 7, 1995, Ser. No. 483,574

Int. Cl.^{6} A61M *35/00*

U.S. Cl. 604—4 19 Claims



1. An extracorporeal system for an apheresis system comprising a blood processing channel, said system comprising:
a blood processing vessel positionable in said channel and comprising a blood-related port communicating with an interior of said blood processing vessel; and
a support interfacing with said blood-related port, and further interfacing with an exterior surface of said blood processing vessel in overlapping relation with a portion of said blood processing vessel, wherein said blood processing channel comprises first and second channel sidewalls, wherein said channel housing further comprises a blood-related port slot which intersects with one of said first and second channel sidewalls and a recess formed on said one of said first and second channel sidewalls and containing at least part of said blood-related port slot, wherein said support of said blood processing vessel is positioned within said recess.

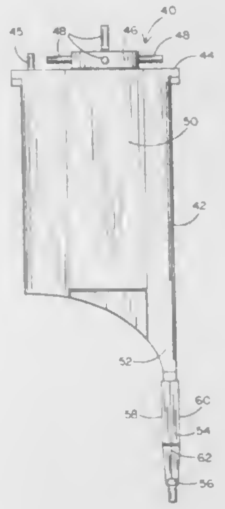
5,738,645
SOFT TIP BLOOD RESERVOIR FOR HEART-LUNG MACHINES

Neil D. Plotkin, Pasadena, Calif., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 30, 1996, Ser. No. 643,147

Int. Cl.^{6} A61M *37/00*

U.S. Cl. 604—4 6 Claims



1 A blood reservoir for heart-lung machines, comprising:
a) a rigid ventable housing;
b) a blood inlet on said housing for introducing blood thereinto;
c) a flexible bag sealingly connected to the underside of said housing in fluid communication therewith, said bag being inherently biased to sealingly collapse in the absence of liquid in said bag; and
d) a blood outlet on said bag on the end thereof opposite said housing for discharging blood from said housing and bag.

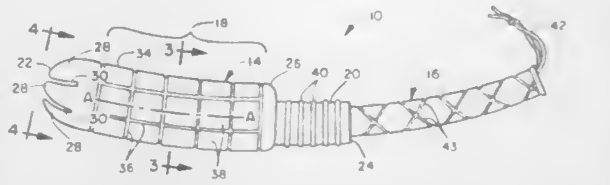
5,738,646
THERMOPLASTIC APPLICATOR EXHIBITING ACCELERATED BREAKUP WHEN IMMERSED IN WATER

Donald George Fox, Neenah; Daniel James Heuer, Larsen, and Frederick Myron Guenther, Oshkosh, all of Wis., assignors to Kimberly- Clark Worldwide, Inc., Neenah, Wis.

Continuation of Ser. No. 126,465, Sep. 24, 1993, Pat. No. 5,395,308. This application Jan. 30, 1995, Ser. No. 381,007

Int. Cl.^{6} A61F *13/20*

U.S. Cl. 604—15 22 Claims



14 A tampon applicator comprising:
a) a hollow, cylindrically shaped member constructed of a thermoplastic. water-dispersible material which is capable of holding a pledget. said member having an expulsion end which contains a plurality of petals and an opposite end which contains a finger grip. said petals capable of radially flexing outward to enable said pledget to be expelled from said member. and said member having a wall with a thickness intermediate said ends of less than about 0.05 inches;
b) a plunger telescopically mounted in said cylindrically shaped member, said plunger adapted to expel said pledget through said expulsion end; and
c) a plurality of grooves formed in said wall of said cylindrically shaped member intermediate said ends. said grooves accelerating breakup of said member when said applicator is immersed in water. said grooves having a depth of between about 5%–75% of said wall thickness

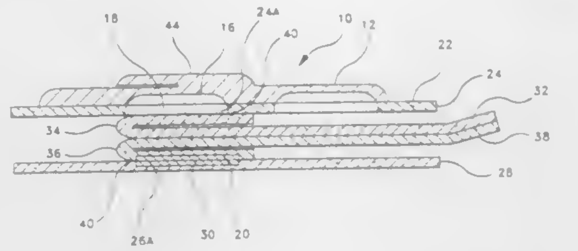
5,738,647
USER ACTIVATED IONTOPHORETIC DEVICE AND METHOD FOR ACTIVATING SAME

Michael I. Bernhard, Summit, N.J., and John D. DeNuzzio, Chapel Hill, N.C., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 27, 1996, Ser. No. 722,813

Int. Cl.^{6} A61N *1/30*

U.S. Cl. 604—20 18 Claims



1. A user activated iontophoretic device for use in delivering at least one medication through an applied area of a patient. such as the skin. mucus membrane and the like. comprising:
a first portion and a second portion. said first portion including an electrode assembly and a electrode reservoir and said second portion including a drug reservoir:
said electrode assembly including electrode means for driving a medication into the patient to be absorbed by the body of the patient; and
said drug reservoir containing an active compound to be delivered to the applied area of the patient. with the active compound being maintained in a dry state prior to activation of the device:
barrier means for sealingly maintaining said first portion and said second portion separate from one another. with the electrode assembly maintained in electrically communicating relation with the electrode reservoir. and with the active compound contained by the drug reservoir maintained separate in relation to the first portion prior to activation so that upon removal of said barrier means. the electrode reservoir and the drug reservoir are brought into fluid conducting contact with one another so that said drug is dissolved in an aqueous solution contained in said electrode reservoir.

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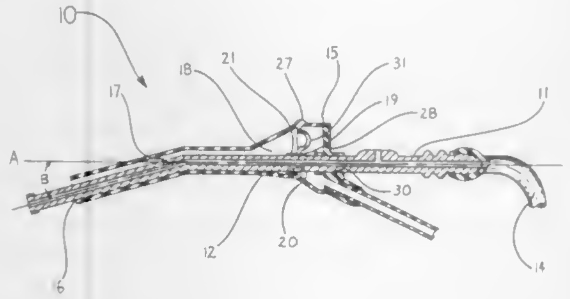
5,738,648
METHOD AND APPARATUS FOR A VALVE AND IRRIGATOR

Michael J. Lands, Louisville; James J. Podracky, Denver; Thomas P. Ryan, Fort Collins, and Dale F. Schmaltz, Boulder, all of Colo., assignors to Valleylab Inc, Boulder, Colo.

Filed Jan. 23, 1996, Ser. No. 590,233
Int. Cl.⁶ A61M *1/00*
U.S. Cl. 604—35 **15 Claims**



1. A valve and irrigator for use in combination with a suction tube and an infusion bag with irrigant, the valve and irrigator comprising:

an elongate funnel having an axis;
an enlarged entrance on the elongate funnel;
an extended exit duct on the elongate funnel opposite the enlarged entrance and along the axis, the extended exit duct merging with the enlarged entrance;
a flow passage through the elongate funnel, the flow passage connecting the enlarged entrance to the extended exit duct for permitting fluid communication therethrough;
a merger between the enlarged entrance and the extended exit duct;
a cavity between the enlarged entrance and the merger with the extended exit duct;
a web across the cavity near the enlarged entrance for sealingly separating the enlarged entrance from the extended exit duct;
a portal in the web and passing therethrough, the portal located along the axis;
a lid disposed proximally of the web and across the enlarged entrance, the lid having an inlet for irrigation from an infusion bag and a pass through for a suction tube, the lid closing the enlarged entrance and forming a chamber between the web and the lid, and
a slit within the web, near the portal and spaced from the axis, the slit as a closed mouth composed of a pair of sealing lips normally together but able to separate and define a passageway for fluid flow through the web.

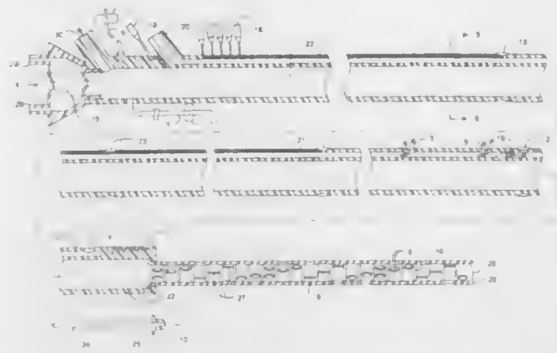
5,738,649
PERIPHERAL ENTRY BIVENTRICULAR CATHETER SYSTEM FOR PROVIDING ACCESS TO THE HEART FOR CARDIOPULMONARY SURGERY OR FOR PROLONGED CIRCULATORY SUPPORT OF THE HEART

John A. Macoviak, Huntington Beach, Calif., assignor to Cardeon Corporation, Saratoga, Calif.

Filed Apr. 16, 1996, Ser. No. 632,883
Int. Cl.⁶ A61M *39/00*
U.S. Cl. 604—43 **17 Claims**

1. A biventricular vascular catheter system for providing access to a patient's heart for cardiopulmonary surgery or for prolonged cardiopulmonary circulatory support of the heart comprising:

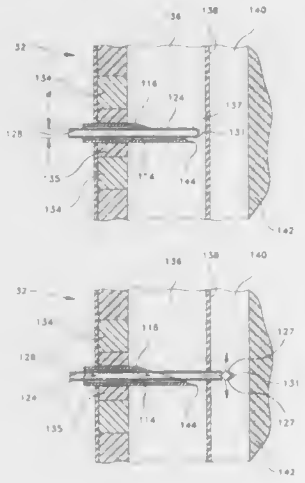
(a) an elongated catheter shaft advanceable from a peripheral vessel to and through all chambers of the heart, including across a septum, having a proximal end adapted to extend out of the patient and a distal end adapted to move through the chambers of the heart, said distal end having multiple fenestrations and a first inner lumen extending therein from a port in the distal end of the shaft to a location in the proximal end; and
(b) a succession of expandable members positioned along the catheter shaft such that after the catheter has been positioned in the patient's body in a left heart, the first expandable member is located at the proximal end of the catheter shaft at the site of entry of the shaft into the patient, the second expandable member is located distal to the first expandable member which is dimensioned and configured so that it seats in the proximal descending thoracic aorta, a third expandable member distal to the second expandable member which is dimensioned and configured so that it seats between the coronary ostia and the brachiocephalic artery and a fourth expandable member distal to the third expandable member which is dimensioned and configured so that it seats in the left ventricular outflow tract, each such expandable member having an interior which is in fluid communication with an inflation lumen extending within the catheter shaft from a location from within the respective expandable member to a location in the proximal portion which is adapted to extend out of the patient.



5,738,650
SUBARACHNOID NEEDLE AND METHOD FOR ADMINISTERING THERAPEUTIC AGENTS TO THE SUBARACHNOID SPACE

Joseph John Gregg, Hasbrouck Heights, N.J., assignor to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 326,569, Oct. 20, 1994, Pat. No. 5,470,318, which is a continuation of Ser. No. 11,056, Jan. 29, 1993, abandoned. This application Aug. 22, 1995, Ser. No. 517,863
Int. Cl.⁶ A61M *31/00*
U.S. Cl. 604—51 **6 Claims**



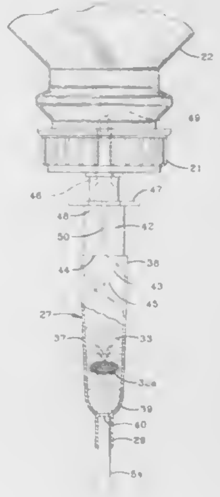
1. A method for introducing an injectable medicament into a subarachnoid space of a patient comprising:

placing an elongate introducer having a distal point and a hollow bore therethrough into an epidural space of the patient until said distal point is in close approximation to a dural membrane of the patient, said bore of said introducer having an internal diameter larger than an external diameter of a subarachnoid needle;
providing a subarachnoid needle having an external diameter and comprising an elongate passageway having a sidewall, a proximal end and a distal end including a closed point, said subarachnoid needle having two diametrically opposed openings through said sidewall located a distance from said closed point;
positioning said distal end of said subarachnoid needle into said bore of said introducer;
advancing said subarachnoid needle through said bore of said introducer until said distal end of said subarachnoid needle penetrates the dural membrane of the patient;
establishing a fluid communication between the subarachnoid space and said passageway through said openings; and
introducing a medicament into the subarachnoid space of the patient through said passageway through said two openings.

5,738,651
APPARATUS FOR ALTERING COMPOSITION OF NUTRITIONAL PRODUCT DURING ENTERAL TUBE FEEDING

Joseph Edward Walton, Westerville; Terrence Bruce Mazer, Reynoldsburg; Ronita Kay Geckle, Columbus; Carl Joseph Piontek, Powell, all of Ohio; Susan Beth Duel, Laurinburg, N.C.; Andre Daab-Krzykowski, Columbus, Ohio; Mark Anthony McCamish, Worthington, Ohio; Robert Louis Joseph, Columbus, Ohio, and William Guy Pierson, Canal Winchester, Ohio, assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 372,407, Jan. 13, 1995, Pat. No. 5,531,681. This application Jun. 28, 1996, Ser. No. 673,449
Int. Cl.⁶ A61M *37/00*
U.S. Cl. 604—83 **37 Claims**



1. An apparatus for modifying a liquid enteral nutritional product during the feeding thereof comprising:

a formulation chamber, the formulation chamber having an inlet and an outlet, said inlet fluidly connected to a container containing a liquid enteral nutritional product having a viscosity of at least about 3 centipoises so as to receive said product therefrom,
the formulation chamber further comprising at least one beneficial agent in at least one controlled release dosage form unit and the formulation chamber containing the at least one controlled release dosage form unit,
each beneficial agent being selected from the group consisting of nutrients, medicaments, probiotics and diagnostic agents that are each dispersible in said liquid enteral nutritional product, the controlled release dosage form unit constructed to deliver said at least one beneficial agent into said liquid enteral nutritional product over a time period in the range of at least about 30 minutes during the feeding thereof to a patient

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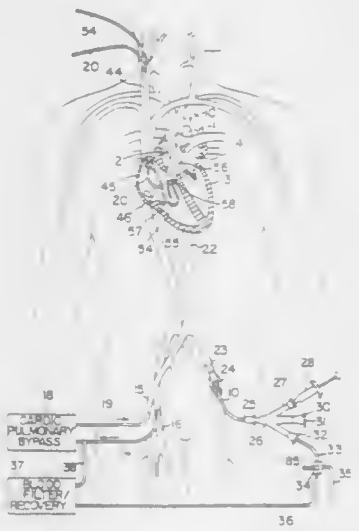
5,738,652
RETROGRADE DELIVERY CATHETER AND METHOD FOR INDUCING CARDIOPLEGIC ARREST

Stephen W. Boyd, Menlo Park; John H. Stevens; Philip C. Evard, both of Palo Alto, and Craig L. Adams, San Ramon, all of Calif., assignors to Heartport, Inc., Redwood City, Calif.

Continuation of Ser. No. 453,595, May 30, 1995, abandoned, which is a division of Ser. No. 372,741, Jan. 12, 1995, Pat. No. 5,558,644, which is a continuation-in-part of Ser. No. 282,192, Jul. 28, 1994, Pat. No. 5,584,803, which is a continuation-in-part of Ser. No. 162,742, Dec. 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 123,411, Sep. 17, 1993, abandoned, which is a continuation-in-part of Ser. No. 991,188, Dec. 15, 1992, abandoned, which is a continuation-in-part of Ser. No. 730,559, Jul. 16, 1991, Pat. No. 5,370,685. This application Jan. 17, 1997, Ser. No. 785,079
Int. Cl.⁶ A61M *29/00*
U.S. Cl. 604—96 **28 Claims**



1. A method of inducing cardioplegic arrest of a patient's heart, the heart having an aorta leading away therefrom to a peripheral artery, coronary arteries in communication with the aorta, and a brachiocephalic artery in communication with the aorta downstream from the coronary arteries, the method comprising:

providing a retrograde delivery catheter having an occluding member, the occluding member having a collapsed shape and an expanded shape, the retrograde delivery catheter also having a lumen and an outlet positioned distal to the occluding member for delivering a fluid to a patient's coronary sinus;
inserting the retrograde delivery catheter through a peripheral vein in the patient;
advancing the retrograde delivery catheter transluminally through the vein and into the patient's coronary sinus;
expanding the occluding member to thereby occlude the patient's coronary sinus; and
delivering a cardioplegic fluid comprising blood and a cardioplegic agent through the retrograde delivery catheter to the coronary sinus at a flow rate of at least 200 ml/min. and at a pump pressure of less than 300 mm Hg.

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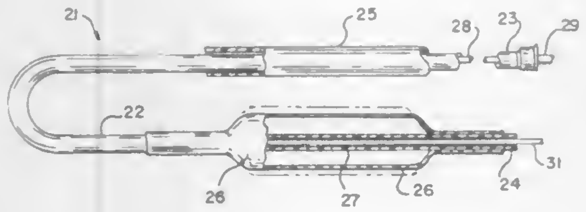
5,738,653
BALLOONS FOR MEDICAL DEVICES AND FABRICATION THEREOF

Leonard Pinchuk, Miami; Robert S. Shonk, Davis, and Thomas Trotta, Miami, all of Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Continuation of Ser. No. 475,530, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 178,765, Jan. 7, 1994, Pat. No. 5,449,371, which is a continuation of Ser. No. 958,033, Oct. 7, 1992, Pat. No. 5,304,197, which is a continuation of Ser. No. 561,747, Aug. 2, 1990, Pat. No. 5,156,612, which is a continuation of Ser. No. 452,713, Dec. 19, 1989, Pat. No. 5,108,415, which is a division of Ser. No. 384,723, Jul. 24, 1989, Pat. No. 4,906,244, which is a continuation-in-part of Ser. No. 253,069, Oct. 4, 1988, abandoned. This application Jan. 22, 1997, Ser. No. 787,095

Int. Cl.^{6} A61M *29/00*

U.S. Cl. 604—96 25 Claims



1. A dilatation balloon, comprising:

a length of thermoformable polymeric material tubing that had been radially expanded to a predetermined balloon diameter, said thermoformable polymeric material having a glass transition temperature of between about 20° C. and about 40° C.;

said dilatation balloon has a collapsed profile which has a diameter less than said predetermined balloon diameter, said dilatation balloon further having a non-distended, inflated working diameter at which the dilatation balloon is inflated to its said predetermined balloon diameter, and said dilatation balloon also exhibits a maximum stretched inflation diameter to which the dilatation balloon is expandable without bursting under needed dilatation conditions, said maximum stretched inflation diameter being in excess of said predetermined diameter; and

said dilatation balloon has a calculated tensile strength of at least about 15,000 psi.

5,738,654
SELF CLEANSING BLADDER DRAINAGE DEVICE

Claude Tihon, Eden Prairie, Minn., assignor to ContiMed, Inc., Eden Prairie, Minn.

Continuation-in-part of Ser. No. 407,297, Mar. 20, 1995, Pat. No. 5,562,622. This application Dec. 26, 1995, Ser. No. 579,592

Int. Cl.^{6} A61M *29/00*

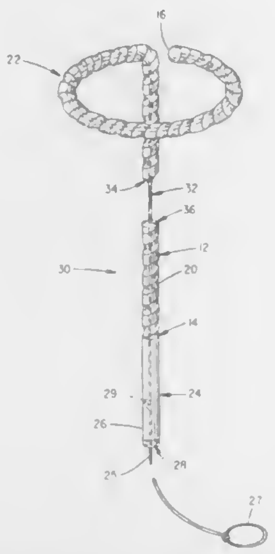
U.S. Cl. 604—105 28 Claims

1. A flexible, self-cleaning urethral drain for draining of urine and fluid from the bladder through the urethra of a patient comprising:

(a) a flexible, elongated drain body having a distal end and a proximal end with an outer diameter allowing passage through the urethra;

(b) bladder retention means located adjacent to the distal end of the drain body for retaining the drain body in place in the urethra;

(c) the drain body having an exterior surface with an open fluid drainage channel on said exterior surface cooperating with the wall of the urethra and of a sufficient depth for draining urine between the exterior surface of the drain body and the urethral wall; and



(d) means on the drain body for inhibiting longitudinal migration of said drain body in a distal direction relative to the urethral wall.

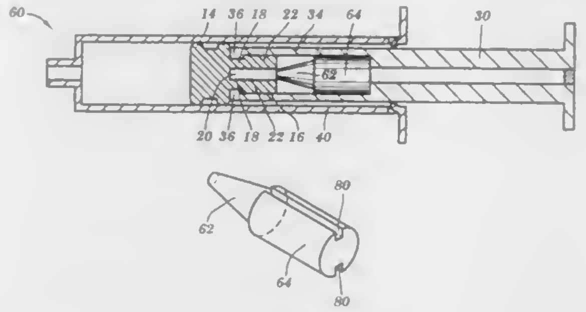
5,738,655
NONREFILLABLE SYRINGE

Anthony J. Vallelunga, 213 Schoolhouse Rd., Albany, N.Y. 12203; Thomas E. Ferari, 7 Mohawk Trail, Queensbury, N.Y. 12804, and James L. Kloss, 213 Schoolhouse Rd., Albany, N.Y. 12203

Filed Jul. 15, 1996, Ser. No. 680,169

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—110 13 Claims



1. A nonrefillable syringe comprising:

a syringe housing;

a plunger movably disposed within the interior of said syringe housing, said plunger comprising:

a plunger stem having a hollow end portion;

a piston attached to said plunger stem;

a first connecting member connected to said piston, said first connecting member comprising a plurality of arms extending longitudinally away from said piston into the hollow end portion of said plunger stem, said arms forming an aperture at an interior thereof;

a nipple assembly comprising a nipple removably matable with said aperture and a carrier for guiding said nipple longitudinally within the hollow end portion of said plunger stem, the arms of said first connecting member forcing said nipple out of said aperture as said piston is displaced within said syringe housing by said plunger stem, said piston disconnecting from said plunger stem after said nipple is forced out of said aperture; and

means for guiding said nipple assembly longitudinally through the hollow end portion of said plunger stem, said guiding means including at least one groove formed on an exterior of said carrier, and at least one complementary runner, formed on an interior of the hollow end portion of said plunger stem, and slidably disposed within said groove, for guiding said nipple assembly longitudinally through the hollow end portion of said plunger stem.

5,738,656
DRAINAGE APPARATUS AND METHOD OF USE

Wolfgang Wagner, Erzbergerstrasse 19, D-22765 Hamburg, Germany

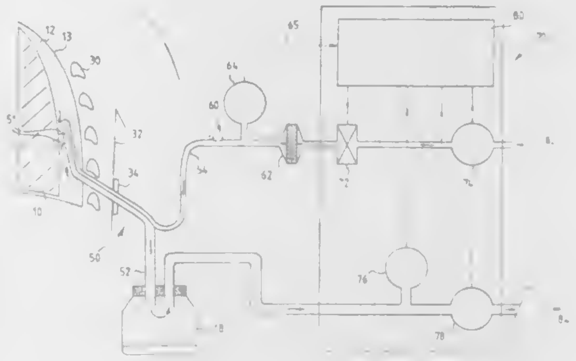
PCT No. PCT/EP94/00613, § 371 Date Sep. 1, 1995, § 102(e) Date Sep. 1, 1995, PCT Pub. No. WO94/20152, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 2, 1994, Ser. No. 513,833

Claims priority, application Germany, Mar. 2, 1993, 43 06 478.7

Int. Cl.^{6} A61M *1/00*

U.S. Cl. 604—119 20 Claims



1. A pleura drainage apparatus for removing fluids from a pleural cavity by suction, comprising a drainage tube (52) having a distal end and a proximal end, and having a lumen for the suction-removal of the fluids, means (82) connected to the drainage tube for generating a negative pressure in the pleural cavity (12), and an additional conduit (54) for supplying a gas, the additional conduit having a lumen in fluid communication with the lumen of the drainage tube (52) at the proximal end thereof, wherein the drainage tube (52) and the additional conduit (54) at least partially are provided as a double lumen tube (50), and including means (70) for measuring the difference of the fluid flows in the drainage tube (52) and in the additional conduit (54) to provide an integrated for integrating over a time interval to precisely determine an amount of fluid removed from the pleural cavity

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5,738,657
AMBULATORY ENERGIZED CONTAINER SYSTEM

Peter L. Bryant, Libertyville; Nicolaos A. Drivas, Des Plaines; Rodney M. Mittag; John K. Moore, both of Highland Park; Edward S. Tripp, Antioch; William L. Rudzena, McHenry, all of Ill., and John C. Williams, Union Grove, Wis., assignors to Abbott Laboratories, Abbott Park, Ill.

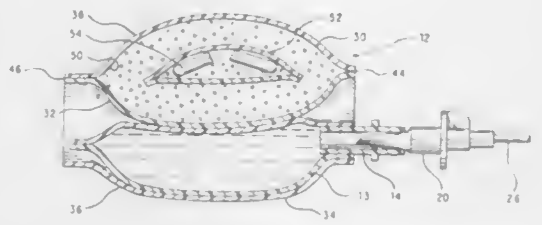
Continuation of Ser. No. 331,583, Nov. 2, 1994, abandoned, which is a continuation-in-part of Ser. No. 898,259, Jun. 15, 1992, abandoned. This application Dec. 19, 1996, Ser. No. 769,822

Int. Cl.^{6} A61M *37/00*

U.S. Cl. 604—145 9 Claims

1. An ambulatory energized container system for delivering a solution from a flexible bag of solution into a patient's indwelling vein access device, said ambulatory energized container system comprising:

a combination sleeve and bladder member, said combination member having a bladder portion and a sleeve portion, said bladder member comprising first and second sheets of a laminar material, said first and second sheets welded together along a top weld line, said first and second sheets welded



together along a bottom weld line substantially parallel to and spaced from said top weld line, said first and second sheets welded together along a first side weld line substantially perpendicular to said top and bottom weld lines, said first and second sheets welded together along a second side weld line substantially parallel to and spaced from said first side weld line, said first and second sheets welded together along a first corner weld line, said first corner weld line intersecting said top weld line and said first side weld line at substantially 135° angles, said first and second sheets welded together along a second corner weld line, said second corner weld line intersecting said top weld line and said second side weld line at substantially 135° angles, said first and second sheets welded together along a third corner weld line, said third corner weld line intersecting said bottom weld line and said second side weld line at substantially 135° angles; and said first and second sheets welded together along a fourth corner weld line intersecting said bottom weld line and said first side weld line at substantially 135° angles;

gas-generating means disposed within said bladder portion, said gas-generating means comprising a first reactive composition, a second reactive composition, and a segregating means for segregating said first and second reactive compositions, said segregating means being openable by manual manipulation thereof resulting in an exposure of said first reactive composition to said second reactive composition, said first and second reactive compositions being selected such that exposure of said first reactive, composition to said second reactive composition produces a chemical reaction resulting in a formation of a volume of gas sufficient to expand said bladder portion.

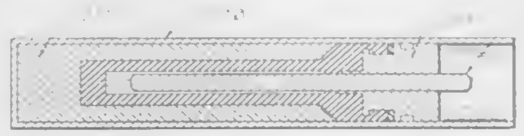
5,738,658
HEAT-ACTIVATED DRUG DELIVERY SYSTEM AND THERMAL ACTUATORS THEREFOR

Daryl D. Maus, 3550 Smuggler Cir., Boulder, Colo. 80303, and Scott F. Tibbitts, 8060 Niwot Rd. #298, Longmont, Colo. 80503

Division of Ser. No. 110,876, Aug. 24, 1993, Pat. No. 5,505,706, which is a division of Ser. No. 524,218, May 15, 1990, Pat. No. 5,222,362, which is a continuation-in-part of Ser. No. 295,563, Jan. 10, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 483,145

Int. Cl.^{6} A61M *5/00*

U.S. Cl. 604—151 13 Claims



1. A linear motor comprising:

a) a thermal actuator, said actuator including,

i) an actuator body defining a chamber and having opposite ends,

ii) a force transmitting elastomeric component disposed in said chamber, said elastomeric component being closed at one end and having a central bore of predetermined diameter through the opposite end, said elastomeric component having a wall of predetermined thickness and of a prede-

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termined durometer rating, said actuator body including an annular wall encircling said elastomeric component in spaced relation thereto,
  iii) an actuation rod having an end portion reciprocably received in said bore, and
  iv) a thermally responsive expansion material contained between said elastomeric component and said encircling wall for squeezing said elastomeric component to force said actuation rod outwardly of said chamber; and
b) heating means for causing said thermally responsive expansion material to expand, thereby producing linear motion from said actuation rod.

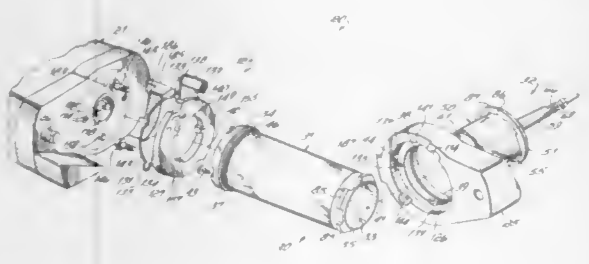
5,738,659
METHOD OF INJECTING FLUID INTO ANIMALS

Charles Neer, Milford; Frank M. Fago, Mason, both of Ohio; Paul E. Dieterlen, Covington, Ky., and James H. Goethel, Cincinnati, Ohio, assignors to Liebel-Flarsheim Company, Cincinnati, Ohio

Continuation of Ser. No. 158,765, Nov. 30, 1993, Pat. No. 5,456,669, which is a division of Ser. No. 881,782, May 11, 1992, Pat. No. 5,279,569, which is a division of Ser. No. 712,110, Jun. 7, 1991, Pat. No. 5,300,031. This application May 31, 1995, Ser. No. 455,984

Int. Cl.⁶ A61M *37/00*

U.S. Cl. 604—154 8 Claims



1. A method of loading an empty syringe into a power injector for injecting fluid into an animal and for filling the syringe with the fluid to be so injected, wherein the injector has a power driven ram extendable therefrom, the method comprising the steps of:
providing adjacent the injector an empty syringe having a tubular body having a hollow interior therein, an open rearward end communicating with the hollow interior, and a closed forward end having a discharge orifice therethrough, the syringe having a plunger moveable in the hollow interior between the rearward end and forward end, the plunger being in an initial position displaced from the rearward end toward the forward end;
with the plunger in the initial position:
  locking the syringe to the injector, and
  providing the ram in a forward position extending through the opening and the rearward end of the body of the syringe and into the hollow interior of the syringe, and then coupling the ram in the interior of the syringe to the plunger; and
connecting a supply of fluid to the discharge orifice; and then
energizing a ram drive to translate the coupled ram rearwardly from the initial position to thereby move the plunger rearwardly in the body to draw fluid into the interior of the syringe through the orifice from the connected supply.

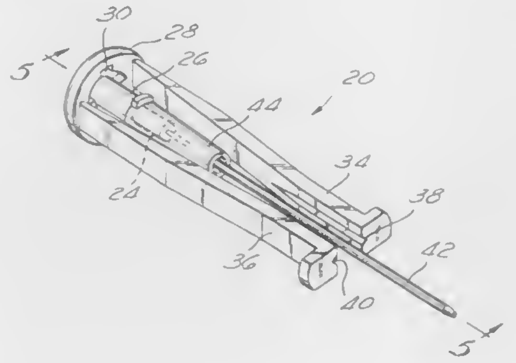
5,738,660
PERCUTANEOUS PORT CATHETER ASSEMBLY AND METHOD OF USE

Ronald B. Luther, Newport Beach, Calif., assignor to Luther Medical Products, Inc., Tustin, Calif.

Continuation of Ser. No. 331,222, Oct. 27, 1994, Pat. No. 5,569,217. This application Jun. 27, 1996, Ser. No. 671,066

Int. Cl.⁶ A61M *5/178*

U.S. Cl. 604—164 6 Claims



1. An apparatus for introducing a catheter into a surgically implanted port, said apparatus comprising:
a housing including a base, a pair of elongate, flexible grips defining distal ends and non-inwardly springedly extending from the base in substantially parallel opposing relation to each other, and an adaptor member extending from the base between said grips;
an elongate stylet defining a piercing tip, said stylet being attached to the adaptor member and extending between the grips beyond the distal ends thereof; and
a catheter including a hub which is extensible over and releasably attachable to the adaptor member and an elongate, flexible sleeve extending from the hub and having a distal end and a proximal end attached to the hub, said sleeve being sized to substantially cover the stylet when the hub is attached to the adaptor member, with the piercing tip of the stylet protruding from the distal end of the sleeve;
wherein said grips are spaced from the sleeve and the inward flexation by hand of the grips at a point distal of said hub engages the sleeve thus providing lateral support to the sleeve and the stylet during the introduction of the catheter into the port.

5,738,661
MEDICAL DEVICE FOR HOLDING A FEEDING TUBE AND USE THEREOF

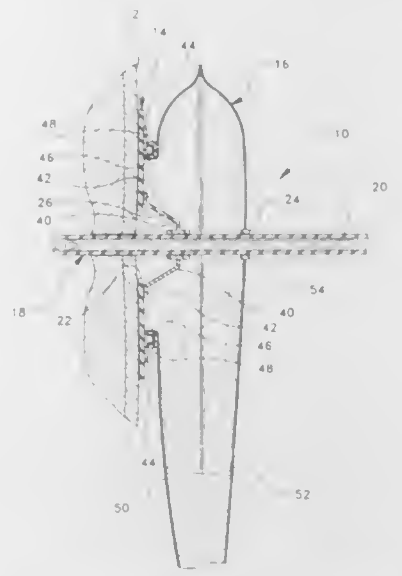
Gennaro Lariee, 3 East Ave., Bayville, N.Y. 11709

Filed Jun. 16, 1995, Ser. No. 491,477

Int. Cl.⁶ A61M *5/32;* **A61F** *5/44*

U.S. Cl. 604—180 20 Claims

1. A medical device for holding a feeding tube, comprising:
a base plate for attachment to an abdominal wall of a patient adjacent a stoma of said patient, said base plate having an aperture therethrough, said aperture being dimensioned to permit passage of a feeding tube;
a feeding tube retainer secured to said base plate adjacent said aperture, said feeding tube retainer providing substantially rigid fastening of the feeding tube to said base plate,
a drainage bag retainer located on said base plate, said drainage bag retainer being disposed about said aperture, said drainage bag retainer being configured and dimensioned to sealingly engage a drainage bag about a perimeter of a base plate-engaging opening; and
a drainage bag, said bag having a base plate-engaging opening and a feeding tube-engaging port arranged relative to said opening to permit simultaneous attachment of said bag to said plate and cooperative passage of said feeding tube therethrough said feeding tube retainer being located within said drainage bag



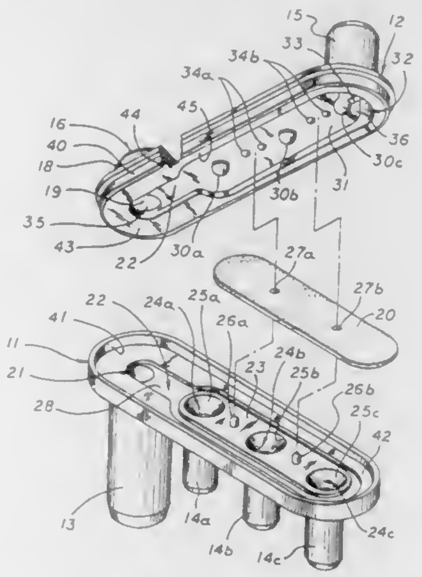
5,738,662
RETROGRADE FLOW CHECKED MANIFOLD FOR INFUSING MEDICAL FLUIDS

William Michael Shannon, Rancho Sante Fe, and Donald Henry Koenig, San Diego, both of Calif., assignors to Pacific Device/Avail Medical Products, Inc., Dallas, Tex.

Filed Feb. 21, 1996, Ser. No. 604,171

Int. Cl.⁶ A61M *5/00*

U.S. Cl. 604—247 22 Claims



1. A fluid manifold for use in infusing medical fluids, comprising:
a housing having a first upstream inlet and a downstream outlet and at least one retrograde flow checked inlet intermediate the first upstream inlet and the outlet, and a plurality of valve seats, each such valve seat associated with an inlet, and a chamber interconnecting the inlets and the outlet;
a single resilient backcheck member confined within the chamber and deformably urged against at least one retrograde flow checked valve seat and providing individual check valve action at each of the plurality of valve seats, said resilient backcheck member having a backcheck flapper portion positioned adjacent said first upstream inlet, and retrograde flow through said first upstream inlet is prevented by closure of said backcheck flapper portion against a valve seat around said first upstream inlet, and wherein the housing comprises at least one support member disposed to urge the resilient backcheck member against at least one valve seat.

5,738,663
MEDICAL VALVE WITH FLUID ESCAPE SPACE

George A. Lopez, Laguna Beach, Calif., assignor to ICU Medical, Inc., San Clemente, Calif.

Filed Dec. 15, 1995, Ser. No. 572,934

Int. Cl.⁶ A61M *5/00*

U.S. Cl. 604—249 9 Claims

1. A medical valve comprising:
a body including a wall structure defining an internal cavity having an inside and an outside, said body also having a proximal end and a distal end, said proximal end having an opening sufficiently large to receive a tip of a delivery end of a medical implement which transfers fluid through said delivery end, said body having a fluid escape space in said wall structure;
a spike positioned within said cavity of said body, said spike having a tip, at least one hole located at or near said tip, and a passageway in communication with the hole that allows fluid to flow through said spike; and
a resilient seal in said cavity surrounding said spike, said seal adapted to be moved into a compressed state upon insertion of the tip of the medical implement into said opening, said seal being sufficiently resilient to return to a decompressed state upon removal of the tip of the medical implement from said opening,
wherein said fluid escape space is in fluid communication with the outside of said cavity when said seal is in said compressed state.

5,738,664
SELF-HEALING SEAL FOR USE IN MEDICAL DEVICES

Timothy J. Erskine, and Kenneth C. Musgrave, both of Sandy, Utah, assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 30, 1996, Ser. No. 724,484

Int. Cl.⁶ A61M *5/00*

U.S. Cl. 604—256 5 Claims

1. A medical device, comprising:

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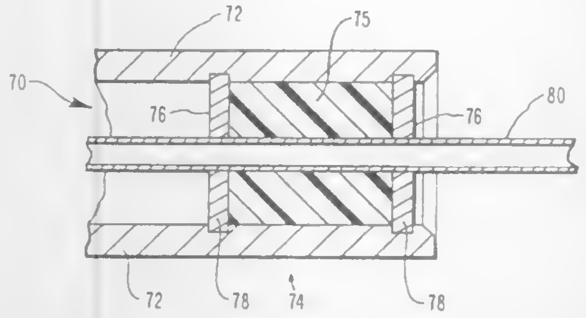
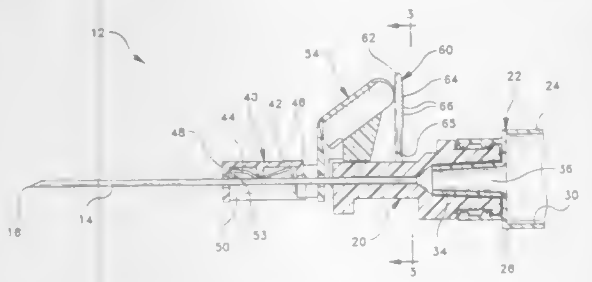


- a housing defining an interior portion and a distal groove and a proximal groove axially spaced from one another within the interior portion;
- a distal disk disposed in the distal groove;
- a proximal disk disposed in the proximal groove; and
- a viscous flowable material disposed within the interior portion between the distal disk and the proximal disk.

5,738,665
SHIELD AND ACTUATOR FOR NEEDLES

Richard J. Caizza, Barry Lakes, N.J., and Bronwen Walters, Dania, Fla., assignors to Becton, Dickinson and Company, FranklinLakes, N.J.

Filed Sep. 26, 1996, Ser. No. 721,512
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—263 **15 Claims**

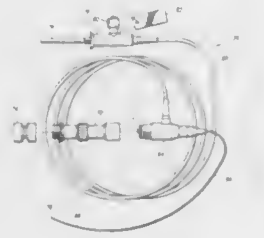


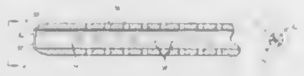
1 A shieldable needle assembly comprising.
- a needle having proximal and distal ends:
- a hub securely mounted around said proximal end of said needle;
- a needle guard slidably mounted on said needle and movable from a proximal position where said distal end of said needle is exposed to a distal position where said needle guard safely guards said distal end of said needle;
- a hinged arm articulated to said hub and to said needle guard and being movable from said collapsed condition where said needle guard is in said proximal position to an extended condition where said needle guard is in said distal position on said needle; and
- a trigger articulated to said hub at a location proximally of said hinged arm, said trigger including a cam surface spaced from said hub and slidably engaged with said hinged arm such that articulation of said trigger toward said hinged arm urges said hinged arm into said extended condition and said needle guard into said distal position on said needle.

5,738,666
SLIT TIP VENTRICULAR CATHETER AND METHOD OF MANUFACTURING SAME

David A. Watson, Goleta, and Lori Cone Speckman, Ventura, both of Calif., assignors to Medtronic, Inc., Minneapolis, Minn.

Division of Ser. No. 405,352, Mar. 16, 1995, abandoned. This application Jul. 10, 1996, Ser. No. 678,669
Int. Cl.^{6} A61M *5/00*
U.S. Cl. 604—264 **18 Claims**



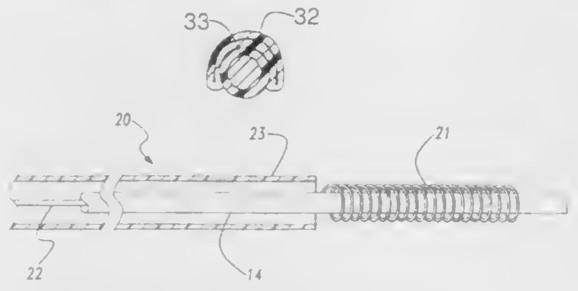


1. A tubular catheter with a wall having a nominal outside diameter for placement within a body, comprising:
- a terminal end having an outer diameter the same as or less than the nominal outside diameter;
- a plurality of fluid flow apertures in the wall adjacent to the terminal end;
- an elastomeric closure for the terminal end; and
- at least one slit through the closure such that the length of the slit is less than the nominal outside diameter.

5,738,667
RAPID EXCHANGE CATHETER SYSTEM

Ronald J. Solar, San Diego, Calif., assignor to Cordis Corporation, Miami Lakes, Fla.

Continuation of Ser. No. 859,220, Mar. 30, 1992, abandoned. This application Jul. 26, 1994, Ser. No. 280,652
Int. Cl.^{6} A61M *25/00;* **A61B** *5/00*
U.S. Cl. 604—280 **12 Claims**

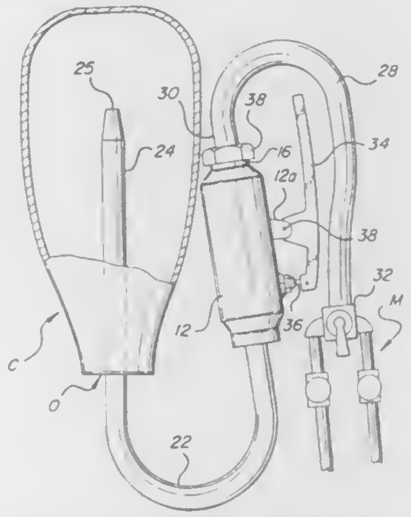


1 A rapid exchange catheter system comprising:
- (a) an exchange member defining a lumen and having open proximal and distal ends,
- (b) a rigid pushing wire having proximal and distal ends, the distal end of the pushing wire being integral with the proximal end of the exchange member, and
- (c) an exchangeable member which is capable of being positioned within the lumen defined by the exchange member,
- such that said pushing wire is configured to advance the exchange member distally to a desired location wherein the exchange member is positioned concentrically to the exchangeable member.

- wherein the pushing wire has a flexible, collapsible sheath having proximal and distal ends and being arranged thereon, such that the collapsible sheath expands with infusion of fluid or insertion of a catheter, guidewire, or other device, and when fluid flow ceases or the catheter, guidewire, or other device is withdrawn, the sheath collapses.

5,738,668
COLOSTOMY BAG CLEANING DEVICE

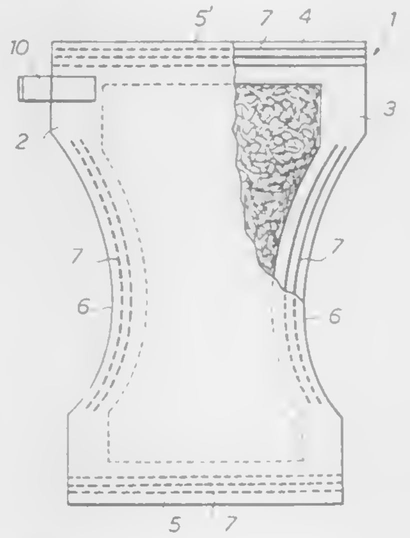
Mark J. Bugajski, 338 E. Front St., Traverse City, Mich. 49684
PCT No. PCT/US96/13124, § 371 Date May 22, 1997, § 102(e) Date May 22, 1997, PCT Pub. No. WO97/06757, PCT Pub. Date Feb. 27, 1997
Continuation-in-part of Ser. No. 514,934, Aug. 14, 1995, abandoned. This PCT application Aug. 14, 1996, Ser. No. 836,963
Int. Cl.^{6} A61F *5/44*
U.S. Cl. 604—332 **7 Claims**



1 A device for cleansing a body waste bag of the type including an upper end adapted to be attached to a stoma to receive waste from the patient's body and a lower end including a discharge opening, the device including:
- a valve body having an inlet and an outlet and defining a fluid passage extending within the body between the inlet and the outlet;
- an elongated flexible hose having an outlet fitting at one end for attachment to the inlet of the valve body and an inlet fitting at another end thereof for attachment to a source of running water;
- a valving device positioned in the passage and operative in response to movement of the valving device in the passage to control the flow of water through the passage;
- a handle positioned exteriorally of the valve body and mounted on the valve body for movement relative to the valve body;
- means operative in response to movement of the handle to move the valving device to control the flow of water through the passage;
- a tube having a V configuration including a main body portion and a nozzle portion bent backwardly with respect to the main body portion;
- an inlet fitting on the free end of the main body portion to facilitate attachment of the main body portion to the outlet of the valve body passage; and
- a nozzle at the free end of the nozzle portion having a tapered configuration to facilitate insertion of the nozzle portion into the discharge opening of the body waste bag;
- whereby, with the body waste bag attached to the stoma, the outlet fitting of the flexible hose attached to the inlet of the passage, and the inlet fitting of the main body portion of the tube attached to the outlet of the passage, the inlet fitting of the flexible hose may be attached to a source of running water, the nozzle portion of the tube may be passed upwardly into the discharge opening of the waste bag to position the nozzle within the bag, and the handle may be manipulated to move the valving device in a sense to open the passage and allow the flow of irrigating water from the source, through the hose, through the passage, and through the tube into the bag to cleanse the bag.

5,738,669
ABSORBENT ARTICLE

Mikio Suzuki, Utsunomiya; Ken Takeuchi, Haga-gun, and Masashi Wada, Utsunomiya, all of Japan, assignors to Kao Corporation, Tokyo, Japan
PCT No. PCT/JP95/00622, § 371 Date Dec. 6, 1995, § 102(e) Date Dec. 6, 1995, PCT Pub. No. WO95/27516, PCT Pub. Date Oct. 19, 1995
PCT Filed Mar. 31, 1995, Ser. No. 557,096
Claims priority, application Japan, Apr. 12, 1994, 6-073236; May 17, 1994, 6-102866
Int. Cl.^{6} A61F *13/15*
U.S. Cl. 604—367 **15 Claims**



1 A moisture permeable sheet comprising a porous sheet obtained by melt blending a melt blended solution comprising, as main components, a crystalline polyolefin and a compound with which said crystalline polyolefin is miscible and in which said crystalline polyolefin will dissolve at or above the melting point of said crystalline polyolefin but which will phase separate below the melting point of said crystalline polyolefin, molding said melt blended solution into a sheet, and stretching said sheet at least in one direction to form micropores,
- said moisture permeable sheet having a moisture permeability falling within the range of 0.5 to 4 g/100 cm^2 h, a tensile load at 3% elongation in the transverse direction of said sheet falling within the range of 100 to 300 g/cm, a bulk softness of 55 g or less, a break strength of 250 g/cm or more, and a reduction in reflectance on the area coated with an adhesive agent, after preserved at 50° C. for 1 day, of 20% or less

2 A disposable diaper comprising a liquid permeable topsheet, a liquid impermeable back sheet comprising a moisture permeable sheet comprising a porous sheet obtained by melt blending a melt blended solution comprising, as main components, a crystalline polyolefin and a compound with which said crystalline polyolefin is miscible and in which said crystalline polyolefin will dissolve at or above the melting point of said crystalline polyolefin but which will phase separate below the melting point of said crystalline polyolefin, molding said melt blended solution into a sheet, and stretching said sheet at least in one direction to form micropores,
- said moisture permeable sheet having a moisture permeability falling within the range of 0.5 to 4 g/100 cm^2 h, a tensile load at 3% elongation in the transverse direction of said sheet falling within the range of 100 to 300 g/cm, a bulk softness of

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55 g or less, a break strength of 250 g/cm or more, and a reduction in reflectance on the area coated with an adhesive agent, after preserved at 50° C. for 1 day, of 20% or less, and an absorbent member interposed between said topsheet and said back sheet,

said topsheet, said back sheet and said absorbent member being adhered together with an adhesive agent at prescribed portions of said three elements, and

the disposable diaper has a fastening tape attachable onto and detachable from any portion of said back sheet.

9. A sanitary napkin comprising a liquid permeable topsheet, a liquid impermeable back sheet comprising a moisture permeable sheet comprising a porous sheet obtained by melt blending a melt blended solution comprising, as main components, a crystalline polyolefin and a compound with which said crystalline polyolefin is miscible and in which said crystalline polyolefin will dissolve at or above the melting point of said crystalline polyolefin but which will phase separate below the melting point of said crystalline polyolefin, molding said melt blended solution into a sheet, and stretching said sheet at least in one direction to form micropores;

said moisture permeable sheet having a moisture permeability falling within the range of 0.5 to 4 g/100 cm^2.h, a tensile load at 3% elongation in the transverse direction of said sheet falling within the range of 100 to 300 g/cm, a bulk softness of 55 g or less, a break strength of 250 g/cm or more, and a reduction in reflectance on the area coated with an adhesive agent, after preserved at 50° C. for 1 day, of 20% or less, and an absorbent member interposed between said topsheet and said back sheet,

said topsheet, said back sheet and said absorbent member being adhered together with an adhesive agent at prescribed portions of said three elements, and

the disposable diaper has a fastening tape attachable onto and detachable from any portion of said back sheet.

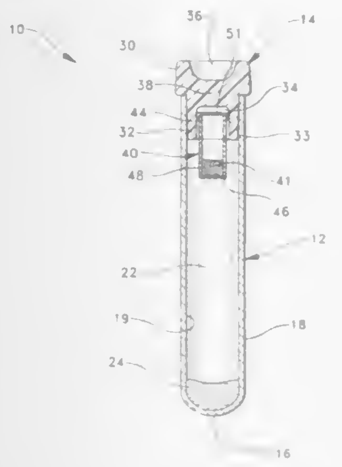
5,738,670
BLOOD COLLECTION ASSEMBLY HAVING ADDITIVE DISPENSING MEANS

Nicholas A. Grippi, Ramsey, N.J., assignor to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 392,003, Feb. 21, 1995, abandoned. This application Sep. 19, 1996, Ser. No. 710,586

Int. Cl.^{6} A61B *19/00*

U.S. Cl. 604—403 **6 Claims**



1. A blood collection assembly comprising:

a) and evacuated container having a bottom wall and a side wall defining an open end;

b) a puncturable stopper in said open end, said bottom wall, side wall and stopper enclosing an interior volume in said container; and

c) a liquid impermeable receptacle removably immobilized in said stopper, said receptacle comprising a glass side wall defining an open end, a top wall covering said open end, and a frangible glass bottom wall constructed as one piece with said side wall.

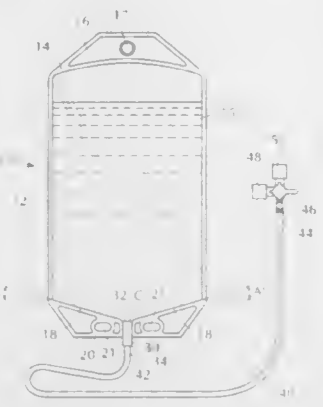
5,738,671
FLEXIBLE PLASTIC CONTAINER FOR THE CONTAINMENT AND DELIVERY OF DIAGNOSTIC CONTRAST MEDIA AND PARENTERAL DRUG FORMULATIONS

John J. Niedospial, Jr., Burlington; Rebecca V. Fisher, Cranbury; Lawrence Callan, Hamilton Sq.; Irene K. Ropiak, Somerset; Charles R. Quirico, Warren; Fred E. Snyder, Princeton Junction; Michael N. Eakins, East Windsor, and Julius P. Zodda, Mercerville, all of N.J., assignors to Bracco Diagnostics Inc., Princeton, N.J.

Filed Jul. 30, 1996, Ser. No. 692,813

Int. Cl.^{6} A61B *5/00;* B65D *33/00*

U.S. Cl. 604—408 **21 Claims**



1. A unitary, flexible container made of a polymeric material for the containment and delivery of medical fluids comprising:

a) first and second polymeric sheets having a generally rectangular configuration superimposed and sealed together at their periphery defining an interior reservoir, said container having a top portion and a bottom portion wherein said first and second polymeric sheets comprise polyvinylidene chloride sandwiched between two layers of polyethylene or polyvinylacetate;

said bottom portion terminates in a first angle and a second angle of from about 5° to about 45° each from the center thereof and relative to a horizontal plane crossing the center of said bottom portion;

portions of said interior reservoir being mechanically or chemically embossed to maintain the polymeric sheets forming said interior reservoir spaced apart from each other thereby allowing relative movements of said polymeric sheets and preventing sticking therebetween;

b) an access member integral with said container located at the center of said bottom portion allowing filling of the container with a medical fluid and access thereto for delivery to a patient, said access member comprising:

an access port located below the bottom portion of said container where said first angle and said second angle meet and;

a one-way luer slip stopcock assembly with a vent attached to said access port controlling the delivery of the medical fluid from the container.

5,738,672

Patent Not Issued For This Number

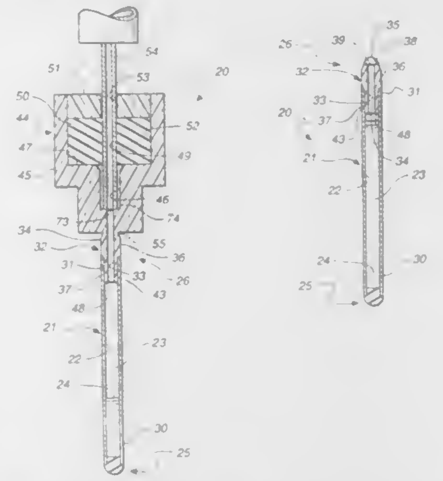
5,738,673
METHOD AND APPARATUS FOR SEALING IMPLANTABLE, MEMBRANE ENCAPSULATION DEVICES

John F. Mills, Wakefield, R.I.; Edward J. Doherty, Mansfield, Mass.; Tyrone F. Hazlett, Coventry, R.I.; Keith E. Dionne, Menlo Park, Calif.; Nicholas F. Warner, Belmont; Brian M. Cain, Everett, both of Mass., and David H. Rein, Providence, R.I., assignors to Brown University Research Foundation, Providence, R.I.

Continuation-in-part of Ser. No. 82,407, Jun. 23, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 476,498

Int. Cl.^{6} A61K 9/22

U.S. Cl. 604—891.1 **10 Claims**



1 A sealed, implantable, encapsulation device for providing a biologically active product or function to an individual, said encapsulation device comprising:

a permselective, porous, membrane shaped so as to form a cell-impervious encapsulating enclosure including an exterior surface, an interior surface and an opening, said interior surface defining a storage cavity and said opening providing open communication between said storage cavity and the exterior of said enclosure;

a non-permeable, non-porous fitting disposed within or about said opening so as to make a substantially cell-tight dry seal between said fitting and said enclosure, said fitting further including an access bore therethrough, dimensioned so as to permit introduction of living cells into said storage cavity;

living cells disposed in said storage cavity and secreting a biologically active product or providing a selected biological function, said membrane permitting passage therethrough of substances secreted by said cells and required to provide said biological product or function;

a non-permeable, non-porous plug member disposed within or about the access bore of said fitting to form a cell-tight sealing engagement therewith to seal said access bore; and

a tether member coupled to said fitting.

5,738,674
STENT LOADING MECHANISM

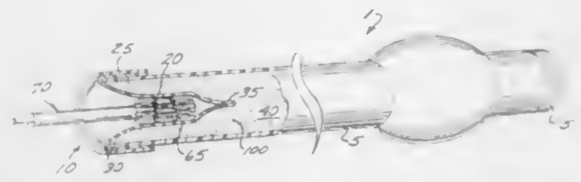
Michael S. Williams, Chapel Hill, N.C.; Lilip Lau, Sunnyvale, Calif.; Farhad Khosravi, Belmont, Calif.; William Hartigan, Fremont, Calif., and Avegel Hernando, Union City, Calif., assignors to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Division of Ser. No. 390,096, Feb. 17, 1995, Pat. No. 5,546,646, which is a division of Ser. No. 66,707, May 24, 1993, Pat. No. 5,437,083. This application Jul. 17, 1996, Ser. No. 682,103

Int. Cl.^{6} A61B *17/00;* A61F *2/06;11/00*

U.S. Cl. 606—1 **3 Claims**

1. A stent loading device for loading a stent onto a catheter assembly, comprising:



a tubular member, having an open end to receive said stent,

an elastic bladder housed inside said tubular member, partitioning said tubular member into two portions, an open portion, including said open end, defining a stent receiving portion and a closed portion, defining a fluid chamber;

wherein said stent receiving portion is adapted to receive said stent, and said fluid chamber is adapted to be pressurized to cause said elastic bladder to compress said stent onto said catheter assembly while maintaining the elastic bladder within said tubular member.

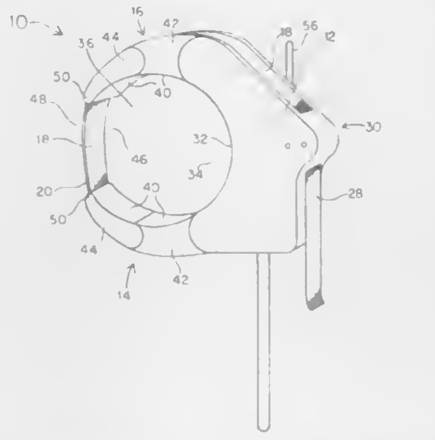
5,738,675
LIMB CLAMP FOR SURGERY

Gary D. Botimer, 13753 Locust La., Nampa, Id. 83686

Filed Nov. 8, 1996, Ser. No. 746,392

Int. Cl.^{6} A61B *19/00*

U.S. Cl. 606—1 **20 Claims**



12. A limb clamp assembly for use during examination or surgery, the clamp assembly comprising:

a base member for connection to a platform;

spaced upper and lower articulated arms extending generally horizontally from said base member and defining a clamp interior space between them, each arm having a joint, an inner surface for contacting a patient's limb, and a distal end;

a strap means having a first and second end and connected near its first end to the clamp assembly near one of the articulated arms, for extending outside the articulated arms and around the patient's limb to near the base member; and

a fastening means for securing the strap means near its second end to the base for holding the limb inside said interior space.

5,738,676
LASER SURGICAL PROBE FOR USE IN INTRAOCULAR SURGERY

Daniel X. Hammer, 5122 Crusade, San Antonio, Tex. 78218; Cynthia A. Toth, 928 Pinehurst Dr., Chapel Hill, N.C. 27514; William P. Roach, 5622 Evers Rd. Apt. 2808, San Antonio, Tex. 78238, and Gary D. Noojin, 308 Mountain Shadows, San Antonio, Tex. 78233

Filed Jan. 3, 1995, Ser. No. 367,602

Int. Cl.^{6} A61B *17/32;17/36*

U.S. Cl. 606—4 **6 Claims**

1. A laser probe, comprising

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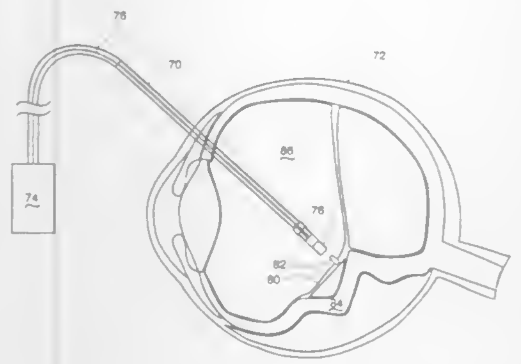


(a) a laser light source capable of producing light of sufficient energy to achieve laser-induced breakdown in a preselected liquid;

(b) an optical coupler including a tapered optical fiber and having a first end and a second end. wherein the laser light source is optically connected to the first end of the optical coupler; and,

(c) a gradient index lens optically connected to the second end of the optical coupler, wherein the focal length of the gradient index lens is such that it will focus light transmitted from the laser light source to a spot small enough to achieve sufficient energy density to produce laser-induced breakdown in the preselected liquid. and wherein the spot is far enough from the gradient index lens to prevent damage to the gradient index lens.

5,738,677

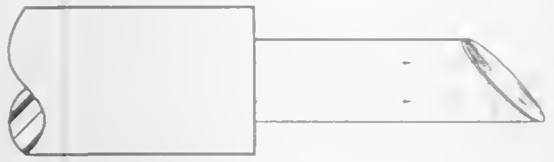
APPARATUS AND METHOD FOR PERFORMING EYE SURGERY

Michael Colvard, Pacific Palisades; Varouj D. Amirkhanian, Glendale; HeeJung Koh Wescoat, Garden Grove; Judy E. Mazza, El Toro, and Colette Cozean, El Toro, all of Calif., assignors to Premier Laser Systems, Inc., Irvine, Calif.

Division of Ser. No. 331,274, Oct. 28, 1994, abandoned, which is a continuation of Ser. No. 174,217, Dec. 28, 1993, abandoned, which is a continuation of Ser. No. 866,562, Apr. 10. 1992. This application May 31, 1995, Ser. No. 455,732

Int. Cl.^{6} A61N *5/06*

U.S. Cl. 606—4 **6 Claims**



1 A method of removing a lens of an eye. comprising.

(a) inserting a probe into the anterior chamber of said eye:

(b) directing pulses of laser radiation from said probe against a location on nuclear material of said lens;

(c) selecting the wavelength. repetition rate and pulse energy of said laser radiation such that during step (b). said pulses simultaneously (1) ablate said lens within an ablation zone. and (2) generate shock waves which radiate from said location and propagate through said nuclear material so as to cause substantial acoustic damage thereto. said damage being in an acoustic zone that extends outside said ablation zone into at least a substantial portion of said nuclear material;

(d) moving said probe such that said pulses of laser radiation are directed onto acoustically damaged nuclear material, whereby said simultaneous ablation and shock wave generation readily transform said nuclear material into an emulsion capable of aspiration; and

(e) aspirating said emulsion from said eye.

5,738,678

APPARATUS AND METHOD FOR DELIVERING LASER RADIATION TO A SUBSTRATE

Bipin Chandra Muljibhai Patel, Greenford, United Kingdom, assignor to British Technology Group Limited, London, England

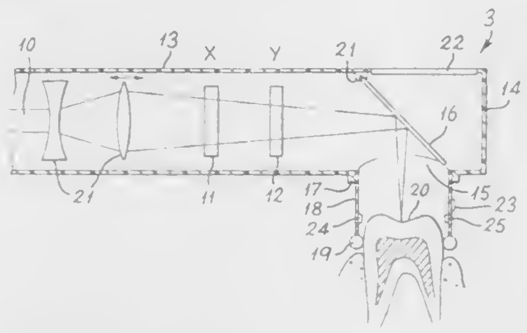
PCT No. PCT/GB94/00976, § 371 Date Oct. 12, 1995, § 102(e) Date Oct. 12, 1995, PCT Pub. No. WO94/26203, PCT Pub. Date Nov. 24, 1994

PCT Filed May 6, 1994, Ser. No. 532,719

Claims priority, application United Kingdom, May 7, 1993, 9309397

Int. Cl.^{6} A61H *5/06*

U.S. Cl. 606—10 **18 Claims**



1. Apparatus for delivering laser radiation to a substrate. said apparatus comprising:

a laser radiation source:

delivery means for transmitting the laser radiation from the source;

a delivery head including a housing for directing the laser radiation from the delivery means onto the substrate;

aperture means provided in said housing for receiving said substrate.

isolation means associated with said aperture means for isolating a selected target area by essentially preventing escape of laser radiation to a surrounding area; and

viewing means non-transmissive to the laser radiation for enabling an operator to view the selected target area when said selected target area is isolated from its surroundings.

5,738,679

APPARATUS FOR LASER TREATMENT FOR LIVING TISSUE

Norio Daikuzono, Cincinnati, Ohio, assignor to S.L.T. Japan Company Limited, Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 670,361

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—11 **10 Claims**

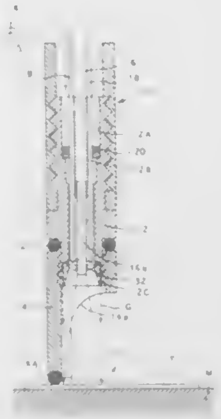
1. A laser treating apparatus for modifying the surface of living tissue by irradiating it with laser light comprising:

a laser light generator;

a laser light transmitting means for receiving the laser light from said laser light generator to impinge the laser light upon the surface of the tissue;

switching means between said laser light generator and said laser light transmitting means;

a first light quantity detecting means for measuring the quantity of light (Ir) which has been emitted from said laser light transmitting means and has been reflected from the surface of the tissue.



second light quantity detecting means for measuring the quantity of laser light (Im) reflected from a predetermined area on said surface of the tissue; and

irradiation control means for impinging the laser light from said laser light generator upon said laser light transmitting means by actuating said switching means when the irradiation of laser light is determined necessary based upon the ratio (Im/Ir) of the second light quantity Im measured by said second light quantity detecting means to the first light quantity Ir measured by said first light quantity detecting means which is used as an index representing whether or not an unirradiated area is present. and thus whether irradiation is necessary.

5,738,680

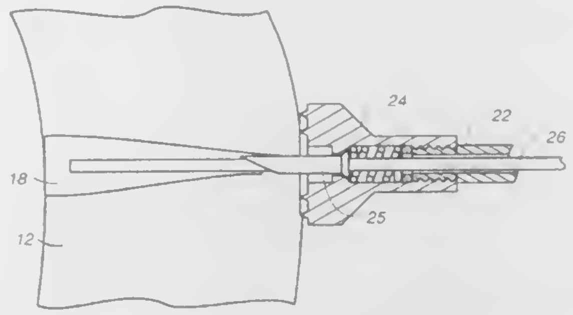
LASER DEVICE WITH PIERCING TIP FOR TRANSMYOCARDIAL REVASCULARIZATION PROCEDURES

Richard L. Mueller, Byron, and Stuart D. Harman, San Jose, both of Calif., assignors to Eclipse Surgical Technologies, Inc., Sunnyvale, Calif.

Filed Apr. 5, 1996, Ser. No. 628,849

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—15 **21 Claims**



1. A hand-held transmyocardial revascularization (TMR) device for performing TMR on a patient's heart comprising:

a handle portion:

a tubular neck portion connected to the handle portion;

a head portion on a distal end of the tubular neck portion, the head portion forming a distal end contact surface for engaging the heart's epicardium;

an optical fiber having a proximal end configured for connecting to a laser energy source. the optical fiber extending through the handle portion and into the neck portion with a distal end of the optical fiber within the head portion;

adjustment means for moving the optical fiber within the handle portion, neck portion and head portion, the adjustment means is disposed on the handle portion; thereby enabling movement of the optical fiber's distal end beyond the head portion; and

piercing means for: a) making an initial opening in the epicardium and b) allowing the optical fiber's movement therethrough when moved by the adjustment means, the piercing means is: i) axially movable relative to the head portion and ii) coupled to the head portion,

whereby laser irradiation from the optical fiber's distal end forms a revascularizing channel in the heart's myocardium.

5,738,681

LASER MEDICAL TREATMENT APPARATUS

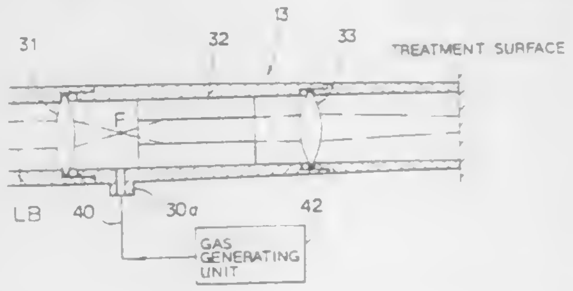
Susumu Shimizu, Kodaira. Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 217,568, Mar. 25, 1994, Pat. No. 5,554,156. This application May 17, 1996, Ser. No. 649,321

Claims priority, application Japan, Mar. 26, 1993, 5-68701

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—17 **12 Claims**



1 A laser apparatus for medical treatment use in which a laser beam is irradiated on a portion of a human body to be treated. comprising:

means for generating a laser beam of giant pulse:

a light guide means having one end through which the laser beam outputted from the laser beam generation means is guided;

a hand piece attached to another end of the light guide means for propagating the laser beam from the light guide means so as to irradiate the laser beam propagated in the hand piece to the portion to be treated;

means for forming a beam converging point within at least a laser beam propagating path located in the hand piece: and

means for keeping a gas at predetermined pressure in at least a predetermined region in the laser beam propagating path. said predetermined region including the beam converging point and said gas maintained at said predetermined pressure preventing a laser discharge at the beam converging point.

5,738,682

APPARATUS FOR COOLING SURFACES

Klaas Jensma, Wolvega, Netherlands. assignor to Koninklijke Utermohlen N.V., Netherlands

Continuation of Ser. No. 103,903, Aug. 10, 1993, abandoned. This application Oct. 24, 1996, Ser. No. 736,277

Claims priority, application Netherlands, Jan. 29. 1993, 9300190

Int. Cl.^{6} A61B *17/36*

U.S. Cl. 606—23 **23 Claims**

1 An assembly for dispensing a refrigerant. said assembly comprising

(1) a container which
  (a) includes a valve having an inlet and an outlet. and
  (b) is sealed except for the valve;
(2) a liquid refrigerant which
  (a) is contained under pressure within the container and
  (b) has a boiling point at atmospheric pressure of less than 0 C.;
(3) a feed tube which has
  (a) a first end within the refrigerant, and
  (b) a second end which communicates with the inlet of the valve;

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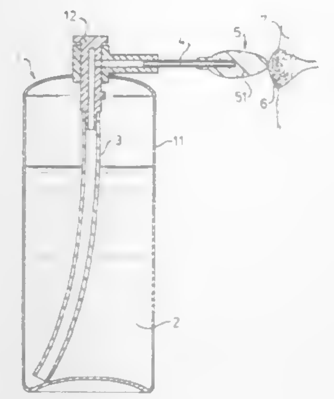


- (4) an outlet tube which has
  - (a) a first end which communicates with the outlet of the valve, and
  - (b) a discharge end,

and
- (5) a dispensing head which
  - (a) comprises a shaped member composed of an open celled foam, and
  - (b) is secured to the discharge end of the outlet tube so that, when the valve is open, the refrigerant is dispensed through the open celled foam.

5,738,683

MAPPING AND ABLATION CATHETER

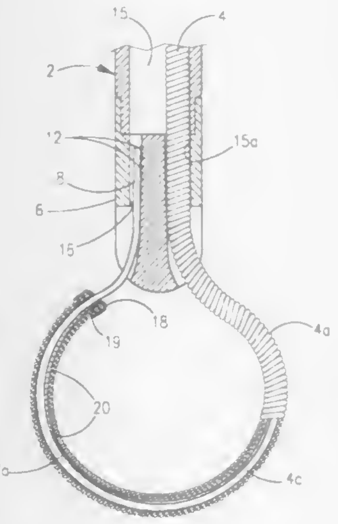
Peter Osypka, Basler Strasse 109, D-79639 Grenzach-Wyhlen, Germany

Filed Oct. 5, 1994, Ser. No. 318,312

Claims priority, application Germany, Jul. 16, 1994, 44 25 195.5

Int. Cl.^{6} A61B ***17/39***

U.S. Cl. 606—47 **40 Claims**



1. A mapping and ablation catheter comprising an elongated flexible sheath having a distal end, a proximal end and at least one lumen between said ends, an elongated flexible guide having a looped portion at said distal end and a strand disposed in said at least one lumen and movable longitudinally of said sheath to thereby change the size of said looped portion; and conductor means having a distal end portion with at least one terminal and being movable longitudinally of and being guided by said strand to advance said distal end portion toward and along said looped portion.

5,738,684

EXTERNAL BONE FIXATOR

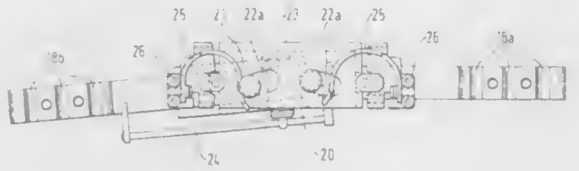
Peter Brian Macfarlane Thomas, Hereford; Peter Jan Ogrodnik, Weston, and Christopher Ian Moorcroft, Stafford, all of United Kingdom, assignors to Keele University, and Staffordshire University Enterprises Limited, both of United Kingdom

Filed Apr. 30, 1996, Ser. No. 643,156

Claims priority, application United Kingdom, May 1, 1995, 9508828

Int. Cl.^{6} A61B ***17/56***

U.S. Cl. 606—54 **23 Claims**



1. An external fixator for use in the treatment of a fractured bone having a first bone fragment and a second bone fragment which external fixator comprises:
- means of attachment to the first bone fragment of the fractured bone;
- means of attachment to the second bone fragment of the fractured bone;
- a first rigid support bar having a first end and a second end, being connected to the first means of attachment at its first end and extending longitudinally therefrom;
- a second rigid support bar having a first end and a second end, being connected to the second means of attachment by its first end and extending longitudinally therefrom;
- a first movable element attached to the second end of the first support bar;
- a second movable element attached to the second end of the second support bar, a coupling member attached to the second ends of the first and second movable elements;
- wherein the first movable element is movably mounted to the coupling member which limits the first movable element to acutely angular motion in one plane, and the second movable element is movably mounted to the coupling member so as to be limited to acutely angular motion in another plane, with the plane in which the second element moves being substantially orthogonal to the plane in which the first element moves, and the first and second movable elements are coupled together in such a way as to allow simultaneous limited angular movement of the external fixator in the two substantially orthogonal planes such that the first bone fragment is angularly displaceable with respect to the second bone fragment about the fracture site, such angular displacement being limited by the fixator.

5,738,685

OSTEOSYNTHESIS DEVICE

Henry Halm, Bissendorf-Wissingen; Günther Rehder, Winterbach, and Bernd Schäfer, Schorndorf, all of Germany, assignors to Schafer micomed GmbH, Schorndorf, Germany

PCT No. PCT/EP94/01095, § 371 Date Jan. 29, 1996, § 102(e) Date Jan. 29, 1996, PCT Pub. No. WO94/26191, PCT Pub. Date Nov. 24, 1994

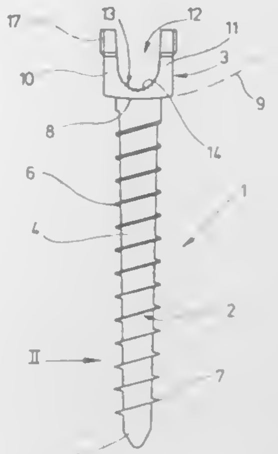
PCT Filed Apr. 8, 1994, Ser. No. 545,576

Claims priority, application Germany, May 18, 1993, 43 16 542.7

Int. Cl.^{6} A61B ***17/56***

U.S. Cl. 606—61 **21 Claims**

1. An osteosynthesis device, comprising:
- a bone screw; and
- a corrective pin having an outer surface provided with longitudinal grooves, wherein:



- said bone screw includes a fork head defining a groove at the bottom of which a plurality of parallel, longitudinal slots are provided, and an outside thread for receiving a head nut with an inner thread for engaging said outside thread; and
- said corrective pin being seated in said groove of said fork head for engagement of said grooves of said corrective pin with said slots.

5,738,686

ARTIFICIAL JOINT TO REPLACE THE HUMAN PATELLA

Dietmar Kubein-Meesenburg, Kreiensen, and Hans Nagerl, Klein-Lengden, both of Germany, assignors to Joachim Theusner, Munich, Germany

PCT No. PCT/EP94/00434, § 371 Date Nov. 17, 1994, § 102(e) Date Nov. 17, 1994, PCT Pub. No. WO94/22396, PCT Pub. Date Oct. 13, 1994

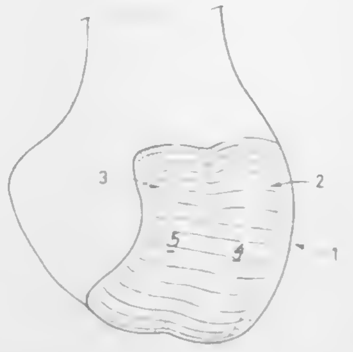
PCT Filed Feb. 16, 1994, Ser. No. 525,717

Claims priority, application Germany, Apr. 3, 1993, 43 10 968.3

Int. Cl.^{6} A61F ***2/38***

U.S. Cl. 623—20 **11 Claims**

1. An endoprosthesis for the human patella joint, comprising:
- first and second joint bodies operatively associated with each other to move with respect to one another;
- the first joint body having two attached joint heads (2,3) with toroid-shaped functional surface sections (4,5), and the second joint body having two attached joint sockets (7,8) also with toroid-shaped functional surface sections (9,10),
- each functional surface section having a longitudinal plane and a transverse plane which are vertical with respect to one another and which have differing circular section contours;



- the attached joint heads (2,3) of the first joint body being operatively associated with the attached joint sockets (7,8) of the second joint body so that one said joint head (2) and one said joint socket (8) constitute a lateral joint of the prosthesis and the other said joint head (3) and the other said joint socket (7) constitute a medial joint of the prosthesis;
- one of the lateral joint head (2) and the lateral joint socket (8) has a circular convex section contour whose center of rotation is M_1 and whose radius is R_1;
- the other of the lateral joint head (2) and the lateral joint socket (8) has a circular concave section contour with a center of rotation M_2 and radius R_2;
- viewed in the longitudinal plane, the medial joint has the medial joint head (3) with a toroid-shaped functional surface section (5) having a circular, convex section contour with a rotation center M_3 and radius R_3, and the medial joint socket (7) with a functional surface section (9) having a circular, concave section contour with a rotation center M_4 and radius R_4;
- the functional surface sections (4,5, 9,10) have respective longitudinal and transverse rotation centers (M_1,M_{11}, M_2,M_{22}; M_3,M_{33}; and M_4,M_{44});
- the longitudinal centers of rotation (M_1, M_2, M_3, and M_4) lie within the joint part with the convex section contours;
- the joint geometry of the functional sections (4,10, 5,9) which contact one another is through a link chain with two articulated axles which extend through and are defined by the rotation centers (M_1,M_{11}; M_2,M_{22}, M_3,M_{33}; and M_4,M_{44}) of the respective joint curvatures; and
- the radii R_1, R_2, R_3, and R_4 are selected so that the surface contact points that move around the center of rotation M_1 describe a substantially greater path than the contact points that move around the center of rotation M_3, where the surface contact points in each case are the points at which the functional surfaces lying opposite one another are mutually touching.

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CHEMICAL

5,738,687
METHOD FOR TREATING CARPETS WITH POLYCARBOXYLATE SALTS TO ENHANCE SOIL RESISTANCE AND REPELLENCY

Robert F. Kamrath, Mahtomedi; John C. Chang, New Brighton; Shou-Lu G. Wang, Woodbury, and Irvin F. Dunsmore, Ham Lake, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 23, 1996, Ser. No. 685,257

Int. Cl.^{6} D06M *13/325; 13/46*

U.S. Cl. 8—115.56 **34 Claims**

1. A method for treating carpet fibers, comprising the steps of:
providing a substrate comprising unscoured carpet fibers; and
applying to the substrate a solution having a pH of at least about 5 and comprising an ammonium salt of a polycarboxylic acid, wherein the ammonium salt is formed by neutralizing the polycarboxylic acid with a stoichiometric excess of ammonia.

5,738,688
PROCESS TO IMPROVE RESISTANCE TO STAINS ON FIBRES AND DERIVED PRODUCTS

Armand De Lathauwer, Aalst, Belgium, assignor to N. V. Denderland-Martin, Gijzegem, Belgium

PCT No. PCT/BE95/00006, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/21955, PCT Pub. Date Aug. 17, 1995

PCT Filed Jan. 25, 1995, Ser. No. 687,403

Claims priority, application Belgium, Feb. 2, 1994, 09400124

Int. Cl.^{6} D06M *13/238; 15/41*

U.S. Cl. 8—115.56 **22 Claims**

1. Method for improving the stain resistance of a substrate made out of dyed or dyeable natural or synthetic fibres, said method comprising contacting the substrate in acid medium with tannic acid and with sulphonated phenol- or naphthol-aldehyde condensation product, the amounts of tannic acid and sulphonated product each being in the range of 10 to 90 percent, based on the total weight of said tannic acid and sulphonated product, and producing improved stain resistance in said substrate through such contacting

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5,738,689

Patent Not Issued For This Number

5,738,690
METHOD OF FILLING BATTERY CELL

Elmer Hughett, Rte. 1, Box 151EC, Huntsville, Tenn. 37756, and Richard B. Alexandres, 5193 Lakeview Dr., Clear Lake, Iowa 50428

Continuation of Ser. No. 484,077, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 271,415, Jul. 6, 1994, Pat. No. 5,521,021. This application Mar. 14, 1996, Ser. No. 615,939

Int. Cl.^{6} H01M *6/00*

U.S. Cl. 29—623.1 **2 Claims**

1. A method of filling a battery cell, having a cell casing with an open end and an internal electrode assembly, with an electrolyte, comprising:
   a. positioning said open end of said cell casing against a sealing element on a movable can seal body of a filling fixture;
   b. evacuating said cell casing by utilizing a vacuum line to remove any air and gases entrapped in said electrode assembly;
   c. continuing with the evacuating of said cell casing until a vacuum level is attained which causes said movable can seal body to move into engagement with a valve element of said filling fixture that shuts off communication between said vacuum line and said cell casing.
   d. introducing an electrolyte into said evacuated cell casing while maintaining the level of vacuum which holds said movable can seal body in engagement with said valve element;
   e. terminating introduction of said electrolyte into said cell casing when said cell casing becomes filled with electrolyte; and then,
   f. discontinuing evacuation to thereby release the engagement of said movable can seal body with said valve element.

5,738,691
ULTRASONIC EXTRACTION OF PLASTICIZER FROM ELECTROCHEMICAL CELLS

Jeremy Barker, and Wade Guindy, both of Henderson, Nev., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Apr. 28, 1997, Ser. No. 840,336

Int. Cl.^{6} H01M *10/38*

U.S. Cl. 29—623.1 **27 Claims**

14. A method of preparing an electrochemical cell, which method comprises the steps of
   (a) forming an anode composition comprising an anodic material, a first polymer, and a first plasticizer;
   (b) forming a cathode composition comprising a cathode active material, a second polymer, and a second plasticizer;
   (c) forming a polymeric matrix comprising a third polymer and a third plasticizer;
   (d) bonding said polymeric matrix to said anode composition and said cathode composition to form an electrochemical cell precursor;
   (e) extracting at least a portion of said first, second and/or third plasticizer from said electrochemical cell precursor by contacting said electrochemical cell precursor with an extraction solvent while simultaneously applying ultrasound waves to said electrochemical cell precursor and said extraction solvent; and
   (f) contacting said electrochemical cell precursor with an electrolyte solution comprising an electrolyte solvent and a salt to form an electrochemical cell

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5,738,692
FUEL TREATMENT DEVICE

Ralph H. Wright, Winchester, United Kingdom, assignor to Advanced Power Systems International, Inc., Kent, Conn.

Continuation-in-part of Ser. No. 528,363, May 25, 1990, Pat. No. 5,580,359. This application Nov. 29, 1996, Ser. No. 757,612

Claims priority, application United Kingdom, May 26, 1989, 8912592

Int. Cl.^{6} F02M *27/02*, **F02B** *51/02*, **C22C** *13/02*

U.S. Cl. 44—321 **20 Claims**

1. An apparatus for improving combustion efficiency comprising:
   at least one catalyst element comprising tin, antimony, lead and mercury; and housing means for bringing fuel into contact with the catalyst element,
   wherein the catalyst element comprises the following percentages by weight: 60-80% tin; 15-30% antimony; 2-7% lead, and 3-12% mercury

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5,738,693

DETECTION OF NAPHTHYLAMINES IN MINERAL OILS

Rainer Dyllick-Brenzinger, Weinheim; Ulrike Schlösser, Ludwigshafen; Walter Kurtz, Bad Dürkheim, and Gunther Lamm, Hassloch, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/02824, § 371 Date Mar. 4, 1996, § 102(e) Date Mar. 4, 1996, PCT Pub. No. WO95/07460, PCT Pub. Date Mar. 16, 1995

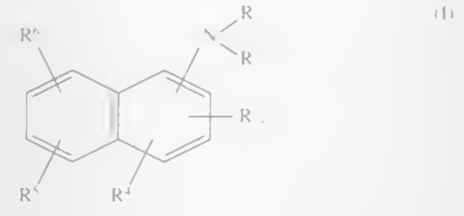
PCT Filed Aug. 25, 1994, Ser. No. 602,801

Claims priority, application Germany, Sep. 4, 1993, 43 29 953.9

Int. Cl.^{6} G01N *33/28;31/22;* C10L *1/00*

U.S. Cl. 44—429 **7 Claims**

1. A method for detecting the presence of naphthylamines of the formula I



(I)

where

R^1 and R^2 are each, independently of one another, hydrogen, C_1–C_{18}-alkyl which is unsubstituted or substituted and can be interrupted by 1 to 3 oxygen atoms in ether functionalities or 1 to 3 C_1–C_4-alkylimino groups, or C_5–C_7-cycloalkyl, C_3–C_{18}-alkenyl or unsubstituted or substituted phenyl, or R^1 and R^2 form, together with the nitrogen atom connecting them, a 5- or 6-membered saturated heterocyclic radical which may have another hetero atom, and

R^3, R^4, R^5 and R^6, are each, independently of one another, hydrogen, C_1–C_8-alkyl, benzyl, cyano, nitro, C_1–C_4-alkanoyl, C_1–C_4-alkanoylamino, benzoylamino, hydroxysulfonyl or a radical of the formula OL^1, $COOL^1$, NL^1L^2 or $CONL^1L^2$, where L^1 and L^2 are each hydrogen, unsubstituted or substituted C_1–C_{18}-alkyl, C_5–C_7-cycloalkyl or unsubstituted or substituted phenyl, or R^3 together with R^2 is C_3-alkylene which is unsubstituted or substituted by hydroxyl, and, when the radicals NR^1R^2 and NL^1L^2 are in the peri positions, R^1 and L^1 can together also be isopropylidene

in mineral oils, which comprises extracting the naphthylamine of the formula I by treating the mineral oil with an aqueous medium and coupling it in the aqueous phase, in the presence or absence of a buffer, with a diazonium salt derived from an amine from the aminoanthraquinone series to form an azo dye and detecting the presence of said azo dye on the basis of color change observed.

5,738,694

PROCESS FOR RECOVERING IRON FROM IRON-CONTAINING MATERIAL

George W. Ford, Jr., Salt Lake City; Richard C. Lambert, Highland, and Russell G. Madsen, Wellington, all of Utah, assignors to Covol Technologies, Inc., Lehi, Utah

Division of Ser. No. 667,764, Jun. 21, 1996, which is a continuation of Ser. No. 546,975, Oct. 23, 1995, abandoned, which is a continuation-in-part of Ser. No. 468,104, Jun. 6, 1995, Pat. No. 5,589,118, which is a continuation-in-part of Ser. No. 184,099, Jan. 21, 1994, Pat. No. 5,453,103. This application Dec. 19, 1996, Ser. No. 770,605

Int. Cl.^{6} C10L *5/00*

U.S. Cl. 44—553 **13 Claims**

1. An article comprising fine iron-containing material and carbon formed by:

mixing the iron-containing material, and the carbon, to form an iron containing/carbon mixture, the mixture being essentially free of oils and moisture; dissolving styrene or acrylonitrile polymer in a hygroscopic solvent; combining the dissolved styrene or acrylonitrile polymer, the iron-containing/carbon mixture, calcium carbonate, and an alumino-silicate binder: emulsifying polyvinyl polymer in water, adding the emulsion to the combination and substantially homogenizing the resultant; and compressing the resultant into the articles.

5,738,695

ABRASIVE ARTICLE CONTAINING AN INORGANIC PHOSPHATE

Walter L. Harmer, Arden Hills, and Kwok-Lun Ho, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 545,984, Oct. 20, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 795,966

Int. Cl.^{6} B24D *3/34*

U.S. Cl. 51—295 **38 Claims**

1. An abrasive article comprising:

(a) a plurality of abrasive particles,

(b) at least one binder to which said plurality of abrasive particles are adhered; and

(c) a peripheral coating comprising an inorganic phosphate selected from the group consisting of an alkali metal metaphosphate, an alkaline earth metal metaphosphate and a Group IIIA metal orthophosphate.

5,738,696

METHOD FOR MAKING HIGH PERMEABILITY GRINDING WHEELS

Mianxue Wu, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Filed Jul. 26, 1996, Ser. No. 687,816

Int. Cl.^{6} B24D *3/00*

U.S. Cl. 51—296 **28 Claims**

1. A method for making an abrasive article, comprising abrasive grain and bond in amounts effective for grinding; comprising the steps

a) blending a mixture comprising abrasive grain consisting of a major amount of elongated abrasive grain having a length to cross-sectional width aspect ratio of at least 5:1 and vitrified bond to form an abrasive mix;

b) pressing the abrasive mix in a mold to form a green abrasive article having about 55% to about 80%, by volume, porosity; and

c) firing the green abrasive article at 600° to 1300° C. for a firing time and under firing conditions effective to cure the green abrasive article and form the abrasive article,

whereby relative to a firing time effective to cure an equivalent green abrasive article which does not contain the elongated abrasive grain under the firing conditions of step c), the firing time effective to cure the green abrasive article is reduced by at least one-half, and whereby the abrasive article has sufficient interconnected porosity to yield an air permeability capacity, measured in cc air/second/inch of water, of at least 0.44 times the cross-sectional width of the abrasive grain.

5,738,697

HIGH PERMEABILITY GRINDING WHEELS

Mianxue Wu, Worcester; Normand D. Corbin, Northboro; Stephen E. Fox; Thomas Ellingson, both of Worcester, and Lee A. Carman, Worcester, all of Mass., assignors to Norton Company, Worcester, Mass.

Filed Jul. 26, 1996, Ser. No. 687,884

Int. Cl.^{6} B24D *3/00*

U.S. Cl. 51—296 **36 Claims**

1. An abrasive article, comprising about 55% to about 80%, by volume, interconnected porosity defined by a matrix of fibrous particles, the fibrous particles having a length to diameter aspect ratio of at least 5:1, and abrasive grain and bond in amounts effective for grinding, and having an air permeability measured in

cc air/second/inch of water of at least 0.44 times the cross-sectional width of the abrasive grain, wherein the interconnected porosity provides an open structure of channels permitting passage of fluid or debris through the abrasive article during grinding, and wherein the fibrous particles consist of materials selected from the group consisting of abrasive grain, filler, combinations thereof, and agglomerates thereof

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5,738,698

BRAZING OF DIAMOND FILM TO TUNGSTEN CARBIDE

Rakesh R. Kapoor, Shrewsbury; Bela G. Nagy, Acton, and Louis K. Bigelow, Boylston, all of Mass., assignors to Saint Gobain/Norton Company Industrial Ceramics Corp., Worcester, Mass.

Division of Ser. No. 283,311, Jul. 29, 1994, Pat. No. 5,523,158. This application Apr. 30, 1996, Ser. No. 640,352

Int. Cl.^{6} B24D *11/00*

U.S. Cl. 51—309 **2 Claims**

1. A cutting tool, comprising:

a polycrystalline diamond film cutter element joined to a cemented tungsten carbide substrate by means of a first braze to form an assembly piece, the first braze comprising between 0.5 and 10 weight percent vanadium and contains at least one metal selected form the group consisting of gold and nickel, and

a larger workpiece joined to said assembly piece by means of a second braze, the second braze having a lower melting temperature than the first braze.

5,738,699

APPARATUS FOR TREATING PARTICLES

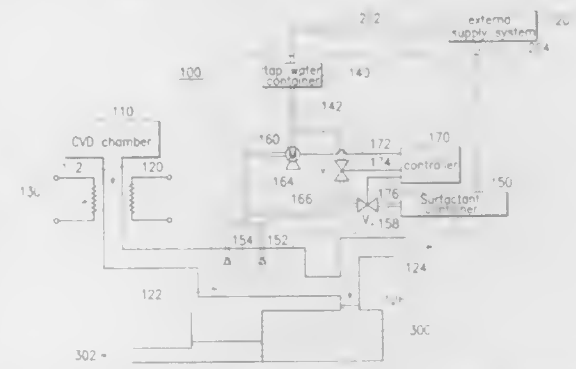
Chu Lin Hu, Hsinchu Hsien; Chia Hsing Huang, Tainan; Ching Wen Deng, and Kuo Cheng Chang, both of Hsinchu Hsien, all of Taiwan, assignors to United Microelectronics Corporation, Taipei, Taiwan

Filed Sep. 6, 1996, Ser. No. 706,730

Claims priority, application Taiwan, Jul. 29, 1996, 85109209

Int. Cl.^{6} B01D *5/00,47/06*

U.S. Cl. 55—242 **9 Claims**



1. An apparatus for treating particles in a heated exhaust gas with water and surfactant to remove the particles from the exhaust gas, the apparatus including:

pump means for pumping the water;

a water sprinkler for spraying the exhaust gas,

first valve means and second valve means;

a controller for opening and closing the first and second valve means and for turning the pump means on and off,

first conduit means for carrying water from a source of water and surfactant to the first valve means and the pump means,

second conduit means for providing fluid communication between the pump means and the sprinkler;

third conduit means for providing fluid communication between the source of water and surfactant and the second valve means; and

fourth conduit means, in fluid communication with the first valve means and the second valve means, for carrying the water from the first conduit means to the sprinkler when the first valve means is open and for carrying surfactant from the third conduit means to the sprinkler when the second valve means is open.

5,738,700

VEHICULAR AIR CLEANER ILLUMINATION FIXTURE

Gary L. King, 7532 Americur Ct., Lafayette, Ind. 47905

Filed Jan. 25, 1996, Ser. No. 591,745

Int. Cl.^{6} B01D *46/00*

U.S. Cl. 55—385.3 **20 Claims**

1. A vehicular air cleaner illumination fixture (**10**) comprising

a panel (**11**) having an outer circumference (**12**) configured to pass through an interior (**13**) of an intake section (**27**) of a vehicular air cleaner housing (**14**), said panel (**11**) also including a mounting bracket attachment site (**40**), and an aperture (**15**) in which a source of illumination (**16**) can be positioned, and

a mounting bracket (**17**) having a panel attachment site (**18**) for attachment to said panel (**11**) at said mounting bracket attachment site (**40**) and an intake section attachment site (**19**) for attachment to the intake section (**27**), said attachment sites (**18**, **19**, **40**), said panel (**11**), and said mounting bracket (**17**) being arranged and configured to position said panel (**11**) in the interior (**13**) of the intake section (**27**) so as to illuminate through the intake section (**27**) an exterior (**41**) of the housing (**14**) the source of illumination (**16**)

5,738,701

GLASS GOB PRODUCTION DEVICE AND PRODUCTION METHOD

Osamu Ikeuchi, Kawanishi; Naoko Yamada, Funabashi; Toshiya Tomisaka, Yao; Takeshi Yamashita, Kawanishi, and Futoshi Ishida, Takatsuki, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Apr. 2, 1996, Ser. No. 626,344

Claims priority, application Japan, Apr. 5, 1995, 7-080210; Apr. 6, 1995, 7-081131

Int. Cl.^{6} C03B *5/24*

U.S. Cl. 65—29.12 **21 Claims**

1. A glass gob production device, said glass gob being reformed into an optical element by press-molding, comprising:

a crucible which accommodates molten glass therein,

a nozzle with one end which is connected to said crucible and an other end from which the molten glass in the crucible is discharged; and

a support member opposite to the other end of the nozzle and having an indentation on the surface thereof for receiving and

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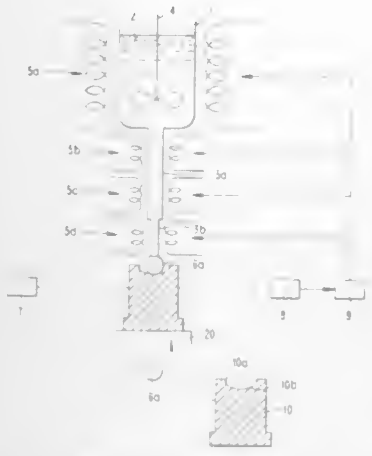


retaining the discharged molten glass in the indentation to form a glass gob, said indentation having a bottom surface and a reference surface extending in a direction perpendicular to the circumference of the bottom surface for transferring a glass gob reference surface to said glass gob.

5,738,702

APPARATUS FOR HOLDING A HOLLOW CYLINDER OF SILICON DIOXIDE SOOT

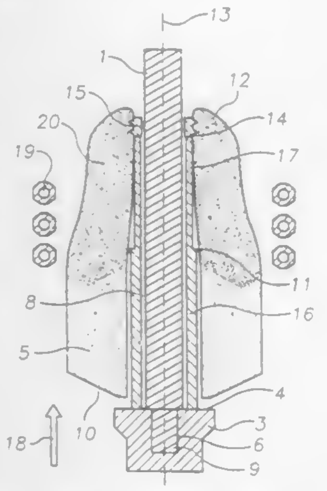
Klaus Ruppert, Maintal; Uwe Christiansen, Gelnhausen; Michael Hünermann, Alzenau; Klaus Dittmer, Gelnhausen, and Anton Steinkohl, Gründau, all of Germany, assignors to Heraeus Quarzglas GmbH, Hanau, Germany

Division of Ser. No. 526,944, Sep. 12, 1995, Pat. No. 5,665,132. This application Mar. 18, 1997, Ser. No. 820,205

Claims priority, application Germany, Sep. 15, 1994, 44 32 806.0

Int. Cl.^{6} C03B *00/00;19/06;* **F27B** *1/26;1/28*

U.S. Cl. 65—483 **11 Claims**



1. Apparatus for holding a hollow cylinder of silicon dioxide soot in a vertical orientation during sintering, said hollow cylinder having a central bore, said apparatus comprising

an elongate support body received vertically in said bore, said support body having a lower end,

a support base fixed to said lower end of said support body, said base having a support surface extending laterally outward from said elongate support body, said surface supporting said cylinder thereon,

a jacket tube resting on said support surface and received concentrically about said elongate support body, inside said central bore, and

a retaining element fixed in said central bore of said hollow cylinder so that said retaining element is above said jacket tube when said hollow cylinder rests on said support surface, whereby as said hollow body contracts during sintering, said retaining element is supported on said jacket tube and said hollow cylinder hangs vertically from said retaining element.

5,738,703

METHOD TO PRODUCE A SUBSTITUTE FOR PEAT MOSS

William E. Bandurski, 1084 - 24th St., Des Moines, Iowa 50311

Division of Ser. No. 387,618, Feb. 13, 1995, Pat. No. 5,501,718, which is a continuation of Ser. No. 223,537, Apr. 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 43,535, Apr. 6, 1993, abandoned. This application Mar. 11, 1996, Ser. No. 614,938

Int. Cl.^{6} C05F *11/08;* **B01D** *53/02;34/00*

U.S. Cl. 71—9 **11 Claims**

1. A method for adsorbing and degrading compounds selected from the group consisting of hydrocarbons, solvents, pesticides, highly energetic compounds and liquids containing dissolved metals and radioactive materials comprising contacting said compounds with a mixture produced by the method comprising:

mixing adsorptive cellulosic carrier material with an inoculum containing legnin cellulose degrading microorganisms in a fermenter in an effective amount sufficient to allow for rapid growth throughout the fermenter and a liquid feedstock of a manure, a municipal waste, manufactured feedstock or a blend of these to form a mixture having a moisture content of up to 25% by weight and wherein liquid and dissolved nutrients are absorbed into the carrier material and solids are concentrated and bacteria grows on a surface of the carrier material,

transferring said mixture to a chamber to isolate the mixture from atmospheric oxygen, prevent loss of moisture, and maintain the mixture at even temperature throughout,

increasing the temperature of said mixture in said chamber to a temperature of 135° to 175° F. and form a moist atmosphere containing ammonia and maintaining the mixture at this temperature until said cellulosic material changes from a natural color to a dark brown color, then

aerating said mixture to reduce the temperature and to remove water vapor, ammonia and other gases found in the mixture in an exhaust gas and continuing aeration until the mixture is dried to less than 25% by weight moisture and causes microorganisms or bacterial community that has developed to become dormant and then removing said mixture from said chamber containing carrier material having substantially same physical shape and size as initially mixed for use as a substitute for peat moss.

5,738,704

CHARGING STOCK FOR STEEL PRODUCTION

Genrikh Alekseevich Dorofeev, Tula; Serafim Zakharovich Afonin, Moscow, and Anatolii Georgievich Sitnov, Tula, all of Russian Federation, assignors to Intermet-Service and Company, Tula, Russian Federation

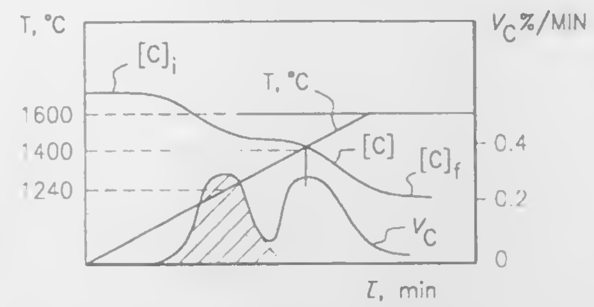
Filed Jan. 18, 1996, Ser. No. 588,111

Claims priority, application Russian Federation, May 26, 1995, 95108413

Int. Cl.^{6} C21B *3/02*

U.S. Cl. 75—304 **7 Claims**

1. A composite charging stock for metallurgical processing, comprising:



an iron-carbon alloy, said alloy including silicon; and

an oxide containing material,

the ratio of the external surface area of said oxide-containing material to the mass of said iron-carbon alloy being in the range of 5–100 m^2 per ton.

5,738,705

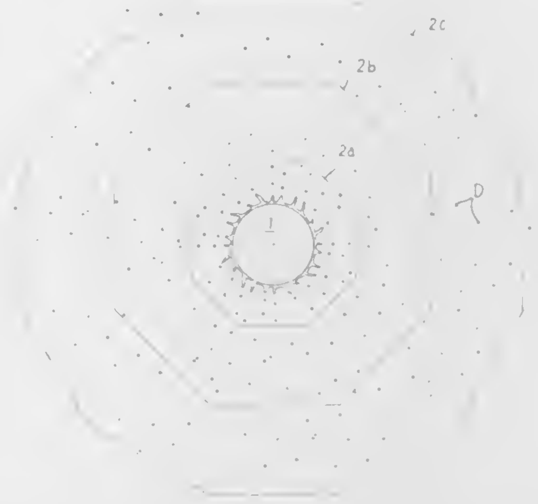
ATOMIZER WITH LIQUID SPRAY QUENCHING

Iver E. Anderson; Matthew G. Osborne, and Robert L. Terpstra, all of Ames, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Nov. 20, 1995, Ser. No. 560,711

Int. Cl.^{6} B22F *9/10*

U.S. Cl. 75—332 **10 Claims**



1. Method of making metallic powder particles, comprising:

atomizing a metallic melt at an atomizing location in a manner to form molten droplets having generally spherical droplet shape moving in a direction away from said atomizing location, and

passing the atomized droplets through a plurality of thin, generally flat liquid spray quenching sheets disposed in succession about the atomizing location with each successive quenching sheet being at an increasing distance from said atomizing location so that said atomized droplets pass through the liquid spray quenching sheets in succession with said quenching sheets being thin enough in a cross-sectional dimension transverse to said direction that said droplets are incrementally cooled by contact with said quenching sheets as they pass therethrough without substantially distorting the generally spherical droplet shape.

5,738,706

SMOKE FILTRATION UNIT AND METHOD OF USING SAME

Gary A. Swanander, East Hampton, N.Y.; Bruce N. Bickford, Chester, and Michael Balmer, Cromwell, both of Conn., assignors to Air Resources, Inc., East Hampton, N.Y.

Filed Mar. 29, 1996, Ser. No. 626,770

Int. Cl.^{6} B01D *46/02*

U.S. Cl. 95—14 **19 Claims**

1. A smoke filtration unit for removing particulate matter from exhaust smoke, comprising:

an outer housing;

ducting means located in said outer housing for directing exhaust smoke produced by a fireplace, stove or furnace from an exhaust flue into filtration means, said exhaust smoke containing a quantity of particulates;

filtration means located in said outer housing for removing said particulates from said exhaust smoke;

fan means located in said outer housing and adapted for providing suction to draw said exhaust smoke into said filtration means and to exhaust from said unit residual gas produced upon removal of said particulates from said exhaust smoke;

filtered exhaust vent means for venting said residual gas to the atmosphere;

unfiltered exhaust vent means for ducting unfiltered exhaust smoke directly to the atmosphere; and

shutter means between said ducting means and said filtration means for directing, under predetermined conditions of temperature and pressure, said exhaust smoke either to said filtration means for filtering or to said unfiltered exhaust vent means for venting said exhaust smoke directly to the atmosphere.

18. A method of filtering exhaust smoke generated by a fireplace, stove or furnace, comprising the steps of:

ducting exhaust smoke containing particulates produced by a fireplace, stove or furnace from a chimney flue to a first enclosed volume of a smoke filtration unit, said first enclosed volume separated from a second enclosed volume by filter means configured and adapted for removing said particulates, said first and second enclosed volumes and said filter means being enclosed in an outer housing of the smoke filtration unit,

drawing said exhaust smoke through said filter means comprising a filter into said second enclosed volume wherein particulates entrained in said exhaust smoke are removed by said filter means, wherein a first portion of said particulates collects on said filter and a second portion thereof falls by force of gravity into a third enclosed volume located below said first enclosed volume;

drawing residual gas contained in said second enclosed volume to the atmosphere, said residual gas produced by removing at least a portion of said particulates from said exhaust smoke,

monitoring pressure in said first enclosed volume to determine if said pressure reaches a predetermined value, said predetermined value indicating that said filter has become clogged with particulates so that exhaust smoke is collecting in said first enclosed volume;

vibrating said filter for a predetermined interval to dislodge particulates clogging said filter when the pressure reaches said predetermined value; and

when said pressure in said first enclosed volume does not decrease to a value below said predetermined value after said predetermined interval, venting unfiltered exhaust smoke directly into the atmosphere.

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5,738,707

DEVICE AND METHOD FOR THE SEPARATION OF A SAMPLE INTO ITS INDIVIDUAL COMPONENTS IN A CAPILLARY CONDUIT OF A GAS CHROMATOGRAPHY ANALYSIS APPARATUS

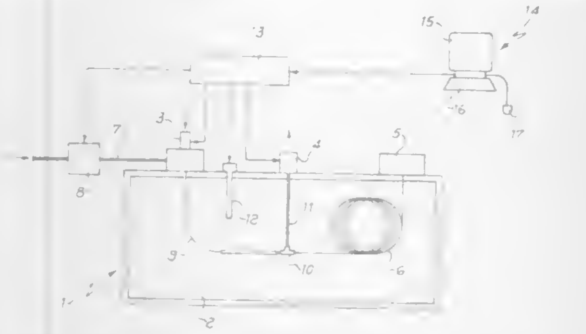
Pier Albino Colombo, Treviglio; Paolo Magni, Besana In Brianza; Fausto Munari, Milan, and Sorin Trestianu, Rodano, all of Italy, assignors to Thermoquest Italia S.p.A., Italy

Filed Dec. 12, 1996, Ser. No. 766,397

Claims priority, application Italy, Dec. 29, 1995, MI95A2785

Int. Cl.^{6} B01D *15/08*

U.S. Cl. 95—15 **18 Claims**



1. Method for the separation into its individual components of a sample which is injected into a stream of carrier gas in a capillary conduit of a gas chromatography analysis apparatus, said sample consisting of a solution of one or more components to be analyzed, dissolved in a solvent, the method being characterized by comprising:

- calculating a plurality of R_{evap} reference values corresponding to the evaporation rates of said solvent, combined with the carrier gases used, corresponding to a plurality of discrete values at respective pre-set intervals, said discrete values being representative of specific pressure conditions of the carrier gas in said capillary conduit of specific temperatures to which said capillary conduit is subjected to, of pre-set initial volumes of the sample injected in said capillary conduit and pre-set injection rates of the sample;
- calculating the effective r_{evap} value for evaporation rates of solvents corresponding to actual carrier gas pressures in the capillary conduit, actual temperatures to which is subjected said capillary conduit, actual initial volumes of injected sample and actual injection rates of said sample;
- generating at least one control signals for the gas chromatography analysis apparatus to determine the volumetric fraction of the sample transferred through the capillary conduit in relation to its characteristics and its geometrical dimensions.

5,738,708

COMPOSITE METAL MEMBRANE

Nathaniel M. Peachey, Espanola; Robert C. Dye, Los Alamos; Ronny C. Snow, Los Alamos, and Stephan A. Birdsell, Los Alamos, all of N. Mex., assignors to The Regents of the University of California Office of Technology Transfer, Alameda, Calif.

Filed Jun. 7, 1995, Ser. No. 484,801

Int. Cl.^{6} B01D *53/22;71/02*

U.S. Cl. 95—56 **14 Claims**

1. A process for the recovery of hydrogen from a gaseous mixture comprising,

- contacting a hydrogen-containing gaseous mixture with a first side of a nonporous composite metal membrane including a first metal layer selected from the group consisting of Group IVB metals and Group VB metals, said first metal layer sandwiched between two layers of an oriented metal selected from the group consisting of palladium, platinum and alloys thereof; and,
- separating hydrogen from a second side of said nonporous composite metal membrane

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5,738,709

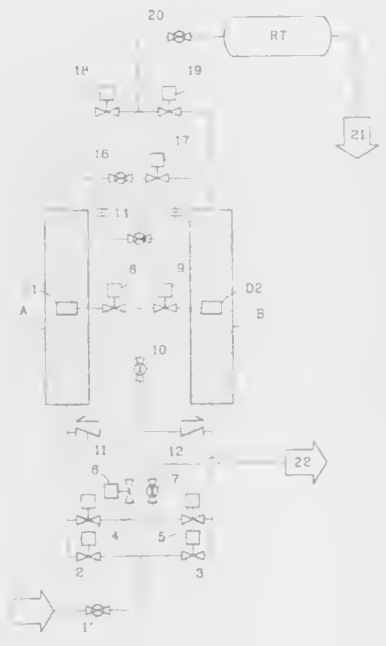
NITROGEN PSA WITH INTERMEDIATE PRESSURE TRANSFER

Sang Kook Lee, Allentown, and Robert Paul, Nesquehonig, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 20, 1996, Ser. No. 781,951

Int. Cl.^{6} B01D *53/047*

U.S. Cl. 95—98 **10 Claims**



1. A process for separating a nitrogen-enriched gas from a feed gas mixture containing at least nitrogen and oxygen using a plurality of beds of adsorbent that preferentially adsorb oxygen more readily than nitrogen in a series of steps in each bed, comprising: adsorption at an elevated pressure to adsorb oxygen and recover a nitrogen-enriched gas as an unadsorbed product; depressurization to a lower pressure to remove adsorbed oxygen from the adsorbent; and repressurization to approximately adsorption pressure, the improvement comprising, after the step of adsorption in a first bed of said plurality of beds, transferring gas from an intermediate point of said first bed to a point closer to a feed end of a second bed of the plurality of beds to partially depressurize said first bed and to partially pressurize said second bed.

5,738,710

CONTROL METHOD AND APPARATUS FOR MATERIAL ADSORBED ON ADSORBENT, AND SOLVENT RECOVERING METHOD AND APPARATUS USING SAME

Kazuo Omata, Iruma; Katsumi Shibata, Hasuda, and Yukio Shirai, Tokyo, all of Japan, assignors to Morikawa Industries Corporation, Kohshoku, Japan

Filed May 13, 1996, Ser. No. 645,447

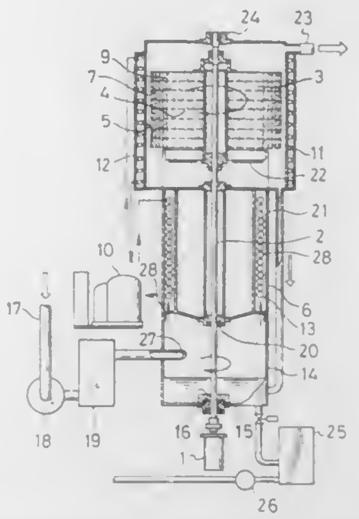
Claims priority, application Japan, Aug. 8, 1995, 7-202278

Int. Cl.^{6} B01D *53/06*

U.S. Cl. 95—107 **9 Claims**

1. A method for controlling adsorption of a target material on an adsorbent, comprising the steps of:

- rotating an adsorbent about an axis;
- introducing the target material to the adsorbent;
- passing the target material through the adsorbent in a direction of centrifugal force produced by rotating the adsorbent such that said target material is being attracted by the adsorbent; and



- condensing the target material to a liquid phase by cooling after the target material has passed through the adsorbent, the cooling achieved by substantially enclosing the adsorbent in a recovery device cooled by refrigeration.

5,738,711

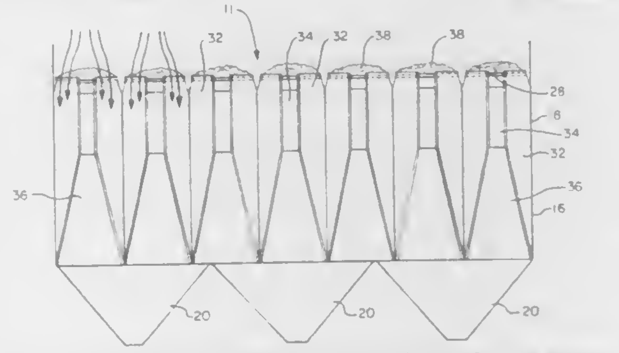
DEFLECTOR AND SCREEN ARRANGEMENT FOR ASH SEPARATION FROM FLUE GAS AND METHOD THEREOF

Harlan E. Finnemore, Pocatello, Id., assignor to ABB Air Preheater, Inc., Wellsville, N.Y.

Filed Dec. 6, 1996, Ser. No. 759,721

Int. Cl.^{6} B01D *45/06;50/00*

U.S. Cl. 95—268 **16 Claims**



1. An apparatus for the separation of ash from a flue gas stream comprising:

- a hopper defining a flow chamber for the flow of a flue gas stream, an inlet opening having an area, an outlet opening generally orthogonal to said inlet opening, and hopper collector means generally for collection of ash from said flue gas;
- deflector means in said flow chamber for deflecting said flue gas stream, said deflector means having a plurality of block-off means at said inlet opening for defining a plurality of initial flow path openings having an area less than said area of said inlet opening, said block-off means comprising a plurality of generally planar block-off plates defining said initial flow path openings therebetween, said block-off plates being triangular and defining triangular initial flow path openings, said initial flow path openings having an expanded portion and a narrow portion, said expanded portion oriented generally away from said outlet opening, and said deflector means further having a plurality of flow means extending generally orthogonally from said block-off means and adjacent said flow path openings for directing said flue gas toward said hopper collector means.

14. A method for separating ash from a flue gas stream comprising:

- flowing a gas stream comprising ash and flue gas downward through a duct having a flow area;
- reducing said flow area to accelerate said flue gas stream downward toward a hopper collector;
- increasing said flow area to decelerate said flue gas stream;
- redirecting said flue gas stream generally horizontally whereby a portion of said ash in said flue gas stream continues vertically downward toward said hopper collector, and said flue gas and the remaining portion of said ash flow generally horizontally, and
- screening said flow stream after redirecting said flow stream generally horizontally.

5,738,712

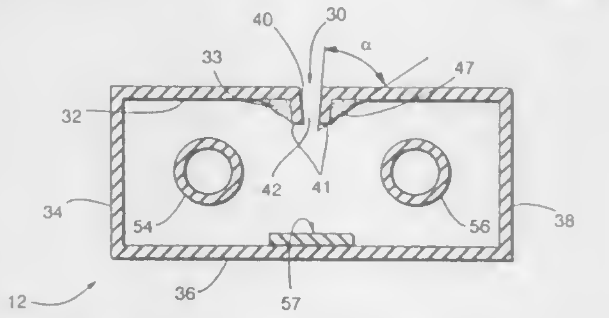
CENTRIFUGAL SEPARATOR ASSEMBLY AND METHOD FOR SEPARATING PARTICLES FROM HOT GAS

Timo Hyppanen, Karhula, Finland, assignor to Foster Wheeler Energia Oy, Helsinki, Finland

Filed Mar. 13, 1995, Ser. No. 402,170

Int. Cl.^{6} B01D *45/12*

U.S. Cl. 95—271 **29 Claims**



1. A centrifugal separator assembly comprising:

- a plurality of substantially planar walls, including a first wall, defining a vortex chamber having an interior gas volume, and for establishing at least one gas vortex in said gas volume, said gas volume having a cross-section that is distinctly non-circular;
- at least one gas outlet for cleaned gas extending from said vortex chamber and in communication with said gas volume;
- at least one gas inlet formed in said first wall for introducing gas with entrained particles into said gas volume;
- at least one separated particles outlet from the gas volume;
- said gas inlet comprising at least one elongated jet-defining wall having a free end portion extending into said gas volume a first distance from said first wall, to define a gas jet extending substantially tangentially to a gas vortex in said gas volume; and
- guiding means for guiding the gas vortex between said first wall and said jet-defining wall so that the flow direction of particles separating from gas in the gas vortex is smoothly changed from generally along said first wall to substantially in line with said gas jet at said gas inlet.

5,738,713

APPARATUS FOR BIOLOGICAL CONTROL OF NOXIOUS GAS FROM SWINE WASTE

Jay A. Firth, 7948 NE. Berwick Dr., Ankeny, Iowa 50021

Filed Aug. 10, 1995, Ser. No. 514,446

Int. Cl.^{6} B01D *53/02*

U.S. Cl. 96—131 **17 Claims**

1. An apparatus for filtering gasses arising from livestock production facilities comprising:

- a filter bed;
- a conduit in communication with the filter bed and with a source of gasses arising from a livestock production facility,
- a blower for drawing the gasses into the filter bed;
- a quantity of cellulose material disposed within the filter bed, the cellulose material being capable of providing nutrient media for gas decomposing bacteria; and

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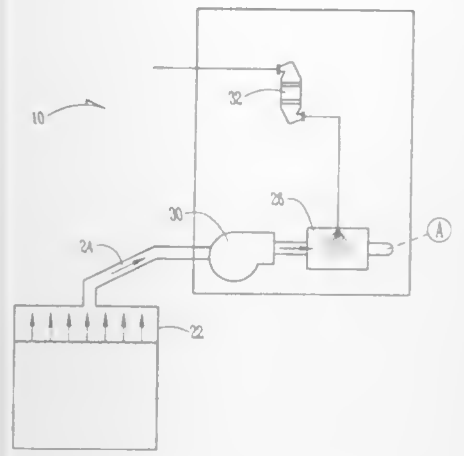


a plurality of distribution ducts having a plurality of openings formed along their lengths, the ducts being disposed within the filter bed below a substantial portion of the cellulose material, the distribution ducts being in communication with the blower for injecting the gasses into the cellulose material via the openings.

5,738,714
RECORDING LIQUID

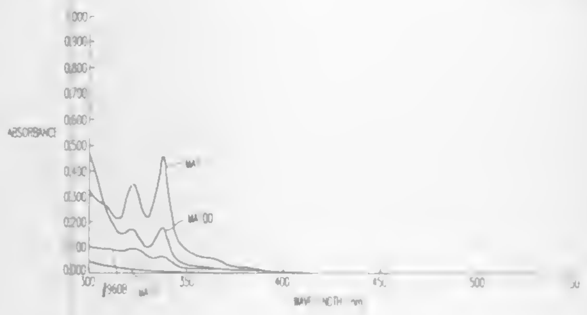
Takashi Hirasa; Hiroshi Takimoto, both of Yokohama; Makoto Ishizu, and Katsuji Honda, both of Chigasaki, all of Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 708,730

Claims priority, application Japan, Sep. 6, 1995, 7-229143

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.9 **10 Claims**



1. A recording liquid comprising a carbon black dispersed in an aqueous medium, which is characterized in that a toluene extract of the carbon black has an absorbance of 0.05 or less at λmax within the range of from 330 nm to 340 nm or at 337.5 nm when the toluene extract does not have λmax within the range of from 330 nm to 340 nm.

5,738,715
EMULSION INK FOR STENCIL PRINTING

Sadanao Okuda, and Yoshihiro Hayashi, both of Inashiki-gun, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

Filed Dec. 5, 1996, Ser. No. 759,630

Claims priority, application Japan, Dec. 5, 1995, 7-339889

Int. Cl.^{6} C09D *11/02*

U.S. Cl. 106—31.26 **14 Claims**

1. A water-in-oil (W/O) emulsion ink for stencil printing, which contains carbon black as a water-insoluble colorant in the water phase and contains an oil-in-water (O/W) emulsion of resin and/or a water soluble resin in the water phase, in which said carbon black has a pH value of 6 to 10.

5,738,716
COLOR PIGMENTED INK JET INK SET

Domenic Santilli, Webster; Douglas Eugene Bugner, Rochester; Alexandra DeLauro Bermel, Spencerport, and David Joseph Oldfield, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 20, 1996, Ser. No. 699,877

Int. Cl.^{6} C09D *11/00*

U.S. Cl. 106—31.77 **11 Claims**

1. A color ink jet ink set for color printing; comprising
(a) a first ink comprises a carrier and a bridged aluminum phthalocyanine pigment as a cyan colorant;
(b) a second ink comprising a carrier and a quinacridone pigment as a magenta colorant; and
(c) a third ink comprising a carrier and a non-benzidine yellow pigment.

5,738,717
COLORING PIGMENT AND METHOD OF MANUFACTURE

Bryon Thomas Oulsnam, Stoke-on-Trent, United Kingdom, and Disederius Erasmus, Edelweiss Springs, South Africa, assignors to Corveagh Limited, Dublin, Ireland

PCT No. PCT/GB94/00288, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO94/18276, PCT Pub. Date Aug. 18, 1994

PCT Filed Feb. 11, 1994, Ser. No. 505,164

Claims priority, application United Kingdom, Feb. 11, 1993, 9302731; Jun. 8, 1993, 9311837

Int. Cl.^{6} C09C *1/24*

U.S. Cl. 106—456 **20 Claims**

1. A coloring pigment made from a synthetic magnetite produced by oxidation of ferrous mill scale and reduced to a particle size such that at least 95% of the synthetic magnetite does not exceed 20 microns to give a black or red pigment in which the unoxidized iron content is no more than 0.5%, and in which the analysis of the synthetic magnetite is:

Total Iron as Fe	71.27%
Iron Oxide as FeO	5.30%
Magnetite as Fe_3O_4	87.40%
Hematite as Fe_2O_3	5.18%
K_20	0.05%
Na	0.05%
CaO	0.49%
MgO	0.11%
SiO_2	0.62%
Al_20_3	0.28%
Mn_30_4	0.39%
Cr_20_3	0.08%

5,738,718
ZINC OXIDE-CONTAINING SPHERICAL SILICA AND PROCESS FOR ITS PRODUCTION

Hiroo Mori; Hiroshi Funaki; Kunihiko Terase, and Hachirou Hirano, all of Ichihara, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Continuation of Ser. No. 537,275, Sep. 29, 1995, abandoned. This application Apr. 7, 1997, Ser. No. 833,427

Claims priority, application Japan, Sep. 30, 1994, 6-237826; Sep. 30, 1994, 6-237827

Int. Cl.^{6} C01B *33/12*

U.S. Cl. 106—481 **9 Claims**

1. A process for producing zinc oxide-containing spherical silica, which comprises emulsifying in an organic solvent an aqueous alkali metal silicate solution comprising
a surfactant,

of from 10 to 70 wt %, based on the total amount of zinc oxide and SiO_2, zinc oxide with a particle size of from 0.005 to 0.5 μm, and
then gelling the resulting emulsion with carbon dioxide gas.

5,738,719
PIGMENT COMPOSITIONS OF DIKETOPYRROLOPYRROLES

Olof Wallquist, Marly; Ingo Schlöder, Matran, and Gary Wooden, Oberschrot, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

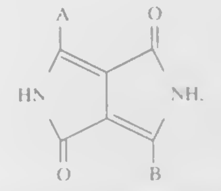
Continuation of Ser. No. 660,440, Jun. 7, 1996, abandoned. This application Feb. 14, 1997, Ser. No. 799,969

Claims priority, application Switzerland, Jun. 15, 1995, 1771/95; Mar. 14, 1996, 677/96

Int. Cl.^{6} C08K *5/00*

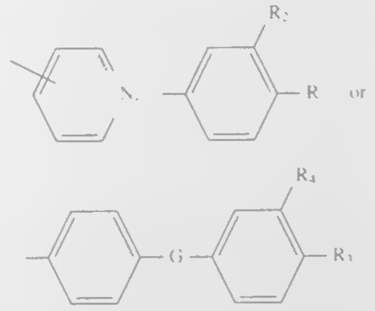
U.S. Cl. 106—498 **7 Claims**

1. A process for the preparation of a pigment composition comprising
a) 90–99.7 mol % of a diketopyrrolopyrrole of formula

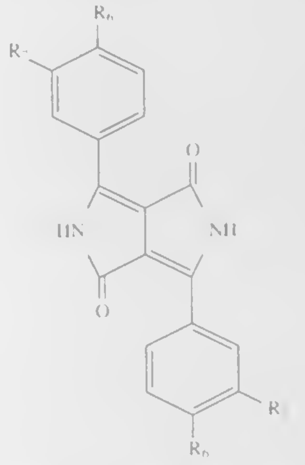


(I)

wherein A and B are each independently of the other a



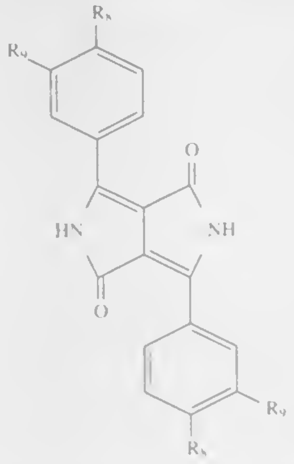
wherein R_1 and R_2 are each independently of the other hydrogen, chloro, bromo, C_1-C_6 alkyl, C_1 C_{18} alkoxy, C_2–C_{19} alkoxycarbonyl, C_2–C_{19} alkylcarbamoyl, C_1-C_{18} alkylmercapto, C_1 C_{18} alkylamino, C_5 C_6 cycloalkyl, G is a direct bond or —O—, —S—, —SO, —SO_2 or —NR_5—. R_3 and R_4 are each independently of the other hydrogen, chloro, bromo, C_1–C_6 alkyl, C_1-C_{18} alkoxy or C C_{18} alkylamino, and R_5 is hydrogen or C_1–C_6 alkyl, and
b) 10–0.3 mol % of a diketopyrrolopyrrole of formula



(II)

wherein one of R_6 or R_7 is hydrogen and the other is —CN;

the process which comprises reacting 1 mol of a dialkyl succinate or diphenyl succinate, in which succinate radical alkyl is C–C_{18}alkyl, and phenyl is phenyl which is unsubstituted or substituted by one or two halogen atoms, one or two C_1–C_6 alkyl groups or C_1–C_6 alkoxy groups, with one mole each of a nitrile of formulae A—CN and B—CN, wherein A and B have the meaning cited above, in an inert organic solvent in the presence of an alkali metal or an alkali metal alcoholate as strong base at elevated temperature to a pigment alkali metal salt with subsequent release of the diketopyrrolopyrrole of formola I by protolysis of the corresponding pigment alkali metal salt with subsequent conditioning,
which process comprises adding before or during this synthesis 0.3–10 mol % of a diketopyrrolopyrrole of formula



(III)

wherein one of R_8 or R_9 is hydrogen and the other is —CN

5,738,720
METHOD OF MANUFACTURING MICROSTRUCTURE PATTERN OF MOLECULAR MATERIAL HIGH ORIENTATION AGGREGATE WITH THE AID OF DIFFERENCE OF GROWTH RATE BY SUBSTRATE MATERIAL

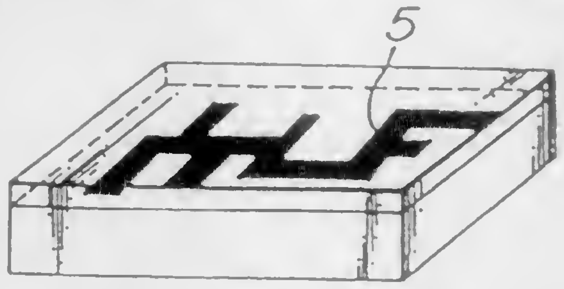
Toshihiro Shimada, and Atsushi Koma, both of Tokyo, Japan, assignors to The University of Tokyo, Tokyo, Japan

Filed Feb. 12, 1996, Ser. No. 600,157

Claims priority, application Japan, Mar. 27, 1995, 7-067476

Int. Cl.^{6} C30B *29/58*

U.S. Cl. 117—94 **2 Claims**



1. A method of forming a microstructure pattern of a high orientation aggregate of a molecular material with the aid of difference of growth rate with substrate material comprising
the first step of forming a microstructure pattern singly crystallized another ionic material having different ionic bondability thereon by lithography and epitaxial growth on ionic material single crystal substrate material,
and the second step of forming a microstructure pattern of a high orientation aggregate of an organic molecular material on a single crystal substrate of an ionic material by carrying out epitaxial growth of an objective organic molecular material, while maintaining a substrate temperature of the molecular material aiming at coating, in the pattern manufactured in said

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step, at the optimum temperature for growing on substrate material or either one of grown ionic materials determined by combination of materials, and scarcely growing on the other ionic material.

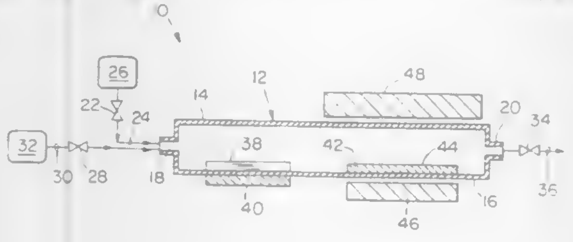
5,738,721
LIQUID PRECURSOR AND METHOD FOR FORMING A CUBIC-PHASE PASSIVATING/BUFFER FILM

Andrew R. Barron, Cambridge; Michael B. Power, and Andrew N. MacInnes, both of Quincy, all of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass., and Triquint Semiconductor, Inc., Beaverton, Oreg.

Continuation of Ser. No. 369,363, Jan. 6, 1995, abandoned. This application Apr. 6, 1995, Ser. No. 418,005

Int. Cl.^{6} C30B *25/02*

U.S. Cl. 117—104 **11 Claims**



2. A method of forming a cubic-phase passivating/buffer film on a substrate, comprising the steps of:

- a) heating the substrate to a temperature which causes a liquid precursor to volatilize and be deposited on the substrate,
- b) volatilizing the liquid precursor, which consists essentially of a compound having the empirical formula of $((t\text{-amyl})GaS)_4$, and
- c) directing a carrier gas from a carrier gas source across the precursor source to conduct the volatilized precursor from the precursor source to the substrate, whereby the volatilized precursor is pyrolyzed and deposited on the substrate, thereby forming a cubic-phase passivating/buffer film on said substrate.

5,738,722
III-V SYSTEM COMPOUND SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING THE SEMICONDUCTOR DEVICE

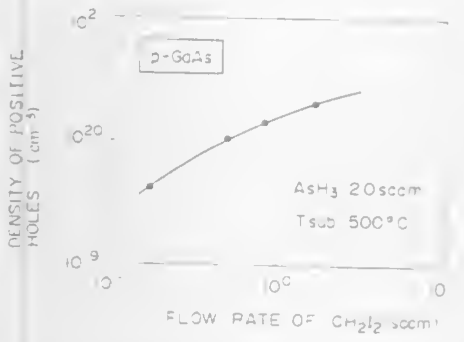
Takeshi Tomioka; Hideyasu Ando; Naoya Okamoto, and Shinji Yamaura, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 310,761, Sep. 27, 1994, Pat. No. 5,749,028. This application Aug. 31, 1995, Ser. No. 522,136

Claims priority, application Japan, Sep. 28, 1993, 5-240862

Int. Cl.^{6} C30B *25/14*

U.S. Cl. 175—104 **6 Claims**



1. A method for manufacturing a III-V system compound semiconductor device comprising a process of forming a p-type III-V system compound semiconductor layer, which is at least 1×10^{18} cm^{-3} in density of positive holes, by means of one selected from a group of a gas source molecular beam epitaxy (GSMBE) method, a chemical beam epitaxy (CBE) method, a metal organic molecular beam epitaxy (MOMBE) method and a molecular beam epitaxy (MBE) method as using a compound containing carbon as impurity for giving a p-type conductivity and further containing iodine and hydrogen.

5,738,723
SYSTEM FOR FORMING METAL TUBING

Larry Fleeman, Ann Arbor, and Charles E. Emmons, Brooklyn, both of Mich., assignors to Pilot Industries, Inc., Dexter, Mich.

Filed Nov. 28, 1995, Ser. No. 563,492

Int. Cl.^{6} B23K *1/00*; B05C *3/12*; C23C *2/02*

U.S. Cl. 118—67 **15 Claims**

1. A system for forming metal tubing from a metal strip comprising:

- means for rolling said strip into a tube so that longitudinally extending portions of said strip overlay each other,
- means for heating said tube to a first elevated temperature sufficient to fuse said overlaying portions of said strip together,
- means for coating said tube with a corrosion resistant material spaced a distance from said means for heating,
- means for cooling said tube to a second temperature lower than said first temperature between said heating means and said coating means, and
- means for introducing an inert and/or reducing gas around said tube between said heating means and said coating means,
- wherein said cooling means comprises a tunnel extending the entire distance between said heating means and said coating means, said tunnel having an interior through which said tube passes, and means for cooling said tunnel, wherein said introducing means comprises means for introducing said inert and/or reducing gas into said interior of said tunnel to prevent oxidation of said tube between said heating means and said coating means.

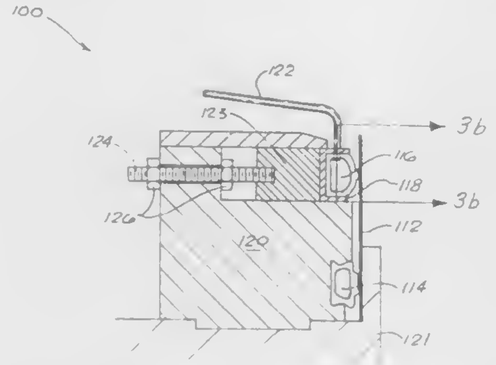
5,738,724
ACTUATOR ASSEMBLY FOR COATER BLADE LOAD ADJUSTMENT

Steven Paul Metzler, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed Aug. 6, 1996, Ser. No. 692,718

Int. Cl.^{6} B05C *11/02*

U.S. Cl. 118—123 **5 Claims**



1. A single unit, coater blade load adjustment system, wherein said system is comprised of:

- a base means;
- a blade clamping means operatively attached to said base means,
- a blade means having a first and second edge and a length such that said first edge of said blade is operatively secured by said blade clamping means and said second edge of said blade substantially contacts a sheet to be coated; and
- a blade load adjustment means located across said length of said blade to control a widthwise coatweight profile of said blade wherein said blade load adjustment means includes a positioning rod means operatively connected to said base means and a position rod fastening means operatively connected to said positioning rod means for blade adjustment positioning, a backing bar support means operatively connected to said positioning rod means, a holding means operatively connected to said backing bar support means wherein said holding means is further comprised of a channel and a single pneumatic, profiling tube means such that said holding means is located a predetermined distance away from said second edge of said blade means and wherein said tube means is further comprised of a plurality of parallelogram-shaped diagonally oriented and individually and pneumatically controlled chambers located adjacent to each other along a length of said tube means wherein at least two opposite angles of said parallelogram-shaped chambers are acute angles.

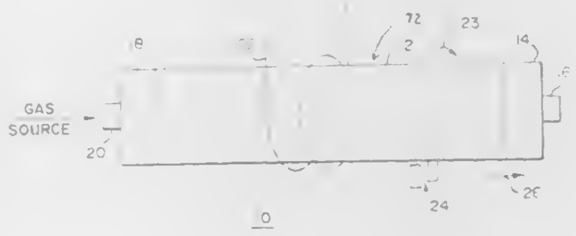
5,738,725
COOLING SYSTEM FOR APPARATUS OF COATING AN INSIDE OF A PIPE OR TUBE

Philip Bernstein, Jr., Chicago, Ill., assignor to FuseCo., Inc., Chicago, Ill.

Continuation of Ser. No. 441,379, May 15, 1995, Pat. No. 5,618,591. This application Feb. 18, 1996, Ser. No. 802,399

Int. Cl.^{6} B05B *13/06*; B23K *37/04*

U.S. Cl. 118—318 **11 Claims**



1. An apparatus for coating an interior surface of a metal tube with a coating material comprising:

- an organic transport material containing a dispersion of the coating material within the tube, said organic transport material further comprises a foamed one of the group including polystyrene, polymethyl styrene, polyvinyl toluene, polyethylene, polypropylene, phthalate, and polymethyl methacrylate;
- grinding means positioned and arranged away from the tube for grinding the foamed organic transport material into particulate before the foamed organic transport material is placed into the tube;
- means for rotating the tube located underneath the tube containing the organic transport material and dispersion of coating material;
- induction heating means surrounding the rotating tube containing the organic transport material and dispersion of coating material which heats the tube to a fusion point of the coating material to cause the coating material to fuse with and line an inner surface of the tube; and
- means for actively cooling the tube positioned and arranged after the induction heating means.

5,738,726
ROLL DOCTOR ASSEMBLY

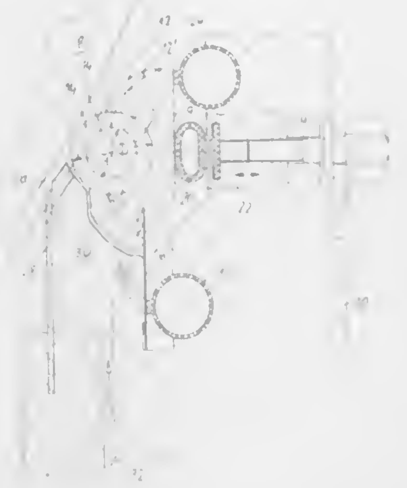
Horst Kaipf, Lauingen, and Christoph Henninger, Heidenheim, both of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

Filed Jun. 27, 1996, Ser. No. 670,502

Claims priority, application Germany, Jun. 30, 1995, 295 10 486.4

Int. Cl.^{6} B05C *3/02*

U.S. Cl. 118—410 **7 Claims**



1. A roll doctor assembly for use as a dosing element in a coater for coating with a coating mixture a traveling web having a width said roll doctor assembly comprising:

- a doctor bar comprising a selected one of a plurality of doctor bars, said plurality of doctor bars having a plurality of different predetermined diameters, each said doctor bar having an axis of rotation;
- a doctor backing comprising a selected one of a plurality of doctor backings, each said doctor backing being associated with and configured to rotatably carry a respective said doctor bar, each said doctor backing having a predetermined bearing diameter which is at all times approximately equal to said diameter of said associated doctor bar, said selected doctor backing and said respective doctor bar extending transversely across the width of the traveling web;
- a support beam;
- a flexible base strip interconnecting said selected doctor backing with said support beam,
- an applicator element for one of carrying the traveling web to be directly coated, and transferring the coating mixture to the traveling web to be indirectly coated; and
- a loading device which biases said selected doctor backing against one of said applicator element and the traveling web,
- wherein each of said doctor backings and said respective doctor bars are configured such that said axis of rotation of said doctor bar carried by any said selected doctor backing is at approximately the same position relative to said support beam.

5,738,727
DEVICE FOR ELECTROSTATIC SPRAYING OF A COATING PRODUCT

Dominique Cebola, Voiron; Eric Prus, Grenoble, and Caryl Thome, Saint-Egreve, all of France, assignors to Sames S.A., France

Filed Mar. 20, 1996, Ser. No. 618,836

Claims priority, application France, Mar. 20, 1995, 95 03447

Int. Cl.^{6} B05B *5/025*

U.S. Cl. 118—631 **15 Claims**

1. An electrostatic coating product spraying device for spraying a coating product onto an object, said spraying device comprising

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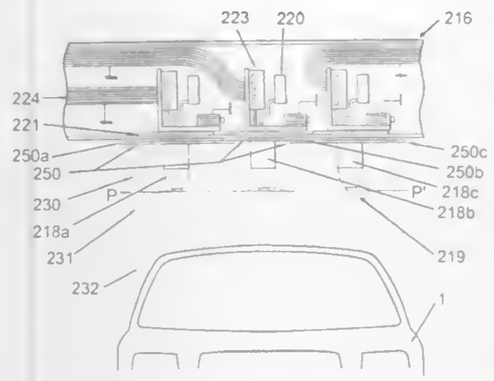


at least one sprayer having electrostatic charging means supplying a high voltage of a first polarity and potential for electrostatically charging the coating product, said electrostatic charging means producing a first electrostatic field which extends in a direction between said electrostatic charging means and the object;

a movable support structure supporting said at least one sprayer;

components carried by said movable support structure for feeding coating product to said at least one sprayer and for moving said at least one sprayer, said components being at ground potential;

an electrostatic shield positioned and arranged at a location such that said electrostatic charging means are disposed between said electrostatic shield and the object; and

means connected to said electrostatic shield for maintaining said electrostatic shield at an electrostatic potential having the first polarity, thus producing a second electrostatic field extends from said electrostatic shield to the object substantially in parallel with, and in the same polarity sense as, the first electrostatic field.

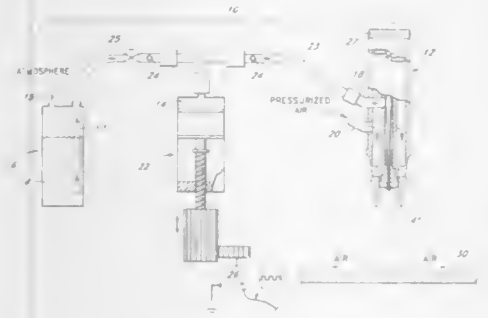
5,738,728
PRECISION METERED AEROSOL DISPENSING APPARATUS

Thomas C. Tisone, Orange, Calif., assignor to Bio Dot, Inc., Irvine, Calif.

Filed Jul. 26, 1996, Ser. No. 687,711

Int. Cl.^{6} B05B *13/02;5/025*

U.S. Cl. 118—638 **30 Claims**



1. An apparatus for dispensing a liquid, comprising:

an aerosol dispenser having an air inlet port and a liquid inlet port for mixing said liquid with a predetermined flow of said air to form an aerosol mist; and

a positive displacement pump in fluid communication with the liquid inlet port of said aerosol dispenser for metering predetermined quantities of said liquid to said liquid inlet port of said aerosol dispenser;

whereby the quantity and/or flow rate of liquid dispensed by said aerosol dispenser can be precisely metered substantially without being affected by the particular operating parameters of said aerosol dispenser or the particular flow characteristics of said liquid being dispensed.

5,738,729
COATING CHAMBER, ACCOMPANYING SUBSTRATE CARRIER, VACUUM EVAPORATION AND COATING METHOD

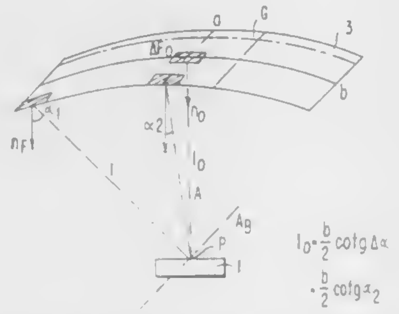
Martin Dubs, Maienfeld, Switzerland, assignor to Balzers Aktiengesellschaft, Furstentum, Liechtenstein

Filed Jan. 17, 1996, Ser. No. 588,394

Claims priority, application Switzerland, Nov. 13, 1995, 3204/95

Int. Cl.^{6} C23C *14/00*

U.S. Cl. 118—726 **10 Claims**



1. A coating chamber for at least one initially flat plate-like substrate, comprising: an evaporation source and a substrate carrier spaced from the evaporation source, said substrate carrier including means to bend said initially flat plate-like substrate within limits of elasticity of the initially flat plate-like substrate, to form said initially flat plate-like substrate into a curved substrate having a bent surface and so as to homogenize all incident angles of material evaporated from said evaporation source onto said curved substrate.

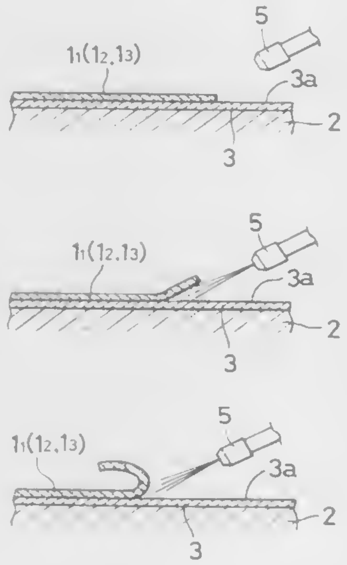
5,738,730
PROCESS FOR PEELING OFF TEMPORARILY PROTECTING COATING FILM

Hideaki Tojo; Hiroaki Atarashi; Hisashi Kurota; Kensaku Akasaka, and Hideki Obara, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 10, 1997, Ser. No. 783,298

Int. Cl.^{6} B08B *3/02*

U.S. Cl. 134—34 **4 Claims**



1. A process for peeling-off temporarily protecting coating films, from a coating surface, which have been formed by applying a protecting coating material onto said coating surface after completion of the coating, said process comprising the steps of

jetting high-pressure water toward between said coating surface and end edges of said temporarily protecting coating films to peel off the end edges of said temporarily protecting coating films from said coating surface, and

jetting the high-pressure water sequentially to between said coating surface and peeled-off portions of said temporarily protecting coating films from said coating surface to peel off the entire temporarily protecting coating films from said coating surface.

5,738,731
PHOTOVOLTAIC DEVICE

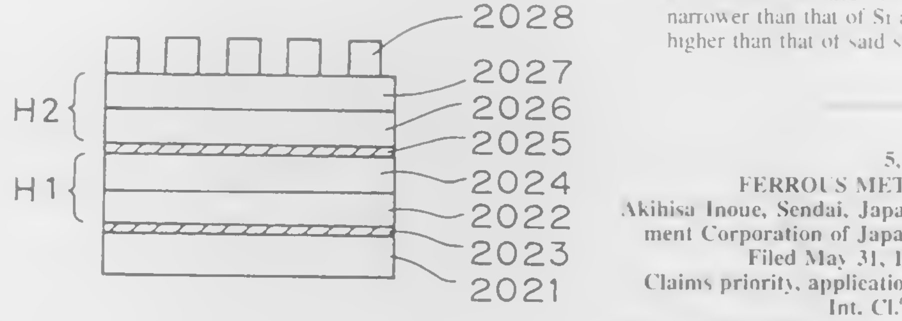
Masahiro Shindo, Toyonaka; Daisuke Kosaka, Takarazuka; Tetsuo Hikawa; Akira Takata, both of kobe; Yukihiro Ukai, Suita; Takashi Sawada, Kobe, and Toshifumi Asakawa, Yamato, all of Japan, assignors to Mega Chips Corporation, Suita, and Crystal Device Corporation, Toyonaka, both of Japan

Filed Aug. 31, 1994, Ser. No. 298,800

Claims priority, application Japan, Nov. 19, 1993, 5-314147; Nov. 19, 1993, 5-314470; Nov. 22, 1993, 5-316108; Dec. 10, 1993, 5-341322; Dec. 20, 1993, 5-345314; Dec. 27, 1993, 5-350297; Dec. 28, 1993, 5-354139; Feb. 9, 1994, 6-155505

Int. Cl.^{6} H01L *31/06;31/078*

U.S. Cl. 136—249 **6 Claims**



1. A solar cell comprising:

a first junction part having a first conductivity type first semiconductor film and a second conductivity type second semiconductor film being formed on an upper surface of said first semiconductor film; and

a second junction part having a first conductivity type third semiconductor film being formed on an upper surface of said second semiconductor film and a second conductivity type fourth semiconductor film being formed on an upper surface of said third semiconductor film,

said junction parts being arranged from that having a larger forbidden bandwidth along a direction of progress of light,

said first, second, third and fourth semiconductor films being formed by single-crystalline films;

wherein an interlayer conductor prepared from a metal having an ohmic junction property with respect to said junction parts and having a thickness capable of transmitting light is interposed between said first and second junction parts; and

wherein said second semiconductor film being arranged on one side of said interlayer conductor is different in crystal orientation from said third semiconductor film being arranged on another side of said interlayer conductor.

5,738,732
SOLAR CELL AND MANUFACTURING METHOD THEREOF

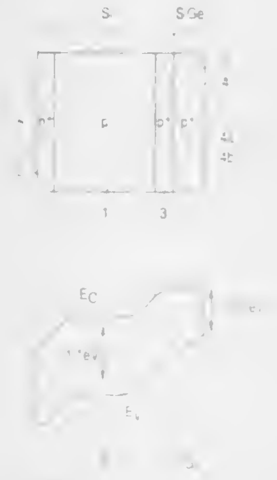
Kazuyo Nakamura, Nara, and Tadashi Hisamatsu, Ibaraki, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 4, 1996, Ser. No. 657,289

Claims priority, application Japan, Jun. 5, 1995, 7-138218; Mar. 22, 1996, 8-066421

Int. Cl.^{6} H01L *31/06;31/18*

U.S. Cl. 136—255 **21 Claims**



1. A solar cell, comprising:

a monocrystalline Si substrate of first conductivity type;

a diffusion layer of second conductivity type formed on a first main surface of said substrate; and

a semiconductor layer of the first conductivity type formed on a second main surface of said substrate and having a bandgap narrower than that of Si and a dopant impurity concentration higher than that of said substrate.

5,738,733
FERROUS METAL GLASSY ALLOY

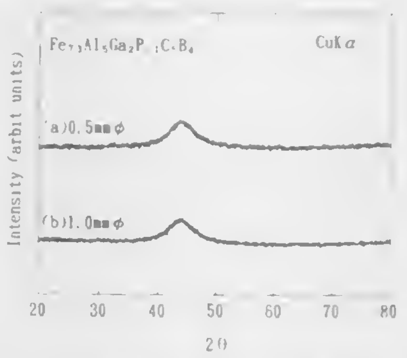
Akihisa Inoue, Sendai, Japan, assignor to Research Development Corporation of Japan, Kawaguchi, Japan

Filed May 31, 1996, Ser. No. 657,786

Claims priority, application Japan, Jun. 29, 1995, 7-136792

Int. Cl.^{6} C22C *45/02*

U.S. Cl. 148—304 **8 Claims**



1. A ferrous metal glassy alloy, comprising at least one metal selected from the group consisting of aluminum, gallium, indium and tin, at least one semi-metal element selected from the group consisting of phosphorus, carbon, boron, silicon, and germanium, with the balance being iron, and

wherein the ferrous metal glassy alloy has a temperature interval ΔTx of a supercooled liquid of at least 40 K, as determined by the following formula

$$\Delta Tx = Tx - Tg$$

where Tx is an onset temperature of crystallization and Tg is a glass transition temperature

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5,738,734
CENTRIFUGAL CAST ROLL SHELL MATERIAL

Yoshitaka Sawa, Chiba; Tomoya Koseki, and Kenji Ichino, both of Handa, all of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

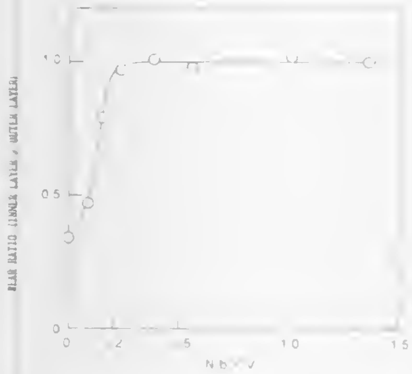
PCT No. PCT/JP96/00544, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO96/27688, PCT Pub. Date Sep. 12, 1996

PCT Filed Mar. 6, 1996, Ser. No. 737,070

Claims priority, application Japan, Mar. 7, 1995, 7/072513; Feb. 6, 1996, 8/042162

Int. Cl.⁶ C22C *37/06; 38/36*

U.S. Cl. 148—324 **4 Claims**



1. A centrifugal cast roll shell material comprising a granular MC type carbide, graphite and C: 2.5 to 4.7%, Si: 0.8 to 3.2% Mn: 0.1 to 2.0%, Cr: 0.4 to 19% Mo: 0.6 to 5% V: 3.0 to 10.0% and Nb. 0.6 to 7.0%, satisfying the following formulae 1), (2), (3) and (4).

$$2.0+0.15V+0.10Nb \leq C(\%) \quad (1)$$

$$1.1 \leq Mo/Cr \quad (2)$$

$$Nb/V \leqq 0.8 \quad (3)$$

$$0.2 \leq Nb/V \quad (4)$$

the remainder being Fe and inevitable impurities said material having been produced by casting as a melt with a pouring temperature at 1,400° C. or higher

5,738,735
AL-CU-MG ALLOY WITH HIGH CREEP RESISTANCE

Denis Bechet, St. Egreve, France, assignor to Pechiney Rhenalu, Courbevoie, France

Filed Jul. 25, 1996, Ser. No. 686,031

Claims priority, application France, Jul. 28, 1995, 95 09443

Int. Cl.⁶ C22C *21/00*

U.S. Cl. 148—417 **8 Claims**

1. A high creep resistance aluminum alloy consisting essentially of, in percent by weight:

Cu: 2.0–3.0;
Mg: 1.5–2.1;
Mn: 0.3–0.7;
Fe<0.3;
Ni<0.3;
Zr<0.15;
Ti<0.15;
Ag<1.0;
Si:0.3–0.6;

with Si and Ag in amounts such that 0.3< Si+0.4Ag<0.6, other elements <0.05 each and <0.15 total; and balance Al.

5,738,736
HYDROGEN STORAGE ALLOY AND ELECTRODE THEREFROM

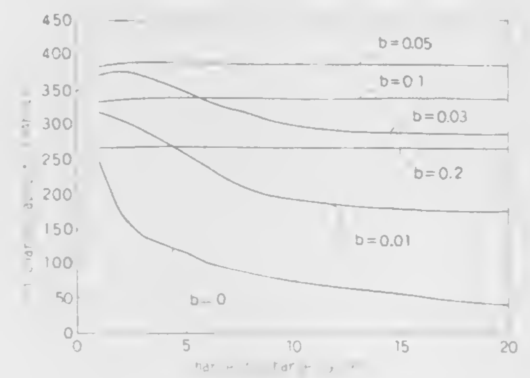
Yoichiro Tsuji, Katano; Osamu Yamamoto, Hirakata; Hajime Seri, Izumiotsu; Toshihiro Yamada, Neyagawa, and Yoshinori Toyoguchi, Yao, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Jul. 15, 1996, Ser. No. 683,559

Claims priority, application Japan, Jul. 18, 1995, 7-181290; Aug. 3, 1995, 7-198501; Aug. 18, 1995, 7-210833

Int. Cl.⁶ C22C *14/00*

U.S. Cl. 148—421 **10 Claims**



1. A hydrogen storage alloy having a body-centered cubic structure comprising Ti, V, Cr, and Ni as a main alloy phase, said alloy containing 1 to 10 atom % of at least one member selected from the group consisting of La, Ce and a mischmetal.

5,738,737
PROCESS FOR MAKING SUPERPLASTIC STEEL POWDER AND FLAKES

Jack D. Ayers, Oakton, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 5, 1991, Ser. No. 787,994

Int. Cl.⁶ C21D *10/00*

U.S. Cl. 148—564 **15 Claims**

1. A process for making superplastic steel, comprising the steps of:

rapidly solidifying molten steel to form a solidified material in the form of a powder, ribbon, foil, or flake comprising substantially single-phase austenitic steel having a grain size of no greater than about 2 μm;

providing said rapidly solidified material of said substantially single-phase austenitic steel having a grain size of no greater than about 2 μm, in powder or flake form;

heating said powder or flakes of said substantially single-phase austenitic steel having a grain size of no greater than about 2 μm, at a temperature of 300° C. to 600° C., to thus transform said substantially single-phase austenitic steel powder or flakes into a superplastic steel comprising a mixture of ferrite steel and at least one metal carbide, said ferrite steel having a randomly oriented structure and having a grain size of no greater than about 2 μm, said at least one metal carbide having a grain size no greater than about 0.5 μm, and

recovering said superplastic steel.

5,738,738
METHOD FOR MANUFACTURING A COLD ROLLED STEEL SHEET WITH EXCELLENT ENAMEL ADHERENCE

Jeong Bong Yoon, and Sung Ju Kim, both of Pohang City, Rep. of Korea, assignors to Pohang Iron & Steel Co., Ltd., and Research Institute of Industrial Science & Technology, both of Pohang, Rep. of Korea

PCT No. PCT/KR95/00167, § 371 Date Aug. 19, 1996, § 102(e) Date Aug. 19, 1996, PCT Pub. No. WO96/19305, PCT Pub. Date Jun. 27, 1996

PCT Filed Dec. 19, 1995, Ser. No. 693,114

Claims priority, application Rep. of Korea, Dec. 20, 1994, 1994-35202

Int. Cl.⁶ C21D *8/02*

U.S. Cl. 148—603 **6 Claims**

1. In a method for manufacturing an enameling cold rolled steel plate by utilizing aluminum killed steel,

a method for manufacturing a cold rolled steel plate having excellent enamel adherence properties, comprising the steps:

providing an aluminum killed steel in which C: less than 0.01%, Mn: 0.1–0.4%, S: 0.03–0.09%, Ti: 0.04–0.1% and N: less than 0.01% by weight % are contained, wherein

an atomic ratio defined by Ti/(C+N+0.4S) is adjusted to 1.0–2.0, and

a balance being Fe and other inevitable impurities,

hot rolling, including a finish rolling to be finished at a temperature greater than an Ar_3 transformation temperature, coiling, cold rolling at a reduction ratio of 50–85%, and then continuously annealing.

5,738,739
METHOD FOR PRODUCING LOW CARBON EQUIVALENT ROLLED STEEL SHAPES BY CONTROLLED ROLLING

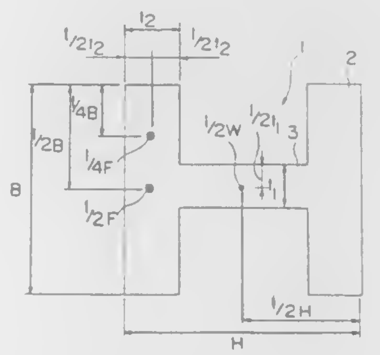
Kohichi Yamamoto; Yasushi Takeshima; Akira Inagaki, all of Sakai, and Naoki Oda, Ohita, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of Ser. No. 466,963, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 145,169, Nov. 3, 1993, abandoned. This application Jan. 30, 1997, Ser. No. 791,833

Claims priority, application Japan, Feb. 4, 1993, 5-017491

Int. Cl.⁶ C22C *38/00*

U.S. Cl. 148—641 **3 Claims**



1. A method for producing a steel beam having a flange portion with a flange thickness of 12 to 40 mm and a web portion with a smaller thickness than the flange portion, by a rolling process including a rough rolling step, an intermediate rolling step and a finishing rolling step, comprising:

(1) heating a steel bloom consisting essentially of the chemical composition as specified by SM400A) SM400B, SM490A or SM490B as defined below to a temperature ranging from 1100° to 1300° C. to form a heated steel bloom.

Unit %

Symbol of grade	C	Si	Mn	P	S
SM400A	50 mm or under in thickness 0.23 max Over 50 mm, up to an incl 200 mm in thickness 0.25 max		2.5 × C min (1)	0.035 max	0.035 max
SM400B	50 mm or under in thickness 0.20 max Over 50 mm, up to an incl 200 mm in thickness 0.22 max	0.35 max	0.60 to 1.40	0.035 max	0.035 max
SM490A	50 mm or under in thickness 0.20 max Over 50 mm, up to an incl 200 mm in thickness 0.22 max	0.55 max	1.60 max	0.035 max	0.035 max
SM490B	50 mm or under in thickness 0.18 max Over 50 mm, up to an incl 200 mm in thickness 0.20 max	0.55 max	1.60 max	0.035 max	0.035 max

(2) rough rolling the heated steel bloom into a rough-rolled steel beam forming a flange portion having a surface layer,

(3) subjecting said rough-rolled steel beam of step (2) to a plurality of intermediate rolling passes and water-cooling only the flange portion of the rough rolled steel beam between rolling passes in the intermediate rolling step to cool the surface layer of the flange portion to a temperature not higher than 750° C., and rolling the flange portion during recuperation of the surface layer of the flange portion within a γ/α phase co-existing temperature range at least one time between the rolling passes with a total draft not less than 20% and at an average rolling temperature not higher than 950° C., and

(4) finish rolling the steel beam of step (3) and cooling the flange portion at a cooling rate, measured at the outer surface of the flange portion, ranging from 0.5° to 10° C./sec depending on the thickness of the flange portion after the finishing rolling step

5,738,740
TIRE HAVING SPECIFIED CROWN REINFORCEMENT

Guy Cluzel, Beaumont, France, assignor to Compagnie Generale des Etablissements Michelin - Michelin & Cie, Clermont-Ferrand Cedex, France

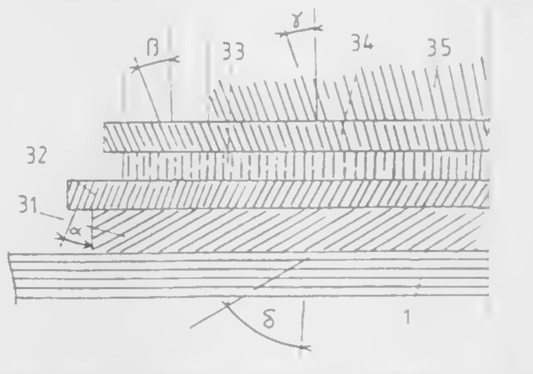
PCT No. PCT/EP95/04842, § 371 Date Jun. 5, 1997, § 102(e) Date Jun. 5, 1997, PCT Pub. No. WO96/20095, PCT Pub. Date Jul. 4, 1996

PCT Filed Dec. 8, 1995, Ser. No. 849,619

Claims priority, application France, Dec. 23, 1994, 94 15736

Int. Cl.⁶ B60C *3/04; 9/20; 9/22; 9/28*

U.S. Cl. 152—527 **4 Claims**



1. A tire having a carcass reinforcement (1) and a crown reinforcement (3) comprising at least two working crown plies (32, 34) of inextensible cables, crossed from one ply (32) to the next (34), forming angles (α, β) of between 10° and 45° with the circumferential direction, said plies having widths L_{32}, L_{34} at least equal to 80% of the maximum axial width S_0 of the carcass reinforcement (1), the tire characterised in that firstly an axially continuous ply

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(**31**) formed of inextensible metal cables forming with the circumferential direction an angle δ of at least 60° and the axial width L_{31} of which is at least equal to the axial width L_{32},L_{34} of the shortest working crown ply (**32**, **34**) is arranged between the carcass reinforcement (**1**) and the working ply (**32**) radially closest to the axis of rotation, and secondly an additional ply (**33**) formed of metallic elements oriented substantially parallel to the circumferential direction, the axial width L_{33} of said additional ply being at least equal to 0.7 S_0, and its elasticity modulus upon traction being at most equal to that of the most extensible working ply, is arranged between the two working crown plies (**32**, **34**).

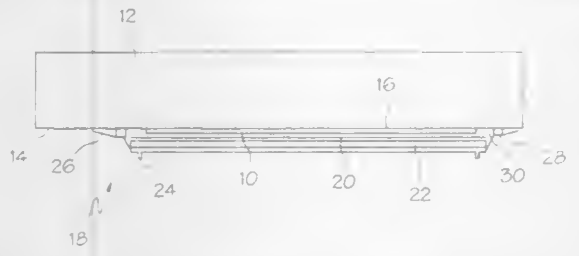
5,738,741
PRE-FABRICATED VACUUM BAG AND VACUUM BAG PROCESS TO EXTERNALLY REINFORCE STRUCTURAL MEMBERS WITH ADVANCED COMPOSITES

Allan Stanislaus Crasto, Kettering; Ronald Dean Cornwell, Huber Heights; John Paul Mistretta, Beavercreek; Keith Bryan Bowman, Casstown; Brian Patrick Rice, Mason, and James Andrew Lute, West Carrollton, all of Ohio, assignors to The University of Dayton, Dayton, Ohio

Filed Mar. 26, 1996, Ser. No. 621,632

Int. Cl.^{6} B29C *73/10;73/30;* **E02D** *37/00*

U.S. Cl. 156—71 **15 Claims**



1. A method of reinforcing structural members comprising the steps of:

positioning a reinforcement material adjacent to a reinforcement surface of a structural member, wherein, prior to said positioning step, said reinforcement material is cured between curing release plies, at least one of which is porous, to impart a rough surface texture to at least one surface of said reinforcement material;

positioning a vacuum assembly adjacent to an exposed surface of said reinforcement material so as to create an inner space between said vacuum assembly and said reinforcement surface of said structural member; and

creating a partial vacuum in said inner space so as to force said vacuum assembly and said reinforcement material towards said reinforcement surface.

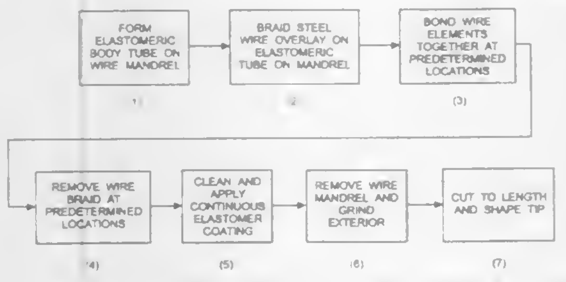
5,738,742
METHOD FOR MAKING ANGIOGRAPHIC CATHETERS

Robert C. Stevens, 18265 NW. Highway 335, Williston, Fla. 32696

Filed Nov. 12, 1996, Ser. No. 747,360

Int. Cl.^{6} A61M *25/00;* **B32B** *1/10*

U.S. Cl. 156—149 **8 Claims**


FORM ELASTOMERIC BODY TUBE ON WIRE MANDREL
(1)
BRAID STEEL WIRE OVERLAY ON ELASTOMERIC TUBE ON MANDREL
(2)
BOND WIRE ELEMENTS TOGETHER AT PREDETERMINED LOCATIONS
(3)
REMOVE WIRE BRAID AT PREDETERMINED LOCATIONS
(4)
CLEAN AND APPLY CONTINUOUS ELASTOMER COATING
(5)
REMOVE WIRE MANDREL AND GRIND EXTERIOR
(6)
CUT TO LENGTH AND SHAPE TIP
(7)

1. A method of manufacturing angiographic catheters comprising.

a) forming a length of cylindrical elastomeric tube of a predetermined outer diameter;

b) braiding multiple strands of wire wrapping about the said elastomeric tube;

c) applying to the wire wrapping circumferentially extending bands of a bonding agent at spaced locations to bond the strands of wire wrapping to each other and the elastomeric tube;

d) removing predetermined sections of the wire wrapping from about the elastomeric tube to leave the length of elastomeric tube with multiple wire wrapped sections spaced from one another by unwrapped sections, each wire wrapped section having axially spaced ends enclosed by bonding agent applied in step (c);

e) coating a continuous outer layer of elastomer over the length of elastomeric tube with multiple wire wrapped sections spaced from one another by unwrapped sections; and,

f) thereafter, taking the coated length of elastomeric tube with multiple wire wrapped sections spaced from one another by unwrapped sections and cutting it transversely at locations selected to reduce said length to multiple pieces of coated wire wrapped sections each having a coated unwrapped section joined thereto at least one end thereof.

5,738,743
PROCESS FOR MAKING A MEASURING TAPE

Shih Tung Lee, 4F., No. 653, Ming Shui Rd., Taipei, Taiwan

Filed Jul. 1, 1996, Ser. No. 653,370

Int. Cl.^{6} G01B *3/10*

U.S. Cl. 156—153 **10 Claims**

1. A process for manufacturing a measuring tape comprising the steps of:

providing a blank for manufacturing a measuring tape therefrom;

sand blasting both sides of the blank;

cleaning the blank with solvent;

drying the blank after the step of cleaning;

coating one side of the blank with adhesive;

drying the adhesive up to an optimum attaching condition;

covering a course of aluminum-foil on the side of the blank with the adhesive;

joining the blank and aluminum-foil together by passing the blank and aluminum-foil through a set of rollers;

rolling the blank with the aluminum-foil into a spool;

drying the spool of the blank and aluminum-foil in an oven to form a joined blank;

unspooling the joined blank and printing a side of the joined blank with scale lines.

coating both sides of the joined blank with adhesive;

drying the joined blank after the step of coating both sides;

covering both sides of the joined blank with transparent film;

joining the transparent film to the joined blank by passing the joined blank and transparent film through a set of rollers;

rolling the joined blank with the transparent film into a spool; and

drying the spool with the transparent film in the oven for a period of time whereby the measuring tape is produced.

5,738,744
METHOD AND APPARATUS FOR CONTINUOUSLY SUPPLYING A CONTINUOUS FILM IN A FILM APPLYING APPARATUS

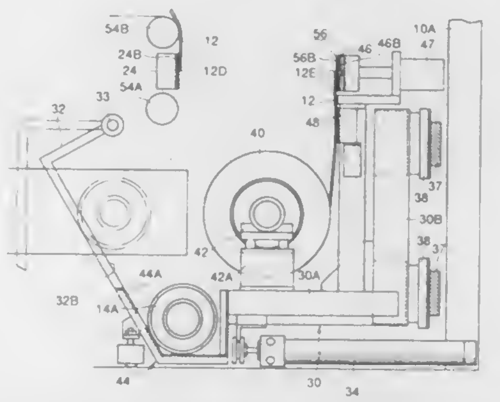
Yoji Washizaki, Saitama, and Hiroshi Taguchi, Tokyo, both of Japan, assignors to Somar Corporation, Tokyo, Japan

Filed Mar. 15, 1996, Ser. No. 616,649

Claims priority, application Japan, Mar. 17, 1995, 7-058956

Int. Cl.^{6} B65H *21/00*

U.S. Cl. 156—159 **13 Claims**



4. A method of continuously supplying a continuous film from a film supply roll in a film applying apparatus, of the type wherein a continuous film composed of a support film, a photosensitive resin layer and a cover film laminated one above another is withdrawn from the film supply roll, and after the cover film is separated, the continuous film is pressured-bonded by lamination rolls to a base plate while being conveyed by a conveying means, with the photosensitive resin layer situated on a film applying surface of the base plate, wherein a trailing end of a preceding continuous film unwound from the film supply roll is held at its cover film side by suction on a first suction means at a fixed position, then a leading end of a succeeding continuous film unwound from a succeeding film supply roll is bonded at its support film side to a portion of an adhesive surface of an adhesive single coated sheet while being held at its non-adhesive side by suction on a second suction means, and thereafter the remaining portion of the adhesive surface of the adhesive single coated sheet is forced against the support film side of the trailing end of the preceding continuous film to thereby bond the trailing end to the adhesive single coated sheet, wherein the second suction means and the succeeding film supply roll are displaced in synchronism with each other, and when the succeeding film supply roll arrives at a set position, said remaining portion of the adhesive surface of the adhesive single coated sheet is forced against the trailing end of the preceding continuous film while being held by suction on the first suction means.

5,738,745
METHOD OF IMPROVING THE PHOTOSTABILITY OF POLYPROPYLENE COMPOSITIONS

Robert Leslie Hudson, and Mary Lucille DeLucia, both of Roswell, Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Nov. 27, 1995, Ser. No. 562,722

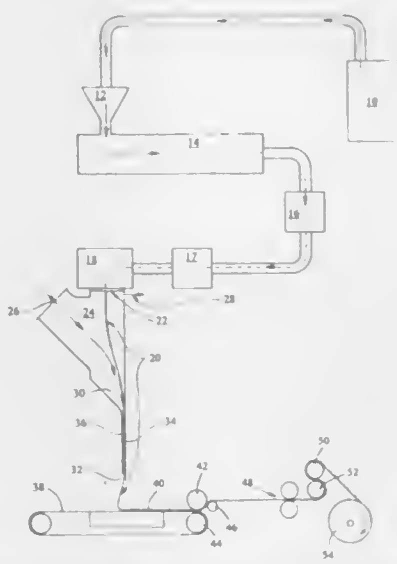
Int. Cl.^{6} D01F *6/06;* **D04H** *1/54;* **C08L** *23/12*

U.S. Cl. 156—167 **13 Claims**

1. A method of improving the effectiveness of a photostabilizer in reducing the deleterious effects of actinic radiation on a polypropylene composition, which method comprises:

compounding a thermoplastic polypropylene composition comprising:

a first thermoplastic polypropylene having a melt flow rate lower than 18 g/10 minutes at a temperature of 230° C. and a load of 2.16 kg, a polydispersity greater than about 2.6, and a Z-average molecular weight greater than about 300,000;



a second thermoplastic polypropylene having a melt flow rate higher than 18 g/10 minutes at a temperature of 230° C. and a load of 2.16 kg, a polydispersity equal to or less than 2.6, and a Z-average molecular weight equal to or less than 300,000 as determined by gel permeation chromatography, wherein the weight ratio of the first polypropylene to the second polypropylene is in a range of from about 60:40 to about 10:90; and

a photostabilizer; to give a melt-extrudable thermoplastic polypropylene composition having a melt flow rate in a range of from about 18 to about 100 g/10 minutes at a temperature of 230° C. and a load of 2.16 kg and an improved effectiveness against the deleterious effects of actinic radiation when compared to a composition consisting of the photostabilizer and either the first or the second polypropylene.

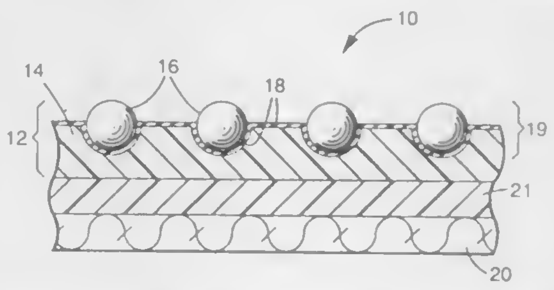
5,738,746
CLOTHING BEARING RETROREFLECTIVE APPLIQUES

Britton G. Billingsley, St. Paul, Minn., and Vera L. Lightle, Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 420,713, Apr. 11, 1995, abandoned, which is a continuation of Ser. No. 221,703, Apr. 1, 1994, abandoned. This application Dec. 18, 1995, Ser. No. 608,995

Int. Cl.^{6} G02B *5/128;* **B32B** *31/04*

U.S. Cl. 156—239 **7 Claims**



1. A method of making an article of clothing, which comprises.

providing a retroreflective applique that has optical elements embedded in a binder layer that comprises a thermoplastic copolymer that includes units that contain carboxyl groups, and

securing the retroreflective applique to the article of clothing, wherein the article of clothing is sized and configured to fit on a person's body, and the copolymer that contains carboxyl groups is in a thermoplastic state while the applique is secured to the article of clothing.

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5,738,747

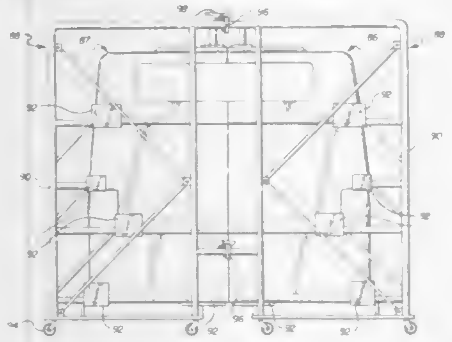
METHOD OF MANUFACTURING A RECREATIONAL VEHICLE CABIN

Raymond W. Blanchard, White Lake, Mich., assignor to Roamer Corporation, Auburn Hills, Mich.

Continuation-in-part of Ser. No. 358,719, Dec. 19, 1994, Pat. No. 5,556,498. This application Sep. 16, 1996, Ser. No. 714,350

Int. Cl.⁶ B29C *65/52*; B62D *29/04*

U.S. Cl. 156—245 12 Claims



1 A method of producing a recreational vehicle cabin by forming a right cabin segment and a left cabin segment and subsequently joining the segments into a unitary structure, the method comprising the steps of:

fabricating a right female mold and a left female mold:
forming a right exterior shell and a left exterior shell inside of the right and left female molds respectively;
fabricating a right male mold and a left male mold;
forming a right interior shell and a left interior shell on the right and left male molds respectively, the right and left interior shells shaped to fit inside of and match at least a portion of the inside contours of the right and left exterior shells respectively;
inserting the right male mold into the right female mold and the left male mold into the left female mold to position the interior shells substantially within their respective exterior shells;
securing the interior shells inside of the respective exterior shells to form right and left cabin segments, the cabin segments each having a perimeter;
removing the right and left cabin segments from the respective right and left female molds and male molds,
placing the right and left cabin segment perimeters in abutting registry with one another; and
joining the right and left cabin segments together along the abutting perimeters.

5,738,748

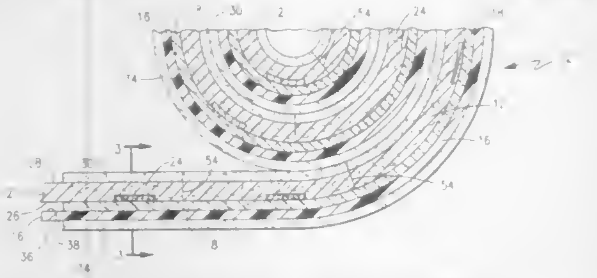
METHOD OF MAKING LAMINATED THERMAL TRANSFER PRINTABLE LABELS

Chauncey T. Mitchell, Jr., Lakeland, Tenn., assignor to Media Solutiuns, Inc., Lakeland, Tenn.

Division of Ser. No. 242,313, May 13, 1994, Pat. No. 5,587,214. This application Aug. 5, 1996, Ser. No. 692,203

Int. Cl.⁶ B32B *31/08;31/12;31/26*

U.S. Cl. 156—253 46 Claims



1 A method of making labels comprising the steps of:
applying a linerless adhesive to a back face of a thermal transfer facestock;
applying a release coating to a back face of a thermal transfer ribbon;
laminating said facestock and said ribbon together; and
winding said laminated facestock and ribbon into a roll so that the release coating on the ribbon confronts the linerless adhesive on the back face of the thermal transfer facestock.

5,738,749

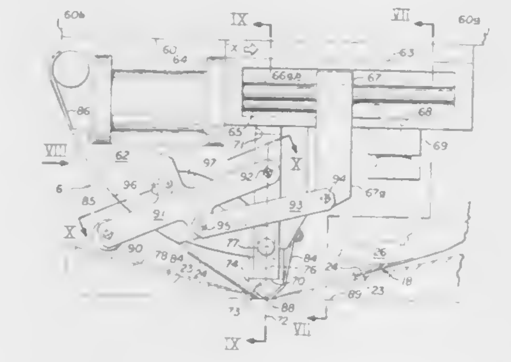
METHOD OF USING A VARIABLE FORCE COMPACTOR

Michael N. Grimshaw, Milford, and James R. Hecht, Mason, both of Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Continuation of Ser. No. 68,017, May 27, 1993, abandoned. This application Jul. 6, 1994, Ser. No. 271,320

Int. Cl.⁶ B32B *31/20*

U.S. Cl. 156—312 13 Claims



1. A method for compacting composite material, comprising the following steps:
placing composite material on a support surface;
positioning a compaction assembly proximal said support surface;
providing a first compaction element on said assembly between said assembly and said material;
providing a second compaction element on said assembly between said assembly and said material;
directing pressurized fluid to an actuator on said frame;
actuating said first compaction element with said actuator;
applying a first compaction force to said material in response to actuation of said first compaction element;
actuating said second compaction element with said actuator;
applying a first compaction force to said material in response to actuation of said second compaction element;
varying the pressure of fluid ported into said actuator; and
applying a second compaction force to said material with said second compaction element.

3. A method for compacting composite material, comprising the following steps:
placing composite material on a support surface;
positioning a compaction assembly proximal said support surface:
providing a first compaction element, linearly movable relative to said assembly, on said assembly between said assembly and said material;
providing a second compaction element, linearly movable relative to said assembly, on said assembly between said assembly and said material;
directing pressurized fluid to an actuator on said assembly;
selectively actuating one of said first and second compaction elements with said actuator;
applying a first compaction force to said material in response to actuation of said selected compaction element by said actuator;
varying the pressure of the fluid ported into said actuator; and
applying a second compaction force to said material with said selected compaction element.

5,738,750

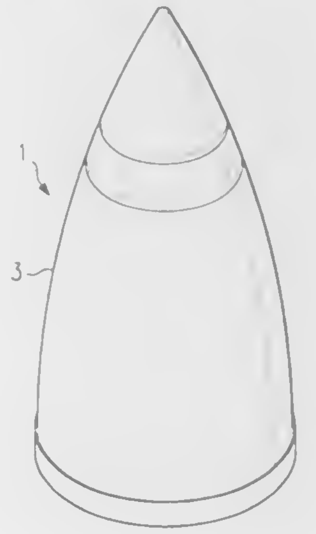
METHOD OF MAKING A BROADBAND COMPOSITE STRUCTURE FABRICATED FROM AN INORGANIC POLYMER MATRIX REINFORCED WITH CERAMIC WOVEN CLOTH

Donald L. Purinton, and Louis R. Semff, both of Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 273,040, Jul. 8, 1994. This application Jun. 7, 1995, Ser. No. 473,181

Int. Cl.⁶ D06M *17/00*

U.S. Cl. 156—325 17 Claims



1. A method of making a radome structure comprising the steps of.
(a) providing a shaped wall having a flexure strength of at least about 5000 psi through a temperature range up to about 2000° F. and being substantially free of elemental carbon formation in the presence of oxygen at temperatures up to about 2000° F by the steps of:
(i) providing a central region of porous material comprising a ceramic material with a pair of opposing exterior surfaces with an inorganic resin;
(ii) providing a skin to form a composite structure by impregnating a first cloth of ceramic material with an inorganic resin which, under pyrolysis, provides an elemental carbon-free material and, with increased temperature, gradually converts from the liquid state to a resilient state and then to a solid state by about 1200° F.; and
(iii) overlying said skin over each of said opposing surfaces.

5,738,751

SUBSTRATE SUPPORT HAVING IMPROVED HEAT TRANSFER

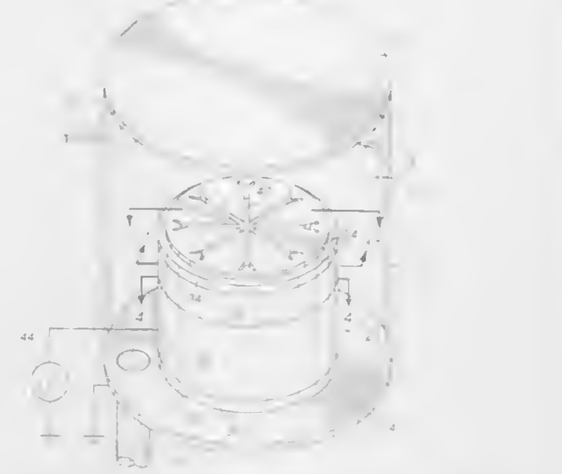
John Field Camerson, Los Altos, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Sep. 1, 1994, Ser. No. 299,716

Int. Cl.⁶ B25B *11/00*

U.S. Cl. 156—345 11 Claims

1. A support for supporting a substrate in a processing environment, comprising:
(a) a support member;
(b) a pedestal on the support member, the pedestal and support member forming an interface therebetween, the interface comprising at least one substantially enclosed region therein.
(c) a chuck on the pedestal for supporting the substrate, the chuck having at least one gas groove therein;
(d) a gas feed for supplying cooling gas to the gas groove to enable heat transfer between the substrate and the chuck, and
(e) at least one gas supply aperture extending from the gas groove of the chuck and terminating at the substantially enclosed region of the interface to enable cooling gas to flow from the gas groove to the interface, thereby enabling the cooling gas to transfer heat between the pedestal and the support member



5,738,752

SYSTEM AND METHOD FOR PLASMA ETCHING

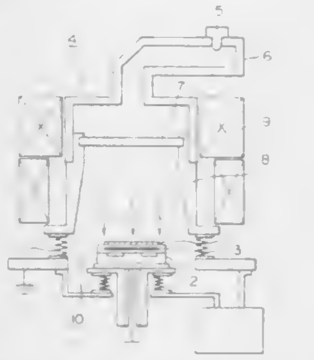
Shingo Kadomura, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed Jul. 1, 1996, Ser. No. 673,048

Claims priority, application Japan, Jul. 5, 1995, 7-169634

Int. Cl.⁶ H01L *21/00*

U.S. Cl. 156—345 5 Claims



1 A plasma etching system comprising:
a plasma generation source using at least a magnetic field, and
a plasma processing chamber connected to said plasma generation source and containing a stage for mounting a substrate to be etched opposite to said plasma generation source:
wherein said stage is set to have a ground potential, and
said stage contains a high permeability material layer disposed substantially over the entire surface of said stage

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5,738,753

APPARATUS FOR IMPLANTING OPTICAL FIBERS IN FABRIC PANELS

Ronald C. Schwar, Allentown, Pa., and H. Lee Wainwright, 918 Delaware Ave., Bethlehem, Pa. 18015, assigners to H. Lee Wainwright, Bethlehem, Pa.

Filed Dec. 29, 1995, Ser. No. 581,442

Int. Cl.⁶ D05C *15/20*, F21L *15/08*

U.S. Cl. 156—379.8 14 Claims

1. An apparatus for implanting one or more optical fibers in a panel having a uniform planar surface comprising a frame means for supporting a fiber insertion means above a fiber insertion table above a means for adhering said optical fiber to said panel including a bath containing ultra-violet light activated liquid adhesive and a source of ultra-violet light, said panel being interposed

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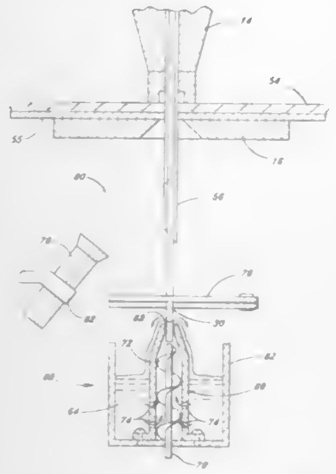


between said fiber insertion means and said fiber insertion table, said fiber insertion means including a means for feeding optical fiber to an implant head means which carries said optical fiber downward to said fiber insertion table, said implant head means piercing said panel at a desired point of insertion and carrying said optical fiber to the underside of said panel through an opening in said insertion table for immersion into and removal from said liquid adhesive in said bath and subsequent irradiation by ultra-violet light from said source of ultra-violet light, exposure to said ultra-violet light causing a change of state of said adhesive from liquid to solid resulting in permanent adherence of said optical fiber to said panel at the point of insertion.

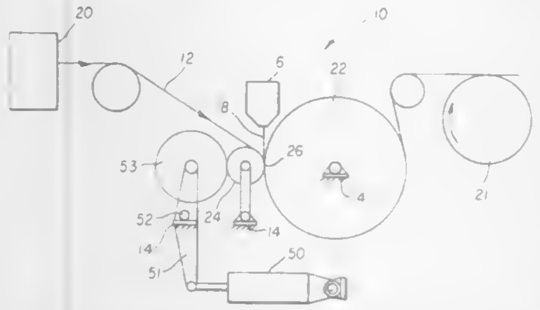
5,738,754
LAMINATION EQUIPMENT

Lawrence Alexander Hill, Rochester; Leon Richard Hale, Bergen, and Robert Seth Sherwin, Hilton, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 23, 1996, Ser. No. 636,418

Int. Cl.^{6} B32B *31/04*

U.S. Cl. 156—555 9 Claims



1. Improved laminating equipment for coating web, comprising:
- a source of molten polyethylene resin coating;
- a source of web;
- a frame;
- a first roller rotatably mounted in said frame;
- a second roller mounted for rotation in said frame for engageably contacting the first roller, the first and second rollers when engaged forming a coating transfer nip therebetween, said second roller further comprising:
  - a core having a main portion and first and second end portions,
  - a roll cover material having a diameter (d_1) surrounding said core, said roll cover material extending widthwise along said main portion of said core between said first and second end portions;
  - a solid, relatively thick polymeric material layer arranged on said core abuttingly against said roll cover material forming a generally uniform rotatable web transfer surface for conveying said web; and,
  - means for securing said polymeric material layer against axial movement along the core, said means for securing being urged against opposite edges of said solid polymeric layer so as to correspondingly urge said polymeric material layer into substantial uniformity with said roll cover material; and,
- means for advancing said web from said source through said coating transfer nip for producing a coated web.

5,738,755
AUTOMATIC PRODUCT LABELLING SYSTEM

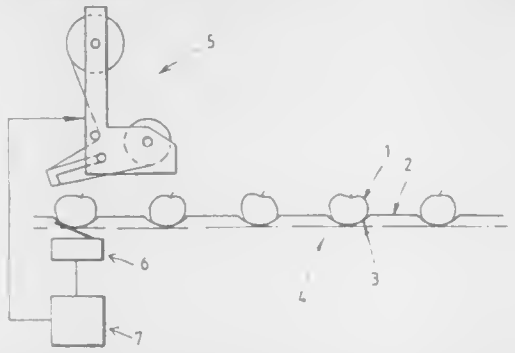
Michel Hartman, Cavaillon, France, assignor to Euro Label 06, Cavaillon, France

Filed Feb. 22, 1996, Ser. No. 605,375

Claims priority, application France, Feb. 22, 1909, 95 02055

Int. Cl.^{6} B65C *3/00*

U.S. Cl. 156—566 6 Claims



1. A system for automatically labelling products, said system comprising:
- a product receiving structure including a product position identifying means for identifying the position of products in said product receiving structure, wherein said product position identifying means is provided on a lower surface of said product receiving structure,;
- a product labelling station including labelling means for labelling said products;
- a conveyor for feeding said product receiving structure to said labelling station, wherein said lower surface of said product receiving structure is in contact with said conveyor; and
- a detecting means, positioned under said conveyor and operatively associated with said labelling means, for detecting said product position identifying means on said product receiving structure and actuating said labelling means upon detecting said product position identifying means, wherein said detecting means can detect said product position identifying means through said conveyor

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5,738,756
METHOD AND APPARATUS FOR DETECTING OPTIMAL ENDPOINTS IN PLASMA ETCH PROCESSES

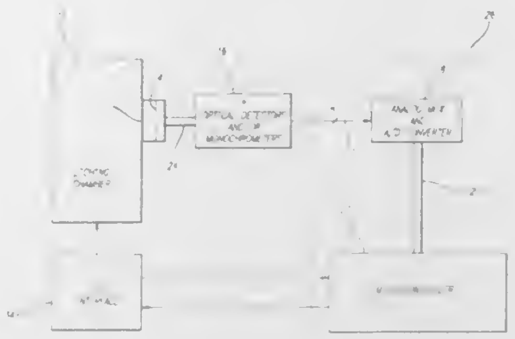
Alexander F. Liu, San Jose, Calif., assignor to Lam Research Corporation, Freemont, Calif.

Filed Jun. 30, 1995, Ser. No. 497,461

Int. Cl.^{6} H01L *21/00*; G01B *9/00*

U.S. Cl. 156—627.1 26 Claims

1. A method of detecting an endpoint for terminating a chemical process involving one or more chemical species, the process taking place in a chamber, said method comprising the steps of:
- defining the endpoint in the form of a mode, a minimum value of a delay count and a threshold;
- initiating the chemical process;
- detecting intensity of light emitted during the chemical process by one or more of the one or more species in the form of an analog signal representing the intensity of each of the detected species;


OPTICAL DETECTOR AND/OR MONOCHROMATOR
ANALOG MUX AND A/D CONVERTER
ETCHING CHAMBER
21
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- sampling each analog signal at a rate and at the beginning of a current sampling period defined by the rate to produce a set of raw data samples for the current sampling period;
- pre-filtering each of the set of raw data samples of the current sampling period;
- normalizing each of the set of pre-filtered data samples;
- auto-correlating the set of normalized data samples to produce a multichannel value for the current sampling period;
- post-filtering the multichannel value;
- incrementing the delay count when the threshold has been exceeded by the post-filtered multichannel value and the mode is met, otherwise setting the delay count equal to zero; and
- repeating said pre-filtering, normalizing, auto-correlating, post filtering, and incrementing steps for each set of raw data samples until the delay count reaches or exceeds the minimum value; and
- terminating the process when the delay count reaches or exceeds the minimum value.

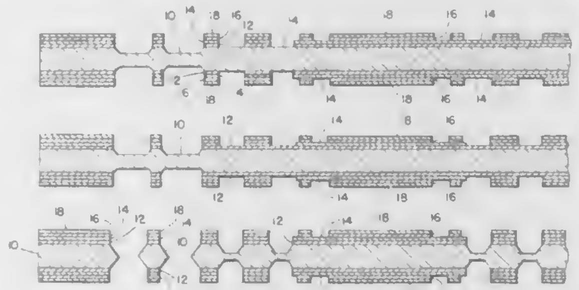
5,738,757
PLANAR MASKING FOR MULTI-DEPTH SILICON ETCHING

Brent E. Burns, Rancho Palos Verdes, and Benedict B. O'Brien, Manhattan Beach, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Nov. 22, 1995, Ser. No. 521,903

Int. Cl.^{6} C03C *15/00*

U.S. Cl. 156—644.1 18 Claims



1. A method for fabricating a silicon substrate structure having N separate levels of etch depths from a silicon substrate, N being an integer greater than one, comprising the steps of:
- Step 1. forming a plurality of layers of masking material on at least one surface of said silicon substrate;
- Step 2. photolithographically patterning at least one of said layers of masking material to form a first mask encompassing combined etching areas of all said N separate levels of etch depths;
- Step 3. photolithographically patterning at least one other of said layers of masking material to form a final mask encompassing etching areas of only separate level N of said N separate levels of etch depths;
- Step 4. performing a first etching of said silicon substrate through all of said masks;
- Step 5. removing at least a portion of at least one of said masks;
- Step 6. performing a final etching of said silicon substrate through remaining portions of said masks; and,
- Step 7. removing all remaining portions of all remaining masks

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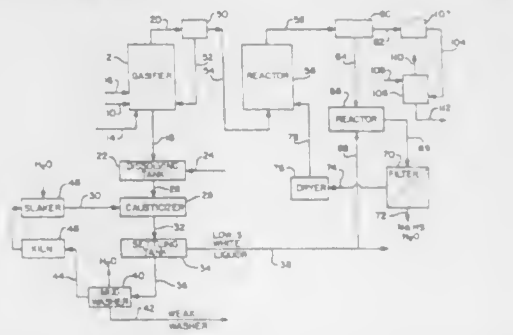
5,738,758
PROCESS FOR THE CONVERSION OF CALCIUM SULFIDE

Adriaan R. P. van Heiningen, Mouth of Keswick, Canada, assignor to The University of New Brunswick, Fredericton, Canada

Filed Dec. 22, 1995, Ser. No. 577,978

Int. Cl.^{6} D21C *11/12*

U.S. Cl. 162—30.11 1 Claim



1. A process for the conversion of solid CaS in a gas stream to a liquor stream containing sodium sulfide compounds comprising the steps of:
- a. separating said solid CaS from said gas stream,
- b. reacting said separated solid CaS with an aqueous solution of sodium compounds selected from the group consisting of NaOH and Na_2CO_3 whereby solid $Ca(OH)_2$ and dissolved NaHS are formed; and
- c. separating said solid $Ca(OH)_2$ from said dissolved NaHS thereby forming said liquor stream containing NaHS

5,738,759
RECORDING MATERIAL, METHOD OF PRODUCING THE SAME AND METHOD OF RECYCLING RECORDING MATERIAL

Hiroshi Kitazawa; Shigeaki Kimura, both of Mishima; Eiichi Kawamura, Numazu; Toshiyuki Kawanishi, Numazu, and Masato Igarashi, Numazu, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 457,513, Jun. 1, 1995, abandoned, which is a division of Ser. No. 293,323, Aug. 22, 1994, Pat. No. 5,607,534. This application Oct. 2, 1995, Ser. No. 538,209

Claims priority, application Japan, Aug. 20, 1993, 5-228187; Sep. 30, 1993, 5-244633; Sep. 30, 1993, 5-244634; Oct. 1, 1993, 5-247051; Oct. 14, 1993, 5-256905; Oct. 14, 1993, 5-280524; Oct. 26, 1993, 5-267472; Feb. 28, 1994, 6-054534; Sep. 30, 1994, 6-237944

Int. Cl.^{6} D21H *19/10*

U.S. Cl. 162—135 33 Claims

1. A recording material of improved dimensional stability comprising paper which comprises cellulose fibers, wherein the elongation percentage of said paper in the cross direction thereof when immersed in water at 20° C. for 1 minute is 1.8% or less, wherein said paper has Rank 5 to 9 with respect to the wetting-agent treated pen-writing sizing degree thereof, which is measured by immersing said paper in a wetting liquid comprising a surfactant for 5 seconds and then drying said paper at 110° C., the wet stiffness thereof in the machine direction thereof is 0.3 mN or more, which is measured by immersing said paper in water at 20° C. for 1 minute, in accordance with the Gurley method, the ratio of the wet tensile strength thereof to the non-wet tensile strength thereof in the machine direction thereof is in the range of 0.16 to 0.4, and

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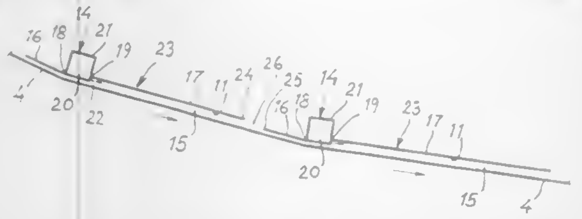
wherein said paper further comprises an effective amount of a single or combined component selected from the group consisting of (a) a water-proofing agent, (b) a water-proofing agent and a water-soluble polymer, and (c) a water-proofing agent and a sizing agent, which forms a protection structure for binding said cellulose fibers.

5,738,760
METHOD OF AND A DEVICE FOR TRANSFERRING RUNNING DRIED WEB FROM ONE DEVICE TO A SUBSEQUENT DEVICE

Tord O.S. Svanqvist, and B. Lennart H. Örtemo, both of Karlstad, Sweden, assignors to Valmet-Karlstad AB, Sweden
Filed Aug. 9, 1996, Ser. No. 689,468
Claims priority, application Sweden, Sep. 13, 1995, 9503174
Int. Cl.⁶ D21F *7/00*; D21G *9/00*; B65H *20/00*
U.S. Cl. 162—193 **13 Claims**



1. A method of transferring a fast running ready-dried fibrous web having two longitudinal edges from one device and along a predetermined run to a subsequent device for performing an act or operation on the web, which comprises:

(a) providing a substantially web-wide surface having an upstream end and a shape conforming to at least a portion of that of the predetermined run, the substantially web-wide surface being located in a position adjacent that of the predetermined run and extending substantially all the way from said one device to the subsequent device and facing a surface of said web; and

(b) creating a flow of air in the direction of the web run and only in the direction of the web run along the substantially web-wide surface by supplying pressurized air of a first pressure along a first line across the substantially web-wide surface in a cross machine direction, the flow of air forming-between the web and the substantially web-wide surface an air layer of reduced static pressure, so as to stabilize the web against flutter.

5,738,761
SEWAGE TREATMENT PROCESS AND APPARATUS

Ronald B. Fletcher, Kelowna, Canada, assignor to Haron Research Corporation, Kelowna, Canada
Continuation-in-part of Ser. No. 377,036, Jan. 23, 1995, abandoned. This application Jan. 18, 1996, Ser. No. 588,570
Claims priority, application Canada, May 9, 1994, 2123175
Int. Cl.⁶ B01D *3/00*
U.S. Cl. 203—10 **9 Claims**

1. A condensing heat exchanger comprising a plurality of parallel, flat plates and gaskets separating adjacent ones of the plates, wherein:

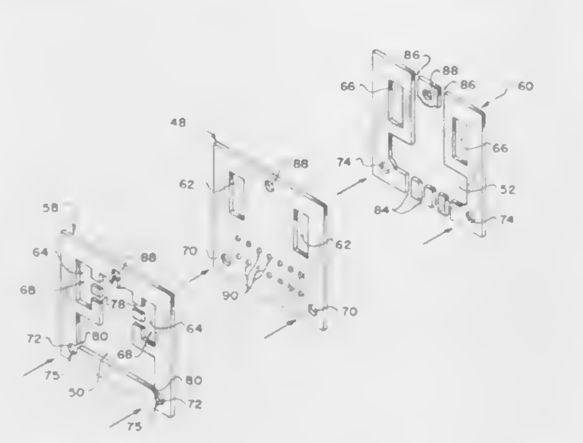
each plate has at least one vapor opening therethrough and at least one condensate aperture therethrough;

each gasket has at least one vapor opening therethrough and at least one condensate aperture therethrough;

the plates and gaskets are stacked with the vapor openings aligned to comprise vapor plenum means extending through the plates and the gaskets and with the condensate apertures aligned to comprise condensate collection passage means extending through the plates and gaskets;

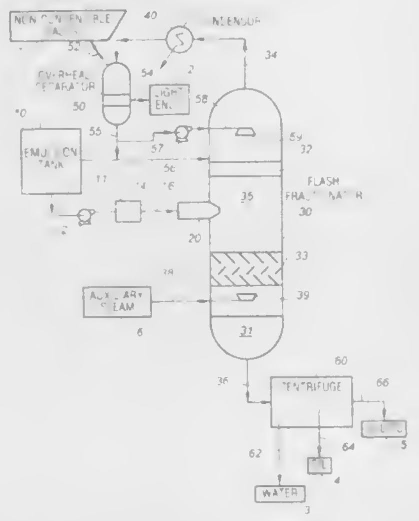
alternate ones of the gaskets are vapor gaskets, each having a condensation opening therein defining a condensation chamber between the adjacent plates, vapor inlet passage means between each vapor opening and the condensation opening to deliver vapor to the condensation chamber from the vapor plenum means, and condensation outlet passage means between the condensation opening and each condensate aperture to drain condensate from the condensation opening to the condensation collection passage means; and

the remaining gaskets are liquid gaskets, each having a liquid heating opening therein defining a liquid heating chamber between the two adjacent plates, and each having liquid inlet openings defining inlet port means for admitting liquid into the liquid heating chamber, and liquid outlet openings defining liquid outlet port means for releasing heated liquid from the liquid heating chamber.



5,738,762
SEPARATING OIL AND WATER FROM EMULSIONS CONTAINING TOXIC LIGHT ENDS

Ernest O. Ohsol, 711 Hyannisport North, Crosby, Tex. 77532-5515
Filed Mar. 8, 1995, Ser. No. 400,591
Int. Cl.⁶ B01D *3/06*
U.S. Cl. 203—11 **17 Claims**



1. In a process for continuously separating water and oil from an emulsion containing the same, wherein said emulsion is pressurized and heated, and the resulting heated emulsion is flashed in a flash vessel in order to induce a partial vaporization of said water and the vaporization of a light ends fraction of said oil, thereby forming a vapor comprising vaporized water and said light ends, and residual liquid oil and water mixture is removed from said flash vessel and then processed to separate the same into a liquid water product and a liquid oil product, the improvement comprising: (a) condensing at least a major portion of said vapor to form a water condensate and a liquid light ends product, (b) separating said light ends product from said water condensate, (c) recycling at least a first portion of said water condensate to said flash vessel, and (d) recycling a second portion of said water condensate for admixture, after heating, pressurizing and converting to steam, with said emulsion at a point upstream of said flash vessel

9. In a process for continuously separating water and oil from an emulsion containing both the water and the oil as well as toxic light ends, wherein said emulsion is pressurized and heated, and the resulting heated emulsion is flashed in a flash vessel in order to induce a partial vaporization of said water and a vaporization of a major portion of said toxic light ends, thereby forming a vapor containing the same, and residual liquid mixture is removed from said flash vessel and then processed to separate the same into a liquid water product and a liquid oil product, the improvement comprising:

(a) conducting such pressurization, heating and flashing of said emulsion so as to vaporize between about 5 and about 60 percent of the water contained in said emulsion;

(b) removing said vapor from said flash vessel;

(c) condensing condensable portions of said vapor to form a water condensate and a light ends product,

(d) separating said water condensate from said light ends product;

(e) recovering said light ends product;

(f) recycling said water condensate, and

(g) countercurrently contacting at least a first portion of said water condensate so recycled with said vapor as said vapor rises through said flash vessel;

whereby said water condensate is recovered with said liquid water product; and the content of said toxic light ends in said liquid water product is reduced to an environmentally acceptable level.

5,738,763
SEPARATION OF 2-METHYL-1-PROPANOL FROM 2-METHYL-1-BUTANOL BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. Third Ave., Bozeman, Mont. 59715
Filed Jul. 8, 1996, Ser. No. 676,780
Int. Cl.⁶ B01D *3/40*; C07C *29/84*
U.S. Cl. 203—57 **1 Claim**

1. A method for recovering 2-methyl-1-propanol from a mixture of 2-methyl-1-propanol and 2-methyl-1-butanol which consists essentially of distilling a mixture consisting of 2-methyl-1-propanol and 2-methyl-1-butanol in the presence of an extractive distillation agent, recovering the 2-methyl-1-propanol as overhead product and obtaining the 2 methyl 1-butanol and the extractive distillation agent as bottoms product, wherein said extractive distillation agent consists essentially of one material selected from the group consisting of sulfolane, propyl butyrate, hexyl formate, 2-butoxyethyl acetate, triacetin, di-tert.butyl dicarbonate, butyl lactate, ditridecyl phthalate, n-pentyl propionate, ethyl salicylate, 2-octanone, propiophenone, 2-undecanone, dimethylformamide, anisole, acetonitrile, 1-methyl piperazine, 1,1,3,3-tetramethyl urea, methyl isobutyl ketoxime, methyl ethyl ketoxime, nitroethane, 1-nitropropane, o-xylene, 2-methylamino-2-methyl-1-propanol, p-xylene, 3-carene, d-limonene, 2-picolene, cyclohexyl amine, dipropyl amine, 2-dimethylaminopropyl amine, butyl amine, diisobutyl amine, octane, isoamyl formate, amyl acetate, ethyl phenyl acetate, 2-heptanone, methyl heptanoate, methyl valerate, butyl butyrate, ethyl benzoate, ethyl lactate, propyl propionate, n-butyl propionate, 1,2,3,4-tetrahydronaphthalene and decalin.

5,738,764
SEPARATION OF T-AMYL ALCOHOL FROM 2-METHYL-1- PROPANOL BY AZEOTROPIC DISTILLATION

Lloyd Berg, 1314 S. 3rd Ave., Bozeman, Mont. 59715
Filed Apr. 8, 1997, Ser. No. 827,916
Int. Cl.⁶ B01D *3/36*, C07C *29/84*
U.S. Cl. 203—57 **1 Claim**

1. A method for recovering t-amyl alcohol from a mixture of t-amyl alcohol and 2-methyl-1 propanol which consists essentially of distilling a mixture consisting of t-amyl alcohol and 2 methyl-1 propanol in the presence of an azeotrope forming agent, recovering the t-amyl alcohol and the azeotrope forming agent as overhead product and obtaining the 2-methyl-1 propanol as bottoms product, wherein said azeotrope forming agent consists of one material selected from group consisting of acetone, ethyl ether petroleum ether, t-butyl methyl ether, benzyl ether, ethylene glycol dimethyl ether and triethyl amine

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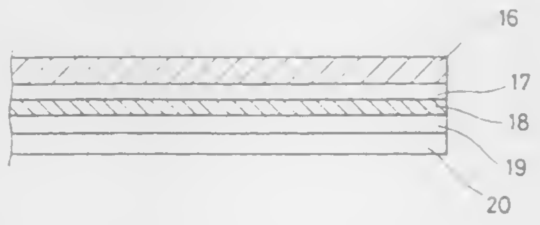
5,738,765
MAGNETO-OPTIC MEMORY DEVICE

Kenji Ohta, Yao; Akira Takahashi; Hiroyuki Katayama, both of Nara; Junji Hirokane, Tenri, and Hideyoshi Yamaoka, Matsubara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 55,911, Apr. 30, 1993, abandoned, which is a continuation of Ser. No. 730,528, Jul. 15, 1991, abandoned, which is a continuation of Ser. No. 218,259, Jul. 13, 1988, abandoned, which is a division of Ser. No. 68,775, Jun. 29, 1987, abandoned, which is a continuation of Ser. No. 697,027, Jan. 31, 1985, abandoned, which is a continuation of Ser. No. 489,889, Apr. 29, 1983, abandoned. This application May 18, 1995, Ser. No. 443,760
Claims priority, application Japan, Dec. 15, 1982, 57-220999; Mar. 17, 1983, 58-45487; Mar. 17, 1983, 58-45488
Int. Cl.⁶ C23C *14/00*
U.S. Cl. 204—192.23 **39 Claims**



1. A method of making an oxidation resistant magneto optical memory device with enhanced stability of coercive force and information recording characteristics comprising the steps of

providing a substrate for supporting a film of magneto-optic recording medium;

forming a first transparent dielectric film which itself is free of oxygen on said substrate;

forming a film of rare earth-transition metal amorphous alloy recording medium on said first dielectric film;

forming a second transparent dielectric film which itself is free of oxygen on said film of recording medium, and

forming a reflective film on said second film of a material selected from the group consisting of stainless steel, Ti, and TiN,

wherein the forming of said first dielectric film on said substrate is prior to forming said film of recording medium to preclude selective oxidation of the rare earth portion of said recording medium by said substrate

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5,738,766
DEVICE FOR NEUTRALIZING AND PREVENTING FORMATION OF SCALE AND METHOD

George Nathan Jefferson, Gettysburg, Pa., assignor to Nathan Jefferson Enterprises, Inc., Gettysburg, Pa.
Filed May 17, 1996, Ser. No. 649,173
Int. Cl.⁶ C02F *1/46*
U.S. Cl. 204—155 **18 Claims**

1. A device for treating water flowing in a conduit to neutralize and prevent the formation of calcium carbonate scale in the water the device comprising,

A) field transmitting coil adapted to be located adjacent to a water conduit, said coil having two input terminals, and

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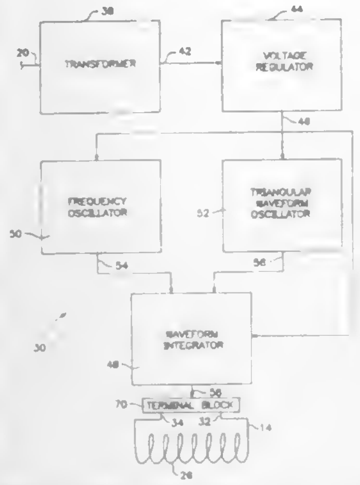


B) a waveform generator connected to said coil terminals, said generator generating a triangular wave current output signal at said terminals, said signal having a peak to peak amplitude and a frequency.

5,738,767

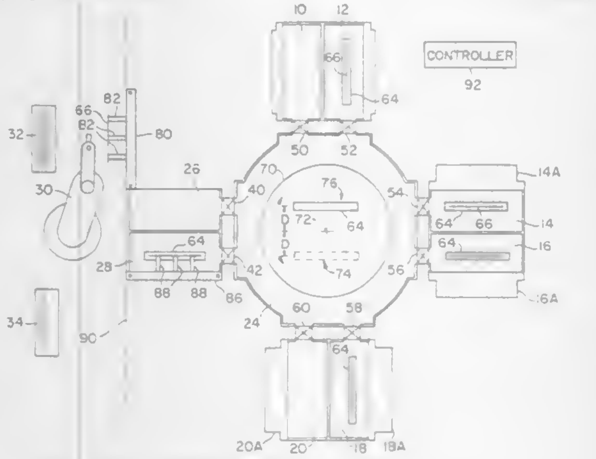
SUBSTRATE HANDLING AND PROCESSING SYSTEM FOR FLAT PANEL DISPLAYS

George L. Coad, Lafayette; Eric C. Lawson, Sunnyvale, and John Lester Hughes, Rodeo, all of Calif., assignors to Intevac, Inc,, Santa Clara, Calif.

Continuation-in-part of Ser. No. 179,903, Jan. 11, 1994, abandoned. This application Nov. 23, 1994, Ser. No. 342,275

Int. Cl.⁶ C23C *14/34*

U.S. Cl. 204—192.12 **25 Claims**



1 A vacuum processing system comprising:
a load lock for loading substrates into the system;
a plurality of processing chambers for processing said substrates;
an unload lock for unloading said substrates from the system;
a central buffer chamber coupled to said load lock, to each of said processing chambers and to said unload lock through gate valves, said buffer chamber containing a turntable that is rotatable about a vertical axis,
means for vacuum pumping said load lock, said processing chambers, said unload lock and said central buffer chamber;
rotation means for rotating said turntable about said vertical axis;
two or more substrate carriers, each of which supports a substrate in a vertical orientation as it is transported within the system and each of which supports the substrate in a vertical orientation within a selected one of said processing chambers independently of said turntable and said buffer chamber as the substrate is processed;
transport means for transporting said substrate carriers horizontally to and between said load lock and said turntable, to and between said turntable and said selected one of said processing chambers, and to and between said turntable and said unload lock; and
control means for controlling said rotation means and said transport means such that each of said substrate carriers follows a selected path through said system, whereby two or more substrates can be transported through the system and processed concurrently and independently.

5,738,768

PROCESS FOR REDUCING PARTICLE DEFECTS IN ARC VAPOR DEPOSITION COATINGS

Chuong Q. Dam, and Laura M. VanLanen, both of Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Oct. 31, 1995, Ser. No. 551,099

Int. Cl.⁶ C23C *14/00*; B23K *9/28*

U.S. Cl. 204—192.38 **14 Claims**

1. A process for preventing particle defects in an arc vapor deposition coating on a substrate, comprising the steps of:
providing a metallic wire mesh having an opening size,
providing a coating material,
providing an arc source, said arc source being adapted to impart a positive charge on coating macroparticles produced during arc vapor deposition of said coating material onto said substrate, wherein said macroparticles are at least 0.1 μm in size,
positioning said wire mesh in between said arc source and said substrate,
applying a negative bias voltage to said wire mesh,
depositing the arc vapor deposition coating of said coating material on said substrate, and
entrapping said positively charged coating macroparticles on said negatively charged wire mesh.

5,738,769

ANODE HOLDER

Raymond Yuen Keung Chin, 40 Tremain Street, Tingalpa, Queensland 4173, Australia

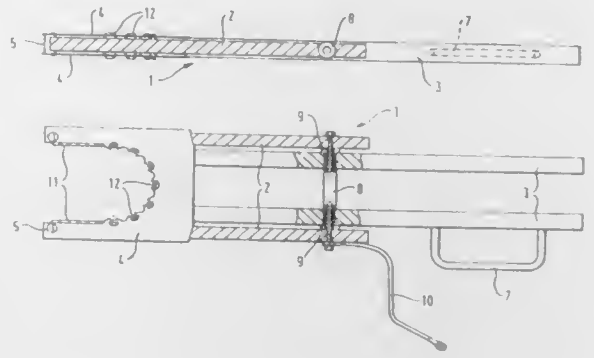
Filed Mar. 22, 1996, Ser. No. 621,102

Claims priority, application United Kingdom, Aug. 11, 1995, 9516479

Int. Cl.⁶ C25B *11/03*

U.S. Cl. 204—285 **8 Claims**

1. An anode holder for use in electro-plating of crank-pins, the anode holder comprising:
two parallel channel chacks defining a channel therebetween, each channel chack having an upper end and a lower end and the channel having an open upper part between the upper ends of the channel chacks; and



a jaw plate being supported by the lower ends of the channel chacks, and said jaw plate having anodes mounted therein.

5,738,770

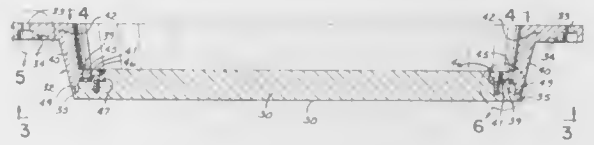
MECHANICALLY JOINED SPUTTERING TARGET AND ADAPTER THEREFOR

David P. Strauss, Glen Rock, N.J.; Thomas J. Hunt, Peekskill, and Paul S. Gilman, Suffern, both of N.Y., assignors to Sony Corporation, Tokyo, Japan, and Materials Research Corporation, Gilbert, Ariz.

Filed Jun. 21, 1996, Ser. No. 667,504

Int. Cl.⁶ C23C *14/34*

U.S. Cl. 204—298.12 **17 Claims**



1. A target assembly removably mountable in an opening in a wall of a vacuum chamber for processing a substrate by causing sputtering material to be ejected from the target assembly onto the substrate, comprising:
an adapter having a supporting wall, an outer flange extending generally outward from said supporting wall and sized for mounting to said chamber, and an inner flange extending generally inward from said supporting wall;
a target of said sputtering material having a generally planar surface, an outer periphery of said target being sized and configured to fit within said supporting wall of said adapter, such that said generally planar surface of said target overlays said inner flange of said adapter; and
mechanical couplers mechanically joining said target to said inner flange of said adapter.

5,738,771

THIN FILM FORMING APPARATUS

Yumi Yoshida, Sagamihara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

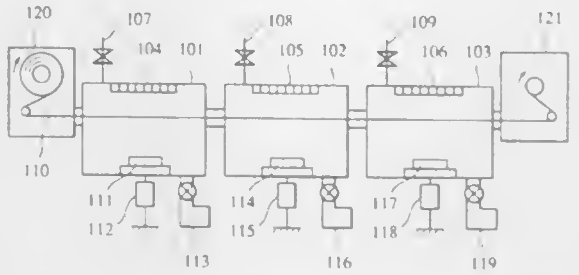
Division of Ser. No. 448,760, May 24, 1995, Pat. No. 5,612,229. This application Jan. 15, 1997, Ser. No. 784,184

Claims priority, application Japan, May 30, 1994, 6-116734

Int. Cl.⁶ C23C *16/00*

U.S. Cl. 204—298.24 **2 Claims**

1. A thin film forming apparatus, comprising:
a metal film forming chamber for forming a metal member on a weblike substrate;



a first metal oxide film forming chamber connected to said metal film forming chamber through a gas gate to perform direct sputtering therein; and
a second metal oxide film forming chamber connected to said first metal oxide film forming chamber through a gas gate to perform reactive sputtering therein.

5,738,772

IN-LINE/ON DEMAND REACTION DELIVERY SYSTEM AND METHOD

James E. Bartasis, Hampshire, and Barry Edward Carter Williams, Sterling, both of Ill., assignors to FBC Industries, Inc., Rolling Meadows, Ill.

Filed Oct. 25, 1996, Ser. No. 736,794

Int. Cl.⁶ A47J *27/00*, G01N *27/26*

U.S. Cl. 204—406 **7 Claims**

1. An apparatus for production of a selected salt comprising.
a source of a first liquid having a relatively low pH value,
a source of a second liquid having a relatively high pH value;
a reaction chamber with an output port;
flow conduits for coupling the two sources to the chamber;
at least one flow control mechanism for controlling a flow from one of the sources into the chamber;
a control unit coupled to the control mechanism;
a sensor coupled to the output port of the reaction chamber and to the control unit wherein the sensor generates an electrical signal indicative of an electrical parameter of a liquid outflow from the output port wherein the control unit enables a flow of the first and second liquids into the reaction chamber thereby producing, continuously, as an outflow at the output port a selected salt and wherein the control unit includes circuitry to adjust the control mechanism, so as to maintain the electrical signal within a predetermined range.

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5,738,773
FUEL CELLS

William James Criddle, and Neils Richard Stewart Hansen, both of Penarth, Great Britain, assignors to Lion Laboratories Plc, South Glamorgan, United Kingdom

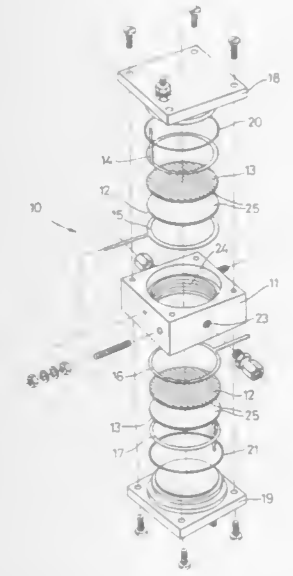
PCT No. PCT/GB94/01489, § 371 Date Jan. 16, 1996, § 102(e) Date Jan. 16, 1996, PCT Pub. No. WO95/02817, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 8, 1994, Ser. No. 581,578

Claims priority, application United Kingdom, Jul. 14, 1993, 9314609; Jul. 24, 1993, 9315388

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 204—411 10 Claims



1. A fuel cell for detecting oxidizable fuel components in a gas or vapor sample comprising a first and second working electrodes facing each other to define a sample receiving space between them, and a counter electrode for each working electrode, said first working electroded being electrically connected to one of said second working electrode and its associcated counter electrode.

5,738,774
EVA CONTAINING ION SELECTIVE MEMBRANES AND METHODS OF MAKING SAME

Daniel J. Harrison, Edmonton, Canada, and Aaron Neufeld, Upper Peckenham, Australia, assignors to The Governors of the University of Alberta, Alberta, Canada

Filed Jul. 28, 1995, Ser. No. 509,499

Int. Cl.^{6} G01N *27/26*

U.S. Cl. 204—418 26 Claims

1. An ion selective membrane, comprising:

an ethylene vinyl acetate polymer, said polymer including from about 30 weight percent to about 75 weight percent vinyl acetate monomer and from about 0 percent to about 20 percent by weight plasticizer; and

an ion selective material dispersed within the ethylene vinyl acetate polymer, wherein said ion selective membrane is from about 0% crystalline to about 10% crystalline.

5,738,775
ELECTRICALLY REGENERABLE DESALTING APPARATUS

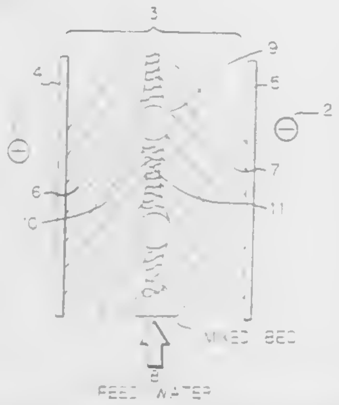
Hiroshi Nagai; Syu Nakanishi; Kunio Fujiwara, all of Kanagawa-ken, and Takanobu Sugo, Gunma-ken, all of Japan, assignors to Ebara Corporation, and Japan Atomic Energy Research Institute, both of Tokyo, Japan

Division of Ser. No. 724,797, Oct. 2, 1996, abandoned. This application Jun. 6, 1997, Ser. No. 870,993

Claims priority, application Japan, Oct. 1, 1995, 7-257403

Int. Cl.^{6} B01D *61/44;61/48*

U.S. Cl. 204—632 20 Claims



1. An electrically regenerable desalting apparatus having a cation- and an anion-exchange nonwoven fabric disposed in a face-to-face relationship within a desalting compartment as they are compressed together, with a porous material being interposed for creating turbulent flows, wherein

(1) a substrate nonwoven fabric for both types of ion exchangers is composed of composite fibers having a core-sheath structure;

(2) a passageway for feed water in the form of an ion-exchanging mixed bed is formed between the cation-and anion-exchanger nonwoven fabrics which are disposed in a face-to-face relationship with said porous material being interposed, and

(3) said feed water is treated by ion exchange as it makes contact primarily with fibers protruding from the surface of each ion-exchanger nonwoven fabric while flowing through said passageway.

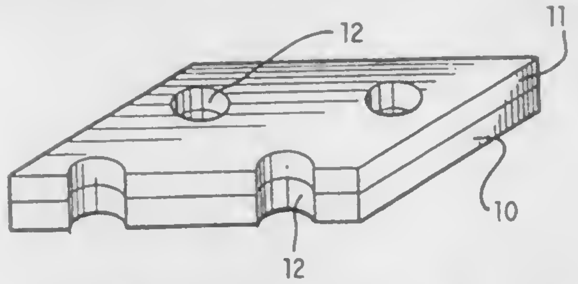
5,738,776
ELECTROPLATING PROCESS

Steven M. Florio, Hopkinton; Jeffrey P. Burress, Milford; Carl J. Colangelo, New Bedford; Edward C. Couble, Brockton, and Mark J. Kapeckas, Worcester, all of Mass., assignors to Shipley Company, L.L.C., Marlborough, Mass.

Filed Jan. 19, 1996, Ser. No. 588,745

Int. Cl.^{6} C25D *5/02*

U.S. Cl. 205—118 6 Claims



1. A process for depositing metal on the walls of openings passing through the full thickness of a metal clad non-metallic planar substrate, said process comprising the steps of providing a dispersion of carbonaceous particles in an aqueous medium within a treatment container, contacting said substrate having said openings with said dispersion to form a porous coating of said carbonaceous dispersion over the surfaces of said substrate and on said metal cladding over the substrate, saturating said porous carbonaceous coating with an etchant for the metal cladding on said planar substrate and maintaining the etchant in contact with the metal cladding for a period of at least 30 seconds, removing said carbonaceous coating from the metal cladding by spraying the carbonaceous coating with an etchant for the metal cladding under a pressure of from 15 to 50 pounds per square inch, and plating metal on at least those portions of said substrate coated with said carbonaceous coating from an electrolytic metal plating solution.

5,738,777
METHOD OF ELECTROCHEMICALLY MACHINING WORKPIECES

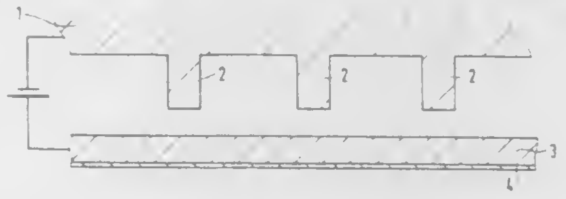
Marinus Bliek, and Maarten Brussee, both of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 8, 1996, Ser. No. 745,760

Claims priority, application European Pat. Off., Nov. 8, 1995, 95203032

Int. Cl.^{6} B23H *9/14*

U.S. Cl. 205—665 22 Claims



1. A method of providing one or more through-holes in a metal workpiece by means of an electrochemical machining apparatus wherein the surface of the workpiece from which the electrode of the electrochemical machining apparatus emerges has an auxiliary layer attached thereto, which auxiliary layer comprises a polymeric network which is composed of organic and inorganic fragments.

5,738,778
METHOD RELATED TO THE STERILIZATION OF MICROORGANISMS AND/OR TO THE MINERALIZATION OF ORGANIC SUBSTANCES INCLUDING MICROBIC METABOLITES IN A GROUND REGION AND IN THE GROUND WATER BY MEANS OF ELECTRIC CURRENT

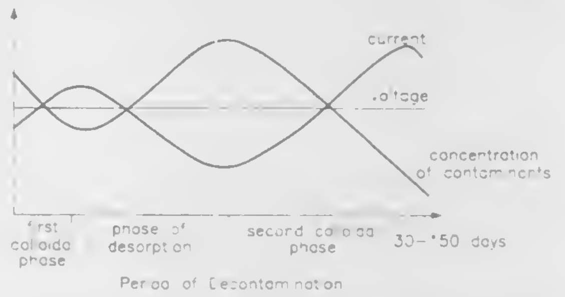
Falk Doring, Stuttgart, Germany, assignor to P + P Geotechnik GmbH Ingenieure fur Boden-Und Grundwassersanierungen, Stuttgart, Germany

Filed Feb. 26, 1996, Ser. No. 607,076

Claims priority, application Germany, Feb. 28, 1995, 195 06 911.0

Int. Cl.^{6} C02F *1/461*

U.S. Cl. 205—701 45 Claims



1. A method for sterilizing microorganisms or decomposing organic and inorganic pollutants or both in a contaminated ground region of soil containing water and soil particles having a natural polarization, which comprises:

(a) incorporating at least one pair of electrodes into the soil;

(b) applying to the electrodes a voltage of at least 0.4 V to 2 V per meter of electrode distance per pair of electrodes to additionally increase by a generated electric field said natural polarization of the soil particles thereby effecting processes of cathodic reduction at negatively charged interfaces of the soil particles and simultaneously effecting processes of anodic oxidation at positively charged interfaces of the soil particles and

(c) generating agents for said anodic oxidation and said cathodic reduction by water electrolysis from the water

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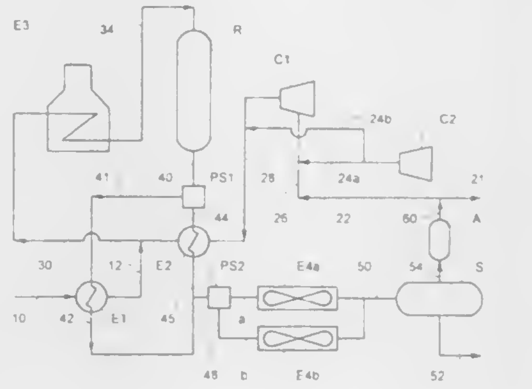
5,738,779
HYDROTREATING PROCESS WITH TWO PHASE FLOW SPLITTING AND HEAT RECOVERY

Michael Markel Dach; Rich Walter Barkley; Jon Andrew Branson, all of Houston; James Raymond Stoy, Missouri City, all of Tex., and James Lindsey Gilbert Schrodt, Bakersfield, Calif., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 18, 1996, Ser. No. 709,559

Int. Cl.^{6} C10G *45/00*

U.S. Cl. 208—143 8 Claims



1. A hydrotreating process for catalytically hydrogenating a hydrocarbon liquid, comprising the steps of:

preheating the hydrocarbon liquid in a single first indirect heat exchange means with a major portion of a mixed phase reactor effluent to produce a preheated hydrocarbon liquid,

independently preheating a hydrogen containing vapor in a single second indirect heat exchange means with a minor portion of a mixed phase reactor effluent to produce a preheated hydrogen containing vapor,

mixing the preheated hydrocarbon liquid with the preheated hydrogen containing vapor and heating to a reactor inlet temperature is a third indirect heat exchange means to produce a mixed phase hydrocarbon mixture,

passing the mixed phase hydrocarbon mixture to a hydrogenation catalyst containing reactor vessel, thereby hydrogenating and heating to produce a mixed phase reactor effluent at a reactor outlet temperature,

dividing the mixed phase reactor effluent by means of a two phase flow splitter thereby producing a major portion and a minor portion, both comprising about the same liquid/vapor volumetric ratio,

passing said major portion to said first indirect heat exchange means and cooling by indirect heat exchange with said hydrocarbon liquid to produce a cooled major portion,

independently passing said minor portion to said second indirect heat exchange means and cooling by indirect heat exchange with said hydrogen containing vapor to produce a cooled minor portion.

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5,738,780

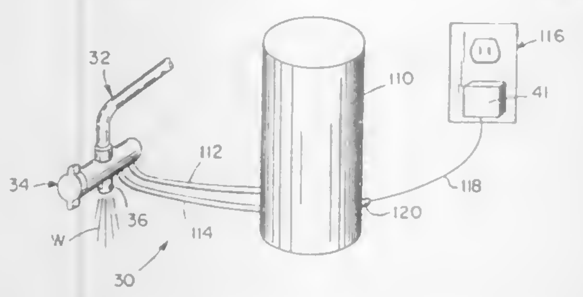
VOLTAGE CONVERTER FOR WATER TREATMENT SYSTEM UV BULB

Ronald C. Markham, Kentwood, Mich., assignor to Amway Corporation, Ada, Mich.

Division of Ser. No. 510,426, Aug. 2, 1995, Pat. No. 5,611,918. This application Dec. 17, 1996, Ser. No. 768,211

Int. Cl.^{6} B01D *17/12*; C02F *1/32*

U.S. Cl. 210—143 **2 Claims**



1. A water treatment system adapted to be powered by an AC line voltage, said system comprising:

a housing;

an ultraviolet bulb within said housing;

a control circuit for providing power to said bulb, said control circuit adapted to be operated at a voltage lower than the line voltage; and

a voltage converter for converting the AC line voltage to the lower voltage, said voltage converter adapted to uniquely convert the AC line voltage to the lower voltage and including plug means at said housing for connecting said voltage converter to said control circuit such that said plug means facilitates interchangeable installation of appropriate voltage converters adapted to uniquely convert the AC line voltage to the lower voltage.

5,738,781

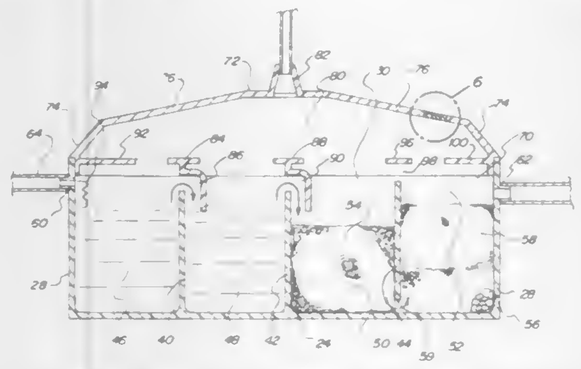
HOUSEHOLD WASTE WATER TREATMENT AND RECYCLING SYSTEM

Terumi Carlson, 1120 S. 299th Pl., Federal Way, Wash. 98003

Filed Aug. 19, 1996, Ser. No. 699,603

Int. Cl.^{6} C02F *3/28*

U.S. Cl. 210—170 **2 Claims**



1. A household waste water treatment and recycling system for allowing household waste water to be treated and then recycled comprising, in combination:

a rigid septic tank securable within a section of ground near a home, the septic tank having a hollow rectangular box-shaped body with a top opening and a lid secured over the top opening,

the body having a rectangular horizontal bottom wall with two spaced opposed rectangular vertical side walls and two spaced opposed rectangular vertical short end walls extending upwards therefrom to define a hollow interior,

the body further having a first, a second, and a third vertical interior wall extended across the interior and coupled between the side walls to create a first chamber, a second chamber, a third chamber, and a fourth chamber, respectively, and with the third chamber having a layer of granulated charcoal disposed therein and the fourth chamber having a lower layer of coarse gravel disposed therein and an upper layer of fine gravel disposed therein, and with the third interior wall having a filtering port formed thereon on a lower extent thereof for allowing communication between the third and the fourth chambers,

the body additionally having an input port formed on one of the end walls and placed in communication with the first chamber, and an output port formed the other end wall and placed in communication with the fourth chamber, the input port securable to a waste water line of the home for allowing waste water to enter the body, and the output port allowing treated water to exit the body,

the lid having two spaced opposed vertical long walls with an upper horizontal rectangular top wall, a pair of opposed angled lower rectangular ends walls, and a pair of opposed angled intermediate walls extended therebetween to create a gas chamber located above the interior of the body,

the lid further having an upper extent with a centrally located evacuation outlet formed thereon and a lower extent having a first dividing wall coupled thereto at a location above the first interior wall of the body and extended downwards into the second chamber to create a first channel for allowing communication between the first chamber and the second chamber, a second dividing wall coupled thereto at a location above the second interior wall of the body and extended downwards into the third chamber to create a second channel for allowing communication between the second chamber and the third chamber, a first horizontal planar partition coupled thereto at a location above the first chamber of the body for mitigating splash of waste water entering through the input port of the body, a second horizontal planar partition coupled thereto at a location above the third interior wall of the body to thereby define a third channel for regulating flow of water between the third chamber and the fourth chamber, a third horizontal planar partition coupled thereto at a location between the fourth chamber of the body for regulating flow of recycled water exiting through the output port of the body, and an openable door removably secured to the intermediate wall located above the fourth chamber for allowing access to the water in the fourth chamber for testing purposes, and

with the first chamber accepting waste water from the waste water line via the input port, the second chamber accepting the waste water from the first chamber via the first channel after it has aged a time, the gas chamber accepting combustible gas that is generated from aging the waste water, the third chamber accepting the aged waste water from the second chamber via the second channel and with the layer of granulated charcoal therein eliminating noxious odors present in the aged waste water, the fourth chamber accepting the aged waste water from the third chamber via the third channel and with the layer of coarse gravel therein removing coarse particulates contained within the aged waste water and the layer of fine gravel removing fine particulates contained within the aged waste water to thereby create treated water, and with the output port receiving the treated water from the fourth chamber and the evacuation outlet receiving combustible gas from the gas chamber;

a rigid hollow rectangular box-shaped gas filtering chamber positioned above the septic tank, the gas filtering chamber having a pair of spaced interior walls secured thereacross to define a first holding cell, a centrally located second holding cell, and a third holding cell, and with each interior wall having a plurality of channels formed thereon for allowing communication between the first and the second holding cells and the second and the third holding cells, the gas holding chamber further having an input port formed thereon in communication with the first holding cell and coupled to the evacuation outlet of the septic tank with a pipe for receiving combustible gas therefrom, an amount of granulated charcoal disposed within the second holding cell for removing noxious fumes from the combustible gas, and an output port in communication with the third holding cell for receiving filtered combustible gas exiting the second holding cell;

a gas holding tank positioned above the gas filtering chamber and having an input port coupled to the output port of the gas filtering chamber with a pipe for receiving and storing the filtered combustible gas and an output port securable to a gas line of the home for providing access to the combustible gas for use;

a water holding tank having an input port coupled to the output port of the septic tank with a pipe for receiving and storing the treated water and an output port for delivering the treated water; and

an electric water pump coupleable to an external electric power source and having an input port securable to the output port of the water holding tank and an output port securable to a faucet line of the home, and with the pump being used to transfer the treated water from the water holding tank to the faucet line for reuse

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5,738,782

CLEANING APPARATUS FOR FLUIDS

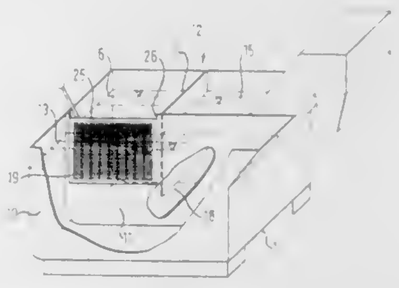
Karl-Heinz Schäfer, Füssen, and Alfred Geissler, Pfronten, both of Germany, assignors to Deckel Maho GmbH, Germany

Filed Dec. 11, 1996, Ser. No. 763,398

Claims priority, application Germany, Dec. 11, 1995, 295 19 626.2 U

Int. Cl.^{6} B01D *21/04, 29/01*

U.S. Cl. 210—171 **16 Claims**



1. Apparatus for separating contaminants from fluids and comprising,

a tank;

first partition means in said tank for subdividing said tank into a sedimentation chamber and a clean chamber;

inlet means for charging the contaminated fluid into an inlet area in said tank,

discharge apparatus for removing cleaned fluid from at least the clean chamber of the separation apparatus;

a filter mounted between said sedimentation chamber and said clean chamber;

conveyor means coupled in said sedimentation chamber for conveying contaminants from said tank; and

second partition means for subdividing said sedimentation chamber into said inlet area and a preliminary cleaning area, which areas are in fluid communication through a passage adjacent the bottom of said tank in said second partition means;

said filter being an edge filter mounted in said first partition means between said preliminary cleaning area and said clean chamber.

5,738,783

LIQUID CHROMATOGRAPH HAVING A MICRO- AND SEMI-MICRO COLUMN

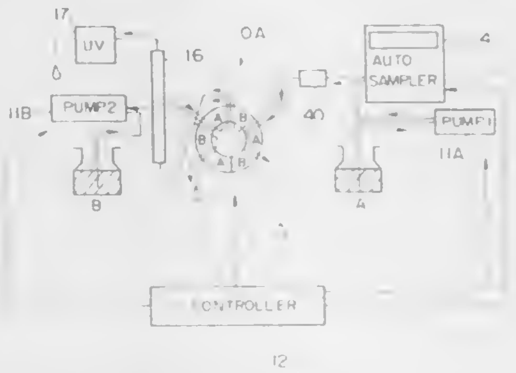
Osamu Shirota; Taketoshi Kanda; Ayako Suzuki; Yutaka Ohtsu; Michihiro Yamaguchi, all of Yokohama; Hisao Tsuruta, Kyoto, and Ryujiro Namba, Yokohama, all of Japan, assignors to Shiseido Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 337,659, Nov. 10, 1994, abandoned. This application Dec. 12, 1996, Ser. No. 766,602

Claims priority, application Japan, May 9, 1994, 6-095270; May 13, 1994, 6-099515; Jun. 3, 1994, 6-122702; Sep. 30, 1994, 6-236576

Int. Cl.^{6} B01D *15/08*

U.S. Cl. 210—198.2 **3 Claims**



1. A liquid chromatograph, comprising

a pump for pumping a solvent,

a separation column supplied with a sample solution for separating a sample contained therein, said separation column being filled with a first column packing material,

detection means for detecting said sample separated by said separation column;

sample injection means supplied with said solvent with said pump for injecting a sample to said solvent to produce a sample solution, said sample solution containing said sample in said solution,

a pre-column provided between said injection means and said separation column, said pre column being supplied with said sample solution from said sample injection means for concentrating said sample to produce a concentrated sample solution, said pre-column supplying said concentrated sample solution to said separation column as said sample solution,

said pre-column having a volumetric capacity less than 2 milliliters,

wherein said pre column is filled with a second column packing material, said second column packing material being different from said first column packing material and comprising a porous medium covered by a silicone polymer having a Si—R bond and a Si—R' bond, wherein R represents a hydrophobic group and R' represents a hydrophilic group

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5,738,784

DEVICE FOR SEPARATING A BLOOD COMPONENT FROM BLOOD OR PLASMA

Niels Erik Holm, Blokken, Denmark, and Peter A. D. Edwardson, Chester, United Kingdom, assignors to E.R. Squibb & Sons, Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 348,668, Dec. 2, 1994, abandoned. This application Dec. 1, 1995, Ser. No. 566,348

Int. Cl.^{6} B01D *21/26*

U.S. Cl. 210—206 **21 Claims**

1. A device for separating a blood component from blood or plasma comprising

a reaction chamber defined by an outer wall and a bottom wall adapted to receive, and for centrifugation of, said blood or plasma, means for introducing into said reaction chamber an agent capable of promoting the separation of said blood component from said blood or plasma.

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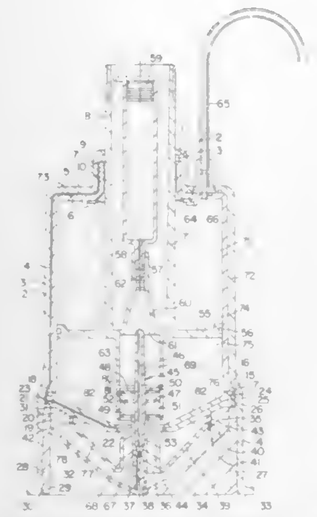


means for centrifuging said reaction chamber, with said blood or plasma and agent therein sufficiently so as to separate said blood component from said blood or plasma and deposit said blood component within said reaction chamber; and transfer means comprising one or more fluid transfer channels extending through said outer wall such that blood or plasma can be transferred into or out of said reaction chamber.

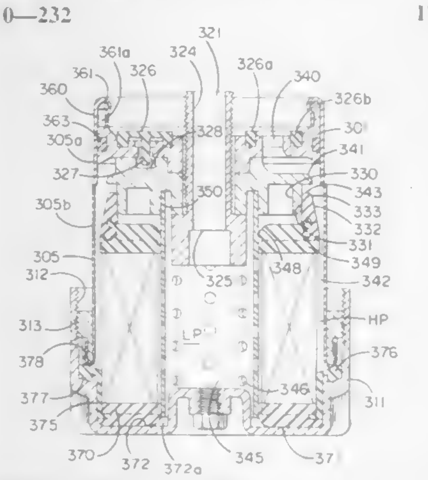
5,738,785
OIL FILTER HOUSING

Gene W. Brown, and Jeffrey E. D. Rogers, both of Kearney, Nebr., assignors to Baldwin Filters, Inc., Kearney, Nebr.

Filed Dec. 20, 1995, Ser. No. 575,625

Int. Cl.^{6} B01D *35/30*

U.S. Cl. 210—232 **17 Claims**



1. An oil filter housing comprising:

a tubular thin-walled sheet metal shell defining an interior space of said housing and having an open base end and an open closure end,

a shell base plate disposed inside the shell, the shell base plate including a cylindrical lip having a free end facing in a direction axially away from the interior space of said housing and defining an inlet port and at least one outlet port, the base end of said shell being rolled radially inwardly over the free end of the cylindrical lip of said shell base plate to form a mounting base rigidified by the shell base plate;

a threaded metallic ring disposed outside the shell, the threaded metallic ring including a cylindrical lip having a free end facing in a direction axially away from the shell base plate, the closure end being rolled radially outwardly over the free end of the cylindrical lip of said threaded metallic ring to form the closure end of the shell rigidified by the threaded ring, the outwardly rolled edge forming a shell flange positioned with respect to the threaded ring for interfacing with a gasket; and

a cover sized to close the closure end and having an internally threaded portion adapted to fit the threaded ring so as to secure the cover to the shell.

5,738,786
DRINKING VESSELS

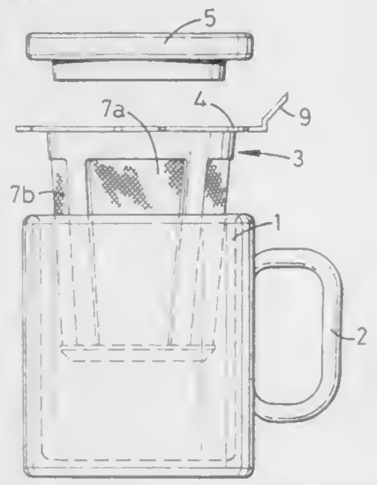
Francis C. Winnington-Ingram, London, United Kingdom, assignor to The London Teapot Company Ltd., London, England

Filed May 13, 1996, Ser. No. 644,298

Claims priority, application United Kingdom, May 22, 1995, 9510320

Int. Cl.^{6} B01D *29/085*

U.S. Cl. 210—474 **6 Claims**



1. A storage container, in combination with a drinking vessel and an infuser for disposition in said drinking vessel, said infuser having a wall structure formed of plastic material and incorporating a mesh, and a lid for covering the container when the infuser is contained therein, said storage container being sized to receive said infuser for storage when wet after use, said container having an imperforate base and a side wall incorporating a support means for supporting said infuser spaced from said side wall to enable air to flow about said infuser, said lid being disposable on said container and having at least one opening to permit air to flow within the container to promote drying.

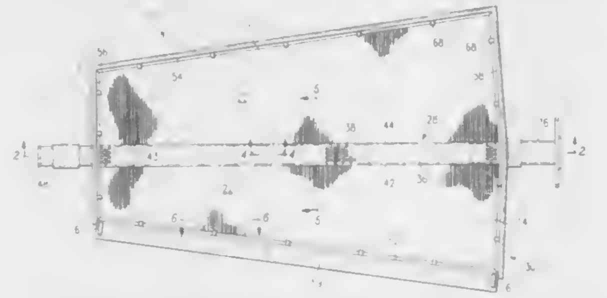
5,738,787
FILTER PAN

John Alexander, Valrico; William A. Marrone, Mulberry, and Miguel A. DeJesus, Lakeland, all of Fla., assignors to IMC-Agrico Company, Mulberry, Fla.

Filed Oct. 30, 1995, Ser. No. 550,528

Int. Cl.^{6} B01D *39/10*

U.S. Cl. 210—498 **21 Claims**



1. A filtration plate for use in a filter pan, comprising a corrugated sheet having a series of alternately upwardly and downwardly opening, elongated channels, the upwardly opening channels having a width and configuration effective for channeling a flow of filtrate along an upper filtration surface of the plate in a lengthwise direction of the upwardly opening channels, the flow of filtrate moving in a direction parallel to the plate, and a reinforcing material bonded to surfaces of the downwardly opening channels, which reinforcing material is effective for strengthening the sheet and retaining heat in a manner effective to slow cooling of the filtration plate during filtrate addition and washing.

5,738,788
FILTER MATERIAL

Takashi Tokiwa; Etsuroh Nakao, and Yoshiaki Kawatsu, all of Ibaraki, Japan, assignors to Japan Vilene Company Ltd., Tokyo, Japan

Continuation of Ser. No. 309,586, Sep. 21, 1994, abandoned. This application Aug. 14, 1996, Ser. No. 698,222

Claims priority, application Japan, Sep. 22, 1993, 5-259119

Int. Cl.^{6} B01D *39/08; 39/16*

U.S. Cl. 210—507 **15 Claims**

1. A porous filter material for liquid/solid separation consisting of:

a porous base material which:

- (i) is covered thereon with crosslinked polyvinyl alcohols formed by cross-linking photosensitive polyvinyl alcohols which have as photosensitive groups a quaternized nitrogen-containing aromatic heterocyclic group,
- (ii) is selected from the group consisting of woven fabric, knitted fabric, nonwoven fabric, paper, yarn and net, and
- (iii) has a mean pore size of at least about 3μ.

5,738,789
METHOD OF PURIFICATION OF POLLUTED UNDERGROUND WATER

Galina Alexandrovna Shugina, Leninsky Prospect, d.70/11, kv. 436, Moscow, Russian Federation

Filed Feb. 13, 1997, Ser. No. 799,994

Claims priority, application Russian Federation, Jan. 22, 1997, 97100483

Int. Cl.^{6} C02F *3/34*

U.S. Cl. 210—610 **3 Claims**

1. Method of purifying underground water in a pollution zone, comprising:

determining the rock components of the pollution zone, from rubbly-gravely-pebbly to sandy-loamy-gravely;

determining the speed of the current of underground water in the above-mentioned pollution zone, which depends on the above-mentioned rock components;

taking a sample of underground water from a number of wells located in the pollution zone without admitting air,

determining the sulfate ion (SO_4^{2-}) concentration in the indicated sample;

comparing the resulting value of the sulfate ion (SO_4^{2-}) concentration with its maximum permissible value to determine the degree of pollution of the underground water by sulfate ions (SO_4^{2-});

determining the pH value in the indicated sample to reveal the acidity/alkalinity of the underground water, a pH value less than 4 or more than 11 being changed to one within a range of values from around 4 to around 11;

introducing into the indicated sample, which has a pH corresponding to a value within the range from around 4 to around 11, a nutrient medium comprising mineral and organic components for isolating sulfate-reducing bacteria.;

growing the indicated isolated sulfate-reducing bacteria, which produces a biomass of sulfate-reducing bacteria;

introducing the above-mentioned biomass into the underground water through those wells of the mentioned number of wells whose above-mentioned water samples have a pH value within the range of values from around 4 to around 11, and then introducing the biomass into the underground water through the remaining mentioned number of wells, the input of the mentioned biomass depending on the sulfate ion (SO_4^{2-}) concentration, the higher the sulfate ion (SO_4^{2-}) concentration, the higher the input of the indicated biomass, and the frequency of introduction of the indicated biomass depending on the speed of the current of the underground water, the higher the speed of current of the underground water, the more frequently the mentioned biomass is introduced; as a result of the introduction of the above-mentioned biomass, the sulfate ion concentration falls to a value which is correspondingly up to/below the maximum permissible concentration.

5,738,790
COMPOSITE MEMBRANES FOR SOLID PHASE EXTRACTIONS AND REACTIONS

Donald F. Hagen, Woodbury; Paul E. Hansen, Lake Elmo, and Craig G. Markell, White Bear, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 627,324, Apr. 1, 1996, Pat. No. 5,635,060, which is a division of Ser. No. 449,518, May 23, 1995, Pat. No. 5,529,686, which is a continuation of Ser. No. 276,167, Jul. 15, 1994, abandoned. This application Mar. 5, 1997, Ser. No. 812,365

Int. Cl.^{6} B01D *15/08*

U.S. Cl. 210—635 **22 Claims**

1. A method of concentrating by sorption or reaction of at least one organic contaminant from an organic fluid comprising the step of passing an organic fluid containing said at least one organic contaminant through or by at least one solid phase extraction or chromatographic medium comprising

- (a) a matrix comprising fibrillated polytetrafluoroethylene (PTFE) fibrils or blown microfibers (BMF), and
- (b) particulates enmeshed in the fibrous matrix comprising hydrophobic siliceous sorptive or reactive particulate molecular sieves having pore diameters in the range of about 5.5 to 6.2A, the ratio of molecular sieves to matrix being in the range of 40:1 to 1:40,

said medium having an essentially homogeneous composition and essentially uniform porosity and being useful to remove organics from organic fluids.

5,738,791
EXTRACTION OF METAL IONS FROM AN AQUEOUS SOLUTION

Elwin Schomaker, NX Velp; Abele Broer van der Meer, EH Renkum; Johannes Bos, BG Westervoort, and Erik Leonard Middelhoek, GH Arnhem, all of Netherlands, assignors to Akzo Nobel NV, Arnhem, Netherlands

Continuation of Ser. No. 369,198, Jan. 5, 1995, abandoned. This application Sep. 17, 1996, Ser. No. 714,870

Claims priority, application Netherlands, Jan. 6, 1994, 9400013

Int. Cl. B01D *11/02 11/04*

U.S. Cl. 210—638 **15 Claims**

1. A method for extracting metal ions from an aqueous solution, comprising contacting the aqueous solution with particles of a hydrophobic, isotropic, microporous polymer having an average diameter of from 0.1 to 10 mm and pores having an average diameter of from 0.1 to 50 μm, prepared by heating a mixture of a synthetic thermoplastic polymer selected from the group consisting of low density polyethylene, high density polyethylene polypropylene, polystyrene, acrylonitrile-butadiene-styrene terpolymers styrene-acrylonitrile copolymers, styrene-butadiene copolymers, poly(4-methyl pentene-1), and polybutene, and a compatible hydrophobic organic complexing liquid to a temperature and for a time sufficient to form a homogeneous solution, cooling said solution at a rate and to a temperature sufficient to initiate liquid-liquid phase separation, continuing the cooling to form a solidified

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mass, and mechanically diminuting the solidified mass in which there is immobilized the organic complexing liquid.

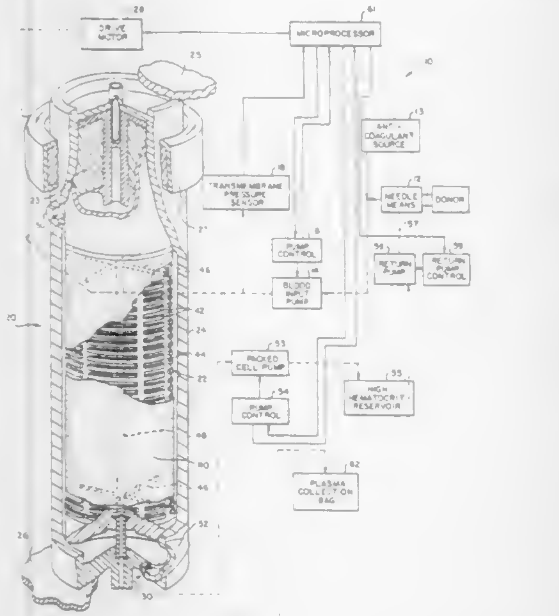
5,738,792
METHOD FOR SEPARATION OF MATTER FROM SUSPENSION

Donald W. Schoendorfer, Santa Ana, Calif., assignor to Baxter International Inc., Deerfield, Ill.

Continuation of Ser. No. 6,616, Jan. 21, 1993, abandoned, which is a division of Ser. No. 73,378, Jul. 13, 1987, Pat. No. 5,194,145, which is a continuation of Ser. No. 591,925, Mar. 21, 1984, abandoned. This application Sep. 6, 1994, Ser. No. 302,223

Int. Cl.^{6} B01D *61/22*

U.S. Cl. 210—651 **20 Claims**



1 A method for filtering filtrate from a cellular suspension comprising the steps of

feeding the cellular suspension into a space defined between an inner surface of a stationary housing body and an outer surface of a rotor rotatable within the stationary housing body, the inner surface of the stationary housing body carrying a microporous filter membrane,

rotating the rotor at a rate selected to establish annular vortices about the rotor substantially filling the space,

passing filtrate through the microporous filter membrane to the inner surface of the housing body, and

collecting filtrate passing through the microporous filter membrane via a conduit in the stationary housing body that communicates with the inner surface of the stationary housing body.

5,738,793
METHOD FOR REMOVING BENZENES FROM WATER

John Seager Janks, and Deanna Rea Pfann, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Nov. 13, 1995, Ser. No. 554,941

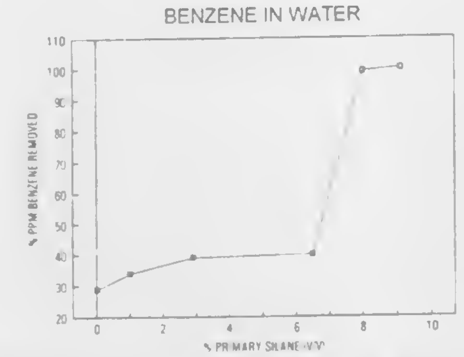
Int. Cl.^{6} C02F *1/28*

U.S. Cl. 210—671 **8 Claims**

1 A method for removing aromatic hydrocarbon contaminants from a water stream comprising the steps of:

contacting the contaminated water stream with an effective amount of a solid sorbent material comprising a naturally occurring zeolite substrate having a coating of a primary polar silane and a secondary nonpolar silane in effective amounts for a time sufficient to remove the contaminants from the water; and

separating the water substantially free of aromatic contamination from the coated zeolite.



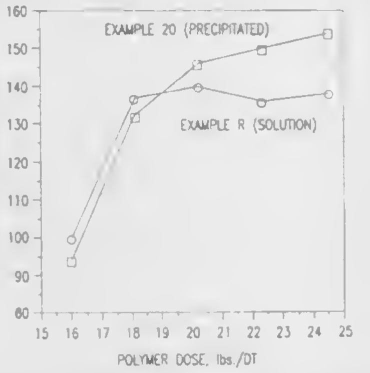
5,738,794
CATIONIC WATER-SOLUBLE POLYMER PRECIPTATION IN SALT SOLUTIONS

Joseph J. Mallon, Danbury; Raymond S. Farinato, Norwalk, both of Conn.; Louis Rosati, South Salem, and John J. Freeman, Jr., Valhalla, both of N.Y., assignors to Cytec Technology Corp., Wilmington, Del.

Filed Oct. 3, 1996, Ser. No. 726,156

Int. Cl.^{6} C02F *1/54*

U.S. Cl. 210—728 **10 Claims**



1 A process of concentrating a dispersion of suspended solids which comprises dewatering a dispersion of suspended solids by adding to said dispersion an effective amount of an aqueous composition, or solution thereof, comprised of at least one anionic organic salt, at least one kosmotropic salt, and at least one precipitated cationic water-soluble polymer, and separating the resultant concentrated dispersion, wherein the salts are used in amounts effective to precipitate said polymer.

5,738,795
COMPOSITIONS AND METHODS FOR WATER CLARIFICATION

Jen-Chi Chen, Morrisville, Pa., assignor to BetzDearborn Inc., Trevose, Pa.

Filed Jun. 14, 1996, Ser. No. 665,139

Int. Cl.^{6} C02F *1/52*

U.S. Cl. 210—730 **14 Claims**

1 A method for reducing the turbidity of an aqueous system comprising adding to said system an effective amount for that purpose of a water soluble or dispersible copolymer of alginic acid with methyl chloride quaternary salt of dimethylaminoethyl acrylate as a cationic monomer, said copolymer is produced by the process comprising mixing a sufficient amount of an alginic acid and said cationic monomer in an aqueous phase to form an aqueous solution, polymerizing said monomers at a temperature of

about 10° to 100° C. and a pH of about 5.0 to 9.0 in the presence of a free radical initiator, wherein the resulting copolymer has a weight percent of said cationic monomer from about 50 to about 99%.

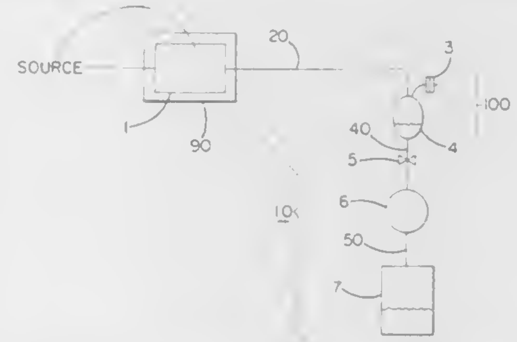
5,738,796
METHOD FOR SEPARATING COMPONENTS FROM A BIOLOGICAL FLUID

Thomas J. Bormann, Melville; Frank R. Pascale, and Thomas C. Gsell, both of Glen Cove, all of N.Y., assignors to PALL Corporation, East Hills, N.Y.

Continuation of Ser. No. 202,111, Feb. 25, 1994, Pat. No. 5,545,339. This application Jul. 2, 1996, Ser. No. 676,093

Int. Cl.^{6} B01D *37/00,21/26;36/00;* **A61M** *1/00*

U.S. Cl. 210—806 **24 Claims**



7. A method for processing a biological fluid comprising:

obtaining a biological fluid comprising red blood cells and platelets from a source;

separating platelets from the biological fluid to deplete the biological fluid of platelets;

returning platelet-depleted red blood cell-containing biological fluid to the source while:

separating gas from a flow path of the separated platelets; and,

passing a portion of the separated platelets along the flow path and through a leukocyte depletion medium to deplete leukocytes from the separated platelets.

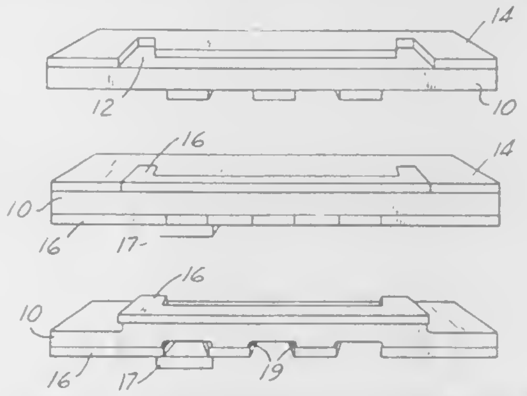
5,738,797
THREE-DIMENSIONAL MULTI-LAYER CIRCUIT STRUCTURE AND METHOD FOR FORMING THE SAME

Robert E. Belke, Jr., West Bloomfield; Michael G. Todd, South Lyon; Andrew Z. Glovatsky, Ypsilanti, and Alice D. Zitzmann, Dearborn, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed May 17, 1996, Ser. No. 649,377

Int. Cl.^{6} B44C *1/22;* **C23F** *1/00*

U.S. Cl. 216—16 **18 Claims**



1 A method of forming a circuit structure comprising the steps of:

forming a partially etched pre-circuit by,

providing a metallic foil formed of a first metal,

applying a second metal to selected areas of said foil,

etching said metallic foil in an etching solution, and

removing said metallic foil from said etching solution after said etching solution partially etches said metallic foil to undercut said second metal,

bending said partially etched pre-circuit into a shape;

inserting said partially etched pre-circuit into a mold cavity so that at least one surface of said circuit structure is adjacent said mold;

filling said mold with a molten dielectric so that said molten dielectric encapsulates at least a portion of said partially etched pre-circuit and fills said undercuts;

removing said partially etched pre-circuit from said mold, and further etching said foil to form air bridges

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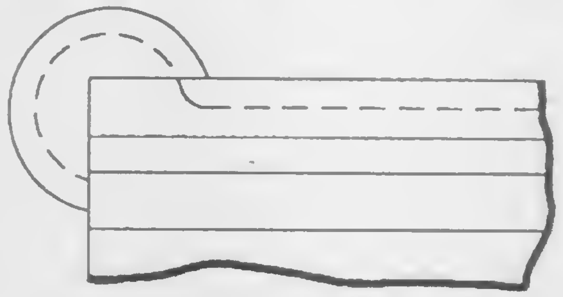
5,738,798
METHOD FOR FABRICATING TAPERED EDGES ON INTEGRATED OPTOELECTRONIC DEVICES

Jerry Leonard, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 23, 1995, Ser. No. 376,981

Int. Cl.^{6} G02B *6/25*

U.S. Cl. 216—24 **2 Claims**



1 A method for etching a tapered edge on a cladding layer of an integrated optical waveguide, said process comprising:

a. applying a layer of said cladding to a substrate;

b. applying a curable liquid as a droplet on the edge of said cladding layer and said substrate with the liquid forming a taper;

c. curing the curable liquid; and

d simultaneously etching said curable liquid and said cladding to replicate the taper of the curable liquid into the cladding.

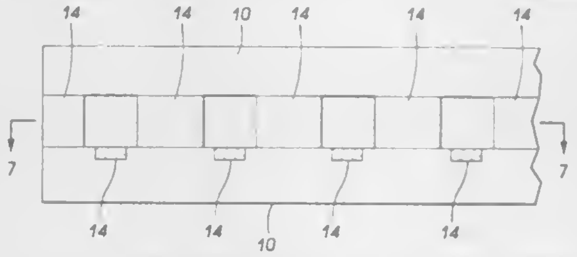
5,738,799
METHOD AND MATERIALS FOR FABRICATING AN INK-JET PRINTHEAD

William G. Hawkins, Webster; Cathie J. Burke, Rochester; Mildred Calistri-Yeh, Geneva, and Diane Atkinson, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 12, 1996, Ser. No. 712,761

Int. Cl.^{6} B41J *2/04;2/01;2/21*

U.S. Cl. 216—27 **51 Claims**



1 A method of fabricating a micromechanical device defining a cavity therein, comprising the steps of:

providing a substrate defining a main surface;

depositing on the main surface a sacrificial layer of removable material, configured as a negative mold of the cavity,

depositing over the sacrificial layer a permanent layer of permanent material;

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polishing the permanent layer to expose the sacrificial layer; and removing the sacrificial layer.

5,738,800
COMPOSITION AND METHOD FOR POLISHING A COMPOSITE OF SILICA AND SILICON NITRIDE

Sharath D. Hosali, Newark, Del.; Anantha R. Sethuraman, Avondale, Pa.; Jiun-Fang Wang, Hockessin, Del., and Lee Melbourne Cook, Steelville, Pa., assignors to Rodel, Inc., Newark, Del.

Filed Feb. 19, 1997, Ser. No. 802,829

Int. Cl.^{6} H01L *21/304*

U.S. Cl. 216—99 **8 Claims**

1 A method of polishing a composite comprised of silica and silicon nitride comprising:

applying a slurry at a polishing interface between a polishing pad and said composite comprised of silica and silicon nitride, said slurry comprising: an aqueous medium, abrasive particles, a surfactant, and a compound which complexes with said silica and silicon nitride, wherein said compound has two or more functional groups each having a dissociable proton, the functional groups being the same or different.

5,738,801
HYDROPHOBIC SILICA AEROGELS

Bernd Ziegler, Ludwigshafen; Norbert Mronga, Dossenheim; Friedhelm Teich, Mannheim, and Günter Herrmann, Heidelberg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/02822, § 371 Date Feb. 29, 1996, § 102(e) Date Feb. 29, 1996, PCT Pub. No. WO95/06617, PCT Pub. Date Mar. 9, 1995

PCT Filed Aug. 25, 1994, Ser. No. 600,929

Claims priority, application Germany, Aug. 31, 1993, 43 29 294.1

Int. Cl.^{6} F04B *1/74;* **B01J** *21/08,* **C01B** *33/158;* **C08K** *3/36*

U.S. Cl. 252—62 **21 Claims**

1. A hydrophobic silica aerogel obtained by reacting a waterglass solution with an acid at a pH of from about 7.5 to 11, substantially removing ionic constituents from the resulting silica hydrogel by washing with water or dilute aqueous solutions of inorganic bases, while the pH of the hydrogel is kept in the range of from about 7.5 to 11, displacing the aqueous phase contained in the hydrogel by isopropanol, and subsequently supercritically drying the resulting alcogel.

10 A thermal insulating composite material, comprising (a) a support (b) the silica aerogel of claim 1

5,738,802
FLUORINE-BASED MAGNETIC FLUID

Yasushi Yamamoto, Tsukuba; Yoshiyuki Takeishi, Tsuchiura; Yutaka Kouda; Tomoko Minagawa, both of Tsukuba, and Takao Kanno, Tokyo, all of Japan, assignors to NOK Corporation, Tokyo, Japan

Filed Feb. 14, 1997, Ser. No. 800,784

Claims priority, application Japan, Feb. 22, 1996, 8-060058; Apr. 24, 1996, 8-127865; Sep. 26, 1996, 8-273970

Int. Cl.^{6} H01F *1/44*

U.S. Cl. 252—62.56 **12 Claims**

1 A fluorine-based magnetic fluid, which comprises (A) fine magnetic particles dispersed in (D) a perfluoropolyether base oil represented by the following general formula

$$F(CF(CF_3)CF_2O)_m Rf$$

where Rf is a perfluoroalkyl group; m is an integer of 1 or more, by means of (B) a perfluoroether carboxylic acid or salt thereof represented by the following general formula

$$F(CF(CF_3)CF_2O)_n CF(CF_3)COOM$$

where M is a hydrogen atom, an alkali metal or an ammonium group; and n is an integer of 1 to 100, and (C) a perfluoroether (poly)alkylene ether carboxylic acid or salt thereof represented by the following general formula:

$$F(CF(CF_3)CF_2O)_p CF(CF_3)X(RO)_q CH_2COOM'$$

where R is a lower alkylene group; M' is a hydrogen atom, an alkali metal, an alkaline earth metal or an ammonium group; X is COO group or CH_2O group; p and q are an integer of 1 to 100, respectively.

5,738,803
POLARIZER FILMS COMPRISING WHOLLY AROMATIC LIQUID CRYSTALLINE POLYMERS AND DICHROIC DYES

James P. Shepherd, Springfield; Sunny S. Shen, Holmdel; Brian B. Marr, Annandale, and Larry F. Charbonneau, Mendham, all of N.J., assignors to Hoechst Celanese Corp. Somerville, N.J.

Filed Dec. 14, 1995, Ser. No. 572,461

Int. Cl.^{6} C09K *19/00;* **F21V** *9/14*

U.S. Cl. 252—299.1 **18 Claims**

1 A polarizing film having a polarizing efficiency of at least 70% and comprising a blend of a film-forming, wholly aromatic thermotropic liquid crystal polyester and a dichroic dye, wherein said polyester comprises repeat units corresponding to the formula:

$$[P^1]_m \quad [P^2]_n \quad [P^3]_q \quad [P^4]_r \quad [P^5]_s$$

wherein P^1, P^2, P^3, P^4 and P^5 represent monomeric moieties with P^1 being an aromatic hydroxy carboxylic acid or aromatic amino carboxylic acid, P^2 being an aromatic dicarboxylic acid, P^3 being a phenol, P^4 being a second aromatic hydroxy carboxylic acid or aromatic amino carboxylic acid moiety different from P^1, and P^5 being a second phenolic moiety different from P^3; and m, n and q represent mole percent of the respective monomers ranging from 5–70 mole percent individually, and r and s represent mole percent of the respective monomers ranging from 5–20 mole percent individually, with m+n+q+r+s totaling 100 mole percent.

5,738,804
METHOD OF MAKING A LIQUID CRYSTAL COMPOSITE INCLUDING A DYE

Binh Vu Cao, San Jose; Wayne Montoya, Newark; Damoder Reddy, Irvine, and Aldrich N. K. Lau, Palo Alto, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 369,028, Jan. 5, 1995, abandoned. This application Jan. 4, 1996, Ser. No. 582,789

Int. Cl.^{6} C09K *19/52,* **G02F** *1/13*

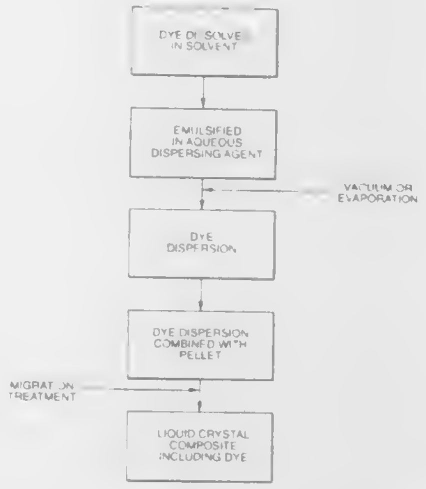
U.S. Cl. 252—299.01 **23 Claims**

1 A method of making a liquid crystal composite comprising plural volumes of a liquid crystal material and a component dispersed in a containment medium, comprising the steps of:

(a) forming volumes in which a liquid crystal material is bounded by said containment medium;

(b) forming a dispersion of a component, separate from the volumes of the liquid crystal material;

(c) combining and forming an emulsion comprising the dispersion of the component and the volumes of liquid crystal material; and


DYE DISSOLVE IN SOLVENT
EMULSIFIED IN AQUEOUS DISPERSING AGENT
VACUUM OR EVAPORATION
DYE DISPERSION
DYE DISPERSION COMBINED WITH PELLET
MIGRATION TREATMENT
LIQUID CRYSTAL COMPOSITE INCLUDING DYE

(d) causing the component to transfer from the dispersion into the volumes of the liquid crystal material.

5,738,805
PROCESS FOR SOLUBILIZING GLUTEN THAT NORMALLY IS CAPABLE OF ABSORBING WATER WITHOUT DISSOLUTION

Frederick K. Chaundy, Grosse Ile; Scott P. Melidosian, Allen Park, and Jeffrey L. Finnan, Dearborn, all of Mich., assignors to BASF Corporation, Mount Olive, N.J.

Continuation-in-part of Ser. No. 363,028, Dec. 23, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 706,760

Int. Cl.^{6} B01J *13/00;8/00;* **B01F** *3/00;* **A23L** *1/05*

U.S. Cl. 252—311 **14 Claims**

1. An improved process for solubilizing gluten in water to form a solution, wherein said gluten is contacted with an effective solubilizing concentration of a polysaccharide containing uronic acid residues, further provided that said process is conducted with high shear and agitation of the gluten and polysaccharide containing uronic acid residue mixture in water and at an elevated water temperature, wherein further, said elevated temperature is from 40° C. to 70° C., further provided that said effective solubilizing concentration of a polysaccharide containing uronic acid residues is 1–10 percent by weight of said solution and said gluten is 1–26 percent by weight of said solution.

5,738,806
THIENOTHIENYLAZOANILINES IN NONLINEAR OPTICS

Stefan Beckmann, Mannheim; Karl-Heinz Etzbach, Frankenthal, and Ruediger Sens, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03685, § 371 Date May 8, 1996, § 102(e) Date May 8, 1996, PCT Pub. No. WO95/14957, PCT Pub. Date Jun. 1, 1995

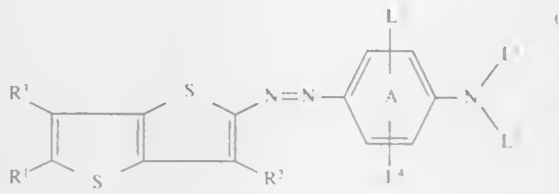
PCT Filed Nov. 9, 1994, Ser. No. 635,974

Claims priority, application Germany, Nov. 22, 1993, 43 39 712.3

Int. Cl.^{6} F21V *9/00,* **C08F** *228/06;* **C09B** *29/033*

U.S. Cl. 252—582 **10 Claims**

1 In a nonlinear optical system, the improvement comprising using an azo dye of the formula I



(I)

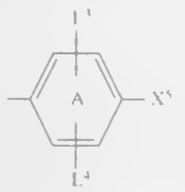
where

the ring A may be benzofused,

L^1 and L^2 are each independently of the other hydrogen, unsubstituted or phenyl-, hydroxyl-, acryloyloxy- or methacryloyloxy-substituted C_1-C_{10}-alkyl, or phenyl, or L^1 and L^2 are together with the nitrogen atom joining them together pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl or N-(C_1-C_4 -alkyl)piperazinyl,

L^3 and L^4 are each independently of the other hydrogen, C_1-C_{10}-alkyl, C_5-C_7 -cycloalkyl, C_1-C_{10}-alkoxy, cyano or halogen,

R^1 is hydrogen, nitro, hydroxysulfonyl, carbamoyl, dicyanovinyl or a radical of the formula $CONX^1X^2$, $CH{=}N{-}X^3$, $CH{=}C(NO_2){-}X^4$ or



where X^1 and X^2 are each independently of the other C_1-C_{10}-alkyl, which may be phenyl-substituted, C_5-C_7-cycloalkyl or phenyl, X^3 is hydroxyl or phenylamino, X^4 is hydrogen or C_1-C_4-alkyl, and X^5 is hydrogen, nitro, hydroxysulfonyl, formyl, cyano, C_1-C_4-alkyl-sulfonyl, dicyanovinyl or a radical of the formula COX^1, $COOX^1$, $CONX^1X^2$, $CH{=}N{-}X^3$ or $CH{=}C(NO^2){-}X^4$, where X^1, X^2, X^3 and X^4 are each as defined above, and the ring A and L^3 and L^4 are each as defined above,

R^2 is hydrogen, nitro, cyano, carboxyl or a radical of the formula COX^1, $COOX^1$ OR $CONX^1X^2$, where X^1 and X^2 are each as defined above, and

R^3 is hydrogen, C_1-C_{10}-alkyl, which may be phenyl-substituted, C_5-C_7-cycloalkyl, phenyl or C_1-C_{10}-alkoxy

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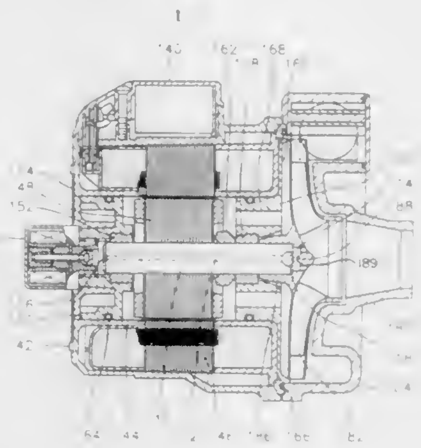
5,738,807
AIR BUBBLE GENERATING APPARATUS

Sung-Dai Moon, Kyeongsangbuk-Do, Rep. of Korea, assignor to Daewoo Electronics Co. Ltd, Seoul, Rep. of Korea

Filed Sep. 24, 1996, Ser. No. 710,940

Int. Cl.^{6} B01F *3/04*

U.S. Cl. 261—28 **27 Claims**



1 An air bubble generating apparatus comprising:

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a pump for pumping water and for creating vacuum at a center portion thereof during pumping of said water;

a driving source for driving said pump and having a bearing holder; and

means for supplying air to the water by using an air pressure difference between said center portion of said pump in vacuum and an atmosphere, said air supplying means including a hollow shaft through which the air flows, a first valve assembly adjacent to a first end of the hollow shaft and screwed in said bearing holder, and a second valve assembly arranged at a second end of the hollow shaft.

5,738,808

HUMIDIFIER FOR INHALANT GAS

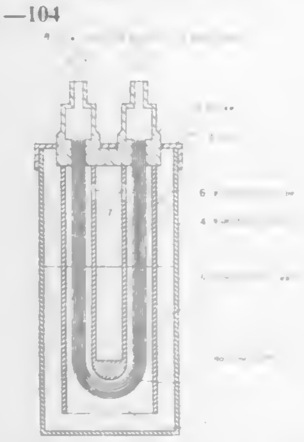
Junjiro Iwamoto, Yokohama, Japan, assignor to Asahi Glass Company Ltd., Tokyo, and Asahi Glass Engineering Co., Ltd., Ichihara, both of Japan

Continuation of Ser. No. 624,916, Mar. 27, 1996, abandoned. This application Jul. 7, 1997, Ser. No. 888,505

Claims priority, application Japan, Mar. 31, 1995, 7-076127

Int. Cl.⁶ B01F *3/04*

U.S. Cl. 261—104 **10 Claims**



1. A humidifier for an inhalant gas, comprising:

(a) a container for containing liquid water and a lid with sockets therein fitted on the top of the container;

(b) a plurality of hollow fibers of a water-permeable membrane which are bent into a U-shape, and wherein each end of the U-shape is adapted to fit in a socket;

(c) means for bringing a stream of an inhalant gas having a controlled composition into contact with the inside of the hollow fibers through said sockets;

(d) a protective tube in which the hollow fibers are packed and placed in said container, said protective tube containing at least one opening sufficient to allow said liquid water to contact at least a part of said hollow fibers.

5,738,809

INJECTION CONTROL METHOD FOR INJECTION MOLDING MACHINE

Keisuke Hara, Akashi, and Shiro Miyamoto, Kakogawa, both of Japan, assignors to Tokyo Machinery & Metal Co., Ltd., Akashi, Japan

Filed Apr. 23, 1996, Ser. No. 636,858

Claims priority, application Japan, Apr. 24, 1995, 7-098647

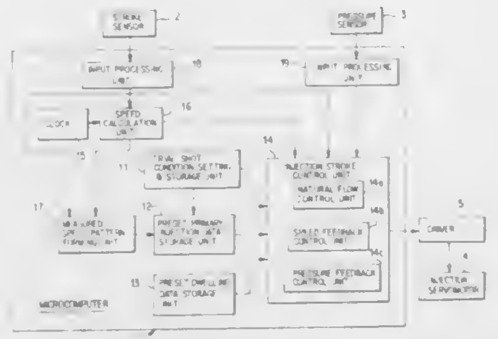
Int. Cl.⁶ B29C *45/77*

U.S. Cl. 264—40.5 **6 Claims**

1. A method for determining a proper screw speed profile in an injection molding machine in which rotation of a screw injects and packs a resin material into a mold during a primary injection stroke, comprising:

performing said primary injection stroke of a trial shot prior to a continuous molding operation according to the following steps: (a) maintaining a speed of said screw according to preset speed values by speed feedback control from initiation of said primary injection stroke until a measured value of pressure of said resin material reaches a preset pressure regulating value at a control changeover point; (b) after said control changeover point, switching said speed feedback control to pressure-priority control under an open loop control in order to maintain the pressure of said resin material at said preset pressure regulating value until a dwell pressure changeover point is reached; and (c) recording a pattern of values of the speed of said screw at least during step (b) in determining said proper screw speed profile once a desired product is achieved; and

performing said primary injection stroke during said continuous molding operation by speed feedback control using at least said pattern of speed values recorded in step (c) as target speed data.


STROKE SENSOR
2
PRESSURE SENSOR
3
INPUT PROCESSING UNIT
18
19
INPUT PROCESSING UNIT
CLOCK
SPEED CALCULATION UNIT
16
15
11
TRIAL SHOT CONDITION SETTING & STORAGE UNIT
14
INJECTION STROKE CONTROL UNIT
MATERIAL FLOW CONTROL UNIT
14a
14b
SPEED FEEDBACK CONTROL UNIT
14c
PRESSURE FEEDBACK CONTROL UNIT
17
MEASURED SPEED PATTERN FORMING UNIT
12
PRESET PRIMARY INJECTION DATA STORAGE UNIT
13
PRESET DWELLING DATA STORAGE UNIT
MICROCOMPUTER
5
DRIVER
4
ELECTRIC SERVOMOTOR

5,738,810

MANUFACTURING METHOD OF A MOTOR VEHICLE COMPONENT

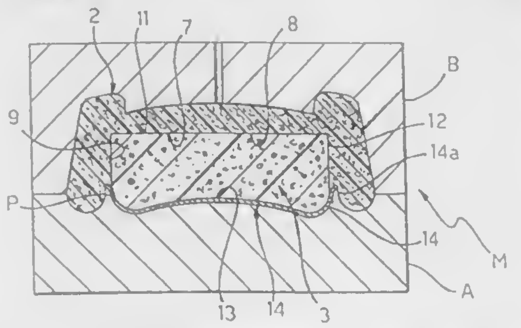
Emilio De Filippo, Bruzolo, Italy, assignor to Gestind-M.B. Manifattura di Bruzolo SPA, Turin, Italy

Filed Dec. 12, 1996, Ser. No. 767,040

Claims priority, application Italy, Jul. 16, 1996, TO96A0609

Int. Cl.⁶ B29C *44/06;44/12*

U.S. Cl. 264—46.7 **5 Claims**



1. A method for the manufacturing of a motor vehicle component comprising an outer body formed by in-mould foaming of a relatively soft plastic material and having a front recess with a lateral wall, an inner pillow element made of moulded plastic material which is relatively more rigid and having a peripheral lateral wall, said inner pillow element being secured in correspondence of said front recess of the outer body so as to expose a front surface thereof delimited by said peripheral lateral wall, and a flexible upholstery sheet fixed on said front surface and on at least part of said peripheral lateral wall of the pillow element and having a perimetral edge, comprising the following steps:

forming said pillow element,

laying said flexible upholstery sheet onto said front surface of the pillow element so that said perimetral edge of said flexible sheet extends beyond said front surface of the pillow element,

providing a foaming mould having a seat with a perimetral lateral wall, said seat having a shape complementary to that of said pillow element and a depth lower than the height of said peripheral lateral wall of the pillow element, said seat having a bottom surface,

introducing said pillow element with said flexible sheet into said seat of the foaming mould, so that said flexible sheet is placed against said bottom surface of said seat and said lateral wall of the pillow element with said perimetral edge of the flexible sheet folded thereagainst and partially projecting outwardly of said seat of said mould beyond said wall,

feeding said plastic material into said mould and foaming said plastic material to form said outer body around said seat, so as to secure said outer body simultaneously to said pillow element and to said perimetral edge of said flexible sheet with said perimetral edge of said flexible sheet incorporated within the lateral wall of the recess of the outer body adjacent a perimetral gap formed between the outer body and the pillow element.

5,738,811

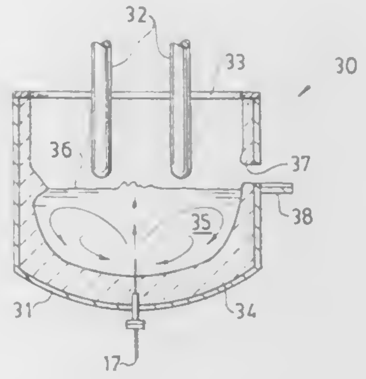
PROCESS FOR MAKING FUSED-CAST REFRACTORY PRODUCTS

Joseph D. Gagel; William C. Farisi, both of Jamestown, N.Y., and Dean M. Thomas, Russell, Pa., assignors to Monofrax Inc., Falconer, N.Y.

Filed May 16, 1995, Ser. No. 441,901

Int. Cl.⁶ C04B *35/653*

U.S. Cl. 264—82 **18 Claims**



1. In a process for manufacturing a fused cast refractory product, said process including a series of at least. two production campaigns, each campaign comprising a batch-wise process carried out at least once, said batch-wise process including the steps of (1) loading a walled crucible of an electric arc furnace with ceramic material, (2) melting the ceramic material by powering the electric arc, (3) treating the melted ceramic material with a beneficiating gas, and (4) pouring the treated melt into one or more molds, each campaign being terminated by causing a substantial amount of the melt to solidify in the crucible, the improvement therein which comprises:

injecting said beneficiating gas upwardly, throagh the bottom of said crucible, beneath the surface of the melt in a substantially continuous manner throughout each production campaign from at least one tuyere mounted on the outside of the bottom wall of said crucible and inserted through the bottom of said crucible beneath the surface of the melt thereby continuously stirring the melted ceramic material and whereby power to said electric arc can be maintained during said step of pouring;

wherein said beneficiating gas is selected from the group consisting of oxidizing agents;

terminating said campaign by removing power to the electrode means thereby allowing the melted ceramic material to solidify;

removing at least one previously used tuyere from the bottom of said crucible;

drilling out said previously used tuyere within said crucible and through any solidified ceramic material encompassing said used tuyere;

reattaching the removable portion of a new tuyere to the bottom of said outer crucible wall; wherein said steps of terminating, removing, drilling and reattaching are repeated between campaigns.

5,738,812

PROCESS FOR THE MANUFACTURE OF BREAST PROSTHESES

Helmut Wild, Neubeuern, Germany, assignor to Amoena Medizin-Orthopädie-Technik GmbH, Raubling, Germany

Continuation of Ser. No. 409,988, Mar. 24, 1995, abandoned. This application Jan. 21, 1997, Ser. No. 784,620

Claims priority, application Germany, Apr. 15, 1994, 44 13 076.7

Int. Cl.⁶ B29C *41/04;41/06*

U.S. Cl. 264—102 **10 Claims**

1. A process for the manufacture of a solid breast prosthesis made from a mixture comprising an addition-vulcanized two component silicone rubber mass and a filler of substantially low density, said filler comprising hollow spheres or microspheres, wherein the mixture is enclosed in a plastic sheet sheathing and cured by heating in a mold to form body of the breast prosthesis,

comprising the steps,

filling the mold with the mixture enclosed in the plastic sheet sheathing;

degassing the mixture in the mold,

turning the filled mold continuously through one or two axes before and during curing of the mixture;

curing the mixture until the mixture is vulcanized sufficiently that rising of the filler is prevented, and an even distribution of the filler is achieved, thereby forming the solid breast prosthesis

5,738,813

RELEASE AGENT COMPOSITION FOR TIRE MOLDING

Tsutomu Naganawa, and Isao Ona, both of Chiba Prefecture, Japan, assignors to Dow Corning Toray Silicone Co., LTD., Tokyo, Japan

Filed Jul. 19, 1995, Ser. No. 504,346

Claims priority, application Japan, Jul. 26, 1994, 6-193690

Int. Cl.⁶ B28B *7/36,7/38*

U.S. Cl. 264—130 **3 Claims**

1. A release agent for tire molding applications comprising 3–20 percent by weight of a diorganpolysiloxane having a viscosity of at least 100 centistokes; 0.5–20 percent by weight of an emulsifying agent selected from the group consisting of anionic surfactants, nonionic surfactants, natural lecithin, polyvinyl alcohol, methylcellulose, carboxymethylcellulose, and carboxyethylcellulose; 3–25 percent by weight of mica powder or talc powder; 3–33 percent by weight of a second powder having a melting point not exceeding 200° C., the second powder being selected from the group consisting of magnesium stearate, calcium stearate, zinc stearate, and aluminum stearate; and 2–90.5 percent by weight of water.

5,738,814

METHOD OF MANUFACTURING OF LACQUER-COATED EXTRUSION PRODUCTS

Norbert Kreth, Minden; Reinhard Witt, Bad Oeynhausen; Helmut Wiech, Gelsenkirchen, all of Germany, and Berrie Penney, Henley on Thames, Great Britain, assignors to Battenfeld Extrusionstechnik GmbH, Bad Oeynhausen, Germany

PCT No. PCT/EP94/03559, § 371 Date Jul. 10, 1996, § 102(e) Date Jul. 10, 1996, PCT Pub. No. WO95/12483, PCT Pub. Date May 11, 1995

PCT Filed Oct. 28, 1994, Ser. No. 637,792

Claims priority, application Germany, Nov. 5, 1993, 43 37 832.3

Int. Cl.⁶ B29C *47/06,47/20*

U.S. Cl. 264—171.26 **5 Claims**

1. A method of manufacturing of continuous, at least two layer products having an upper layer formed of a lacquer material by one of continuous extrusion and batch extrusion, the method comprising the steps of,

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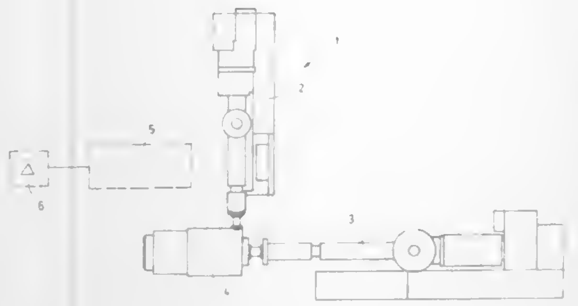


providing an apparatus including a co-extrusion tool having a first inlet and a first conduit for conducting at least one base material and communicating with the first inlet, a second inlet and a second conduit for conducting a lacquer material and communicating with the second inlet, the second conduit circumscribing the first conduit, and a merging section in which flows exiting the first and second conduits merge, and first and second extruders connected with the first and second inlets, respectively, for injecting through the first and second inlets a melt of the base material and a melt of the lacquer material, respectively; and

simultaneously injecting the melts of the base and lacquer materials with the first and second extruders, respectively, through the first and second conduits, respectively, whereby an at least two-layer product exiting the merging section of the co-extrusion tool and having an upper lacquer layer, is produced in a single step.

5,738,815

METHODS FOR FORMING ARCUATE INSULATION SHEETS FOR DYNAMOELECTRIC MACHINES

Timothy J. Laskey, Saratoga Springs, and William P. Dobbins, Clifton Park, both of N.Y., assignors to General Electric Co., Schenectady, N.Y.

Division of Ser. No. 335,613, Nov. 8, 1994, Pat. No. 5,581,870. This application Jul. 12, 1996, Ser. No. 679,512

Int. Cl.^{6} B29C *53/04*

U.S. Cl. 264—323 **7 Claims**

1. A method of forming a generally arcuate sheet of plastic material from a flat sheet thereof, comprising the steps of:

providing a generally cylindrical mandrel having a slot along a side wall thereof extending generally parallel to a cylindrical central axis of said mandrel;

inserting the flat sheet through the slot for locating a leading edge thereof within the mandrel with remaining portions of the flat sheet extending through the slot outwardly of the mandrel;

clamping the leading edge of the flat sheet to a winding assembly;

rotating the winding assembly with the leading edge clamped thereto in the mandrel to wind the flat sheet about the interior of the cylindrical mandrel and about the winding assembly drawing said remaining portions of said flat sheet through the slot and into the mandrel, thereby forming a wound sheet within the mandrel,

heating the mandrel with the wound sheet therein to a temperature to set the plastic material of the wound sheet within the mandrel, thereby forming an arcuate sheet; and

removing the arcuate sheet from the mandrel

5,738,816

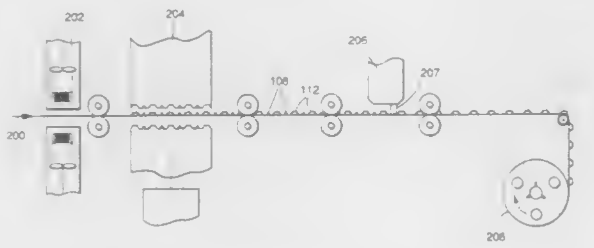
METHOD OF MAKING A COMPONENT CARRIER TAPE

Dale R. Tidemann; Thomas Skrtic, both of Eau Claire, Wis., and Scott L. Ciliske, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 386,571, Feb. 15, 1995, Pat. No. 5,526,935. This application Feb. 9, 1996, Ser. No. 599,170

Int. Cl.^{6} B29C *51/10*

U.S. Cl. 264—553 **15 Claims**



1. A method of making a flexible carrier tape for storage and delivery of components by an advancement mechanism, the carrier tape comprising a strip portion having means for engagingly receiving the advancement mechanism, a plurality of pockets for carrying the components, the pockets opening through the strip portion, and a plurality of hollow protuberances that open through the strip portion and extend outwardly therefrom, the plurality of hollow protuberances providing the means for engagingly receiving the advancement mechanism, the method comprising the steps of:

(a) providing a web of a flexible thermoplastic polymer;

(b) delivering the web of thermoplastic polymer to a mold or a die;

(c) shaping the web of thermoplastic polymer by simultaneously thermoforming the pockets and the hollow protuberances by the mold or the die; and

(d) cooling the shaped web to harden the thermoplastic polymer.

5,738,817

SOLID FREEFORM FABRICATION METHODS

Stephen C. Danforth, Belle Mead; Mukesh Agarwala, Highland Park; Amit Bandyopadghyay, Edison; Noshir Langrana, Robbinsville; Vikram R. Jamalabad, Somerville; Ahmad Safari, Princeton Junction, and Remeo van Weeren, Highland Park, all of N.J., assignors to Rutgers, The State University, New Brunswick, N.J.

Filed Feb. 8, 1996, Ser. No. 598,276

Int. Cl.^{6} B29C *41/02;* C04B *35/00*

U.S. Cl. 264—603 **33 Claims**

1. A process for making a three-dimensional article, comprising the steps of:

providing a mixture of a particulate composition dispersed in a binder;

feeding said mixture to a dispensing apparatus;

dispensing said mixture from said dispensing apparatus onto a build platform;

during said dispensing step, moving said dispensing apparatus and said build platform relative to one another in a plane defined by first and second directions and in a third direction orthogonal to said plane to form said mixture into a three-dimensional article; and

removing at least a portion of said binder from said article

5,738,818

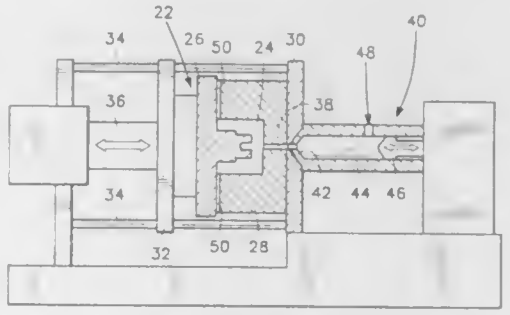
COMPRESSION/INJECTION MOLDING OF POLYMER-DERIVED FIBER REINFORCED CERAMIC MATRIX COMPOSITE MATERIALS

Steven Donald Atmur, Riverside, and Thomas Edward Strasser, Corona, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Aug. 28, 1996, Ser. No. 704,348

Int. Cl.^{6} C04B *33/32;35/80*

U.S. Cl. 264—624 **24 Claims**



1. A method of making a fiber reinforced ceramic matrix composite (FRCMC) part comprising the steps of:

(a) injecting a quantity of bulk molding compound comprising a pre-ceramic resin and fibers into a mold having a cavity with walls which form the exterior surfaces of the FRCMC part being molded and at least one resin outlet port connecting the mold cavity to the exterior of the mold, wherein the quantity of said fibers injected corresponds to the maximum percent by volume of fibers capable of being packed within the mold cavity, and the quantity of pre-ceramic resin injected exceeds that necessary to fill the mold cavity in conjunction with the fibers and is sufficient to cause the fibers to flow with the resin and thereafter pack together within the mold cavity, and wherein excess resin exceeding that needed in conjunction with the fibers to fill the mold cavity, flows through the packed fibers and is expelled through the at least one resin outlet port;

(b) heating the mold at a temperature and for a time associated with the pre-ceramic resin which polymerizes the resin remaining in the mold cavity to form a fiber-reinforced polymer composite structure;

(c) removing the polymerized composite structure from the mold; and

(d) heating the polymerized composite structure at a temperature and for a time associated with the polymerized resin which pyrolizes it to form a FRCMC structure.

5,738,819

METHOD FOR MAKING CERAMIC SHELL MOLDS AND CORES

Roy C. Feagin, Boca Raton, Fla., assignor to Remet Corporation, Utica, N.Y.

Division of Ser. No. 7,883, Jan. 28, 1987, Pat. No. 5,535,811. This application Jun. 1, 1995, Ser. No. 456,824

Int. Cl.^{6} B29C *33/40;* B22C *9/00*

U.S. Cl. 264—635 **11 Claims**

1. A process for making an investment casting mold having low reactivity with reactive metals comprising mixing finely divided yttria with an acid and an inert organic solvent, to thereby form a refractory coating composition, applying said coating composition to a shaped pattern, drying and permitting the composition to set and heating the resulting coated pattern to a sufficiently high temperature thereby sintering said coating composition.

5,738,820

SINTERED SILICON NITRIDE-BASED BODY AND PROCESS FOR PRODUCING THE SAME

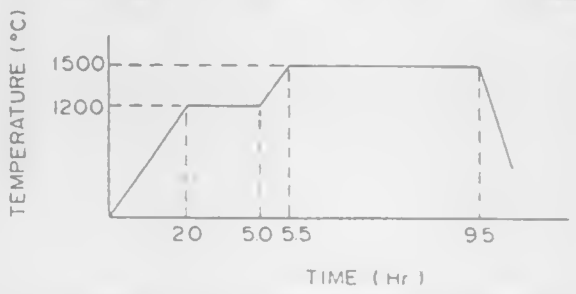
Harutoshi Ukegawa, and Matsuo Higuchi, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Division of Ser. No. 597,705, Feb. 7, 1996, Pat. No. 5,631,200. This application Oct. 1, 1996, Ser. No. 723,930

Claims priority, application Japan, Feb. 8, 1995, 7-020250; Apr. 21, 1995, 7-096379; Dec. 26, 1995, 7-338777

Int. Cl.^{6} C04B *35/587,35/599*

U.S. Cl. 264—665 **5 Claims**



1. A process for producing a sintered silicon nitride-based body, comprising 20% or less by weight of a grain boundary phase and the balance being a major phase of grains of silicon nitride and/or sialon, wherein:

said major phase contains a grain phase formed of a β-Si_3N_4 phase and/or a β'-sialon phase, and a quantitative ratio of the grain phase formed of the β-Si_3N_4 phase and/or the β'-sialon phase is in a range of from 0.5 to 1.0 relative to the major phase;

said grain boundary phase contains $Re_2Si_2O_7$ wherein Re represents a rare-earth element other than Er and Yb as a first crystal component and at least one of $ReSiNO_2$, $Re_3Al_5O_{12}$, $ReAlO_3$, and $Si_3N_4.Y_2O_3$ as a second crystal component; and

a quantitative ratio of the first and second crystal components in the grain boundary phase to the grain phase of the β-Si_3N_4 phase and/or the β'-sialon phase in the major phase is in a range of from 0.03 to 1.6, comprising:

mixing from 80% to 98% by weight of silicon nitride powder and 2% to 20% by weight of at least one sintering aid based powder selected from the group consisting of a) a powder mixture of monocompounds which is a combination of, as a sintering aid powder, Re_2O_3 wherein Re is a rare-earth element other than Er and Yb, powder and at least one powder is selected from the group consisting of AlN, ReN, Al_2O_3 and M_xO_y wherein M_xO_y is an oxide and M is selected from the group consisting of Li, Na, Ca, Mg and a rare-earth element other than Er and Yb, b) a powder consisting of a composite compound having a combined composition of the monocompounds, and c) a or powder mixture of the powder mixture a) and/or powder b) with the addition of $Si_3N_4.Y_2O_3$ powder;

sintering, in a pressurized nitrogen atmosphere, a compact compacted from the starting powders to form a sintered body, and thereafter:

subjecting the sintered body to heat treatment at a temperature range of from 1050° to 1550° C. in a non-oxidizing atmosphere for nucleation and crystal growth

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5,738,821

NOZZLE FOR ELECTRIC DISPERSION REACTOR

Warren G. Sisson; Osman A. Basaran, both of Oak Ridge, and Michael T. Harris, Knoxville, all of Tenn., assignors to Lockheed Martin Energy Research Corporation, Oakridge, Tenn.

Division of Ser. No. 35,772, Mar. 23, 1993, Pat. No. 5,464,195. This application Sep. 29, 1995, Ser. No. 537,217

Int. Cl.^{6} C01B *13/14*

U.S. Cl. 266—44 **4 Claims**

1. A method of forming ceramic precursor particles comprising the steps of:

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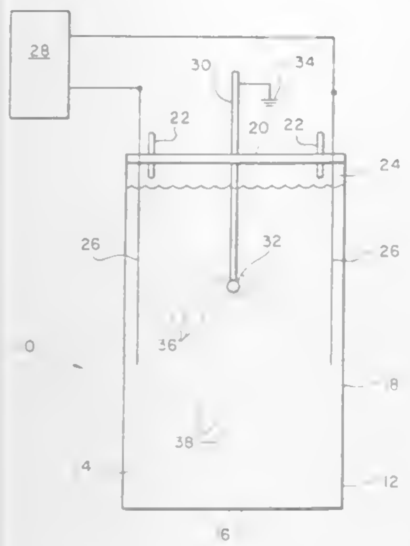


- delivering a continuous phase fluid at a flow rate to a collection area with first means;
- delivering a disperse phase fluid at a flow rate into the continuous phase fluid with second means, in fluid communication with the first means, and
- generating an electric field at a location within the first means where the disperse phase enters the continuous phase with voltage means, the electric field having an intensity sufficient to disperse the disperse phase fluid into the continuous phase fluid.

5,738,822

SHAFT FURNACE CHARGING DEVICE WITH ROTATING CHUTE

Emile Lonardi, Bascharage; Guy Thillen, Diekirch, and Georges Reuter, Ettelbrück, all of Luxembourg, assignors to Paul Wurth S.A., Luxembourg

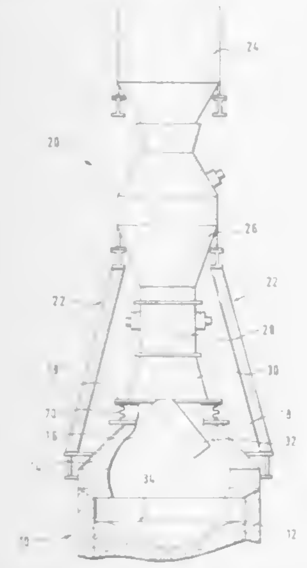
PCT No. PCT/EP95/01704, § 371 Date Feb. 26, 1997, § 102(e) Date Feb. 26, 1997, PCT Pub. No. WO95/33858, PCT Pub. Date Dec. 14, 1995

PCT Filed May 5, 1995, Ser. No. 750,358

Claims priority, application Luxembourg, Jun. 8, 1994, 88494

Int. Cl.⁶ C21B *7/08*

U.S. Cl. 266—199 **13 Claims**



1. Shaft furnace charging device with rotating chute, comprising a supporting structure (**22**) overhanging the shaft furnace (**10**), a mounting flange (**18**) to be fixed rigidly to the shaft furnace,
- a batch hopper (**26, 28**) supported by the supporting structure (**22**),
- a drive housing (**30**) for the chute (**32**) which is connected in a sealed manner at one end to the batch hopper (**26, 28**) and at the other end to said mounting flange (**18**),
- at least one large diameter roller ring (**40**) mounted in the housing (**30**) and supporting said rotating chute (**32**),
- said ring (**40**) being connected mechanically to said mounting flange (**18**) by a chain of rigid elements,
- characterised by
  - at least one deformable linking element (**70, 80, 90, 100**) incorporated in said chain of rigid elements between said mounting flange (**18**) and said roller ring (**40**) supporting the rotating chute (**32**), in such a way that a rigid transmission of deformations of said mounting flange (**18**) to said roller ring (**40**) is largely avoided.

5,738,823

MELTDOWN APPARATUS

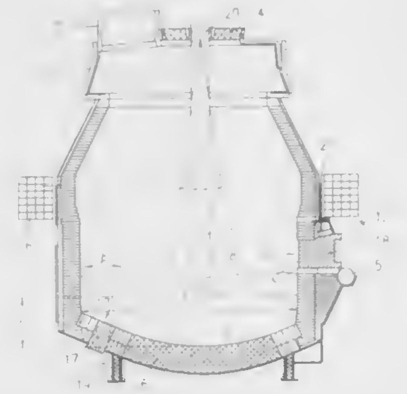
Göran Grimfjärd, Västeras; Erik Alfred Lassander, Viken, both of Sweden; Gerhard Lempa, Waldshut-Tiengen, Germany, and Sven-Einar Stenkvist, Brugg, Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Jul. 23, 1996, Ser. No. 681,477

Claims priority, application Germany, Jul. 24, 1995, 195 26 704.4

Int. Cl.⁶ F27D *17/00;* **C22B** *7/00*

U.S. Cl. 266—242 **4 Claims**



1. A meltdown apparatus, comprising.
- at least one first extendable and retractable supply conduit which, in an arc mode, is at least one first electrode;
- at least one second electrode;
- at least one closable melt channel for emptying a molten material;
- at least one closable slag channel removal of slag;
- a cover through which the at least one first movable supply conduit is guided; and
- at least one further orifice, wherein
- the at least one first electrode is exchangeable for at least one reactant supply conduit such that, during operation, the at least one first electrode and the at least one reactant supply conduit are guidable successively in time through the same orifice in the cover,
- the meltdown apparatus is mounted rotatably about a first center of rotation through a first angle of rotation below a bottom side of a reactor lower part between the melt channel and the second electrode and
- about a second center of rotation through a second angle of rotation in a central region of the first movable supply conduit in a region of the cover

5,738,824

METHOD FOR THE TESTING AND CLEANING OF INSTRUMENTS FOR MINIMAL INVASIVE SURGERY OR MINIMAL INVASIVE EXAMINATION OF BODY CAVITIES

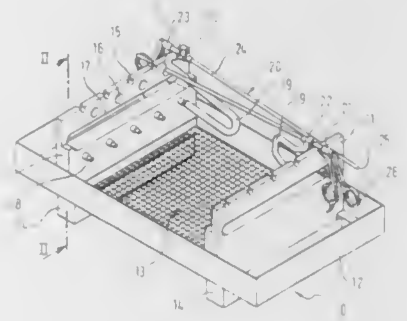
Egbert Pfeifer, Waldkraiburg, Germany, assignor to Netzsch Newamatic GmbH, Waldkraiburg, Germany

Filed Nov. 7, 1995, Ser. No. 554,510

Claims priority, application Germany, Nov. 11, 1994, 44 40 363.1

Int. Cl.⁶ G05D *7/00*

U.S. Cl. 422—3 **11 Claims**



1. A method for the testing and cleaning of one or more instruments for minimal invasive surgery or minimal invasive examination of body cavities, each instrument including at least one continuous channel connected to a fluid source, said method comprising the steps of.
- conveying fluid to said at least one channel from said fluid source and measuring the throughput of fluid through said at least one channel;
- comparing said measured throughput with preset throughput data specific to the types of instruments being tested;
- identifying an instrument to set aside as unflushable where its measured throughput does not match any of the preset throughput data;
- identifying an instrument as flushable where said measured throughput matches one of said preset throughput data.
- identifying by type each flushable instrument by means of the preset throughput data to which it corresponds;
- establishing conditions for flushing each flushable instrument channel with disinfecting and/or cleaning agents based on the identified instrument type; and
- flushing each flushable instrument channel with disinfecting and/or cleaning agents according to the conditions established for flushing each flushable instrument channel.

5,738,825

OPTICAL BIOSENSOR MATRIX

Helmut Rudigier, Bad Ragaz, Switzerland; Roland Pfefferkorn, Feldkirch-Tisis, Austria; Kurt Tiefenthaler, Zurich, Switzerland; Véronique Briquet, Chalet Casse, Switzerland; Alois Zetting, Herrliberg, Switzerland; Peter Marbach, Therwil, Switzerland; Francois Legay, Huninque, France, and Peter End, Basel, Switzerland, assignors to Balzers Aktiengesellschaft, Furstentum, Liechtenstein, and Artificial Sensing Instruments ASI AG, Zurich, Switzerland

PCT No. PCT/EP94/02361, § 371 Date Apr. 27, 1995, § 102(e) Date Apr. 27, 1995, PCT Pub. No. WO95/03538, PCT Pub. Date Feb. 2, 1995

Continuation of Ser. No. 397,281, Apr. 27, 1995, abandoned.

This PCT application Jul. 18, 1994, Ser. No. 854,586

Claims priority, application United Kingdom, Jul. 20, 1993, 9314991

Int. Cl.⁶ G01N *21/01*

U.S. Cl. 422—82.11 **12 Claims**

1. A cell array plate comprising.
- a microtitre sample plate having a matrix of bores extending from a first surface of said sample plate through said sample

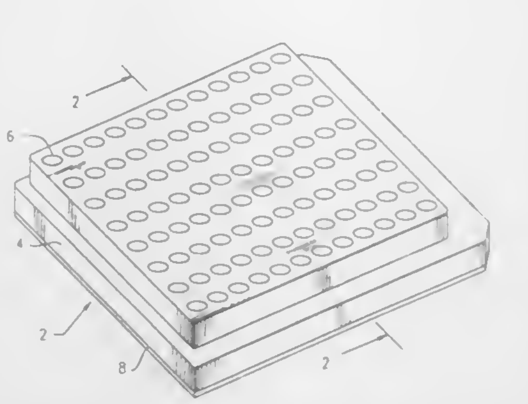


plate and to an opposite second surface of said sample plate the bores being arranged in rows and columns,
- a base plate arrangement having first and second opposite surfaces, and extending along said second opposite surface of said sample plate, said first surface of said base plate arrangement being in intimate contact with said opposite surface of said sample plate so as to seal said bores of said matrix along said opposite second surface of said sample plate, thereby closing said bores at a plurality of distinct surface areas, and
- a waveguiding film arrangement at said base plate arrangement and extending along said distinct surface areas, said base plate arrangement being transparent for light from said second surface of said base plate arrangement to said waveguiding film arrangement,
- said base plate arrangement comprising at least one diffraction grating structure area adjacent each of said plurality of distinct surface areas for coupling light impinging through said second surface of said base plate arrangement into said waveguiding film arrangement along a distinct surface area, and from said waveguiding film arrangement adjacent said distinct surface area, back through said second surface of said base plate arrangement;
- said base plate arrangement with said waveguiding film arrangement and said diffraction grating structure areas, substantially preventing light coupled into said waveguiding film arrangement at one of said plurality of distinct surface areas, from propagating into the waveguiding film arrangement at another one of said distinct surface areas neighboring said one of said distinct surface areas, and thereby substantially preventing cross-talk between said distinct surface areas.

5,738,826

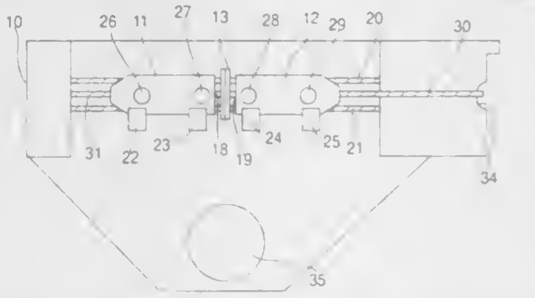
USSING CHAMBER

Mary Beth Lloyd, 455 Western Ave., Morristown, N.J. 07960

Filed Aug. 12, 1996, Ser. No. 694,392

Int. Cl.⁶ B01L *3/00;* **G01N** *15/08*

U.S. Cl. 422—102 **7 Claims**



1. In an Ussing device for testing tissue specimens, said device having two discrete compartments each of which is capable of accommodating a testing solution and each of said compartments having an opening over which a surface of the tissue test specimen may be placed, and a tissue holder for holding said tissue in place and located between and separating said discrete compartments in a liquid-sealing relationship, the improvement which comprises providing in said device a base on which at least one of said

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discrete compartments is slidably mounted on one or more support rods affixed to said base to thereby anchor said at least one compartment to said base and facilitate movement of the compartments into open or closed positions against said tissue holder.

5,738,827

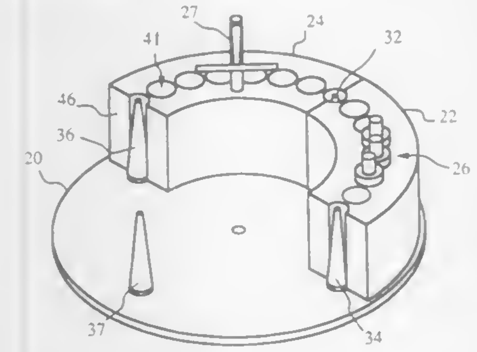
APPARATUS FOR HOLDING REAGENT AND SAMPLE VESSELS

Samuel A. Marquiss, Santa Clara, Calif., assignor to LJL Biosystems, Inc., Sunnyvale, Calif.

Filed Aug. 23, 1995, Ser. No. 518,564

Int. Cl.^{6} B01L *9/00*

U.S. Cl. 422—104 **15 Claims**



1. An apparatus for holding vessels comprising:
- a) a base plate:
- b) a plurality of tapered guiding pins mounted vertically on said base plate, the bottoms of said tapered guiding pins resting on said base plate, the width of said tapered guiding pins being largest at said bottoms of said tapered guiding pins;
- c) a plurality of vessel racks, each of said vessel racks having a top side, a bottom side, side walls, and a plurality of wells for receiving vessels, each of said wells having an opening in said top side, each of said vessel racks having a plurality of grooves running vertically along at least a pair of said side walls opposite each other, such that said grooves guide said vessel racks as said vessel racks slide down along said tapered guiding pins, and such that a fit is established between said vessel racks and said tapered guiding pins along at least a section of said tapered guiding pins when said vessel racks have completed a downward sliding motion along said tapered guiding pins; and
- d) a handle comprising a fixed part attached to said top side, a swivelable part attached to said fixed part, and a grip attached to said swivelable part, said swivelable part being able to swivel between a resting position and a lifting position, wherein said grip is substantially above the center of gravity of said vessel rack when said swivelable part is in said lifting position; and wherein said center of gravity is situated substantially on a horizontal line intersecting the longitudinal axes of at least two of said grooves.

5,738,828

APPARATUS FOR DETECTING PROPER STRIP INSERTION INTO AN OPTICAL REFLECTANCE METER

John W. Stoughton, Indianapolis, Ind., assignor to UMM Electronics Inc., Indianapolis, Ind.

Filed Jan. 16, 1996, Ser. No. 585,878

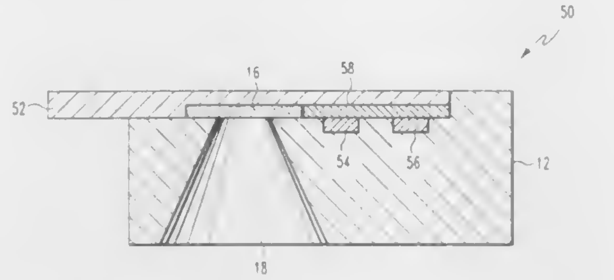
Int. Cl.^{6} G05B *1/01*

U.S. Cl. 422—105 **9 Claims**

6. A meter for analyzing a sample of bodily fluid placed upon a test strip which is inserted into the meter, comprising:

analysis apparatus operative to analyze the bodily fluid and generate a meter output, the analysis apparatus including a space sized to receive the test strip;

a first electrode;



a second electrode;

wherein the first and second electrodes are located adjacent the space;

means for impressing a first voltage on the first electrode; and

means for monitoring a second voltage on the second electrode, wherein the means for monitoring is operative to activate the analysis apparatus only when the second voltage exceeds a predetermined threshold;

wherein the second voltage will exceed the predetermined threshold only when the test strip has been inserted into the meter with a proper orientation.

5,738,829

RECOVERY OF OLIGONUCLEOTIDES BY GAS PHASE CLEAVAGE

Tomas Kempe, Bowie, Md., assignor to Barrskogen, Inc., Washington, D.C.

Division of Ser. No. 230,766, Apr. 24, 1994, Pat. No. 5,514,789. This applicatinn Feb. 15, 1996, Ser. No. 602,211

Int. Cl.^{6} G05D *23/00;* **C08F** *2/00*

U.S. Cl. 422—107 **25 Claims**

1. An apparatus comprising (a) a sealable chamber for incubating a solid support having synthesized oligonucleotides covalently bound thereto in an environment comprising gaseous cleavage/deprotection reagent, (b) a supply of cleavage/deprotection reagent for delivery to the chamber in a gaseous form, and (c) a delivery conduit for the oligonucleotides, the apparatus being operably connected to a DNA synthesizer.

5,738,830

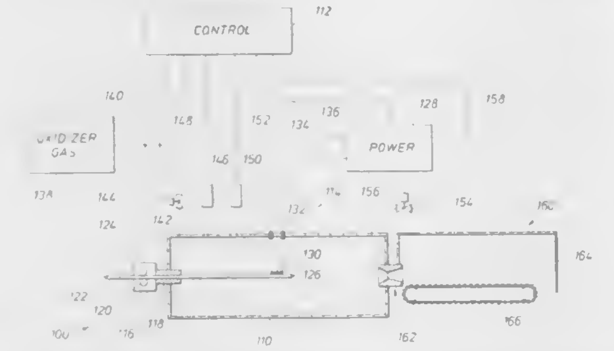
METHOD AND APPARATUS FOR PRODUCTION OF POWDERS

Joel M. Stoltzfus, Mesilla Park, N. Mex., and Subhasish Sircar, Richmond, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 413,732, Mar. 29, 1995, Pat. No. 5,635,153. This application Jan. 17, 1997, Ser. No. 785,500

Int. Cl.^{6} C01B *13/32*

U.S. Cl. 422—111 **7 Claims**



1. An apparatus for the production of metal oxide powders, said apparatus comprising:

a combustion chamber having a gas inlet port, a gas vent port, and controllable exit and entry ports;

means for introducing an oxygen enriched gas into the combustion chamber through said gas inlet port;

means for sensing the pressure of the oxygen enriched atmosphere within the combustion chamber;

means for continuously moving through said entry port a metallic material to be oxidized in said combustion chamber;

means for igniting said metallic material, said means for igniting including a thermoelectric element positioned within the housing in proximity to said metallic material;

control circuit means for selectively operating said means for igniting to energize the thermoelectric element and heat the metallic material to its ignition temperature whereby combustion of said metallic material results in production of metal oxide in powder form;

means controlled by said control circuit means for continually moving the product metal oxide through the exit of the combustion chamber and for maintaining the pressurized atmosphere within said chamber; and

product collector means located in proximity to said exit port in a position to receive the product metal oxide exiting from the chamber and controlled by said control circuit means to convey the product to a desired location.

5,738,831

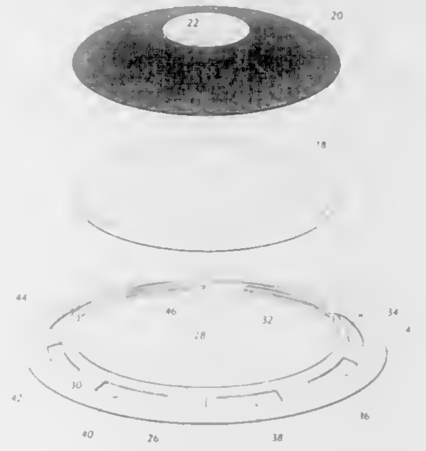
BED LINEN DEODORIZER

Fredrick U. Bethel, 178 Hermer Cir. N.W., Atlanta, Ga. 30311

Continuation of Ser. No. 559,175, Nov. 13, 1995, abandoned, which is a continuation of Ser. No. 247,660, May 23, 1994, abandoned. This application Apr. 23, 1997, Ser. No. 847,325

Int. Cl.^{6} A61L *9/04*

U.S. Cl. 422—120 **7 Claims**



1. An apparatus for freshening and deodorizing a bed having a mattress and linens placed on the mattress, and air space around and between the mattress and the linens, the apparatus comprising:

a pliable base for mounting on a mattress, said base having an upper surface, an outer edge, an inner edge positioned above and inwardly relative to said outer edge, and a side wall formed between said outer edge and said inner edge, said side wall being disposed at an incline of about 30° relative to said upper surface of said base and defining a pad-receiving recess, wherein said side wall has a plurality of portions defining side vents through which a fragrance emanates;

a pad mounted above said upper surface of said base and completely within said pad-receiving recess, said pad having a fragrance applied thereto; and

a cover mounted toward said inner edge of said base, said cover being formed of sponge for permitting the fragrance to emanate from said pad through said cover whereby the mattress, linens placed on the mattress, and the air space around and between the mattress and linens are freshened and deodorized.

5,738,832

EXHAUST GAS PURIFYING APPARATUS

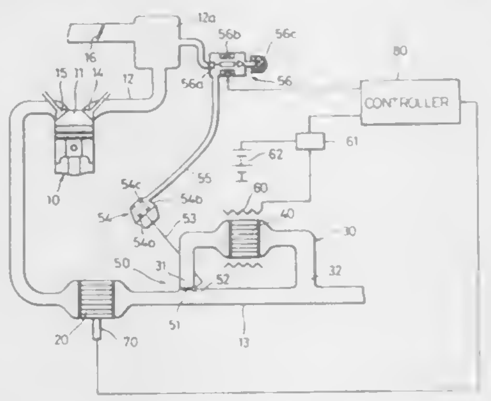
Takashi Dogahara; Kazuo Koga; Yoshiaki Danno; Daisuke Sanbayashi, all of Tokyo; Kozo Iida, Hiroshima; Satoru Serizawa, Nagasaki, and Norihisa Kobayashi, Tokyo, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, and Mitsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Continuation of Ser. No. 318,773, Dec. 2, 1994, abandoned. This application Mar. 26, 1996, Ser. No. 621,704

Claims priority, application Japan, Feb. 15, 1993, 5-025351; Feb. 15, 1993, 5-025352; Feb. 15, 1993, 5-025353; Feb. 15, 1993, 5-025354; Feb. 15, 1993, 5-025355; Feb. 15, 1993, 5-025356; Feb. 15, 1993, 5-025357

Int. Cl.^{6} F01N *3/20;* **B01D** *50/00*

U.S. Cl. 422—171 **14 Claims**



1. An exhaust gas purifying apparatus comprising

a main catalyst interposed in a main exhaust gas passage for purifying exhaust gas from an engine, the main exhaust gas passage being communicated with an exhaust side of an engine;

an adsorbent interposed in a bypass exhaust gas passage for adsorbing hydrocarbon contained in the exhaust gas, the bypass exhaust gas passage being communicated at least at its upstream end with the main exhaust gas passage, said adsorbent having a catalytic function of oxidizing adsorbed hydrocarbon in a predetermined temperature range;

heating means for heating said adsorbent.

exhaust route selecting means for selectively inhibiting communication between the bypass exhaust gas passage and the main exhaust gas passage at least at one end of the bypass exhaust gas passage; and

control means for prohibiting an operation of said exhaust route selecting means at start of the engine, and for causing said exhaust route selecting means to operate when a predetermined condition is satisfied after the start of the engine;

whereby said adsorbent is heated by said heating means after said exhaust route selecting means is caused to operate.

5,738,833

UNIT-TYPE METALLIC SUPPORT

Masayoshi Usui, Shizuoka, Japan, assignor to Usui Kokusai Sangyo Kaisha, Ltd., Shizuoka, Japan

PCT No. PCT/JP94/01483, § 371 Date Feb. 13, 1996, § 102(e) Date Feb. 13, 1996, PCT Pub. No. WO95/07141, PCT Pub. Date Mar. 16, 1995

PCT Filed Sep. 8, 1994, Ser. No. 596,309

Claims priority, application Japan, Sep. 9, 1993, 5-247304

Int. Cl.^{6} B01D *53/34*

U.S. Cl. 422—177 **20 Claims**

1. A unit-type metallic support for an exhaust gas cleaning catalyst, said support comprising

a plurality of unit members each formed of

a cylindrical wire frame made of a heat-resistant steel, and

a plurality of spaced, parallel, non-intersecting metal wires made of a heat-resistant steel arranged on the frame;

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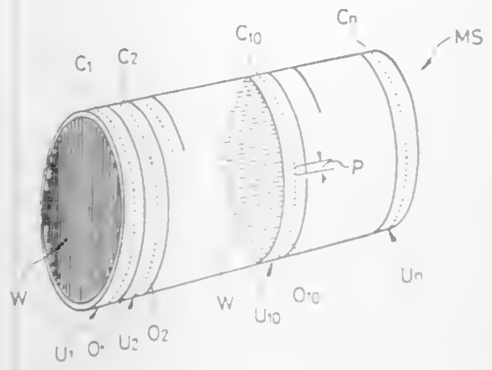


said cylindrical wire frame being provided at outer peripheral wall thereof with a plurality of holding means which are arranged at a predetermined pitch for holding the metal wires parallel with each other in the spaced non-contacting relationship in said cylindrical wire frame; and

a catalyst on the surface of the metal wires

5,738,834

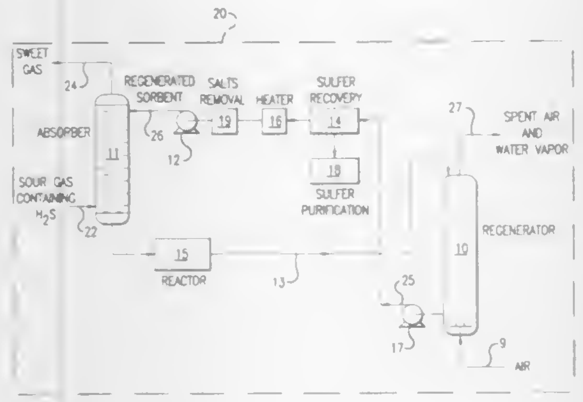
SYSTEM FOR REMOVAL OF HYDROGEN SULFIDE FROM A GAS STREAM

David W. Deberry, Austin, Tex., assignor to Gas Research Institute, Chicago, Ill.

Division of Ser. No. 711,122, Sep. 9, 1996. This application Apr. 4, 1997, Ser. No. 835,140

Int. Cl.⁶ B01D *50/00; 53/34*

U.S. Cl. 422—177 **6 Claims**



1 A system for removing H_2S from a gaseous stream, comprising.

absorber means for receiving and contacting the H_2S-containing gaseous stream with a sorbing liquor comprising a nonaqueous solvent containing dissolved sulfur, and a base having sufficient strength and concentration to drive the reaction converting H_2S sorbed by said liquor to a nonvolatile polysulfide which is soluble in the sorbing liquor;

regenerator means downstream of said absorber means for oxidizing said sorbing liquor containing the dissolved polysulfide to convert said polysulfide to sulfur which remains dissolved in said liquor;

sulfur conversion means downstream of said regenerator means for converting at least part of said dissolved sulfur to solid particulate sulfur; and

separating and recycling means downstream of said regenerator means for separating said solid sulfur from the liquor and returning the regenerated liquor to said absorber means for recycling.

5,738,835

PROCESS FOR THE PURIFICATION OF PROCESS GASES BY CATALYTIC OXIDATION

Matthias Brueck, Rodenbach, and Hans Reitz, Rosbach, both of Germany, assignors to Zimmer Aktiengesellschaft, Germany

Continuation-in-part of Ser. No. 398,969, Mar. 2, 1995, abandoned. This application May 13, 1996, Ser. No. 645,137

Claims priority, application Germany, Aug. 31, 1994, 44 30 938.4

Int. Cl.⁶ B01J *8/00*

U.S. Cl. 423—210 **9 Claims**

1 A continuous process for purifying a gas from the thermal solid-phase treatment of condensation polymers which is carried out in the presence of an inert process gas essentially free of oxygen, which inert process gas absorbs small quantities of impurities generated during said treatment, and said inert process gas having laid impurities is purified for recycling back to said thermal solid-phase treatment, the improvement for purifying said inert process gas having said impurities for reuse which comprises

catalytically oxidizing the impurities in said inert process gas having said impurities to carbon oxides, including carbon monoxide, by adding oxygen to said gas, whereby the quantity of oxygen remaining in the purified gas ranges from 0-10 vpm and maintaining said quantity of oxygen in the range of 0-10 vpm in the purified gas by continuously measuring the carbon monoxide content of said purified gas and adjusting the quantity of oxygen added in the catalytic oxidation in response to this measurement such that the quantity of carbon monoxide in the purified gas is in the range of 30–1000 vpm.

5,738,836

COMPOSITION FOR STABILIZING RADIOLABELED ORGANIC COMPOUNDS

Nadine Michele Loretta Gan, Newton Centre; Gary Thomas Overmeyer, Tewksbury, and Douglas Roger Dennistoun Shaw, Cambridge, all of Mass., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 496,147, Jun. 28, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 807,934

Int. Cl.⁶ A61K *51/00;* **C07F** *5/00;* **C07K** *16/00*

U.S. Cl. 424—1.41 **7 Claims**

1 A composition comprising an organic compound labeled with a β-emitting radionuclide together with a separate, stabilizing effective amount of a non-radiolabeled stabilizing compound wherein said stabilizing effective amount is that amount which is beneficial in preventing the decomposition of an organic compound labeled with a β-emitting radionuclide, said stabilizing compound is selected from the group consisting of (i) heteroayls having at least one nitrogen atom, said heteroaryl being substituted with at least one sulfur-containing moiety selected from the group consisting of thiol and thiocarbonyl provided that the nitrogen atoms are not adjacent to one another; (ii) aryls being substituted with at least one nitrogen-containing moiety selected from the group consisting of amino and isothiocyanate and with at least one sulfur-containing moiety selected from the group consisting of sulfonamide, sulfonate, and thiol; and (iii) alkylamines having at least one to four carbon atoms, said alkylamine being substituted with at least one sulfur-containing moiety selected from the group consisting of thioacid and thiocarbonyl provided that when the sulfur-containing moiety is a thioacid then the aminoalkyl contain only one nitrogen atom.

5,738,837

LANTHANIDE PARAMAGNETIC AGENTS FOR MAGNETOMETRIC IMAGING

Jo Klaveness; Thorfinn Ege, both of Oslo, Norway, and Scott M. Rocklage, Los Gatos, Calif., assignors to Nycomed Imaging AS, Oslo, Norway

Division of Ser. No. 930,521, Nov. 6, 1992, Pat. No. 5,384,109. This application Nov. 14, 1994, Ser. No. 339,740

Claims priority, application United Kingdom, Apr. 2, 1990, 90 07408

Int. Cl.⁶ A61B *5/055*

U.S. Cl. 424—9.36 **15 Claims**

1 A method of generating a magnetometric image of a human or non-human animal body comprising administering to said body a physiologically tolerable paramagnetic lanthanide compound and generating a magnetometric signal of at least part of said body into which said compound distributes.

5,738,838

IKVAV PEPTIDE RADIOPHARMACEUTICAL APPLICATIONS

Paul O. Zamora, Albuquerque, N. Mex., assignor to Rhomed Incorporated, Albuquerque, N. Mex.

Continuation-in-part of Ser. No. 840,077, Feb. 20, 1992, Pat. No. 5,443,816. This application Dec. 30, 1992, Ser. No. 998,820

Int. Cl.⁶ A61K *49/00;* **G01N** *33/15*

U.S. Cl. 424—9.341 **16 Claims**

1 A method of performing a diagnostic procedure in a patient, comprising the steps of:

a) preparing a medically useful metal ion-labeled peptide comprising a peptide sequence comprising the sequence IKVAV (SEQ. ID NO. 1) and a medically useful metal ion; and

b) administering an effective amount of the medically useful metal ion-labeled peptide to the patient

5,738,839

GELLED EMULSION PARTICLES AND THE COMPOSITIONS IN WHICH THEY ARE PRESENT

Anne Clement, Paris; Pierre Fodor, Vaucresson; Gérard Guth, Montmorency, and Nathalie Thiollet, Madagascar, all of France, assignors to Helene Rubenstein, Inc., Wilmington, Del.

Continuation of Ser. No. 332,497, Oct. 31, 1994, Pat. No. 5,508,022, which is a continuation of Ser. No. 18,376, Feb. 16, 1993, abandoned, which is a division of Ser. No. 330,601, Mar. 29, 1989, Pat. No. 5,208,028. This application Jun. 6, 1995, Ser. No. 470,493

Claims priority, application France, Mar. 29, 1988, 88 04105

Int. Cl.⁶ A61K *9/10*

U.S. Cl. 424—43 **16 Claims**

1. A package comprising a container containing gelled particles and an inclusion medium selected from the group consisting of solutions, gels obtained with a water-dispersible gelling agent, emulsions having an aqueous external phase, said container being equipped with dispensing means such that passage therethrough causes said gelled particles, by mechanical action, to blend with said inclusion medium, said gelled particles produced by adding to a gelling solution discrete volumes of at least one emulsion containing at least one active ingredient and having an aqueous external phase containing in solution therein a soluble reagent which produces gelling at least at the peripheries of said discrete volumes upon reaction with said gelling solution.

5,738,840

ORAL RINSE AND METHOD OF TREATING HALITOSIS

Jon L. Richter, Philadelphia, Pa., assignor to Profresh Properties, Inc., Philadelphia, Pa.

Continuation of Ser. No. 366,087, Dec. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 224,642, Apr. 7, 1994, abandoned. This application Feb. 14, 1997, Ser. No. 801,106

Int. Cl.⁶ A61K *7/20, 33/20*

U.S. Cl. 424—53 **20 Claims**

1 A method for the treatment and prevention of malodor of the oral cavity, or halitosis, comprising rinsing the oral cavity with an aqueous solution of molecular chlorine dioxide and a metal chlorite salt, said metal chlorite salt being present in an amount sufficient to maintain said molecular chlorine dioxide at a concentration of about 3 ppm to about 200 ppm and at a pH of about 5.0 to about 7.5 in the solution, until post-treatment levels of volatile sulfur compounds which cause the malodor are reduced below pre-treatment levels.

5,738,841

COSMETIC COMPOSITION COMPRISING A SILICONE-CONTAINING COMPOUND AND A FATTY ACID ESTER

Myriam Mellul, L'Hay-Les-Roses, and Pascal Arnaud, Creteil, both of France, assignors to L'Oreal, France

Filed Jan. 26, 1996, Ser. No. 592,511

Claims priority, application France, Jan. 30, 1995, 95 01040

Int. Cl.⁶ A61K *7/42*

U.S. Cl. 424—59 **18 Claims**

1 A care product and/or a makeup product for the skin and/or keratinous material comprising an anhydrous composition comprising, in a fatty phase, at least one silicone-containing compound and octyldodecyl neopentanoate, wherein the product is applied to the skin and/or keratinous material in the anhydrous form

5,738,842

SUN PROTECTING COSMETIC COMPOSITIONS COMPRISING DERIVATIVES OF DIBENZOYLMETHANE, OF DIPHENYLCYANOACRYLIC ACID AND OF TRIAZINE

Giuseppe Raspanti, and Alverio Malpede, both of Bergamo, Italy, assignors to 3V Inc., Weehawken, N.J.

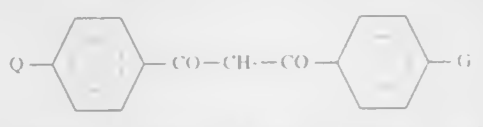
Filed Nov. 29, 1996, Ser. No. 753,759

Int. Cl.⁶ A61K *7/42; 31/53; 31/275; 31/12*

U.S. Cl. 424—59 **13 Claims**

1. A cosmetic composition comprising, in admixture with a cosmetic substrate, with respect to the total weight of the composition:

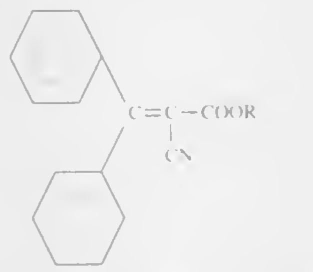
a) from 1 to 10% of one or more compounds of formula (I)



(I)

wherein Q is hydrogen, straight or branched C_1-C_4 alkoxy and G is straight or branched C_1-C_8 alkyl.

b) from 0.5 to 10% of one or more compounds of formula (II)



(II)

wherein R_1 is a straight or branched C_1-C_8 alkyl.

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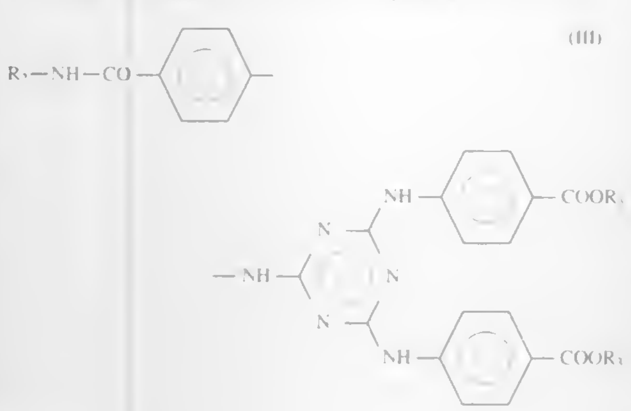
c) from 1 to 10% of one or more compounds of formula (III)



(III)

wherein

R_2 is straight or branched C_1–C_8 alkyl;

R_3 has the same meanings of R_2 or is hydrogen or an alkali metal;

with the condition that the weight ratio between the compounds of formula (II) and those of formula (I) is at least 0.5

5,738,843
NON-YELLOWING ARTIFICIAL FINGERNAIL COMPOSITION

Robert Eric Montgomery, Los Angeles, Calif., assignor to OPI Products, Inc., North Hollywood, Calif.

Continuation of Ser. No. 841,429, Feb. 26, 1992, abandoned. This application Mar. 17, 1997, Ser. No. 818,903

Int. Cl.⁶ A61K *7/043*

U.S. Cl. 424—61 **5 Claims**

1. An artificial fingernail composition consisting essentially of:

(i) a liquid binder, by total weight:

(a) from about 10 percent to about 95 percent of a methacrylate monomer selected from the group consisting of ethyl methacrylate, n-butyl methacrylate, isobutyl methacrylate, n-propyl methacrylate, isopropyl methacrylate, tert-butyl methacrylate, and combinations thereof,

(b) from about 1 percent to about 50 percent of a saturated alcohol compound selected from the group consisting of hydroxypropyl methacrylate, hydroxybutyl methacrylate, propylene glycol monomethyl ether, diethylene glycol monomethyl ether, isopropyl alcohol, propylene glycol, 1,4-butylene glycol, neopentyl glycol monomethacrylate, and combinations thereof,

(c) from about 0.1 percent to about 5.0 percent of a tertiary amine polymerization accelerator, selected from the group consisting of N,N-dimethyl-p-toluidine, N,N-dihydroxyethyl-p-touidine, N,N-dimethyl aniline, and 4-(dimethylamino)phenethyl alcohol, and

(d) from about 1 percent to about 80 percent of a di-,tri-, or multi-functional methacrylate crosslinker selected from the group consisting of ethylene allyl dimethacrylate, diethylene glycol dimethacrylate, triethylene glycol dimethacrylate, tetraethylene glycol dimethacrylate,, poly(ethylene glycol) dimethacrylate, 1,3-butanediol dimethacrylate, 1,4-butanediol dimethacrylate, 1,6-hexanediol dimethacrylate, 1,12-dodecanediol dimethacrylate, neopentyl glycol dimethacrylate trimethylolpropane trimethacrylate, and combinations thereof; and

(ii) a polymeric filler portion , by dry weight of filler:

(a) from about 95 percent to about 99.9 percent of a finely divided polymer selected from the group including, but, not limited to, poly(ethyl methacrylate), poly(methyl methacrylate), poly(ethyl-co-methyl methacrylate), poly(butyl methacrylate), poly(methyl-co-butyl methacrylate), poly(vinyl acetate), poly(vinyl butyral) and poly(ethyl-co-butyl methacrylate) and mixtures thereof,

(b) from about 0.1 percent to about 5.0 percent of an organic peroxide polymerization initiator

5,738,844
CYTOKINES THAT BIND THE CELL SURFACE RECEPTOR HEK

M. Patricia Beckmann, Poulsbo, and Douglas P. Cerretti, Seattle, both of Wash., assignors to Immunex Corporation, Seattle, Wash.

Division of Ser. No. 240,124, May 9, 1994, Pat. No. 5,516,658, which is a continuation-in-part of Ser. No. 161,132, Dec. 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 114,426, Aug. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 109,745, Aug. 20, 1993, abandoned. This application May 30, 1995, Ser. No. 453,943

Int. Cl.⁶ C07K *14/52;* A61K *38/19*

U.S. Cl. 424—85.1 **24 Claims**

1. A purified hek ligand (hek-L) protein that binds hek, wherein said hek-L protein is a fragment of the hek-L polypeptide presented in SEQ ID NO:2, wherein said fragment binds hek.

5,738,845
HUMAN INTERFERON τ PROTEINS AND METHODS OF USE

Kazuhiko Imakawa, Derby, Kans., assignor to The Women's Research Institute, Wichita, Kans.

Continuation of Ser. No. 438,753, May 10, 1995, which is a continuation-in-part of Ser. No. 139,891, Oct. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 847,741, Mar. 9, 1992, abandoned, which is a continuation-in-part of Ser. No. 318,050, Mar. 2, 1989, abandoned, said Ser. No. 139,891 is a continuation-in-part of Ser. No. 969,890, Oct. 30, 1992, abandoned. This application May 31, 1995, Ser. No. 443,883

Int. Cl.⁶ C07K *14/555;* A61K *38/21;* C12N *15/20*

U.S. Cl. 424—85.4 **18 Claims**

1. An isolated human interferon-τ protein comprising an amino acid sequence encoded by a nucleic acid molecule present in a human DNA library, wherein the coding sequence of said nucleic acid molecule exhibits at least 95% identity to the coding sequence set forth in SEO ID NO: 43, 29, 33, 25, 27, 21, or 23.

7. A method of inhibiting the replication of a virus within cells infected by the virus, comprising the step of contacting the infected cells with a human interferon-τ protein according to claim 1 at a concentration effective to inhibit the replication of the virus within the cells.

10. A method according to claim 7, wherein the virus is a DNA virus.

5,738,846
INTERFERON POLYMER CONJUGATES AND PROCESS FOR PREPARING THE SAME

Richard B. Greenwald, Somerset, and Carl W. Gilbert, Basking Ridge, both of N.J., assignors to Enzon, Inc., Piscataway, N.J.

Continuation-in-part of Ser. No. 337,567, Nov. 10, 1994. This application Nov. 21, 1995, Ser. No. 561,616

Int. Cl.⁶ A61K *38/21*

U.S. Cl. 424—85.7 **46 Claims**

1. A process for preparing interferon-polymer conjugates, comprising: reacting an interferon with a bis-activated substantially non-antigenic polymer in a molar ratio of substantially non-antigenic polymer to interferon of from about 0.125:1 to about 1:1 under conditions sufficient to effect covalent conjugation of said interferon and said polymer and form a reaction mixture containing mono-interferon-polymer conjugates and bis-interferon polymer conjugates wherein the bis-interferon polymer conjugates contain a single strand of substantially non-antigenic polymer with two molecules of interferon covalently attached to said polymer, one to the alpha terminus and one to the omega terminus of the polymer.

5,738,847
ANTI-VH3-15 REAGENTS AND METHODS FOR THEIR USE

Jonathan Braun, Encino, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Sep. 19, 1994, Ser. No. 309,025

Int. Cl.⁶ A61K *39/395;* C12P *21/04;* G01N *33/53*

U.S. Cl. 424—141.1 **10 Claims**

1. A BK2 hybridoma having ATCC accession number HB 11720.

5,738,848
IMMUNOSUPPRESSIVE COMPOUNDS AND METHOD OF PREPARING SAME

Naoshi Kamada, 13 Stawell Place, Middle Park, Queensland 4074, Australia

PCT No. PCT/AU95/00072, § 371 Date Aug. 14, 1996, § 102(e) Date Aug. 14, 1996, PCT Pub. No. WO95/22559, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 16, 1995, Ser. No. 696,991

Claims priority, application Australia, Feb. 16, 1994, PM3918; Feb. 16, 1994, PM3919; Feb. 16, 1994, PM3920

Int. Cl.⁶ A61K *38/17;38/02,* C07K *2/00*

U.S. Cl. 424—185.1 **12 Claims**

1. A protein which suppresses allograft rejection in rats, which protein is found in serum of a post liver transplantation rat but is not normally found in serum and is a protein having a molecular weight selected from the group consisting of about 10 kD, about 40 kD and about 87 kD, as determined by SDS-PAGE under reducing conditions

5,738,849
INTERLEUKIN-3 (IL-3) VARIANT FUSION PROTEINS, THEIR RECOMBINANT PRODUCTION, AND THERAPEUTIC COMPOSITIONS COMPRISING THEM

S. Christopher Bauer, New Haven; Mark Allen Abrams; Sarah Ruth Braford-Goldberg, both of St. Louis; Maire Helena Caparon, Chesterfield; Alan Michael Easton, Maryland Heights; Barbara Kure Klein, St. Louis; John Patrick McKearn; Peter O. Olins, both of Glencoe; Kumnan Paik, Ballwin, and John Warren Thomas, Town & Country, all of Mo., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation-in-part of Ser. No. 411,796, Apr. 6, 1995, which is a continuation-in-part of Ser. No. 981,044, Nov. 24, 1992, abandoned. This application Feb. 4, 1994, Ser. No. 192,299

The portion of the term of this patent subsequent to Oct. 14, 2017, has been disclaimed.

Int. Cl.⁶ A61K *38/19;38/20;* C12N *15/62;* C07K *14/54*

U.S. Cl. 424—192.1 **44 Claims**

2. A fusion protein comprising a polypeptide having a sequence selected from the group consisting of:

R_1—L—R_2, R_2—L—R_1, R_1—R_2, R_2—R_1, Met—Ala—R_1—L—R_2, Met—Ala—R_2—L—R_1, Met—Ala—R_1—R_2, Met—Ala—R_2—R_1, Met—R_1—L—R_2, Met—R_2—L—R_1, Met—R_1—R_2, Met—R_2—R_1, Ala—R_1—L—R_2, Ala—R_2—L—R_1, Ala—R_1—R_2 and Ala—R_2—R_1,

wherein R_1 is a human interleukin-3 mutant polypeptide sequence of SEQ ID NO:1:

wherein

Xaa at position 17 is Ser, Lys, Gly, Asp, Met, Gln, or Arg;
Xaa at position 18 is Asn, His, Leu, Ile, Phe, Arg, or Gln;
Xaa at position 19 is Met, Phe, Ile, Arg, Gly, Ala, or Cys;
Xaa at position 20 is Ile, Cys, Gln, Glu, Arg, Pro, or Ala;
Xaa at position 21 is Asp, Phe, Lys, Arg, Ala, Gly, Glu, Gln, Asn, Thr, Ser or Val;
Xaa at position 22 is Glu, Trp, Pro, Ser, Ala, His, Asp, Asn, Gln, Leu, Val or Gly;
Xaa at position 23 is Ile, Val, Ala, Leu, Gly, Trp, Lys, Phe, Ser, or Arg;
Xaa at position 24 is Ile, Gly, Val, Arg, Ser, Phe, or Leu;
Xaa at position 25 is Thr, His, Gly, Gln, Arg, Pro, or Ala;
Xaa at position 26 is His, Thr, Phe, Gly, Arg, Ala, or Trp;
Xaa at position 27 is Leu, Gly, Arg, Thr, Ser, or Ala;
Xaa at position 28 is Lys, Arg, Leu, Gln, Gly, Pro, Val or Trp;
Xaa at position 29 is Gln, Asn, Leu, Pro, Arg, or Val;
Xaa at position 30 is Pro, His, Thr, Gly, Asp, Gln, Ser, Leu, or Lys;
Xaa at position 31 is Pro, Asp, Gly, Ala, Arg, Leu, or Gln;
Xaa at position 32 is Leu, Val, Arg, Gln, Asn, Gly, Ala, or Glu;
Xaa at position 33 is Pro, Leu, Gln, Ala, Thr, or Glu;
Xaa at position 34 is Leu, Val, Gly, Ser, Lys, Glu, Gln, Thr, Arg, Ala, Phe, Ile or Met;
Xaa at position 35 is Leu, Ala, Gly, Asn, Pro, Gln, or Val;
Xaa at position 36 is Asp, Leu, or Val;
Xaa at position 37 is Phe, Ser, Pro, Trp, or Ile;
Xaa at position 38 is Asn, or Ala;
Xaa at position 40 is Leu, Trp, or Arg;
Xaa at position 41 is Asn, Cys, Arg, Leu, His, Met, or Pro;
Xaa at position 42 is Gly, Asp, Ser, Cys, Asn, Lys, Thr, Leu, Val, Glu, Phe, Tyr, Ile, Met or Ala;
Xaa at position 43 is Glu, Asn, Tyr, Leu, Phe, Asp, Ala, Cys, Gln, Arg, Thr, Gly or Ser;
Xaa at position 44 is Asp, Ser, Leu, Arg, Lys, Thr, Met, Trp, Glu Asn, Gln, Ala or Pro;
Xaa at position 45 is Gln, Pro, Phe, Val, Met, Leu, Thr, Lys, Trp, Asp, Asn, Arg, Ser, Ala, Ile, Glu or His;
Xaa at position 46 is Asp, Phe, Ser, Thr, Cys, Glu, Asn, Gln, Lys, His, Ala, Tyr, Ile, Val or Gly;
Xaa at position 47 is Ile, Gly, Val, Ser, Arg, Pro, or His;
Xaa at position 48 is Leu, Ser, Cys, Arg, Ile, His, Phe, Glu, Lys, Thr, Ala, Met, Val or Asn;
Xaa at position 49 is Met, Arg, Ala, Gly, Pro, Asn, His, or Asp;
Xaa at position 50 is Glu, Leu, Thr, Asp, Tyr, Lys, Asn, Ser, Ala, Ile, Val, His, Phe, Met or Gln;
Xaa at position 51 is Asn, Arg, Met, Pro, Ser, Thr, or His;
Xaa at position 52 is Asn, His, Arg, Leu, Gly, Ser, or Thr;
Xaa at position 53 is Leu, Thr, Ala, Gly, Glu, Pro, Lys, Ser, or Met;
Xaa at position 54 is Arg, Asp, Ile, Ser, Val, Thr, Gln, Asn, Lys, His, Ala or Leu;
Xaa at position 55 is Arg, Thr, Val, Ser, Leu, or Gly;
Xaa at position 56 is Pro, Gly, Cys, Ser, Gln, Glu, Arg, His, Thr, Ala, Tyr, Phe, Leu, Val or Lys;
Xaa at position 57 is Asn or Gly;
Xaa at position 58 is Leu, Ser, Asp, Arg, Gln, Val, or Cys;
Xaa at position 59 is Glu, Tyr, His, Leu, Pro, or Arg;
Xaa at position 60 is Ala, Ser, Pro, Tyr, Asn, or Thr;
Xaa at position 61 is Phe, Asn, Glu, Pro, Lys, Arg, or Ser;
Xaa at position 62 is Asn, His, Val, Arg, Pro, Thr, Asp, or Ile;
Xaa at position 63 is Arg, Tyr, Trp, Lys, Ser, His, Pro, or Val;
Xaa at position 64 is Ala, Asn, Pro, Ser, or Lys;
Xaa at position 65 is Val, Thr, Pro, His, Leu, Phe, or Ser;
Xaa at position 66 is Lys, Ile, Arg, Val, Asn, Glu, or Ser;
Xaa at position 67 is Ser, Ala, Phe, Val, Gly, Asn, Ile, Pro, or His;
Xaa at position 68 is Leu, Val, Trp, Ser, Ile, Phe, Thr, or His;
Xaa at position 69 is Gln, Ala, Pro, Thr, Glu, Arg, Trp, Gly, or Leu;
Xaa at position 70 is Asn, Leu, Val, Trp, Pro, or Ala;
Xaa at position 71 is Ala, Met, Leu, Pro, Arg, Glu, Thr, Gln, Trp, or Asn;
Xaa at position 72 is Ser, Glu, Met, Ala, His, Asn, Arg, or Asp;
Xaa at position 73 is Ala, Glu, Asp, Leu, Ser, Gly, Thr, or Arg;
Xaa at position 74 is Ile, Met, Thr, Pro, Arg, Gly, Ala
Xaa at position 75 is Glu, Lys, Gly, Asp, Pro, Trp, Arg, Ser, Gln, or Leu;
Xaa at position 76 is Ser, Val, Ala, Asn, Trp, Glu, Pro, Gly, or Asp.

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Xaa at position 77 is Ile, Ser, Arg, Thr, or Leu.
Xaa at position 78 is Leu, Ala, Ser, Glu, Phe, Gly, or Arg;
Xaa at position 79 is Lys, Thr, Asn, Met, Arg, Ile, Gly, or Asp;
Xaa at position 80 is Asn, Trp, Val, Gly, Thr, Leu, Glu, or Arg;
Xaa at position 81 is Leu, Gln, Gly, Ala, Trp, Arg, Val, or Lys;
Xaa at position 82 is Leu, Gln, Lys, Trp, Arg, Asp, Glu, Asn, His, Thr, Ser, Ala, Tyr, Phe, Ile, Met or Val;
Xaa at position 83 is Pro, Ala, Thr, Trp, Arg, or Met;
Xaa at position 84 is Cys, Glu, Gly, Arg, Met, or Val;
Xaa at position 85 is Leu, Asn, Val, or Gln;
Xaa at position 86 is Pro, Cys, Arg, Ala, or Lys.
Xaa at position 87 is Leu, Ser, Trp, or Gly.
Xaa at position 88 is Ala, Lys, Arg, Val, or Trp;
Xaa at position 89 is Thr, Asp, Cys, Leu, Val, Glu, His, Asn, or Ser;
Xaa at position 90 is Ala, Pro, Ser, Thr, Gly, Asp, Ile, or Met;
Xaa at position 91 is Ala, Pro, Ser, Thr, Phe, Leu, Asp, or His;
Xaa at position 92 is Pro, Phe, Arg, Ser, Lys, His, Ala, Gly, Ile or Leu;
Xaa at position 93 is Thr, Asp, Ser, Asn, Pro, Ala, Leu, or Arg;
Xaa at position 94 is Arg, Ile, Ser, Glu, Leu, Val, Gln, Lys, His, Ala, or Pro;
Xaa at position 95 is His, Gln, Pro, Arg, Val, Leu, Gly, Thr, Asn, Lys, Ser, Ala, Trp, Phe, Ile, or Tyr;
Xaa at position 96 is Pro, Lys, Tyr, Gly, Ile, or Thr;
Xaa at position 97 is Ile, Val, Lys, Ala, or Asn;
Xaa at position 98 is His, Ile, Asn, Leu, Asp, Ala, Thr, Glu, Gln, Ser, Phe, Met, Val, Lys, Arg, Tyr or Pro;
Xaa at position 99 is Ile, Leu, Arg, Asp, Val, Pro, Gln, Gly, Ser, Phe, or His;
Xaa at position 100 is Lys, Thr, Leu, His, Arg, Ile, Ser, Gln, or Pro;
Xaa at position 101 is Asp;
Xaa at position 102 is Gly, Leu, Glu, Lys, Ser, Tyr, or Pro;
Xaa at position 103 is Asp, or Ser;
Xaa at position 104 is Trp, Val, Cys, Tyr, Thr, Met, Pro, Leu, Gln, Lys, Ala, Phe, or Gly;
Xaa at position 105 is Asn, Pro, Ala, Phe, Ser, Trp, Gln; Tyr, Leu, Lys, Ile, Asp, or His;
Xaa at position 106 is Glu, Ser, Ala, Lys, Thr, Ile, Gly, or Pro,
Xaa at position 108 is Arg, Lys, Asp, Leu, Thr, Ile, Gln, His, Ser, Ala or Pro;
Xaa at position 109 is Arg, Thr, Pro, Glu, Tyr, Leu, Ser, or Gly;
Xaa at position 110 is Lys, Ala, Asn, Thr, Leu, Arg, Gln, His, Glu, Ser, Ala, or Trp;
Xaa at position 111 is Leu, Ile, Arg, Asp, or Met;
Xaa at position 112 is Thr, Val, Gln, Tyr, Glu, His, Ser, or Phe;
Xaa at position 113 is Phe, Ser, Cys, His, Gly, Trp, Tyr, Asp, Lys, Leu, Ile, Val or Asn,
Xaa at position 114 is Tyr, Cys, His, Ser, Trp, Arg, or Leu;
Xaa at position 115 is Leu, Asn, Val, Pro, Arg, Ala, His, Thr, Trp, or Met;
Xaa at position 116 is Lys;
Xaa at position 117 is Thr, Ser, Asn, Ile, Trp, Lys, or Pro;
Xaa at position 118 is Leu, Ser, Pro, Ala, Glu, Cys, Asp, or Tyr;
Xaa at position 119 is Glu, Ser, Lys, Pro, Leu, Thr, Tyr, or Arg;
Xaa at position 120 is Asn, Ala, Pro, Leu, His, Val, or Gln;
Xaa at position 121 is Ala, Ser, Ile, Asn, Pro, Lys, Asp, or Gly;
Xaa at position 122 is Gln, Ser, Met, Trp, Arg, Phe, Pro, His, Ile, Tyr, or Cys;
Xaa at position 123 is Ala, Met, Glu, His, Ser, Pro, Tyr, or Leu;

wherein from 1 to 3 of the amino acids designated by Xaa are different from the corresponding amino acids of native (1–133)human interleukin-3; wherein from 1 to 14 amino acids can optionally be deleted from the N-terminus and/or from 1 to 15 amino acids can optionally be deleted from the C-terminus of said human interleukin-3 mutant polypeptide sequence; and wherein a polypeptide having only said human interleukin-3 mutant polypeptide sequence has at least three times greater cell proliferative activity than native human interleukin-3, in at least one assay selected from the group consisting of: AML cell proliferation, TF-1 cell proliferation, and methylcellulose assay;

R_2 is a factor selected from the group consisting of: GM-CSF, CSF-1, G-CSF, G-CSF (Ser ^{17}), Meg-CSF, M-CSF, erythropoietin (EPO), IL-1, IL-4, IL-2, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, LIF, flt3/flk2, human growth hormone, B-cell growth factor, B-cell differentiation factor, eosinophil differentiation factor and stem cell factor (SCF); and

L is a linker capable of linking R_1 to R_2.

5,738,850
THERAPEUTIC COMPOSITION FOR THE TREATMENT OF SKIN LESIONS AND METHODS FOR ITS PREPARATION

Horst Walter Hendricks, and Sabine Hendricks, both of Weseler Str. 20, D-47169 Duisburg, Germany

PCT No. PCT/EP95/01884, § 371 Date Feb. 10, 1997, § 102(e) Date Feb. 10, 1997, PCT Pub. No. WO95/32723, PCT Pub. Date Dec. 7, 1995

PCT Filed May 17, 1995, Ser. No. 750,137

Claims priority, application Germany, May 31, 1994, 44 18 976.1

Int. Cl.^{6} A61K *35/78*

U.S. Cl. 424—195.1 **6 Claims**

1. A therapeutic composition for the treatment of skin lesions consisting of an effective amount of extracts of sage, ribwort plantain, greater plantain and mistletoe, and either a water-soluble preservative or a fat-soluble preservative

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5,738,851
METHOD OF REPELLING DEER

Rose Anne Colavito, 9 Ninebark La., P.O. Box 162, Oxford, N.J. 07863

Filed Jan. 22, 1997, Ser. No. 786,273

Int. Cl.^{6} A61K *35/78*

U.S. Cl. 424—195.1 **16 Claims**

2. A method for protecting foliage from browsing by deer, comprising spraying on the foliage an effective amount of a deer repellant obtained from plants selected from the group of Amaryllidaceae consisting of Narcissus (common name Daffodil), *Amaryllis Belladona* (common name Naked Lady), *Crinium x Powellii* (common name Crinium Lily), *Cyrthanthus Elatus* (also known as *Vallota Purpurea*; common name Scarborough Lily), Scadoxus (Haemanthus) Multiflorus (common name Blood Lily), *Sprekelia Formosisium* (common name Jacobean Lily), *Nerine Bowdenii, Nerine Sarniensis, Eucharis Amazonica* (common name Fairy or Rain Lily), Galanthus (common name Snowdrops), *Chlidanthus Fragrans*, Leucojum (common name Snowflake), Sternbergia (common name Fall Daffodil), Hippeastrum (common name Amaryllis), Hymenocallis (common name Peruvian Dalfodil), *Pamianthe Peruviana, Phaedranassa Carmioli*, and Habranthus.

5,738,852
METHODS OF ENHANCING ANTIGEN-SPECIFIC T CELL RESPONSES

William S. Robinson, and Keting Chu, both of Palo Alto, Calif., assignors to Solis Therapeutics, Inc., Palo Alto, Calif.

PCT No. PCT/US94/04367, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO94/24267, PCT Pub. Date Oct. 27, 1994

Continuation-in-part of Ser. No. 49,259, Apr. 20, 1993, abandoned. This PCT application Apr. 20, 1994, Ser. No. 663,157

Int. Cl.^{6} A61K *39/00;45/05;48/00;* **C12N** *15/86*

U.S. Cl. 424—199.1 **15 Claims**

1. A method of enhancing an antigen-specific T cell response in an individual to a target antigen comprising administering at least one polynucleotide sequence encoding at least one target antigen or a portion of the target antigen and at least one polynucleotide sequence encoding at least one B7 costimulatory molecule that interacts with T cell surface molecules for T cell activation, said polynucleotide sequences expressed in an amount effective to enhance a T cell response to eliminate cells bearing said target antigen or portion thereof, when said polynucleotide sequence encoding the target antigen and said polynucleotide sequence encoding the B7 costimulatory molecule are expressed in said individual.

5,738,853
SYNTHETIC HPV11 VIRUS-LIKE PARTICLES

Steven Ludmerer, Pieataway; George E. Mark, III, Princeton Junction, and Diana Benincasa, Elizabeth, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Oct. 24, 1996, Ser. No. 738,509

Int. Cl.^{6} A61K *39/12;39/395,* **C12N** *15/00;* **A01N** *37/18*

U.S. Cl. 424—204.1 **1 Claim**

1 Synthetic virus-like particles generated from any of the following constructs:

a) HPV6:4, wherein HPV6 L1 gene has been mutated so that it encodes a protein wherein amino acid residues 131, 245, and 277 are the same as amino acid residues 131, 246, and 278 in HPV 11 L1 protein, and after amino acid residue 131 of HPV6 L1, a tyrosine residue has been inserted;

b) HPV6:5, which contain the same mutations as HPV6:4 and additionally has been further mutated so that it encodes a protein which, in addition to the mutations in a), amino acid residue 345 is the same as amino acid residue 346 in HPV11 L1 protein;

c) HPV6:2, wherein HPV6 L1 gene has been mutated so that it encodes a protein wherein amino acid 131 is the same as in HPV11 L1 protein, and additionally a tyrosine residue has been inserted as amino acid 132;

d) HPV6:4Δ132 which contains the same mutations as HPV6:4, except that there is no insertion of a tyrosine residue after amino acid 131; and

e) HPV6:4,S131G which contains the same mutations as HPV6:4, except that amino acid residue 131 is glycine.

5,738,854
PSEUDORABIES VIRUS VACCINE

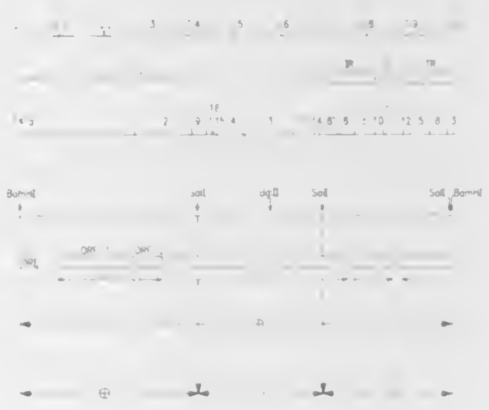
Thomas Christoph Mettenleiter, Tuebingen, Germany, assignor to Akzo Nobel N.V., Arnhem, Netherlands

Continuation of Ser. No. 244,446, Jun. 2, 1994, abandoned. This application Jul. 22, 1996, Ser. No. 681,129

Claims priority, application Netherlands, Oct. 6, 1992, 922030796

Int. Cl.^{6} A61K *39/245;* **C12N** *5/10;7/04;15/38*

U.S. Cl. 424—205.1 **10 Claims**



1 An isolated DNA molecule consisting of a nucleotide sequence encoding the protein shown in SEQ ID NO:2.

5,738,855
SYNTHESIS OF TYPHOID FEVER VACCINE FROM A PLANT OR FRUIT POLYSACCHARIDE

Shousun Chen Szu, Bethesda, and Slavomir Bystricky, Silver Springs, both of Md., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.

Filed Oct. 17, 1994, Ser. No. 323,918

Int. Cl.^{6} A61K *39/00;39/385;45/00,* **C07G** *17/00*

U.S. Cl. 424—258.1 **49 Claims**

1 A method to prepare an immunogenic modified plant, fruit or synthetic oligogalaturonate or polygalacturonate-carrier conjugate against *Salmonella typhi* comprising:

(a) O-acetylating a plant, fruit or synthetic oligogalacturonate or a polygalacturonate to form a modified plant, fruit or synthetic O-acetylated oligogalaturonate or a modified plant, fruit or synthetic O-acetylated polygalacturonate,

(b) conjugating the modified plant, fruit or synthetic O-acetylated oligogalacturonate or the modified plant, fruit or synthetic O-acetylated polygalacturonate to a carrier to form the modified plant, fruit or synthetic oligogalacturonate or modified plant, fruit or synthetic polygalacturonate-carrier conjugate which is immunogenic against *Salmonella typhi*.

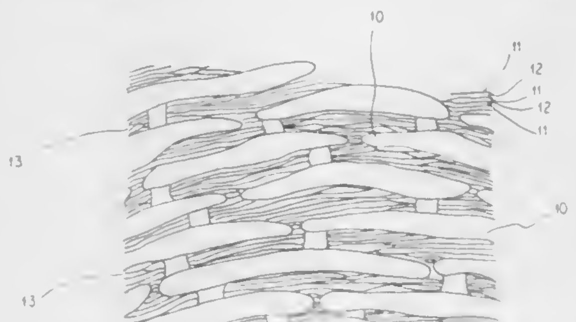
5,738,856
SKIN CARE PREPARATION AND METHOD

Donald R. Korb, Boston, Mass.; Thomas Glonek, Oak Park, Ill., and Jack V. Greiner, Winchester, Mass., assignors to Ocular Research of Boston, Inc., Boston, Mass.

Filed Nov. 3, 1995, Ser. No. 552,426

Int. Cl.^{6} A61K *7/48*

U.S. Cl. 424—401 **18 Claims**



1. A method for treatment of human skin by enhancing formation of lamellae between corneocytes within the skin, said method comprising topical application of a pharmaceutically acceptable composition to the skin, said composition consisting of a carrier, an efficacious amount of a neutral oil and an efficacious amount of a bilayer component that is a mixture of a negatively charged phospholipid and a triglyceride

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5,738,857
COSMETIC COMPOSITIONS COMPRISING ORGANOSILOXANES

Johann Sejpka, Marktl, and Annemarie Huber, Perach, both of Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

Continuation of Ser. No. 201,515, Feb. 24, 1994, abandoned. This application Feb. 6, 1996, Ser. No. 597,328

Claims priority, application Germany, Mar. 2, 1993, 43 06 481.7

Int. Cl.^{6} A61K *7/48*

U.S. Cl. 424—401 **5 Claims**

1 A cosmetic composition consisting essentially of,

(A) a waxy organosiloxane, which is solid at room temperature, of the formula

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$$R^1R_2Si—O—SiR_2R^1 \quad (I),$$

in which

R is identical or different and represents an alkyl radical having 1 to 4 carbon atoms and

R is identical or different and represents a linear alkyl radical having at least 16 carbon atoms,

(B) a volatile organosiloxane chosen from the group consisting of hexamethyldisiloxane, octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane and mixtures thereof,

and

(C) substances customary for formulation of cosmetic compositions selected from the group consisting of, animal, mineral, vegetable or synthetic oils, waxes or resins, wetting agents, fatty alcohols, emulsifiers, ultra violet (U.V.), absorbers, organic solvents, thickening agents, dyestuffs, pigments, pH regulators, reducing agents, electrolytes, clouding additives preservatives, antioxidants, aqueous agents, perfumes, antiseborrheic agents and mixtures thereof

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5,738,858

SKIN CARE COMPOSITIONS CONTAINING FATTY HYDROXYETHYL IMIDAZOLINE SURFACTANTS AND RETINOL OR RETINYL ESTER

Allan Robert Burger, Passaic, N.J., assignor to Cheseborough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Sep. 27, 1996, Ser. No. 721,875

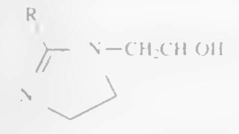
Int. Cl.^{6} A61K *7/48*

U.S. Cl. 424—401 **3 Claims**

1. A skin conditioning composition comprising

(a) from about 0.001% to about 10% of a compound selected from the group consisting of retinol and (a) retinyl palmitate;

(b) from about 0.0001% to about 50% of a fatty hydroxyethyl imidazoline surfactant having the following structure.



wherein R is an aliphatic saturated or unsaturated, straight or branched hydro-carbon chain containing from 11 to 18 carbon atoms; and

(c) a cosmetically acceptable vehicle.

5,738,859

COSMETIC COMPOSITION

Robert M. Posner, Merrick, N.Y., assignor to Abbe Cosmetic Group International, Inc., Farmingdale, N.Y.

Filed Jan. 17, 1997, Ser. No. 783,947

Int. Cl.^{6} A61K *7/00*

U.S. Cl. 424—401 **19 Claims**

1. A composition for topical application to the skin, comprising silicone in a range of about 70% to about 90%, hydrophobic sphingolipid complex of a combination of ceramides, sphingolipids, and cholesterol in a silicone/emollient matrix, said hydrophobic sphingolipid complex being present in a range of about 5% to about 25%, and at least one component selected from the group consisting of squalane, vitamin A, vitamin C, vitamin E, beta carotene, evening primrose oil, avocado oil, and chamomile oil in a range up to 5%

5,738,860

NON-FIBROUS POROUS MATERIAL, WOUND DRESSING AND METHOD OF MAKING THE MATERIAL

Lars Schønfeldt, Snekkersten; Peter Sylvest Nielsen, Værløse, and Peter Boman Samuelsen, Rungsted Kyst, all of Denmark, assignors to Coloplast A/S, Humleback, Denmark

PCT No. PCT/DK94/00312, § 371 Date Mar. 29, 1996, § 102(e) Date Mar. 29, 1996, PCT Pub. No. WO95/05204, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 19, 1994, Ser. No. 596,322

Claims priority, application Denmark, Aug. 19, 1993, 0946/93

Int. Cl.^{6} A01N *25/34;* **A61L** *15/16*

U.S. Cl. 424—402 **26 Claims**

1. A non-fibrous porous material consisting essentially of one or more hydrophilic polymers and/or pharmaceutical water-soluble medicaments as well as optionally reinforcing elements and additives, characterized in that the material has a structure essentially in the form of elongate leaf formations, which essentially extend in the same vertical direction, and which are united in longitudinal areas to provide vertically elongate open pores located therebetween, and that the pore size varies systematically so that the pore size decreases vertically down through the material.

5,738,861

METHOD AND COMPOSITION FOR DISINFECTION OF A CONTAMINATED ENVIRONMENT

Ralph W. Emerson, and Bradford G. Crandall, Jr., both of Davis, Calif., assignors to Proguard, Inc., Suisun City, Calif.

Division of Ser. No. 485,002, Jun. 7, 1995. This application Nov. 22, 1995, Ser. No. 561,706

Int. Cl.^{6} A01N *25/34*

U.S. Cl. 424—403 **3 Claims**

1. A composition comprising

a porous solid selected from the group consisting of a wound dressing, a surgical gown, and a face mask impregnated with 0.01 to 5.0% by weight of a biocidal compound comprising one or more compounds selected from the group consisting of cinnamic aldehyde and coniferyl aldehyde by filtering an aqueous composition comprising said biocidal compound through said porous solid.

5,738,862

SOLID AND LIQUID COMPOSITIONS FOR DISPERSION OF INSECT REPELLENT BASED ON DEET

Carl J. Abraham, 3 Baker Hill Rd., Great Neck, N.Y. 11023

Continuation-in-part of Ser. No. 769,993, Dec. 19, 1996. This application Feb. 24, 1997, Ser. No. 803,803

Int. Cl.^{6} A61K *35/78;31/045;* **A01N** *9/02;9/20*

U.S. Cl. 424—403 **20 Claims**

1. A molded plastic for use in the manufacture of an article that can repel flying insects before the insects can land on a surface of the article comprising

a thermoplastic material which has a melting point of not greater than 225 degrees F., and

a liquid insect repellent imbedded in the thermoplastic material during molding thereof, the liquid insect repellent including a mixture of DEET and a fragrance oil having volatile fragrance components and retentive components which prevent flash off of the fragrance components, the flash off temperature of the fragrance oil being greater than the melting point of the thermoplastic material, the imbedded liquid insect repellant rising to the surface of the molded plastic at ambient temperatures so that portions of the fragrance components are vaporized and carry with them portions of the DEET into the proximate atmosphere to repel flying insects before they can land.

5,738,863

HONEY BEE REPELLENT COMPOSITION COMPRISING TEA TREE OIL

Bradley M. Sackin, 3030 Brookdale Rd., Studio City, Calif. 91604, and Yoram Fishman, 2375 Third St., Riverside, Calif. 92507

Continuation of Ser. No. 226,694, Apr. 12, 1994, abandoned. This application Jan. 15, 1997, Ser. No. 779,650

Int. Cl.^{6} A01N *27/00*

U.S. Cl. 424—405 **5 Claims**

1. A social stinging Insect repellent composition comprising about 2.5 to 20% tea tree oil, about 1.5 to 20% benzaldehyde, and 5 to 80% of an alcohol, based on the total weight of the composition, wherein said social stinging insect is a honey bee.

5,738,864

DRUG DELIVERY AGENTS INCORPORATING MITOMYCIN

Etienne Honore Schacht, Staden, Belgium; Ruth Duncan, London, United Kingdom, and Paolo Ferruti, Milan, Italy, assignors to European Community, Luxemburg, Germany

PCT No. PCT/IB94/00259, § 371 Date Feb. 20, 1996, § 102(e) Date Feb. 20, 1996, PCT Pub. No. WO95/05200, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 17, 1994, Ser. No. 602,733

Claims priority, application United Kingdom, Aug. 18, 1993, 9317213

Int. Cl.^{6} A61K *9/32;47/30,* **A01N** *43/38;25/08*

U.S. Cl. 424—426 **26 Claims**

1. A process for synthesizing a polymer/drug conjugate comprising a polymer carrier covalently coupled through linking spacer units to molecules of mitomycin-C or another therapeutically active mitomycin compound containing an >NH group in the aziridine ring thereof, said process comprising a first step of

(a) modifying said mitomycin-C or mitomycin compound to produce a reactive derivative thereof, either by

(i) reacting said mitomycin-C or mitomycin compound with an activating agent so as to convert the mitomycin aziridine ring >NH group into an activated group which reacts with aliphatic amines, or by

(ii) coupling the mitomycin aziridine ring >NH group through a covalent bond to a side chain which provides said spacer unit and which terminates in a primary amine reactive amino group —NH_2;

and then, in a subsequent separate stage,

(b) a second step of reacting said reactive mitomycin derivative with said polymer carrier which is presented in a form that contains at least one reactive group, thereby to establish a coupling through a covalent linkage between said polymer carrier reactive group and said reactive mitomycin derivative, either via a said activated mitomycin aziridine ring >NH group or via a said primary amine reactive amino terminal group of a said side chain of the mitomycin-C or mitomycin compound, and thereby producing said polymer/drug conjugate.

5,738,865

CONTROLLED RELEASE INSUFFLATION CARRIER FOR MEDICAMENTS

Anand Baichwal, Wappingers Falls, N.Y., and John N. Staniforth, Bath, England, assignors to Edward Mendell Co., Inc., Patterson, N.Y.

Division of Ser. No. 419,635, Apr. 7, 1995, Pat. No. 5,612,053. This application Dec. 30, 1996, Ser. No. 777,232

Int. Cl.^{6} A61K *9/68,9/14·9/50*

U.S. Cl. 424—440 **23 Claims**

1. A method of preparing a controlled release pharmaceutical formulation for insufflation therapy, comprising:

mixing a medicament together with a polysaccharide gum of natural origin to form a cohesive composite of medicament and gum and thereafter milling said cohesive composite of medicament and gum to obtain particles having a diameter from about 0.1 to about 355 microns

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5,738,866

METHOD FOR ACHIEVING THE SAME LEVEL OF MILK AND MILK COMPONENT YIELD IN RUMINANTS FED A LOW CRUDE PROTEIN DIET

Kent J. Lanter, Waterloo, Ill., and David C. Weakley, Eureka, Mo., assignors to Purina Mills, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 421,234, Apr. 13, 1995, Pat. No. 5,540,932. This application Jul. 29, 1996, Ser. No. 681,895

Int. Cl.^{6} A23K *1/18*

U.S. Cl. 424—442 **16 Claims**

1. A method of achieving a similar level of milk and milk component yield as ruminants fed a normal crude protein diet, the method comprising the feeding of an animal feed supplement comprising at least one rumen protected protein in combination with a lower crude protein diet to ruminants

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5,738,867

ANTITUMOR VACCINES

Lynn E. Spitler, Tiburon, Calif., assignor to Jenner Technologies, Tiburon, Calif.

Continuation of Ser. No. 151,568, Nov. 12, 1993, abandoned, which is a continuation of Ser. No. 800,474, Nov. 26, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 469,309

Int. Cl.^{6} A61K *9/127*

U.S. Cl. 424—450 **6 Claims**

1. An antitumor vaccine composition comprising, as active ingredient, a GA733-2 antigen, said antigen being encapsulated in, or covalently bound to, a liposome carrier

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5,738,868

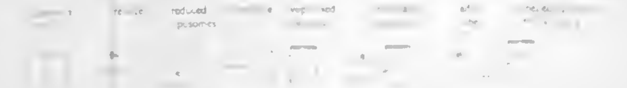
LIPOSOME COMPOSITIONS AND KITS THEREFOR

Leonid Lurya Shinkarenko, Rehovot, Israel, assignor to Lipogenics Ltd., Ariel, Israel

Filed Jul. 18, 1995, Ser. No. 503,662

Int. Cl.^{6} A61K *9/127*

U.S. Cl. 424—450 **8 Claims**



1. A method for preparing a radio labelled liposome, the method comprising the steps of:

(a) adding a reducing agent to a liposome under vacuum to form a treated liposome;

(b) dehydrating under vacuum said treated liposome, to form a dehydrated liposome;

rehydrating under vacuum said dehydrated liposome, to form a rehydrated liposome; and

(d) adding a radio label to said rehydrated liposome under vacuum, to form a radio labelled liposome binding at least about 90% of an added radio label.

5,738,869

TRANSDERMAL DRUG PREPARATION

Wilfried Fischer, and Thomas Struengmann, both of Holzkirchen, Germany, assignors to Haxal AG, Holzkirchen, Germany

PCT No. PCT/EP94/01259, § 371 Date Jan. 16, 1996, § 102(e) Date Jan. 16, 1996, PCT Pub. No. WO94/25069, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 22, 1994, Ser. No. 535,035

Claims priority, application Germany, Apr. 23, 1993, 43 13 402.5

Int. Cl.^{6} A61K *9/127;9/06;9/10*

U.S. Cl. 424—450 **7 Claims**

1. Drug preparation containing phospholipid, which is a transdermal drug preparation containing

water,

an aliphatic C$_{6}$-alcohol in the range from 1 to 50% (based on the total weight of the preparation),

alpha-tocopherol or alpha-tocopherol ester and

a hormone, diclofenac Na or heparin Na as the drug

5,738,870

Patent Not Issued For This Number

5,738,871

PHARMACEUTICAL FORMULATIONS

Michael John Story, Glenside, Australia, assignor to Cortecs Limited, Middlesex, United Kingdom

Division of Ser. No. 242,078, May 13, 1994, Pat. No. 5,532,002. This application Apr. 28, 1995, Ser. No. 430,500

Int. Cl.^{6} A61K *9/48*

U.S. Cl. 424—451 **22 Claims**

1. A process for the preparation of and gelatin capsules comprising at least partially filling hard gelatin capsule shells with a formulation which is liquid at 25° C. and which comprises (a) a fat-soluble nutrient; (b) a nonionic surfactant; and (c) a gelatin softening agent, wherein said gelatin softening agent is added in an amount sufficient to prevent embrittlement of the bard gelatin capsules.

5,738,872

PHARMACEUTICAL COMPOSITION FOR PIPERIDINOALKANOL COMPOUNDS

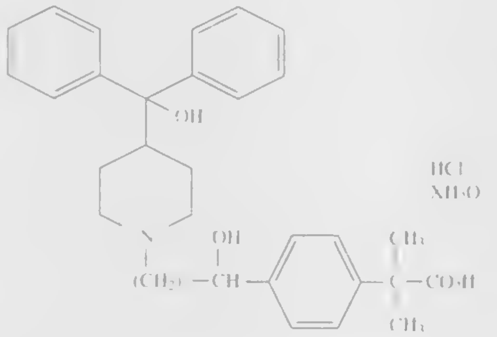
Thomas T. Ortyl, Overland Park; Paul F. Skultety, Leawood, both of Kans.; Kristen C. Mitchell, Lee's Summit, Mo.; Deepak S. Phadke, Olathe, Kans.; Faraneh Attarchi, Kansas City, Mo.; Marquerite L. Pierce, Fairway, Kans.; Aaron W. Schoeneman, Lee's Summit, and Joseph M. Schnitz, Kansas City, both of Mo., assignors to Hoechst Marion Roussel, Inc., Cincinnati, Ohio

Division of Ser. No. 552,287, Dec. 12, 1995, which is a continuation-in-part of Ser. No. 395,952, Feb. 28, 1995, abandoned. This application Nov. 1, 1996, Ser. No. 742,166

Int. Cl.^{6} A61K *9/48;9/20;47/00*

U.S. Cl. 424—452 **18 Claims**

1. A pharmaceutical composition prepared by a wet granulation process comprising, preparing the wet granulation wherein a compound of formula,



wherein X is a number ranging from about zero to 5, and the individual optical isomers thereof, a diluent and a disintegrant are

mixed with a solution of a binding agent, the wet granulation is screened, the wet granulation is dried, and the dry granulation is screened.

5,738,873

PHARMACEUTICAL FORMULATIONS AND METHODS FOR TREATING PATIENTS SUFFERING FROM DISEASES THAT CAUSE MUSCULAR HYPOTONIA

Herman Bleiweiss, Av. Santa Fe 931, (1059) Buenos Aires; Eduardo Samuel Bleiweiss, and Daniel Gustavo Bleiweiss, both of Laprida 1204 7th floor, (1425) Buenos Aires, all of Argentina, assignors to Herman Bleiweiss; Eduardo Samuel Bleiweiss, and Daniel Gustavo Bleiweiss, all of Buenos Aires, Argentina

Filed Sep. 27, 1996, Ser. No. 720,354

Int. Cl.^{6} A61K *9/20*

U.S. Cl. 424—464 **12 Claims**

1. A pharmaceutical formulation for the treatment of a disorder having muscular hypotonia as a symptom, selected from the group of an Alzheimer's disease, atrophy of the brain, atrophy of the cerebellum, Fragile X syndrome, mental retardation of unknown causes, multiple anomalies in the chromosomes, deletion in one or more chromosome, and fragility in a chromosome other than the X chromosome, said formulation comprising non toxic quantities of the following components in a pharmaceutically acceptable excipient

a. about 0.05 to about 200 mg of gamma amino burytic acid (GABA);

b. about 50 to about 300 mg of an antioxidant selected from the group consisting of vitamin E, ascorbic acid, and mixtures thereof;

c. about 100 to about 300 mg of folic acid;

d. about 0.05 to about 0.5 mg of a nicotinamide selected from the group consisting of nicotinamide and pharmaceutically acceptable salts thereof, and

e. about 25 to about 100 mg of a lithium salt selected from the group consisting of lithium carbonate, lithium bromide, lithium chloride, and lithium acetate

5,738,874

PHARMACEUTICAL TABLET CAPABLE OF LIBERATING ONE OR MORE DRUGS AT DIFFERENT RELEASE RATES

Ubaldo Conte, Busto Arsizio; Aldo La Manna, and Lauretta Maggi, both of Pavia, all of Italy, assignors to Jagotec AG, Hergiswil, Switzerland

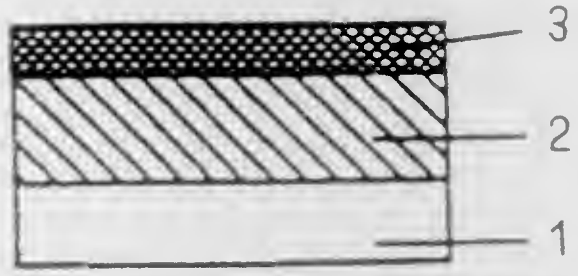
PCT No. PCT/EP93/02556, § 371 Date Mar. 24, 1995, § 102(e) Date Mar. 24, 1995, PCT Pub. No. WO94/06416, PCT Pub. Date Mar. 31, 1994

PCT Filed Sep. 21, 1993, Ser. No. 406,873

Claims priority, application Italy, Sep. 24, 1992, MI92A2192

Int. Cl.^{6} A61K *9/22;9/24;9/34;9/36*

U.S. Cl. 424—472 **7 Claims**



1. Pharmaceutical compressed tablet capable of releasing one or more drugs at two different steps, consisting of three layers of discoidal shape, obtained by compression of the mixture of the granular components and wherein:

a first layer, which carries out a first release step, contains one or more drugs with immediate or controlled release formulation, comprising polymeric substances which swell or solubilize when contacted with aqueous liquids, said polymeric substances selected from the group consisting of cross-linked polyvinylpyrrolidone, low and medium molecular weight hydroxypropyl cellulose and hydroxypropyl methylcellulose, cross-linked sodium carboxymethylcellulose, carboxymethyl starch, potassium methacrylate-divinylbenzene copolymer, polyvinyl alcohols, starches, microcrystalline cellulose and β-cyclodextrin, said polymeric substances amounting to from about 1% to about 90% by weight of said first layer,

a second layer adjacent to the first layer and carrying out a second release step, contains one or more drugs, either equal to or different from those of the first layer with slow release formulation, comprising polymeric substances which swell or erode or are gellable when contacted with aqueous liquids said polymeric substances selected from the group consisting of hydroxypropyl methylcellulose having a molecular weight from 1000 to 4,000,000, hydroxypropyl cellulose having molecular weight from 2,000 to 2,000,000, carboxyvinyl polymers, polyvinyl alcohols, glucans, scleroglucans, mannans, xanthans, alginic acid, and carboxymethylcellulose, said polymeric substances amounting to from about 5% to about 90% by weight of said second layer, and

a third barrier layer having low permeability and coating the free surface of said second layer and comprising polymeric substances selected from the group consisting of hydroxypropyl methylcellulose having a molecular weight from 1,000 to 4,000,000, hydroxypropyl cellulose having molecular weight from 2,000 to 2,000,000, glucans, scleroglucans, mannans, xanthans, carboxymethylcellulose, ethylcellulose, and methyl cellulose said polymeric substances amounting to from about 5% to about 90% by weight of said third layer

5,738,875

PROCESS FOR PREPARING SOLID PHARMACEUTICAL DOSAGE FORMS

Richard J. Yarwood; Patrick Kearney, and Andrew R. Thompson, all of Wiltshire, United Kingdom, assignors to R.P. Scherer Corporation, Troy, Mich.

Filed Oct. 28, 1994, Ser. No. 330,936

Int. Cl.^{6} A61K *9/26*

U.S. Cl. 424—484 **15 Claims**

1. A process for the preparation of an oral solid rapidly disintegrating dosage form of a pharmaceutically active substance which has an unacceptable taste, which process comprises the steps of

forming a system selected from the group consisting of an aqueous solution and a suspension in an aqueous medium of an uncoated and uncomplexed form of the pharmaceutically active substance which is present in its free base form, said free base form being less soluble in water and more palatable than the corresponding salt form form with the unacceptable taste together with a carrier material selected from the group consisting of water soluble and water-dispersible carrier materials and a compound which converts said pharmaceutically active substance, which is present in its salt form, into its free base form;

forming discrete units of the system and

removing the aqueous medium from the discrete units under conditions whereby a network of the carrier material carrying a dosage of the less soluble and more palatable uncoated and uncomplexed form of the pharmaceutically active substance is formed

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5,738,876

METHOD OF SOLUTION OVERCOATING WITH GELLING POLYMER

Karl C. Enevold, Newark, Calif., assignor to Metabolex, Inc., Hayward, Calif.

Continuation of Ser. No. 399,698, Mar. 3, 1995, abandoned. This application Sep. 20, 1996, Ser. No. 713,138

Int. Cl.^{6} A61K *9/14*

U.S. Cl. 424—486 15 Claims

1. A method of solution over-coating a particle with a gelling polymer, said method comprising:
- suffusing said particle with a solution of multivalent ions,
- washing said particle to remove free multivalent ions on the surface of said particle;
- suspending said particle in a solution of gelling polymer, whereby said multivalent ions diffuse from said particle into said solution of gelling polymer, thereby gelling a coating of said solution of gelling polymer on the surface of said particle to form a solution over-coated particle; and
- recovering said solution over-coated particle from said solution of gelling polymer, wherein said solution overcoated particle is from about 3 μm to about 2 mm in diameter, and wherein said method does not employ a droplet generation device.

5,738,877

Patent Not Issued For This Number

5,738,878

PROCESS FOR MAKING INTRINSIC INHIBITORS OF ALDOSE REDUCTASE

Peter F. Kador, Potomac, Md.; Yukio Takahashi, Nakagyo-ku; Tomoyuki Terada, Osaka, both of Japan; Libaniel Rodriguez, Elkridge, Md., and Matteo Schaffhauser, Bern, Switzerland, assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 143,203, Oct. 26, 1993, Pat. No. 5,560,936, which is a continuation-in-part of Ser. No. 966,970, Oct. 26, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 464,251

Int. Cl.^{6} A61K *35/23;35/55;35/44,* **C12N** *9/04*

U.S. Cl. 424—558 6 Claims

1. A method of purifying an aldose reductase inhibitor obtained from mammalian cells selected from the group consisting of kidney cells, lens cells and thyroid cells, comprising the steps of:
- homogenizing said cells in ethanol, separating a supernatant, evaporating the supernatant to obtain a dried supernatant and then redissolving the dried supernatant in water, fractionating the redissolved-dried-supernatant on a C-18 reverse phase column by eluting with methanol using a linear gradient of 2.5% methanol to 50% methanol over 25 minutes to obtain inhibitor containing fractions, assaying the fractions for aldose reductase inhibitor activity, and pooling the inhibitor containing fractions containing approximately 4% methanol,
- and repeating the steps from 1 to 5 times to obtain the aldose reductase inhibitor

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5,738,879

SCALP HAIR TREATMENT METHOD AND COMPOSITION

Jasper M. Rine, 1438 N. Forest Ave., River Forest, Ill. 60305

Filed Nov. 15, 1996, Ser. No. 751,090

Int. Cl.^{6} A61K *7/06*

U.S. Cl. 424—70.8 8 Claims

1. In a scalp and hair treatment the improvement comprising a vasodilator selected from the group consisting of ethyl nicotinate, capsicum extract and mixtures thereof, wherein the percentage by weight of the ethyl nicotinate is between about 0.10% and about 0.50%, and wherein the percentage by weight of the capsicum extract is between about 0.01% and about 0.10%, and an effective amount of a magnesium salt to stimulate blood flow, in combination with a hydrolyzed protein.

5,738,880

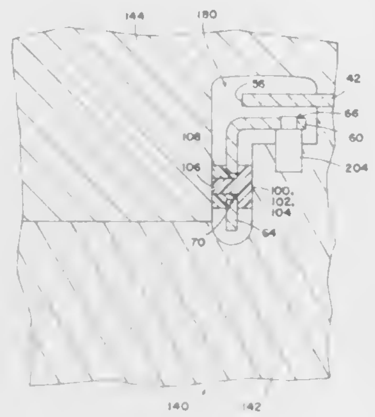
APPARATUS FOR MAKING ENCAPSULATED SHELF

Edmund J. Kane, Holland; Robert S. Herrmann, Grand Haven; Craig S. Bienick, Jenison, and Gregory T. Wolters, Holland, all of Mich., assignors to Donnelly Technology, Inc., Holland, Mich.

Division of Ser. No. 241,133, May 10, 1994, Pat. No. 5,564,809, which is a continuation-in-part of Ser. No. 665,661, Mar. 7, 1991, Pat. No. 5,362,145. This application May 8, 1996, Ser. No. 646,642

Int. Cl.^{6} B29C *45/14*

U.S. Cl. 425—116 10 Claims



1. An apparatus to make an encapsulated shelf assembly, comprising.
- a mold with a first part and a second part, a shelf support bracket received in said mold, said mold also being adapted to receive a shelf panel therein said first part and said second part being adapted to abut one another and define a mold cavity therebetween, said mold cavity surrounding at least a portion of said shelf support bracket;
- at least one post with a post head and a post shaft extending away from said post head, said post being positioned in said mold cavity with said post head interposed between a first surface of said shelf support bracket and said mold to space said shelf support bracket in said mold cavity away from one of said first and said second parts of said mold; and
- a nut positioned on a second surface of said shelf support bracket opposite said post head and interposed between said mold and said second surface of said shelf support bracket to also space said shelf support bracket in said mold cavity away from the other of said first and said second part of said mold wherein said nut and said post head are at least partially encapsulated by a moldable material when injected into said mold cavity, said nut and said post head being removable from said cavity with the encapsulated shelf assembly

5,738,881

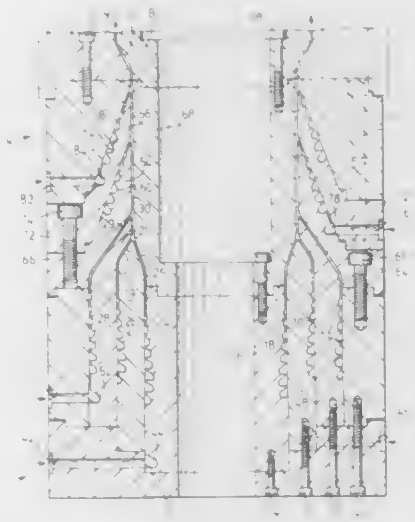
ANNULAR CO-EXTRUSION DIE

Surendra M. Sagar, Mississauga, Canada, assignor to Macro Engineering & Technology Inc., Mississauga, Canada

Continuation of Ser. No. 572,454, Dec. 14, 1995, abandoned. This application Dec. 4, 1996, Ser. No. 759,911

Int. Cl.^{6} B29C *47/06;47/28*

U.S. Cl. 425—133.1 4 Claims



1. An annular co-extrusion die for extruding multi layer tubular plastic film, said die having a longitudinal axis and comprising
- a lower part and an upper part.
- said lower part having at least four concentric radially spaced lower die members of different diameters with surfaces parallel to said longitudinal axis forming at least three lower concentric radially spaced annular helical passages communicating with a common annular passage for separately feeding different plastic materials along the lower annular passages to the common annular passage for extrusion, and
- said upper part having upper annular die members located above the lower die members and stacked one upon another, said upper angular die members having frusto-conical surfaces inclined towards said longitudinal axis forming at least two upper frusto-conical helical passages for separately feeding different plastic materials along each upper frusto-conical helical passage to the common annular passage for extrusion therefrom with the different plastic materials from the lower annular passages as a multi-layer tubular plastic film

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5,738,882

Patent Not Issued For This Number

5,738,883

INJECTION MOLDING CASSETTE MOLD HOLDER

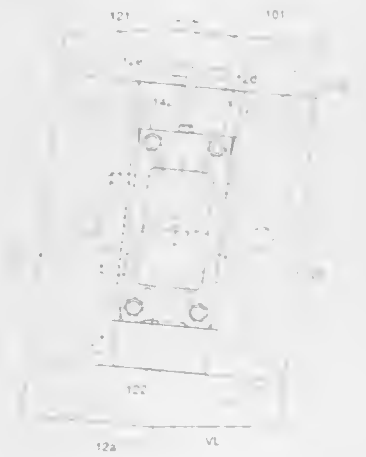
Yoshihiko Tanaka, Nagano-ken, Japan, assignor to Shinsei Corporation, Nagano-ken, Japan

Filed Oct. 11, 1994, Ser. No. 321,083

Claims priority, application Japan, Mar. 16, 1994, 6-072753

Int. Cl.^{6} B29C *45/36*

U.S. Cl. 425—190 8 Claims



1. An injection molding cassette mold holder having a fixed plate side holder part and a movable platen side holder part to be mounted on a fixed plate and a movable platen respectively of a clamp unit of an injection molding machine, a first recess formed on a parting surface of the fixed plate side holder part contacting to the movable platen side holder part, and a second recess formed on a parting surface of the movable platen side holder part contacting to the fixed plate side holder part, in which by closing these holder parts, a mold insertion portion is formed by the first and second recesses between the holder parts for receiving a cassette mold, characterized in that
- said mold insertion portion comprises a cassette mold insertion port formed on top of a pair of holder parts when the holder parts are closed, a mold insertion hollow portion extending downward from the cassette mold insertion port along a direction inclined at an angle of about 3° to 10° with respect to a vertical line and a mold insertion bottom defining the lower end of the mold insertion hollow portion

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5,738,884

MULTI-STAGE VACUUM KNEADING-EXTRUDER APPARATUS

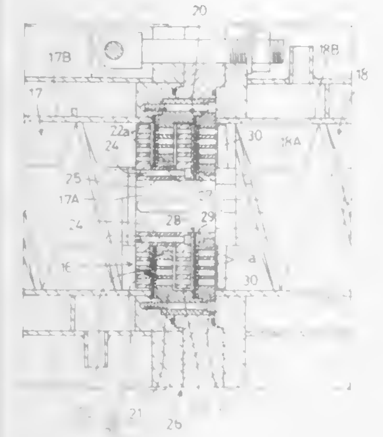
Takuya Sato, Suita, Japan, assignor to Sato Iron Works Co., Ltd., Osaka, Japan

Continuation of Ser. No. 335,649, Nov. 8, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 706,903

Claims priority, application Japan, Oct. 4, 1994, 6-239935

Int. Cl.^{6} B29C *47/38*

U.S. Cl. 425—197 **13 Claims**



1 A multi-stage vacuum kneading-extruder apparatus comprising:

- a receiver container for receiving material, said receiver container including level sensor means for detecting an upper limit level and a lower limit level of the material in said container;
- a feed conveyor screw for conveying material from the receiver container;
- a degassing chamber for storing material conveyed by the conveyor screw and degassing the stored material;
- a kneading-conveyor device for kneading while conveying the material from the degassing chamber;
- an extruding mechanism for extruding the kneaded material, at a conveyor terminal end of the kneading-conveyor device, into a predetermined shape;
- wherein, said kneading-conveyor device includes,
- a pair of upstream and downstream conveyor screws disposed one after another in a conveying direction of the material,
- a grinding-kneading mechanism interposed between said upstream and downstream screws,
- said grinding-kneading mechanism comprising a plurality of unit kneading mechanisms disposed in opposition to each other relative to the material conveying direction, each of said unit kneading mechanisms including an un-rotable stationary disc, and a rotary disc rotatable relative to said stationary disc and a stationary filter interposed between said stationary and rotary discs, wherein all of said plurality of rotary discs being fixed to a single one of said conveyor screws by common attaching means in such a way that said plurality of rotary discs can be fixed to or removed from said single one of said conveyor screws.

5,738,885

DIE ASSEMBLY FOR MOLDING CYLINDRICAL BODY AND CYLINDRICAL BODY PRODUCED USING SAME

Hiroshi Nomura, and Takamitsu Sasaki, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

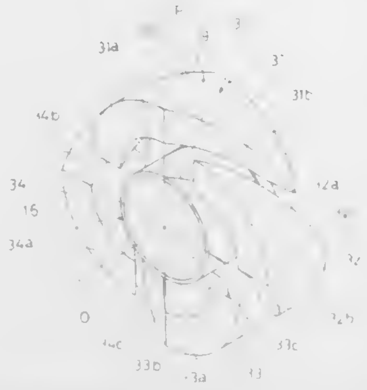
Filed Sep. 27, 1995, Ser. No. 534,403

Claims priority, application Japan, Sep. 29, 1994, 6-235212

Int. Cl.^{6} B29C *45/26*

U.S. Cl. 425—577 **5 Claims**

1. A molding die assembly for molding a cylindrical lens barrel of a camera, comprising:



- an outer molding die for forming an outer peripheral surface of said cylindrical lens barrel;
- an inner molding die for forming an inner peripheral surface of said cylindrical lens barrel; and
- said outer molding die comprising a plurality of split die elements, said plurality of split die elements being split to form at least one oblique separating surface inclined with respect to circumferential and axial directions of said cylindrical lens barrel.

5,738,886

MOLD FOR DISK SUBSTRATE

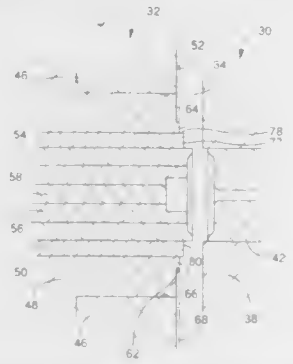
Ikuo Asai, Nagoya, Japan, assignor to Kabushiki Kaisha Meiki Seisakusho, Japan

Filed Aug. 2, 1996, Ser. No. 691,595

Claims priority, application Japan, Aug. 7, 1995, 7-200128

Int. Cl.^{6} B29C *45/38;45/40*

U.S. Cl. 425—556 **10 Claims**



1. A mold for molding a substrate of a disk, said mold having an annular plate-like stamper which has a center hole and which contacts a surface of said substrate, said mold comprising:

- a stationary mold half having a first mold surface;
- a movable mold half movable relative to said stationary mold half and having a second mold surface which cooperates with said first mold surface to define therebetween a mold cavity when said stationary and movable mold halves are placed in a closed position for molding said substrate;
- a positioning ring portion provided on said movable mold half, for positioning said annular stamper such that said annular stamper is fitted at said center hole on said positioning ring portion; and
- an ejector sleeve provided on said movable mold half such that said ejector sleeve is located radially inwardly of said positioning ring portion and is movable so as to protrude from said second mold surface for removing said substrate from said movable mold half,
- said ejector sleeve including a recessing end portion which extends in an axial direction thereof beyond an end face of said positioning ring portion into said mold cavity when said stationary and movable mold halves are placed in said closed position, said recessing end portion having an outer circumferential surface which is perpendicular to said end face of said positioning ring portion, whereby an annular recess partly defined by a circumferential shoulder surface is formed in the molded substrate by said outer circumferential surface of said recessing end portion of said ejector sleeve, said circumferential shoulder surface being formed by said outer circumferential surface of said recessing end portion.

5,738,887

PROCESS OF PREPARING FRUIT/VEGETABLE JUICE AND PROTEIN EMULSION WITH MULTI-ENZYME SYSTEM

Wencai Wu, 11 Ganggou, Haidian Dist, Beijing, P. R., China

Continuation of Ser. No. 288,393, Aug. 10, 1994, abandoned. This application Oct. 4, 1996, Ser. No. 726,011

Claims priority, application China, Aug. 17, 1993, 93 1 09779.7

Int. Cl.^{6} A23L *2/02*

U.S. Cl. 426—51 **7 Claims**

1 A process for preparing a juice or a protein emulsion from a dried vegetable, a dried fruit or a mixture thereof, the process comprising:

- forming a mash from a raw material of the dried vegetable, the dried fruit or the mixture thereof,
- grinding the mash finely, so that the average size of suspended particles therein is less than 50 microns,
- hydrolyzing the ground mash at a temperature of 20° C to about 70° C. for about 5 minutes to about 72 hours, with a multi-enzyme system that contains in combination 5–50 wt % proteases, 5–75 wt % amylases, 5–50 wt % pectases, 5–75 wt % cellulases, 5–35 wt % hemicellulases and 1–20 wt % lysozymes,
- filtering the hydrolyzed ground mash to remove residues, and sterilizing the filtrate.

5,738,888

BEVERAGE PRESERVATION

Michael Charles Cirigliano, Cresskill; Raymond Thomas McKenna, Scotch Plains, and Paul John Rothenberg, West Milford, all of N.J., assignors to Thomas J. Lipton Co., Division of Conopco, Inc., Englewood Cliffs, N.J.

Filed Dec. 11, 1996, Ser. No. 763,593

Int. Cl.^{6} A23L *2/00;2/02;2/84,* **A23F** *3/00*

U.S. Cl. 426—52 **11 Claims**

1. An aqueous based beverage containing a minimum of 0.01% of edible fluidizable food material and a sufficient mount of Natamycin in combination with DMDC to prevent microbial spoilage, said beverage having a pH of about 2.0 to 6.5 and further comprising sufficient tea solids to result in a significant antioxidant effect

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5,738,889

ICE CONTAINING CONFECTION

Rodney David Bee, St Neots, United Kingdom, assignor to Good Humor-Breyers Ice Cream, Division of Conopco, Inc., Green Bay, Wis.

Filed May 3, 1996, Ser. No. 643,246

Claims priority, application European Pat. Off., May 3, 1995, 95303042

Int. Cl.^{6} A23G *9/00*

U.S. Cl. 426—66 **7 Claims**

1. A deformable ice confection comprising, at a temperature in the range from about 0° C. to about −20° C.,

- i) a plurality of water ice particles having oblate ellipsoidal form, each of the ice particles comprises two convex surfaces which meet at a continuous edge, the ice particles do not significantly sinter to form larger ice structures and remain essentially free flowing during frozen storage; and
- ii) a deformable medium.

5,738,890

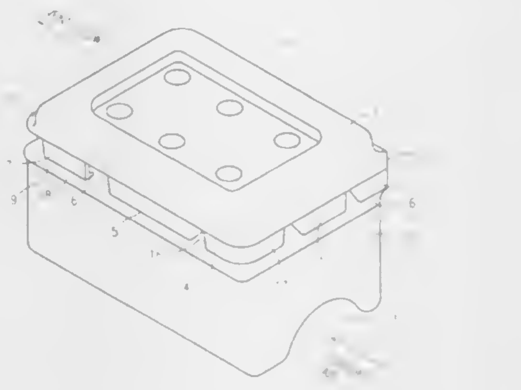
METHOD AND CONTAINER FOR THE IMPROVED PACKING AND COOLING OF PRODUCE

Anthony Cadiente, Salinas, and William Sambrailo, Aptos, both of Calif., assignors to Plexiform Company, Watsonville, Calif.

Filed Jan. 24, 1996, Ser. No. 591,000

Int. Cl.^{6} B29C *49/00;* **B65D** *21/032;85/34*

U.S. Cl. 426—106 **21 Claims**



1. A produce packaging system comprising in operative combination:

- basket means including basket body means and lid means;
- latch means for reversibly securing said lid means to said body means;
- ventilation channel means formed in a lower surface of said basket body means;
- a lower vent means further disposed on said lower surface of said basket body means in communication with said ventilation channel means; and
- tray means for receiving therein said basket means, said tray means defining paired tray vent means disposed upon a lower portion of said tray means, said tray vent means disposed so as to align with said ventilation channel means when said basket means is installed in said tray means.

5,738,891

HIGH TEMPERATURE COOKING SAUCE

Cornelis Frederik Andreae, Maassluis, Netherlands; Philip Edward Dazo, Pepuanock, N.J.; Gijsbert Kuil, Vlaardingen, Netherlands; Gerardus Anthonius Matthijssen, Abbenbroek, Netherlands, and Johannes Frederik Mulder, Vlaardingen, Netherlands, assignors to Van Den Bergh Foods Company, Division of Conopco, Inc., Lisle, Ill.

Filed Feb. 21, 1996, Ser. No. 604,537

Claims priority, application European Pat. Off., Feb. 22, 1995, 95200427; Aug. 14, 1995, 95305658

Int. Cl.^{6} A23D *7/00;* **B65D** *85/72*

U.S. Cl. 426—113 **17 Claims**

1. A sterile, packed food emulsion suitable for fully cooking a host food or adding to cooked food and for imparting a golden brown au gratin coating upon cooking, and comprising:

- water;
- from 10 to 65 wt % edible fat,
- from 0.05 to 10.00 wt % caseinate; and
- from 0.1 to 10.0 wt % browning agent, which is chosen from a group consisting of carbohydrates, proteins and mixtures thereof, wherein the emulsion has a pH of at least 5.0 and further comprises at least 0.5 ppm lysophospholipoprotein as an emulsifier, and the emulsion does not contain 20–100 wt % cream.

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5,738,892
METHOD OF GERMINATING AND DRYING CEREAL
Terumi Takaoka, 2225 Oazanorinouchiko, Kawauchicho, Onsengun, Ehime-Pref., Japan

Filed Sep. 9, 1996, Ser. No. 711,217

Claims priority, application Japan, Apr. 11, 1996, 8-115402

Int. Cl.^{6} A23B *9/00*

U.S. Cl. 426—242 11 Claims

1. A method of germinating and drying cereal, comprising the steps of:

subjecting a husked cereal to moisture treatment to germinate said cereal;

suspending said germination after germinated cereal is produced;

drying said germinated cereal at a temperature of about 30° C., and

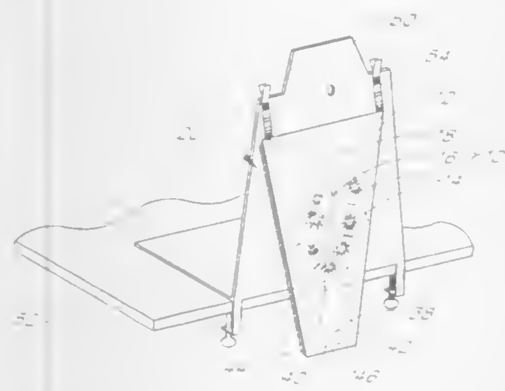
irradiating said germinated cereal with far infrared rays thereby to dry the inside thereof and cause absorbed nutrients of the germinated cereal to be readily extractable.

5,738,893
METHOD OF WRAPPING TOMATOES ON-THE-VINE
Gerrit Jan Kornet, Woerden, and Ferdinandus Jozef Maria Streng, Boskoop, both of Netherlands, assignors to B.V. Frugifera, Netherlands

Filed Apr. 15, 1996, Ser. No. 632,566

Int. Cl.^{6} B65D *33/01;85/34,* **B65B** *25/04*

U.S. Cl. 426—413 3 Claims



1. A method of wrapping a bunch of tomatoes on the-vine, said bunch comprising at least three substantially ripe tomatoes and a stem attached to each of said tomatoes, said stem having a free end not attached to a tomato, said method comprising:

(a) providing a plurality of containers, each of said containers formed by a pair of plastic sheets having substantially a trapezoidal shape, said pair of sheets each having a bottom, two sides and a top, said bottoms and sides of said pair of sheets heat sealed together, a plurality of air openings provided on said pair of sheets, said bottom of at least one of said sheets forming tabs extending beyond said heat seals, said tabs having perforations formed thereon;

(b) stapling said plurality of containers together at said tabs such that an individual container may be removed from said plurality of containers by tearing it off at its perforation,

(c) arranging said plurality of containers onto a holder such that said containers are temporarily secured to said holder at said top of each of said containers and said tabs of said containers hang freely;

(d) inserting said bunch of tomatoes into a first container such that said free end of said stem is near the top of said first container; and

(e) removing said first container from said holder and tearing along its perforation to separate said first container from the remaining containers

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5,738,894
SKIN REMOVAL PROCESS
John Edward Legge Prendiville, London, United Kingdom, assignor to James Foxdale Ltd., Hoylake, United Kingdom

Filed May 25, 1995, Ser. No. 451,073

Claims priority, application United Kingdom, Nov. 18, 1992, 9224135; Nov. 19, 1993, 9323844

Int. Cl.^{6} A23L *1/36*

U.S. Cl. 426—483 9 Claims

1. A process of removing the skin from products such as nut kernels, beans and seed, the process comprising receiving a plurality of the products in a confined area with the products in contact with each other, subjecting said products to a jet or jets of liquid within said confined area so as to cause the products to move and to abrade against each other in said confined area and to remove their skins by said abrasion and jet or jets of liquid, and allowing the skins removed from the products to be carried away from the skinned products by said liquid, wherein the liquid is pressurized at a pressure in the range of 600 psi to 2000 psi.

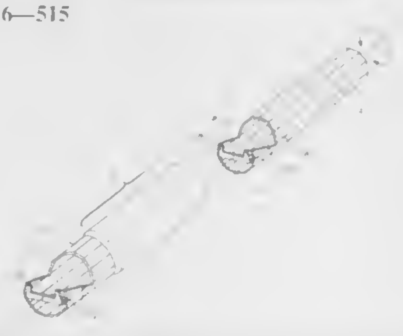
5,738,895
METHOD AND APPARATUS FOR PRODUCING A MOLDED ICE CREAM PRODUCT
Christof Fuchs, Heppenheim, and Gordon Hall, Weinheim, both of Germany, assignors to Good Humor-Breyers Ice Cream, Division of Conopco, Inc., Green Bay, Wis.

Filed Apr. 15, 1996, Ser. No. 595,124

Claims priority, application European Pat. Off., Feb. 3, 1995, 95 101 514.8

Int. Cl.^{6} A23G *9/00;* **A23P** *1/00*

U.S. Cl. 426—515 21 Claims



1. Method for producing an ice cream product, the method comprising:

(i) introducing at least one stick partly into a cavity of a mold for shaping the ice cream product, the mold comprising walled mold sections, clamping a portion of the stick between the walled sections of the mold and a portion of the stick having a free end extending into the cavity;

(ii) introducing an ice cream under pressure into the cavity of the mold;

(iii) releasing thereupon the pressure, and

(iv) removing the shaped ice cream product from the cavity;

wherein the free end of the stick is supported within the cavity of the mold such that the portion of the stick extending into the cavity does not deflect or bend when the ice cream is introduced under pressure.

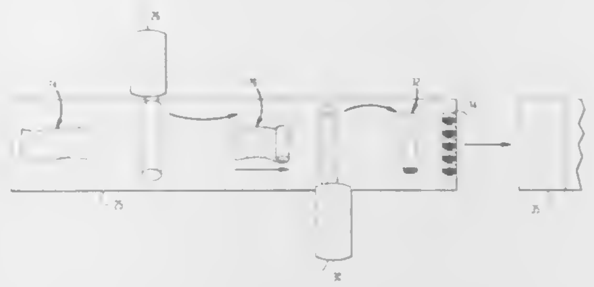
5,738,896
SPIRAL SHAPED, DRIED PASTA FOOD COMPOSITION AND A METHOD FOR MAKING IT
James Vincent Cassetta, Pearl River, N.Y., and Dominick Piccininni, Lodi, N.J., assignors to Lipton, Division of Conopco, Inc., Englewood Cliffs, N.J.

Filed Oct. 27, 1995, Ser. No. 550,125

Int. Cl.^{6} A23L *1/16*

U.S. Cl. 426—557 8 Claims

1. A partially cooked instant pasta composition in the form of a closely wound, compacted spiral, said pasta composition is made of a dough consisting essentially of flour, a dough conditioning agent and water, said pasta composition further having a dusting material selected from the group consisting of soy fiber, oat bran, corn bran starch and mixtures thereof, dusted onto a surface of said composition and interleaved around the spiral form so that upon subsequent boiling the spiral uncoils without substantially sticking together.



5,738,897
SUSPENSIONS OF GELLED BIOPOLYMERS
Michael John Gidley, Raunds, and Nicholas David Hedges, Towcester, both of United Kingdom, assignors to Quest International B.V., Naarden, Netherlands

PCT No. PCT/EP94/03611, § 371 Date May 1, 1996, § 102(e) Date May 1, 1996, PCT Pub. No. WO95/12988, PCT Pub. Date May 18, 1995

PCT Filed Nov. 2, 1994, Ser. No. 640,875

Claims priority, application European Pat. Off., Nov. 8, 1993, 93308914

Int. Cl.^{6} A23L *1/05*

U.S. Cl. 426—573 11 Claims

1. A suspension of particles which comprise hydrated gelled biopolymer, said suspension being obtained by hydrating at a temperature below T_{gel} dry particles of said biopolymer, said particles themselves being obtained by dehydrating a solution comprising the biopolymer at a temperature of above T_{gel}, the biopolymer being selected from the group consisting of agar, carrageenan, gelatin, gellan, furcelleran, alginate, (low methoxy) pectin and mixtures thereof

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5,738,898
PROCESS FOR REDUCING STEROLS IN EGGS
Denise M. Smith, DeWitt; Aziz Awad, Westland, both of Mich.; Christopher Sikorski, Whiting, Ind.; Wen Shieh, and Allan Hedges, both of Crown Point, Ind., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

Continuation-in-part of Ser. No. 414,800, Mar. 31, 1995, Pat. No. 5,484,624. This application Aug. 8, 1995, Ser. No. 512,364

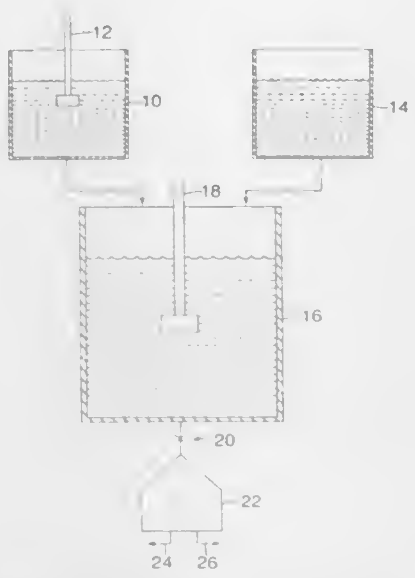
Int. Cl.^{6} A23L *1/32*

U.S. Cl. 426—614 20 Claims

1. A process for reducing cholesterol from egg yolk comprising the steps of:

(a) forming a uniform liquid mixture comprising water, food grade base, cyclodextrin and egg yolk, at a temperature of about 20° C. to about 60° C., said base being present in an amount sufficient to adjust the pH of said mixture to between about 7.5 and 12, said cyclodextrin being present in an amount of about 10% to about 30% by weight water, and said mixture having a water to egg yolk weight ratio of about 0.7:1 to 2:1, such that complexes form between the cholesterol and said cyclodextrin,

(b) separating said complexes from said mixture;



(c) adjusting the pH of said solution to about 6 to about 7 by means of a food grade acid; and

(d) recovering an egg yolk with reduced cholesterol

5,738,899

Patent Not Issued For This Number

5,738,900
PROCESS FOR MAKING A READILY-DISPERSIBLE, DRY FOOD MIX
Xavier A. Cuadrado, New York; Christopher J. Scinto, Tarrytown, both of N.Y.; Gail S. Conti, Stamford, Conn., and Steven J. Leusner, Orono, Minn., assignors to Kraft Foods, Inc., Northfield, Ill.

Filed Aug. 30, 1996, Ser. No. 708,085

Int. Cl.^{6} A23L *1/187*

U.S. Cl. 426—658 13 Claims

1. A method for making a dry, readily dispersible, sugar containing food mix comprising the steps of

a) adding granular sugar to a mixer;

b) applying a liquid mixture onto the surface of the granular sugar, said mixture comprised of at least 60% glycerin and at least 5% polysorbate; thereafter,

c) adding particulate components to the mixer, said particulate components having an average particle size less than that of the granular sugar; and

d) mixing the mixture of step c) in order to adhere the particulate components onto the surface of the sugar granules

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5,738,901
CATHETER BALLOON WITH RETRACTION COATING
Lixiao Wang, Minneapolis, and Linda J. Vickerman, Anoka, both of Minn., assignors to Scimed Life Systems, Inc., Maple Grove, Minn.

Continuation of Ser. No. 445,581, May 22, 1995, Pat. No. 5,490,839, which is a continuation of Ser. No. 124,238, Sep. 20, 1993, abandoned. This application Nov. 1, 1995, Ser. No. 551,669

Int. Cl.^{6} B05D *3/02;* **A61L** *29/00, 31/00*

U.S. Cl. 427—2.3 7 Claims

1. A method for treating a dilatation balloon to prefer a preshaped, deflated folded configuration so that, after inflation to a dilatation pressure, the balloon reattains the preshaped deflated folded configuration when the balloon is deflated, the method comprising forming the balloon into said preshaped deflated folded condition coating the balloon with a formulation comprising a

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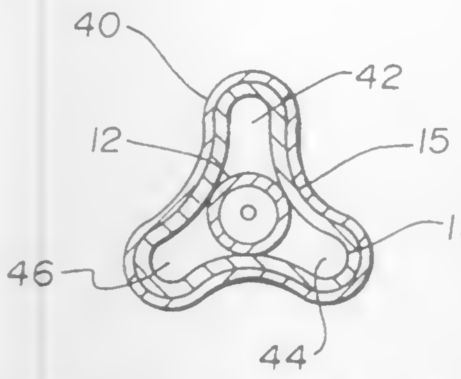

coating polymer and, while the balloon is in said preshaped deflated folded configuration, setting the coating

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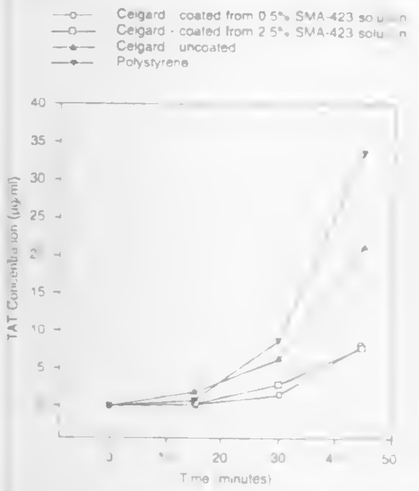
5,738,902
BIOCOMPATIBLE COATED ARTICLE

Lloyd Forrestal, Boulder; Marc Voorhees, Arvada, both of Colo., and Harold Fisher, Charlotte, N.C., assignors to COBE Laboratories, Inc., Lakewood, Colo.

Continuation of Ser. No. 473,723, Jun. 7, 1995, Pat. No. 5,643,681, which is a continuation-in-part of Ser. No. 227,955, Apr. 15, 1994, abandoned. This application Oct. 10, 1996, Ser. No. 728,824

Int. Cl.⁶ B05D *3/06*

U.S. Cl. 427—2.12 **25 Claims**



1. A method of coating a porous membrane with an polylactone-polysiloxane-polyactone triblock copolymer comprising the steps of contacting the membrane with a solution of the copolymer having a concentration of the copolymer, said concentration imparting to the membrane, when dry, a surface concentration of copolymer sufficient to provide an X ray fluorescence relative intensity in the range 0.02 to 0.35

5,738,903
GLASS COATING COMPOSITION AND METHOD OF APPLICATION

George S. Taylor, and Joel S. Miller, both of Salt Lake City, Utah, assignors to Diamond Seal, Inc., Salt Lake City, Utah

Filed Feb. 27, 1997, Ser. No. 807,664

Int. Cl.⁶ B05D *3/12*

U.S. Cl. 427—8 **9 Claims**

1. A method of applying a transparent film of a silane composition to a siliceous substrate comprising:

1) applying an amount of a silane compound, having at least one reactive alkoxy group, and an acid to a substrate sufficient to form a caring on said substrate;

2) determining the end point when said silane compound has reacted to form at least a substantially complete reacted monolayer on said sub and initial homopolymerization of said silane compound is occurring; and

3) removing substantially all unreacted silane compound and homopolymerized silane material immediately following determination of said end point whereby a durable transparent, optical quality layer of silane compound reacted with said substrate remains.

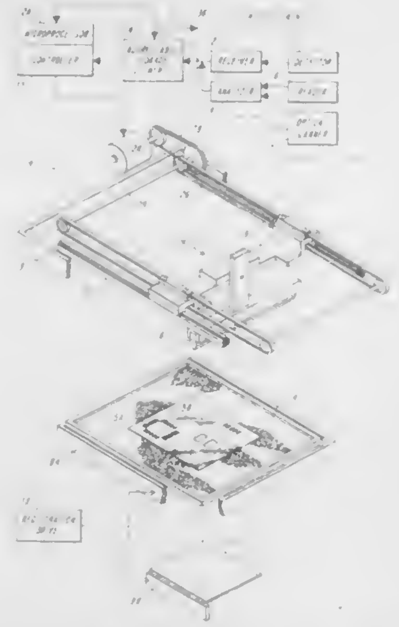
5,738,904
METHOD AND APPARATUS FOR VARIABLE SPEED MATERIAL DEPOSITION

Stephen M. Jones, Shrewsbury, Mass., assignor to HTI Engineering Inc., Medfield, Mass.

Continuation of Ser. No. 496,929, Jun. 30, 1995. This application Jan. 22, 1996, Ser. No. 589,550

Int. Cl.⁶ B05D *1/32*, **B05C** *7/00*, **B41M** *1/12*

U.S. Cl. 427—96 **17 Claims**



10. A method for applying extrudable material through a mask apertured with openings, comprising the steps of

sweeping a blade element at a selected velocity across the mask along a first axis such that the extrudable material is transferred through openings in the mask, and

changing from the selected velocity to a first velocity in accordance with a data set stored in an addressable storing element, the data set associating a first velocity with a first location along the first location along the first axis, wherein the first velocity is determined as a function of a dimension of an opening in the mask.

5,738,905
PROCESS FOR THE PRODUCTION OF A COMPOSITE COMPRISING ELECTRODE MATERIAL, CATALYST MATERIAL AND A SOLID-ELECTROLYTE MEMBRANE

Dirk Bevers, Boeblingen, Germany, assignor to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt e.V., Bonn, Germany

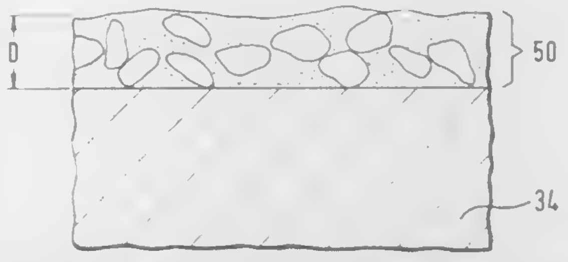
Filed Mar. 15, 1996, Ser. No. 616,729

Claims priority, application Germany, Mar. 17, 1995, 195 09 748.3

Int. Cl.⁶ B05D *1/36;3/02;3/00;* **H01M** *4/86*

U.S. Cl. 427—115 **17 Claims**

1. A process for the production of a composite comprising an electrode material, catalyst material and a solid-electrolyte membrane for an electrochemical cell, comprising the steps of:



producing a catalytic powder comprising electrode material, catalyst material and solid-electrolyte material;

releasably depositing the catalytic powder on an intermediate carrier surface area to form a layer thereon;

heating the layer of catalytic powder on a side of said layer which faces away from the intermediate carrier surface area in order to soften the solid-electrolyte material;

subsequently transferring at least a portion of the softened solid-electrolyte material to remove it from the intermediate carrier and apply it to the solid-electrolyte membrane under pressure and while the solid electrolyte material is still softened in order to form said composite,

wherein said softened solid-electrolyte material is brought into pore-deep contact with the electrode material and the catalyst material

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5,738,906
METHOD FOR PRODUCING A MAGNETIC DISK

Toru Momose, Yonezawa; Tsuneo Manabe, Yokohama; Yuzo Murayama, Yonezawa, and Yoshizumi Hideshima, Yokohama, all of Japan, assignors to AG Technology Co., Ltd., Yokohama, Japan

Filed Mar. 27, 1996, Ser. No. 624,801

Claims priority, application Japan, Mar. 31, 1995, 7-076128

Int. Cl.⁶ B05D *5/12*

U.S. Cl. 427—131 **19 Claims**

1. A method for producing a magnetic disk comprising

forming a magnetic disk substrate having a main surface comprising a data zone and a contact start stop (CSS) zone, in which a surface roughness having a substantially uniform peak height is formed in the substantially entire portion of the main surface;

conducting varnishing only to the data zone in the main surface of the substrate to reduce the peak height of the surface roughness of the data zone; and

forming a ferromagnetic layer, a protective layer and a lubricant layer sequentially on a region of the main surface of the substrate, which includes the data zone and the CSS zone, wherein the peak height of the surface roughness in the data zone of the magnetic disk is lower than the peak height of the surface roughness in the CSS zone

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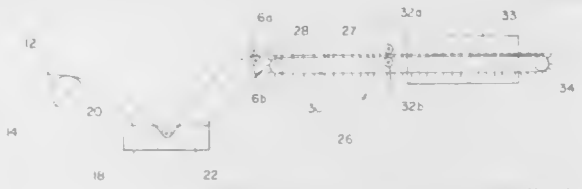
5,738,907
CONDUCTIVE METAL POROUS SHEET PRODUCTION

Anthony J. Vaccaro, Sugar Land, Tex.; Kenneth J. Gregg, Mentor, Ohio; Daniel W. Gibbons, Mentor, Ohio; Janet S. Gregg, Mentor, Ohio, and John R. Griesser, Madison, Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Filed Aug. 4, 1995, Ser. No. 511,270

Int. Cl.⁶ B05D *3/16*

U.S. Cl. 427—172 **62 Claims**



1. The method of producing a strip of an open cell, three dimensional reticulated sheet of electroconductive foam having a multitude of pores of rearranged shape, which pores maintain said rearranged shape, the foam strip having a length in the longitudinal direction and a width in the transverse direction, with the length being greater than the width, which method comprises

(a) establishing said foam strip in production in the longitudinal direction with pores having elongated diameter in the longitudinal direction,

(b) coating said foam strip with electroconductive coating,

(c) stretching said coated foam strip in the transverse direction, thereby elongating pore diameters in the transverse direction and providing a transverse stretch to said coated foam strip, and

(d) heating the coated foam strip while maintaining said transverse stretch, to dry said coating and set said foam strip in a transverse stretched position

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5,738,908
METHOD OF DENSIFYING POROUS SUBSTRATES BY CHEMICAL VAPOR INFILTRATION OF SILICON CARBIDE

Jacques Rey, Merignac; Jean-Luc Charvet, Saint Medard En Jalles; Christian Robin-Brosse, Le Haillan; Bernard Delperier, Marignas sur Jalles, and Jacky Minet, Saint Medard En Jalles, all of France, assignors to Societe Europeenne de Propulsion, Suresnes, France

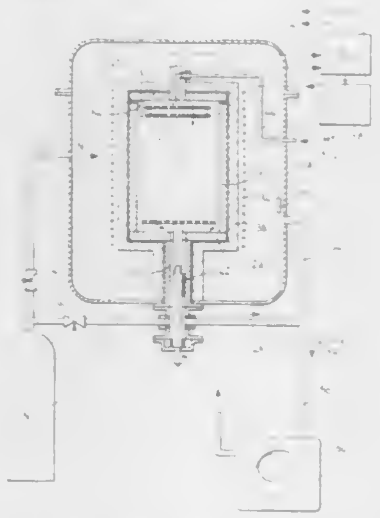
PCT No. PCT/FR94/01453, § 371 Date Jun. 14, 1996, § 102(e) Date Jun. 14, 1996, PCT Pub. No. WO95/16803, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 13, 1994, Ser. No. 656,347

Claims priority, application France, Dec. 16, 1993, 93 15176

Int. Cl.⁶ C23C *16/32*

U.S. Cl. 427—249 **6 Claims**



1. A method of densifying a porous substrate by chemical vapor infiltration of silicon carbide, the method comprising

placing the substrate in an infiltration chamber,

injecting a reaction gas comprising methyltrichlorosilane and hydrogen into the infiltration chamber having a flow rate ratio of hydrogen to methyltrichlorosilane of 5:1 to 10:1,

preheating the gas entering the infiltration chamber so as to bring it up to a temperature of 960° C. to 1050° C. before making contact with the substrate,

maintaining a temperature with in the range of 960° C. to 1050° C. and a pressure of not more than 25 kPa within the infiltration chamber, whereby a fraction of the reaction gas is allowed to react and form a deposit of silicon carbide within the porous substrate leaving a residual gas which comprises silicon-containing species including undecomposed methyltrichlorosilane and gaseous by products of decomposition of methyltrichlorosilane, and

extracting the residual gas from the infiltration chamber by pumping through a pipe connected to an outlet of the infiltration chamber while causing the concentration of the silicon

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containing species in the residual gas to be lowered immediately at the outlet from the infiltration chamber to avoid the formation of unstable condensates on walls of said pipe.

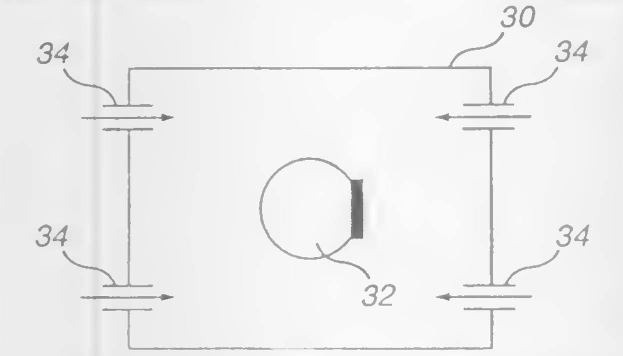
5,738,909
METHOD OF FORMING HIGH-INTEGRITY ULTRATHIN OXIDES

Randhir P. S. Thakur, and Annette Martin, both of Boise, Id., assignors to Micron Technology, Inc.

Filed Jan. 10, 1996, Ser. No. 587,104

Int. Cl.⁶ H01L *21/02*

U.S. Cl. 427—255.4 **24 Claims**



1. A method of forming a layer of oxide on a surface of a wafer, comprising the following steps:

heating the wafer surface at a first temperature and a first pressure during a first period of time in a first ambient gas comprising nitrogen and oxygen species at a first concentration; and

heating the wafer surface at a second temperature and a second pressure during a second period of time in a second ambient gas comprising ozone and oxygen at a second concentration.

5,738,910
PRINTING PROCESS FOR ENABLING REPEATED USE OF PRINTING PAPER

Tomoki Yamasaki, 5-1 Higashihangi-cho, Shimogamo, Sakyo-ku, Kyoto-shi, Kyoto 606, Japan

Filed Nov. 21, 1996, Ser. No. 754,528

Int. Cl.⁶ B05D *5/04*; C09D *11/02*

U.S. Cl. 427—288 **11 Claims**

1. A printing process for enabling repeated use of paper comprising the following steps:

applying starch to a paper surface;

utilizing iodine tincture containing traces of iodine for printing printed matter on the paper surface coated with said starch; and

applying a solution of diluted sodium thiosulfate to the paper surface for removing the printed matter from the paper surface.

5,738,911
PROCESS FOR PRODUCING LIQUID-JET RECORDING HEAD, LIQUID-JET RECORDING HEAD PRODUCED THEREBY, AND LIQUID-JET RECORDING APPARATUS COMPRISING THE HEAD

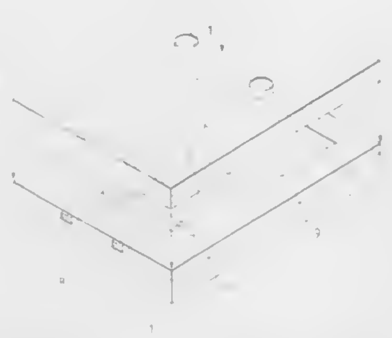
Isao Imamura, Kawasaki, and Akihiko Shimomura, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 11, 1997, Ser. No. 815,460

Claims priority, application Japan, Mar. 12, 1996, 8-054640

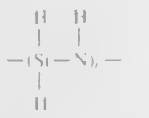
Int. Cl.⁶ B05D *3/02*

U.S. Cl. 427—387 **5 Claims**



1. A process for producing a liquid-jet recording head comprising a liquid-discharging orifice, a liquid path communicating to the orifice, and a liquid ejecting energy-generating element for generating an energy to be utilized for ejecting the liquid, which comprises the steps of:

pouring, into the liquid path, a solution containing a perhydropolysilazane represented by the formula (I):



$$-\left(\underset{H}{\overset{H}{\underset{|}{\overset{|}{Si}}}}-\overset{H}{\overset{|}{N}}\right)_n-$$ (I)

to allow the solution to attach onto the wall of the liquid path; and

after attachment of the solution, heating the solution to form a hydrophilic layer comprising baked perhydropolysilazane on the wall of the liquid path.

5,738,912
DISPERSION OF POST-CURABLE COATING COMPOUNDS

Eberhard König, Leverkusen; Detlef-Ingo Schütze, and Josef Pedain, both of Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 11, 1996, Ser. No. 760,093

Claims priority, application Germany, Dec. 21, 1995, 195 48 030.9

Int. Cl.⁶ B05D *7/12*

U.S. Cl. 427—389 **5 Claims**

1. A method comprising coating a textile and/or leather with an aqueous dispersion comprising

- (A) a mixture comprising
  - (i) a urethane-containing blocked NCO prepolymer having a number average molecular weight of 2000 to 10,000, a content of blocked isocyanate groups, calculated as NCO, of 0.5 to 5 wt. % relative to prepolymer (A)(i), a content of ethylene oxide groups of 2 to 50 wt. % relative to prepolymer (A)(i), and a content of ionic groups of 5 to 30 meq per 100 g of prepolymer (A)(i), and
  - (ii) a polyamine having a total of at least two (cyclo)aliphatically bonded primary and/or secondary amino groups,

  wherein the equivalent ratio of blocked NCO groups of prepolymer (i) to amino groups of polyamine (ii) is 1:0.9 to 1:1.2, and
- (B) an aqueous phase

5,738,913
METHOD OF PROVIDING CERAMIC ARTICLE WITH WEAR RESISTANT COATING

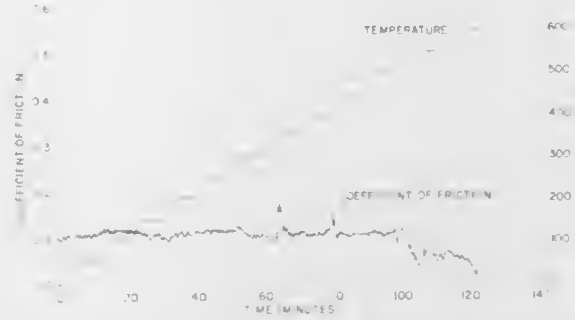
Edgar Earl Graham, Lyndhurst; Wilfredo Morales, Lorain, and Nirav Patel, Cleveland, all of Ohio, assignors to Cleveland State University, Cleveland, Ohio

Filed Nov. 12, 1996, Ser. No. 747,970

Int. Cl.⁶ B05D *1/36;3/02;7/24;1/38*

U.S. Cl. 427—419.8 **18 Claims**

1. A method to lubricate a ceramic article providing improved resistance of the lubricated ceramic article to mechanical wear at elevated temperatures up to 500° C. and above which comprises:



(a) treating an untreated and an unheated surface of the ceramic article at ambient temperatures with a compound of a transition metal element,

(b) further treating the already treated ceramic article surface at ambient temperatures with a mixture containing the transition metal compound, a polymer-forming organic reactant selected from petroleum hydrocarbon compounds and synthetic lubricants consisting of polybutenes, diesters, polyglycols, chlorinated hydrocarbons, phosphate esters and silicate esters, and an aromatic thioether, and

(c) elevating the temperature of the treated ceramic article to at least 300° C. whereby the organic reactants become polymerized to form an adherent polymer lubricating film on the treated ceramic surface.

5,738,914
ELECTROLESS METAL PLATING SOLUTION

John A. MacMillan, Wirral, United Kingdom, assignor to The Associated Octel Company Limited, London, England

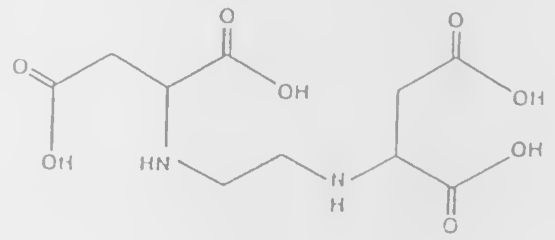
PCT No. PCT/GB95/02633, § 371 Date Sep. 13, 1996, § 102(e) Date Sep. 13, 1996, PCT Pub. No. WO96/15290, PCT Pub. Date May 23, 1996

PCT Filed Nov. 9, 1995, Ser. No. 669,302

Claims priority, application United Kingdom, Nov. 11, 1994, 9422762

Int. Cl.⁶ B05D *1/18*

U.S. Cl. 427—437 **12 Claims**



1. An electroless metal plating solution comprising metal ions to be reduced for plating onto a substrate and a chelate for the metal ions to prevent or reduce metal hydroxide precipitates forming and to buffer the amount of metal ions available for reduction wherein the chelate is at least ethylene diamine disuccinic acid.

5,738,915
CURING POLYMER LAYERS ON SEMICONDUCTOR SUBSTRATES USING VARIABLE FREQUENCY MICROWAVE ENERGY

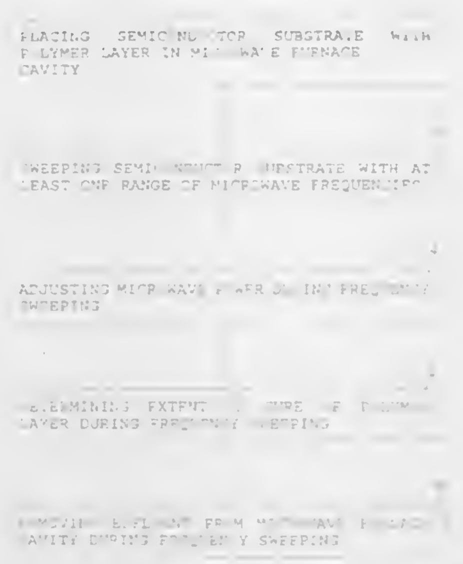
Zakaryae Fathi, Cary; Denise A. Tucker, Raleigh; Richard S. Garard, Chapel Hill, and Jianghua Wei, Raleigh, all of N.C., assignors to Lambda Technologies, Inc., Morrisville, N.C.

Filed Sep. 19, 1996, Ser. No. 716,043

Int. Cl.⁶ C08F *2/46*

U.S. Cl. 427—487 **7 Claims**

1. A method of curing a polyimide layer on at least one semiconductor wafer, said method comprising the steps of:


PLACING SEMICONDUCTOR SUBSTRATE WITH POLYMER LAYER IN MICROWAVE FURNACE CAVITY
SWEEPING SEMICONDUCTOR SUBSTRATE WITH AT LEAST ONE RANGE OF MICROWAVE FREQUENCIES
ADJUSTING MICROWAVE POWER DURING FREQUENCY SWEEPING
DETERMINING EXTENT OF CURE OF POLYMER LAYER DURING FREQUENCY SWEEPING
REMOVING EFFLUENT FROM MICROWAVE FURNACE CAVITY DURING FREQUENCY SWEEPING

(a) placing at least one semiconductor wafer having a polyimide layer thereon in a microwave furnace cavity;

(b) sweeping said at least one semiconductor wafer with at least one range of microwave frequencies, said at least one range having a central frequency selected to rapidly heat said polyimide layer, said at least one range selected to generate a plurality of modes within said cavity, said sweeping performed at a rate selected to avoid damage to said polyimide layer and/or components attached to said at least one semiconductor wafer;

(c) adjusting microwave power during said step (b) to control the temperature of said polyimide layer and said at least one semiconductor wafer;

(d) continuously determining, during said steps (b) and (c), an extent of cure of said polyimide layer by detecting power reflection for said polyimide layer for each microwave frequency within said at least one range to provide power reflection data, and comparing said power reflection data to a predetermined set of power reflection data, and

(e) removing effluent produced during said steps (b) and (c) from said microwave furnace cavity.

5,738,916
ULTRAVIOLET-CURING COMPOSITION, PATTERN FORMING METHOD MAKING USE OF THE SAME, PRINTED-WIRING BOARD AND ITS PRODUCTION

Hiromichi Noguchi, Atsugi; Hiroshi Sugitani, Machida; Yutaka Koizumi, Yokohama; Tadayoshi Inamoto, Hachioji; Kiyomi Aono, Kokubunji, and Yoshie Nakata, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 355,020, Dec. 13, 1994, abandoned. This application Oct. 25, 1996, Ser. No. 740,259

Claims priority, application Japan, Dec. 14, 1993, 5-313620

Int. Cl.⁶ C08J *7/04*; B44C *1/22*

U.S. Cl. 427—511 **14 Claims**

1. A process for producing a printed wiring board, comprising the steps of:

patternwise imparting an ultraviolet curing aqueous composition comprising,

- (a) an ultraviolet-curing compound having at least one carboxyl group and at least one ultraviolet-curing unsaturated bond in its molecule, said compound being a reaction product of a dibasic acid anhydride with a (meth)acrylate compound,
- (b) a base selected from the group consisting of ammonia, alkylamines, alkanolamines, alkylene polyamines, morpholine, piperidine, NaOH, LiOH and KOH, and
- (c) a polymerization initiator, and having a viscosity of 10 centipoises or less, to the surface of a copper foil laminated substrate by ink jet printing.

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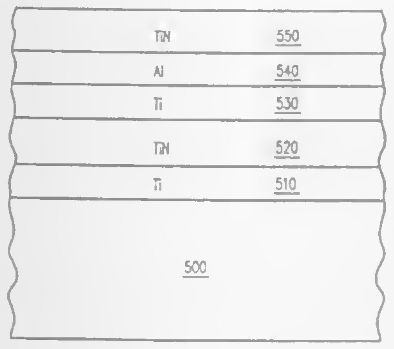
drying the composition patternwise imparted, to evaporate its aqueous carrier, followed by exposure to ultraviolet rays to form an etching resist pattern;
etching the copper foil; and
removing the etching resist pattern.

5,738,917

PROCESS FOR IN-SITU DEPOSITION OF A TI/TIN/TI ALUMINUM UNDERLAYER

Paul R. Besser, Cupertino, and Khanh Q. Tran, San Jose, both of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 24, 1995, Ser. No. 393,625
Int. Cl.^{6} H05H *1/24*
U.S. Cl. 427—576 3 Claims



1. A method for depositing Ti, TiN, and Ti, said method comprising the steps of:
placing a sample in a single physical vapor deposition chamber, said chamber containing a Ti target;
introducing argon gas into said chamber at a selected flow rate;
depositing Ti on such sample in said chamber, said step of depositing Ti including applying a voltage across said target and said sample to generate a first plasma in said chamber;
terminating said plasma in said chamber by removing said voltage from across said target and said sample;
decreasing said flow rate of said argon gas;
introducing N_2 gas into said chamber to form TiN on said target;
depositing TiN, without removing said sample from said chamber, on said Ti deposited on said sample, said step of depositing TiN including generating a second plasma in said chamber;
removing said N_2 gas from said chamber; and
depositing Ti, without removing said sample from said chamber, on said TiN deposited on said sample; wherein said step of introducing N_2 gas comprises the step of introducing 70 to 90 SCCM of N_2 gas into said chamber.

5,738,918

LAMINATES OF LIQUID CRYSTALLINE POLYMERIC FILMS FOR POLARIZER APPLICATIONS

Sunny S. Shen, Holmdel; Hyun Nam Yoon, New Providence, and Chia-Chi Teng, Piscataway, all of N.J., assignors to Hoechst Celanese Corp, Somerville, N.J.

Filed Jun. 14, 1996, Ser. No. 663,764
Int. Cl.^{6} G02F *1/1335*
U.S. Cl. 428—1 28 Claims

1. A laminate comprising, (a) a polarizing film; (b) one or more adhesive layers, and (c) one or more supporting layers, wherein said polarizing film comprises a blend of (a) a film forming, thermotropic liquid crystalline polyester and (b) a dichroic absorber, wherein said polyester comprises repeat units corresponding to the formula:

$$-[P^1]_m-[P^2]_n-[P^3]_q-[P^4]_r-[P^5]_s-$$

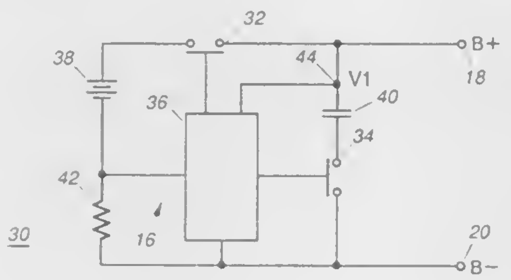
wherein P^1, P^2, P^3, P^4 and P^5 represent monomeric moieties, with P^1 being an aromatic hydroxy carboxylic acid, P^2 being an aromatic dicarboxylic acid, P^3 being a phenol, P^4 being a second aromatic hydroxy carboxylic acid moiety different from P^1, and P^5 being a second phenolic moiety different from P^3, and m, n, q, r and s represent mole percent of the respective monomers individually with P^1 and P^2 in the range 5–40 mole percent, P^3 in the range 5–30 mole percent, and P^4 and P^5 in the range 5–20 mole percent.

5,738,919

ENERGY STORAGE SYSTEM

George Thomas, Lawrenceville, Ga.; José M. Fernandez, Sunrise, Fla.; Scott M. Garrett, Lawrenceville, and Georgina Moré, Duluth, both of Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 25, 1996, Ser. No. 755,620
Int. Cl.^{6} H01M *16/00*
U.S. Cl. 429—3 10 Claims



6. An energy storage device having an output for providing an electrical charge, including regularly spaced current pulses to an electronic device, said device comprising:
at least one battery cell connected to said output;
at least one capacitor connected across said output for providing said current pulses; and
electronic circuitry disposed between said battery and said capacitor comprising a first switch disposed between said battery and said output, a second switch disposed between said capacitor, and said output, and a controller electrically coupled to each said switch, and responsive to said current pulses.

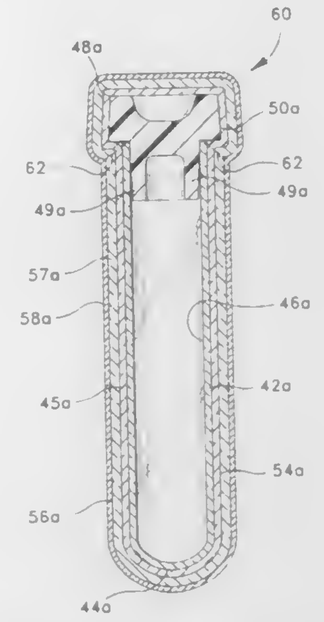
5,738,920

BLOOD COLLECTION TUBE ASSEMBLY

Christopher John Knors, Raleigh, N.C., assignor to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Jan. 30, 1996, Ser. No. 594,078
Int. Cl.^{6} A61J *1/06*, B32B *15/16*
U.S. Cl. 428—35.9 17 Claims

1. A sample assembly comprising:
a plastic container having an open end, a closed end, an inner surface and an outer surface, and
a multi-layer barrier coating associated over the surface of said container and extending over a major portion of said surface of said container, said coating having a first layer comprising an acrylate primer coating material and a second layer on said first layer comprising a mixture of a metal oxide and an inorganic oxide material.

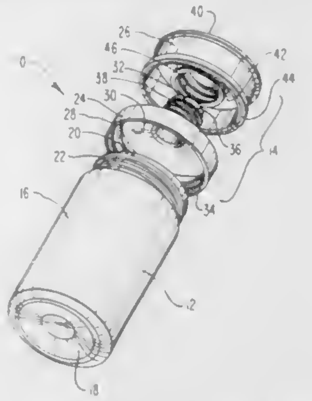


5,738,921

COMPOSITIONS AND METHODS FOR MANUFACTURING SEALABLE, LIQUID-TIGHT CONTAINERS COMPRISING AN INORGANICALLY FILLED MATRIX

Per Just Andersen, and Simon K. Hodson, both of Santa Barbara, Calif., assignors to E. Khashoggi Industries, LLC, Santa Barbara, Calif.

Continuation-in-part of Ser. No. 631,676, Apr. 9, 1996, and Ser. No. 353,543, Dec. 9, 1994, Pat. No. 5,683,772, and Ser. No. 288,667, Aug. 9, 1994, and Ser. No. 218,967, Mar. 25, 1994, Pat. No. 5,545,450, and Ser. No. 158,824, Nov. 24, 1993, Pat. No. 5,506,046, and Ser. No. 105,851, Aug. 10, 1993, Pat. No. 5,543,186. This application Apr. 9, 1996, Ser. No. 629,972
U.S. Cl. 428—36.4 225 Claims



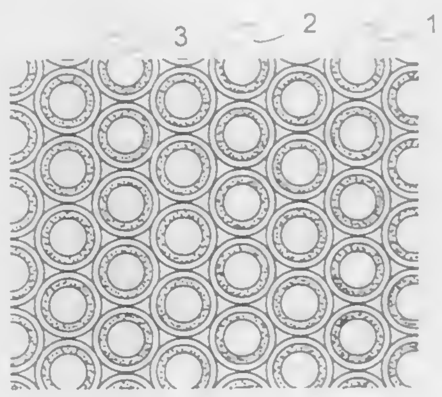
1. An article of manufacture comprising a sealable container having a liquid-tight barrier, at least a substantial portion of the sealable container comprising an inorganically filled matrix molded from an inorganically filled mixture, the inorganically filled mixture including,
water;
an organic polymer binder selected from the group consisting of polysaccharides, proteins, and mixtures or derivatives thereof.
an inorganic aggregate filler having a concentration in a range from about 20% to about 90% by weight of solids within the mixture; and
a fibrous material,
wherein the fibrous material is substantially homogeneously dispersed throughout the inorganically filled matrix, wherein the inorganically filled matrix includes organic components in an amount of at least about 5% by weight of solids within the inorganically filled matrix, and wherein the inorganically filled matrix has a thickness less than about 1 cm.

5,738,922

PLASTIC FOAM MATERIAL COMPOSED OF THERMOPLASTIC RESIN AND SILANE-MODIFIED THERMOPLASTIC RESIN

Tomoyuki Kobayashi; Kenji Miyazaki, both of Kyoto, and Masanori Nakamura, Osaka, all of Japan, assignors to Sekisui Chemical Co., Ltd., Osaka, Japan

Division of Ser. No. 309,960, Sep. 21, 1994, Pat. No. 5,552,448. This application May 22, 1996, Ser. No. 651,525
Claims priority, application Japan, Sep. 21, 1993, 5-235037
Int. Cl.^{6} B32B *3/20*
U.S. Cl. 428—36.5 3 Claims



1. A plastic foam material manufactured by the steps of
forming a plurality of foamable tubes, wherein each of said plurality of foamable tubes includes an inner layer and an outer layer comprising foamable thermoplastic resins:
arranging said plurality of foaming tubes essentially parallel,
supporting said tubes between dimension determining structures, wherein said dimension determining structures include thickness regulating bodies effective to limit to foaming in an axial direction of said foamable tubes:
exposing said tubes to a cross linking source to form cross linked foamable tubes; and
exposing said cross-linked foamable tubes to a foaming heat source effective to fuse contacting parallel outer layers of said plurality of foamable tubes and effective to initiate a foaming reaction to form the plastic foam material, wherein said foamable plastic resins include 100 parts by weight of at least two substantially incompatible thermoplastic resins selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymer, ethylene vinyl acetate copolymer and polystyrene,
from about 1 to about 50 parts by weight of a silane-modified thermoplastic resin of the same polymer type as at least one of said two substantially incompatible resins,
from about 0.001 to about 2.5 parts by weight of a cross-linking catalyst effective to cross link said silane modified thermoplastic resin,
from about 1 to about 20 parts by weight of a foaming agent, and
wherein said inner layer includes an expansion ratio of from about 10 to about 50

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5,738,923

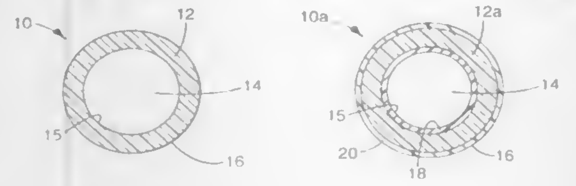
MEDICAL TUBING AND ASSEMBLIES

John H. Ko, Woodbury; Lester B. Odegaard, Afton, and James R. Boardman, White Bear Lake, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 16, 1995, Ser. No. 442,398

Int. Cl.⁶ A61M *25/00*

U.S. Cl. 428—36.91 **17 Claims**



1 A tube, comprising:

a polymeric material having at least one lumen therein, the polymeric material comprising a blend of a thermoplastic ionomer and a non-ionic thermoplastic polymer, wherein the thermoplastic ionomer is present in an amount between about 10 and 50% by weight and has a Young's modulus less than about 56 MPa, and the non-ionic thermoplastic polymer is present in an amount between about 50 and 90% by weight, and wherein the tube has a Young's modulus between about 14 to 35 MPa.

5,738,924

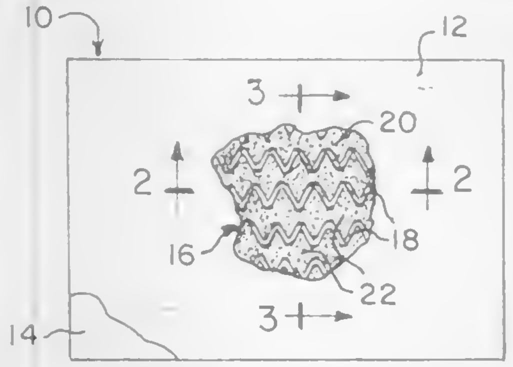
SANDWICH CONSTRUCTION BUILDING MATERIALS

Peter Sing, P.O. Box 11532, Winslow, Wash. 98110

Continuation-in-part of Ser. No. 186,467, Jan. 26, 1994, abandoned. This application Jul. 24, 1995, Ser. No. 506,110

Int. Cl.⁶ B32B *3/12*

U.S. Cl. 428—68 **19 Claims**



1 Sandwich construction building material, which comprises:

at least one facing element forming the outer covering of the sandwich construction building material, said at least one facing element on each face thereof having been selected from the group consisting of: plywood, fiberboard, particle board, mineral board, wood, metal, synthetic resin, plastic cement, cement combined with wire mesh, laminates and any combination of the above; and

an interior core layer extending between, being fixedly mounted perpendicular to, and supporting the inner surface of, each said outer covering, said interior core layer comprising at least one core element formed from a single one ply sheet of veneer selected from the group consisting of: natural wood veneer having naturally aligned fibers and veneer formed from wood fibers aligned and embedded in synthetic resin, said at least one core element being positioned so that said wood fibers in said veneer are disposed substantially perpendicular to each said face of said at least one facing element, said at least one core element being arranged into at least one geometric shape so as to form an overall openwork pattern in said interior core layer, said at least one geometric shape being selected from the group consisting of: longitudinally extending veneer strips of corrugated configuration, longitudinally-extending veneer strips of right-angled waveform configuration longitudinally-extending veneer strips of angled wave-form configuration and veneer strips formed into tubular configuration, the opposite edges of said geometrically-shaped veneer core element each being aligned in a single plane and in contact with said at least one facing element on each inner face of the sandwich construction building material.

5,738,925

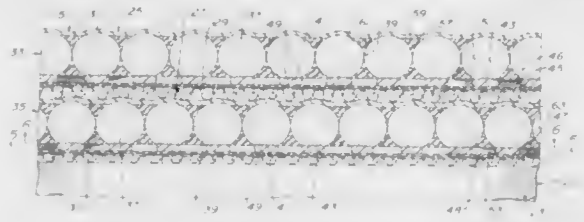
BALLISTIC ARMOR HAVING A FLEXIBLE LOAD DISTRIBUTION SYSTEM

Armand Joseph Chaput, Fort Worth, Tex., assignor to Lockheed Martin Corporation, Fort Worth, Tex.

Filed Apr. 10, 1996, Ser. No. 629,808

Int. Cl.⁶ F41H *1/02*

U.S. Cl. 428—101 **13 Claims**



1 A flexible protective armor for protecting against impacts of fast moving projectiles, the flexible protective armor comprising:

a first flexible membrane having a 60 degree weave of ballistic fibers,

a first layer of hard spheres having mounting portions and mechanical engagement portions, the first flexible membrane and the first layer of spheres comprising a first armor layer,

adhesive fixedly bonding the first layer of the spheres to the flexible membrane, outward of the flexible membrane, with the mounting portions of the spheres being bonded to the ballistic fibers such that the spheres are tightly packed with the mechanical engagement portions of adjacent ones of the spheres in contact for rotating relative to one another, free of the adhesive;

a second armor layer having a second flexible membrane and a second layer of hard spheres, the second layer of spheres being rigidly bonded to one side of the second flexible membrane and adjacent ones of the spheres disposed in contact for rotating relative to one another;

a slipping attachment means for mounting the second armor layer to the first armor layer, with the second layer of spheres disposed outward of the first armor layer and the second flexible membrane; and

wherein kinetic energy of the fast moving projectiles is absorbed by flexural bending of the layers of spheres and the flexible membranes, with a portion of the spheres rotating relative to adjacent spheres, stretching the ballistic fibers.

5,738,926

METALLIZED POLYESTER FILM CAPACITOR

Shinichi Kinoshita, Machida, Japan, assignor to Diafoil Hoechst Company Limited, Tokyo, Japan

Filed Nov. 23, 1992, Ser. No. 978,959

Claims priority, application Japan, Nov. 29, 1991, 3-316936; Mar. 24, 1992, 4-066308

Int. Cl.⁶ B32B *15/08; 27/08; 27/36; 27/40*

U.S. Cl. 428—141 **35 Claims**

1 A metallized polyester film capacitor composed of a metallized polyester film comprising:

a polyester film,

a coating layer composed of a water-soluble resin or a water-dispersible resin, formed on at least one side of said polyester film and having a center line average roughness (Ra) of 0.005 to 0.5 μm, wherein the alkali metal content of said coating layer is no more than 126.5 ppm, and wherein said water-soluble or water-dispersible resin is composed of urethane resins or polyesters;

a vapor-deposited metal on said coating layer.

5,738,927

PERPENDICULAR MAGNETIC RECORDING MEDIA AND MAGNETIC RECORDING DEVICE

Atsushi Nakamura, Hachiouji; Masaaki Futamoto, Tsukui-gun; Yoshiyuki Hirayama, Kodaira; Mikio Suzuki, Odawara; Yukio Honda, Fuchu, and Takanobu Takayama, Hannou, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 2, 1995, Ser. No. 459,794

Claims priority, application Japan, Jun. 8, 1994, 6-126081

Int. Cl.⁶ G11B *5/66*

U.S. Cl. 428—141 **28 Claims**

1 Perpendicular magnetic recording media comprising, a substrate made of a single crystal; a film with perpendicular magnetic anisotropy formed over said substrate and made of Co or an alloy having a main component of Co, and a protective film formed over said film with perpendicular magnetic anisotropy, wherein said film with perpendicular magnetic anisotropy is epitaxially grown over said substrate to have an easy axis of magnetization perpendicular to the plane of said substrate, wherein the plane of said substrate is as even as to have a surface roughness Ra of no more than 10 nm, and wherein a distance between the nearest atoms in said substrate plane (as called the "a(S)") and a distance between the nearest atoms in a plane of said film with perpendicular magnetic anisotropy in parallel with said substrate (as called the "a(F)") satisfy the following relation

$$|a(F)-a(S)|/a(S)\leq 0.005$$

5,738,928

TAB TAPE AND METHOD FOR PRODUCING SAME

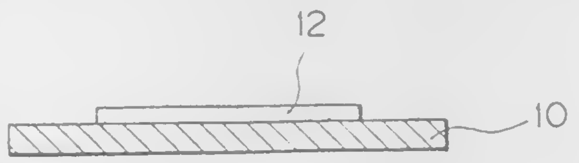
Kotaro Kodani; Kazuo Koyanagi, and Kiyokazu Sato, all of Nagano, Japan, assignors to Shinko Electric Industries Co., Ltd., Nagano, Japan

Continuation of Ser. No. 101,076, Aug. 3, 1993, abandoned. This application Nov. 14, 1995, Ser. No. 557,899

Claims priority, application Japan, Aug. 8, 1992, 4-232743 U

Int. Cl.⁶ B32B *27/38*

U.S. Cl. 428—141 **11 Claims**



1 A tape automated bonding tape comprising:

a metal plate support having a roughened surface and defining a device hole, a window hole, and a sprocket hole, wherein each of said holes has an inner wall,

a conductor pattern formed on said metal plate support, the conductor pattern and the metal plate support being made of the same material;

an insulating adhesive layer formed between said conductor pattern and said metal plate support, said insulating adhesive layer being electrically insulating; and

a continuous protective plated layer coated on the roughened surface of the metal plate support and the respective inner walls of said device hole and said window hole, at least where the insulative adhesive layer is not formed.

5,738,929

MAGNETORESISTANCE EFFECT ELEMENT

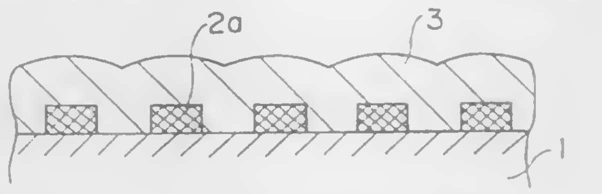
Atsushi Maeda, Neyagawa; Satoru Oikawa, Yao, and Minoru Kume, Kadoma, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Continuation of Ser. No. 326,731, Oct. 20, 1994, Pat. No. 5,585,198. This application Dec. 13, 1996, Ser. No. 766,530

Claims priority, application Japan, Oct. 20, 1993, 5-262547; Mar. 24, 1994, 6-054163

Int. Cl.⁶ G11B *5/66*

U.S. Cl. 428—141 **17 Claims**



1 A magnetoresistance effect element comprising:

a non-magnetic substrate;

a ferromagnetic layer comprising a ferromagnetic metal or alloy arranged on said substrate, and having a textured surface, and

a non-magnetic metal film, which comprises at least one atomic element that is non-soluble with said ferromagnetic metal or alloy, and which is arranged as a continuous film layer on said textured surface of said ferromagnetic layer,

wherein said textured surface has such a surface texture as to increase a contact area of an interface between said ferromagnetic layer and said non-magnetic metal film, for reducing an operating field strength and increasing a magnetoresistance ratio of said magnetoresistance effect element.

5,738,930

SOFT DIAPER TAPE

Richard A. Huskey, Mentor, Ohio, assignor to Avery Dennison Corporation, Pasadena, Calif.

Division of Ser. No. 271,262, Jul. 6, 1994, Pat. No. 5,599,620, which is a division of Ser. No. 57,043, May 3, 1993, abandoned. This application Jul. 5, 1996, Ser. No. 676,002

Int. Cl.⁶ C09J *7/02*

U.S. Cl. 428—156 **4 Claims**

1 A fastening tape adapted to be converted into a fastener tab for a disposable diaper or other tab fastened article, said tape having an indefinite length extending in a machine direction, a width extending in a machine cross direction and a thickness, comprising providing a polymeric tape substrate or backing film having an outer side and an inner adhesive side, roughening the outer side to form a surface morphology on said outer side having a roughness average value of from about 7,000 to about 14,700 angstroms, a layer of adhesive joined to said inner adhesive side of said film, said tape being convertible by cutting it to form a fastener tab having a length extending in the machine cross direction, opposed terminal segments spaced apart in the machine cross direction and one layer of adhesive adjacent at least one terminal segment.

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5,738,931
ELECTRONIC DEVICE AND MAGNETIC DEVICE

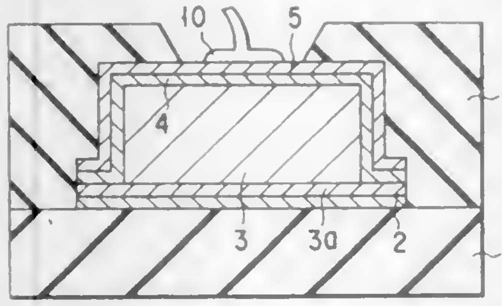
Toshiro Sato, and Tetsuhiko Mizoguchi, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 13, 1995, Ser. No. 527,868

Claims priority, application Japan, Sep. 16, 1994, 6-221444

Int. Cl.^{6} B32B *3/00;15/00;* **H05K** *1/00;1/03*

U.S. Cl. 428—209 **14 Claims**



1. An electronic device having a conductor wiring enclosed with an underlying insulator and a surrounding insulator,
wherein said conductor wiring comprises
an underlying conductor formed in a pattern on a surface of the underlying insulator, the underlying conductor made of at least one material selected from the group consisting of Ti, Ta, Mo, Cr, Nb, and W and their alloy;
a main conductor made of Cu formed in a pattern on said underlying conductor;
a first coating conductor made of at least one material selected from the group consisting of Ti, Ta, Mo, Nb, and Ni and their alloy, and a second coating conductor made of at least one material selected from the group consisting of Au and Al and their alloy that are formed in this order so as to coat a surface of said main conductor made of Cu facing the surrounding insulator.

5,738,932
RECORDING MEDIUM, INK-JET RECORDING METHOD USING THE SAME AND PRINT OBTAINED THEREBY, AND DISPERSION AND PRODUCTION PROCESS OF THE RECORDING MEDIUM USING THE DISPERSION

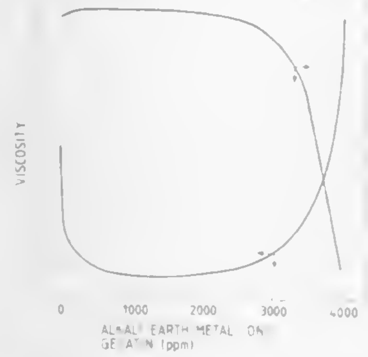
Yuji Kondo, Machida; Kyo Miura, Yokohama; Hitoshi Yoshino, Zama; Takeo Eguchi, Tokyo, and Hiroshi Tomioka, Matsudo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 279,100, Jul. 22, 1994, abandoned. This application Sep. 5, 1996, Ser. No. 706,534

Claims priority, application Japan, Jul. 30, 1993, 5-189368; Oct. 26, 1993, 5-267233; Jun. 20, 1994, 6-137408; Jun. 20, 1994, 6-137409

Int. Cl.^{6} B32B *3/00*

U.S. Cl. 428—195 **43 Claims**



38. An ink-jet recording method comprising ejecting minute droplets of an ink from an orifice to conduct printing, wherein the method satisfies the following relationship:

$$|\lambda 1-\lambda 2|\leqq 30\ nm$$

wherein λ1 denotes the maximum absorption wavelength of the ink, and λ2 is the maximum absorption wavelength of an area printed with the ink on a recording meidum comprising a subtrate and an ink-receiving layer thereon which comprises an alumina hydrate as a main component and, as a binder, acid-processed gelatin.

5,738,933
MUTLI-LAYER PRODUCT

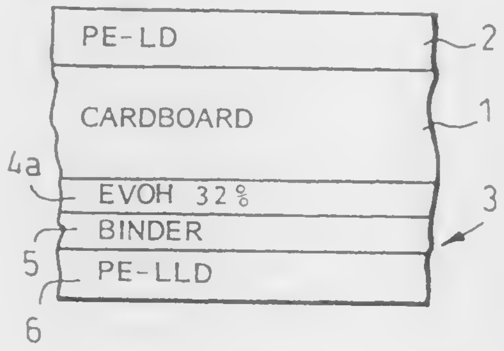
Riitta Koskiniemi, Kyminlinna; Tapani Penttinen, Huutjärvi, and Matti Salste, Imatra, all of Finland, assignors to Enso-Gutzeit Oy, Imatra, Finland

Continuation of Ser. No. 415,923, Mar. 30, 1995, abandoned, which is a continuation of Ser. No. 154,823, Nov. 18, 1993, abandoned. This application Mar. 22, 1996, Ser. No. 621,765

Claims priority, application Finland, Jun. 21, 1993, 932875

Int. Cl.^{6} B32B *7/02;23/06;23/08;27/30*

U.S. Cl. 428—214 **11 Claims**



1. A multi-layer product, in particular for producing containers, comprising a layer formed of a fiber-based packing material on one surface of which a gas-tight multi layer plastic coating is arranged, said gas-tight multi-layer plastic coating being formed of superposed
(a) 1–4 g/m^2 barrier plastic layer comprised of an ethylene vinyl alcohol copolymer,
(b) 1–4 g/m^2 binder layer comprised of low density polyethylene, and
(c) surface layer of a heat-sealable polyolefin material having sufficient thickness for liquid-tight heat sealing,
so that the barrier plastic layer is the closest of said layers to the fiber-based packing material layer.

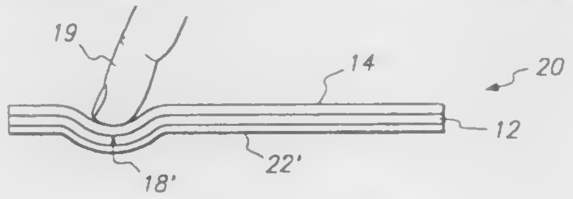
5,738,934
FLEXIBLE ELECTRODE-BEARING ARTICLE

Philip J. Jones, Menlo Park, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 466,167, Jun. 6, 1995, abandoned. This application Oct. 29, 1996, Ser. No. 739,235

Int. Cl.^{6} H01M *2/16,* **B32B** *27/00*

U.S. Cl. 428—220 **17 Claims**



1. An electrode-bearing article, comprising
a supporting material;
an electrode material disposed over said supporting material, including over a region of said supporting material which is subject to flexing in use, rendering said electrode material susceptible to cracking at such region, and
a conductive polymeric material disposed in contact with said electrode material in said region of said supporting material subject to flexing in use, said conductive polymeric material (a) comprising a blend of an intrinsically conducting polymer and a non-conductive polymer and (b) having a Young's modulus of less than 100 kg/cm^2.

5,738,935
PROCESS TO MAKE A COMPOSITE OF CONTROLLABLE POROSITY

David L. Turk, Stow, and Otto Grill, Independence, both of Ohio, assignors to FormTech Enterprises, Inc., Stow, Ohio

Continuation-in-part of Ser. No. 367,713, Jan. 3, 1995, abandoned, which is a division of Ser. No. 113,989, Aug. 30, 1993. This application Feb. 22, 1996, Ser. No. 603,912

Int. Cl.^{6} B32B *3/26*

U.S. Cl. 428—304.4 **36 Claims**

1. A process for the preparation of a porous natural cellulosic wood fiber and thermoplastic composite wherein the thermoplastic is selected from the group consisting of polyvinyl chloride, polyolefins, polystyrenes, polyacrylics and polyesters comprising:
mixing the natural cellulosic wood fiber and the thermoplastic with a porosity aid which is selected from the group consisting of a paraffin and a hydrocarbon wax blend having a melting point of 200° F. or lower, and
an oxidized polyolefin fusion enhancer which forms a homogeneous melt of the natural cellulosic fiber and the thermoplastic and modifies the effect of the porosity aid which deters fusion, yet retains porosity in the composite and forms a mixture,
extruding the mixture through an extrusion die of an extruder as the composite; and
shaping the composite to a desired profile.

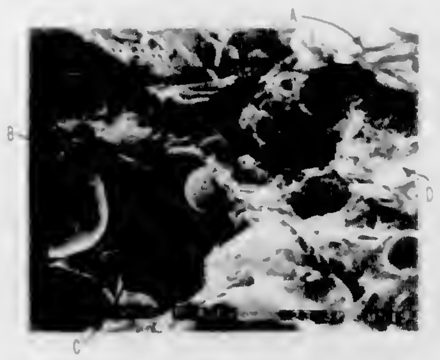
5,738,936
THERMALLY CONDUCTIVE POLYTETRAFLUOROETHYLENE ARTICLE

James R. Hanrahan, Newark, Del., assignor to W. L. Gore & Associates, Inc., Newark, Del.

Filed Jun. 27, 1996, Ser. No. 671,560

Int. Cl.^{6} B32B *5/18;25/02,27/20;27/34*

U.S. Cl. 428—313.5 **11 Claims**



1. A thermally conductive article comprising
a polytetrafluoroethylene matrix;
thermally conductive particles;
expanded hollow polymeric particles, and
an elastomer material interpenetrating said polytetrafluoroethylene matrix;
wherein said thermally conductive article has a thermal conductivity of greater than about 1.53 W/m C° at 100 psi.

5,738,937
WATERPROOF/BREATHABLE LINER AND IN-LINE SKATE EMPLOYING THE LINER

Baychar, Snobrook, 2506 Sugarloaf Mountain, Carrbassett, Me. 04947

Filed Nov. 12, 1996, Ser. No. 747,340

Int. Cl.^{6} B32B *3/26,* **A43B** *7/06,13/38,23/07*

U.S. Cl. 428—316.6 **7 Claims**

1. A moisture transferring lining system comprising
an inner liner,
a first foam material provided adjacent to the inner liner,
a second foam material provided adjacent to the first foam material;
a supporting element provided adjacent to the second foam material;
a third foam material provided adjacent to the supporting element,
a breathable membrane provided adjacent to the third foam material; and
an outer fabric layer attached to the breathable membrane

5,738,938
MAGNETOELECTRIC TRANSDUCER

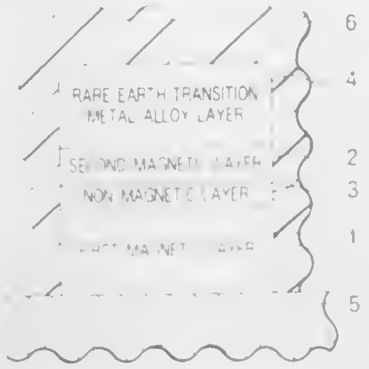
Yuji Kawano; Tatsuya Fukami, and Yoshinobu Maeda, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 29, 1996, Ser. No. 623,823

Claims priority, application Japan, Mar. 31, 1995, 7-076484

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—332 **8 Claims**



1. A magnetoelectric transducer comprising, formed upon a substrate, a first magnetic layer, a non magnetic layer, a second magnetic layer, and a rare earth - transition metal alloy layer,
said second magnetic layer and said rare earth - transition metal alloy layer undergoing exchange coupling,
said second magnetic layer and said rare earth - transition metal alloy layer having axes of easy magnetization, said axes being parallel to each other; and

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said rare earth—transition metal alloy layer having a composition exhibiting rare earth dominance at room temperature.

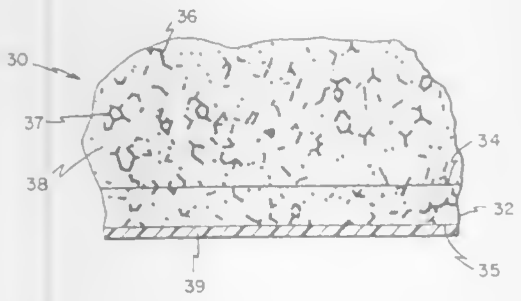
5,738,939
COMPOSITE ADHESIVE TAPE

Clyde D. Calhoun, Stillwater, and David C. Koskenmaki, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 815,173, Dec. 31, 1991, Pat. No. 5,585,178. This application Sep. 20, 1996, Ser. No. 710,598

Int. Cl.⁶ B32B *7/12*

U.S. Cl. 428—343 8 Claims



1. A composite adhesive layer comprising.
- a predetermined open, continuous, three-dimensional, discrete, skeletal structure of a first adhesive having a multiplicity of interconnected voids throughout the structure; and at least one continuous layer of a second adhesive having different viscoelastic properties from the first adhesive and extending through the interconnected voids.

5,738,940
CUT-RESISTANT ARAMID FIBERS, YARNS COMPRISING THESE ARAMID FIBERS AND USE THEREOF

Richard Neuert, Winkelhaid, Germany, assignor to Hoechst Trevira GmbH & Co KG, Germany

Filed Feb. 18, 1997, Ser. No. 800,530

Claims priority, application Germany, Feb. 15, 1996, 196 05 511.3

Int. Cl.⁶ B02G *3/00*; E02D *27/42*

U.S. Cl. 428—372 19 Claims

1. A cut-resistant fiber comprising a filler having a Mohs hardness of at least 3 and a fiber-forming material comprising an aromatic polyamide which is soluble in polar aprotic organic solvents and contains the structural repeat units of the formulae I, II and optionally IIa

$$-OC-Ar^1-CO-NH-Ar^2-NH- \quad (I)$$

$$-OC-Ar^1-CO-NH-Ar^3-NH- \quad (II)$$

$$-OC-Ar^1-CO-NH-Ar^{3a}-NH- \quad (IIa),$$

where Ar^1, Ar^2, Ar^3 and Ar^{3a} are each independently of the others a bivalent mono- or polycyclic aromatic radical whose free valences are disposed para or meta or comparably parallel, coaxial or angled to each other, and

Ar^2, Ar^3 and optionally Ar^{3a} each have different individual meanings within the scope of the given definitions, and the respective monomer components underlying the polymer are selected so as to produce a soluble aromatic polyamide which forms preferably isotropic solutions in organic solvents.

5,738,941
FREE FLOWING CRUMB RUBBER COMPOSITION

Gregory David Pero, Norton, and Michael Kenneth Stockdale, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Comoany, Akron, Ohio

Filed Apr. 8, 1996, Ser. No. 629,285

Int. Cl.⁶ B44D *1/02;1/094*

U.S. Cl. 428—407 21 Claims

1. A process for preparing and storing a free-flowing crumb rubber composition which comprises the steps of:

(1) extruding a rubbery polymer into a wax emulsion; wherein the rubbery polymer is extruded into pellets having a diameter which is within the range of about 1 mm to about 15 mm; wherein the wax emulsion is comprised of about 35 weight percent to about 89 weight percent water, from about 10 weight percent to about 50 weight percent of a wax, and from about 1 weight percent to about 15 weight percent of an emulsifier, wherein said percentages are based on the total weight of said wax emulsion; wherein the wax has a melting point which is within the range of about 40° C. to about 175° C.; wherein the wax emulsion is at a temperature which is within the range of 20° C. to 50° C., wherein the wax emulsion is at a temperature which is less than the melting point of the wax; and wherein the rubbery polymer is selected from the group consisting of polybutadiene rubber, polyisoprene rubber, styrene-butadiene rubber, styrene-isoprene rubber, isoprene-butadiene rubber, styrene-isoprene rubber, styrene-isoprene-butadiene rubber, nitrile rubber and carboxylated nitrile rubber;

(2) agitating the wax emulsion containing the rubbery polymer to produce a wax-coated rubbery polymer;

(3) separating the wax-coated rubbery polymer from the wax emulsion so as to recover a wet wax-coated rubbery polymer;

(4) drying the wax-coated rubbery polymer in a gas medium under forced motion to produce the free-flowing crumb rubber composition, wherein the gas medium is at a temperature which is within the range of about 10° C. to about 50° C., and

(5) storing the free-flowing crumb rubber composition at a temperature of less than about 16° C.

5,738,942
SEMICONDUCTOR SILICON WAFER AND PROCESS FOR PRODUCING IT

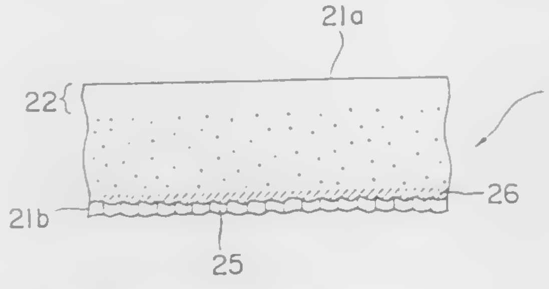
Atsuko Kubota, Yokohama; Masakatu Kojima, Yokosuka; Norihiko Tsuchiya, Setagaya-Ku; Shuichi Samata, Yokohama; Masanori Numano, Yokohama, and Yoshihiro Ueno, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 279,007, Jul. 22, 1994, Pat. No. 5,534,294. This application Dec. 29, 1995, Ser. No. 580,926

Claims priority, application Japan, Jul. 22, 1993, 5-181602; Jun. 10, 1994, 6-128959

Int. Cl.⁶ B32B *9/00*; H01L *23/58;29/04;21/306*

U.S. Cl. 428—428 8 Claims



1. A semiconductor silicon wafer, comprising:
- a silicon wafer;
- an oxide film with a thickness of 1–3 nm formed on one side of said silicon wafer; and
- a polycrystalline silicon depositing film has a thickness of from 1–2 μm is formed on said oxide film.

5,738,943
LITHOGRAPHIC PRINTING PLATE TREATED WITH ORGANO-PHOSPHONIC ACID CHELATING COMPOUNDS AND PROCESSES RELATED THERETO

Howard A. Fromson, 49 Main St., Stonington, Conn. 06378; Robert F. Gracia, Woodstock Valley, Conn.; Sean P. Evans, South Windsor, Conn., and William J. Rozell, Vernon, Conn., assignors to Howard A. Fromson, Stonington, Conn.

Division of Ser. No. 652,402, May 23, 1996, which is a continuation-in-part of Ser. No. 577,043, Dec. 22, 1995, abandoned, which is a continuation-in-part of Ser. No. 454,608, May 31, 1995, abandoned. This application Jan. 8, 1997, Ser. No. 780,736

Int. Cl.⁶ B32B *9/00*

U.S. Cl. 428—469 9 Claims

1. Aluminum lithographic printing plate having a surface consisting essentially of anodized aluminum treated with a monomeric, organo-phosphonic acid chelating compound containing at least three methane organo-phosphonic acid groups bound to a nitrogen atom or salt thereof.

5,738,944
LITHOGRAPHIC PRINTING PLATE TREATED WITH ORGANO-PHOSPHONIC ACID CHELATING COMPOUNDS AND PROCESSES RELATED THRERETO

Howard A. Fromson, 49 Main St., Stonington, Conn. 06378; Robert F. Gracia, Woodstock Valley, Conn.; Sean P. Evans, South Windsor, Conn., and William J. Rozell, Vernon, Conn., assignors to Howard A. Fromson, Stonington, Conn.

Division of Ser. No. 652,402, May 23, 1996, which is a continuation-in-part of Ser. No. 577,043, Dec. 22, 1995, abandoned, which is a continuation-in-part of Ser. No. 454,608, May 31, 1995, abandoned. This application Jan. 8, 1997, Ser. No. 780,737

Int. Cl.⁶ B32B *9/00*

U.S. Cl. 428—409 21 Claims

1. In a lithographic printing process wherein water or a hydrophilic compound and oleophilic ink are applied to an anodized aluminum lithographic printing plate having an oleophilic image and a hydrophilic background, the improvement for enhancing the hydrophilicity of the background which consists essentially of treating at lest the background with a monomeric, organo-phosphonic acid chelating compound containing at least three methane organo-phosphonic acid groups bound to a nitrogen atom of salt thereof.

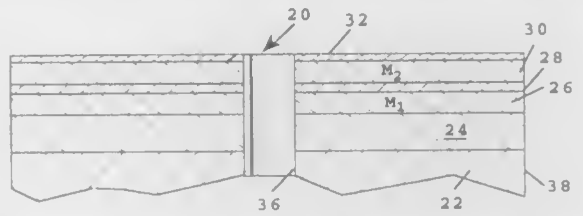
5,738,945
MULTILAYER MAGNETIC MEDIUM WITH SOFT MAGNETIC INTERLAYER

Brij B. Lal, San Jose, and Tadashi Shinohara, Freemont, both of Calif., assignors to HMT Technology Corporation, Fremont, Calif.

Filed Dec. 16, 1993, Ser. No. 168,871

Int. Cl.⁵ G11B *5/66*

U.S. Cl. 428—611 7 Claims



1. A thin-film longitudinal magnetic recording medium comprising
- a substrate, and forming successive sputtered layers on the substrate:
  - (i) a chromium underlayer;
  - (ii) a first Co-based thin film magnetic layer;
  - (iii) a soft ferromagnetic isolation layer having a thickness between about 5–50 Å.
  - (iv) a second Co-based thin-film magnetic layer; and
  - a wear-resistant overcoat composed of carbon,
- said isolation layer being effective to reduce medium noise and increase medium signal to noise ratio at least as much as a Cr isolation layer having the same thickness, but with substantially less reduction in overwrite with respect to that produced by a Cr isolation layer.

5,738,946
MAGNETORESISTANCE EFFECT ELEMENT

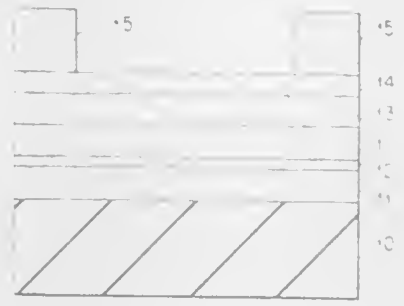
Hitoshi Iwasaki; Yoichi Ohsawa; Reiko Kondoh, all of Yokohama; Sosumu Hashimoto, Ebina; Atsohito Sawabe, Yokosuka; Yuzo Kamiguchi, and Masashi Sahashi, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 144,258, Nov. 1, 1993, Pat. No. 5,549,978. This application May 23, 1996, Ser. No. 652,784

Claims priority, application Japan, Oct. 30, 1992, 4-315648; Mar. 12, 1993, 5-078919; Mar. 15, 1993, 5-053605; Mar. 15, 1993, 5-053612

Int. Cl.⁶ G11B *5/127*

U.S. Cl. 428—611 10 Claims



1. A magnetoresistance effect element comprising
- a substrate;
- a stacked film formed on said substrate, said stacked film including a first ferromagnetic film a direction of magnetization of which is substantially pinned, a second ferromagnetic film, and a non-magnetic film disposed between said first and second ferromagnetic film, wherein each of said first ferromagnetic film and said second ferromagnetic film, independently, contains a material selected from the group consisting of Co, a CoFe alloy, a NiFe alloy, a CoNi alloy and a CoFeNi alloy, and wherein said non-magnetic film contains a material selected from the group consisting of Cu, Al, Pd, Pt, Rh, Ru, Ir, Au, Ag, CuPd, CuAu and CuNi,
- an underlying film formed between said stacked film and said substrate, and containing a NiFe alloy; and
- a pair of leads for supplying a current to said stacked film,
- wherein a (111) plane of said stacked film is oriented in a direction perpendicular to a surface of said stacked film

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5,738,947
CORROSION-RESISTANT FILM FOR PROTECTING SURFACES OF AG AND CORROSION-RESIST COMPOSITE STRUCTURES

Kenichi Hijikata, and Rie Mori, both of Omiya, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Division of Ser. No. 519,025, Aug. 24, 1995, Pat. No. 5,630,886. This application Feb. 8, 1996, Ser. No. 598,397

Claims priority, application Japan, Aug. 29, 1994, 6-203875

Int. Cl.⁶ G11B *11/10*

U.S. Cl. 428—629 14 Claims

1. A reflective film comprising a composite structure, which comprises i) an Ag substrate, and ii) a protective film of an Ag—Mg alloy with an Mg content of from 1 to 10 atomic % formed on the surface of said Ag substrate, prepared by a process of oxidizing a surface part of said protective film of said Ag—Mg alloy to form an MgO layer on an external surface of said protective film wherein Mg is diffused from a surface of said Ag—Mg

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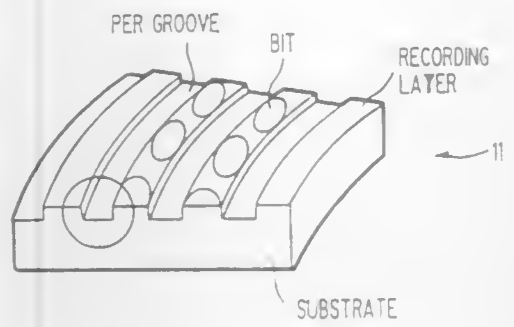


alloy opposite to an interface between said Ag surface and said Ag—Mg alloy wherein said protective film has a thickness of 50 Å or more.

5,738,948

ELECTRODE-WIRING MATERIAL AND ELECTRODE-WIRING SUBSTRATE USING THE SAME

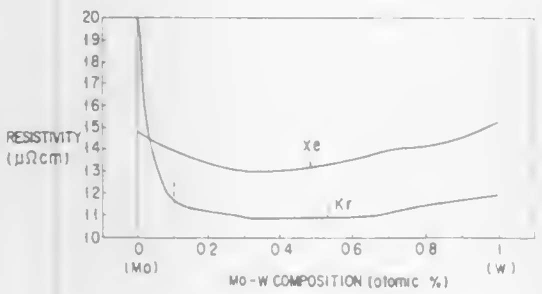
Mitsushi Ikeda, Yokohama; Yoshiko Tsuji, Kawasaki; Yujiro Hara, Tokyo; Masaki Atsuta, Yokosuka; Yoshifumi Ogawa, Kawasaki; Toshiyuki Oka, Yokohama, and Momoko Takemura, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 29, 1995, Ser. No. 536,608

Claims priority, application Japan, Sep. 29, 1994, 6-233932

Int. Cl.^{6} G02F *1/1343*, **C22C** *27/04*

U.S. Cl. 428—663 **48 Claims**



1. An electrode wiring material, consisting essentially of

(i) an alloy consisting essentially of Mo and W, and

(ii) 0.0003–3 atomic percent of an additional element selected from the group consisting of Kr and Xe.

5,738,949

INDUCTIVE COMPONENT HAVING A CORE FORMED OF HIGH-PERMEABILITY MNZN FERRITES AND ENCAPSULATED WITH INSULATING MATERIAL

Dieter Schaner, Kraiburg; Armin Schweiger, München, and August Beer, Deisenhofen, all of Germany, assignors to Siemens Matsushita Components GmbH & Co. KG, Munich, Germany

Filed Jan. 16, 1996, Ser. No. 586,565

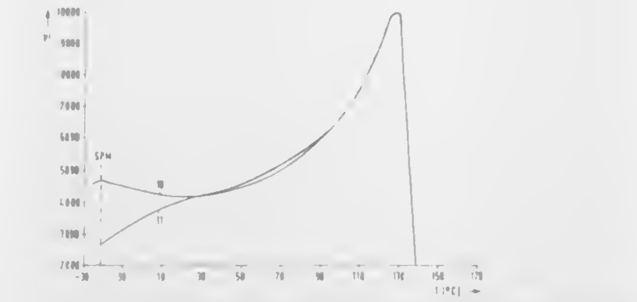
Claims priority, application Germany, Jul. 12, 1993, 43 23 279.5

Int. Cl.^{6} B32B *18/00*

U.S. Cl. 428—697 **4 Claims**

1. An inductive component, comprising:

a core formed of MnZn ferrites having high magnetic permeability and a secondary permeability maximum at a temperature <0°C.; and electricity insulating material encapsulating said core.



5,738,950

MAGNETOOPTICAL RECORDING MEDIUM

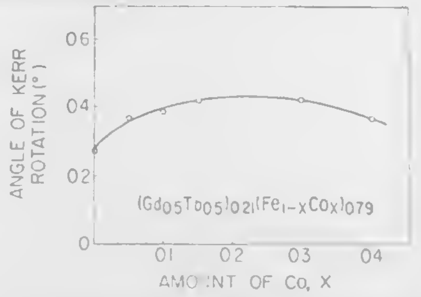
Hiroyoshi Kishi, Tokyo, and Masaaki Matsushima, Machida, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 820,828, Jan. 21, 1986, abandoned, which is a continuation of Ser. No. 491,300, May 3, 1983, abandoned. This application Jun. 7, 1995, Ser. No. 485,159

Claims priority, application Japan, May 10, 1982, 57-77677; Mar. 16, 1983, 58-45035

Int. Cl.^{6} G11B *5/66*

U.S. Cl. 428—694 ML **2 Claims**



1. A magneto-optic recording medium comprising a substrate and an amorphous magnetic alloy film formed on said substrate, said film having an axis of easy magnetization in the direction perpendicular to the film surface, said alloy having a composition of the general formula:

$$(Gd_{1-y}Tb_y)_z(Fe_{1-x}Co_x)_{1-z}$$

wherein

$0.05 \leq x \leq 0.4$

$0.5 \leq y \leq 0.9$ and

$0.2 \leq z < 1$.

5,738,951

METHOD OF MANUFACTURING A COMPOSITE MATERIAL WITH LAMELLAR INTERPHASE BETWEEN REINFORCING FIBERS AND MATRIX, AND MATERIAL OBTAINED

Stéphane Goujard; Pascal Dupel, both of Merignac; René Pailler, Cestas, and Fabrice Heurtevent, Bordeaux, all of France, assignors to Societe Europeene de Propulsion, Suresnes, France

PCT No. PCT/FR94/01091, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/09136, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 20, 1994, Ser. No. 619,544

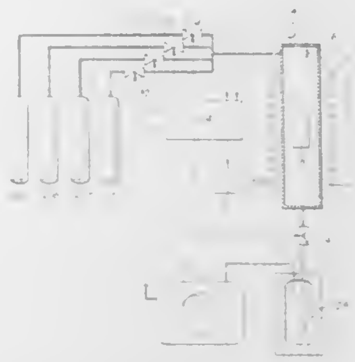
Claims priority, application France, Sep. 27, 1993, 93 11438

Int. Cl.^{6} B32B *9/00*

U.S. Cl. 428—698 **13 Claims**

9. A composite material comprising a fiber reinforcement, a matrix densifying the fiber reinforcement and an interphase coating layer interposed between the fibers of the fiber reinforcement and the matrix,

wherein said interphase layer includes a plurality of coating sequences, each sequence including a plurality of elementary layers having a thickness of less than 10 nanometers and comprising at least one elementary layer in a first constituent which intrinsically presents a lamellar microtexture and at least another one elementary layer in a second constituent which is capable of protecting the first constituent against oxidation, whereby the interphase layer is formed by superposed elementary layers.



5,738,952

ENCLOSED-TYPE SECONDARY CELL

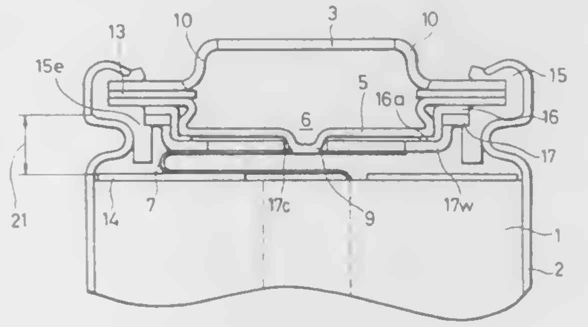
Takao Abe, Fukushima, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 7, 1996, Ser. No. 643,878

Claims priority, application Japan, May 12, 1995, 7-114800

Int. Cl.^{6} H01M *2/12*

U.S. Cl. 429—56 **12 Claims**



1. An enclosed secondary cell comprising:

a container with a generating element provided therein;

a safety valve made of a metal plate and having a convex portion protruding toward said generating element;

an annular gasket with a stepped portion formed thereon and holding an outer peripheral portion of said safety valve;

a disk disposed between said safety valve and said generating element and having an opening portion into which said convex portion of said safety valve is fitted, said disk being fixed between said safety valve and said annular gasket at said stepped portion of said annular gasket; and

a lead plate being placed between said disk and said generating element and welded at said convex portion of said safety valve, wherein said welded portion of said safety valve and said lead plate is detached to interrupt a current when said safety valve is deformed as an internal pressure of said secondary cell is raised.

5,738,953

ALKALINE METAL OXIDE/METAL HYDRIDE BATTERY

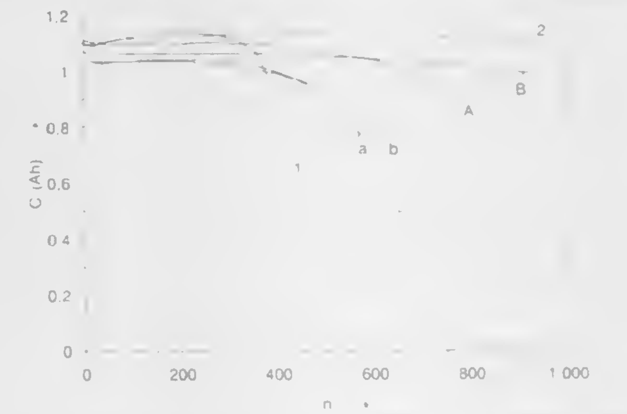
Frank Lichtenberg, Zeiskam; Uwe Köhler; Klaus Kleinsorgen, both of Kelkheim, all of Germany; Andreas Fölzer, Treibach-Althofen, and Alexander Bouvier, Krumpendorf, both of Austria, assignors to Varta Batterie Aktiengesellschaft, Hanover, Germany

Filed Apr. 5, 1996, Ser. No. 626,138

Claims priority, application Germany, Apr. 6, 1995, 195 12 841.9

Int. Cl.^{6} H01M *4/38*, **C22C** *30/02*

U.S. Cl. 429—59 **17 Claims**



10. A negative electrode for an alkaline metal oxide/metal hydride battery, comprising a hydrogen storage alloy material formed as a misch metal, nickel and cobalt and which has a $CaCu_5$ type crystal structure, having a composition:

$$MmNi_vAl_wMn_xCo_yM_z$$

where Mm is the misch metal, M is iron, copper, or a mixture of iron and copper, and where

$0.2 \leq x \leq 0.4$;

$0.1 \leq z \leq 0.4$;

$0.2 \leq y \leq 0.4$;

$0.3 \leq w \leq 0.5$, and,

$4.9 \leq v+w+x+y+z \leq 5.1$.

5,738,954

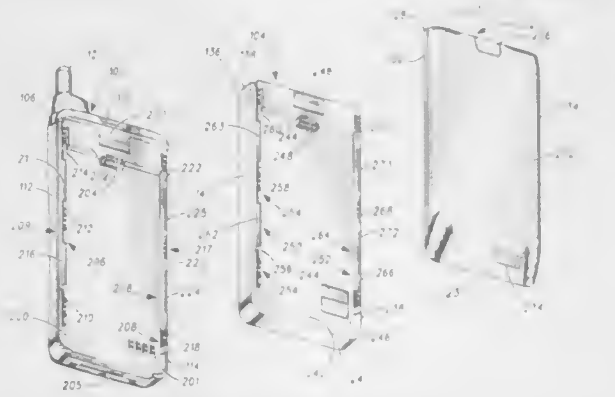
BATTERY CONTINUATION APPARATUS AND METHOD THEREOF

Ricky Latella, Carpentersville; David Lind Weigand, Buffalo Grove, and Glenn Charles Goergen, Lake Zurich, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 442,047, May 16, 1995, abandoned. This application Jul. 14, 1997, Ser. No. 892,552

Int. Cl.^{6} H01M *2/10*

U.S. Cl. 429—97 **20 Claims**



1. A battery continuation apparatus comprising:

a housing;

a first contact positioned on said housing to connect to a first device;

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at least one electrochemical cell positioned in said housing to provide a first source of power to the first device.

a second contact positioned on said housing to connect to a second device, the second device to provide a second source of power; and

a bypass mechanism coupled to said at least one electrochemical cell, said first contact, and said second contact, said bypass mechanism to automatically connect said at least one electrochemical cell to said first contact when said second contact is unconnected to the second device and to isolate the at least one electrochemical cell from the second device when said second contact is connected to the second device

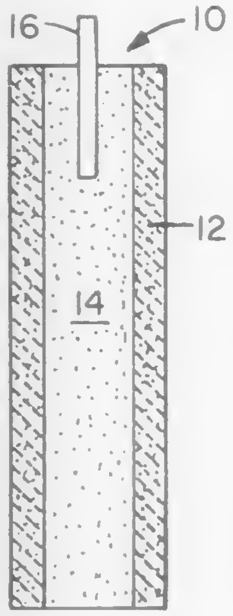
5,738,955
DEEP-DISCHARGE BATTERY SEPARATOR

Thomas N. Gardner, Horseheads, N.Y.; Alvin J. Salkind, Princeton, N.J.; John L. Stempin, Beaver Dams, and Dale R. Wexell, Corning, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Jul. 11, 1996, Ser. No. 679,693

Int. Cl.^{6} H01M *2/18*

U.S. Cl. 429—140 **18 Claims**



1 In a deep discharge, rechargeable battery assembly, the improvement comprising a tubular, porous, ceramic separator for a positive electrode, the separator having a porosity greater than 50%

5,738,956
AGENT FOR MAINTAINING AND RECOVERING THE FUNCTION OF LEAD STORAGE BATTERY AND ELECTROLYTE FOR LEAD STORAGE BATTERY USING THE SAME

Katsuichi Komoda, Toyonaka, Japan, assignor to Kyowa Hakko Kogyo, Tokyo, and K-Tec Co., Ltd., Osaka, both of Japan

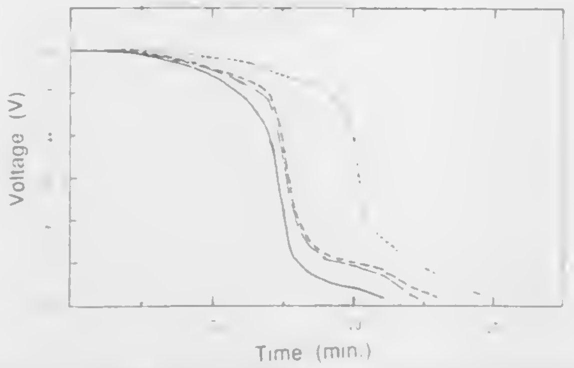
Filed Jan. 26, 1995, Ser. No. 378,477

Claims priority, application Japan, Jan. 28, 1994, 6-008090

Int. Cl.^{6} H07M *10/08*

U.S. Cl. 429—198 **3 Claims**

1 An agent for maintaining and recovering the function of a lead storage battery, comprising as active ingredients a metal sulfate, at



least one of an amino acid and a salt thereof, and further containing a metal carbonate

5,738,957
POSITIVE ELECTRODE ACTIVE MATERIAL FOR LITHIUM BATTERY

Khalil Amine; Hideo Yasuda, and Yuko Fujita, all of Kyoto, Japan, assignors to Japan Storage Battery Co., Ltd., Kyoto, Japan

Filed Apr. 19, 1996, Ser. No. 634,803

Claims priority, application Japan, Apr. 26, 1995, 7-127275

Int. Cl.^{6} H01M *4/02*

U.S. Cl. 429—223 **3 Claims**

1 A positive electrode active material for a lithium battery wherein a

general formula thereof is $Li_xMn_{2-y}Ni_yO_4$ (0.45<y<0.60) and 1<x<2.1) having cubic spinel structure

5,738,958
ALLOYS FOR USE AS ACTIVE MATERIAL FOR THE NEGATIVE ELECTRODE OF AN ALKALINE, RECHARGEABLE NICKEL-METAL HYDRIDE BATTERY, AND PROCESS FOR ITS PRODUCTION

Frank Lichtenberg, Zeiskam, Germany, assignor to Varta Batterie Aktiengesellschaft, Hannover, Germany

Filed Jul. 9, 1996, Ser. No. 680,520

Claims priority, application Germany, Jul. 27, 1995, 195 27 505.5

Int. Cl.^{6} H01M *4/38*

U.S. Cl. 429—223 **25 Claims**

1 An alloy of the AB_5 type for use as active material for a negative electrode of an alkaline, rechargeable nickel-metal hydride battery, having a composition,

$Mm_{1-u}E_uNi_vCo_wAl_xMn_yM_z$, wherein

Mm is a misch metal including La and Ce,

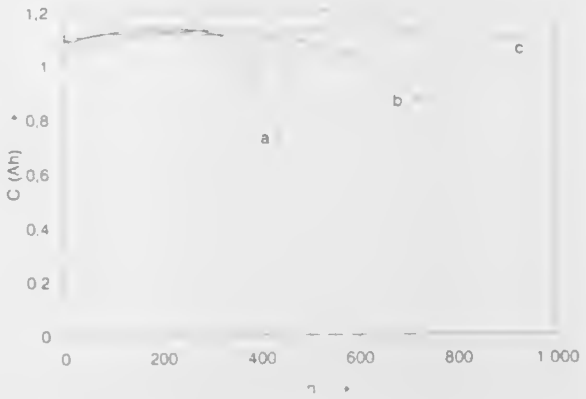
E is Ti, Zr, or a combination of Ti and Zr, with 0.01≤u≤0.1, and

M is Fe, Cu, or a combination of Fe and Cu, with 0≤z≤0.4, wherein

0.2≤w≤0.4,

0.3≤x≤0.5,

0.2≤y≤0.4, and



4.9≤v+w+x+y≤5.1

5,738,959
HALFTONE PHASE SHIFT PHOTOMASK, HALFTONE PHASE SHIFT PHOTOMASK BLANK, AND METHOD OF PRODUCING THE SAME COMPRISING FLUORINE IN PHASE SHIFT LAYER

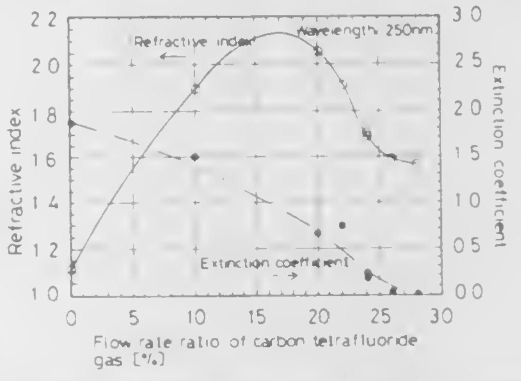
Hiroyuki Miyashita; Hiroshi Mohri; Masahiro Takahashi, and Naoya Hayashi, all of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., and Mitsuhishi Electric Corporation, both of Tokyo, Japan

Continuation of Ser. No. 292,263, Aug. 17, 1994, abandoned. This application Oct. 17, 1996, Ser. No. 722,439

Claims priority, application Japan, Aug. 17, 1993, 5-203234; Apr. 27, 1994, 6-089488; May 19, 1994, 6-105209

Int. Cl.^{6} G03F *9/00*

U.S. Cl. 430—5 **19 Claims**



1 A halftone phase shift photomask having on a transparent substrate a halftone phase shift layer which includes at least one layer composed mainly of a chromium compound,

wherein said chromium compound contains at least fluorine atoms in addition to chromium atoms.

5,738,960
OPTICAL INFORMATION REPRODUCING METHOD

Michiharu Abe, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 596,418, Feb. 2, 1996, abandoned, which is a continuation of Ser. No. 455,179, May 31, 1995, abandoned, which is a division of Ser. No. 915,950, Jul. 17, 1992, abandoned. This application Mar. 18, 1997, Ser. No. 820,237

Claims priority, application Japan, Jul. 19, 1991, 3-204782

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 430—21 **2 Claims**

1 An optical information reproducing method comprising the step of applying a minute light beam spot to an optical information recording medium comprising a substrate, an optical information recording layer and an auxiliary layer whose transmittance or reflectance increases in a real time manner correspondingly to the energy of an incident light thereto, to detect a reflected or transmitted light in a region substantially narrower than the spreading of said minute light beam spot, thereby reproducing information recorded in said optical information recording medium, wherein the transmittance of said auxiliary layer, after the application of light thereto, returns to the transmittance thereof before the application of light thereto, when said step of applying light is terminated, and wherein the auxiliary layer comprises a cyanine dye which becomes transparent when irradiated, with the light absorption thereof being saturated.

5,738,961
TWO-STEP PHOTOLITHOGRAPHY METHOD FOR ALIGNING AND PATTERNING NON-TRANSPARENT LAYERS

Jeng-Horng Chen, Taipei, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Mar. 3, 1997, Ser. No. 805,878

Int. Cl.^{6} G03F *9/00; 7/36*

U.S. Cl. 430—22 **16 Claims**

12 A method for forming a patterned conductor metal layer over a semiconductor substrate comprising:

providing a semiconductor substrate, the semiconductor substrate having an alignment mark formed thereupon;

forming over the semiconductor substrate including the alignment mark a blanket transparent layer, the blanket transparent layer at least partially replicating the alignment mark to form upon the blanket transparent layer a partially replicated alignment mark at a location substantially corresponding with the location of the alignment mark formed upon the semiconductor substrate,

forming over the blanket transparent layer including the partially replicated alignment mark a blanket conductor metal layer, the blanket conductor metal layer only partially replicating the partially replicated alignment mark to form upon the blanket conductor metal layer a twice partially replicated alignment mark at a location substantially corresponding with the location of the alignment mark formed upon the semiconductor substrate;

removing through a first photolithographic and etch method a first portion of the blanket conductor metal layer to leave completely exposed the partially replicated alignment mark while simultaneously forming a partially patterned conductor metal layer, the first photolithographic and etch method employing the twice partially replicated alignment mark to register a first photolithographic mask with respect to the semiconductor substrate, and

etching then through a second photolithographic and etch method the partially patterned conductor metal layer to form a patterned conductor metal layer, the second photolithographic and etch method employing the alignment mark to register a second photolithographic mask with respect to the semiconductor substrate

5,738,962
TONER FOR FULL-COLOR IMAGE FORMATION, DEVELOPER COMPOSITION, AND METHOD OF FORMING MULTICOLOR IMAGE

Masanori Ichimura; Hiroshi Takano; Masaki Hashimoto; Hideyuki Akagi; Kazuya Furuta, and Koji Fukushima, all of Ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1996, Ser. No. 730,936

Claims priority, application Japan, Oct. 20, 1995, 7-295876

Int. Cl.^{6} G03G *13/16*

U.S. Cl. 430—45 **9 Claims**

1 A method of forming a multicolor image on receiving paper by developing an electrostatic latent image with a cyan toner, a

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yellow toner, and a magenta toner each comprising a binder resin and a colorant, each of said toners having a volume-average particle diameter of from 3.0 to 9.0 μm and satisfying the following relationship (1) between the volume-average particle diameter and a colorant content thereof, and the development being conducted in such a manner that the amount of each toner transferred to a receiving paper satisfies the following relationship (2):

$$11.0/R \leqq C \leqq 21.5/R \qquad (1)$$

$$0.116R \leqq TMA \leqq 0.223R \qquad (2)$$

wherein R represents ½ of the volume-average particle diameter of the toner (μm), C represents the colorant content of the toner (wt %), and TMA represents the weight of the toner (mg/cm²) transferred to the receiving paper in a monochromatic solid part thereof.

5,738,963

LIGHT-RECEIVING MEMBER FOR ELECTROPHOTOGRAPHY HAVING A PHOTOCONDUCTIVE LAYER COMPOSED OF A FIRST LAYER REGION AND A SECOND LAYER REGION HAVING DIFFERENT ENERGY BANDGAPS AND CHARACTERISTIC ENERGIES

Hiroaki Niino, Nara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 16, 1996, Ser. No. 698,925

Claims priority, application Japan, Aug. 23, 1995, 7-214799

Int. Cl.⁶ G03G *5/153*

U.S. Cl. 430—57 **24 Claims**

1. A light-receiving member for electrophotography comprising: a support and a photoconductive layer;

wherein the photoconductive layer comprises a non-single-crystal material comprising silicon atoms as a matrix and containing at least one of hydrogen atoms and halogen atoms;

and wherein the photoconductive layer comprises.

a first layer region formed by a layer having an optical bandgap (Eg) of 1.70 eV to 1.82 eV and a characteristic energy (Eu) of 50 meV to 65 meV, wherein Eu is obtained from the linear relationship portion or exponential tail of a function represented by Expression (1):

$$\ln \alpha=(1/Eu)\cdot h\nu+\alpha \qquad (1)$$

where photon energy hv is set as an independent variable and absorptivity coefficient α of light absorption spectrum as a dependent variable, and

at least one second layer region formed by a layer having Eg of 1.78 eV to 1.85 eV and Eu of 50 meV to 60 meV

wherein the Eg of the first layer region is smaller than the Eg of the second layer region and the Eu of the first layer region is larger than the Eu of the second layer region.

5,738,964

ELECTROPHOTOGRAPHIC TONER WITH SPECIFIC HIGH, MEDIUM, AND LOW MOLECULLAR WEIGHT PEAKS

Tsuyoshi Uchida; Yuji Marukawa, and Hiroyuki Kozuru, all of Hachioji, Japan, assignors to Konica Corporation, Japan

Filed Nov. 13, 1996, Ser. No. 746,633

Claims priority, application Japan, Nov. 16, 1995, 7-298351

Int. Cl.⁶ G03G *9/087*

U.S. Cl. 430—109 **5 Claims**

1. An electrophotographic toner comprising a binder resin, a colorant, and a releasing agent, wherein the molecular weight distribution of the binder resin measured by gel permeation chromatography satisfies that

(1) said binder resin has a main peak in the molecular weight range between 3,000–5,000;

(2) said binder resin has a peak or a shoulder in the molecular weight range between 80,000–240,000;

(3) said binder resin has a peak or a shoulder in the molecular weight range between 400,000–650,000;

(4) component having the molecular weight less than 20,000 is 56–70% by weight;

(5) component of having the molecular weight between 20,000–300,000 is 8–32% by weight;

(6) component having the molecular weight greater than 300,000 is 12–28% by weight;

(7) HP content and MP content satisfy the following relation;

$$45\ (\%) \leqq \text{MP Ratio} + \text{HP Ratio} \times 2 \leqq 65\ (\%);$$

wherein MP Ratio is content of the medium molecular weight component having the molecular weight between 20,000–300,000 of the resin in percent, and HP Ratio is content of the high molecular weight component having the molecular weight greater than 300,000 of the resin in percent, and that the glass transition point of said resin is between 52° C. and 62° C.

5,738,965

TONER FOR DEVELOPING STATIC CHARGE IMAGES AND PROCESS FOR PREPARING THE SAME

Kazue Nakadera; Haruo Okutani, and Hideki Kurebayashi, all of Shizuoka, Japan, assignors to Tomoegawa Paper Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 463,502, Jun. 5, 1995, Pat. No. 5,587,265. This application Oct. 22, 1996, Ser. No. 734,918

Claims priority, application Japan, Jun. 3, 1994, 6-145290; Jun. 3, 1994, 6-145291

Int. Cl.⁶ G03G *9/087*

U.S. Cl. 430—109 **5 Claims**

1. A toner for developing an electrostatic image comprising at least a colorant and a binder resin,

wherein a main component of the binder resin is a polyester resin, wherein the polyester resin comprises a polymer prepared by polycondensing polybasic acids with at least a component selected from the group consisting of aliphatic polyols having 11 or fewer carbon atoms, aliphatic diols having 11 or fewer carbon atoms, aromatic polyols and aromatic diols to form a polyester oligomer having a number average molecular weight (Mn) of 3000 or less; and

cross-linking and/or grafting said polyester oligomer by reaction with at least one compound selected from the group consisting of long chain alcohols which have 12 or more carbon atoms and long chain carboxylic acids having 12 or more carbon atoms, wherein said long chain carboxylic acid having 12 or more carbon atoms is at least one member selected from the group consisting of aliphatic polycarboxylic acids and aliphatic dicarboxylic acids and wherein said long chain alcohol having 12 or more carbon atoms is at least one member selected from the group consisting of aliphatic polyols and aliphatic diols.

5,738,966

NON-MAGNETIC ONE-COMPONENT DEVELOPER AND IMAGE FORMING PROCESS

Hiroyoshi Okuno; Toyofumi Inoue; Tetsu Torigoe; Hiroe Okuyama; Koutarou Yoshihara, and Masahiro Uchida, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1996, Ser. No. 758,939

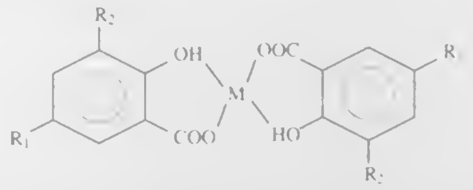
Claims priority, application Japan, Dec. 15, 1995, 7-326915

Int. Cl.⁶ G03G *9/097*

U.S. Cl. 430—110 **12 Claims**

1. A negatively electrifiable, non-magnetic and single component developer comprising a binder resin, a carbon black and a charge control agent,

wherein the carbon black has an average primary particle diameter of 20 to 50 nm and a pH of 2 to 5, and the charge control agent comprises a compound represented by the following formula



wherein M represents a metal atom selected from the group consisting of zinc, iron, nickel and cobalt, and R_1 and R_2 each represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms.

5,738,967

METHOD OF LIQUID ELECTROPHOTOGRAPHY BY IMPRESSION/CONTACT DEVELOPMENT

Shinichi Horii; Hiroshi Tokunaga; Katusyuki Ogura, and Yoshihiro Nishio, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 19, 1996, Ser. No. 699,324

Claims priority, application Japan, Aug. 22, 1995, 7-213389

Int. Cl.⁶ G03G *15/10*

U.S. Cl. 430—119 **8 Claims**

1. A developing method employing a liquid developer comprised of charged toner particles dispersed in an electrically insulating liquid, said charged toner particles including at least a coloring agent and a resin, comprising the steps of.

(a) depositing said liquid developer to a uniform thickness on a surface of a developer carrier and impressing an electrical field across said liquid developer deposited on said surface of said developer carrier to form a liquid toner layer of charged toner particles of predominantly a single polarity assembled together; and

(b) pressing a charge carrier having an electrostatic latent image formed thereon onto said liquid toner layer formed on said developer carrier and establishing a potential difference between said developer carrier and said charge carrier to effect development of said image, wherein said developed image requires no removal of excess toner therefrom.

5,738,968

POSITIVE PHOTORESIST COMPOSITION

Hiroshi Hosoda; Taku Hirayama; Kousuke Doi; Satoshi Niikura; Hidekatsu Kohara, and Toshimasa Nakayama, all of Kanagawa, Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Kanagawa, Japan

Filed Mar. 25, 1997, Ser. No. 823,585

Claims priority, application Japan, Mar. 25, 1996, 8-092997; Jul. 2, 1996, 8-191432

Int. Cl.⁶ G03F *7/023*

U.S. Cl. 430—191 **8 Claims**

1. A positive photoresist composition comprising

(A) an alkali soluble resin,

(B) a quinonediazide group-containing compound, and

(C) at least one hydroxy compound selected from the group consisting of bis(4-hydroxy-2,3,5-trimethylphenyl)-2-hydroxyphenylmethane, bis(4-hydroxy-2,3,5-trimethylphenyl)-3-hydroxyphenylmethane, bis(4-hydroxy-2,3,5-trimethylphenyl)-4-hydroxyphenylmethane, bis(4-hydroxy-2,3,5-trimethylphenyl)-3,4-dihydroxyphenylmethane, and bis(4-hydroxy-2,3,5-trimethylphenyl)-4-hydroxy-3-methoxyphenylmethane

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5,738,969

PROCESS FOR TREATING PLATE SURFACE OF LITHOGRAPHIC PRINTING PLATE

Hiroyuki Kurokawa; Toshiro Kondo, and Yutaka Araki, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

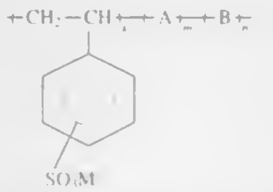
Filed Mar. 7, 1997, Ser. No. 812,647

Claims priority, application Japan, Mar. 7, 1996, 8-050300; Mar. 7, 1996, 8-050301; Apr. 18, 1996, 8-096328

Int. Cl.⁶ G03F *7/07*, G03C *8/32*, B44M *5/00*

U.S. Cl. 430—204 **10 Claims**

1. A process for treating a plate surface of a lithographic printing plate, which comprises, after exposing and developing a lithographic printing plate having a support and at least a silver halide emulsion layer and a physical development nuclei layer provided on the support, treating the plate surface of the lithographic printing plate with a plate surface-treating solution containing at least one water-insoluble compound having a mercapto group or a thione group and a compound represented by the following formula (1):



$$\left(CH_2-CH\right)_k\left(A\right)_m\left(B\right)_n \qquad (1)$$

with SO_3M on the ring.

wherein A represents a vinyl monomer unit having a carboxyl group, B represents a copolymerizable ethylenic unsaturated monomer unit, M represents a cation, k represents 30 to 90 mole %, m represents 10 to 50 mole %, and n represents 0 to 50 mole %.

5,738,970

NEGATIVE WORKING, PEEL DEVELOPABLE, SINGLE SHEET COLOR PROOFING SYSTEM WITH POLYVINYL ACETAL PHOTOADHERING LAYER

Shane Hsieh, Bridgewater; Rusty Koenigkramer, Neshanic Station; Shuchen Liu, Annandale; Richard Shadrach, Belle Mead, all of N.J.; David Siegfried, Langhorne, Pa., and Wojciech Wilczak, Jersey City, N.J., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Mar. 24, 1997, Ser. No. 823,766

Int. Cl.⁶ G03C *11/12*

U.S. Cl. 430—259 **26 Claims**

1. A photosensitive element which comprises, in order from top to bottom:

(i) a strippable, transparent cover sheet,

(ii) a crosslinked layer, which comprises a polymer having phenolic groups;

(iii) a color layer, which comprises an organic binder, a polymerizable component comprising an ethylenically unsaturated monomer, polymer or oligomer having at least one unsaturated group, a colorant, and optionally, a photoinitiator, wherein the binder is present in sufficient amount to bind the color layer components into a uniform film, wherein the optional photoinitiator, when present, is present in sufficient amount to initiate polymerization of the polymerizable component, wherein the polymerizable component is present in sufficient amount to provide image differentiation when the element is imagewise exposed to actinic radiation and wherein the colorant is present in an amount sufficient to uniformly color the color layer;

(iv) a photoadhering layer, which comprises a polymerizable component comprising an ethylenically unsaturated monomer, polymer or oligomer having at least one unsaturated group, a polymer comprising polyvinyl acetal and polyvinyl alcohol segments, having from about 1 to about 40 weight % polyvinyl alcohol content, and an optional photoinitiator, wherein the optional photoinitiator, when present, is present in sufficient amount to initiate polymerization of the polymerizable

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component, and wherein at least one of the color layer and the photoadhering layer contains a photoinitiator; and

(v) a thermoplastic adhesive layer.

5,738,971
PHOTOSENSITIVE COMPOSITION FOR TRANSFER SHEETS

Taniotsu Suzuki, and Mikio Totsuka, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 321,136, Oct. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 147,160, Nov. 3, 1993, abandoned. This application Dec. 20, 1995, Ser. No. 575,464

Claims priority, application Japan, Nov. 5, 1992, 4-322357

Int. Cl.⁶ G03C *1/805*

U.S. Cl. 430—263 **9 Claims**

1. A photosensitive transfer sheet comprising a support, a peel layer thereon and an image forming layer provided on the peel layer which comprises a combination of an organic polymer derived from a vinyl monomer and a mixture of pentaerythritol tetraacrylate and a photo-polymerizable monomer having the following formula (1):

$$C\{CH_2-O-(R^1O)_n-CO-CR^2=CH_2\}_4 \qquad (1)$$

in which

R¹ represents $-CH_2CH_2-$ or $-CH(CH_3)CH_2-$,

R² represents a hydrogen atom, and

n is a value in the range of 0.5 to 5.0, said value being an average value obtained by dividing the total number of $-(R^1O)-$ units in the formula (1) by four;

the mixture containing the pentaerythritol tetraacrylate in an amount of 40 to 160 weight % based on an amount of the photo-polymerizable monomer of the formula (1).

5,738,972
RADIATION SENSITIVE COMPOSITION

Munirathna Padmanaban; Natsumi Suehiro; Yoshiaki Kinoshita; Satoru Funato; Seiya Masuda; Hiroshi Okazaki, and Georg Pawlowski, all of Saitama, Japan, assignors to Hoechst Japan Limited, Tokyo, Japan

Continuation of Ser. No. 550,649, Oct. 31, 1995, abandoned. This application May 28, 1997, Ser. No. 864,375

Claims priority, application Japan, Nov. 2, 1994, 6-269579

Int. Cl.⁶ G03F *7/039, 7/38*

U.S. Cl. 430—270.1 **19 Claims**

1. A radiation sensitive composition comprising in admixture

a) a binder insoluble in water and soluble in an aqueous alkali solution or swellable in an aqueous alkali solution,

b) optionally a crosslinking agent or optionally a dissolution inhibitor comprising poly(N,O-acetal) represented by the general formula (I)

$(-CHR^3-O-R^4-X-NR^5-)_p$

where R³ is an alkyl, aryl, or substituted aryl group,

R⁴ is a divalent alkylene, cycloalkylene, divalent alkene, or divalent alkyne group,

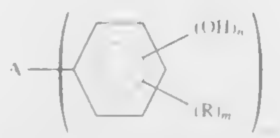
R⁵ is an alkyl, alkene, alkyne, or cycloalkyl group,

X is $-OCO-$, $-CO-$, or $-NHCO-$, and

p is an integer of 1 or more, and/or a phenolic compound having a hydroxyl group protected with a group cleavable by an acid,

c) a photosensitive compound capable of generating an acid upon exposure to actinic radiation,

d) a base capable of degrading into a neutral compound upon exposure to actinic radiation, e) a phenolic compound in an amount effective to improve the resolution and depth of focus represented by the general formula (II):



(II)

where n is an integer of 1 to 5, m is an integer of 0 to 4, n+m≦5, and p is an integer of 1 to 10,

each R is a C_1–C_{12} alkyl group or an unsubstituted or substituted cycloalkyl group or a C_1–C_6 hydroxyalkyl group, provided that hydrogen atoms may be substituted with a halogen atom and, when m is not less than 2, each R may be the same or different; A represents a hydrocarbon atomic grouping, having a valence of p, including an unsubstituted or substituted C_1–C_{100} alicyclic, chain aliphatic, or aromatic hydrocarbon or a combination thereof with the carbon atoms being optionally substituted with an oxygen atom, provided that when p is 1, A may represent a hydrogen atom and, when p is 2, A may represent $-S-$, $-SO-$, $-SO_2-$, $-O-$, $-CO-$, or a direct bond, and

f) a solvent.

13. A method of forming a pattern, comprising selectively exposing to actinic radiation a film formed from a radiation sensitive composition as claimed in claim 1,

heating the film, and

developing the exposed film.

5,738,973
OPTICAL INFORMATION RECORDING MEDIUM

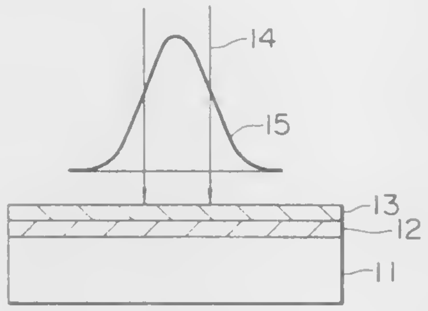
Michiharu Abe, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 597,571, Feb. 2, 1996, abandoned, which is a continuation of Ser. No. 456,192, May 31, 1995, abandoned, which is a division of Ser. No. 915,950, Jul. 17, 1992, abandoned. This application Feb. 21, 1997, Ser. No. 803,318

Claims priority, application Japan, Jul. 19, 1991, 3-204782

Int. Cl.⁶ G11B *7/24*

U.S. Cl. 430—270.11 **2 Claims**



1. An optical information recording medium comprising a substrate, an optical information recording layer and an auxiliary layer whose transmittance or reflectance increases in a real time manner correspondingly to the energy of an incident light thereto, wherein the transmittance of said auxiliary layer, after the application of light thereto, returns to the transmittance thereof before the application of light thereto, when said step of applying light is terminated, and wherein the auxiliary layer comprises a cyanine dye which becomes transparent when irradiated, with the light absorption thereof being saturated.

5,738,974
PHOTOPOLYMERIZABLE COMPOSITION AND PHOTOSENSITIVE LITHOGRAPHIC PRINTING PLATE

Hideki Nagasaka; Toshiyuki Urano, and Akihisa Murata, all of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Aug. 29, 1995, Ser. No. 520,724

Claims priority, application Japan, Sep. 5, 1994, 6-211269; Sep. 5, 1994, 6-211270; Sep. 21, 1994, 6-227087; Feb. 1, 1995, 7-05172

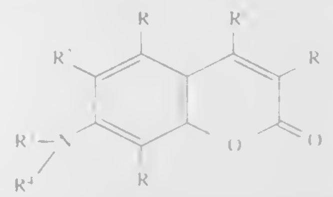
Int. Cl.⁶ G03F *7/029*

U.S. Cl. 430—278.1 **10 Claims**

1. A photosensitive lithographic printing plate having the photopolymerizable composition comprising an addition polymerizable compound having at least one ethylenically unsaturated double bond and a photopolymerization initiator system, wherein the photopolymerization initiator system consists essentially of

(a) titanocene compound, and

(b) at least one coumarin compound of the following formula (I)



(I)

wherein (i) each of R¹, R² and R⁵ is a hydrogen atom, a halogen atom, an alkyl group or an alkoxy group, each of R³ and R⁴ is an alkyl group, provided that at least one of R³ and R⁴ is a C_{5-15} alkyl group or (ii) R¹ is a hydrogen atom, a halogen atom, an alkyl group or an alkoxy group, and at least one set of R² and R³ and R⁴ and R⁵, is connected to form an alkylene group substituted by a lower alkyl group, provided that when they do not form the connecting group, one of R² and R⁵ is a hydrogen atom, a halogen atom, an alkyl group or an alkoxy group, and one of R³ and R⁴ is an alkyl group; R⁶ is a hydrogen atom, an alkyl group, an alkoxy group, an acyl group, or a cyano group, and R⁷ is a heterocyclic group, having a total number of carbon atoms of from 3 to 17 which group is directly attached to the coumarin ring at the heterocyclic ring of said heterocyclic group, coated on a grained and anodized aluminum substrate.

5,738,975
PHOTOSENSITIVE RESIN AND METHOD FOR PATTERNING BY USE OF THE SAME

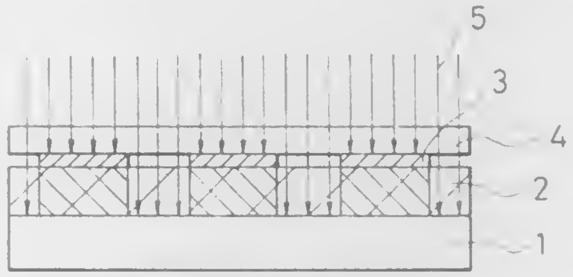
Kaichiro Nakano; Shigeyuki Iwasa, and Etsuo Hasegawa, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1994, Ser. No. 364,486

Claims priority, application Japan, Dec. 28, 1993, 5-334643

Int. Cl.⁶ G03F *7/039*

U.S. Cl. 430—280.1 **21 Claims**



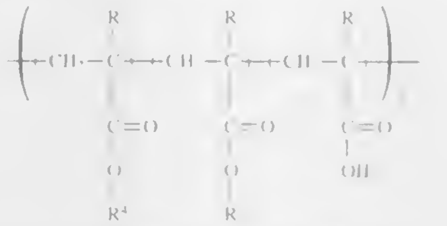
1. A photosensitive resin comprising:

(A) a polymer including a group which reacts with an acid to convert polarity of the polymer,

(B) a photo acid generator which is responsive to radiation to generate an acid, and

(C) a solvent in which said polymer and said photo acid generator are soluble,

said polymer being a terpolymer represented by a following general formula (I)



(I)

wherein n represents a positive integer ranging from 5 to 1000 both inclusive,

R¹, R² and R³ each represents a hydrogen atom or a methyl group,

R⁴ is selected from the group consisting of a tricyclodecyl group, a dicyclopentenyl group, a dicyclopentenyloxyethyl group, a norbornaneepoxy group, and a norbornaneepoxymethyl group,

R⁵ is selected from the group consisting of a tetrahydropyranyl group, a tetrahydrofuranyl group, a methyl group, an ethyl group, a propyl group, a tert-butyl group and a 3-oxocyclohexyl group, and

x+y+z=1 in which x is from 0.1 to 0.9 both inclusive, y is from 0.1 to 0.7 both inclusive, and z is from 0.01 to 0.7 both inclusive.

5,738,976
PHOTO-CURABLE ORGANOPOLYSILOXANE COMPOSITION AND A METHOD FOR PRODUCING A (METH) ACRYLOYLOXYL GROUP-CONTAINING ORGANOPOLYSILOXANE USED THEREIN

Hiroshige Okinoshima; Tsutomu Kashiwagi, and Shinsuke Yamaguchi, all of Annaka, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1996, Ser. No. 617,240

Claims priority, application Japan, Mar. 16, 1995, 7-084722; Mar. 16, 1995, 7-084723

Int. Cl.⁶ G03F *7/075*

U.S. Cl. 430—285.1 **5 Claims**

1. A photo-curable organopolysiloxane composition comprising

(A) an acryloyloxyl or methacryloyloxyl group-containing organopolysiloxane having an average molecular weight of 3,000 to 100,000 in terms of polystyrene by GPC represented by the following average compositional formula (1)

$$(CH_2=CR^1COOC_3H_6)_a(Ph)_bR^2_cR^3_dSiO_{(4-a-b-c-d)/2} \qquad (1)$$

wherein R¹ represents a hydrogen atom or a methyl group, R² represents an alkyl or alkenyl group having 1 to 8 carbon atoms, Ph stands for a phenyl group, R³ represents an alkyl or alkenyl group having 1 to 8 carbon atoms, a is a number satisfying $0.05 \le a \le 0.9$, b is a number satisfying $0.1 \le b \le 0.9$, c is a number satisfying $0 \le c \le 0.2$, and d is a number satisfying $0 \le d \le 0.5$, provided that a+b+c+d should satisfy $0.8 \le a+b+c+d \le 1.5$, and

(B) a photosensitizer, said acryloyloxy or methacryloyloxy group-containing organopolysiloxane (A) being produced by subjecting an (meth)acryloyloxypropyltrialkoxysilane of the formula (2a)

$$CH_2=CR^1COO(CH_2)_3Si(OR^4)_3 \qquad (2a)$$

wherein R¹ is as defined above, and R⁴ represents an unsubstituted or alkoxy-substituted alkyl group, and a phenyltrialkoxysilane of the formula (3a)

$$PhSi(OR^5)_3 \qquad (3a)$$

wherein Ph is as defined above, and R⁵ is an unsubstituted or alkoxy-substituted alkyl group, to cohydrolysis and subsequent condensation polymerization, and thereafter converting the silanol groups contained in the resulting cohydrolysis condensation polymerization product to trialkylsiloxy groups, the molar ratio of

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phenyltrialkoxysilane of the formula (3*a*) to (meth)acryloyloxypropyltrialkoxysilane of the formula (2*a*) being 1 5:1.

5,738,977
METHOD OF PHOTOLITHOGRAPHICALLY PRODUCING A COPPER PATTERN ON A PLATE OF AN ELECTRICALLY INSULATING MATERIAL

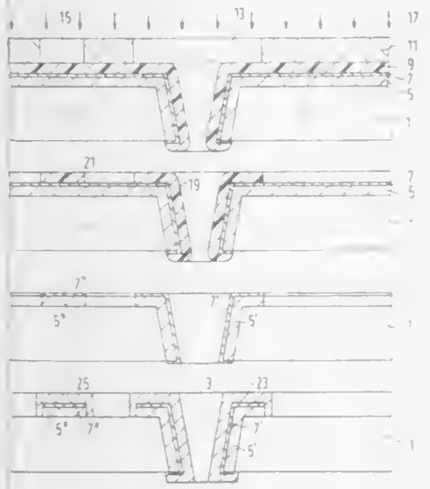
Elisabeth Van Der Sluis-Van Der Voort, and Sigrid M.R. Gelderland, both of Eindhoven, Netherlands, assignors to U.S. Philips Curporation, New York, N.Y.

Continuation of Ser. No. 420,963, Apr. 13, 1995, abandoned. This application Feb. 7, 1996, Ser. No. 796,357

Claims priority, application European Pat. Off., Apr. 28, 1994, 94201170

Int. Cl.^{6} G03F *7/00*

U.S. Cl. 430—313 **20 Claims**



1 A method for producing a selection plate for a display, the selection plate comprising a glass electrically insulating substrate having at least a first surface provided with a pattern of tracks, the insulating substrate comprising at least one hole having an internal surface and having metallization, the tracks and the metallization comprising copper, the method comprising the consecutive steps of

a) providing a copper layer on the first surface of the substrate and at least on the internal surface of the hole;

b) providing the copper layer with a nickel-boron layer

c) cataphoretically providing a photosensitive lacquer coating on the nickel-boron layer.

d) exposing and developing the lacquer coating to remove a portion of the lacquer coating, so as to uncover a portion of the nickel-boron layer, the uncovered portion having associated therewith a portion of the copper layer;

e) removing the uncovered portion of the nickel-boron layer, and removing the portion of the copper layer associated therewith so as to form a pattern of tracks on the first surface of the substrate and to form the metallization of the hole, the pattern and the metallization comprising nickel boron from the nickel-boron layer and copper from the copper layer.

f) stripping the remaining lacquer coating; and

g) providing a nickel-phosphorous layer to cover the nickel boron of the pattern of tracks of the first surface of the substrate and the metallization of the hole

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5,738,978
METHOD FOR PROCESSING SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL AND PROCESSING COMPOSITION THEREFOR

Kazuaki Yoshida; Jun Noguchi, and Kiyoshi Morimoto, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 26, 1996, Ser. No. 773,361

Claims priority, application Japan, Dec. 26, 1995, 7-350737

Int. Cl.^{6} G03C *5/29*

U.S. Cl. 430—372 **13 Claims**

1 A method for processing a silver halide color photographic material comprising a step of processing an exposed silver halide color photographic material with an automatic processor, a color developing solution used in said processing step containing triisopropanolamine, and a conveying rate of said automatic processor being 1,100 mm/min or more,

wherein the color developing solution contains from 2×10^{-2} to 1.5×10^{-2} mol/liter of calcium.

5,738,979
BLACK-AND-WHITE DEVELOPMENT PROCESSING METHOD WITH REPLENISHMENT

Alan S. Fitterman; Franklin C. Brayer, both of Rochester, and Joan F. Rachel, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 6, 1997, Ser. No. 778,998

Int. Cl.^{6} G03C *5/31*

U.S. Cl. 430—399 **19 Claims**

1. A method for processing comprising:

A) developing an imagewise exposed photographic silver halide element with an aqueous black-and-white developing solution that is free of dihydroxybenzene developing agents, said developing solution having a pH of from about 9 to about 11, and comprising:

   a) an ascorbic acid developing agent in an amount of from about 0.8 to about 4 weight percent.

   b) a 1-phenyl-3-pyrazolidone auxiliary co-developing agent.

   c) an organic antifoggant.

   d) a sulfite antioxidant present in an amount of at least 1:1 molar ratio compared to said ascorbic acid developing agent.

   e) a sequestering agent, and

   f) carbonate buffer present in an amount of from 3.5:1 to 5.5:1 molar ratio compared to said ascorbic acid developing agent, and

B) replenishing said black-and-white developing solution with an aqueous black-and-white replenisher solution at a rate of from about 130 to about 320 ml/m^2, said replenisher solution having a pH that is from 0.1 to 0.25 pH unit higher than said developing solution.

said replenisher solution having:

   said ascorbic acid developing agent at a concentration that is from 0 to about 50% more than in said developing solution.

   said co developing agent at a concentration that is from 0 to about 50% more than in said developing solution.

   said organic antifoggant at a concentration that is from 0 to about 25% more than said developing solution.

   said sulfite antioxidant at a concentration that is from 0 to about 25% more than in said developing solution, and

   said sequestering agent at a concentration that is from 0 to about 25% more than in said developing solution.

5,738,980
PHOTOGRAPHIC DEVELOPER/AMPLIFIER COMPOSITIONS

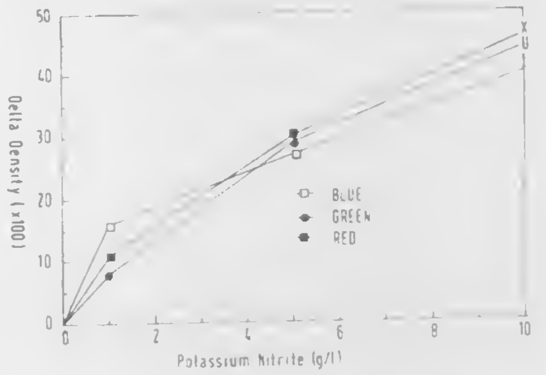
Peter Jeffrey Twist, Missenden, and Christopher John Winscom, Pinner, both of United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 556,553, Nov. 13, 1995, abandoned. This application Aug. 14, 1997, Ser. No. 911,403

Claims priority, application United Kingdom, Nov. 19, 1994, 9423382

Int. Cl.^{6} G03C *5/42*

U.S. Cl. 430—414 **12 Claims**



1 An aqueous redox amplifier composition comprising a color developing agent, an antioxidant for said composition which is hydroxylamine or a derivative thereof, hydrogen peroxide or a compound which provides hydrogen peroxide in an amount of from 0.1 to 10 ml per liter of redox amplifier composition, said hydrogen peroxide being supplied as a 30 weight % hydrogen peroxide solution, and nitrite ions as a dye yield stabilizer for said composition.

5,738,981
FILMS FOR REPRODUCING MEDICAL DIAGNOSTIC IMAGES AND PROCESSES FOR THEIR USE

Robert Edward Dickerson, Hamlin, and Wray Earl Paul, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 31, 1996, Ser. No. 688,980

Int. Cl.^{6} G03L *1/815*

U.S. Cl. 430—509 **1 Claim**

1. A radiation-sensitive silver halide film for reproducing digitally stored medical diagnostic images through radiation exposure from one side by a cathode ray tube, photodiode or laser and processing, including development, fixing and drying, in 90 seconds or less comprised of

a film support transparent to the exposing radiation to be recorded and having front and back major faces.

a processing solution permeable front layer unit coated on the front major face of the support capable of absorbing up to 60 percent of the exposing radiation and containing (a) hydrophilic colloid, the amount of said hydrophilic colloid being limited to less than 30 mg/dm^2, and (b) radiation-sensitive silver halide grains, the amount of the silver halide grains being limited to less than 30 mg/dm^2 silver, and

a processing solution permeable back layer unit coated on the back major face of the support containing (a) hydrophilic colloid, the amount of said hydrophilic colloid being limited to less than 40 mg/dm^2 (b) silver in the form of radiation-sensitive silver halide grains, the amount of the silver halide accounting for from 40 to 60 percent of the total radiation-sensitive silver halide present in the film, and (c) a dye capable of imparting to the film at the time of the radiation exposure an optical density of at least 0.40 in the wavelength region of the exposing radiation to be recorded and, after processing, an optical density of less than 0.1 in the visible spectrum,

the radiation-sensitive silver halide grains in the front and back layer units having differing mean equivalent circular diameters and imaging speeds.

5,738,982
SILVER HALIDE PHOTOGRAPHIC MATERIAL

Toru Harada, and Itsuo Fujiwara, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

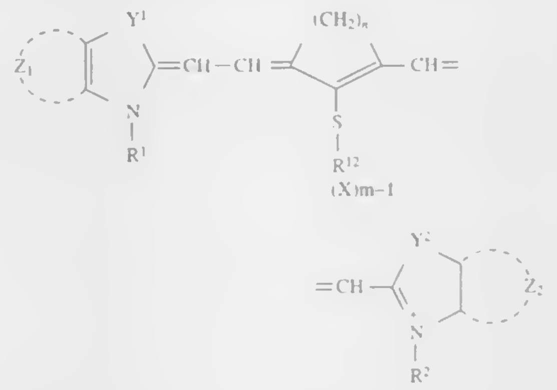
Division of Ser. No. 329,672, Oct. 25, 1994, Pat. No. 5,445,930, which is a continuation of Ser. No. 93,616, Jul. 20, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 468,307

Claims priority, application Japan, Jul. 22, 1992, 4-215702

Int. Cl.^{6} G03C *1/825*

U.S. Cl. 430—522 **18 Claims**

1 A silver halide photographic material comprising a silver halide emulsion layer and a hydrophilic colloidal layer containing at least one dye represented by the following formula:



wherein:

Z^1 and Z^2 each represents a nonmetallic atom group necessary for forming a benzo condensed or naptho condensed ring.

Y^1 and Y^2 each represents $-CR^{10}R^{11}-$, $-S-$, $-Se-$, $-NR^{10}-$, $-CH=CH-$ or $-O-$.

n is an integer of 2 or 3;

R^1 and R^2 each represents an unsubstituted alkyl group or a substituted alkyl group;

R^{12} represents a substituted aryl group, wherein said aryl group is substituted by an acidic substituent.

R^{10} and R^{11} each represents an unsubstituted alkyl group or a substituted alkyl group;

X represents an anion, and

m represents an integer of 1 or 2, with the proviso that when the dye forms an intramolecular salt, m is 1, and

wherein the dye contains at least three acidic substituents

5,738,983
PHOTOGRAPHIC IMAGING ELEMENT CONTAINING MATTING AGENTS

Dennis Edward Smith; Alfred Bruce Fant; John Leonard Muehlbauer, all of Rochester, and Yongcai Wang, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 16, 1996, Ser. No. 633,281

Int. Cl.^{6} G03C *1/76*

U.S. Cl. 430—536 **10 Claims**

1 A photographic imaging element comprising a support, at least one light-sensitive silver halide layer, and a light insensitive layer comprising a polymer particle of the formula:

$$(A)_x(B)_y(C)_z \qquad (I)$$

where A is a polyfunctional ethylenically unsaturated crosslinking monomer, B is an ethylenically unsaturated monomer containing carboxylic acid groups, C is a monofunctional ethylenically unsaturated monomer other than B, x is about 0.1 to 2 mole percent, y is about 35 to 70 mole percent and z equals 100−(x+y) mole percent

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5,738,984

KITS AND METHODS OF DETECTION USING CELLULOSE BINDING DOMAIN FUSION PROTEINS

Oded Shoseyov, Karmey Yosef, Israel, assignor to Yissum Research Development Company of the Hebrew University of Jerusalem, Jerusalem, Israel

Division of Ser. No. 48,164, Apr. 14, 1993, Pat. No. 5,496,934. This application Jun. 2, 1995, Ser. No. 460,458

Int. Cl.^{6} G01N *33/53*; C12N *11/12*

U.S. Cl. 435—4 36 Claims

1. A diagnostic kit for the detection of a substance of interest comprising:

(a) a cellulose binding domain (CBD) fusion product comprising (i) a CBD the amino acid sequence of which comprises the amino acid sequence of SEQ ID NO: 2 and which is capable of binding to cellulose with high affinity and substantially free of other proteins with which it is naturally associated, and (ii) a second protein capable of binding a substance of interest,

(b) a detectable label, and

(c) cellulose.

5,738,985

METHOD FOR SELECTIVE INACTIVATION OF VIRAL REPLICATION

Vincent J. Miles, San Ramon, Calif.; Michael B. Mathews, Cold Spring Harbor, N.Y., and Michael G. Katze, Seattle, Wash., assignors to Ribogene, Inc., Hayward, Calif.

Continuation-in-part of Ser. No. 42,024, Apr. 2, 1993, abandoned. This application Apr. 1, 1994, Ser. No. 221,816

Int. Cl.^{6} C12Q *1/02;1/68;1/70*

U.S. Cl. 435—5 40 Claims

1. A method for screening for a potential antiviral agent, comprising the steps of:

determining whether a potential antiviral agent interacts with a virus or cellular component which allows or prevents preferential translation of a virus RNA compared to a host RNA under virus infection conditions; and

determining whether any interaction of said agent with said component reduces the level of translation of a RNA of said virus.

5,738,986

ANALYTICAL REAGENT PARTICLE WITH COVALENTLY-BOUND ENZYME

Kurt G. I. Nilsson, Andjaktsv. 6, S-222 53 Lund, Sweden

Continuation of Ser. No. 403,105, Mar. 13, 1995, abandoned, which is a division of Ser. No. 185,213, Jan. 14, 1994, Pat. No. 5,405,752, which is a continuation of Ser. No. 548,976, Aug. 1, 1990, abandoned. This application Oct. 16, 1996, Ser. No. 730,966

Claims priority, application Sweden, Oct. 3, 1988, 8803496

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—5 11 Claims

1. A reagent for detecting a component in a sample, comprising at least one enzyme and at least one other substance covalently bound to a particle, said particle being insoluble in water under the conditions employed in the method of preparing or use of said reagent, and wherein said particle is smaller than or equal to 400 A (A.U.) in diameter

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5,738,987

16S RIBOSOMAL NUCLEIC ACID PROBES TO *STREPTOCOCCUS PNEUMONIAE*

Curt L. Milliman, St. Louis, Mo., assignor to Gen-Probe Incorporated, San Diego, Calif.

Continuation of Ser. No. 118,579, Sep. 9, 1993, abandoned, which is a continuation of Ser. No. 753,361, Sep. 4, 1991, abandoned. This application Apr. 21, 1995, Ser. No. 427,712

Int. Cl.^{6} C12Q *1/68*, C07H *21/04*, C12N *15/11*

U.S. Cl. 435—6 24 Claims

1. A nucleic acid hybridization assay probe up to 100 nucleotides in length comprising a nucleotide base sequence sufficiently complementary to hybridize to a *Streptococcus pneumoniae* nucleic acid target region to form a detectable target:probe hybrid under high stringency hybridization assay conditions, said target region corresponding to, or perfectly complementary to a nucleic acid corresponding to, the nucleotide position 616–638 of *E. coli* 16S rRNA,

wherein under said conditions said probe does not hybridize to nucleic acid from *Streptococcus salivarus*, *Streptococcus agalactiae* or *Streptococcus bovis*, to form a detectable probe:non-target hybrid.

17. A method for determining whether *Streptococcus pneumoniae* may be present in a sample comprising the steps of:

a) providing to said sample a nucleic acid hybridization assay probe comprising a nucleotide base sequence region which hybridizes to a *Streptococcus pneumoniae* nucleic acid target region to form a detectable target:probe hybrid under high stringency hybridization assay conditions, said nucleotide base sequence region comprising at least 14 out of 17 consecutive bases complementary to a target sequence present in said target region, said target region corresponding to, or perfectly complementary to a nucleic acid corresponding to, the nucleotide position 616–638 of *E. coli* 16S rRNA,

wherein said probe does not hybridize to nucleic acid from *Streptococcus salivarius*, *Streptococcus agalactiae* or *Streptococcus bovis*, to form a detectable probe:non-target hybrid under said conditions, and

b) detecting whether said probe hybridizes to nucleic acid present in said sample under said hybridization conditions as an indication that *Streptococcus pneumoniae* may be present in said sample

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5,738,988

METHOD FOR DETECTING ANTIMICROBIAL AGENTS OR UNKNOWN ORGANISMS IN A SAMPLE USING RIBOSOMAL PROBE HYBRIDIZATION

David E. Kohne, La Jolla, Calif., assignor to Gen-Probe Incorporated, San Diego, Calif.

Division of Ser. No. 199,486, Feb. 22, 1994, which is a continuation of Ser. No. 179,922, Jan. 11, 1994, abandoned, which is a continuation of Ser. No. 857,081, Mar. 19, 1992, Pat. No. 5,288,611, which is a continuation of Ser. No. 584,432, Sep. 12, 1990, abandoned, which is a continuation of Ser. No. 464,717, Jan. 12, 1990, abandoned, which is a continuation of Ser. No. 353,208, May 17, 1989, abandoned, which is a continuation of Ser. No. 655,365, Sep. 4, 1984, abandoned, which is a continuation-in-part of Ser. No. 456,729, Jan. 10, 1983, abandoned. This application Jun. 2, 1995, Ser. No. 459,843

Int. Cl.^{6} C12Q *1/68*

U.S. Cl. 435—6 28 Claims

1. A method for detecting the presence of antimicrobial agents in a sample, said method comprising the steps of

(a) providing a known amount of a microorganism or microorganisms belonging to a group of microorganisms to a first sample suspected of containing one or more antimicrobial agents;

(b) incubating said first sample for a predetermined period of time under growth conditions,

(c) assaying said first sample with a probe to determine the presence and amount of ribosonmal nucleic acid belonging to said microorganism or microorganisms,

wherein said probe contains a nucleotide base sequence which hybridizes to a ribosomal nucleic acid subunit subsequence specific to said microorganism or group of microorganisms under hybridization conditions,

wherein said probe and said first sample are incubated under said hybridization conditions, such that said nucleotide base sequence hybridizes to said ribosomal nucleic acid subunit subsequence, and said probe does not hybridize to any sequence which will prevent specific detection of said microorganism or microorganisms under said hybridization conditions, and

wherein the presence and amount of said ribosomal nucleic acid present in said first sample is an indication of the state of growth of said microorganism or microorganisms, said state of growth being an indication of the presence or absence of said antimicrobial agents in said first sample

12. A method for detecting the presence and identity of unknown organisms in a sample, said method comprising the steps of:

(a) providing a probe to a sample containing at least one unknown organism, said probe comprising a nucleotide base sequence which hybridizes to a ribosomal nucleic acid subunit subsequence specific to a known group of organisms under hybridization conditions;

(b) incubating said sample under said hybridization conditions, such that said nucleotide base sequence hybridizes to said ribosomal nucleic acid subunit subsequence, and said probe does not hybridize to any sequence which will prevent specific detection of organisms belonging to said known group of organisms under said hybridization conditions; and

(c) assaying said sample for hybridization of said nucleotide base sequence to said ribosomal nucleic acid subunit subsequence as an indication of the presence of at least one organism belonging to said known group of organisms in said sample.

5,738,989

METHOD FOR DETERMINING THE SENSITIVITY OF MICROORGANISMS TO ANTI MICROBIAL AGENTS USING RIBOSOMAL NUCLEIC ACID HYBRIDIZATION

David E. Kohne, La Jolla, Calif., assignor to Gen-Probe Incorporated, San Diego, Calif.

Division of Ser. No. 199,486, Feb. 22, 1994, which is a continuation of Ser. No. 179,922, Jan. 11, 1994, abandoned, which is a continuation of Ser. No. 857,081, Mar. 19, 1992, Pat. No. 5,288,611, which is a continuation of Ser. No. 584,432, Sep. 12, 1990, abandoned, which is a continuation of Ser. No. 464,717, Jan. 12, 1990, abandoned, which is a continuation of Ser. No. 353,208, May 17, 1989, abandoned, which is a continuation of Ser. No. 655,365, Sep. 4, 1984, abandoned, which is a continuation-in-part of Ser. No. 456,729, Jan. 10, 1983, abandoned. This application Jun. 2, 1995, Ser. No. 460,124

Int. Cl.^{6} C12Q *1/68*

U.S. Cl. 435—6 62 Claims

1. A method for determining the sensitivity of a microorganism or group of microorganisms to at least one antimicrobial agent, said method comprising the steps of

(a) providing at least one antimicrobial agent to a first sample, said first sample containing a microorganism or microorganisms belonging to a group of microorganisms;

(b) incubating said first sample for a predetermined period of time under growth conditions; and

(c) assaying said first sample with at least one probe to determine the presence and amount of ribosomal nucleic acid specific to said microorganism or group of microorganisms,

wherein said probe contains a nucleic acid molecule which hybridizes with only a subunit subsequence of said ribosomal nucleic acid under hybridization conditions,

wherein said probe and said first sample are incubated under said hybridization conditions, such that said nucleic acid molecule hybridizes with the subsequence of said ribosomal nucleic acid, and said probe does not hybridize with any sequence which will prevent specific detection of said microorganism or microorganisms under said hybridization conditions, and

wherein the presence and amount of said ribosomal nucleic acid present in said first sample is an indication of the state of growth of said microorganism or microorganisms, said state of growth being an indication of the sensitivity of said microorganism or group of microorganisms to said agent

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5,738,990

SEQUENCE-DIRECTED DNA-BINDING MOLECULES COMPOSITIONS AND METHODS

Cynthia A. Edwards, Menlo Park; Kirk E. Fry, Palo Alto, both of Calif.; Charles R. Cantor, Boston, and Beth M. Andrews, Maynard, both of Mass., assignors to Genelabs Technologies, Inc., Redwood City, Calif.

Division of Ser. No. 996,783, Dec. 23, 1992, which is a continuation-in-part of Ser. No. 723,618, Jun. 27, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 475,221

Int. Cl.^{6} C12P *21/02*; C12N *15/67*, C07H *21/04*

U.S. Cl. 435—6 5 Claims

1. A method of blocking transcription activity from a duplex DNA template comprising a binding site for a transcription factor and, adjacent to the binding site, a target region having at least two non-overlapping base-pair sequences of four base-pairs each, where the four base-pair sequences are adjacent and each sequence is characterized by sequence-preferential binding to a duplex DNA-binding small molecule, the method comprising contacting the duplex DNA with a DNA-binding agent composed of at least one duplex DNA-binding small molecule which binds preferentially to one of said non-overlapping base pair sequences coupled to a at least one other duplex DNA-binding small molecule which binds to a second of said at least two non-overlapping base pair sequences.

5,738,991

METHOD OF DETECTING ELASTASE IV

Scott Michael Braxton, San Mateo; Dinh Diep, San Francisco, and Angelo M. Delegeane, Hayward, all of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Dec. 6, 1995, Ser. No. 568,031

Int. Cl.^{6} C12Q *1/68*, C12N *15/63*,*15/85*, C07H *21/04*

U.S. Cl. 435—6 6 Claims

1. A purified polynucleotide consisting of a nucleic acid sequence encoding the polypeptide of SEQ ID NO:2 or the complement of said polynucleotide.

4. A method for detecting a polynucleotide encoding rat elastase IV comprising the steps of:

a) combining a biological sample and a nucleic acid sequence encoding the polypeptide of SEQ ID NO:2 or the complement of said nucleic acid sequence,

b) allowing hybridization to occur between the biological sample and the nucleic acid sequence under suitable conditions thereby forming a hybridization complex,

c) detecting said hybridization complex wherein the presence of said complex correlates with the presence of a polynucleotide encoding rat elastase IV

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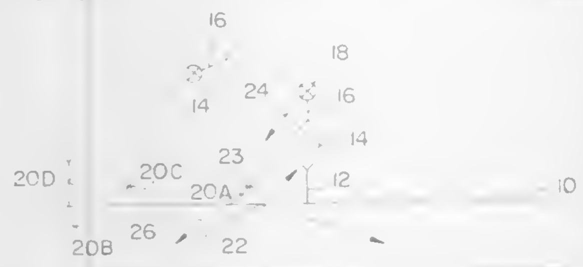
5,738,992
MULTIPLE OUTPUT REFERENCING SYSTEM FOR EVANESCENT WAVE SENSOR

Thomas A. Cook, Corning, N.Y.; Rudolf E. Slovacek, Norfolk, Mass.; Walter F. Love, Horseheads, N.Y.; Richard L. Schulkind, Sharon, and Irene M. Walczak, Boston, both of Mass., assignors to Chiron Corporation, E. Walpole, Mass.

Division of Ser. No. 246,391, May 20, 1994, Pat. No. 5,525,466, which is a continuation of Ser. No. 712,304, Jun. 7, 1991, abandoned. This application Apr. 9, 1996, Ser. No. 629,595

Int. Cl.^{6} G01N *33/552; 33/543*

U.S. Cl. 435—6 **26 Claims**



1. A system for measuring at least one signal from a waveguide sensor, the system comprising:

a waveguide sensor having at least one wave propagating surface including a reactant coating immobilized thereon, the reactant coating including a first molecular species and a labeled molecular species, the first molecular species being bound to the waveguide sensor, the first molecular species being bound to the labeled molecular species, and the labeled molecular species having an excitation wavelength and an emission wavelength,

a fluorescent reference material attached to the wave guide, the fluorescent reference material having an excitation wavelength and an emission wavelength;

a source capable of emitting electromagnetic radiation at the excitation wavelength of the fluorescent reference material;

a first detector capable of detecting the emission wavelength of the fluorescent reference material; and

a coupler for transmitting electromagnetic radiation along a first path from the source to the waveguide sensor to the first detector

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5,738,993
OLIGONUCLEOTIDE AND METHOD FOR ANALYZING BASE SEQUENCE OF NUCLEIC ACID

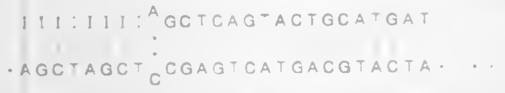
Nobutake Fugono; Yasurou Kurusu; Masato Terasawa, and Hideaki Yukawa, all of Ibaragi-ken, Japan, assignors to Mitsubishi Chemical Corporation, Japan

Continuation of Ser. No. 392,147, Feb. 22, 1995, abandoned. This application Jun. 13, 1996, Ser. No. 662,963

Claims priority, application Japan, Feb. 22, 1994, 6-024168; Jun. 29, 1994, 6-147291

Int. Cl.^{6} C12Q *1/68*, **C07H** *19/00; 21/04*

U.S. Cl. 435—6 **12 Claims**


I I I : I I I : A GCTCAGTACTGCATGAT
· · · · AGCTAGCT C CGAGTCATGACGTACTA · · ·

1. An oligonucleotide which is used for an analysis of a base sequence of a sample nucleic acid by hybridization, consisting of a specific region and one or two non-specific regions which are covalently linked to at least one of the two termini of the specific region, wherein

the specific region has a specific base sequence for analyzing complementarity to a target sequence of a sample nucleic acid with which the oligonucleotide is to be hybridized,

the non-specific region or each of the non-specific regions consisting of two or more nucleotides, each of the nucleotides having a base other than an ordinary base selected from the group consisting of adenine, guanine, cytosine, thymine and uracil, which base is capable of forming a base pair with each of the ordinary bases

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5,738,994

Patent Not Issued For This Number

5,738,995
INOSINE-CONTAINING PROBES FOR DETECTING E.COLI 0157:H7

Linxian Wu, Sandy; Jana Coombs; Sharon L. Malmstrom, both of Salt Lake City, and Michael J. Glass, Centerville, all of Utah, assignors to Gull Laboratories, Inc., Salt Lake City, Utah

Division of Ser. No. 587,209, Jan. 16, 1996, Pat. No. 5,612,473. This application Aug. 7, 1996, Ser. No. 689,236

Int. Cl.^{6} C12Q *1/68;* **C07H** *21/04*

U.S. Cl. 435—6 **6 Claims**

1. A method for detecting *E. coli* strain O157:H7 microorganisms, if present, within a sample, said method comprising

obtaining at least one probe consisting of an oligonucleotide sequence labelled with a label permitting detection of the probe when hybridized to a complementary nucleic acid sequence, said complementary nucleic acid sequence being specific for recognizing a nucleic acid sequence specific for said microorganism, said oligonucleotide sequence which is any one of SEQ ID NO:21 through SEQ ID NO:30;

mixing said probes and said sample under hybridization conditions,

detecting hybrids comprising said probe and said complementary nucleic acid sequences.

5,738,996
COMBINATIONAL LIBRARY COMPOSITION AND METHOD

Robert S. Hodges, Edmonton; Randall T. Irvin, Sherwood Park, both of Canada; Arne Holm, Holte, Denmark; Wah Y. Wong, Edmonton, Canada; Hasmukh B. Sheth, Edmonton, Canada, and Devon L. Husband, Edmonton, Canada, assignors to Pence, Inc., Edmonton, Canada

Filed Jun. 15, 1994, Ser. No. 260,199

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.1 **8 Claims**

1. For use in selecting an oligomer compound capable of interacting specifically with a selected macromolecular ligand, a combinatorial library composition comprising

a first set of combinatorial oligomer libraries in which one or more selected subunit positions in the library oligomers have one of substantially all possible different subunits in each of the selected positions, and the remaining one or more subunit positions in each library include substantially all possible combinations of the different subunits, and

a second set of combinatorial oligomer libraries in which one or more different selected subunit positions in the library oligomers have one of substantially all possible different subunits in each of the selected positions, and the remaining one or more subunit positions in each library include substantially all possible combinations of the different subunits,

wherein the subunits are representative amino acids that display the basic physico-chemical properties associated with naturally occurring amino acids, but exclude many of these naturally occurring amino acids

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5,738,997
METHOD OF ASSAY OF ENZYMATIC ACTIVITY AND APPARATUS THEREFOR

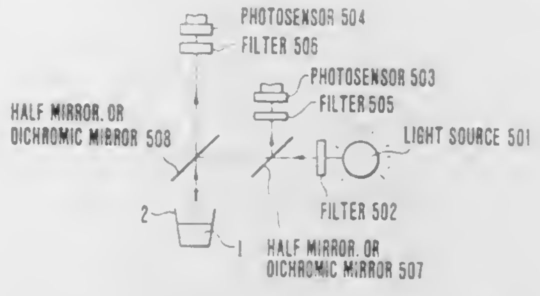
Hidechika Hayashi; Yoshihiko Umegae, both of Yokohama, and Yukio Mitsuhisa, Ebina, all of Japan, assignors to Tosoh Corporation, Yamaguchi-ken, Japan

Division of Ser. No. 900,286, Jun. 18, 1992, Pat. No. 5,460,943. This application Jun. 6, 1995, Ser. No. 470,827

Claims priority, application Japan, Jun. 18, 1991, 3-146301

Int. Cl.^{6} G01N *33/573*

U.S. Cl. 435—7.4 **3 Claims**



1. An apparatus for assay of enzyme activity, comprising light projecting means for projecting excitation light to a sample containing a fluorescent substance which increases or decreases by action of an enzyme, and a reference substance which emits fluorescence and is insensitive to the action of the enzyme; first photosensing means for measuring fluorescence intensity at wavelength for a first measured value of fluorescence originating from the fluorescent substance out of the entire fluorescence emitted by the sample, second photosensing means for measuring fluorescence intensity at wavelength for a second measured value of fluorescence originating from the reference substance out of the entire fluorescence emitted by the sample; first optical path which introduces exciting light from the light projecting means to a container having a top opening and for containing the sample; second optical path which introduces the fluorescence emitted by the sample in the container to the photosensor means, said first optical path being superposed with said second optical path, so as to allow the light to enter and leave the container through the top opening of the container; and computer means for computing the enzyme activity from input of the first measured value and the second measured value.

5,738,998
COMPOSITIONS AND METHODS FOR DIAGNOSING SCHIZOPHRENIA

Richard C. Deth, 1484 Beacon St., Waban, Mass. 02168

Filed May 24, 1995, Ser. No. 449,651

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 435—7.21 **4 Claims**

1. An in vitro method of assessing the effectiveness of a therapeutic process or agent for treating schizophrenia in a patient, comprising the steps of:

a) making an initial determination of the amount of dopamine D_4 receptors in a tissue sample from the patient which have and have not been modified by addition of an adenosyl group to methionine #313;

b) administering to the patient the therapeutic process or agent to be assessed,

c) making a subsequent determination in a sample of the same tissue type used in step (a) of the amount of dopamine D_4 receptors in the patient which have and have not been modified by addition of an adenosyl group to methionine #313, and

d) comparing the corresponding amounts of modified and unmodified dopamine D_4 receptors from steps a) and c),

wherein an increase in the amount of modified receptors and/or a decrease in the amount of receptors which have not been modified subsequent to administration of the therapeutic process or agent indicates that the therapeutic process or agent is effective for treating schizophrenia in the patient

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5,738,999
L-AP4 SENSITIVE GLUTAMATE RECEPTORS

Thomas P. Segerson; J. Mark Kinzie, both of Portland, Oreg.; Eileen R. Mulvihill, Mercer Island, Wash.; Julie A. Saugstad, and Gary L. Westbrook, both of Portland, Oreg., assignors to ZymoGenetics, Inc., Seattle, Wash., and State of Oregon, acting by and through the Oregon State Board of Higher Education on behalf of the Oregon Health Sciences University, Portland, Oreg.

Division of Ser. No. 176,401, Dec. 30, 1993, abandoned. This application May 30, 1995, Ser. No. 453,862

Int. Cl.^{6} C07K *16/28;* **G01N** *33/566*

U.S. Cl. 435—7.21 **4 Claims**

1. Antiserum obtained from an animal immunized with and containing antibodies that specifically bind to isolated and purified mGluR7 protein and not to one or more glutamate receptor proteins selected from mGluR1, mGluR2, mGluR3, mGluR4, mGluR5 and mGluR6

5,739,000
ALGORITHMIC ENGINE FOR AUTOMATED N-DIMENSIONAL SUBSET ANALYSIS

Pierre Bierre, Redwood City, and Daniel E. Thiel, Pleasanton, both of Calif., assignors to Becton Dickinson and Company, Franklin Lakes

Continuation-in-part of Ser. No. 39,465, Apr. 26, 1993, which is a continuation-in-part of Ser. No. 751,020, Aug. 28, 1991, abandoned. This application Apr. 13, 1994, Ser. No. 227,155

Int. Cl.^{6} G01N *33/49*

U.S. Cl. 435—7.24 **13 Claims**

1. A method for classifying a sample of particles into one or more hierarchical clusters wherein multi-parameter data are collected for each particle within said sample, comprising the steps of:

(a) collecting a plurality of parameters for each particle in a sample of particles;

(b) displaying said parameters for each particle in the sample of particles on a set of two-dimensional scatterplots;

(c) manually positioning a plurality of geometric boundary surfaces on the set of two-dimensional scatterplots for a plurality of top level clusters of particles so as to enclose a group of the displayed particles in each top level cluster, each geometric boundary surface having a user-defined, center location, shape, size, radius and orientation;

(d) defining a vector for each particle in the sample of particles and testing if each vector is contained within each geometric boundary surface;

(e) summing each vector contained within each geometric boundary surface to calculate a vector mean;

(f) after a user-defined number of vectors are summed to calculate the vector mean, calculating a new center location for each geometric boundary surface using the vector mean,

(g) moving each geometric boundary surface on the set of two-dimensional scatterplots to relocate the geometric boundary surface about the new center location,

(h) repeating steps (d)-(g) until a user-defined number of vectors or all available vectors have been included in the calculation of a final center location;

(i) moving each geometric boundary surface on the set of two-dimensional scatterplots to relocate the geometric boundary surface about the final center location,

(j) comparing all subsequently received particles with each geometric boundary surface for inclusion within or exclusion outside the top level clusters associated with each geometric boundary surface;

(k) selecting a plurality of mutually exclusive subclusters which comprise elements falling within one of the top level clusters of step (c) and defining the mutually exclusive sub-clusters as new top level clusters, and

(l) repeating steps (c)-(k) until a desired number of cluster levels are achieved.

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5,739,001
SOLID PHASE CELL-BASED ASSAY

Beverly Ann Brown, Winchester, Mass., and Patricia Ann Kasila, Windham, N.H., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 29, 1996, Ser. No. 744,718

Int. Cl.^{6} G01N *33/543* **C12Q** *1/68*

U.S. Cl. 435—7.93 **4 Claims**

1. A competitive solid phase one-well cell-based assay which comprises:

(a) subjecting at least one unlabeled cell to a stimulus to cause said at least one cell to produce an unlabeled analyte, wherein said at least one cell need not be attached to the solid phase;

(b) reacting the unlabeled analyte produced in step (a) with

(i) a capture reagent specific for the analyte to be assayed, said capture reagent being immobilized on the solid phase; and

(ii) labeled analyte, wherein said labeled anayte competes with unlabeled analyte for the capture reagent; and

(c) detecting and/or quantitating the amount of labeled analyte which has bound the capture reagent, wherein said subjecting, reacting and detecting and/or quantitating are performed within a single well.

5,739,002
METHOD FOR REPRODUCING IN VITRO THE PROTEOLYTIC ACTIVITY OF THE NS3 PROTEASE OF HEPATITIS C VIRUS (HCV)

Raffaele De Francesco; Cristina Failla, both of Rome, and Licia Tomei, Naples, all of Italy, assignors to Istituto di Richerche di Biologia Molecolare P. Angeletti S.p.A., Pomezia RM, Italy

PCT No. PCT/IT95/00018, § 371 Date Aug. 23, 1996, § 102(e) Date Aug. 23, 1996, PCT Pub. No. WO95/22985, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 14, 1995, Ser. No. 700,356

Claims priority, application Italy, Feb. 23, 1994, RM94A0092

Int. Cl.^{6} C12Q *1/37,1/70;* **C12N** *9/50;* **C07H** *21/04*

U.S. Cl. 435—23 **20 Claims**

1. A method for determining cofactor activity of a candidate compound comprising a fragment of hepatitis C virus (HCV) NS4A protein on HCV NS3 protease, comprising the steps of:

(a) providing a reaction mixture comprising NS3 protease and a NS3 protease substrate;

(b) introducing the candidate compound to the reaction mixture; and

(c) measuring NS3 protease activity to determine whether an increase in protease activity has occurred.

5,739,003
DETECTION OF MICROBIAL GROWTH

Timothy F. Brocklehurst; Alan R. Mackie; David C. Steer, and David R. Wilson, all of Norwich, Great Britain, assignors to The Minister of Agriculture Fisheries and Food in her Britannic Majesty's Government of the United Kingdom of Gt. Britain & N. Ireland, United Kingdom

PCT No. PCT/GB94/01370, § 371 Date Jan. 31, 1996, § 102(e) Date Jan. 31, 1996, PCT Pub. No. WO95/00661, PCT Pub. Date Jan. 5, 1995

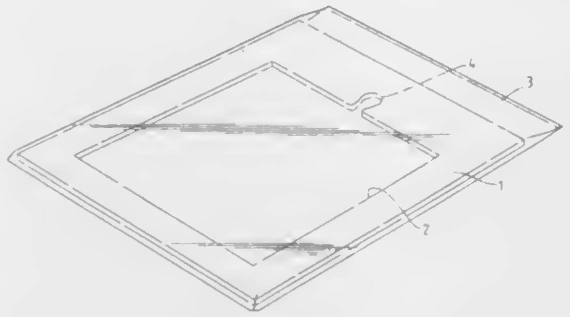
PCT Filed Jun. 24, 1994, Ser. No. 569,162

Claims priority, application United Kingdom, Jun. 24, 1993, 9313052

Int. Cl.^{6} C12Q *1/02;1/00,* **A01N** *1/02,* **G01N** *33/53*

U.S. Cl. 435—29 **36 Claims**

1. A method for determining the characteristics of a material with respect to its ability to kill, inhibit growth or support growth of microorganisms, comprising determining the presence and/or amount of microorganisms in a body of the material or a material having one or more analogous properties as a growth media thereto by passing a beam of laser light through it, processing laser light scattered by the material at a set angle or angles to provide a signal indicative of the amount and/or type of scattering, and relating this to the presence and/or amount of microorganisms, wherein the body comprises a solid or semi-solid medium of predetermined composition and dimension and the change in the presence and/or amount of microorganism at a given locus of the body between two or more temporally spaced determinations is related to said characteristics of the material.



5,739,004
BIOLOGICAL STERILIZATION INDICATION FOR USE WITH OR WITHOUT TEST PACK MATERIALS OR DEVICES

Lewis P. Woodson, Apple Valley, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 450,853, May 25, 1995, abandoned, which is a continuation-in-part of Ser. No. 233,714, May 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 64,946, May 20, 1993, abandoned. This application Oct. 29, 1996, Ser. No. 739,277

Int. Cl.^{6} C12Q *1/22;* **C12M** *1/40*

U.S. Cl. 435—31 **60 Claims**

1. An improved biological indicator comprising:

(a) an outer container having liquid impermeable walls, said container having at least one opening therein,

(b) contained within said outer container a detectable amount of

(1) a viable test microorganism useful to monitor a sterilization cycle or

(2) another source of an active test enzyme useful to monitor the sterilization cycle,

wherein the improvement comprises immobilizing the test microorganism or enzyme by means selected from the group consisting of

(1) chemical reaction;

(2) adsorption onto a water-insoluble support material selected from the group consisting of a dextran derivative, silica gel, hydroxylapetite, and calcium carbonate;

(3) reaction with a water-insoluble support material capable of forming covalent or ionic bonds to the test microorganism or test enzyme;

(4) entrapping the microorganism or enzyme within a crosslinked polymer gel matrix comprising non-ionic polymer-forming materials which are non-reactive with the microorganism or enzyme;

(5) crosslinking with a crosslinking agent capable of forming intra- or inter-molecular crosslinks between the test microorganisms or test enzyme; and

(6) microencapsulation,

such immobilization being to an extent capable of allowing a detectable amount of said immobilized microorganism or enzyme to survive or remain active following an exposure to the sterilization cycle which is sublethal to the test microorganism when contained in a test pack commonly used to monitor sterilization, and incapable of allowing any detectable amount of immobilized microorganism or enzyme to survive or remain active following an exposure to the sterilization cycle which is lethal to the test microorganism when contained in the test pack commonly used to monitor sterilization.

5,739,005
USE OF POLYMERIC FILMS FOR DELIVERY OF NEMATODE EGGS AND ECOLOGICAL EVALUATIONS

Rodrigo Rodriguez-Kabana, and Nancy Kokalis-Burelle, both of Auburn, Ala., assignors to Auburn University a Public University of the State of Alabama, Auburn, Ala.

Filed Mar. 17, 1995, Ser. No. 405,788

Int. Cl.^{6} C12Q *1/08*

U.S. Cl. 435—40.5 **23 Claims**

1. A polymer film useful in the delivery of biological agents which is comprised of a transparent, gelled water soluble polymer supported by a mesh, the size of the grids of which is in the range of from about 0.5 to 5.0 mm^2 mesh, and which film further contains a biological agent which comprises nematode eggs.

5,739,006
PROCESS OF FEEDING JUVENILE FISH WITH ASTAXANTHIN-CONTAINING ZOOPLANKTON

Toshio Abe; Atsushi Nakagawa, both of Ube; Hiroshi Higuchi, Hofu, and Tatsuro Yamanaka, Ube, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 185,884, Jan. 26, 1994, abandoned. This application Sep. 29, 1995, Ser. No. 536,142

Claims priority, application Japan, May 28, 1992, 4-136751; Oct. 1, 1992, 4-263400

Int. Cl.^{6} A23K *1/18*

U.S. Cl. 435—67 **7 Claims**

1. A method of increasing the survival rate of larval and juvenile fish or juvenile crustaceans in aquaculture breeding comprising:

feeding to said larval and juvenile fish or juvenile crustaceans a composition comprising astaxanthin containing zooplankton selected from the group consisting of rotifers belong the genus Brachionus and crustaceans belonging to the genus Artemia,

in an amount of 7×10^4 to 3×10^6 astaxanthin-containing zooplankton/1000 larval and juvenile fish/day to increase the survival rate of said larval and juvenile fish or juvenile crustaceans, wherein

said astaxanthin-containing zooplankton has an intracellular accumulation of astaxanthin at a concentration of 50-5000 ppm on a dry weight basis, and wherein

said astaxanthin-containing zooplankton is produced by culturing said rotifers belonging to the genus Brachionus and said crustaceans belonging to the genus Artemia on nutrient culture media comprising astaxanthin-containing yeasts belonging to Ptaffia or astaxanthin-containing algae belonging to Haematococcus for a time and at conditions sufficient to obtain said astaxanthin-containing zooplankton.

5,739,007
HYBRID GAL10/PGK YEAST PROMOTER

Susan Mary Kingsman, Oxon; Diane Joan Cousens, Kent; Mark Julian Wilson, Nottingham, and Edward Hinchliffe, Burton-on-Trent, all of United Kingdom, assignors to Delta Biotechnology Limited, Nottingham, United Kingdom

Continuation of Ser. No. 853,865, Mar. 20, 1992, which is a continuation of Ser. No. 577,815, Sep. 4, 1990, abandoned, which is a continuation of Ser. No. 89,987, Aug. 27, 1987, abandoned. This application Sep. 10, 1993, Ser. No. 119,926

Claims priority, application United Kingdom, Aug. 29, 1986, GB 86 20926

Int. Cl.^{6} C12P *21/06,* **C12N** *1/19 15/11;15/81*

U.S. Cl. 435—69.1 **13 Claims**

1. A hybrid yeast promoter comprising the upstream activation sequence of the *Saccharomyces cerevisiae* GAL10 gene operably linked to a downstream sequence effective in promoting transcription of a coding sequence placed downstream thereof, wherein the downstream transcription promoting sequence is a *Saccharomyces cerevisiae* phosphoglycerate kinase (PGK) promoter sequence, and wherein the hybrid yeast promoter does not contain the upstream activation sequence of the *Saccharomyces cerevisiae* PGK promoter which is located between nucleotides −470 and −423 relative to the translational start site of the PGK gene.

5,739,008
DNA ENCODING A PROTEIN COMPRISING CALMODULIN-AND ACTIN-BINDING HUMAN CALDESMON PEPTIDE FRAGMENT

Ken'ichiro Hayashi, Takatsuki; Takashi Hashida, Otsu; Kiyozo Asada, Shiga-ken; Hirokazu Kotani, Moriyama; Ikunoshin Kato, Uji, and Kenji Sobue, 3-5, Higashinakajyo-cho, Ibaraki-shi, Osaka-fu, all of Japan, assignors to Kenji Sobue, Osaka-Fu, and Takara Shuzo Co., Ltd., Kyoto, both of Japan

Division of Ser. No. 285,440, Aug. 4, 1994, Pat. No. 5,532,337, which is a continuation of Ser. No. 858,947, Mar. 27, 1992, abandoned. This application Apr. 10, 1996, Ser. No. 630,349

Claims priority, application Japan, Mar. 29, 1991, 3-089106; Dec. 27, 1991, 3-358040

Int. Cl.^{6} C12N *15/12 15/62 15/63;5/10*

U.S. Cl. 435—69.1 **12 Claims**

1. An isolated DNA encoding an actin- or calmodulin binding polypeptide fragment of a human caldesmon protein, said DNA comprising a nucleotide sequence encoding at least the amino acid sequence shown in SEQ ID NO:1, wherein said caldesmon protein has the amino acid sequence shown in SEQ ID NO:5 or SEQ ID NO:6.

5,739,009
ADIPOCYTE-SPECIFIC DIFFERENTIATION-RELATED PROTEIN

Jennifer L. Hillman, San Jose, and Phillip R. Hawkins, Mountain View, both of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Dec. 12, 1996, Ser. No. 764,343

Int. Cl.^{6} C12N *5/10 15/12 15/86;* **C07K** *14/435*

U.S. Cl. 435—69.1 **6 Claims**

1. A substantially purified human adipocyte-specific differentiation-related protein comprising the amino acid sequence of SEQ ID NO:1.

2. An isolated and purified polynucleotide sequence encoding the human adipocyte-specific differentiation-related protein of claim 1.

4. An expression vector containing the polynucleotide sequence of claim 2.

5. A host cell containing the vector of claim 4.

6. A method for producing a polypeptide comprising the amino acid sequence of SEQ ID NO:1 the method comprising the steps of:

a) culturing the host cell of claim 5 under conditions suitable for the expression of the polypeptide; and

b) recovering the polypeptide from the host cell culture.

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5,739,010

HUMAN TRANSCRIPTION FACTOR

Jennifer L. Hillman, San Jose, and Purvi Shah, Sunnyvale, both of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Apr. 16, 1997, Ser. No. 843,993

Int. Cl.^{6} C12P *21/06*, **C12N** *5/10;15/12;15/63*

U.S. Cl. 435—69.1 **6 Claims**

1 An isolated and purified polynucleotide sequence encoding a human transcription factor comprising the amino acid sequence set forth as SEQ ID NO:1

5,739,011

DNA FOR THE PRODUCTION OF MULTIMERIC HEMOGLOBINS

David C. Anderson, San Bruno, Calif.; Antony James Mathews, Louisville, and Gary L. Stetler, Boulder, both of Colo., assignors to Somatogen, Inc., Boulder, Colo.

Continuation of Ser. No. 240,712, May 9, 1994, Pat. No. 5,599,907, which is a continuation-in-part of Ser. No. 789,179, Nov. 8, 1991, Pat. No. 5,545,727, which is a continuation-in-part of Ser. No. 671,707, Apr. 1, 1991, abandoned, which is a continuation-in-part of Ser. No. 374,161, Jun. 30, 1989, abandoned, Ser. No. 379,116, Jul. 13, 1989, abandoned, and Ser. No. 349,623, May 10, 1989, abandoned. This application May 31, 1995, Ser. No. 443,890

Int. Cl.^{6} C12P *21/02*, **C07H** *21/04*; **C12N** *15/12*, **C07K** *14/805*

U.S. Cl. 435—69.6 **37 Claims**

1 A non-naturally occurring or purified DNA molecule comprising a DNA sequence encoding a pseudodimeric globin-like polypeptide having two substantially homologous globin-like domains, one of which is mutated to provide an asymmetric crosslinkable cysteine residue, the corresponding residue in the other globin-like domain of said pseudodimeric polypeptide being an amino acid other than cysteine.

5,739,012

TISSUE PLASMINOGEN ACTIVATOR AND PROCESS OF PREPARATION

Yasushi Kawauchi, Tokyo; Toshiyuki Takemoto, Saitama; Makoto Takayama; Masami Yokota, both of Tokyo; Masao Kato, and Kimio Katsuta, both of Saitama, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Division of Ser. No. 237,249, May 4, 1994, Pat. No. 5,556,621, which is a continuation of Ser. No. 810,561, Dec. 20, 1991, abandoned, which is a continuation of Ser. No. 474,113, Apr. 27, 1990, abandoned. This application Sep. 10, 1996, Ser. No. 712,999

Claims priority, application Japan, Oct. 29, 1987, 62-274770; Dec. 18, 1987, 62-320785; Mar. 23, 1988, 63-70126; Jul. 27, 1988, 63-189351

Int. Cl.^{6} C12P *21/02*; **C12N** *1/21,5/10*, **C07H** *21/04*

U.S. Cl. 435—69.6 **4 Claims**

1 An improved tissue plasminogen activator gene represented by the following base sequence

5ATGGATGCAATGAAGAGAGGGCTGCGT
GTGCTGCTACTCTGCGGAGCAGTCTTCGTT
TCGCCCAGCCAGGAAATCCATGCCCGATTC
AGAAGAGGAGCCAGGTCTTACCAAGTGATC
TGCAGAGATGAAAAAACGCAGATGATATAC
CAGCAACATCAGTCATGGCTGCGCCCTGTG
CTCAGAAGCAACCGGGTGGAATATTGCTGG
TGCAACAGTGGCAGGGCACAGTGCCACTCA
GTGCCTGTCAAAAGTTGCAGCGAGCCAAGG
TGTTTCAACGGGGGCACCTGCCAGCAAGCT
TTGTACTTCTCAGATTTCGTGTGCCAGTGC
CCCGAAGGATTTGCTGGGAAGTGCTGTGAA
ATAGATACTCGAGCCACGTCTGAGGGAAAC
AGTGACTGCTACTTTGGGAATGGGTCAGCC
TACCGTGGTACCCACAGCCTCACCGAGTCG
GGTGCCTCCTGCCTCCCATGGAATTCCATG
ATCCTGATAGGCAAGGTTTACACAGCACAG
AACCCCAGTGCCCAGGCACTGGGCCTGGGC
AAACATAATTACTGCCGGAATCCTGATGGG
GATGCCAAGCCCTGGTGCCACGTGCTGAAG
AACCGCAGGCTGACGTGGGAGTACTGTGAT
GTGCCCTCCTGCTCCACCTGCGGCCTGAGA
CAGTACAGCCAGCCTCAGTTTGAAATCAAA
GGAGGGCTCTTCGCCGACATCGCCTCCCAC
CCCTGGCAGGCTGCCATCTTTGCCAAGCAC
AGGAGGTCGCCCGGAGAGCGGTTCCTGTGC
GGGGGCATACTCATCAGCTCCTGCTGGATT
CTCTCTGCCGCCCACTGCTTCCAGGAGAGG
TTTCCGCCCCACCACCTGACGGTGATCTTG
GGCAGAACATACCGGGTGGTCCCTGGCGAG
GAGGAGCAGAAATTTGAAGTCGAAAAATAC
ATTGTCCATAAGGAATTCGATGATGACACT
TACGACAATGACATTGCGCTGCTGCAGCTG
AAATCGGATTCGTCCCGCTGTGCCCAGGAG
AGCAGCGTGGTCCGCACTGTGTGCCTTCCC
CCGGCGGACCTGCAGCTGCCGGACTGGACG
GAGTGTGAGCTCTCCGGCTACGGCAAGCAT
GAGGCCTTGTCTCCTTTCTATTCGGAGCGG
CTGAAGGAGGCTCATGTCAGACTGTACCCA
TCCAGCCGCTGCACATCACAACATTTACTT
AACAGAACAGTCACCGACAACATGCTGTGT
GCTGGAGACACTCGGAGCGGCGGGCCCCAG

GCAAACTTGCACGACGCCTGCCAGGGCGAT
TCGGGAGGCCCCCTGGTGTGTCTGAACGAT
GGCCGCATGACTTTGGTGGGCATCATCAGC
TGGGGCCTGGGCTGTGGACAGAAGGATGTC
CCGGGTGTGTACACCAAGGTTACCAACTAC
CTAGACTGGATTCGTGACAACATGCGACCG
TGA3'

wherein A is deoxyadenyl, G is deoxyguanyl, C is deoxycytidyl and T is deoxythymidyl.

5,739,013

ENZYMATIC SYNTHESIS OF 2',5'-OLIGOADENYLATE-2',3'-CYCLOPHOSPHATES AND TREATMENT OF PAPILLOMAVIRUSES

Edward I. Budowsky, 2752 Middleton Ave. Apt 28B, Durham, N.C. 27705; Alexander E. Gavrilov, Novolesnaya ul. 17A, Apt. 82, Moscow, Russian Federation, 103055, and Arman D. Pivasyan, 1232 Lawrence St., New Haven, Conn. 06511

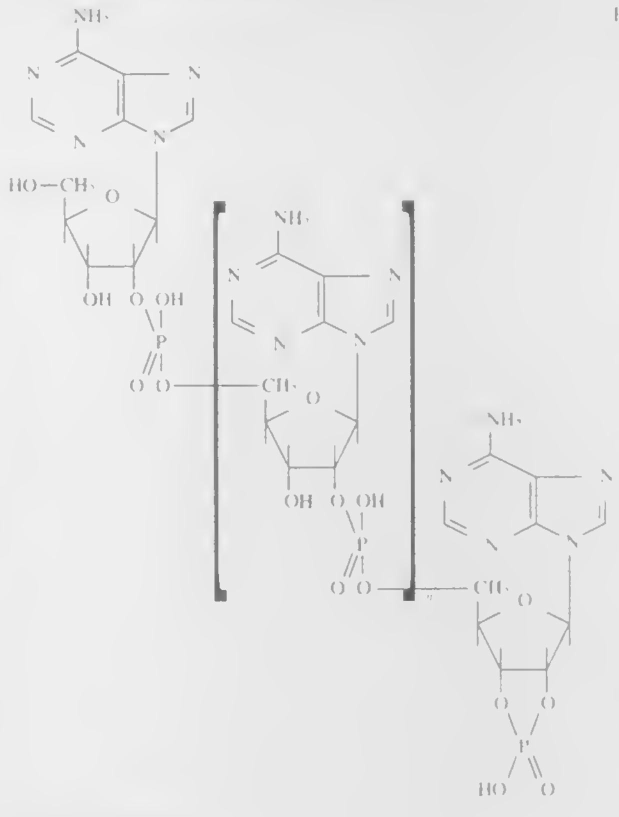
PCT No. PCT/EP93/02596, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/08555, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 24, 1993, Ser. No. 615,246

Int. Cl.^{6} C12P *19/34*; **C12N** *9/22*; **A01N** *43/04*; **C07H** *21/04*

U.S. Cl. 435—91.1 **6 Claims**

1 A compound which is a 2',5'-oligoadenylate 2',3'-cyclophosphate having the general formula:



I

wherein 0≤n≤10.

5,739,014

POLYSACCHARIDE, PROCESS FOR PRODUCTION THEREOF, USE THEREOF, AND AGROBACTERIUM RADIOBACTER TNM2 STRAIN

Osamu Nakanishi, Ibaraki; Yoichi Ooiso, Higashiosaka; Takeshi Okumiya, Yao; Ryosuke Sugihara, Osaka; Kaoru Kawashima, Habikino; Akira Misaki, Ashiya, and Masahira Nakagawa, Takatsuki, all of Japan, assignors to Tayca Corporation, Osaka, Japan

PCT No. PCT/JP95/01074, § 371 Date Apr. 12, 1996, § 102(e) Date Apr. 12, 1996, PCT Pub. No. WO95/33066, PCT Pub. Date Dec. 7, 1995

PCT Filed Jun. 1, 1995, Ser. No. 586,921

Claims priority, application Japan, Jun. 1, 1994, 6-142369

Int. Cl.^{6} C12P *19/04*; **C07G** *17/00*; **C07H** *1/00;3/00*

U.S. Cl. 435—101 **12 Claims**

1 A novel polysaccharide having a molecular weight of about 5×10^3 to 10×10^6 as measured by gel permeation chromatography and comprising 5 saccharides selected from the group consisting of D-glucose, D-galactose, D-glucuronic acid, D-ribose and D-riburonic acid, in a molar ratio of 10:1.8–2.9:1.8–2.6:0.5–1.7:0.5–1.7 (D-glucose:D-galactose:D-glucuronic acid:D-ribose:D-riburonic acid), with the content of o-acetyl groups in the polysaccharide being 0–10% by weight

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5,739,015

BIOTRANSFORMATION OF CHITIN TO CHITOSAN

Vadake R. Srinivasan, Baton Rouge, La., assignor to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.

Filed Mar. 10, 1997, Ser. No. 815,282

Int. Cl.^{6} C12P *19/04*; **C12N** *1/12*, **C13K** *1/02*

U.S. Cl. 435—101 **4 Claims**

1 A biologically pure culture of bacteria having all the identifying characteristics of Alcaligenes bacteria ATCC accession number 55938, or the progeny of said culture; wherein said culture or said progeny is capable of producing chitosan upon fermentation in an aqueous nutrient medium in the presence of chitin.

5,739,016

ENZYMATIC HYDROLYSIS METHOD FOR THE PREPARATION OF C-13 HYDROXYL-BEARING TAXANES, AND USE THEREOF IN THE PREPARATION OF C-13 ACYLOXY-BEARING TAXANES

Ronald L. Hanson, Morris Plains; Ramesh N. Patel, Bridgewater, and Laszlo J. Szarka, East Brunswick, all of N.J., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Division of Ser. No. 77,979, Jun. 15, 1993, Pat. No. 5,516,676. This application May 19, 1995, Ser. No. 445,120

Int. Cl.^{6} C12P *17/02*; **C12N** *9/14*

U.S. Cl. 435—117 **10 Claims**

1 A method for the preparation of at least one taxane containing a hydroxyl-group directly bonded at C-13, comprising the steps of contacting at least one taxane containing an acyloxy group directly bonded at C-13 with an enzyme derived from a microorganism selected from the group consisting of *Nocardioides albus* and *Nocardioides luteus* or with a microorganism selected from the group consisting of *Nocardioides albus* and *Nocardioides luteus*, wherein said enzyme or microorganism is capable of catalyzing the hydrolysis of said acyloxy group to a hydroxyl group, and effecting said hydrolysis.

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5,739,017

PREPARATION OF 2-HYDROXYPHENYLACETIC ACID BY FERMENTATION

Horst Ralf Staudenmaier, Limburgerhof; Bernhard Hauer, Fussgoenheim; Wolfgang Ladner, Fussgoenheim; Ursula Mueller, Fussgoenheim; Uwe Pressler, Altrip, and Joachim Meyer, Maxdorf, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 379,475, Feb. 1, 1995, abandoned. This application Jun. 21, 1996, Ser. No. 668,137

Claims priority, application Germany, Sep. 29, 1992, 42 32 522.6

Int. Cl.^{6} C12P *7/42*, **C12N** *1/14*

U.S. Cl. 435—146 **4 Claims**

1 A process for preparing 2-hydroxyphenylacetic acid, which comprises

cultivating a fungus on a solid growth medium, said fungus being able to hydroxylate phenylacetic acid in the ortho-position but being unable to metabolize 2-hydroxyphenylacetic acid , said fungus which is able to hydroxylate phenylacetic acid selected from the group consisting of the genera Absidia, Alternaria, Aspergillus, Beauveria, Botryodiplodia, Botrytis, Byssochlamys, Candida, Cephalosporium, Chaetomium, Cunninghamella, Curvularia, Dactylium, Drechslera, Epicoccum, Fusarium, Geotrichum, Gibberella, Gleophyllum, Gliocladium, Helminthosporium, Humicola, Hyphozyma, Metarrhizium, Micorascus, Mucor, Neurospora, Paecilomyces, Penicillium, Phycomyces, Phyllostricta, Pythium, Rhizopus, Septoria, Sphaceloma, Trichoderma, Trichosporon, Trichurus and Verticillium;

inoculating a liquid growth medium comprising phenylacetic acid with a fungal biomass taken from the solid growth medium culture,

cultivating the fungus in the liquid growth medium until the phenylacetic acid is metabolized to 2-hydroxyphenylacetic acid; and

recovering the 2-hydroxyphenylacetic acid from the liquid growth medium.

5,739,018

PACKAGING CELL LINES FOR PSEUDOTYPED RETROVIRAL VECTORS

Atsushi Miyanohara, San Diego; Jiing-Kuan Yee, Del Mar; Shin-Tai Chen; Charles Edward Prussak, both of San Diego, and Theodore Friedmann, La Jolla, all of Calif., assignors to The Regents of the University of California, Oakland, and City of Hope, Duarte, both of Calif.

Filed Aug. 7, 1996, Ser. No. 694,652

Int. Cl.^{6} C12N *5/10, 15/63; 15/86*

U.S. Cl. 435—172.3 **16 Claims**

8 A method of producing a recombinant retroviral vector particle, the method comprising the steps of:

introducing into a eukaryotic cell derived from a Cf2Th cell a) a first nucleotide sequence encoding a retroviral Gag protein, b) a second nucleotide sequence encoding a retroviral Pol protein, c) a third nucleotide sequence encoding a VSV G envelope protein, said third nucleotide sequence being operably linked to an inducible promoter, and d) a fourth nucleotide sequence encoding a multi chimeric transactivator comprising

i) a first ligand-binding domain, wherein binding of a first ligand to the first ligand-binding domain inhibits transcriptional activation by the multi-chimeric transactivator;

ii) a eukaryotic transcriptional activation domain; and

iii) a second ligand-binding domain;

introducing into the cell a recombinant retroviral genome for inclusion in a pseudotyped retroviral particle; and

exposing the cell to conditions under which the multi-chimeric transactivator facilitates transcription from the inducible promoter;

wherein expression of the first, second, and third nucleotide sequences results in expression of the Gag, Pol, and VSV G envelope proteins, respectively, thereby resulting in packaging of the recombinant retroviral genome and production of pseudotyped retroviral particles at a viral titer of at least 10^3 cfu per ml within a period of about 2 days

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5,739,019

METHOD OF ISOLATING AND PROPAGATING MICROORGANISMS AND VIRUSES

Harrell L. Walker, Rt. 1 Box 2070-4, Ruston, La. 71270, and Christopher L. Patrick, Rt. 4 Box 335, Rayville, La. 71269

Continuation of Ser. No. 287,620, Aug. 8, 1994, abandoned. This application Dec. 3, 1996, Ser. No. 758,296

Int. Cl.^{6} A01N *63/00*, **C12N** *11/00; 11/16;* **C12D** *1/04*

U.S. Cl. 435—174 **10 Claims**

1 A method of isolating microorganisms and viruses from a water environment, comprising the steps of:

immobilizing a target organism selected from the group consisting of gram-positive bacteria, gram-negative bacteria, *Oscillatoria spp.*, and *Anabeana spp.*, in a first stable substrate;

placing said first stable substrate in a water environment for a selected period of time, whereby pathogens selected from the group consisting of microorganisms and viruses from the water environment which are pathogenic to said immobilized target organism colonize said target organism in said first stable substrate, and

removing from the water environment said first stable substrate having said target organism immobilized therein, said target organism being colonized by said pathogens selected from the group consisting of microorganisms and viruses, thereby isolating said pathogens selected from the group consisting of microorganisms and viruses from said water environment

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5,739,020

ENCAPSULATION OF ANIMAL AND MICROBIAL CELLS IN AN INORGANIC GEL PREPARED FROM AN ORGANOSILICON

Edward J. A. Pope, 447 Lorenzo Dr., Agoura, Calif. 91301

Filed Jan. 10, 1995, Ser. No. 371,064

Int. Cl.^{6} C12N *11/14; 5/00; 11/04;* **C12Q** *1/02*

U.S. Cl. 435—176 **2 Claims**

2. A process encapsulating microorganisms in an inorganic gel comprising the steps of:

a. mixing an organosilicon precursor and a highly acidic aqueous solution having a molar concentration of acid in the range of 0.05 to 2.5 wherein said organosilicon precursor is selected from a group consisting of tetraethoxysilane, tetrabutoxysilane, tetramethoxysilane and tetrapropoxysilane;

b. stirring said mixture of said organosilicon precursor and said highly acidic aqueous solution until said mixture of said organosilicon precursor and said highly aqueous acidic solution becomes clear whereby water in said highly aqueous acidic solution hydrolyzes said organosilicon precursor;

c. adding a base solution having a molar concentration of base in the range of 0.05 to 2.5 to said mixture of said organosilicon precursor and said highly acidic aqueous solution to form a mixture of said organosilicon precursor, said highly acidic aqueous solution and said base solution;

d. stirring said mixture of said organosilicon precursor, said highly acidic solution and said base solution to form a gel forming solution;

e. mixing a microorganism dispersion with said gel forming solution to form a mixture of said microorganism dispersion and said gel forming solution; and

f. pouring into a container said mixture of said microorganism dispersion and said gel forming solution to form an inorganic gel encapsulating said microorganisms.

5,739,021

HEAT-STERILIZABLE POROUS CARRIER FOR BIOCATALYSTS

Hermann Katinger, Vienna, Austria; Bartold Rauschert, Steinbach am Wald, Germany; Gerald Blüml, Vienna, Austria; Nicolaus Zach, Vienna, Austria; Manfred Reiter, Vienna, Austria, and Theodor Gaida, Vienna, Austria, assignors to Pharmacia Biotech AB, Uppsala, Sweden

Continuation-in-part of Ser. No. 980,806, Mar. 30, 1993, abandoned. This application Dec. 28, 1994, Ser. No. 390,768

Claims priority, application Austria, Jul. 2, 1991, 1322/91

Int. Cl.^{6} C12N *11/08; 5/04; 5/02*

U.S. Cl. 435—180 **18 Claims**

1 In a method for culturing cells on a carrier, the improvement comprising a carrier

a) being in particle form exhibiting particles with outwardly open pores allowing the cells to penetrate and grow within the pores;

b) having a density above 1 g/cm^3, and

c) comprising a water-insoluble filler and a polyolefine binder selected from the group consisting of a high density polyethylene and a high density polypropylene, with said binder allowing heat sterilization of the carrier up to 121° C

5,739,022

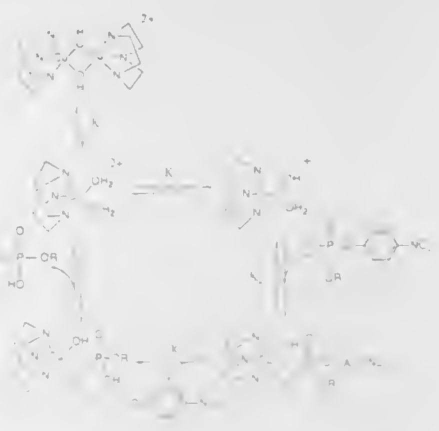
COMPOUNDS COPPER(II) NUCLEASE, COMPOSITIONS, AND KITS

Judith N. Burstyn; Eric L. Hegg, both of Madison, Wis., and Kim A. Deal, St. Louis, Mo., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Aug. 18, 1994, Ser. No. 293,237

Int. Cl.^{6} C12N *9/99*, **C07H** *21/00*

U.S. Cl. 435—184 **30 Claims**



1 A method of nonoxidatively cleaving the phosphorus-oxygen linkage of a substrate which is DNA or RNA comprising the step of cleaving the DNA or RNA phosphorus-oxygen linkages with an effective amount of the following metallo-nuclease:

$$L^1 M L^2_b$$

wherein:

M is a pentacoordinate metal ion;

L^1 is tridentate facially chelating ligand which is a heterocycle having 3 heteroatoms and from 6 to 9 carbon atoms within the heterocycle; and

L^2 is a substitutionally labile ligand disposed around M in cis coordinate positions and b is an integer having a value of 1 or 2.

5,739,023

STABILIZED NEUTRAL METALLOPROTEASE COMPOSITION, A METHOD OF MAKING THE COMPOSITION, AND A METHOD OF TRANSPORTING THE COMPOSITION

Tsuneo Harada; Yukio Kunisawa, both of Shinanyo; Kiyotaka Oyama, Tokyo-pref., all of Japan; Johanna C. M. Smeets, Sittard, Netherlands; Shuya Takasuga, Shinanyo, Japan, and Wilhelmus J. J. Van Den Tweel, Meerssen, Netherlands, assignors to Holland Sweetener Company V.o.F., Maastricht, Netherlands

Continuation of Ser. No. 297,528, Aug. 26, 1994. This application Aug. 7, 1996, Ser. No. 693,571

Claims priority, application European Pat. Off., Aug. 27, 1993, 93202517

Int. Cl.^{6} C12N *9/96;* **C12P** *21/06*

U.S. Cl. 435—188 **14 Claims**

1 A method for preparing and storing a stabilized thermolysin which is storable without scaling which comprises

adding thermolysin to an aqueous solution to obtain a solution or slurry thereof, wherein said aqueous solution contains an N-protected amino acid, or an N protected amino acid is added to said solution or slurry, whereby said stabilized thermolysin is obtained, and

storing said stabilized thermolysin

5,739,024

MALTOHEXAOSE AND MALTOHEPTAOSE-FORMING AMYLASE, AND ITS PREPARATION AND USES

Masayuki Nakano; Hiroto Chaen; Toshiyuki Sugimoto, and Toshio Miyake, all of Okayama, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan

Division of Ser. No. 396,746, Mar. 1, 1995, Pat. No. 5,527,699. This application Sep. 11, 1995, Ser. No. 526,082

Claims priority, application Japan, Mar. 1, 1994, 6-54371

Int. Cl.^{6} C12N *9/26; 9/28; 1/12; 1/00*

U.S. Cl. 435—201 **3 Claims**

1 A process for producing a maltohexaose and maltoheptaose-forming amylase which has an activity of mainly forming maltohexaose and maltoheptaose from starch, but does not substantially have an activity of hydrolyzing maltoheptaose and a lower molecular oligosaccharide than maltohexaose, which process comprises

culturing in a nutrient culture medium a microorganism selected from the group consisting of strains of the species *Alcaligenes latus* and their mutants capable of forming said amylase and

recovering the formed amylase from the culture

5,739,025

METHOD FOR PRODUCING AN ASPARAGINYL ENDOPROTEASE

Chikafusa Fukazawa, Tsukuba, Japan, assignor to Director of National Food Research Institute, Ministry of Agriculture, Forestry and Fisheries, Tsukuba, Japan

Division of Ser. No. 91,991, Jul. 12, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 486,721

Claims priority, application Japan, Jul. 22, 1992, 4-215739

Int. Cl.^{6} C12N *9/50*

U.S. Cl. 435—219 **10 Claims**

1 A method for producing asparaginyl endoprotease which comprises

extracting ground seeds of soybean, ginkgo or rice, said seeds being collected between an early growing stage and ripening, with a first buffer solution having a pH 4.0 to 6.0 to obtain a soluble fraction,

dialyzing said soluble fraction against a second buffer solution to form a precipitate,

subjecting the dialyzed soluble fraction to a centrifugation to obtain a supernatant,

subjecting said supernatant to ammonium sulfate fractionation to obtain a solid containing the asparaginyl endoprotease.

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dissolving the solid in a third buffer solution and subjecting the resultant solution containing the asparaginyl endoprotease to hydrophobic chromatography and then to gel filtration and recovering the asparaginyl endoprotease, wherein the asparaginyl endoprotease possesses following properties
- (a) when contacted with proglycinin, cleavage of glycinin occurs between the C-terminal amino acid Asn of the acidic subunit region and the N-terminal amino acid Gly or Asn of the basic subunit region.
- (b) is active at a pH of 4.0 to 7.0.
- (c) is a cysteine protease.
- (d) has a molecular weight of 33 KDa to 46 KDa, and does not have sugar chains.
- (e) is not absorbed onto a concanavalin A-Sepharose column.
- (f) reacts with peptides or denatured proteins, and hydrolyses the peptide bond on the carboxyl end of an asparagine residue, but does not react with peptides selected from the group consisting of Boc-Asn-nitrophenyl, DNP Pro-Glu-Ala-Asn-NH_2 (SEQ ID NO: 3) and Z-Ala-Ala-Asn-NH_2, and
- (g) is synthesized substantially at an early stage of seed embryogenesis and is degraded in early imbibition such that both the asparaginyl endoprotease and the proglycinin are completely consumed after 12 hour imbibition in an immunoblotting assay

5,739,026
DNA EXPRESSION SYSTEMS BASED ON ALPHAVIRUSES

Henrik Garoff, Hägersten, and Peter Liljeström, Huddinge, both of Sweden, assignors to Bioption AB, Tullinge, Sweden

PCT No. PCT/SE91/00855, § 371 Date Aug. 13, 1992, § 102(e) Date Aug. 13, 1992, PCT Pub. No. WO92/10578, PCT Pub. Date Jun. 25, 1992

PCT Filed Dec. 12, 1991, Ser. No. 920,281

Claims priority, application Sweden, Dec. 13, 1990, 9003978

Int. Cl.^{6} C12N *5/10,15/86;15/40*

U.S. Cl. 435—240.2 48 Claims

1. A recombinant RNA molecule which can be efficiently translated and replicated in an animal host cell, comprising a Semliki Forest Virus RNA genome and an exogenous RNA sequence, wherein said Semliki Forest Virus RNA genome contains at least one deletion or stop codon mutation such that at least one structural protein of the Semliki Forest Virus cannot be made upon introduction of said recombinant RNA into said host cell, and further wherein said exogenous RNA sequence is operatively inserted into a region of the Semliki Forest Virus RNA genome which is non essential to replication of the recombinant RNA molecule such that the exogenous RNA is expressed from a Semliki Forest Virus transcriptional promoter when the recombinant RNA is introduced into a host cell and further such that the exogenous RNA expresses its biological function in said host cell

5,739,027
MTS1E1β GENE

Alexander Kamb, Salt Lake City, Utah, assignor to Myriad Genetics, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 251,938, Jun. 1, 1994, abandoned, and Ser. No. 215,087, Mar. 18, 1994, abandoned, and Ser. No. 215,086, Mar. 18, 1994, abandoned, said Ser. No. 251,938 is a continuation-in-part of Ser. No. 227,369, Apr. 14, 1994, abandoned, which is a continuation-in-part of Ser. No. 214,582, Mar. 18, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 487,033

Int. Cl.^{6} C12N *15/85*

U.S. Cl. 435—240.2 6 Claims

1. An isolated DNA comprising DNA having at least 15 consecutive nucleotides of exon 1 of MTS1E1β, said exon 1 being defined by bases 1 through 334 of SEQ ID NO:13.

5,739,028
CHROMIUM (VI)-RESISTANT STRAIN OF *SHEWANELLA ALGA*

Frank Caccavo, Jr., and Michael J. McInerney, both of Norman, Okla., assignors to The Board of Regents of the University of Oklahoma, Norman, Okla.

Division of Ser. No. 368,454, Jan. 4, 1995. This application Jun. 5, 1995, Ser. No. 461,332

Int. Cl.^{6} C12P *1/20;3/00*

U.S. Cl. 435—252.1 1 Claim

1. A biologically pure culture of a *Shewanella alga* strain resistant to Chromium (VI) under anaerobic growth which is deposited under ATCC accession number 55627

5,739,029
VECTORS FOR EXPRESSION OF G PROTEIN COUPLED RECEPTORS IN YEAST

Klim King, Durham, N.C.; Henrik G. Dohlman, Berkeley, Calif.; Marc G. Caron, and Robert J. Lefkowitz, both of Durham, N.C., assignors to Duke University, Durham, N.C.

Division of Ser. No. 71,355, Jun. 3, 1993, Pat. No. 5,482,835, which is a continuation of Ser. No. 581,714, Sep. 13, 1990, abandoned. This application May 15, 1995, Ser. No. 441,291

Int. Cl.^{6} C12N *1/19,15/62,15/81*

U.S. Cl. 435—254.21 12 Claims

1. A DNA expression vector capable of expressing a transmembrane protein into the cell membrane of a yeast cell, said yeast cell lacking an endogenous G protein α subunit and expressing a mammalian Gs α subunit, said vector comprising:
- a first segment encoding at least the first 14 contiguous amino acids from the extreme amino-terminal sequence of a yeast G protein coupled receptor; and
- a second segment downstream from said first segment and in correct reading frame therewith, said second segment comprising a DNA sequence encoding a heterologous G protein coupled receptor, wherein said heterologous receptor couples to said mammalian Gs α subunit and transduces a pheromone responsive signal in said yeast cell, and wherein, agonist binding to said heterologous G protein coupled receptor in said yeast cell is sufficient to activate detectable expression of a reporter gene operatively linked to a pheromone responsive promoter.

5,739,030
PRODUCTION OF FOOD

Philip Nigel Ward, Darlington, United Kingdom, assignor to Zeneca Limited, London, England

PCT No. PCT/GB95/00368, § 371 Date Aug. 20, 1996, § 102(e) Date Aug. 20, 1996, PCT Pub. No. WO95/23843, PCT Pub. Date Sep. 8, 1995

PCT Filed Feb. 22, 1995, Ser. No. 696,821

Claims priority, application United Kingdom, Mar. 1, 1994, 9403930

Int. Cl.^{6} C12N *1/14*

U.S. Cl. 435—256.5 10 Claims

1. A process in which the nucleic acid content of Fungus Imperfectus is reduced to less than 2% by weight which comprises growing the fungus in the presence of a growth medium, raising the temperature of the growth medium while the fungus is still growing in the presence of the growth medium to above 68° C. and then separating at least part of the growth medium from the fungus whereby the nucleic acid content of said fungus is reduced while minimizing the loss of protein.

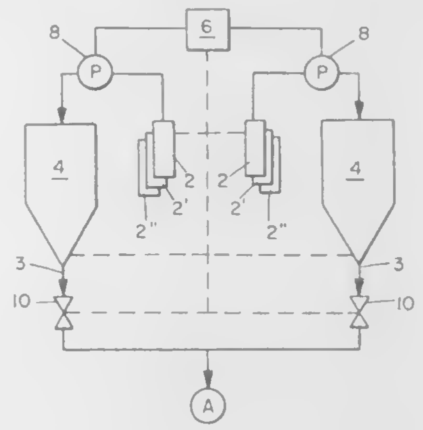
5,739,031
SOIL AND WATER REMEDIATION AND ENHANCEMENT PROCESS AND APPARATUS THEREFOR

Larry Runyon, Pauma Valley, Calif., assignor to Eco Soil Systems, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 190,632, Feb. 2, 1994, Pat. No. 5,447,866. This application Aug. 29, 1995, Ser. No. 520,826

Int. Cl.^{6} C12M *3/00*

U.S. Cl. 435—262 29 Claims



1. A method for remediation or enhancement of soil or water which comprises:
- forming a concentrated aqueous suspension of microorganisms and nutrients therefor in a single first vessel;
- injecting said aqueous suspension as a batch into a substantially larger volume of water in a second vessel;
- retaining said larger volume of water with said suspension dispersed therein in said second vessel at a temperature and for a time sufficient for said microorganisms to feed on at least a portion of said nutrients, reproduce and multiply into a concentrated biomass containing a remainder of said nutrients and an increased number of said microorganisms in said water;
- thereafter dispensing said biomass from said second vessel and dispersing said biomass to soil or water, and
- maintaining said microorganisms alive and active with said remainder of said nutrients for a period of time sufficient to enhance predetermined desirable properties of said soil or water or reduce predetermined undesirable properties of said soil or water.

5,739,032
CLONING LFA-1

Timothy Springer, Chestnut Hill; Takashi K. Kishimoto, and Thomas M. Roberts, both of Cambridge, all of Mass., assignors to Dana-Farber Cancer Institute, Inc., Boston, Mass.

Continuation of Ser. No. 771,849, Oct. 7, 1991, abandoned, which is a continuation of Ser. No. 19,440, Feb. 26, 1987, abandoned. This application Apr. 6, 1994, Ser. No. 223,820

Int. Cl.^{6} C12N *15/70;15/12*

U.S. Cl. 435—320.1 11 Claims

1. An isolated nucleic acid molecule which encodes the amino acid sequence of the common beta subunit of a human glycoprotein selected from the group consisting of LFA-1, MAC-1 and p150,95

5,739,033
PHYSIOLOGICAL CELL SEPARATION AND METHOD OF SEPARATING CELLS USING SAME

Patrick Soon-Shiong, Los Angeles, Calif., assignor to Vivorx, Inc., Santa Monica, Calif.

Continuation of Ser. No. 220,579, Mar. 31, 1994, abandoned, which is a continuation of Ser. No. 876,830, Apr. 27, 1992, abandoned, which is a continuation of Ser. No. 582,650, Sep. 14, 1990, abandoned, which is a continuation-in-part of Ser. No. 410,091, Sep. 20, 1989, abandoned. This application Jun. 5, 1995, Ser. No. 486,404

Int. Cl.^{6} C12N *5/00*

U.S. Cl. 435—325 6 Claims

1. An aqueous density gradient composition for isolating and purifying pancreatic islets from a population of acinar cells, in which the population had been previously exposed to collagenase through pancreatic ductal injection, by introducing said population containing islets and acinar cells to the composition, said composition comprising:
- (A) a first, or lower solution having a density between 1.097 and 1.126 g/ml, and being slightly hypertonic to the islets and acinar cells, said first solution comprising a mixture of a water soluble, metabolically inert substance selected from 5-(N-2,3-dihydroxypropylacetamido) 2,4,5-tri-iodo-N,N'-bis(2,3-dihydroxypropyl) isophthalamide and Metrizamide®, mixed with a physiological cold storage solution selected from University of Wisconsin (UW) solution and Eurocollins;
- (B) and a second, or upper solution, having a density of 1.008 g/ml or less, selected from the group consisting of:
  - (1) a physiological solution capable of maintaining viable cells selected from the group consisting of Hank's solution, RPMI, MEM, and Eagle's medium, and
  - (2) a mixture of a water-soluble, metabolically inert substance selected from 5-(N-2,3-dihydroxypropylacetamido) 2,4,5-tri-iodo-N,N'-bis(2,3-dihydroxypropyl) isophthalamide and Metrizamide, mixed with a physiological cold storage solution selected from UW solution and Eurocollins, overlaid with a physiological solution capable of maintaining viable cells, selected from the group consisting of Hank's solution, RPMI, MEM, and Eagle's medium.

5,739,034
DETERMINATION OF EXTRANEOUS WATER IN MILK SAMPLES, OR THE FREEZING POINT DEPRESSION OF MILK SAMPLES

Börkur Arnvidarson, Nivå ; Lars Nygaard, Græsted, and Per Waaben Hansen, Hillerod, all of Denmark, assignors to Foss Electric A/S, Hillerod, Denmark

PCT No. PCT/DK94/00462, § 371 Date Jun. 10, 1996, § 102(e) Date Jun. 10, 1996, PCT Pub. No. WO95/16201, PCT Pub. Date Jun. 15, 1995

PCT Filed Dec. 9, 1994, Ser. No. 663,044

Claims priority, application Denmark, Dec. 10, 1993, 1385/93

Int. Cl.^{6} G01N *33/06;33/18*

U.S. Cl. 436—23 50 Claims

1. A method for quantitatively assessing the amount of any extraneous water contained in a milk sample, the method comprising the steps of:
- a) performing a determination of the infrared attenuation of the sample in at least one waveband.
- b) quantitatively assessing the amount of any extraneous water in the sample on the basis of the determination (a) and pre determined regression coefficients derived from multivariate calibration with respect to the relationship between infrared attenuation in the at least one waveband and the amount of extraneous water.

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5,739,035

DETECTION OF ALKALI-SILICA REACTION SWELLING IN CONCRETE BY STAINING

George D. Guthrie, Jr., and J. William Carey, both of Santa Fe, N. Mex., assignors to The Regents of the University of California, Los Alamos, N. Mex.

Filed Nov. 7, 1996, Ser. No. 745,118

Int. Cl.^{6} G01N *21/91*

U.S. Cl. 436—28 **37 Claims**

1. A method for identifying concrete containing gels formed by the alkali-silica reaction comprising the steps of:

a. contacting the surface of the concrete under investigation with a concentrated aqueous solution of sodium cobaltinitrite for a chosen period of time;

b. rinsing the treated concrete surface with water; and

c. searching the rinsed surface of the concrete for regions of yellow staining, whereby K-rich, Na—K—Ca—Si gels generated from the alkali-silica reaction are identified by yellow staining.

5,739,036

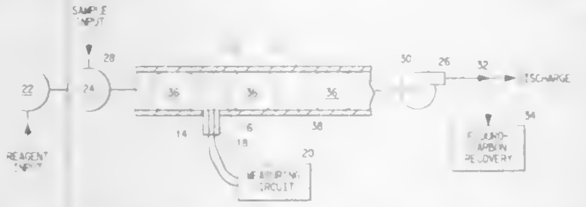
METHOD FOR ANALYSIS

Norman Alfred Parris, Hockessin, Del., assignor to Dade International Inc., Deerfield, Ill.

Continuation of Ser. No. 632,222, Apr. 15, 1996, abandoned. This application Aug. 15, 1997, Ser. No. 912,623

Int. Cl.^{6} G01N *35/08*

U.S. Cl. 436—53 **6 Claims**



1. A method of analyzing components of a sample using an analysis apparatus in which the samples are passed sequentially as a flowing stream through the analysis apparatus, the analysis apparatus having an electrochemical sensor for analyzing such samples, said method comprising:

placing the liquid samples in a carrier liquid for passage through the analyzer apparatus, each sample being spaced apart by carrier liquid, the carrier liquid being a fluorocarbon and immiscible with the sample thereby to permit the carrier liquid and liquid samples to reach equilibrium during measurement.

5,739,037

PROCESS FOR ELIMINATING LABILE GLYCOHAEMOGLOBIN FROM A SAMPLE

Andrew C Kenney, Buckinghamshire, and Maria D. Adewunmi, London, both of United Kingdom, assignors to Drew Scientific Limited, United Kingdom

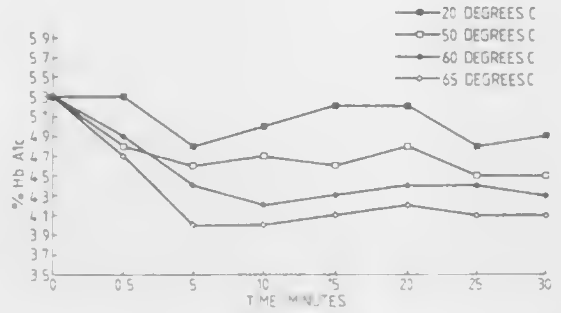
Continuation of Ser. No. 406,878, May 17, 1995, abandoned. This application Jan. 27, 1997, Ser. No. 791,473

Claims priority, application United Kingdom, Sep. 29, 1992, 9220526

Int. Cl.^{6} G01N *33/72*

U.S. Cl. 430—67 **14 Claims**

1. A process for preparing a sample for glycohaemoglobin measurement, which process comprises adding a reagent to said sample thereby forming a mixture, said reagent comprising a temperature dependent buffer having a pH/temperature coefficient of −0.011 or less, said reagent being added to said sample at a first temperature of up to 65° C., at which at said first temperature, said buffer has a first pH of less than 6.0, incubating the reagent with the sample, and allowing the temperature of said mixture to change to a second temperature, which is lower than said first temperature, whereby the temperature change causes the pH of said buffer to change to a second pH of 5.5 or more, said second pH being higher than said first pH, said first temperature and said first pH causing elimination of labile glycohaemoglobin from said sample.



5,739,038

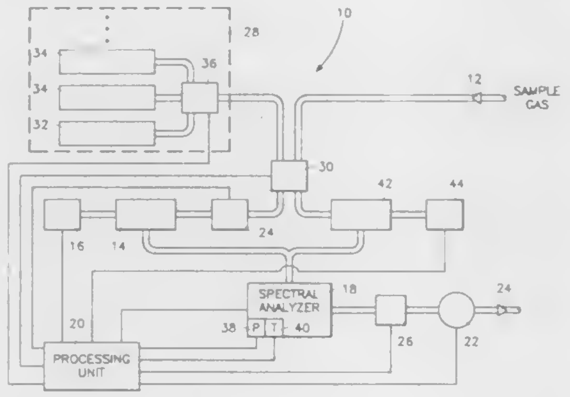
SPECTROMETER GAS ANALYZER SYSTEM

Donald Edward Burrows, Santa Barbara, Calif., assignor to Anarad, Inc., Santa Barbara, Calif.

Filed Jul. 26, 1996, Ser. No. 686,827

Int. Cl.^{6} G01N *33/00;21/01;21/31*

U.S. Cl. 436—113 **31 Claims**



1. A gas analyzer system, comprising:

a sample gas inlet for introducing a sample gas which is to be analyzed:

a first mixer having a first inlet into which the sample gas can be fed and an outlet;

a first mixer supply containing an oxidant gas connected to a second inlet of the first mixer so as to supply the oxidant gas thereto, said oxidant gas capable of being supplied to the first mixer in a sufficient quantity to convert substantially all of a quantity of nitric oxide (NO) present in the sample gas to a gas comprising a quantity of nitrogen dioxide (NO_2), said conversion taking place in the time it takes for the sample gas to flow through the first mixer:

an ammonia reactor disposed between the sample gas inlet and the first mixer, said ammonia reactor being capable of converting gaseous ammonia to a gas comprising a quantity of nitric oxide in the time it takes for the sample gas to flow through the ammonia reactor;

a second mixer having a first inlet into which the sample gas can be fed and an outlet, said second mixer being employed to convert substantially all of a quantity of hydrogen sulfide (H_2S) present in the sample gas to sulfur dioxide (SO_2) in the time it takes for the sample gas to flow through the second mixer;

an inlet distribution node having a first inlet connected to the sample gas inlet, a first outlet connected to an inlet of the ammonia reactor, and a second outlet connected to the first inlet of the second mixer, said inlet distribution node being capable of exclusively routing the sample gas to either the ammonia reactor or the second mixer:

a processing unit capable of controlling the inlet distribution node so as to cause the node to route the sample gas to either the ammonia reactor or the second mixer; and

a spectral analyzer having an inlet connected to the first mixer outlet and the second mixer outlet, and into which the sample gas is capable of being fed, said spectral analyzer further being capable of outputting a signal indicative of a radiation intensity spectrum over a range of wavelengths associated with the sample gas,

a pump having an inlet connected to an outlet of the spectral analyzer, said pump being capable of transporting the sample gas through the gas analyzer system

5,739,039

MICROELECTRODES AND AMPEROMETRIC ASSAYS

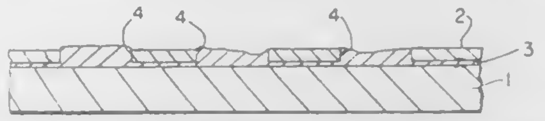
Hubert Hugues Jacques Girault, Edinburgh, and Brian Jeffrey Seddon, St. Helens, both of United Kingdom, assignors to Ecossensors Limited, Edinburgh, United Kingdom

Continuation of Ser. No. 852,223, Feb. 8, 1993, Pat. No. 5,512,489. This application Mar. 6, 1995, Ser. No. 399,177

Claims priority, application United Kingdom, Dec. 4, 1989, 8927377

Int. Cl.^{6} G01N *27/04*

U.S. Cl. 436—149 **4 Claims**



1. In a method of making a microelectrode comprising a layer of electrically insulating material having an array of apertures formed therein and electrically conducting material visible through the apertures, the improvement wherein a layer of carbon electrically conductive material is laid on a plastic substrate below the electrically insulating material and the apertures are drilled in the insulating layer to expose the carbon electrically conduction material by photo-ablating each aperture required.

5,739,040

METHOD AND DEVICE FOR DETERMINING THE LOCATION OF A MOLECULE GROUP AND THE NUMBER OF FLUORESCENT MOLECULES IN A MOLECULE GROUP

Mitsuru Ishikawa, Hamamatsu, Japan, assignor to Hamamatsu Photonics K.K., Shizuoka-ken, Japan

Division of Ser. No. 149,840, Nov. 10, 1993, Pat. No. 5,528,046. This application Feb. 16, 1996, Ser. No. 602,364

Claims priority, application Japan, Nov. 10, 1992, 4-300134

Int. Cl.^{6} G01N *21/64*

U.S. Cl. 436—172 **6 Claims**

1. A method for analyzing a molecule-group comprising one or more fluorescent molecules and determining the location of the molecule-group and the quantity of the fluorescent molecules in the molecule-group, said method comprising the steps of:

irradiating a local area on a flat substrate with excitation light and generating fluorescence photons, the local area having at least one molecule-group comprising one or more adsorbed fluorescent molecules;

detecting the amount of the fluorescence photons, per unit area of time, generated by said step of irradiating the local area on the flat substrate with the excitation light, and thereby identifying a position from which the fluorescence is generated and measuring a quantized fluorescence intensity of the molecule-group; and

determining the location of the molecule-group based on the position from which the fluorescence is generated, and determining the number of the fluorescence molecules in the molecule-group based on the quantized fluorescence intensity of the molecule group.

5,739,041

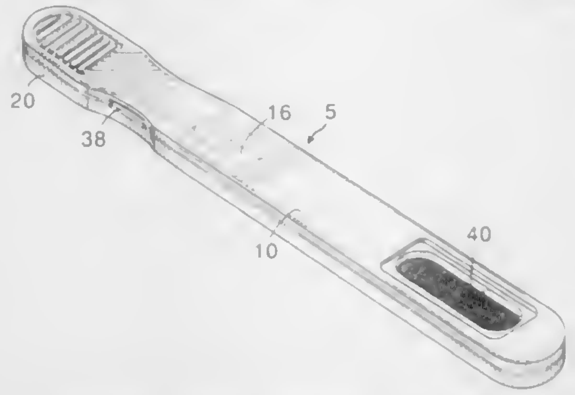
DIAGNOSTIC DETECTION DEVICE

Albert Nazareth, Mercerville, N.J.; Yea-Shun Cheng, Doylestown, Pa., and Mary Beth Boyle, Pennington, N.J., assignors to Carter Wallace, Inc., New York, N.Y.

Filed May 2, 1995, Ser. No. 432,890

Int. Cl.^{6} G01N *33/53*

U.S. Cl. 436—518 **16 Claims**



13. A method for detecting the presence of an analyte in a urine stream suspected to contain the analyte, the method comprising the steps of

(a) providing a single-step device comprising

an assay material comprising a release medium of a first material and a releasable, visually detectable analyte binding reagent disposed thereon for release therefrom, and in fluid communication and downstream thereof, a capture medium of a second, different material and a capture reagent immobilized thereon for binding the analyte, and

a casing defining

a hollow housing enclosing the assay material,

a urine inlet port through which urine applied directly from the urine stream enters the casing and contacts the assay material upstream of the release medium,

a window spaced apart from the urine inlet port for viewing the capture medium, and

at least one drainage vent spaced apart from the urine inlet port and upstream of the release medium through which excess urine entering the casing through the urine inlet port drains from the casing thereby minimizing hydraulic pressure induced flooding of the release medium or the capture medium of the assay material disposed within the casing;

(b) applying urine from the urine stream to the urine inlet port, and

(c) observing the presence or absence of an accumulation of the visually detectable analyte binding reagent immobilized at the capture medium, the accumulation of the visually detectable analyte binding reagent being indicative of the presence of the analyte in the urine.

5,739,042

METHOD OF ASSAY

Jomar Frengen, Trondheim, Norway, assignor to Sinvent AS, Trondheim, Norway

PCT No. PCT/GB94/02817, § 371 Date Sep. 6, 1996, § 102(e) Date Sep. 6, 1996, PCT Pub. No. WO95/17675, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 23, 1994, Ser. No. 663,121

Claims priority, application United Kingdom, Dec. 23, 1993, 9326238

Int. Cl.^{6} G01N *33/543;33/537*

U.S. Cl. 436—523 **12 Claims**

1. In a method for assaying an analyte in a sample comprising reacting the sample with two independently determinable forms of solid supported binding partner having affinity for the analyte and with a labelled ligand having affinity for the analyte or the binding partner, thereby yielding two forms of labelled ligand carrying

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solid-supported binding partner, said two independently determinable forms of solid-supported binding partner being such that signals in respect of said two forms of labelled ligand-carrying solid-supported binding partner may be independently determined whereby the analyte concentration may be obtained by reference to a double standard calibration curve, wherein the improvement comprises adding to the sample the first form of solid-supported binding partner and then after an interval adding the second form of solid-supported binding partner.

5,739,043
METHOD FOR PRODUCING A SUBSTRATE HAVING CRYSTALLINE SILICON NUCLEI FOR FORMING A POLYSILICON THIN FILM

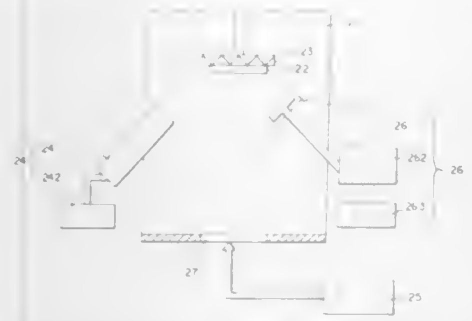
Kenji Yamamoto, Kobe, Japan, assignor to Kanegafuchi Chemical Industry Co., Ltd., Osaka, Japan

Division of Ser. No. 142,306, Nov. 23, 1993, Pat. No. 5,517,037. This application Feb. 12, 1996, Ser. No. 599,652

Claims priority, application Japan, Mar. 25, 1992, 4-100566; Mar. 25, 1992, 4-100567; Mar. 28, 1992, 4-101898; Apr. 1, 1992, 4-109259

Int. Cl.⁶ H01L *21/268*

U.S. Cl. 437—21 **6 Claims**



1. A method for producing a substrate having crystalline silicon nuclei for forming a polysilicon thin film, comprising: forming an amorphous silicon film of a thickness not more than 200 Å; irradiating excimer laser light onto said amorphous silicon film to crystallize silicon particles contained in said amorphous silicon film; and irradiating said amorphous silicon film with hydrogen radicals to etch said amorphous silicon film so as to remove non-crystalline silicon particles, wherein the flux of hydrogen radicals in the vicinity of the substrate is not less then 1×10^{15} atom/cm$_2$ s.

5,739,044
METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

Yoshio Terasawa, Katsuta, Japan, assignor to NGK Insulators, Ltd., Japan

Division of Ser. No. 407,023, Mar. 28, 1995, Pat. No. 5,591,991. This application Oct. 9, 1996, Ser. No. 728,147

Claims priority, application Japan, Jul. 28, 1993, 5-186450; WIPO, Jul. 28, 1994, PCT/JP94/01241

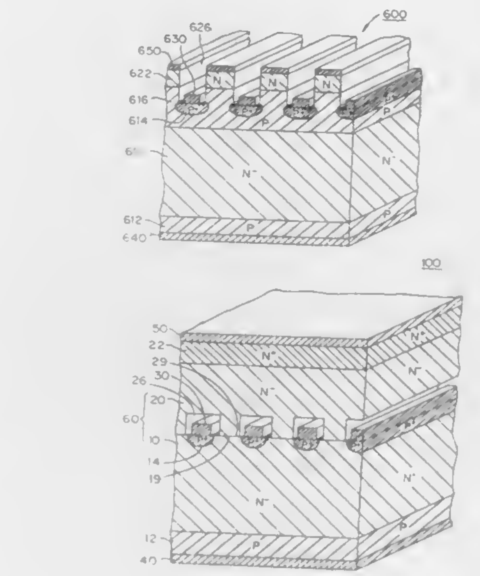
Int. Cl.⁶ H01L *21/265;49/00*

U.S. Cl. 437—40 **14 Claims**

1. A method of manufacturing a semiconductor device comprising the steps of

preparing a first and a second semiconductor substrates of one conductivity type each having a first and a second main surfaces,

selectively forming a plurality of gate regions respectively composed of semiconductor material in said first main surface of said first semiconductor substrate by partially doping impurities into said first main surface of said first semiconductor substrate in such a manner that portions of said first main surface of said first semiconductor substrate are exposed between said gate regions;



providing gate electrodes on respective gate regions, said gate electrode being made of an electrically good-conductive body;

providing said first main surface of said second semiconductor substrate with such portions that can be in contact with said portions of said first main surface of said first semiconductor substrate, which are exposed between said gate regions; and

bringing said portions of said first main surface of said first semiconductor substrate into contact with said portions of said first main surface of said second semiconductor substrate.

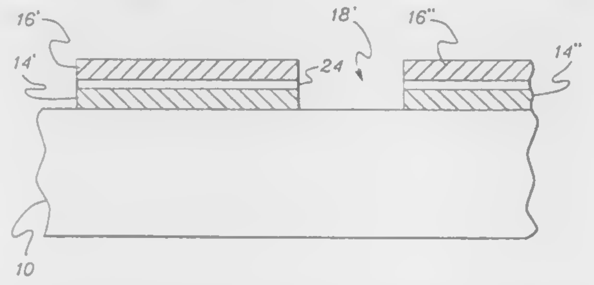
5,739,045
SEMICONDUCTOR DEVICE WITH INCREASED ON CHIP DECOUPLING CAPACITANCE

John Edward Cronin, Milton, and John Andrew Hiltebeitel, South Burlington, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 438,813, May 11, 1995, abandoned, which is a division of Ser. No. 385,528, Feb. 8, 1995. This application Oct. 15, 1996, Ser. No. 732,095

Int. Cl.⁶ H01L *21/70*

U.S. Cl. 437—60 **8 Claims**



6. A method of forming a decoupling capacitor on a semiconductor device comprising the steps of:

disposing over an insulating substrate upper and lower metallization layers of said capacitor, said metallization layers having at least two edges coaligned and being separated by a dielectric layer;

etching an opening through the dielectric layer and the upper metallization layer of said capacitor so to as to expose the lower metallization layer of said capacitor;

forming an insulation barrier on the side walls around an interior periphery of said opening and over the upper metallization layer of said capacitor around the periphery of said opening; and

depositing metallization over the substrate at a region encompassing the opening so as to provide an electrical contact to the lower metallization layer of said capacitor

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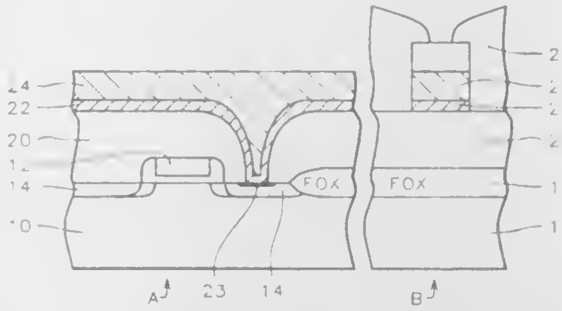
5,739,046
METHOD OF MAKING A RELIABLE BARRIER LAYER

Water Lur, Taipei; Shih-Chanh Chang, Taichung; Jiun Yuan Wu, Don-Lio, and Der Yuan Wu, Hsin-Chu, all of Taiwan, assignors to United Microelectronics Corporation, Hsin-Chu, Taiwan

Continuation of Ser. No. 316,092, Sep. 30, 1994, abandoned. This application May 28, 1996, Ser. No. 657,058

Int. Cl.⁶ H01L *21/44*

U.S. Cl. 437—190 **41 Claims**



1. The method of forming a metal diffusion barrier layer in the fabrication of an integrated circuit comprising:

providing semiconductor device structures in and on a semiconductor substrate wherein said semiconductor device structures are covered by at least one dielectric layer;

opening at least one contact hole through said at least one dielectric layer to said semiconductor substrate;

depositing a single titanium layer conformally over said at least one dielectric layer and in said at least one contact hole; and

annealing said single titanium layer with one surface of said single titanium layer in contact with said substrate surface exposed to gases in an annealing environment to form a metal diffusion barrier layer wherein said annealing comprises:

a first annealing to transform an upper portion of said single titanium layer into titanium nitride and to form a titanium silicide compound at said semiconductor substrate surface within said at least one contact hole;

a second annealing to form stable and adhesive titanium compounds on said at least one dielectric layer and to alter said titanium silicide compound on said semiconductor substrate surface within said at least one contact hole; and

a third annealing to temper said titanium nitride diffusion barrier layer and said titanium silicide layer to reduce system stress;

completing said formation of said metal barrier diffusion layer in the fabrication of said integrated circuit.

5,739,047
METHOD OF FABRICATING A VOIDLESS IC ELECTRICAL PLUG

Shing-Shing Chiang, Hsinchu Hsien, Taiwan, assignor to Winbond Electronics Corporation, Taiwan

Filed Aug. 2, 1996, Ser. No. 691,313

Claims priority, application Taiwan, Jun. 17, 1996, 85107278

Int. Cl.⁶ H01L *21/44*

U.S. Cl. 437—192 **20 Claims**

1. A method of fabricating an IC electrical plug that is free of voids, comprising the steps of:

forming a transistor having a gate and a source/drain region on a silicon substrate;

forming a dielectric layer above the silicon substrate;

etching away a portion of the dielectric layer to form a contact window exposing a conductive material region of the silicon substrate;

forming a first diffusion barrier layer at the bottom and on the sidewalls of the contact window, and on a top surface of the dielectric layer overhanging the contact window,

coating a photoresist layer over the silicon substrate, filling up the contact window and covering the surface of the first diffusion barrier layer:

performing an isotropic etching process to etch away portions of the photoresist layer and the first diffusion barrier layer, to expose the surface of the dielectric layer, so as to leave the heights of the first diffusion barrier layer and the photoresist layer inside the contact window at a level that is below the top surface of the dielectric layer:

removing the remaining photoresist layer inside the contact window;

forming a second diffusion barrier layer on the exposed upper sidewalls of the contact window and on the top surface of the dielectric layer; and

forming a conductive layer filling up the contact window, serving as the electrical plug.

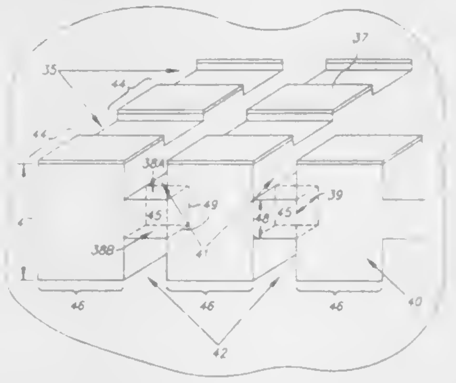
5,739,048
METHOD FOR FORMING ROWS OF PARTIALLY SEPARATED THIN FILM ELEMENTS

Randall Thomas Kerth, San Jose, and John Joseph Kotla, Morgan Hill, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 23, 1994, Ser. No. 248,281

Int. Cl.⁶ H01L *21/302*

U.S. Cl. 437—226 **25 Claims**



1. A method of processing a row of thin film elements, comprising the steps of:

in a row of thin-film elements separated from a wafer, forming partial cuts between the elements to provide an intact, transportable row structure wherein the elements are separable from the row by application of a small breaking force at the partial cuts, the intact structure providing greater protection to

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the elements from post-fabrication handling damage than is provided by individually diced elements.

5,739,049
METHOD FOR FABRICATING SEMICONDUCTOR DEVICE HAVING A CAPACITOR AND A METHOD OF FORMING METAL WIRING ON A SEMICONDUCTOR SUBSTRATE

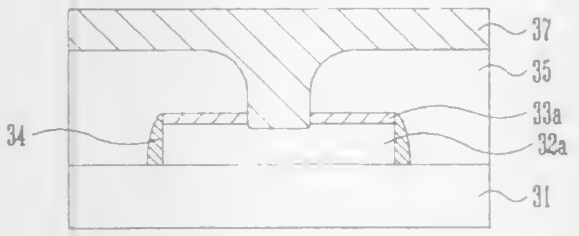
Heung Lak Park, and Kyeong Keun Choi, both of Ichon, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Ichon, Rep. of Korea

Filed Aug. 19, 1996, Ser. No. 699,253

Claims priority, application Rep. of Korea, Aug. 21, 1995, 95-25648; Nov. 1, 1995, 95-39155

Int. Cl.⁶ H01L *21/00*

U.S. Cl. 438—3 **21 Claims**



1 A method for fabricating a semiconductor device having a capacitor, comprising the steps of

providing a semiconductor substrate.

forming a lower insulating layer over the semiconductor substrate;

selectively removing the lower insulating layer in accordance with an etching process, thereby forming a contact hole in the lower insulating layer to expose the semiconductor substrate through the contact hole.

forming a metal film over said lower insulating layer, in said contact hole and contacting said semiconductor substrate, and wherein said metal is selected from the group consisting of ruthenium and iridium,

selectively removing the metal film, thereby forming a lower electrode, and

surface-oxidizing the lower electrode, thereby forming a metal oxide film over the lower electrode, and thereafter forming a dielectric film over the lower electrode.

5,739,050
METHOD AND APPARATUS FOR ASSEMBLING A SEMICONDUCTOR PACKAGE FOR TESTING

Warren M. Farnworth, Nampa, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jan. 26, 1996, Ser. No. 592,204

Int. Cl.⁶ H01R *43/00*

U.S. Cl. 438—15 **26 Claims**

1 A method for assembling a semiconductor package, comprising:

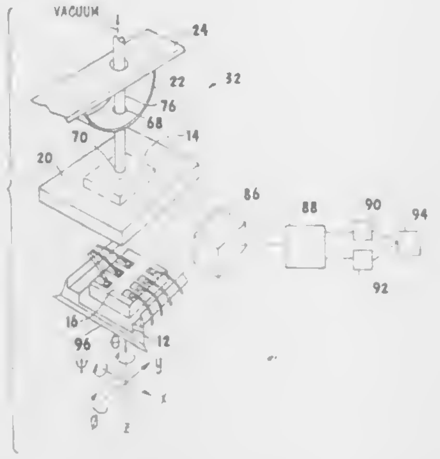
providing a semiconductor die;

providing a base for holding the die, an interconnect on the base for establishing electrical communication with the die, and a force applying mechanism for biasing the die against the interconnect,

aligning the die with the interconnect,

placing the die in electrical contact with the interconnect; and

attaching the force applying mechanism to the base while allowing the force applying mechanism to freely move in a plane parallel to the base to compensate for misalignment between the force applying mechanism and the package base



5,739,051
METHOD AND DEVICE FOR DETECTING THE END POINT OF PLASMA PROCESS

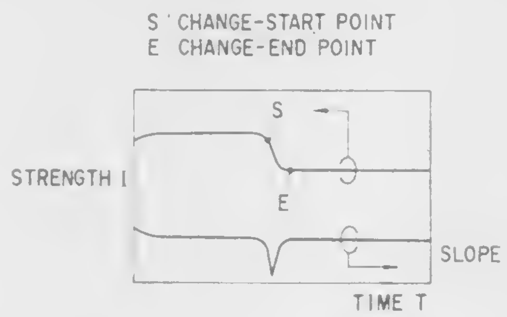
Susumu Saito, Yamanashi-ken, Japan, assignor to Tokyo Electron Limited, Tokyo, Japan

Continuation of Ser. No. 205,806, Mar. 4, 1994, abandoned. This application Sep. 18, 1996, Ser. No. 715,489

Claims priority, application Japan, Mar. 4, 1993, 5-069204; Mar. 4, 1993, 5-069205

Int. Cl.⁶ H01L *21/00*; C23C *16/00*

U.S. Cl. 438—16 **11 Claims**



1 A method of detecting the end point of a plasma process comprising the steps of.

sequentially detecting an emission spectrum of an active species which has a specific wavelength for an initial time period by photodetector means when an object is processed with a plasma;

obtaining a differential value utilizing a formula such that the differential value represents a relationship between light strengths and time on a basis of information on the emission spectrum of the active species for the initial time period.

obtaining light strengths and corresponding differential values, in a graph wherein the light strengths and the differential values are plotted in X Y coordinates in which the abscissa shows the light strength and the ordinate shows the differential value, by using information on the emission spectrum of the active species during the process performed after a lapse of the initial time period; and

deciding a time at which a position of an obtained light strength and its differential value has separated from the origin of the graph by a distance which exceeds a reference value to be the end point of the plasma process.

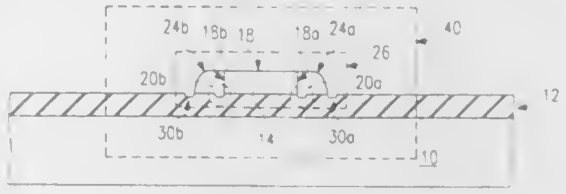
5,739,052
APPARATUS AND METHOD FOR DETECTING DEFECTS IN INSULATIVE LAYERS OF MOS ACTIVE DEVICES

Srikanth Krishnan, Richardson, and Jeffrey A. McKee, Grapevine, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 475,246, Jun. 7, 1995, abandoned, which is a division of Ser. No. 224,947, Apr. 8, 1994, Pat. No. 5,596,207. This application Sep. 4, 1996, Ser. No. 707,576

Int. Cl.⁶ H01L *21/66*, G01R *31/02;31/26;31/12*

U.S. Cl. 438—17 **8 Claims**



1 A method for detecting damage to a dielectric on a semiconductor wafer caused by plasma etch comprising the steps of:

forming at least one MMOS capacitor on the wafer, the capacitor including the dielectric, and further comprising a conductive plate and a conductive sidewall which is electrically continuous with the conductive plate;

determining a breakdown voltage of the MMOS capacitor;

comparing the MMOS capacitor breakdown voltage to an expected breakdown voltage for undamaged dielectric, the existence of a dielectric defect being inferable if the MMOS capacitor breakdown voltage is less than the expected breakdown voltage.

5,739,053
PROCESS FOR BONDING A SEMICONDUCTOR TO A CIRCUIT SUBSTRATE INCLUDING A SOLDER BUMP TRANSFERRING STEP

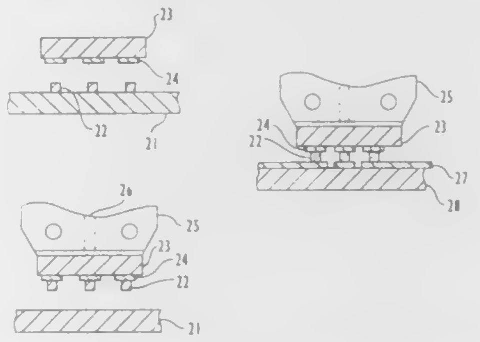
Tetuo Kawakita, and Kenzo Hatada, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 140,473, Oct. 25, 1993, abandoned. This application May 15, 1995, Ser. No. 440,991

Claims priority, application Japan, Oct. 27, 1992, 4-288533

Int. Cl.⁶ H01L *21/283;21/56;21/58;21/603*

U.S. Cl. 438—108 **10 Claims**



1 A method of packaging a semiconductor apparatus having a circuit board made of glass or plastic on which electrodes of wiring are formed and having a semiconductor device on which electrodes are formed to be connected to said electrodes of wiring via bumps composed of a metallic material having a melting point exceeding the highest temperature at which said circuit board can be used when the semiconductor device is mounted on said circuit board, said method comprising.

a preparation step of preliminarily forming a substrate with bumps on which the bumps are positioned corresponding to the electrodes of said semiconductor device;

a transferring/bonding process that includes the steps of.

positioning said semiconductor device opposite to the substrate with bumps so that the electrodes of said semiconductor device are aligned with the bumps,

applying a pressure to either said semiconductor device or said substrate with bumps so that one is pressed against the other.

heating the electrodes of the semiconductor device and said bumps to form an alloy layer between said electrodes of the semiconductor device and said bumps, and

then transferring said bumps from the substrate to the electrodes of the semiconductor device;

a re-alloying process that includes the steps of,

positioning said semiconductor device opposite to said circuit board having said electrodes of wiring so that the bumps, which were transferred and bonded to the electrodes of the semiconductor device in said transferring/bonding process, are aligned with said electrodes of wiring,

applying a pressure to either said semiconductor device or the circuit board so that one is pressed against the other.

heating the electrodes of the semiconductor device and said bumps to form an alloy layer therebetween, which covers a wider range, and which strengthens the bonds between the electrodes of said semiconductor device and said bumps that were obtained in said transferring/bonding process, and

a connecting step for strengthening an electrical connection between said bumps and said electrodes of wiring that includes the step of applying pressure without heating to either said semiconductor device or said circuit board so that one is pressed against the other after said re-alloying process.

5,739,054
PROCESS FOR FORMING AN ENCAPSULATED ELECTRONIC COMPONENT HAVING AN INTEGRAL RESIN PROJECTION

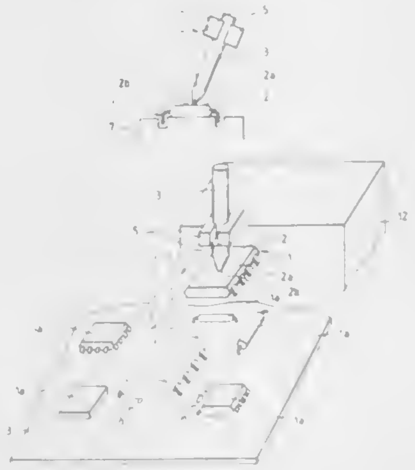
Tomohiro Murayama, Fukuoka, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 260,047, Jun. 16, 1994, Pat. No. 5,670,429. This application Sep. 4, 1996, Ser. No. 707,666

Claims priority, application Japan, Jun. 30, 1993, 5-189227; Jun. 30, 1993, 5-189228

Int. Cl.⁶ H01L *21/56,21/68*

U.S. Cl. 438—124 **2 Claims**



1. A method of manufacturing an encapsulated electronic component comprising.

forming a resin body having an external top surface and containing an electronic component and having exposed leads projecting from another surface of the resin body, and

providing a projection in the form of a resin bar integral with and projecting substantially perpendicularly away from the external top surface of the resin body to facilitate holding and conveying of the encapsulated electronic component, the resin

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bar being tapered inwardly toward a joint at which it is attached to the external top surface of the resin body.

5,739,055
METHOD FOR PREPARING A SUBSTRATE FOR A SEMICONDUCTOR PACKAGE

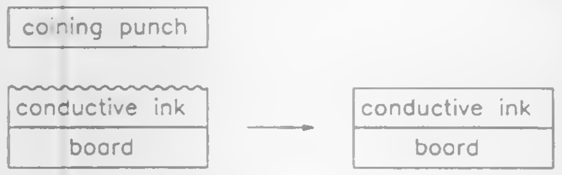
Jaechul Ryu, and Wonsik Seo, both of Kyunggi-do, Rep. of Korea, assignors to Samsung Aerospace Industries, Ltd., Kyongsangnam-do, Rep. of Korea

Filed Feb. 28, 1996, Ser. No. 608,503

Claims priority, application Rep. of Korea, Aug. 11, 1995, 95-24814

Int. Cl.^{6} H01L *21/60*

U.S. Cl. 438—125 7 Claims



1. A method for making a substrate for a circuit board, comprising the steps of:
- drilling the circuit board to provide through holes and via holes;
- screen printing a desired conductive layer having a desired circuit pattern on the substrate of the circuit board.
- curing said conductive layer; and
- coining said cured conductive layer to make the surface of the conductive layer substantially uniform.

5,739,056
SEMICONDUCTOR PROCESSING METHOD OF FORMING A STATIC RANDOM ACCESS MEMORY CELL AND STATIC RANDOM ACCESS MEMORY CELL

Charles H. Dennison, Meridian, and Ken Marr, Boise, both of Id., assignors to Micron Technolngy, Inc., Boise, Id.

Continuation of Ser. No. 514,106, Aug. 11, 1995, Pat. No. 5,650,350. This application Feb. 18, 1997, Ser. No. 800,553

Int. Cl.^{6} H01L *21/8244*

U.S. Cl. 438—238 2 Claims

2. A semiconductor processing method of forming a static random access memory cell having an n-channel access transistor, the method comprising the following steps:
- patterning a semiconductor substrate for definition of a field oxide region and an active area region for the n-channel access transistor;
- processing the patterned substrate to form a field oxide region and an n-channel access transistor active area adjacent the field oxide region, the field oxide region having a bird's beak region extending into the n-channel access transistor active area;
- conducting a p-type V_T ion implant into the n-channel active area using the field oxide bird's beak region as an implant mask.
- conducting a germanium implant into the active area using the bird's beak region as an implant mask, after performing the V_T implant, to impede diffusion of the V_T implant; and
- etching the bird's beak after conducting the V_T ion implant

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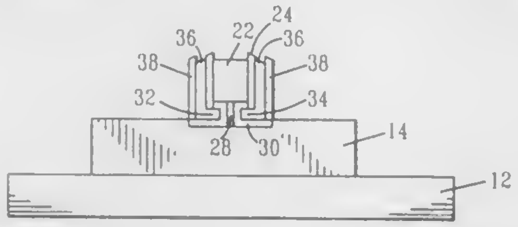
5,739,057
METHOD OF MAKING SELF-ALIGNED DUAL GATE MOSFET WITH AN ULTRANARROW CHANNEL

Sandip Tiwari, 791 Pinesbridge Rd., Ossining, N.Y. 10562, and Samuel Jonas Wind, 82 Smith Ave., White Plains, N.Y. 10605

Division of Ser. No. 554,558, Nov. 6, 1995. This application Apr. 18, 1996, Ser. No. 634,342

Int. Cl.^{6} H01L *21/338*

U.S. Cl. 438—172 19 Claims



1. A method of forming a dual gate field effect transistor comprising the steps of:
- forming a three layer film consisting of first, second and third layers of semiconductor material, said first and third layers being different from said second layer to form a heterojunction therebetween, said first and third layers being of a first conductivity type and said second layer being of a second conductivity type;
- etching said third layer to form a pillar region on said second layer;
- etching said second layer to form a stacked pillar region on said first layer;
- selectively removing a portion of the second layer of said stacked pillar region to form a channel extending between said first and third layers, said first layer forming a drain and said third layer forming a source, said channel having first and second opposed sidewalls; and
- forming first and second gate regions on said first and second sidewalls respectively of said channel

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5,739,058
METHOD TO CONTROL THRESHOLD VOLTAGE BY MODIFYING IMPLANT DOSAGE USING VARIABLE APERTURE DOPANT IMPLANTS

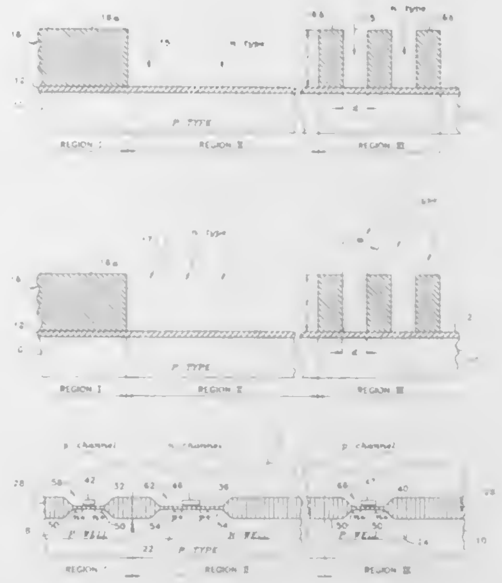
Joe Karniewicz, Boise; Zhiqiang (Jefferey) Wu, Meridian; Chandramouli Venkataramani, Boise; David Kao, Meridian; Mnhamed Imam, and Sittampalam Yoganathan, both of Boise, all of Id., assignors to Micron Technology, Inc.

Filed Dec. 14, 1995, Ser. No. 572,020

Int. Cl.^{6} H01L *21/8238*

U.S. Cl. 438—217 11 Claims

1. A semiconductor fabrication method for forming a transistor upon a semiconductor substrate, comprising the steps of:
- (a) providing a semiconductor substrate having first, second and third substrate regions;



- (b) forming a single mask layer over said semiconductor substrate, said single mask layer having a first mask portion covering said first substrate region, a second mask portion exposing said second substrate region, and a third mask portion partially covering said third substrate region;
- (c) determining a concentration of a first type impurity;
- (d) selecting an angle for introducing said first type impurity in accordance with said determined concentration,
- (e) differentially introducing at said selected angle said first type impurity dopant into said first, second and third substrate regions in accordance with said single mask layer; and
- (f) forming first, second and third transistors in said first, second and third substrate regions, wherein said first and second transistors have differing conductivity types and said first and third transistors have the same conductivity type and differing threshold voltages in accordance with said differential introducing of said first type impurity dopant.

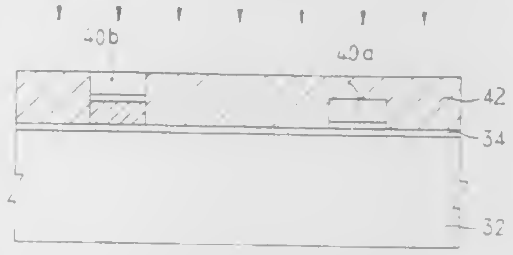
5,739,059
METHOD OF FORMING A SEMICONDUCTOR DEVICE HAVING HIGH AND LOW RESISTANCE POLYSILICON

Hsin-Pai Chen, Hsinchu, and Yen-Lung Chiu, Hua Lian Hsien, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan

Filed May 5, 1997, Ser. No. 841,844

Int. Cl.^{6} H01L *21/8234*

U.S. Cl. 438—238 15 Claims



1. A method for manufacturing a high resistance polysilicon and a low resistance polysilicon in an integrated circuit, the method comprising the steps of.
- forming a first dielectric layer on a wafer for isolation;
- forming a first polysilicon layer on said first dielectric layer;
- patterning said first polysilicon layer to form a conductive structure on said first dielectric layer.
- forming a second dielectric layer on said conductive structure for isolation;
- forming a second polysilicon layer on said second dielectric layer;
- performing a first implantation to implant ions into said second polysilicon layer using blanket ion implantation said ions penetrating the entire second polysilicon layer;
- patterning said second polysilicon layer, thereby separating said second polysilicon layer into a high resistance area and a low resistance area, the top surface of said low resistance area being raised from the top surface of said high resistance area.
- depositing a photoresist so as to cover said high resistance area and leaving only the top surface of said low resistance area exposed;
- performing a second implantation to implant ions into said low resistance area using said photoresist as a mask; and
- removing said photoresist.

5,739,060
METHOD OF FABRICATING A CAPACITOR STRUCTURE FOR A SEMICONDUCTOR MEMORY DEVICE

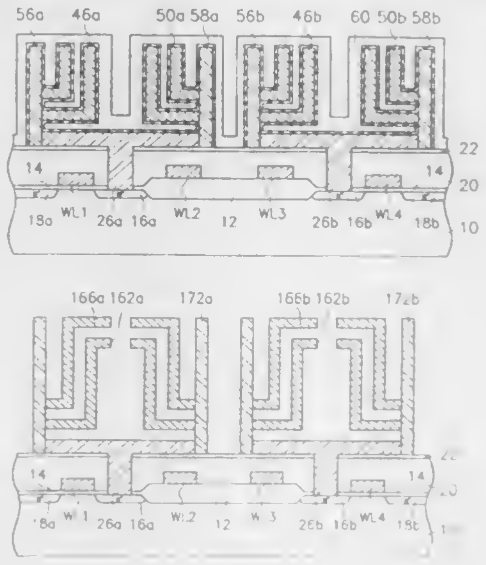
Fang-Ching Chao, Hsinchu, Taiwan, assignor to United Microelecrtronics Corporatinn

Filed Oct. 23, 1996, Ser. No. 735,560

Claims priority, application Taiwan, Aug. 16, 1996, 85110009

Int. Cl.^{6} H01L *21/8242*

U.S. Cl. 438—253 47 Claims



1. A method of fabricating a semiconductor memory device, wherein the semiconductor memory device includes a substrate, a transfer transistor formed on the substrate, and a storage capacitor electrically connected to a source/drain region of the transfer transistor, wherein the method comprises the steps of
- a. forming a first insulating layer over the substrate,
- b. forming a first conductive layer over the first insulating layer and penetrating the first insulating layer to electrically connect to a source/drain region of the transfer transistor.
- c. forming a pillar-shaped layer on the first conductive layer.
- d. forming a second conductive layer over the pillar-shaped layer and the first conductive layer.
- e. patterning the second conductive layer to remove a portion of the second conductive layer over the pillar shaped layer,
- f. patterning the second conductive layer and the first conductive layer to form an opening exposing a portion of the first insulating layer;
- g. forming a third conductive layer shaped as a hollow cylinder connected to an edge of the first conductive layer at a periphery of the opening, wherein the third conductive layer and the first conductive layer form a trunk-like conductive layer, such that an end of the second conductive layer is connected to an

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inner surface of the third conductive layer to form a branch-like conductive layer, and wherein the first, second, and third conductive layers form a storage electrode of the storage capacitor;
h. removing the pillar-shaped layer;
i. forming a dielectric layer on an exposed surface of the first, second, and third conductive layers; and
j. forming a fourth conductive layer on the dielectric layer to form an opposing electrode of the storage capacitor.

5,739,061
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE USING GATE SIDE WALL AS MASK FOR SELF-ALIGNMENT

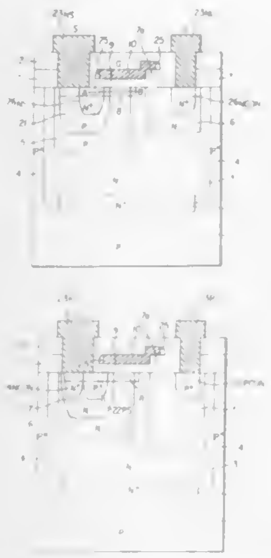
Mutsumi Kitamura, and Naoto Fujishima, both of Nagano, Japan, assignors to Fuji Electric Co., Ltd., Japan

Continuation-in-part of Ser. No. 329,943, Oct. 26, 1994. This application May 12, 1995, Ser. No. 439,972

Claims priority, application Japan, Oct. 26, 1993, 5-266761; May 13, 1994, 6-099409; May 25, 1994, 6-110621

Int. Cl.^{6} H01L *21/8234;21/336*

U.S. Cl. 438—275 **12 Claims**



1. A method of manufacturing a semiconductor device, including an n-channel DMOS transistor, consisting essentially of the steps of:
forming a well of a p-type conductivity in a semiconductor region of n-type conductivity type;
forming a gate electrode on gate insulation film deposited on said semiconductor region;
forming a base region of p-type conductivity from a major face of said well by using said gate electrode as a first mask for self-alignment of said base region;
forming side walls on side faces of said gate electrode, said step of forming said side walls being employed for driving dopants of the n-type conductivity into said base region; and
forming a source region of n-type conductivity from a major face of said base region using said side walls as a second mask for self-alignment of said source region

4. A method of manufacturing a semiconductor device, including a p-channel DMOS transistor, consisting essentially of the steps of:
forming a gate electrode on gate insulation film deposited on a semiconductor of a n-type conductivity;
forming a base region of n-type conductivity by using said gate electrode as a first mask for self-alignment of said base region;
forming side walls on side faces of said gate electrode, said step of forming said side walls being employed for driving said base region; and
forming a source region of p-type conductivity type from a major face of said base region using said side walls as a second mask for self-alignment of said source region.

5,739,062
METHOD OF MAKING BIPOLAR TRANSISTOR

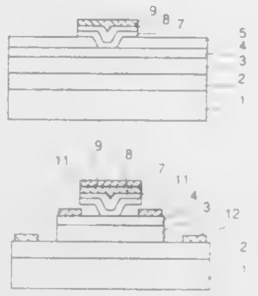
Naohito Yoshida, and Masayuki Sakai, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 698,685, Sep. 4, 1996, abandoned, which is a continuation of Ser. No. 393,687, Feb. 24, 1995, abandoned. This application Aug. 26, 1997, Ser. No. 917,467

Claims priority, application Japan, Mar. 4, 1994, 6-034040

Int. Cl.^{6} H01L *21/331*

U.S. Cl. 438—320 **12 Claims**



1. A method of fabricating a bipolar transistor comprising:
successively growing a collector layer, a based layer, and a crystalline mask layer on a semiconductor substrate;
forming an opening using a crystalline mask layer to expose a portion of the based layer;
growing an emitter layer on the crystalline mask layer and on the based layer exposed using a opening of the mask layer;
forming an emitter electrode on the emitter layer,
removing part of the emitter layer using the emitter electrode as a mask;
removing the crystalline mask layer;
forming a first resist pattern for formation of based electrodes;
forming based electrodes using the first resist pattern and the emitter electrode as masks,
removing the first resist pattern,
forming a second resist pattern for formation of collector electrodes covering the based electrodes and the emitter electrode;
using the second resist pattern as a mask, removing portions of the based layer and the collector layer; and
forming collector electrodes in contact with the collector layer.

5,739,063
HIGH TEMPERATURE LOCAL OXIDATION OF SILICON FOR FINE LINE PATTERNS

Yowjuang W. Liu, and Yu Sun, both of San Jose, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 7, 1995, Ser. No. 483,559

Int. Cl.^{6} H01L *21/76*

U.S. Cl. 438—452 **59 Claims**

1. A method of forming a field oxide region in a semiconductor substrate, which method comprises:
forming a barrier oxide layer on the substrate;
oxidizing the substrate in a dry oxygen atmosphere containing HCl at a temperature greater than about 1,050° C. in a first high temperature oxidation stage; and subsequently
oxidizing the substrate in a dry oxygen atmosphere in the substantial absence of HCl at a temperature greater than about 1,050° C. in a second high temperature oxidation stage to complete the field oxide region

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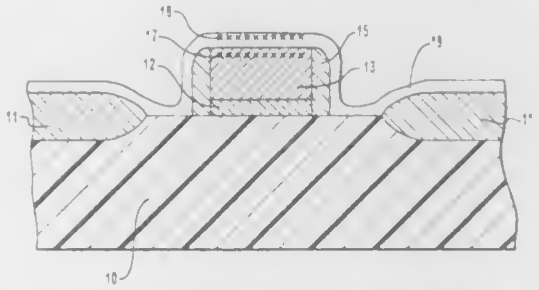
5,739,064
SECOND IMPLANTED MATRIX FOR AGGLOMERATION CONTROL AND THERMAL STABILITY

Yong-Jun Hu; Pai-Hung Pan, and Mark Klare, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Nov. 27, 1996, Ser. No. 764,685

Int. Cl.^{6} H01L *21/425*

U.S. Cl. 438—528 **36 Claims**



1. A method for agglomeration control at an interface of a refractory metal silicide layer and a silicon layer, comprising:
bombarding a silicon layer over a semiconductor wafer with a first ion source to implant ions as a first diffusion barrier matrix at a predetermined depth within said silicon layer;
bombarding said silicon layer with a second ion source to implant ions as a second diffusion barrier matrix at the surface of said silicon layer;
depositing a metallization layer comprising a refractory metal above and on said silicon layer; and
heat treating said silicon layer and said metallization layer to react said metallization layer with said silicon layer so as to form a refractory metal silicide layer, said refractory metal silicide layer extending to said predetermined depth within said silicon layer so as to interface with said first diffusion barrier matrix.

5,739,065
METHOD OF FABRICATING A HIGHLY SENSITIVE PHOTO SENSOR

Chih Hung Lin, Yi-Lan, Taiwan, assignor to United Microelectronics Corp., Taipei, Taiwan

Filed Oct. 13, 1995, Ser. No. 542,696

Int. Cl.^{6} H01L *21/82*

U.S. Cl. 438—592 **12 Claims**

1. A method for fabricating a sensitive photo sensor, comprising the steps of:
forming a well region in a substrate;
forming a gate oxide layer on said well region;
depositing a P-type polysilicon layer on said gate oxide layer;
depositing an intrinsic type amorphous silicon layer on said P-type polysilicon layer;
depositing an N-type amorphous silicon layer on said intrinsic type amorphous silicon layer;
depositing a transparent conducting layer on said N-type amorphous silicon layer;
forming a gate photoresist on said transparent conducting layer;
forming a gate by etching said transparent conductive layer, said N-type amorphous silicon layer, said intrinsic type amorphous silicon layer, and said P-type polysilicon layer using gate photosist as a mask, and then removing the gate photoresist;
implanting heavily doped impurity into the substrate using the gate as a mask to form source and drain regions,
depositing a dieletric layer on said gate, and said source and drain regions;
forming gate sidewall spacers beside said gate by etching said dielectric layer; and
forming electrodes of said gate, and said source and drain regions.

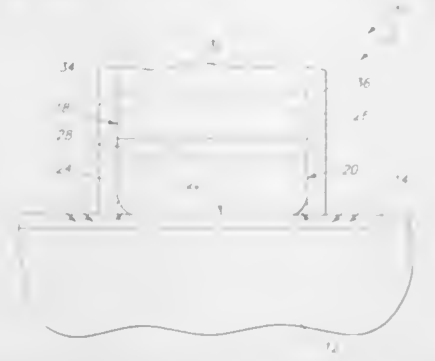
5,739,066
SEMICONDUCTOR PROCESSING METHODS OF FORMING A CONDUCTIVE GATE AND LINE

Pai-Hung Pan, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Sep. 17, 1996, Ser. No. 710,353

Int. Cl.^{6} H01L *21/3105*

U.S. Cl. 438—595 **41 Claims**



1. A semiconductor processing method of forming a conductive transistor gate over a substrate comprising the steps of:
forming a conductive gate over a gate dielectric layer on a substrate, the gate having sidewalls which join with the gate dielectric layer and the gate having an interface with the gate dielectric layer;
forming nitride containing spacers over the respective entireties of the gate sidewalls, the spacers joining with the gate dielectric layer; and
after forming the spacers, exposing the substrate to oxidizing conditions effective to oxidize at least a portion of the gate interface with the gate dielectric layer

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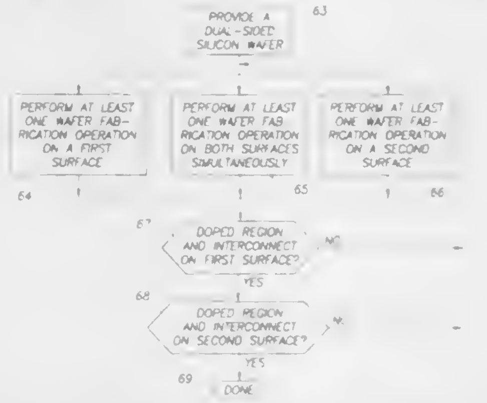
5,739,067
METHOD FOR FORMING ACTIVE DEVICES ON AND IN EXPOSED SURFACES OF BOTH SIDES OF A SILICON WAFER

Damon K. DeBusk, Austin, and Bruce L. Pickelsimer, Pflugerville, both of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 7, 1995, Ser. No. 568,992

Int. Cl.^{6} H01L *21/283*

U.S. Cl. 438—618 **15 Claims**


PROVIDE A DUAL-SIDED SILICON WAFER
63
PERFORM AT LEAST ONE WAFER FABRICATION OPERATION ON A FIRST SURFACE
PERFORM AT LEAST ONE WAFER FABRICATION OPERATION ON BOTH SURFACES SIMULTANEOUSLY
PERFORM AT LEAST ONE WAFER FABRICATION OPERATION ON A SECOND SURFACE
64
65
66
67
DOPED REGION AND INTERCONNECT ON FIRST SURFACE?
NO
YES
68
DOPED REGION AND INTERCONNECT ON SECOND SURFACE?
NO
YES
69
DONE

1. A method for processing a silicon wafer, comprising the steps of

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providing a dual-sided silicon wafer having a first surface and an opposed second surface;

depositing a first protective layer upon the second surface, wherein the first protective layer is deposited at a temperature below that required for dopant ion migration within the silicon wafer, and wherein the first protective layer protects the second surface from damage during handling of the silicon wafer;

processing the first surface to produce:

a first doped region within the first surface, and

a patterned first interconnect line upon the first surface, wherein a portion of the first interconnect line is spaced from the first surface by a first electrically insulating layer, and wherein the first interconnect line is electrically coupled to the first doped region.

removing the first protective layer from the second surface.

depositing a second protective layer upon the first surface, wherein the second protective layer is deposited at a temperature below that required for dopant ion migration within the silicon wafer, and wherein the second protective layer protects the first surface from damage during handling of the silicon wafer; and

processing the second surface to produce:

a second doped region within the second surface; and

a patterned second interconnect line upon the second surface, wherein a portion of the second interconnect line is spaced from the second surface by a second electrically insulating layer, and wherein the second interconnect line is electrically coupled to the second doped region;

wherein an active device is formed within at least one surface of the silicon wafer

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5,739,068

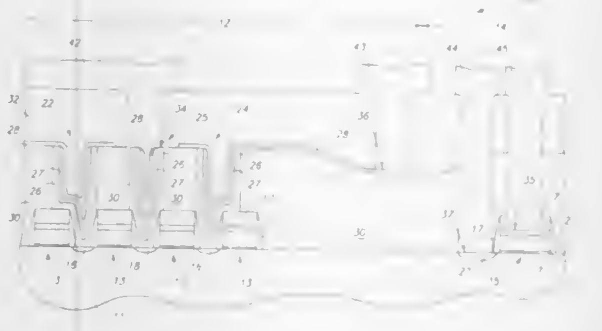
SEMICONDUCTOR PROCESSING METHOD OF MAKING ELECTRICAL CONTACT TO A NODE RECEIVED WITHIN A MASS OF INSULATING DIELECTRIC MATERIAL

Mark E. Jost, and Phillip G. Wald, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 394,545, Feb. 22, 1995, Pat. No. 5,563,089. This application Feb. 2, 1996, Ser. No. 595,595

Int. Cl.^{6} H01L *21/4763*

U.S. Cl. 438—637 **29 Claims**



1 A semiconductor processing method of making electrical contact to a node received within a mass of insulating dielectric material comprising the following steps.

providing a node within a mass of insulating dielectric material.

first stage etching into the insulating dielectric material over the node in a manner substantially selective relative to the node.

after the first stage etching, second stage etching the dielectric material in a manner which increases a degree of sidewall polymerization over that occurring in the first stage etching and in a manner substantially selective relative to the node; and

after the second stage etching, third stage etching the dielectric material with a degree of sidewall polymerization which is less than that of the second stage etching and in a manner substantially selective relative to the first node.

5,739,069

PLASMA PROCESS WITH RADICALS

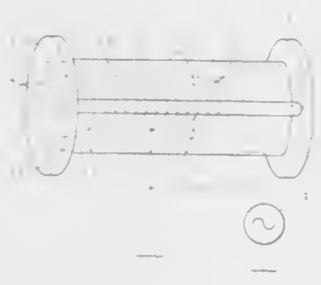
Kaoru Usui, Kawasaki, and Shou Chiba, Aizuwakamatsu, both of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 505,151, Jul. 21, 1995, Pat. No. 5,591,268. This application Sep. 30, 1996, Ser. No. 722,676

Claims priority, application Japan, Oct. 14, 1994, 6-249333; Feb. 27, 1995, 7-38689

Int. Cl.^{6} H01L *21/336*

U.S. Cl. 438—710 **10 Claims**



1. A method of manufacturing a semiconductor device, said method comprising the steps of:

providing a semiconductor device manufacturing apparatus comprising a process chamber having an axis and being capable of being evacuated, a field generator for generating a first alternating magnetic field in said process chamber along said axis, a semi-shielding partition disposed in said process chamber along said axis for defining an inner space and an outer space and for generating a second alternating magnetic field, said second alternating magnetic field canceling a change in the first alternating magnetic field in the inner space, said partition allowing gas to be transported between the inner space and the outer space a gas supply pipe disposed in said inner space and having apertures directed toward said axis, and a gas exhaust pipe, the method further comprising the steps of

placing a semiconductor substrate to be processed in the inner space;

supplying process gas from said gas supply pipe toward said axis to form a gas flow in the inner space;

supplying energy to said field generator to generate the first alternating magnetic field in said outer space of the process chamber and generating plasma of the process gas in the outer space, and

transporting radicals in the plasma to the inner space by diffusion and pulling force of said gas flow and reacting the radicals with a surface of the semiconductor substrate.

5,739,070

PROCESS FOR REGENERATING A FLUORINATION CATALYST

Frank Ehmeyer; Ralf Finzel, both of Hattersheim; Günter Siegemund, Hofheim, and Wolfgang Wanzke, Meitingen, all of Germany, assignors to Solvay (Societe Anonyme), Brussels, Belgium

Filed Jun. 2, 1995, Ser. No. 458,361

Claims priority, application Germany, Jun. 3, 1994, 44 19 534.6

Int. Cl.^{6} B01J *38/44;38/46*

U.S. Cl. 502—37 **20 Claims**

1 A process for regenerating a fluorination catalyst containing chromium and magnesium after use in a fluorination reaction, which comprises treating the used catalyst at a temperature of from 200° to 500° C. with a mixture consisting of at least 10 mol % of HF, from 30 to 90 tool % of O_2 and from 0 to 60 mol % of inert gas.

5,739,071

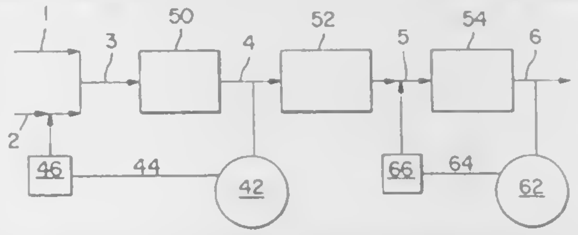
METHOD AND APPARATUS FOR REGENERATINIG AND STABILIZING DEHYDROGENATION CATALYSTS

Shiou-Shan Chen, Winchester; Shyh-Yuan Hwang, Cambridge; Slawomir A. Oleksy, Billerica; Sanjeev Ram, Hingham, and Joseph C. Peters, Quincy, all of Mass., assignors to Raytheon Engineers & Constructors, Inc., Lexington, Mass.

Continuation-in-part of Ser. No. 467,301, Jun. 6, 1995, which is a division of Ser. No. 88,306, Jul. 7, 1993, Pat. No. 5,461,179. This application Mar. 18, 1996, Ser. No. 617,965

Int. Cl.^{6} B01J *20/34, 38/06*; C07C *5/333*

U.S. Cl. 502—53 **60 Claims**



1. A method of regenerating and stabilizing the activity of a dehydrogenation catalyst consisting essentially of iron oxide catalyst promoted with alkali metal while continuing the catalytic dehydrogenation of an alkylaromatic hydrocarbon to obtain an alkenylaromatic hydrocarbon, in which alkylaromatic hydrocarbon and steam are brought into contact with said catalysts, beyond an initial catalyst conditioning period, said method comprising the step of adding to a reactant stream consisting essentially of said alkylaromatic hydrocarbon, steam or a combination thereof, upstream of said catalyst an effective amount of an alkali metal or alkali metal compound, equivalent to a continuous addition of about 0.01 to about 100 parts per million by weight of alkali metal or alkali metal compound relative to the weight of the total alkylaromatic hydrocarbon and steam, sufficient to restore and maintain high levels of catalyst conversion and selectivity.

5,739,072

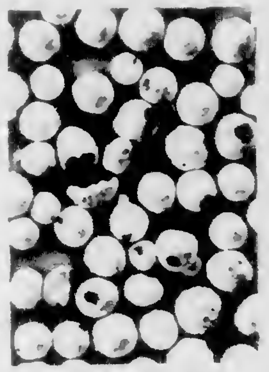
PROCESS FOR IMPROVING THE PHYSICAL AND CATALYTIC PROPERTIES OF A FLUID CRACKING CATALYST

Joseph C. S. Shi, Bartow, Ga.; Edwin W. Albers, Annapolis, and Geoffrey R. Wilson, Timonium, both of Md., assignors to Thiele Kaolin Company, Sandersville, Ga.

Continuation of Ser. No. 904,336, Jun. 25, 1992, Pat. No. 5,330,943, which is a continuation of Ser. No. 562,905, Aug. 6, 1990, Pat. No. 5,135,756, which is a continuation-in-part of Ser. No. 321,355, Mar. 10, 1989, Pat. No. 4,946,814. This application Jul. 15, 1994, Ser. No. 276,318

Int. Cl.^{6} B01J *27/16;21/16*

U.S. Cl. 502—72 **8 Claims**



1. A process for improving the physical properties of a non-catalytic or separation-type material which comprises adding an effective amount of acid stable anionic fluorohydrocarbon surfactant to a mixture of at least two inorganic oxides and drying said inorganic oxides into fluid particles

5 A process for improving the physical properties of a non-catalytic or separation-type material comprising:

blending in an aqueous solution a scavenging separation type material, a binder, and an anionic acid stable surfactant.

blending said aqueous solution of said scavenging separation type material, said binder, and said anionic acid stable surfactant with a clay said clay being a member selected from the group consisting of kaolinite, montmorillonite, metakaolin calcined kaolinite, talc, bentonite, and mixtures of these

spray drying said blend of said clay, said scavenging separation type material, said binder, and said anionic acid stable surfactant

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5,739,073

ADDITION OF LITHIUM COMPOUNDS TO ZIEGLER-NATTA CATALYSTS FOR INCREASED MOLECULAR WEIGHT IN POLYOLEFINS

Edwar S. Shamshoum, Houston, and Christopher G. Bauch, Seabrook, both of Tex., assignors to Fina Technology, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 71,438, Jun. 2, 1993, Pat. No. 5,504,048. This application Jun. 8, 1995, Ser. No. 487,764

Int. Cl.^{6} B01J *31/00*

U.S. Cl. 502—117 **28 Claims**

1. A catalyst for polymerization of olefins comprising

a) a conventional supported Ziegler Natta catalyst component comprising a transition metal compound of the general formula MR''_x, where M is the metal, R'' is a halogen or a hydrocarboxyl and x is the valence of the metal.

b) a lithium compound of the formula LiCp wherein Cp is a cyclopentadienyl or substituted cyclopentadienyl of the general formula Cp*R* where R* comprises a hydrocarbyl radical from 1–20 carbon atoms, R* being the same or different.

c) an aluminum trialkyl co-catalyst described by the formula AlR'_3, where R' is an alkyl of from 1–8 carbon atoms and R may be the same or different, and

d) an external electron donor either simultaneously with or after step (b), said external electron donor having the general formula $SiR_m(OR')_{4-m}$ where R is selected from the group consisting of an alkyl group, a cycloalkyl group, an aryl group and a vinyl group; R' is an alkyl group; and m is 0–3, wherein when R is an alkyl group, R may be identical with R', when m is 0, 1 or 2, the R' groups may be identical or different; and when m is 1, 2 or 3, the R groups may be identical or different

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5,739,074

METAL CATION-MODIFIED ALKYLATION CATALYSTS

Joseph A. Kocal, Gurnee, and Anil R. Oroskar, Downers Grove, both of Ill., assignors to UOP, Des Plaines, Ill.

Division of Ser. No. 330,950, Oct. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 93,150, Jul. 19, 1993, abandoned. This application May 30, 1995, Ser. No. 453,044

Int. Cl.^{6} B01J *27/135*

U.S. Cl. 502—227 **12 Claims**

1 A catalytic composite comprising: a) a refractory inorganic oxide, b) the reaction product of a first metal halide and bound surface hydroxyl groups of said refractory inorganic oxide, c) a second metal cation, and d) optionally a zerovalent third metal, where said refractory inorganic oxide is selected from the group consisting of alumina, titania, zirconia, chromia, silica, boria, silica-alumina, aluminum phosphate, and combinations thereof, where said first metal halide is a fluoride, chloride, or bromide and the first metal is selected from the group consisting of aluminum, zirconium, tin, tantalum, titanium, gallium, antimony and boron; where said second metal cation is selected from the group consisting of monovalent metal cations in an amount i) from 0.0026 up to about 0.20 gram atoms per 100 grams refractory inorganic oxide for lithium, potassium, cerium, rubidium, silver, and copper, ii) from 0.009 up to about 0.020 gram atoms per 100 grams refractory inorganic oxide for sodium, iii) from 0.0013 up to about 0.01 gram atoms per 100 grams refractory inorganic oxide for beryllium.

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strontium, and barium, iv) from 0.004 up to about 0.1 gram atoms per 100 grams refractory inorganic oxide for magnesium and calcium, and any combination thereof; and where said third metal is selected from the group consisting of platinum, palladium, nickel, ruthenium, rhodium, osmium and iridium, and any combination thereof.

5,739,075

PROCESS FOR PREPARING ETHYLENE OXIDE CATALYSTS

Marek Matusz, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Oct. 6, 1995, Ser. No. 540,233

Int. Cl.^{6} B01J *23/00, 23/70*

U.S. Cl. 502—302 **52 Claims**

1. A process for preparing a catalyst suitable for the vapor phase production of ethylene oxide from ethylene and oxygen which process comprises depositing a promoting amount of a salt of a rare earth metal and a promoting amount of a salt of a metal selected from the group consisting of an alkaline earth metal, a Group VIII transition metal and mixtures thereof, on a support having a surface area in the range of from about 0.05 m^2/g to about 10 m^2/g, calcining the support, and thereafter depositing a catalytically effective amount of silver and a promoting amount of alkali metal on said support, and thereafter drying the support.

17. A process for preparing a catalyst suitable for the vapor phase production of ethylene oxide from ethylene and oxygen which process comprises depositing a promoting amount of a salt of a rare earth metal and a promoting amount of a salt of a metal selected from the group consisting of an alkaline earth metal, a Group VIII transition metal and mixtures thereof, on a support having a surface area in the range of from about 0.05 m^2/g to about 10 m^2/g, calcining the support, and thereafter depositing a catalytically effective amount of silver, a promoting amount of alkali metal and a promoting amount of rhenium on said support, and thereafter drying the support.

35. A process for preparing a catalyst suitable for the vapor phase production of ethylene oxide from ethylene and oxygen which process comprises depositing a promoting amount of a salt of a rare earth metal and a promoting amount of a salt of a metal selected from the group consisting of an alkaline earth metal, a Group VIII transition metal and mixtures thereof, on a support having a surface area in the range of from about 0.05 m^2/g to about 10 m^2/g, calcining the support, and thereafter depositing a catalytically effective amount of silver, a promoting amount of alkali metal, a promoting amount of rhenium and a rhenium co-promoter on said support, and thereafter drying the support

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5,739,076

CATALYSTS AND THEIR USE IN OXIDATION OF SATURATED HYDROCARBONS

Diane Renata Cornelia Huybrechts, Oud-Turnhout; Philip Luc Buskens, Heverlee; Georges Marie Karel Mathys, Bierbeek, and Luc Roger Marc Martens, Meise, all of Belgium, assignors to Exxon Chemical Patents Inc., Houston, Tex.

PCT No. PCT/EP93/01972, § 371 Date Apr. 19, 1995, § 102(e) Date Apr. 19, 1995, PCT Pub. No. WO94/02245, PCT Pub. Date Feb. 3, 1994

PCT Filed Jul. 23, 1993, Ser. No. 374,588

Claims priority, application United Kingdom, Jul. 24, 1992, 9215822; Apr. 16, 1993, 9307910

Int. Cl.^{6} C07C *55/00;* **B01J** *23/00*

U.S. Cl. 562—512.4 **11 Claims**

1. A process for the preparation of a titanium-containing zeolite beta from a synthesis mixture comprising a hydrolyzable source of titanium, a source of silicon, a source of aluminum and an organic, nitrogen-containing base, said process comprising, mixing said source of titanium, said source of aluminum and said source of silicon, to form crystals of titanium-containing zeolite beta, wherin said source of titanium is at least partially hydrolyzed.

5,739,077

TRANSPARENT THERMAL RECORDING MEDIUM

Hiroshi Goto, Fuji; Hideaki Ema, Shimizumachi, and Kiyoshi Sakai, Numazu, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 479,354, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 355,903, Dec. 14, 1994, abandoned. This application Sep. 17, 1996, Ser. No. 714,261

Claims priority, application Japan, Dec. 15, 1993, 5-343113; Jun. 9, 1994, 6-151481; Sep. 2, 1994, 6-234326; Dec. 9, 1994, 6-331855

Int. Cl.^{6} B41M *5/30*

U.S. Cl. 503—200 **2 Claims**

1. A thermal recording medium for a block copy, comprising

a supporting member, and

a thermal recording layer provided on said supporting member, said thermal recording layer including an electron-donating chromophoric compound, an electron-accepting compound and a binder resin,

wherein said thermal recording medium has a high light transmission factor at a wavelength ranging from 350 nm to 700 nm, a color-producing imaging portion of said thermal recording medium formed by thermal energy having absorption peaks at a wavelength ranging from 350 nm to 470 nm and a wavelength ranging from 470 nm to 700 nm respectively, a difference in light transmission factor between said color-producing imaging portion and a non-imaging portion being over 35%

5,739,078

FLUORAN COMPOUNDS, INTERMEDIATES AND COLOR FORMING RECORDING MATERIALS

Mitsuhiro Yanagita; Takehiro Sato; Shigemi Suga; Tomoya Hidaka; Toru Kawahe, all of Ichihara; Mamoru Aizawa, Kyoto; Shinichi Sato, and Izuo Aoki, both of Ichihara, all of Japan, assignors to Nippon Soda Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/02096, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO96/11986, PCT Pub. Date Apr. 25, 1996

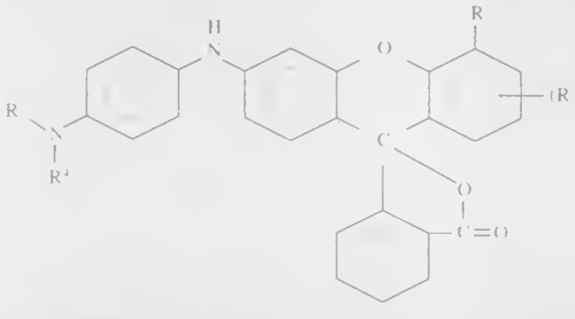
PCT Filed Oct. 13, 1995, Ser. No. 663,135

Claims priority, application Japan, Oct. 18, 1994, 6-278496; Feb. 14, 1995, 7-049172; Mar. 13, 1995, 7-080693

Int. Cl.^{6} C07D *493/10*

U.S. Cl. 503—217 **4 Claims**

1. Fluoran compounds represented by the following general formula (I):



(I)

wherein R^1 is alkyl containing 1 to 4 carbon atoms, R^3 is alkyl containing 1 to 8 carbon atoms, R^4 is hydrogen or alkyl containing 1 to 8 carbon atoms, or R^3 and R^4 may bond with each other to form a ring together with a N atom, R^2 is alkyl containing 1 to 4 carbon atoms, and n denotes 0, 1 or 2, however, the substituents represented by R^2 may be different with each other when n is 2

5,739,079

SUBSTITUTED (HETERO) ARYL COMPOUNDS, PROCESS FOR THEIR PREPARATION, AGENTS CONTAINING THEM AND THEIR USE AS SAFENERS

Xenia Holdgrün, Kriftel/Ts.; Lothar Willms, Hillscheid; Klaus Bauer, Hanau; Klaus Trinks, Flörsheim am Main, and Hermann Bieringer, Eppstein/Ts., all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

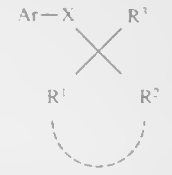
Continuation of Ser. No. 99,068, Jul. 29, 1993, abandoned. This application May 15, 1995, Ser. No. 440,886

Claims priority, application Germany, Aug. 1, 1992, 42 25 493.0

Int. Cl.^{6} A01N *25/32*

U.S. Cl. 504—103 **17 Claims**

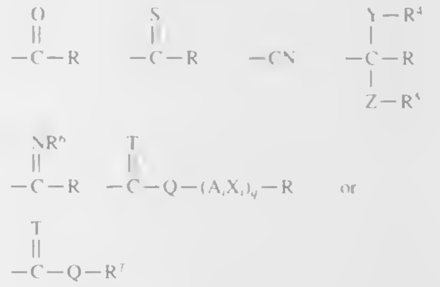
1. A selective herbicidal composition which contains one or more herbicides and one or more safeners of compounds of the formula I, or salts thereof,



(I)

in which

R^1 and R^2, independently of one another, are radicals of the formula



$$-\overset{\overset{O}{\|}}{C}-R \qquad -\overset{\overset{S}{\|}}{C}-R \qquad -CN \qquad -\underset{\underset{Z-R^5}{|}}{\overset{\overset{Y-R^4}{|}}{C}}-R$$

$$-\overset{\overset{NR^6}{\|}}{C}-R \qquad -\overset{\overset{T}{\|}}{C}-Q-(A_iX_i)_q-R \qquad \text{or}$$

$$-\overset{\overset{T}{\|}}{C}-Q-R^7$$

in which R, R^7, R^4, R^5, R^6, Y, T, Z, Q, A$_i$, X$_i$ and q are as defined below, or

R^1 and R^2 are bonded to one another and together are a group of the formula

$$-CO-Q^1-D-Q^2-CO-$$

in which

Q^1 and Q^2, independently of one another, are as defined for Q and

D is a divalent group of the formula CR'R" or C═O, where R' and R", independently of one another, are hydrogen or C$_1$–C$_4$-alkyl,

R^3 is hydrogen, halogen, C$_1$–C$_{18}$-alkyl, C$_2$–C$_8$-alkenyl, C$_2$–C$_8$-alkynyl, C$_1$–C$_{18}$alkoxy, C$_2$–C$_8$-alkenyloxy, C$_2$–C$_8$-alkynyloxy, C$_1$–C$_{18}$-alkylthio, C$_2$–C$_8$ alkenylthio, C$_2$–C$_8$-alkynylthio, where each of the 9 last mentioned radicals selected is in each case unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro and cyano, or is C$_3$–C$_{12}$-cycloalkyl which is unsubstituted or substituted by one or more radicals selected from the group consisting of C$_1$–C$_4$-alkyl, halogen, nitro and cyano, or is SiR^{a}R^{b}R^c, in which R^a, R^b and R^c, independently of one another, are C$_1$–C$_4$-alkyl, C$_2$–C$_4$ alkenyl, C$_2$–C$_4$-alkynyl or substituted or unsubstituted phenyl, or is a radical of the formula Ar'X'—, in which Ar' and X' are defined analogously to Ar and X,

X is O, S, NH—NH or NR^d, where R^d is defined analogously to R^3, or is —CH$_2$O—, —CH$_2$S—, —CH(Ar)O— or —CH(Ar)S—,

Ar is an aromatic radical,

R is hydrogen or an aliphatic, aromatic, heteroaromatic, araliphatic or heteroaraliphatic radical having 1 to 30 carbon atoms and, optionally, containing one or more functional groups,

R^f is a radical of the formula —CO—R, —CS—R, —NR^{f}R^g, —N═CR^{h}R^i or SiR^{a}R^{b}R^c, where R is as defined above, and R^f, R^g, R^h and R^i, independently of one another are hydrogen, C$_1$–C$_4$-alkyl, C$_2$–C$_4$-alkenyl, C$_2$–C$_4$-alkynyl, benzyl, phenyl or substituted phenyl, or R^f and R^g together with the nitrogen atom are a 5- or 6-membered heterocyclic ring which may contain up to 2 further heteroatoms from the group consisting of N, O and S, and which may be substituted by C$_1$–C$_4$-alkyl, and

R^a, R^b and R^c, independently of one another, are C$_1$–C$_4$-alkyl, C$_2$–C$_4$-alkenyl, C$_2$–C$_4$-alkynyl, phenyl or substituted phenyl,

Y and Z, independently of one another, are oxygen, sulfur in its various oxidation states or —NR^e, where R^e is defined analogously to R^4,

R^4 and R^5 are identical or different and, independently of one another, are hydrogen, C$_1$–C$_6$-alkyl, C$_2$–C$_6$-alkenyl, C$_2$–C$_6$-alkynyl, (C$_1$–C$_6$-alkyl)-carbonyl, where each of the 4 last-mentioned radicals is unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, C$_1$–C$_8$-haloalkoxy, nitro, cyano, hydroxyl, C$_1$–C$_8$-alkoxy and C$_1$–C$_8$-alkoxy, in which one or more CH$_2$ groups which are not bonded directly to one another are replaced by oxygen, and C$_1$–C$_8$-alkylthio, C$_1$–C$_6$-alkylsulfonyl, C$_2$–C$_8$-alkenylthio, C$_2$–C$_8$-alkynylthio, C$_2$–C$_8$-alkenyloxy, C$_2$–C$_8$-alkynyloxy, C$_3$–C$_7$-cycloalkyl, C$_3$–C$_7$-cycloalkoxy and amino, mono- and di-(C$_1$–C$_4$-alkyl)amino, or are formyl, SiR^{a}R^{b}R^c, in which R^a, R^b and R^c, independently of one another, are C$_1$–C$_4$-alkyl, C$_2$–C$_4$-alkenyl, C$_2$–C$_4$-alkynyl or substituted or unsubstituted phenyl, or are C$_3$–C$_8$-cycloalkyl, C$_3$–C$_8$-cycloalkenyl, heterocyclyl having 3 to 7 ring atoms, aryl, heteroaryl or arylcarbonyl, where each of the 6 last-mentioned radicals is unsubstituted or substituted by one or more radicals selected from the group consisting of C$_1$–C$_8$-alkyl, halogen, C$_1$–C$_8$-haloalkoxy, nitro, cyano, hydroxyl, C$_1$–C$_8$-alkoxy and C$_1$–C$_8$-alkoxy, in which one or more, CH$_2$ groups which are not bonded directly to one another are replaced by oxygen, and C$_1$–C$_8$-alkylthio, C$_1$–C$_6$-alkylsulfonyl C$_2$–C$_8$-alkenylthio, C$_2$–C$_8$-alkynylthio, C$_2$–C$_8$-alkenyloxy, C$_2$–C$_8$-alkynyloxy, C$_3$–C$_7$-cycloalkyl, C$_3$–C$_7$-cycloalkoxy, and amino, mono- and di-(C$_1$–C$_4$-alkyl)amino, or

R^4 and R^5 together are a C$_2$–C$_4$-alkene chain or a C$_2$–C$_4$-alkenylene chain which is unsubstituted or substituted by 1 or 2 radicals selected from the group consisting of methyl, ethyl, methoxy, ethoxy and halogen,

R^6 is hydrogen, C$_1$–C$_4$-alkyl, C$_2$–C$_4$-alkenyl, C$_2$–C$_4$-alkynyl, C$_6$–C$_{12}$-aryl, heteroaryl, benzyl, C$_1$–C$_4$alkoxy, acyloxy, hydroxyl, —NH—CO—NH$_2$, —NH—CS—NH$_2$, mono- and di-(C$_1$–C$_4$-alkyl)amino, —NH-acyl, —NHSO$_2$—(C$_1$–C$_4$-alkyl), C$_6$–C$_{12}$-aryloxy, heteroaryloxy, NH—SO$_2$aryl, or NH-aryl, in which aryl or heteroaryl in the 4 last-mentioned radicals is unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro, (C$_1$–C$_4$)-alkyl, (C$_1$–C$_4$)-alkoxy, (C$_1$–C$_4$)-haloalkyl and (C$_1$–C$_4$)-haloalkoxy,

T is O, S, NR^7, NOR^7 or NO-acyl,

Q is O or S,

q is a integer from 0 to 4,

i is a serial number which, if q is not equal to 0, adopts all integers from 1 to q, where q is as defined above,

X$_i$ independently of one another, are O, S, NR^7 or N—(A—X—)$_q$—R,

A independently of one another, are unsubstituted or substituted C$_1$–C$_6$-alkylene, C$_2$–C$_6$ alkenylene, C$_2$–C$_6$ alkynylene, C$_3$–C$_6$-cycloalkylene, C$_3$–C$_6$-cycloalkenylene, heterocyclylene, arylene or heteroarylene, and

R^7 independently of one another, are H, C$_1$–C$_4$ alkyl, C$_2$–C$_4$ alkenyl, C$_2$–C$_4$-alkynyl, C$_3$–C$_6$-cycloalkyl, C$_3$–C$_6$-cycloalkenyl, heterocyclyl, aryl or heteroaryl, and conventional formulation auxiliaries.

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SAFENED HERBICIDAL COMPOSITIONS COMPRISING A PHYTOTOXICITY REDUCING PHENOXY ACID HERBICIDE AND A SULFONYLUREA, SULFONAMIDE, OR IMIDAZOLINONE HERBICIDE

Mark C. Boyles, Ripley, Okla.; John M. Fenderson, Kiowa, Kans., and Bart Brinkman, Salem, Oreg., assignors to Sandoz Ltd., Basel, Switzerland

Filed Sep. 15, 1994, Ser. No. 351,863

Int. Cl.^{6} A01N *25/32;39/02;43/50;47/36*

U.S. Cl. 504—110 **9 Claims**

1. A method for reducing phytotoxicity of amino acid synthesis inhibitor herbicides to crop plants, which comprises co-applying to the crop plant or to the locus thereof a phytotoxicity reduction effective amount of a phenoxy acid growth regulator herbicide together with a herbicidally effective amount of said amino acid synthesis inhibitor herbicide wherein the inhibitor herbicide is a sulfonylurea, a sulfonamide or a imidazolinone.

5,739,081

WATER DISPERSIBLE GRANULES OF LIQUID PESTICIDES

John M. Lloyd, and Kevin R. Baker, both of Richmond, New Zealand, assignors to ICI Australia Operations Proprietary Ltd., Melbourne, Australia

Filed Jan. 22, 1993, Ser. No. 6,302

Claims priority, application New Zealand, Jan. 24, 1992, 241387

Int. Cl.^{6} A01N *25/12*

U.S. Cl. 504—116 **16 Claims**

1. A method for preparing water dispersible granules by preparing an absorbent water dispersible granule from finely divided filler particles and an organic dispersing agent and then absorbing a liquid biologically active substance or adjuvent therefor into said absorbent granule.

5,739,082

METHOD OF IMPROVING THE YIELD OF HERBICIDE-RESISTANT CROP PLANTS

Günter Donn, Hofheim, Germany, assignor to Hoechst Schering AgrEvo GmbH, Berlin, Germany

PCT No. PCT/EP94/02598, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/05082, PCT Pub. Date Feb. 23, 1995

Continuation-in-part of Ser. No. 279,706, Jul. 25, 1994, Pat. No. 5,633,434, which is a continuation of Ser. No. 123,699, Sep. 17, 1993, abandoned, which is a continuation of Ser. No. 910,329, Aug. 20, 1992, abandoned. This PCT application Aug. 5, 1994, Ser. No. 583,076

Claims priority, application Germany, Feb. 2, 1990, 40 03 045.8; Sep. 12, 1993, 43 27 056.5

Int. Cl.^{6} A01N *57/20*

U.S. Cl. 504—206 **8 Claims**

1. A method of improving the growth of crop plants which are transformed so as to be resistant to glutamine synthetase inhibitors, which comprises treating the plants with a growth stimulating amount of a glutamine synthetase inhibitor

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5,739,083

PYRAZOLE DERIVATIVES AND INSECTICIDAL COMPOSITIONS CONTAINING THE DERIVATIVE AS ACTIVE COMPONENT

Yoshinori Endo; Hiroshi Fujishima; Keizaburo Murai; Tetsuji Miyata; Shigekazu Wakisaka, and Yasuhiro Sasama, all of Tokushima, Japan, assignors to Otsuka Kagaku Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP96/02946, § 371 Date Jun. 10, 1997, § 102(e) Date Jun. 10, 1997, PCT Pub. No. WO97/13756, PCT Pub. Date Apr. 17, 1997

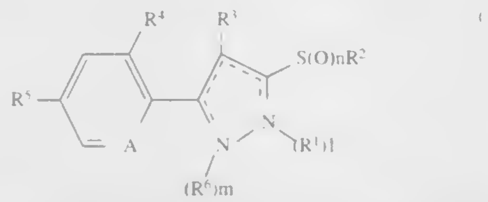
PCT Filed Oct. 9, 1996, Ser. No. 849,472

Claims priority, application Japan, Oct. 13, 1995, 7-292164

Int. Cl.^{6} A61K *31/415;* **C07D** *231/20*

U.S. Cl. 504—282 **12 Claims**

1. A pyrazole derivative represented by the formula (1)



(1)

wherein A is CH, N or C-halogen atom, R^1 is hydrogen atom, lower alkyl, lower haloalkyl, benzyl or phenyl, R^2 is lower alkyl, lower haloalkyl, lower alkenyl, lower alkynyl, benzyl or phenyl, R^3 is hydrogen atom, a halogen atom lower alkyl, lower haloalkylthio, phenyl, cyano, nitro or amino, R^4 is halogen atom, R^5 is lower haloalkyl, R^6 is hydrogen atom, lower alkyl, lower haloalkyl or benzyl, l is 0 or 1, m is 0 or 1, the total of l and m is 1, and n is a number of 0 to 2.

5,739,084

METHOD FOR MANUFACTURING A SUPERCONDUCTING DEVICE HAVING A REDUCED THICKNESS OF OXIDE SUPERCONDUCTING LAYER

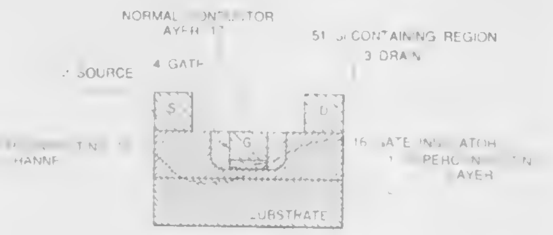
Takao Nakamura; Hiroshi Inada, and Michitomo Iiyama, all of Osaka, Japan, assignors to Sumitomo Electric Industries Ltd., Osaka, Japan

Division of Ser. No. 515,701, Aug. 16, 1995, Pat. No. 5,621,223, which is a continuation of Ser. No. 150,790, Nov. 12, 1993, abandoned, which is a continuation of Ser. No. 756,220, Sep. 9, 1991, abandoned. This application Jan. 2, 1997, Ser. No. 778,370

Claims priority, application Japan, Sep. 10, 1990, 2-239423; Sep. 27, 1990, 2-257853

Int. Cl.^{6} H01L *39/24*

U.S. Cl. 505—330 **3 Claims**



1. A method of manufacturing a superconducting device, comprising the steps of

preparing a substrate having a planar principal surface thereof,

forming a first oxide superconductor thin film having an extremely thin thickness which is capable of constituting a superconducting channel on the principal surface of the substrate,

forming on a portion of the first oxide superconductor thin film a stacked structure including a barrier layer formed directly on the first oxide superconductor thin film and a diffusion source layer formed on the barrier layer, and

growing a second oxide superconductor thin film on an exposed surface of the first oxide superconductor thin film until the stacked structure is embedded in the second oxide superconductor film,

whereby at least one material contained in the diffusion source layer is diffused into a region of the second oxide superconductor thin film surrounding the diffusion source layer, and the diffused region does not show superconductivity when a non-diffused region of the second oxide superconductor thin film shows superconductivity.

5,739,085

O-(OXIMINO)ETHYLCYCLOHEXENONE OXIME ETHERS AND THEIR USE AS HERBICIDES

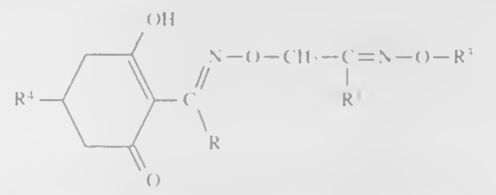
Ulf Misslitz, Neustadt; Albrecht Harreus, Ludwigshafen; Hartmann König, Heidelberg; Helmut Walter, Obrigheim; Karl-Otto Westphalen, Speyer, and Matthias Gerber, Limburgerhof, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed May 5, 1995, Ser. No. 435,450

Int. Cl.^{6} A01N *33/24;41/06,43/16;43/18*

U.S. Cl. 504—344 **6 Claims**

1. An O-(Oximino)ethylcyclohexenone oxime ether of the formula I



I

where the substituents have the following meanings:

R^1 is a C_1–C_6-alkyl group,

R^2 is a C_1–C_6-alkyl group;

R^3 is the phenyl group, which can be unsubstituted or can carry one to three substituents selected from the group consisting of nitro, cyano, halogen, C_1–C_4-alkyl and C_1–C_4 haloalkyl,

a C_1–C_4 alkyl, C_3–C_4 alkenyl or C_3–C_4 alkynyl group, these groups if desired being able to carry one of the following substituents:

halogen, C_1–C_3 alkyl, phenyl, which if desired, in turn can carry one to three radicals selected from the group consisting of nitro, cyano, halogen, C_1–C_4-alkyl, C_1–C_4-haloalkyl, phenyl and phenoxy, or phenoxy which, if desired, in turn can carry one to three radicals selected from the group consisting of nitro, cyano, halogen, C_1–C_4 alkyl and C_1–C_4 haloalkyl;

R^4 is a C_1–C_4-alkoxy-C_1–C_6-alkyl or C_1–C_4-alkylthio-C_1–C_6-alkyl group;

a phenylthio-C_1–C_6alkyl group, the phenyl ring if desired being able to carry one to three substituents selected from the group consisting of halogen and C_1–C_4-haloalkyl;

an N-(C_1–C_4-alkylsulfonyl)-N-(C_1–C_4-alkyl)aminomethyl group;

a C_3–C_7-cycloalkyl or C_5–C_7-cycloalkenyl group, where these groups can be unsubstituted or in each case can carry one to three substituents selected from the group consisting of hydroxyl, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4 alkylthio and C_1–C_4-haloalkyl;

a 5-membered saturated heterocycle which contains one or two oxygen and/or sulfur atoms as heteroatoms and which can be unsubstituted or can carry one to three substituents selected from the group consisting of C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl;

a 6- or 7-membered heterocycle having one or two non-adjacent oxygen and/or sulfur atoms as heteroatoms, which can be saturated or mono- or diunsaturated, where the heterocycle can be unsubstituted or can carry one to three substituents selected from the group consisting of hydroxyl, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio and C_1–C_4-haloalkyl;

a 5-membered heteroaromatic containing one or two nitrogen atoms and an oxygen or sulfur atom, where the heteroaromatic can be unsubstituted or can carry one to three substituents selected from the group consisting of halogen, cyano, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, C_1–C_4haloalkyl, C_2–C_6-alkenyl, C_2–C_6-alkenyloxy and C_1–C_4-alkoxy-C_1–C_4-alkyl,

the phenyl or pyridyl group, where these groups can be unsubstituted or in each case can carry one to three substituents selected from the group consisting of halogen, nitro, cyano, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, C_1–C_4 haloalkyl, C_3–C_6-alkenyloxy, C_3–C_6-alkynyloxy and NR^{a}R^b, where

R^a is hydrogen, C_1–C_4 alkyl, C_3–C_6 alkenyl or C_3–C_6-alkynyl and

R^b is hydrogen, C_1–C_4-alkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl, C_1–C_6-acyl or benzoyl which if desired in turn can carry one to three radicals selected from the group consisting of nitro, cyano, halogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4 alkylthio and C_1–C_4-haloalkyl;

and the agriculturally utilizable salts of I and the esters of I with C_1–C_{10}-carboxylic acids or inorganic acids.

5,739,086

STRUCTURES HAVING ENHANCED BIAXIAL TEXTURE AND METHOD OF FABRICATING SAME

Amit Goyal, Knoxville; John D. Budai, Oak Ridge; Donald M. Kroeger, Knoxville; David P. Norton, Knoxville; Eliot D. Specht, Knoxville, and David K. Christen, Oak Ridge, all of Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Division of Ser. No. 419,583, Apr. 10, 1995. This application May 22, 1996, Ser. No. 651,291

Int. Cl.^{6} C30B *29/22*

U.S. Cl. 505—473 **3 Claims**

1. A method of preparing a biaxially textured laminate article comprising the steps of

a. providing a substrate having a biaxially textured Ag surface;

b. depositing onto said surface of said substrate an epitaxial buffer template layer of ReBCO using a pulsed laser deposition technique at a temperature in the range of about 600° C. to about 700° C., and at an oxygen pressure in the range of about 50 mTorr to about 300 mTorr; and,

c. depositing onto said buffer template layer another epitaxial layer of perovskite-like material using a pulsed laser deposition technique

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5,739,087

ORGANOCLAY PRODUCTS CONTAINING A BRANCHED CHAIN ALKYL QUATERNARY AMMONIUM ION

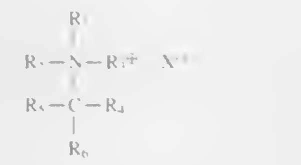
Harry Ryan Dennis, Gonzales, Tex., assignor to Southern Clay Products, Inc., Gonzales, Tex.

Continuation of Ser. No. 438,652, May 9, 1995, abandoned. This application Dec. 20, 1996, Ser. No. 770,418

Int. Cl.^{6} C10M *113/16;* **C09D** *11/02*

U.S. Cl. 508—144 **17 Claims**

1. A self-activating and self-dispersing organoclay composition comprising the reaction product of a smectite-type clay having an ion exchange capacity of at least 50 meq. wt. per 100 g. clay (active basis), and a quaternary ammonium compound having the following formula.



$$\begin{array}{c} R_1 \\ | \\ R_2-N-R_3^{+} \quad X^{-} \\ | \\ R_5-C-R_4 \\ | \\ R_6 \end{array}$$

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wherein R_1 and R_2 are both methyl groups, R_3 is a linear or branched saturated or unsaturated alkyl group having 12–22 carbon atoms; the $CR_4R_5R_6$ moiety is a 2-ethylhexyl group, and X is the salt anion.

5,739,088

METHOD OF LUBRICATING AN ALCOHOL-BASED FUEL ENGINE WITH AN ENGINE OIL COMPOSITION

Kiyoshi Inoue; Takashi Mito, both of Kanagawa-ken, and Masakuni Hirata, Tokyo, all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 668,922, Mar. 13, 1991, abandoned. This application Jul. 19, 1994, Ser. No. 277,160

Claims priority, application Japan, Mar. 14, 1990, 2-63741

Int. Cl.^{6} C10M *125/26;139/00*

U.S. Cl. 508—156 **12 Claims**

1 In a method of lubricating an alcohol-based fuel engine with an engine oil composition, the improvement which comprises using as said composition an engine oil composition comprising a major amount of mineral oil or synthetic oil or mixture thereof as a lubricating base oil and about 0.01 to 10% by weight based on the total weight of the engine oil composition of an alkaline-earth metal borate which is the reaction product of an oil-soluble neutral metal salt with an oxide or a hydroxide of an alkaline-earth metal in the presence of boric acid or boric acid anhydride and in which said oil-soluble neutral metal salt is selected from the group consisting of an oil-soluble alkaline-earth metal neutral sulfonate, an oil-soluble alkaline-earth metal neutral salicylate and oil-soluble alkaline-earth neutral phenate and in which said borate has a base number greater than 100 and a particle size of less than about 0.1 μm.

5,739,089

DIHYDROCARBYL DITHIOPHOSPHATES

Terence Colclough, Abingdon, United Kingdom, assignor to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 938,305, Aug. 28, 1992, which is a continuation of Ser. No. 274,819, Nov. 22, 1988, abandoned. This application Mar. 11, 1997, Ser. No. 814,208

Int. Cl.^{6} C10M *137/06*

U.S. Cl. 508—368 **15 Claims**

1 A lubricating oil composition comprising a lubricating oil and 0.2 to 2.0% by weight of an oil-soluble, liquid, mixed zinc and copper dihydrocarbyl dithiophosphate, wherein the hydrocarbyl groups are alkyl of up to six carbon atoms and the mixed dithiophosphate is prepared by a process in which dihydrocarbyl dithiophosphoric acid is reacted with a mixture of a basic zinc compound and a basic copper compound selected from the group consisting of copper oxide and copper hydroxide.

5,739,090

COMPOSITION BASED ON STABILIZED METHYLENE CHLORIDE WHICH CAN BE USED FOR DEGREASING METALS

Pascal Michaud, Saint-Gratien, France, assignor to Elf Atochem S.A., Puteaux, France

Filed Jan. 11, 1996, Ser. No. 584,978

Claims priority, application France, Jan. 10, 1995, 95/00194

Int. Cl.^{6} C07C *17/42;* **C23G** *14/02*

U.S. Cl. 570—110 **20 Claims**

1. In a method of hot cleaning and degreasing metal components with a composition based on methylene chloride, the improvement wherein said composition also comprises stabilizing amounts of at least one 1,2-epoxyalkane, and at least one acetal, with the provision that the composition is devoid of a nitroalkane.

5,739,091

ENZYME GRANULATES

Torsten W. Kiesser, An Der Alpheide 49; Hubert A. Herrmann, Celler Str. 116, both of D-31852 Nienburg/Weser, and Gerhard Konieczny-Janda, Schoeneberger Str. 23, D-30982 Pattensen, all of Germany

PCT No. PCT/EP93/02081, § 371 Date Apr. 14, 1995, § 102(e) Date Apr. 14, 1995, PCT Pub. No. WO94/04665, PCT Pub. Date Mar. 3, 1994

PCT Filed Aug. 5, 1993, Ser. No. 392,972

Claims priority, application Germany, Aug. 14, 1992, 42 26 923.7

Int. Cl.^{6} C11D *3/00;17/06;* **C12N** *9/96;9/98*

U.S. Cl. 510—224 **16 Claims**

1 In enzyme granules comprising at least one enzyme, a water-insoluble filler, a water-soluble filler, and a binder, the improvement comprising an effective enzyme stabilizing amount of a formate of an alkali metal or alkaline earth metal.

5,739,092

LIQUID OR GEL DISHWASHING DETERGENT CONTAINING ALKYL ETHOXY CARBOXYLATE DIVALENT OK IONS AND ALKYLPOLYETHOXYPOLYCARBOXYLATE

Kofi Ofosu-Asante, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 566,194, Dec. 1, 1995, abandoned, which is a continuation of Ser. No. 376,134, Jan. 19, 1995, abandoned, which is a continuation of Ser. No. 222,506, Apr. 4, 1994, abandoned, which is a continuation of Ser. No. 938,976, Sep. 1, 1992, abandoned. This application Nov. 7, 1996, Ser. No. 745,110

Int. Cl.^{6} C11D *1/08*

U.S. Cl. 510—235 **17 Claims**

1. A clear, stable liquid dishwashing detergent composition comprising, by weight of the composition:

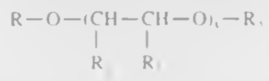
(a) from about 8% to about 50% of an alkyl ethoxy carboxylate anionic surfactant of the general formula:

$$RO(CH_2CH_2O)_xCH_2COO^- M^+$$

wherein R is a C_{12} to C_{16} alkyl group, x ranges from 0 to about 10 and the ethoxylate distribution is such that, on a weight basis, the amount of material where x is 0 is less than about 20% and the amount of material where x is greater than 7 is less than about 25%, the average x is from about 2 to 4 when the average R is C 13 or less, and the average x is from about 3 to 6 when the average R is greater than C_{13}, and M is a cation, wherein said alkyl ethoxy carboxylate contains less than 10% fatty acid soap of the formula $RCOO^- M^+$ wherein R is a C_{11} to C_{15} alkyl group and M is a cation;

(b) from about 0.1% to about 4% of magnesium ions; and

(c) from about 1% to about 5% of an alkylpolyethoxypolycarboxylate surfactant having from about 60% to about 90% hydrophilicity and the general formula:



$$R-O-(\underset{\substack{|\\R_1}}{CH}-\underset{\substack{|\\R_2}}{CH}-O)_x-R_3$$

wherein R is a C_6-C_{18} alkyl group, x ranges from about 1 to about 25, R_1 and R_2 are selected from the group consisting of hydrogen, methyl radical, succinic acid radical, hydroxysuccinic acid radical and mixtures thereof, wherein at least one R_1 or R_2 is a succinic acid or hydroxysuccinic acid radical such that said alkylethoxy polycarboxylate surfactant comprises from about 1 to about 4 succinic head groups and/or hydroxysuccinic acid radicals, R_3 is H,

wherein a 10% by weight aqueous solution of said composition has a pH from about 7 to 11 at 20° C

5,739,093

DETERGENT COMPOSITIONS CONTAINING ETHYLENE ASPARTATE CYSTEATE (EAC) SEQUESTRANTS

Eddie Nelson Gutierrez, Midland Park; Shang-Ren Wu, Mahwah, and Robert Charles Vermeer, Nutley, all of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Division of Ser. No. 618,482, Mar. 19, 1996, Pat. No. 5,668,098. This application Feb. 26, 1997, Ser. No. 806,467

Int. Cl.^{6} C11D *1/86,1/10;1/12,1/83*

U.S. Cl. 510—276 **8 Claims**

1 A detergent composition comprising

(a) from about 1% to about 75% by weight of a detergent surfactant selected from the group consisting of anionic surfactants, nonionic surfactants, zwitterionic surfactants, ampholytic surfactants, cationic surfactants, and mixture thereof,

(b) from about 0% to about 80% by weight of a detergency builder; and

(c) from about 0.1% to about 50% by weight ethylene asparticglutamic acid, or the alkali metal, alkaline earth, ammonium or substituted ammonium salts thereof, or mixtures thereof

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5,739,094

FREE-FLOWING PARTICULATE DETERGENT ADMIX COMPOSITION CONTAINING NONIONIC SURFACTANT

John Patrick Bowman, Southgate, and John Michael Jolicoeur, Fort Mitchell, both of Ky., assignors to The Procter & Gamble Company, Cincinnati, Ohio

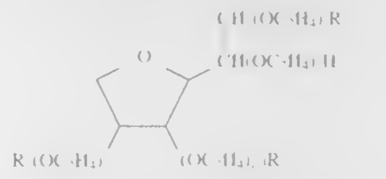
Filed Jan. 17, 1997, Ser. No. 785,208

Int. Cl.^{6} C11D *1/825,17/06*

U.S. Cl. 510—327 **5 Claims**

1 A free-flowing particulate detergent admix composition for inclusion in a granular detergent product comprising.

a) from about 40% to about 60% by weight of a mixture of sorbitan esters having the formula:



wherein said mixture comprises polyethoxylated sorbitan tristearate, wherein R_1 and R_2 are $(C_nH_{2n+1})COO$, n is 17, and W+X+Y+Z equals from 0 to 40, and sorbitan monostearate wherein R_1 is $(C_nH_{2n+1})COO$, n is R_1, R_2 is (OH), and W+X+Y+Z equals 0, wherein the weight ratio of polyethoxylated sorbitan tristearate to sorbitan monostearate is from about 1.0:3.0 to about 3.0:1.0; and

b) from about 40% to about 60% by weight of a polyethylene glycol having a melting point above room temperature, wherein the molecular weight of the polyethylene glycol is from about 1,500 to about 100,000

5,739,095

SOLID PEROXYHYDRATE BLEACH/DETERGENT COMPOSITION AND METHOD OF PREPARING SAME

Robert P. Langguth, Overland, and Michael Oberlander, Kansas City, both of Mo., assignors to Noramtech Corporation, Kansas City, Mo.

Filed Oct. 25, 1996, Ser. No. 736,984

Int. Cl.^{6} C11D *7/18*

U.S. Cl. 510—367 **15 Claims**

1 A bleaching composition comprising.

a quantity of the reaction product of from about 5% to about 25% by weight of aqueous hydrogen peroxide with a quantity of an alkali metal phosphate capable of combining with the hydrogen peroxide to form a peroxyhydrate salt.

a sufficient amount of a solid fying agent for the peroxyhydrate salt to form a solid material; and

a sufficient amount of a non-oxygen reactive sequestering agent selected from the group consisting of acidic sequestering agents and acid salts of sequestering agents, said sequestering agent being capable of maintaining the pH of the composition in the range of from about 4 to about 9

5,739,096

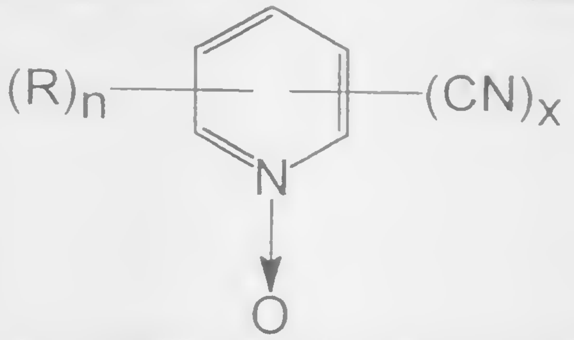
CYANOPYRIDINE N-OXIDE PEROXIDE BLEACH ACTIVATORS

Wayne M. Rees, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Filed May 6, 1996, Ser. No. 643,811

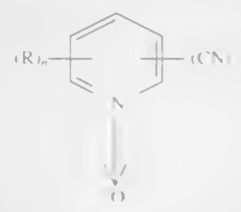
Int. Cl.^{6} C11D *3/395*

U.S. Cl. 510—376 **9 Claims**



1 A bleaching system, comprising a surfactant selected from the group consisting of anionic, non-ionic, amphoteric and cationic surfactants, as well as mixtures thereof, 0.1 to 10 weight % of a peroxide; and

0.1 to 10 weight % of an activator selected from the group consisting of a cyanopyridine N oxide of the formula



wherein R is selected from the group consisting of alkyl moiety, organic acid moiety, amide moiety, ester moiety, alkoxy moiety, and sulfonate moiety (wherein each such moiety has less than seven carbons), n is from 0 to 4, x is from 1 to 5, the sum of n and x is from 1 to 5, and each R is independently selected for each n if n is greater than 1

5,739,097

PROCESS FOR THE PRODUCTION OF SURFACTANT GRANULES

Volker Bauer, Duesseldorf; Jochen Jacobs, Wuppertal; Bernhard Gutsche, Hilden; Thomas Lueder, Langenfeld; Christoph Breucker, and Guenter Panthel, both of Haan, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien

Continuation of Ser. No. 501,010, Aug. 11, 1995, abandoned. This application Dec. 12, 1996, Ser. No. 763,923

Claims priority, application Germany, Feb. 11, 1993, 43 04 062.4

Int. Cl.^{6} C11D *11/00*

U.S. Cl. 510—446 **15 Claims**

1 A process for producing surfactant granules having a bulk density of more than 450 g/l consisting of preparing a surfactant

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composition in its acid form containing a non-surface-active liquid component, preparing an aqueous alkaline solution, separately treating said surfactant composition and said aqueous alkaline solution with a gaseous medium, spraying said surfactant composition and said aqueous alkaline solution in substantially stoichiometric quantities either separately or simultaneously into a granulation and drying zone under a high propellant gas pressure, granulating and drying the mixture while optionally adding at least one solid to the mixture.

5,739,098

CRYSTALLINE SODIUM POTASSIUM SILICATES

Raymond P. Denkewicz, Jr., LaGrange, and Eric von Rehren Borgstedt, Louisville, both of Ky., assignors to PQ Corporation, Valley Forge, Pa.

Filed Jul. 5, 1994, Ser. No. 270,489

Int. Cl.^{6} C11D *3/08;* **C01B** *33/32*

U.S. Cl. 510—511 **20 Claims**

1. A crystalline phase sodium/potassium silicate produced by the following process:

producing an anhydrous sodium/potassium glass having a composition of $ZSiO_2:(xNa_2O+yK_2O)$ where $1.7<Z<3.22$, $1>x>0.75$, $0<y<0.25$, and $x+y=1$, and

calcining said glass at a temperature between about 500° C. and about 800° C. for at least about fifteen minutes in the optional presence of water to produce a crystalline silicate.

7. A detergent builder comprising a crystalline DB-1 phase sodium/potassium silicate having a composition of $ZSiO_2:(xNa_2O+yK_2O)$ where $1.7<Z<3.22$, $1>x>0.75$, $0<y<0.25$, and $x+y=1$, and having an x-ray diffraction pattern having d-spacings of 6.9429 Å, 6.0315 Å, 4.9072 Å, 4.2037 Å, 3.9878 Å, 3.7906 Å, 3.6268 Å, 3.4603 Å, 3.8964 Å, 2.9097 Å, 2.7637 Å, 2.5673 Å, 2.5000 Å, and 2.4227 Å.

16. A cleaning composition containing a surfactant and a builder wherein said builder comprises a DB-1 crystalline phase sodium/potassium silicate which is the product of the following process:

producing an anhydrous sodium/potassium silicate glass having a composition of $ZSiO_2:(xNa_2O+yK_2O)$ where $1.7<Z<3.22$, $1>x>0.75$, $0<y<0.25$, and $x+y=1$;

dissolving said glass in water to produce a liquid sodium/potassium silicate;

spray drying said liquid sodium/potassium silicate to produce a hydrous sodium/potassium polysilicate; and

calcining said hydrous sodium/potassium polysilicate for at least about fifteen minutes at a temperature between about 500° C. and about 800° C. to produce a crystalline silicate.

5,739,099

RINSE AID COMPOSITIONS CONTAINING MODIFIED ACRYLIC POLYMERS

Michael C. Welch, Woodhaven; Kenneth L. Zack, and Glenis Roberts, both of Wyandotte, all of Mich., assignors to BASF Corporation, Mount Olive, N.J.

Filed Dec. 6, 1995, Ser. No. 568,030

Int. Cl.^{6} C11D *3/37; 1/83*

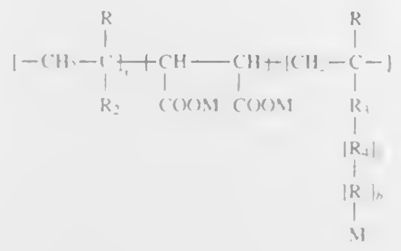
U.S. Cl. 510—514 **6 Claims**

1. A rinse aid composition consisting of by weight.

(a) 1 to 80% nonionic surfactants;

(b) 0.1 to 20% dihexylsodium sulfosuccinate hydrotrope;

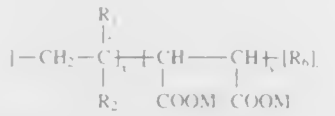
(c) 0.1 to 10% copolymers of alkylene oxide adducts of allyl alcohol and acrylic acid selected from Formula I, II, III, or IV:



$$[-CH_2-\overset{R}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[CH_2-\overset{R}{\underset{R_3-[R_4]_a-[R_b]_b-M}{C}}-]$$

Formula I

or



$$[-CH_2-\overset{R_1}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[R_6]$$

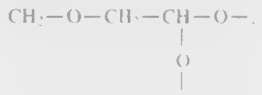
Formula II

wherein x, y, z, a, and b are integers, (x+y):z is from about 5:1–1,000:1, and y can be any value ranging from zero up to the value of x; M is an alkali metal or hydrogen; a:b is from about 1:4 to about 1:99;

$R_1=H$ or CH_3;

$R_2=COOM, OCH_3, SO_3M, O-CO-CH_3, CO-NH_2$;

$R_3=CH_2-O-, CH_2-N-, COO-, -O-,$

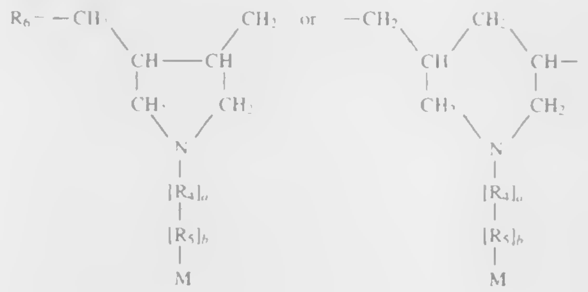


$$CH_2-O-CH_2-\underset{\underset{|}{O}}{\underset{|}{CH}}-O-,$$

$CO-NH-$;

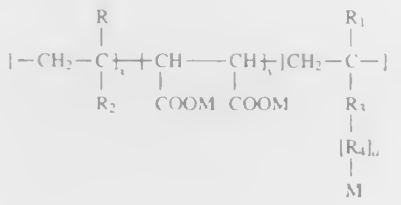
$R_4=C_3$ to C_4 alkyleneoxy group;

$R_5=CH_2-CH_2-O$;



or mixtures of both;

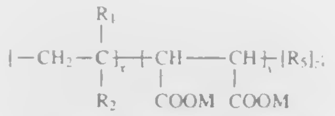
or



$$[-CH_2-\overset{R}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[CH_2-\overset{R_1}{\underset{R_3-[R_4]_a-M}{C}}-]$$

Formula III

or



$$[-CH_2-\overset{R_1}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[R_5]_z;$$

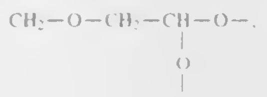
Formula IV

wherein x, y and z are integers, (x+y):z is from about 5:1–1,000:1, and y can be any value ranging from zero up to the value of x; M is an alkali metal or hydrogen; a is an integer from about 3 to about 680; and the hydrophilic and oxyethylated monomers may be in random order;

$R_1=H$ or CH_3;

$R_2=COOM, OCH_3, SO_3M, O-CO-CH_3, CO-NH_2,$

$R_3=CH_2-O-, CH_2-N-, COO-, -O-,$

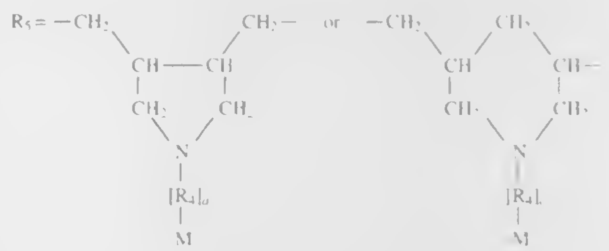


$$CH_2-O-CH_2-\underset{\underset{|}{O}}{\underset{|}{CH}}-O-,$$

$CO-NH-$;

$R_4=-CH_2-CH_2-O$;

Where



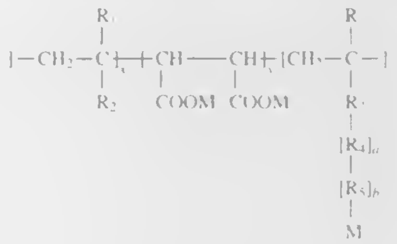
or mixtures of both.

4. A method of reducing spotting and filming of dishware comprising contacting said dishware with a rinse aid composition consisting of by weight:

(a) 1 to 80% nonionic surfactants;

(b) 0.1 to 20% hydrotropes;

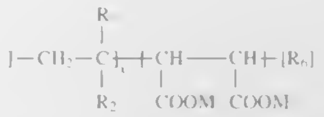
(c) 0.1 to 10% copolymers of alkylene oxide adducts of allyl alcohol and acrylic acid selected from Formula I, II, III, or IV:



$$[-CH_2-\overset{R_1}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[CH_2-\overset{R}{\underset{R_3-[R_4]_a-[R_5]_b-M}{C}}-]$$

Formula I

or



$$[-CH_2-\overset{R}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[R_6]$$

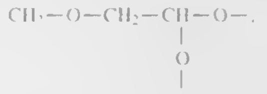
Formula II

wherein x, y, z, a, and b are integers, (x+y):z is from about 5:1–1,000:1, and y can be any value ranging from zero up to the value of x; M is an alkali metal or hydrogen; a:b is from about 1:4 to about 1:99;

$R_1=H$ or CH_3;

$R_2=COOM, OCH_3, SO_3M, O-CO-CH_3, CO-NH_2,$

$R_3=CH_2-O-, CH_2-N-, COO-, -O-,$

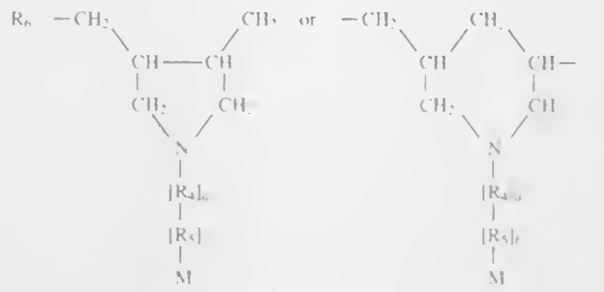


$$CH_2-O-CH_2-\underset{\underset{|}{O}}{\underset{|}{CH}}-O-,$$

$CO-NH-$.

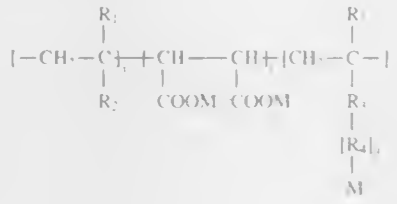
$R_4=C_3$ to C_4 alkyleneoxy group;

$R_5=-CH_2-CH_2-O$;



or mixtures of both;

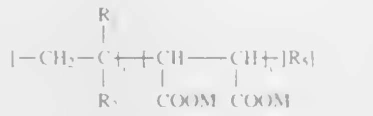
or



$$[-CH_2-\overset{R_1}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[CH_2-\overset{R}{\underset{R_3-[R_4]_a-M}{C}}-]$$

Formula III

or



$$[-CH_2-\overset{R}{\underset{R_2}{C}}\,]_x[\,\underset{COOM}{CH}-\underset{COOM}{CH}\,]_y[R_5]$$

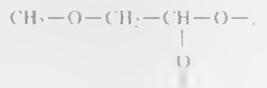
Formula IV

wherein x, y and z are integers, (x+y):z is from about 5:1–1,000:1, and y can be any value ranging from zero up to the value of x, M is an alkali metal or hydrogen, a is an integer from about 3 to about 680; and the hydrophilic and oxyethylated monomers may be in random order;

$R_1=H$ or CH_3;

$R_2=COOM, OCH_3, SO_3M, O-CO-CH_3, CO-NH_2,$

$R_3=CH_2-O-, CH_2-N-, COO-, -O-,$

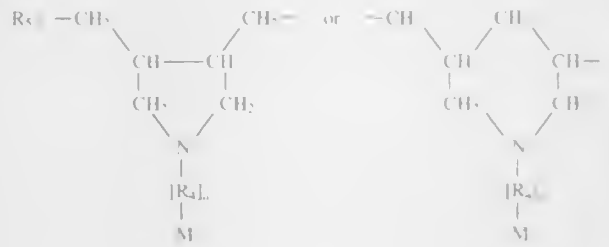


$$CH_2-O-CH_2-\underset{\underset{|}{O}}{\underset{|}{CH}}-O-,$$

$CO-NH-$

$R_4=-CH_2-CH_2-O$;

Where



or mixtures of both.

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5,739,100

CIS-3-HEXENAL-CIS-3-HEXENYL ACETAL COMPOUND, PROCESS FOR PREPARING SAME, AND FRAGRANCE- OR FLAVOR-IMPARTING OR FRAGRANCE-OR FLAVOR-RETAINING AGENT AND PERFUME COMPOSITION CONTAINING SAME

Hiroshi Horino, Yokohama, and Shin-ichi Hirakawa, Fujisawa, both of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/02139, § 371 Date Jun. 14, 1996, § 102(e) Date Jun. 14, 1996, PCT Pub. No. WO95/16660, PCT Pub. Date Jun. 22, 1995

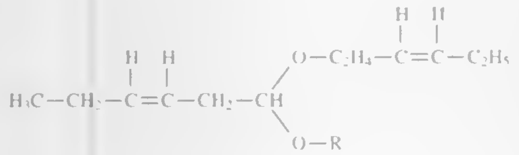
PCT Filed Dec. 19, 1994, Ser. No. 652,462

Claims priority, application Japan, Dec. 17, 1993, 5-343328; Feb. 28, 1994, 6-055317

Int. Cl.^{6} A61K *7/46*

U.S. Cl. 512—25 **31 Claims**

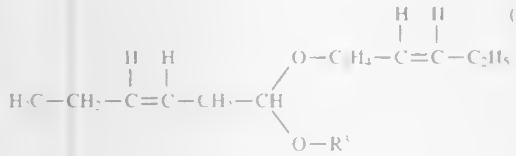
1 A cis-3-hexenal-cis-3-hexenyl acetal compound represented by the following formula (1):



(1)

wherein R represents an alkyl group, having 1 to 20 carbon atoms.

22 A fragrance- or flavor-imparting or fragrance- or flavor-retaining agent comprising as an active ingredient a cis-3-hexenal-cis-3-hexenyl acetal compound represented by the following formula (3):



(3)

wherein R^3 represents a hydrocarbon group.

5,739,101

TISSUE FACTOR MUTANTS USEFUL FOR THE TREATMENT OF MYOCARDIAL INFARCTION AND COAGULOPATHIC DISORDERS

Soumitra Roy, San Francisco, and Gordon A. Vehar, San Carlos, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 246,978, May 20, 1994, Pat. No. 5,589,363, which is a division of Ser. No. 714,819, Jun. 13, 1991, Pat. No. 5,346,991. This application May 15, 1995, Ser. No. 440,814

Int. Cl.^{6} C07K *14/745;* **A61K** *38/17;38/36*

U.S. Cl. 514—2 **7 Claims**

1 A method of inhibiting thrombin-induced platelet aggregation in a mammal comprising administering a pharmaceutically effective amount of a composition comprising a tissue factor protein mutant capable of inhibiting the ability of endogenous tissue factor to induce coagulation, wherein either or both of the positively charged amino acid residues 165 and 166 are substituted with an α-amino acid other than one bearing a substantially positively charged side chain at physiological pH to the mammal.

5,739,102

WOUND HEALING

Mark Batterbury, Wilmslow; Ian Grierson, Moreton, and Paul Stephenson Hiscott, Hoylake, all of England, assignors to British Technology Group Limited, London, England

Filed Feb. 4, 1997, Ser. No. 795,958

Claims priority, application United Kingdom, Apr. 19, 1996, 9608145

Int. Cl.^{6} A01N *34/18;* **A61K** *38/00;38/16;6/00*

U.S. Cl. 514—2 **5 Claims**

1. A method of reducing the rate of wound healing in a patient in need thereof, which comprises applying to the site of the wound in the patient an effective amount of *Agaricus bisporus* lectin.

5,739,103

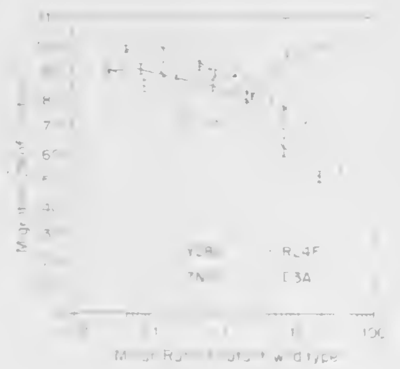
CHEMOKINE N-TERMINAL DELETION MUTATIONS

Barrett Rollins, and Yujun Zhang, both of Brookline, Mass., assignors to Dana-Farber Cancer Institute, Boston, Mass.

Continuation-in-part of Ser. No. 330,218, Oct. 27, 1994, Pat. No. 5,459,128, which is a continuation-in-part of Ser. No. 152,301, Nov. 12, 1993, abandoned. This application May 31, 1995, Ser. No. 455,629

Int. Cl.^{6} C07K *14/52,* **C08H** *1/00;* **A61K** *38/19;45/05*

U.S. Cl. 514—8 **21 Claims**



1 A mutant chemokine comprising an N-terminal deletion mutation of the endogenous chemokine, wherein said mutant chemokine is without chemokine activity and inhibits endogenous chemokine binding and activation of a responsive chemokine receptor, with the proviso that the chemokine is not interleukin-8.

5,739,104

ANTI-FUNGAL AGENTS

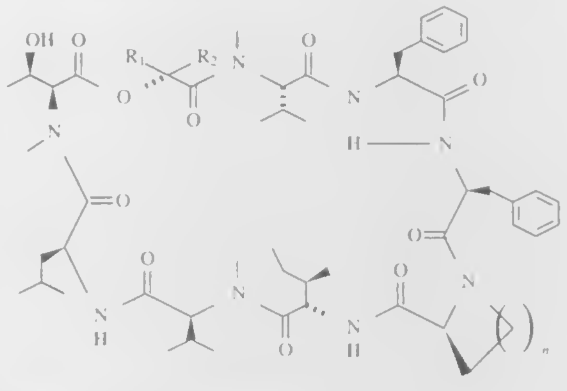
Alan B. Cooper, West Caldwell; Anil K. Saksena, Upper Montclair; Dinanath F. Rane, Morganville; Edwin Jao, Iselin; Viyyoor M. Ginjavallabhan, Parsippany; Ashit Ganguly, Upper Montclair; Jagdish J. Desai, Spotswood, and James Wang, Westfield, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Continuation-in-part of Ser. No. 237,794, May 4, 1994, abandoned. This application Apr. 26, 1995, Ser. No. 428,974

Int. Cl.^{6} A61K *38/12;* **C07K** *530/317*

U.S. Cl. 514—9 **6 Claims**

1. A compound of the formula



wherein R1 is H, R2 is cyclohexyl and n=3.

5,739,105

CYCLOSPORIN CONTAINING COMPOSITION AND PROCESS FOR THE PREPARATION THEREOF

Hyun Soo Kim, Kwacheon-Si; Jae Yoon Choi, Ahnyang-Si; Hye Weon Lee, Ahnyang-Si; Young Keun Park, Ahnyang-Si, and Sung Wook Choi, Seoul, all of Rep. of Korea, assignors to Yuhan Corporation, Seoul, Rep. of Korea

PCT No. PCT/KR95/00059, § 371 Date Nov. 13, 1996, § 102(e) Date Nov. 13, 1996, PCT Pub. No. WO95/32726, PCT Pub. Date Dec. 7, 1995

PCT Filed May 19, 1995, Ser. No. 732,377

Claims priority, application Rep. of Korea, Jun. 1, 1994, 94-12288

Int. Cl.^{6} A61K *38/00;38/13*

U.S. Cl. 514—11 **11 Claims**

1. A composition comprising 1.0 to 40 wt. % of a cyclosporin A, 0.1 to 30 wt. % of an emulsifier, and 5 to 80 wt. % of a porous dextrin, based on the total weight of the composition.

5,739,106

APPETITE REGULATING COMPOSITIONS

Timothy J. Rink, 6041 Camino De La Costa, La Jolla, Calif. 92037; Andrew A. Young, 510 Josh Way, Alpine, Calif. 91901; Nigel Robert Arnold Beeley, 227 Loma Corta Dr., Solana Beach, Calif. 92037, and Kathryn S. Prickett, 7612 Trailbrush Ter., San Diego, Calif. 92126

Filed Jun. 7, 1995, Ser. No. 477,727

Int. Cl.^{6} A61K *38/00;38/28,* **C07K** *5/00,7/00*

U.S. Cl. 514—12 **85 Claims**

1 A composition comprising an amylin agonist and a CCK agonist admixed in a pharmaceutically acceptable carrier

5,739,107

MORPHOGEN TREATMENT OF GASTROINTESTINAL ULCERS

Charles M. Cohen, Medway; Marc F. Charette, Needham; Thangavel Kuberasampath, Medway; David C. Rueger, Hopkinton; Hermann Oppermann, Medway, all of Mass.; Roy H. L. Pang, Etna, N.H.; Engin Ozkaynak, Milford, and John E. Smart, Weston, both of Mass., assignors to Creative BioMolecules, Inc., Hopkinton, Mass.

Continuation of Ser. No. 174,605, Dec. 28, 1993, abandoned, which is a continuation of Ser. No. 945,286, Sep. 15, 1992, abandoned, which is a continuation-in-part of Ser. No. 938,336, Aug. 28, 1992, abandoned, Ser. No. 753,059, Aug. 30, 1991, abandoned, and Ser. No. 752,764, Aug. 30, 1991, abandoned, which is a continuation-in-part of Ser. No. 667,274, Mar. 11, 1991, abandoned, said Ser. No. 753,059 is a continuation-in-part of Ser. No. 667,274. This application Jun. 5, 1995, Ser. No. 462,623

Int. Cl.^{6} A61K *38/18;* **C07K** *14/51*

U.S. Cl. 514—12 **24 Claims**

1. A method for protecting the integrity of a gastrointestinal lining in a mammal, comprising administering to said mammal a morphogen comprising a dimeric protein that comprises an amino acid sequence selected from the group consisting of:

(a) a sequence having at least 70% homology with the C-terminal seven cysteine domain of human OP-1, residues 38–139 of Seq. ID No 5; and

(b) a sequence defined by Generic Sequence 6, Seq. ID No. 31 , and

wherein said morphogen induces tissue-specific morphogenesis of gastrointestinal lining or bone in an in vivo assay.

5,739,108

PROLONGED RELEASE OF BIOLOGICALLY ACTIVE POLYPEPTIDES

James W. Mitchell, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 900,410, Jun. 18, 1992, Pat. No. 5,474,980, which is a division of Ser. No. 568,284, Aug. 16, 1990, abandoned, which is a division of Ser. No. 414,503, Sep. 29, 1989, Pat. No. 5,013,713, which is a continuation of Ser. No. 787,873, Oct. 16, 1989, abandoned, which is a continuation-in-part of Ser. No. 657,713, Oct. 4, 1984, abandoned. This application Dec. 11, 1995, Ser. No. 570,304

Int. Cl.^{6} A61K *38/27;* **C07K** *14/61*

U.S. Cl. 514—12 **9 Claims**

1. A substantially non-aqueous composition comprising at least about 10% by weight of a biologically-active somatotropin polypeptide and, as a continuous phase of said composition, a biocompatible oil, the composition effective upon administration for forming parenterally in an animal a sustained-release depot releasing somatotropin for a period of at least about seven days

5,739,109

METHOD OF TREATING NEUROINFLAMMATORY DEGENERATIVE DISEASES

Jeffrey E. Galpin; Dennis A. Casciato, both of Hidden Hills, Calif.; Michael A. Davis, Westwood, Mass.; Saul M. Levin, Washington, D.C.; MerriBeth Adams, St. James, N.Y.; Candace B. Pert; Michael R. Ruff, both of Potomac, Md., and Gary Globe, Stevenson Ranch, Calif., assignors to Advanced Immunit Inc., Stony Brook, N.Y.

Continuation-in-part of Ser. No. 346,334, Nov. 29, 1994, Pat. No. 5,567,682, which is a continuation of Ser. No. 44,903, Apr. 6, 1993, abandoned, which is a continuation of Ser. No. 831,088, Feb. 7, 1992, abandoned, which is a continuation of Ser. No. 551,048, Jul. 11, 1990, abandoned, which is a continuation of Ser. No. 285,074, Dec. 16, 1988, abandoned. This application Feb. 28, 1996, Ser. No. 608,434

Int. Cl.^{6} A61K *38/07;38/08*

U.S. Cl. 514—15 **7 Claims**

1 A method of treating a person having PMI disease comprising administering to that person a therapeutically effective amount of a peptide of the formula:

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$$R^a\text{-Ser-Thr-Thr-Thr-Asn-Tyr-}R^b \qquad (I)$$

where R^a represents an amino terminal residue Ala- or D-Ala- and R^b represents a carboxyl terminal residue -Thr or Thr amide, and/or having an additional Cys-residue at one or both of the amino and carboxyl terminals, or a peptide of the formula:

$$R^1\text{—}R^2\text{—}R^3\text{—}R^4\text{—}R^5 \qquad (II)$$

where R^1 is an amino terminal residue Thr-, Ser-, Asn-, Leu-, Ile-, Arg- or Glu-; R^2 is Thr, Ser or Asp; R^3 is Thr, Ser, Asn, Arg, Gln, Lys or Trp; R^4 is Tyr; and R^5 is a carboxyl terminal amino group, a corresponding D-amino acid as the amino terminal residue, and/or a corresponding amide derivative at the carboxyl terminal residue and/or additionally a Cys-residue at one or both of the amino and carboxyl terminals, or a physiologically acceptable salt thereof, and continuing said administration to prevent or diminish further degeneration of cerebral function.

5,739,110

PROTECTION OF HEMOPOIETIC CELLS

Arthur E. Bogden, West Yarmouth, Mass., and Evelyn Deschamps De Paillette, Paris, France, assignors to Biomeasure Inc., Milford, Mass., and Societe de Conseils de Recherches Et D'Applications Scientifiques, France

Continuation-in-part of Ser. No. 304,724, Sep. 12, 1994, Pat. No. 5,595,973. This application Feb. 1, 1996, Ser. No. 595,295

Int. Cl.⁶ A61K *38/07;38/00*

U.S. Cl. 514—18 **20 Claims**

1. A method of promoting regeneration of hemopoietic cells in a subject undergoing chemotherapy or radiotherapy, said method comprising:

administering to the subject a first amount of a AcSDKP or an agonist thereof, said first amount being effective to reduce the proliferation of hemopoietic cells during said chemotherapy or radiotherapy,

administering to the subject a second amount of angiotensin-converting enzyme inhibitor, said second amount being effective to reduce the degradation of said AcSDKP or an agonist thereof by angiotensin-converting enzyme; and

after said chemotherapy or radiotherapy, administering to the subject a third amount of a hemopoiesis growth factor, said third amount being effective to stimulate the proliferation of hemopoietic cells.

5,739,111

MODULATING BODY/CRANIAL HAIR GROWTH WITH DERIVATIVES OF THE α-TYPE MELANOCYTE-STIMULATING HORMONE

Yann Mahe, Morsang sur Orge, France, assignor to Societe L'Oreal S.A., Paris, France

Filed Apr. 29, 1996, Ser. No. 638,774

Claims priority, application France, Apr. 28, 1995, 95 05158

Int. Cl.⁶ A61K *38/00;38/06*

U.S. Cl. 514—18 **10 Claims**

1. A method for inducing or stimulating the growth of hair or retarding or limiting the loss of hair on a mammalian organism in need of such treatment, comprising administering an effective amount of at least one Lys-Pro-Val tripeptide.

5,739,112

INHIBITORS OF FACTOR XA

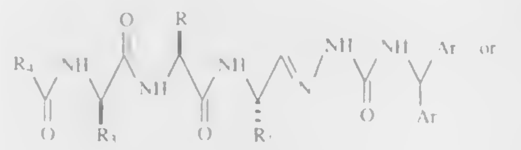
Terence Kevin Brunck, San Diego; Thomas Roy Webb, Encinitas, and William Charles Ripka, San Diego, all of Calif., assignors to Corvas International, Inc., San Diego, Calif.

Continuation of Ser. No. 168,964, Dec. 15, 1993, which is a continuation-in-part of Ser. No. 991,204, Dec. 15, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 465,115

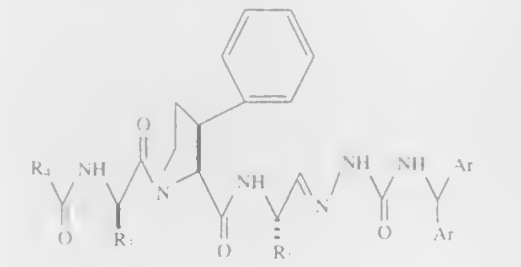
Int. Cl.⁶ A61K *38/05*

U.S. Cl. 514—19 **10 Claims**

1. A compound of the formula:



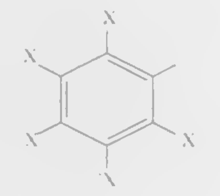
(I)



(II)

wherein

Ar has the formula:



wherein X is independently selected from the group consisting of hydrogen, methyl, halogen, and ethyl;

R_1 is selected from the group consisting of $-(CH_2)_3-NH-C(=NNO_2)-NH_2$, and alkyl-substituted derivatives thereof, wherein each alkyl is independently selected and has about 1 to about 7 carbon atoms;

R_2 is selected from the group consisting of arylkyls of about 7 to about 15 carbon atoms optionally substituted with 1 to 2 independently selected alkyl groups of about 1 to about 4 carbon atoms,

R_3 is selected from the group consisting of aryl of about 6 to about 14 carbon atoms optionally substituted with 1 to 2 independently selected alkyl groups of about 1 to about 4 carbon atoms, aralkyl of about 7 to about 15 carbon atoms optionally substituted with 1 to 2 independently selected alkyl groups of about 1 to about 4 carbon atoms, and alkyl of about 1 to about 7 carbon atoms, and

R_4 is selected from the group consisting of alkyl of about 1 to about 12 carbon atoms, alkenyl of about 3 to about 6 carbon atoms, aryl of about 6 to about 14 carbon atoms, aralkyl of about 7 to about 15 carbon atoms, alkoxy of about 1 to about 12 carbon atoms, alkenyloxy of about 3 to about 8 carbon atoms, aryloxy of about 6 to about 14 carbon atoms, alkenyl of about 7 to about 15 carbon atoms and carboxylalkyl of about 2 to about 7 carbon atoms, or pharmaceutically acceptable salts thereof.

5,739,113

COMPOSITIONS AND METHOD FOR REVITALIZING SCAR TISSUE

Clarence C. Lee, Lilburn, Ga., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 183,628, Jan. 19, 1994, abandoned, which is a continuation of Ser. No. 15,275, Feb. 8, 1993, abandoned, which is a continuation of Ser. No. 728,171, Jul. 10, 1991, abandoned. This application Aug. 20, 1996, Ser. No. 700,051

Int. Cl.⁶ A61K *38/18;38/22*

U.S. Cl. 514—21 **12 Claims**

1. A method for treating urinary incontinence in a human or animal comprising injecting into hardened periuretheral scar tissue an effective amount of a composition comprising a bioactive material selected from the group consisting of prostaglandin E, growth hormone and growth factor, and a pharmaceutically acceptable controlled release matrix, wherein the composition expands, softens and restores elasticity to the hardened scar tissue.

5,739,114

IMMUNOSUPPRESSIVE CYCLOLIGNAN DERIVATIVES

Marina Gordaliza; Maria Angeles Castro; Arturo San Feliciano; Jose Maria Miguel del Corral; Maria Luisa Lopez, all of Salamanca, and Glynn T. Faircloth, Madrid, all of Spain, assignors to Universidad de Salamanca, Salamanca, Spain

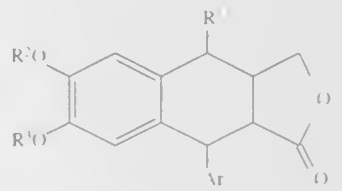
Filed Nov. 13, 1995, Ser. No. 558,127

Claims priority, application United Kingdom, Nov. 14, 1994, 9422947

Int. Cl.⁶ A61K *31/34,* **C07D** *307/77 307/92*

U.S. Cl. 514—22 **5 Claims**

1. A compound of the formula (I):



(I)

wherein:

R^1 is hydrogen or hydroxy,

R^2 and R^3 are hydrogen;

and

Ar is 3,4,5-trialkyoxyphenyl

5,739,115

SULFATED MALTOOLIGOSACCHARIDES WITH HEPARIN-LIKE PROPERTIES

Peter Fugedi; David J. Tyrrell, both of Alameda; Robert J. Tressler, Moss Beach; Robert J. Stack, Murphys, all of Calif., and Masayuki Ishihara, Tokyo, Japan, assignors to Glycomed Incorporated, Alameda, Calif.

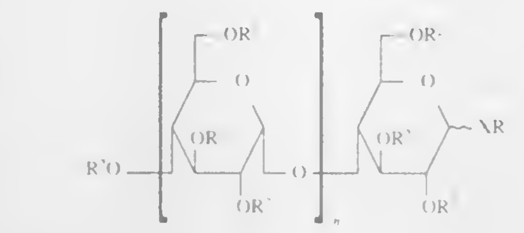
Continuation-in-part of Ser. No. 133,483, Oct. 7, 1993, abandoned. This application Sep. 26, 1994, Ser. No. 312,571

Int. Cl.⁶ A61K *31/70;* **C07H** *15/00*

U.S. Cl. 514—24 **10 Claims**

1. A method for treating an animal for disease wherein said disease is selected from the group consisting of retinopathies and cancer, comprising:

administering to said animal an effective amount of a composition comprising a compound of the formula:



wherein

X represents O or S,

R^1 represents an alkyl, aryl, or aralkyl group, a reduced or oxidized glucose unit, SO_3M, or H,

each R^2 is independently selected from the group consisting of SO_3M group and H,

M represents a biologically acceptable cation, and

n represents an integer from 1 to 9, with the proviso that at least 50% of said R^2 groups are sulfates.

5,739,116

ENEDIYNE DERIVATIVES USEFUL FOR THE SYNTHESIS OF CONJUGATES OF METHYLTRITHIO ANTITUMOR AGENTS

Philip Ross Hamann, Garnerville; Lois Hinman, Tarrytown; Irwin Hollander, Monsey, all of N.Y.; Ryan Holcomb, Glen Rock, N.J.; William Hallett; Hwei-Ru Tsou, both of New City, N.Y., and Martin J. Weiss, Ft. Lee, N.J., assignors to American Cyanamid Company, Madison, N.J.

Division of Ser. No. 253,877, Jun. 3, 1994. This application Jun. 5, 1995, Ser. No. 461,284

Int. Cl.⁶ A01N *43/04;45/00;* **A61K** *39/00;* **C12P** *19/44*

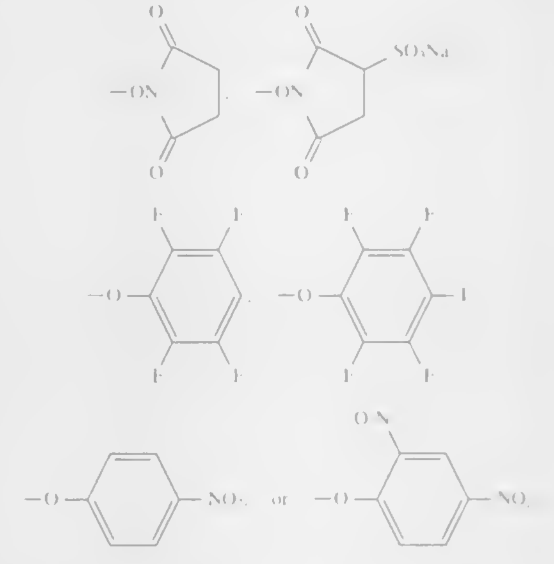
U.S. Cl. 514—25 **12 Claims**

1. A compound of the formula

$$Z^3\text{-CO-Alk}^1\text{-Sp}^1\text{-Ar-Sp}^2\text{-Alk}^2\text{-C}(Z^1)=Z^2$$

wherein

Z^3 is halogen, hydroxy, OM wherein M is a metal completing a salt, $-N_3$,



Alk^1 and Alk^2 are independently a bond or branched or unbranched $(C_1\text{-}C_{10})$ alkylene chain;

Sp^1 is a bond, —S—, —O—, —CONH—, —NHCO—, —NR—, $-N(CH_2CH_2)_2N-$, or $-X-Ar-Y-(CH_2)_n-Z$ wherein X, Y, and Z are independently a bond, —NR—, —S—, or —O—, with the proviso that when n=0, then at least one of Y and Z must be a bond and Ar is 1,2-, 1,3-, or 1,4-phenylene optionally substituted with one, two, or three groups of $(C_1\text{-}C_5)$ alkyl,

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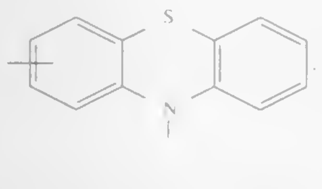
$(C_1–C_4)$ alkoxy, $(C_1–C_4)$ thioalkoxy, halogen, nitro, COOR', CONHR', $O(CH_2)_nCOOR'$, $S(CH_2)_nCOOR'$, $O(CH_2)_nCONHR'$, or $S(CH_2)_nCONHR'$, with the proviso that when Alk^1 is a bond, Sp^1 is a bond;

n is an integer from 0 to 5;

R' is a branched or unbranched $(C_1–C_5)$ chain optionally substituted by one or two groups of —OH, $(C_1–C_4)$ alkoxy, $(C_1–C_4)$ thioalkoxy, halogen, nitro, $(C_1–C_3)$ dialkylamino, or $(C_1–C_3)$ trialkylammonium-A^- where A^- is a pharmaceutically acceptable anion completing a salt;

Ar is 1,2-, 1,3-, or 1,4-phenylene optionally substituted with one, two, or three groups of $(C_1–C_6)$ alkyl, $(C_1–C_5)$ alkoxy, $(C_1–C_4)$ thioalkoxy, halogen, nitro, or COOR', CONHR', $O(CH_2)_nCOOR'$, $S(CH_2)_nCOOR'$, $O(CH_2)_nCONHR'$, or $S(CH_2)_nCONHR'$ wherein n and R' are as defined above or a 1,2-, 1,3-, 1,4-, 1,5-, 1,6-, 1,7-, 1,8-, 2,3-, 2,6-, or 2,7-naphthylidene or

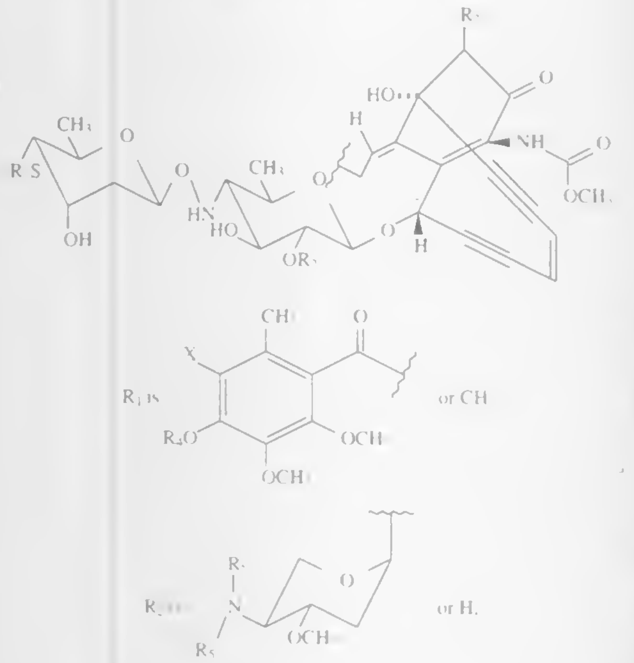


each naphthylidene or phenothiazine optionally substituted with one, two, three, or four groups of $(C_1–C_6)$ alkyl, $(C_1–C_5)$ alkoxy, $(C_1–C_4)$ thioalkoxy, halogen, nitro, COOR', CONHR', $O(CH_2)_nCOOR'$, $S(CH_2)_nCOOR'$, $O(CH_2)_nCONHR'$, or $S(CH_2)_nCONHR'$ wherein n and R' are as defined above, with the proviso that when Ar is naphthylidene, Z^1 is not hydrogen and with the proviso that when Ar is phenothiazine, Sp^1 is a bond only connected to nitrogen;

Sp^2 is a bond, —S—, or —O—, with the proviso that when Alk^2 is a bond, Sp^2 is a bond,

Z^1 is H, $(C_1–C_5)$ alkyl, or phenyl optionally substituted with one, two, or three groups of $(C_1–C_5)$ alkyl, $(C_1–C_4)$ alkoxy, $(C_1–C_4)$ thioalkoxy, halogen, nitro, COOR', CONHR', $O(CH_2)_nCOOR'$, $S(CH_2)_nCOOR'$, $O(CH_2)_nCONHR'$, or $S(CH_2)_nCONHR'$ wherein n and R' are as defined above;

Z^2 is Q-Sp-S-S-W, wherein W is



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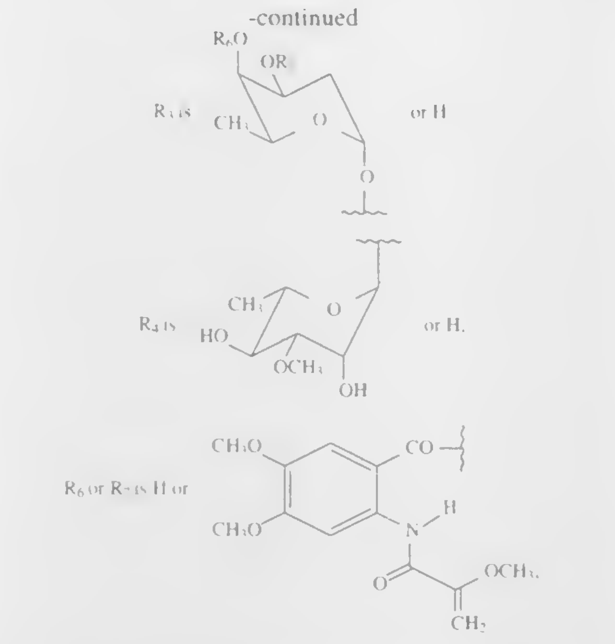


R_5 is $—CH_3$, $—C_2H_5$, or $—CH(CH_3)_2$; X is an iodine or bromine atom; R_5' is a hydrogen or the group RCO, wherein R is hydrogen, branched or unbranched $(C_1–C_{10})$ alkyl or $(C_1–C_{10})$ alkylene group, a $(C_6–C_{11})$ aryl group, a $(C_6–C_{11})$ aryl-alkyl $(C_1–C_5)$ group, or a heteroaryl or heteroaryl- alkyl $(C_1–C_5)$ group wherein heteroaryl is 2- or 3-furyl, 2- or 3-thienyl, 2- or 3-(N-methylpyrrolyl), 2-, 3-, or 4-pyridyl, 2-, 4-, or 5-(N-methylimidizolyl), 2-, 4-, or 5-oxazolyl, 2-, 3-, 5-, or 6-pyrimidinyl, 2-, 3-, 4-, 5-, 6-, 7-, or 8-quinolyl, or 1-, 3-, 4-, 5-, 6-, 7-, or 8-isoquinolyl, all aryl and heteroaryl optionally substituted by one or more hydroxy, amino, carboxy, halo, nitro, lower $(C_1–C_3)$ alkoxy, or lower $(C_1–C_5)$ thioalkoxy groups;

Sp is a straight or branched-chain divalent or trivalent $(C_1–C_{18})$ radical, divalent or trivalent aryl or heteroaryl radical, divalent or trivalent $(C_3–C_{18})$ cycloalkyl or heterocycloalkyl radical, divalent or trivalent aryl- or heteroaryl-alkyl $(C_1–C_{18})$ radical, divalent or trivalent cycloalkyl- or heterocycloalkyl-alkyl $(C_1–C_{18})$ radical or divalent or trivalent $(C_2–C_{18})$ unsaturated alkyl radical, wherein heteroaryl is furyl, thienyl, N-methylpyrrolyl, pyridinyl, N-methylimidazolyl, oxazolyl, pyrimidinyl, quinolyl, isoquinolyl, N-methylcarbazoyl, aminocoumarinyl, or phenazinyl and wherein when Sp is a trivalent radical, Sp may be additionally substituted by lower $(C_1–C_5)$ dialkylamino, lower $(C_1–C_5)$ alkoxy, hydroxy, or lower $(C_1–C_5)$ alkylthio groups;

Q is =NHNCO—, =NHNCS—, =NHNCONH—, =NHNCSNH—, or =NO—.

5,739,117

AGENT FOR IMPROVING CEREBRAL METABOLISM INCLUDING GLUCOSE ESTER DERIVATIVES

Akira Yokoyama, Otu, and Fumio Yoneda, Matsubara, both of Japan, assignors to Fujimoto Pharmaceutical Co., Ltd., Osaka, Japan

PCT No. PCT/JP94/01741, § 371 Date Jul. 19, 1995, § 102(e) Date Jul. 19, 1995, PCT Pub. No. WO95/11031, PCT Pub. Date Apr. 27, 1995

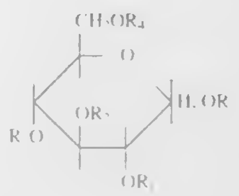
PCT Filed Oct. 17, 1994, Ser. No. 446,587

Claims priority, application Japan, Oct. 22, 1993, 5-298870

Int. Cl.^{6} A61K *31/70*

U.S. Cl. 514—25 **3 Claims**

1. A method for the treatment of cerebral functional disorders resulting from a reduced capacity for active glucose transport through a blood-brain barrier in a patient, which comprises administering to said patient an effective amount of an agent containing as an effective component a glucose ester derivative represented by the formula:



in which the anomeric form is either α or β; each of R–R_4 is selected from the group consisting of H atom, a straight or branched acyl group having 2 to 8 carbon atoms, and a ring containing acyl group, provided that at least one of the said R–R_4 is the acyl group and a pharmaceutically acceptable carrier

5,739,118

COMPOSITIONS AND METHODS FOR DELIVERY OF GENETIC MATERIAL

Richard A. Carrano, Paoli, Pa.; Bin Wang, Beijing, China, and David B. Weiner, Merion, Pa., assignors to Apollon, Inc., Malvern, and The Trustees of the University of Pennsylvania, Philadelphia, both of Pa.

Filed Apr. 1, 1994, Ser. No. 221,579

Int. Cl.^{6} A61K *48/00;* **C07H** *15/24;* **C12N** *15/64; 15/87*

U.S. Cl. 514—44 **23 Claims**

1. A pharmaceutical composition comprising

i) DNA molecules dissociated from infectious agents, said DNA molecules comprising a nucleotide sequence which encodes a protein selected from the group consisting of, a protein which comprises at least one epitope that is identical or substantially similar to an epitope of a pathogen antigen, a protein which comprises an epitope identical or substantially similar to an epitope of a protein associated with hyperproliferating cells, and a protein which comprises an epitope identical or substantially similar to an epitope of a protein associated with cells that characterize an autoimmune disease, and

ii) a saponin

5,739,119

ANTISENSE OLIGONUCLEOTIDES SPECIFIC FOR THE MUSCARINIC TYPE 2 ACETYLCHOLINE RECEPTOR MRNA

Rachel L. Galli, 801 S. Pennsylvania Ave., Mt. Vernon, Ohio 43050; Harris R. Lieberman, 21 Canoe River Rd., Sharon, Mass. 02067, and Richard E. Fine, 113 Jordan Rd., Brookline, Mass. 02146

Filed Nov. 15, 1996, Ser. No. 749,589

Int. Cl.^{6} A61K *48/00;* **C12Q** *1/68*

U.S. Cl. 514—44 **19 Claims**

1. An antisense nucleic acid molecule comprising a segment complementary to a sequence unique to muscarinic type 2 receptor RNA, wherein when administered to a living organism, said antisense molecule is capable of showing a behavioral change

5,739,120

TREATMENT OF VIRAL INFECTIONS BY ADMINISTRATION OF α-[1-(3-ALKYLTHIO-3-DEOXY-2-O-ACYLGLYCERYL)]-ω[5'-(9-ARABINOSYLPURINYL)] DIPHOSPHATES OR PURINE ISOSTERS THEREOF

Woo Hyun Paik, Seoul; Won Sup Shin, Kyungki-Do; Jae Seung Lee, Seoul, and Hee Sang Chai, Kyungki-Do, all of Rep. of Korea, assignors to Boryung Pharmaceutical Co., Ltd., Seoul, Rep. of Korea

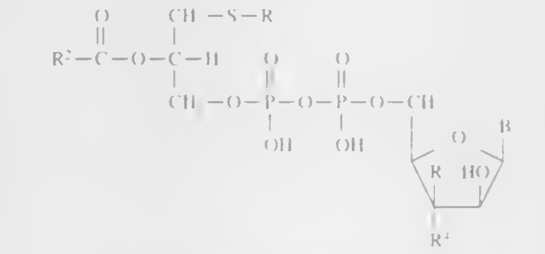
Continuation of Ser. No. 353,291, Dec. 5, 1994, abandoned. This application Apr. 30, 1997, Ser. No. 837,275

Claims priority, application Rep. of Korea, Dec. 4, 1993, 93-26496

Int. Cl.^{6} A61K *31/70*

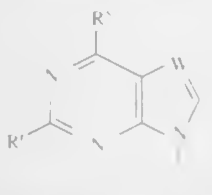
U.S. Cl. 514—47 **9 Claims**

1. A method for treating a viral infection in a patient comprising treating the patient with an effective quantity of a liponucleotide compound of general formula (I)



(I)

wherein R^1 is a saturated or unsaturated alkyl having 6–22 C atoms; R^2 is a saturated or unsaturated alkyl having 12–20 C atoms; R^3 and R^4 are each hydrogen or hydroxy, and B is one of the nucleoside bases of formula (a)



(a)

wherein R^5 is a hydrogen, halogen, hydroxy, amino, mercapto, or $C_1–C_4$ alkyl amino; R^6 is a hydrogen, halogen or amino, W is a nitrogen or C—R^8, where R^8 is hydrogen, halogen, amino or $C_1–C_4$ alkyl; or pharmaceutically acceptable salts thereof, wherein said liponucleotide compounds and said pharmaceutically acceptable salts thereof are antiviral agents

9. The method of treating according to claim 1 wherein the viral infection is a herpes simplex type-1 infection

5,739,121

FLUOROCYCLOSACCHARIDE DRUG DELIVERY SYSTEMS

Leonard I. Wiebe, and James Diakur, both of Edmonton, Canada, assignors to University of Alberta, Edmonton, Canada

Filed Dec. 12, 1994, Ser. No. 354,777

Claims priority, application United Kingdom, Dec. 10, 1993, 9325330

Int. Cl.^{6} A61K *31/175, 51/00;* **C08B** *37/16*

U.S. Cl. 514—58 **25 Claims**

1. A cyclic oligosaccharide compound wherein the saccharide monomers are in pyranoside form, said compound comprising at least two fluorine atoms, each attached to said cyclic oligosaccharide or to a substituent such that no greater than three atoms are positioned between said fluorine atom and said cyclic structure

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5,739,122
DEXTRAN ESTERS, THE PREPARATION THEREOF AND THE USE THEREOF FOR COATING OR EMBEDDING DRUGS

Volker Sebehlmann, Mannheim; Kurt Heinz Bauer, and Jan-Frederic Kesselhut, both of Freiburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/02988, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO95/07936, PCT Pub. Date Mar. 23, 1995

PCT Filed Sep. 7, 1994, Ser. No. 612,975

Claims priority, application Germany, Sep. 17, 1993, 43 31 539.9

Int. Cl.^{6} A61K *31/72;* **C08B** *37/02*

U.S. Cl. 514—59 **7 Claims**

1. A dextran ester with a molecular weight of 60,000–400,000, ester side chains of 8–12 carbon atoms and a degree of esterification of 0.04–1.1, said dextran ester is insoluble in water at room temperature and is capable of being broken down by colonic bacteria.

5,739,123
PHOSPHINIC ACID DERIVATIVES WITH METALLOPEPTIDASE INHIBITORY ACTIVITY

Gabriele Norcini, Vizzola Ticino; Daniela Botta, Como; Francesco Santangelo, Milan, and Gabriele Morazzoni, Lainate, all of Italy, assignors to Zambon Group S.p.A., Vicenza, Italy

PCT No. PCT/EP95/02343, § 371 Date Nov. 27, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO95/35302, PCT Pub. Date Dec. 28, 1995

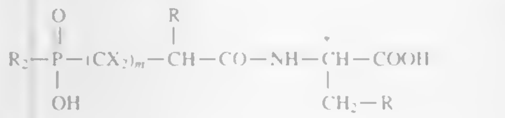
PCT Filed Jun. 16, 1995, Ser. No. 750,035

Claims priority, application Italy, Jun. 21, 1994, MI94A1291

Int. Cl.^{6} A61K *31/66*

U.S. Cl. 514—119 **8 Claims**

1. A compound of formula



$$R_2-\overset{\overset{O}{\|}}{\underset{\underset{OH}{|}}{P}}-(CX_2)_m-\overset{\overset{R}{|}}{CH}-CO-NH-\overset{*}{\underset{\underset{CH_2-R}{|}}{CH}}-COOH \qquad (I)$$

wherein

R is a biphenyl group optionally substituted by one or more substituents, the same or different, selected among halogen atoms, hydroxy groups, alkoxy, alkyl, thioalkyl or alkoxycarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety, C_1–C_3 alkyl groups containing one or more fluorine atoms, carboxy groups, nitro groups, amino or aminocarbonyl groups, acylamino groups, aminosulphonyl groups, mono- or di-alkylamino groups having from 1 to 6 carbon atoms in the alkyl moiety, mono- or di-alkylaminocarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety;

R_1 is a hydrogen atom, a straight or branched C_1–C_6 alkyl group or an arylalkyl group having from 1 to 6 carbon atoms in the alkyl moiety wherein the aryl is a phenyl, a biphenyl, a naphthyl or a 5 or 6 membered aromatic heterocycle with one or two heteroatoms selected among nitrogen, oxygen and sulphur, optionally substituted with one or more substituents, the same or different, selected among halogen atoms, hydroxy groups, alkoxy, alkyl, thioalkyl or alkoxycarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety, C_1–C_3 alkyl groups containing one or more fluorine atoms, carboxy groups, nitro groups, amino or aminocarbonyl groups, acylamino groups, aminosulphonyl groups, mono- or di-alkylamino groups having from 1 to 6 carbon atoms in the alkyl moiety, mono- or di-alkylaminocarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety;

R_2 is a straight or branched C_1–C_6 alkyl group, optionally containing one or more fluorine atoms or one or more —NH— groups, an arylalkyl, an arylcarbonylaminoalkyl, an arylalkylcarbonylaminoalkyl or an arylaminocarbonylalkyl group having from 1 to 6 carbon atoms and optionally one or more —NH— groups in the alkyl moiety, the aryl being optionally substituted by one or more substituents, the same or different, selected among halogen atoms, hydroxy groups, alkoxy, alkyl, thioalkyl or alkoxycarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety, C_1–C_3 alkyl groups containing one or more fluorine atoms, carboxy groups, nitro groups, amino or aminocarbonyl groups, acylamino groups, aminosulphonyl groups, mono- or di-alkylamino groups having from 1 to 6 carbon atoms in the alkyl moiety, mono- or di-alkylaminocarbonyl groups having from 1 to 6 carbon atoms in the alkyl moiety;

m is 0 or 1;

X is a hydrogen or fluorine atom;

the carbon atom marked with an asterisk is an asymmetric carbon atom;

and pharmaceutically acceptable salts thereof.

5,739,124
METHOD OF CONTROLLING MALE FERTILITY

Armelle Bonfils, Paris, and Daniel Philibert, La Varenne Saint Hilaire, both of France, assignors to Roussel Uclaf, France

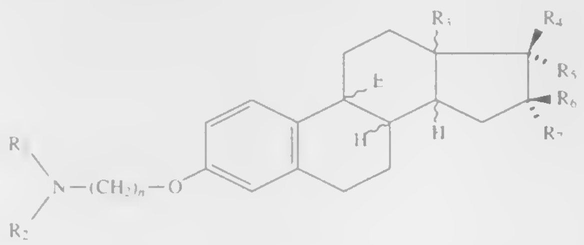
Division of Ser. No. 570,135, Dec. 11, 1995, Pat. No. 5,635,498, which is a division of Ser. No. 401,078, Mar. 8, 1995, Pat. No. 5,554,604. This application Jan. 17, 1997, Ser. No. 785,203

Claims priority, application France, Mar. 24, 1994, 94 03460

Int. Cl.^{6} A61K *31/565;31/57;31/575;31/58*

U.S. Cl. 514—176 **10 Claims**

1. A method of controlling male fertility in warm-blooded animals comprising vaginally administering to female warm-blooded animals an amount of a compound selected from the group consisting of a compound of the formula



I

wherein R_1 and R_2 are individually selected from the group consisting of alkyl of 1 to 8 carbon atoms and benzyl or taken together with the nitrogen form a saturated 5 to 6 ring heterocycle optionally containing a second nitrogen or oxygen in the ring, R_3 is α- or β- methyl, n is ah integer from 2 to 10, R_4 and R_5 together are =0 or R_4 is selected from the group consisting of hydrogen, —OH and acyloxy of an organic carboxylic acid of up to 12 carbon atoms and R_5 is selected from the group ,consisting of hydrogen, —OH, acyloxy of an organic carboxylic acid of up to 12 carbon atoms and alkyl, alkenyl and alkynyl of up to 8 carbon atoms, R_6 and R_7 together are =0 or are individually selected from the group consisting of hydrogen, —OH and acyloxy of an organic carboxylic acid of up to 12 carbon atoms or R_5 and R_6 form a double bond and R_4 and R_7 are hydrogen and their non-toxic, pharmaceutically acceptable acid addition salts in an amount sufficient to bind to the sigma receptor sites and inhibit the influx of calcium into the spermatozoid.

5,739,125
11 BETA-ARYL-GONA-4, 9-DIEN-3-ONES

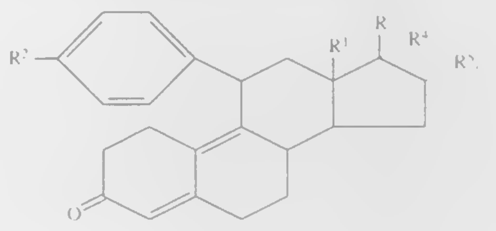
Helmut Kasch; Gudrun Bertram; Kurt Ponsold; Gerd Schubert; Heidemarie Rohrig; Anatoli Kurischko, and Bernd Menzenbach, all of Jena, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

Continuation of Ser. No. 153,558, Nov. 17, 1993, Pat. No. 5,407,928, which is a continuation of Ser. No. 769,271, Oct. 1, 1991, abandoned, which is a continuation of Ser. No. 567,368, Aug. 15, 1990, abandoned. This application Feb. 21, 1995, Ser. No. 391,570

Int. Cl.^{6} A61K *31/56,* **C07J** *1/00;7/00*

U.S. Cl. 514—179 **14 Claims**

1. An 11β-aryl-gona-4,9-diene of formula I



(I)

wherein

A) R^1 is a methyl or ethyl group;

R^2 is a C_{1-7}-alkoxy or -alkenyloxy group; a C_{2-7}-alkylthio or -alkenylthio group, or a C_{3-7}-cycloalkyl or -cycloalkenyl compound; a dimethylamino group; a monomethylamino group; a cyano group; a formyl group; an acetyl group; or a 1-hydroxyethyl group;

R^3 is H or a C_{1-6}-alkoxymethoxy, or C_{1-6}-alkoxy group,

R^4 is ethinyl, prop-1-inyl or 3-hydroyprop-1-inyl; a C_{1-6} 3-alkanoyloxyprop-1 inyl, C -3-alkanoyloxyprop-1-enyl or C_{1-6}-3-alkanoyloxypropyl group; or a 3-hydroxyprop-1-enyl or 3-hydroxypropyl group; and

R^5 is H, or

B) R^1 is a methyl or ethyl group,

R^2 is a methoxy, thiomethyl, dimethylamino, monomethylamino, cyano, formyl, acetyl group or a 1-alkoxyethyl group having 1 to 6 carbon atoms in the alkoxy radical,

R^3 is an alkoxymethyl, alkoxy, 1-alkoxyethyl, alkoxymethyloxy, alkanoyloxy-ethyloxy group having 1 to 6 carbon atoms each in the alkoxy radical, and

R^4 is an ethinyl or prop-1-inyl group; an alkyl, 3 alkoxyprop-1 inyl, 3-hydroxyprop-1-inyl, or 3-alkoxypropyl group with 1 to 4 carbon atoms each in the alkyl or alkoxy radical; or a $-CH_2Y$ group, wherein

Y is a cyano, azido or C_{1-6}-alkoxy radical, and

R^5 is H or a C_{1-4}-alkyl group; or

R^1 is a methyl group;

R^2 is a dimethylamino or a free or ketalized acetyl group,

R^3 is a C_{1-6}-alkoxy group or a C_{1-4}-alkoxymethyloxy or -alkylthiomethyloxy group;

R^4 is an alkoxymethyl group with 1 to 6 carbon atoms in the alkoxy radical; and

R^5 is H.

5,739,126

Patent Not Issued For This Number

5,739,127
2,4'-BRIDGED BIS-2,4-DIAMINOQUINAZOLINES

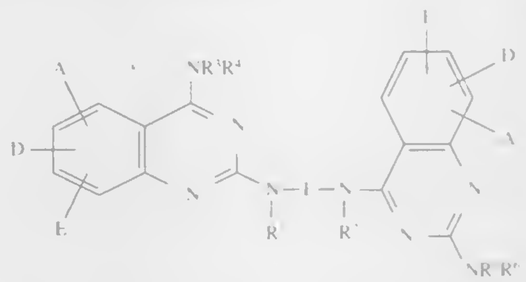
Rudolf Schohe-Loop, Wuppertal; Peter-Rudolf Seidel, Köln; William Bullock; Gabriele Handke, both of Wuppertal; Achim Feurer, Odenthal; Wolfgang Röben, Bergisch Gladbach; Georg Terstappen, Düsseldorf; Joachim Schuhmacher, Wuppertal; Franz-Josef van der Staay, Lohmar/Wahlscheid; Bernard Schmidt, Lindlar, all of Germany; Richard J. Fanelli, Madison, Conn.; Jane C. Chisholm, Clinton, Conn., and Richard T. McCarthy, Madison, Conn., assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Nov. 8, 1996, Ser. No. 745,591

Int. Cl.^{6} C07D *403/02;403/14,* **A61K** *31/535,31/505*

U.S. Cl. 514—218 **7 Claims**

1. A compound of the formula,



(I)

in which

A, A', D, D', E and E' are identical or different and are hydrogen, halogen, hydroxyl, nitro, trifluoromethyl, trifluoromethoxy or linear or branched alkyl or alkoxy, each of which has up to 6 carbon atoms,

L is a linear or branched alkylene chain having up to 12 carbon atoms which is optionally interrupted by an oxygen or sulfur atom or by a group of the formula $-NR^7$,

wherein

R^7 is hydrogen or linear or branched alkyl having up to 4 carbon atoms,

and where the alkylene chain is optionally substituted by up to 3 identical or different substituents selected from the group consisting of hydroxyl, linear or branched alkoxy having up to 5 carbon atoms, aryl or aralkoxy, each of which has up to 10 carbon atoms, and a 5- to 7-membered aromatic, optionally benzo-fused heterocycle having up to 3 heteroatoms selected from the group consisting of S, N and O, wherein said aryl or heterocycle rings are optionally substituted by halogen, hydroxyl, cyano, linear or branched alkoxy having up to 6 carbon atoms, or a radical of the formula $-(NH)_a-CONR^8R^9$,

wherein

R^8 and R^9 are identical or different and are hydrogen or linear or branched alkyl having up to 6 carbon atoms,

and

a is the number 0 or 1,

or

L is a radical of the formula $-(CH_2)_b-T-(CH_2)_c-$,

wherein

b and c are identical or different and are the number 0, 1, 2, 3, 4 or 5,

and

T is cycloalkyl having 3 to 6 carbon atoms, aryl having 6 to 10 carbon atoms or a 3- to 8-membered, saturated or unsaturated, optionally benzo-fused and/or heterocyclically or carbocyclically bridged heterocycle having up to 3 heteroatoms selected from the group consisting of S, N and O, wherein said cycloalkyl, aryl and heterocycle rings are optionally substituted by up to 3 identical of different substituents selected from the group consisting of halogen, cyano, hydroxyl, nitro, carboxyl, linear or branched alkyl, alkoxycarbonyl or alkoxy, each of which has up to 9 carbon atoms, and a radical of the formula $-CO-NR^{10}R^{11}$,

wherein

R^{10} and R^{11} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom

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R^1 and R^2 are identical or different and are hydrogen, phenyl or linear or branched alkyl having up to 6 carbon atoms which is optionally substituted by hydroxyl, halogen or a radical of the formula $—(CO)_dNR^{12}R^{13}$,

wherein

d is the number 0 or 1

and

R^{12} and R^{13} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom,

or

R^1, R^2 and L, together with the two nitrogen atoms, form a 5- to 8-membered, sainted, partially unsaturated or aromatic, optionally also benzo-fused heterocycle having up to 2 heteroatoms selected from the group consisting of O, S and N, wherein said heterocycle ring is optionally substituted via nitrogen atoms by hydroxyl, carboxyl, linear or branched acyl or alkoxycarbonyl, each of which has up to 6 carbon atoms, phenyl or linear or branched alkyl having up to 6 carbon atoms wherein said alkyl group is optionally substituted by hydroxyl, carboxyl, ureido, linear or branched alkoxy, acylamino or alkoxycarbonyl, each of which has up to 5 carbon atoms, or a group of the formula $—(CO)_eNR^{14}R^{15}$,

wherein

e is the number 0 or 1

and

R^{14} and R^{15} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom,

and/or the heterocycle formed by R^1, R^2 and L is optionally substituted by a radical of the formula $—(CO)_f—NR^{16}R^{17}$,

wherein

f is as defined above for d and is identical thereto or different therefrom,

and

R^{16} and R^{17} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom,

or, in the case where b is the number 0 and c is as defined above, or c is the number 0 and b is as defined above, T and R^1 or respectively, T and R^2, in each case together with the nitrogen atom, form a 3- to 8-membered, optionally benzo-fused and/or heterocyclically or carbocyclically bridged, saturated heterocycle ring having up to 2 heteroatoms selected from the group consisting of S, N and O,

and

R^3, R^4, R^5 and R^6 are identical or different and are hydrogen, phenyl, benzyl or linear or branched alkyl having up to 8 carbon atoms, both the rings and the alkyl optionally being substituted by up to 3 identical or different substituents selected from the group consisting of carboxyl, phenyl, hydroxyl, halogen and a radical of the formula $—(CO)_g—NR^{18}R^{19}$,

wherein

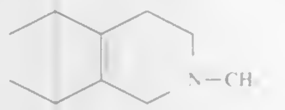
g is the number 0 or 1

and

R^{18} and R^{19} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom,

or

R^3 and R^4 and/or R^5 and R^6, in each case together with the nitrogen atom, form a radical of the formula



or R^3 and R^4 and/or R^5 and R^6 form a 5- and 7-membered saturated optionally substituted heterocycle ring which optionally contains a further heteroatom selected from the group consisting of S and O, or a radical of the formula $—NR^{20}$,

wherein

R^{20} is hydrogen or a linear or branched alkyl chain having up to 6 carbon atoms which is optionally substituted by up to 3 identical or different substituents selected from hydroxyl, linear or branched alkoxy having up to 5 carbon atoms, halogen, cyano and a radical of the formula $—(CO)_hNR^{21}R^{22}$,

wherein

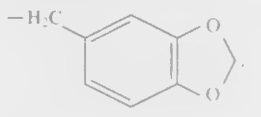
h is the number 0 or 1

and

R^{21} and R^{22} are identical or different and are hydrogen or linear or branched alkyl having up to 6 carbon atoms,

or

R^{20} is cycloalkyl having 3 to 8 carbon atoms, phenyl or a radical of the formula



where optionally substituted heterocycle rings are optionally substituted by up to 3 identical or different substituents selected from the cycloalkyl having 3 to 6 carbon atoms, carboxyl, phenyl, linear or branched alkoxycarbonyl having up to 6 carbon atoms, and a group of the formula $—CO—NR^{23}R^{24}$,

wherein

R^{23} and R^{24} are identical or different, are as defined above for R^8 and R^9 and are identical thereto or different therefrom,

and/or is optionally substituted by linear or branched alkyl having up to 6 carbon atoms which is optionally substituted by phenoxy, which in turn can be substituted by up to 3 identical or different halogens,

and/or is optionally substituted by linear or branched alkoxy having up to 6 carbon atoms which in turn is optionally substituted by a 5- to 7-membered aromatic, optionally also benzo-fused heterocycle having up to 2 heteroatoms selected from the group consisting of S, N and O,

or a salt thereof.

5,739,128

TRICYCLIC BENZAZEPINE VASOPRESSIN ANTAGONISTS

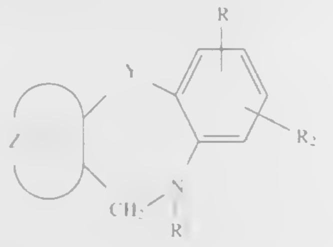
Jay Donald Albright, Nanuet; Marvin Fred Reich, Suffern; Fuk-Wah Sum, Pomona, and Xuemei Du, Valley Cottage, all of N.Y., assignors to American Cyanamid Company, Madison, N.J.

Continuation-in-part of Ser. No. 254,823, Jun. 13, 1994, Pat. No. 5,512,563, which is a continuation-in-part of Ser. No. 100,003, Jul. 29, 1993, abandoned. This application Apr. 24, 1996, Ser. No. 637,058

Int. Cl.⁶ A61K *31/55*, **C07D** *223/00;243/10*

U.S. Cl. 514—220 **75 Claims**

1. A compound selected from Formula I:



Formula I

wherein,

the moiety

represents fused phenyl or fused substituted phenyl optionally substituted by one or two substituents selected from $(C_1–C_3)$ lower alkyl, halogen, amino, $(C_1–C_3)$ lower alkoxy, or $(C_1–C_3)$ lower alkylamino;

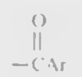
Y is selected from NH, $NCOCH_3$, or N-lower alkyl $(C_1–C_3)$;

R_1 is H, halogen (chlorine, fluorine, lyremine, iodine), OH, —S-lower alkyl $(C_1–C_3)$, —SH, —SO lower alkyl $(C_1–C_3)$, $—SO_2$ lower alkyl $(C_1–C_3)$, —CO lower alkyl $(C_1–C_3)$, $—CF_3$, lower alkyl $(C_1–C_3)$, —O lower alkyl $(C_1–C_3)$, $—NO_2$, $—NH_2$, —NHCO lower alkyl $(C_1–C_3)$, —N-[lower alkyl $(C_1–C_3)]_2$, SO_2NH_2, $—SO_2NH$ lower alkyl $(C_1–C_3)$, or $—SO_2N$[lower alkyl $(C_1–C_3)]_2$;

R_2 is H, Cl, Br, I, F, —OH, lower alkyl $(C_1–C_3)$, —O lower alkyl $(C_1–C_3)$; or

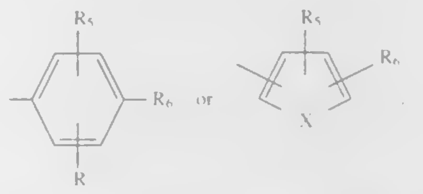
R_1 and R_2 taken together are methylenedioxy or ethylenedioxy,

R_3 is the moiety



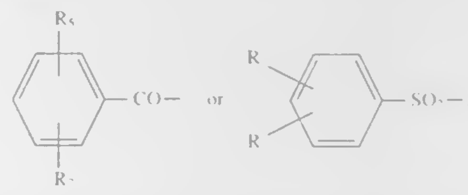
$$\overset{\overset{\displaystyle O}{\|}}{—CAr}$$

wherein Ar is a moiety selected from the group



and X is selected from O, S, $—NCH_3$, or $—N—COCH_3$;

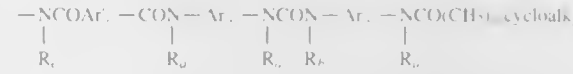
R_4 is selected from H, lower alkyl $(C_1–C_3)$, —CO-lower alkyl $(C_1–C_3)$, SO_2 lower alkyl $(C_1–C_3)$, or the moieties of the formulae,



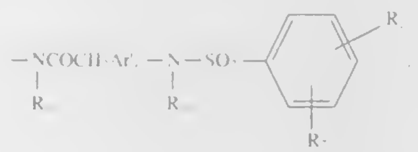
R_5 is H, $—CH_3$, $—C_2H_5$, Cl, Br, F, $—O—CH_3$, or $—O—C_2H_5$;

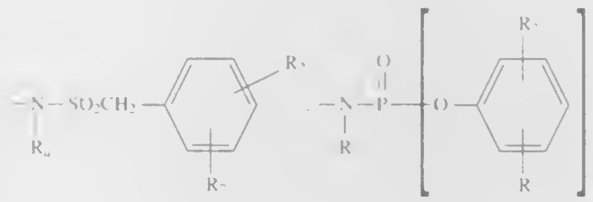
R_6 is selected from,

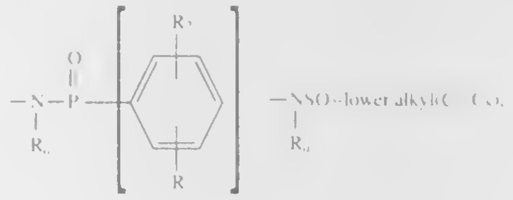
(a) moieties of the formula:



$$\underset{\displaystyle R_a}{—\underset{|}{N}COAr'},\ —CO\underset{\underset{\displaystyle R_a}{|}}{N}—Ar',\ —\underset{\underset{\displaystyle R_a}{|}}{N}CO\underset{\underset{\displaystyle R_b}{|}}{N}—Ar',\ —\underset{\underset{\displaystyle R_a}{|}}{N}CO(CH_2)_n\text{-cycloalkyl},$$







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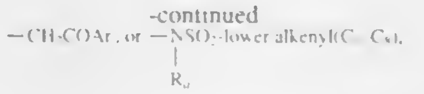


$$—CH_2COAr',\ \text{or}\ \underset{\displaystyle R_a}{—\underset{|}{N}SO_2\text{-lower alkenyl}(C_2–C_8)},$$

wherein

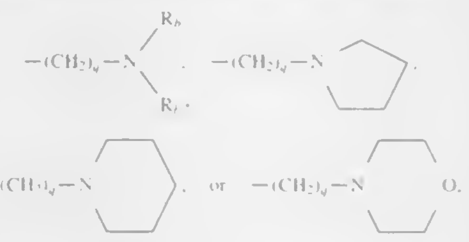
cycloalkyl is defined as $C_3–C_6$ cycloalkyl, cyclohexenyl or cyclopentenyl;

R_2 is as hereinbefore defined,

n is 0–2;

R_7 is H, $—CH_3$, $—C_2H_5$, Cl, Br, F, $—OCH_3$, $—OC_2H_5$, or $—CF_3$;

R_a is hydrogen, CH_3, C_2H_5, moieties of the formulae

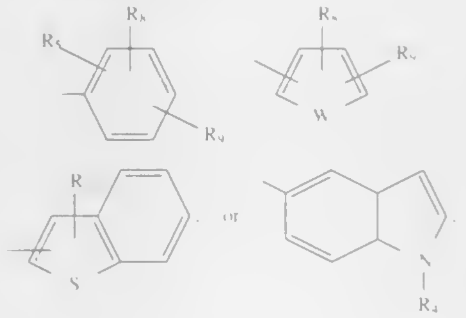


$—(CH_2)_2—$O-lower alkyl $(C_1–C_3)$ or $—CH_2CH_2OH$,

q is one or two;

R_b is hydrogen, $—CH_3$ or $—C_2H_5$,

Ar' is selected from the group:



wherein

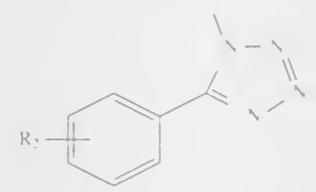
R_4, R_5 are as hereinbefore defined;

R_8 and R_9 are independently hydrogen, lower alkyl $(C_1–C_3)$, O-lower alkyl $(C_1–C_3)$, S-lower alkyl $(C_1–C_3)$, $—CF_3$, —CN, —OH, $—SCF_3$, $—OCF_3$, halogen, NO_2, amino, or —NH-lower alkyl $(C_1–C_3)$;

R_{10} is selected from halogen, hydrogen, or lower alkyl $(C_1–C_3)$;

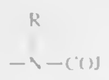
W' is selected from O, S, NH, N-lower alkyl $(C_1–C_3)$, —NCO-lower alkyl $(C_1–C_3)$, or NSO_2-lower alkyl $(C_1–C_3)$, or

(b) a moiety of the formula



where R_2 is as hereinbefore defined,

(c) a moiety of the formula



$$\overset{\displaystyle R_a}{\overset{|}{—N}}—COJ$$

wherein J is R_a, lower alkyl $(C_1–C_8)$ branched or unbranched, lower alkenyl $(C_2–C_8)$ branched or unbranched, —O-lower alkyl $(C_1–C_8)$ branched or unbranched, —O-lower alkenyl $(C_2–C_8)$ branched or unbranched, tetrahydrofuran, tetrahydrothiophene, or $—CH_2—K$ wherein K is halogen, —OH tetrahydrofuran,

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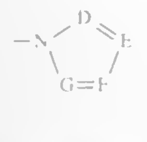
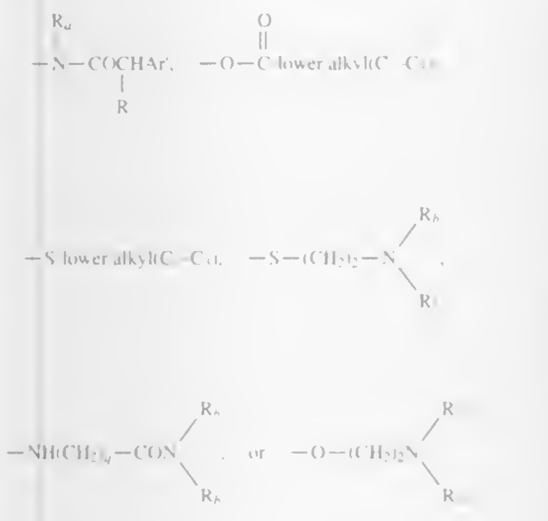
tetrahydrothiophene or the heterocyclic ring moiety



wherein D, E, F and G are selected from carbon or nitrogen and wherein the carbon atoms may be optionally substituted with halogen, (C_1-C_3)lower alkyl, hydroxy, —CO-lower alkyl (C_1-C_3), CHO, (C_1-C_3)lower alkoxy, or —CO_2lower alkyl (C_1-C_3), and R_a and R_b are as hereinbefore defined;

(d) a moiety selected from those of the formulae



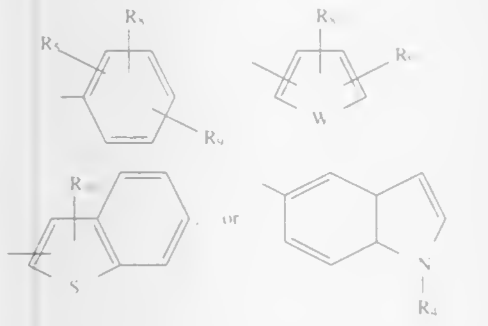
wherein

R_c is selected from halogen, (C C) lower alkyl, —O lower alkyl (C_1-C_3) or OH,

R_b is as hereinbefore defined

q is 1 or 2;

wherein Ar' is selected from the group



R_7 is hydrogen, —CH_3, C_2H_5, Cl, Br, F, —OCH_3, —OC_2H_5, or —CF_3;

R_8 and R_9 are independently hydrogen, lower alkyl (C C), O-lower alkyl (C_1-C_3), S lower alkyl (C_1-C_3), —CF_3, —CN, —OH, —SCF_3, —OCF_3, halogen, NO_2, amino, or —NH lower alkyl (C_1-C_3),

R_{10} is selected from the group of halogen, hydrogen, or lower alkyl (C_1-C_3),

W' is selected from O, S, NH, N-lower alkyl (C_1-C_3), —NCO lower alkyl (C_1-C_3), or NSO_2-lower alkyl (C_1-C_3);

or a pharmaceutically acceptable salt, ester or prodrug thereof

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5,739,129

CCK OR GASTRIN MODULATING 5-HETEROCYCLIC-1, 5 BENZODIAZEPINES

Christopher Joseph Aquino, Long Beach, Wash.; Elizabeth Ellen Sugg, Durham, and Jerzy Ryszard Szewczyk, Chapel Hill, both of N.C., assignors to Glaxo Wellcome Inc., RTP, N.C.

PCT No. PCT/US95/04163, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO95/28419, PCT Pub. Date Oct. 26, 1995

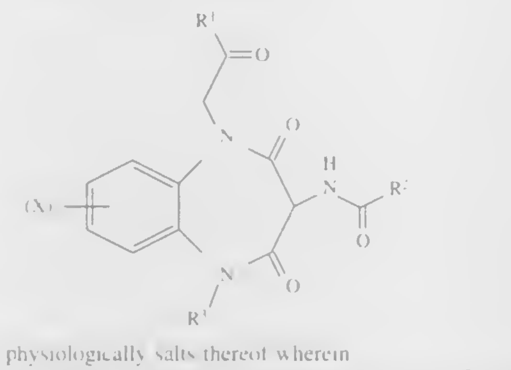
PCT Filed Apr. 12, 1995, Ser. No. 722,191

Claims priority, application United Kingdom, Apr. 14, 1994, 9407433; Oct. 14, 1994, 9420783

Int. Cl.⁶ A61K *31/55*

U.S. Cl. 514—221 **17 Claims**

1. A compound of the formula (I)

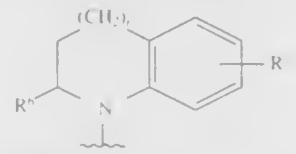


(I)

and physiologically salts thereof wherein

X is either hydrogen, trifluoromethyl, alkyl C_{1-4}alkylthio, —$O(C_{1-4}alkyl)$ or halogen.

R^1 is either Formula II or —NR^4R^5;



(II)

R^2 is either

(1) a heterocycle linked at its 2-position and selected from pyrrole, tetrahydropyrrole, indole, benzofuran, thiophene, benzothiophene, indoline, quinoline or 4-oxobenzopyran and wherein said pyrrole, tetrahydropyrrole, indole or indoline may optionally be substituted on the ring nitrogen thereof by the group R^8 as defined hereunder and said indole, indoline, quinoline, benzofuran, benzothiophene or 4 oxobenzopyran may optionally be substituted in the benzo ring thereof by the group R^9 as defined hereunder or

(2) phenyl or phenyl mono- or disubstituted independently with halogen, hydroxy, cyano, carboxy, —$O(C_{1-4}alkyl)$, —$O(CH_2C_6H_5)$, —$COO(C_{1-4}alkyl)$, amino, dimethylamino, —NHR^{11}, 1-pyrrolidinyl or tetrazolyl; or

(3) pyridine or pyridinyl mono- or disubstituted independently with halogen, methyl, hydroxy, nitro, cyano, carboxy, —$O(C_{1-4}alkyl)$, —$O(CH_2C_6H_5)$, —$COO(C_{1-4}alkyl)$, amino or dimethylamino; or

(4) —NHR^{11} where R^{11} is defined hereinunder or R^{11} is 7-indazolyl containing a group R^{10} at the N-1 position;

R^3 is a heterocyclic group (attached to the rest of the molecule via a carbon atom ring member thereof), selected from pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, furanyl, thiophenyl, pyrrolyl, oxazolyl, thiazolyl, imidazolyl, pyrazolyl, isoxazolyl, isothiazolyl, oxadiazolyl, thiazolyl, thiadiazole, pyrrolidinyl, piperidinyl, morpholinyl or thiomorpholinyl which heterocyclic groups may be substiuted with up to 3 substituents which may be the same or different and selected from halogen, C_{1-4}alkyl, nitro, carboxyl, C_{1-4}alkoxycarbonyl, C_{1-4}alkoxy, C_{1-4}alkylthio, amino, C_{1-4}alkylamino or di(C_{1-4}alkyl)amino;

R^4 is independently C_{3-6}alkyl, C_{3-6}cycloalkyl, C_{3-6}alkenyl, phenyl, —$(CH_2)_p$CN or —$(CH_2)_p$$COO(C_{1-4}alkyl)$ and R^5 is independently C_{3-6}alkyl, C_{3-6}cycloalkyl, C_{3-6}alkenyl, benzyl, phenyl or phenyl mono- or disubstituted independently with C_{1-3}alkyl optionally substituted by one or more fluorine atoms, cyano, hydroxy, dimethylamino, —$O(C_{1-4}alkyl)$, —$O(CH_2C_6H_5)$, —$NH(C_{1-4}alkyl)$, —$COO(C_{1-4}alkyl)$, —$N(C_{1-4}alkyl)_2$ pyrrolidino, morpholino or halogen or R^4 is C_{1-2}alkyl and R^5 is phenyl substituted at the 2- or 4- position with chloro, methyl, methoxy or methoxycarbonyl;

R^6 is hydrogen or methyl;

R^7 is hydrogen, hydroxy, fluoro, dimethylamino, —$O(C_{1-4}alkyl)$ or —$O(CH_2C_6H_5)$;

R^8 is —$(CH_2)_b$COOH;

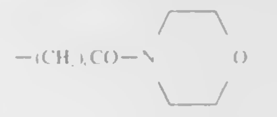
R^9 is methyl, chloro, nitro, hydroxy, methoxy or —NHR^{10};

R^{10} is hydrogen, acetyl, C_{1-4}alkyl, —SO_3H, —SO_2CH_3, —SO_2CF_3 or —$SO_2C_6H_5$, C_{1-4}alkoxycarbonyl;

R^{11} is phenyl or phenyl mono- or disubstituted independently with fluorine, trifluoromethoxy, C_{1-4}alkylthio, —$(CH_2)_c$COOH, —$(CH_2)_c$$COO(C_{1-4}alkyl)$, —$(CH_2)_c$$SCH_3$, —$(CH_2)_c$$SOCH_3$, —$(CH_2)_c$$SO_2CH_3$, —$(CH_2)_c$$CONH_2$, —$SCH_2COOH$, —$CONH(SO_2CH_3)$, —$CONH(SO_2CF_3)$, —$(CH_2)_c$$N(C_{1-4}alkyl)_2$, —$(CH_2)_c$ (SO_2CF_3), —$(CH_2)_c$$N(SO_2CF_3)(C_{1-4}alkyl)$, —$(CH_2)_c$$SO_2NHCO(C_{1-4}alkyl)$, —$(CH_2)_c$ $SO_2N(C_{1-4}alkyl)CO(C_{1-4}alkyl)$, —$(CH_2)_c$$CONHSO_2(C_{1-4}alkyl)$, —$(CH_2)_c$$CON(C_{1-4}alkyl)SO_2(C_{1-4}alkyl)$, —$(CH_2)_c$$OR^{12}$—$(CH_2)_c$$NHR^{10}$ or phenyl monosubstituted with —$(CH_2)_c$(tetrazolyl), —$(CH_2)_c$(carboxamidotetrazolyl) or —$(CH_2)_c$(pyrrolidinyl) or

R^{11} is selected from pyridine or pyridinyl mono- or disubstituted independently with halogen, methyl, hydroxy, nitro, cyano, carboxy, —$O(C_{1-4}$ alkyl), amino, dimethylamino, —NHR^{10};

R^{12} is hydrogen, C_{1-6}alkyl, C_{3-6}cycloalkyl, —$CH_2C_6H_5$, —CH_2COOH, —CH_2CONH_2, —$CH_2CONH(C_{1-4}alkyl)$, —$CH_2CON(C_{1-4}alkyl)_2$ or



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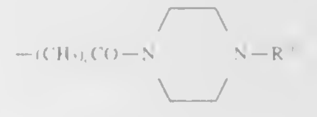


z is 1 or 2;

n is 1 or 2;

p is an integer from 1–4;

b is an integer from 0–3; and

c is 0 or 1.

12. A method of treatment of a mammal including man for conditions where modulation of the effects of gastrin and/or CCK is of a therapeutic benefit comprising administration of an effective amount of a compound according to claim 1

5,739,130

HETEROTRICYCLIC DERIVATIVES, PROCESS FOR THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Masaaki Matsuo, Toyonaka; Kiyoshi Tsuji, Kishiwada; Katsuya Nakamura, Takatsuki, and Glen W. Spears, Ikeda, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

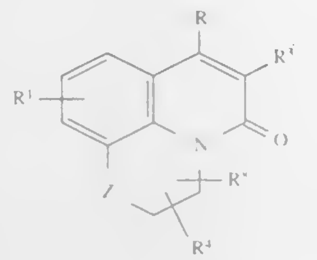
Division of Ser. No. 256,621, Jul. 26, 1994, Pat. No. 5,583,135. This application Sep. 4, 1996, Ser. No. 707,757

Claims priority, application United Kingdom, Jan. 27, 1992, 9201836; Nov. 16, 1992, 9224012

Int. Cl.⁶ C07D *513/06; 498/06;* **A61K** *31/535, 31/54*

U.S. Cl. 514—224.5 **12 Claims**

1. A compound of the formula



wherein

R^1 is hydrogen, lower alkyl, lower alkoxy, lower alkylthio, halogen, nitro, amino or acylamino,

wherein an acyl group of said acylamino is selected from the group consisting of carbamoyl, lower alkanoyl, higher alkanoyl, lower alkoxycarbonyl, higher alkoxycarbonyl, lower alkylsulfonyl, higher alkylsulfonyl, lower alkoxysulfonyl, higher alkoxysulfonyl, aroyl, ar(lower)alkanoyl, ar(lower)alkenoyl, ar(lower)alkoxycarbonyl, aryloxycarbonyl, aryloxy(lower)alkanoyl, arylglyoxyloyl, arenesulfonyl, heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl, wherein a heterocyclic group of said heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl is selected from the group consisting of pyrrolyl, pyrrolinyl, imidazolyl, pyrazolyl, pyridyl, dihydropyridyl, pyrimidyl, pyrazinyl, pyridazinyl, triazolyl, tetrazolyl, pyrrolidinyl, imidazolidinyl, piperidyl, piperazinyl, indolyl, isoindolyl, indolinyl, indolizinyl, benzimidazolyl, quinolyl, tetrahydroquinoyl, isoquinolyl, tetrahydroisoquinolyl, indazolyl, quinoxalinyl, tetrahydroquinoxalinyl, benzotriazolyl, oxazolyl, isoxazolyl, oxadiazolyl, morpholinyl, syndonyl, benzoxazolyl, benzoxadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, thiazolyl, isothiazolyl, thiadiazolyl, dihydrothiazinyl, thiazolidinyl, thienyl, dihydrodithiinyl dihydrodithionyl, benzothiazolyl, benzothiadiazolyl, benzothiazinyl, dihydrobenzothiazinyl, furyl, dihydrooxathiinyl, benzothienyl, benzodithiinyl and benzoxathiinyl;

R^2 is hydroxyl, acyloxy, halogen, amino or acylamino,

wherein an acyl group of said acylamino and said acyloxy are selected from the group consisting of carbamoyl, lower alkanoyl, higher alkanoyl, lower alkoxycarbonyl, higher alkoxycarbonyl, lower alkylsulfonyl, higher alkylsulfonyl, lower alkoxysulfonyl, higher alkoxysulfonyl, aroyl, ar(lower)alkanoyl, ar(lower)alkenoyl, ar(lower)alkoxycarbonyl, aryloxycarbonyl, aryloxy(lower)alkanoyl, arylglyoxyloyl, arenesulfonyl, heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl, heterocyclicglyoxyloyl, wherein a heterocyclic group of said heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl is selected from the group consisting of pyrrolyl, pyrrolinyl, imidazolyl, pyrazolyl, pyridyl, dihydropyridyl, pyrimidyl, pyrazinyl, pyridazinyl, triazolyl, tetrazolyl, pyrrolidinyl, imidazolidinyl, piperidyl, piperazinyl, indolyl, isoindolyl, indolinyl, indolizinyl, benzimidazolyl, quinolyl, tetrahydroquinolyl, isoquinolyl, tetrahydroisoquinolyl, indazolyl, quinoxalinyl, tetrahydroquinoxalinyl, benzotriazolyl, oxazolyl, isoxazolyl, oxadiazolyl, morpholinyl, syndonyl, benzoxazolyl, benzoxadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, thiazolyl, isothiazolyl, thiadiazolyl, dihydrothiazinyl, thiazolidinyl, thienyl, dihydrodithiinyl, dihydrodithionyl, benzothiazolyl, benzothiadiazolyl, benzothiazinyl, dihydrobenzothiazinyl, furyl, dihydrooxathiinyl, benzothienyl, benzodithiinyl and benzoxathiinyl.

R^3 is hydrogen, lower alkyl, lower alkenyl, lower alkynyl, aryl, ar(lower)alkyl, carboxyl, aliphatic acyl selected from the group consisting of carbamoyl, lower alkanoyl, higher alkanoyl, lower alkoxycarbonyl, higher alkoxycarbonyl, lower alkylsulfonyl, higher alkylsulfonyl, lower alkoxysulfonyl and higher alkoxysulfonyl, aromatic acyl selected from the group consisting of aroyl, ar(lower)alkanoyl, ar(lower)alkenoyl, ar(lower)alkoxycarbonyl, aryloxycarbonyl, aryloxy(lower)alkanoyl, arylglyoxyloyl and arenesulfonyl, heterocyclic acyl which may be substituted with one to ten substituent(s) selected from the group consisting of halogen, nitro, lower alkyl, lower alkoxy, carboxy and esterified carboxy, wherein

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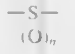
said heterocyclic acyl is selected from the group consisting of heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl, wherein a heterocyclic group of said heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl is selected from the group consisting of pyrrolyl, pyrrolinyl, imidazolyl, pyrazolyl, pyridyl, dihydropyridyl, pyrimidyl, pyrazinyl, pyridazinyl, triazolyl, tetrazolyl, pyrrolidinyl, imidazolidinyl, piperidyl, piperazinyl, indolyl, isoindolyl, indolinyl, indolizinyl, benzimidazolyl, quinolyl, tetrahydroquinolyl, isoquinolyl, tetrahydroisoquinolyl, indazolyl, quinoxalinyl, tetrahydroquinoxalinyl, benzotriazolyl, oxazolyl, isoxazolyl, oxadiazolyl, morpholinyl, syndonyl, benzoxazolyl, benzoxadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, thiazolyl, isothiazolyl, thiadiazolyl, dihydrothiazinyl, thiazolidinyl, thienyl, dihydrodithiinyl, dihydrodithionyl, benzothiazolyl, benzothiadiazolyl, benzothiazinyl, dihydrobenzothiazinyl, furyl, dihydrooxathiinyl, benzothienyl, benzodithiinyl and benzoxathiinyl, carbamoyl or substituted carbamoyl substituted with one or two substituent selected from the group consisting of lower alkyl, heterocyclic group selected from the group consisting of pyrrolyl, pyrrolinyl, imidazolyl, pyrazolyl, pyridyl, dihydropyridyl, pyrimidyl, pyrazinyl, pyridazinyl, triazolyl, tetrazolyl, pyrrolidinyl, imidazolidinyl, piperidyl, piperazinyl, indolyl, isoindolyl, indolinyl, indolizinyl, benzimidazolyl, quinolyl, tetrahydroquinolyl, isoquinolyl, tetrahydroisoquinolyl, indazolyl, quinoxalinyl, tetrahydroquinoxalinyl, benzotriazolyl, oxazolyl, isoxazolyl, oxadiazolyl, morpholinyl, syndonyl, benzoxazolyl, benzoxadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, thiazolyl, isothiazolyl, thiadiazolyl, dihydrothiazinyl, thiazolidinyl, thienyl, dihydrodithiinyl, dihydrodithionyl, benzothiazolyl, benzothiadiazolyl, benzothiazinyl, dihydrobenzothiazinyl, furyl, dihydrooxathiinyl, benzothienyl, benzodithiinyl and benzoxathiinyl, cyclo(lower)alkyl, aryl, haloaryl, lower alkythioaryl, lower alkylsulfinylaryl, acylaryl wherein an acyl group of said acylaryl is selected from the group consisting of carbamoyl, lower alkanoyl, higher alkanoyl, lower alkoxycarbonyl, higher alkoxycarbonyl, lower alkylsulfonyl, higher alkylsulfonyl, lower alkoxysulfonyl, higher alkoxysulfonyl, aroyl, ar(lower)alkanoyl, ar(lower)alkenoyl, ar(lower)alkoxycarboyl, aryloxycarbonyl, aryloxy(lower)alkanoyl, arylglyoxyloyl, arenesulfonyl, heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyloyl, wherein a heterocyclic group of said heterocycliccarbonyl, heterocyclic(lower)alkanoyl, heterocyclic(lower)alkenoyl and heterocyclicglyoxyleyl is selected from the group consisting of pyrrolyl, pyrrolinyl, imidazolyl, pyrazolyl, pyridyl, dihydropyridyl, pyrimidyl, pyrazinyl, pyridazinyl, triazolyl, tetrazolyl, pyrrolidinyl, imidazolidinyl, piperidyl, piperazinyl, indolyl, isoindolyl, indolinyl, indolizinyl, benzimidazolyl, quinolyl, tetrahydroquinolyl, isoquinolyl, tetrahydroisoquinolyl, indazolyl, quinoxalinyl, tetrahydroquinoxalinyl, benzotriazolyl, oxazolyl, isoazolyl, oxadiazolyl, morpholinyl, syndonyl, benzoxazolyl, benzoxadiazolyl, benzoxazinyl, dihydrobenzoxazinyl, thiazolyl, isothiazolyl, thiadiazolyl, dihydrothiazinyl, thiazolidinyl, thienyl, dihydrodithiinyl, dihydrodithionyl, benzothiazolyl, benzothiadiazolyl, benzothiazinyl, dihydrobenzothiazinyl, furyl, dihydrooxathiinyl, benzothienyl, benzodithiinyl and benzoxathiinyl, and ar(lower)alkyl;

R^4 is hydrogen or lower alkyl;

R^8 is hydrogen or lower alkyl, and

—Z— is a group of the formula:



$$-\underset{(O)_n}{S}-$$

wherein n is 0, 1, or 2;

or a pharmaceutically acceptable salt thereof.

5,739,131

BENZENE DERIVATIVES AND PHARMACEUTICAL COMPOSITION

Mikiro Yanaka, Matsudo; Fuyuhiko Nishijima, Tokyo; Hiroyuki Enari, Tokyo; Toshikazu Dewa, Tokyo; Toru Yamazaki, Tokyo, and Michihito Ise, Kawagoe, all of Japan, assignors to Kureha Chemical Industry Co., Ltd., Tokyo, Japan

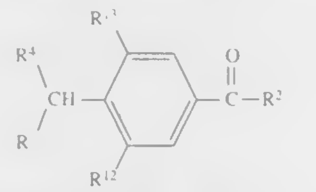
Division of Ser. No. 457,147, Jun. 1, 1995, Pat. No. 5,696,118. This application Apr. 30, 1997, Ser. No. 841,621

Claims priority, application Japan, Jun. 1, 1994, 6-142276

Int. Cl.⁶ A61K *31/535;* C07D *295/192*

U.S. Cl. 514—237.5 **8 Claims**

1. A benzene derivative of the formula (I):



(I)

wherein R^1 is hydrogen, alkyl of 1 to 6 carbon atoms or haloalkyl of 1 to 6 carbon atoms; R^2 is hydroxyl, $—OR^{22}$, three-membered to seven-membered saturated cycloaliphatic amino group which may be interrupted by one or more nitrogen, oxygen or sulfur atoms, $—NHR^{23}$, $—N(R^{24})_2$ or $—NH_2$; R^4 is hydrogen or alkyl of 1 to 6 carbon atoms; R^{12} is $—R^{11}—R^5—$; R^{11} is $—NH—$, $—N(R^{26})—$, $—N(C(=O)R^{27})—$, $—N(C(=O)NH_2)—$ or $—N(C(=O)NHR^{28})—$; R^{13} is hydrogen atom, alkyl of 1 to 6 carbon atoms or haloalkyl of 1 to 6 carbon atoms; R^5 is $—CH_2C_6H_4COOH$, $—CH_2C_6H_4COOR^{31}$, $—CH_2C_6H_4OH$, $—CH_2C_6H_4OR^{32}$, $—CH_2C_6H_4NH_2$, $—CH_2C_6H_4N(R^{33})_2$, $—CH_2C_6H_4$-azole or $—CH_2C_6H_4NHR^{34}$; and R^{22}, R^{23}, R^{24}, R^{26}, R^{27}, R^{28}, R^{31}, R^{32}, R^{33} and R^{34} are independently an alkyl of 1 to 6 carbon atoms or haloalkyl group of 1 to 6 carbon atoms; or a salt thereof.

5,739,132

PYRIDAZINONE DERIVATIVES AND PROCESSES FOR PREPARING THE SAME

Akihiko Ishida, Urawa; Koichi Homma, Itabashi-ku; Harumichi Kono; Koji Tamura, both of Omiya, and Yasuhiko Sasaki, Urawa, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

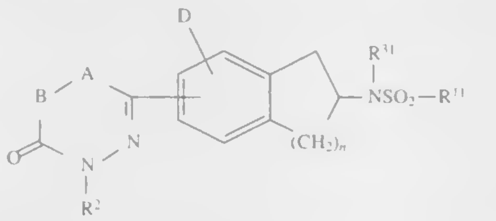
Continuation of Ser. No. 83,489, Jun. 30, 1993, abandoned. This application Dec. 16, 1996, Ser. No. 767,444

Claims priority, application Japan, Jul. 2, 1992, 4-215354; Jul. 2, 1992, 4-215355

Int. Cl.⁶ A61K *31/50*

U.S. Cl. 514—247 **9 Claims**

1. A pyridazinone compound represented by the formula (I-a):



(I-a)

wherein,

R^2 is a hydrogen atom or a lower alkyl group which may be substituted by a phenyl group;

R^{11} is an alkyl group having 1 to 10 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms, or a lower alkenyl group; R^{31} represents a hydrogen atom or a lower alkyl group; —A—B— is an ethylene group or a vinylene group, each of which may be substituted by 1 or 2 methyl groups or phenyl groups; n is 1; and

D represents a hydrogen atom; or a pharmaceutically acceptable salt thereof.

5,739,133

PYRIDAZINEDIONE COMPOUNDS USEFUL IN TREATING NEUROLOGICAL DISORDERS

Thomas Michael Bare, West Chester, and Richard Bruce Sparks, Linwood, both of Pa., assignors to Zeneca Limited, London, England

Continuation of Ser. No. 421,133, Apr. 13, 1995, Pat. No. 5,604,227, which is a continuation of Ser. No. 156,659, Nov. 22, 1993, abandoned, which is a continuation of Ser. No. 880,965, May 8, 1992, abandoned. This application Aug. 15, 1996, Ser. No. 700,654

Claims priority, application United Kingdom, May 9, 1991, 9109973; Feb. 13, 1992, 9202991

Int. Cl.⁶ A61K *31/50;* C07D *471/14*

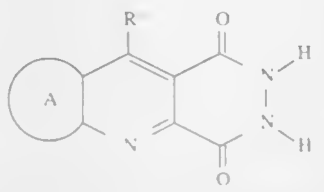
U.S. Cl. 514—248 **6 Claims**

1. A method for the treatment of stroke, hypoglycemia, ischemic attack, anoxia, and epilepsy comprising administering to a mammal in need of such treatment an effective amount of compound obtained by mono-, di-, or tri-acylating at a ring amino, hydrazino, hydroxy, thiohydroxy, or oxo-oxygen substituent or a ring nitrogen a compound of formula I with an acylating agent having the formula $R^{x}COX'$, or a pharmaceutically acceptable salt thereof, wherein X' is a conventional leaving group and wherein R^{x} is selected from

- (1) hydrogen,
- (2) (1–12C)alkyl which may contain a double or triple bond, and which may bear a group selected from
  - (a) CN, OR^c, and CO_2R^c, wherein R^c is selected from hydrogen, (1–4C)alkyl, and phenyl and phenyl(1–4C)alkyl the phenyl rings of which can be substituted with from 0–3 substituents selected from halo, amino, hydroxy, cyano, nitro, (1–4C)alkyl, and (1–4C)alkoxy;
  - (b) NR'_2 and $CONR'_2$ wherein each R' is independently selected from (1) from R^h, COR^h, and $COOR^h$ when said group is NR'2 and (2) from the values of R^h when the said group is $CONR'_2$, wherein R^h can have any of the values stated above for R^c, or wherein, for either of the said groups, the two R' values, together with the nitrogen to which they are attached, form with carbon a saturated 4- to 7-membered ring selected from piperidinyl, pyrrolidinyl and azetidinyl,
- (3) NR^g_2 wherein each R^g can independently have any of the values stated above for R^c, or wherein the two R^g groups together with the nitrogen to which they are attached form with carbon a saturated 4- to 7-membered ring selected from piperidinyl, pyrrolidinyl and azetidinyl,
- (4) pyridyl, pyridyl(1–12C)alkyl,
- (5) phenyl, and phenyl(1–4C)alkyl wherein the phenyl rings can be substituted with from 0–3 substituents selected from halo, amino, hydroxy, cyano, nitro, (1–4C)alkyl, and (1–4C)alkoxy;

or a product obtained by mono-, di-, or tri-alkylating at a ring amino, hydrazino, hydroxy, thiohydroxy, or oxo-oxygen substituent or a ring nitrogen a compound of formula I with an alkylating agent having the formula $R^{12}X$, or a pharmaceutically acceptable salt thereof, wherein X is a conventional leaving group and wherein R^{12} is selected from

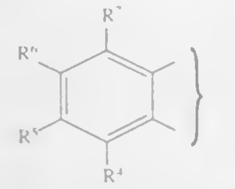
- (1–4C)alkyl which may contain a double or triple bond provided that, if a double or triple bond is present on a C3 or C4 carbon chain, a methylene group intervenes between said double or triple bond and the leaving group X to which said alkyl is attached,
- phenyl(1–4C)alkyl wherein the phenyl ring can be substituted with from 0–3 substituents selected from halo, amino, hydroxy, cyano, nitro, (1–4C)alkyl, and (1–4C)alkoxy, and
- $(CH_2)_mCOOR^a$ wherein R^a is hydrogen or (1–4C)alkyl and m is 1–6; wherein, Formula I is:



I

or a pharmaceutically acceptable salt thereof, wherein

R^3 is selected from hydrogen, amino, hydrazino, hydroxy and thiohydroxy, ring A is of the formula Ia



Ia

wherein R^4, R^5, R^6, and R^7 are independently selected from the group consisting of hydrogen, halo, (1–4C)alkyl which may contain a double or triple bond if said (1–4C)alkyl is a (2–4C)alkyl, (1-3C) perfluoroalkyl, (1-3C)alkyl substituted with trifluoromethyl, nitro, OR^d, CO_2R^d, CN, NR^d_2 and cyclopropyl, wherein each R^d is independently selected from hydrogen and (1–4C)alkyl; but excluding compounds wherein

a) said compound is of formula I, ring A has formula Ia, and R^3-R^7 are each hydrogen;

b) said compound is a product made by monoacetylating, diacetylating, or diethylating a compound of formula I wherein ring A has formula Ia and R^3–R^7 are each hydrogen, and

c) said compound is of formula I, ring A has formula Ia, R^4 and R^5 are each OCH_3, R^3 is hydrogen and R^6-R^7 are hydrogen.

5,739,134

N-(3-HYDROXY-4-PIPERIDINYL)(DIHYDROBENZOFURAN, DIHYDRO-2H-BENZOPYRAN, DIHYDROBENZODIOXIN, BENZODIOXOLE, DIHYDROBENZODIOXEPIN, OR TETRAHYDROBENZOXEPIN)CARBOXAMIDE DERIVATIVES

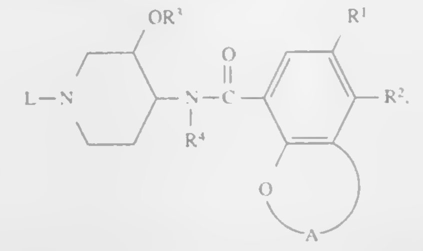
Georges H.P. Van Daele, deceased, late of Turnhout; Frans M.A. Van den Keyhus, Essen; Marie L. Hendrickx, heiress, Turnhout; Kurt G.C.E. Van Daele, heir, Antwerp-Borgerhout; Peter J.V. Van Daele, heir, Grimbergen, and Glenn K.L. Van Daele, heir, Turnhout, all of Belgium, assignors to Janssen Pharmacetuica N.V., Beerse, Belgium

Division of Ser. No. 301,825, Sep. 7, 1994, Pat. No. 5,552,553, which is a divisinn of Ser. No. 489,419, Mar. 6, 1990, Pat. No. 5,374,637, which is a continuation-in-part of Ser. No. 326,941, Mar. 22, 1989, abandoned. This application Apr. 13, 1995, Ser. No. 421,826

Int. Cl.⁶ A61K *31/435;* C07D *405/14*

U.S. Cl. 514—249 **8 Claims**

1. A compound of the formula:



(I)

an N-oxide form, a pharmaceutically acceptable salt thereof, or a stereochemically isomeric form thereof, wherein.

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A represents a group of the formula

$-CH_2-CH_2-$, (a-1)

$-CH_2-CH_2-CH_2-$, (a-2)

$-CH_2-CH_2-CH_2-CH_2-$ (a-3)

$-CH_2-O-$, (a-4)

$-CH_2-CH_2-O-$, or (a-5)

$-CH_2-CH_2-CH_2-O-$, (a-6)

wherein one or two hydrogen atoms in said groups (a-1) to (a-6) may be replaced by a C_{1-6}alkyl group;

- R^1 represents hydrogen, halo, C_{1-6}alkylsulfonyl, or aminosulfonyl;
- R^2 represents hydrogen, amino, mono- or di (C_{1-6}alkyl) amino, arylC_{1-6}alkylamino, or C_{1-6}alkylcarbonylamino;
- R^3 and R^4 each independently represent hydrogen or C_{1-6}alkyl; and
- L represents a group of the formula

Alk-R^5; or (b-1)

Alk-X—R^6; (b-2)

wherein:

- each Alk represents C_{1-6}alkanediyl;
- R^5 and R^6 represent Het; and
- X represents O, S, SO_2, or NR^7 wherein R^7 represents hydrogen, C_{1-6}alkyl, or aryl;

wherein in the foregoing:

- Het represents a heterocyclic ring system selected from the group consisting of pyridinyl which is optionally substituted with one or two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, trifluoromethyl, C_{1-6}alkyloxy, aminocarbonyl, mono- and di(C_{1-6}alkyl)aminocarbonyl, amino, mono- and di(C_{1-6}alkyl)amino and C_{1-6}alkyloxycarbonyl; pyrimidinyl which is optionally substituted with one or two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, C_{1-6}alkyloxy, amino and mono- and di(C_{1-6}-alkyl)amino; pyridazinyl which is optionally substituted with C_{1-6}alkyl or halo; pyrazinyl which is optionally substituted with one or two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, C_{1-6}alkyloxy, amino, mono- and di(C_{1-6}alkyl)amino and C_{1-6}alkyloxycarbonyl; pyrrolyl which is optionally substituted with C_{1-6}alkyl; pyrazolyl which is optionally substituted with C_{1-6}alkyl; imidazolyl which is optionally substituted with C_{1-6}alkyl; triazolyl which is optionally substituted with C_{1-6}alkyl; quinolinyl optionally substituted with up to two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, C_{1-6}alkyloxy, amino, mono- and di(C_{1-6}alkyl)amino and trifluoromethyl; isoquinolinyl optionally substituted with up to two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, C_{1-6}alkyloxy, amino, mono and di(C_{1-6}alkyl)amino and trifluoromethyl; quinoxalinyl optionally substituted with up to two substituents each independently selected from C_{1-6}alkyl, hydroxy, halo, cyano and C_{1-6}alkyloxy; quinazolinyl optionally substituted with C_{1-6}alkyl; benzimidazolyl optionally substituted with C_{1-6}alkyl; indolyl optionally substituted with C_{1-6}alkyl; 5,6,7,8-tetrahydroquinolinyl optionally substituted with up to two substituents each independently selected from halo, hydroxy, cyano, C_{1-6}alkyl, C_{1-6}alkyloxy, amino, mono- and di(C_{1-6}alkyl)amino and trifluoromethyl; 5,6,7,8-tetrahydroquinoxalinyl optionally substituted with up to two substituents each independently selected from C_{1-6}alkyl, hydroxy, halo, cyano and C_{1-6}alkyloxy; thiazolyl optionally substituted with C_{1-6}alkyl; oxazolyl optionally substituted with C_{1-6}alkyl; benzoxazolyl optionally substituted with C_{1-6}alkyl; benzothiazolyl optionally substituted with C_{1-6}alkyl; and tautomeric forms of Het wherein Het is substituted with hydroxy, mercapto or amino, and
- aryl represents phenyl or phenyl substituted with 1, 2, or 3 substituents each independently selected from the group consisting of halo, hydroxy, C_{1-6}alkyl, C_{1-6}alkyloxy, aminosulfonyl, C_{1-6}alkylcarbonyl, nitro, trifluoromethyl, amino, and aminocarbonyl

wherein the substituents on the 3 and 4 position of the piperidine ring have the cis-configuration.

5,739,135

INHIBITORS OF MICROSOMAL TRIGLYCERIDE TRANSFER PROTEIN AND METHOD

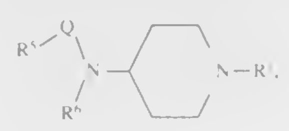
Scott A. Biller, Hopewell; John K. Dickson, Eastampton, both of N.J.; R. Michael Lawrence, Yardley, Pa.; David R. Magnin, Hamilton, N.J.; Michael A. Poss, Lawrenceville, N.J.; Richard B. Sulsky, Franklin Park, N.J., and Joseph A. Tino, Lawrenceville, N.J., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Continuation-in-part of Ser. No. 391,901, Feb. 21, 1995, abandoned, which is a continuation-in-part of Ser. No. 284,808, Aug. 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 117,362, Sep. 3, 1993, Pat. No. 5,595,872. This application Jun. 6, 1995, Ser. No. 472,067

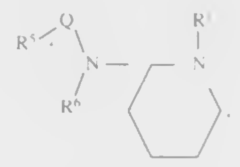
Int. Cl.⁶ C07D *211/98;409/06;405/06;211/56;211/58,* **A61K** *31/445*

U.S. Cl. 514—252 **38 Claims**

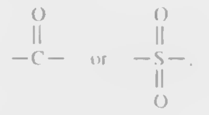
1 A compound which has the structure



or

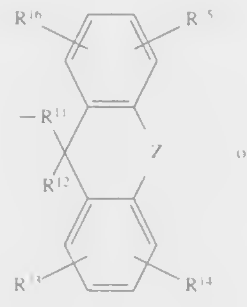


where Q is



$$-\overset{\displaystyle O}{\overset{\|}{C}}- \quad \text{or} \quad -\overset{\displaystyle O}{\overset{\|}{\underset{\displaystyle O}{\underset{\|}{S}}}}-,$$

R^1 is a fluorenyl-type group of the structure



A

or

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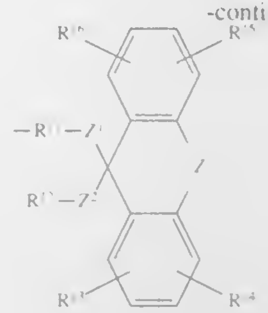
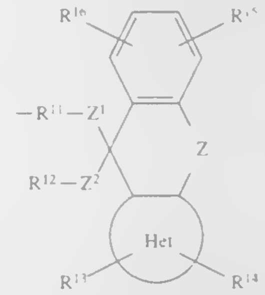


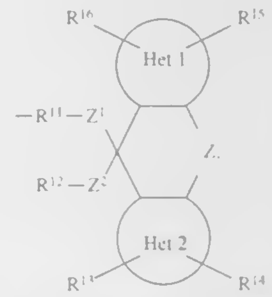
B

or



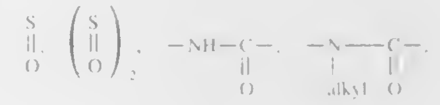
C

or

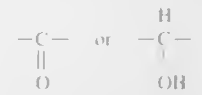


D

Z^1 and Z^2 are the same or different and are independently a bond, O, S,



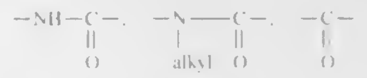
$$\underset{\displaystyle O}{\underset{\|}{S}},\ \left(\underset{\displaystyle O}{\underset{\|}{S}}\right)_2,\ -NH-\underset{\displaystyle O}{\underset{\|}{C}}-,\ -\underset{\displaystyle \text{alkyl}}{\underset{|}{N}}-\underset{\displaystyle O}{\underset{\|}{C}}-,$$



$$-\underset{\displaystyle O}{\underset{\|}{C}}- \quad \text{or} \quad -\overset{\displaystyle H}{\underset{\displaystyle OH}{\underset{|}{C}}}-$$

with the proviso that with respect to B, at least one of Z^1 and Z^2 will be other than a bond; R^{11} is a bond, alkylene, alkenylene or alkynylene of up to 10 carbon atoms; arylene or mixed arylene-alkylene; R^{12} is hydrogen, alkyl, alkenyl, aryl, haloalkyl trihaloalkyl, trihaloalkylalkyl, heteroaryl, heteroarylalkyl, arylalkyl, arylalkenyl, cycloalkyl, aryloxy, alkoxy, arylalkoxy or cycloalkylalkyl, with the provisos that

(1) when R^{12} is H, aryloxy, alkoxy or arylalkoxy, then Z^2 is

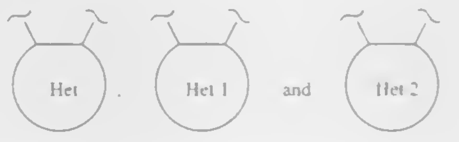


$$-NH-\underset{\displaystyle O}{\underset{\|}{C}}-,\ -\underset{\displaystyle \text{alkyl}}{\underset{|}{N}}-\underset{\displaystyle O}{\underset{\|}{C}}-,\ -\underset{\displaystyle O}{\underset{\|}{C}}-$$

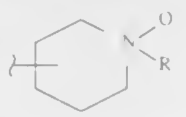
or a bond and

(2) when Z^2 is a bond, R^{12} cannot be heteroaryl or heteroarylalkyl;

- Z is bond, O, S, N-alkyl, N-aryl, or alkylene or alkenylene from 1 to 5 carbon atoms, R^{13}, R^{14}, R^{15}, and R^{16} are independently hydrogen, alkyl, halo, haloalkyl, aryl, cycloalkyl, cycloheteroalkyl, alkenyl, alkynyl, hydroxy, alkoxy, nitro, amino, thio, alkylsulfonyl, arylsulfonyl, alkylthio, arylthio, aminocarbonyl, alkylcarbonyloxy, arylcarbonylamino, alkylcarbonylamino, arylalkyl, heteroaryl, heteroarylalkyl or aryloxy,
- R^5 is independently alkyl, alkenyl, alkynyl, aryl, alkoxy, aryloxy, arylalkoxy, heteroaryl, arylalkyl, heteroarylalkyl, cycloalkyl, cycloalkylalkyl, polycycloalkyl, polycycloalkylalkyl, cycloalkenyl, cycloheteroalkyl, heteroaryloxy, cycloalkenylalkyl, polycycloalkenyl, polycycloalkenylalkyl, heteroarylcarbonyl, amino, alkyl-amino, arylamino, heteroarylamino, cycloalkyloxy, or cycloalkylamino, all optionally substituted through available carbon atoms with 1, 2, 3 or 4 groups selected from hydrogen, halo, alkyl, haloalkyl, alkoxy, haloalkoxy, alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, cycloheteroalkyl, cycloheteroalkylalkyl, aryl, heteroaryl, arylalkyl, arylcycloalkyl, arylalkenyl, arylalkynyl, aryloxy, aryloxyalkyl, arylalkoxy, arylazo, heteroaryloxo, heteroarylalkyl, heteroarylalkenyl, heteroaryloxy, hydroxy, nitro, cyano, amino, substituted amino, thiol, alkylthio, arylthio, heteroarylthio, arylthioalkyl, alkylcarbonyl arylcarbonyl, arylaminocarbonyl, alkoxycarbonyl, aminocarbonyl alkynylaminocarbonyl, alkylaminocarbonyl, alkenylaminocarbonyl, alkylcarbonyloxy, arylcarbonyloxy, alkylcarbonylamino, arylcarbonylamino, arylsulfinyl, arylsulfinylalkyl, arylsulfonyl, alkylsulfonyl, arylsulfonylamino, heteroarylcarbonylamino, heteroarylsulfinyl, heteroarylthio, heteroarylsulfonyl, and alkylsulfinyl;
- R^6 is hydrogen or C_1–C_4 alkyl or C–C_4 alkenyl, all optionally substituted with 1, 2, 3 or 4 groups which may independently be any of the substituents listed in the definition of R^5 set out above;



are the same or different and are independently selected from heteroaryl containing 5- or 6-ring members; and N-oxides



thereof; and pharmaceutically acceptable salts thereof

5,739,136

INTRAORAL DOSING METHOD OF ADMINISTERING MEDICAMENTS

Everett H. Ellinwood, Jr., 3519 Tonbridge Way, Durham, N.C. 27707, and Samir K. Gupta, 807 Woodbridge Common Way, Iselin, N.J. 08830

Continuation-in-part of Ser. No. 321,246, Oct. 11, 1994, Pat. No. 5,504,086, which is a continuation-in-part of Ser. No. 38,911, Mar. 29, 1993, Pat. No. 5,354,780, which is a continuation-in-part of Ser. No. 703,049, May 17, 1991, Pat. No. 5,198,436, which is a continuation of Ser. No. 422,992, Oct. 17, 1989, abandoned. This application Mar. 27, 1996, Ser. No. 622,829

Int. Cl.⁶ A61K *31/495*

U.S. Cl. 514—252 **4 Claims**

1 A method for administering medicament to the human body, including the central nervous system, wherein a therapeutically effective amount of said medicament is intraorally administered to a human, the improvement comprising the steps of

a. selecting a medicament that is metabolized into an unwanted or adversive metabolite that is increased by gastrointestinal tract absorption and subsequent portal vein entry to the liver,
b. placing the medicament in a suitable intraoral formulation,
c. intraorally administering a therapeutically effective amount of the intraoral formulation so as (i) to bypass the gastrointestinal tract absorption and subsequent portal vein entry to the liver and (ii) thereby to decrease formation of the unwanted metabolite;
d. increasing the ratio of medicament to the unwanted metabolite made available to the human body, including the central nervous system, and

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e. utilizing this intraoral method over a period of one or more doses to achieve sustained high levels of the medicament relative to the unwanted metabolite.

5,739,137

16-SUBSTITUTED-4-AZA-3-OXO-ANDROSTANE AS 5-ALPHA-REDUCTASE ISOZYME 1 INHIBITORS

Philippe L. Durette, New Providence; William K. Hagmann, Westfield; Thomas J. Lanza, Jr., Edison; Soumya P. Sahoo, Old Bridge; Gary H. Rasmusson, Watchung; Richard L. Tolman, Warren, and Derek Von Langen, Fanwood, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

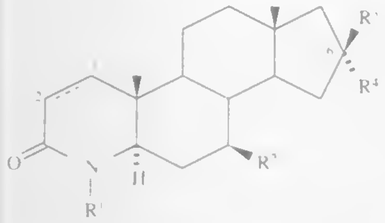
PCT No. PCT/US94/12071, § 371 Date Feb. 28, 1996, § 102(e) Date Feb. 28, 1996, PCT Pub. No. WO95/11254, PCT Pub. Date Apr. 27, 1995

Continuation-in-part of Ser. No. 141,153, Oct. 21, 1993, abandoned. This PCT application Oct. 21, 1994, Ser. No. 601,042

Int. Cl.^{6} A61K *31/58*

U.S. Cl. 514—256 13 Claims

1. A compound of Formula I



I

or a pharmaceutically acceptable salt thereof wherein.

the C1—C2 carbon-carbon bond may be a single bond, or a double bond as indicated by the dashed line:

R^1 is selected from the group consisting of hydrogen and C_{1-10} alkyl:

R^2 is selected from the group consisting of hydrogen and C_{1-10} alkyl:

one of R^3 and R^4 is selected from the group consisting of hydrogen and methyl, and the other is pyrimidinyl or pyrimidinyl-X, wherein the pyrimidinyl is linked at a carbon atom; and

X is selected from the group consisting of:

$—O—$; $—S(O)_n—$, $—C(O)—$; $—CH(R_c)—$; $—C(O)—O—*$; $—C(O)—N(R_c)—*$,

$—N(R_c)—C(O)—O—*$, $—O—C(O)—N(R_c)—*$, $—N(R_c)C(O)—N(R_c)—$;

$—O—CH(R_c)—*$, $—N(R_c)—$, wherein R_c is H, C_{1-3} alkyl, aryl, aryl- C_{1-3} alkyl.

wherein the asterisk (*) denotes the bond which is attached to the 16-position in Structure I, and n is zero, 1 or 2.

5,739,138

ENANTIOMERICALLY PURE HYDROXYLATED XANTHINE COMPOUNDS TO TREAT AUTOIMMUNE DIABETES

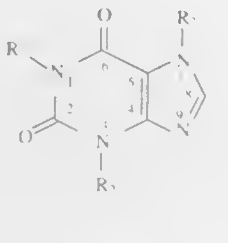
James A. Bianco, Seattle; Paul Woodson, Bothell; David Porubek, Edmonds, and Jack Singer, Seattle, all of Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash.

Division of Ser. No. 343,810, Nov. 22, 1994, abandoned, which is a division of Ser. No. 307,554, Sep. 16, 1994, abandoned, which is a continuation of Ser. No. 13,977, Feb. 4, 1993, abandoned, which is a continuation-in-part of Ser. No. 926,665, Aug. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 846,354, Mar. 4, 1992, abandoned. This application Jun. 1, 1995, Ser. No. 457,703

Int. Cl.^{6} A61K *31/52*

U.S. Cl. 514—263 2 Claims

1. A method for treating or preventing autoimmune diabetes, comprising administering an effective amount of a compound to an individual in need of such treatment, wherein the compound has a formula:



wherein.

R_1 is a substantially pure resolved enantiomer ω-1, secondary alcohol-substituted alkyl (C_{5-8}) group; and

R_2 and R_3 are independently hydrogen atom or an alkyl (C_{1-12}) or alkoxyl (C_{1-12}).

5,739,139

ACETAMINOPHEN AND DIMENHYDRINATE ANALGESICS

Douglas R. Hough, Morrisville; Edward B. Nelson, Lower Gwynedd, and Robert B. Raffa, Norristown, all of Pa., assignors to McNeil-PPC, Inc., Skillman, N.J.

Filed Jun. 20, 1996, Ser. No. 667,054

Int. Cl.^{6} A61K *31/52;31/165*

U.S. Cl. 514—263 13 Claims

1. A composition for use as an analgesic comprising.

(a) an analgesic inducing amount of acetaminophen;

(b) from about $^1/_{20}$ to about $^1/_{50}$ parts by weight dimenhydrinate or pharmaceutically acceptable salt thereof for each part by weight acetaminophen, and

(c) a pharmaceutically acceptable carrier.

5,739,140

SELECTED NOVEL ARYL ACRYLICS

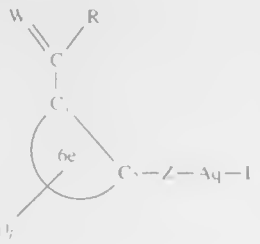
William P. Clinton; Jim I. McLoughlin, both of St. Louis; Anita E. Otal, Wildwood; John J. Parlow, Arnold; Dennis P. Phillion, St. Charles, and Ajit S. Shah, St. Louis, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 23, 1996, Ser. No. 735,600

Int. Cl.^{6} C07C *251/60;251/48;* **A01N** *37/50;37/36;* **C07D** *333/24;239/52;233/61*

U.S. Cl. 514—269 69 Claims

1. Compounds of Formula I:

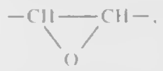


wherein C_1 and C_2 are carbon atoms which are part of an aromatic ring and are selected from the group consisting of phenyl and thienyl;

W is alkoxyimino, alkoxymethylene or alkylthiomethylene;

R_1 is independently selected from the group consisting of halogen, cyano, C_1–C_4 alkyl, C_1–C_4 alkoxy, wherein the alkyl or alkoxy are optionally substituted by halogen, and p is 0, 1, or 2.

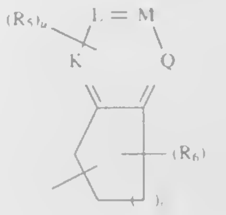
Z is $—CH_2—$, $—CH(OH)—$, $—CO—$, $—O—$, $—S—$, $—NR_2—$ wherein R_2 is hydrogen or a lower aliphatic group, $—CH_2CH_2—$, $—CH{=}CH—$



$—CH_2O—$, $—CH_2S—$, $—CH_2S(O)—$, $—OCH_2—$, $—SCH_2—$, $—S(O)CH_2—$, $—CH_2ON{=}C(R_3)—$ or $—CH{=}NB$ wherein B is $—O—CO—$, $—N{=}CR_3$, or $—O—CR_3R_4—$ wherein R_3 and R_4 are independently hydrogen or C_1–C_3 alkyl optionally substituted by halogen;

A is an aromatic moiety having 1-2 aromatic rings connected linearly from Z to I_1 wherein the aromatic rings are optionally connected to each other and to I_1 in a linear manner with oxygen, nitrogen, or sulfur; wherein each aromatic ring is optionally independently substituted by R_{10} groups; q is 1;

I_1 is:



wherein

K, L, M, and Q are independently C or N with the proviso that not more than one or two of K, L, M or Q can be N at once and when K, L, M and Q are carbon each is optionally substituted by R_5;

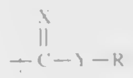
n is 1 or 2; and

each R_5 and R_{10} group is independently selected from the group consisting of (a) halogen, (b) lower aliphatic group optionally substituted by halogen or C_1–C_4 alkoxy, (c) C_1–C_4 alkoxy optionally substituted by halogen, (d) —CN, (e) $—(Y_1)_{q_1}C({=}X)(Y_2)_{q_2}R_8$, where: X is O or S, q_1 and q_2 are 0 or 1, Y_1 and Y_2 are independently selected from the group consisting of O, S, and $—NR_8$; each R_8 is independently selected from the group consisting of hydrogen and a lower aliphatic group optionally substituted by halogen or a C_1–C_4 alkoxy group, wherein R_8 cannot be hydrogen if both q_1 and q_2 are 1 and Y_2 is O or S; (f) $—S(O)_rR_9$ where r is 0, 1, or 2, wherein R_9 is a lower aliphatic group optionally substituted by halogen or a C_1–C_4 alkoxy group or R_9 is an aryl group optionally substituted by halogen, a C_1–C_4 alkoxy group, or a C_1–C_4 alkyl group, (g) $—Si(R_9)_3$, (h) $—C({=}NOCH_3)CH_3$, or (i) aryl, aryloxy, arylthio, and arylamino optionally substituted by halogen, C_1–C_4 alkoxy, or a lower aliphatic group optionally substituted by halogen or C_1–C_4 alkoxy.

u is an integer from 0 to 4

R_6 is halogen, hydroxy, C_1–C_4 alkoxy, or a lower aliphatic group, optionally substituted with C_1–C_4 alkoxy or halogen; s is 0, 1, or 2; and

R is.



$$—\overset{\overset{\displaystyle X}{\|}}{C}—Y—R_7 \qquad a)$$

wherein

X is S or O;

Y is a bond, oxygen, sulfur, or nitrogen carrying a hydrogen, a C_1–C_4 alkyl group or a C_1–C_4 alkoxy group;

each R_7 is independently selected from the group consisting of hydrogen, and a lower aliphatic group optionally substituted by halogen, hydroxy, or a C_1–C_4 alkoxy group;

or an agronomically acceptable salt thereof

5,739,141

ANTIPROLIFERATIVE SUBSTITUTED 5-THIAPYRIMIDINONE AND 5-SELENOPYRIMIDINONE COMPOUNDS

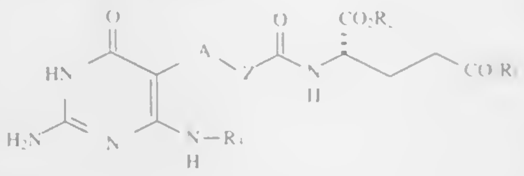
Michael D. Varney, Carlsbad; William H. Romines, San Diego; Cynthia L. Palmer, La Mesa, and Judith G. Deal, Temecula, all of Calif., assignors to Agouron Pharmaceuticals, Inc., LaJolla, Calif.

Continuation-in-part of Ser. No. 991,259, Dec. 16, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 448,556

Int. Cl.^{6} A61K *31/505;* **C07D** *239/36*

U.S. Cl. 514—272 33 Claims

1. A compound having the formula I



I

wherein:

A represents sulfur or selenium:

Z represents a combination of at least one non-cyclic spacer and at least one heterocyclic radical, wherein when said non-cyclic spacer is bonded to A, said non-cyclic spacer separates A from one of said heterocyclic radicals by 1 to 10 atoms, said atoms being independently selected from carbon, oxygen, sulfur, nitrogen and phosphorus; and further wherein when said non-cyclic spacer is bonded to —C(O)—, said non-cyclic spacer separates —C(O)— from one of said heterocyclic radicals by 1 to 10 atoms,

R_1 and R_2 represent, independently, H or C_1 to C_6 alkyl or other readily lyzable groups; and

R_3 represents H or a straight, branched or cyclic C_1 to C_6 alkyl group optionally carrying one or more halogen, hydroxyl or amine groups; or a pharmaceutically acceptable salt thereof

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5,739,142

4-AMINOBENZOYLGUANIDINE DERIVATIVES

Rolf Gericke, Seeheim-Jugenheim; Manfred Baumgarth, Darmstadt; Norbert Beier, Reinheim, and Klaus-Otto Minck, Ober-Ramstadt, all of Germany, assignors to Merck Patent Gesellschaft Mit Beschrankter Haftung, Darmstadt, Germany

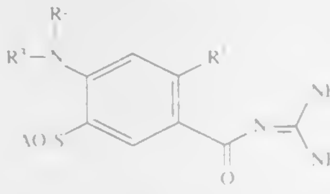
Filed Jan. 26, 1996, Ser. No. 592,660

Claims priority, application Germany, Jan. 28, 1995, 195 02 644.6

Int. Cl.^{6} A61K *31/505,31/425;* **C07D** *239/42,277/38*

U.S. Cl. 514—275 20 Claims

1. A 4-aminobenzoylguanidine of formula I



I

in which

R^1 is A, CF_3, CH_2F, CHF_2 or C_2F_5,

R^2 and R^3 are each independently H, A, C_{3-7}-cycloalkyl, Ph or Het, or together with the nitrogen atom to which they are bonded are a C_{4-5} alkylene ring.

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Het: is a mono- or dicyclic saturated, unsaturated or aromatic heterocycle having 1 to 4 nitrogen, oxygen and/or sulfur atoms, which heterocycle is attached via N or C, which can be unsubstituted or mono-, di- or trisubstituted by Hal, CF_3, A, OH, OA, SH, SA, NH_2, NHA, NA_2, CN, NO_2 and/or carbonyl oxygen,

A is C_{1-6}-alkyl,

Hal is F, Cl, Br or I, and

Ph is unsubstituted phenyl or phenyl which is mono-, di- or trisubstituted by A, OA, NH_2, NHA, NA_2, F, Cl, Br and/or CF_3,

or a physiologically acceptable salt thereof.

5,739,143
IMIDAZOLE COMPOUNDS AND COMPOSITIONS

Jerry Leroy Adams, Wayne; Timothy Francis Gallagher, Harleysville; Joseph Sisko, Hatfield; Zhi Qiang Peng, King of Prussia; Irennegbe Kelly Osifo, Eagleville, and Jeffrey Charles Boehm, King of Prussia, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 659,102, Jun. 3, 1996, Pat. No. 5,658,903, which is a continuation-in-part of Ser. No. 636,779, Apr. 19, 1996, abandoned, which is a continuation-in-part of Ser. No. 473,396, Jun. 7, 1995, abandoned. This application Dec. 11, 1996, Ser. No. 764,003

Int. Cl.^{6} A61K *31/505;* **C07D** *401/14*

U.S. Cl. 514—275 **6 Claims**

1. A compound selected from:

4-(4-Thiomethylphenyl-5-[(2-(phenyl)amino)pyrimidin-4-yl]-1-(1-ethoxycarbonylpiperdin-4-yl)imidazole

4-(4-Thiomethylphenyl-5-[(2-(phenyl)amino)pyrimidin-4-yl]-1-(piperin-4-yl)imidazole

4-(4-Methylsulfinylphenyl-5-[(2-(phenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(4-fluorophenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-fluorophenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(2 fluorophenyl)amino)pyrimidin-4-yl]-1 (piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(4-benzyloxyphenyl)amino)pyrimidin-4-yl]-1-(1-ethoxycarbonylpiperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-benzyloxyphenyl)amino)pyrimidin-4-yl]-1-(1-ethoxycarbonylpiperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-trifluoromethylphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3,4-difluorophenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(4-hydroxyphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-hydroxyphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(4-methoxyphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-methoxyphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole -

4(4-Fluorophenyl-5-[(2-(2-methoxyphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole

4-(4-Fluorophenyl-5-[(2-(3-fluoro-2 methylphenyl)amino)pyrimidin-4-yl]-1-(piperdin-4-yl)imidazole;

or a pharmaceutically acceptable salt thereof.

5,739,144
TRISUBSTITUTED PHENYL DERIVATIVES

Graham John Warrellow, Northwood; Valerie Anne Cole, Burnham, and Rikki Peter Alexander, High Wycombe, all of United Kingdom, assignors to Celltech Therapeutics Limited, Slough, United Kingdom

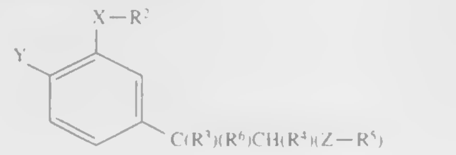
Continuation of Ser. No. 384,612, Feb. 2, 1995, abandoned, which is a continuation of Ser. No. 208,656, Mar. 9, 1994, abandoned. This application Oct. 17, 1995, Ser. No. 543,962

Claims priority, application United Kingdom, Mar. 10, 1993, 9304920

Int. Cl.^{6} A61K *31/44;* **C07D** *213/16*

U.S. Cl. 514—277 **17 Claims**

1. A compound of formula (1)



(1)

wherein

Y is a halogen atom or a group —OR^1, where R^1 is an optionally substituted alkyl group;

X is —O—, —S—, or —$N(R^7)$—, where R^7 is a hydrogen atom or an alkyl group;

R^2 is an optionally substituted cycloalkyl or cycloalkenyl group;

R^3 and R^4, which may be the same or different, is each a hydrogen atom or an alkyl, —CO_2R^8 (where R^8 is a hydrogen atom or an optionally substituted alkyl, aryl, or aralkyl group), —$CONR^9R^{10}$ (where R^9 and R^{10} which may be the same or different is each a hydrogen atom or an alkyl, aryl or aralkyl group), —$CSNR^9R^{10}$, —CN, or —CH_2CN group;

Z is —$(CH_2)_n$— where n is zero or an integer 1, 2 or 3;

R^5 is an optionally substituted 4-pyridyl group;

R^6 is a hydrogen atom or a hydroxyl group;

and the salts, solvates, hydrates, prodrugs and N-oxides thereof.

5,739,145
ANTITUSSIVE AGENTS

Hiroshi Nagase; Koji Kawai, both of Kamakura; Takashi Endoh, Chigasaki; Shinya Ueno, Kamakura, and Yuji Negishi, Kagoshima, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

PCT No. PCT/JP94/01047, § 371 Date Apr. 27, 1995, § 102(e) Date Apr. 27, 1995, PCT Pub. No. WO95/01178, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 28, 1995, Ser. No. 393,020

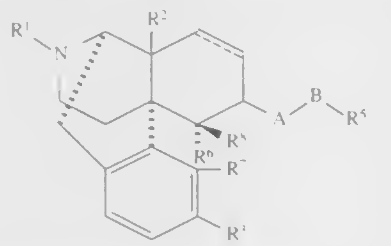
Claims priority, application Japan, Jun. 30, 1993, 5-161626

Int. Cl.^{6} A61K *31/47;31/485;* **C07D** *221/28;489/00*

U.S. Cl. 514—282 **5 Claims**

1. A method for the treatment of coughing in a subject in need thereof, the method comprising:

administering to said subject an antitussive effective amount of a morphinan derivative represented by formula (I) or a pharmacologically acceptable acid addition salt thereof,



(I)

wherein:

- - - - - - represents a single or double bond;

R^1 represents an alkyl group having 1–5 carbon atoms, a cycloalkylalkyl group having 4–7 carbon atoms, a cycloalkenylalkyl group having 5–7 carbon atoms, an aryl group having 6–12 carbon atoms, an aralkyl group having 7–13 carbon atoms, an alkenyl group having 4–7 carbon atoms, an allyl group, a furan-2-ylalkyl group having 1–5 carbon atoms, or a thiophen-2-ylalkyl group having 1–5 carbon atoms;

R^2 represents a hydrogen atom, a hydroxy group, a nitro group, an alkanoyloxy group having 1–5 carbon atoms, an alkoxy group having 1–5 carbon atoms, an alkyl group having 1–5 carbon atoms or —NR^9R^{10}, wherein R^9 represents a hydrogen atom or an alkyl group having 1–5 carbon atoms, R^{10} represents a hydrogen atom, an alkyl group having 1–5 carbon atoms or —$C(=O)R^{11}$, and R^{11} represents a hydrogen atom, a phenyl group or an alkyl group having 1–5 carbon atoms;

R^3 represents a hydrogen atom, a hydroxy group, an alkanoyloxy group having 1–5 carbon atoms or an alkoxy group having 1–5 carbon atoms;

A represents —$NR^4C(=O)$—, —$OC(=O)$—, —N—$R^4C(=O)O$— or —N^4— and R^4 represents a hydrogen atom, a straight-chain or branched-chain alkyl group having 1–5 carbon atoms or an aryl group having 6–12 carbon atoms, and wherein said R^4's may be identical or different;

B represents:

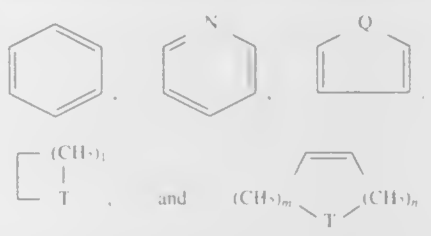
(i) a valence bond,

(ii) a straight-chain or branched-chain alkylene group having 1–14 carbon atoms, which alkylene group may be optionally substituted with one or more substituents selected from the group consisting of an alkoxy group having 1–5 carbon atoms, an alkanoyloxy group having 1–5 carbon atoms, a hydroxy group, a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, an amino group, a nitro group, a cyano group, a trifluoromethyl group and a phenoxy group, and wherein from 1 to 3 methylene groups of said alkylene group may be replaced with carbonyl groups,

(iii) a straight-chain or branched-chain acyclic unsaturated hydrocarbon containing 1 to 3 double bonds or triple bonds and having 2–14 carbon atoms, which acyclic hydrocarbon may be substituted with one or more substituents selected from the group consisting of an alkoxy group having 1–5 carbon atoms, an alkanoyloxy group having 1–5 carbon atoms, a hydroxy group, a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, an amino group, a nitro group, a cyano group, a trifluoromethyl group, and a phenoxy group, and wherein 1 to 3 methylene groups of said acyclic hydrocarbon may be replaced with carbonyl groups, or

(iv) a straight-chain or branched-chain saturated or unsaturated hydrocarbon containing from 1 to 5 thioether, ether or amino bonds and having 1–14 carbon atoms, wherein no hetero atoms are bonded directly to A, and 1 to 3 methylene groups of said hydrocarbon may be replaced with carbonyl groups;

R^5 represents a hydrogen atom or an organic group having a basic skeleton selected from the group consisting of:



wherein, Q is N, O or S, T is CH, N, S or O, l is 0 to 3, m and n are each independently $\geqq 1$, and $m+n \leqq 3$,

provided that said organic group having a basic skeleton may be substituted with one or more substituents selected from the group consisting of an alkyl group having 1–5 carbon atoms, an alkoxy group having 1–5 carbon atoms, an alkanoyloxy group having 1–5 carbon atoms, a hydroxy group, a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, an amino group, a nitro group, a cyano group, an isothiocyanate group, a trifluoromethyl group, and a methylenedioxy group;

R^6 represents a hydrogen atom, R^7 represents a hydrogen atom, a hydroxy group, an alkoxy group having 1–5 carbon atoms, an alkanoyloxy group having 1–5 carbon atoms, or R^6 and R^7 together represent —O—, —CH_2— or —S—,

R^8 represents a hydrogen atom, an alkyl group having 1–5 carbon atoms or an alkanoyl group having 1–5 carbon atoms,

and formula (I) includes the (+) form, (−) form and (±) form of said morphinan derivative.

5,739,146
SUBSTITUTED CYCLO OR BICYCLOALKYLAMIDES OF (8β)-6-(SUBSTITUTED) ERGOLINES

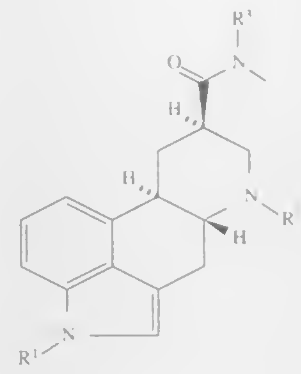
Marlene L. Cohen, Carmel, Ind., and David W. Robertson, Poway, Calif., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 936,684, Aug. 27, 1992, Pat. No. 5,441,961. This application May 1, 1995, Ser. No. 432,379

Int. Cl.^{6} A61K *31/48*

U.S. Cl. 514—288 **28 Claims**

1. A method of occupying $5HT_2$ receptors which comprises administering to a mammal having an excess of serotonin centrally or peripherally a $5HT_2$ occupying dose of a compound of the formula:

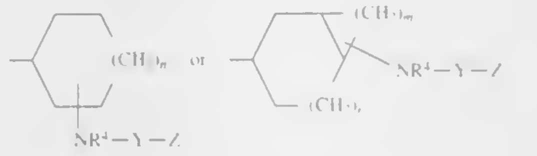


wherein:

R^1 is hydrogen, C_1–C_4 alkyl, —CH_2—(C_2–C_4 alkenyl), benzyl, C_1–C_8 cycloalkyl, or substituted C_1–C_8 cycloalkyl,

R^2 is allyl or C_1–C_4 alkyl;

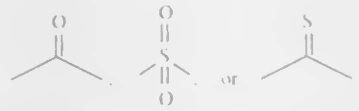
B is



n is 0, 1, or 2,

m is 1, 2, 3, 4, or 5;

Y is



R^3 and R^4 are each independently hydrogen C_1–C_4 alkyl;

Z is C_1–C_6 alkyl or C_1–C_8 cycloalkyl; and

the pharmaceutically acceptable acid addition salts thereof

22. A method of treating obesity in mammals which comprises administering to a mammal suffering from obesity an effective antiobesity dose of a compound of the formula

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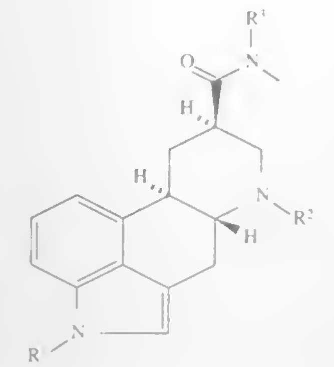
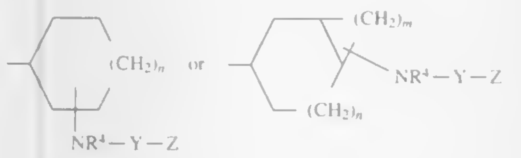


wherein

R^1 is hydrogen, C_1–C_4 alkVl, —CH_2—(C_2–C_4 alkenyl), benzyl, C_3–C_8 cycloalkyl, or substituted C_3–C_6 cycloalkyl;

R^2 is allyl or C_1–C_4 alkyl;

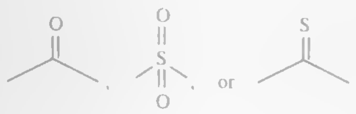
B is



n is 0, 1, or 2;

m is 1, 2, 3, 4, or 5;

y is



R^3 and R^4 are each independentiV hydrogen or C_1–C_4 alkyl;

Z is C_1–C_6 alkyl or C_1–C_8 cycloalkyl; and

the pharmaceutically acceptable acid addition salts thereof.

5,739,147

CYCLOHEXANE DERIVATIVES, PROCESS FOR THEIR PREPARATION, AND THE USE OF THE COMPOUNDS FOR THE TREATMENT OF DISEASES

Horst Hemmerle, Lorsch; Gerrit Schubert, Kelkheim; Hans-Jörg Burger, Frankfurt; Andreas Herling, Bad Camberg, and Suad Efendic', Lidingö, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

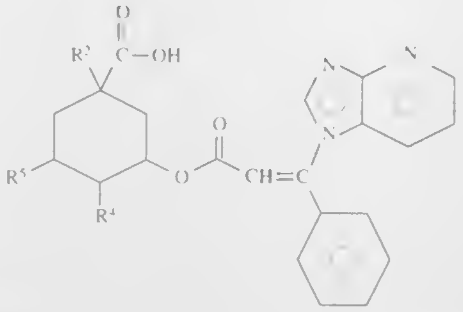
Continuation of Ser. No. 433,859, May 2, 1995, abandoned. This application May 21, 1997, Ser. No. 861,120

Claims priority, application Germany, May 10, 1994, 44 16 433.5

Int. Cl.^{6} A61K *31/44*, **C07D** *471/04*

U.S. Cl. 514—303 **13 Claims**

1. A compound of the formula



I

wherein

R^2 is O—C_3–C_5-alkyl-(R^{11}), wherein alkyl is straight-chained, branched or cyclic; R^{11} is phenyl or phenyl substituted in the 4-position by fluorine, chlorine or methyl; and R^4 and R^5 are identical or different and are hydrogen or hydroxyl, the physiologically tolerable salts thereof, the geometric isomers thereof, or the optical isomers thereof

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5,739,148

6-(2-IMIDAZOLINYLAMINO) QUINOLINE COMPOUNDS USEFUL AS ALPHA-2 ADRENOCEPTOR AGONISTS

Thomas Lee Cupps, Oxford; Peter Julian Maurer, Cincinnati, and Jeffrey Joseph Ares, Hamilton, all of Ohio, assignors to The Procter & Gamble Company

Continuation-in-part of Ser. No. 326,564, Oct. 20, 1994, Pat. No. 5,578,607, which is a continuation-in-part of Ser. No. 169,343, Dec. 17, 1993, abandoned. This application Jun. 29, 1995, Ser. No. 496,704

Int. Cl.^{6} A61K *31/47;31/415*

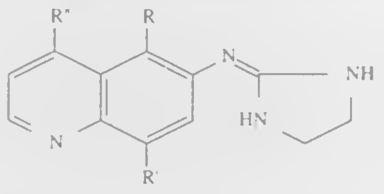
U.S. Cl. 514—314 **14 Claims**

1. A pharmaceutical composition comprising

(a) one or more actives chosen from the group consisting of an antitussive, mast cell stabilizer, LT antagonist, expectorant/muycolytic, antioxidant or free radical inhibitor, steroid, bronchodilator, antiviral, analgesic, antiinflammatory, gastrointestinal and ocular active;

(b) a pharmaceutically-acceptable carrier;

(c) a compound having the following structure:



wherein:

(a) R is unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms;

(b) R' is selected from the group consisting of unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms; unsubstituted alkylthio or alkoxy having from 1 to about 3 carbon atoms; hydroxy, thiol; and halo; and

(c) R" is selected from the group consisting of hydrogen; unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms; methyl monosubstituted with hydroxy, thiol or amino; unsubstituted alkylthio or alkoxy having from 1 to about 3 carbon atoms; amino; unsubstituted amide; amido unsubstituted or substituted with alkanyl or alkenyl having from 1 to about 3 carbon atoms; halo; unsubstituted sulfoxide, unsubstituted sulfonyl; and cyano.

5,739,149

SUBSTITUTED PIPERIDINOBUTYL NITROGEN-CONTAINING HETEROCYCLIC COMPOUNDS AND ANALOGUES THEREOF AS NEUROKININ ANTAGONISTS

Robert Toms Jacobs, Macclesfield, England; Scott Carson Miller, Newark, Del.; Ashokkumar Bhikkappa Shenvi; Cyrus John Ohnmacht, Jr., both of Wilmington, Del., and Chris Allan Veale, Newark, Del., assignors to Zeneca Limited, London, United Kingdom

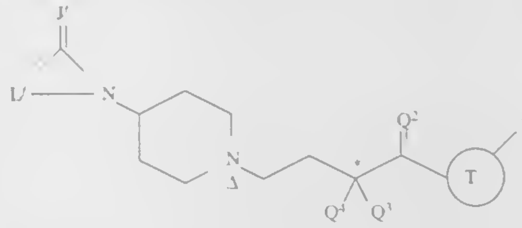
Division of Ser. No. 432,309, May 1, 1995, Pat. No. 5,635,509. This application Feb. 3, 1997, Ser. No. 790,867

Claims priority, application United Kingdom, May 3, 1994, 9408872

Int. Cl.^{6} A61K *31/445*; **C07D** *401/04*

U.S. Cl. 514—317 **9 Claims**

1. A compound of formula XXV



(XXV)

wherein

J' is oxygen, sulfur or NR^{6a} in which R^{6a} is hydrogen or (1–3C)alkyl; L' is a divalent hydrocarbon group in which the 1-position is bound to the carbon bearing the group J', the divalent group L' being selected from trimethylene, cis-propenylene, tetramethylene, cis-butenylene, cis-but-3-enylene, cis,cis-butadienylene, pentamethylene and cis-pentenylene which divalent group L' itself may bear one or two methyl substituents;

Q^2 is a mono valent radical selected from hydroxy, (1–3C)alkoxy, —SR^5, —OC(=O)R^6, and —OC(=O)NR^7R^8, or divalent radical selected from thioxo and oxo;

R^5 is hydrogen, (1–3C)alkanoyl, (1–3C)alkyl, phenyl, or phenyl(1–3C)alkyl, wherein any phenyl may optionally be substituted by 1–3 substituents selected from halo, (1–3C)alkyl, and (1–3C)alkoxy;

R^6 is (1–4C)alkyl, phenyl, or phenyl(1–3C)alkyl, wherein any phenyl may optionally be substituted by 1–3 substituents selected from halo, (1,3C)alkyl, and (1–3C)alkoxy;

R^7 and R^8 are independently hydrogen, (1–4C)alkyl, phenyl, or phenyl(1–3C)alkyl, wherein any phenyl may optionally be substituted by 1–3 substituents selected from halo, (1–3C)alkyl, and (1–3C)alkoxy;

Q^3 is hydrogen or (1–3C)alkyl;

Q^4 is phenyl which may bear one or two substituents independently selected from halo, trifluoromethyl, hydroxy, (1–3C)alkoxy, (1–3C)alkyl and methylenedioxy; or Q^4 is thienyl, imidazolyl, benzo[b]thiophenyl or naphthyl any of which may bear a halo substituent; or Q^4 is biphenylyl; or Q^4 is carbon-linked indolyl which may bear a benzyl substituent at the 1-position;

T is a carbon-linked five-membered aromatic ring containing 2–3 nitrogens, which is substituted at a ring position adjacent to the carbon-link by a group Q^5; and

Q^5 is (1–6C)alkyl (which may contain a double or triple bond), (3–6C)cycloalkyl (which may contain a double bond), (3–6C)oxacycloalkyl (which may contain a double bond), aryl, aryl(1–3C)alkyl, or 5- or 6-membered heteroaryl (or N-oxide thereof) consisting of carbon and one to four heteroatoms selected from oxygen, sulfur and nitrogen, in which an aryl or heteroaryl radical or portion of a radical may bear one or more substituents on carbon selected from (1–3C)alkyl, (1–3C)alkoxy, methylenedioxy, halogeno, hydroxy, (1–4C)acyloxy and NR^AR^B in which R^A and R^B are independently hydrogen or (1–3C)alkyl, or R^A is hydrogen or (1–3C)alkyl and R^B is (1–4C)acyl;

or the N-oxide of a piperidino nitrogen indicated by Δ;

or a pharmaceutically acceptable salt thereof,

or a quaternary ammonium salt thereof in which the piperidino nitrogen indicated by Δ is a quadricovalent ammonium nitrogen wherein the fourth radical on the nitrogen indicated by Δ is (1–4C)alkyl or benzyl and the associated counterion is a pharmaceutically acceptable anion.

5,739,150

PIPERIDINYL THIACYCLIC DERIVATIVES

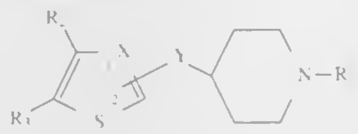
Albert A. Carr; John M. Kane; George D. Maynard; Hsien C. Cheng, all of Cincinnati, and Mark W. Dudley, Somerville, all of Ohio, assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio

Division of Ser. No. 281,943, Jul. 28, 1994, Pat. No. 5,476,861, which is a division of Ser. No. 201,149, Feb. 24, 1994, Pat. No. 5,371,093, which is a continuation of Ser. No. 76,268, Jun. 11, 1993, abandoned, which is a continuation of Ser. No. 835,658, Feb. 13, 1992, abandoned. This application Jun. 1, 1995, Ser. No. 457,199

Int. Cl.^{6} A61K *31/445*; **C07D** *409/02;417/02*

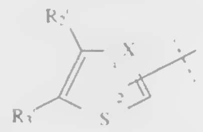
U.S. Cl. 514—326 **9 Claims**

1. A compound of the formula



an optical isomer or a pharmaceutically acceptable salt thereof, wherein

Y is —C(B)(OH) wherein B is

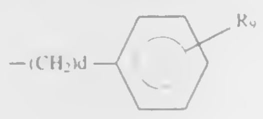


and

Y is attached at the heterocycle position 2 or 3, and B is attached at heterocycle positions 2' or 3';

X and X' are the same or different and are carbon, CH or nitrogen, provided that when Y is attached at the 3 or 3' position X and X' are each carbon, and when Y is attached at the 2 or 2' position X and X' are the same or different and are CH or nitrogen;

R_1 is —$(CH_2)_n$—Z—$(CH_2)_m$$COR_5$, —C(O)$R_8$ or



R_2, R_3, $R_{2'}$ and $R_{3'}$ are the same or different and are hydrogen or C_{1-4} alkyl;

Z is a bond, O, or S;

R_5 is OH, C_{1-4} alkoxy or —NR_6R_7;

R_6 and R_7 are the same or different and are H or C_{1-4} alkyl,

R_8 is C_{1-4} alkyl, C_{1-4} alkoxy;

R_9 is H, C_{1-4} alkyl, C_{1-4} alkoxy, OH, chloro, bromo, fluoro, —CF_3, —NHC(O)R_{10}, or CO_2R_{11},

R_{10} is C_{1-4} alkyl or C_{1-4} alkoxy;

R_{11} is hydrogen or C_{1-4} alkyl;

n is an integer from 0–3 provided that when Z is not a bond, n is an integer from 2–3;

m is an integer from 1 to 3;

d is an integer from 1–5.

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5,739,151

METHOD FOR TREATING EMESIS AND CENTRAL NERVOUS SYSTEM DISORDERS USING OPTICALLY PURE (+) NORCISAPRIDE

John R. McCullough, Worcester, and Thomas P. Jerussi, Framingham, both of Mass., assignors to Sepracor Inc., Marlborough, Mass.

Filed Jul. 19, 1996, Ser. No. 684,753

Int. Cl.⁶ A61K *31/445*

U.S. Cl. 514—327 **8 Claims**

1. A method of eliciting an antiemetic effect in a human which comprises administering to a human a therapeutically effective amount of (+) norcisapride, or a pharmaceutically acceptable salt thereof, substantially free of its (−) stereoisomer.

5,739,152

PHARMACEUTICAL EMULSION

Kjell Hjalmar Anderssnn, Fjärås; Eva Kristina Byröd, Mölndal; Anna-Carin Hansson, Göteborg; Margareta Nordlander, Askim, and Rolf Christer Westerlund, Mölndal, all nf Sweden, assignors to Astra Aktiebolag, Sodertalje, Sweden

PCT No. PCT/SE94/01032, § 371 Date Dec. 28, 1994, § 102(e) Date Dec. 28, 1994, PCT Pub. No. WO95/13066, PCT Pub. Date May 18, 1995

PCT Filed Nov. 3, 1994, Ser. No. 364,953

Claims priority, application Sweden, Nov. 12, 1993, 9303744

Int. Cl.⁶ A61K *31/44*

U.S. Cl. 514—356 **10 Claims**

1. A pharmaceutical formulation which is an emulsion for intravenous administration and which comprises

a) a short-acting dihydropyridine compound having a half-life in plasma of less than 30 minutes;
b) a lipid phase;
c) an emulsifier; and
d) water or a buffer.

5,739,153

ARYLPYRAZOLE FUNGICIDES

Raymond Peignier, Caluire, and Richard Cantegril, Lyons, both of France, assignors to Rhone-Poulenc Agrochimie, Lyons Cedex, France

PCT No. PCT/FR94/00628, § 371 Date May 31, 1996, § 102(e) Date May 31, 1996, PCT Pub. No. WO94/29276, PCT Pub. Date Dec. 22, 1994

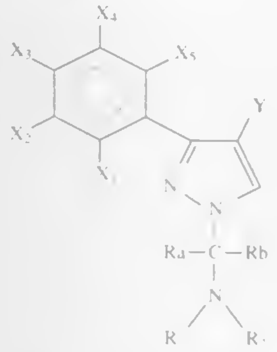
PCT Filed May 31, 1994, Ser. No. 557,192

Claims priority, application France, Jun. 3, 1993, 93 06878

Int. Cl.⁶ A01N *43/56*; C07D *231/12*

U.S. Cl. 514—406 **17 Claims**

1. A compound having the formula



(I)

wherein:

Y is halogen or cyano;

X_1, X_2, X_3, X_4 and X_5, which are the same or different, are hydrogen, halogen, nitro, C_1-C_4 alkyl, thiocyanato, amino, C_3-C_5 alkenyl, C_3-C_5 alkynyl or C_1-C_4 alkoxy, with the proviso that at least one of the X substituents is other than hydrogen;

Ra is hydrogen or C_1-C_4 alkyl;

Rb is hydrogen;

R_1 is alkyl, alkoxyalkyl, cyanoalkyl or benzyl, each alkyl and alkoxy having 1 to 4 carbon atoms;

R_2 is furfuryl, benzyl, cyanoalkyl, phenyl, alkoxyalkyl or alkyl, each alkyl and alkoxy having 1 to 4 carbon atoms; or

R_1 and R_2, together with the nitrogen atom to which they are attached, form a pyrrolidinyl, piperidinyl, morpholino or thiomorpholino group, said group being optionally substituted by methyl, phenyl or benzyl.

5,739,154

Patent Not Issued For This Number

5,739,155

HALOALKYLTHIO,-SULFINYL AND -SULFONYL ARYLPYRROLE INSECTICIDAL AND ACARICIDAL AGENTS

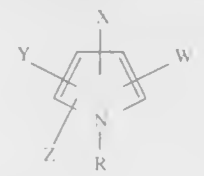
Keith Douglas Barnes, Newtown, Pa.; Victor Marc Kamhi, Hamilton Square, N.J., and Robert Eugene Diehl, Yardley, Pa., assignors to Amerlean Cyanamid Co., Madison, N.J.

Division of Ser. No. 435,905, May 5, 1995, Pat. No. 5,484,807, which is a division of Ser. No. 135,508, Oct. 12, 1993, Pat. No. 5,468,877, which is a division of Ser. No. 803,289, Dec. 4, 1991, Pat. No. 5,306,827. This application Nov. 7, 1995, Ser. No. 553,210

Int. Cl.⁶ A01N *43/36*; *43/40*

U.S. Cl. 514—423 **6 Claims**

1. A method for controlling insects and acarina which comprises contacting said insects and acarina, their breeding grounds, food supply or habitat with an insecticidally or acaricidally effective amount of a compound having the structural formula



wherein

W is $S(O)_nCF_2R_1$,

R_1 is H, F, Cl, Br, CF_2H, CCl_2H, CClFH, CF_3 or CCl_3,

n is an integer of 0, 1 or 2;

X is phenyl optionally substituted with one to three halogen, C_1–C_3 alkyl, C_1–C_3 alkoxy, C_1–C_3 alkylthio, C_1–C_3 alkylsulfinyl, C_1–C_3 alkylsulfonyl, CN, NO_2, CF_3, R_2CF_2B, R_3CO or NR_4R_5 groups;

B is $S(O)_n$ or O;

R_2 is H, F, CF_2H, CClFH or CF_3;

R_3 is C_1–C_3 alkyl, C_1–C_3 alkoxy or NR_4R_5;

R_4 is H or C_1–C_3 alkyl;

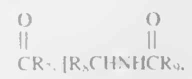
R_5 is H or C_1–C_3 alkyl or R_6CO;

R_6 is H or C_1–C_3 alkyl,

Y is H, halogen, CF_3, CN, NO_2, $S(O)_nCF_2R_1$ or phenyl optionally substituted with one to three halogen, C_1–C_3 alkyl, C_1–C_3 alkoxy, C_1–C_3 alkylthio, C_1–C_3 alkylsulfinyl, C_1–C_3 alkylsulfonyl, CN, NO_2, CF_3, R_2CF_2B, R_3CO or NR_4R_5 groups;

Z is H, halogen or CF_3;

R is CN,



$\overset{\overset{O}{\|}}{C}R_7$, $[R_8CHNH\overset{\overset{O}{\|}}{C}R_9$,

R_7 is C_1–C_6 alkyl or C_3–C_6 cycloalkyl each optionally substituted with

- one to three halogen atoms,
- one hydroxy,
- one cyano,
- one or two C_1–C_4 alkoxy groups optionally substituted with one to three halogen atoms,
- one C_1–C_4 alkylthio,
- one phenyl group optionally substituted with one to three halogen atoms, one to three C_1–C_4 alkyl groups or one to three C_1–C_4 alkoxy groups,
- one phenoxy group optionally substituted with one to three halogen atoms, one to three C_1–C_4 alkyl groups or one to three C_1–C_4 alkoxy groups,
- one benzyloxy group optionally substituted on the phenyl ring with one to three halogen atoms, one to three C_1–C_4 alkyl groups or one to three C_1–C_4 alkoxy groups,
- one C_1–C6 alkyl carbonyloxy group optionally substituted with one to three halogen atoms,
- one C_2–C_6 alkenylcarbonyloxy group optionally substituted with one to three halogen atoms,
- one phenylcarbonyloxy group optionally substituted with one to three halogen atoms, one to three C_1–C_4 alkyl groups or one to three C_1–C_4 alkoxy groups,
- one C_1–C_6 alkoxycarbonyl group optionally substituted with one to three halogen atoms, or one to three C_1–C_4 alkoxy groups, or
- one benzyloxycarbonyl group optionally substituted on the phenyl ring with one to three halogen atoms, one to three C_1–C_4 alkyl groups or one to three C_1–C_4 alkoxy groups,

C_2–C_6 alkenyl optionally substituted with one to three halogen atoms or one phenyl group,

C_3–C_6 alkynyl optionally substituted with one to three halogen atoms or one phenyl group,

phenyl optionally substituted with one to three halogen atoms, one to three C_1–C_4 alkyl groups, one C_5–C_{12} alkyl group, one to two C_1–C_4 alkoxy groups, or one phenoxy, C_1–C_4 alkylthio, trialkylsilyl, C_1–C_4 alkylsulfinyl, C_1–C_4 alkylsulfonyl carbo-C_1-C_4-alkoxy, carboxy, CF_3, CN, NO_2, di(C_1–C_4 alkyl)amino, R_2CF_2B or C_1–C_4 alkanoylamino,

phenoxy optionally substituted with one to three halogen atoms, one or two C_1–C_4 alkyl groups, one or two C_1–C_4 alkoxy groups, trialkylsilyl, CF_3, CN, NO_2, or di(C_1–C_4 alkyl)amino groups, or C_1–C_4 alkanoylamino,

1- or 2-naphthyl,

2-, 3-, or 4-pyridyl optionally substituted with one to three halogen atoms, a heteroaromatic 5-membered ring containing an oxygen, nitrogen, or a sulfur atom, and optionally substituted with one to three halogen atoms,

C_1–C_6 alkoxy group optionally substituted with one to three halogen atoms; or

C_2–C_6 alkenyloxy group optionally substituted with one to three halogen atoms.

5,739,156

METHODS OF USING 2,4-DIENOIC ACID ESTERS OF TOCOPHEROLS TO REDUCE FREE RADICAL DAMAGE IN MAMMALIAN CELLS

Donald Lynn Bissett, Hamilton, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 309,838, Sep. 21, 1994, abandoned. This application Jul. 30, 1997, Ser. No. 902,868

Int. Cl.⁶ A61K *31/355*

U.S. Cl. 514—458 **15 Claims**

1. A method of reducing nonultraviolet induced free radical damage in cells of living mammals comprising administering to a mammal a composition comprising a safe and effective amount of a compound selected from 2,4-dienoic acid esters of tocopherols and mixtures of such compounds.

5,739,157

DIASTEREOMERIC PURE TRIFLUOROMETHYL KETONE PEPTIDE DERIVATIVES AS INHIBITORS OF HUMAN LEUKOCYTE ELASTASE

Stephen John Pegg; George Joseph Sependa; Elwyn Peter Davies, all of Macclesfield, United Kingdom, and Chris Allan Veale, Newark, Del., assignors to Zeneca Limited, London, England

PCT No. PCT/GB95/00242, § 371 Date Jul. 25, 1996, § 102(e) Date Jul. 25, 1996, PCT Pub. No. WO95/21855, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 7, 1995, Ser. No. 682,526

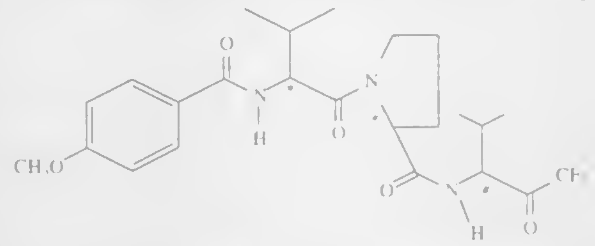
Claims priority, application United Kingdom, Feb. 11, 1994, 9402680; Oct. 26, 1994, 9421550

Int. Cl.⁶ A61K *31/165*, *31/40*; C07D *207/09*

U.S. Cl. 514—428 **16 Claims**

1. A crystalline form of the compound of formula I

I



which has a content of 75% or more of the diastereoisomer having the S configuration at the chiral centres marked * and #, or a crystalline solvated form thereof

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5,739,158

NITROGEN-CONTAINING CYCLOHETERO CYCLOALKYLAMINOARYL DERIVATIVES FOR CNS DISORDERS

Brian R. de Costa, Gaithersburg; Kenner C. Rice, Bethesda, both of Md.; Nancy M. Gray, Buffalo Grove; Patricia C. Contreras, Evanston, both of Ill.; Arthur E. Jacobson, Potomac, Md.; Andrew Thurkauf, Banford, Conn.; Lilian A. Radesca, Brookeville, Md.; Wayne D. Bowen, East Providence, and J. Michael Walker, Cranston, both of R.I., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

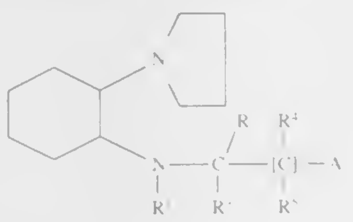
PCT No. PCT/US91/00688, § 371 Date Jul. 1, 1992, § 102(e) Date Jul. 1, 1992, PCT Pub. No. WO91/12247, PCT Pub. Date Aug. 22, 1991

Continuation-in-part of Ser. No. 473,008, Jan. 31, 1990, Pat. No. 5,130,330. This PCT application Jan. 31, 1991, Ser. No. 877,190

Int. Cl.⁶ A61K *31/40*; C07D *295/073*; *295/135*

U.S. Cl. 514—429 **15 Claims**

1. A compound of the formula:



wherein:

p is an integer from 0 to 5.

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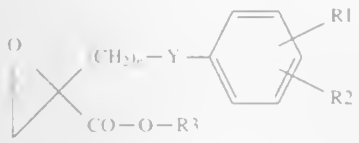
R is selected from the group consisting of hydrogen, C_1–C_5 alkyl, C_3–C_8 cycloalkyl or C_4–C_8 cycloalkylalkyl with the proviso that when R^1 is methyl, than p is not 1,
R^2, R^3, R^4 and R^5 are hydrogen; and
A is phenyl and wherein A may be further substituted with one or more halo substituents;
or a pharmaceutically acceptable salt thereof.

5,739,159
MEDICAMENTS FOR THE TREATMENT OF CARDIAC INSUFFICIENCY

Horst Wolf, Im Tal 17, D-78476 Allensbach, Germany
PCT No. PCT/DE94/01395, § 371 Date May 31, 1996, § 102(e) Date May 31, 1996, PCT Pub. No. WO95/15161, PCT Pub. Date Jun. 8, 1995
PCT Filed Nov. 24, 1994, Ser. No. 652,502
Claims priority, application Germany, Dec. 1, 1993, 43 40 879.6
Int. Cl.^{6} A61K *31/335*
U.S. Cl. 514—475 **5 Claims**

1. A method of treating a condition of deteriorated heart muscle function under unimpeded blood flow, said method comprising administering to a patient suffering from said condition an effective heart muscle function improving amount of an oxirane carboxylic acid compound corresponding to the Formula I



wherein
R1 is a hydrogen atom, a halogen atom, a straight-chain or branched 1–4C alkyl group, a straight-chain or branched 1–4C alkoxy group, a nitro group or a trifluoromethyl group,
R2 has one of the meanings of R1,
R3 is a hydrogen atom or a straight-chain or branched 1–4C alkyl group,
Y is the group —O—$(CH_2)_m$—,
m is zero or a whole number from 1 to 4, and
n is a whole number from 2 to 8,
whereby the sum of m and n is a whole number from 2 to 8, or a pharmacologically acceptable salt thereof

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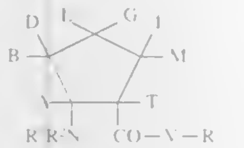
5,739,160
CYCLOPENTANE-AND-PENTENE-BETA-AMINO ACIDS

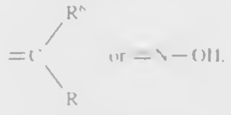
Joachim Mittendorf, Wuppertal; Franz Kunisch, Odenthal; Michael Matzke, Wuppertal; Hans-Christian Militzer, Bergisch Gladbach; Rainer Endermann, Wuppertal; Karl Georg Metzger, Wuppertal; Klaus-Dieter Bremm, Wuppertal, and Manfred Plempel, Haan, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation of Ser. No. 66,751, May 21, 1993, abandoned.
This application Sep. 19, 1994, Ser. No. 308,873
Claims priority, application Germany, May 29, 1992, 42 17 776.6; Jan. 27, 1993, 43 02 155.7
Int. Cl.^{6} A61K *31/21*
U.S. Cl. 514—510 **2 Claims**

1. A cyclopentane- or pentene-62-amino acid compound of the formula (I):

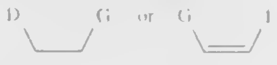


in which

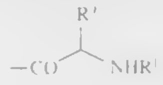
A and T independently represent a substituent selected from the group consisting of hydrogen, fluorine, chlorine, bromine, methyl which is monosubstituted or disubstituted by identical or different hydroxyl or benzyloxy substituents, ethyl which is monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents, and straight-chain or branched propyl or butyl which is optionally monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents,
B and D independently represent a substituent selected from the group consisting of hydrogen, fluorine, chlorine, bromine, hydroxyl, methyl which is optionally monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents, ethyl which is monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents and straight-chain or branched propyl or butyl which is optionally monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents;
E, G, L and M independently represent a substituent selected from the group consisting of hydrogen, fluorine, chlorine, bromine, hydroxyl and alkyl having up to 4 carbon atoms which is optionally monosubstituted or disubstituted by identical or different hydroxyl, phenyl or benzyloxy substituents; or
B and D, E and G in each case together represent a radical of the formula,



in which
R^6 and R^7 are identical or different and represent a substituent selected from the group consisting of hydrogen, fluorine, chlorine, bromine or straight-chain or branched alkyl having up to 4 carbon atoms or phenyl; or
E and G and/or B and D together represent the radical of the formula;
B, D, E and G or E, G, L and M in each case together form a radical of the formula



in which
D' and G' have the abovementioned meaning of D and G, but do not simultaneously represent hydrogen;
G and I are identical or different and denote hydrogen or methyl;
R^2 represents a substituent selected from the group consisting of hydrogen, allyloxycarbonyl, benzyl, benzyloxycarbonyl, Boc or Fmoc, straight-chain or branched alkyl having up to 4 carbon atoms, straight-chain or branched acyl having up to 4 carbon atoms, and an amino acid residue of the formula:

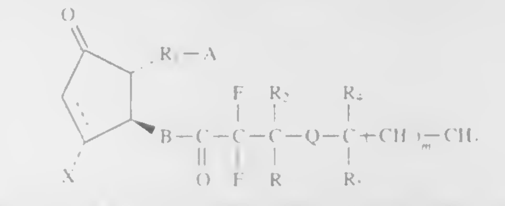


in which
R^9 denotes hydrogen, straight-chain or branched alkyl having up to 4 carbon atoms or benzyl;
and
R^{10} denotes hydrogen, tert butoxycarbonyl or Fmoc;
R^3 represents hydrogen;
V represents a member selected from the group consisting of an oxygen atom, a sulphur atom and the —NH group;
R represents a substituent selected from the group consisting of hydrogen and straight-chain or branched alkyl having up to 4 carbon atoms, and phenyl which are optionally substituted by fluorine, chlorine, bromine, nitro, cyano, methyoxy or ethoxy;
with the proviso that at least one of A, B, D, E, G, L, M and T is not hydrogen,
a stereoisomeric form of said compound, an acid addition salt thereof, or a metal salt complex thereof.

5,739,161
AGENT FOR TREATING HEPTO.BILIARY DISEASES

Ryuji Ueno, Nishinomiya, Japan, assignor to R-Tech Ueno, Ltd., Osaka-Fu, Japan
Continuation of Ser. No. 454,742, May 31, 1995, abandoned.
This application Feb. 12, 1997, Ser. No. 797,940
Claims priority, application Japan, Jun. 3, 1994, 6-122487
Int. Cl.^{6} A61K *31/557*; **C07C** *415/00*
U.S. Cl. 514—530 **28 Claims**

1. A pharmaceutical composition for comprising an effective amount of the compound represented by the formula (I):



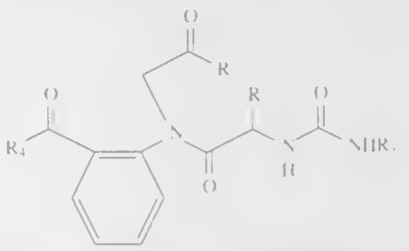
(I)

wherein A is —COOH, pharmaceutically acceptable salts thereof or esters which can be hydrolyzed by an esterase,
B is —CH_2—CH_2— or —CH=CH—,
X is a hydrogen atom or a hydroxyl group provided that X is a hydrogen atom when the cyclopentyl group has a double bond;
R_1 is a divalent saturated or unsaturated C_6 aliphatic hydrocarbon group;
R_2, R_3, R_4, R_5 are independently a hydrogen atom, a methyl group or an ethyl group provided at least one of them is a methyl group or an ethyl group;
Q is a single bond or a saturated C_1–C_6 aliphatic hydrocarbon group which may have a branch; and
m is 0 or 1 and a pharmaceutically acceptable carrier

5,739,162
CARBAMOYLMETHYLUREA DERIVATIVES

Sanji Hagishita, Gose; Susumu Kamata, Takarazuka; Yasushi Murakami, Joyo; Nobuhiro Haga, Osaka; Yasunobu Ishihara, Kyoto, and Toshiro Konoike, Suita, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan
PCT No. PCT/JP95/00161, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO95/21856, PCT Pub. Date Aug. 17, 1995
PCT Filed Feb. 7, 1995, Ser. No. 687,433
Claims priority, application Japan, Feb. 9, 1994, 6-015189; Oct. 5, 1994, 6-241555
Int. Cl.^{6} A61K *31/24*
U.S. Cl. 514—534 **15 Claims**

1. A compound of the formula (I),



(I)

wherein R_1 is a hydrogen atom or lower alkyl; R_2 is a lower alkyl, alkylamino, lower cycloalkyl, phenyl optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl and halogenated lower alkyl at the ortho, meta and/or para position or heterocyclic group optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl, and halogenated lower alkyl; R_3 is a phenyl optionally substituted with 1-3 substituents selected from halogen, cyano, lower alkoxy, lower alkyl, halogenated lower alkyl, —R_5—$(CH_2)_n$—R_6 wherein R_5 is a bond, —O—, -S- or —S(O)—, R_6 is an aromatic heterocyclic group or —$COOR_7$, wherein R_7 is hydrogen, lower alkyl, lower alkenyl, or aralkyl, n is an integer from 0 to 3, NO_2, OH, SMe, CONH, OCF_3, CH_2CN, CH_2OH, CH_2OMe, CH_2NH_2 at the ortho-, meta- and/or para- position, R_4 is a phenyl optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl, halogenated lower alkyl and lower alkoxy at the ortho, meta and/or para position, cycloalkyl which is optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl, halogenated lower alkyl and lower alkoxy alkyl which is optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl, halogenated lower alkyl and lower alkoxy, or heterocyclic group which is optionally substituted with 1–3 substituents selected from amino, hydroxy, halogen, lower alkyl, halogenated lower alkyl and lower alkoxy, or a pharmaceutically acceptable salt thereof

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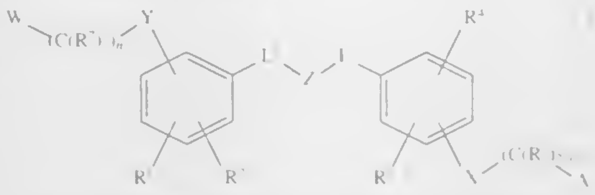
5,739,163
AROMATIC COMPOUNDS CONTAINING BASIC AND ACIDIC TERMINI USEFUL AS FIBRINOGEN RECEPTOR ANTAGONISTS

Gary Avonn Cain; Charles Joseph Eyermann, and Richard Eric Olson, all of Wilmington, Del., assignors to The DuPont Merck Pharmaceutical Company, Wilmington, Del.
Division of Ser. No. 157,860, Nov. 24, 1993, Pat. No. 5,523,302. This application Mar. 8, 1996, Ser. No. 612,597
Int. Cl.^{6} A61K *31/498*; **C02C** *229/38*
U.S. Cl. 514—539 **17 Claims**

1. A compound of Formula I,



I

or a pharmaceutically acceptable salt form thereof wherein,
W is —NR^6R^{6a};
Y is selected from —$C(R^7)_2$—, —C(=O)—, —$S(O)_p$—, —O—, —$N(R^6)$—, —$NR^6C(=O)$—, —$C(=O)N(R^6)$— or a single bond;
with the proviso that when n=0, then the bond between W and Y is not a heteroatom to heteroatom bond
with the proviso that when n=0 and W is NH_2, then Y is not —C(=O)— or —$C(=O)N(R^6)$—,
with the proviso that when n=1 and W is —NR^6R^{6a}, then Y is not —$S(O)_p$—, —O—, —$N(R^6)$—, or —$NR^6C(=O)$—,
L^1 is a bond;
L^2 is selected from:
—(C_1 to C_4 alkyl)—, substituted with 0–8 R^{5b},
—(C_2 to C_4 alkenyl)—, substituted with 0–6 R^{5b},
—(C_2 to C_4 alkynyl)—, substituted with 0–4 R^{5b},
—(cyclopropyl)—, substituted with 0–1 R^5
alternatively, L^2 is taken together with R^3 to form a benzo-fused ring, said benzo-fused ring being substituted with 0–1 R^5,
Z is selected from —C(=O)— or —$S(O)_2$—
X is selected from —C(=O)—, —$S(O)_2$—, O, —$N(R^6)$—, —$NR^6C(=O)$—, —$C(=O)N(R^6)$—, or a single bond
A is selected from CO_2R^8, SO_3H, tetrazolyl, or PO_3H,
R^1, R^2, R^3, R^4, and R^7 are independently selected from
H,
C_1 to C_8 alkyl substituted with 0–5 R^5,
C_2 to C_8 alkenyl substituted with 0–5 R^5,
C_2 to C_8 alkynyl substituted with 0–5 R^5,
C_3 to C_8 cycloalkyl substituted with 0–5 R^5,
C_4 to C_8 cycloalkylalkyl substituted with 0–5 R^5,
C_7 to C_{11} arylalkyl substituted with 0–5 R^5,
C_1 to C_4 alkoxy substituted with 0–5 R^5,
aryl substituted with 0–5 R^5;
a 5–10-membered heterocyclic ring system containing 1–4 heteroatoms independently selected from N, S, and O, said heterocyclic ring being substituted with 0–4 R^5,
F, Cl, Br, I, CF_3, CO_2R^{5a}, $C(=O)R^{5a}$, $CONHR^{5a}$, $CON(R^{5a})_2$, $OC(=O)R^{5a}$, $OC(=O)OR^{5a}$, OR^{5a}, $OC(=O)N(R^{5a})_2$, $OCH_2CO_2R^{5a}$, $CO_2CH_2CO_2R^{5a}$, $N(R^{5a})_2$, NO_2, $NR^{5a}C(=O)R^{5a}$, $NR^{5a}C(=O)OR^{5a}$

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$NR^{5a}C(=O)N(R^{5a})_2$, $NR^{5a}SO_2N(R^{5a})_2$, $NR^{5a}SO_2R^{5a}$, $S(O)_pR^{5a}$, or $SO_2N(R^{5a})_2$;

alternatively, when m or n are 2–6, R^7 can be taken together with R^7 bonded to an adjacent carbon atom to form a direct bond, thereby to form a double or triple bond between the adjacent carbon atoms;

R^5 is selected independently from H, F, Cl, Br, I, CF_3, CN, CHO, CO_2R^{5a}, $C(=O)R^{5a}$, $CONHR^{5a}$, $CON(R^{5a})_2$, $OC(=O)R^{5a}$, $OC(=O)OR^{5a}$, OR^{5a}, $OC(=O)N(R^{5a})_2$, $OCH_2CO_2R^{5a}$, $CO_2CH_2CO_2R^{5a}$, $N(R^{5a})_2$, NO_2, $NR^{5a}C(=O)R^{5a}$, $NR^{5a}C(=O)OR^{5a}$, $NR^{5a}C(=O)N(R^{5a})_2$, $NR^{5a}SO_2N(R^{5a})_2$, $NR^{5a}SO_2R^{5a}$, $S(O)_pR^{5a}$, or $SO_2N(R^{5a})_2$, C_1 to C_8 alkyl, C_2 to C_6 alkenyl, C_3 to C_{11} cycloalkyl, C_4 to C_{11} cycloalkylmethyl, C_6 to C_{10} aryl, or C_7 to C_{11}arylalkyl,

R^{5b} is selected independently from H, F, Cl, Br, I, CF_3, CN, CHO, CO_2R^{5a}, $C(=O)R^{5a}$, $CONHR^{5a}$, $CON(R^{5a})_2$, $OC(=)R^{5a}$, $OC(=O)OR^{5a}$, OR^{5a}, $OC(=O)N(R^{5a})_2$, $OCH_2CO_2R^{5a}$, $CO_2CH_2CO_2R^{5a}$, $N(R^{5a})2$, NO_2 $NR^{5a}C(O=O)R^{5a}$, $NR^{5a}C(=O)OR^{5a}$, $NR^{5a}C(=O)N(R^{5a})_2$, C_1 to C_8 alkyl, C_2 to C_{c6} alkenyl, C_3 to C_{11} cycloalkyl, C_4 C_{11} cycloalkylmethyl, C_6 to C_{10} aryl, or C_7 to C_{11} arylalkyl; $OC(=O)R^{5a}$, $OC(=O)OR^{5a}$, OR^{5a}, $OC(=O)N(R^{5a})_2$, $OCH_2CO_2R^{5a}$, $CO_2CH_2CO_2R^{5a}$, $N(R^{5a})_2$, NO_2, $NR^{5a}C(=O)$ R^{5a}, $NR^{5a}C(=O)$ OR^{5a}, $NR^{5a}C(=O)N(R^{5a})_2$, $NR^{5a}SO_2N(R^{5a})_2$, $NR^{5a}SO_2R^{5a}$, $S(O)_pR^{5a}$, or $SO_2N(R^{5a})_2$, C_1 to C_8 alkyl, C_2 to C_6 alkenyl, C_3 to C_{11} cycloalkyl, C_4 to C_{11} cycloalkylmethyl, C_6 to C_{11} aryl, o, C_7 to C_{11} arylalkyl;

alternatively, two R^{5b} groups when attached to adjacent carbon atoms may be taken together to form —CH_2—, thereby to form a cyclopropylene group;

R^{5a} is selected from: H, C_1 to C_8 alkyl, C_2 to C_6 alkenyl, C_3 to C_{11} cycloalkyl, C_4 to C_{11} cycloalkylmethyl, C_6 to C_{10} aryl, or C_7 to C_{11} arylalkyl; p1 R^6, R^{6a}, and R^8 are independently selected from: H, C_1 to C_4 alkyl, C_3 to C_{11} cycloalkyl, C_6 to C_{10} aryl, C_7 to C_{11} arylalkyl, C_2 to C_7 alkylcarbonyl, C_7 to C_{11} arylcarbonyl, C_2 to C_{11} alkoxycarbonyl, C_4 to C_{11} cycloalkoxycarbonyl, C_7 to C_{11} bicycloalkoxycarbonyl, or C_7 to C_{11} aryloxycarbonyl;

R^9 is selected from H, C_1 to C_8 alkyl, C_3 to C_{11} cycloalkyl, C_6 to C_{10} aryl, C_7 to C_{11} aralkyl, C_3 to C_{10} alkylcarbonyloxyalkyl, C_3 to C_{10} alkoxycarbonyloxyalkyl, C_2 to C_{10} alkoxycarbonyl, C_5 to C_{10} cycloalkylcarbonyloxyalkyl, C_5 to C_{10} cycloalkoxycarbonyloxyalkyl, C_5 to C_{10} cycloalkoxycarbonyl, C_7 to C_{11} aryloxycarbonyl, C_8 to C_{12} aryloxycarbonyloxyalkyl, C_8 to C_{12} arylcarbonyloxyalkyl, C_5 to C_{10} alkoxyalkylcarbonyloxyalkyl, C_5 to C_{10} (5-alkyl-1,3 dioxa-cyclopenten-2-one-yl)methyl, or C_{10} to C_{14} (5-aryl-1,3-dioxa cyclopenten-2 one-yl)methyl;

m is an integer from 1–6, with the proviso that m plus n cannot be greater than 6;

n is an integer from an integer from 0 to 6;

p is an integer from 0 to 2.

5,739,164

PHARMACEUTICAL COMPOUNDS FOR THE TREATMENT OF CNS DISEASES

Jesus Ezquerra Carrera; Almudena Rubio Esteban, both of Madrid, Spain; André Mann, Ostwald; Angéle Schoenfelder, Lampertheim, both of France; Darryle Darwin Schoepp, Indianapolis, Ind.; Concepcion Pedregal Tercero, Madrid, Spain, and Camille-Georges Wermuth, Strasbourg, France, assignors to Eli Lilly and Company, Indianapolis, Ind.

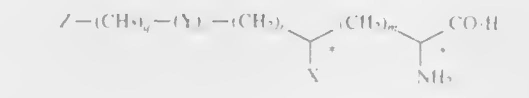
Division of Ser. No. 343,817, Nov. 22, 1994, Pat. No. 5,589,501. This application Sep. 13, 1996, Ser. No. 713,624

Claims priority, application United Kingdom, Dec. 3, 1993, 9324872

Int. Cl.⁶ A61K *31/195; 31/38; 31/41*

U.S. Cl. 514—567 **7 Claims**

1. A method of treating a disease of the central nervous system in an animal in need thereof comprising administering to said animal an effective amount of a compound of the formula



in which m is 0, 1 or 2, n and q are 0 or 1 to 5, and p is 0 or 1,

X is —CO_2H or tetrazolyl,

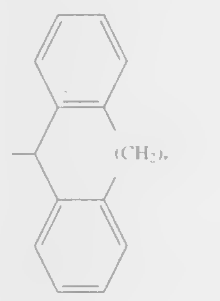
Y is —CH=CH—, and

Z is

(i) phenyl, naphthyl or thienyl, said phenyl, naphthyl and thienyl being optionally substituted,

(ii) —CH^1R^2 where R^1 and R^2 are each phenyl, naphthyl or thienyl, said phenyl, naphthyl and thienyl being optionally substituted,

(iii)



where r is 0 or 1 to 3 and the phenyl rings optionally substituted;

provided that when Z is phenyl and m is 1, p is 1 or a pharmaceutically-acceptable salt or ester thereof

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5,739,165

STABILIZED SOLID PHARMACEUTICAL PREPARATION AND METHOD OF PRODUCING THE SAME

Tadashi Makino; Yoshio Mizukami, and Jun-Ichi Kikuta, all of Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 45,867, Apr. 15, 1993, abandoned. This application Jul. 15, 1994, Ser. No. 278,701

Claims priority, application Japan, Apr. 17, 1992, 4-098169; Apr. 7, 1993, 5-106167

Int. Cl.⁶ A61K *31/19; 31/135*

U.S. Cl. 514—570 **19 Claims**

1. A stabilized solid pharmaceutical preparation which comprises ibuprofen and phenylpropanolamine or its hydrochloride as the active ingredients, said preparation being a mixture of a granulated preparation containing ibuprofen and a granulated preparation containing phenylpropanolamine or its hydrochloride with the proviso that the granulated preparation containing phenylpropanolamine or its hydrochloride is (i) substantially free from any reducing sugar, or (ii) contains a reducing sugar in an amount of 5% by weight or less based on the total weight of said granulated preparation containing phenylpropanolamine or its hydrochloride.

5,739,166

SUBSTITUTED TERPHENYL COMPOUNDS FOR THE TREATMENT OF INFLAMMATION

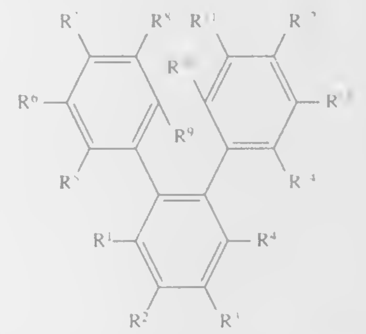
David B. Reitz; Jinglin Li, both of Chesterfield, and Monica B. Norton, Maryland Heights, all of Mo., assignors to G.D. Searle & Co., Skokie, Ill.

Filed Nov. 29, 1994, Ser. No. 346,433

Int. Cl.⁶ A61K *31/18*

U.S. Cl. 514—602 **47 Claims**

1. A compound of Formula I



I

wherein each of R^1 through R^4 is independently selected from the group consisting of hydrido, halo, and alkoxy; wherein each of R^5 through R^{14} is independently selected from the group consisting of hydrido, alkyl, halo, alkoxy, alkylthio, cyano, haloalkyl, amino, alkylamino, dialkylamino, haloalkoxy, hydroxyalkyl, alkoxyalkyl, hydroxyl, mercapto, aminosulfonyl and alkylsulfonyl; provided R^{12} is selected from the group consisting of methylsulfonyl or aminosulfonyl; or a pharmaceutically-acceptable salt thereof.

5,739,167

DESFERRIOXAMINE-B SALTS AND THEIR USE AS ORALLY EFFECTIVE IRON CHELATORS

Nicholas Lowther; Ian Francis Hassan, and Ian Timothy William Matthews, all of Horsham, England, assignors to Novartis Corporation, Summit, N.J.

PCT No. PCT/GB93/00940, § 371 Date Nov. 30, 1994, § 102(e) Date Nov. 30, 1994, PCT Pub. No. WO93/24451, PCT Pub. Date Dec. 9, 1993

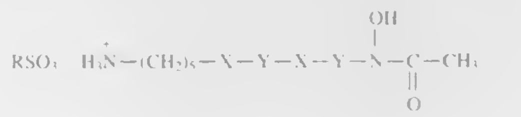
PCT Filed May 6, 1993, Ser. No. 343,599

Claims priority, application United Kingdom, Jun. 3, 1992, 9211779

Int. Cl.⁶ A01N *37/18*

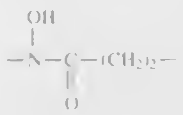
U.S. Cl. 514—616 **16 Claims**

1. A salt of formula



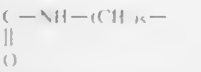
$$RSO_3\quad \overset{+}{H_3N}-(CH_2)_5-X-Y-X-Y-\overset{\overset{OH}{|}}{N}-\underset{\underset{O}{\|}}{C}-CH_3 \qquad I$$

where X denotes a group of formula



$$-\overset{\overset{OH}{|}}{N}-\underset{\underset{O}{\|}}{C}-(CH_2)_2- \qquad II$$

Y denotes a group of formula



$$-\underset{\underset{O}{\|}}{C}-NH-(CH_2)_5- \qquad (III)$$

and R denotes the residue of an aliphatic or cycloaliphatic sulphonic acid having from 6 to 20 carbon atoms after removal of a —SO_3H group therefrom.

5,739,168

GERMICIDAL-DISINFECTANT DETERGENT COMPOSITION

Yuichi Hioki; Tadashi Moriyama; Chikako Ikeda; Juri Okamoto, and Yoshinori Tamura, all of Wakayama, Japan, assignors to Kan Corporation, Tokyo, Japan

Continuation of Ser. No. 594,389, Jan. 31, 1996, abandoned, which is a continuation of Ser. No. 291,082, Aug. 18, 1994, abandoned. This application Sep. 9, 1997, Ser. No. 925,651

Claims priority, application Japan, Aug. 19, 1993, 5-205076; Aug. 19, 1993, 5-205077

Int. Cl.⁶ A01N *33/12*

U.S. Cl. 514—643 **17 Claims**

1. A germicidal-disinfectant detergent composition comprising (a) 0.5–5 weight percent of benzalkonium hexadecylphosphate, (b) a metal chelating agent and (c) 5–50 weight percent of at least one anionic surfactant selected from the group consisting of a salt of a higher fatty acid having 10–14 carbon atoms, a salt of a higher alcohol sulfate having 10–18 carbon atoms, a salt of a higher alcohol phosphate having 10–14 carbon atoms, and a salt of a higher alcohol ether sulfate having 10–18 carbon atoms,

wherein said metal chelating agent is present in an amount of 0.5–5 mol per mol of benzalkonium hexadecylphosphate

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5,739,169

AROMATIC COMPOUNDS FOR INHIBITING IMMUNE RESPONSE

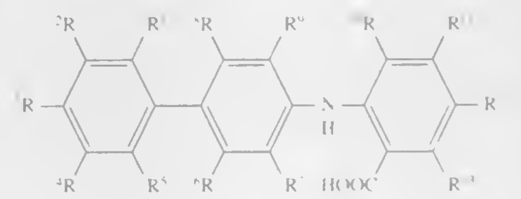
Timothy D. Ocain, Framingham; Huai Gan, Groton; Jeffrey I. Krieger, Newton, and Theresa M. Sampo, Boston, all of Mass., assignors to Procept, Incorporated, Cambridge, Mass.

Filed May 31, 1996, Ser. No. 656,468

Int. Cl.⁶ A61K *31/135;* **A01N** *33/02,* **C07C** *229/00*

U.S. Cl. 514—658 **5 Claims**

1. A compound having the formula:



and physiologically acceptable salts thereof,

wherein R^1 to R^{13} are independently selected from the group consisting of C_2–C_4 linear and branched alkyls, H, NH_2, CH_3, OR^{14}, fluorine, chlorine, bromine, iodine, NO_2, CF_3, $NHCOCH_3$, NHCOOtBu, NHR^{15}, $NR^{16}R^{17}$ and phenyl, wherein R^{14} is a C_1–C_4 linear or branched alkyl,

wherein R^{15} is selected from the group consisting of C_2–C_4 linear and branched alkyls,

wherein R^{16} and R^{17} are independently selected from the group consisting of H and C_2–C_4 linear and branched alkyls.

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5,739,170

INHIBITORS OF METAZOAN PARASITE PROTEASES

Fred E. Cohen; James H. McKerrow; George L. Kenyon, all of San Francisco, Calif.; Zhe Li, Malden, Mass.; Xiaowu Chen; Baoqing Gong, both of San Francisco, Calif., and Rongshi Li, San Diego, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 387,760, Mar. 28, 1995, Pat. No. 5,610,192, which is a continuation-in-part of Ser. No. 943,925, Sep. 11, 1992, abandoned. This application Mar. 30, 1995, Ser. No. 413,337

Claims priority, application WIPO, Sep. 11, 1993, PCT/US93/08708

Int. Cl.⁶ A61K *31/12;31/135*

U.S. Cl. 514—685 **9 Claims**

1. A method for treating a patient infected with a metazoan parasite, said method comprising administering an amount effective to kill the parasite of at least one metazoan protease inhibitor of general formula

A—X—B

wherein A is a substituted or unsubstituted homoaromatic ring system comprising one to three rings which binds to at least one of the S2, S1 and S1' subsites;

B is a substituted or unsubstituted homoaromatic ring system comprising one to three rings which binds to at least one of the S1', S1 and S2 subsites; and

X is —C=C—C(=O)—

5,739,171

METHOD FOR PROMOTING ANIMAL GROWTH

Gisen Shimazaki, Osaka; Chen Jian Jun, Kobe, and Norio Ohara, Nara-ken, all of Japan, assignors to Asahi Chemical Manufacturing Co., Ltd., Osaka, Japan

Continuation of Ser. No. 436,956, May 8, 1995, abandoned, which is a continuation-in-part of Ser. No. 227,460, Apr. 14, 1994, abandoned. This application Feb. 11, 1997, Ser. No. 797,737

Claims priority, application Japan, Apr. 21, 1993, 5-119045

Int. Cl.⁶ A61K *31/075;31/045*

U.S. Cl. 514—716 **14 Claims**

1. A method for promoting growth of an animal which comprises administering to the animal a growth promoting amount of one or more compounds selected from the group consisting of o-nitrophenol, p-nitrophenol and 5-nitroguaiacol, and salts thereof.

5,739,172

ENVIRONMENTALLY SAFE PESTICIDE COMPOSITIONS

Keith A. Jones, Yardley, Pa., assignor to Church & Dwight Co., Inc., Princeton, N.J.

Division of Ser. No. 907,050, Jul. 1, 1992, Pat. No. 5,342,630. This application Mar. 30, 1993, Ser. No. 40,346

Int. Cl.⁶ A61K *7/075*, **C11D** *9/12*

U.S. Cl. 514—881 **6 Claims**

1. A pet shampoo formulation which is an aqueous medium having an ingredient content which comprises (1) a salt ingredient selected from C_8-C_{22} fatty acid alkali metal and ammonium salts, (2) an inorganic salt ingredient selected from alkali metal and ammonium bicarbonates; (3) a fragrance ingredient; and (4) at least one compound selected from alkali metal and ammonium carbonates providing a pH in the range of 7.5–12.

5,739,173

PREPARATION OF FLAME-RESISTANT SOFT POLYURETHANE FOAMS OF REDUCED SMOKE DENSITY, AND MELAMINE/EXPANDABLE GRAPHITE/POLYETHER-POLYOL DISPERSIONS FOR THIS PURPOSE

Heinz-Dieter Lutter, Neckargemuend; Ruth Zschiesche, Mannheim; Hans-Jürgen Gabbert, Wildeshausen; Volker Hasse, Schoengeising, and Karl Fimmel, Brakel, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 229,853, Apr. 19, 1994, abandoned, which is a continuation of Ser. No. 44,868, Apr. 8, 1993, abandoned, which is a continuation of Ser. No. 780,589, Oct. 23, 1991, abandoned. This application Sep. 20, 1995, Ser. No. 531,114

Claims priority, application Germany, Oct. 26, 1990, 40 34 046.5

Int. Cl.⁶ C08G *18/14*

U.S. Cl. 521—99 **19 Claims**

1. A process for the preparation of a flame-resistant, soft polyurethane foam having reduced smoke density, comprising reacting

a) an isocyanate component comprising an organic polyisocyanate and/or a modified organic polyisocyanate with

b) a polyol component consisting essentially of a high-molecular-weight polyether polyol containing at least two reactive hydrogen atoms, polyurethane/polyether-polyol dispersions, graft polyether-polyols, or mixtures thereof, and

c) optionally, a low-molecular-weight chain extender, in the presence of

d) a flameproofing agent,

e) a blowing agent,

f) a catalyst and, optionally

g) assistants and/or additives,

wherein the flameproofing agent (d) comprises, based on 100 parts by weight of the polyol component (b):

di) from 5 to 100 parts by weight of melamine,

dii) from 0.1 to 35 parts by weight of expandable graphite, and

diii) from 0.5 to 15 parts by weight of a modified or unmodified ammonium polyphosphate.

5,739,174

EPOXYSILICONE PHOTOCURABLE COMPOSITION COMPRISING A SULFOLENE OR ISATIN PHOTOSENSITIZER

Fujio Hara, Hachioji, Japan, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US94/13638, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/16722, PCT Pub. Date Jun. 22, 1995

PCT Filed Nov. 21, 1994, Ser. No. 648,046

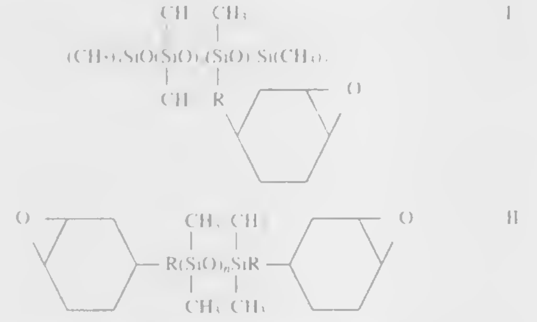
Claims priority, application Japan, Dec. 15, 1993, 5-314734

Int. Cl.⁶ C08G *65/16;77/14*

U.S. Cl. 522—25 **7 Claims**

1. A photocurable composition comprising:

(a) a photopolymerizable compound of the formula I or II



wherein x and n each independently has a value of 0 to 100, y has a value of 1 to 100; and R is a divalent linking group having 1 to 10 carbon atoms;

(b) a photoinitiator; and

(c) a photosensitizer, wherein the photosensitizer comprises at least one material selected from the group consisting of sulfolene, sulfolene substituted by an alkyl group of 1-5 carbon atoms, an alkoxy group of 1-5 carbon atoms, halogen, a cyano group, an amino group or a phenyl group; isatin, and isatin substituted by an alkyl group of 1-5 carbon atoms, an alkoxy group of 1-5 carbon atoms, halogen, a cyano group, an amino group or a phenyl group.

5,739,175

PHOTOREACTOR COMPOSITION CONTAINING AN ARYLKETOALKENE WAVELENGTH-SPECIFIC SENSITIZER

Ronald Sinclair Nohr, Alpharetta, and John Gavin MacDonald, Decatur, both of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

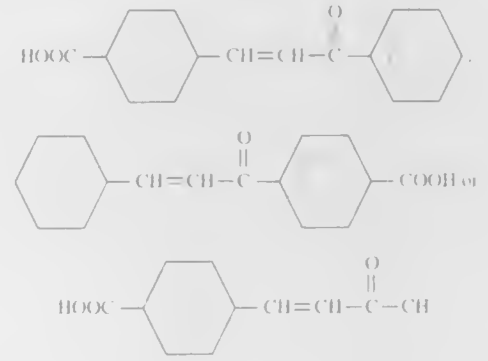
Filed Jun. 5, 1995, Ser. No. 463,188

Int. Cl.⁶ G03F *7/028;* **C08F** *2/50;* **C07C** *49/794;69/76*

U.S. Cl. 522—34 **3 Claims**

1. A photoreactor consisting of:

a reactive species-generating photoinitiator covalently bonded to a wavelength-specific sensitizer, the sensitizer being represented by one of the following formulae prior to bonding



wherein the photoinitiator is covalently bonded through the carboxylic acid group of the sensitizer.

5,739,176

BIODEGRADABLE IN-SITU FORMING IMPLANTS AND METHODS OF PRODUCING THE SAME

Richard L. Dunn, Fort Collins, Colo.; James P. English, Birmingham, Ala.; Donald R. Cowsar, Birmingham, Ala., and David D. Vanderbilt, Birmingham, Ala., assignors to Atrix Laboratories, Inc., Fort Collins, Colo.

Continuation of Ser. No. 788,032, Dec. 23, 1991, Pat. No. 5,340,849, which is a division of Ser. No. 513,782, Apr. 24, 1990, Pat. No. 5,278,201, which is a division of Ser. No. 252,645, Oct. 3, 1988, Pat. No. 4,938,763. This application Mar. 18, 1994, Ser. No. 210,891

Int. Cl.⁶ A61F *2/02;2/00*

U.S. Cl. 523—113 **43 Claims**

1. A method of forming a solid, biodegradable implant in-situ, in a body, comprising:

(a) dissolving a biocompatible, water-insoluble biodegradable thermoplastic polymer in a biocompatible, water-soluble organic solvent to form a composition, the organic solvent being capable of dissipating or diffusing into a body fluid upon placement within a body tissue;

and the thermoplastic polymer being selected from the group consisting of

(i) a copolymer of a biodegradable, water-insoluble monomer or polymer and a biodegradable, water-soluble monomer or polymer, wherein the amount of water-insoluble monomer or polymer is sufficient to render the copolymer water insoluble;

(ii) a copolymer of polyethylene glycol with polylactide, polyglycolide or polycaprolactone, or a terpolymer thereof,

(iii) a copolymer of lactide with glycolide or caprolactone, or a terpolymer thereof;

(iv) a copolymer of lactide with a carbonate, and

(v) a polyanhydride; and

(b) placing the composition into an implant site within the body, and

(c) allowing the organic solvent to dissipate or diffuse into body fluid, and the thermoplastic polymer to coagulate or solidify to produce the biodegradable solid implant;

wherein the proportion of polymer in solvent and the molecular weight of the polymer are effective to provide said dissipation or diffusion and said coagulation.

5,739,177

DENTAL COMPOSITION

Hideki Ohno; Mikio Kimura; Satoru Fuchigami, and Makoto Oguri, all of Tokuyama, Japan, assignors to Tokuyama Corporation, Tokuyama, Japan

Continuation of Ser. No. 364,093, Dec. 27, 1994, abandoned. This application Jun. 6, 1996, Ser. No. 659,621

Claims priority, application Japan, Dec. 28, 1993, 5-336957

Int. Cl.⁶ A61K *6/08*

U.S. Cl. 523—118 **6 Claims**

1. An agent for pre-treating a surface of a tooth prior to application of an adhesive thereto, said agent consisting essentially of an admixture of

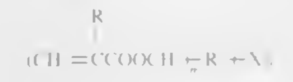
(A) (i) an inorganic acid selected from the group consisting of nitric acid, phosphoric acid, hydrochloric acid and sulfuric acid,

(ii) an organic monocarboxylic acid selected from the group consisting of formic acid, lactic acid, pyruvic acid, glycolic acid, chloroacetic acid, dichloracetic acid, trichloroacetic acid and cyanoacetic acid,

(iii) an organic dicarboxylic acid selected from the group consisting of tartaric acid, succinic acid, glutaric acid, maleic acid, fumaric acid, malonic acid, citraconic acid, ortho-phthalic acid, meta-phthalic acid and para-phthalic acid, or

(iv) an organic tricarboxylic acid selected from the group consisting of citric acid, tricarballylic acid, 1,3,5-pentanetricarboxylic acid and trimellitic acid,

(B) an acid group-containing (meth)acrylate monomer represented by the following general formula



$$(CH=\overset{R}{\overset{|}{C}}COOCH \underset{n}{+} R + X)$$

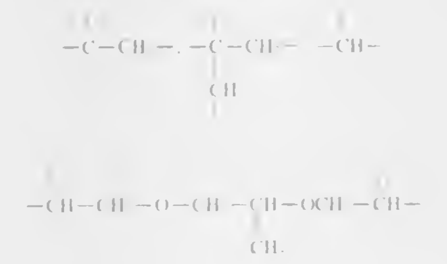
wherein

R is a hydrogen atom or a methyl group,

R_2 is selected from the group consisting of

$-(CH_2)_{[illegible]}-$, $-(CH_2)_4-$, $-(CH_2)_6-$

$-(CH_2)_8-$, $-(CH_2)_{[illegible]}-$, $-(CH_2)_{[illegible]}-$



$$-C-CH-, \; -\underset{CH}{\underset{|}{C}}-CH-, \; -CH-$$

$$-CH-CH-O-CH-\underset{CH}{\underset{|}{CH}}-OCH-CH-$$

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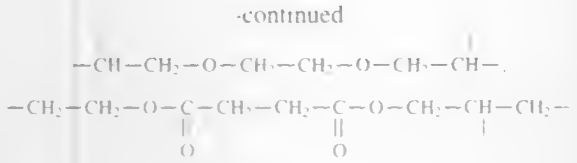
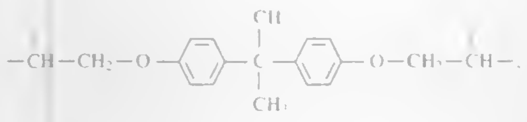
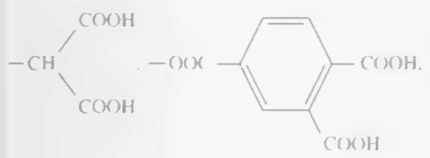


$$-CH-CH_2-O-CH_2-CH_2-O-CH_2-CH-,\quad -CH_2-CH_2-O-\overset{\displaystyle O}{\overset{\|}{C}}-CH_2-CH_2-\overset{\displaystyle O}{\overset{\|}{C}}-O-CH_2-CH-CH_2-$$

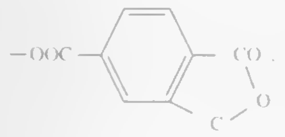
and



X is a group selected from the group consisting of



and



m is an integer of 1 to 4, and

n is an integer of 1 or 2.

(C) an organosulfonate and/or an organosulfinate,

(D) a water-soluble organic solvent, and

(E) water;

wherein the acid (A) is present in an amount of from 15 to 150 mmols based on a total of 100 g of (B), (C), (D) and (E); the monomer (B) being present in an amount of from 1 to 30 parts by weight based on a total of 100 parts by weight of (B), (C), (D) and (E); the organosulfonate and/or the organosulfinate (C) being present in an amount of from 1 to 20 parts by weight based on a total of 100 parts by weight of (B), (C), (D) and (E); the solvent (D) being present in an amount of from 10 to 90 parts by weight based on a total of 100 parts by weight of (B), (C), (D) and (E); and the water (E) being present in an amount of from 5 to 80 parts by weight based on a total of 100 parts by weight of (B), (C), (D) and (E).

5,739,178

POLYMER, ARTICLE AND METHOD FOR INHIBITING THE GROWTH OF OCULAR PATHOGENS IN EYE CARE PRODUCTS

Charles Hayes Powell, Irvine, and David C. Rupp, San Pedro, both of Calif., assignors to Allergan, Waco, Tex.

Filed May 15, 1995, Ser. No. 440,579

Int. Cl.^{6} C08L *23/02*

U.S. Cl. 523—122 **33 Claims**

1. A polyvalent cation chelating polymer capable of inhibiting the growth of an ocular pathogen, said polymer comprising an effective growth inhibiting amount of an $-N(CH_2CO_2A)_2$ group, wherein A is hydrogen or an alkali metal cation.

5,739,179

GRAFTED POLYMER COMPOSITION

Shang Jaw Chiou, and Miao-Hsun Li Sheng, both of Lower Gwynedd, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 390,395, Feb. 16, 1995, Pat. No. 5,563,187. This application Jul. 19, 1996, Ser. No. 684,075

Int. Cl.^{6} C08L *83/00*

U.S. Cl. 523—201 **6 Claims**

1. An emulsion polymer comprising a core and a grafted shell, said grafted shell selected from the group consisting of

(a) at least one graftable water-soluble polymer and at least one graftable alkali-soluble polymer;

(b) at least one graft copolymer comprising at least one graftable water-soluble polymer grafted with at least one graftable alkali-soluble polymer; and

(c) a combination of (a) and (b).

5,739,180

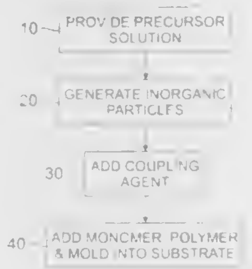
FLAT PANEL DISPLAYS AND METHODS AND SUBSTRATES THEREFOR

Ralph E. Taylor-Smith, Dunnellen, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 2, 1996, Ser. No. 641,856

Int. Cl.^{6} G02F *1/133*

U.S. Cl. 523—203 **22 Claims**


10
PROVIDE PRECURSOR SOLUTION
20
GENERATE INORGANIC PARTICLES
30
ADD COUPLING AGENT
40
ADD MONOMER POLYMER & MOLD INTO SUBSTRATE

1. A method for forming a substrate suitable for use in flat panel displays, comprising the steps of

(a) providing about 1 to 70 weight percent on a dry basis of a precursor suitable for forming a suspension of nanometer-sized inorganic particles selected to impart thermal properties to the substrate suitable for withstanding flat panel display processing temperatures;

(b) generating the inorganic particles,

(c) combining the inorganic particles with about 1 to 70 weight percent of a coupling agent having at least a first and a second functional group, and about 20 to 98 weight percent of an organic monomer that forms a polymer having a predetermined amount of transparency and freedom from birefringence and having a glass transition temperature above about 100°, and

(d) polymerizing the organic monomer; wherein,

the first functional group of the coupling agent is selected for its ability to chemically bond with the inorganic particles and the second functional group of the coupling agent is selected for its ability to bond with the organic monomer.

5,739,181

RADIATION CURABLE HARDCOAT COMPOSITIONS POSSESSING ANTI-FOG PROPERTIES

Igor V. Khudyakov, Clifton Park, and George F. Medford, Ballston Lake, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Jun. 7, 1996, Ser. No. 660,247

Int. Cl.^{6} C08K *5/04; 9/06*

U.S. Cl. 523—213 **16 Claims**

1. An ultraviolet curable hardcoat composition comprising:

(A) finely divided silica

(B) a multi-functional compound containing two or more terminal acrylic moieties and one or more divalent oxyalkylene radicals having the formula:

$$-((CX_2)_xO)_n((CX_2)_yO)_m-$$

where the sum of the x stoichiometric subscripts for each divalent oxyalkylene radical and the sum of the y stoichiometric subscripts for each divalent oxyalkylene radical when said sums are added together is ten or greater and the stoichiometric subscripts n and m are different and have values independently ranging from one to ten, where each X is independently selected from the group consisting of hydrogen, one to forty carbon atom monovalent hydrocarbon radicals and six to forty carbon atom monovalent aromatic hydrocarbon radicals; and

(C) an olefinically functionalized trialkoxy silane.

5,739,182

STABILIZATION OF TIN-COUPLED POLYMERS

Wen-Liang Hsu, Cuyahoga Falls, and Adel Farhan Halasa, Bath, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 31, 1997, Ser. No. 791,929

Int. Cl.^{6} C08K *5/3495*

U.S. Cl. 524—100 **3 Claims**

1. A process for improving the stability of a tin-coupled rubbery polymer which comprises adding N,N'-dialkyl piperazine to the tin-coupled rubbery polymer subsequent to the time at which the tin-coupled rubbery polymer is coupled

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5,739,183

COLORLESS, NON-TOXIC, STABILIZED AQUEOUS SOLUTION OF A C_1-C_5 ALKYL VINYL ETHER AND MALEIC ACID COPOLYMER

Chi-San Wu; James Curry, both of Wayne, N.J.; James P. Cullen, Bartonsville, Pa., and John S. Mc Ewan, Paducah, Ky., assignors to ISP Investments Inc., Wilmington, Del.

Filed Sep. 13, 1995, Ser. No. 528,380

Int. Cl.^{6} C08K *5/16*

U.S. Cl. 524—239 **4 Claims**

1. A method of stabilizing an aqueous solution of an acid copolymer of maleic acid and a C_1–C_5 alkyl vinyl ether against degradation in viscosity or molecular weight upon storage for an extended period of time in aqueous solution at ambient conditions, with a single stabilizing agent, which comprises forming the acid copolymer directly from a slurry of corresponding anhydride in an organic solvent by hydrolysis in water, and adding including ethylenediamine tetraacetic acid (EDTA), or salt thereof, as the single stabilizing agent to the solution either before or after hydrolysis.

5,739,184

THERMOSETTING RESIN COMPOSITIONS

David L. Marbry, Westby, and David R. Duller, Waukesha, both of Wis., assignors to National Starch and Chemical Company, Bridgewater, N.J.

Continuation of Ser. No. 539,393, Oct. 5, 1995, abandoned. This application Dec. 17, 1996, Ser. No. 767,754

Int. Cl.^{6} C08K *3/20;* **C08L** *63/00*

U.S. Cl. 523—403 **38 Claims**

1. A thermosetting resin composition, comprising,

an epoxy resin,

a rosin,

an organometallic compound comprising an organic moiety derived from a compound selected from the group consisting of a C_3–C_{32} monocarboxylic acid or derivative thereof, a C[illegible]–C[illegible] phenol, a C[illegible]–C[illegible] naphthol and a C_5–C[illegible] 1,3 diketone and a metal selected from the group consisting of magnesium, calcium, barium, aluminum, antimony and zinc, and

optionally, a binder selected from the group consisting of elastomeric and thermoplastic polymers, wherein the epoxy resin the rosin and the organometallic compound are present at levels effective to provide the thermosetting resin composition with improved adhesion to a steel substrate.

5,739,185

CATIONIC ELECTRODEPOSITABLE COATING COMPOSITION AND COATING METHOD USING THE SAME

Hidehiko Haneishi; Masanobu Kudoh, both of Hiratsuka, and Koji Kamikado, Yokohama, all of Japan, assignors to Kansai Paint Co., Ltd., Japan

Filed Aug. 16, 1995, Ser. No. 515,592

Claims priority, application Japan, Aug. 17, 1994, 6-214323; Oct. 20, 1994, 6-279688

Int. Cl.^{6} C08L *63/00*

U.S. Cl. 523—415 **22 Claims**

1. A cationic electrodepositable coating composition comprising

[I] A polyurethane-modified epoxy resin-amine adduct obtained by a reaction of,

(A) a polyurethane compound having one terminal isocyanate group and at least one blocked isocyanate in the molecule, obtained by a reaction of (a) a polyhydroxy compound having a number-average molecular weight of 50–8,000, (b) a polyisocyanate compound, and (c) a compound for blocking an isocyanate group, which has one active hydrogen atom in the molecule,

(B) a bisphenol epoxy resin having at least two epoxy groups in the molecule, and

(C) an active-hydrogen-containing amine compound, and [II] a nonionic film-forming resin.

5,739,186

EPOXY RESIN COMPOSITION FOR SEMICONDUCTOR ENCAPSULATION

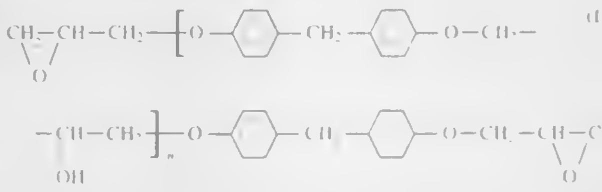
Atsuhito Hayakawa; Yasuyuki Murata; Yoshinori Nakanishi, and Norio Tohriiwa, all of Yokkaichi, Japan, assignors to Shell Oil Company, Houston, Tex.

Filed Nov. 28, 1995, Ser. No. 566,574

Int. Cl.^{6} C08L *63/00;* **C08G** *59/00*

U.S. Cl. 523—443 **7 Claims**

1. An epoxy resin composition for semiconductor encapsulation comprising an epoxy resin, hardener, inorganic filler, and accelerator, wherein said epoxy resin comprises about 20 to about 90 parts by weight of a bisphenol F type epoxy resin solid at 25° C wherein said bisphenol F type epoxy resin comprises 4,4'-bisphenol F and is free of 2,2'-and 2,4'-isomers, said 4,4'-bisphenol F type epoxy resin represented by the formula (I)



(I)

wherein m is a numeral of 0–0.5 on average, and 10 to about 80 parts by weight of a second epoxy resin selected from the group consisting of (a) a polyhydric phenolic type epoxy resin represented by the formula (II)

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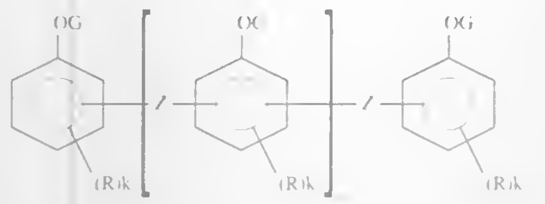
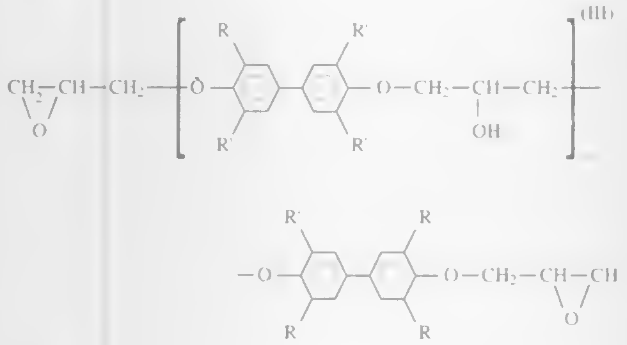


(II)

wherein slightly polar hydrocarbon groups are present between the phenyl nuclei, and wherein each R, which may be the same or different from one another, denotes a hydrogen atom, a C_{1-10} alkyl group, a phenyl group, a aralkyl group, a C_{1-10} alkoxyl group or a halogen atom, k denotes an integer of 0–4 and its values may be identical with or different from one another, G denotes a glycidyl group, Z denotes a C_{5-10} divalent hydrocarbon group and Z's may be identical with Or different from each other, and n is a numeral of 0–5 on average, and (b) a biphenol type epoxy resin represented by the formula (III)



(III)

wherein each R', which may be the same or different from one another denotes a hydrogen atom, a C_{1-10} alkyl group, a phenyl group, a aralkyl group, a C_{1-10} alkoxyl group or halogen atom, and n' is a numeral of 0–0.05 on average.

5,739,187
SEMICONDUCTOR ENCAPSULATING EPOXY RESIN COMPOSITIONS AND SEMICONDUCTOR DEVICES ENCAPSULATED THEREWITH

Eiichi Asano; Takayuki Aoki; Toshio Shinbara, all of Usui-gun, Japan; Peter Flury, Himmelried, Switzerland; Wolfgang Scharf, Grenzach-Wyhlen, Germany, and Tadashi Okada, Oberwil, Switzerland, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan, and Ciba-Geigy Corporation, Tarrytown, N.Y.

Filed Mar. 14, 1996, Ser. No. 615,145

Claims priority, application Japan, Apr. 10, 1995, 7-109059

Int. Cl.⁶ C08G *59/68; 65/10*

U.S. Cl. 523—451 9 Claims

1. A semiconductor encapsulating epoxy resin composition suitable for molding over a semiconductor comprising

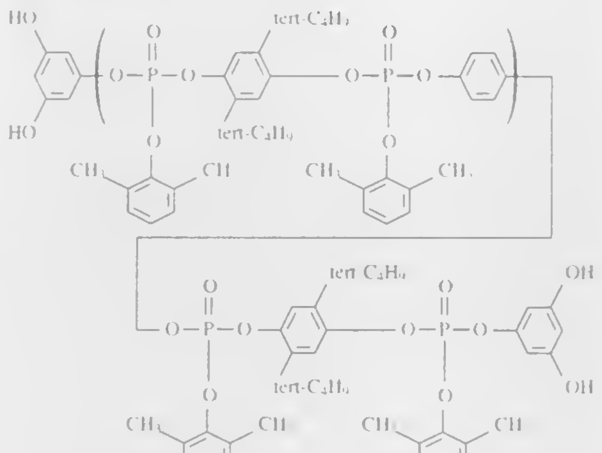
(A) 20 to 80 parts by weight of an epoxy resin which is a biphenyl epoxy resin or novolak epoxy resin,

(B) 20 to 80 parts by weight of a curing agent,

(C) 0.1 to 50 parts by weight of a compound of the general formula (1), and

(D) 200 to 1,200 parts by weight of an inorganic filler,

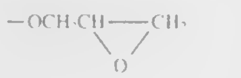
the general formula (1) being,



wherein each of R^1 and R^2 is an alkyl radical having 1 to 4 carbon atoms,

each of R^3 and R^4 is a hydrogen atom or alkyl radical having 1 to 4 carbon atoms,

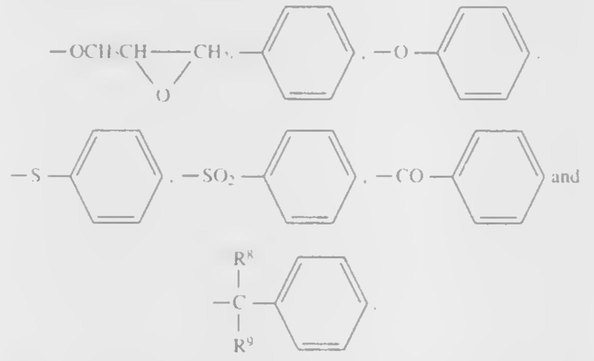
R^5 is a hydrogen atom, hydroxyl radical or



$$-OCH_2CH\overset{O}{\frown}CH_2$$

radical,

R^6 and R^7 are independently selected from the group consisting of a hydrogen atom, hydroxyl radical, and radicals represented by



each of R^8 and R^9 is a hydrogen atom or methyl radical, and letter n is an integer of 0 to 10.

5,739,188
THERMOPLASTIC POLYMER COMPOSITIONS WITH IMPROVED PROCESSABILITY AND METHOD OF PROCESSING

Nirav Desai, 2738 Roosevelt Blvd., Apt. 121, Clearwater, Fla. 34620

Continuation-in-part of Ser. No. 323,522, Oct. 14, 1994, abandoned. This application Sep. 6, 1995, Ser. No. 524,262

Int. Cl.⁶ C08K *5/09*

U.S. Cl. 524—140 8 Claims

1. A thermoplastic composition consisting essentially of:

(i) a chlorine containing organic polymer selected from the group consisting of polyvinyl chloride, polyvinylidene chloride, polyvinyl chloride homopolymers, vinyl chloride copolymers, chlorinated polyvinyl chloride homopolymers, chlorinated polyvinyl chloride copolymers, and any combination of the foregoing;

(ii) an antiplasticizing amount of 1,4-cyclohexane dimethanol dibenzoate which is less than 3% of the total weight of the composition but more than zero weight percent;

(iii) a sodium zeolite with about 13 to 25% water content, a mean particle size of about 3 to 4 microns and an average pore size of about 3 to about 7 angstroms;

(iv) a heat stabilizer selected from the group consisting of mixed metal stabilizers, organotin stabilizers, lead stabilizers, metal free stabilizers, or any combination of the foregoing; and

(v) costablizers, plasticizers, lubricants, smoke suppressants, impact modifiers, UV stabilizers, fillers, pigments or any combination of the foregoing.

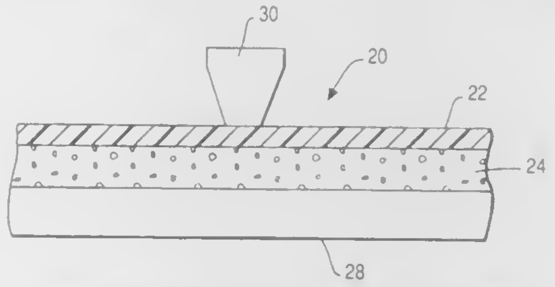
5,739,189
LOW ENERGY THERMAL TRANSFER FORMULATION

Michael A. Lorenz, Miamisburg, Ohio; Monica N. Lewis, St. Louis, Mo., and Frank J. Kenny, Carrollton, Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 18, 1995, Ser. No. 573,972

Int. Cl.⁶ C08K *5/09;* **B32B** *27/14; 9/04*

U.S. Cl. 524—300 17 Claims



1. A coating formulation which provides a thermal transfer layer of a thermal transfer medium which softens and flows at a temperature below 250° C., said formulation comprising a solid thermoplastic resin having a melting/softening point in the range of 150° C. to 300° C., an active plasticizer with either a boiling point in the range of 100° C. to 250° C., an unsaturated carbon-carbon double bond which reacts at a temperature in the range of 60° C. to 250° C. or both a boiling point in the range of 100° C. to 250° C. and an unsaturated carbon-carbon double bond which reacts at a temperature in the range of 60° C. to 250° C., a wax and a sensible material.

5,739,190
PROCESS FOR THE PREPARATION OF STABLE WATER-IN-OIL EMULSIONS OF HYDROLYZED POLYMERS OF N-VINYL AMIDES AND THE USE THEREOF

Heinrich Hartmann, Limburgerhof; Karl-Heinrich Schneider, Kleinkarlbach; Walter Denzinger, Speyer; Claudia Nilz, Rödersheim-Gronau, and Dietmar Mönch, Weinheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/01818, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/32227, PCT Pub. Date Nov. 30, 1995

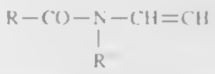
PCT Filed May 13, 1995, Ser. No. 737,589

Claims priority, application Germany, May 25, 1994, 44 18 156.6

Int. Cl.⁶ C08K *5/10*

U.S. Cl. 524—310 9 Claims

1. A process for the preparation of a stable water-in-oil emulsion of a hydrolyzed polymer of an N-vinyl amide of the formula



$$R-CO-\underset{\displaystyle R^1}{\underset{|}{N}}-CH=CH_2 \qquad (I)$$

in which R and R^1 denote H or C_1–C_6 alkyl, by the polymerization of a compound of the formula I alone or in admixture with another ethylenically unsaturated monomer in the presence of a polymerization initiator and emulsifier in the form of a water-in-oil emulsion, to form a water-in-oil polymeric emulsion, followed by hydrolysis of the polymer in the form of the water-in-oil polymeric emulsion in the presence of an acid or base and from 1 to 30 wt %, based on the polymer, of an emulsifier, provided the emulsifier used is a mixture of, by total weight of emulsifier,

(a) from 5 to 95 wt % of a block or graft copolymer of the structure $(A-B)_m$, $(A)_nB$ or $(B)_nA$, in which in each case

A is a hydrophobic homopolymer or copolymer having a degree of polymerization of at least 3,

B is a hydrophilic homopolymer or copolymer having a degree of polymerization of at least 3,

m is equal to or greater than 1, and

n is equal to or greater than 2,

and

(b) from 5 to 95 wt % of another water-in-oil emulsifier having a molar mass below 1000 g/mol.

5,739,191
PROTECTIVE COATING AND METHOD OF USING SUCH COATING

Edward W. Woodhall, 909 Covington Rd., Los Altos, Calif. 94024, and Nicholas Kondrats, 5702 Cathedral Oaks Rd., Goleta, Calif. 93117

Continuation of Ser. No. 432,037, May 1, 1995, Pat. No. 5,523,117, which is a continuation of Ser. No. 209,796, Mar. 10, 1994, Pat. No. 5,411,760, which is a division of Ser. No. 16,872, Feb. 11, 1993, Pat. No. 5,362,786, which is a continuation of Ser. No. 972,037, Nov. 5, 1992, Pat. No. 5,302,413, which is a continuation-in-part of Ser. No. 788,006, Nov. 5, 1991, Pat. No. 5,186,978, which is a continuation-in-part of Ser. No. 614,330, Nov. 16, 1990, abandoned. This application Apr. 5, 1996, Ser. No. 630,960

Int. Cl.⁶ B08J *5/06*

U.S. Cl. 524—377 7 Claims

1. A composition for the temporary protection of a surface during a processing operation, said composition comprising:

between about 20% to about 30% polyvinyl alcohol by weight;

a surfactant composition present in an amount effective to produce a coating that lays out smoothly in a substantially continuous thin film;

at least about 0.1%, by weight, of a plasticizer; and

at least about 60% water by weight.

5,739,192
POLYSILOXANE COPOLYMERS FROM MICHAEL ADDUCT REACTIONS

John D. Blizzard, Bay City, and Vicky Sue Cobb, Elsie, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Nov. 20, 1996, Ser. No. 753,132

Int. Cl.⁶ C08K *5/05*

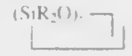
U.S. Cl. 524—379 19 Claims

1. A composition comprising:

the reaction product of A and B wherein

A) is at least one polysiloxane selected from the group consisting of

(i) $R_3SiO(SiR_2O)_xSiR_3$ and (ii)



$$\underbrace{(SiR_2O)_z}$$

where:

x has an average value of from 0 to 1000,

z has a value of at least 3,

R is independently selected from the group consisting of a hydroxyl group, alkoxy group, tri-fluoropropyl group, an alkyl

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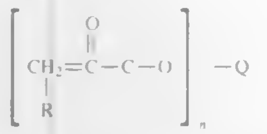
chain of 1 to 4 carbon atoms, a phenyl group, and an amine functional group, with the proviso that at least one R on the polysiloxane is an amine functional group;

B) is at least one acrylate having the formula



$$\left[CH_2=\underset{R}{C}-\overset{O}{\overset{\|}{C}}-O \right]_n -Q$$

where R is H or CH_3, n ≧1, and Q is an organic group, selected independently from the group consisting of polyethers, aliphatic, aromatic, and alicyclic groups.

5,739,193

POLYMERIC COMPOSITIONS HAVING A TEMPERATURE-STABLE DIELECTRIC CONSTANT

Lak M. Walpita, Basking Ridge; Paul N. Chen, Sr., Gillette; Harris A. Goldberg, Edison, and Christopher Zipp, Verona, all of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed May 7, 1996, Ser. No. 646,403

Int. Cl.^{6} C08K *3/10*

U.S. Cl. 524—413 **28 Claims**

1. A polymeric composition having a high dielectric constant that varies little with temperature, comprising a thermoplastic polymer, a high dielectric ceramic, and a second ceramic material, wherein said high dielectric ceramic is selected from the group consisting of strontium titanate, barium neodymium titanate, and barium strontium titanate/magnesium zirconate, and said second ceramic material is mica, wherein said high dielectric ceramic and said second ceramic material are included in the polymeric composition in sufficient quantity that the dielectric constant of said polymeric composition is at least about 4.0 at 1.0 GHz.

5,739,194

HUMIDITY RESISTANT AQUEOUS URETHANE/ ACRYLIC RESINS AND COATING COMPOSITIONS

Anbazhagan Natesh, Marshall Township Allegheny County; Shanti Swarup, Hampton Township Allegheny County, both of Pa.; Mary Ellen Rosenberger, Bay Village; Mary Eifert, Lakewood, both of Ohio; Karl F. Schimmel, Verona Borough, and John W. Burgman, McCandless Township, Allegheny County, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 24, 1996, Ser. No. 668,069

Int. Cl.^{6} C09D *151/08;175/04*

U.S. Cl. 524—457 **23 Claims**

1. A water reducible chain extended polyurethane-acrylic resin which comprises:

(a) 50–90 percent by weight of a polyurethane that is substantially free of silane groups which is the reaction product of:

(i) a first polyisocyanate having an open carbon chain greater than C_6 in length between two isocyanate groups;

(ii) a second polyisocyanate different from the first polyisocyanate;

(iii) polyol; and

(iv) a monomer having an anionic group and functionality reactive with isocyanate, wherein the first polyisocyanate is present in a minor portion of the polyisocyanate mixture, and;

wherein the reaction product of (i), (ii), (iii) and (iv) gives an isocyanate-terminated polyurethane prepolymer; and

(v) chain extender selected from the group consisting of amino alcohol, primary or secondary amines; and

(b) 10–50 percent by weight of the free radical polymerization product of a mixture of vinyl monomers which have 0–50 weight percent styrene or substituted styrene based on total resin solids weight of the vinyl monomer reactants; and where the weight percentages of (a) and (b) are based on the total resin solids content of (a) plus (b).

5,739,195

PROCESS FOR PREPARING AQUEOUS SOLUTIONS OF POLY(N-VINYL-ϵ-CAPROLACTAM) AND THEIR USE

Jörg Kroker, Neustadt; Reinhard Schneider, Fussgönheim; Eberhard Schupp, Grünstadt, and Michael Kerber, Weinheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/03688, § 371 Date Mar. 28, 1997, § 102(e) Date Mar. 28, 1997, PCT Pub. No. WO96/10593, PCT Pub. Date Apr. 11, 1996

PCT Filed Sep. 19, 1995, Ser. No. 809,363

Claims priority, application Germany, Sep. 30, 1994, 44 34 986.6

Int. Cl.^{6} C08F *2/16;26/06*

U.S. Cl. 524—459 **11 Claims**

1. A process for preparing an aqueous solution of poly(N-vinyl-ϵ-caprolactam), comprising polymerizing N-vinyl-ϵ-caprolactam in an aqueous medium, wherein the aqueous medium comprises a polymerization initiator and from 0.1 to 20% by weight, based on the weight of the N-vinyl-ϵ-caprolactam, of a water-soluble synthetic polymeric protective colloid selected from the group consisting of polyvinyl alcohol, partially hydrolyzed polyvinyl acetate, polyvinylpyrrolidone, polyacrylamide, polymethacrylamide, carboxylate-functional addition polymers, polyalkylvinyl ethers and mixtures thereof.

5,739,196

LATEX COMPOSITIONS HAVING WET ADHESION AND OTHER IMPROVED RHEOLOGICAL PROPERTIES AND METHODS OF PRODUCING SAME

Richard Duane Jenkins; Victor Vincent Kaminski, III, both of Cary; William Charles Arney, Jr., Raleigh, and David Robinson Bassett, Cary, all of N.C., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Nov. 30, 1995, Ser. No. 565,727

Int. Cl.^{6} C08F *2/16*

U.S. Cl. 524—460 **10 Claims**

1. A polymer composition comprising a second polymer obtained by emulsion polymerizing monomers in the presence of a solubilized emulsion polymerized first polymer, said first polymer comprising at least one acid or anhydride functional monomer or other monomer that imparts alkaline solubility, at least one comonomer and a wet adhesion promoter.

5,739,197

AMORPHOUS PRECIPITATED SILICA CHARACTERIZED BY HIGH DISPERSION IN CURED ORGANIC RUBBER COMPOSITIONS

Harold E. Swift, Gibsonia; Thomas G. Krivak, Harrison City, and Laurence E. Jones, Monroeville, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 19, 1996, Ser. No. 769,969

Int. Cl.^{6} C08K *3/36*

U.S. Cl. 524—492 **10 Claims**

1. In a cured organic rubber composition comprising from 20 to 120 parts of amorphous precipitated silica per hundred parts of rubber wherein the amorphous precipitated silica is characterized by

(a) a BET surface area in the range of from 100 to 300 m^2/g;

(b) a CTAB surface area in the range of from 85 to 275 m^2/g,

(c) a Sears surface area in the range of from 200 to 400 m^2/g, and

(d) a pore diameter at the maximum of the volume pore size distribution function of from 10 to 60 nm,

the improvement wherein said composition exhibits a white area of less than 0.8 percent.

5,739,198

RUBBER COMPOSITION AND TIRE WITH TREAD THEREOF

Paul Harry Sandstrom, Tallmadge; William Paul Francik, Bath, and David John Zanzig, Uniontown, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 618,007, Mar. 18, 1996, abandoned. This application Jul. 22, 1996, Ser. No. 684,780

Int. Cl.^{6} C08K *3/34*

U.S. Cl. 524—493 **16 Claims**

1. A tire having a tread of a rubber composition which comprises (A) about 100 parts by weight of at least one diene-based elastomer selected from homopolymers and copolymers of conjugated dienes and copolymers of conjugated diene(s) and vinyl aromatic compound, (B) about 50 to about 100 phr of particulate reinforcing filler composed of silica and carbon black wherein said filler consists of (i) about 25 to about 50 phr of silica consisting of precipitated silica and (ii) about 25 to about 50 phr particulate carbon black consisting essentially of carbon black having a DBP absorption value in a range of 60 to 125 cc/100 gm with a corresponding Iodine Number in a range of about 45 to about 85 g/kg, and (C) a coupling agent composition having a moiety characterized by being reactive with the surface of the silica and another moiety characterized by being interactive with elastomers having carbon-to-carbon double bonds.

5,739,199

OPTICALLY TRANSPARENT ORGANOSILOXANE RESIN COMPOSITIONS

Katsuya Eguchi; Nobuo Kushibiki, both of Kanagawa Prefecture, Japan, and Toshio Suzuki, Midland, Mich., assignors to Dow Corning Asia, Ltd., Tokyo, Japan

Continuation of Ser. No. 427,177, Apr. 21, 1995, abandoned. This application Sep. 26, 1996, Ser. No. 721,788

Claims priority, application Japan, Apr. 21, 1994, 6-83100

Int. Cl.^{6} C08L *83/00*

U.S. Cl. 524—493 **13 Claims**

1. A curable organosiloxane resin composition, curable to a rigid resin which exhibits optical transparency in the crosslinked state, said composition comprising

A. a first organosiloxane resin comprising 1) at least two of a first reactive group per molecule and 2) siloxane units of the average formula $R_nSiO_{(4-n)/2}$, wherein each R is individually selected from the group consisting of alkyl radicals containing from 1 to 18 carbon atoms, alkenyl and aryl radicals, and the value of n is greater than 0 and less than 2;

B. a second organosiloxane resin comprising at least two of a second reactive group per molecule which reacts with said first reactive group to form a crosslinked resin, and siloxane units of the average formula $R'_mSiO_{(4-m)/2}$, wherein each R' is individually selected from the same group as R, and the value of m is greater than 0 and less than 2, and

C. from 0.5 to 100 weight percent, based on the combined weights of said first and second resins, of a reinforcing silica exhibiting an average particle size of less than one micron.

5,739,200

PLASTICIZIED α-OLEFIN/VINYLIDENE AROMATIC MONOMER OF HINDERED ALIPHATIC OR CYCLOALIPHATIC VINYLIDENE MONOMER INTERPOLYMERS

Yunwa W. Cheung, Lake Jackson; John J. Gathers, Pearland; Martin J. Guest, Lake Jackson, all of Tex., and James R. Bethea, Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 17, 1996, Ser. No. 767,609

Int. Cl.^{6} C08K *5/01*

U.S. Cl. 524—504 **12 Claims**

1. A composition comprising

(A) from about 50 to about 99 percent by weight of at least one substantially random interpolymer comprising

(1) from about 5 to about 65 mole percent of polymer units derived from

(a) at least one vinylidene aromatic monomer, or

(b) at least one hindered aliphatic or cycloaliphatic vinylidene monomer, or

(c) a combination of at least one aromatic vinylidene monomer and at least one hindered aliphatic or cycloaliphatic vinylidene monomer, and

(2) from about 35 to about 95 mole percent of polymer units derived from at least one C_{2-20} α-olefin; and

(B) from about 1 to about 50 percent by weight of at least one plasticizer selected from the group consisting of phthalate esters, trimellitate esters, benzoates, aliphatic diesters, epoxy compounds, phosphate esters, glutarates, polymeric plasticizers (polyesters of glycols and aliphatic dicarboxylic acids) and oils.

5,739,201

TWO-PACK CROSSLINKING AQUEOUS ADHESIVE

Masaki Ugai, Osaka; Kiyoshi Nakayama, Nakakoma-gun, and Masahito Mori, Takatsuki, all of Japan, assignors to Sunstar Giken Kabushiki Kaisha, Takatsuki, Japan

Continuation of Ser. No. 369,652, Jan. 6, 1995, abandoned. This application Feb. 4, 1997, Ser. No. 795,309

Int. Cl.^{6} C08L *83/00*

U.S. Cl. 524—506 **4 Claims**

1. A two-pack, crosslinking aqueous adhesive, which comprises:

(A) an adhesive component comprising an aqueous emulsion or latex of a polymer selected from the group consisting of

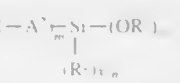
(i) an aqueous emulsion or latex of a polymer containing a halogen atom in the backbone chain of the polymer molecule selected from (a) an aqueous emulsion of a chlorinated polypropylene or (b) an aqueous latex of a chloroprene,

(ii) an aqueous emulsion or latex of a polymer containing a carboxyl group in the backbone chain or side chain of the polymer molecule selected from

(c) an aqueous emulsion of a copolymer of a copolymerizable monomer containing a carboxyl group selected from acrylic acid, methacrylic acid, or maleic anhydride, (d) an emulsion prepared by oxidizing an ethylene-vinyl acetate emulsion or latex, a chloroprene emulsion or latex, a styrene-butadiene emulsion or latex, or an acryl emulsion or latex, or (e) an aqueous emulsion of a carboxyl group-containing polymer selected from a carboxyl-containing polyester, a carboxyl containing urethane, a carboxyl-containing polypropylene, or a carboxyl-containing polyethylene, and

(iii) a mixture of these aqueous emulsions or latexes,

(B) a curing component comprising an iminosilane compound prepared by blocking, with a carbonyl compound, a primary amino group of an aminosilane compound of the formula



$$H_2N-A^1-(NH-A^2)_m-\underset{(R^2)_n}{Si}-(OR^1)_{3-n}$$

wherein A^1 and A^2 are the same or different and are each a divalent straight chain or branched chain, aliphatic hydrocarbon having 1 to

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10 carbon atoms which may be intervened with one or two phenylene group, R^1 is an alkyl group having 1 to 5 carbon atoms, R^2 is an alkyl group having 1 to 5 carbon atoms, m is an integer of 0 to 2, and n is an integer of 1 to 3

5,739,202
PROCESS FOR THE MANUFACTURE OF VINYLLDENE FLUORIDE POLYMER POWDER COATINGS
Roger L. Pecsok, 314 Ahhey Rd., Berwyn, Pa. 19312
Filed Feb. 11, 1997, Ser. No. 797,195
Int. Cl.^{6} C08K *27/16*
U.S. Cl. 524—520 **6 Claims**

1. A process for producing a pigmented film forming vinylidene fluoride polymer powder that is suitable for powder coating applications comprising the steps of:
- (a) dispersing at least one pigment in a solution comprising a fluorine-free polymer that is compatible with the vinylidene fluoride polymer and a solvent that dissolves said fluorine-free polymer and said solvent does not dissolve said vinylidene fluoride polymer,
- (b) mixing the dispersion from step (a) with a powder of said vinylidene fluoride polymer,
- (c) removing the solvent from the mixture of step (b),
- (d) milling and classifying the blend of step (c) to obtain a specific powder particle size

5,739,203
PLASTISOL COMPOSITION
Hung Dang Ngoc, Limeil Brevannes, France, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Division of Ser. No. 746,949, Nov. 18, 1996, Pat. No. 5,686,147. This application Apr. 21, 1997, Ser. No. 845,113
Int. Cl.^{6} C08L *27/06;9/02*
U.S. Cl. 524—527 **18 Claims**

1. A plastisol composition which can be utilized in manufacturing articles having good fluid resistance, low temperature flexibility and slip resistance, said plastisol composition being comprised of (1) polyvinyl chloride, (2) from about 70 to about 100 parts of a plasticizer per 100 parts of the polyvinylchloride, (3) from about 1 to about 3 parts of a stabilizer and (4) from about 10 to about 30 parts of a highly crosslinked nitrile rubber composition per 100 parts of the polyvinyl chloride, wherein the highly crosslinked nitrile rubber has repeat units which are derived from (a) 1,3-butadiene, (b) acrylonitrile and (c) a crosslinking agent, and wherein said highly crosslinked nitrile rubber has a Mooney viscosity of about 50 to about 120, a swelling index of less than about 10 percent, a mill shrinkage of less than 10 percent and a gel content of greater than 90 percent.

5,739,204
HEAT-CURABLE COATING MATERIAL
Hermann Piana, White Plains, N.Y., assignor to Degussa Aktiengesellschaft, Frankfurt, Germany
Filed Mar. 12, 1996, Ser. No. 614,080
Claims priority, application Germany, Mar. 14, 1995, 195 08 669.4
Int. Cl.^{6} C08K *5/05*
U.S. Cl. 524—539 **7 Claims**

1. Heat-curable coating composition comprising
- A) 10–50 wt. % of one or more polyesters, obtained by esterification of a mixture of
  - a) aromatic and aliphatic and/or cycloaliphatic polycarboxylic acids, wherein of the polycarboxylic acids
    - aa) 40–90 mol-% are aromatic polycarboxylic acids and
    - bb) 60–10 mol % are aliphatic and/or cycloaliphatic polycarboxylic acids,
  - on condition that, when dicarboxylic acids are used, at least 50 mol-% of the dicarboxylic acids used are cyclic dicarboxylic acids, with
  - b) polyols, wherein of the polyols
    - aa) 30–85 mol-% is neopentyl glycol and
    - bb) > 15-< 40 mol-% is 1,3-propanediol, on condition that, when diols are used, at least 30 mol-% of the diols used possess aliphatic side chains,
- wherein the quantity of components a) and b) must satisfy the following equation

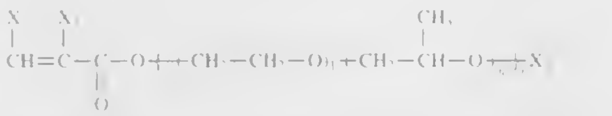
$$X = \frac{n1 - n2(F - 2)}{n2}$$

wherein
- n1 signifies the number of moles of polyols b),
- n2 signifies the number of moles of polycarboxylic acids a) and
- F signifies the average value of the molar functionality of the polycarboxylic acids and
- X has a value between 1.05 and 1.5;
- B) 5–40 wt. % of polycondensate, partially etherified with monoalcohols, in the form of
  - a) melamine-formaldehyde resin having a molar ratio of melamine to formaldehyde of from 1:4.5 to 1:6,
  - b) benzoguanamine-formaldehyde resin having a molar ratio of benzoguanamine to formaldehyde of from 1:2.5 to 1:4 and/or
  - c) urea=formaldehyde resin having a molar ratio of urea to formaldehyde of from 1:2.5 to 1:6;
- C) 15–50 wt. % of organic solvents suitable for the preparation of paints; and
- D) 0–40 wt. % of pigments; and
- E) conventional paint additives for improving paint quality, in a quantity of 0 to 100 wt. % referred to 100 wt. % of components A) to D).

5,739,205
ALPHA-CYANOACRYLATE ADHESIVE COMPOSITION
Yukinori Nishino, Osaka, and Chiaki Hata, Ibaraki, both of Japan, assignors to Taoka Chemical Company, Limited, Osaka, Japan
Continuation-in-part of Ser. No. 456,312, Jun. 1, 1995, abandoned. This application Aug. 20, 1996, Ser. No. 699,871
Claims priority, application Japan, Jun. 8, 1994, 151656/94
Int. Cl.^{6} C08K *5/16*
U.S. Cl. 524—555 **6 Claims**

1. An α cyanoacrylate adhesive composition which comprises (a) 100 parts by weight of an α-cyanoacrylate compound, (b) 10 through 20 parts by weight of (I) polyalkyl methacrylates having a weight average molecular weight of 100,000 through 300,000, or (II) copolymers of alkyl methacrylates and other methacrylates or acrylates, said copolymers having the same weight average molecular weight as that of the polyalkyl methacrylates (I), (c) 2 through 20 parts by weight of ultrafine anhydrous silicas, and (d) 0.001 through 20 parts by weight of quick curing additives represented by the following formula (1), (b)–(d) being on the basis of (a) 100 parts by weight of α-cyanoacrylate compounds:

(1)



$$\overset{X_1}{CH}=\overset{X_2}{C}-\underset{\underset{O}{\|}}{C}-O\left[(CH_2-CH_2-O)_l-(CH_2-\overset{CH_3}{CH}-O)_m\right]_n X_3$$

wherein X_1 is a hydrogen atom or methyl group; X_2 is a hydrogen atom, methyl group or cyano group; X_3 is R_2 or R_2CO in which R_2 represents a hydrocarbon residue containing no anionically polymerizable group; and l, m and n integers and $(l+m) \geq 1$ and $n \geq 1$.

5,739,206
COMPOSITION, FOR USE IN PAINT, BASED ON A MIXTURE OF EMULSIONS (S) AND OF DISPERSION (S) OF POLYOL POLYMER AND COATING (S) PRODUCED THEREFROM
Bruno Langlois, Sainte Genevieve Des Bois; Arnauld Ponce, Aubervilliers, and Gilles Guerin, Eaubonne, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France
Filed Feb. 12, 1996, Ser. No. 600,355
Claims priority, application France, Feb. 21, 1995, 95 02000
Int. Cl.^{6} C08J *3/00;* C08K *3/20;* C08L *75/00;* C08F *8/30*
U.S. Cl. 524—591 **18 Claims**

1. A composition physically stable one month or more upon storage, consisting essentially of
- at least one masked polyisocyanate in the form of an aqueous emulsion whose mean size is between about 0.1 and about 10 micrometers; and
- at least one polyhydroxylated polymer in the form of an aqueous dispersion whose mean size is between about 10 and about 200 nanometers,

wherein the quantity of polyhydroxylated polymer(s) in the mixture in mass per cent is at least equal to 35-0.75 R or does not exceed 45-2 R, R being equal to the ratio of the mean size (d_{50}) of the emulsion to that of the dispersion of polyhydroxylated polymer.

5,739,207
HEXAMETHYLENE DIISOCYANATE RESIDUE-BASED COMPOSITIONS AS FILLERS FOR POLYISOCYANATES
William E. Slack, Moundsville, W. Va., assignor to Bayer Corporation, Pittsburgh, Pa.
Filed Dec. 27, 1996, Ser. No. 777,317
Int. Cl.^{6} C08K *5/205;5/29,* C08L *75/04,* C08G *18/72*
U.S. Cl. 524—728 **12 Claims**

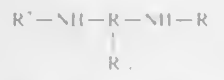
1. A process for the production of a urethane filled, polyisocyanate comprising
- a) reacting
  - 1) a hexamethylene diisocyanate residue from the phosgenation of hexamethylene diamine having less than 10% by weight monomeric hexamethylene diisocyanate or an isocyanate mixture containing such residue having a total isocyanate group content of at least 25% with
  - 2) an alcohol containing at least one ether linkage in amounts such that the equivalent ratio of isocyanate groups in 1) to hydroxyl groups in 2) is from about 0.9:1.0 to about 1.0:0.9 and
- b) dissolving the product of a) in a polyisocyanate

5,739,208
ISOLATABLE, WATER SOLUBLE, AND HYDROLYTICALLY STABLE ACTIVE SULFONES OF POLY(ETHYLENE GLYCOL) AND RELATED POLYMERS FOR MODIFICATION OF SURFACES AND MOLECULES
J. Milton Harris, Huntsville, Ala., assignor to Shearwater Polymers, Inc., Huntsville, Ala.
Division of Ser. No. 151,481, Nov. 12, 1993, Pat. No. 5,446,090. This application Jun. 7, 1995, Ser. No. 473,734
Int. Cl.^{6} C07K *3/00;* C12N *9/96,* C08G *65/32*
U.S. Cl. 525—54.1 **3 Claims**

1. A hydrolytically stable, biologically active conjugate comprising a biologically active molecule having a reactive thiol moiety and a water-soluble polymer having an active sulfone moiety wherein said sulfone mooetu forms a linkage with said reactive thiol moiety of said biologically active molecule

5,739,209
AMINE CURATIVES FOR FLEXIBILIZED EPOXIES
Kevin Rodney Lassila, Allentown, and Mark David Conner, New Tripoli, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Division of Ser. No. 437,476, May 9, 1995, abandoned. This application Feb. 7, 1997, Ser. No. 797,796
Int. Cl.^{6} C08G *59/44,59/50*
U.S. Cl. 525—113 **6 Claims**

1. A process for making a flexible epoxy resin composition which comprises reacting a polyepoxide having a 1,2-epoxy equivalence greater than one with one or more trifunctional amines having the structural formula



$$R^1-NH-\underset{\underset{R^2}{|}}{R}-NH-R^2$$

wherein: R is a straight chain alkylene group having 4 to 6 carbons,
- R^1 is alkyl having 1 to 4 carbons,
- n is 1 or 2,
- one R^2 is alkyl or aralkyl having 5 to 15 carbons, and the other R^2 is H

5,739,210
POLYMERS COMPRISING REVERSIBLE HYDROPHOBIC FUNCTIONALITIES
Alec B. Scranton; Arvind M. Mathur, both of East Lansing, and John Klier, Midland, all of Mich., assignors to Michigan State University, East Lansing, Mich.
Filed Aug. 8, 1996, Ser. No. 695,237
Int. Cl.^{6} C08F *8/14*
U.S. Cl. 525—279 **1 Claim**

1. A graft copolymer comprising a backbone formed primarily from hydrophilic segments comprising Lewis acid repeating units, and grafts which are primarily hydrophilic segments comprising Lewis base repeating units,
- wherein the hydrophilic segments comprising Lewis acid repeating units are formed by polymerization of monomers selected from the group consisting of acrylic acid, methacrylic acid, itaconic acid, maleic acid and vinyl phenol;
- wherein the hydrophilic segments comprising Lewis base repeating units are formed by polymerization of monomers selected from the group consisting of alkylene oxide, ethylene glycol, vinyl pyrrolidone, and acrylamide;
- the hydrophilic segments comprising Lewis acid repeating units including a plurality of acid functional groups, and the hydrophilic segments comprising Lewis base repeating units including a plurality of Lewis base functional groups, the Lewis acid groups and the Lewis base groups being present in a stoichiometric 1:1 molar ratio.

5,739,211
RUBBER COMPOSITIONS CONTAINING A PYRAZINE AMIDE
Lawson Gibson Wideman, and Paul Harry Sandstrom, both of Tallmadge, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Feb. 25, 1997, Ser. No. 806,875
Int. Cl.^{6} C08F *8/32,* B60C *1/00*
U.S. Cl. 525—375 **19 Claims**

1. A method of processing a rubber composition which comprises mixing
- (i) 100 parts by weight of at least one sulfur vulcanizable elastomer selected from the group consisting of conjugated diene homopolymers and copolymers and from copolymers of at least one conjugated diene and aromatic vinyl compound, with

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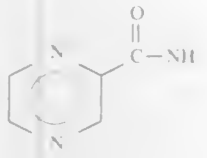
(ii) 0.05 to 10 phr of a pyrazine amide of the formula:



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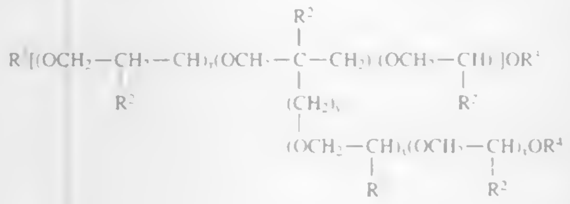
5,739,212
WATER-SOLUBLE GRAFT POLYMERS

Konrad Wutz, Trostberg; Josef Weichmann, Pleiskirchen; Alfred Kern, Kirchweidach, and Hans-Günter Rosenbauer, Trostberg, all of Germany, assignors to SKW Trostberg Aktiengesellschaft, Trostberg, Germany

Continuation of Ser. No. 163,364, Dec. 17, 1993, abandoned.
This application Oct. 19, 1995, Ser. No. 545,546
Claims priority, application Germany, Dec. 8, 1992, 42 41 295.1
Int. Cl.⁶ C08G *63/91*
U.S. Cl. 525—411 23 Claims

1 A water-soluble graft polymer prepared by

a) radical grafting of a polyalkalene oxide of the formula

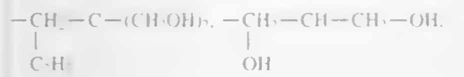


$$R^1[(OCH_2-\underset{R^2}{\underset{|}{CH}}-CH_2)_y(OCH_2-\overset{R^2}{\overset{|}{\underset{(CH_2)_y}{\underset{|}{C}}}}-CH_2)(OCH_2-\underset{R^2}{\underset{|}{CH}})]OR^3$$

$$(OCH_2-\underset{R}{\underset{|}{CH}})_x(OCH_2-\underset{R^2}{\underset{|}{CH}})_xOR^4$$

wherein

R¹ is —H, —C_nH_{2n+1}, —C_6H_4—C_nH_{2n+1},



$$-CH_2-\underset{C_2H_5}{\underset{|}{C}}-(CH_2OH)_2,\ -CH_2-\underset{OH}{\underset{|}{CH}}-CH_2-OH,$$

—$(CH—R^2)_m$NHR³, —$(CH—R^2)_m$OH, —$(CH—R^2)_m$—COOH or —CO—R⁵;

R² is —H, —CH₃ or —C_2H_5.

R³ is —H, C_nH_{2n+1}, —C_mH_{2m}—SO₃Na, —$(CH—R^2)_m$NHR —$(CH—R^2)_m$OH, —$(CH—R^2)_m$—COOH or —CO—R⁶.

R⁴ is —H, —$(CH—R^2)_m$—COOH or —CO—R⁵.

R⁵ is —C_mH_{2m+1}, —C_6H_5, —$(CH—R^2)_m$—COOH or —C_6H_4—COOH,

n is an integer from 1 to 18, m is an integer from 1 to 5,

x is an integer from 2 to 200, and y is 0 or 1

with an ethyleracally unsaturated mono or dicarboxylic acid or an anhydride thereof, and

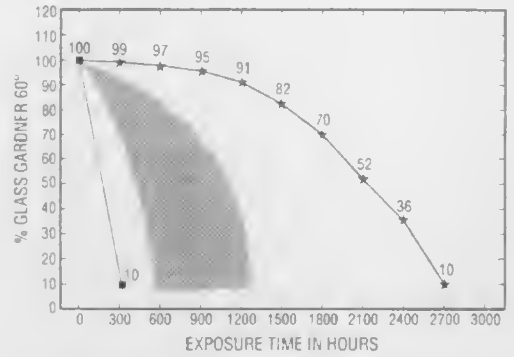
b) subsequently derivatizing the carboxylic acid function of the grafted product with a primary or secondary amine and/or an alcohol to form a derivative which is an amide and/or an ester

5,739,213
ACID FUNCTIONAL AND EPOXY FUNCTIONAL POLYESTER RESINS

Jan Freriks; Petrus Gerardus Kooijmans; Gerrit Gerardus Rosenbrand, all of Amsterdam, Netherlands, and Marianne Angele Walravens, Louvain-la-Neuve, Belgium, assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 4, 1996, Ser. No. 582,855
Claims priority, application European Pat. Off., Jan. 6, 1995, 95200022
Int. Cl.⁶ C08F *20/00*
U.S. Cl. 525—438 24 Claims

1 A linear, tertiary carboxyl functional polyester resin produced by reacting



a) at least one aromatic and/or cycloaliphatic carboxylic acid compound A comprising two aromatic- and/or secondary aliphatic carboxyl groups or the anhydride thereof.

b) at least one hydroxyl compound B comprising two aliphatic hydroxyl groups,

c) at least one hydroxyl substituted carboxylic acid compound C comprising at least one tertiary aliphatic carboxyl group and two aliphatic hydroxyl groups, and

d) one carboxylic acid compound D comprising one carboxyl group, the molar ratio of compounds A:B:C:D being (X+Y−1):X·Y·Z.

wherein X ranges from 2 to 8, Y ranges from 2 to 8, and Z ranges from 1 to 2.

5,739,214
RADIATION-CURABLE COATING OF UNSATURATED PREPOLYMER, EPOXY AND KETONE RESIN

Stephan Schunck, Augsburg, Germany, assignor to BASF Lacke + Farben, AG, Muenster-Hiltrup, Germany

PCT No. PCT/EP94/03940, § 371 Date Jun. 21, 1996, § 102(e) Date Jun. 21, 1996, PCT Pub. No. WO95/17476, PCT Pub. Date Jun. 29, 1995
PCT Filed Nov. 28, 1994, Ser. No. 666,441
Claims priority, application Germany, Dec. 23, 1993, 43 44 125.4
Int. Cl.⁶ C08L *63/02;63/04;67/06;61/02*
U.S. Cl. 525—438 11 Claims

1 A radiation-curable coating composition, comprising:

(A) from 20 to 50% by weight of at least one prepolymer containing at least two ethylenically unsaturated double bonds,

(B) from 20 to 60% by weight of at least one cationically curing epoxy resin comprising a resin selected from the group consisting of bisphenol A epoxy resins, novolac epoxy reins, and cycloaliphatic epoxides,

(C) from 10 to 30% by weight of at least one ketonic resin,

(D) from 5 to 40% by weight of at least one reactive diluent, wherein the reactive diluent is different from the prepolymer (A),

and

(E) from 5 to 10% by weight of a mixture of at least one cationic polymerization initiator and at least one free radical polymerization initiator,

the sum of components A to E being 100% by weight

5,739,215
USE OF A POLYESTER IN THE PREPARATION OF COATINGS FOR THE INTERIOR OF CAN ENDS

Wilhelmina Westerhof; Dirk J. Kolk, both of Zwolle, and Wilhelmus J. P. S. M. van Riggelen, Almelo, all of Netherlands, assignors to DSM N.V., Heerlen, Netherlands

Filed Aug. 26, 1996, Ser. No. 702,872
Claims priority, application European Pat. Off., Feb. 28, 1994, 94200514
Int. Cl.⁶ C08L *67/02*
U.S. Cl. 525—438 9 Claims

1 A curable can coating composition for the interior surface of a can end which comprises (i) a hydroxyl functional polyester having a glass transition temperature of at least 40° C., a hydroxyl number between 5 and 150 mg KOH/gram resin, a number-average molecular weight (Mn) between 800 and 10,000, a weight-average molecular weight (Mw) between 8,000 and 100,000 or (ii) a combination of the polyester of (i) and a crosslinker capable of crosslinking said polyester, and wherein said can end comprises a metal.

5,739,216
BINDER COMPOSITION, COATING COMPOSITIONS CONTAINING THIS BINDER COMPOSITION, PRODUCTION AND USE THEREOF

Volker Duecoffre; Carmen Flosbach; Friedrich Herrmann, all of Wuppertal; Heinz-Walter Reifferscheidt, Bochum, and Walter Schubert, Wuppertal, all of Germany, assignors to Herberts Gesellschaft Mit Beschrankter Haftung, Wuppertal, Germany

PCT No. PCT/EP95/01663, § 371 Date Jan. 2, 1997, § 102(e) Date Jan. 2, 1997, PCT Pub. No. WO95/30719, PCT Pub. Date Nov. 16, 1995
PCT Filed May 3, 1995, Ser. No. 732,474
Claims priority, application Germany, May 7, 1994, 44 16 282
Int. Cl.⁶ C09D *175/04*
U.S. Cl. 528—438 18 Claims

1. Binder composition suitable for coating compositions containing

A) 25 to 75 wt. % of the reaction product of one or more carboxy-functionalised (meth)acrylic copolymers containing urethane groups and/or of one or more carboxy-functionalised polyesters containing urethane groups, each having an acid value of 30 to 200 mg of KOH/g, with one or more lactones,

B) 25 to 75 wt. % of one or more epoxy-functionalised crosslinking agents having at least two epoxy functions per molecule with a number average molecular weight (Mn) of 200 to 10000 g/mol,

C) 0 to 60 wt. % of one or more polyols having at least two hydroxyl functions per molecule,

D_1) 0 to 20 wt. % of one or more melamine resins,

D_2) 0 to 40 wt. % of one or more free or capped polyisocyanates, wherein the sum of the weight percentages of components A), B), C), D_1) and D_2) amounts to 100 wt. %, together with

E) 0 to 10 wt. % of one or more catalysts to catalyse the reaction of carboxyl and epoxy groups, relative to the sum of weights of components A) to D_2).

5,739,217
EPOXY RESIN MOLDING FOR SEALING ELECTRONIC PARTS CONTAINING ORGANIC POLYMER-GRAFTED SILICONE

Shinsuke Hagiwara, Shimodate; Hiroyuki Saitoh, Tsukuba; Hiroki Sashima, Shimodate, all of Japan; Peter Huber, Burghausen, Germany; Bernward Deubzer, Burghausen, Germany, and Michael Geck, Burghausen, Germany, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan, and Wacker-Chemie GmbH, Munich, Germany

Filed Sep. 29, 1995, Ser. No. 536,141
Claims priority, application Japan, Oct. 7, 1994, 6-244069
Int. Cl.⁶ C08L *63/02;63/04*
U.S. Cl. 525—476 24 Claims

1. An epoxy resin molding material for sealing an electronic part, comprising

(A) an epoxy resin having at least two epoxy groups per molecule,

(B) a compound having at least two phenolic hydroxyl groups per molecule and

(C) a powder which

(1) has a structure comprising a core of a solid silicone polymer and a shell of an organic polymer, in a weight ratio of the solid silicone polymer: organic polymer of 1:1 to 5:1,

(2) the solid silicone polymer comprising 80–99.5 mol % of a ($RR'SiO_{2/2}$) unit and 0.5 to 20 mol % of at least one of a ($RSiO_{3/2}$) unit and a ($SiO_{4/2}$) unit as a crosslinking agent, wherein R is an alkyl group of 6 or less carbon atoms, an aryl group or a functional group having a terminal carbon-carbon double-bond, and R' is an alkyl group of 6 or less carbon atoms or an aryl group, with a proviso that the solid silicone polymer contains 1 to 10 mol % of siloxane units with carbon-carbon double-bond based on the total units of the solid silicone polymer.

5,739,218
RADIALLY LAYERED COPOLY (AMIDOAMINE-ORGANOSILICON) DENDRIMERS

Petar R. Dvornic; Agnes M. deLeuze-Jallouli; Douglas Swanson; Michael James Owen, all of Midland, and Susan Victoria Perz, Essexville, all of Mich., assignors to Dow Corning Corporation, and Michigan Molecular Institute, both of Midland, Mich.

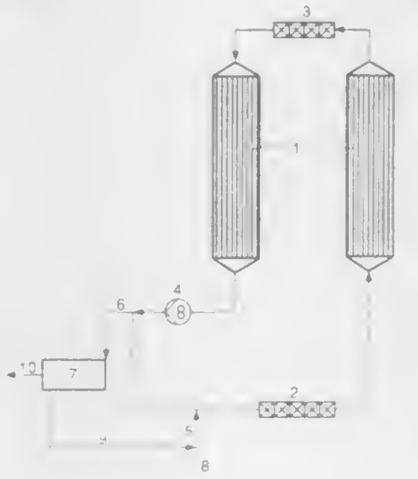
Filed Jun. 2, 1997, Ser. No. 867,143
Int. Cl.⁶ C07F *283/00*
U.S. Cl. 525—487 13 Claims

1 A composition comprising a radially layered copolymeric dendrimer having a hydrophilic poly(amidoamine) or poly(propyleneimine) interior and a hydrophobic organosilicon exterior, the copolymeric dendrimer being prepared by reacting a hydrophilic dendrimer having —NH₂ surface groups, with an organosilicon compound, in the presence of a solvent.

5,739,219
CONTINUOUS PREPARATION OF POLYMERS

Wolfgang Fischer, Ludwigshafen, and Michael Baumgärtel, Frankenthal, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 1, 1996, Ser. No. 673,966
Claims priority, application Germany, Jul. 3, 1995, 195 24 180.0
Int. Cl.⁶ C08F *2/06*
U.S. Cl. 526—64 16 Claims



16 The process for the continuous preparation of copolymers of styrene and acrylonitrile by bulk or solution polymerization, wherein the reaction components are passed through a recycle reactor which has at least one tube bundle reactor whose tubes are in thermal contact with a liquid heat-transfer medium and which is connected to at least one static mixing element, the reaction components being passed through the interior of the tubes of the tube bundle reactor, around which the heat-transfer medium flows,

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wherein styrene, α methylstyrene and/or paramethylstyrene and at least one monomer from the group consisting of nitriles of (meth)acrylic acid and of esters of (meth)acrylic acid with alcohols of 1 to 8 carbon atoms and maleic anhydride are fed to the recycle reactor, wherein additional solvents in a proportion of from 2 to 18% by weight and up to 5% by weight of water are fed in based on 100% by weight of the monomer mixture, wherein the reaction temperature in the reactor is in the range of from 50 to 180° C. and the pressure is in the range of from 0.5 to 75 bar, wherein the average holdup time of the monomers in the reaction mass is from 45 to 300 minutes, wherein the flow rate of the reaction medium in the tube bundle reactor is in the range of from 2 to 15 cm/s, wherein the viscosity of the reaction medium does not exceed 500 Pas, wherein the mass ratio of the mass stream which is circulated to the mass stream of the feed is in the range of from 10 to 100 and wherein the value of the non-uniformity of the polymers is less than 2.5.

5,739,220

METHOD OF OLEIFN POLYMERIZATION UTILIZING HYDROGEN PULSING, PRODUCTS MADE THEREFROM, AND METHOD OF HYDROGENATION

Edwar S. Shamshoum, Hou., and David J. Rauscher, Angleton, both of Tex., assignors to Fina Technology, Inc., Dallas, Tex.

Filed Feb. 6, 1997, Ser. No. 797,462

Int. Cl.^{6} C08F *10/06*

U.S. Cl. 526—79 **20 Claims**

1. A process for the polymerization of olefins, comprising:
- (a) contacting together in a reaction zone for a reaction residence time, olefin monomer in the presence of a catalyst system to form a polymer product;
- (b) introducing hydrogen at an addition rate to the reaction zone during the contacting of step (a), wherein the hydrogen is introduced to achieve a first hydrogen concentration, with the introduction subsequently stopped to allow the hydrogen to deplete at a depletion rate to a second hydrogen concentration; and
- (c) repeating step (b) prior to expiration of the reaction residence time.

5,739,221

SUSPENSION-POLYMERIZATION PROCESS FOR PRODUCING EXPANDABLE STYRENE RESIN BEADS

Hiroki Shinozaki; Masayuki Tanaka, and Yonezo Ueda, all of Mie, Japan, assignors to Mitsubishi Chemical BASF Company Limited, Yokkaichi, Japan

Division of Ser. No. 421,244, Apr. 13, 1995, Pat. No. 5,616,413. This application May 3, 1996, Ser. No. 643,010

Claims priority, application Japan, Apr. 28, 1994, 6-091559

Int. Cl.^{6} C08F *2/18; 12/08;* **C08J** *9/16; 9/20*

U.S. Cl. 526—81 **18 Claims**

1. A process for producing expandable styrene resin beads, comprising:
- suspension-polymerizing a styrene monomer in an aqueous medium in the presence of polymerization initiator(s) and suspension stabilizer(s); and
- adding a foaming agent during or after said suspension-polymerizing;
- wherein said suspension-polymerizing comprises adding an electrolyte at a concentration of from 0.02 to 5.0 mol/l based on the amount of the aqueous medium at the time when the monomer conversion has reached 75 to 100%.

3. A process for producing expandable styrene resin beads, comprising:
- suspension-polymerizing a styrene monomer in an aqueous medium in the presence of polymerization initiator(s) and suspension stabilizer(s); and
- adding a foaming agent during or after said suspension-polymerizing;
- wherein said suspension-polymerizing comprises adding an electrolyte at a concentration of from 0.02 to 5.0 mol/l based on the amount of the aqueous medium at a time when a conversion of the monomer into a polymer has reached 30% or more,
- wherein said expandable styrene resin beads when expanded to a bulk density of 20 g/l, give pre-expanded beads in which the number of cells present along those surface parts of radii which range from the bead surface to a depth of 0.2 mm from the surface is from 3 to 20 per mm and the number of cells present along those inner parts of the radii which range from a depth of 1 mm from the bead surface to the bead center is 10 or larger per mm, the number of cells present along said surface parts being smaller than the number of cells present along said inner parts.

5,739,222

PROCESS FOR PREPARING VINYL CHLORIDE POLYMER UNDER SPECIFIED VAPOR PRESSURE

Takashi Kobayashi; Tadashi Amano; Yoshitaka Okuno; Hideshi Kurihara, and Tadaaki Kurokawa, all of Ibaraki-ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 672,448

Claims priority, application Japan, Jul. 5, 1995, 7-192431; Oct. 4, 1995, 7-282604

Int. Cl.^{6} C08F *2/20; 4/38*

U.S. Cl. 526—87 **4 Claims**

1. A process for preparing a vinyl chloride polymer by suspension polymerization of a vinyl chloride monomer in the presence of a polymerization initiator in a reactor, comprising the steps of:
- charging the reactor with $^1/_{10}$ to [illegible] of the overall monomer charge,
- initiating polymerization, and
- feeding the remainder of the overall monomer charge to the reactor after the internal pressure of the reactor has started declining, thereby continuing polymerization,
- and wherein the polymerization is carried out under a certain saturated vapor pressure of P1 kgf/cm^2 at a preset polymerization temperature,
- when the internal pressure of the reactor declines to P2 kgf/cm^2, the remainder of the overall monomer charge is continuously fed to the reactor so as to maintain the internal pressure within the range of (P1−ΔP) wherein ΔP=P1−P2 ranges from 0.1 to 2.0 kgf/cm^2.

5,739,223

METHOD OF MAKING FLUOROPOLYMERS

Joseph M. DeSimone, Chapel Hill, N.C., assignor to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Continuation of Ser. No. 302,642, Sep. 27, 1994, Pat. No. 5,496,901, which is a continuation-in-part of Ser. No. 858,150, Mar. 27, 1992, abandoned. This application Sep. 18, 1995, Ser. No. 529,873

Int. Cl.^{6} C08F *2/00*

U.S. Cl. 526—89 **31 Claims**

1. A reaction mixture useful for carrying out the polymerization of a fluoroacrylate monomer, said mixture comprising
- at least one fluoroacrylate monomer;
- a solvent comprising carbon dioxide fluid; and
- a polymerization initiator capable of initiating the polymerization of said fluoroacrylate monomer.

5,739,224

SUPPORTED CATALYST FOR OLEFIN POLYMERIZATION

Luciano Luciani, Ferrara, Italy; Wolfgang Neissl, Lichtenberg, and Birgit Wenidoppler, Gallspach, both of Austria, assignors to PCD Polymere Gesellschaft m.b.H., Austria

Filed Nov. 8, 1996, Ser. No. 745,264

Claims priority, application European Pat. Off., Nov. 8, 1995, 95117550

Int. Cl.^{6} C08F *4/654; 4/656; 10/06*

U.S. Cl. 526—124.5 **12 Claims**

1. Procedure for the preparation of a solid catalyst component which is active in the polymerization of olefins, comprising the steps.
- a) contacting a silylated silica support with a solution of Mg-halide or Mg-alkyl-halide or a mixture of both,
- b) contacting the catalyst-precursor obtained in (a) with Mg-dialkyl, optionally in presence of electron-donors (Lewis bases),
- c) halogenating the catalyst-precursor obtained in (b) by contact of said activated support with halogenating agents,
- d) titanating the catalyst-precursor obtained in (c) with Ti-tetrahalide in the presence of electron-donors,
- e) recovering the solid catalyst-component from the reaction products of step (d).

5,739,225

PROCESS FOR PREPARING OLEFIN POLYMER, AND ETHYLENIC POLYMER

Toshinori Tazaki; Shuji Machida; Nobuo Kawasaki; Nobuhiro Yabunouchi; Yasunori Kadoi; Mizutomo Takeuchi; Kenji Nakacho; Haruo Shikuma, and Noriyuki Tani, all of Sodegaura, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/02251, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/18158, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 27, 1994, Ser. No. 666,471

Claims priority, application Japan, Dec. 28, 1993, 5-334403; Apr. 14, 1994, 6-075691; Jul. 25, 1994, 6-172643

Int. Cl.^{6} C08F *4/64*

U.S. Cl. 526—127 **11 Claims**

1. A process for preparing an olefin polymer which comprises the step of:

homopolymerizing an olefin or copolymerizing two different olefins or an olefin and another polymerizable unsaturated compound in the presence of a polymerization catalyst containing (A) a transition metal compound represented by the formula (1):

$$CpML_{x-1} \qquad (1)$$

wherein M is a metallic element of Groups 3 to 10 of the Periodic Table or a metallic element of the lanthanide series; Cp is a cyclic compound group having a cyclopentadienyl skeleton of 5 to 30 carbon atoms; L is R', OR', SR', SO_3R', N'R'R", PR'R", wherein R' and R" are each a C_{1-20} hydrocarbon group or a silyl group, NO_2, a halogen atom, a 1-pyrrolyl group or a 1-pyrrolidinyl group, with the proviso that at least one of the L groups is OR', SR', N'R'R" or PR'R", wherein R' and R" are each a C_{1-20} hydrocarbon group or a silyl group; and x is a valence number of M, and when a plurality of L's are present, the respective L's may be the same or different, and (B) an aluminoxane, wherein the molar ratio of the component (B)/component (A) (in terms of the metallic atoms) is in the range of 2 to 500.

5,739,226

SOLID CATALYTIC COMPONENT CONTAINING ZIRCONIUM AND CYCLOALKADIENYL GROUPS, PROCESS FOR PRODUCING IT AND PROCESS FOR THE POLYMERIZATION OF OLEFINS IN ITS PRESENCE

Roger Spitz, Serezin; Veronique Pasquet, Lyons; Jerome Dupuy, Toulouse, and Jean Malinge, Loubieng, all of France, assignors to Elf Atochem S.A., France

Filed Oct. 18, 1995, Ser. No. 544,699

Claims priority, application France, Oct. 21, 1994, 94 12604

Int. Cl.^{6} C08F *4/643; 10/02*

U.S. Cl. 526—130 **48 Claims**

1. Process for the manufacture of a solid catalytic component, comprising treating a catalytic component support for the polymerization of olefins with a compound of formula MCl_4 in the gas phase, M being selected from a zirconium or hafnium atom;

wherein treatment of a support with gaseous MCl_4 is followed by a treatment with a solution or suspension of a compound C which grafts a group containing the cycloalkadienyl skeleton L to the metal atom M belonging to the species attached to the support, and the solid catalyst component contains at least 2.5 weight percent of zirconium or hafnium after grafting.

25. Solid catalytic component for the polymerization of olefins comprising at least 2.5 weight % of zirconium atoms, and groups containing a cycloalkadienyl skeleton L, the L:Zr molar ratio being between 0.7 and 1.7.

5,739,227

PROCESS FOR CONTROLLING MOLECULAR WEIGHT OF A STYRENIC POLYMER

Hideo Teshima, Sodegaura, and Norio Tomotsu, Ichihara, both of Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/02403, § 371 Date Jul. 25, 1996, § 102(e) Date Jul. 25, 1996, PCT Pub. No. WO96/16993, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 27, 1995, Ser. No. 676,232

Claims priority, application Japan, Nov. 29, 1994, 6-294470

Int. Cl.^{6} C08F *4/642; 12/08*

U.S. Cl. 526—153 **8 Claims**

1. A process for preparing a styrenic polymer, comprising

polymerizing a vinyl aromatic monomer in the presence of a catalyst comprising
- (a) a transition metal compound;
- (b) (b1) an aluminoxane; or
- (b2) a coordinated complex compound composed of a cation and an anion in which a plurality of groups are connected to a metal,
- (c) an alkylating agent; and
- (d) at least one organometallic compound selected from the group consisting of triethylaluminum, diethylaluminum halide, diethylaluminum ethoxide and diethylzinc,

wherein said alkylating agent and said organometallic compound are different compounds.

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5,739,228
POLYMERIZATION USING THIONOESTER COMPOUNDS AS CHAIN TRANSFER AGENTS

Gordon Francis Meijs, Murrumbeena, and Ezio Rizzardo, Wheelers Hill, both of Australia, assignors to Commonwealth Scientific and Industrial Research Organization, Parkville, Australia

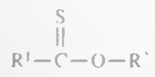
Continuation-in-part of Ser. No. 94,176, Aug. 5, 1993, abandoned. This application Jun. 23, 1995, Ser. No. 493,937

Claims priority, application Australia, Feb. 6, 1991, pk4465/91; WIPO, Jan. 31, 1992, PCT/AU/00029

Int. Cl.^{6} C08F *2/02*

U.S. Cl. 526—209 **5 Claims**

1. A process for the production of low molecular weight polymers by free radical polymerization of one or more monomers selected from the group consisting of acrylic esters, methacrylic esters, vinyl esters, vinyl aromatics, unsaturated and polyunsaturated hydrocarbons and mixtures of any two or more of such monomers, in the presence of a chain transfer agent, wherein the chain transfer agent comprises one or more compounds having the formula:



$$R^1-\overset{\displaystyle S}{\overset{\|}{C}}-O-R^2$$

wherein R^1 is selected from the group consisting of hydrogen, straight chain, branched and cyclic alkyl containing from 1 to 32 carbon atoms, optionally substituted aromatic groups containing from 5 to 14 ring atoms, alkoxycarbonyl, aryloxycarbonyl, carboxy, acyloxy, carbamoyl, and cyano; and

R^2 is selected from the group consisting of optionally substituted alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted unsaturated or aromatic carbocyclic rings containing from 3 to 14 ring atoms, optionally substituted saturated or unsaturated mono or polycyclic heterocyclyl groups containing 3 to 14 atoms including at least one heteroatom selected from nitrogen, sulfur and oxygen, and optionally substituted aralkyl groups including an aromatic ring containing from 5 to 14 ring atoms.

5,739,229
POLYMERIZATION PROCESSES

Barkev Keoshkerian, Thornhill; Michael K. Georges, Guelph; Peter M. Kazmaier, and Gordon K. Hamer, both of Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 7, 1995, Ser. No. 553,200

Int. Cl.^{6} C08F *2/00;4/00*

U.S. Cl. 526—215 **9 Claims**

1. A process for the preparation of thermoplastic resin comprising:

heating a mixture comprised of a free radical initiator, a stable free radical agent, at least one polymerizable monomer compound and an electron acceptor (EA) compound, to form a thermoplastic resin containing a homopolymeric segment or segments and wherein said process possesses a high monomer to polymer conversion and a narrow polydispersity.

5,739,230
CURABLE RESIN COMPOSITION FOR COATING USE

Kouichi Yuasa, Otokuni-gun; Koichi Fukuden, Kadoma; Haruhiko Sawada, Osaka, and Kei Aoki, Ikoma, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

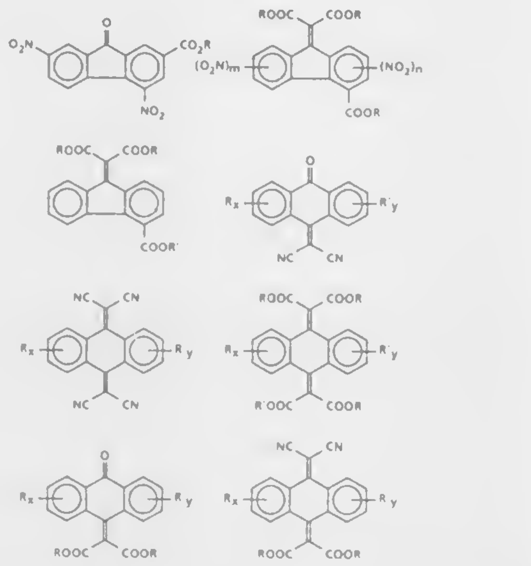
Filed Apr. 11, 1996, Ser. No. 630,631

Claims priority, application Japan, Apr. 12, 1995, 7-111151

Int. Cl.^{6} C08F *26/06;122/04,122/10*

U.S. Cl. 526—217 **10 Claims**

1. A curable resin composition for coating use comprising:



(a) a component containing a plurality of α, β-ethylenically unsaturated carbonyl groups in the molecule;

(b) a component containing a plurality of an activated methylene group or an activated methylene group in the molecule;

(c) a quaternary ammonium salt, a quaternary phosphonium salt or a tertiary sulfonium salt with a chloride, bromide, iodide, nitrate, a carboxylate, a sulfonate, sulfate, sulfite, an acid sulfate ester, phosphate or an acid phosphate ester anion;

(d) a finely divided, water-insoluble, inorganic particles having a surface basicily of greater than 1.0 μmol/g.

5,739,231
METAL SURFACE TREATMENT AGENT

Yohji Imai, Chiba; Yosuke Taira, Nagasaki, and Tetsuro Sakuma, Kawagoe, all of Japan, assignors to GC Corporation, Tokyo, Japan

Filed Apr. 7, 1995, Ser. No. 418,616

Claims priority, application Japan, Apr. 8, 1994, 6-093897

Int. Cl.^{6} C08F *30/02*

U.S. Cl. 526—274 **8 Claims**

1. A metal surface treatment agent comprising:

(a) from 0.001 to 10% by weight of a polymerizable monomer containing a thiophosphoric acid chloride group therein and

(b) from 0.001 to 10% by weight of a polymerizable monomer containing a phosphoric acid ester group therein dissolved in an organic solvent, wherein all percentages are based on weight of organic solvent.

5,739,232
WATER BASED COMPOSITIONS WITH IMPROVED SUBSTRATE ADHESION

Thomas W. Hazell; Walter Nagel; C. Richard Costin, and Gary W. Ceska, all of West Chester, Pa., assignors to Sartomer Company, Exton, Pa.

Continuation of Ser. No. 206,434, Mar. 4, 1994, abandoned. This application Aug. 1, 1995, Ser. No. 509,967

Int. Cl.^{6} C08F *30/04*

U.S. Cl. 526—240 **29 Claims**

1. A curable composition having improved substrate adhesion, comprising:

a. a water soluble compound suitable for use as a substrate adhesive selected from the group consisting of acrylic oilgomer, and;

b. acid in an amount effective to promote cross-linking resulting in improved adhesion to substrates; and

c. a cure initiating effective amount of a cure initiator.

5,739,233
LOW MOLECULAR WEIGHT VINYLIDENE FLUORIDE COPOLYMERS CURABLE AT ROOM TEMPERATURE

Sergey Vasilievich Sokolov; Valeriya Ivanovna Skoblikova; Vitali Iraklievich Purtseladze; Tatiana Ivanovna Rabtseva; Igor Vladimirovich Kokotin; Nadyezhda Yegorovna Chulanova; Lev Mikolayevich Senyushov; Mikhail Vasilievich Zhuravlev, all of St. Petersburg, Russian Federation, and Albertus VanCleeff, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 12, 1996, Ser. No. 698,554

Int. Cl.^{6} C08F *18/20*

U.S. Cl. 526—245 **7 Claims**

1. A composition comprising low molecular weight copolymers of vinylidene fluoride having number average molecular weights of 2,500–15,000 comprising copolymerized units of a) vinylidene fluoride, b) a second comonomer unit of the formula

CF_2CFQ-

where Q=F, Cl, CF_3, OCF_3, OC_2F_5, or OC_3F_7, and c) a third comonomer unit having the formula

$CF_2CFOR'_f-$

where R'_f=$(CF_2)_3COOR$, $(CF_2)_5COOR$, $(CF_2)_3OCF(CF_3)COOR$ R=C_1-C_6 alkyl

where the molar ratio of copolymerized units of vinylidene fluoride, second comonomer, and third comonomers is (15–120):(3.5–32.5):(1.5–4.0), respectively.

5,739,234
EPOXY GROUP-CONTAINING VINYLIDENE FLUORIDE COPOLYMER AND ITS APPLICATION TO SECONDARY BATTERY

Hidetora Kashio; Katsuo Horie, and Fujio Suzuki, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 8, 1996, Ser. No. 646,492

Claims priority, application Japan, Jun. 29, 1995, 7-184961

Int. Cl.^{6} C08F *14/22*

U.S. Cl. 526—255 **5 Claims**

1. An epoxy group-containing vinylidene fluoride copolymer; comprising: a copolymer of (a) vinylidene fluoride monomer, and, based on 100 mols of the vinylidene fluoride monomer, (b) 0.2–5.0 mols of an epoxy group-containing vinyl monomer and (c) 0.2–5.0 mols of an unsaturated dibasic acid monoester, said copolymer having a melting point of 150°–175° C. as measured by a differential scanning calorimeter (DSC) and an inherent viscosity of 0.5–2.0 dl/g as measured in solvent N,N-dimethylformamide, said vinylidene fluoride copolymer having been produced by suspension polymerization in water as dispersion medium.

5,739,235
(2-(1,2-BENZISOTHIAZOL-3(2H)-YLIDENE 1,1-DIOXIDE)-2-CYANOACETAMIDO)PHENYL ACRYLATE COMPOUNDS AND POLYMERS

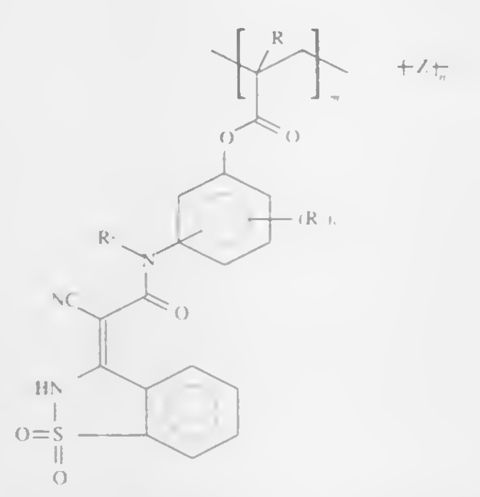
John C. Wilson, and Robert D. Fields, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 9, 1997, Ser. No. 838,560

Int. Cl.^{6} C08F *228/06;220/50*

U.S. Cl. 526—257 **3 Claims**

1. A poly[(2-(1,2-benzisothiazol-3(2H)-ylidene 1,1 dioxide)-2-cyanoacetamido)phenyl acrylate] having the following general structure (II):



II

wherein

R and R^2 represents hydrogen or C_1 to C_3 alkyl; and the 2-(1,2-benzisothiazol-3(2H)-ylidene 1,1-dioxide)-2-cyanoacetamido group is ortho, meta or para substituted on the phenyl ring relative to the acrylate group;

R^1 represents hydrogen, alkyl, alkoxy, halo, nitro, alkylsulfonyl, carboxyl, carboalkoxy, cyano, acyl, trihaloalkyl or aryl; or R^1 represents sufficient atoms, together with the phenyl ring to which it is attached, to form naphthyl,

m and n are weight percent and together total 100 weight percent;

y is an integer from 0 to 4; and

$+Z+$

represents any copolymerized comonomer selected from the group consisting of acrylamides, acrylic acid, acrylonitrile, alkyl acrylates, alkyl methacrylates, alkyl vinyl ethers, styrenes, maleic anhydride, methacrylamides, methacrylic acid, methacrylonitrile, silyl methacrylates, vinyl esters, vinyl amides and vinyl halides.

5,739,236
BIOCOMPATIBLE ZWITTERION POLYMERS

Roderick W. J. Bowers; Stephen A. Jones, and Peter W. Stratford, all of Middlesex, United Kingdom, assignors to Biocompatibles Limited, Middlesex, United Kingdom

Continuation-in-part of Ser. No. 175,348, Mar. 7, 1994, Pat. No. 5,648,442. This application Jun. 7, 1995, Ser. No. 474,472

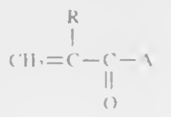
Claims priority, application United Kingdom, Apr. 24, 1991, 9208970; Jul. 5, 1991, 9114619; Aug. 8, 1991, 9117170

Int. Cl.^{6} C08F *230/02;214/18,222/10;226/02*

U.S. Cl. 526—277 **9 Claims**

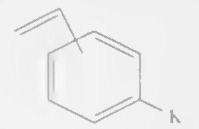
1. A biocompatible polymer formed from a radical polymerisable ethylenically unsaturated zwitterionic monomer containing a zwitterionic group and a radical polymerisable ethylenically unsaturated comonomer containing a pendant group selected from fluoroalkyl groups and siloxane groups,

wherein the zwitterionic monomer has the formula (I) Y—B—X wherein B is a straight or branched alkylene, oxaalkylene or oligo-oxaalkylene chain optionally containing one or more fluorine atoms up to and including perfluorinated chains; Y is an ethylenically unsaturated polymerizable group selected from



$$CH_2=\overset{\displaystyle R}{\overset{|}{C}}-\underset{\displaystyle O}{\underset{\|}{C}}-A$$

and



wherein R is hydrogen or a C_1-C_4 alkyl group;

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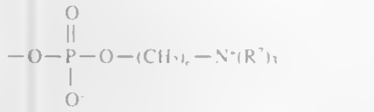
A is —O— or —NR^1— where R^1 is hydrogen or a C_1–C_4 alkyl group or R^1 is —B—X where B and X are as defined above, and

K is a group —$(CH_2)_pOC(O)$—, —$(CH_2)_pC(O)O$—, —$(CH_2)_pOC(O)O$—, —$(CH_2)_pNR^2$—, —$(CH_2)_pNR^2C(O)$—, —$(CH_2)_pC(O)NR^2$—, —$(CH_2)_pNR^2C(O)O$—, —$(CH_2)_pOC(O)NR^2$—, —$(CH_2)_pNR^2C(O)NR^2$—, (in which the groups R^2 are the same or different) —$(CH_2)_pO$—, —$(CH_2)_pSO_3$—, or optionally in combination with B, a valence bond and p is from 1 to 12 and R^2 is hydrogen or a C_1–C_4 alkyl group;

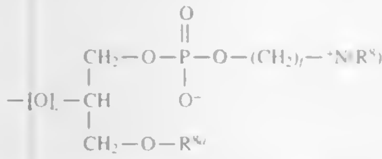
and X is selected from groups IVC, IVD, IVE and IVF, in which group IVC has formula



$-O-\overset{\overset{O}{\|}}{\underset{\underset{O^-}{|}}{P}}-O-(CH_2)_e-N^+(R^7)_3$ (IVC)

where the groups R^7 are the same or different and each is hydrogen or C_{1-4} alkyl, and e is from 1 to 4;

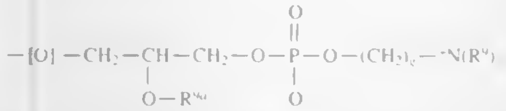
group IVD has the formula



IVD

wherein the groups R^8 are the same or different and each is hydrogen or C_{1-4} alkyl, R^{8a} is hydrogen or a group —$C(O)B^1R^{8b}$ wherein R^{8b} is hydrogen or methyl, B^1 is a valence bond or straight or branched alkylene, oxaalkylene or oligo-oxaalkylene group, and f is from 1 to 4; and if B is other than a valence bond Z is 1 and if B is a valence bond z is 0, if X is directly bonded to an oxygen or nitrogen atom and otherwise z is 1;

group IVE has the formula

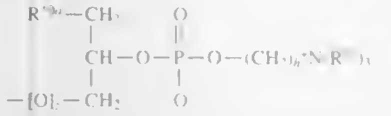


$-[O]_z-CH_2-\underset{\underset{O-R^{9a}}{|}}{CH}-CH_2-O-\overset{\overset{O}{\|}}{\underset{\underset{O}{|}}{P}}-O-(CH_2)_g-{}^+N(R^9)$ IVE

wherein the groups R^9 are the same or different and each is hydrogen or C_1–C_4 alkyl, R^{9a} is hydrogen or a group —$C(O)B^2R^{9b}$, wherein R^{9b} is hydrogen or methyl, B^2 is a valence bond or a straight or branched alkylene, oxaalkylene or oligo-oxaalkylene group, and g is from 1 to 4; and

if B is other than a valence bond z is 1 and if B is a valence bond z is 0 if X is directly bonded to an oxygen or nitrogen atom and otherwise z is 1, and

group IVF has formula

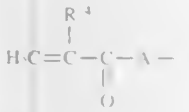


(IVF)

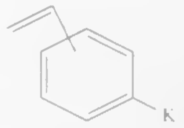
and wherein the comonomer is of formula (VI)

Y^1—Q (VI)

where Y^1 is an ethylenically unsaturated polymerisable group selected from



$H_2C=\overset{\overset{R^{14}}{|}}{C}-\underset{\underset{O}{\|}}{C}-A-$ and



where R^{14} is hydrogen or C_1–C_4 alkyl,

A is —O— or NR^{15}— where R^{15} is hydrogen or a C_1–C_4 alkyl group or R^{15} is a group Q,

K^1 is a group —$(CH_2)_lOC(O)$—, —$(CH_2)_lC(O)O$—, —$(CH_2)_lOC(O)O$—, —$(CH_2)_lNR^{16}C(O)$—, —$(CH_2)_lC(O)NR^{16}$—, —$(CH_2)_lNR^{16}C(O)O$—, —$(CH_2)_lOC(O)NR^{16}$—, —$(CH_2)_lNR^{16}C(O)NR^{16}$— (in which the groups R^{16} are the same or different), —$(CH_2)_lO$—, —$(CH_2)_lSO_3$—, a valence bond and l is from 1 to 12 and R^{16} is hydrogen or a C_1–C_4 alkyl group; and

Q is selected from

straight or branched alkyl substituted by one or more fluorine atoms; and

a siloxane group containing up to 50 silicon atoms.

5,739,237

MATERIALS AND THEIR USE IN THE PREPARATION OF BIOCOMPATIBLE SURFACES

Jeremy Colin Russell, and Ewan James Campbell, both of Surrey, United Kingdom, assignors to Biocompatibles Limited, Surrey, United Kingdom

PCT No. PCT/GB95/00161, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO95/20407, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 27, 1995, Ser. No. 682,536

Claims priority, application WIPO, Jan. 28, 1994, PCT/GB94/00177; United Kingdom, Aug. 4, 1994, 9415926

Int. Cl.^{6} C08F *30/02;20/58;20/60;* **C07F** *9/06;9/22;9/28*

U.S. Cl. 526—277 **39 Claims**

1. A surface having pendant zwitterionic groups each of which comprises an atom carrying an anionic charge and an atom carrying a cationic charge wherein said atom carrying a cationic charge has at least one monofunctional substituent which is selected from the group consisting of aryl, heteroaryl and aralkyl groups.

5,739,238

ALKOXYSILYL-FUNCTIONAL OLIGOMERS IN CURABLE SILANE POLYMER COMPOSITIONS

Herbert E. Petty, Bethel, Conn., and Shiu-Chin H. Su, Croton-On-Hudson, N.Y., assignors to OSi Specialties, Inc., Greenwich, Conn.

Filed Nov. 12, 1996, Ser. No. 747,688

Int. Cl.^{6} C08F *30/08*

U.S. Cl. 526—279 **32 Claims**

1. A fluid composition comprising

(A) a polymeric component obtained by polymerization of ethylenically unsaturated monomers at least a portion of which is selected from the group consisting of ethylenically unsaturated alkoxysilanes, ethylenically unsaturated acyloxysilanes, and mixtures thereof; and

(B) an oligomeric component obtained by polymerization of a monomer mixture comprising one or more silanes selected from the group consisting of vinyltrialkoxysilanes, vinylalkyldialkoxysilanes, and vinyldialkylmono-alkoxysilanes, said monomer mixture optionally containing one or more comonomers selected from the group consisting of vinyl esters, methacrylate esters, acrylate esters, nitriles containing up to 6 carbon atoms, vinyl chloride, maleate diesters, styrene, and methyl-substituted styrene; wherein the average chain length of said oligomeric component is selected so that it is essentially non-volatile and reduces the viscosity of said composition;

wherein said composition is curable into a film by reaction of said polymeric component with said oligomeric component by adding to said composition a cure catalyst and curing said composition.

5,739,239

THERMALLY POLYMERIZED DICYCLOPENTADIENE/VINYL AROMATIC RESINS

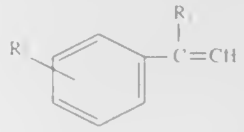
Norman Edward Daughenbaugh, Turtle Creek; Dane George Goodfellow, Pittsburgh, and Deborah Ann Riedl, Library, all of Pa., assignors to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 325,763, Oct. 19, 1994, Pat. No. 5,502,140. This application Jun. 7, 1995, Ser. No. 487,791

Int. Cl.^{6} C08F *232/08*

U.S. Cl. 526—283 **19 Claims**

1. A process for preparing a hydrocarbon resin comprising (a) providing a mixture consisting essentially of (1) about 40% to 90% by weight based on total monomers of a cyclic diolefin component comprising at least about 50% by weight dicyclopentadiene, and (2) about 60% to 10% by weight based on total monomers of at least one vinyl aromatic component having the formula



where R_1 is H or a 1–10 carbon linear or branched chain alkyl group at the meta- or para-position and R_2 is a 1–10 carbon linear or branched chain alkyl group or a 2-methyl-2-phenylpropyl group, (b) thermally polymerizing the mixture, and (c) recovering a product having a Ring and Ball softening point of about 70° to about 150° C., having a Mz with a maximum value of about 4000, having a Mw with a maximum value of about 2500, and having a Pd with a maximum value of about 3.0

5,739,240

MODIFIED ACRYLIC URETHANE PREPOLYMER CONCENTRATE AND POLYESTER RESINS CONTAINING SAME

Stuart B. Smith, Conyers, Ga., assignor to Hehr International Inc., Conyers, Ga.

Filed Apr. 10, 1996, Ser. No. 629,894

Int. Cl.^{6} C08F *226/02,220/28,212/08,2/40*

U.S. Cl. 526—301 **11 Claims**

1. A modified liquid acrylic-urethane prepolymer concentrate composition adapted for addition to a curable unsaturated polyester resin to improve cured resin properties as a diluent additive and to provide a polyester resin with reduced styrene content, which prepolymer composition consists essentially of,

a) a liquid acrylic-urethane prepolymer prepared by the reaction of a diisocyanate in a stoichiometric or greater amount with a high functionality polyhydroxyl containing acrylate monomer,

b) a diluent styrene monomer, and

c) an inhibitor in an amount to retard the reaction of the prepolymer and the styrene monomer

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5,739,241

VINYL FORMATE COPOLYMERS, PREPARATION THEREOF, AND USE THEREOF IN DETERGENTS AND CLEANERS

Dieter Boeckh, Limburgerhof; Axel Kistenmacher, Ludwigshafen; Walter Denzinger, Speyer; Thomas Rühl, Frankenthal; Angelika Funhoff, Schriesheim; Richard Baur, Mutterstadt; Alexander Kud, Eppelsheim, and Volker Schwendemann, Neustadt, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02053, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/34587, PCT Pub. Date Dec. 21, 1995

PCT Filed May 31, 1995, Ser. No. 750,472

Claims priority, application Germany, Jun. 16, 1994, 44 20 920.7

Int. Cl.^{6} C08F *22/02 20/10*

U.S. Cl. 526—318.2 **7 Claims**

1. Vinyl formate copolymers containing

(a) from 5 to 90 mol % of vinyl formate units,

(b) from 10 to 95 mol % of units of monoethylenically unsaturated carboxylic acids,

(c) from 0 to 70 mol % of units of monoethylenically unsaturated dicarboxylic acids, and

(d) from 0 to 30 mol % of units of other monoethylenically unsaturated monomers in copolymerized form and having K values of at least 8 (determined by the method of H. Fikentscher in 1% strength by weight aqueous solution on the sodium salt of the copolymers at pH 7 and 25° C.)

5,739,242

PREPARATION OF COPOLYMERS OF ETHYLENE WITH ALKENECARBOXYLIC ACIDS

Andreas Deckers, Flomborn; Dieter Littmann, Mannheim, and Roger Klimesch, Alsbach-Hähnlein, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Nov. 17, 1995, Ser. No. 544,442

Claims priority, application Germany, Nov. 24, 1994, 44 41 822.1

Int. Cl.^{6} C08F *220/04*

U.S. Cl. 526—318.6 **2 Claims**

1. A process for the preparation of copolymers of ethylene and dicarboxylic acid in the presence of a free-radical initiator, said process comprising warming a mixture of ethylene and C_3–C_6 alkenecarboxylic acid to a temperature of from 60° to 100° C. before addition of the free-radical initiator, and recovering said copolymers of ethylene; wherein the maximum polymerization temperature is in the range of from 100° to 260° C., and wherein said copolymer comprises from 94 to 99.5 mol % of ethylene and from 0.5 to 6.0 mol % of C_3–C_6-alkenecarboxylic acid

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5,739,243

POLYMERIZABLE COMPOSITION

Robert D. Herold, Monroeville, and Charles R. Wiedrich, Murrysville, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

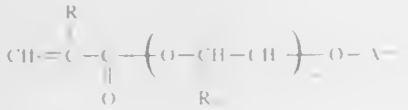
Filed Nov. 27, 1996, Ser. No. 758,612

Int. Cl.^{6} C08F *222/20 220/26*

U.S. Cl. 526—325 **20 Claims**

1. A polymerizable organic composition consisting essentially of

(a) from 5% to 90% by weight based on the total weight of monomer components, of a first monomer component represented by the following general formula



$CH_2=\overset{\overset{R}{|}}{C}-\underset{\underset{O}{\|}}{C}-\left(O-\underset{\underset{R}{|}}{CH}-CH\right)-O-X=$ I

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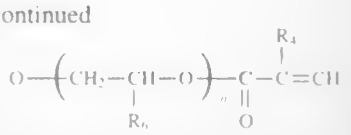
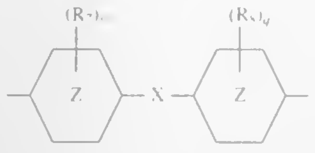
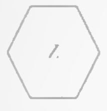


$$O-\left(CH_2-\underset{R_6}{CH}-O\right)_n-\underset{O}{\overset{\|}{C}}-\overset{R_4}{C}=CH$$

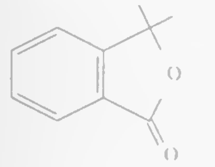
wherein m and n are each a positive number, the sum of m and n being from 15 to 70, R_3 and R_4 are each hydrogen or methyl, R_5 and R_6 are each hydrogen or C_1 to C_2 alkyl, and A is a divalent linking group selected from the group consisting of straight or branched chain alkylene, phenylene, C_1–C_9 alkyl substituted phenylene and a group represented by the following general formula,



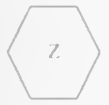
wherein, R_7 and R_8 are each C_1–C_4 alkyl, chlorine or bromine, p and q are each an integer from 0 to 4,



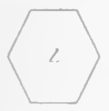
represents a divalent benzene group or a divalent cyclohexane group and X is O, S, —S(O$_2$)—, —C(O)—, —CH$_2$—, —CH=CH—, —C(CH$_3$)$_2$—, —C(CH$_3$) (C$_6$H$_5$)— or



when

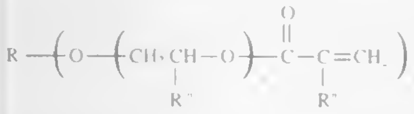


is the divalent benzene group, and X is O, S, —CH$_2$—, or —C(CH$_3$)$_2$— when



is the divalent cyclohexane group;

(b) from 10% to 95% by weight, based on the total weight of monomer components, of a second monomer component represented by the following general formula



$$R'-\left(O-\left(CH_2CH-O\right)_d-\overset{O}{\overset{\|}{C}}-\underset{R'''}{C}=CH_2\right)_j$$

wherein R' is a radical derived from a polyol, R" is hydrogen or methyl, R"' is hydrogen or C_1 to C_2 alkyl, d is a number from 0 to 20, and j is a whole number from 3 to 6; and

(c) from 0% to 85% by weight, based on the total weight of monomer components, of a third monoethylenically unsaturated monomer component that is polymerizable by free radical initiation.

5,739,244

POLYMER COMPOSITION CONTAINING PRIME STARCH

Donald Fisk, 875 E. Linn St., Canton, Ill. 61520

Continuation-in-part of Ser. No. 267,193, Jun. 29, 1994, Pat. No. 5,523,372, and Ser. No. 514,449, Aug. 11, 1995, which is a continuation of Ser. No. 216,414, Mar. 23, 1994, abandoned.

This application Feb. 26, 1996, Ser. No. 607,344

Int. Cl.^{6} C08L *3/00;89/00*

U.S. Cl. 524—47 **10 Claims**

1. In a process for making shaped articles by extrusion or injection molding from a polymer composition comprising starch, the improvement comprising replacing the starch in the polymer composition with a prime starch.

5,739,245

PLASTICS WITH A CONTENT OF SILANE, ETHER, URETHANE AND UREA GROUPS AND THEIR USE AS DENTAL COMPOSITION

Dierk Lübbers, and Wolfgang Mühlbauer, both of Hamburg, Germany, assignors to Ernst Mühlbauer KG, Hamburg, Germany

PCT No. PCT/EP94/00607, § 371 Date Nov. 13, 1995, § 102(e) Date Nov. 13, 1995, PCT Pub. No. WO94/20560, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 2, 1994, Ser. No. 522,359

Claims priority, application Germany, Mar. 5, 1993, 43 07 024.8

Int. Cl.^{6} C08G *18/38*

U.S. Cl. 528—28 **12 Claims**

1. A plastic for use in making an impression, duplicate or model and having a low tendency to shrink after complete curing, the plastic having at least one predominantly linear polyaddition product comprising silane and aliphatically or cycloaliphatically bound ether, urethane and urea groups and a number average molecular weight of from 800 to 20,000, wherein the polyaddition product has:

a) ether groups contained in a polyether and constituting 25 to 90 parts by weight per 100 parts by weight of polyaddition product;

b) urethane groups of the formula

—HN—CO—O—

at a content of 0.5 to 10 parts by weight per 100 parts by weight of polyaddition product;

c) urea groups of the formula

—NH—CO—NH—

at a content of 0.5 to 10 parts by weight per 100 parts by weight of polyaddition product;

d) silanes that are alkoxysilyl groups located on both ends of the predominantly linear polyaddition product and have the formula

$-NR-(CH_2)_m-SiR^1R^2R^3$

in which

m is 3,

R is hydrogen or a group of the formula:

$-(CH_2)_m-SiR^1R^2R^3$

where R^1, R^2 and R^3 are methyl, ethyl, C_1 to C_4 alkoxy or $-(O-C_pH_{2p})_q-O-A-R^4$, and at least one of R^1, R^2 and R^3 is

$-(O-C_pH_{2p})_q-O-A-R^4$

in which

p is 3;

q is from 1 to 100,

A is a single bond and

R^4 is alkyl, aralkyl, vinyl, vinylcarbonyl, alpha-methylvinylcarbonyl or beta-methylvinylcarbonyl.

5,739,246

PREPARATION OF CARBONYL FUNCTIONAL POLYSILOXANES

Daniel Graiver, Midland, Mich.; Aaron Quoc Khieu, Coon Rapids, Minn., and Binh Thanh Nguyen, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

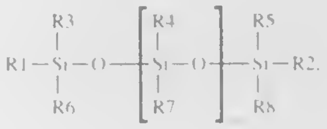
Filed Mar. 6, 1997, Ser. No. 812,808

Int. Cl.^{6} C08G *77/20*

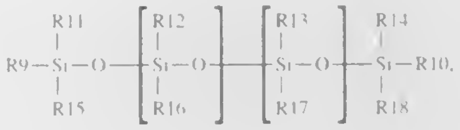
U.S. Cl. 528—32 **7 Claims**

1. A method of making an organosiloxane containing carbonyl functionality, the method comprising

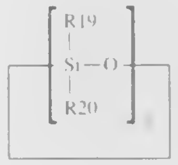
(I) forming an organosiloxane containing ozonide functionality by exposing to ozone an organosiloxane having a formula selected from the group consisting of



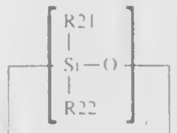
$$R1-\underset{R6}{\overset{R3}{Si}}-O-\left[\underset{R7}{\overset{R4}{Si}}-O\right]-\underset{R8}{\overset{R5}{Si}}-R2,$$

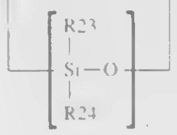


$$R9-\underset{R15}{\overset{R11}{Si}}-O-\left[\underset{R16}{\overset{R12}{Si}}-O\right]\left[\underset{R17}{\overset{R13}{Si}}-O\right]-\underset{R18}{\overset{R14}{Si}}-R10,$$



and





where R1–R24 in each formula represent an alkyl group containing 1–6 carbon atoms; an aryl group; or an alkenyl group; with the proviso that at least one R1–R24 group in each formula is an alkenyl group with the unsaturated carbon atoms separated from the silicon atom by at least two saturated carbon atoms, a and b have a value of 1–200; c has a value of about 1–10; and d-f have a value of 3–6;

and (II) reducing the resulting organosiloxane containing ozonide functionality to an organosiloxane containing carbonyl functionality.

5,739,247

PRODUCTION OF STRUCTURAL REACTION INJECTION MOLDED POLYURETHANE PRODUCTS OF HIGH FLEX MODULUS AND HIGH ELONGATION

Merle W. Lesko, McDonald, and Kristen L. Parks, Wexford, both of Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Aug. 5, 1996, Ser. No. 689,201

Int. Cl.^{6} C08G *18/10*

U.S. Cl. 528—60 **2 Claims**

1. In a process for the production of polyurethane moldings by reacting a reaction mixture in a closed mold, the improvement wherein the reaction mixture comprises

a) a liquid, room temperature stable, polyisocyanate having an isocyanate group content of from 15 to 25% by weight and having been prepared by reacting

1) an isocyanate mixture comprising:

i) from 80 to 95% by weight of 4,4'-diphenylmethane diisocyanate,

ii) from 2 to 7% by weight of 2,4'-diphenylmethane diisocyanate, and

iii) an amount of an isocyanate containing higher oligomers of diphenylmethane diisocyanate having an isocyanate functionality of more than 2, such that isocyanate mixture 1) has an average isocyanate functionality of from 2.02 to 2.50, and

2) a polyol mixture comprising:

i) one or more diols having molecular weights of from 1000 to 5000, and

ii) one or more triols having molecular weights of from 1000 to 6000, wherein the weight ratio of diol to triol is from 10:1 to 1:10,

b) at least two hydroxy functional polyethers having average hydroxyl functionalities of from 1.5 to 8 and number average molecular weights of from 350 to below 1800, with the average hydroxyl functionality of component b) being from about 2 to about 4 and with the average molecular weight of component b) being from about 350 to about 450,

c) at least one hydroxyl functional organic material containing from 2 to 8 hydroxyl groups and having a number average molecular weight below 350, wherein components b) and c) are used in a weight ratio of from about 10:1 to about 1:1, and

d) from 45 to 60% by weight, based upon the total amount of components b), c) and d) of at least two hydroxyl functional organic materials having average hydroxy functionalities of from 1.5 to 3 and having number average molecular weights of 4000 or more, with the average hydroxyl functionality of component d) being from about 2 to about 3 and with the average molecular weight of component d) being from about 4000 to about 6000,

with the amounts of components a), b), c) and d) being such the reaction mixture has an isocyanate index of from 70 to 130.

5,739,248

COMPOSITION FOR THE PRODUCTION OF RADILY HARDENING AMINOSILANE CROSS-LINKING SILICONE MASSES

Rudolf Hoheneder, Traunstein, Germany, assignor to Heidelberger Baustofftechnik GmbH, Heidelberg, Germany

PCT No. PCT/EP95/03162, § 371 Date Nov. 5, 1996, § 102(e) Date Nov. 5, 1996, PCT Pub. No. WO96/07696, PCT Pub. Date Mar. 14, 1996

PCT Filed Aug. 9, 1995, Ser. No. 732,438

Claims priority, application Germany, Sep. 3, 1994, 44 31 489.2

Int. Cl.^{6} C08G *77/26*

U.S. Cl. 528—38 **17 Claims**

1. A kit for the production of a rapidly-hardening aminosilane cross-linking silicone mass comprising:

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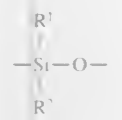
(A) 100 parts by weight of an at least bifunctionally terminated diorganopolysiloxane, which comprises a linear or branched chain of repeating units of the formula



$$\begin{array}{c} R^1 \\ | \\ -Si-O- \\ | \\ R^2 \end{array}$$

and which contains at least two end groups Z, wherein Z is independently —H, —OH, OR¹, or —SiR³(NR⁴R⁵)₂, and

R¹ and R² are independently a saturated or unsaturated hydrocarbon radical, optionally substituted with halogen or cyano groups,

(B) 0.1 to 20 parts by weight of an aminosilane cross-linker of the formula

$$R^3_y\text{—Si—}(NR^4R^5)_4$$

wherein y=0 or 1,

R³ is hydrogen or a monovalent saturated or unsaturated hydrocarbon or hydrocarbonoxy radical, and

R⁴ and R⁵ are independently selected from the group consisting of hydrogen and saturated or unsaturated aliphatic, cycloaliphatic, or aromatic hydrocarbon radical with 1 to 15 carbon atoms, optionally substituted with halogen or cyano groups,

(C) 0.1 to 20 parts by weight of an inorganic or organic compound capable of reacting with an amine to give salt formation

(D) 0 to 20 parts by weight of water.

5,739,249
CHLORINE-FREE MULTIFUNCTIONAL RESINS FOR PAPER FINISHING

Jürgen Reiners, Leverkusen; Hans-Josef Laas, Cologne; Joachim König, Odenthal; Helmut Reiff; Joachim Probst, both of Leverkusen; Bruno Bömer, Bergisch Gladbach; Reinhard Halpaap, Odenthal-Gloebusch; Fritz Puchner, Cologne, and Harro Träubel, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 100,024, Jul. 30, 1993, Pat. No. 5,503,714. This application Aug. 8, 1995, Ser. No. 512,612

Claims priority, application Germany, Aug. 7, 1992, 42 26 110.4; Jun. 14, 1993, 43 19 571.7

Int. Cl.⁶ C08G *18/00*

U.S. Cl. 528—44 **5 Claims**

1 Water-dispersible mixtures of polyisocyanate which, in their polymeric structure have

α) a content of isocyanate groups of 10 to 700, milliequivalents per 100 g of mixture,

β) an average NCO functionality of 22 1.0,

γ) a content of ethylene oxide units of 0 to 30% by weight, based on the mixture, wherein the polyethylene oxide chain has an average molecular weight (number average) of 100 to 3500,

ι) a content of tertiary amino groups or ammonium groups of 50 to 5000, milliequivalents per 100 g of mixture,

and

ε) a content of hydrophobic radicals of 1 to 250 milliequivalents per 100 g of mixture.

5,739,250
THERMOPLASTIC POLYURETHANE-UREA ELASTOMERS

Stephan Kirchmeyer, Leverkusen; Hanns-Peter Müller, Odenthal; Jürgen Fähndrich, Leverkusen, and Hans-Georg Hoppe, Leichlingen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 31, 1996, Ser. No. 655,784

Claims priority, application Germany, Jun. 7, 1995, 195 20 730.0

Int. Cl.⁶ C08G *18/30*

U.S. Cl. 528—45 **11 Claims**

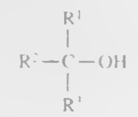
1 A process for the preparation of a thermoplastic polyurethaneurea elastomer comprising reacting by polyaddition at 30° C. to 180° C.,

(A) at least one polyisocyanate, with

(B) a mixture containing

B1) 40 to 85 equivalent-% (relative to isocyanate groups in (A)) of one or more compounds having an average of at least 1.8 to 3.0 Zerewitinoff active hydrogen atoms and a number average molecular weight of 400 to 10000, and

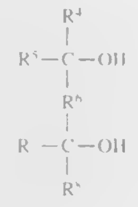
B2) 10 to 60 equivalent-% (relative to isocyanate groups in (A)) of one or more tertiary hydroxyl compounds selected from the group consisting of (I) and (II) where (I) conforms to



$$\begin{array}{c} R^1 \\ | \\ R^2-C-OH \\ | \\ R^3 \end{array}$$

in which

R¹, R² and R³ independently denote C₁ C₆ alkyl, C₄ C₁₀ cycloalkyl or C₄–C₁₀ aryl radicals, and where (II) conforms to



$$\begin{array}{c} R^4 \\ | \\ R^5-C-OH \\ | \\ R^6 \\ | \\ R\ -C-OH \\ | \\ R^8 \end{array}$$

in which

R⁴, R⁵, R⁷ and R⁸ independently denote C₁–C₆ alkyl, C₄–C₁₀ cycloalkyl or C₄-C₁₀ aryl radicals, and where R⁶ denotes a single bond or C₁–C₁₀ alkylene, C₄-C₁₅ cycloalkylene or C₆ C₁₀ arylene, and

B3) 0 to 45 equivalent-% (relative to isocyanate groups in (A)) of one or more chain extenders having an average of 1.8 to 3.0, Zerewitinoff active hydrogen atoms and a molecular weight of 62 to 400, and

C) 0 to 20 wt % (relative to the total quantity of thermoplastic polyurethaneurea) of further conventional auxiliary substances and additives,

to yield an intermediate product and then decomposing said intermediate at 60° C. to 280° C. with elimination of volatile constituents.

5,739,251
LOW VISCOSITY, ETHYLENICALLY UNSATURATED POLYURETHANES CONTAINING ALLOPHANATE GROUPS

Lanny D. Venham, Paden City; Arthur W. Mason, Sisterville; Michael K. Jeffries, Pine Grove, all of W. Va., and Michael J. Dvorchak, Monroeville, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Mar. 27, 1997, Ser. No. 826,262

Int. Cl.⁶ C08G *18/62*

U.S. Cl. 528—49 **12 Claims**

1 An ethylenically unsaturated polyurethane which is substantially free from isocyanate groups and has

a) a content of β,γ-ethylenically unsaturated ether groups (calculated as C═C, MW 24) incorporated through allophanate groups of 0.5 to 10% by weight,

b) an allophanate group content (calculated as $N_2C_2HO_3$, MW 101) of 1 to 20% by weight and

c) a total content of ethylenically unsaturated groups of (calculated as C═C, MW 24) of 1 to 15% by weight.

5,739,252
THERMOPLASTIC POLYURETHANEUREA ELASTOMERS

Stephan Kirchmeyer, Leverkusen; Hanns Peter Müller, Odenthal; Martin Ullrich, Leverkusen, and Ulrich Liesenfelder, Gladbach, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 31, 1996, Ser. No. 657,852

Claims priority, application Germany, Jun. 7, 1995, 19520731.9

Int. Cl.⁶ C08G *18/10*

U.S. Cl. 528—59 **4 Claims**

1 A process for the production of thermoplastic polyurethaneurea elastomer comprising

(a) introducing and homogeneously mixing (A), (B) and optionally (C) in a first static mixer at a shear rate of 500 to 50,000 s^{-1} and at a temperature of 50° to 250° C. to form a substantially unreacted mixture and

(b) reacting said substantially unreacted mixture in a second static mixer operating as a shear rate of 1 to 100 s^{-1} and a temperature of 50° to 250° C. to form thermoplastic polyurethaneurea elastomer, wherein (A) denotes one or more polyisocyanates, and where (B) denotes a mixture of (B1) and (B2) and (B3) where

(B1) is 40 to 85 equivalent-% (relative to the isocyanate groups in (A)) of one or more compounds having an average of 1.8 to 3.0 Zerewitinoff active hydrogen atoms and a number average molecular weight of 400 to 10000, and where

(B2) is 10 to 60 equivalent-% (relative to the isocyanate groups in (A)) of water, and where

(B3) is 0 to 45 equivalent-% (relative to the isocyanate groups in (A)) of one or more chain extenders having an average of 1.8 to 3.0 Zerewitinoff active hydrogen atoms and a molecular weight of 62 to 400, and where

(C) is 0 to 20% (relative to the weight of said thermoplastic polyurethaneurea elastomer) of conventional auxiliary additives.

5,739,253
RIM ELASTOMERS BASED ON PREPOLYMERS OF CYCLOALIPHATIC DIISOCYANATES

Neil H. Nodelman, Pittsburgh, and David D. Steppan, Gibsonia, both of Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Jun. 4, 1996, Ser. No. 657,293

Int. Cl.⁶ C08G *18/10; 18/12, 18/66; 18/75*

U.S. Cl. 528—60 **7 Claims**

1 A process for the production of a polyurethane/urea elastomer from a reaction mixture by a reaction injection molding process, wherein said reaction mixture comprises,

A) an isocyanate prepolymer having an isocyanate group content of from 12 to 27% by weight, an average isocyanate functionality of less than 2.3, having a monomer content of greater than about 25% by weight, and containing urethane or urea groups, said prepolymer being prepared by reacting

A1) a cycloaliphatic diisocyanate

with

A2) at least one compound selected from the group consisting of:

a) at least 6.5% by weight, based on the combined weight of A1) and A2)a), of one or more compounds containing at least two hydroxyl or amine groups and having a molecular weight of less than 500,

and

b) at least 10% by weight, based on the combined weight of A1) and A2)b), of a compound having a molecular weight of at least about 600, and containing polytetramethyleneoxy groups, polyethyleneoxy groups, or polyester groups;

and

B) an isocyanate-reactive blend comprising

B1) from 55 to 90% by weight of one or more polyether polyols having number average molecular weights of from about 1000 to about 8000 and containing from 1.5 to 4 hydroxyl groups,

B2) from 10 to 45% by weight of a mixture of organic chain extenders having molecular weights of from about 60 to about 500, and being selected from the group consisting of diols, triols, primary amines, secondary amines, amino alcohols, and mixtures thereof, wherein said mixture of chain extenders has an OH:NH equivalent ratio of from 1:2 to 20:1,

with the %'s by weight of components B1) and B2) totalling 100%, and

C) from 0.1 to 10% by weight, based upon the weight of component B), of one or more catalyst for catalyzing the reaction between the isocyanate groups and the isocyanate reactive groups,

wherein the reaction mixture is processed via a one shot process at an isocyanate index of from 80 to 133

5,739,254
PROCESS FOR HALOALKYLATION OF HIGH PERFORMANCE POLYMERS

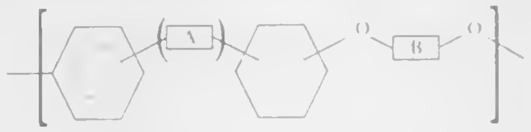
Timothy J. Fuller, Pittsford; Ram S. Narang, Fairport; Thomas W. Smith, Penfield; David J. Luca, Rochester, and Raymond K. Grandall, Pittsford, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 29, 1996, Ser. No. 705,463

Int. Cl.⁶ C08G *8/02 14/00*

U.S. Cl. 528—125 **9 Claims**

1 A process which comprises reacting a polymer of the formula



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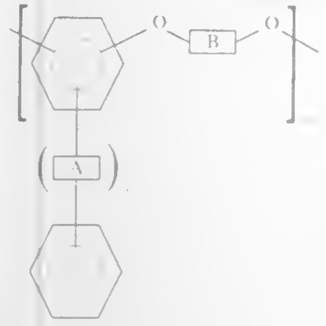
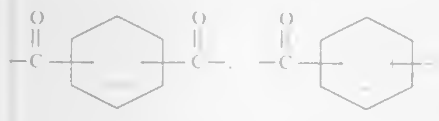
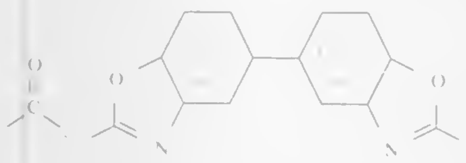
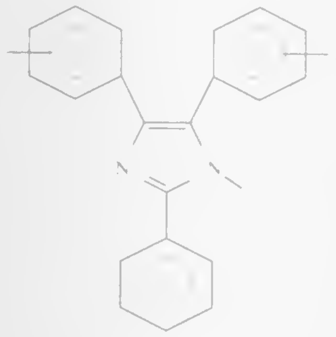
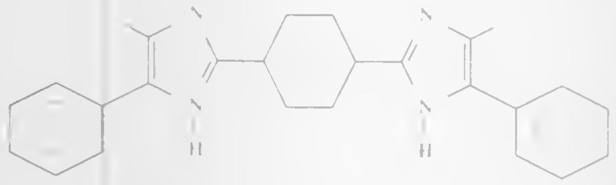


wherein x is an integer of 0 or 1, A is



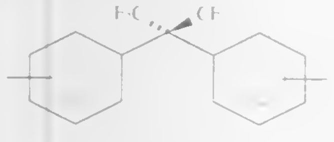


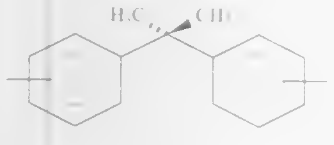


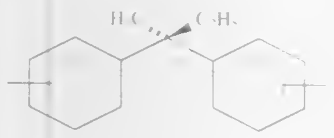


$-O-$, $-C(CH_3)_2-$,

or mixtures thereof, B is







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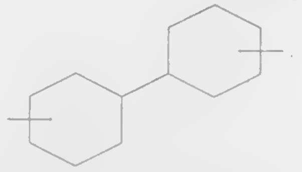
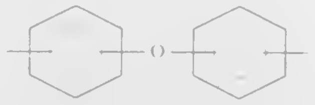
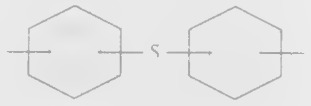
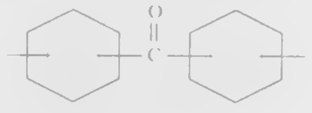
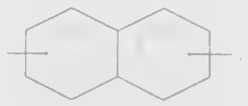
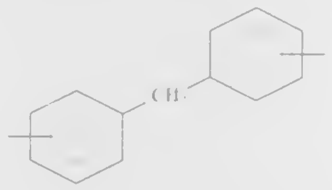


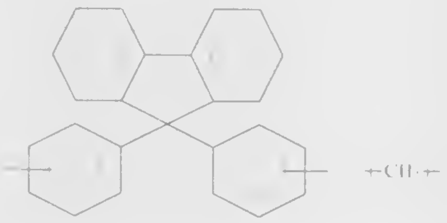




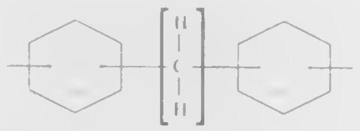




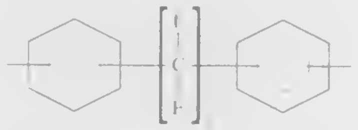




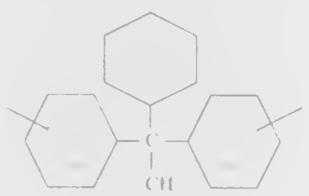
wherein y is an integer of from 1 to about 20.



wherein z is an integer of from 2 to about 20.



wherein u is an integer of from 1 to about 20.



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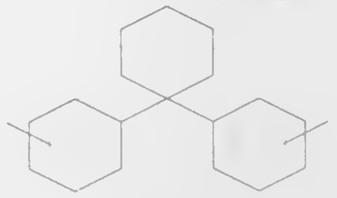
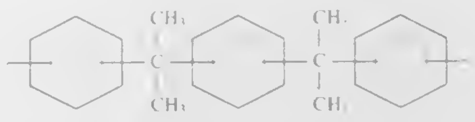
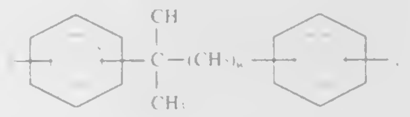
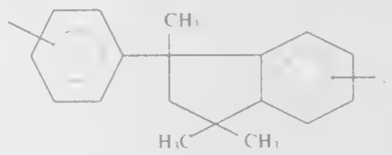
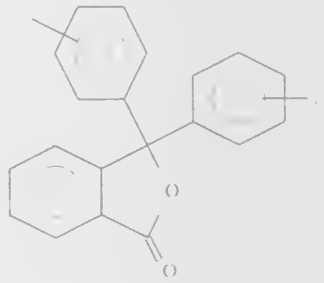


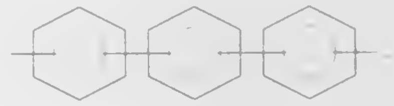


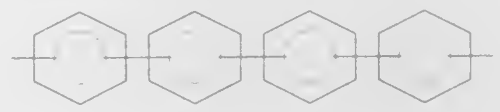


wherein w is an integer of from 1 to about 20.









or mixtures thereof, and n is an integer representing the number of repeating monomer units, with an acetyl halide and dimethoxymethane in the presence of a halogen-containing Lewis acid catalyst and methanol, thereby forming a haloalkylated polymer

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5,739,255

BENZYLIC ETHER PHENOLIC RESOLE RESINS

Thomas Edward Dando, Sunbury; William Rexford Dunnavant, Columbus; Robert Bernard Fechter, Worthington, and Heimo Josef Langer, Columbus, all of Ohio, assignors to Ashland Inc., Columbus, Ohio

Filed Jul. 17, 1996, Ser. No. 682,159

Int. Cl.^{6} C08G *8/04·14/02*

U.S. Cl. 528—129 **18 Claims**

1. A benzylic ether phenolic resole resin prepared by a process which comprises:

(a) charging a phenol, aldehyde, and a catalytic amount of a divalent metal catalyst to a sealable reaction vessel capable of maintaining a pressure above atmospheric pressure, such that the mole ratio of aldehyde to phenol ratio is from 1.0:1.0 to 1.5:1.0;

(b) sealing said reaction vessel;

(c) heating said sealed reaction vessel to a temperature sufficient to generate a pressure of at least 10 psig above normal atmospheric pressure within the sealed reaction vessel

(d) continuing said reaction, without removing water formed by the reaction, until an appropriate endpoint is reached,

(e) venting the reactor to 0 psig while distilling excess water and other condensable vapors, and

(f) applying a vacuum to distill the remaining condensable vapors, whereby said resin comprises

  (1) at least one component having a single ring phenolic structure, and

  (2) at least one component having a multiple ring phenolic structure, and is characterized by the following

    (1) a benzylic ether to methylene bridge ratio, as determined by C13 NMR spectroscopy of from 0.3:1.0 to 0.9:1.0;

    (2) a total ortho to para substitution ratio of 3:1.0 to 10:1.0,

    (3) a weight average molecular weight (M_w), as determined by gel permeation chromatography, of 700 to 2,000; and

    (4) a viscosity of 0.7 centipoise to 5.0 centipoise at 100° C

5,739,256

METHOD FOR MAKING MULTIDIMENSIONAL POLYESTER OLIGOMERS

Hyman R. Lubowitz, Rolling Hills Estates, Calif., and Clyde H. Sheppard, Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash.

Division of Ser. No. 137,493, Dec. 23, 1987, which is a continuation-in-part of Ser. No. 726,259, Apr. 23, 1985, abandoned. This application Jun. 5, 1995, Ser. No. 572,755

Int. Cl.^{6} C08G *75/20,63/688,73/10*

U.S. Cl. 528—171 **15 Claims**

1. A method for making a multidimensional polyester oligomer comprising the step of

condensing about 1 mole of an aromatic hub that has at least three —COX functionalities with at least 3 moles of an imidophenol of the formula:

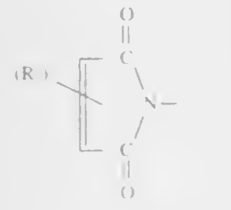
$$D_i-\phi-OH$$

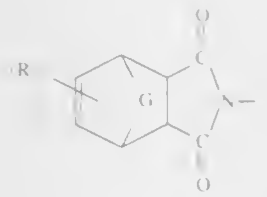
wherein

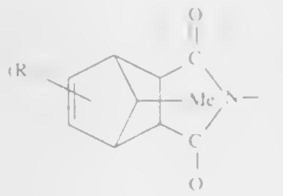
i=1 or 2,

φ=phenyl;

D=







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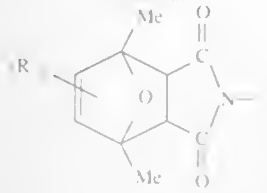

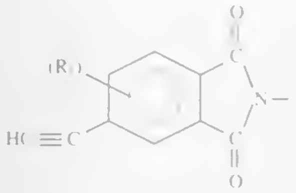

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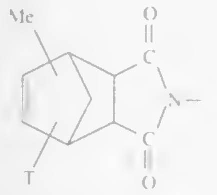


R_1=lower alkyl, lower alkoxy, aryl, aryloxy, substituted alkyl, substituted aryl, halogen, or mixtures thereof,

j=0, 1, or 2;

G=—CH_2—, —O—, —S—, or —SO_2—,

T=methallyl or allyl;

Me-methyl, and

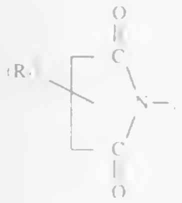
X=halogen

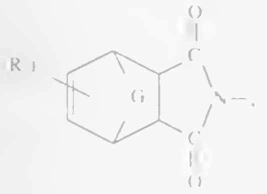
11 A method for making a multidimensional, polyester oligomer comprising the step of

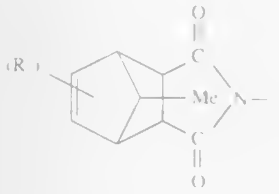
condensing a mixture of about 1 mole of an aromatic hub that has at least about three —OH functionalities with at least about 3 moles of a dicarboxylic acid halide and at least about 3 moles of an imidophenol of the formula

D_i—ϕ—OH

wherein D=







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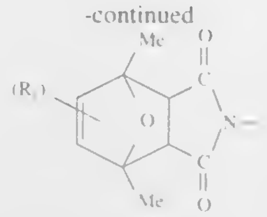

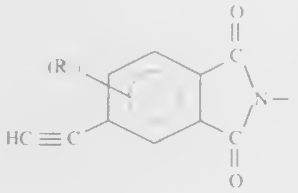

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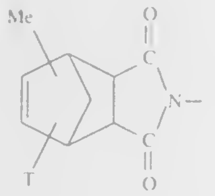


R_1=lower alkyl, lower alkoxy, aryl, aryloxy, substituted alkyl, substituted aryl, halogen, or mixtures thereof:

j=0, 1, or 2:

G=—CH_2—, —O—, —S—, or —S_2—,

T=methallyl or allyl:

Me=methyl:

i=1 or 2: and

ϕ=phenyl.

5,739,257

BINARY PHASE TRANSFER/AMINE CATALYST FOR MAKING AROMATIC POLYCARBONATES

Eugene P. Boden, Scotia, N.Y.; Larry I. Flowers, Evansville, Ind.; Peter D. Phelps, Schenectady, N.Y.; David L. Ramsey, Mt. Vernon, and Paul D. Sybert, Evansville, both of Ind., assignors to General Electric Company, Pittsfield, Mass.

Continuation-in-part of Ser. No. 597,417, Feb. 8, 1996, which is a division of Ser. No. 241,324, May 10, 1994, Pat. No. 5,519,105. This application Oct. 21, 1996, Ser. No. 734,769

Int. Cl.^{6} C08G *64/00*

U.S. Cl. 528—196 **9 Claims**

1 A process for the interfacial polymerization of a dihydroxy compound and a phosgene to produce a polycarbonate, in the presence of a catalytic proportion of a phase transfer catalyst, the improvement comprising; selecting a phase transfer catalyst from the group consisting of methyltributylammonium halide and hexabutylbutylenediammonium halide whereby the formation of an emulsion of the aqueous and organic phases is substantially eliminated.

5,739,258

PROCESS FOR PREPARING DIARYL CARBONATES AND THE POLYCARBONATES OBTAINABLE THEREFROM

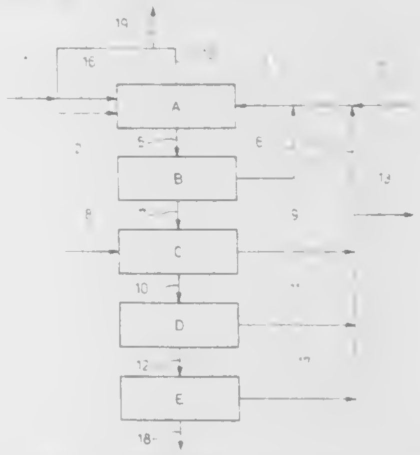
Gottfried Zaby, Leverkusen; Hans-Josef Buysch, Krefeld; Steffen Kühling, Meerbusch; Carsten Hesse, Krefeld, and Johann Rechner, Kemper, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Mar. 3, 1997, Ser. No. 804,287

Claims priority, application United Kingdom, Mar. 8, 1996, 19609057

Int. Cl.^{6} C08G *64/00*

U.S. Cl. 528—198 **15 Claims**



1 A process for preparing a diaryl carbonate of the formula (I)

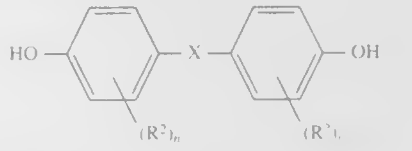
$$R^1—O—CO—O—R^1 \qquad (I)$$

wherein said process includes the step of contacting in a reactor a group of materials consisting essentially of a basic aromatic hydroxy compound of the formula (II)

$$R^1—OH \qquad (II)$$

wherein, in the formulae

R^1 represents phenyl, methylphenyl, ethylphenyl or chlorophenyl, carbon monoxide, oxygen, a platinum metal catalyst, a co-catalyst, a quaternary salt and a base, further wherein the basic aromatic hydroxy compound used is a compound which is eliminated during the melt polycondensation of (I) with a bisphenol of the formula


(III)

in which

X represent a single bond, —S—, —SO_2—, —CO—, —O—, C_{1-C8}-alkylidenes or C_5–C_9-cycloalkylidenes

R^2 represents methyl, Cl or Br and

n represents the numbers 0, 1 or 2.

5,739,259

PHENOLIC POLYMERS MADE BY ARALKYLATION REACTIONS

David A. Hutchings, Tucker; Jeffrey L. Mills, Newnan, both of Ga., and Kenneth Bourlier, Randolph, N.J., assignors to Georgia-Pacific Resins, Inc., Atlanta, Ga.

Division of Ser. No. 501,516, Jul. 12, 1995, Pat. No. 5,674,970. This application Jan. 3, 1997, Ser. No. 778,352

Int. Cl.^{6} C08G *63/78;63/87*

U.S. Cl. 528—205 **32 Claims**

1 A phenol aralkylation polymer produced by reacting a phenolic monomer with an aryl diolefin to obtain a phenol/aryl diolefin polymer and then aralkylating the phenol/aryl diolefin polymer with at least one styrene derivative in the presence of an acid catalyst to obtain phenol aralkylation polymer

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5,739,260

HYDROPHOBICALLY MODIFIED RESIN COMPOSITION FOR GRAPHICS APPLICATIONS

William C. Floyd, Chester; Larry G. Venable, York, and William A. Fuchs, Jr., Chester, all of S.C., assignors to Sequa Chemicals, Inc., Chester, S.C.

Filed Aug. 5, 1996, Ser. No. 693,891

Int. Cl.^{6} C08G *12/30*

U.S. Cl. 528—254 **31 Claims**

1 A resin composition comprising:

the reaction product of an amine derivative selected from the group consisting of melamine, glycolurile and their mixtures with a C_1 to C_8 dialkoxyethanal,

a polyol having 2 or more hydroxyl groups; and

a hydrophobic modifier having a non-polar portion which combines with the resin to provide water resistance to the resin, wherein the hydrophobic modifier is an amido, hydroxy or amino functional compound containing a C_6–C_{20} alkyl or aryl group.

5,739,261

PREPARATION OF OXYSULFONYLATED POLYESTERS

Jean-Pierre Assante, Villeurbanne; Etienne Fleury, Irigny, and Didier Veyrat, St-Cyr-Au-Mont-D'Or, all of France, assignors to Rhone-Poulenc Films, Courbevoie Cedex, France

Continuation of Ser. No. 34,408, Mar. 18, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 462,552

Claims priority, application France, Mar. 18, 1992, 92 03480

Int. Cl.^{6} C08G *63/82*, C08K *3/32*

U.S. Cl. 528—277 **20 Claims**

1. A process for the preparation of an oxysulfonylated polyester, comprising polycondensing a lower alkyl diester of at least one aliphatic dicarboxylic acid and a lower alkyl diester of at least one aromatic dicarboxylic acid bearing an oxysulfonyl substituent, with at least one diol, in the presence of a catalytically effective amount of at least one titanium alkoxide compound and at least one manganese carboxylate, and in the absence of antimony compounds, wherein said at least one titanium alkoxide compound is present in an amount effective to produce an oxysulfonylated polyester free of a pink or red coloration

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5,739,262

TERNARY COPOLYAMIDE

Heinrich Morhenn, Köln; Dieter Brokmeier, Dormagen, and Werner Nielinger, Krefeld, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Nov. 13, 1995, Ser. No. 556,718

Claims priority, application Germany, Nov. 25, 1994, 44 41 981.3

Int. Cl.^{6} C08G *69/08*, *73/10*

U.S. Cl. 528—310 **11 Claims**

1 Ternary copolyamides prepared from

a) 75 to 85% by weight caprolactam;

b) 4 to 20% by weight aminoundecanoic acid and/or aminododecanoic acid, and

c) 4 to 20% by weight hexamethylenediamine adipate (AH salt)

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5,739,263
FILM ADHESIVE AND PROCESS FOR PRODUCTION THEREOF

Tatsuhiro Yoshida; Yoshitaka Okugawa; Toshio Suzuki; Toshiro Takeda; Yushi Sakamoto, and Takuya Tochimoto, all of Tokyo, Japan, assignors to Sumitomo Bakelite Company Limited, Tokyo, Japan

PCT No. PCT/JP93/00351, § 371 Date Jan. 28, 1994, § 102(e) Date Jan. 28, 1994, PCT Pub. No. WO93/24583, PCT Pub. Date Dec. 9, 1993

PCT Filed Mar. 24, 1993, Ser. No. 182,194

Claims priority, application Japan, Jun. 4, 1992, 04-144187; Dec. 4, 1992, 04-325012; Dec. 4, 1992, 04-325015; Dec. 4, 1992, 04-325017; Mar. 24, 1993, 04-144183

Int. Cl.⁶ C08G *73/10; 69/26*

U.S. Cl. 528—353 **80 Claims**

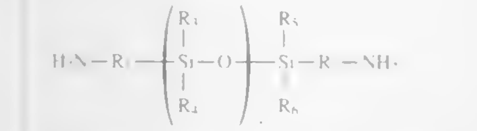
1. A film adhesive comprising, as the main constituent, a polyimide resin having a glass transition temperature of 350° C. or lower and soluble in organic solvents, which polyimide resin is obtained by reacting at least one of the following acid components (A) and (B)

(A) 4,4'-oxydiphthalic acid dianhydride

(B) 3,3',4,4'-biphenyltetracarboxylic acid dianhydride and/or 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride

with the following amine components (C) and (D)

(C) a siloxane compound represented by the following general formula (1) and/or 2,2-bis(4-(4-aminophenoxy)phenyl)propane



$$H_2N-R_1-\left(\begin{array}{c}R_3\\|\\Si\\|\\R_4\end{array}-O\right)_k-\begin{array}{c}R_5\\|\\Si\\|\\R_6\end{array}-R_2-NH_2$$ (1)

wherein R_1 and R_2 are each a bivalent aliphatic (C_{1-4}) or aromatic group; R_3, R_4, R_5 and R_6 are each a monovalent aliphatic or aromatic group; and k is an integer of 1–20.

(D) 1,3-bis(3-aminophenoxy)benzene and/or dimethylphenylene-diamine

to give rise to ring closure of imide

5,739,264
PROCESS FOR THE PREPARATION OF COPOLYMERS BASED ON CARBON MONOXIDE AND AT LEAST ONE COMPOUND HAVING AN ALKENYLIC UNSATURATION

Barbara Milani, Gorizia; Giovanni Mestroni, Trieste; Anna Sommazzi, S. Margherita Ligure, and Fabio Garbassi, Novara, all of Italy, assignors to Enichem S.P.A., Milan, Italy

Filed Feb. 21, 1996, Ser. No. 604,651

Claims priority, application Italy, Feb. 23, 1995, MI95A0337

Int. Cl.⁶ C08G *67/02*

U.S. Cl. 528—392 **24 Claims**

1. Process for the preparation of alternated linear copolymers, comprising reacting carbon monoxide and at least one compound containing an alkenylic unsaturation in the presence of a halogenated aromatic or aliphatic solvent which is liquid under the operating conditions and in the presence of a catalyst having general formula (I)

$$[Pd(chel)(chel')]^+[A]^-$$ (I)

wherein chel represents a non-charged bidentate chelating agent, chel' represents an anion of an organic compound containing a double carbon—carbon bond linked via π bond to the palladium (Pd) and a carbanion linked via σ bond to the palladium,

wherein said organic compound contains an unsaturated cyclic portion, and wherein said organic compound further contains a substituent X—R group; where X is O or N and R is an alkyl, aryl or arylalkyl group; and

A^- is an anion of a non-esterifiable or almost non esterifiable and non-co-ordinating acid.

5,739,265
FRACTIONATION OF PHENOL FORMALDEHYDE CONDENSATE AND PHOTORESIST COMPOSITIONS PRODUCED THEREFROM

M. Dalil Rahman, Flemington; Daniel P. Aubin, Oxford; Dinesh N. Khanna, and Sunit S. Dixit, both of Flemington, all of N.J., assignors to Clariant Finance (BVI) Ltd., Virgin Islands (Br.)

Filed Sep. 20, 1995, Ser. No. 530,847

Int. Cl.⁶ C08J *3/00;* **G03C** *7/022*

U.S. Cl. 528—482 **20 Claims**

1. A process for producing a water insoluble, aqueous alkali soluble, film forming novolak resin having a low level of metal ions, said process consisting essentially of:

A) providing a solution of from about 10% to 40%, by weight of an alkali soluble, water insoluble, film forming novolak resin in a polar organic solvent;

B) filtering the novolak resin solution through a filter having a rating of less than 1 μm (micrometer);

C) passing the novolak resin solution through an anion exchange resin;

D) passing the novolak resin solution through a cation exchange resin;

E) adding the resulting deionized novolak resin solution to deionized water at a ratio of water to resin solution of about 65 to about 35;

F) agitating the novolak resin solution/water mixture for at least about 30 minutes;

G) filtering the mixture and then washing the novolak resin solution with deionized water to thereby provide a filter cake;

H) adding the filter cake to a photoresist solvent to provide from about 40% to about 65% by weight of solids;

I) distilling off substantially all of the remaining water and polar organic solvent, under vacuum at a temperature of from about 90° C. to about 130° C. and a pressure of from about 50 mm to about 120 mm;

J) cooling the remaining novolak resin solution to a temperature of from about 25° C. to about 45° C.;

K) adjusting the solids content of the novolak resin solution;

L) filtering the novolak resin solution through a filter having a rating of less than 1 μm (micrometer).

5,739,266
PROCESS FOR MODIFYING A POLYETHYLENE IN AN EXTRUDER

Alain Piana, Martigues, France, assignor to BP Chemicals Limited, London, England

Filed Aug. 16, 1995, Ser. No. 515,830

Claims priority, application France, Aug. 30, 1995, 94 10630

Int. Cl.⁶ C08F *2/02*

U.S. Cl. 528—483 **21 Claims**

1. A process for improving the bubble stability of a linear polyethylene converted into film by blown extrusion, wherein a polyethylene having a density of 0.900 to 0.970, a molecular weight distribution such that the ratio of weight average molecular weight (Mw) to that based on the number average molecular weight (Mn) is from 8 to 40, and a value of the loss tangent measured by dynamic rheometry at 190° C. at a frequency of 1.5×10^{-2} radians per second ranging from 1.5 to 3, wherein the polyethylene, before its complete melting in an extruder, is brought into contact with a gas mixture containing from 1 to 50% by volume of oxygen, thereafter treated thermomechanically in the molten state in an extruder supplying a specific mechanical energy of 0.15 to 0.5 kWh per kilogram of polyethylene, and completing the treatment when the value of the loss tangent of the polyethylene has lost from 15 to 70% of its initial value before any treatment.

5,739,267
PROCESS FOR ISOLATION OF ISOBUTYLENE POLYMER

Hiroshi Fujisawa; Yoshikuni Deguchi, both of Kobe; Kouji Noda, Yokohama; Masakazu Isurugi, Kyoto; Masanobu Tamura; Junichi Hazama, both of Kobe; Tsutomu Ikeda, and Shun Wachi, both of Takasago, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP95/00486, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/25754, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 17, 1995, Ser. No. 704,607

Claims priority, application Japan, Mar. 18, 1994, 6-072883; Jul. 8, 1994, 6-179668; Jul. 8, 1994, 6-179669

Int. Cl.⁶ C08F *6/08; 10/10*

U.S. Cl. 528—485 **12 Claims**

1. A process for the isolation of an isobutylene polymer which includes a cationic polymerization reaction in a non-aqueous system in the presence of a catalyst represented by the following formula (1):

$$MX_n$$ (1)

wherein M represents a metallic atom, n represents an integer of from 2 to 6; and the plurality of X may be the same or different and each represent a halogen atom or a monovalent hydrocarbon group, the process comprising conducting the cationic polymerization reaction with a cationically polymerizable monomer containing isobutylene, conducting a ligand exchange reaction of said catalyst, and then removing a component containing M of the formula (1).

3. A process for the isolation of an isobutylene polymer which comprises the cationic polymerization of a cationically polymerizable monomer containing isobutylene in a non-aqueous system in the presence of a catalyst represented by the following formula (1):

$$MX_n$$ (1)

wherein M represents a metallic atom, n represents an integer of from 2 to 6; and the plurality of X may be the same or different and each represent a halogen atom or a monovalent hydrocarbon group, the process comprising producing a telechelic isobutylene polymer and simultaneously removing said catalyst with an adsorption material capable of adsorbing an acid.

5,739,268
PREPARATION OF CYANATE ESTER POLYMERS AND COMPOSITES FOR METAL PLATING

Camille I. Van Ast, Newbury Park, Calif., assignor to Hughes Aircraft, Los Angeles, Calif.

Continuation of Ser. No. 339,380, Nov. 14, 1994, abandoned. This application Apr. 26, 1996, Ser. No. 638,694

Int. Cl.⁶ B05D *3/00;* **C08J** *7/00*

U.S. Cl. 528—492 **20 Claims**

1. A method for preparing the surface of a cyanate ester polymer or cyanate ester polymer composite for plating with metal, consisting essentially of:

(a) providing a polymer comprising a cyanate ester, said polymer having a surface;

(b) placing said surface in contact with a preheated solution comprising at least one primary amine;

(c) removing said surface from contact with said preheated solution;

(d) rinsing said surface with water; and

(e) drying said surface,

said surface thereby prepared to adhere to metal deposited by a subsequent metal plating process.

5,739,269
PROCESS FOR THE PRODUCTION OF POLYESTER RESINS

Hussain Al Ghatta, Fiuggi, and Dario Giordano, Tortona, both of Italy, assignors to Sinco Engineering, S.p.A., Italy

Filed May 29, 1997, Ser. No. 865,390

Claims priority, application Italy, May 30, 1996, MI96A1098

Int. Cl.⁶ C08F *6/00*

U.S. Cl. 528—492 **20 Claims**

1. Continuous process for the polycondensation in the solid state of aromatic polyester resins with intrinsic viscosity (IV) comprised between 0.10 and 0.45 dl/g in which the resin is fed from above the mobile bed reactor and released from below and an inert gas is made to circulate upstream and downstream the resin and the reactor temperature is kept between 180° and 250° C. with average residence times of the resin sufficiently long to obtain an increase of at least 0.3 dl/g in the intrinsic viscosity of the polymer, characterized in that the ratio R between the hourly mass flow of the gas and the polymer exiting the reactor is comprised between 0.1 and 0.6.

5,739,270
METHOD AND APPARATUS FOR SEPARATING POLYMER FROM A PLASTIC, AND THE RESULTING SEPARATED POLYMER

Peter H. Farmer, 70 Avondale Rd., Longmeadow, Mass. 01106, and John M. Moses, 105 Vincent Rd., Dedham, Mass. 02026

Filed Aug. 1, 1995, Ser. No. 509,110

Int. Cl.⁶ C08F *6/10*

U.S. Cl. 528—501 **15 Claims**

1. A method of purifying a polymer component of a thermoplastic which includes at least a second component other than the polymer, using a fluid which is a gas at room temperature, and which is a solvent for the second component, the method including the steps of:

mixing the thermoplastic with a cosolvent which at least partially dissolves the polymer, and that is miscible in said fluid, to decrease the viscosity of the thermoplastic,

introducing into the thermoplastic-cosolvent mixture, said fluid in the liquid, critical fluid, or supercritical fluid state, to solubilize and thus to separate the second component from the polymer, and in which said introduced fluid precipitates some of the dissolved polymer from the cosolvent, and

separating the precipitated polymer from the mixture to recover purified polymer from the thermoplastic.

5,739,271
THIOCATIONIC LIPIDS

C. Nagaraja Sridhar, Simi Valley; Jasmin R. Patel, San Diego; Nanibhushan Dattagupta, San Diego, and Aditya Ranjan Das, San Diego, all of Calif., assignors to Gen-Probe Incorporated, San Diego, Calif.

Filed Jun. 7, 1995, Ser. No. 482,497

Int. Cl.⁶ A61K *38/00;* **C07K** *4/00*

U.S. Cl. 530—300 **9 Claims**

1. A compound for facilitating the transport of biomolecules into cells of the general formula

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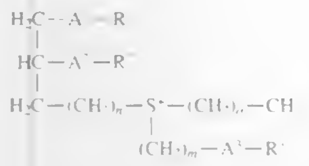


$$\begin{array}{l} H_2C-A^1-R^1 \\ \quad | \\ HC-A^2-R^2 \\ \quad | \\ H_2C-(CH_2)_n-S^+-(CH_2)_o-CH \\ \qquad\qquad\qquad | \\ \qquad\qquad (CH_2)_m-A^3-R^3 \end{array}$$

and opticalisomers and/or salts thereof wherein

A^1 and A^2 are the same or different and are —O—CO—, —O—, —S—CO— or —S—,

A^3 is —O—, —O—CO—, —CO—O—, —S—, —S—CO—, —CO—S—, —O—CS—, —CS—O—, —CO—NH—, —NH—CO—, —CS—NH—, —NH—CS—, —NH—CO—O—, —NH—CO—NH—, —O—CO—NH—, or is absent;

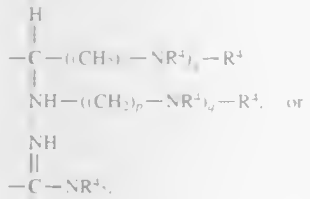
R^1 and R^2 are the same or different and are H, or C_1 to C_{23} saturated or partially unsaturated alkyl or aralkyl, with the proviso that at least one of R^1 and R^2 is not H,

R^3 is a C_1 to C_{12} alkyl, aralkyl, alkaryl, heterocyclyl or heteroaryl; or

R^3 is an amino acid, a dipeptide, a tripeptide, a tetrapeptide or a pentapeptide; or

R^3 is $-((CH_2)_p-NR^4)_q-R^4$,

$-((CH_2)_p-NR^4{}_3)^+$,



$$\begin{array}{l} \quad H \\ \quad | \\ -C-((CH_2)_p-NR^4)_q-R^4 \\ \quad | \\ \quad NH-((CH_2)_p-NR^4)_q-R^4, \quad \text{or} \end{array}$$

$$\begin{array}{l} \quad NH \\ \quad \| \\ -C-NR^4{}_2, \end{array}$$

wherein p is an integer from 1 to 5, q is an integer from 0 to 4, and R^4 is H or a C_1 to C_4 alkyl and each of m, n and o is an integer from 0 to 8 with the provisos that m≧1 and (m+n+o)≧3.

5,739,272

PROCEDURE FOR OBTAINING CARBOCALCITONIN

Marcos Canas Poblet; Berta Ponsati Obiols; Gemma Jodas Farres, and David Andreu Martinez, all of Barcelona, Spain, assignors to Lipotec, S.A., Barcelona, Spain

Filed Feb. 3, 1994, Ser. No. 193,755

Claims priority, application Spain, Feb. 3, 1993, 9300197

Int. Cl.^{6} A61K *38/23*, **C07K** *14/585*

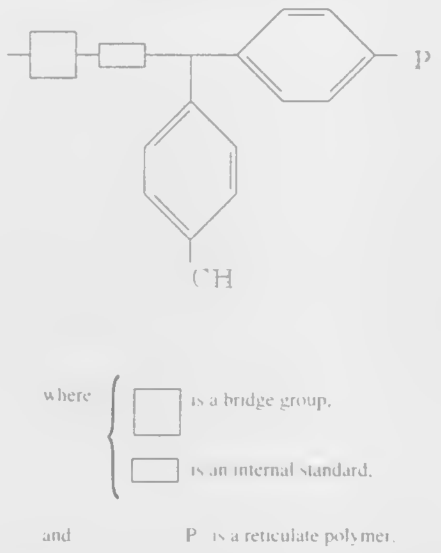
U.S. Cl. 530—307 **26 Claims**

1. A procedure for obtaining carbocalcitonin and its pharmaceutically acceptable acid addition salts or complexes thereof, by means of solid phase synthesis on polymeric supports and with the intervention of Fmoc/tBu characterized in that it comprises the stages of:

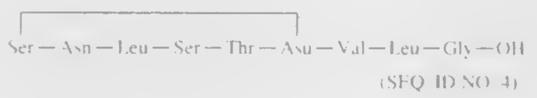
(a) condensing fragment 1 (SEQ. ID NO.: 1) consisting of the docosapeptide corresponding to the carboxamide end of the carbocalcitonin sequence, protected and anchored on resin, Fragment 1 having the sequence:

Lys(Boc)-Leu-Ser(tBu)-Gln-Glu(OtBu)-Leu-His(Trt)-Lys(Boc)-Leu-Gln-Thr(tBu)-Tyr(tBu)-Pro-Arg(Pmc)-Thr(tBu)-AA'$_{25}$-AA$_{26}$-Gly-AA'$_{28}$-Gly-Thr-Pro-Ⓡ(SEQ. ID NO: 1)

wherein -Ⓡ has the following formula with bridge group, internal structure and reticulate polymer:

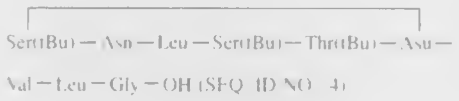


with fragment 2, consisting of the nonapeptide corresponding to the amino end of the carbocalcitonin sequence, with the cycle formed and with the absence of the protective groups for the side chains Ser and Thr, Fragment 2 having the sequence:



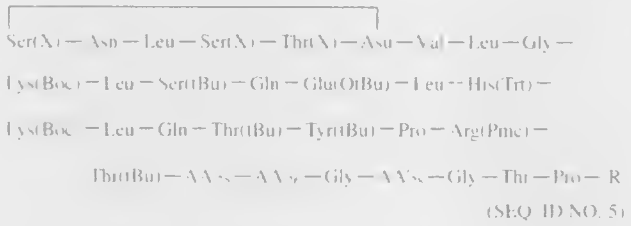
Ser—Asn—Leu—Ser—Thr—Asu—Val—Leu—Gly—OH (SEQ ID NO: 4)

or, alternatively, with fragment 3, also consisting of the nonapeptide corresponding to the amino end, with the cycle formed, but with the side chains of the residue Ser and Thr protected with the group tBu, Fragment 3 having the sequence:



Ser(tBu)—Asn—Leu—Ser(tBu)—Thr(tBu)—Asu—Val—Leu—Gly—OH (SEQ ID NO: 4)

b) subjecting the peptide-resin resulting from the condensation and cycle formation reactions, that is, fragments 6 or 7 (SEQ ID NO.: 5) wherein AA'$_{25}$ is selected from the group consisting of Asp and Asn, AA$_{26}$ is selected from the group consisting of Val and Thr, and AA'$_{28}$ is selected from the group consisting of Ala and Ser, fragments 6 (X=H) and 7 (X=tBu) having the sequence:



Ser(X)—Asn—Leu—Ser(X)—Thr(X)—Asu—Val—Leu—Gly—Lys(Boc)—Leu—Ser(tBu)—Gln—Glu(OtBu)—Leu—His(Trt)—Lys(Boc)—Leu—Gln—Thr(tBu)—Tyr(tBu)—Pro—Arg(Pmc)—Thr(tBu)—AA'$_{25}$—AA$_{26}$—Gly—AA'$_{28}$—Gly—Thr—Pro—Ⓡ (SEQ ID NO. 5)

to an acidic treatment of deprotection of the side chains and deanchoring of the resin to obtain the carbocalcitonin peptide.

5,739,273

TRANSMEMBRANE POLYPEPTIDE AND METHODS OF USE

Donald M. Engelman, Guilford, Conn., and John F. Hunt, Dallas, Tex., assignors to Yale University, New Heaven, Conn.

Continuation of Ser. No. 835,707, Feb. 12, 1992, abandoned. This application Sep. 9, 1994, Ser. No. 303,651

Int. Cl.^{6} A61K *38/00;38/02*, **C07K** *5/00;7/00*

U.S. Cl. 530—324 **10 Claims**

1. An isolated or synthetic polypeptide comprising

a polypeptide derived from a bacteriorhodopsin C molecule,

wherein the polypeptide includes a hydrophobic water-soluble amino acid sequence containing twenty amino acids which forms an alpha-helix capable of spanning the lipid bilayer of a cell and an amino acid which is susceptible to acid or base titration.

5,739,274

ACTIVE COMPONENT OF PARATHYROID HYPERTENSIVE FACTOR

Peter K. T. Pang, Sherwood Park; Christina G. Benishin, Androssan; Shan Jie, and Richard Z. Lewanczuk, both of Edmonton, all of Canada, assignors to CV Technologies, Inc., Alberta, Canada

PCT No. PCT/US93/05626, § 371 Date Feb. 24, 1995, § 102(e) Date Feb. 24, 1995, PCT Pub. No. WO93/25577, PCT Pub. Date Dec. 23, 1993

PCT Filed Jun. 14, 1993, Ser. No. 387,820

Int. Cl.^{6} C07K *7/04*

U.S. Cl. 530—324 **23 Claims**

1. A purified and isolated parathyroid hypertensive factor component comprising a polypeptide linked to a phospholipid wherein said parathyroid hypertensive factor component produces a delayed increase in blood pressure of a normotensive rat when administered thereto, said increase in blood pressure occurring at the same time as an increase in extracellular calcium uptake by vascular smooth muscle and having a molecular weight different from naturally occurring parathyroid hypertensive factor.

5,739,275

Patent Not Issued For This Number

5,739,276

CONOTOXIN PEPTIDES

Ki-Joon Shon, Shaker Heights, Ohio; Michelle M. Grilley, and Baldomero M. Olivera, both of Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Continuation-in-part of Ser. No. 423,561, Apr. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 319,554, Oct. 7, 1994. This application Mar. 29, 1996, Ser. No. 624,123

Int. Cl.^{6} A61K *38/17*, **C07K** *14/435*

U.S. Cl. 530—324 **9 Claims**

1. A substantially pure δ conotoxin PVIA peptide having the

[illegible]

formula Glu-Ala-Cys-Tyr-Ala-Xaa$_1$-Gly-Thr-Phe-Cys-Gly-Ile-Lys-Xaa$_2$-Gly-Leu-Cys-Cys-Ser-Glu-Phe-Cys-Leu-Pro-Gly-Val-Cys-Pro-Gly (SEQ ID NO:7), wherein Xaa$_1$ and Xaa$_2$ are independently Pro or 4-trans-hydroxyproline.

5,739,277

ALTERED POLYPEPTIDES WITH INCREASED HALF-LIFE

Leonard G. Presta, San Francisco, and Bradley R. Snedecor, Portola Valley, both of Calif., assignors to Genentech Inc., San Francisco, Calif.

Filed Apr. 14, 1995, Ser. No. 422,101

Int. Cl.^{6} C07K *7/08;14/47;16/00;16/46*

U.S. Cl. 530—326 **3 Claims**

1. A polypeptide that is not an Fc fragment comprising the sequences HQNLSDGK (SEQ ID NO: 1) and PKNSSMISNTP (SEQ ID NO: 3).

2. A polypeptide that is not an Fc fragment comprising the sequences

HQNISKGK (SEQ ID NO: 2) and PKNSSMISNTP (SEQ ID NO: 3).

3. A polypeptide that is not an Fc fragment comprising the sequences VISSHLGQ (SEQ ID NO: 31) and PKNSSMISNTP (SEQ ID NO: 3).

5,739,278

COMPOSITIONS FOR PROTEIN TYROSINE PHOSPHATASES

Günter Daum; Deborah E. Cool, and Edmond H. Fischer, all of Seattle, Wash., assignors to University of Washington, Seattle, Wash.

Continuation of Ser. No. 59,949, May 10, 1993, abandoned. This application Mar. 30, 1995, Ser. No. 416,035

Int. Cl.^{6} A61K *38/00;38/02*; **C07K** *5/00;7/00*

U.S. Cl. 530—328 **2 Claims**

1. A peptide having an amino acid sequence of Glu-Asn-Asp-Tyr-Ile-Asn-Ala-Ser-Leu (Seq ID No: 6).

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5,739,279

PEPTIDYL 4-AMINO-2,2-DIFLUORO-3-OXO-1,6-HEXANEDIOIC ACID DERIVATIVES AS ANTIINFLAMMATORY AGENTS

Ralph Pelton Robinson, Ledyard, Conn., assignor to Pfizer Inc., New York, N.Y.

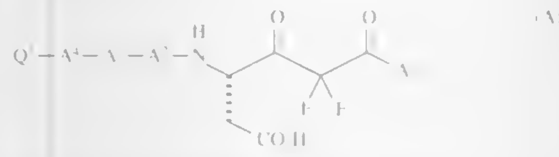
PCT No. PCT/US93/03589, § 371 Date Jan. 26, 1995, § 102(e) Date Jan. 26, 1995, PCT Pub. No. WO94/03480, PCT Pub. Date Feb. 17, 1994

Continuation of Ser. No. 922,889, Jul. 31, 1992, abandoned. This PCT application Apr. 21, 1993, Ser. No. 373,278

Int. Cl.⁶ A61K *38/08*

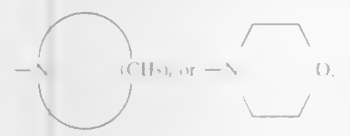
U.S. Cl. 530—330 **12 Claims**

1 A compound of the formula



(A)

or a pharmaceutically acceptable base salts thereof,
wherein A^1 is L-Pro-NR^1R^2 or —NR^1R^2, where R^1 and R^2 are independently selected from the group consisting of hydrogen, C_1-C_6 alkyl and benzyl, or R^1 and R^2 are taken together with the nitrogen to which they are attached and form



wherein n is an integer from 2 to 6;

- A^2 is selected from the group consisting of L-His, L-Cys, L-Cys(Me), L-Phe, L-Phe-R^3, L-Val, L-Ala, L-Ile, L-Leu and L-Tyr;
- A^3 is selected from the group consisting of L-Val, L-Leu, L-Ile, L-Tyr, L-Phe and L-Phe-R^3;
- A^4 is selected from the group consisting of a covalent bond, L-Phe, L-Phe-R^3, L-Tyr, and L-Leu;

wherein R^3 is attached to the aromatic ring of phenylalanine and for each occurrence is selected from the group consisting of C_1-C_6 alkyl, C_1-C_6 alkoxy, benzyl, fluoro, trifluoromethyl and chloro; and

- Q^1 is selected from the group consisting of t-butoxycarbonyl, benzyloxycarbonyl, R^4CO and phenylcarbonyl, wherein R^4 is hydrogen, C_1-C_6 alkyl or benzyl.

12 A method of treating an antiinflammatory condition in a mammal which comprises administering to said mammal an anti-inflammatory amount of a compound or a pharmaceutically acceptable base salt thereof according to claim 1

5,739,280

PARA-NITROANILIDE PEPTIDES

Gaston O. Daumy, Gales Ferry, and Lawrence A. Reiter, Mystic, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 354,685, Dec. 12, 1994, Pat. No. 5,498,695. This application Jun. 6, 1995, Ser. No. 470,895

Int. Cl.⁶ A61K *38/00* **C07K** *5/08*

U.S. Cl. 530—331 **1 Claim**

1 A compound of the formula

R^1-A^1-A^2-Asp-p-nitroanilide

wherein,

- A^1 is selected from the group consisting of alanine and valine
- A^2 is selected from the group consisting of alanine and valine and
- R^1 is alkylcarbonyl, phenalkylcarbonyl, alkoxycarbonyl, phenalkoxycarbonyl, alkylaminocarbonyl or phenalkylaminocarbonyl

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5,739,281

INTERATIVE METHOD OF AT LEAST THREE CYCLES FOR THE REFOLDING OF PROTEINS

Hans Christian Thøgersen, Mundelstrup; Thor Lns Holtet, Aarhus V, and Michael Etzerodt, Hinnerup, all of Denmark, assignors to Denzyme APS, Aarhus C, Denmark

Continuation of Ser. No. 192,060, Feb. 4, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 469,486

Claims priority, application Denmark, Feb. 4, 1993, 130/93; Feb. 5, 1993, 139/93

Int. Cl.⁶ C07K *14/00;14/745;16/00;* **C12P** *21/00*

U.S. Cl. 530—350 **60 Claims**

1 A method for generating a processed ensemble of polypeptide molecules, in which processed ensemble the conformational states represented contain a substantial fraction of polypeptide molecules in one particular folded conformation, from an initial ensemble of polypeptide molecules which have the same amino acid sequence as the processed ensemble of polypeptide molecules, in which initial ensemble the conformation states represented contain a substantial fraction of polypeptide molecules in unfolded or misfolded conformations, the method comprising subjecting the initial ensemble of polypeptide molecules to a series of at least three successive cycles, each of which comprises a sequence of

1) at least one denaturing step comprising conditions exerting a denaturing or unfolding influence on the polypeptide molecules of the ensemble so as to denature or unfold a fraction of the polypeptides in the ensemble, followed by,
2) at least one renaturing step comprising conditions having a renaturing influence on the polypeptide molecules having conformations resulting from the preceding step so as to renature a fraction of the denatured or or unfolded polypeptides in the ensemble,

the series of at least three successive cycles being performed under conditions where in at least one denaturing step in the series a smaller proportion of the polypeptides in the ensemble is denatured or unfolded than in an earlier denaturing step in the series so that the processed ensemble of the polypeptide molecules has a higher fraction of polypeptide molecules in the particular folded conformation than

a) the initial ensemble, and
b) an initial ensemble which has been subjected to one of the cycles only

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5,739,282

INTERLEUKIN-1 ANTAGONIST

Francesco Colotta; Marta Muzio, and Alberto Mantovani, all of Milan, Italy, assignors to Applied Research Systems ARS Holding N.V., Curacao, Netherlands

Filed Jun. 7, 1995, Ser. No. 476,860

Claims priority, application Italy, Oct. 13, 1994, MI94A2097

Int. Cl.⁶ C07K *14/47;* **C12N** *15/11*

U.S. Cl. 530—350 **2 Claims**

1 A purified protein having antagonist activity against at least one of the substances selected from the group consisting of interleukin-1α and interleukin-1β, and having the amino acid sequence of SEQ ID NO:13

5,739,283

PREVENTION OF INVASIVE PULMONARY ASPERGILLOSIS WITH SERINE PROTEINASE INHIBITORS

Pappachan E. Kolattukudy; Adam N. Markaryan; Edward Alan Copelan, all of Columbus, and Sarah Katherine Ceselski, Delaware, all of Ohio, assignors to The Ohio State Research Foundation, Columbus, Ohio

Filed Jun. 7, 1995, Ser. No. 486,895

Int. Cl.⁶ C07K *14/00;14/36*

U.S. Cl. 530—350 **16 Claims**

1 A method of treating invasive pulmonary aspergillosis in a host comprising the following steps

(a) providing a pharmaceutical composition comprising a carrier, and a therapeutically effective amount of a subtilisin-type serine protease inhibitor, and
(b) administering said pharmaceutical composition to the lungs of the host

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5,739,284

COMPOSITIONS CORRESPONDING TO A HIGH-AFFINITY GLUTAMATE TRANSPORTER MOLECULE AND METHODS FOR MAKING AND USING SAME

Matthias Hediger, Wellesley, Mass., and Yoshikatsu Kanai, Tokyo, Japan, assignors to Brigham and Women's Hospital, Inc., Boston, Mass.

Continuation of Ser. No. 194,719, Feb. 10, 1994, abandoned, which is a continuation-in-part of Ser. No. 965,676, Oct. 19, 1992, abandoned. This application Sep. 18, 1995, Ser. No. 529,654

Int. Cl.⁶ C07K *14/47;14/705;* **C12N** *15/12*

U.S. Cl. 530—350 **6 Claims**

1 An isolated excitatory amino-acid carrier protein having an amino acid sequence corresponding to a sequence within Seq ID No 1

5,739,285

Patent Not Issued For This Number

5,739,286

BONE AUGMENTATION MATERIAL

Frederick H. Silver, 103 Springbrook Dr., Bangor, Pa. 18013, and David Christiansen, 270 Altamont Pl., Somerville, N.J. 08876

Division of Ser. No. 524,752, Sep. 7, 1995, Pat. No. 5,532,217, which is a continuation-in-part of Ser. No. 873,366, Apr. 24, 1992, abandoned. This application Apr. 10, 1996, Ser. No. 631,818

Int. Cl.⁶ A61K *37/12,* **C07K** *14/00,* **C08H** *1/06,* **C08L** *89/00*

U.S. Cl. 530—356 **5 Claims**

1 A bone augmentation material which comprises physiologically-acceptable mineralized intact collagen fibers with subfibrillar substructure

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5,739,287

BIOTINYLATED COBALAMINS

D. Scott Wilbur, Edmonds; Pradip M. Pathare, Seattle, and A. Charles Morgan, Jr., Camino Island, all of Wash., assignors to University of Washington, Seattle, and Receptagen Corp., Edmonds, both of Wash.

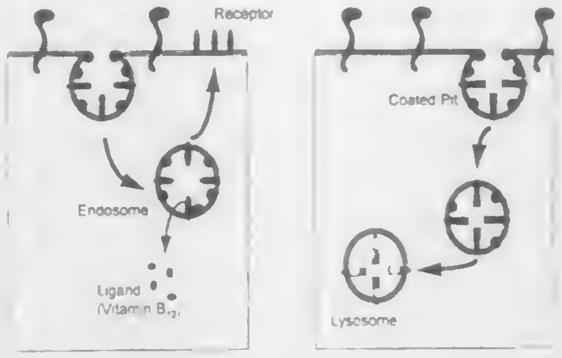
Continuation-in-part of Ser. No. 224,831, Apr. 8, 1994, abandoned. This application Mar. 16, 1995, Ser. No. 406,192

Int. Cl.⁶ A61K *31/70,38/16;* **C07H** *23/00;* **C07K** *1/113*

U.S. Cl. 530—367 **5 Claims**

1 A vitamin B_{12} derivative comprising a vitamin B_{12} molecule coupled to a biotin molecule by a linker having the formula —$NH(CH_2)_yCO$—, wherein y = 3-12

Mechanism of Action



5,739,288

FIBRIN SEALANT COMPOSITIONS

Peter A. D. Edwardson, Chester; John E. Fairbrother, Clwyd; Ronald S. Gardner, Shotton; Derek A. Hollingsbee, South Wirral, and Stewart A. Cederholm-Williams, Oxford, all of United Kingdom, assignors to Bristol-Myers Squibb Company, Skillman, N.J.

Division of Ser. No. 138,674, Oct. 18, 1993, which is a continuation-in-part of Ser. No. 958,212, Oct. 8, 1992, abandoned. This application May 26, 1995, Ser. No. 451,321

Int. Cl.⁶ A61K *35/14*

U.S. Cl. 530—382 **2 Claims**

1 A composition comprising fibrin monomer in a concentration of between 10 and 200 mg/ml of said composition and an adjuvant selected from the group consisting of antibiotics, anticancer agents and histamine H_2-antagonists.

5,739,289

MONOCLONAL ANTIBODY TO HUMAN CELL ADHESION MOLECULE

Robert Alan Reid, Durham, and John Jacob Hemperly, Apex, both of N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Division of Ser. No. 408,093, Mar. 21, 1995, Pat. No. 5,688,916, which is a division of Ser. No. 40,741, Mar. 26, 1993. This application Sep. 17, 1996, Ser. No. 714,901

Int. Cl.⁶ C07K *16/28*

U.S. Cl. 530—388.1 **2 Claims**

1 An antibody produced by hybridoma ATCC No. HB11282

5,739,290

MONOCLONAL ANTIBODY AGAINST AN INTERFERON-INDUCED HUMAN PROTEIN IN PURE FORM

Michel André Horisberger, Langgartenweg 12, 4123 Allschwil, Switzerland; Heinz-Kurt Hochkeppel, Traugott Meyerstrasse 1, 4147 Aesch, Switzerland, and Jean Content, 5, Ave. Simonne, 1640 Rhode-St-Genèse, Belgium

Division of Ser. No. 258,902, Jun. 13, 1994, Pat. No. 5,466,585, which is a continuation of Ser. No. 983,177, Nov. 30, 1992, abandoned, which is a division of Ser. No. 810,580, Dec. 19, 1991, Pat. No. 5,198,350, which is a continuation of Ser. No. 497,748, Mar. 19, 1990, abandoned, which is a continuation of Ser. No. 37,754, Apr. 13, 1987, abandoned. This application May 18, 1995, Ser. No. 444,344

Claims priority, application United Kingdom, Apr. 15, 1986, 86 09162; Oct. 23, 1986, 86 25381

Int. Cl.⁶ C07K *16/44;* **C12P** *21/08;* **C12N** *5/12*

U.S. Cl. 530—388.2 **15 Claims**

1 A monoclonal antibody which does not cross-react with murine Mx protein and which is specific to an essentially pure protein which

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(1) is present in human cells induced by interferon α or β.
(2) has a molecular weight of approximately 78 kDa as determined by sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE).
(3) has an isoelectric point of approximately 6.3, and
(4) has a partial N-terminal amino acid sequence Val-Val-Ser-Glu-Val-Asp-Ile-Ala-Lys-Ala,

and derivatives of said monoclonal antibody, the derivatives retaining the binding properties of the monoclonal antibody from which they are derived.

5,739,291

GLUTAMATE RECEPTOR ANTIBODIES

Stephen F. Heinemann, La Jolla; James R. Boulter, San Diego; Michael Hollmann, Del Mar; Bernhard Bettler, Solana Beach, and Jan Egebjerg Jensen, San Diego, all of Calif., assignors to The Salk Institute For Biological Studies, La Jolla, Calif.

Continuation of Ser. No. 13,767, Feb. 4, 1993, abandoned, which is a division of Ser. No. 718,575, Jun. 21, 1991, Pat. No. 5,202,257, which is a continuation-in-part of Ser. No. 428,116, Oct. 27, 1989, abandoned. This application Jun. 6, 1995, Ser. No. 481,206

Int. Cl.⁶ C07K *16/28*

U.S. Cl. 530—388.22 **12 Claims**

1. An antibody which specifically binds a glutamate receptor protein subunit selected from the group consisting of GluR1, GluR2, GluR3, GluR4, GluR5, GluR6, and GluR7.

5,739,292

HCMV/HSV FUSION GLYCOPROTEINS

Dirk Richard Gheysen, Overijse, Belgium, assignor to SmithKline Beecham Biologicals (s.a.), Rixensart, Belgium

Filed May 18, 1995, Ser. No. 443,642

Claims priority, application United Kingdom, May 18, 1994, 9409962

Int. Cl.⁶ C12P *21/06;21/02;* **C07K** *1/00;* **A61K** *39/245*

U.S. Cl. 530—395 **4 Claims**

1. An isolated fusion protein comprising a Human Cytomegalovirus glycoprotein B (HCMV gB) fused at its amino terminus to the carboxy terminus of a portion of Herpes simplex virus type 2 glycoprotein D (HSV2 gD), wherein the HCMV gB consists of amino acids 28–686 of the gB of HCMV strain AD 169 wherein arginine 458 and arginine 459 are replaced by glutamine and threonine, respectively, and the portion of HSV2 gD consists of amino acids 1–52.

5,739,293

Δ_1-ACID GLYCOPROTEIN PURFICATION PROCESS AND PRODUCT

Harutyun Eran, Northridge, and Qiang Xu, Alhambra, both of Calif., assignors to Alpha Therapeutic Corporation, Los Angeles, Calif.

Continuation of Ser. No. 422,631, Apr. 14, 1995, abandoned, which is a continuation of Ser. No. 121,781, Sep. 15, 1993, abandoned. This application Apr. 2, 1996, Ser. No. 626,598

Int. Cl.⁶ C07K *1/18,14/47,14/745*

U.S. Cl. 530—416 **36 Claims**

1. A process for purifying α_1-acid glycoprotein comprising:
providing an impure protein fraction comprising α_1-acid glycoprotein;
contacting the impure protein fraction with a cation-exchange medium to thereby bind contaminants but not α_1 acid glycoprotein to the said cation exchange medium,
collecting proteins contained in the impure protein fraction which do not bind to the cation-exchange medium,
binding α_1-acid glycoprotein present in the unbound protein fraction to an anion-exchange medium; and
eluting the α_1-acid glycoprotein from the anion-exchange medium.

5,739,294

BICYCLOPOLYAZAMACROCYCLOPHOSPHONIC ACID COMPLEXES FOR USE AS CONTRAST AGENTS

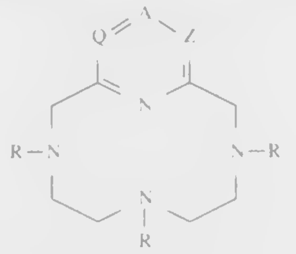
Garry E. Kiefer, Lake Jackson; Jaime Simon, Angleton, and Joseph R. Garlich, Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 58,101, May 6, 1993, abandoned, which is a continuation-in-part of Ser. No. 805,551, Dec. 10, 1991, abandoned. This application Aug. 3, 1994, Ser. No. 285,663

Int. Cl.⁶ C07F *5/00;13/00;15/00;* **A61K** *49/00*

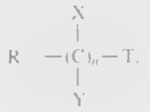
U.S. Cl. 534—15 **24 Claims**

1. A complex which comprises a bicyclopolyazamacrocyclophosphonic acid compound of the formula



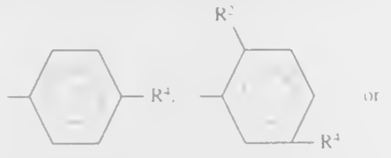
(I)

wherein:

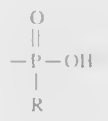


$$R = -\overset{X}{\underset{Y}{(C)_n}}-T,$$

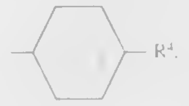
where
X and Y are independently H, OH, C_1–C_3 alkyl or COOH,
n is an integer of 1, 2 or 3;
with the proviso that: when n is 2, then the sum of X and Y must equal two or more H, and when n is 3, then the sum of X and Y must equal three or more H.
T is H, C_1–C_{18} alkyl, COOH, OH, SO_3H,



or

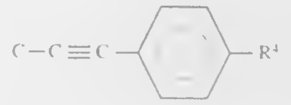


where:
R^1 is —OH, $[C_1$–C_5 alkyl$]$ or —O—$(C_1$–C_5 alkyl$)$,
R^4 is H, NO_2, NH_2, isothiocyanato, semicarbazido, thiosemicarbazido, maleimido, bromoacetamido or carboxyl;
R^2 is H or OH, with the proviso that when R^2 is OH, then the R term containing the R^2 must have all X and Y equal to H;
with the proviso that at least one T must be $P(O)R^1OH$ where R is —O—$(C_1$–C_5 alkyl$)$, and with the proviso that when one T is



then one X or Y of that R term may be COOH and all other X and Y terms of that R term must be H.

A is CH, N, C—Br, C—Cl, C—OR^3, C—OR^8 N^+–R^5 X^-,



R^3 is H, C_1–C_5 alkyl, benzyl, or benzyl substituted with at least one R^4;
R^4 is defined as above;
R^5 is C_1–C_{16} alkyl, benzyl, or benzyl substituted with at least one R^4;
R^8 is C_1–C_{16} alkylamino;
X^- is Cl^-, Br^-, I^- or $H_3CCO_2^-$;
Q and Z independently are CH, N, N^+–R^5 X^-, C—CH_2—OR^3 or C—C(O)—R^6;
R^5 is defined as above;
R^6 is —O—$(C_1$–C_3 alkyl$)$, OH or NHR^7;
R^7 is C_1–C_5 alkyl or a biologically active material,
X^- is defined as above; or
pharmaceutically-acceptable salts thereof,
with the proviso that:
a) when Q, A or Z is N or N^+–R^5 X^-, then the other two groups must be CH,
b) when A is C—Br, C—Cl, C—OR^3 or C—OR^8, then both Q and Z must be CH,
c) the sum of the R^4, R^7 and R^8 terms, when present, may not exceed one; and
d) only one of Q or Z can be C—C(O)—R^6 and when one of Q or Z is C—C(O)—R^6, then A must be CH;
complexed with a metal ion selected from Gd^{+3}, Mn^{+2} or Fe^{+3}.

5,739,295

PHOTOACTIVE COUMARIN SULFONATE COMPOUNDS

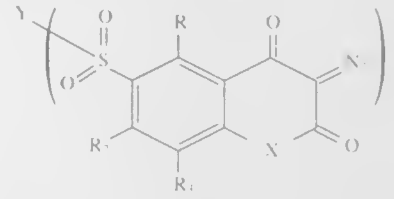
Mohammad Aslam; Michael T. Sheehan; George Kvakovszky; Kenneth G. Davenport, and Douglas J. Gordon, all of Corpus Christi, Tex., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed Mar. 7, 1997, Ser. No. 813,099

Int. Cl.⁶ C07D *311/20;335/06*

U.S. Cl. 534—557 **30 Claims**

1. A compound of the formula



wherein:
(a) X is either oxygen or sulfur;
(b) Y is selected from the group consisting of bromine, chlorine, fluorine, a phenolic resin, and a ballast group having the formula:
R_4—$(O)_m$-, or R_5-$(R_6N)_m$-, where
(i) R_4 and R_5 are the same or different and are independently selected from the group consisting of
alkyl having 1 to 16 carbon atoms and valence of m,
aryl having 6 to 24 carbon atoms and valence of m, and
aralkyl having 7 to 24 carbon atoms and valence of m;
(ii) R_6 is selected from the group consisting of
hydrogen,
alkyl having 1 to 16 carbon atoms,
aryl having 6 to 24 carbon atoms, and
aralkyl having 7 to 24 carbon atoms; and
(iii) m is an integer having a value of 1 to 10;
(c) R_1, R_2, and R_3 are the same or different and are independently selected from the group consisting of:
hydrogen,
fluorine, chlorine, bromine, or iodine,
linear or branched alkyl and fluoroalkyl groups having the formula $C_qH_xF_y$, where q is an integer from 1 to 8, x and y are integers from 0 to 2q+1, and the sum of x and y is 2q+1,
aryl having 6 to 10 carbon atoms,
aralkyl having 7 to 10 carbon atoms,
alkoxy having 1 to 8 carbon atoms,
aryloxy having 6 to 10 carbon atoms, and
aralkyloxy having 7 to 10 carbon atoms, and
(d) n is an integer having a value of 1 to 10.

5,739,296

METHOD AND MATERIALS FOR THERMOSTABLE AND LIGHTFAST DICHROIC LIGHT POLARIZERS

Khan Ir Gvon, Dolgoprudnity; Yuri A. Bobrov, Moscow; Victor A. Bykov, Moscow; Leonid Y. Ignatov, Moscow; Tatiana D. Ivanova, Moscow; Sergei I. Popov, Moscow; Elena Y. Shishkina, Moscow, and Georgiy N. Vorozhtsov, Moscow, all of Russian Federation, assignors to Russian Technology Group, San Mateo, Calif.

PCT No. PCT/US94/05493, § 371 Date Nov. 20, 1995, § 102(e) Date Nov. 20, 1995, PCT Pub. No. WO94/28073, PCT Pub. Date Dec. 8, 1994

PCT Filed May 20, 1994, Ser. No. 556,917

Claims priority, application Russian Federation, May 21, 1993, 93027586

Int. Cl.⁶ C09B *31/147;31/30,35/50,* **C09K** *19/56;19/30;19/34*

U.S. Cl. 534—577 **29 Claims**

1. A dichroic light-polarizing element comprising:
a support surface; and
a plurality of supra-molecular complexes formed from one or more organic dyestuffs of the formula

$(SO_3M)_n$

wherein M is a cation;
the plurality of supra-molecular complexes oriented in a direction on the support surface so as to polarize light transmitted through the plurality of supra-molecular complexes.

5,739,297

Patent Not Issued For This Number

5,739,298

WATER-SOLUBLE AZO COMPOUNDS

Tsutami Misawa; Akira Ogiso, both of Yokohama; Rihoko Imai, Tokyo, and Hisato Itoh, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

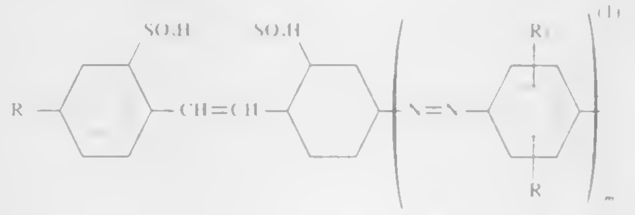
Continuation of Ser. No. 404,429, Mar. 15, 1995, Pat. No. 5,548,073, which is a division of Ser. No. 95,839, Jul. 23, 1993, Pat. No. 5,423,100. This application Jun. 5, 1996, Ser. No. 655,234

Claims priority, application Japan, Aug. 26, 1992, 4-226955

Int. Cl.⁶ C09B *56/04,* **G02B** *5/30*

U.S. Cl. 534—689 **2 Claims**

1. An azo compound represented by the following formula (1)



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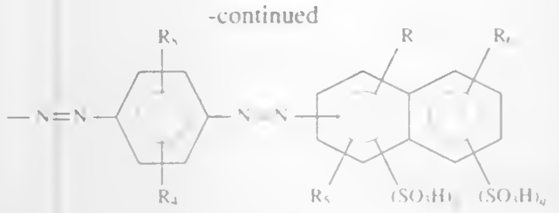


wherein R_1 represents a hydrogen atom, a hydroxyl group or a sulfonic acid group; R_3 and R_8 individually represent a hydrogen atom or a hydroxyl, C_{1-2} alkyl or C_{1-2} alkoxy group; R_2 and R_4 individually represent a hydrogen atom or a hydroxyl, C_{1-2} alkyl, C_{1-2} alkoxy or C_{1-2} acylamino group; R_5 represents a hydrogen atom or a carboxyl or C_{1-2} alkoxy group; R_6 represents a hydrogen atom, a hydroxyl, amino, methylamino, β-hydroxyethylamino or C_{1-2} acylamino group, or a phenylamino or benzoylamino group which the phenyl nucleus may be substituted by one or more nitro, amino, hydroxyl, C_{1-2} alkyl, carboxyl and/or sulfonic acid groups and/or chlorine atoms; R_7 represents a hydroxyl or amino group and substitutes at o- or p-position relative to the azo group; m stands for 0 or 1; p stands for 0 or 1; and q stands for 0, 1 or 2 with the proviso that when m=0, R_1 is not a hydroxyl group.

5,739,299

MONOAZO DYES WHICH ARE FREE FROM WATER-SOLUBILIZING GROUPS AND WHICH CONTAIN A FLUOROSULPHONYL GROUP AND PROCESS FOR COLOURING POLYAMIDES AND POLYESTER MATERIALS THEREWITH

Nigel Hall, Bury, United Kingdom, assignor to Zeneca Limited, London, England

PCT No. PCT/GB94/02831, § 371 Date Jul. 15, 1996, § 102(e) Date Jul. 15, 1996, PCT Pub. No. WO95/20014, PCT Pub. Date Jul. 27, 1995

PCT Filed Dec. 30, 1994, Ser. No. 676,234

Claims priority, application United Kingdom, Jan. 19, 1994, 9400972

Int. Cl.⁶ C09B *62/825;29/01;29/033;29/08;* **D06P** *3/26;3/82*

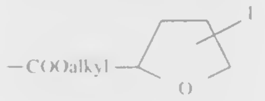
U.S. Cl. 534—734 **22 Claims**

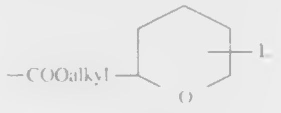
1. A compound which is free from water solubilising groups of Formula (1):

A—N=N—D Formula (1)

wherein

A and D each independently is a heterocyclic or carbocyclic group, which is unsubstituted or is substituted by one or more substituents selected from the group consisting of cyano, hydroxy, nitro, fluoro, chloro, bromo, iodo, fluorosulphonyl, trifluoromethyl, alkyl, alkoxy, aryl, aryloxy, fluorosulphonylaryl, fluorosulphonylaryloxy, —COalkyl, —COOalkyl, —OCOalkyl, —COaryl, —COOaryl, —OCOaryl, —NHCOalkyl, —NHCOaryl, —NHSO₂alkyl, —NHSO₂aryl, —Salkyl, —Saryl, —SO₂alkyl, —SO₂aryl, —SCN, —NR¹R² in which R¹ and R² each independently is —H, alkyl, aryl or cycloalkyl, and groups of Formula R¹⁹—N—Y—X—W in which Y is a direct link or C=O, X is a direct link, alkyl, alkenyl, aryl, heterocyclic, alkylOalkyl, alkylNHalkyl or —NR²⁰—Z— or —O—Z— in which Z is alkyl, alkenyl, aryl, heterocyclic, alkylOalkyl, alkylNHalkyl or a direct link and R²⁰ is —H, alkyl, aryl or alkylaryl, W is —CO₂R²¹, —OCOR²¹, —OH or —CN in which R²¹ is alkyl, aryl, alkylaryl, alkylOalkyl or alkylOH, and R¹⁹ is —H or substituted or unsubstituted alkyl, each of the alkyl, alkoxy, aryl, aryloxy parts of the above substituents for A, D, R¹ and R² being unsubstituted or substituted by one or more of —OH, —CN, —F, —Cl, —Br, —I, —SO₂F, alkoxy, alkenyl, phenyl, phenylSO₂F, aryloxy, aryloxySO₂F, —N(alkyl)₂, —OCOalkyl, —OCOalkylCl, —COOalkyl, —COOalkylOH, —COOalkylCN, —COOalkylCOalkyl, —COOalkylphenyl, —OCOphenyl, —COphenylSO₂F, —OCOphenylNO₂, —OCOphenylalkyl, —OCOphenylalkoxy, —COOphenyl, —OCO(fluorosulphonylphenyl), —OalkylCN, —COOalkylOalkyl, —COOalkylOphenyl, —OCOalkylOphenyl, —COOalkylOalkylOalkyl, —OCOalkylCOOalkyl, —OalkylCOOalkyl, —OalkylCOOalkylOalkyl, —OalkylCOOalkylCOOalkyl, —OalkylOCOalkylOalkyl, —COOalkylOCOalkyl or —COOalkylCOOalkyl,

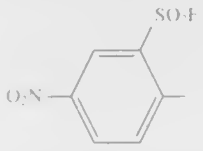




in which L is —H or alkyl,

at least one of A or D being substituted by at least one —SO₂F group or is substituted by at least one substituent which is itself substituted by at least one —SO₂F group, and

at least one of A or D is substituted by at least one ester group or is substituted by at least one substituent which is itself substituted by at least one ester group, provided that one of A¹ or D¹ is not



and except for the compound 4-(4-fluorosulphonylphenylazo)-N-ethyl-N-acetoxyethylaniline

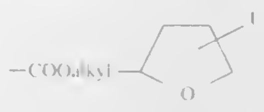
11. A process for colouring polyamide and aromatic polyester textile material or fibre blends thereof which comprises applying to the synthetic textile material a compound, which is free from water solubilising groups, or a mixture of such compounds, of Formula (1),

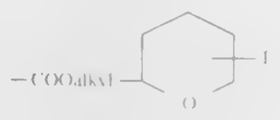
A—N=N—D Formula (1)

wherein

A and D each independently is a heterocyclic or carbocyclic group, which is unsubstituted or is substituted by one or more substituents selected from the group consisting of cyano, hydroxy, nitro, fluoro, chloro, bromo, iodo, fluorosulphonyl, trifluoromethyl, alkyl, alkoxy, aryl, aryloxy, fluorosulphonylaryl, fluorosulphonylaryloxy, —COalkyl, —COOalkyl,—OCOalkyl, —COaryl, —COOaryl, —OCOaryl, —NHCOalkyl, —NHCOaryl, —NHSO₂alkyl, —NHSO₂aryl, —Salkyl, —Saryl, —SO₂alkyl, —SO₂aryl, —SCN, —NR¹R² in which R¹ and R² each independently is —H, alkyl, aryl or cycloalkyl, and groups of Formula R¹⁹N—Y—X—W in which Y is a direct link or C=O, X is a direct link, alkyl, alkenyl, aryl, heterocyclic, alkylOalkyl, alkylNHalkyl or —NR²⁰—Z— or —O—Z— in which Z is alkyl, alkenyl, aryl, heterocyclic, alkylOalkyl, alkylNHalkyl or a direct link and R²⁰ is —H, alkyl, aryl or alkylaryl, W is —CO₂R²¹, —OCOR²¹, —OH or —CN in which R²¹ is alkyl, aryl, alkylaryl, alkylOalkyl or alkylOH, and R¹⁹ is —H or substituted or unsubstituted alkyl, each of the alkyl, alkoxy, aryl, aryloxy parts of the above substituents for A, D, R¹ and R² being unsubstituted or substituted by one or more of —OH, —CN, —F, —Cl, —Br, —I, —SO₂F, alkoxy, alkenyl, phenyl, phenylSO₂F, aryloxy, aryloxySO₂F, —N(alkyl)₂, —OCOalkyl, —OCOalkylCl, —COOalkyl, —COOalkylOH, —COOalkylCN, —COOalkylCOalkyl, —COOalkylphenyl, —OCOphenyl, —COphenylSO₂F, —OCOphenylNO₂, —OCOphenylalkyl, —OCOphenylalkoxy, —COOphenyl, —OCO(fluorosulphonylphenyl), —OalkylCN, —COOalkyCOalkyl, —COOalkyCOphenyl, —OCOalkylOphenyl, —COOalkylOalkylOalkyl, —OCOalkylCOOalkyl, —OalkylCOOalkyl,

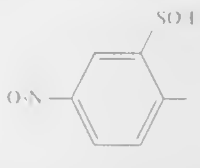
—OalkylCOOalkylOalkyl, —OalkylCOOalkylCOOalkyl, —OalkylOCOalkyCOalkyl, —COOalkylOCOalkyl or —COOalkylCOOalkyl,





in which L is —H or alkyl, and

at least one of A or D is substituted by at least one —SO₂F group or is substituted by at least one substituent which is itself substituted by at least one —SO₂F group, except for 4-(4-fluorosulphonylphenylazo)-N,N-dimethylaniline, provided that one of A or D is not 3,5-difluorosulphonylthien-2-yl, substituted or unsubstituted 1-phenyl-pyrazol-4-yl-5-one, 4-fluorosulphonylnaphth-1-yl or



or that one of A or D does not carry an —NCH₂CH(OH)CH₂Cl, —NCOCH₂Cl or —NCH₂CH₂SO₂F substituent.

5,739,300

ANTIADHESIVE PIPERIDINE-AND PYRROLIDINECARBOXYLIC ACIDS

Alexander Toepfer, Kriftel; Gerhard Kretzschmar, Eschborn; Bernward Schölkens, Kelkheim; Peter Klemm, Wiesbaden; Christoph Hüls, Wackernheim, and Dirk Seiffge, Mainz-Kostheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

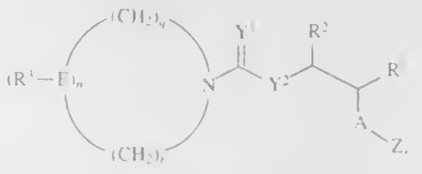
Filed Oct. 4, 1996, Ser. No. 726,142

Claims priority, application Germany, Oct. 9, 1995, 195 37 334.0

Int. Cl.⁶ A61K *31/70;* **C07H** *3/02;3/06;15/04*

U.S. Cl. 536—4.1 **37 Claims**

1. A compound of the formula



I

in which

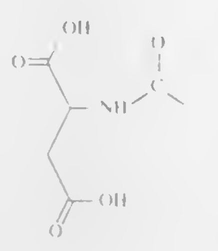
Z is a pyranoside, a pyranosyl radical linked via the C6 position, an alkyl pyranoside linked via the C6 position, a furanoside, a furanosyl radical linked via the C5 position, an alkyl furanoside linked via the C5 position or a polyalcohol which is linked to A via any desired position,

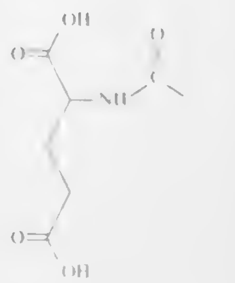
A is oxygen, —CH₂— or sulfur,

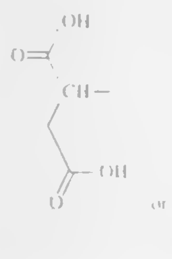
R¹ and R² independently of one another are hydrogen, —(CH₂)ₘX¹ or CH₂O(CH₂)ₘX², where m is an integer from 1 to 20, or together are a five- or six-membered carbo- or heterocycle having at least one of the substituents R⁴, R⁵ or R⁶,

E is nitrogen, carbon or —CH—,

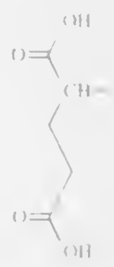
R³ is —(CH₂)ₚCOOH, —(—COOH)₂, —(CH₂)ₚCH(COOH)₂, —(CH₂)ₚCNH₂(COOH)₂, —(CH₂)ₚC(CH₂C₆H₅)(COOH), —CONHC(COOH)₂, where p is an integer from 0 to 10, or







or



q and r independently of one another are an integer from 0 to 3,

n is an integer from 1 to 3, with the proviso that the sum of q, r and n is 4 or 5,

R⁴, R⁵ and R⁶ independently of one another are H, OH, —O(CH₂)ᵤX³ or CH₂O(CH₂)ᵤX⁴, where

w is an integer from 1 to 18,

Y¹ and Y² independently of one another are oxygen, —NH— or sulfur and

X¹, X², X³ and X⁴ independently of one another are hydrogen, —NH₂, —COOH, —OH, —CH₂OH, CH₂NH₂, —C₁–C₂₀ alkyl or —C₆–C₁₀ aryl.

5,739,301

1-(2'-HYDROXY AND 2'-SULFATOALKYL) GLYCOSIDE

Alfred Oftring, Bad Dürkheim; Beate Strecker, Ludwigshafen; Günter Oetter, Frankenthal; Richard Schmidt; Wolfgang Klotz, both of Constance, and Hendrik Wulff, Orsingen-Nenzingen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/00402, § 371 Date Aug. 15, 1996, § 102(e) Date Aug. 15, 1996, PCT Pub. No. WO95/22551, PCT Pub. Date Aug. 24, 1995

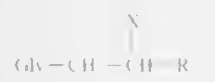
PCT Filed Feb. 4, 1995, Ser. No. 687,448

Claims priority, application Germany, Feb. 16, 1994, 44 04 728.2

Int. Cl.⁶ C07H *15/04;1/00;* **A01N** *43/04;* **A61K** *31/70*

U.S. Cl. 536—4.1 **10 Claims**

1. A 1-(2'-hydroxy- or 2'-sulfatoalkyl)glycoside of the formula I



$$\mathrm{Gly-CH_2-\overset{\overset{\Large X}{|}}{C}H-R}$$

I

where

X is a hydroxyl or a sulfato group of the formula OSO₃M, where M is hydrogen, an alkali metal or an ammonium cation which can be substituted by organic radicals,

R is a C₆- to C₄₀-alkyl or alkenyl radical and

Gly is the radical of a monosaccharide acetalized in the 1 position by the group designated above

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5,739,302

MANUFACTURE AND USE OF NOVEL GLYCOSIDES OF CATECHOL ESTROGENS

Takehiko Suzuki, Kasugai; Sadaaki Komura, Kani; Naoko Ishida, Tajimi; Nobuko Ohishi, Inuyama, and Kunio Yagi, Aichi-ken, all of Japan, assignors to Institute of Applied Biochemistry, Gifu-ken, Japan

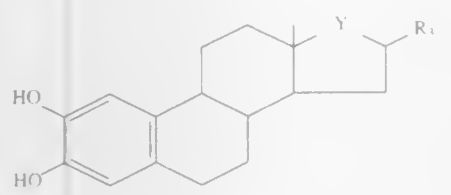
Division of Ser. No. 950,512, Sep. 25, 1992, Pat. No. 5,405,944. This application Oct. 5, 1994, Ser. No. 322,711

Claims priority, application Japan, Oct. 1, 1991, 3-278973; Oct. 15, 1991, 3-293801; Oct. 15, 1991, 3-293802; Oct. 24, 1991, 3-303874; Apr. 20, 1992, 4-125471; Apr. 20, 1992, 4-125472

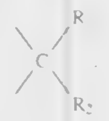
Int. Cl.^{6} C07H *1/00;* **C07J** *1/00*

U.S. Cl. 536—5 6 Claims

1 A method of preparing a compound of the formula



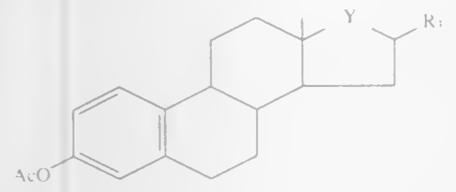
wherein Y is a carbonyl group or



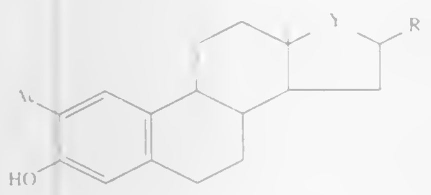
R_1 is acetoxyl group,

and R_2 is a hydrogen atom or ethynyl group: and R_3 is a hydrogen atom or acetoxyl group,

which comprises steps of subjecting a compound of the formula



wherein Y and R_3 have the meanings as defined above, to Fries rearrangement in the presence of acetyl chloride to form a compound having the formula



wherein Y and R_3 have the meanings as defined above, subjecting the compound to Dakin reaction to replace the acetyl group with hydroxyl group at pH 11 to pH 13

5,739,303

METHOD FOR DECARBONYLATION OF SUGARS

Roland Herwig Friedrich Beck, Everberg; Myriam Elseviers, Kampenhout, and Hilde Odile Jozefine Lemmens, Kontich, all of Belgium, assignors to Cerestar Holding B.V., Sas Van Gent, Netherlands

Filed Dec. 5, 1995, Ser. No. 567,701

Claims priority, application United Kingdom, Dec. 6, 1994, 9424566

Int. Cl.^{6} C07C *29/14,* **C07H** *1/00*

U.S. Cl. 536—18.5 18 Claims

1 A method for catalytically producing a polyol from an aldose comprising decarbonylating the aldose in the presence of a catalytic amount of a phosphine metal complex, wherein the ratio of said aldose to said phosphine metal complex is at least 10 to 1.

5,739,304

PROCESS FOR THE PREPARATION OF WATER-SOLUBLE AMINOALKYL DERIVATIVES OF POLYSACCHARIDES

Reinhard Doenges, Bad Soden; Rudolf Ehrler, Floersheim, and Andreas Schrell, Frankfurt, all of Germany, assignors to Hoechst AG, Germany

Filed Dec. 22, 1995, Ser. No. 577,478

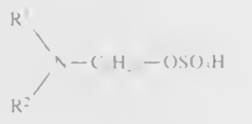
Claims priority, application Germany, Dec. 24, 1994, 44 46 540.8

Int. Cl.^{6} C07H *1/00;5/04;* **C08B** *11/00;11/08*

U.S. Cl. 536—18.7 8 Claims

1 A process for the preparation of a water-soluble polysaccharide from (a) a polysaccharide ether starting material in which an ether group of said polysaccharide ether is an alkyl ether, a hydroxyalkylether, a carboxyalkylether, or a sulfoalkylether, or (b) an essentially non-etherified polysaccharide starting material, comprising:

(a) reacting a said polysaccharide ether, in the presence of a base, with an N,N-disubstituted aminoalkylsulfuric acid ester of the formula II



$$(R^1)(R^2)N-C_nH_{2n}-OSO_3H$$

Formula II

in which

R^1 and R^2 together are a cycloaliphatic radical having 4 to 10 carbon atoms, which is optionally substituted by hydroxyl, alkoxy or amino groups, and in which the cycloaliphatic radical is optionally additionally substituted to contain oxygen, sulfur or nitrogen atoms, and n is an integer from 2 to 10, or

(b) reacting a said essentially non etherified polysaccharide, in the presence of a base, with an alkyl ether-forming, a hydroxyalkylether-forming, a carboxyalkylether-forming or a sulfoalkylether-forming alkylating agent, or a combination of said alkylating agents, and a said N,N-disubstituted aminoalkylsulfuric acid ester of said formula II, to obtain a water-soluble polysaccharide ether product containing (i) an alkyl, hydroxyalkyl, carboxyalkyl, or sulfoalkyl substituent, or a combination of said substituents, and (ii) the N,N-disubstituted aminoalkyl group of said formula II

5,739,305

NUCLEOTIDE-DIRECTED ASSEMBLY OF BIMOLECULAR AND MULTIMOLECULAR DRUGS AND DEVICES

Roger S. Cubicciotti, 258 Midland Ave., Montclair, N.J. 07042

Division of Ser. No. 169,517, Dec. 17, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 487,968

Int. Cl.^{6} C07H *21/02,* **G01N** *33/00,* **C12N** *15/00*

U.S. Cl. 536—23.1 2 Claims

1 An immobilized reagent for assembly of selected molecules into a single, discrete structure comprising,

(a) a solid support; and

(b) a synthetic heteropolymer immobilized to the solid support, said synthetic heteropolymer being a single stranded nucleic acid molecule consisting of at least

(i) a first defined sequence segment capable of specifically and noncovalently binding to a first non-oligonucleotide molecule having a selected activity; and

(ii) a second defined sequence segment capable of specifically and noncovalently binding to a second non oligonucleotide molecule having a selected activity, wherein said first and second defined sequence segments are not known to be biological recognition sites for said first and second non-oligonucleotide molecules

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5,739,306

GC1Q RECEPTOR, HIV-1 GP120 REGION BINDING THERETO, AND RELATED PEPTIDES AND TARGETING ANTIBODIES

Michael S.C. Fung, Houston; Bill N.C. Sun; Cecily R.Y. Sun, both of Bellaire, all of Tex.; Young Woo Kim, Plainsboro, N.J., and Liming Yu, Houston, Tex., assignors to Tanox Biosystems, Inc., Houston, Tex.

Division of Ser. No. 410,360, Mar. 24, 1995. This application Sep. 9, 1996, Ser. No. 711,175

Int. Cl.^{6} C07H *21/04*

U.S. Cl. 536—23.5 2 Claims

1 An oligonucleotide coding for the peptide of SEQ ID NO: 2

2. The oligonucleotide of claim 1 which is a deoxyribonucleotide.

5,739,307

POLYNUCLEOTIDE ENCODING NEURTURIN NEUROTROPHIC FACTOR

Eugene M. Johnson, Jr.; Jeffrey D. Milbrandt; Paul T. Kotzbauer, and Patricia A. Lampe, all of St. Louis, Mo., assignors to Washington University, St. Louis, Mo.

Filed Aug. 28, 1995, Ser. No. 519,777

Int. Cl.^{6} C12N *15/16,15/63;* **C12P** *21/00*

U.S. Cl. 536—23.51 37 Claims

1 An isolated and purified polynucleotide or a polynucleotide complementary thereto wherein said polynucleotide comprises a nucleotide sequence encoding a neurturin polypeptide that promotes survival in superior cervical ganglion cells or nodose ganglion cells and wherein said polynucleotide complementary thereto hybridizes under high stringency conditions to a SEQ ID NO 9 or SEQ ID NO:10.

5,739,308

INTEGRATED OLIGONUCLEOTIDES

Ekambar R. Kandimalla, Worcester, and Sudhir Agrawal, Shrewsbury, both of Mass., assignors to Hybridon, Inc., Cambridge, Mass.

Continuation of Ser. No. 248,636, May 24, 1994, abandoned, which is a continuation of Ser. No. 8,000, Jan. 21, 1993, abandoned. This application Apr. 6, 1995, Ser. No. 418,123

Int. Cl.^{7} C07H *21/04*

U.S. Cl. 536—24.5 4 Claims

1 An integrated oligonucleotide having from about 16 to about 110 nucleotides, wherein said oligonucleotide includes a duplex forming region that forms a duplex with a target nucleic acid, a triplex forming region that forms a triplex with the duplex formed between the duplex forming region and the target nucleic acid, and a linker region connecting the duplex forming region and the triplex forming region, wherein the duplex forming region is from about 8 to about 50 nucleotides in length and has at least one C nucleotide, and wherein each of the duplex- and triplex forming regions is comprised of both purine and pyrimidine nucleotides, and the triplex has a melting temperature above 56° C., provided that there is no intercalating agent covalently bound to the integrated oligonucleotide's 5' end and neither the duplex- nor triplex forming regions contain two or more consecutive purine nucleotides.

5,739,309

ENHANCEMENT OF OLIGONUCLEOTIDE INHIBITION OF PROTEIN PRODUCTION, CELL PROLIFERATION AND / OR MULTIPLICATION OF INFECTIOUS DISEASE PATHOGENS

Nanibhushan Dattagupta, San Diego; C. Nagaraja Sridhar, Simi Valley, and Daniel L. Kacian, San Diego, all of Calif., assignors to Gen-Probe Incorporated, San Diego, Calif.

Division of Ser. No. 366,937, Dec. 30, 1994, which is a continuation-in-part of Ser. No. 93,800, Jul. 19, 1993, abandoned. This application May 30, 1995, Ser. No. 453,046

Int. Cl.^{6} C07H *21/04,* **A61K** *48/00*

U.S. Cl. 536—24.5 10 Claims

5. A composition which inhibits the multiplication of a human immunodeficiency virus comprising

a) a targeted oligonucleotide of from 9 to 100 nucleotide bases in length which will bind to nucleic acid of said human immunodeficiency virus in such a manner that it overlaps a region of said nucleic acid consisting of the nucleotide base sequence SEQ ID NO 5 by one or more bases, and

b) a subtargeted oligonucleotide consisting of a nucleotide base sequence which is a truncated version of said targeted oligonucleotide at least 7 bases in length,

wherein said targeted and said subtargeted oligonucleotides are each optionally chemically modified

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5,739,310
RIBOSOMES AS VECTORS FOR RNA

Meng-Chao Yao; Rosemary Sweeney, and Qichang Fan, all of Seattle, Wash., assignors to Fred Hutchinson Cancer Research Center, Seattle, Wash.

Filed Apr. 23, 1996, Ser. No. 639,256

Int. Cl.⁶ C07H *21/04;* **C12N** *1/00,15/74;15/79*

U.S. Cl. 536—24.5 20 Claims

15. A method for selectively inhibiting the expression of a targeted gene in a host cell, comprising introducing into the host cell a vector which comprises a ribosomal DNA sequence having an expansion segment and a heterologous DNA sequence inserted in the expansion segment, whereby the heterologous DNA sequence is transcribed into RNA that inhibits expression of the targeted gene in the host cell.

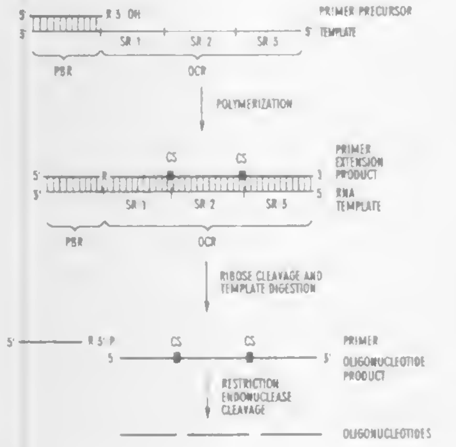
5,739,311
ENZYMATIC SYNTHESIS OF PHOSPHOROTHIOATE OLIGONUCLEOTIDES USING RESTRICTION ENDONUCLEASES

David Bruce Lackey; Nanibhushan Dattagupta, and Daniel Louis Kacian, all of San Diego, Calif., assignors to Gen-Probe Incorporated, San Diego, Calif.

Filed Jun. 7, 1995, Ser. No. 476,625

Int. Cl.⁶ C07H *21/00;21/04,* **C12Q** *1/68;* **C12P** *19/34*

U.S. Cl. 536—25.3 20 Claims



1. A method of synthesizing at least one phosphorothioate oligonucleotide or phosphorothioate-containing oligonucleotide comprising the steps of:

- (a) providing a nucleic acid template, said template comprising a primer binding region and an oligonucleotide complementary region located 5' to said primer binding region,
  - wherein said oligonucleotide complementary region comprises one or more subregions, each said subregion being complementary to an individual phosphorothioate or phosphorothioate containing oligonucleotide to be synthesized,
  - wherein said template is used to direct the synthesis of a primer extension product comprising a nucleic acid primer, an oligonucleotide product comprising said oligonucleotides, and one or more cleavage sites, said primer and said oligonucleotide product being separated by one of said cleavage sites and, when more than one oligonucleotide is to be synthesized, each pair of adjacent oligonucleotides is separated by one of said cleavage sites,
  - wherein at least one of said cleavage sites is a restriction endonuclease recognition sequence selected from the group consisting of 5'-GGCC-3', 5'-GCGC-3', 5'-CCNGG-3', 5'-TCGA-3', and wherein N is any nucleotide and each nucleotide base of said recognition sequence is phosphorothioated;
- (b) contacting said template with said primer under conditions such that said primer hybridizes to the primer binding region of said template to form a template-primer hybrid,
- (c) incubating said template-primer hybrid in the presence of at least one DNA polymerase under conditions such that DNA synthesis occurs to form said primer extension product; and
- (d) cleaving said primer extension product such that said primer is separated from said oligonucleotide product and the oligonucleotides of said oligonucleotide product are separated from each other, wherein at least one cleavage is accomplished by contacting the primer extension product with an effective amount of a restriction endonuclease capable of recognizing said recognition sequence, said restriction endonuclease being selected from the group consisting of Hae III, HinP I, ScrF I and Taqᵅ I.

5,739,312

Patent Not Issued For This Number

5,739,313
RADIONUCLIDE LABELING OF VITAMIN B12 AND COENZYMES THEREOF

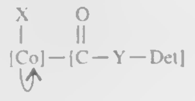
Douglas A. Collins, Rochester, and Henricus Petrus Hogenkamp, Roseville, both of Minn., assignors to Regents of the University of Minnesota, Minneapolis, and Mayo Foundation for Medical Education and Research, Rochester, both of Minn.

Filed Nov. 13, 1995, Ser. No. 557,955

Int. Cl.⁶ A61K *49/00,* **C07H** *23/00*

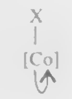
U.S. Cl. 536—26.44 13 Claims

1. A compound of the formula:



$$\underset{\circlearrowleft}{\overset{\displaystyle X}{\overset{|}{[Co]}}}-[\overset{\displaystyle O}{\overset{\|}{C}}-Y-Det]$$ (I)

wherein the moiety



$$\underset{\circlearrowleft}{\overset{\displaystyle X}{\overset{|}{[Co]}}}$$

is cobalamin,

$$\overset{\displaystyle O}{\overset{\|}{C}}$$

is the residue of a monocarboxylic acid of cobalamin, X is CN, OH, methyl or adenosyl, Y is a linking group and Det is a chelating group and a detectable radionuclide or a chelating group and a detectable paramagnetic metal ion.

5,739,314
METHOD FOR SYNTHESIZING 2'-O-SUBSTITUTED PYRIMIDINE NUCLEOSIDES

Saroj Roy, Acton, and Jin-Yan Tang, Shrewsbury, both of Mass., assignors to Hybridon, Inc., Cambridge, Mass.

Filed Apr. 25, 1997, Ser. No. 846,124

Int. Cl.⁶ C07H *1/00;1/02;11/067*

U.S. Cl. 536—55.3 6 Claims

1. A method of synthesizing 2'-O—R substituted uridine comprising reacting 2,2'-anhydrouridine with $Mg(OR)_2$ in ROH, wherein R is C_1–C_4 alkyl or allyl.

5,739,315

Patent Not Issued For This Number

5,739,316
CROSS-LINKED CELLULOSE HYDRATE MEMBRANES

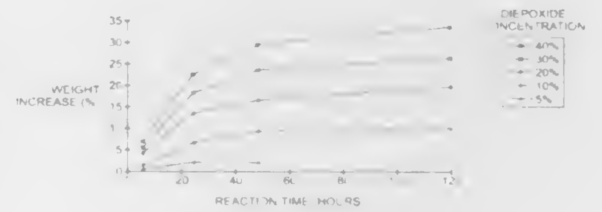
Hans Beer, Bösinghausen; Wolfgang Demmer, Göttingen; Hans-Heinrich Hörl, Bovenden; Dieter Melzner; Dietmar Nussbaumer, both of Göttingen; Hans-Weddo Schmidt, Hardegsen, and Eberhard Wünn, Roringen, all of Germany, assignors to Sartorius AG, Gottingen, Germany

Filed May 16, 1996, Ser. No. 645,650

Claims priority, application WIPO, May 26, 1995, PCT/EP95/02009

Int. Cl.⁶ C07H *5/04,* **C08B** *37/00;11/00,* **C12Q** *1/34*

U.S. Cl. 536—56 14 Claims



1. A process of making a cross-linked cellulose hydrate membrane comprising contacting a cellulose hydrate membrane with an aqueous alkaline solution of a water-soluble diepoxide.

5,739,317

Patent Not Issued For This Number

5,739,318
LABELLING AGENTS COMPRISING BORONIC ACID CONJUGATES

Frank Frantzen, Tverlandet, and Erling Sundrehagen, Oslo, both of Norway, assignors to Axis Research AS, Oslo, Norway

PCT No. PCT/EP91/02160, § 371 Date Jul. 12, 1993, § 102(e) Date Jul. 12, 1993, PCT Pub. No. WO92/08722, PCT Pub. Date May 29, 1992

PCT Filed Nov. 13, 1991, Ser. No. 50,275

Claims priority, application United Kingdom, Nov. 14, 1990, 9024775

Int. Cl.⁶ C09B *47/04,62/00,67/00*

U.S. Cl. 540—128 5 Claims

1. A non-proteinaceous boronic acid conjugate compound having an absorption maximum at not less than 600 nm and having the formula

$$Y-W-B(OH)_2$$ (I)

wherein Y is a triphenylmethane moiety exhibiting an absorption maximum at not less than 600 nm, and W is a linking organic group.

5,739,319
PHTHALOCYANINE OR NAPHTHALOCYANINE DERIVATIVE

Yasuhiro Yamasaki, Neyagawa, Japan, assignor to Orient Chemical Industries, Ltd., Osaka-fu, Japan

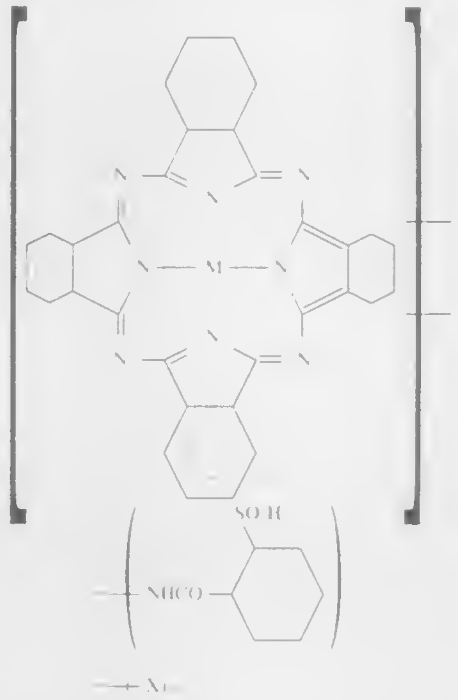
Filed Sep. 13, 1996, Ser. No. 713,610

Claims priority, application Japan, Sep. 14, 1995, 7-236774

Int. Cl.⁶ C09B *67/12,47/24;* **C07D** *487/22*

U.S. Cl. 540—140 20 Claims

1. A phthalocyanine derivative represented by the formula



(I)

wherein X represents a halogen atom substituted at nucleus, M represents two hydrogen atoms, a divalent metal atom, a trivalent mono-substituted metal atom, or a tetravalent di-substituted metal atom; m represents 4 or 8, and n represents an integer of 0 to 12.

5,739,320

Patent Not Issued For This Number

5,739,321
3-HYDROXY γ-LACTONE BASED ENANTIONSELECTIVE SYNTHESIS OF AZETIDINONES

Guang-Zhong Wu, Somerville; Xing Chen, Plainsboro; Yee-Shing Wong, Florham Park; Doris P. Schumacher, Bedminster, and Martin Steinman, Livingston, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed May 31, 1996, Ser. No. 655,785

Int. Cl.⁶ C07D *205/04*

U.S. Cl. 540—200 2 Claims

1. A process for the preparation of a compound of the formula

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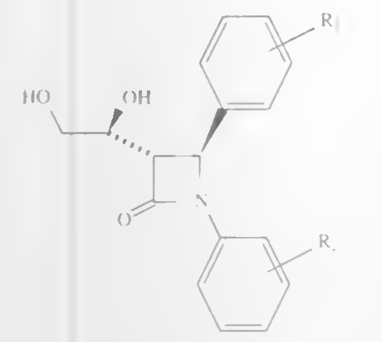


wherein R_1 and R_2 are independently selected from the group consisting of

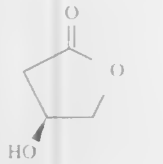
(a) H,

(b) halo;

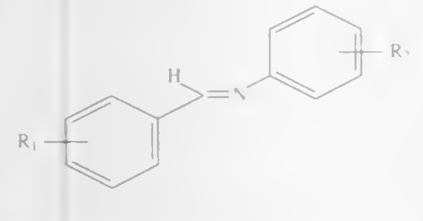
(c) $-OR_5$, wherein: R_5 is selected from the group consisting of H, C_1 to C_6 alkyl, aryl, aralkyl, heteroaryl, C_2 to C_6 alkynyl, C_3 to C_7 cycloalkyl, C_3 to C_7 cycloalkenyl and $-C(O)R_6$, R_6 is selected from the group consisting of C_1 to C_6 alkyl, aryl and $-OR_7$; and R_7 is C_1 to C_6 alkyl or aryl; and

(d) $-C(O)R_8$, wherein: R_8 is selected from the group consisting of C_1 to C_6 alkyl, aryl, heteroaryl, aralkyl, cycloalkyl, $-OR_9$ and $-N(R_{10})_2$; R_9 is selected from the group consisting of C_1 to C_6 alkyl and aryl; and each R_{10} is independently selected from the group consisting of H, C_1 to C_6 alkyl and aryl;

comprising reacting a lactone of the formula



with an imine of the formula



wherein R_1 and R_2 are as defined above.

5,739,322

PROCESS FOR PREPARING BIS-INDOLYL MACROCYCLES

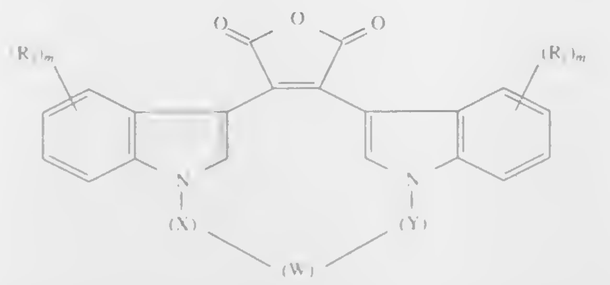
William F. Heath, Jr., Fishers; Michael R. Jirousek, Indianapolis; John H. McDonald, III, Carmel, and Christopher J. Rito, Mooresville, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 457,657, Jun. 1, 1995, Pat. No. 5,621,098, which is a division of Ser. No. 413,735, Mar. 30, 1995, Pat. No. 5,624,949, which is a continuation-in-part of Ser. No. 316,973, Oct. 3, 1994, abandoned, which is a continuation-in-part of Ser. No. 163,060, Dec. 7, 1993, abandoned. This application Mar. 20, 1997, Ser. No. 822,255

Int. Cl.⁶ C07D *498/22; 223/14*

U.S. Cl. 540—469 **3 Claims**

1. A process for preparing a product compound of the formula



wherein

R_1 is independently hydrogen, halo, C_1-C_4 alkyl, hydroxy, C_1-C_4 alkoxy, haloalkyl, nitro, NR_4R_5, or $-NHCO(C_1$-C_4 alkyl);

W is $-O-$, $-S-$, $-SO-$, $-SO_2-$, $-CO-$, C_2-C_6 alkylene, substituted alkylene, C_2-C_6 alkenylene, -aryl-, -aryl$(CH_2)_mO-$, -heterocycle-, -heterocycle-$(CH_2)_mO-$, -fused bicyclic-, -fused bicyclic-$(CH_2)_mO-$, $-NR_3-$, $-NOR_3-$, $-CONH-$, or $-NHCO-$;

X and Y are independently C_1-C_4 alkylene, substituted alkylene, or together W, X, and Y combine to form $-(CH_2)_n$-AA-;

R_3 is hydrogen, $(CH_2)_m$aryl, C_1-C_4 alkyl, $-COO(C_1$-C_4 alkyl), $-CONR_4R_5$, $-(C{=}NH)NH_2$, $-SO(C_1$-C_4 alkyl), $-SO_2(NR_4R_5)$, or $-SO_2(C_1$-C_4 alkyl);

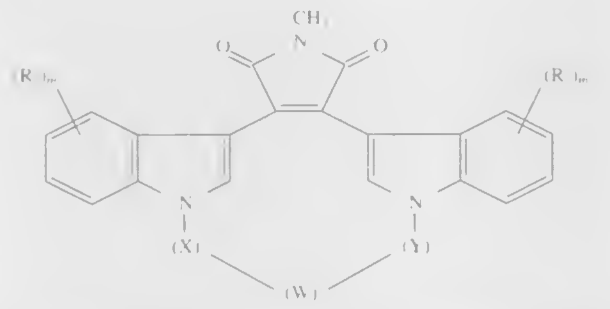
R_4 and R_5 are independently hydrogen, C_1-C_4 alkyl, phenyl, benzyl, or combine to the nitrogen to which they are bonded to form a saturated or unsaturated 5 or 6 member ring;

AA is an amino acid residue;

m is independently 0, 1, 2, or 3; and

n is independently 2, 3, 4, or 5,

which process comprises reacting a reactant compound of the formula:



with a base, selected from sodium hydroxide, potassium hydroxide or a mixture thereof, in a solvent selected from an alcohol, DMSO and water, dioxane and water, or acetonitrile and water, at a temperature ranging from about 25° C. to about reflux.

5,739,323

CARBOXAMIDE MODIFIED POLYAMINE CHELATORS AND RADIOACTIVE COMPLEXES THEREOF FOR CONJUGATION TO ANTIBODIES

William J. Kruper, Jr., Sanford; William A. Fordyce, Midland, both of Mich., and A. Dean Sherry, Dallas, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 204,938, Mar. 2, 1994, abandoned, which is a division of Ser. No. 874,244, Apr. 24, 1992, Pat. No. 5,310,535. This application Apr. 13, 1995, Ser. No. 422,684

Int. Cl.⁶ C07D *255/02;* **C07F** *13/00;* **A61K** *51/10;49/00*

U.S. Cl. 540—474 **3 Claims**

1. A compound selected from the group consisting of:

(a) 1,4,7,10-tetraaza-1-N-(1-carboxy-3-(4-aminophenyl)propyl) bis- 4,7-N,N-(carboxymethyl)-10-N-(carboxamidomethyl)cyclododecane and a pharmaceutically acceptable salt thereof; and

(b) 1,4,7,10-tetraaza-1-N-(1-carboxy-3-(4-aminophenyl)propyl) 7-N-(carboxymethyl)-bis- 4,10-N,N-

(carboxamidomethyl)cyclododecane and a pharmaceutically acceptable salt thereof.

5,739,324

PREPARATION OF CAPROLACTAM

Eberhard Fuchs, Frankenthal, and Tom Witzel, Ludwigshafen, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03781, § 371 Date May 15, 1996, § 102(e) Date May 16, 1996, PCT Pub. No. WO95/14664, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 16, 1994, Ser. No. 646,279

Claims priority, application Germany, Nov. 20, 1993, 43 39 648.8

Int. Cl.⁶ C07D *201/08;223/10*

U.S. Cl. 540—539 **6 Claims**

1. A process for preparing cyclic lactams by reacting amino carbonitriles with water in the presence of catalysts, wherein the reaction is carried out in liquid phase in the presence of heterogeneous catalysts based on titanium dioxide, zirconium oxide, cerium oxide and aluminum oxide.

5,739,325

HYDROGENOLYSIS OF 2,4,6,8,10,12-HEXABENZYL-2,4,6,8,10,12-HEXAAZATETRACYCLO[5.5.0.0^{5,9}.0^{3,11}]DODECANE

Robert B. Wardle, Logan, and W. Wayne Edwards, Tremonton, both of Utah, assignors to Thiokol Corporation, Ogden, Utah

Filed Dec. 7, 1995, Ser. No. 568,451

Int. Cl.⁶ C07D *255/04*

U.S. Cl. 540—554 **27 Claims**

1. A process for the hydrogenolysis of 2,4,6,8,10,12-hexabenzyl-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.0^{5,9}.0^{3,11}]dodecane ("HBIW") comprising the steps of:

(a) introducing a quantity of HBIW and a cosolvent into a reaction vessel;

(b) adding a bromine source to the reaction vessel;

(c) adding acetic anhydride and a palladium hydrogenolysis catalyst to the reaction vessel, wherein the hydrogenolysis catalyst is substantially free of water; and

(d) quickly introducing hydrogen into the reaction vessel wherein HBIW is converted to tetraacetyldibenzylhexaazaisowurtzitane ("TADB").

26. A process for the hydrogenolysis of tetraacetyldibenzylhexaazaisowurtzitane ("TADB") comprising the steps of:

(a) introducing a quantity of TADB precipitated on a palladium hydrogenolysis catalyst and a formic acid solvent into a reaction vessel;

(b) purging the reaction vessel of an atmosphere capable of reacting with hydrogen; and

(c) introducing hydrogen into the reaction vessel wherein TADB is converted to tetraacetyldiformylhexaazaisowurtzitane ("TADF").

5,739,326

HETEROBICYCLIC HERBICIDES

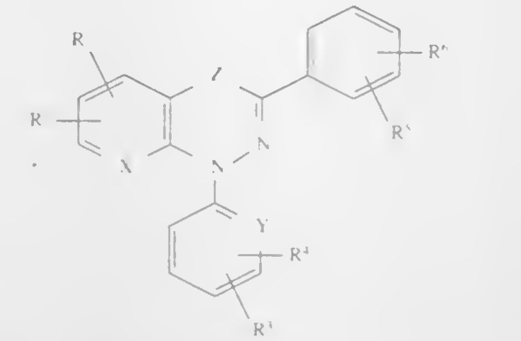
Thomas Paul Selby, Wilmington, and Michael Peter Winters, New Castle, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 3, 1996, Ser. No. 759,742

Int. Cl.⁶ C07D *498/04;* **A61K** *31/535*

U.S. Cl. 544—66 **9 Claims**

1. A compound selected from Formula I, N-oxides or agriculturally-suitable salts thereof,



I

wherein:

X and Y are independently N or CH;

Z is O;

R^1 and R^2 are independently H, halogen, cyano, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 haloalkylthio, C_1-C_4 alkylsulfinyl, or C_1-C_4 alkylsulfonyl;

R^3 is halogen, cyano, SF_5, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 haloalkylthio, C_1-C_4 alkylsulfinyl, or C_1-C_4 alkylsulfonyl;

R^4 is H, halogen, cyano, SF_5, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 haloalkylthio, C_1-C_4 alkylsulfinyl, or C_1-C_4 alkylsulfonyl, or

when R^3 and R^4 are attached to adjacent atoms, R^3 and R^4 can be taken together as $-OCH_2O-$ or $-OCH_2CH_2O-$, each CH_2 group of said taken together R^3 and R^4 optionally substituted with 1-2 fluorine atoms;

R^5 is H, halogen, cyano, SF_5, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_3-C_4 alkenyloxy, C_3-C_4 haloalkenyloxy, C_3-C_4 alkynyloxy, C_3-C_4 haloalkynyloxy, C_1-C_4 alkylthio, C_1-C_4 haloalkylthio, C_1-C_4 alkylsulfinyl, or C_1-C_4 alkylsulfonyl;

R^{5a} is H or halogen; and

R^6 is halogen, cyano, SF_5, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_3-C_4 alkenyloxy, C_3-C_4 haloalkenyloxy, C_3-C_4 alkynyloxy, C_3-C_4 haloalkynyloxy, C_1-C_4 alkylthio, C_1-C_4 haloalkylthio, C_1-C_4 alkylsulfinyl, or C_1-C_4 alkylsulfonyl.

5,739,327

N-ALKYL AMMONIUM ACETONITRILE BLEACH ACTIVATORS

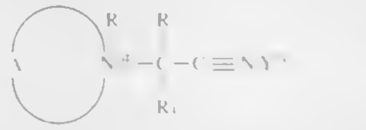
James W. Arbogast, Dublin; James E. Deline, Livermore; Lafayette D. Foland, Dublin; Thomas W. Kaaret, Alamo; Kevin A. Klotter, Livermore; Michael J. Petrin, Antioch; William L. Smith, and Alfred G. Zielske, both of Pleasanton, all of Calif., assignors to The Clorox Company, Oakland, Calif.

Filed Jun. 7, 1995, Ser. No. 475,292

Int. Cl.⁶ C07D *265/30;295/00;* **C09K** *3/00*

U.S. Cl. 544—163 **12 Claims**

1. A compound having the structure of Formula IA



(Formula IA)

wherein A is a saturated ring formed by a plurality of atoms in addition to the N_1 atom, the saturated ring atoms to include at least one carbon atom and at least one heteroatom in addition to the N_1 atom, the said one heteroatom selected from the group consisting of O, S and N atoms, the substituent R_1 bound to the N_1 atom of the Formula IA structure is (a) a C_{1-8} alkyl or alkoxylated alkyl where the alkoxy is C_{2-4}, (b) a C_{4-24} cycloalkyl, (c) a C_{7-24} alkaryl, (d) a repeating or nonrepeating alkoxy or alkoxylated alcohol, where the alkoxy unit is C_{2-4}, or (e) $-CR_5R_6C{\equiv}N$ where R_5 and R_6 are each H, a C_{1-24} alkyl, cycloalkyl, or alkaryl, or a repeating

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or nonrepeating alkoxyl or alkoxylated alcohol where the alkoxy unit is C_{2-4}, in Formula IA at least one of the R_2 and R_3 substituents is H and the other of R_2 and R_3 is H, a C_{1-24} alkyl, cycloalkyl, or alkaryl, or a repeating or nonrepeating alkoxyl or alkoxylated alcohol where the alkoxy unit is C_{2-4}, and Y is at least one counterion.

5,739,328

PREPARATION OF ASYMMETRICALLY SUBSTITUTED TRIAZINES

Bernd Schäfer, Dierbach, and Horst Mayer, Ludwigshafen, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03331, § 371 Date Mar. 29, 1996, § 102(e) Date Mar. 29, 1996, PCT Pub. No. WO95/11237, PCT Pub. Date Apr. 27, 1995

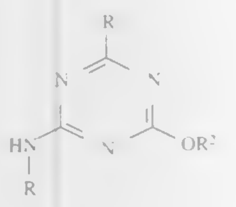
PCT Filed Oct. 10, 1994, Ser. No. 619,667

Claims priority, application Germany, Oct. 19, 1993, 43 35 497.1

Int. Cl.^{6} C07D *251/46*

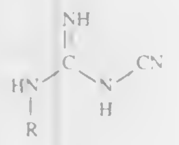
U.S. Cl. 544—194 **13 Claims**

1 A process for preparing asymmetrically substituted triazines of the formula I



I

where R¹ is hydrogen, methyl or ethyl, R² and R³ independently of one another are radicals selected from the group consisting of C_1–C_8 -alkyl, C_3–C_8-alkenyl, C_3–C_8-alkynyl, C_3–C_8-cycloalkl, phenyl, benzyl and phenethyl, by reaction of a cyanoguanidine of the formula II



II

which a carboxylic acid derivative in the presence of an alcohol of the formula III

$$R^2—OH \qquad III,$$

which comprises reacting a carboxylic acid ester of the formula IV

$$R^3—COOR^4 \qquad IV,$$

where R³ has the abovementioned meaning and R⁴ is a radical selected from the group consisting of C_1–C_8-alkyl, C_3–C_8-alkenyl, C_3–C_8-alkynyl, C_3–C_8-cycloalkyl, phenyl, benzyl and phenethyl, in the presence of a base or of a carboxamide selected from the group consisting of N,N-di(C_1–C_4-alkyl)formamide, N,N-di-(C_1–C_4-alkyl)acetamide and N-methylpyrrolidone and in the presence of salt of the elements magnesium, calcium, aluminum, zinc, copper, iron, cobalt, nickel or chromium.

5,739,329

PROCESS FOR PRODUCING HEXAHYDROPYRIDAZINE AND HEXAHYDROPYRIDAZINE-1,2-DICARBOXY DERIVATIVE

Tatsuo Sugiyama, Shizuoka-ken, Japan, assignor to Ihara Chemical Industry Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00184, § 371 Date Oct. 5, 1995, § 102(e) Date Oct. 5, 1995, PCT Pub. No. WO95/21828, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 10, 1995, Ser. No. 530,185

Claims priority, application Japan, Feb. 10, 1994, 6-037914; Feb. 10, 1994, 6-037915

Int. Cl.^{6} C07D *237/04*

U.S. Cl. 544—224 **2 Claims**

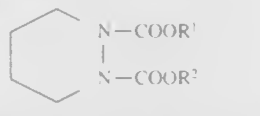
1 A process for producing hexahydropyridazine, comprising reacting a hydrazinedicarboxy compound represented by the formula:

$$R^1OOC—NH—NH—COOR^2 \qquad (1)$$

wherein R¹ and R² represent each independently an alkyl group, with a dihalogenobutane represented by the formula:

$$X^1—CH_2CH_2CH_2CH_2—X^2 \qquad (2)$$

wherein X¹ and X² represent each independently a halogen atom, in the presence of alkali metal hydroxide in an aprotic polar solvent to obtain a hexahydropyridazine-1,2-dicarboxy compound represented by the formula:



(3)

wherein R¹ and R² have the same meaning as defined above, and decarboxylating this hexahydropyridazine-1,2-dicarboxy compound without isolation in the presence of an alkali metal hydroxide and a hydrogen-donating compound selected from the group consisting of water and C_1–C_6 alcohols

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5,739,330

PROCESS FOR PREPARING QUINAZOLONES

Apurba Bhattacharya, and Diane E. Allen, both of Corpus Christi, Tex., assignors to Hoechst Celanese Corporation, Somerville, N.J.

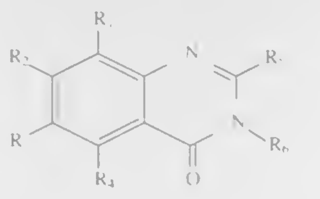
Filed Feb. 5, 1996, Ser. No. 596,794

Int. Cl.^{6} C07D *239/88;239/70*

U.S. Cl. 544—249 **9 Claims**

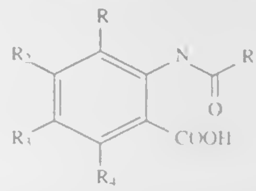
1 A process for preparing a quinazolone which comprises the steps of (a) dehydrating a N-acyl beta amino acid in the presence of a dehydration agent and an organic solvent for a sufficient period of time and under suitable temperature and pressure conditions to form an oxazone (b) adding a carboxylic acid and a primary amine salt of a carboxylic acid to said oxazone to form a mixture, (c) distilling azeotropically said mixture for a suitable period of time and under suitable temperature and pressure conditions to substantially remove said dehydration agent and said organic solvent, and (d) heating the product of step (c) for a sufficient period of time and under suitable temperature and pressure conditions to form said quinazolone, with the proviso that:

A. the quinazolone has the structural formula



wherein (a) R_1, R_2, R_3, and R_4 are each independently selected from the group consisting of hydrogen, halogen, alkoxy, alkyl, hydroxy, nitro and aryl; (b) R and R_2, R_2 and R_3, and R_3 and R_4 may also (in addition to the above) form a cyclic ring containing a total of 2 to 6 atoms selected from the group consisting of carbon atoms, oxygen atoms, nitrogen atoms, sulfur atoms, and mixtures thereof, with the proviso that said ring can be substituted or unsubstituted, and (c) R_5 is selected from the group consisting of hydrogen, unsubstituted alkyl, substituted alkyl, unsubstituted aryl and substituted aryl, and (d) R_6 is selected from the group consisting of substituted and unsubstituted alkyl and aryl;

B. the N-acyl beta amino acid is an N-acyl anthranilic acid which has the structural formula



wherein (a) R_1, R_2, R_3, and R_4 are each independently selected from the group consisting of hydrogen, halogen, alkoxy, alkyl, hydroxy, nitro and aryl; (b) R_1 and R_2, R_2 and R_3, and R_3 and R_4 may also (in addition to the above) form a cyclic ring containing a total of 2 to 6 atoms selected from the group consisting of carbon atoms, oxygen atoms, nitrogen atoms, sulfur atoms, and mixtures thereof, with the proviso that said ring can be substituted or unsubstituted; and (c) R_5 is selected from the group consisting of hydrogen, unsubstituted alkyl, substituted alkyl, unsubstituted aryl and substituted aryl;

C. the dehydrating agent is an anhydride of a carboxylic acid; and

D the primary amine salt of a carboxylic acid has the formula

$$R_6NH_3^+ RCOO^-$$

wherein R_6 is the same as shown above and R is selected from the group consisting of hydrogen, alkyl C_1–C_{20}, and mixtures thereof

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5,739,331

PROCESS FOR CONVERTING A XANTHINE RING OR XANTHINE RING DERIVATIVES INTO DIALKYLAMINOXANTHINE DERIVATIVES

Fernand Thyrion, Mont-Saint-Guibert; Hong Yang, Louvain-la-Neuve, and Michel Parmantier, Brussels, all of Belgium, assignors to S.A. Nycomed Christiaens N.V., Brussels, Belgium

PCT No. PCT/BE94/00006, § 371 Date Sep. 29, 1995, § 102(e) Date Sep. 29, 1995, PCT Pub. No. WO94/17064, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 19, 1994, Ser. No. 492,046

Claims priority, application Belgium, Jan. 21, 1993, 9300059

Int. Cl.^{6} C07D *473/08*

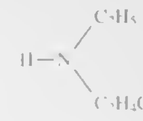
U.S. Cl. 544—272 **15 Claims**

1 Process for the preparation of bamifylline, in which a mixture comprising:

a) 8-benzyltheophylline;

b) an alkyl dihalide with 2 carbon atoms, wherein the molar ratio of said alkyl dihalide to said 8-benzyltheophylline is greater than 5, and

c) an amine of formula



wherein the molar ratio of said amine to said 8-benzyltheophylline is greater than 1.2,

is reacted in the presence of a weak base selected from the group consisting of Na_2CO_3, Na_3PO_4, and a mixture thereof, with said reaction carried out in a closed autoclave at a temperature higher than 90° C. and at a pressure higher than 10^5 Pa

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5,739,332

CYCLOALKANEDIOLS AND THEIR USE IN PREPARING CHIRAL COMPOUNDS

Raymond McCague, Cambridgeshire; Graham Ruecroft, and Christopher Palmer, both of Cambridge, all of United Kingdom, assignors to Chiroscience Limited, Cambridge, United Kingdom

PCT No. PCT/GB94/02194, § 371 Date Jun. 4, 1996, § 102(e) Date Jun. 4, 1996, PCT Pub. No. WO95/09839, PCT Pub. Date Apr. 13, 1995

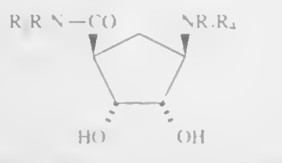
PCT Filed Oct. 7, 1994, Ser. No. 615,180

Claims priority, application United Kingdom, Oct. 7, 1993, 9320643

Int. Cl.^{6} C07C *271/24*; **C07D** *317/44*

U.S. Cl. 544—277 **14 Claims**

1 A compound having the formula (1)



(1)

wherein R_1 is a hydrocarbyl group of up to 20 carbon atoms, R_2 is H or a hydrocarbyl group of up to 20 carbon atoms, and R_3 and R_4 are independently selected from H and removable blocking groups, or a salt thereof

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5,739,333

SULFONAMIDE DERIVATIVE AND PROCESS FOR PREPARING THE SAME

Koichiro Yamada; Kōsuke Yasada; Kohei Kikkawa, and Rikako Kohno, all of Saitama-ken, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

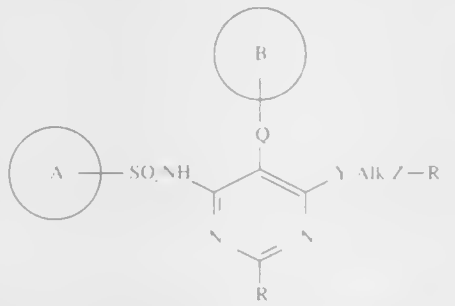
Filed May 9, 1996, Ser. No. 644,847

Claims priority, application Japan, May 16, 1995, 7-116213; Jun. 16, 1995, 7-149872

Int. Cl.^{6} C07D *403/12;403/14;413/12*

U.S. Cl. 544—296 **11 Claims**

1 A sulfonamide derivative of the formula [I]



[I]

wherein Ring A and Ring B are a substituted or unsubstituted monocyclic, bicyclic or tricyclic hydrocarbon group, or a substituted or unsubstituted heterocyclic group,

Q is a single bond or a group of the formula —O—, —S—, —SO—, —SO₂— or —CH₂—,

Y is a group of the formula —O—, —S— or —NH—,

Alk is a lower alkylene group or a lower alkenylene group,

Z is a group of the formula —O— or —NH—,

R is a substituted or unsubstituted Nitrogen-containing aromatic heterocyclic or aryl group,

R is a hydrogen atom, a substituted or unsubstituted amino group, a substituted or unsubstituted lower alkyl group, a

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substituted or unsubstituted lower alkenyl group, a substituted or unsubstituted lower alkynyl group, a substituted or unsubstituted lower alkylthio group, a substituted or unsubstituted lower alkoxy group, or a substituted or unsubstituted heterocyclic group or a substituted or unsubstituted aryl group, or a pharmaceutically acceptable salt thereof.

5,739,334

ALKYL DERIVATIVES OF TRAZODONE WITH CNS ACTIVITY

Leandro Baiocchi, Rome, Italy, assignor to Istituto Ricerca Francesco Angelini S.p.A., Pomezia, Italy

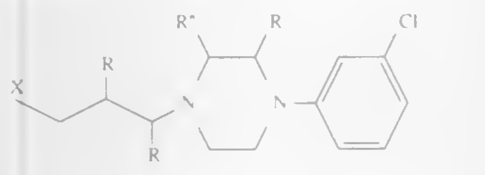
Division of Ser. No. 256,352, Jul. 18, 1994, abandoned. This application Jun. 1, 1995, Ser. No. 457,114

Claims priority, application Italy, Jan. 17, 1992, MI92A0084

Int. Cl.^{6} C07D *241/08, 241/04*

U.S. Cl. 544—384 **2 Claims**

1. A compound of the formula (II)

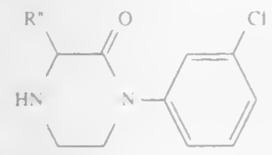


(II)

wherein

R, R' and R''' are hydrogen, and R" is methyl, and X is a conventional leaving ground selected from the class consisting of chlorine, bromine—SO_2Alkyl, and —SO_2Aryl.

2. A compound of the formula (V)



(V)

wherein R" is 1–3 C alkyl.

5,739,335

Patent Not Issued For This Number

5,739,336

1,3,8-TRIAZA- AND 3,8-DIAZA-1-OXASPIRO [4,5] DECANE DERIVATIVES

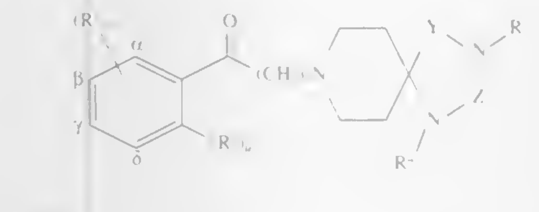
Klaus K. Weinhardt, Palo Alto; Jacob Berger, Los Altos Hills; David S. Carter, Costa Mesa, and Lee A. Flippin, Woodside, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jun. 20, 1996, Ser. No. 667,247

Int. Cl.^{6} A61K *31/395,* **C07D** *471/10*

U.S. Cl. 546—20 **17 Claims**

1. A compound of the formula



in which:

n is 2, 3, 4, 5 or 6;

t is 1, 2, 3 or 4;

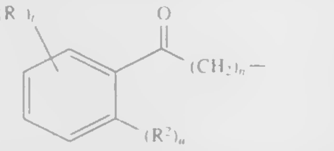
u is 0 or 1 (provided that t is not 1 when u is 0)

Y and Z are independently C(O), C(S) or CH_2 (provided that Y and Z are not both CH_2);

each R^1 is independently amino, carbamoyl, cyano, halo, nitro, thiocarbamoyl, thioureido, ureido, a group selected from (C_{1-4})alkyl, (C_{1-4})alkyloxy, or (C_{1-4})alkylthio (optionally further substituted with one to three halo atoms), a group selected from aryloxy, aryl(C_{1-4})alkyloxy, arylsulfonyl, or arylthio, a group selected from —$NHSO_2R^5$, —$NHC(O)R^5$, —$NHC(O)NHR^5$, —$NHC(S)NHR^5$ and —SO_2NHR^5 {which R^5 is (C_{1-4})alkyl (optionally further substituted with one to three halo atoms) or a group selected from aryl, aryl (C_{1-4})alkyl, heteroaryl and heteroaryl (C_{1-4})alkyl (optionally further substituted with one to two radicals independently selected from amino, carbamoyl, cyano, halo, nitro, a group selected from (C_{1-4})alkanoyl, (C_{1-4})alkylsulfonylamino, (C_{1-4})alkanoylamino, (C_{1-4})alkyl and (C_{1-4})alkyloxy, optionally further substituted with one to three halo atoms, and a group selected from aryl, arylsulfonyl, heteroaryl and heteroarylsulfonyl, optionally further substituted with one to two radicals independently selected from amino, cyano, halo, nitro and a group selected from (C_{1-4})alkyl and (C_{1-4})alkyloxy, optionally further substituted with one to three halo atoms)} or with an adjacent R^1 radical form ethylenedioxy, methylenedioxy or butadienylene (the butadienylene being optionally substituted with one or two radicals selected from halo and (C_{1-4})alkyloxy);

R^2 is hydroxy, halo, (C_{1-4})alkyloxy, phenyl (C_{1-4})alkyloxy or naphthyl (C_{1-4})alkyloxy;

R^3 is H, (C_{1-6})alkyl (optionally substituted with a group selected from —C(O)OH, —$C(O)O(C_{1-4})$alkyl, —$NHSO_2R^5$ and —$NHC(O)R^5$, in which R^5 is as defined above), hydroxyalkyl, esterified hydroxyalkyl, —$CH_2O(C_{1-4})$alkyl, —$CH_2OC(O)(C_{1-4})$alkyl, phenyl (C_{1-4})alkyl (optionally substituted with one or two radicals independently selected from amino, cyano, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, acetamido, methanesulfonamido, (C_{1-4})alkyl, or (C_{1-4})alkyloxy), or a group of Formula (a):



(a)

in which n, t, u, R^1, and R^2 are as defined above; and

R^4 is H, (C_{1-4})alkyl, or aryl, or R^4 and R^3 are the same and are both —$CH_2O(C_{1-4})$alkyl or —$CH_2OC(O)(C_{1-4})$alkyl,

or a pharmaceutically acceptable salt or N-oxide thereof, where the term "aryl" denotes phenyl or naphthyl;

the term "heteroaryl" denotes thienyl, furyl, pyrrolyl, imidazolyl, or pyridinyl;

the term "hydroxyalkyl" denotes a straight or branched monovalent hydrocarbon radical of two to four carbon atoms, substituted with one or two hydroxy groups, provided that (1) the carbon bonded to the nitrogen is unsubstituted with hydroxy, and (2) if two hydroxy groups are present, they are not both on the same carbon atom; and

the term "esterified hydroxyalkyl" denotes "hydroxyalkyl" as defined above in which the hydroxy group (if only one is present) or both hydroxy groups (if two are present) are esterified with a (C_{1-4})alkanoic acid or a neutral naturally-occurring α-amino acid.

5,739,337

PROCESS FOR PREPARING DIBENZO-1-CARBOXAMIDO-1,4-AZABICYCLO[3.2.1]OCTANES

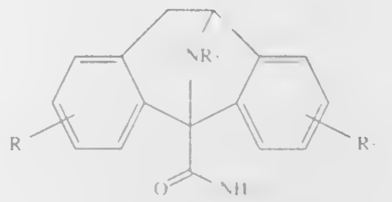
Philip D. Magnus, Austin, Tex., assignor to Neurogen Corporation, Branford, Conn.

Filed Mar. 8, 1996, Ser. No. 613,030

Int. Cl.^{6} C07D *221/22*

U.S. Cl. 546—72 **8 Claims**

1. A process for preparing a compound of the formula

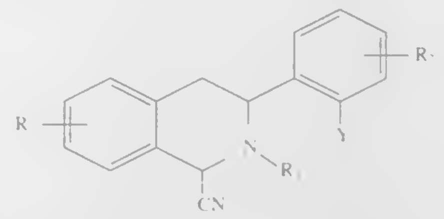


wherein

R_1 and R_2 are independently hydrogen or halogen,

R_3 is hydrogen, methyl, benzyl, or methoxymethyl;

the process comprising cyclizing a tetrahydroisoquinoline of the formula



where Y is a leaving group,

in the presence of a strong base selected from alkali metal amides, lithium diisopropylamide and sodium hydride.

5,739,338

N-ARYL SUBSTITUTED TETRAHYDROQUINOLINES HAVING RETINOID AGONIST, RETINOID ANTAGONIST OR RETINOID INVERSE AGONIST TYPE BIOLOGICAL ACTIVITY

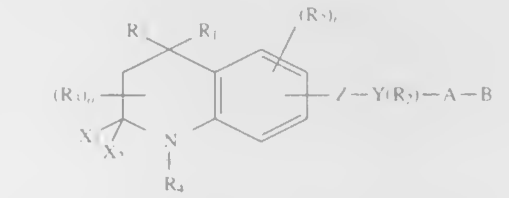
Richard L. Beard, Newport Beach; Min Teng, Aliso Viejo; Diana F. Colon; Tien T. Duong, both of Irvine, and Roshantha A. Chandraratna, Mission Viejo, all of Calif., assignors to Allergan, Irvine, Calif.

Filed Nov. 5, 1996, Ser. No. 744,210

Int. Cl.^{6} C07D *215/227,* **A61K** *31/47*

U.S. Cl. 546—153 **36 Claims**

1. A compound of the formula



where R_1 is independently H or alkyl of 1 to 6 carbons,

R_2 is lower alkyl of 1 to 6 carbons, F, Cl, Br, or I,

n is an integer between the values 0 and 3,

R_3 is lower alkyl of 1 to 6 carbons or F,

o is an integer between the values 0–2,

X_1 and X_2 independently are H, or alkyl of 1 to 6 carbons, or the X_1 and X_2 groups jointly symbolize an oxo (=O) function;

R_4 is phenyl, naphthyl or, thienyl, said phenyl, naphthyl and thienyl groups being optionally substituted with one to three R_5 groups, where R_5 is alkyl of 1 to 10 carbons, fluoro substituted alkyl of 1 to 10 carbons, alkenyl of 2 to 10 carbons and having 1 to 3 double bonds, alkynyl having 2 to 10 carbons and 1 to 3 triple bonds, F, Cl, Br, I, NO_2, CN, COOH, or $COOR_1$;

Z is —C≡C—,

—$(CR_1=CR_1)_{n'}$— where n' is an integer having the value 0–5,

—CO—NR_1—, or

NR_1—CO;

Y is a phenyl or naphthyl group, or heteroaryl selected from a group consisting of pyridyl, and thienyl, said phenyl and heteroaryl groups being optionally substituted with one or two R_2 groups, or

when Z is —$(CR_1=CR_1)_{n'}$— and n' is 3, 4 or 5 then Y represents a direct valence bond between said $(CR_2=CR_1)_{n'}$ group and B,

A is $(CH_2)_q$ where q is 0–5, lower branched chain alkyl having 3–6 carbons, cycloalkyl having 3–6 carbons, alkenyl having 2–6 carbons and 1 or 2 double bonds, alkynyl having 2–6 carbons and 1 or 2 triple bonds,

B is hydrogen, COOH or a pharmaceutically acceptable salt thereof, $COOR_8$, $CONR_9R_{10}$, —CH_2OH, CH_2OR_{11}, CH_2OCOR_{11}, CHO, $CH(OR_{12})_2$, $CHOR_{13}O$, —COR_7, $CR_7(OR_{12})_2$, $CR_7OR_{13}O$, or $Si(C_{1-6}alkyl)_3$, where R_7 is an alkyl, cydoalkyl or alkenyl group containing 1 to 5 carbons, R_8 is an alkyl group of 1 to 10 carbons or (trimethylsilyl)alkyl where the alkyl group has 1 to 10 carbons, or a cycloalkyl group of 5 to 10 carbons, or R_8 is phenyl or lower alkylphenyl, R_9 and R_{10} independently are hydrogen, an alkyl group of 1 to 10 carbons, or a cycloalkyl group of 5–10 carbons, or phenyl, hydroxyphenyl or lower alkylphenyl, R_{11} is lower alkyl, phenyl or lower alkylphenyl, R_{12} is lower alkyl, and R_{13} is divalent alkyl radical of 2–5 carbons

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5,739,339

7-ISOINDOLINYL-QUINOLONE DERIVATIVES AND 7-ISOINDOLINYL-NAPHTHYRIDONE DERIVATIVES

Thomas Philipps, Cologne; Stephan Bartel, Bergisch Gladbach; Andreas Krebs, Odenthal; Uwe Petersen, Leverkusen; Thomas Schenke, Bergisch Gladbach; Klaus-Dieter Bremm, Wuppertal; Rainer Endermann, Wuppertal; Karl Georg Metzger, Wuppertal, and Burkhard Mielke, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

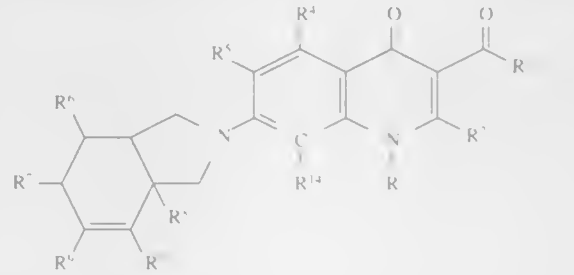
Division of Ser. No. 119,369, Sep. 10, 1993. This application May 17, 1996, Ser. No. 649,380

Claims priority, application Germany, Sep. 15, 1992, 42 30 804.6

Int. Cl.^{6} C07D *215/56,* **A61K** *31/47*

U.S. Cl. 546—158 **9 Claims**

1. A compound of the formula



in which

R^1 represents alkyl having 1 to 4 carbon atoms, which is optionally substituted by 1–3 fluorine atoms, alkenyl having 2 to 4 carbon atoms, cycloalkyl having 3 to 6 carbon atoms, which is optionally substituted by 1 to 2 fluorine atoms, 2-hydroxyethyl; methoxy, amino, methylamino; ethylamino, dimethylamino; phenyl, which is optionally substituted by 1 or 2 fluorine atoms, 3-oxetanyl, or bicyclo[1.1.1]pentyl,

R^2 represents hydrogen,

R^3 represents hydroxyl or O—R^{11}, wherein R^{11} represents alkyl having 1–4 C atoms,

R^4 represents hydrogen, amino, alkylamino having 1 to 4 carbon atoms, dialkylamino having 1 to 3 carbon atoms in each alkyl group, hydroxyl, alkoxy having 1 to 4 carbon atoms, mercapto, alkylthio having 1 to 4 carbon atoms, halogen, methyl, ethyl or vinyl,

R^5 represents hydrogen, halogen or methyl,

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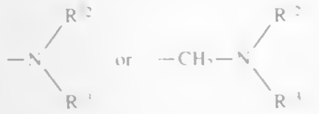
R^6 represents hydrogen, alkyloxycarbonyl having 1 to 4 carbon atoms, hydroxymethyl,



where

R^{12} denotes hydrogen; alkyl having 1 to 3 carbon atoms, which is optionally substituted by hydroxyl, alkyloxycarbonyl having 1 to 4 carbon atoms in the alkyl moiety; or acyl having 1 to 3 carbon atoms, and

R^{13} denotes hydrogen or methyl,

R^7, R^8, R^9 and R^{10} each represent hydrogen or methyl, and

R^{14} represents hydrogen; halogen; methyl, which is optionally substituted by 1 to 3 fluorine atoms; ethinyl; vinyl; hydroxyl or methoxy,

or its pharmaceutically utilisable hydrate and acid addition salt.

5,739,340
INDOLIZINE DERIVATIVES WITH PHARMACEUTICAL ACTIVITY

Jean Gubin, and Michel Renard, both of Brussels, Belgium, assignors to Elf Sanofi, Paris, France

Continuation of Ser. No. 384,837, Feb. 7, 1995, abandoned, which is a division of Ser. No. 80,173, Jun. 23, 1993, Pat. No. 5,403,933. This application Apr. 2, 1997, Ser. No. 825,773

Claims priority, application France, Jun. 23, 1992, 92 07663

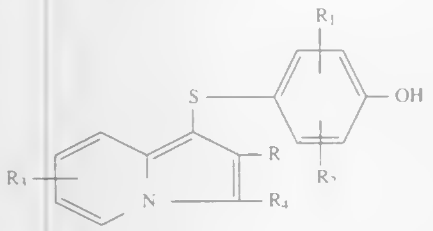
Int. Cl.^{6} C07D *221/04;487/02*

U.S. Cl. 546—183 **3 Claims**

1. A process for preparing an aminoalkoxybenzenesulphonyl compound of formula III comprising the steps of:

a) reacting an indolizine benzenethio derivative compound of the general formula.

IV



in which.

i) each of R_1 and R_2, which are identical or different, is selected from the group consisting of hydrogen, methyl, ethyl and halogen,

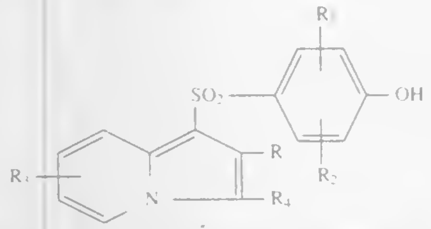
ii) R_3 is selected from the group consisting of hydrogen and C_1–C_4 alkyl,

iii) R_4 is selected from the group consisting of cyano, aminocarbonyl and C_1–C_4 alkoxycarbonyl, and

iv) R is selected from the group consisting of C_1 C_5 alkyl, C_3–C_6 cycloalkyl, and phenyl,

with an oxidizing agent selected from the group consisting of magnesium monoperphthalate and 3-chloroperbenzoic acid, to effect an indolizine compound of the formula:

Ia



in which R, R_1, R_2, R_3 and R_4 have the same meaning as mentioned above: and

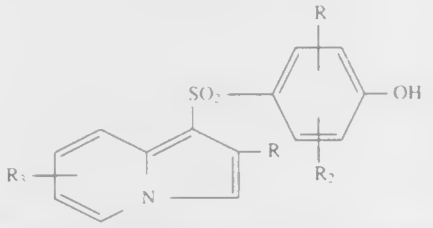
b) affecting removal of the R_4 substituent,

when R_4 is a C_1–C_4 alkoxycarbonyl, by (i) heating at reflux temperature a mixture of the indolizine compound and an alkali metal hydroxide, followed by (ii) acidifying the mixture with a strong acid, and (iii) decarboxylation by heating the acidified mixture to a temperature of 130°–150° C., or

when R_4 is cyano or aminocarbonyl, heating at reflux temperature a mixture of the indolizine compound and a strong acid,

resulting in a 4-hydroxybenzenesulphonyl intermediate having the formula:

II



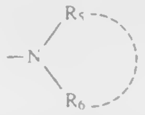
in which R, R_1, R_2 and R_3 have the same meaning as mentioned above;

c) reacting the intermediate with a halide of the general formula:

Hal—A—Am

in which Hal represents halogen, A is C_2–C_5 alkylene, and Am is

i) a radical of formula.



in which

(A) R_5 denotes hydrogen or a C_1–C_5 alkyl radical and R_6 denotes a C_1– C_8 alkyl radical or a radical of formula:

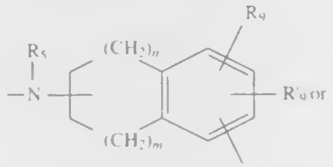
—Alk—R_7

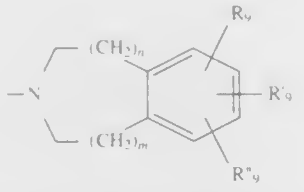
in which Alk denotes a single bond or a C_1–C_5 alkylene radical and R_7 denotes pyridyl, phenyl, 2,3-methylenedioxyphenyl, 3,4-methylenedioxyphenyl, or phenyl substituted by one or more identical or different substituents selected from the group consisting of halogen, C_1–C_4 alkyl, and C_1–C_4 alkoxy,

(B) R_5 and R_6 together denote C_3–C_6 alkylene or C_3–C_6 alkenylene, or

(C) R_5 and R_6 together with the nitrogen atom to which they are attached denote pyrrolidinyl, piperidinyl, morpholinyl, piperazinyl, 4-methylpiperazinyl, 4-phenylpiperazinyl or 1H-imidazolyl, and

ii) a radical of formula.

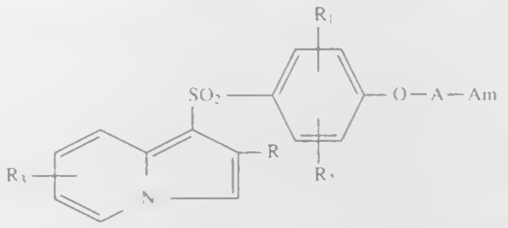




in which R_5 has the same meaning as above, each of R_9, R'_9 and R''_9, which are identical or different, denotes hydrogen, halogen, C_1–C_4 alkyl, or C_1–C_4 alkoxy, and each of n and m, which are identical or different, denotes 0, 1, 2 or 3;

in the presence of a basic agent selected from the group consisting of an alkali metal carbonate, an alkali metal hydroxide, an alkali metal hydride, and an alkali metal alcoholate to effect an aminoalkoxybenzenesulphonyl compound having the formula

III



in which each of R, R_1, R_2, R_3, A, and Am is as defined above, in the form of a free base; and, optionally,

d) reacting the free base with an appropriate acid to form a pharmaceutically acceptable salt of the aminoalkoxybenzenesulphonyl compound

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5,739,341
LIQUID ANTIOXIDANTS AS STABILIZERS

Paul Dubs, Marly; Roger Martin, Fribourg, and Samuel Evans, Marly, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Division of Ser. No. 41,664, Apr. 1, 1993, Pat. No. 5,478,875. This application Jun. 2, 1995, Ser. No. 462,254

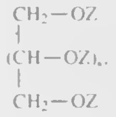
Claims priority, application Switzerland, Apr. 8, 1992, 1153/92

Int. Cl.^{6} C07D *211/44*

U.S. Cl. 546—217 **11 Claims**

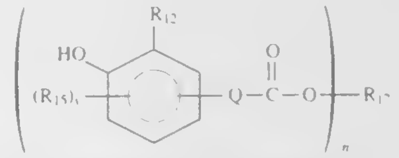
1. A product obtainable by reacting components a), b) and c), where component a) is a compound of the formula I or a mixture of compounds of the formula I, component b) is a compound of the formula II or a mixture of compounds of the formula II and component c) is a compound of the formula III or a mixture of compounds of the formula III,

$X(Y)_a$, (I)



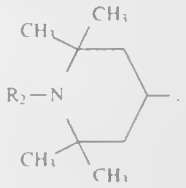
$$\begin{array}{l} CH_2-OZ \\ | \\ (CH-OZ)_k, \\ | \\ CH_2-OZ \end{array} \qquad (II)$$

(III)



in which, in the compound of the formula I,

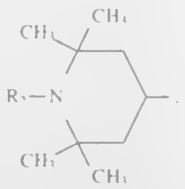
the radicals Y independently of one another are OH or $-HNR_1$ and the radical R_1 is



in which R_2 is hydrogen, C_1–C_8alkyl, O, OH, NO, $-CH_2CN$, C_1-C_{18}alkoxy, C_5– C_{12}cycloalkoxy, C_3 C_6alkenyl, C_7–C_9phenylalkyl or C_7–C_9phenylalkyl which is mono-, di- or trisubstituted on the phenyl ring by C_1-C_4alkyl, or R_2 is furthermore C_1 C_8acyl or $HOCH_2CH_2-$, and a is the number 1 or 2, where,

if Y is OH and a is 1,

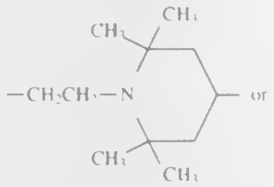
X is

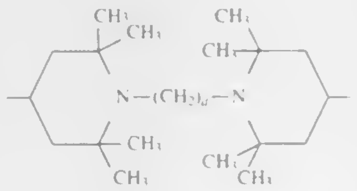


in which R_2 is as defined above, or

if Y is OH and a is 2,

X is

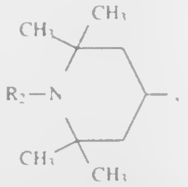




or

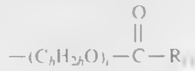
if Y is HNR_1 and a is 1,

X is



in which R_2 is as defined above, and

in the compound of the formula II, the radicals Z are hydrogen or a group of the formula



$$-(C_hH_{2h}O)_i-\overset{\overset{\large O}{\|}}{C}-R_{11}$$

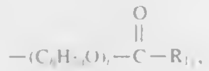
and

k is an integer ranging from 0 to 6, in which

h is 2 or 3,

i is an integer ranging from 0 to 12 and

R_{11} is C_1-C_{30}alkyl, C_8–C_{30}alkenyl, C_5–C_{12}cycloalkyl, phenyl or C_7–C_9phenylalkyl, with the proviso that the compound of the formula II has a group



$$-(C_hH_{2h}O)_i-\overset{\overset{\large O}{\|}}{C}-R_{11},$$

in the compound of the formula III,

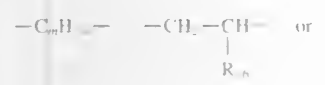
R_{12} is C_1 C_{18}alkyl, C_5 C_{12}cycloalkyl, phenyl or C_7 C_9phenylalkyl,

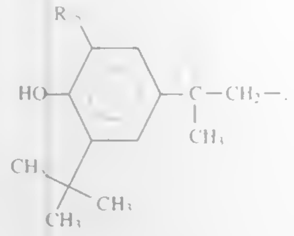
R_{15} is hydrogen, C_1–C_{18}alkyl, C_5 C_{12}cycloalkyl, phenyl or C_7–C_9phenylalkyl,

s is 0, 1 or 2,

Q is

VOL 1209 ISS 2 AP 14 1998 UMI


$-C_mH_{2m}-$, $-CH_2-\underset{\underset{R_{16}}{|}}{CH}-$ or



in which R_{15} is as defined above,

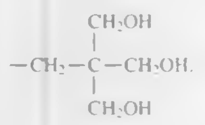
m is an integer ranging from 0 to 3,

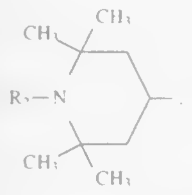
R_{16} is C_1–C_8alkyl and

n is an integer ranging from 1 to 6, where,

if n is 1,

R_{17} is hydrogen, C_1–C_{45}alkyl, C_5–C_{12}cycloalkyl, C_2–C_{18}alkenyl, a monovalent radical of a hexose, a monovalent radical of a hexitol,


$-CH_2-\overset{\overset{CH_2OH}{|}}{\underset{\underset{CH_2OH}{|}}{C}}-CH_2OH,$



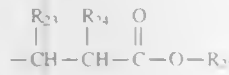
in which R_2 is as defined above, or furthermore R_{17} is $-CH_2CH_2-T_3R_{19}$ or

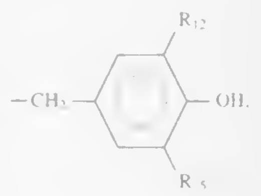
$$-\left[(CH_2)_pO\right]_q-(CH_2)_pOR_{19},$$

in which

T_3 is oxygen, sulfur or $>N-R_{22}$,

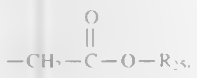
R_{19} is


$-\overset{\overset{R_{23}}{|}}{CH}-\overset{\overset{R_{24}}{|}}{CH}-\overset{\overset{O}{\|}}{C}-O-R_{25}$ or



in which R_{12} and R_{15} are as defined above, or

R_{19} is furthermore hydrogen, C_1–C_{24}alkyl, phenyl, C_5–C_{12}cycloalkyl or


$-CH_2-\overset{\overset{O}{\|}}{C}-O-R_{25},$

in which

p is an integer ranging from 2 to 4,

q is an integer ranging from 2 to 20,

R_{22} is C_1–C_{18}alkyl, phenyl or phenyl which is substituted by 1 to 3 radicals A_1, in which the radicals

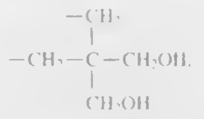
A_1 independently of one another are C_1–C_{12}alkyl, halogen, hydroxyl, methoxy or ethoxy, or R_{22} is furthermore C_5–C_8cycloalkyl,

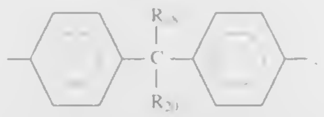
R_{23} and R_{24} independently of one another are hydrogen or methyl, with the proviso that R_{23} and R_{24} are not simultaneously methyl;

R_{25} is hydrogen or C_1–C_{24}alkyl, or,

if n is 2,

R_{17} is a divalent radical of a hexose, a divalent radical of a hexitol,


$-CH_2-\overset{\overset{-CH_2}{|}}{\underset{\underset{CH_2OH}{|}}{C}}-CH_2OH,$

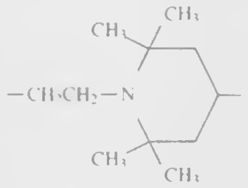


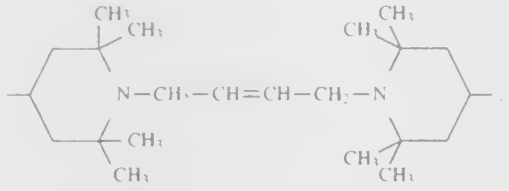
$-C_rH_{2r}-$, $-\left[(CH_2)_pO\right]_q-(CH_2)_p-$,

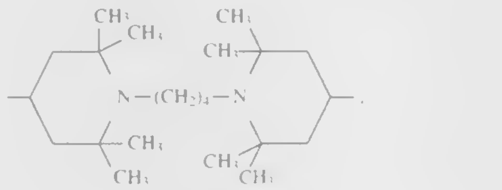
in which p and q are as defined above,

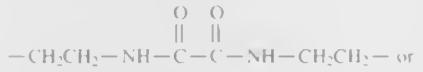
$-CH_2CH_2-T_4-CH_2CH_2-$, $-CH_2-CH=CH-CH_2-$,

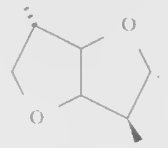
$-CH_2-C\equiv C-CH_2-$,







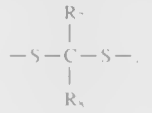

$-CH_2CH_2-NH-\overset{\overset{O}{\|}}{C}-\overset{\overset{O}{\|}}{C}-NH-CH_2CH_2-$ or



in which R_{18} and R_{20} independently of one another are hydrogen or C_1-C_{12}alkyl or together are the radical $-CH_2CH_2CH_2CH_2CH_2-$,

r is an integer ranging from 2 to 10,

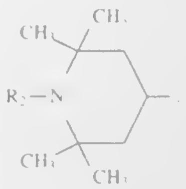
T_4 is sulfur, $>N-R_{26}$ or


$-S-\overset{\overset{R_7}{|}}{\underset{\underset{R_8}{|}}{C}}-S-,$

in which R_7 and R_8 are independently of one another hydrogen, C_1–C_{18}alkyl or phenyl, or R_7 and R_8 together with the C atom to which they are bonded form a C_5–C_{12}cycloalkyl ring, and

R_{26} is hydrogen, C_1–C_{18}alkyl, phenyl or phenyl which is substituted by 1 to 3 radicals A_1, in which the radicals A_1 are as defined above, or

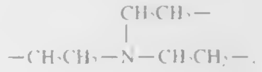
R_{26} is furthermore C_5–C_8cycloalkyl or

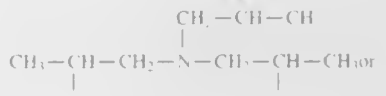


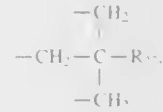
in which R_2 is as defined above, or,

if n is 3,

R_{17} is a trivalent radical of a hexose, a trivalent radical of a hexitol,

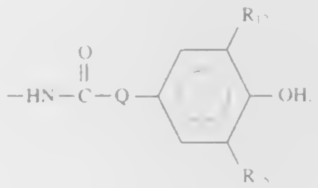

$-CH_2CH_2-\overset{\overset{CH_2CH_2-}{|}}{N}-CH_2CH_2-,$


$CH_3-\underset{|}{CH}-CH_2-\overset{\overset{CH_2-CH-CH}{|}}{N}-CH_2-\underset{|}{CH}-CH_3$ or


$-CH_2-\overset{\overset{-CH_2}{|}}{\underset{\underset{-CH_2}{|}}{C}}-R_{27},$

in which

R_{27} is hydrogen, CH_2OH, C_1–C_4alkyl, C_1–C_8alkylamido or

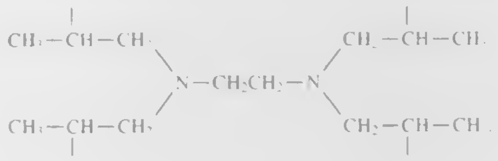


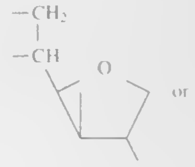
in which

Q, R_{12} and R_{15} are as defined above, or,

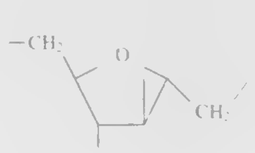
if n is 4,

R_{17} is a tetravalent radical of a hexose, a tetravalent radical of a hexitol, C_4–C_{10}alkanetetrayl,





or



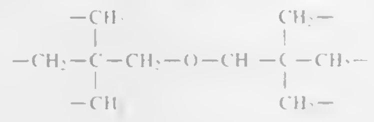
or

if n is 5,

R_{17} is a pentavalent radical of a hexose or a pentavalent radical of a hexitol, or,

if n is 6,

R_{17} is a hexavalent radical of a hexitol or


$-CH_2-\overset{\overset{-CH_2}{|}}{\underset{\underset{-CH_2}{|}}{C}}-CH_2-O-CH_2-\overset{\overset{CH_2-}{|}}{\underset{\underset{CH_2-}{|}}{C}}-CH_2-$

5,739,342
PROCESS FOR THE PREPARATION OF NICOTINIC ACIDS

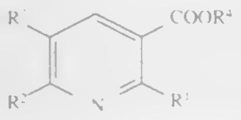
Padam N. Sharma, Gurnee, and Marazban H. Vandrevala, Libertyville, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Mar. 3, 1997, Ser. No. 811,087

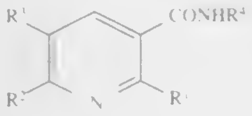
Int. Cl.⁶ C07D *213/55*

U.S. Cl. 546—318 **10 Claims**

1. An improved process for the preparation of compounds having the formula:



said process comprising reacting a compound having the formula.



under acidic conditions with a nitrite salt,

wherein R^1, R^2, and R^3, are independently selected from the group consisting of hydrogen, and halogen atoms and R^4 is selected from the group consisting of hydrogen, lower alkyl, and aryl.

5,739,343
NITRO DYES

Gunther Lamm, Hassloch; Helmut Reichelt, Neustadt, and Clemens Grund, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02745, § 371 Date Jan. 21, 1997, § 102(e) Date Jan. 21, 1997, PCT Pub. No. WO96/03463, PCT Pub. Date Feb. 8, 1996

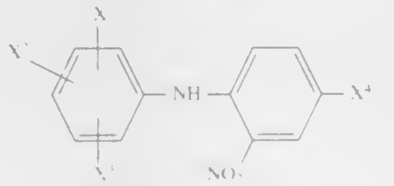
PCT Filed Jul. 13, 1995, Ser. No. 776,055

Claims priority, application Germany, Jul. 21, 1994, 44 25 794.5

Int. Cl.⁶ C09B *51/00;* **C07D** *271/06*

U.S. Cl. 548—131 **9 Claims**

9. A method of dyeing or printing a textile material, comprising dyeing or printing a textile material with a nitro dye of formula I



(I)

wherein

X^1 and X^2 are independently of each other hydrogen, C_1–C_6-alkyl, C_1–C_6-alkoxy or pyrrolidin-2-on-1-yl,

X^3 is hydrogen or C_1–C_6-alkyl, and

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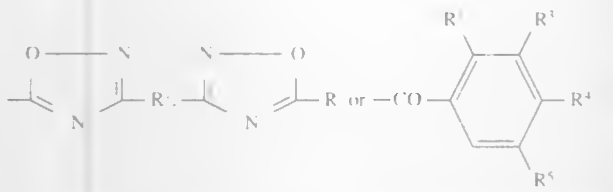
X^4 is a radical of the formula



- wherein R^1 is hydrogen, C_1–C_{12}-alkyl optionally interrupted by from 1 to 3 oxygen atoms in ether function and optionally substituted by phenyl, phenoxy or acetyl, C_3–C_7-cycloalkyl, which optionally is substituted by C_1 C_4-alkyl, or phenyl, which optionally is substituted by C_1–C_4-alkyl-, C_1–C_4-alkoxy- or halogen,
- R^2 and R^3 are independently of each other hydrogen, C_1–C_6-alkyl or C_1–C_6-alkoxy,
- R^4 is hydrogen, methyl, ethyl, methoxy or ethoxy, and
- R^5 is hydrogen or C_1–C_6-alkyl

5,739,344

PREPARATION OF AN AMINOARYLAMINOARAZOLE

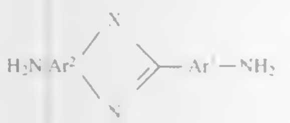
R. Garth Pews, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 6, 1996, Ser. No. 761,406

Int. Cl.^{6} C07D *235/18;277/66*

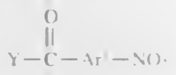
U.S. Cl. 548—178 **18 Claims**

1 A process of preparing an aminoarylaminoarazole having the formula:



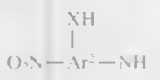
comprising the steps of.

a) condensing a condensable nitroarylcarbonyl compound having the formula:



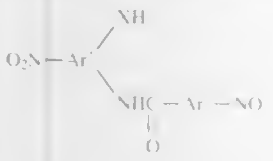
$$Y-\overset{O}{\overset{\|}{C}}-Ar^1-NO_2$$

with a compound having the formula



$$O_2N-\overset{XH}{\overset{|}{Ar^2}}-NH$$

to form an anilide having the formula:



wherein Ar^1 and Ar^2 are each aromatic groups; X is S, NH or O, Y is Cl, Br, OC_{1-4}alkyl, or O-phenyl, and the —XH and —$NHC(O)Ar^1NO_2$ groups are connected to adjacent carbon atoms on Ar^2; and

b) cyclizing and reducing the anilide under such conditions to form the aminoarylaminoarazole.

5,739,345

INTERMEDIATE COMPOUNDS IN THE PREPARATION OF HETEROCYCLIC COMPOUNDS HAVING ANTI-DIABETIC ACTIVITY

Takashi Fujita; Takao Yoshioka; Toshihiko Fujiwara; Minoru Oguchi; Hiroaki Yanagisawa; Hiroyoshi Horikoshi; Kunio Wada, and Koichi Fujimoto, all of Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

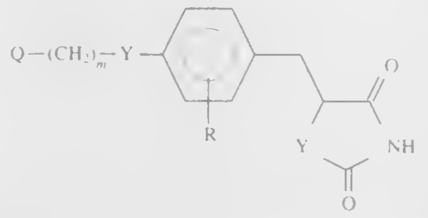
Division of Ser. No. 419,919, Apr. 11, 1995, Pat. No. 5,624,935. This application Nov. 8, 1996, Ser. No. 745,377

Claims priority, application Japan, Apr. 11, 1994, 6-72083

Int. Cl.^{6} C07D *277/04;263/04*

U.S. Cl. 548—183 **25 Claims**

1. A (i) compound of the formula (XIV),



(XIV)

wherein:

- Q represents a lower alkoxycarbonyl group, a formyl group, a protected formyl group, or a carboxyl group or a hydroxy group;
- Y represents an oxygen atom or a sulfur atom;
- Y' represents a sulfur atom;
- R represents a hydrogen atom, an alkyl group having from 1 to 4 carbon atoms, an alkoxy group having from 1 to 4 carbon atoms, a halogen atom, a hydroxy group, a nitro group, an aralkyl group in which an alkyl group having from 1 to 5 carbon atoms is substituted by an aryl group having from 6 to 10 ring carbon atoms, or a group of formula —NR^aR^b,

wherein R^a and R^b are the same or different and each represents a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aralkyl group in which an alkyl group having from 1 to 5 carbon atoms is substituted by an aryl group having from 6 to 10 ring carbon atoms, an aryl group having from 6 to 10 ring carbon atoms, an aliphatic carboxylic acyl group having from 1 to 11 carbon atoms, an aliphtaic carboxylic acyl group which has from 2 to 6 carbon atoms and which is substituted by an aryl group having from 6 to 10 ring carbon atoms, or an aromatic carboxylic acyl group in which the aryl part has from 6 to 10 ring carbon atoms; and

m is an integer of from 1 to 5; and (ii) salts thereof

5,739,346

DIMETHYL FORMIMINIUM CHLORIDE CHLOROSULPHATE DERIVATIVES USEFUL AS INTERMEDIATES FOR PRODUCING CEPHALOSPORINS

Debashish Datta; Vinod George, and Bishwa Prakash Rai, all of Mandideep, India, assignors to Lupin Laboratories Limited, Bombay, India

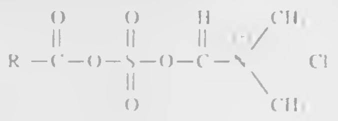
Filed Mar. 26, 1996, Ser. No. 624,737

Claims priority, application India, Dec. 26, 1995, 545/BOM/95

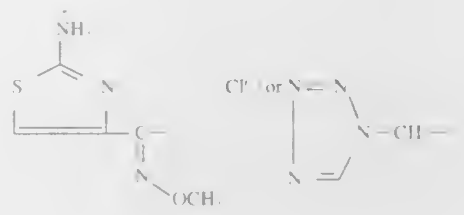
Int. Cl.^{6} C07D *277/587;257/04*

U.S. Cl. 548—194 **6 Claims**

1 A process for producing a compound of formula I



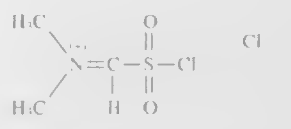
wherein R_1=



I

the process comprising:

reacting dimethyl formiminium chloride chloro sulphate of formula XI



XI

with 2-(2-aminothiazol-4-yl)-2-methoxyimino acetic acid or 1 H-tetrazol-1-acetic acid in a solvent at a temperature ranging from −30° C. to −15° C

5,739,347

OPTICALLY ACTIVE β-AMINOALKOXYBORANE COMPLEX

Hiroshi Kashihara; Mikio Suzuki, and Yoshio Ohara, all of Funabashi, Japan, assignors to Nissan Chemical Industries Ltd., Tokyo, Japan

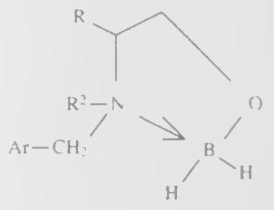
Division of Ser. No. 481,505, Jul. 19, 1995, Pat. No. 5,663,348. This application Apr. 29, 1997, Ser. No. 848,173

Claims priority, application Japan, Jan. 20, 1993, 5-7827; Mar. 25, 1993, 5-66825

Int. Cl.^{6} C07D *263/14;263/60*

U.S. Cl. 548—215 **1 Claim**

1. An optically active β-aminoalkoxyborane complex of the formula (I):



(I)

wherein R^1 is C_1–C_8 alkyl, C_3–C_7 cycloalkyl, C_7–C_{11} aralkyl or C_6–C_{10} aryl, R^2 is hydrogen, C_1–C_8 alkyl C_3 C_7 cycloalkyl or C_7–C_{11} aralkyl, or R^1 and R^2 together form $(CH_2)_n$ wherein n is 3 or 4, and Ar is naphthyl, anthryl or phenanthryl, which may be substituted by from 1 to 3 substituents selected from the group consisting of halogen, nitro, C_1–C_6 alkyl, C_3–C_7 cycloalkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_7–C_{11} aralkyl, C_6–C_{10} aryl, C_1–C_6 alkoxy and styrene polymer substituents.

5,739,348

METHOD OF SYNTHESIZING TERT-AMIDO-SUBSTITUTED 2-(2'-HYDROXYPHENYL) BENZOTRIAZOLE COMPOUNDS IN A ONE-STEP PROCESS

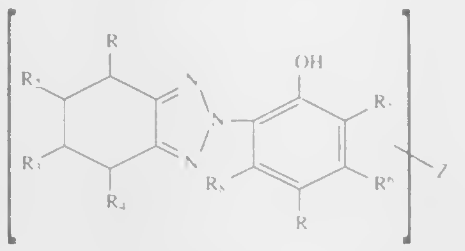
Lal Chand Vishwakarma, Rochester, and Victor LaVonne Mylroie, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 23, 1996, Ser. No. 735,544

Int. Cl.^{6} C07D *249/20*

U.S. Cl. 548—260 **14 Claims**

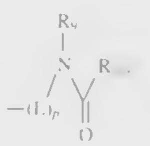
1 A method for preparing a compound of formula (III)



(III)

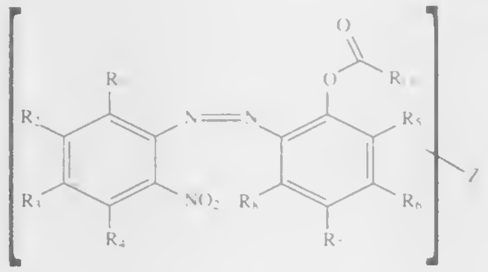
wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently H, halogen, cyano; —CO_2Y where Y is H or an alkyl group or aryl group carbamoyl group, sulfoxido group; sulfonyl group; sulfonato group, sulfonamido group; alkyl group; alkoxy group, aryl group; heteroaryl group; aryloxy group; or any two or more of adjacent ones of R_1 through R_4, or R_5 through R_7 may together form an alicyclic group, or complete, together with the carbon atoms of the benzene ring to which they are attached, an aromatic group or heteroaryl group; or Z, with the proviso that at least one of R_1 through R_8 is Z; or R_8 is OH, where Z is a group of the formula



where L is a linking group, R_9 and R_{10} are independently a branched or unbranched alkyl or perfluoro alkyl group which may contain one or more hetero atoms and may be substituted with one or more hydroxyl groups, and p is 0 or 1;

said process comprising ring closure of an azo dye compound of formula (IV)



(IV)

whereby the ester group —$OCOR_{11}$ is removed during the ring closure step liberating the free phenolic group, where R_{11} is a branched or unbranched alkyl or perfluoro alkyl group which may contain one or more hetero atoms and may be substituted with one or more hydroxyl groups, and may be the same as or different from R_{10}.

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5,739,349
PROCESS AND INTERMEDIATES FOR THE PREPARATION OF TRIAZOLINONES

Karl-Heinz Linker, Leverkusen; Wilhelm Haas, Pulheim; Kurt Findeisen, Leverkusen, and Hans-Joachim Diehr, Wuppertal, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

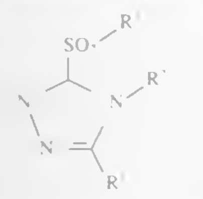
Division of Ser. No. 528,375, Sep. 14, 1995, Pat. No. 5,639,891, which is a division of Ser. No. 336,943, Nov. 10, 1994, Pat. No. 5,475,115. This application Jan. 21, 1997, Ser. No. 784,653

Claims priority, application Germany, Nov. 18, 1993, 43 39 412.4

Int. Cl.^{6} C07D *249/12*

U.S. Cl. 548—264.6 **6 Claims**

1 An alkylsulphonyltriazole derivative of the formula



(II)

wherein

R^1 represents alkyl having 1 to 6 carbon atoms which is optionally substituted by halogen, cyano or C_1–C_4-alkoxy, or represents a cycloalkyl having 3 to 6 carbon atoms which is optionally substituted by halogen, cyano or C_1–C_4-alkyl and

R^2 represents amino, or represents alkyl, alkenyl, alkinyl, alkoxy, alkylamino or dialkylamino, each of which has up to 6 carbon atoms in the alkyl, alkenyl or alkinyl groups and each of which is optionally substituted by halogen, cyano or C_1–C_4-alkoxy, or represents C_3–C_6-cycloalkyl, C_3–C_6-cycloalkyl-C_1–C_2-alkyl or phenyl, each of which is optionally substituted by halogen, cyano, C_1–C_4-alkyl, C_1–C_4-alkoxy or C_1–C_4-alkoxy-carbonyl, and

R^3 is alkyl having 1 to 4 carbon atoms.

5,739,350
CC-1065 ANALOGS

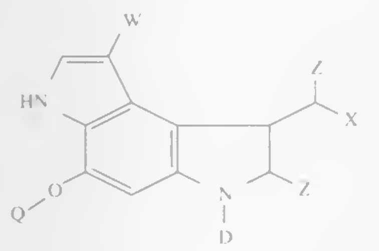
Robert C. Kelly, Augusta; Mark A. Mitchell, and Paul A. Aristoff, both of Kalamazoo, all of Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 279,767, Jul. 25, 1994, abandoned, which is a continuation of Ser. No. 966,139, Oct. 23, 1992, abandoned, which is a continuation of Ser. No. 513,501, Apr. 25, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 479,231

Int. Cl.^{6} C07D *487/08*

U.S. Cl. 548—421 **23 Claims**

1 A compound of Formula I or II



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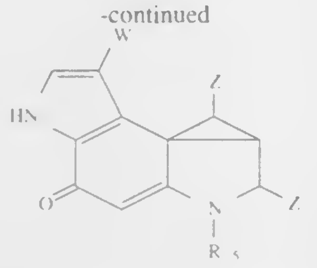


wherein W is selected from C_1–C_5 alkyl, phenyl or hydrogen;

wherein X is selected from azido, a halogen atom, cyanate, thiocyanate, isocyanate, thioisocyanate, phosphate diester (—$PO(OR)_2$), phosphonyl (—O—PO_2R), thiophosphonyl (—O—PSOR), sulfinyl (—O—SOR) or sulfonyl (—O—SO_2R);

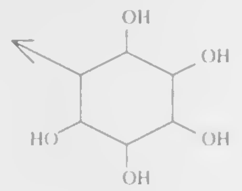
wherein D is R_{15} or R'_{15};

wherein Q is Y when D is R_{15},

wherein Q is Y' when D is R_{15};

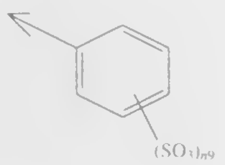
wherein Y is selected from hydrogen, —C(O)R, —C(S)R, —C(O)OR_1, —$S(O)_2R_1$, —C(O)NR_2R_3, —C(S)NR_2R_3, —C(O)$NHSO_2R_4$, —C(O)$CH_2(OCH_2CH_2)_{n7}O(C_1$–$C_3$ alkyl) and $_{n7}$ is 0–5, or —C(O)$(CH_2)_{n8}C(O)R_b$ where $_{n8}$ is 0–10 and R_b is selected from —OH (or a metal or amine salt thereof), —OR_c where R_c is —$CH_2C(CH_2OH)_3$ or R_{70}, and —$N(R_d)R_e$ where R_d is hydrogen or C_1–C_4 alkyl, and R_e is selected from —$C(CH_2OH)_3$, —$CH_2C(CH_2OH)_3$, —$CH_2C(CH_2NH_2)_3$, R_{70}, R_{71} or R_{72}

where R_{70} is



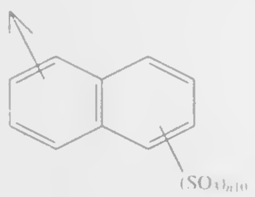
R_{70}

where R_{71} is



R_{71}

where R_{72} is



R_{72}

where n9 is 1 or 2 and n10 is 1–3;

wherein Y' is selected from —C(O)R_{10}, —C(S)R_{10}, —C(O)OR_{10}, —$S(O)_2R_{10}$, —C(O)$NR_{12}R_{13}$, —C(S)$NR_{12}R_{13}$, or —C(O)$NHSO_2R_{14}$;

wherein Z is selected from the group consisting of C_1–C_5 alkyl, phenyl or hydrogen;

wherein R is selected from the group consisting of C_1–C_{20} alkyl; C_2–C_6 alkenyl; C_2–C_6 alkynyl, phenyl optionally substituted with one, 2 or 3 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro; naphthyl optionally substituted with one or 2 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, trifluoromethyl, C_2–C_6 dialkylamino, C_1–C_3 alkylthio or nitro;

wherein R_1 is selected from C_1–C_{20} alkyl or phenyl optionally substituted with one, 2 or 3 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro;

wherein R_2 and R_3, being the same or different, are selected from hydrogen, C_1–C_{20} alkyl, or phenyl optionally substituted with one, 2 or 3 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro; with the proviso that both R_2 and R_3 cannot be phenyl or substituted phenyl;

wherein R_4 is selected from C_1–C_{10} alkyl; phenyl optionally substituted with one, 2 or 3 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro; naphthyl optionally substituted with one or 2 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, trifluoromethyl, C_2–C_6 dialkylamino, C_1–C_3 alkylthio or nitro;

wherein R_{10}, R_{13} and R_{14}, being the same or different, are selected from —$(C_1$–C_{20} alkyl)$(CH_2)_nR_{50}$ or -(phenyl optionally substituted with one or two C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro)$(CH_2)_nR_{50}$;

wherein n is 0–10;

wherein R_{50} is selected from the group consisting of

- (i) —CO_2H;
- (ii) —CH_2NH_2;
- (iii) —SH;
- (iv) —$C(R_{60})(R_{61})$—SH wherein R_{60} and R_{61}, being the same or different, are C_1–C_4 alkyl or H;
- (v) —NHC(O)—$(CH_2)n_1$—$C(R_{60})(R_{61})$—SH wherein R_{60} and R_{61} are defined above and n_1 is 0–5;
- (vi) —C(O)$NHNH_2$ (hydrazido);
- (vii) —$NHNH_2$ (hydrazino);
- (viii) —CH_2OH (hydroxymethyl);
- (ix) —NHC(S)NH_2 (thioureido);
- (x) —$CH_2NHC(O)NH_2$;
- (xi) —NHC(S)$NHNH_2$;
- (xii) —C(O)CH_2X_1 (X_1 is a halogen);
- (xiii) —CH_2X_1 (halomethyl) wherein X_1 is a halogen;
- (xiv) —CHO (aldehyde);
- (xvii) —$C(R_{60})(R_{61})C(O)NHNH_2$ wherein R_{60} and R_{61}, being the same or different, are C_1–C_4 alkyl or H;
- (xviii) —$O(CH_2)n_1C(R_{60})(R_{61})C(O)NHNH_2$ wherein R_{60}, R_{61}, and n_1 are defined above;
- (xix) —$N(R_{62})(CH_2)_{n1}C(R_{60})(R_{61})C(O)NHNH_2$ wherein R_{60}, R_{61} and R_{62} are independently selected from C_1–C_4 alkyl or H and n_1=–5;
- (xx) —$O(CH_2)_{n2}C(R_{60})(R_{61})C(O)NHNH_2$ (n_2=1–5);
- (xxi) —NHR_{51};
- (xxii) —C(O)$NHNHR_{51}$;
- (xxiii) —$NHNHR_{51}$,

wherein R_{51} is an amine protecting group such as BOC (t-butoxycarbonyl), FMOC (9-fluorenylmethyloxycarbonyl), TFA (trifluoroacetate)amide), ALLOC (alloxycarbonyl), CBZ (benzoxycarbonyl), or TROC (trichloroethoxycarbonyl),

- (xxiv) —NHC(=NH)NH_2 (guanadinyl); or
- (xxv) —B—M—$(CH_2)n_3R_{52}$ wherein n_3=0–5; R_{52} is the same as R_{50} above (groups (i)–(xxiv) only);

wherein B is an ester: [—OC(O)— or —C(O)O—] or amide [—NHC(O)— or —C(O)NH—] bond;

wherein M is selected from:

		Linker Groups for Attachment of Therapeutic Agents	(TA) to Antibody Molecules
	A	Linkers for Cleavage by C1	
		(a a)$_{n4}$-	lys—
			—tyr —
			—phe—
			—arg —
	B.	Tripeptide Sequences for Cleavage by C4.2	
			—leu—ala—arg—
			—leu—ala—lys—
			—leu—ala—tyr—
			—leu—leu—arg—
			leu—leu—lys—
			leu—leu—tyr—
			leu—gly—arg—
III	B	Tripeptide Sequences for Cleavage by C4.2	
		(a.a)$_{n4}$-	—leu—gly—lys—
			—leu—gly—tyr—
			—leu—val—arg—
			—leu—cal—lys—
			—leu—val—tyr—
			—leu—ile—arg—
			—leu—ile—lys—
			—leu—ile—tyr—
		(a.a.)$_{n4}$-	—ala—ala—arg—
			—ala—ala—lys—
			—ala—ala—tyr—
			—ala—leu—arg—
			—ala—leu—lys—
			—ala—leu—tyr—
			—ala—gly—arg—
			—ala—gly—lys—
			—ala—gly—tyr—
			—ala—val—arg—
			—ala—val—lys—
			—ala—val—tyr—
			—ala—ile—arg—
			—ala—ile—lys—
			—ala—ile—tyr—
			—gly—ala—arg—
			—gly—ala—lys—
			—gly—ala—tyr—
			—gly—leu—arg—
			—gly—leu—lys—
			—gly—gly—arg—
			—gly—gly—lys—
			—gly—gly—tyr—
			—gly—val—arg—
			—gly—val—lys—
			—gly—val—tyr—
III	B	Tripeptide Sequences for Cleavage by C4.2	
			—gly—ile—arg—
			—gly—ile—lys—
			—gly—ile—tyr—
		(a a)$_{n4}$-	—val—ala—arg—
			—val—ala—lys—
			—val—ala—tyr—
			—val—leu—arg—
			—val—leu—lys—
			—val—leu—tyr—
			—val—gly—arg—
			—val—gly—lys—
			—val—gly—tyr—
			—val—val—arg—
			—val—val—lys—
			—val—val—tyr—
			—val—ile—arg—
			—val—ile—lys—
			—val—ile—tyr—
		(a a)$_{n4}$	—ile—ala—arg—
			—ile—ala—lys—
			—ile—ala—tyr—
			—ile—leu—arg—
			—ile—leu—lys—
			—ile—leu—tyr—

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		Linker Groups for Attachment of Therapeutic Agents (TA) to Antibody Molecules	
		—ile—gly—arg—	
		ile—gly—lys—	
		ile -gly- tyr- -	
		ile val arg	
		ile val lys	
		-ile—val—tyr—	
		ile—ile—arg	
		ile ile—lys	
		ile ile tyr	
III C	Peptide Sequences for Cleavage by C4.2		
		-leu gly	
		-leu —leu—	
		leu ala	
		-leu—val -	
		--leu ile	
		-gly gly	
		-gly leu	
		gly ala	
		gly -val -	
		-ala--gly -	- Tripeptide-
		-ala—leu	
		-ala—ala—	
		-ala—val—	
		ala— ile—	
		val—gly -	
		val—leu—	
		val - ala-	
		- val- val	
		-val ile—	
		ile—gly	
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		ile --ala—	
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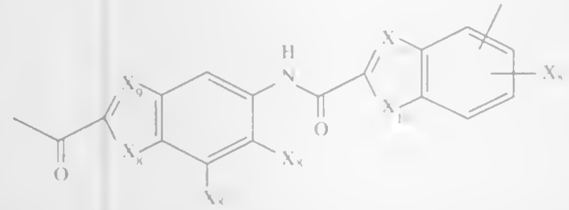
wherein (a.a) represents any naturally occurring amino acid (and can be the same or different), tripeptide is any peptide of Section III.B and n_4=0–5;

wherein R_{12} is selected from hydrogen, C_1 C_{20} alkyl, or phenyl optionally substituted with one, 2 or 3 C_1–C_4 alkyl, C_1–C_3 alkoxy, halo, C_1–C_3 alkylthio, trifluoromethyl, C_2–C_6 dialkylamino, or nitro;

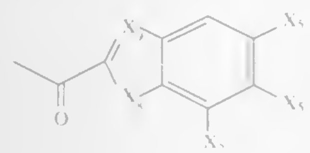
wherein R_{15} is a carbonylaryl group selected from the group consisting of

(a)



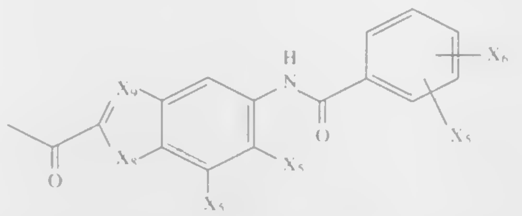
wherein X_8 is —O—, —S—, —NH—, X_9 is —CH— or N, X_{10} is —O—, —S—, —NH—, X_{11} is —CH— or —N—; X_5 may be the same or different and is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C –C_4 alkyl, C_1–C_3 alkoxy, C_2 C_6 dialkylamino, or NHC(O)C_6H_5; and X_6 is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_2–C_6 dialkylamino, or NHC(O)C_6H_5;

(b)



wherein X_5, X_8, X_9 have the meanings defined above;

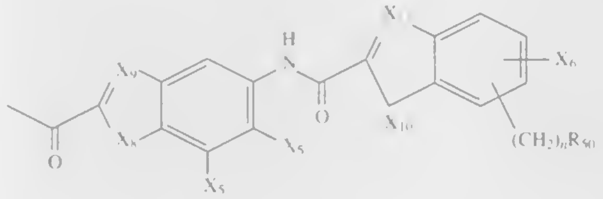
(c)



wherein X_5, X_6, X_8, X_9 have the meanings defined above;

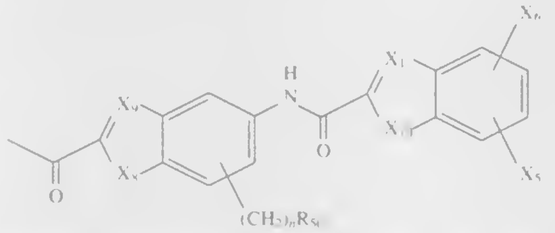
wherein R'_{15} is a carbonylaryl group selected from the group consisting of

(d)



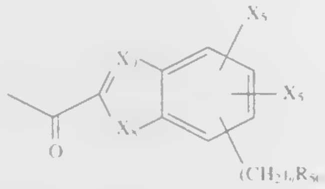
wherein 8 is —O—, —S—, —NH—; X_9 is —CH— or N; X_{10} is —O—, —S—, —NH—; X_{11} is —C— or —N—; X_5 is the same or different and is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_2–C_6 dialkylamino, or NHC(O)C_6H_5; X_6 is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_2–C_6 dialkylamino, or NHC(O)C_6H_5; n and R_{50} have the meanings defined above;

(e)



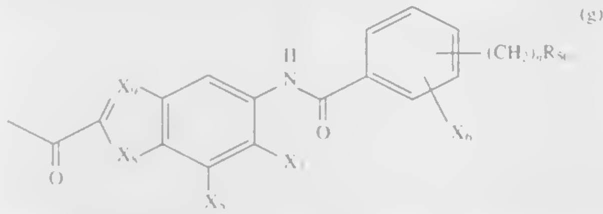
wherein X_8 is —O—, —S—, —NH—, X_9 is —CH— or N; X_{10} is —O—, —S—, —NH—; X_{11} is —CH— or —N—; X_5 is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_2–C_6 dialkylamino, or NHC(O)C_6H_5; X_6 is H, OCH_3, NO_2, NHC(O)CH_3, OH, halo, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_2 C_6 dialkylamino, or NHC(O)C_6H_5; n and R_{50} have the meanings defined above;

(f)



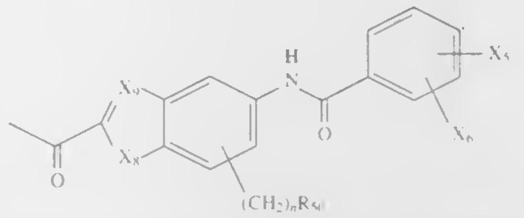
wherein X_5, X_8, X_9, n and R_{50} have the meanings defined above;

(g)



wherein X_5, X_6, X_8, X_9, n and R_{50} have the meanings defined above;

(h)



wherein X_5, X_6, X_8, X_9 n and R_{50} have the meanings defined above.

5,739,351
PERHYDROISOINDOLE DERIVATIVES AS SUBSTANCE P ANTAGONISTS

Daniel Achard, Thiais; Jean-François Peyronel, Palaiseau, and Michel Tabart, Paris, all of France, assignors to Rhône-Poulenc Rorer S.A., Antony, France

PCT No. PCT/FR95/01577, § 371 Date May 30, 1997, § 102(e) Date May 30, 1997, PCT Pub. No. WO96/16939, PCT Pub. Date Jun. 6, 1996

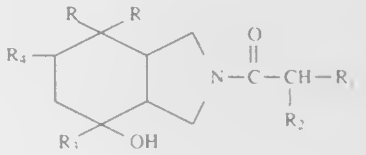
PCT Filed Nov. 29, 1995, Ser. No. 849,177

Claims priority, application France, Nov. 30, 1994, 94 14345

Int. Cl.⁶ C07D *209/44;* **A61K** *31/40*

U.S. Cl. 548—465 **8 Claims**

1. A perhydroisoindole derivative of the formula



in which

R_1 represents a phenyl radical which is unsubstituted or substituted with one or more halogen atoms or hydroxyl radicals, alkyl radicals which may be unsubstituted or substituted (with halogen atoms or with amino, alkylamino or dialkylamino radicals), alkyloxy or alkylthio radicals which may be unsubstituted or substituted {with hydroxyl, amino, alkylamino or dialkylamino radicals which are unsubstituted or substituted (with phenyl, hydroxyl or amino radicals), or dialkylamino radicals in which the alkyl moieties form, together with the nitrogen atom to which they are attached, a 5- to 6-membered heterocycle which can contain another heteroatom selected from oxygen, sulphur and nitrogen, which is unsubstituted or substituted with an alkyl, hydroxyl or hydroxyalkyl radical)}, or substituted with amino radicals or with alkylamino or dialkylamino radicals in which the alkyl moieties can form, together with the nitrogen atom to which they are attached, a heterocycle as defined above, or represents a cyclohexadienyl, naphthyl or indenyl radical or a saturated or unsaturated, mono- or polycyclic heterocyclic radical containing 5 to 9 carbon atoms and one or more heteroatoms selected from oxygen, nitrogen and sulphur, and unsubstituted or substituted with a halogen atom or with an alkyl or alkyloxy radical,

R_2 represents a hydrogen or halogen atom or a hydroxyl, alkyl, amino, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, alkyloxy, alkylthio, acyloxy, carboxyl, alkyloxycarbonyl, dialkylaminoalkyloxycarbonyl, benzyloxycarbonyl or acylamino radical,

R_3 represents a phenyl radical which is unsubstituted or substituted in position 2 with an alkyl or alkyloxy radical containing 1 or 2 carbon atoms, a hydroxyl radical or a fluorine atom, or is disubstituted with trifluoromethyl radicals, and

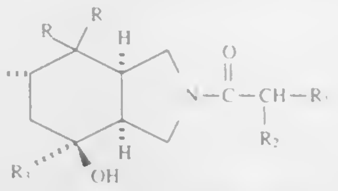
R_4 represents an alkyl radical containing 1 or 2 carbon atoms which is substituted with a halogen atom or with a cyano, azido or cyanamido radical, and

R is identical or different and represents a hydrogen atom or an alkyl or phenyl radical,

wherein the abovementioned acyl and alkyl radicals are (unless specified otherwise) straight or branched and contain 1 to 4 carbon atoms,

wherein the perhydroisoindole derivative is in a racemic form, in its stereoisomeric forms of the structure

(Ia)



in its (R) or (S) forms on the chain —CHR_1R_2, or in the form of a mixture of two or more of these forms, or salts thereof

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5,739,352
PROCESS FOR PREPARING CARBOXYLIC ACIDS

Bruce Armin Barner, Alum Creek, and Jonathan Joshua Kurland, Charleston, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Oct. 19, 1995, Ser. No. 545,308

Int. Cl.⁶ C07D *209/12;* **C07C** *51/255*

U.S. Cl. 548—472 **5 Claims**

1. A process for producing a carboxylic acid which process comprises oxidizing an aldehyde with a peracid in the presence of an amine and/or amine N-oxide catalyst selected from the group consisting of a substituted or unsubstituted alkyl amine, alkyl amine N-oxide, aromatic amine, aromatic amine N-oxide, heterocyclic amine, heterocyclic amine N-oxide and mixtures thereof, to produce the carboxylic acid, wherein said amine and/or amine N-oxide catalyst has a basicity sufficient to catalyze said oxidizing of the aldehyde to the carboxylic acid, and provided that when the peracid is performic acid, the aldehyde is other than an aromatic or heteroaromatic aldehyde.

5,739,353
N-ARYLINDOLES AND THEIR USE AS HERBICIDES

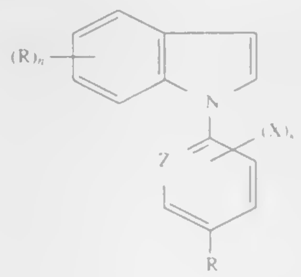
Ferenc M. Pallos, Walnut Creek, and Christopher J. Mathews, San Francisco, both of Calif., assignors to Zeneca Limited, London, England

Continuation of Ser. No. 991,617, Dec. 31, 1992, Pat. No. 5,599,774, which is a continuation-in-part of Ser. No. 987,854, Dec. 9, 1992, Pat. No. 5,395,817, which is a continuation-in-part of Ser. No. 823,635, Jan. 22, 1992, abandoned. This application Nov. 1, 1996, Ser. No. 743,457

Int. Cl.⁶ C07D *209/04, 209/12, 209/14, 209/18*

U.S. Cl. 548—503 **10 Claims**

1. A compound having the formula



in which

R is halogen, nitro; cyano; (C C_6)alkyl, (C C_6)alkoxy (C₂ C_6)alkenyloxy; (C_2 C_6)-alkynyloxy, (C_1 C_6)alkoxy(C_1 C_6)alkyl, carbonyl(C –C_6)alkoxy, (C_1 C_6)alkyloxy(C_1 C_6)alkoxy; cyano(C_1 C_6)alkoxy, benzyloxy, (C_1 C_6)alkoxycarbonyl(C_1 –C_6)alkoxy;

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(C_1-C_6)alkylcarbonyl(C_1-C_6)alkoxy, halo(C_1-C_6)alkyl; hydroxy$(C-C_6)$alkyl, formyl; azido; carboxy or a salt thereof; amino; substituted amino having at least one substituent selected from the group consisting of (C_1-C_6)alkyl, (C_1-C_6)alkoxy, hydroxy, formyl, $(C-C_6)$alkylcarbonyl, substituted (C_1-C_6)alkylcarbonyl substituted with carboxy or (C_1-C_6)alkoxycarboxy, (C_1-C_6)alkylsulfonyl, halo(C_1-C_6)alkylsulfonyl, aminocarbonyl, (di) (C_1-C_6)alkylaminocarbonyl, (C_1-C_6)alkoxycarbonyl, (C_1-C_6)alkoxy(C_1-C_6)alkyl, hydroxycarbonyl(C_1-C_6)alkyl, (C_1-C_6)alkoxycarbonyl(C_1-C_6)alkyl, amino and (di) (C_1-C_6)alkylamino; carboxyamido; substituted carboxyamido having at least one substituent selected from the group consisting of (C_1-C_6)alkyl, (C_1-C_6)alkylsulfonyl, and halo(C_1-C_6)alkylsulfonyl, sulfonamido wherein the N is unsubstituted or substituted with (C_1-C_6)alkyl; YR^4 wherein Y is O or $S(O)_m$ and R^4 is selected from the group consisting of hydrogen, (C_1-C_6)alkyl, halo(C_1-C_6)alkyl, cyano(C_1-C_6)alkyl(C_1-C_6)alkoxycarbonyl(C_1-C_6)alkyl, hydroxycarbonyl(C_1-C_6)alkyl and aminocarbonyl(C_1-C_6)alkyl wherein the N is unsubstituted or substituted with (C_1-C_6)alkyl;

n is 0 to 4 and

m is 0 to 2;

X is halogen, cyano, nitro, (C_1-C_6)alkylthio, (C_1-C_6)alkylsulfinyl, (C_1-C_6)alkyl sulfonyl, or (C_1-C_6) alkoxy;

k is 0 to 2,

Z is $C—R^2$; wherein R^2 is hydrogen, halogen, halo(C_1-C_6)alkyl, cyano, nitro, (C_1-C_6)alkylthio, (C_1-C_6)alkylsulfinyl, (C_1-C_6)alkylsulfonyl, or (C_1-C_6)alkoxy;

R^3 is halo(C_1-C_6)alkyl, halo(C_1-C_6)alkoxy, cyano, halogen, or SO_yR^5 wherein R^5 is (C_1-C_6)alkyl or halo(C_1-C_6)alkyl and y is 0, 1 or 2;

with the proviso that when n and k are both zero and R^2 is hydrogen, R^3 is not cyano;

with the further proviso that when n is 0 or 1, k is 0 and R^2 is hydrogen, R^3 is not fluoro or CH_2Cl.

or an agriculturally acceptable salt thereof

5,739,354

PROCESS FOR THE PREPARATION OF N-METHYL-D-PHENYLALANYL-N-[1-[3-[(AMINOIMINOMETHYL)AMINO[PROPYL]-3,3-DIFLUORO-2-OXOHEXYL]-L-PROLINAMIDE

Duane E. Rudisill, West Chester, Ohio, assignor to Hoechst Marion Roussel, Inc., Cincinnati, Ohio

Filed Jan. 23, 1997, Ser. No. 786,997

Int. Cl.^{6} C07D *207/08;* **C07C** *215/06*

U.S. Cl. 548—537 **20 Claims**

1. A process for preparing N-methyl-D-phenylalalyl-N-[1-[3-[(aminoiminomethyl)amino]propyl]-3,3-difluoro-2-oxohexyl] -L-prolinamide or a pharmaceutically acceptable salt thereof comprising the steps of

(a) reacting 9,6-diamino-5-hydroxy-4,4-difluorononane, or a pharmaceutically acceptable salt thereof, with an appropriate guanylating agent to provide N-9-[1-[3-[bis(K_1-protected)amino] methylene]amino]-6-amino-5-hydroxy-4,4-difluorononane, wherein K_1 is an N-protecting group suitable for protecting the nitrogens of guanyl moieties;

(b) coupling the N-9-[1-[3-[bis(K_1-protected)amino]-methylene] amino]-6-amino-5-hydroxy-4,4-difluorononane with N-K_2-protected-N-methyl-D-phenylalanyl-L-prolinamide to provide N-K_2-protected-N-methyl-D-phenylalanyl-N-[1-[3-[[bis[(K_1-protected)amino]methylene]amino]propyl]-3,3-difluoro-2-hydroxyhexyl]-L-prolinamide, wherein K_2 is an N-protecting group;

(c) reacting N-K_2-protected N-methyl-D-phenylalanyl-N-[1-[3-[[bis[(K_1-protected)amino]methylene]amino]propyl]-3,3-difluoro- 2-hydroxyhexyl]-L-prolinamide with an appropriate oxidizing agent to provide N-K_2-protected-N-methyl-D-phenylalanyl-N-[1-[3-[[bis[(K_1-protected)amino]methylene]-amino] propyl]-3,3-difluoro-2-oxohexyl]-L-prolinamide; and

(d) deprotecting N-K_2-protected-N-methyl-D-phenylalanyl-N-[1-[3-[[bis[(K_1-protected)amino]methylene]amino]propyl]-3,3-difluoro- 2-oxohexyl]-L-prolinamide with a suitable deprotecting agent to provide N-methyl-D-phenylalanyl-N-[1-[3-[(aminoiminomethyl)amino]propyl]-3,3-difluoro-2-oxohexyl] -L-prolinamide or a pharmaceutically acceptable salt thereof.

5,739,355

PROCESS FOR PRODUCTION OF POLYISOBUTENYLSUCCINIC ANHYDRIDES WITHOUT FORMATION OF RESINS

Patrick Gateau; Daniel Binet, both of Maurepas, and Jean-Pierre Durand, Chatou, all of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France

Filed Feb. 14, 1996, Ser. No. 601,402

Claims priority, application France, Feb. 15, 1995, 95 01815

Int. Cl.^{6} C07D *307/60*

U.S. Cl. 549—255 **19 Claims**

1. A process comprising contacting under ene-synthesis reaction conditions at least one polyisobutene having a content of external double bonds that is greater than 50%, with at least one unsaturated dicarboxylic anhydride which is maleic anhydride or maleic anhydride substituted by 1 or 2 methyl groups, in at least one aromatic solvent that is toluene or a xylene; said aromatic solvent being employed at a ratio of 35 to 60% by weight relative to the reaction medium, whereby a polyisobutenylsuccinic anhydride is produced.

5,739,356

LACTONES USEFUL AS INTERMEDIATES FOR PREPARING LUBRICATING OIL AND FUEL ADDITIVES

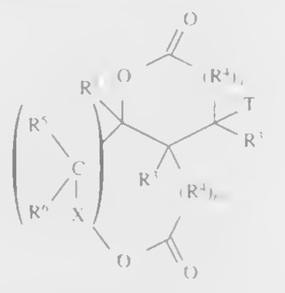
Jeffry G. Dietz, University Heights; Mark R. Baker, Lyndhurst, and Paul E. Adams, Willoughby Hills, all of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Division of Ser. No. 517,893, Aug. 22, 1995, abandoned. This application Nov. 21, 1996, Ser. No. 754,639

Int. Cl.^{6} C07D *493/04*

U.S. Cl. 549—285 **58 Claims**

1. A composition comprising compounds of the formula



wherein n=0; y=0 or 1;

wherein X is a divalent hydrocarbyl group selected from the group consisting of

$>C(R^6)(C(R^5)(R^7)(R^8))$ when y=0, and

$>C(R^7)(R^8)$ when y=1

wherein R^1 is H or a hydrocarbon based group,

each R^3 is independently H or hydrocarbyl,

each R^4 is independently a divalent hydrocarbylene group;

R^5 is H or hydrocarbyl,

each of R^6, R^7 and R^8 is independently H or a hydrocarbon based group, and T is —OH

5,739,357

Patent Not Issued For This Number

5,739,358

SYNTHESIS OF ACETOGENINS

Thomas R. Hoye, St. Paul, and Zhixiong Ye, Minneapolis, both of Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

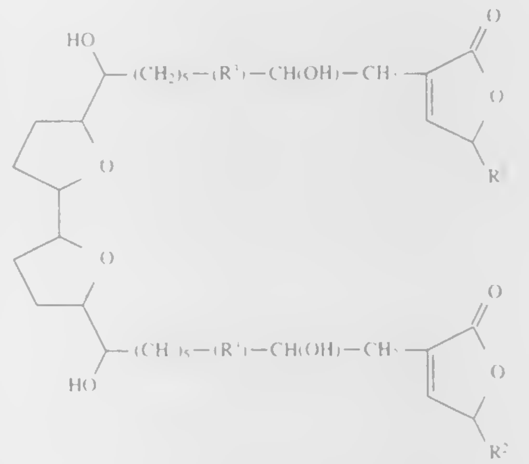
Division of Ser. No. 724,858, Oct. 3, 1996, Pat. No. 5,677,467. This application May 13, 1997, Ser. No. 854,968

Int. Cl.^{6} C07D *307/58*

U.S. Cl. 549—320 **7 Claims**

1. A method for preparing a bis-tetrahydrofuranyl acetogenin of formula (I):

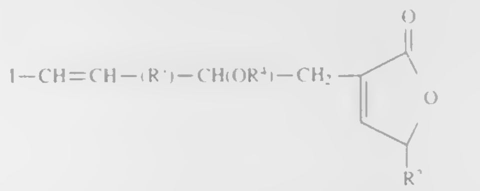
(I)



wherein R^1, R^2 and R^3 are alkyl or aryl, comprising

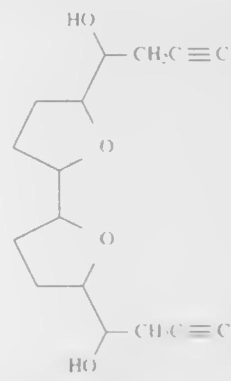
(a) coupling a vinyl iodide of formula II

(II)



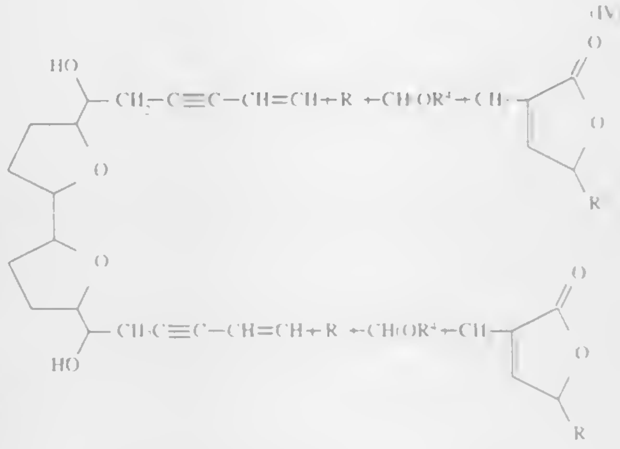
wherein R^4 is a removable hydroxy protecting group, with a compound of formula (III):

(III)



in the presence of an effective amount of palladium catalyst, CuI and a base, in an organic solvent, to yield an enyne of the formula IV:

(IV)


HO
$CH_2-C\equiv C-CH=CH+R+CH(OR^4)+CH_2$
O
O
O
R
O
$CH_2C\equiv C-CH=CH+R+CH(OR^4)+CH_2$
HO
O
O
R

(b) hydrogenating the bis-enyne of formula IV, and

(c) removing the hydroxy protecting groups to yield the compound of formula I

5,739,359

METHODS FOR PREPARING 1-DEOXY PACLITAXELS

David G. I. Kingston, Blacksburg; Mahendra D. Chordia, Charlottesville, and Prakash G. Jagtap, Blacksburg, all of Va., assignors to Virginia Tech Intellectual Properties, Inc., Blacksburg, Va.

Continuation-in-part of Ser. No. 788,274, Jan. 24, 1997. This application Apr. 14, 1997, Ser. No. 840,171

Int. Cl.^{6} C07D *309/08 305/14*

U.S. Cl. 549—358 **11 Claims**

1. A method for preparing 1-deoxy-7,9-acetonide paclitaxel analogues comprising:

a. deacetylating 1-deoxybaccatin VI to form a 7,9,10-trisdeacetyl derivative;

b. modifying the 7,9,10-trisdeacetyl derivative to form a 7,9-acetonide derivative;

c. protecting an hydroxy substituent at C-10 of 1-deoxybaccatin VI with a hydroxy protecting group;

d. forming a C-13 deacetyl derivative of the product of step c;

e. esterifying the C-13 deacetyl derivative of step d by reaction with a 3 -hydroxy-4-phenyl β-lactam, wherein the 3-hydroxy group is protected with a protecting group; and

f. deprotecting both the C-2′ position resulting from step e, and the C-10 position.

5. A method for preparing 1-deoxy-7,9-benzylidene acetal paclitaxel analogues comprising.

a. deacetylating 1-deoxybaccatin VI to form a 7,9,10-trisdeacetyl derivative;

b. modifying the 7,9,10-trisdeacetyl derivative to form a 7,9-benzylidene acetal derivative.

c. protecting an hydroxy substituent at C-10 of 1-deoxybaccatin VI with a hydroxy protecting group.

d. forming a C-13 deacetyl derivative of the product of step c;

e. esterifying at the C-13 position of the deacetyl derivative of step d by reaction with a 3-hydroxy-4-phenyl β-lactam, wherein the 3-hydroxy substituent is protected with a hydroxy protecting group; and

f. deprotecting both the C-2′ position resulting from step e, and the C-10 position.

9. A method for forming 1-deoxy docetaxel comprising

a. selectively cleaving an acetoxy group from C-13 of 1-deoxybaccatin VI to form 13-deacetyl-1-deoxybaccatin VI,

b. coupling the product of step a with a 3-silyl ester-4-phenyl β-lactam to form a C-13 ester, and

c. deacetylating the 7, 9, and 10 positions of the product of step b.

11. A method for forming 7,9-diacetyl-1-deoxy-9(R)-dihydropaclitaxel comprising

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- a. selectively cleaving an acetoxy group from C-13 of 1-deoxybaccatin VI to form 13-deacetyl-1-deoxybaccatin VI;
- b. coupling the product of step a with N-benzyl-3-triethylsilyloxy-4-phenyl β-lactam to form an ester at C-13; and
- c. selectively removing the triethylsilyl hydroxy protecting group from C-2' of the product of step b.

5,739,360
INTERMEDIATES FOR THE SYNTHESIS OF BISPHOSPHINE COMPOUNDS

Wolfram Sirges, Düsseldorf; Christian Laue, Monheim; Dieter Arlt, Köln, and Rolf Grosser, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

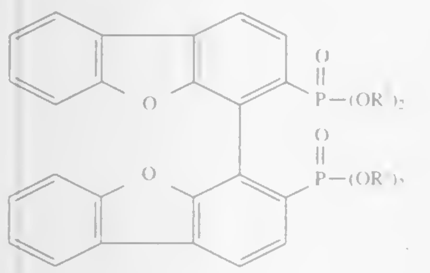
Filed Sep. 16, 1996, Ser. No. 714,747

Claims priority, application Germany, Sep. 22, 1995, 195 35 243.2

Int. Cl.^{6} C07D *307/91*

U.S. Cl. 549—460 7 Claims

1. Bisphosphonates of the general formula (I)



(I)

in which

R^1 is linear or branched alkyl having up to 6 carbon atoms, aryl or aralkyl, each of which can optionally be substituted, or two radicals R^1 together are a bridging hydrocarbon radical having up to 6 carbon atoms,

in the form of their racemates or as enantiomers.

5,739,361
PROCESS FOR THE PREPARATION OF FUROSEMIDE

Angelo Signor, Padua; Alfredo Guerrato, Trissino, and Giovanni Signor, Padua, all of Italy, assignors to Proteos S.r.L., Padua, Italy

PCT No. PCT/EP95/04153, § 371 Date Apr. 23, 1997, § 102(e) Date Apr. 23, 1997, PCT Pub. No. WO96/12714, PCT Pub. Date May 2, 1996

PCT Filed Oct. 23, 1995, Ser. No. 817,569

Claims priority, application Italy, Oct. 24, 1994, MI94A2171

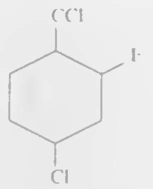
Int. Cl.^{6} C07D *307/54*, **C07C** *25/13*

U.S. Cl. 549—494 10 Claims

1. A process for the preparation of furosemide comprising the following steps.

- A) 4-chloro-2-fluoro-toluene (II) is photochlorinated to give 4-chloro-2-fluoro-benzotrichloride (III).
- B) 4-chloro-2 fluoro benzotrichloride (III) obtained in step (A) is chlorosulfonylated by treatment with sulfuric chlorohydrin in the presence of sulfuric acid and the resulting product is ammonolyzed by treatment with ammonium hydroxide to give 4-chloro-2-fluoro-5 sulfamoyl benzoic acid (IV);
- C) 4-chloro-2-fluoro-5-sulfamoyl benzoic acid (IV) obtained in step (B) is condensed with furfurylamine to give furosemide (I).

10. 4-Chloro-2-fluoro-benzotrichloride of formula (III):



(III)

5,739,362
TAXANES HAVING AN ALKOXY, ALKENOXY OR ARYLOXY SUBSTITUTED SIDE-CHAIN AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

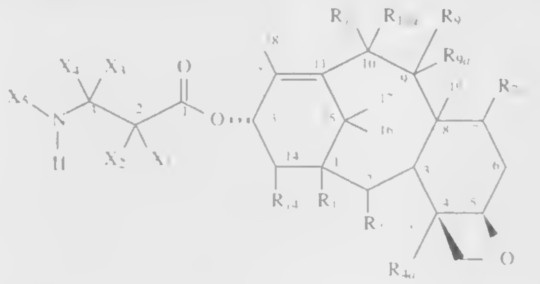
Robert A. Holton, Tallahassee, Fla.; Ki-hyung Chai, Seoul, Rep. of Korea; Hamid Idmoumaz, Villeurbanne, France; Hossain Nadizadeh, Tallahassee, Fla.; Kasthuri Rengan, Rego Park, N.Y.; Yukio Suzuki, and Chunlin Tao, both of Tallahassee, Fla., assignors to Florida State University, Tallahassee, Fla.

Continuation-in-part of Ser. No. 34,852, Mar. 22, 1993, abandoned, and Ser. No. 863,198, Apr. 3, 1992, Pat. No. 5,243,045, and a continuation of Ser. No. 94,717, Jul. 20, 1993, abandoned, which is a continuation-in-part of Ser. No. 34,247, Mar. 22, 1993, Pat. No. 5,430,160, which is a continuation-in-part of Ser. No. 949,107, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 863,849, Apr. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 862,955, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 763,805, Sep. 23, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 461,103

Int. Cl.^{6} C07D *305/14*

U.S. Cl. 549—510 32 Claims

1. A taxane having the formula



wherein

X$_1$ is —OX$_6$, —SX$_7$, or —NX$_8$X$_9$;
X$_2$ is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl.
X$_3$ and X$_4$ are independently hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
X$_5$ is —COOX$_{10}$.
X$_6$ is hydrogen; substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl; or hydroxy protecting group;
X$_7$ is substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl; or sulfhydryl protecting group;
X$_8$ is hydrogen; substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl; or heterosubstituted alkyl, alkenyl, alkynyl, aryl or heteroaryl;
X$_9$ is an amino protecting group.
X$_{10}$ is substituted or unsubstituted n-propyl, isopropyl, cyclopropyl, n-butyl, isobutyl, sec-butyl, or cyclobutyl; or a substituted or unsubstituted alkyl comprising five to ten carbon atoms.
R$_1$ is hydroxy, protected hydroxy or together with R$_{14}$ forms a carbonate;
R$_2$ is hydroxy or —OCOR$_{31}$.
R$_{4a}$ is hydrogen; substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl, cyano, hydroxy; or —OCOR$_{30}$;
R$_{7a}$ is hydrogen, halogen, or —OR$_{28}$.
R$_9$ is hydrogen or together with R$_{9a}$ forms an oxo.

R$_{9a}$ is hydrogen, hydroxy, protected hydroxy, acyloxy, or together with R$_9$ forms an oxo;
R$_{10}$ is hydrogen or together with R$_{10a}$ forms an oxo.
R$_{10a}$ is hydrogen, —OCOR$_{29}$, hydroxy, or protected hydroxy, or together with R$_{10}$ forms an oxo.
R$_{14}$ is hydrogen, hydroxy, protected hydroxy or together with R$_1$ forms a carbonate;
R$_{28}$ is hydrogen, acyl, or hydroxy protecting group; and
R$_{29}$, R$_{30}$, and R$_{31}$ are independently hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, monocyclic aryl or monocyclic heteroaryl.

5,739,363
ISOMERISATION OF EQUILIN

Petrus Hendricus Raijmakers, Uden, Netherlands, assignor to Akzo Nobel, N. V., Arnhem, Netherlands

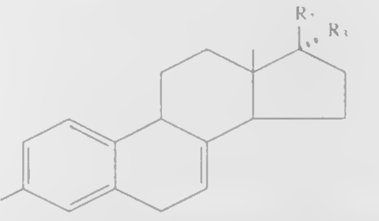
Filed Nov. 6, 1996, Ser. No. 744,513

Claims priority, application European Pat. Off., Nov. 6, 1995, 95202990

Int. Cl.^{6} C07J *1/00*

U.S. Cl. 552—625 12 Claims

1. A method for the isomerisation of equilin or a derivative thereof according to the general formula I:



I

wherein R$_1$ is H, alkyl, acyl or silyl(alkyl)$_3$; R$_2$ is H and R$_3$ is OH, O-acyl, O-alkyl or O-silyl(alkyl)$_3$, or R$_3$ is H and R$_2$ is OH, O-acyl, O-alkyl or O-silyl(alkyl)$_3$, or R$_2$ and R$_3$ together represent O, or R$_2$ and R$_3$ together represent acetal or cyclic acetal;

to delta(8,9)-dehydro estrone or a derivative thereof, said method comprising treating equilin or the derivative thereof with a lithium salt of ethylenediamine or with lithium amide in dimethylsulfoxide.

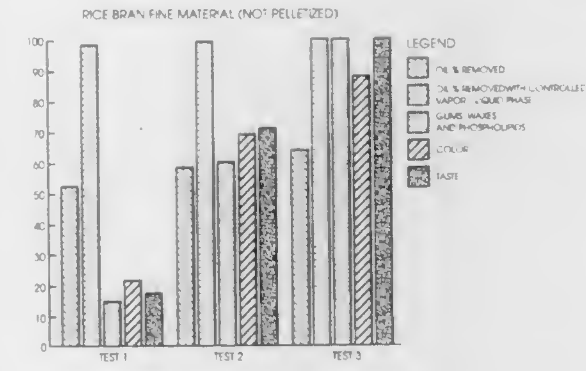
5,739,364
METHOD FOR EXTRACTING FATTY COMPONENTS FROM COOKED FOODS

Henry L. Franke, Baton Rouge, La., assignor to University Research & Marketing, Baton Rouge, La.

Division of Ser. No. 256,258, Jun. 30, 1994, Pat. No. 5,525,746, which is a continuation-in-part of Ser. No. 815,700, Dec. 31, 1991, Pat. No. 5,281,732. This application Jun. 10, 1996, Ser. No. 660,770

Int. Cl.^{6} C07C *1/00*

U.S. Cl. 554—16 17 Claims



1. A process for extracting fat from a fat-containing cooked food product, which process comprises treating the cooked food product with a normally gaseous solvent selected from the group consisting of methane, ethane, ethylene, propylene, butylene, sulfur dioxide, carbon dioxide, CHF$_3$, CClF$_3$, CFBr$_3$, CF$_2$=CH$_2$, CF$_3$—CF$_2$ CF$_3$, CF$_4$, CF$_4$, CH$_3$—CF$_2$, CHCl$_2$, ammonia, nitrogen, dichlorodifluor methane, dimethylether, methyl fluoride, and normally gaseous halogenated hydrocarbons and separating fat-laden solvent from said cooked food product of reduced fat content

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5,739,365
METHOD FOR PREPARING AMMONIUM HYDROXYALKYL SULFONATES AND AMMONIUM ALKANOYL ALKYL SULFONATES PRODUCED THEREFROM

Robert G. Briody, Apollo, Pa.; Amy E. Doty, Crystal Lake, Ill.; Cheruthur Govindan, Murrysville; Louis J. Nehmsmann, Apollo, both of Pa., and Alan E. Wang, Hoffman Estates, Ill., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 289,456, Aug. 12, 1994, abandoned, which is a continuation of Ser. No. 85,062, Jun. 29, 1993, abandoned, which is a continuation-in-part of Ser. No. 721,741, Jun. 26, 1991, abandoned. This application Jul. 28, 1995, Ser. No. 509,018

Int. Cl.^{6} C07C *53/00*

U.S. Cl. 554—92 20 Claims

1. A method for producing ammonium alkanoyloxy alkyl sulfonate of the general formula,

$$RC(O)OR'SO_3M$$

wherein R is a monovalent hydrocarbon residue of a fatty acid containing from 6 to 24 carbon atoms, R' is a bivalent hydrocarbon radical containing from 2 to 4 carbon atoms, and M is the ammonium cation, comprising,

- (a) reacting an aqueous solution of ammonium bisulfite with an alkylene oxide containing from 2 to 4 carbon atoms while maintaining the solids concentration of the reaction mixture at less than 70 weight percent and the pH of the reaction mixture in the range of 4.3 to 7 until the reaction is at least 90 percent complete, as measured by the amount of residual sulfite in the reaction mixture, thereby to produce a product consisting essentially of ammonium hydroxyalkyl sulfonate of the general formula,

$$HOR'SO_3M$$

  wherein R' and M are as defined above, said product containing alkylene glycol by-product;
- (b) stripping ammonium hydroxyalkyl sulfonate prepared in a) to remove alkylene glycol, and
- (c) reacting ammonium hydroxyalkyl sulfonate having not more than 1 weight percent alkylene glycol, not more than 2 weight percent alkanolamine, and not more than about 2 weight percent ammonium sulfate, all based on the weight of the ammonium hydroxyalkyl sulfonate, with a fatty acid containing from 6 to 24 carbon atoms at temperatures in the range of from 150° to 200° C., thereby to produce an ammonium alkanoyloxy alkyl sulfonate of the above general formula, a 30 weight percent aqueous solution of which is non turbid at room temperature

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5,739,366
TRANSITION METAL COMPOUND CONTAINING SUBSTITUTED INDENYL RINGS

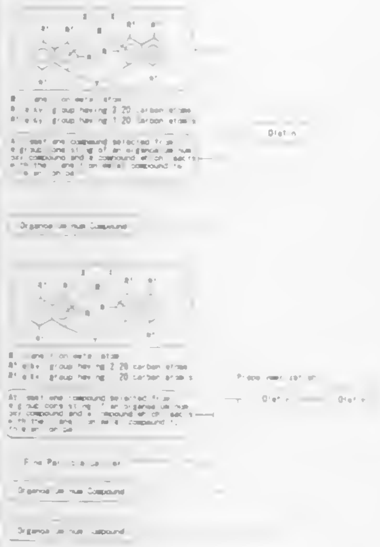
Junichi Imuta; Junji Saito; Takashi Ueda; Yoshihisa Kiso; Akira Mizuno, and Masaaki Kawasaki, all of Yamaguchi, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Division of Ser. No. 255,713, Jun. 7, 1994, Pat. No. 5,504,172. This application Jun. 7, 1995, Ser. No. 479,606

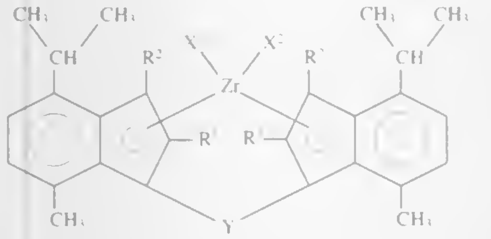
Claims priority, application Japan, Jun. 7, 1993, 5-136255; Jun. 28, 1993, 5-157367; Sep. 24, 1993, 5-238562; Oct. 6, 1993, 5-250743; Nov. 22, 1993, 5-292071

Int. Cl.^{6} C08F *4/64;* **C07F** *7/00*

U.S. Cl. 556—11 **4 Claims**



1 A transition metal compound represented by the following formula.



wherein R^1 and R^2 are each a hydrogen atom or a hydrocarbon group of 1 to 3 carbon atoms;

X^1 and X^2 are each a halogen atom; and

Y is a divalent silicon-containing group selected from the group consisting of dimethylsilylene. diphenylsilylene and methylphenylsilylene

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5,739,367
COBALT CATALYST

John Frederick Carr, Abbeymead, and Derek Pakenham, Headingley Leeds, both of United Kingdom, assignors to Rhone-Poulenc Chemicals Ltd., Hertfordshire, United Kingdom

PCT No. PCT/GB96/01986, § 371 Date Jul. 21, 1997, § 102(e) Date Jul. 21, 1997, PCT Pub. No. WO97/07124, PCT Pub. Date Feb. 27, 1997

PCT Filed Aug. 14, 1996, Ser. No. 817,295

Claims priority, application United Kingdom, Aug. 15, 1995, 9516683; Mar. 5, 1996, 9604721

Int. Cl.^{6} C07F *15/06*

U.S. Cl. 556—147 **15 Claims**

1. A process for preparing a cobalt III complex which comprises.

(i) treating a divalent cobalt salt of formula $Co^{II}X_{2/n}$ where n is the valency of an anion X, with up to 15 molar equivalents of ammonia or an amine;

(ii) oxidising the resulting amine complex;

(iii) converting the oxidised complex to the corresponding carboxylate of formula $[Co^{III}(NR_3)_5R^1COO]X_{2/n}$ where each R, which may be the same or different, represents hydrogen or an optionally substituted hydrocarbon group and R^1 represents an alkyl or alkenyl group of 1 to 18 carbon atoms, at a pH above 8.5; and optionally

(iv) replacing the X ion by a different anion by a metathetical reaction.

13 A cobalt complex of the formula $[Co^{III}(NR_3)_5R^1COO]X_{2/n}$ where each R, which may be the same or different, represents hydrogen or an unsubstituted or substituted hydrocarbon group, R^1 represents methyl, X represents fluoroborate or methane sulphonate and n is the valency of X.

5,739,368
USE OF HEAT TREATED ALUMOXANES IN PREPARING SUPPORTED CATALYSTS

Niomi L. Krzystowczyk; Steven P. Diefenbach, and Edward A. Burt, all of Baton Rouge, La., assignors to Albemarle Corporation, Richmond, Va.

Filed May 10, 1996, Ser. No. 644,764

Int. Cl.^{6} C07F *5/06; 17/00*

U.S. Cl. 556—187 **19 Claims**

1. A process for preparing a supported alumoxane, said process comprising heat treating an alumoxane and placing the heat treated alumoxane on a support.

8 A supported catalyst comprising an olefin polymerization catalyst and an alumoxane, said alumoxane, prior to being used in forming the supported catalyst, having been heat treated for a time and at a temperature such that said catalyst has increased activity as compared to a corresponding catalyst made from alumoxane which has not been heat treated

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5,739,369
WATER-SOLUBLE SURFACE TREATING AGENTS

Kazuyuki Matsumura; Mitsuo Asai, and Shoji Ichinohe, all of Usui-gun, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

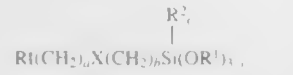
Filed Apr. 19, 1996, Ser. No. 634,829

Claims priority, application Japan, Apr. 20, 1995, 7-119304; Nov. 24, 1995, 7-329860

Int. Cl.^{6} C07F *7/10*

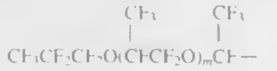
U.S. Cl. 556—425 **24 Claims**

1. A water-soluble surface treating agent comprising as a main ingredient a reaction product of (A) a fluoroalkyl group-containing alkoxysilane of the formula (1):



$$Rf(CH_2)_aX(CH_2)_b\overset{R^2_c}{\overset{|}{Si}}(OR^1)_{3-c} \qquad (1)$$

wherein Rf is C_nF_{2n+1} or a polyfluoroalkyl group represented by



$$CF_3CF_2CF_2O(\overset{CF_3}{\overset{|}{CF}}CF_2O)_m\overset{CF_3}{\overset{|}{CF}}—$$

wherein n is an integer of 1 to 20 and m is an integer of at least 1.

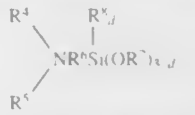
X is at least one linkage group selected from the group consisting of —CH$_2$—, —CH$_2$O—, —NR^3—, —CO$_2$—, —CONR^3—, —S—, —SO$_3$—, and —SO$_2$NR^3— wherein R^3 is a hydrogen atom or alkyl group of 1 to 8 carbon atoms.

R^1 is an alkyl group having 1 to 4 carbon atoms.

R^2 is an alkyl group having 1 to 4 carbon atoms.

letter a is an integer of 0 to 3, b is an integer of 1 to 3, and c is equal to 0 or 1 and/or a partial hydrolyzate thereof and

(B) an amino group-containing alkoxysilane of the formula (2):



(2)

wherein R^4 and R^5 are independently selected from the class consisting of a hydrogen atom, alkyl group having 1 to 15 carbon atoms, and aminoalkyl group having 1 to 15 carbon atoms,

R^6 is a divalent hydrocarbon group having 1 to 18 carbon atoms.

R^7 is an alkyl group having 1 to 4 carbon atoms.

R^8 is an alkyl group having 1 to 4 carbon atoms. and

letter d is equal to 0 or 1 and/or a partial hydrolyzate thereof

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5,739,370
PROCESS THE PRODUCTION OF OCTAPHENYLCYCLOTETRASILOXANE

John S. Razzano, Cohoes, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Apr. 29, 1997, Ser. No. 825,863

Int. Cl.^{6} C07F *7/08*

U.S. Cl. 556—461 **21 Claims**

1. A process for the production of octaphenylcyclotetrasiloxane consisting essentially of:

(a) reacting a dihalodiphenylsilane having the formula, $(C_6H_5)_2Si(X)_2$ where X is a halogen selected from group consisting of Cl, Br, and I with an alcohol having the formula ROH where R is a monovalent hydrocarbon radical having from one to ten carbon atoms thereby producing a dialkoxydiphenylsilane having the formula $(C_6H_5)_2Si(OR)_2$ where R is as previously defined;

(b) mixing the dialkoxydiphenylsilane with a solvent wherein octaphenylcyclotetrasiloxane is sparingly soluble to form a mixture;

(c) adding thereto a base as a catalyst in an amount to provide a base concentration of about 1 to about 5,000 ppm and water to hydrolyze the dialkoxydiphenylsilane and

(d) refluxing the mixture whereby octaphenylcyclotetrasiloxane precipitates from the solvent

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5,739,371
CARBOXY SILICONE AMPHOTERIC SURFACTANT COMPLEXES

Anthony J. O'Lenick, Jr., Lilburn, Ga., assignor to Lambent Technologies Inc., Norcross, Ga.

Filed Jul. 7, 1997, Ser. No. 888,891

Int. Cl.^{6} C07F *7/10*

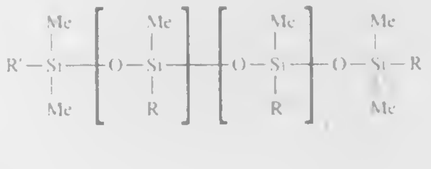
U.S. Cl. 556—418 **17 Claims**

1. A carboxy silicone amphoteric complex which conforms to the following structure:

$A^- B^+$

wherein

A is



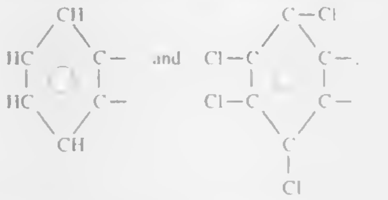
wherein.

Me is methyl.

R and R are selected from methyl and (CH [illegible] -O (EO)$_a$ (PO)$_b$ (EO)$_c$ C(O)-R″ C(O) O .

with the proviso that both R and R are not methyl.

R″ is selected from —CH$_2$-—CH— —CH$_2$ —C(R^7)-H,



R^7 is alkyl having from 1 to 20 carbon atoms;

R^1 is selected from lower alkyl CH$_3$(CH)$_n$— or phenyl;

n is an integer from 0 to 8.

a, b and c are integers independently ranging from 0 to 20;

EO is —(CH$_2$CH$_2$—O)—;

PO is —(CH$_2$CH(CH$_3$)—O)—;

o is an integer ranging from 1 to 100;

q is an integer ranging from 0 to 500;

and B is

R^2—$N^+(H)$—$(CH_2CH_2C(O)$—$O^-M^+)_2$

R^2 is selected from the group selected from CH$_3$—(CH$_2$)$_a$— and CH$_3$—(CH$_2$)$_b$—O—;

a is an integer ranging from 7 to 19;

b is an integer ranging from 7 to 19;

M is selected from Na, K, and Li.

5,739,372
OXAPHOSPHORINS AND A PROCESS FOR THEIR PREPARATION

Dieter Regnat, Eppstein, and Hans-Jerg Kleiner, Kronberg, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt AM Main, Germany

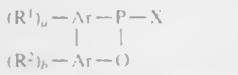
Filed Jun. 7, 1996, Ser. No. 659,897

Claims priority, application Germany, Jun. 12, 1995, 195 21 339.4

Int. Cl.^{6} C07F *9/6574*

U.S. Cl. 558—82 **14 Claims**

1 An oxaphosphorin of the formula



$$\begin{array}{l}(R^1)_a—Ar—P—X\\ \qquad\quad\;\, | \qquad |\\ (R^2)_b—Ar—O\end{array} \qquad (I)$$

where Ar-Ar is 1-phenylnaphtyl or 1,1'-binapthyl, R^1 and R^2 are identical or different and are F, Cl, alkyl or alkoxy each having from 1 to 8 carbon atoms or substituted or unsubstituted aryl, a and b are identical or different and are each an integer from 0 to 4, X is Cl or Br and the Ar-P and Ar-O bonds are each arranged in the ortho position to the Ar-Ar bond

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5,739,373
OPTICALLY ACTIVE PHOSPHONO ANALOGS OF SUCCINATES AND SYNTHESIS THEREOF

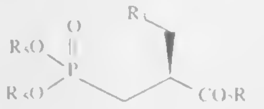
John J. Talley, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 396,996, Mar. 1, 1995, Pat. No. 5,473,092, which is a division of Ser. No. 979,735, Nov. 20, 1992, abandoned. This application Oct. 10, 1995, Ser. No. 541,768

Int. Cl.^{6} C07F *9/40 9/38*

U.S. Cl. 558—179 **9 Claims**

1 A compound of the formula (I)



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wherein R is alkyl, lower cycloalkyl, or Ar wherein Ar is an aromatic group;

R_3 is
- (1) hydrogen;
- (2) alkyl of from 1 to 6 carbons optionally substituted by one or two hydroxyl, chloro or fluoro;
- (3) cycloalkyl of from 3 to 7 ring carbons;
- (4) Ar_4 which is selected from the group consisting of phenyl, and phenyl substituted by one to three substituent(s) selected from the group consisting of
  - (a) alkyl of from one to four carbons;
  - (b) fluoro, chloro, bromo, iodo,
  - (c) alkoxy of from one to three carbons,
  - (d) nitro,
  - (e) amido,
  - (f) a one to four carbon atom mono- or di- alkyl amido, or
  - (g) hydroxy;
- (5) Ar_5 which is tolyl;
- (6) Ar_6 which is tolyl substituted by one to three substituents selected from the group consisting of
  - (a) alkyl of from one to four carbons,
  - (b) fluoro, chloro, bromo, iodo,
  - (c) alkoxy of from one to three carbons,
  - (d) nitro,
  - (e) amido,
  - (f) a one to four carbon atoms mono- or di- alkyl amido, or
  - (g) hydroxy;
- (7) Ar_7 which is selected from the group consisting of naphthyl and naphthyl substituted by one to three substituents, said substituents selected from the group consisting of
  - (a) alkyl of from one to four carbons,
  - (b) fluoro, chloro, bromo, iodo,
  - (c) alkoxy of from one to three carbons,
  - (d) nitro,
  - (e) amido,
  - (f) a one to four carbon atoms mono- or di- alkyl amido;
  - (g) hydroxy, or
- (8) Ar_8 which is selected from the group consisting of indol-3-yl, indol-2-yl, imidazoly-4-yl indol-3-ylmethyl, indol-2-ylmethyl and imidazol-4-ylmethyl;
- (9) NHA wherein A is selected from the group consisting of
  - (a) trityl,
  - (b) hydrogen,
  - (c) alkyl of from one to six carbons,
  - (d) $R_{10}CO$ wherein R_{10} is (A) hydrogen, (B) alkyl of from one to six carbons optionally substituted with hydroxyl, chloro, or fluoro, (C) phenyl or naphthyl; unsubstituted or substituted with one to three of (i) alkyl of from one to three carbons, (ii) F, Cl, Br, or I, (iii) hydroxy, (iv) nitro, (v) alkoxy of from one to three carbons, (vi) $CON(R_{11})_2$ wherein R_{11} is independently hydrogen or alkyl of from one to four carbons, or (D) a 5 to 7 member heterocycle;
  - (e) phthaloyl wherein the aromatic ring is optionally substituted by one to three of(A) alkyl of from one to three carbons, (B) F, Cl, Br, or I, (C) hydroxy, (D) nitro, (E) alkoxy of from one to three carbons, (F) $CON(R_{11})_2$ wherein R_{11} is independently hydrogen or alkyl of from one to four carbons,
  - (f) $R_{12}(R_{13}R_{14}C)_mCO$ wherein m is an integer of one to three and R_{12},R_{13}, and R_{14} are independently (A) hydrogen, (B) chloro or fluoro, (C) alkyl of from one to three carbons optionally substituted by chloro, fluoro, or hydroxy, (D) hydroxy, (E) phenyl or naphthyl, optionally substituted by one to three of (i) alkyl of from one to three carbons, (ii) halogen where halogen is F, Cl, Br, or I, (iii) hydroxy, (iv) nitro, (v) alkoxy of from one to three carbons, (vi) $CON(R_{11})_2$ wherein R_{11} is independently hydrogen or alkyl of from one to four carbons, (F) alkoxy of from one to three carbons, (G) 5 to 7 member heterocycle, or (H) R_{12},R_{13}, and R_{14} are independently joined to form a monocyclic, bicyclic, or tricycle ring system each ring of which is a cycloalkyl of from three to six carbons, except that only one of R_{12}, R_{13}, and R_{14} can be hydroxy or alkoxy on the same carbon and can not be hydroxy, chloro or fluoro when m is one;
  - (g) $R_{12}(R_{13}R_{14}C)_mW$ wherein m is an integer of 1 to 3 and W is OCO or SO_2 and R_{12},R_{13}, and R_{14} are independently as defined above;
  - (h) $R_{20}W$ wherein R_{20} is a 5 to 7 member heterocycle and W is as defined above;
  - (i) $R_{21}W$ wherein R_{21} is phenyl or naphthyl unsubstituted or substituted by one to three substituents of (A) alkyl of from one to three carbons, (B) F, Cl, Br, or I, (C) hydroxy, (D) nitro, (E) alkoxy of from one to three carbons, (F) $CON(R_{11})$ wherein R_{11} is independently hydrogen or alkyl of from one to four carbons and W is as defined above;
  - (j) $R_{12}(R_{13}R_{14}C)_mP(O)(OR_{22})$ wherein R_{22} is alkyl of from one to four carbons or phenyl and m, R_{12}, R_{13}, and R_{14} are as defined above;
  - (k) $R_{20}P(O)(OR_{22})$ wherein R_{20} and R_{22} are as defined above;
  - (l) $R_{21}P(O)(OR_{22})$ wherein R_{21} and R_{22} are as defined above;
- (10) $R_{12}(R_{13}R_{14}C)_mV$ wherein V is O or NH and R_{12}, R_{13}, and R_{14} are independently as defined above;
- (11) $N(R_{11})_2$ wherein R_{11} is independently as defined above;
- (12) $NR_{15}R_{16}$ wherein R_{15} and R_{16} are joined to form a 4 to 6 membered saturated nitrogen containing heterocycle selected from the group consisting of (A) azetidinyl, (B) pyrrolidinyl, (C) piperidinyl, and (D) morpholinyl;
- (13) $R_{17}OCH_2$) wherein R_{17} is
  - (a) alkyl of from one to six carbons,
  - (b) R_{21} wherein R_{21} is independently defined as above; or
  - (c) CH_2Q_1 wherein Q_1 is phenyl, naphthyl or a 5 to 7 membered heterocycle,
- (14) $R_{17}OCH_2CH_2OCH_2$ wherein R_{17} is independently as defined above;
- (15) alkynyl of from two to six carbons optionally substituted with R_{21} wherein R_{21} is independently as defined above;
- (16) alkenyl of from two to six carbons optionally substituted with R_{21}, wherein R_{21} is independently as defined above; and
- (17) amino acid side chains selected from the group consisting of aspargine, S-methyl cysteine and the corresponding sulfoxide and sulfone derivatives thereof, glycine, leucine, isoleucine, allo-isoleucine, tert-leucine, alanine, phenylalanine, ornthine, histidine, norleucine, glutamine, valine, threonine, allo-threonine, serine, aspartic acid and beta-cyanoalanine side chains; and

R_5 and R_5' are independently selected from the group consisting of hydrogen, alkyl, lower cycloalkyl and Ar.

5,739,374
PROCESSES OF PREPARING DIPHENYLHETEROALKYL DERIVATIVES

Bernd Janssen, Ludwigshafen, and Hans-Heiner Wuest, Dossenneim, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Division of Ser. No. 466,131, Jun. 6, 1995, Pat. No. 5,656,619, which is a division of Ser. No. 297,537, Aug. 31, 1994, Pat. No. 5,527,945, which is a continuation of Ser. No. 85,101, Jul. 2, 1993, abandoned, which is a division of Ser. No. 985,934, Dec. 4, 1992, Pat. No. 5,248,823, which is a division of Ser. No. 785,829, Oct. 31, 1991, Pat. No. 5,225,601, which is a division of Ser. No. 469,063, Jan. 23, 1990, Pat. No. 5,087,743.

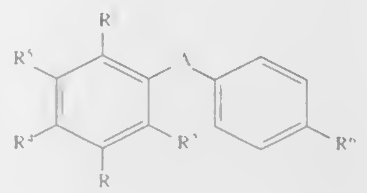
This application Feb. 14, 1997, Ser. No. 800,623

Claims priority, application Germany, Feb. 10, 1989, 3903989.7

Int. Cl.^{6} C07C *255/49,69/02;69/76;* **C07F** *9/40*

U.S. Cl. 558—190 **7 Claims**

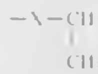
1. A process for the preparation of a diphenylheteroalkyl derivative of the formula I



(I)

where

A is —X—CH_2— or



$$-X-\underset{\displaystyle CH_3}{\underset{|}{CH}}-,$$

where X can be linked to the left or right phenyl nucleus in formula (I) and is oxygen, —$S(O)_n$— or —NR^7— (with n being 0, 1 or 2),

R^1, R^2 and R^3 are, independently of one another, hydrogen or halogen, C_{1-6}-alkyl or OR^7, and one of the three radicals can also be nitro,

R^4 and R^5 are, independently of one another, hydrogen, OR^7, C_{1-6}-alkyl or together form a —$C(CH_3)_2$—B—$C(CH_3)_2$-ring (with B being —CH_2CH_2—, —CH_2CO—, —CH_2CHOH—, —CH═CH— or —$CH(CH_3)$—) or a —O—$C(CH_3)$ (Z)—CH_2—CH_2— ring (with Z=methyl or ethyl, each of which can be substituted by OR^7), with R^4 and R^5 together forming a ring of the said type, or R^4 being a branched C_{3-6}-alkyl or -alkoxy when R^1 to R^3 are hydrogen, and R^4 and R^5 together forming a ring of the said type, or R^4 (alone) or R^3 and R^5 (together) each being a branched C_{1-3}-alkyl when R^6 is hydrogen, methyl, nitro, OH or SH,

R^6 is hydrogen, methyl, nitro, cyano, tetrazolyl or —CH_2OR^7, —OR^8, —NR^9R^{10}, —$CH_2NR^9R^{10}$, —SR^{10}, —$CH(OR^{11})_2$, —$S(O)_{n'}R^{12}$ (n'=1 or 2), —$PO(OR^{13})_2$, —$NR^{13}OR^{19}$, —SO_3H or —$C(O)R^{14}$, where

R^7 is hydrogen, C_{1-6}-alkyl or C_{1-6}-alkanoyl,

R^8 is hydrogen, C_{1-6}-alkyl, C_{1-6}-alkanoyl, or benzoyl which can be substituted, or —$CH_2C(O)R^{15}$— with R^{15} being hydrogen, C_{1-6}-alkyl, C_{1-6}-alkoxy, hydroxy or —$NR^{16}R^{17}$,

R^9 and R^{10} are, independently of one another, hydrogen, C_{1-4}-alkyl, C_{1-4}-alkanoyl, or benzyl or benzoyl which can be substituted by hydroxyl or C_{1-4}-alkoxy,

R^{11} is C_{1-6}-alkyl, it being possible for the two R^{11} radicals to form a cyclic acetal with the CH group,

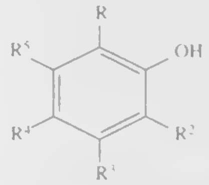
R^{12} is C_{1-6}-alkyl, n being 1 or 2

R^{13} and R^{19} are, independently of one another, hydrogen or C_{1-3}-alkyl,

R^{14} is hydrogen or halogen, hydroxyl, C_{1-6}-alkyl, C_{1-6}-alkoxy, or phenoxy or benzyloxy which can be substituted by hydroxyl or C_{1-4}-alkoxy, or —$NR^{16}R^{17}$ with R^{16} and R^{17} being, independently of one another, hydrogen, C_{1-4}-alkyl, or benzyl which can be substituted by hydroxyl or C_{1-4}-alkoxy,

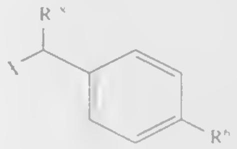
and the physiologically tolerated salts thereof, which comprises

a) if A is —O—CH_2— or —$OCH(CH_3)$—, reacting a phenol of the formula II



(II)

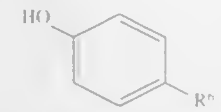
where R^1–R^5 have the meanings specified above with a benzyl derivative of the formula III



(III)

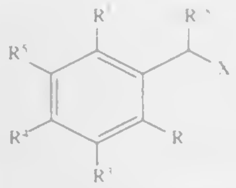
where R^{18} is hydrogen or methyl, and X is a nucleofugic leaving group, in the presence of a base, or

b) if A is —CH_2O— or —$CH(CH_3)$—O—, reacting a phenol of the formula IV



(IV)

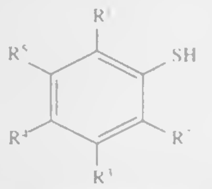
where R^6 has the meaning specified above, with a benzyl derivative of the formula V



(V)

where R^1–R^5, R^{18} and X each have the meanings mentioned, in the presence of a base, or

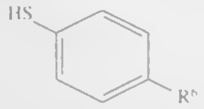
c) if A is —$S(O)_n$—CH_2— or —$S(O)_n$—$CH(CH_3)$—, reacting a thiophenol of the formula VI



(VI)

where R^1–R^5 have the meanings specified above, with a benzyl derivative of the formula III as specified under a) to give a thioether (n=0) and optionally converting the thioether with an oxidizing agent into the corresponding sulfoxide (n=1) or sulfone (n=2), or

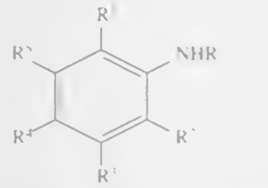
d) if A is —CH_2—$S(O)_n$— or —$CH(CH_3)$—$S(O)_n$—, reacting a thiophenol of the formula VII



(VII)

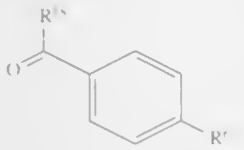
where R^6 has the meaning specified above with a benzyl derivative of the formula V as specified under b) to give a thioether (n=0), and optionally converting the latter with an oxidizing agent into the corresponding sulfoxide (n=1) or sulfone (n=2), or

e) if A is —NR^7CH_2— or —$NR^7CH(CH_3)$—, either reacting an aniline of the formula VIII



(VIII)

where R^1–R^5 and R^7 have the meanings specified above with a benzyl derivative of the formula III as specified under a), or reacting an aniline of the formula VIII with a carbonyl compound of the formula IX



(IX)

where R^6 and R^{18} have the meanings mentioned, in the presence of a reducing agent, or

f) if A is —CH_2NR^7— or —$CH(CH_3)NR^7$—, either reacting an aniline of the formula X

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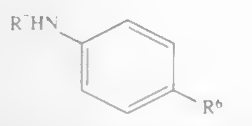
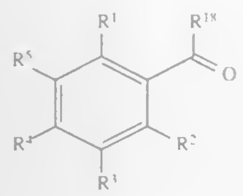


(X)

where R^6 and R^7 have the meanings specified above with a benzyl derivative of the formula V as specified under b), or reacting an aniline of the formula X with a carbonyl compound of the formula XI



(XI)

where R^1–R^5 and R^{18} have the meanings mentioned, in the presence of a reducing agent,

and optionally converting the resulting compounds of schemes a)–f) into their physiologically tolerated salts.

5,739,375

METHYLATION OF ORGANIC COMPOUNDS

Rolf Fischer, Heidelberg, Germany, assignor to BASF Aktiengellschaft, Ludwigshafen, Germany

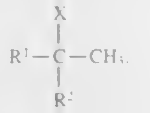
Continuation of Ser. No. 396,718, Mar. 1, 1995, abandoned. This application Apr. 4, 1997, Ser. No. 832,850

Claims priority, application Germany, Mar. 7, 1994, 44 07 495.6

Int. Cl.⁶ C07C *67/317;255/17;255/19*

U.S. Cl. 558—357 **14 Claims**

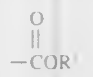
1. A process for preparing methyl compounds of the formula I



$R^1-C(X)(R^2)-CH_3$ (I)

where

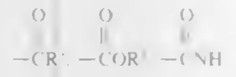
R^1 is hydrogen, R^2 is hydrogen,



$-C(=O)OR^3$

or each of R^1 and R^2 is a substituted or unsubstituted radical selected from the group consisting of C_3–C_7-cycloalkyl, C_7–C_{12}-aralkyl, C_6–C_{10}-aryl, hetaryl, an aliphatic-cycloaliphatic group, C_3–C_8-alkenyl; or R^1 and R^2 together form a C_2–C_{10}-alkylene chain, or, where X is $-SO_2-$, R^1 forms with X a C_3–C_5 alkylene or alkenylene bridges,

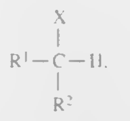
X is



$-C(=O)R^3$, $-C(=O)OR^3$, $-C(=O)NH$

where R^3 is hydrogen or C_1–C_6alkyl; R^4 is C_2–C_6-alkyl or R^4 forms with R^1 a C_3-C_5-alkylene or alkenylene bridge, which process comprises reacting

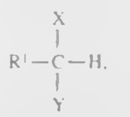
(a) a compound of the formula II



$R^1-C(X)(R^2)-H,$ (II)

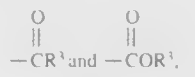
or

(b) where R^2 in formula II is hydrogen, a compound of the formula III



$R^1-C(X)(Y)-H,$ (III)

where Y is



$-C(=O)R^3$ and $-C(=O)OR^3$,

with dimethyl carbonate in the presence of a nitrogen-containing base.

5,739,376

FULLERENE DERIVATIVES, METHODS OF PREPARING THEM AND THEIR USE

Carsten Bingel, Frankfurt am Main, Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt, Germany

PCT No. PCT/EP94/01079, § 371 Date Oct. 20, 1995, § 102(e) Date Oct. 20, 1995, PCT Pub. No. WO94/25424, PCT Pub. Date Nov. 10, 1994

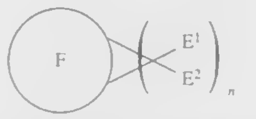
PCT Filed Apr. 7, 1994, Ser. No. 535,163

Claims priority, application Germany, Apr. 24, 1993, 43 13 481.5

Int. Cl.⁶ C07C *69/76*

U.S. Cl. 560—51 **5 Claims**

1. A fullerene derivative of the formula I

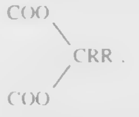


I

where the symbols and indices have the following meanings:

F is a fullerene radical of the formula $C_{(20+2m)}$ where m=20, 25, 28, 29;

E^1, E^2, are identical or different and are each COOH, COOR, CONRR', CHO, COR, CN, $P(O)(OR)_2$ and SO_2R, where R, R^1 are each a straight-chain or branched, aliphatic radical (C_1 to C_{20}) which may be unsubstituted or monosubstituted or polysubstituted by identical or different substituents, in which radical up to every third CH_2 unit can be replaced by O or NR^4, where R^4 is (C_1-C_{20})-alkyl or benzyl, or a benzyl radical or phenyl radical which can be unsubstituted or substituted by from 1 to 5 substituents R, OH, OR, COOR, OCOR, SO_3H, SO_2Cl, F, Cl, Br, NO_2 and CN or together are



or are different from one another and are each COR, R or H, or are different from one another and are each COR/R or F/Cl/Br, where R is as defined above, or are different from one another and are each NO_2, R^3 or H, where R^3 is an unsubstituted, monosubstituted or polysubstituted aliphatic radical (C_1 to C_{20});

n is a natural number from 1 to 10+m where m=20, 25, 28, 29

5,739,377

PHENYLALKANOIC ACID ESTERS AND THEIR USE AS ANTIOXIDANTS

Hisayu Ohsawa; Tomoyuki Kurumada; Takaaki Yamazaki; Satoru Naito, all of Tokyo, and Kohtaro Kanetaki, Kawasaki, all of Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

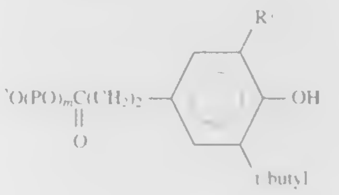
Continuation of Ser. No. 183,120, Jan. 18, 1994, abandoned. This application Apr. 7, 1995, Ser. No. 418,883

Claims priority, application Japan, Jan. 21, 1993, 5-008437

Int. Cl.⁶ C07C *69/76*

U.S. Cl. 560—75 **40 Claims**

1. A compound of formula



wherein:

R^1 represents an alkyl group having from 1 to 6 carbon atoms;

R^2 represents a straight chain or branched alkyl group having from 8 to 24 carbon atoms;

PO represents a propyleneoxy group, and

m is an integer from 1 to 5

5,739,378

COMPLEX HYDROPHOBE-CONTAINING OLIGOMERS

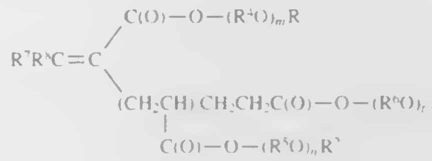
Richard Duane Jenkins, Hurricane; David Robinson Bassett, Charleston, both of W. Va., and Gregory Dean Shay, Cary, N.C., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed May 29, 1992, Ser. No. 887,646

Int. Cl.⁶ C07C *69/73*

U.S. Cl. 560—181 **8 Claims**

1. A compound represented by the formula



wherein

R^1, R^2 and R^3 are the same or different and are hydrogen, a substituted or unsubstituted monovalent hydrocarbon residue or a monovalent residue of a substituted or unsubstituted complex hydrophobe compound, provided at least one of R^1, R^2 and R^3 is a monovalent residue of a substituted or unsubstituted complex hydrophobe compound;

m', n' and p' are the same or different and are a value of 0 or greater, provided that at least one of m', n', or p' is a value of at least 2;

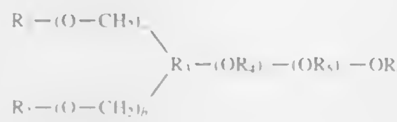
z is a value of 0 or greater;

each R^4 is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue;

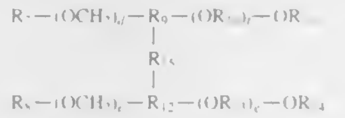
each R^5 is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue;

each R^6 is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue; and

R^7 and R^8 are the same or different and are hydrogen or a substituted or unsubstituted monovalent hydrocarbon residue; in which said substituted or unsubstituted complex hydrophobe compound is represented by the formula selected from:



wherein R_1 and R_2 are the same or different and are hydrogen or a substituted or unsubstituted monovalent hydrocarbon residue, R_3 is a substituted or unsubstituted divalent or trivalent hydrocarbon residue, each R_4 is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue, each R_5 is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue R_6 is hydrogen, a substituted or unsubstituted monovalent hydrocarbon residue or an ionic substituent, a and b are the same or different and are a value of 0 or 1, and x and y are the same or different and are a value of 0 or greater; provided at least two of R_1, R_2, R_3, R_4, R_5 and R_6 are a hydrocarbon residue having greater than 2 carbon atoms in the case of R_1, R_2 and R_6 or having greater than 2 pendant carbon atoms in the case of R_3, R_4 and R_5, and



wherein R_7 and R_8 are the same or different and are hydrogen or a substituted or unsubstituted monovalent hydrocarbon residue, R_9 and R_{12} are the same or different and are a substituted or unsubstituted divalent or trivalent hydrocarbon residue, each R_{10} is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue, each R_{13} is the same or different and is a substituted or unsubstituted divalent hydrocarbon residue, R_{11} and R_{14} are the same or different and are hydrogen a substituted or unsubstituted monovalent hydrocarbon residue or an ionic substituent, R_{15} is a substituted or unsubstituted divalent hydrocarbon residue, d and e are the same or different and are a value of 0 or 1, and f and g are the same or different and are a value of 0 or greater; provided at least two of R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14} and R_{15} are a hydrocarbon residue having greater than 2 carbon atoms in the case of R_7, R_8, R_{11} an R_{14} or having greater than 2 pendant carbon atoms in the case of R_9, R_{10}, R_{12}, R_{13} and R_{15}.

5,739,379

PROCESS FOR PRODUCING METHYL METHACRYLATE

Yoshikazu Shima; Shuji Ebata, and Mariko Abe, all of Niigata, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,640

Claims priority, application Japan, Jan. 10, 1995, 7-002079

Int. Cl.⁶ C07C *67/30*

U.S. Cl. 560—212 **17 Claims**

1. A process for producing methyl methacrylate by a gas-phase catalytic reaction of methyl α-hydroxyisobutyrate as a starting raw material, which process comprises feeding methanol in an amount by weight of 0.1 to 3.0 times the amount of the methyl α-hydroxyisobutyrate in a reaction system and proceeding with said gas-phase catalytic reaction in the presence of a catalyst comprising as an effective ingredient, a synthetic faujasite zeolite having a free alkali content of at most 0.1 milliequivalent/g

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5,739,380

(METH)ACRYLATES CONTAINING FLUOROALKENYL GROUPS, THEIR PREPARATION AND USE

Norbert Lul, and Wolfgang Podszun, both of Köln, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

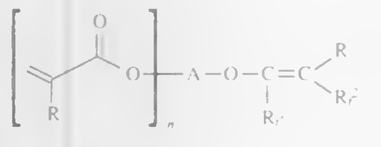
Filed May 16, 1996, Ser. No. 649,043

Claims priority, application Germany, May 23, 1995, 195 18 865.9

Int. Cl.⁶ C07C *69/52*

U.S. Cl. 560—220 **3 Claims**

1. (Meth)acrylates containing fluoroalkenyl groups, of the formula (I)



(I)

in which

R represents hydrogen or methyl,

n represents an integer from 2 to 6,

A represents a (n+1)-valent hydrocarbon radical having 3 to 30 carbon atoms, which optionally contains up to 10 oxygen atoms, up to 6 –OH groups, up to 8 ether bridges, or a combination thereof,

R^1_f and R^2_f independently of one another each represent a perfluoroalkyl radical having 1 to 20 carbon atoms, or

R^1_f and R^2_f together form a

$-\!(CF_2)_x\!-$

bridge, in which x represents an integer from 1 to 8, and

R^3 represents hydrogen, fluorine, chlorine or a perfluoroalkyl radical having 1 to 20 carbon atoms.

5,739,381

DISODIUM 4-CHLOROPHENYLTHIOMETHYLENEBISPHOSPHONATE MONOHYDRATE, ITS PREPARATION AND PHARMACEUTICAL COMPOSITIONS IN WHICH IT IS PRESENT

Michel Bonnery, Vailhauques; Michel Bouisset, and Raphaël Sole, both of Sisteron, all of France, assignors to Sanofi, Paris, France

Division of Ser. No. 101,742, Aug. 4, 1993, Pat. No. 5,405,994. This application Dec. 28, 1994, Ser. No. 365,142

Claims priority, application France, Aug. 5, 1992, 92 09718

Int. Cl.⁶ C07F *9/28*

U.S. Cl. 562—22 **14 Claims**

1. A method of preparing disodium tiludronate monohydrate, which comprises heating disodium tiludronate hemihydrate in aqueous solution at a temperature of between 60° and 90° C. for a period of between 2 hours and 24 hours, leaving it to cool to a temperature of between room temperature and 5 ° C., filtering off the precipitate formed and then drying it.

5,739,382

DERIVATIVES OF 2-AMINOBENZENESULPHONIC ACID AND OF 2-AMINOBENZENESULPHONYL CHLORIDE, THEIR PREPARATION AND THEIR USE AS SYNTHETIC INTERMEDIATES

Jean Michel Altenburger, Meudon, and Gilbert Lassalle, Clamart, both of France, assignors to Synthelabo, Le Plessis Robinson Cedex, France

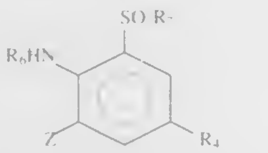
Division of Ser. No. 562,455, Nov. 24, 1995. This application Feb. 10, 1997, Ser. No. 796,481

Claims priority, application France, Nov. 25, 1994, 94 14129

Int. Cl.⁶ C07C *309/46*

U.S. Cl. 562—59 **4 Claims**

1. A compound of formula (I)



(I)

in which:

R_4 represents a hydrogen atom, a halogen atom or a nitro group;

R_6 represents a hydrogen atom or a straight or branched $(C_1–C_6)$alkyl group;

R_7 represents a chlorine atom or a hydroxyl group; and

Z represents: a phenyl group optionally substituted with one or more halogen atoms, straight or branched $(C_1–C_4)$alkyl groups, straight or branched $(C_1–C_4)$alkoxy groups, or trifluoromethyl, formyl, $—CH_2OR$, $—CH_2OCOR$, $—CH_2CONRR'$, $—CH_2ONCOR$, —COOR, nitro, —NHR, —NRR' or —NHCOR groups, wherein R and R' are each, independently, a hydrogen atom or a $(C_1–C_7)$alkyl group; or a cyclo$(C_5–C_8)$alkyl group; additionally, when R_7 represents chlorine, Z can represent iodine, in the free form or in the form of a salt with an alkali metal or tertiary amine.

5,739,383

RESOLUTION OF RACEMIC MIXTURES USING POLYMERS CONTAINING CHIRAL UNITS

Hyun-Nam Yoon; Mengshi Lu, both of New Providence, N.J., and Naoya Ogata, Tokyo, Japan, assignors to Hoechst Celanese Corp., Somerville,, N.J.

Continuation-in-part of Ser. No. 697,751, Aug. 29, 1996. This application Nov. 26, 1996, Ser. No. 756,752

Int. Cl.⁶ C07B *57/00;* **C07C** *51/42;53/134;57/30*

U.S. Cl. 562—401 **26 Claims**

1. A process of resolving a racemic α-aryl propionic acid into its optically active isomers, comprising:

(a) preparing a solution of a polymer in a suitable solvent, wherein said polymer contains chiral moieties in its repeat unit and exhibits critical solution temperature behavior in said solvent;

(b) maintaining said solution at a temperature different from said critical solution temperature such that the polymer stays in solution;

(c) placing the racemic α-aryl propionic acid in intimate contact with said solution such that said chiral moieties shift said critical solution temperature differentially corresponding to the optically active isomers, and said polymer adsorbs one optically active isomer preferentially;

(d) shifting the temperature to a point where said polymer containing said adsorbed optically active isomer precipitates leaving the other optically active isomer substantially in solution;

(e) separating said precipitate from the solution; and

(f) isolating the optically active isomers independently from said precipitate and from solution,

wherein said solvent is selected from the group consisting of water, alcohol, ether, amide, ester, ketone and combinations thereof

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5,739,384

INDUSTRIAL PROCESS TO MANUFACTURE AROMATIC CARBOXYLIC ACIDS

Miguel Angel Melgosa Albillos, Algeciras; Jorge Molina Marsans, Las Rozas, and Lorenzo Ortega Calvo, La Linea, all of Spain, assignors to Intercontinental Quimica, S.A. (Interquisa), Madrid, Spain

Filed Sep. 20, 1996, Ser. No. 717,016

Claims priority, application Spain, Sep. 21, 1995, 9501832

Int. Cl.⁶ C07C *51/265*

U.S. Cl. 562—414 **5 Claims**

1. A process for the manufacture of aromatic carboxylic acids by liquid phase oxidation of a mono- or poly- alkyl-substituted aromatic compound, oxidizable with molecular oxygen of air, in the presence of a catalyst soluble in a reacting mass comprised of said aromatic compound, cobalt and manganese acetates, and an organic or inorganic bromine that acts as promoter, the process being carried out in a reactor having at least one pipe for introducing air, comprising the steps of:

microdispersing the air that enters the reactor through said pipe, said pipe having a sintered titanium cover as a filtering plate with pores having a diameter between 20 and 60 microns, so that by bubbling air during said oxidation through the pipe at a pressure between 15 and 25 atmospheres and at a rate between 200 and 500 kb/sec m², produces a pressure drop through the filtering plate lower than 0.5 atmospheres, until obtaining a purge of an aqueous solution containing solvent acid, isomers of the carboxylic acid produced, catalysts and impurities and;

recycling the catalyst from said purge by passing said purge to a rotary evaporator where most of the water and the solvent acid are evaporated and a past is obtained, entering said paste into a leacher where it is mixed, at a temperature between 20° and 40° C. with a stream of distilled water in such a way that the carboxylic acid produced is kept in suspension in said leacher, whereas the catalyst and the solvent acid are dissolved, and finally separating the solid obtained from the aqueous solution which is recycled to the process.

5,739,385

PROCESS FOR PREPARING OPTICALLY ACTIVE CARBOXYLIC ACIDS

Bruce Armin Barner, Alum Creek, and Jonathan Joshua Kurland, Charleston, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Oct. 19, 1995, Ser. No. 545,349

Int. Cl.⁶ C07C *51/16*

U.S. Cl. 562—418 **19 Claims**

1. A process for producing an optically active carboxylic acid which process comprises oxidizing an optically active aldehyde with a peracid in the presence of an amine and/or amine N-oxide catalyst selected from the group consisting of a substituted or unsubstituted alkyl amine, alkyl amine N-oxide, aromatic amine, aromatic amine N-oxide, heterocyclic amine, heterocyclic amine N-oxide and mixtures thereof, to produce the optically active carboxylic acid, wherein said amine and/or amine N-oxide catalyst has a basicity sufficient to catalyze said oxidizing of the optically active aldehyde to the optically active carboxylic acid

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5,739,386

PHOTOLABILE COMPOUNDS AND METHODS FOR THEIR USE

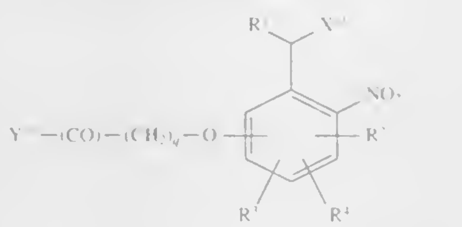
Christopher P. Holmes, Sunnyvale, Calif., assignor to Affymax Technologies N.V., Greenford, England

Continuation-in-part of Ser. No. 374,492, Jan. 17, 1995, Pat. No. 5,679,773, and Ser. No. 265,090, Jun. 23, 1994, Pat. No. 5,549,974. This application Jun. 23, 1995, Ser. No. 493,877

Int. Cl.⁶ C07C *205/56*

U.S. Cl. 562—437 **7 Claims**

1. A compound having the formula:



wherein,

R^1 is hydrogen, C_1–C_8 alkyl, aryl or arylalkyl, R^2, R^3 and R^4 are each independently hydrogen, C_1–C_8 alkyl, or C_1–C_8 alkoxy X^{11} is selected from the group consisting of halogen, $—NH_2$, —NHP, in which P is a suitable protecting or activating group, and $—NR^5R^6$ wherein R^5 and R^6 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, aryl alkyl, substituted aryl alkyl, heteroaryl, and substituted heteroaryl and Y^{11} is selected from the group consisting of halogen, —SH, —SP, OH, —OP, $—NH_2$, —NHP, in which P is a suitable protecting or activating group, and $—NR^5R^6$ wherein R^5 and R^6 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, aryl alkyl, substituted aryl alkyl, heteroaryl, and substituted heteroaryl; and q is an integer of from 1 to 10.

5,739,387

PROCESS FOR PRODUCING THREO-3-(3,4-DIHYDROXYPHENYL)SERINE

Yoshiaki Oda, Toyonaka, and Kazunori Iwakura, Takatsuki, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

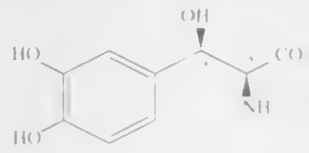
Filed May 20, 1996, Ser. No. 650,539

Claims priority, application Japan, May 18, 1995, 7-119864; May 18, 1995, 7-119865

Int. Cl.⁶ C07C *229/00*

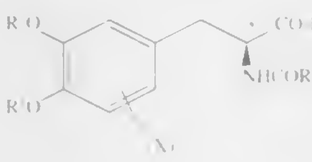
U.S. Cl. 562—444 **21 Claims**

1. A process for producing racemic or optically active threo-3-(3,4-dihydroxyphenyl)serine represented by the formula [III]



which comprises the steps of:

reacting a racemic or optically active N-acyl-3,4-dihydroxyphenylalanine derivative represented by the formula [I]



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wherein R and R^2 independently represent a protecting group for a hydroxyl group;

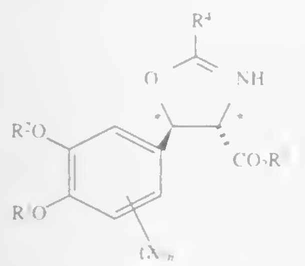
R^3 represent a protecting group for a carboxyl group;

R^4 is an optionally substituted alkyl group or an optionally substituted phenyl;

X is a halogen atom;

n is 0, 1, 2 or 3; and

each carbon marked with the symbol * is an asymmetric carbon, with a halogen radical generator, a cerium (IV) salt in the presence or absence of a copper catalyst, or a persulfate salt in the presence of a copper catalyst to produce a racemic or optically active oxazoline represented by the formula [IV]:



wherein R^1, R^2, R^3, R^4, X, n and * are as defined above, thereafter, opening the oxazoline ring of said oxazoline and removing R, R^2 and R^3; and

eliminating X when n is 1 to 3

5,739,388

PROCESS FOR THE PREPARATION OF AROMATIC COMPOUNDS BY DECARBOXYLATION OF AROMATIC CARBOXYLIC ACIDS

Ralf Pfirmann, Griesheim, and Hans Schubert, Kelkheim, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

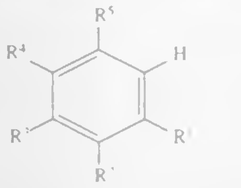
Filed May 2, 1996, Ser. No. 641,877

Claims priority, application Germany, May 2, 1995, 195 15 985.3

Int. Cl.⁶ C07C *51/38*

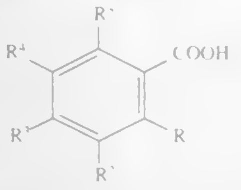
U.S. Cl. 562—479 32 Claims

1. A process for the preparation of compounds of the formula



(1)

in which the radicals R^1, R^2, R^3, R^4 and R^5 are identical or different and are COOH, H, F, Cl, Br, CF_3, OH, an alkoxy or alkyl radical having in each case 1 to 4 carbon atoms or a radical $-NR^6R^7$, in which R^6 and R^7 are identical or different and are H, an alkyl radical having 1 to 4 carbon atoms or a phenyl radical, which comprises dissolving in water a compound of the formula



(2)

in which the radicals R, R^2, R^3, R^4 and R^5 are identical or different and have the abovementioned meaning or, in departure therefrom, admixing the aqueous solution with a water-insoluble amine which is inert under the reaction conditions and carrying out the decarboxylation at a pH of 3 to 9 and a temperature of 70 to 210° C. optionally free to be in the presence of a water-insoluble solvent which is inert under the reaction conditions and optionally in the presence of a decarboxylation catalyst

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5,739,389

ARYL CARBOXYLIC ACID DERIVATIVES

Bernd-Wieland Krüger, Bergisch-Glabach; Reiner Fischer, Monheim; Heinz-Jurgen Bertram, Holzminden; Thomas Bretschneider, Siegburg; Stefan Böhm, Leverkusen; Andreas Krebs, Odenthal-Holz; Thomas Schenke, Bergisch Gladbach; Hans-Joachim Santel, Leverkusen; Klaus Lurssen; Robert R. Schmidt, both of Bergisch; Christoph Erdelen, Leichlingen; Ulrike Wachendorff-Neumann, Monheim, and Wilhelm Stendel, Wuppertal, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

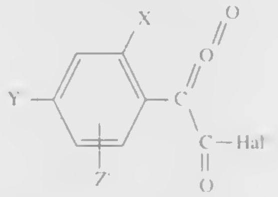
Division of Ser. No. 476,171, Jun. 7, 1995, Pat. No. 5,661,110, which is a division of Ser. No. 233,911, Apr. 28, 1994, Pat. No. 5,474,974, which is a division of Ser. No. 999,058, Dec. 31, 1992, Pat. No. 5,358,924, which is a continuation-in-part of Ser. No. 849,863, Mar. 12, 1992, abandoned. This application Dec. 30, 1996, Ser. No. 774,469

Claims priority, application Germany, Mar. 21, 1991, 41 09 208.2

Int. Cl.⁶ C07C *55/28;45/87*

U.S. Cl. 562—489 4 Claims

1. Halogenocarbonyl ketches of the formula (IIa)



(IIa)

in which

Hal' stands for halogen

X' stands for C_1–C_4-alkyl, halogen or trifluoromethyl

Y' stands for hydrogen, C_1–C_4-alkyl, halogen or trifluoromethyl and

Z' stands for hydrogen, C_1–C_4-alkyl, halogen or trifluoromethyl with the proviso that Z must not stand for hydrogen, if Y' stands for hydrogen

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5,739,390

PROCESS TO PREPARE AMINO CARBOXYLIC ACID SALTS

Thaddeus Stephen Franczyk, St. Louis, Mo.; Yukio Kadono, Kawasaki, Japan; Norikazu Miyagawa, Kawaguchi, Japan; Seiji Takasaki, Kawagoe, Japan, and Hiroki Wakayama, Kawasaki, Japan, assignors to Monsanto Company, St. Louis, Mo.

PCT No. PCT/US94/03770, § 371 Date Jan. 16, 1996, § 102(e) Date Jan. 16, 1996, PCT Pub. No. WO94/24091, PCT Pub. Date Oct. 27, 1994

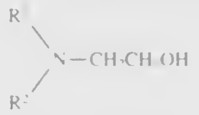
Continuation-in-part of Ser. No. 44,682, Apr. 12, 1993, Pat. No. 5,292,936. This PCT application Apr. 6, 1994, Ser. No. 532,624

Claims priority, application Japan, May 14, 1993, 5-113127; Sep. 20, 1993, 5-233622

Int. Cl.⁶ C07C *51/23*

U.S. Cl. 562—526 11 Claims

1. A process to manufacture an amino carboxylic acid salt which comprises contacting an aqueous solution of an amino alcohol represented by the formula



wherein R^1 and R^2 are individually selected from the group consisting of hydrogen, hydroxyethyl, $-CH_2COOH$, an alkyl group having from 1 to 18 carbon atoms, an aminoalkyl group having 2 to 3 carbon atoms, a hydroxyalkylaminoalkyl group having 2 to 3 carbon atoms, and phosphonomethyl, with an alkali metal hydroxide in the presence of an effective amount of a copper catalyst containing from about 10 parts per million to about 50,000 parts per million of an element selected from the group consisting of bismuth, tin, antimony, lead, germanium, and mixtures thereof

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5,739,391

CATALYTIC GAS-PHASE OXIDATION OF ACROLEIN TO ACRYLIC ACID

Wilhelm Ruppel, Frankenthal; Ulrike Wegerle, Worms; Andreas Tenten, Neustadt, and Ulrich Hammon, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Sep. 8, 1995, Ser. No. 525,118

Claims priority, application Germany, Sep. 8, 1994, 44 31 949.5

Int. Cl.⁶ C07C *51/16*

U.S. Cl. 562—532 17 Claims

1. A process for the catalytic gas-phase oxidation of acrolein to acrylic acid in a multiple contact tube fixed-bed reactor through whose space surrounding the contact tubes only one heat-exchange medium circuit is passed, at elevated temperature on catalytically active multimetal oxides with an acrolein conversion for a single pass of ≧95 mol % and an acrylic acid formation selectivity of ≧90 mol %, which comprises firstly passing the heat-exchange medium through the multiple contact tube fixed-bed reactor longitudinally, considered over the reaction container as a whole, to the contact tubes in cocurrent to the reaction-gas mixture and secondly super-posing a transverse flow within the reaction container by means of an arrangement of successive baffles along the contact tubes which leaves passage cross sections free, so as to give a meandrous flow of the heat-exchange medium, seen in longitudinal section through the contact tube bundle, and setting the flow rate of the circulated heat-exchange medium so that its temperature rises by from 2° to 10° C. between the point of entry into the reactor and the point of exit out of the reactor

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5,739,392

PROCESS FOR PRODUCTION OF ACRYLIC ACID

Michio Tanimoto; Ichiro Mihara, and Tatsuya Kawajiri, all of Himeji, Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Nov. 13, 1995, Ser. No. 557,353

Claims priority, application Japan, Nov. 14, 1994, 6-279357; Nov. 14, 1994, 6-279358; Nov. 25, 1994, 6-291116

Int. Cl.⁶ C07C *51/235*

U.S. Cl. 562—535 13 Claims

1. A process for producing acrylic acid by subjecting acrolein or an acrolein-containing gas to gas-phase oxidation with molecular oxygen or a molecular oxygen-containing gas in the presence of a molybdenum/vanadium-based oxide catalyst represented by the following general formula (I):

$$Mo_aV_bW_cCu_dX_eY_fZ_gO_h \qquad (I)$$

wherein Mo is molybdenum; V is vanadium, W is tungsten; Cu is copper; X is at least one element selected from antimony and tin; Y is at least one element selected from magnesium, calcium, strontium and barium; Z is at least one element selected from titanium, zirconium and cerium, O is oxygen; a, b, c, d, e, f, g and h are the atom numbers of Mo, V, W, Cu, X, Y and Z, respectively, with a proviso that when a is 12, $2 \leqq b \leqq 14$, $0 \leqq c \leqq 12$, $0 < d \leqq 6$, $0 \leqq e \leqq 5$, $0 \leqq f \leqq 3$ and $0 \leqq g \leqq 10$; and h is a number determined by the oxidation states of the individual elements other than O, in which process the molybdenum/vanadium based oxide catalyst is produced by using the following substances as the raw materials of vanadium, copper, antimony and tin when the molybdenum/vanadium-based oxide catalyst contains neither antimony nor tin, that is, when e=0,

(A) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5, and
  the raw material of copper is copper nitrate, or

(B) the raw material of vanadium is ammonium metavanadate, and
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2, or

(C) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5, and
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2; and when the molybdenum/vanadium-based oxide catalyst contains antimony and/or tin, that is, when $0 < e \leqq 5$,

(D) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5,
  the raw material of copper is copper nitrate, and
  at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, or

(E) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5,
  the raw material of copper is copper nitrate, and at least part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(F) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5,
  the raw material of copper is copper nitrate,
  at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, and
  at east part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(G) the raw material of vanadium is ammonium metavanadate,
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2, and
  at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, or

(H) the raw material of vanadium is ammonium metavanadate,
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2, and
  at least part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(I) the raw material of vanadium is ammonium metavanadate,
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2,
  at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, and
  at least part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(J) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5,
  the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2, and
  at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, or

(K) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide, in which the valency of vanadium is larger than 0 but smaller than 5,

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the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2, and

at least part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(L) the raw materials of vanadium are ammonium metavanadate and at least one vanadium oxide in which the valency of vanadium is larger than 0 but smaller than 5,

the raw materials of copper are copper nitrate and at least one copper oxide in which the valency of copper is larger than 0 but smaller than 2,

at least part of the raw material(s) of antimony is at least one antimony oxide in which the valency of antimony is larger than 0 but smaller than 5, and

at least part of the raw material(s) of tin is at least one tin oxide in which the valency of tin is larger than 0 but smaller than 4, or

(M) the raw material of vanadium is ammonium metavanadate and part thereof is used in the form of a complex with an antimony compound in which the valency of antimony is larger than 0 but smaller than 5, and

the raw material of copper is copper nitrate, or

(N) the raw material of vanadium is ammonium metavanadate and part thereof is used in the form of a complex with a tin compound in which the valency of tin is larger than 0 but smaller than 4, and

the raw material of copper is copper nitrate, or

(O) the raw material of vanadium is ammonium metavanadate and part thereof is used in the form of a complex with (1) an antimony compound in which the valency of antimony is larger than 0 but smaller than 5 and (2) a tin compound in which the valency of tin is larger than 0 but smaller than 4, and

the raw material of copper is copper nitrate.

5,739,393

PROCESS FOR THE PREPARATION OF POLYMERS WITH RECURRING SUCCINYL UNITS

Paul Wagner, Düsseldorf; Frank Döbert, Köln; Torsten Groth, Odenthal, and Winfried Joentgen, Köln, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Feb. 21, 1997, Ser. No. 802,992

Claims priority, application Germany, Sep. 6, 1996, 196 36 190.7

Int. Cl.⁶ C08G *63/44*

U.S. Cl. 562—553 **20 Claims**

1. A process for the preparation of a polymer with recurring succinyl units, which comprises reacting maleic anhydride, maleic acid and/or fumaric acid with condensed liquid ammonia.

5,739,394

3,3-DIOXY-4,4,4-TRIFLUOROBUTYRIC ACID DERIVATIVES

Norbert Lui, Köln, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

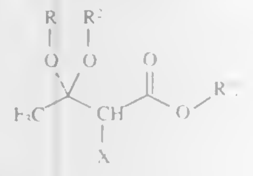
Filed Dec. 16, 1996, Ser. No. 767,581

Claims priority, application Germany, Dec. 22, 1995, 195 48 416.9

Int. Cl. C07C *59/00*

U.S. Cl. 562—586 **10 Claims**

1. A compound of the formula (I)



(I)

in which

R^1 and R^2 independently of one another represent C_1–C_{10}-alkyl, or represent cyclohexyl, or represent optionally substituted C_6–C_{10}-aryl or C_7–C_{14} -arylalkyl, or

R^1 and R^2 together represent C_2–C_4-alkylene which is optionally mono- or disubstituted by methyl, or optionally substituted ortho-arylene,

R^3 represents hydrogen or C_1–C_{10}-alkyl, or represents cycloalkyl, or

represents optionally substituted C_6–C_{10}-aryl or C_7–C_{14}-arylalkyl, and

X represents hydrogen, fluorine, chlorine or bromine,

excluding methyl 4,4,4-trifluoro-3,3-dimethoxybutyrate, 4,4,4-trifluoro-3,3 -dimethoxybutyric acid, ethyl 4,4,4-trifluoro-3,3-diethoxybutyrate, ethyl 4,4,4 -trifluoro-B,3-ethylenedioxybutyrate and 4,4,4-trifluoro-3,3-ethylenedioxybutyric acid.

5,739,395

METHOD FOR SYNTHESIS OF RHIZOFERRIN

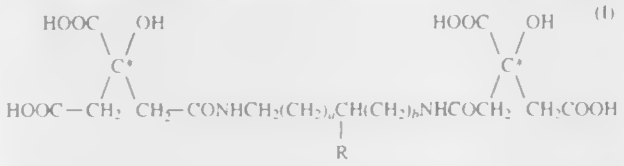
Raymond J. Bergeron, Jr., Gainesville, Fla., assignor to University of Florida Research Foundation, Inc., Gainesville, Fla.

Filed Jan. 10, 1997, Ser. No. 783,306

Int. Cl.⁶ C07C *229/24;229/26;229/22*

U.S. Cl. 562—565 **21 Claims**

1. A method for synthesizing a compound of the formula:



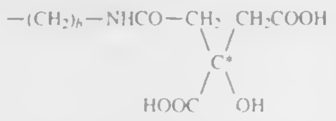
(I)

wherein,

C* is a chiral carbon atom;

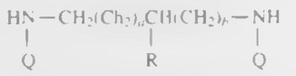
a and b may be the same or different and are integers from 0 to 10, inclusive; and

R is H, alkyl, arylalkyl, carboxyl or



wherein C* and b have the meanings ascribed above, comprising:

(1) acylating a polyamine of the formula:

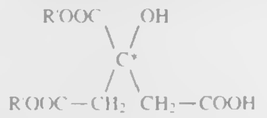


$$\underset{\substack{|\\Q}}{HN}-CH_2(CH_2)_a\underset{\substack{|\\R}}{CH}(CH_2)_b-\underset{\substack{|\\Q}}{NH} \qquad (II)$$

wherein:

a, b and R have the meanings ascribed above, and Q is an amine protective group,

with a diester of citric acid having the formula:

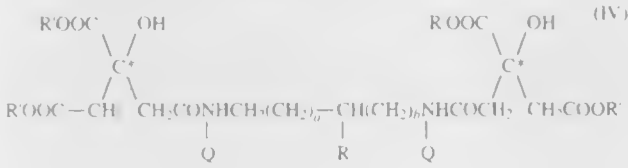


(III)

wherein:

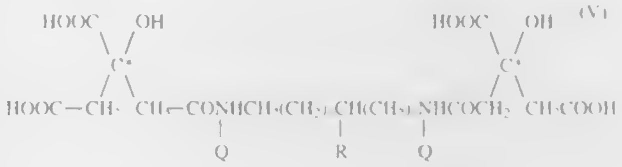
R' is alkyl, aryl, aralkyl or cycloalkyl having up to 10 carbon atoms,

to produce an amide having the formula:



(IV)

(2) hydrolyzing amide (IV) to produce an acid having the formula,



(V)

(3) deprotecting acid (V) to remove the Q groups, thereby producing an acid of formula (I)

5,739,396

ASYMMETRIC LIGANDS USEFUL FOR TRANSITION METAL CATALYZED BOND FORMING REACTIONS

Barry M. Trost, Los Altos Hills; David L. Van Vranken, Irvine, and Richard C. Bunt, Redwood City, all of Calif., assignors to Stanford University, Stanford, Calif.

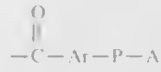
Continuation-in-part of Ser. No. 308,839, Sep. 19, 1994, abandoned, which is a continuation-in-part of Ser. No. 804,783, Dec. 9, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 487,039

Int. Cl.⁶ C07F *9/28;9/50*

U.S. Cl. 564—15 **10 Claims**

1. A chiral compound comprising:

a chiral backbone to which is bound two or three metal binding moieties, the chiral compound capable of participating as a ligand or a chiral auxiliary for metal catalyzed reactions, each metal binding moiety having the following structure



$$-\overset{\overset{O}{\|}}{C}-Ar-P-Ar'_2,$$

wherein Ar and Ar' each is an aryl or a heteroaryl with a single ring or fused rings, each metal binding moiety being attached by an ester or an amide linkage to the chiral backbone.

5,739,397

PROCESS FOR THE PRODUCTION OF SECONDARY AMINES AND THE AMINES PRODUCED BY THE PROCESS

Rick L. Adkins, New Martinsville, and William E. Slack, Moundsville, both of W. Va., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed May 30, 1996, Ser. No. 655,638

Int. Cl.⁶ C07C *209/22*

U.S. Cl. 564—408 **5 Claims**

1. A process for preparing a secondary amine comprising reacting a hydrocarbon containing a leaving group selected from the group consisting of sulfonates and nitrophenoxy groups with a primary monoamine, primary diamine, primary polyamine or ammonia at a temperature of from about 70° to about 250° C.

5,739,398

PREPARATION OF N-ALKENYLUREAS

Jochem Henkelmann, Mannheim; Marc Heider, Neustadt, and Thomas Rühl, Frankenthal, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

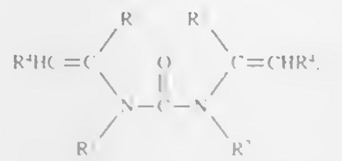
Filed Jul. 3, 1996, Ser. No. 675,585

Claims priority, application Germany, Jul. 6, 1995, 195 24 619.5

Int. Cl.⁶ C07C *275/20*

U.S. Cl. 564—58 **10 Claims**

1. A process for preparing N alkenylureas of the formula I

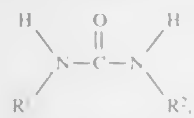


(I)

where

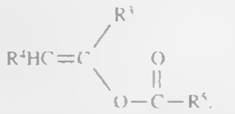
R^1 and R^2 are hydrogen, C_1- to C_{40}-alkyl, C_2- to C_{40} alkenyl, C_3- to C_{20}-cycloalkyl, C_4- to C_{20}-alkylcycloalkyl, C_4- to C_{20}-cycloalkylalkyl, aryl, C_7- to C_{20} alkylaryl or C_7- to C_{20}-aralkyl, or aryl, C_7- to C_{20}-alkylaryl or C_7- to C_{20}-aralkyl which are mono- to pentasubstituted by C_1- to C_8-alkyl, C_1- to C_8-alkoxy or halogen, or together are a C_2- to C_{10}-alkylene chain which is unsubstituted or mono- to hexasubstituted by C_1- to C_8-alkyl, and

R^3 and R^4 are hydrogen or C_1- to C_8-alkyl, which comprises reacting ureas of the formula II



(II)

where R^1 and R^2 have the abovementioned meanings, with an alkenyl carboxylate of the formula III



(III)

where R^3 and R^4 have the abovementioned meanings and R^5 is hydrogen, C_1- to C_{40}-alkyl, C_3- to C_{20}-cycloalkyl, C_4- to C_{20}-alkylcycloalkyl, aryl, C_7- to C_{20}-alkylaryl, C_7- to C_{20}-aralkyl, or aryl or C_7- to C_{20}-aralkyl which is mono- to trisubstituted by C_1- to C_8-alkyl, at from 0° to 180° C. and from 0.01 to 10 bar, and in the presence of a base.

5,739,399

PROCESS FOR THE PREPARATION OF CYCLOPROPANECARBOXYLIC ACID AMIDES

Andreas Sattler, Düsseldorf, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

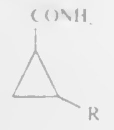
Filed Dec. 11, 1996, Ser. No. 763,776

Claims priority, application Germany, Dec. 20, 1995, 195 47 635.2

Int. Cl.⁶ C07C *231/02*

U.S. Cl. 564—138 **12 Claims**

1. A process for the preparation of cyclopropanecarboxylic acid amides of the general formula



wherein

R represents hydrogen, straight-chain or branched C_{1-C_4}-alkyl, optionally substituted aryl or optionally substituted aralkyl,

which comprises reacting the corresponding cyclopropanecarboxylic acid with ammonia at ammonia pressures of 1 to 300 bar in the presence of an organic solvent to give the amide

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5,739,400

PREPARATION OF O-(2-HYDROXYALKYL)OXIMES

Albrecht Harreus, Ludwigshafen; Norbert Götz, Worms, and Harald Rang, Altrip, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02932, § 371 Date Feb. 3, 1997, § 102(e) Date Feb. 3, 1997, PCT Pub. No. WO96/04237, PCT Pub. Date Feb. 15, 1996

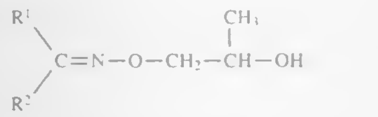
PCT Filed Jul. 25, 1995, Ser. No. 776,579

Claims priority, application Germany, Aug. 2, 1994, 44 27 290.1

Int. Cl.^{6} C07C *249/12*

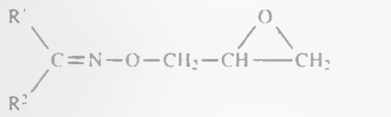
U.S. Cl. 564—256 4 Claims

1 A process for preparing O-(2-hydroxyalkyl)oximes of the general formula I



(I)

where R^1 and R^2 are each alkyl groups having 1 to 10 carbon atoms or, together with the carbon atom which carries them, are bonded to give a 5- to 7-membered cycloalkyl radical, which comprises catalytically hydrogenating an O-(2,3-epoxyalkyl)oxime of the general formula II



(II)

using hydrogen.

5,739,401

N-(α-ALKYLBENZYLIDENE)-α-PHENYLALKYLAMINE, ITS USE AND PROCESS FOR PRODUCING THE SAME AND PROCESS FOR PRODUCING INTERMEDIATE THEREFOR

Koji Hagiya, Takatsuki; Etsuko Harada, Ibaraki, and Hideyuki Goto, Oita, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

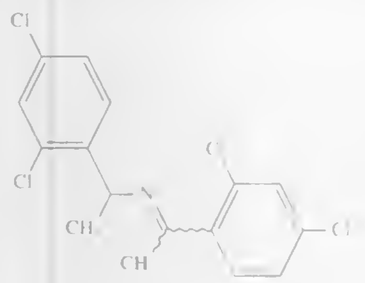
Filed Mar. 29, 1996, Ser. No. 624,105

Claims priority, application Japan, Mar. 30, 1995, 7-073077; Jul. 12, 1995, 7-176168; Aug. 10, 1995, 7-204501; Aug. 22, 1995, 7-213278; Dec. 4, 1995, 7-315232; Dec. 11, 1995, 7-321488

Int. Cl.^{6} C07C *251/06;251/24*

U.S. Cl. 564—272 3 Claims

1 An optically active isomer or a racemate of an N-(α-alkylbenzylidene)-α-phenylalkylamine represented by the formula:



5,739,402

PROCESS FOR THE PREPARATION OF MIXTURES OF ISOMERS OF O-PHENOXY-ALKYLHYDROXYLAMINES OR O-PHENOXYALKYLOXIMES

Harald Rang, Altrip; Norbert Götz, Worms; Albrecht Harreus, Ludwigshafen; Dirk Borchers, Birkenheide; Horst Hartmann, Böhl-Iggelheim; Volker Maywald; Frank Heimann, both of Ludwigshafen, and Thomas Buschulte, Böhl-Iggelheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/01581, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/30648, PCT Pub. Date Nov. 16, 1995

PCT Filed Apr. 26, 1995, Ser. No. 732,452

Claims priority, application Germany, May 5, 1994, 44 15 887.4

Int. Cl.^{6} C07C *209/52*

U.S. Cl. 564—415 19 Claims

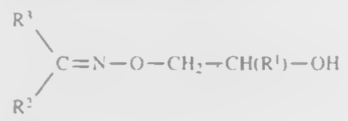
1. A process for preparing mixtures of isomers of O-phenoxyalkylhydroxylamines of the formulae Ia and Ib

$$H_2N-O-CH_2-CH(R^1)-O-Ar \quad (Ia)$$

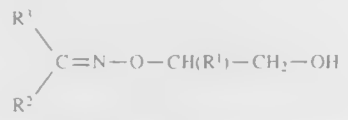
$$H_2N-O-CH(R^1)-CH_2-O-Ar \quad (Ib)$$

where R^1 is an alkyl group and Ar is the phenyl group which can carry non-aromatic substituents, and the corresponding salt mixtures, which comprises

a) converting a mixture of isomers of O-(2-hydroxyethyl)oximes of the formulae IIa and IIb



(IIa)

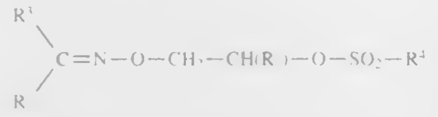


(IIb)

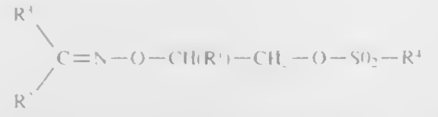
where R^2 is an alkyl group and R^3 is an alkyl or alkoxy group, or R^2 and R^3 form, together with the common carbon atom, a 5- to 7-membered isocyclic ring, with a sulfonyl halide of the formula III

$$Hal-SO_2-R^4 \quad (III)$$

where R^4 is an organic radical, and Hal is halogen, in the presence of a base into the corresponding mixture of sulfonates IVa and IVb



(IVa)

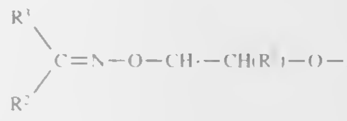


(IVb)

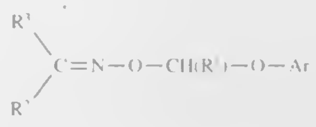
b) reacting this mixture of sulfonates in the presence of a base with a phenol of the formula V

$$HO-Ar \quad (V)$$

to give a mixture of O-phenoxyalkyloximes of the general formulae VIa and VIb



(VIa)



(VIa)

c) hydrolyzing this mixture in the presence of an acid and, optionally,

d) liberating the O-phenoxyalkylhydroxylamines Ia and Ib from the resulting salts using a mineral base.

5,739,403

PROCESS FOR THE PRODUCTION OF OPTIONALLY SUBSTITUTED 4-AMINODIPHENYLAMINES

Klaus Reinartz, Köln; Adolf Brill, Kellinghusen, and Fred Schuhmacher, Schenefeld, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Jan. 6, 1997, Ser. No. 778,838

Claims priority, application Germany, Jan. 11, 1996, 19 600 722.4

Int. Cl.^{6} C07C *209/36*

U.S. Cl. 564—423 6 Claims

1. Process for the production of optionally substituted 4-aminodiphenylamine by the reaction of optionally substituted aniline with optionally substituted nitrobenzene in the presence of water and/or alcohols and organic and/or inorganic bases and subsequent catalytic hydrogenation of the resultant nitro- and/or nitrosodiphenylamine in the presence of water, characterised in that catalytic hydrogenation of the reaction mixture is performed in the presence of 25 to 80 wt. % of water, relative to the weight of the reaction mixture from the condensation reaction, the hydrogenation catalyst is removed from the hydrogenation mixture once absorption of hydrogen has ceased, the resultant organic phase is separated in order to isolate the 4-aminodiphenylamine and the aqueous phase is returned to the initial reaction mixture

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5,739,404

PROCESS FOR PREPARING A MIXTURE OF AMINO-METHYL-CYCLOHEXANES AND DIAMINO-METHYL-CYCLOHEXANES

Gerhard Darsow, Krefeld, and Gerd-Michael Petruck, Erkrath, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

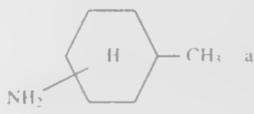
Filed Mar. 20, 1997, Ser. No. 822,253

Claims priority, application Germany, Apr. 3, 1996, 196 13 332.7

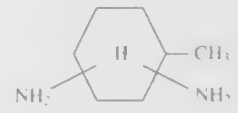
Int. Cl.^{6} C07C *209/72*

U.S. Cl. 564—450 14 Claims

1 A continuous process for preparing a mixture of an amino-methyl-cyclohexane and a diamino-methyl-cyclohexane of the formulae

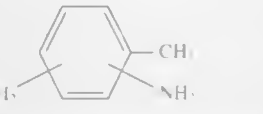


(I) and



(II)

by catalytic hydrogenation of a diamino-toluene of the formula



(III)

with hydrogen at a reaction temperature of from 150° to 260° C and an H$_2$ pressure of from 20 to 500 bar, wherein the catalysts used are support-free, reduced shaped bodies comprising pressed powders of cobalt, manganese, copper and alkaline earth metal (hydr)oxides, where the shaped bodies can have a content of one or more (hydr)oxides of metals of transition group V and/or VI of the Periodic Table of the Elements (Mendeleev).

5,739,405

PREPARATION OF AMINES FROM OLEFINS OVER ZEOLITES OF THE TYPE SSZ-37

Karsten Eller, Ludwigshafen; Rudolf Kummer, Frankenthal, and Peter Stops, Altrip, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

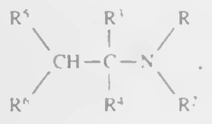
Filed Dec. 4, 1996, Ser. No. 760,296

Claims priority, application Germany, Dec. 8, 1995, 195 45 876.1

Int. Cl.^{6} C07C *209/60*

U.S. Cl. 564—485 11 Claims

1 A process for the preparation of an amine of the general formula I

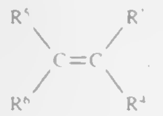


(I)

in which

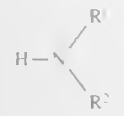
- R^1, R^2, R^3, R^4, R^5, R^6 denote hydrogen, C$_1$–C$_{20}$ alkyl, C$_2$–C$_{20}$ alkenyl, C$_2$–C$_{20}$ alkynyl, C$_3$–C$_{20}$ cycloalkyl, C$_4$–C$_{20}$ alkylcycloalkyl, C$_4$–C$_{20}$ cycloalkylalkyl, aryl, C$_7$–C$_{20}$ alkylaryl, or C$_7$–C$_{20}$ aralkyl,
- R^1 and R^2 additionally together denote a saturated or unsaturated C$_3$–C$_9$ alkylene dichain and
- R^3 or R^5 additionally denotes C$_{21}$–C$_{200}$ alkyl, C$_{21}$–C$_{200}$ alkenyl or they together form a C$_2$–C$_{12}$ alkylene dichain,

by the reaction of an olefin of the general formula II



(II)

in which R^3, R^4, R^5, and R^6 have the above meanings, with ammonia or a primary or secondary amine of the general formula III



(III)

in which R^1 and R^2 have the above meanings, at temperatures ranging from 200° to 350° C. and pressures ranging from 100 to 300 bar in the presence of a heterogeneous catalyst, wherein the heterogeneous catalyst used is a zeolite of the type SSZ-37.

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5,739,406
PROCESS FOR THE HYDROFLUORINATION OF CHLORO (FLUORO) BUTANE

Pascal Pennetreau, Rixensart, and Francine Janssens, Vilvoorde, both of Belgium, assignors to Solvay (Société Anonyme), Brussels, Belgium

Filed Aug. 30, 1995, Ser. No. 520,763

Claims priority, application France, Sep. 5, 1994, 94 10684

Int. Cl.⁶ C07C *17/20*

U.S. Cl. 570—167 **18 Claims**

1. A process for the preparation of 1,1,1,3,3-pentafluorobutane by hydrofluorination of chloro(fluoro)butane of general formula $CH_3CCl_xF_{2-x}$-CH_2-CCl_yF_{3-y}, in which x=0, 1 or 2, y=0, 1, 2 or 3 and x+y≧1, by means of hydrogen fluoride, comprising performing the hydrofluorination in the presence of a catalyst selected from the group consisting of the derivatives of metals of groups IVa, IVb, Va, and Vb of the Periodic Table of the elements, at a temperature from 80° C. to 130° C.

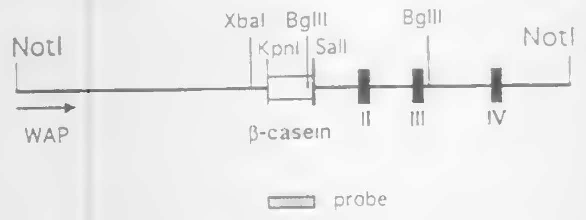
5,739,407
HUMAN β-CASEIN, PROCESS FOR PRODUCING IT AND USE THEREOF

Sven Bergström; Olle Hernell, both of Umea, Sweden; Bo Lönnerdal, Davis, Calif.; Karin Hjalmarsson, Umea, Sweden; Lennart Hanson, Umea, Sweden; Jan Törnell, Göteborg, Sweden, and Mats Strömqvigt, Umea, Sweden, assignors to Symbicom aktiebolag, Umea, Sweden

Filed Jun. 18, 1993, Ser. No. 78,090

Int. Cl.⁶ C12N *5/00; 15/00*

U.S. Cl. 800—2 **7 Claims**



4. A transgenic mouse whose germ cells and somatic cells contain a DNA construct which comprises at least one human beta casein intron sequence and a promoter of a milk protein gene other than a casein gene, and a sequence which encodes a polypeptide having at least 85% sequence identity with SEQ ID NO: 2 or which hybridizes under stringent conditions with SEQ ID NO: 1, as a result of chromosomal incorporation of the construct into the mouse genome, or into the genome of an ancestor of said mouse, so that the DNA construct is expressed in a mammary gland of the transgenic mouse.

5,739,408

Patent Not Issued For This Number

5,739,409
ENDOGENOUSLY SWEETENED TRANSGENIC PLANT PRODUCTS

Robert Fischer, El Cerrito; Sung-Hou Kim; Joong Myung Cho, both of Moraga; Lola Penarrubia, Berkeley; James Giovannoni, San Francisco, and Rosalind Kim, Moraga, all of Calif., assignors to The Regents of the University of California, Oakland, and Lucky Biotech Corp., Emeryville, both of Calif.

Division of Ser. No. 962,881, Oct. 19, 1992, which is a continuation of Ser. No. 557,222, Jul. 24, 1990, Pat. No. 5,234,834, which is a continuation-in-part of Ser. No. 465,585, Jan. 18, 1990, abandoned, and Ser. No. 502,257, Mar. 30, 1990, Pat. No. 5,264,558, which is a continuation-in-part of Ser. No. 64,341, Jun. 19, 1987, abandoned, Ser. No. 64,343, Jun. 19, 1987, abandoned, and Ser. No. 117,124, Nov. 4, 1987, abandoned. This application Jun. 7, 1995, Ser. No. 483,415

Int. Cl.⁶ A01H *4/00;* **C12N** *15/82; 5/14*

U.S. Cl. 800—205 **32 Claims**

1. A recombinant expression system capable, when inserted into a higher plant, of expressing the gene encoding a single-chain monellin, which system comprises a nucleotide sequence encoding said single-chain monellin operably linked to control sequences effective in said higher plant,

wherein said single-chain monellin is of the formula B-C-A;

wherein B represents a peptide portion at least 90% homologous to residues 1–46 of the B chain of native monellin depicted in SEQ ID NO:2 and modified only by conservative substitutions;

C is a covalent bond or a peptide portion of 1–10 gene-encoded amino acids; and

A represents a peptide portion at least 90% homologous to residues 6–45 of the A chain of native monellin depicted in SEQ ID NO: 1 and modified only by conservative substitution.

5,739,410
METHOD FOR MATCHING VIBRATION MODE FREQUENCIES ON A VIBRATING STRUCTURE

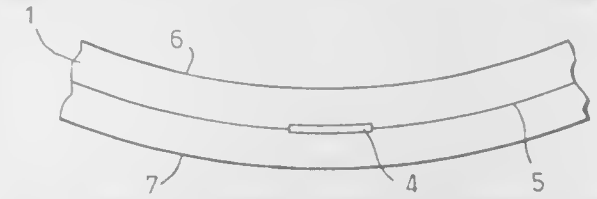
Christopher P. Fell, Plymouth, Great Britain, assignor to British Aerospace Public Limited Company, Farnborough, United Kingdom

Continuation of Ser. No. 517,971, Aug. 22, 1995, abandoned. This application Dec. 11, 1996, Ser. No. 763,348

Claims priority, application United Kingdom, Aug. 24, 1994, 9417044

Int. Cl.⁶ G01C *19/56*

U.S. Cl. 73—1 E **7 Claims**



1. A method for matching vibration mode frequencies on a vibrating structure for a vibrating structure gyroscope, in which the vibrating structure is a substantially cylindrical or substantially ring-like sensing element, and in which a desired variable amount of material is removed from and/or added to the sensing element at at least one point on or in the vicinity of the neutral axis of the cross section of the element, to displace and match the vibration mode frequencies around the element, and wherein said desired variable amount of material is removed from and/or added to the sensing element in the absence of a change in width of the element.

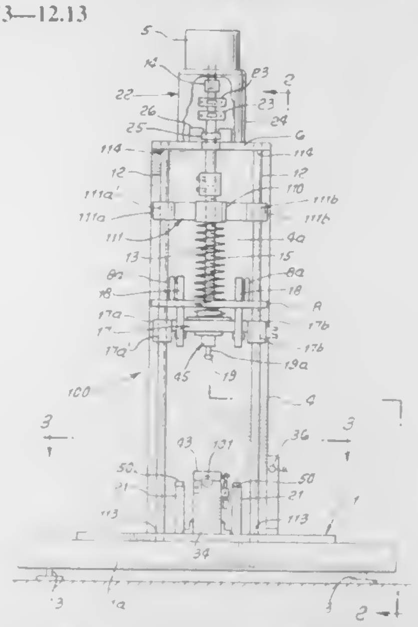
5,739,411
ACCELERATED IMPACT TESTING APPARATUS

Nathan J. Lee, Escondido, Calif., and William G. Pitt, Orem, Utah, assignors to Callaway Golf Company, Carlsbad, Calif.

Division of Ser. No. 556,584, Nov. 13, 1995, Pat. No. 5,696,312. This application Dec. 17, 1996, Ser. No. 768,861

Int. Cl.⁶ G01N *3/00*

U.S. Cl. 73—12.13 **30 Claims**



1. An accelerated impact testing apparatus for simulating actual strains and strain rates and measuring the strain and strain rate characteristics of materials using a falling impactor to impact a specimen, and comprising:

a) a crosshead, and acceleration means for applying a predetermined force to the crosshead,

b) impactor means carried by the crosshead for striking the specimen while the impactor is traveling,

c) specimen holding means,

d) latching means for holding the impactor means in a first position while the acceleration means exerts initial loading transmitted to the crosshead,

e) velocity measuring means to detect and record impactor velocity just prior to impacting the specimen,

f) power means for driving the acceleration means,

g) restriction means to prevent the impactor means from deflecting the specimen beyond a preset limit,

h) control means for starting and stopping the power means, and for collecting and organizing acquired data, and

i) means to prevent undesired damage to the specimen during impact,

j) said specimen holding means including two support fixtures spaced sufficiently apart so that when the specimen is impacted, a realistic stress corresponding to stress undergone by the specimen in actual use is propagated in the specimen.

5,739,412
GAS SAMPLING SYSTEM HAVING A MOUTHPIECE

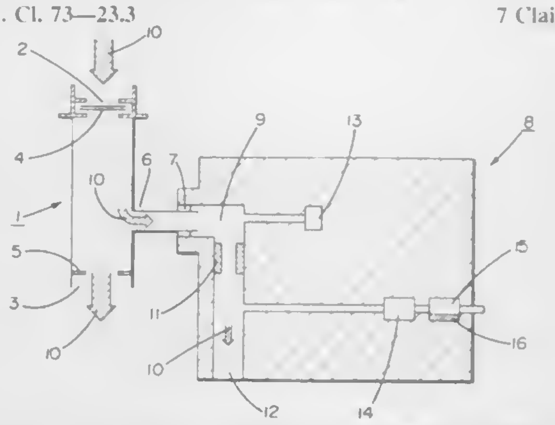
Burkhard Stock, Lübeck, and Jürgen Sohège, Stockelsdorf, both of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany

Filed Dec. 4, 1996, Ser. No. 759,921

Claims priority, application Germany, Dec. 8, 1995, 195 45 794.3

Int. Cl.⁶ G01N *1/22, 33/497*

U.S. Cl. 73—23.3 **7 Claims**



1. The combination of a mouthpiece and a system for taking and analyzing a sample of respiratory gas, the combination comprising:

said mouthpiece including: an inlet opening into which a test person exhales the respiratory gas; an outlet opening, a channel between said openings along which said respiratory gas flows, a flow resistor mounted in said channel downstream of said inlet opening; and, a connecting element communicating with said channel for receiving a sample of said respiratory gas,

said connecting element being connected into said channel upstream of said flow resistor as viewed in the flow direction of the exhaled respiratory gas,

said system including a sample line having a first end connected to said connecting element and a second end opening to the ambient;

said sample line having a flow throttle mounted therein,

through flow measuring means for measuring the through flow of said sample passing through said sample line and said through-flow measuring means being connected into said sample line upstream of said flow throttle,

said system including an analyzer defining a measuring chamber,

pumping means for drawing said sample from said connecting element through said sample line and into said measuring chamber, and,

said pumping means being connected into said sample line between said flow throttle and said second end of said sample line.

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5,739,413

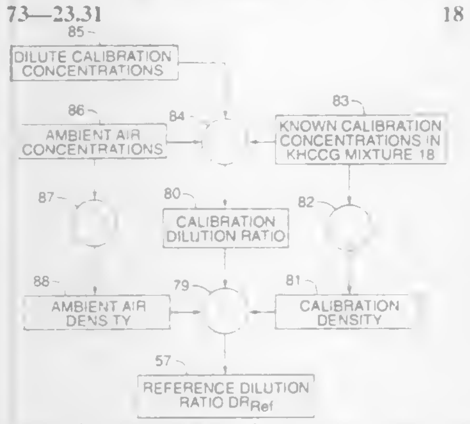
FORCED DILUTION SYSTEM AND METHOD FOR EMISSIONS MEASUREMENT SYSTEMS

Bruce R. Kohn; Donald W. Bilsbarrow, both of Tucson, Ariz., and Pradeep R. Tripathi, Stow, Ohio, assignors to Envirotest Systems, Inc., Sunnyvale, Calif.

Filed Aug. 23, 1996, Ser. No. 701,965

Int. Cl.^{6} G01N *21/26*

U.S. Cl. 73—23.31 18 Claims


85
DILUTE CALIBRATION CONCENTRATIONS
86
AMBIENT AIR CONCENTRATIONS
84
83
KNOWN CALIBRATION CONCENTRATIONS IN KHCCG MIXTURE 18
87
80
CALIBRATION DILUTION RATIO
82
88
AMBIENT AIR DENSITY
79
81
CALIBRATION DENSITY
57
REFERENCE DILUTION RATIO DR_{Ref}

1. A method for compensating for the effects that changes in exhaust gas density have on the dilution of exhaust gas in an emissions sampling system, comprising the steps of:

from ambient air concentration measurements, generating an ambient air density value; and

employing said ambient air density value to generate a reference dilution ratio.

5,739,414

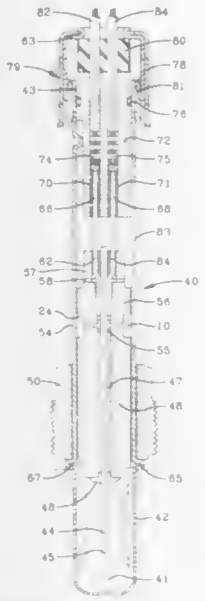
SENSOR WITH GLASS SEAL

Nancy Jean Paulus, Grand Blanc; Richard William Duce, Flushing; Sara Ann Touse-Shunkwiler, Grand Blanc, and Robert Gregory Fournier, Burton, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 12, 1996, Ser. No. 600,136

Int. Cl.^{6} G01N *27/04*

U.S. Cl. 73—23.31 5 Claims



1. A sensor comprising

a tubular housing

a planar sensing element axially within the tubular housing; and

a glass seal between an exterior periphery of the planar sensing element and an interior periphery of the tubular housing, wherein the tubular housing has a first coefficient of thermal expansion greater than a second coefficient of thermal expansion of the glass seal, wherein the second coefficient of thermal expansion of the glass seal is similar or equal to a third coefficient of thermal expansion of the planar sensing element, wherein the glass seal is maintained in radial compression over an entire temperature operating range of the sensor and wherein cracks that form in the glass seal propagate to self limit and do not translate across the glass seal to form leak paths.

5,739,415

Patent Not Issued For This Number

5,739,416

FAST, HIGH SENSITIVITY DEWPOINT HYGROMETER

Michael E. Hoenk, Valencia, Calif., assignor to California Instiute of Technology, Pasadena, Calif.

Filed Sep. 18, 1996, Ser. No. 715,417

Int. Cl.^{6} G01N *25/68;* G01W *1/00*

U.S. Cl. 73—29.01 54 Claims

13. A device for measuring humidity, comprising

(a) an RF oscillator circuit, including a resonant surface acoustic wave device having a high Q value and a surface that is essentially non-hygroscopic, sensitive to moisture in an ambient gas and subject to condensation from the gas onto the surface, the RF oscillator circuit being configured to generate a condensation-dependent signal indicative of the amount of condensation on the surface of the resonant surface acoustic wave device;

(b) a temperature regulating device, proximate to the resonant surface acoustic wave device, for controlling the temperature of the resonant surface acoustic wave device;

(c) a controller, coupled to the output of the RF oscillator circuit and to the temperature regulating device, for:

  (1) monitoring the condensation-dependent signal of the RF oscillator circuit, and

  (2) generating a feedback signal to the temperature regulating device responsive to changes in the condensation-dependent signal relative to a set point, the feedback signal controlling the amount of condensation on the resonant surface acoustic wave device by governing the temperature regulating device used for controlling the temperature of the resonant surface acoustic wave device.

(d) a temperature sensor, proximate the resonant surface acoustic wave device, for measuring the temperature of the resonant surface acoustic wave device and generating an output signal indicative of the amount of moisture in the gas.

5,739,417

METHOD AND DEVICE FOR DETERMINING OPERATING PARAMETERS IN AN INTERNAL COMBUSTION ENGINE

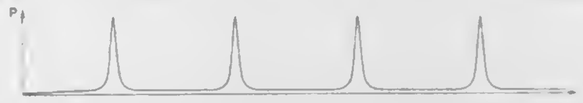
Ferdinand Grob, Besigheim; Uwe Reuter; Uwe Maienberg, both of Stuttgart, and Klaus Scherrbacher, Schwieberdingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 21, 1996, Ser. No. 700,903

Claims priority, application Germany, Sep. 28, 1995, 195 36 110.5

Int. Cl.^{6} G01L *23/22,* G01N *25/20;33/22*

U.S. Cl. 73—35.03 11 Claims



1. A method for controlling an internal combustion engine, comprising the steps of:

supplying a sensor output signal from a sensor to first and second filters, the sensor including at least one of a structure-borne noise sensor and a knock sensor, the first and second filters exhibiting different response characteristics;

determining at least two values corresponding to at least one of a combustion parameter and an injection parameter of the engine as a function of first and second output signals from the first and second filters, respectively; and

determining a control value indicative of a time when at least one of a first value of the first output signal and a second value of the second output signal exceeds a predetermined threshold value, the engine being controlled as a function of the control value

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5,739,418

VIBRATION PICK-UP AND METHOD OF PRODUCING THE SAME

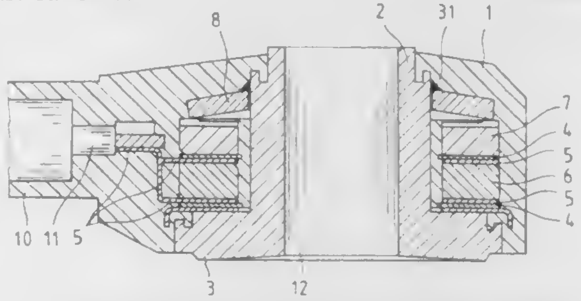
Uwe Hackel, Gerlingen; Volker Woehl, Rettenberg, and Holger Krebs, Erdmannhausen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 4, 1997, Ser. No. 811,375

Claims priority, application Germany, Mar. 29, 1996, 196 12 541.3

Int. Cl.^{6} G01L *23/22*

U.S. Cl. 73—35.11 9 Claims



1. A vibration pick-up, comprising a pressure sleeve having a central opening for receiving a mounting element and a supporting surface for supporting on a component whose vibrations are to be detected; a detection member; a disk spring holding said detection member radially outwardly on said pressure sleeve with an axial pre-tensioning, and connecting means for connecting said disk spring with said pressure sleeve, said connecting means including a laser welding seam which connects said disk spring with said pressure sleeve over a whole periphery of said pressure sleeve, so that said disk spring is fixedly connected with said pressure sleeve and at the same time maintains the axial pre-tensioning.

5,739,419

APPARATUS FOR MONITORING THE VACUUM OF A VACUUM SWITCH

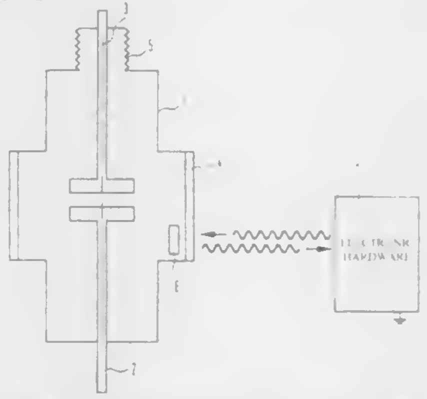
Reinhard Maier, Herzogenaurach; Wolf-Eckhart Bulst, Munich; Thomas Ostertag, Ulm, and Oliver Sczesny, Aschheim, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 9, 1996, Ser. No. 694,939

Claims priority, application Germany, Aug. 10, 1995, 195 29 499.8

Int. Cl.^{6} G01L *21/00;* H01H *33/66,* G01R *31/02,* G01B *7/18*

U.S. Cl. 73—37 6 Claims



1. An apparatus for monitoring the vacuum of a vacuum switch having at least one vacuum switch tube with a switch chamber and switch contacts, the apparatus comprising:

a remotely interrogatable pressure measurement sensor arranged in the interior of the vacuum switch tube, wherein the remotely interrogatable pressure measurement sensor further has a remotely interrogatable surface acoustic wave filter or a surface acoustic wave resonator; and

a remote interrogation means for monitoring the vacuum via the sensor, wherein the remote interrogation means includes apparatus that further has a transmitter, a receiver and an evaluation means.

5,739,420

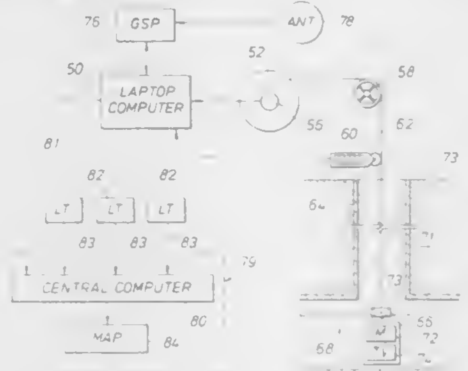
GROUND WATER INFILTRATION DETECTION SYSTEM

Roger Peterson, Rte. 1 Box 316, Sweeny, Tex. 77480

Filed Sep. 18, 1996, Ser. No. 710,713

Int. Cl.^{6} G01N *3/08*

U.S. Cl. 73—40.5 R 28 Claims



1. A method for determining a leak in a pipeline in which fluid flows, comprising the steps of

(a) providing a surface unit comprising a cable reel and a cable wound there upon;

(b) providing a probe having a meter,

(c) positioning, by operation of said surface unit, said probe within said fluid at a plurality of stations along said pipeline;

(d) obtaining a fluid property measurement at each said station.

(e) roughly determining the location of said leak by combining

  (1) observed change in station fluid property measurements for two adjacent stations, and

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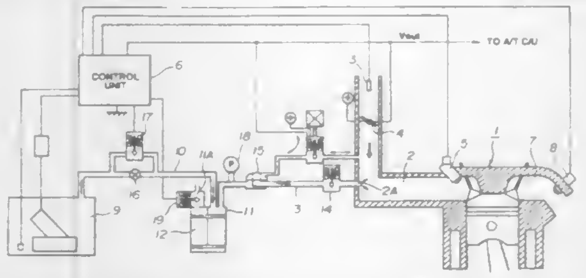
(ii) determined geographical locations of said adjacent stations; and
(f) precisely determining the location of said leak using said roughly determined location and by measuring changes in the same fluid property.

5,739,421
LEAK DIAGNOSIS SYSTEM FOR EVAPORATIVE EMISSION CONTROL SYSTEM

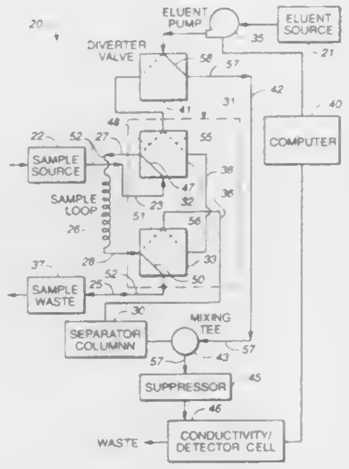
Atsushi Iochi, Machida, and Kenichi Goto, Zama, both of Japan, assignors to Nissan Motor Co.Ltd., Yokohama, Japan
Filed Dec. 3, 1996, Ser. No. 759,753
Claims priority, application Japan, Dec. 8, 1995, 7-320670
Int. Cl.^{6} G01M *15/00;* **F02M** *25/08;* **F02B** *77/08*
U.S. Cl. 73—49.7 10 Claims



1. A leak diagnosis system for an evaporative emission control system connected to an internal combustion engine having an air induction passage, comprising:
- an adsorbing means for temporally adsorbing evaporative fuel from a fuel tank storing fuel for the engine;
- a purging means for purging the evaporative fuel of said adsorbing means to the engine,
- a pressure detecting means for detecting a pressure value of the evaporative emission control system except for the fuel tank,
- a base-pressure setting means for putting said pressure detecting means in the atmospheric pressure and obtaining the pressure value of said pressure detecting means in the atmospheric pressure;
- a diagnosing-value correcting means for correcting the detection value of said pressure detecting means on the basis of the detected value of said pressure detecting means in the atmospheric pressure;
- a decision-value setting means for setting a decision value on the basis of the detection value corrected by said diagnosing-value correcting means and a characteristics of said pressure detecting means;
- a diagnosing means for diagnosing a leak condition of the evaporative purge system by changing the pressure in the evaporative emission control system to said decision value set by said decision value setting means.

5,739,422
MULTICYCLE LOOP INJECTION FOR TRACE ANALYSIS BY ION CHROMATOGRAPHY APPARATUS AND METHOD

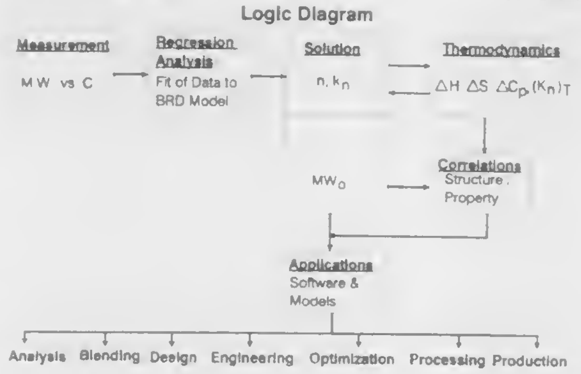
John M. Riviello, Santa Cruz, and Maria A. Rey, San Jose, both of Calif., assignors to Dionex Corporation, Sunnyvale, Calif.
Filed Dec. 19, 1995, Ser. No. 574,643
Int. Cl.^{6} G01N *30/16*
U.S. Cl. 73—61.55 38 Claims



1. An apparatus for chromatographic separation and quantitative analysis of ionic species in a sample solution comprising
- an eluent source providing pressurized eluent at a substantially constant rate,
- a sample source of said sample solution having an input port and a waste port;
- a sample injection loop having a sample inlet and a sample outlet to enable loading said sample solution in said loop, said loop having a known volume in the range of about 100 μL to about 8 mL, a predetermined inner diameter in the range of about 0.5 mm to about 3.0 mm;
- a separator column having ion exchange resin capable of concentration of said trace ionic contaminants therein; and
- an injection valve assembly having a first valve portion in selective fluid communication with said eluent source, said sample inlet and said sample input port, and having a second valve portion in selective fluid communication with said sample waste port, said sample outlet and said separator column, said first valve portion and said second valve portion being adapted to cooperate therebetween to load said sample injection loop with sample solution from said sample source, and cooperate to flush up to about 98% of the known volume of sample solution from the sample injection loop, with eluent from said eluent source, and through said separator column without passing any eluent through said separator column during the flush.

5,739,423
METHOD FOR DETERMINING THERMODYNAMIC AND MOLECULAR PROPERTIES IN THE LIQUID PHASE

James W. Bunger; Christopher P. Russell, and Prasad A. V. Devineni, all of Salt Lake City, Utah, assignors to James W. Bunger and Associates, Inc., Salt Lake City, Utah
Continuation of Ser. No. 396,378, Feb. 28, 1995, Pat. No. 5,574,215, which is a continuation-in-part of Ser. No. 204,553, Mar. 1, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 748,133
Int. Cl.^{6} G01N *33/00*
U.S. Cl. 73—64.54 12 Claims



1. A method for calculating thermodynamic and molecular properties of molecules of a substance dissolved in a solvent in the liquid state, which method comprises,

(a) maintaining a sample portion of the substance at a concentration (C) in the solvent.

(b) measuring apparent molar concentration (C_M) at the actual concentration (C) to produce a data pair C vs. C_M, the apparent molar concentration determined by a method in list consisting of,
  (1) measuring the deviation of vapor pressure and saturation temperature of the sample from that of the pure solvent.
  (2) measuring the deviation of the melting point of a sample portion from that of the pure solvent.

(c) defining an average aggregate mass (M_A) using the relation:

$$M_A = C/C_M$$

where the average aggregate mass (M_A) is the average molecular mass of clusters of associated molecules and any unassociated molecules.

(d) repeating steps (a) through (c) for m repetitions with a different concentration (C) for each repetition to produce a set of data points of concentration (C) vs. average aggregate mass (M_A).

(e) solving for $a_1, a_2, \ldots a_j$, and MW_0 from the C and M_A data points from the following set of equations.

a subset of equations for n=2 to m defined by

$$R_i = \frac{nk_n}{(MW_0)^{n-1}} Y^n C^{n-1}$$

an equation defined by

$$1 - Y = \sum_{i=2}^{m} \frac{ik_i}{(MW_0)^{i-1}} Y^i C^{i-1}$$

an equation defined by

$$M_A = \frac{MW_0}{Y + \sum_{i=2}^{m} \frac{R_i}{i}}$$

and a subset of equations that are relations between k_n and n, for n=2 to m

$$k_n = f(n, a_1, a_2, \ldots, a_j)$$

where,
- MW_0 is the average molecular weight of the substance molecule,
- m is an integer greater than 2,
  - k_n for n=2 to m are equilibrium constants of association between monomers of the substance and clusters of monomers,
  - $a_1, a_2, \ldots a_j$ are constants,
  - and j is an integer greater than 0,

the number (m) of the apparent mass (M_A) versus concentration (C) data points produced by the repetitions in step (e) being an integer greater than j.

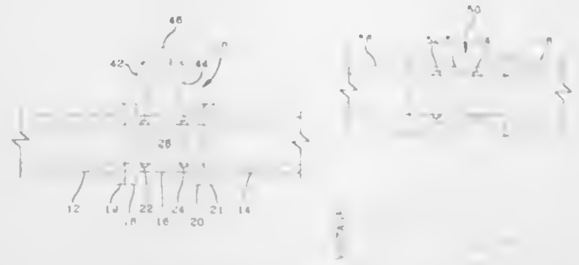
5,739,424
GALVANIC CORROSION INHIBITING COUPLING INTERPOSED BETWEEN TWO DISSIMILAR PIPES

John A. Beavers, Columbus, Ohio, assignor to CC Technologies Laboratories, Inc., Dublin, Ohio
Filed Dec. 4, 1996, Ser. No. 760,042
Int. Cl.^{6} C23F *13/00*
U.S. Cl. 73—86 18 Claims

1. A corrosion inhibiting apparatus mounted at the junction of two chemically different, elongated metal bodies defining an interior fluid chamber containing an electrolyte, the apparatus comprising:

(a) a support member mounted between the two metal bodies, in a gap formed between the metal bodies, spacing the metal bodies from each other;

(b) first and second longitudinally spaced electrodes mounted to the support member in communication with the electrolyte, and electrically insulated from the metal bodies; and



(c) a current source having a positive terminal electrically connected to the first electrode and a negative terminal electrically connected to the second electrode

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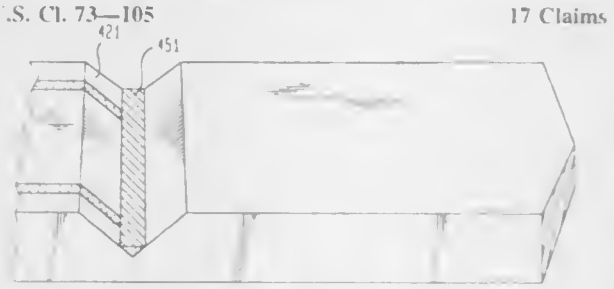
5,739,425
CANTILEVER WITH INTEGRATED DEFLECTION SENSOR

Gerd Karl Binnig, Wollerau; Heinrich Rohrer, Richterswil, and Peter Vettiger, Langnau, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 19, 1996, Ser. No. 699,810
Claims priority, application WIPO, Sep. 1, 1995, PCT/IB95/00724
Int. Cl.^{6} G01B *7/34*
U.S. Cl. 73—105 17 Claims



1. Cantilever having a constriction section of reduced lateral dimensions and/or reduced Young's modulus and at least one integrated strain sensing element forming a layer fully in contact with and/or embedded in said cantilever, wherein the length (L_1) of the constriction is less than ⅓ of the total length of the cantilever and the ratio n λ/ε is less than 9, with:
- n being geometrical factor in the range of [1–10] approximately 2 to 3 depending on the shape of the cantilever,
- λ being a longitudinal constriction factor defined as the ratio of the length L_1 over the remaining length of the cantilever L_2, and
- ε being a transversal constriction factor defined as a product of the third power of the ratio of the thickness, the ratio of the widths, and the ratio of the Young's moduli of the cantilever in the constriction section and in the remaining part of the cantilever, respectively

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5,739,426
VOLUME MEASUREMENT APPARATUS AND METHOD

Thomas W. Storm, 1602 Augusta Way, Casselberry, Fla. 32707
Continuation-in-part of Ser. No. 582,347, Jan. 19, 1996, Pat. No. 5,663,498. This application Apr. 28, 1997, Ser. No. 846,173
Int. Cl.^{6} G01B *11/28*
U.S. Cl. 73—149 17 Claims

1. A volume measurement apparatus comprising a first leg hingedly attached to a second leg, a first sensor disposed at an extreme of said first leg opposite said second leg, a second sensor disposed at an extreme of said second leg opposite said first leg, a third sensor disposed at an intersection of said first leg and said second leg, a volume measurement means electrically connected to the sensors, a trackball rotatably attached to said second leg, and a track ball movement detection means electrically connected to said trackball and to said volume measurement means

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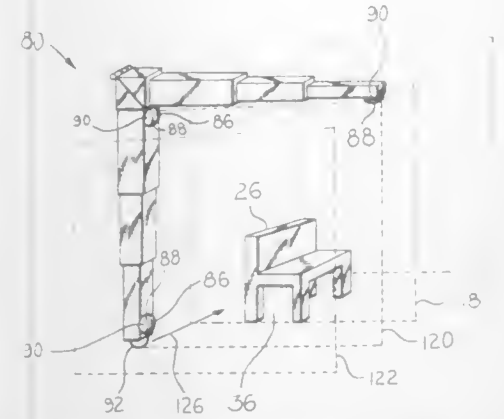


7. A volume measurement apparatus comprising a first leg attached to a second leg, a forward-looking sensor, a sideward-looking sensor, and a rearward-looking sensor disposed at an extreme of said first leg opposite said second leg, a forward looking sensor, a sideward-looking sensor, and a rearward-looking sensor disposed at an extreme of said second leg opposite said first leg, a forward-looking sensor, a sideward-looking sensor, and a rearward-looking sensor disposed at an intersection of said first leg and said second leg, a volume measurement means electrically connected to the sensors, a trackball rotatably attached to said second leg, and a track ball movement detection means electrically connected to said trackball and to said volume measurement means.

5,739,427

PLATE CIRCULATOR AND FORCE MEASURING APPARATUS

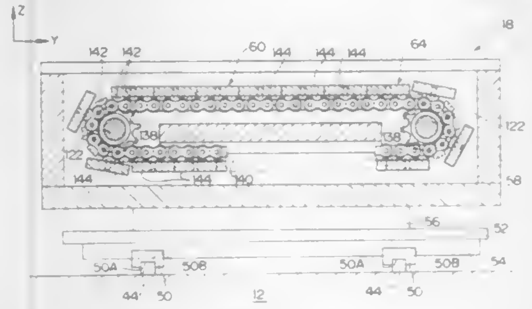
Kenziro Yamaya; Yutaka Naruse, and Yukio Uchino, all of Tokyo, Japan, assignors to Bridgestone Corporation, and Daiwa Manufacture Corporation, both of Tokyo, Japan

Filed Oct. 29, 1996, Ser. No. 739,747

Claims priority, application Japan, Nov. 1, 1995, 7-285047

Int. Cl.^{6} G01L *3/26*

U.S. Cl. 73—117 **18 Claims**



1. A plate circulator comprising:

a plurality of plates;

chaining means for forming a circular body by connecting the plurality of plates in parallel for circulation,

an engagement groove provided to a surface of each plate in the circular body to be extended in a direction along the circular body;

a guide member provided for extension in the direction along the circular body, said guide member having a receiving groove;

a frame to which said guide member is fixed so that the receiving groove faces said engagement groove, said frame having a load receiving plate member, and said guide member fixed to a position which faces said engagement groove on an upper surface of the plate;

a plurality of balls for supporting the circular body and disposed between said plates and said guide member to be brought into contact with walls constituting said engagement groove and the receiving groove;

a circulation groove for rotating and circulating said plurality of balls, said circulation groove being connected to said engagement groove and the receiving groove; and

power transmitting means for transmitting power to said chaining means to circulate the circular body.

5,739,428

SYSTEM FOR SPEED-CONTROLLED BALANCING THE WHEEL OF A MOTOR VEHICLE

Hermann Bux, Pocking, and Peter Ross, Munich, both of Germany, assignors to Beissbarth GmbH, Munich, Germany

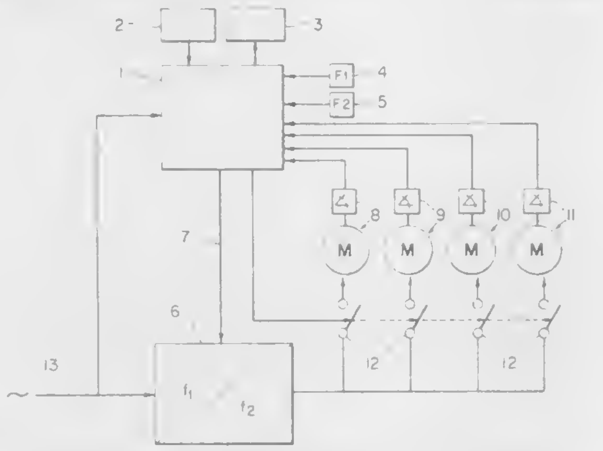
PCT No. PCT/EP95/03518, § 371 Date Jun. 10, 1996, § 102(e) Date Jun. 10, 1996, PCT Pub. No. WO96/07881, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 7, 1995, Ser. No. 656,315

Claims priority, application Germany, Sep. 8, 1994, 44 32 025.6

Int. Cl.^{6} G01M *1/06*

U.S. Cl. 73—146 **10 Claims**



1. A balancing machine for balancing a wheel, comprising:

a drive device for rotating a wheel for measuring an imbalance in the wheel, said drive device including a motor and a balancing shaft;

means for measuring the imbalance; and

a speed control device for controlling the speed of the drive device, said speed control device including a controllable frequency converter and means for controlling the controllable frequency converter so as to softly start and brake the balancing shaft and thereby control the balancing shaft at selected speeds, said control means including a computer.

5,739,429

POWDER COATING SYSTEM INCORPORATING IMPROVED METHOD AND APPARATUS FOR MONITORING FLOW RATE OF ENTRAINED PARTICULATE FLOW

James W. Schmitkons, Lorain; Richard P. Price, Parma Heights; John R. Askew, North Olmsted, and Jan L. Shanabarger, Westlake, all of Ohio, assignors to Nordson Corporation, Westlake, Ohio

Continuation-in-part of Ser. No. 501,891, Jul. 13, 1995, abandoned. This application Apr. 29, 1996, Ser. No. 639,402

Int. Cl.^{6} G01F *1/74*

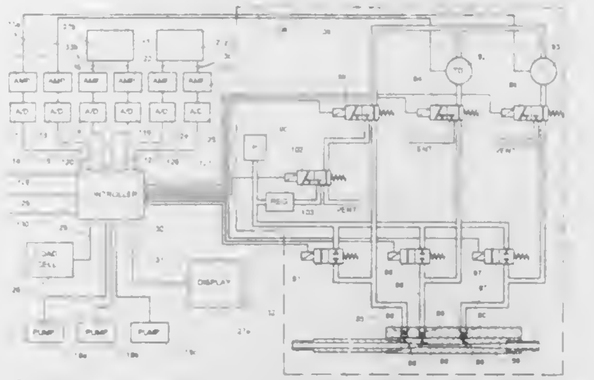
U.S. Cl. 73—196 **50 Claims**

1. A system for monitoring the flow rate of particulate material entrained within an air stream, which comprises:

a feed hopper providing a source of the particulate material;

a hose for conveying the particulate material within the air stream;

a pump for drawing the particulate material from the feed hopper and transporting the particulate material with the air stream through the hose;



a flow monitor associated with the hose for monitoring the flow of the particulate material through the hose and providing a first flow indication;

a device associated with the feed hopper for measuring the change in weight of the feed hopper over a predetermined time interval and providing a second flow indication, and

a flow indicating device having electrical inputs connected to receive the first and second flow indications from the flow monitor and the weight measuring device, respectively, the flow indicating device including a controller which corrects the first flow indication from the flow monitor according to the second flow indication from the weight measuring device to provide a corrected flow indication.

5,739,430

RESISTIVE MOISTURE SENSOR

Reinhold Berberich, Frankfurt, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany

Filed May 14, 1996, Ser. No. 649,131

Claims priority, application Germany, May 24, 1995, 195 19 099.8

Int. Cl.^{6} G01N *7/00*

U.S. Cl. 73—335.05 **9 Claims**

1. A moisture sensor comprising a first electrode and a second electrode located on a non-conductive support, suitable for the windshield of a motor vehicle, wherein a resistance between the electrodes depends on an amount of moisture present on the support and the electrodes, and wherein

each of said electrodes is comb shaped with a set of finger elements extending from a base element wherein the finger elements of the first electrode are interleaved with and spaced apart from the finger elements of the second electrode;

in each of the electrodes, the base element and the finger elements constitute electrically conductive paths and are covered by a resistance layer having an electrical conductivity which is low relative to the conductivity of the conductive paths,

in each of the electrodes the resistance layer forms resistors at respective ones of the finger elements, the resistance layer serving to limit a minimum obtainable resistance of the moisture sensor upon a wetting of the entire sensor while retaining sensitivity to individual drops of moisture, and

the base elements of the respective electrodes serve for connection to a resistance measuring device for measurement of the resistance between the electrodes

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5,739,431

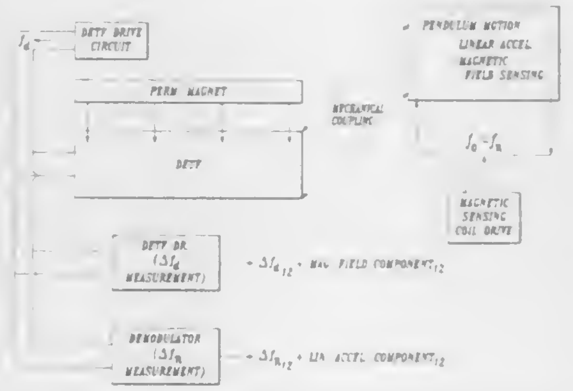
MINIATURE MAGNETOMETER-ACCELEROMETER

Fred Petri, Snohomish, Wash., assignor to AlliedSignal, Inc., Morristown, N.J.

Filed Jun. 13, 1996, Ser. No. 663,402

Int. Cl.^{6} G01P *3/00*, G01R *33/00*; G01C *9/10*

U.S. Cl. 73—509 **14 Claims**


DETF DRIVE CIRCUIT
PENDULUM MOTION
LINEAR ACCEL
MAGNETIC FIELD SENSING
PERM MAGNET
MECHANICAL COUPLING
DETF
MAGNETIC SENSING COIL DRIVE
DETF OR (Δf_d MEASUREMENT)
→ Δf_d12 + MAG FIELD COMPONENT12
DEMODULATOR (Δf_n MEASUREMENT)
→ Δf_n12 + LIN ACCEL COMPONENT12

1. An integrated magnetometer and accelerometer device, comprising

a pendulum mounted to move in response to an acceleration of the device,

a conductor attached to said pendulum for conducting an ac current so as to move said pendulum in reaction to a magnetic field that is to be sensed; and

a transducer for producing output signals representing combined acceleration and magnetic field movement of said pendulum;

drive means for driving said transducer, and

signal processing means for processing said output signals.

5,739,432

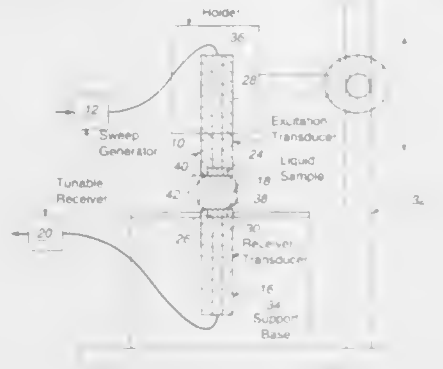
ULTRASONIC CHARACTERIZATION OF SINGLE DROPS OF LIQUIDS

Dipen N. Sinha, Los Alamos, N. Mex., assignor to The Regents of the University of California, Los Alamos, N. Mex.

Filed May 30, 1996, Ser. No. 657,709

Int. Cl.^{6} G01N *29/00*

U.S. Cl. 73—579 **15 Claims**



14. A method for ultrasonically characterizing a single droplet of a liquid, which comprises the steps of

a. applying ultrasonic excitation having a chosen frequency to the droplet using a pair of transducers spaced a chosen distance apart where the droplet is suspended in between the tranducers by surface tension only, whereby standing waves are generated, in the droplet, and

b. detecting the generated standing waves from which waves, the droplet is characterized

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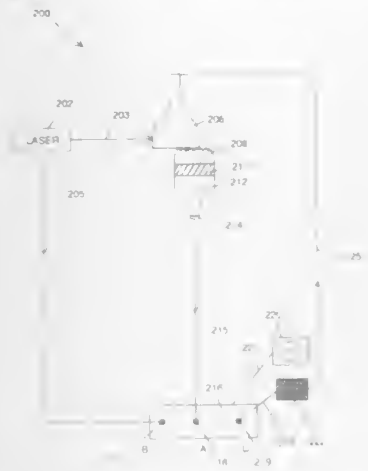
5,739,433
TOUCH OFF PROBE

Kenneth M. Beck, Kennewick, Wash., assignor to University of Central Florida, Orlando, Fla.

Filed Apr. 15, 1996, Ser. No. 632,660
Int. Cl.^{6} G01H *17/00,* **B24B** *49/10*
U.S. Cl. 73—660 **5 Claims**



1. A system for pre-contact recognition and control (touch-off) of a controlled grinding tool approaching a workpiece which is independent of tool grit, workpiece material, and all natural machining frequencies, comprising,

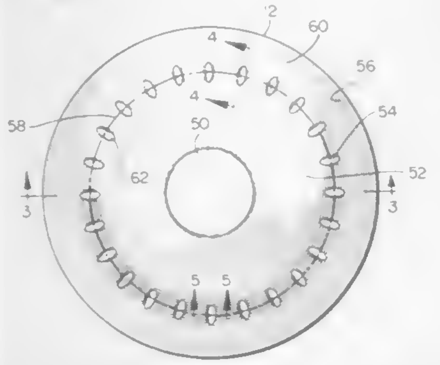
a laser for generating a selected modulated ultrasonic frequency to a grinding tool; and

a receiving transducer attached to a workpiece, wherein the generated selected modulated ultrasonic frequency is detected by the receiving transducer when the grinding tool enters a lubrication medium about the workpiece.

5,739,434
FORMED METAL DIAPHRAGM WITH IMPROVED CYCLE LIFE

Frank E. Jensen, Marshalltown, Iowa, assignor to Fisher Controls International, Inc., Clayton, Mo.

Filed Oct. 23, 1996, Ser. No. 735,508
Int. Cl.^{6} G01L *7/02;7/10*
U.S. Cl. 73—730 **8 Claims**



1. In a fluid pressure regulator including a regulator valve body having a fluid pressure inlet and outlet, a movable valve plug in the regulator valve body intermediate the inlet and outlet, and a flexible diaphragm mounted in the regulator valve body and coupled to the movable valve plug for controlling fluid flow between the inlet and outlet in response to changes in the fluid pressure on opposite side of the diaphragm, the improvement comprising,

said diaphragm being cylindrically shaped with a dome shaped center portion raised above a surrounding diaphragm annular surface;

a plurality of elliptical shaped impressions in said diaphragm annular surface equally radially spaced around the dome-shaped center portion, each of said elliptical shaped impressions having a major elliptic axis and a minor elliptic axis,

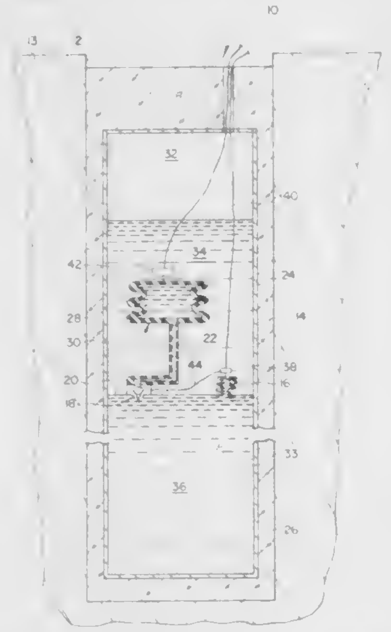
each of the major elliptic axes of said impressions aligned with a respective radius of said diaphragm, and

each of the minor elliptic axes of said impressions being located on a common circle concentric with the dome-shaped center portion.

5,739,435
TWO-STAGE STRAIN-SENSING DEVICE AND METHOD

Ivor Selwyn Sacks, Chevy Chase, Md., assignor to Carnegie Institution of Washington, Washington, D.C.

Filed Oct. 16, 1996, Ser. No. 733,012
Int. Cl.^{6} G01B *5/00;7/16;* **G01L** *1/00,* **G01N** *33/24*
U.S. Cl. 73—784 **10 Claims**



1. A device for detecting strains and deformations in solids comprising

a casing constructed and arranged to be insertable in a solid, said casing having walls defining a substantially closed container, said container having an inner dividing wall separating the container into an upper enclosed section and a lower enclosed section;

a fluid substantially filling the lower enclosed section and in fluid communication with the interior walls of the lower enclosed section, said fluid at least partially filling said upper enclosed section;

a first strain-sensing system in fluid communication with said lower enclosed section of the container such that deformation of said walls causing volume changes in the fluid are detected by said first strain sensing system;

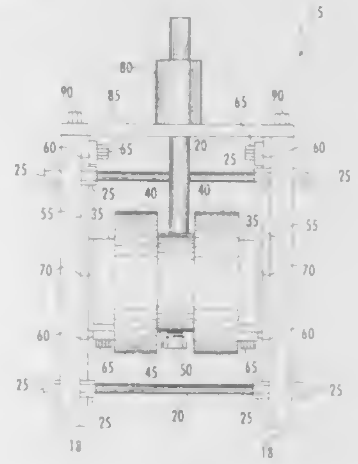
a second strain-sensing system having a larger range and lower sensitivity than the first strain-sensing system disposed in said upper enclosed section, said second strain-sensing system being operable during solids deformations exceeding strain measuring limit of the first strain sensing system; and

a valve fluidly coupling said second strain-sensing system to said lower enclosed section, said valve being operatively associated with said first strain-sensing system and being normally closed, preventing fluid in said lower section from communicating with said second strain-sensing system, said valve being constructed and arranged to open in response to a signal sent from the first strain-sensing system when said first strain-sensing system reaches an operating limit of strain measurement and to allow fluid flow from the lower enclosed section into the second strain-sensing system, thereby protecting the first strain-sensing system from being damaged from strains exceeding the operating limit thereof, said second strain-sensing system being constructed and arranged to measure strains in excess of the operating limit of the first strain sensing system.

5,739,436
METHODS AND APPARATUS FOR MEASURING DOUBLE-INTERFACE SHEAR IN GEOSYNTHETICS AND GEOMATERIALS

Stephen J. Trautwein, P.O. Box 3149, Houston, Tex. 77231

Continuation of Ser. No. 390,760, Feb. 17, 1995, abandoned. This application Jul. 15, 1996, Ser. No. 679,935
Int. Cl.^{6} G01N *3/24*
U.S. Cl. 73—841 **16 Claims**



1. An apparatus for measuring a shear strength at an interface between geoengineering materials, comprising

an outer assembly having outer lead plates for coupling a first geoengineering material;

an inner assembly having a multi piston cylinder, each piston having an inner lead plate for coupling a second geoengineering material, the inner assembly positioned within the outer assembly;

interfaces formed by operatively coupling the inner and outer lead plates;

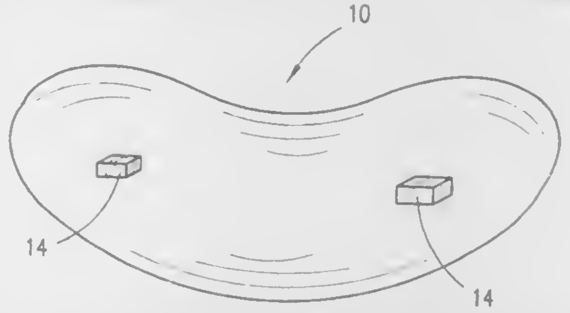
a loader for producing a load normal to the interfaces; and

a shearer for producing a force substantially parallel to the interfaces.

5,739,437
PROCESS AND ARTICLE FOR DETERMINING THE RESIDENCE TIME OF A FOOD PARTICLE TRX-371

Charles E. Sizer, Hawthorn Woods, and Sevugan Palaniappan, Grayslake, both of Ill., assignors to Tetra Laval Holdings & Finance SA, Pully, Switzerland

Continuation-in-part of Ser. No. 667,124, Jun. 20, 1996. This application Dec. 19, 1996, Ser. No. 769,811
Int. Cl.^{6} G01F *1/708*
U.S. Cl. 73—861.05 **15 Claims**



1. An article for determining the residence time of a food particle undergoing aseptic processing wherein the food particle is a constituent of a heterogeneous fluid, the heterogeneous fluid composed of at least the food particle and a fluid, the article comprising,

a magnet; and

an analog of the food particle encompassing the magnet, the analog having substantially the shape, size and rotational inertia of the food particle with the magnet encompassed therein, and the article having an approximate density within a range between the density of the fluid and the density of the food particle

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5,739,438
METHOD FOR CONTROLLING A TENSION OF A METAL STRIP IN A HEAT TREATMENT FURNACE

Hiroshi Sawada; Kohji Omori; Hiroshi Yoshimura, and Takumi Imajuku, all of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

Filed Jun. 21, 1996, Ser. No. 667,640
Claims priority, application Japan, Jun. 23, 1995, 7-157700
Int. Cl.^{6} G01L *1/26*
U.S. Cl. 73—862.391 **3 Claims**

1. A method for controlling a tension of a metal strip in a heat treatment furnace having a plurality of tapered rolls comprising the steps of:

(a) travelling the metal strip through the plurality of tapered rolls,

(b) measuring a tension (σ) working on the metal strip through at least one of the tapered rolls,

(c) computing a critical tension (σ_{cr}) which generates heat buckle based on a thickness of the metal strip, a width of the metal strip, an elastic modulus of the metal strip, a length of a flat roll portion and a roll taper under a hot state, and

(d) controlling the tension measured by the step (b) to be over a tension (σ_{min}) sufficient to prevent transverse displacement but less than the critical tension (σ_{cr}) which generates heat buckle,

wherein the critical tension (σ_{cr}) which generates heat buckle is calculated by the following equation

$$\sigma_{cr} = K t^{A} (W - Fl)^{B} \theta^{C} E$$

where

t: thickness of the metal strip (mm)
W: width of the metal strip (mm)
Fl: length of a flat roll portion
θ: roll taper (rad) under a hot state
E: elastic modulus of the metal strip (kgf/mm²)
K, A, B, C: constant

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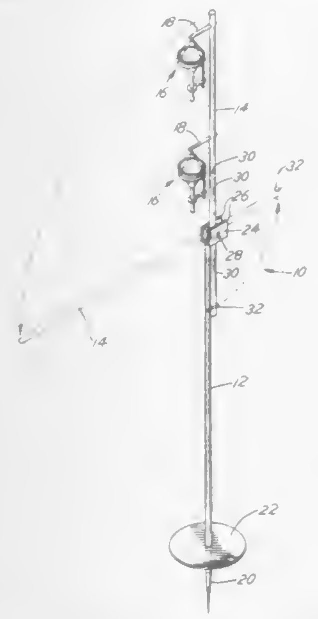
5,739,439
VERTICAL STRATIFIED AIR/WATER SAMPLING DEVICE

James M. Gruidel; Lynn D. Alber, and John J. Lainson, all of Hastings, Nebr., assignors to Dutton-Lainson Company, Hastings, Nebr.

Continuation of Ser. No. 539,734, Oct. 5, 1995, abandoned. This application Jan. 12, 1996, Ser. No. 586,197

Int. Cl.^{6} G01N *1/16; 1/22*

U.S. Cl. 73—864 **12 Claims**



1. An apparatus for collecting a plurality of samples at a plurality of vertical heights above a surface, said apparatus comprising, in combination:

a) a vertical support member;

b) a sample support rod, connected to the vertical support and moveable between a vertical position and a horizontal position; and

c) a plurality of sample receivers connected to the sample support rod at points along the rod.

5,739,440
METHOD AND DEVICE FOR REMOVING HYDROCARBONS FLOATING ON WATER

Angelo Diadelfo, and Diana Trasente, both of St.-Léonard, Canada, assignors to Environmental Remediation Equipment Inc., Anjou, Canada

Filed Feb. 25, 1997, Ser. No. 806,146

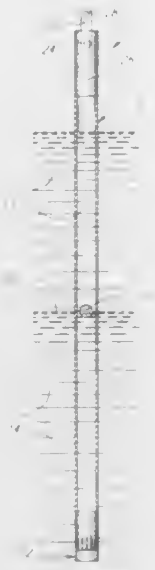
Int. Cl.^{6} G01N *1/12*

U.S. Cl. 73—864.63 **15 Claims**

10. A method of removing a first liquid medium floating on a second liquid medium, said first medium having a density less than said second medium and being immiscible therewith, said method comprising the steps of:

a) immersing an immersible container means having a bottom opening into said first and said second media to allow said first and said second media to flow into said container means through said bottom opening;

b) raising said container means out of said first and second media to cause said second medium to drain from said container means.



c) closing said bottom opening to prevent said first medium from passing therethrough when said second medium has substantially completely drained; and

d) removing said first medium from said container means.

5,739,441
SEAL SEAT FOR AN ELECTROCHEMICAL SENSOR ELEMENT

Karl-Hermann Friese, Leonberg; Helmut Weyl, Schwieberdingen, and Romuald Fries, Weissach, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

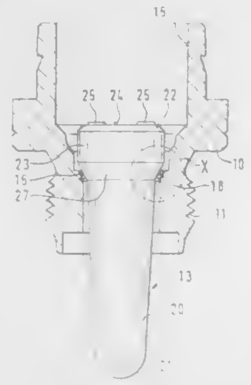
PCT No. PCT/DE96/00574, § 371 Date Oct. 17, 1996, § 102(e) Date Oct. 17, 1996, PCT Pub. No. WO96/35119, PCT Pub. Date Nov. 7, 1996

PCT Filed Mar. 26, 1996, Ser. No. 727,677

Claims priority, application Germany, Apr. 29, 1995, 195 15 897.0

Int. Cl.^{6} G01D *21/00;* **G01N** *27/26*

U.S. Cl. 73—866.5 **6 Claims**



1. An arrangement of a sensor element of an electrochemical measuring sensor in a metallic housing, wherein: the sensor element, in the form of tube closed at one end, has a conical sealing surface which rests with a metallic sealing ring on a seal seat implemented on the housing, the seal seat has a raised circular ring surface having a radius (r) of 0.5 to 1.5 mm, and the sealing ring adapts itself on the circular ring surface tangentially and automatically aligned with the conical sealing surface of the sensor element

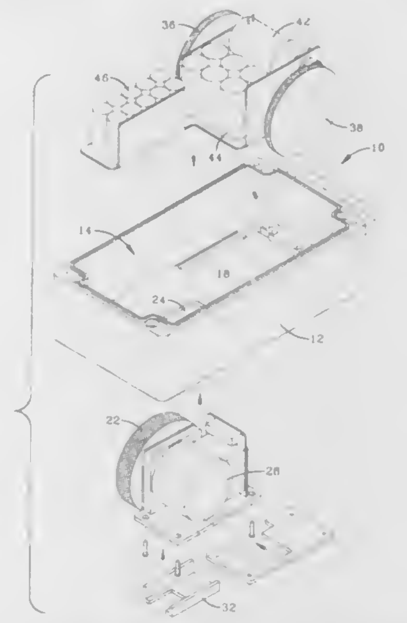
5,739,442
METHOD FOR MONITORING CONDITIONS OF OBJECTS INCLUDING EDGE DETECTING AND TRAVEL DIRECTION REVERSING STEPS

David Paul Schweitzer, North Canton, and James Arthur Grimes, Sr., Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 536,504, Sep. 28, 1995, Pat. No. 5,618,999. This application Jan. 21, 1997, Ser. No. 787,480

Int. Cl.^{6} G01M *19/00*

U.S. Cl. 73—866.5 **11 Claims**



1. A method of observing a physical condition of an object at or near a surface of the object, the object having opposed lateral first and second edges, the method comprising the steps of:

causing a vehicle to move over the surface of the object while observing the physical condition:

apart from travel over the surface, calibrating the apparatus that senses the physical condition by causing the vehicle to travel over the calibration surface,

detecting a second edge of the object, the step of detecting a second edge of the object being accomplished by a first wheel of the vehicle rolling off the second edge, thereby bringing a slide shoe into contact with the object; and,

reversing the direction of travel of the vehicle after detection of the second edge.

5,739,443
CARRIER FOR A MONITORING DEVICE

Roger I. Saunders, 92 Van Dyke Rd., P.O. Box 136, Hollis, N.H. 03049-0136

Filed Apr. 1, 1996, Ser. No. 626,669

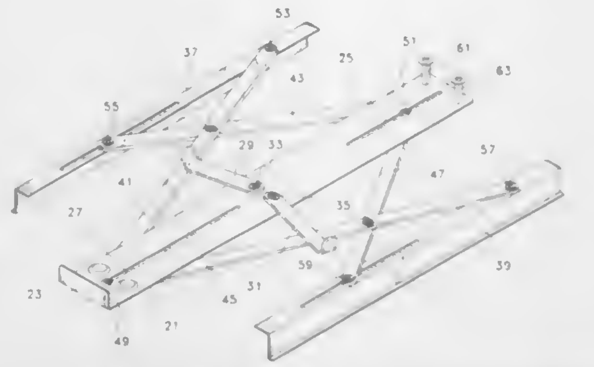
Int. Cl.^{6} G01D *21/00*

U.S. Cl. 73—866.5 **25 Claims**

1. A carrier for supporting a monitoring device during passage of said carrier and said monitoring device through a processing machine, said carrier comprising.

(a) an elongated support deck having a longitudinal axis for substantial alignment with the direction of said passage of said carrier and said monitoring device through said processing machine,

(b) first and second pairs of scissor arms, each arm of each such pair having inner and outer extremities, the inner extremity of each arm being pivotally coupled to said elongated support deck, and the arms of said first and second pairs being disposed for extension respectively in first and second directions which are opposite to each other and approach perpendicularity to said longitudinal axis of said elongated support deck.



(c) first and second rails pivotally coupled to said outer extremities of, respectively, said first and second pairs of scissor arms and oriented in a direction substantially parallel to said longitudinal axis of said elongated support deck,

(d) means associated with said elongated support deck for urging said monitoring device in said direction of passage of said carrier and said monitoring device through said processing machine, and

(e) first and second support arms pivotally and securably coupled to said elongated support deck for respectively engaging opposite sides of said monitoring device to restrain relative motion between said monitoring device and said elongated support deck in directions having components perpendicular to said longitudinal axis of said elongated support deck.

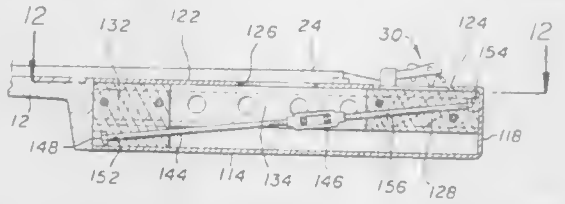
5,739,444
MULTI-TUNER BRIDGE FOR STRINGED MUSICAL INSTRUMENTS

David J. Borisoff, 1455 S. Seneca St., Romulus, N.Y. 14541

Division of Ser. No. 173,139, Dec. 22, 1993, Pat. No. 5,542,330, which is a continuation of Ser. No. 820,280, Jan. 14, 1992, abandoned. This application Mar. 29, 1996, Ser. No. 625,040

Int. Cl.^{6} G10D *1/08*

U.S. Cl. 84—291 **2 Claims**



1. A bridge device in combination with a stringed musical instrument, said instrument having a neck, a plurality of strings each including an end portion, and a hollow body including a soundboard, the device comprising:

a mounting surface disposed in the hollow body of said instrument;

an opening in said soundboard having an opening disposed above said mounting surface, and

a string engaging means secured to said mounting surface for anchoring said end portion to said mounting surface for carrying the tensioning of said strings;

said mounting surface rigidly connected to said neck independently of said soundboard,

wherein a force associated with tension of the strings of said instrument is transferred to said neck through said rigidly connected mounting surface rather than through said soundboard.

a mounting block wherein said mounting surface is disposed on the mounting block,

a forward block disposed in said hollow body,

a support member rigidly connecting said forward block and said mounting block,

said forward block contacting said neck.

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wherein said rigid connection is formed by said forward block, said mounting block, and said support member; and

an adjusting means interconnecting said forward block and said mounting block for increasing the rigidity of said rigid connection.

5,739,445

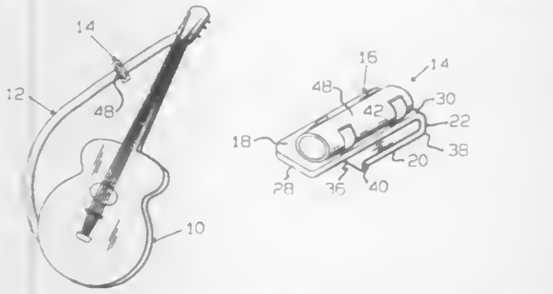
GUITAR SLIDE BAR HOLDER

Mark Terry, 750 Woodlawn, Jackson, Mich. 49203, and Donald D. Terry, 423 W. Ganson, Jackson, Mich. 49201

Filed Jan. 10, 1997, Ser. No. 781,391

Int. Cl.⁶ G10D *3/00*

U.S. Cl. 84—329 **9 Claims**



1 A guitar slide bar holder for use with a guitar having a strap characterized by ease of slide bar accessibility comprising, in combination, a support body of a U configuration having a first flat leg having outer and inner sides, a free end and an attached end, a second flat leg having outer and inner sides, a free end and an attached end, and a bridge resiliently interconnecting the attached end of said first and second legs and maintaining said legs in spaced relation, and releasable slide bar holding means defined upon said first leg outer side adapted to solely exteriorly contact a slide bar for selectively retaining a slide bar thereon whereby upon inserting the guitar strap between said inner sides of said legs said legs resiliently grip the strap conveniently positioning said support body and slide bar holding means relative to the guitar.

5,739,446

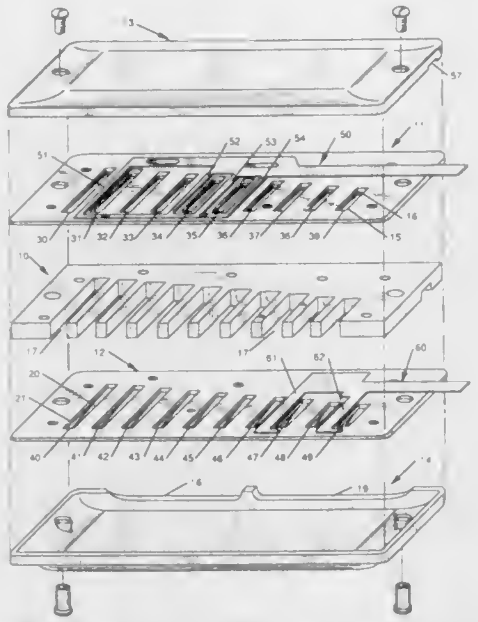
HARMONICA AND METHOD OF PLAYING SAME

Henry T. Bahnson, 612 Dorseyville Rd., Pittsburgh, Pa. 15238-1618

Filed May 21, 1992, Ser. No. 886,631

Int. Cl.⁶ G10D *7/12*

U.S. Cl. 84—377 **34 Claims**



1. A harmonica adapted for overblowing, cumprising;

a body having a plurality of cavities therein for air passage, said body being positioned between a blow reed plate and a draw reed plate;

a housing within which said body, blow reed plate and draw reed plate are disposed;

said blow reed plate having a plurality of blow reed cells defined therein, each blow reed cell having a blow reed and a blow reed slot, each said blow reed slot being positioned adjacent one said body cavity to receive air blown into said body cavity;

said draw reed plate including a plurality of draw reed cells therein, each draw reed cell comprising a draw reed and a draw reed slot, each said draw reed slot being positioned adjacent one said body cavity to allow passage of air drawn through said body cavity; and

said harmonica further including a damping means for damping at least one said blow reed without damping all said blow reeds, said damped blow reed being positioned opposite a said draw reed to be vibrated through overblowing, whereby damping of said blow reed will concentrate air flow into the cavity on said opposite draw reed to effect overblowing.

5,739,447

ATTACHMENT AND DETACHMENT OF A WEIGHT TO A BOOM CYMBAL STAND

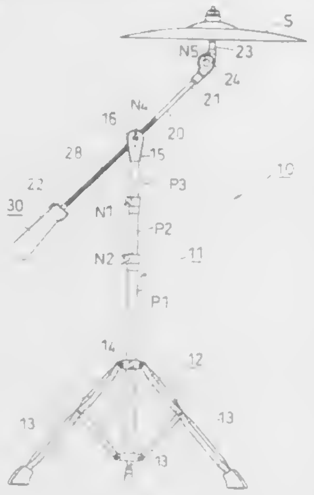
Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Kabushiki Kaisha, Japan

Filed Jan. 3, 1997, Ser. No. 775,943

Claims priority, application Japan, May 22, 1996, 8-005472

Int. Cl.⁶ G10D *13/08*

U.S. Cl. 84—402 **10 Claims**



1 A mechanism for attaching and detaching a weight to a boom cymbal stand, comprising

a boom rod having a length, a cymbal holding part on the rod, a weight receiving installation part toward the end of the rod away from the cymbal holding part;

a support stand attachable to the boom rod along its length;

a weight having a side with an insertion hole in it, the installation part of the boom rod being received in the insertion hole;

a cover over the side of the weight, the cover having a hole through it aligned with the insertion hole in the weight enabling the installation part of the rod to pass through the hole in the cover into the insertion hole;

a boom rod installation and detachment lever including a change-over plate disposed between the cover and the side of the weight and being supported for movement between the cover and the weight in a path across the insertion hole, the change-over plate having a window through it which is alignable with the hole in the cover and the insertion hole enabling the installation part of the boom rod to pass through the window into the insertion hole;

the change-over plate including a rod engagement part which is movable into engagement with the rod installation part such engagement being for holding the weight securely to the cover and thereby to the rod;

a spring normally urging the lever to move the change over plate for causing engagement between the engagement part and the installation part, the change-over plate being movable against the urging of the spring for releasing engagement of the engagement part and the boom rod, enabling either insertion of the boom rod into or removal of the boom rod from the hole in the weight, through the window of the change-over part and through the hole in the cover

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5,739,448

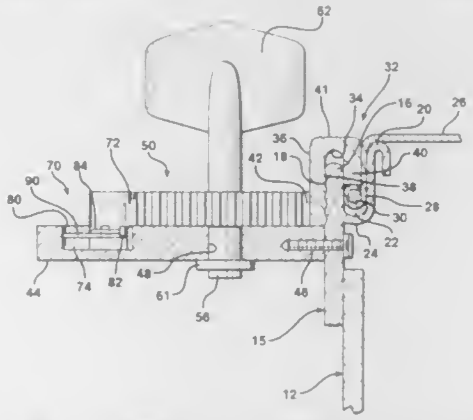
DRUM TUNING SYSTEM

Elisandro Toscano, Orange, Calif., assignor to Michael Frankel, North Hollywood, Calif.

Filed Oct. 16, 1996, Ser. No. 730,780

Int. Cl.⁶ G10D *13/02*

U.S. Cl. 84—413 **16 Claims**



1 A musical percussion drum comprised of a drum shell, a tuning collar secured to said drum shell and including an annular bearing ring and a tuning rim coaxially surrounding said bearing ring so as to define an annular channel therebetween and wherein said tuning rim has a radially outwardly facing, externally threaded annular surface, an expansive drum skin stretched across said bearing ring and having a periphery extending down into said channel throughout its entire circumference, a rigid, annular hoop secured to said periphery of said drum skin and residing in said channel, and an annular counterhoop formed with an outer, annular, inwardly facing, threaded portion threadably engaged with said externally threaded surface of said tuning rim, an inner, annular portion disposed in said channel and bearing downwardly upon said annular hoop, and a web joining said inner and outer portions rigidly together longitudinally beyond said tuning rim so that said web spans and is longitudinally displaced from said tuning rim.

5,739,449

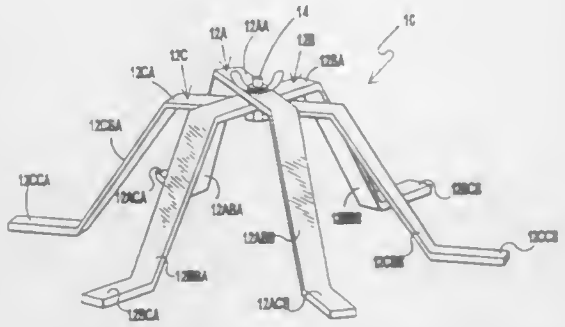
COLLAPSIBLE DRUM STAND

Manuel A. Torres, Jr., 15 Brighton Ct., Daly City, Calif. 94015

Filed Oct. 4, 1995, Ser. No. 539,082

Int. Cl.⁶ G10D *13/02*

U.S. Cl. 84—421 **4 Claims**



1 A collapsible drum stand comprising:

a first drum leg comprising: a first drum horizontal member with an opening in the middle; a first drum vertical left member extending on an outward obtuse angle from one distal end of said first drum leg horizontal member; a first drum leg floor left member extending on an outward obtuse angle from a bottom distal end of said first drum vertical left member, a first drum vertical right member extending on an outward obtuse angle from an opposite distal end of said first drum leg horizontal member; a first drum leg floor right member extending on an outward obtuse angle from a bottom distal end of said first drum vertical right member;

a second drum leg comprising: a second drum leg horizontal member with an opening in the middle, a second drum vertical left member extending on an outward obtuse angle from one distal end of said second drum leg horizontal member, a second drum leg floor left member extending on an outward obtuse angle from a bottom distal end of said second drum vertical left member, a second drum vertical right member extending on an outward obtuse angle from an opposite distal end of said second drum leg horizontal member, a second drum leg floor right member extending on an outward obtuse angle from a bottom distal end of said second drum vertical right member; and,

a fastener shaft passing through said opening of said first and second drum leg horizontal member.

5,739,450

KEYBOARD MUSICAL INSTRUMENT EQUIPPED WITH DUMMY KEY/HAMMER EVENT SUPPLEMENTING SYSTEM

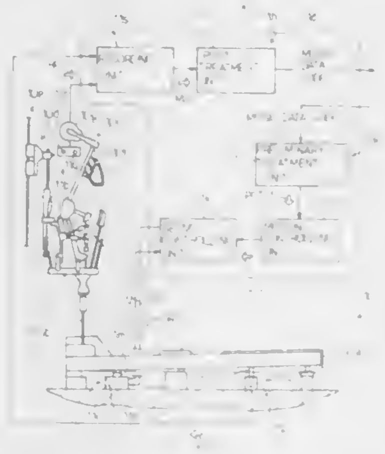
Yuji Fujiwara; Taro Kawahata; Yoshimasa Isozaki, and Yasuhiko Oha, all of Shizuoka, Japan, assignors to Yamaha Corporation, Japan

Filed Mar. 21, 1995, Ser. No. 407,771

Claims priority, application Japan, Mar. 25, 1994, 6-079604

Int. Cl.⁶ G10G *3/04*

U.S. Cl. 84—462 **6 Claims**



1 A keyboard musical instrument comprising:

an event detecting means for detecting a key depressing event and a strike event,

a memory means for storing said key depressing event and said strike event;

an event repairing means operative to read out contents of said memory means and supplement missing event if said key depressing event or said strike event is missed, thereby producing a music data, and

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a key driving means operative to determine a target trajectory for a key, and driving said key along said target trajectory.

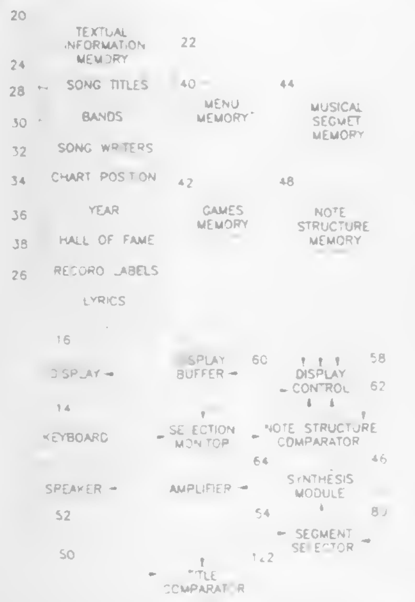
5,739,451
HAND HELD ELECTRONIC MUSIC ENCYCLOPEDIA WITH TEXT AND NOTE STRUCTURE SEARCH

Gregory J. Winksy, Medford; Michael Woolf, Cinnaminson, and Jules Egyud, Voorhees, all of N.J., assignors to Franklin Electronic Publishers, Incorporated, Burlington, N.J.

Filed Dec. 27, 1996, Ser. No. 775,015

Int. Cl.^{6} A63H *5/00;* **G04B** *13/00;* **G10H** *7/00*

U.S. Cl. 84—609 **12 Claims**



1. A hand held electronic music reference machine having a platform, a keyboard, and a display for displaying text, comprising:

a memory mounted to said platform, said memory having a first memory portion for storing preselected ancillary textual identification information for each of a plurality of musical works, said identification information including an identifier for each of said musical works, said memory further having a second memory portion storing a predetermined reproducible segment of each of said musical works;

note structure determination means disposed on said platform for providing a reference sequential note structure for each of said musical works;

user actuated note structure input means on said platform for providing an input search sequential note structure, said keyboard enabling user input of a textual search term;

search means disposed on said platform and operatively connected to said keyboard, said user actuated note structure input means, said memory and said note structure determination means for searching the identification information in said first memory portion in response to said search term and for cooperating with said note structure determination means to search said reference sequential note structures in response to said input search sequential note structure, to provide a set of proposed identifiers on said display, said set of proposed identifiers being determined by said search means in accordance with dual match criteria comprising (a) a first match criterion between said textual search term and said identification information and (b) a second match criterion between said input search sequential note structure and said reference sequential note structures;

user actuated selection means on said keyboard for selecting one of said proposed identifiers on said display; and

melody production means disposed on said platform and connected to said memory for enabling generation of an audio reproduction of one of said predetermined reproducible segments in said second memory portion corresponding to the selected one of said proposed identifiers.

5,739,452
KARAOKE APPARATUS IMPARTING DIFFERENT EFFECTS TO VOCAL AND CHORUS SOUNDS

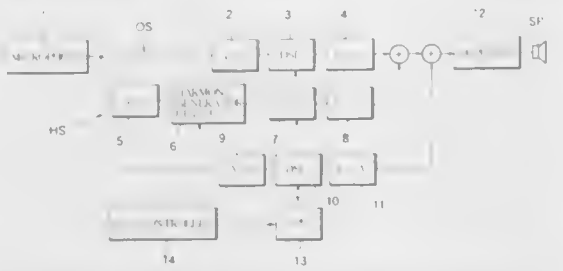
Yuichi Nagata, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Sep. 5, 1996, Ser. No. 708,609

Claims priority, application Japan, Sep. 13, 1995, 7-235793

Int. Cl.^{6} G09B *5/00,* **G10H** *1/053;1/36*

U.S. Cl. 84—610 **8 Claims**



5. A method of performing karaoke comprising the steps of:

collecting a singing voice sound to convert the singing voice sound into a corresponding vocal signal;

generating a music signal representative of a karaoke accompaniment sound which is selected to accompany the singing voice sound,

generating a harmony signal representative of a harmony chorus sound which is made consonant with the singing voice sound, wherein the step of generating the harmony signal shifts a pitch of the vocal signal to modify the vocal signal into the harmony signal;

processing the vocal signal to impart an effect to the collected singing voice sound;

processing the harmony signal separately from the vocal signal to impart another effect to the harmony chorus sound independently from the signing voice; and

amplifying the processed vocal signal, the processed harmony signal and the generated music signal to sound the singing voice sound, the harmony chorus sound and the karaoke accompaniment sound concurrently with each other

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5,739,453
ELECTRONIC MUSICAL INSTRUMENT WITH AUTOMATIC PERFORMANCE FUNCTION

Masanobu Chihana, and Hiroyuki Torimura, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Filed Mar. 14, 1995, Ser. No. 403,500

Claims priority, application Japan, Mar. 15, 1994, 6-043841; Jul. 7, 1994, 6-156240

Int. Cl.^{6} G10H *1/18;7/00*

U.S. Cl. 84—615 **21 Claims**

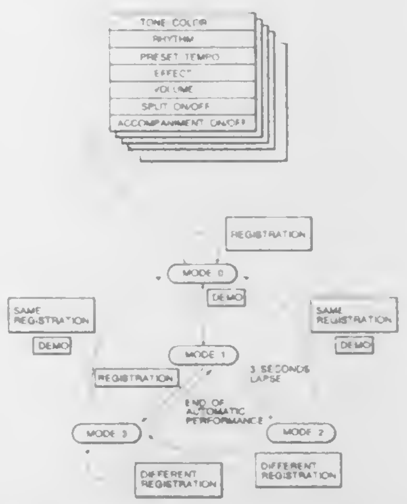
1. An electronic musical instrument comprising:

mode selecting means for selecting a mode from a plurality of modes including an automatic performance mode and a manual performance mode;

musical style storing means for storing performance atmosphere data of a plurality of musical styles, wherein the performance atmosphere data includes data including at least one of tempo data, effect to be imparted data and tone volume data;

performance data storing means for storing performance data of a plurality of programs each matching one of said musical styles;

a musical style selection member responsive to manipulation by a performer for selecting a musical style from said performance atmosphere data stored in said musical style storing means;



musical tone signal generating means for generating a musical tone signal in accordance with a musical tone parameter; and

musical tone parameter outputting means for outputting said musical tone parameter to said musical tone signal generating means during the automatic performance mode in accordance with the performance atmosphere data representing the musical style selected by said musical style selection member and the performance data of a program suitable for the musical style.

5,739,454
METHOD AND DEVICE FOR SETTING OR SELECTING A TONAL CHARACTERISTIC USING SEGMENTS OF EXCITATION MECHANISMS AND STRUCTURES

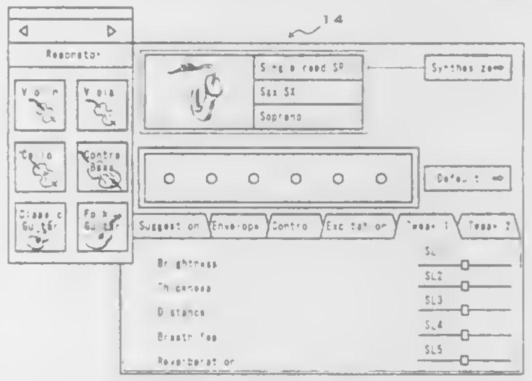
Toshifumi Kunimoto, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed Oct. 24, 1996, Ser. No. 736,516

Claims priority, application Japan, Oct. 25, 1995, 7-301989

Int. Cl.^{6} G10H *1/18;7/00*

U.S. Cl. 84—615 **14 Claims**



1. A tone setting device for a tone generator which generates a musical tone signal based on tone setting data in accordance with a predetermined algorithm comprising a combination of a plurality of modelling sections, said tone setting device comprising:

memory means for storing a plurality of tone setting data,

operating means for selecting segments in combination from among various segments of exciting mechanisms and structures in plural types of musical instruments or sound generating objects for each of said plurality of modelling sections; and

data supply means for reading out from said memory means tone setting data corresponding to the combination of the segments selected by said operating means, as parameter data for setting a characteristic of a tone to be generated in accordance with said predetermined algorithm, and for supplying the read out tone setting data to the tone generator,

whereby said characteristic of the generated tone is set by combining the segments of any of the musical instruments or tone generating structures.

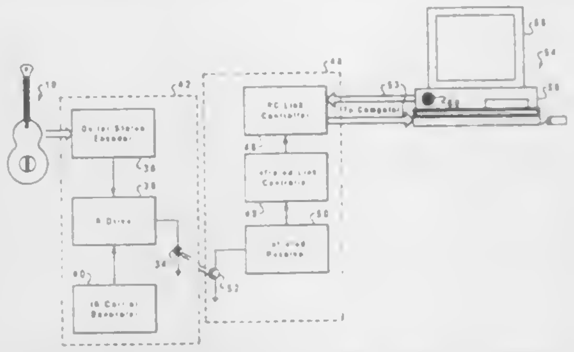
5,739,455
ELECTRONIC GUITAR MUSIC SIMULATION SYSTEM

Yiu Cheung Poon, 5/F, Agincourt Ind. Bldg., 428 Cha Kwo Ling Rd.,, Yau Tong, Kowloon, Hong Kong

Filed Dec. 17, 1996, Ser. No. 768,381

Int. Cl.^{6} G09B *15/04;* **G10H** *1/18*

U.S. Cl. 84—615 **10 Claims**



1. An electronic guitar music simulation system comprising:

a guitar shaped member;

a plurality of switch devices mounted to said guitar shaped member;

a control processor coupled to said plurality of switch devices for detection of actuation of each of said plurality of switch devices;

wireless transmitter coupled to said control processor for transmitting a series of data corresponding to each actuation of one of said plurality of switch devices;

a personal computer system which includes a video output device, an audio output device, a processor unit and at least one port for accessing said processor unit;

a receiver coupled to said personal computer system via said at least one port for receiving said series of data and for converting said series of data into binary code suitable for processing by said processor unit within said personal computer system; and

computer program module executable by said processor unit within said personal computer system for converting said binary code into audio output signals coupled to said audio output device such that guitar music simulation occurs in response to selected actuations of selected ones of said plurality of switch devices.

5,739,456
METHOD AND APPARATUS FOR PERFORMING AUTOMATIC ACCOMPANIMENT BASED ON ACCOMPANIMENT DATA PRODUCED BY USER

Yoshihisa Shimada, Hamamatsu, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Shizuoka-ken, Japan

Filed Sep. 11, 1996, Ser. No. 713,372

Claims priority, application Japan, Sep. 29, 1995, 7-276781

Int. Cl.^{6} G10H *1/06;1/38;1/40*

U.S. Cl. 84—622 **14 Claims**

1. A method of automatically performing an accompaniment produced by a user in an automatic accompaniment apparatus, comprising the steps of:

providing a plurality of system defining rhythm data patterns, each of which is allocated a pattern number and is composed of a plurality of parts, each of said plurality of parts having the pattern number;

providing a plurality of note data sets, each of which is associated with at least one of said plurality of parts of said plurality of system defining rhythm data patterns,

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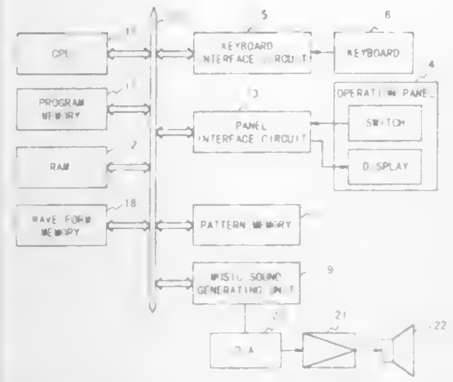


providing a plurality of chord progress data sets, each of which is allocated with a chord progress data number:

producing, in an edit mode, a user defining rhythm data pattern which is composed of a plurality of parts, said pattern number and said chord progress data number being designated for each of said plurality of parts of said user defining rhythm data pattern and being stored in a table;

referring to said table to determine said pattern number and said chord progress data number for each of said plurality of parts.

determining one of said plurality of chord progress data sets based on said determined chord progress data number:

referring to one of said plurality of system defining rhythm data patterns based on the determined pattern number to determine one of said plurality of note data sets for the corresponding part of said user defining rhythm data pattern; and

automatically performing an accompaniment in an automatic accompaniment mode based on the determined note data set and the determined chord progress data set for each of said plurality of parts of said user defining rhythm data pattern.

5,739,457

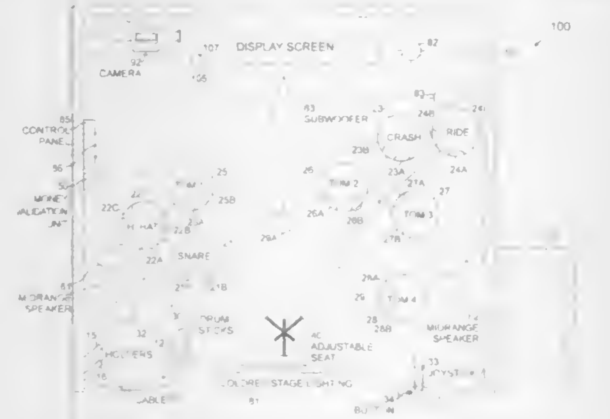
METHOD AND APPARATUS FOR SIMULATING A JAM SESSION AND INSTRUCTING A USER IN HOW TO PLAY THE DRUMS

John R. Devecka, 286 Pershing Rd., Clifton, N.J. 07013

Filed Sep. 26, 1996, Ser. No. 720,295

Int. Cl.^{6} G10H *1/32; 3/00*

U.S. Cl. 84—743 36 Claims



1 An audio-visual interactive drum apparatus comprising

a money validation unit to accept and validate a user's money;

a plurality of electronic drum pads:

a lighting system.

an audio speaker system.

a video display system: and

a control system for receiving an input from the money validation unit; for receiving inputs from the electronic drum pads; and for controllably driving the lighting system, the audio speaker system and the video display system to simulate a live jam session

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5,739,458

PROTECTION DEVICES FOR A VEHICLE OR STRUCTURE AND METHOD

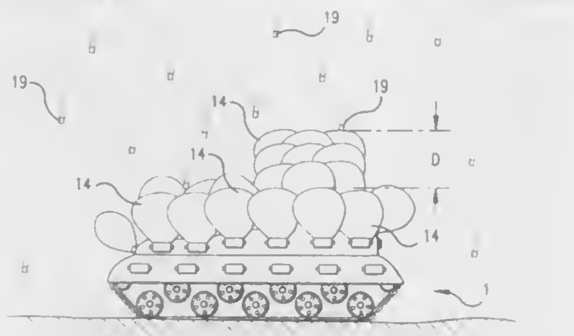
Philippe Girard, Bourges, France, assignor to Giat Industries, Versailles, France

Filed Nov. 9, 1995, Ser. No. 556,146

Claims priority, application France, Nov. 30, 1994, 94 14344

Int. Cl.^{6} F41H *5/00, 13/00*

U.S. Cl. 89—36.02 22 Claims



17 A device for protecting an object, having at least one external surface, against attack by a munition, comprising:

means for mounting at least one mounting member retaining a deployable bag to the at least one external surface:

means positioned apart from the object for detecting and outputting a signal indicating attack and direction of attack, and

means for inflating the deployable bag on the basis of the signal.

5,739,459

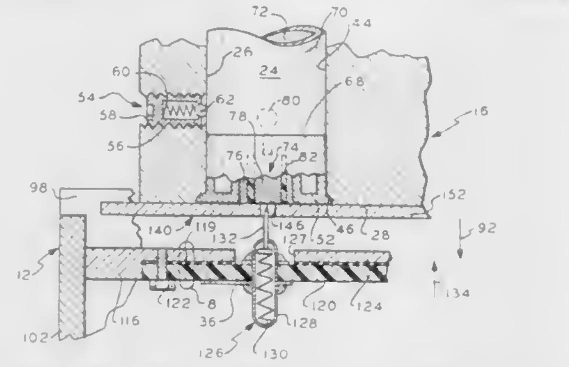
PYROTECHNIC IGNITION APPARATUS

Joseph L. La Mura, West Caldwell, and Ronald Conrad Wallenburg, Pennsauken, both of N.J., assignors to Joanell Laboratories, Inc., Livingston, N.J.

Continuation of Ser. No. 447,077, May 22, 1995, Pat. No. 5,559,303, which is a continuation of Ser. No. 145,499, Nov. 1, 1993, Pat. No. 5,450,686, which is a division of Ser. No. 877,809, May 4, 1992, Pat. No. 5,284,094, which is a division of Ser. No. 419,549, Oct. 10, 1989, Pat. No. 5,157,222. This application Oct. 16, 1995, Ser. No. 543,313

Int. Cl.^{6} F41A *19/65; 19/68*

U.S. Cl. 102—217 6 Claims



1 A pyrotechnic device ignition apparatus for igniting a plurality of pyrotechnic devices received in a magazine comprising:

a housing arranged to receive said magazine:

a plurality of spaced electrical contacts for engaging said received devices;

securing means for securing the contacts to the housing:

a plate member secured to the housing in overlying relation to said securing means and having at least one aperture therethrough through which said contacts protrude for engaging said received devices.

circuit means coupled to the housing for applying at least one device ignition signals to said contacts; and

a gasket between said securing means and said overlying plate member.

5,739,460

METHOD OF SAFELY INITIATING COMBUSTION OF A GAS GENERANT COMPOSITION USING AN AUTOIGNITION COMPOSITION

Gregory D. Knowlton, Chandler, and Christopher P. Ludwig, Scottsdale, both of Ariz., assignors to Talley Defense Systems, Inc., Mesa, Ariz.

Division of Ser. No. 645,945, May 14, 1996. This application Jan. 30, 1997, Ser. No. 791,176

Int. Cl.^{6} F42B *3/00;* F42C *19/08*

U.S. Cl. 102—324 17 Claims

1 A method of safely initiating combustion of a gas generator or pyrotechnic composition in a gas generator or pyrotechnic device having a housing when the gas generator or pyrotechnic device is exposed to flame or a high temperature environment, the method comprising:

forming an autoignition composition having an autoignition temperature by mixing an oxidizer composition and a powdered molybdenum metal fuel, wherein the oxidizer composition comprises at least one of an alkali metal nitrate, an alkaline earth metal nitrate, a complex salt nitrate, a dried, hydrated metal nitrate, silver nitrate, an alkali metal chlorate, an alkali metal perchlorate, an alkaline earth metal chlorate, an alkaline earth metal perchlorate, ammonium perchlorate, sodium nitrite, potassium nitrite, silver nitrite, a solid organic nitrate, a solid organic nitrite, or a solid organic amine or a mixture or comelt thereof, wherein the metal fuel is present in an amount at least sufficient to provide a substantially stoichiometric mixture of metal fuel and oxidizer, such that the autoignition composition has an autoignition temperature of no more than about 232° C., and

placing the autoignition composition in thermal contact with the gas generator or pyrotechnic composition within the gas generator or pyrotechnic device, such that the autoignition composition autoignites at an autoignition temperature of no more than about 232° C., and initiates combustion of the gas generator or pyrotechnic composition when the gas generator or pyrotechnic device is exposed to flame or a high temperature environment.

5,739,461

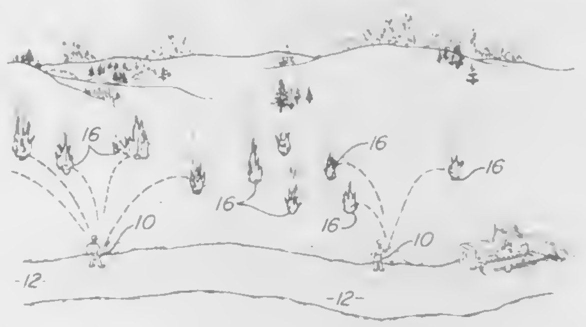
LAUNCHER

Michael D. Jacobson, Ridgecrest, Calif., assignor to Quoin, Inc., Ridgecrest, Calif.

Continuation-in-part of Ser. No. 598,246, Feb. 8, 1996. This application Feb. 24, 1997, Ser. No. 804,036

Int. Cl.^{7} F42B *4/26;* F42D *3/00*

U.S. Cl. 102—338 4 Claims



1 A blank cartridge launcher for a flare comprising.

A A launcher barrel suitable for holding a flare:

B. a pistol mount attached to said launcher barrel further comprising:

(1) a hand grip.

(2) a cockable hammer set in said hand grip.

(3) a cylinder rotatably mounted within said pistol mount such that said hammer rotates said cylinder a preset amount whenever said hammer is cocked.

(4) A predetermined number of openings each capable of holding a single blank cartridge set in said cylinder such that said preset amount of rotation always causes another opening to align with said hammer.

(5) a trigger operably connected to said hammer to cause said hammer to return to its precocked position.

(6) a gas duct placed in said pistol mount to permit gas to flow into said launcher barrel from said opening aligned with said hammer; and

(7) an orifice of predetermined size set within said gas duct. and

C a pin set within said launcher barrel such that any gas flowing from said opening through said orifice within said gas duct strikes said pin and is deflected into a plenum chamber created in said launcher barrel by the placement of said pin

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5,739,462

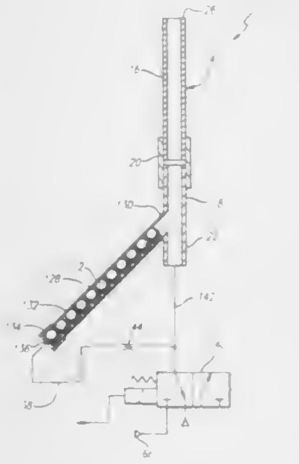
METHOD AND APPARATUS FOR CREATING PYROTECHNIC EFFECTS

Kyle W. Poor, Clermont, and John W. Sogge, Orlando, both of Fla., assignors to The Walt Disney Company, Burbank, Calif.

Filed Jun. 27, 1995, Ser. No. 495,262

Int. Cl.^{6} F42B *4/26, 4/04*

U.S. Cl. 102—342 26 Claims



1 A launcher for launching a plurality of fireworks projectiles for creating an aerial fireworks display, comprising

(a) a loading chamber for receiving a fireworks projectile to be launched;

(b) a launching tube having a lower end registerable with the loading chamber and an open upper end for expelling the fireworks projectile, said launching tube registered with said loading chamber while said plurality of fireworks are sequentially expelled from said launching tube.

(c) an igniter between the lower end and the open upper end of the launching tube that ignites the fireworks projectile as it is being expelled from the launching tube, and

(d) a control apparatus for introducing a predetermined amount of a pressurized gas into the loading chamber to expel the fireworks projectile from the open upper end of the launching tube

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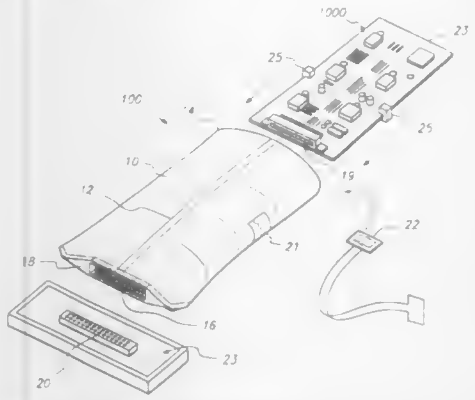
5,739,463
SEALED ELECTRONIC PACKAGING FOR ENVIRONMENTAL PROTECTION OF ACTIVE ELECTRONICS

Steve Diaz; Dave Horsma, both of Palo Alto; Narendra Kulkarni, Sunnyvale; Peter Lundquist, San Mateo; Akira Nakazato, Santa Clara; Nelson Shen, Palo Alto, all of Calif., and Paul von der Lippe, Loveland, Colo., assignors to Raychem Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 226,149, Apr. 11, 1994, abandoned. This application Mar. 2, 1995, Ser. No. 397,600

Int. Cl.^{6} H05K *9/00*

U.S. Cl. 174—35 R 12 Claims



1. A protection apparatus for an active electronics circuit board comprising:

a flexible environmental gas and liquid barrier envelope capable of accepting the active electronics circuit board, said envelope completely sealed around the entire said active electronics circuit board; and an interconnection device sealed to said envelope which contains the active electronics circuit board and also permitting the connection of the active electronics circuit board into an electronics system outside said sealed envelope; and

wherein the interior of the envelope contains an infra red radiation absorbing black coating.

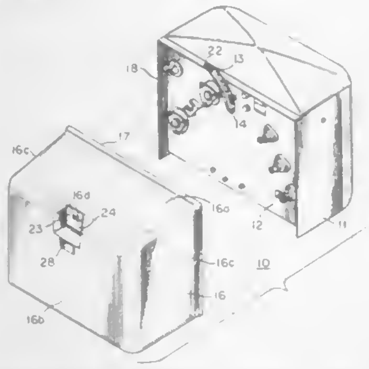
5,739,464
PADMOUNTED TRANSFORMER ENCLOSURE AND LATCH

Herbert S. Adkins, Vienna; Dennis J. Struemph, St. Thomas, and Richard A. Wolfgang, Jefferson City, all of Mo., assignors to ABB Power T&D Company Inc., Raleigh, N.C.

Filed Oct. 4, 1996, Ser. No. 725,773

Int. Cl.^{6} H05K *5/03*

U.S. Cl. 174—50 13 Claims



1. An enclosure and latching structure for a cable compartment of a tank for a padmounted distribution transformer comprising:

a transformer tank having a panel for the attachment of electrical cable,

a curved latch arm,

support structure mounted on said tank panel above the midpoint thereof,

means for pivotally connecting one end of said latch arm to said support structure,

first locking structure on the other end of said latch arm,

an enclosure of non-conductive material arranged to conceal the cable compartment of said tank, said enclosure being open at a back side thereof for engaging a periphery of said tank panel, said enclosure having a central opening in a front wall adjacent a top thereof, and

second locking structure carried by said enclosure and extending through said opening in said front of said enclosure, said first and second locking structures being constructed and arranged to be removably connected with each other, said second locking structure engaging said first locking structure on said other end of said latch arm at an elevation on said enclosure higher than said pivoted one end of said latch arm whereby when said first and second locking structures are tightened a compression and moment loading are generated which combine to create a force on said enclosure to hold said open back of said enclosure tightly against the periphery of said tank panel.

5,739,465
CONNECTOR DEVICE AND CONNECTOR MOUNTING METHOD

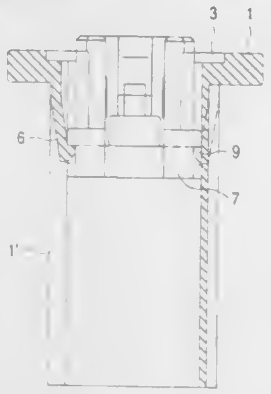
Isao Kameyama, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Nov. 22, 1996, Ser. No. 754,157

Claims priority, application Japan, Nov. 22, 1995, 7-304390

Int. Cl.^{6} H02G *3/08;* **H05K** *5/00*

U.S. Cl. 174—50.51 18 Claims



1. A connector device comprising:

a guide wall having front and rear open ends and defining a connector-receiving chamber therein;

a retaining portion, attached to said guide wall, for retaining a first connector when said first connector is received in said connector-receiving chamber; and

retaining release means for automatically releasing said first connector which is retained by said retaining portion during a time when said first connector and a second connector are fitted together such that said first and second connectors can be slid toward said rear open end of said connector-receiving chamber.

5,739,466
CASING FOR ELECTRONIC COMPONENTS HAVING INSULATED PASSAGES

Theodore Schmitt, Vienna, Austria, assignor to Electrovac, Fabrikation Electrotechnischer Spezialartikel Gesellschaft m.b.H., Klosterneuburg, Austria

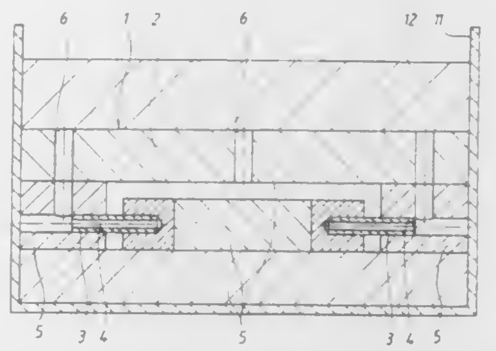
Filed Mar. 30, 1995, Ser. No. 415,079

Claims priority, application Austria, Mar. 30, 1994, 682/94

Int. Cl.^{6} H05K *5/06*

U.S. Cl. 174—50.61 4 Claims

1. A casing for electronic components, comprising a body made in one piece of a material selected from the group consisting of metal and metal matrix composite and defined by a melting point, said body having passages for receiving conductors, said passages being electrically insulated by insulating material having a melting point greater than the melting point of said body, thereby enabling a casting of said body onto said electrically insulated passages.



5,739,467
MODULAR ELECTRIC APPARATUS WITH INHERENTLY FINGERPROOF PROTECTION FOR CLAMP TERMINALS

Fabrizio Fabrizi, Bergamo, Italy, assignor to Bticino S.p.A., Milano, Italy

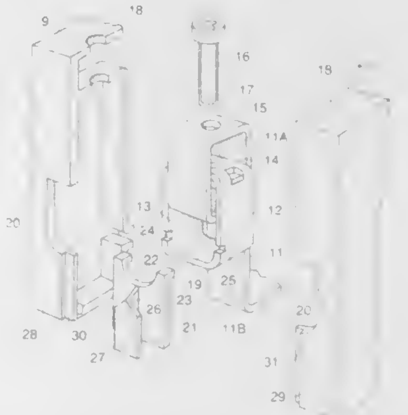
PCT No. PCT/EP94/02304, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/03641, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 13, 1994, Ser. No. 581,615

Claims priority, application Italy, Jul. 20, 1993, MI93A1596

Int. Cl.^{6} H02G *3/18*

U.S. Cl. 174—60 6 Claims



1. A modular electric apparatus with inherent fingerproof protection for clamp terminals and comprising at least one clamp terminal housed within an insulating body and provided with a fixed jaw and a moveable jaw, said insulating body having at least one opening therein for introduction of an electric termination between said fixed jaw and said moveable jaw, comprising

an insulative diaphragm housed within said insulating body and interconnected to said moveable jaw, said diaphragm extending in an opposite direction from said fixed jaw with respect to said moveable jaw to at least partially screen off a portion of said moveable jaw facing said opening, and gradually closing said opening by said moveable jaw being shifted toward said fixed jaw.

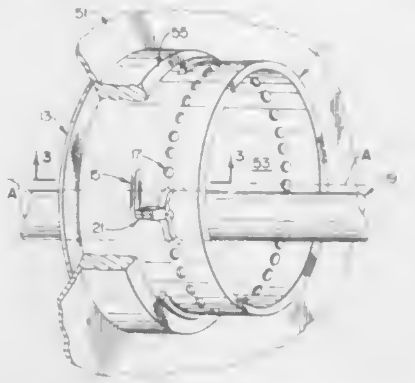
5,739,468
CABLE HANGER

John A. Rossman, Lakewood, and Jayant D. Patel, Lake Forest, both of Calif., assignors to McDonnell Douglas Corporation, Huntington Beach, Calif.

Filed Aug. 26, 1996, Ser. No. 703,362

Int. Cl.^{6} F16L *5/00*

U.S. Cl. 174—65 G 8 Claims



1. A securing apparatus for securing cables to a wall having an aperture therein, comprising

a plurality of straps for partially encircling cables,

a lengthwise extending tube section having a non-flanged end and a flanged end having a flange;

a plurality of radially extending retaining bumps disposed about the periphery of said tube section at a first predetermined axial distance from said flange;

said tube section, said flange, and said bumps being a single, fully formed, one-piece structure, and

a plurality of apertures, defined by said tube section, each for receiving a respective one of said straps, each aperture having a diameter sized to completely surround and snugly hold said respective strap to thereby prevent movement of said respective strap and the cables partially encircled therein along a lengthwise extending portion of said tube section, said apertures being formed in said tube section at a second predetermined axial distance from said flange, said second predetermined axial distance being greater than said first predetermined axial distance.

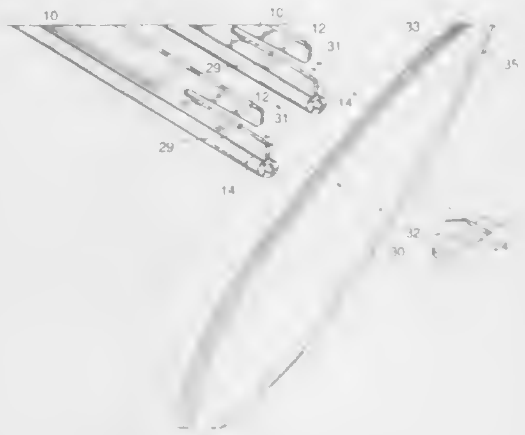
5,739,469
WIRE HARNESS FOR A CABINET

Michael Andrew Lopez, and Satoshi Miyajima, both of San Diego, Calif., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Aug. 13, 1996, Ser. No. 696,312

Int. Cl.^{6} H01B *17/00*

U.S. Cl. 174—72 A 4 Claims



4. A wire harness for a cabinet, comprising

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a first vertical flange having a first end and a closed end, said first vertical flange extends downward from a first inner wall;

a tapered slit extending through said first end and terminating before said closed end to form upper and lower rib elements, wherein said upper and lower rib elements are separated by a distance which is greater at said first end than at said closed end, said tapered slit being adapted for receiving a single row of wires to enable wedging of each of said wires between said upper and lower rib elements to removably secure each of said wires; and

a shoulder element having a second vertical flange and a horizontal flange, wherein said second vertical flange extends downward from a second inner wall and is separated from said first vertical flange by an offset distance, and said horizontal flange is positioned adjacent said lower rib element and separated therefrom by a distance which is less than a thickness of each of said wires, thereby capturing at least one of said wires which is displaced from said slit between said horizontal flange and said first and second inner walls.

5,739,470

WIRE HARNESS PROTECTOR WITH COVER AND ADJACENT U-SHAPED GROOVES

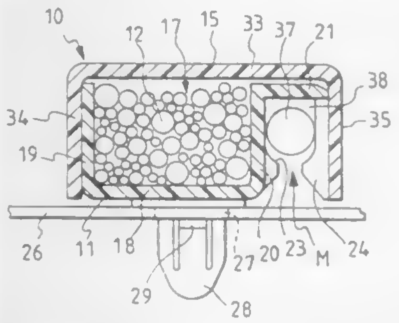
Ikuo Takeda, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Oct. 19, 1995, Ser. No. 545,176

Claims priority, application Japan, Nov. 8, 1994, 6-273831

Int. Cl.^{6} H02G *3/04*

U.S. Cl. 174—97 **6 Claims**



1 A wire harness protector, to be laid along a wire harness laying line of a mounting surface while fixedly accommodating a wire harness, comprising:

a protector body having a wire harness accommodating groove, extendible along said wire harness laying line, to accommodate said wire harness;

a one-piece protector cover removably engageable with said protector body to cover an opening of said wire harness accommodating groove; and

a wire-like part accommodating groove disposed adjacent to and outside of a side wall of said protector body which defines said wire harness accommodating groove, wherein said wire-like part accommodating groove is opened towards said mounting surface to accommodate a wire-like part which is to be laid along said wire harness laying line,

wherein said wire-like part accommodating groove has locking pieces for holding said wire-like part in said wire-like part accommodating groove and

said locking pieces are disposed on said protector cover, and said protector cover has locking protrusions engageable with said protector body to retain said protector cover on said protector body, said locking protrusions being integrally formed with said locking pieces.

5,739,471

HIGH-FREQUENCY CABLE

Hans Joachim Burisch, Wuppertal, Germany, assignor to Draka Deutschland GmbH & Co. KG, Germany

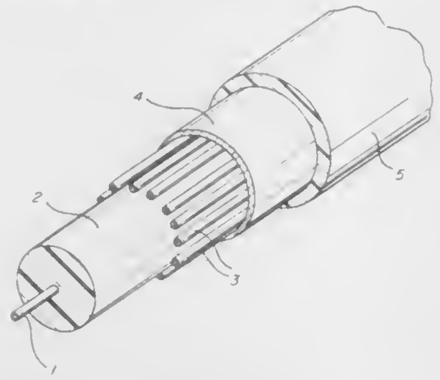
PCT No. PCT/DE94/00242, § 371 Date Jan. 24, 1995, § 102(e) Date Jan. 24, 1995, PCT Pub. No. WO94/23434, PCT Pub. Date Oct. 13, 1994

PCT Filed Mar. 9, 1994, Ser. No. 347,461

Claims priority, application Germany, Apr. 1, 1993, 43 10 662.5

Int. Cl.^{6} H01B *7/34*

U.S. Cl. 174—102 R **4 Claims**



1 A high frequency cable comprising:

a central conductor,

a layer of insulation surrounding said central conductor,

an outer conductor comprising a plurality of wires disposed around said layer of insulation,

an electrically conductive tubular foil having an inner surface disposed around said outer conductor and connected electrically to said plurality of wires,

a layer of plastic having an inner surface disposed around said foil,

and a sheath of plastic disposed around said layer of plastic,

said plurality of wires being arranged parallel to each other and extending substantially parallel to said central conductor with a deviation not greater than five degrees,

the wires being distributed around the circumference of the foil with equal spacing with the wires spaced apart so that the visual covering of the inner surface of said foil is between ten and eighty percent of the area of said surface,

the foil being a metallized formation on the inner surface of said layer of plastic

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5,739,472

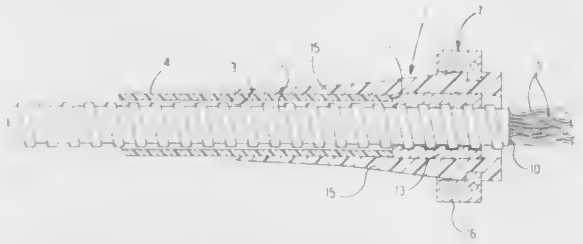
FLEXIBLE ARMOR CABLE ASSEMBLY

Arthur Glen Buck, Sherwood; Doris Arlene Beck, Beaverton; Sokha Chy, Tualtin; Larry L. Davis, Milwaukie; Malai Lim Hongthong, Portland, and Jason Edward Muller, Tigard, all of Oreg., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Feb. 2, 1996, Ser. No. 595,693

Int. Cl.^{6} H01B *7/18*

U.S. Cl. 174—107 **9 Claims**



1 A flexible cable assembly comprising:

flexible hollow armor of a cable, said armor lying limply within an air gap in a flexible length of an outer jacket of said cable,

multiple coaxial cables lying limply within an air gap in said armor,

a coupling mechanism for connection to a medical instrument,

the coupling mechanism being secured to one end of the said armor and one end of said length of the outer jacket, with the coaxial cables extending through the coupling mechanism for connection to the medical instrument,

said one end of said hollow armor and an opposite end of said armor being terminated, respectively, with strain relief boots,

said one end of said length of the outer jacket and an opposite end of said length of the outer jacket being terminated, respectively, with said strain relief boots, and

opposite ends of said cable being terminated, respectively, with said strain relief boots.

5,739,473

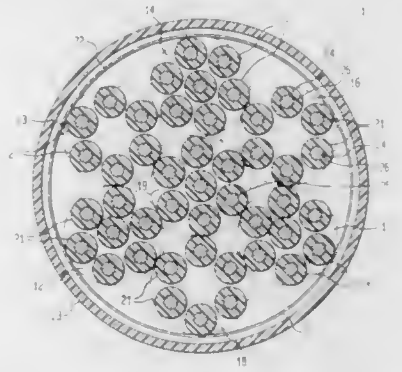
FIRE RESISTANT CABLE FOR USE IN LOCAL AREA NETWORK

Stephen Taylor Zerbs, Gretna, Nebr., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 31, 1995, Ser. No. 509,282

Int. Cl.^{6} H01B *11/02*

U.S. Cl. 174—121 A **14 Claims**



1 A fire-retardant telecommunications cable, comprising:

a core consisting of a plurality of insulated conductors in groups of twisted pairs, wherein the groups of twisted pairs are configured such that at least one of the groups of twisted pairs is positioned as a central group within the remaining outer groups of twisted pairs;

each of said conductors of the at least one central group having an insulating layer made of a material different than the insulating layer of the conductors of the outer groups; and

a jacket of fire-retardant material surrounding said core.

5,739,474

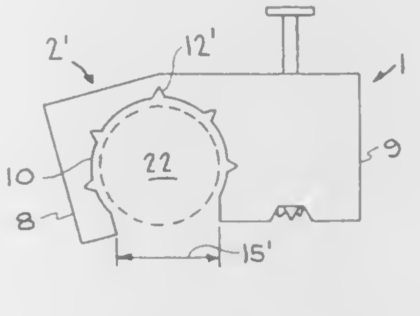
ALL WEATHER CABLE CLIP ASSEMBLY WITH LONGITUDINAL GROOVES

Edward J. Bradley, 7900 Carneal Rd., Livermore, Calif. 94550, assignor to Edward J. Bradley, Livermore, Calif.

Filed Jan. 17, 1996, Ser. No. 588,669

Int. Cl.^{6} H01B *7/00*

U.S. Cl. 174—135 **20 Claims**



1 An all weather cable clip for securing a cable member against a mounting surface comprising:

(a) a solid body of a predetermined material, with said body having a top surface, a bottom surface, front surface, a back surface, a first end surface, a second end surface and a cable engaging surface;

(b) said front surface and said back surface being substantially parallel and each extends between the top surface and the bottom surface and between the first and second end surfaces;

(c) said cable engaging surface defining an aperture that extends through the body from the front surface to the back surface at a location near to and parallel with the first end surface, with the aperture having a central axis that extends through the body in a direction that is substantially perpendicular to the front and back surfaces;

(d) said cable engaging surface further defining a cable opening in the bottom surface sized to receive the cable into the aperture;

(e) said cable engaging surface of the body having at least one elongated slot therein, where each of said at least one elongated slot extends from the front surface to the back surface in a line generally parallel with the central axis and further defines at least two elongated cable contacting surfaces;

(f) said cable contacting surfaces each being rigid surfaces, with one of said elongated cable contacting surfaces located on each side of said at least one elongated slot, and a majority of the elongated cable contacting surfaces are each formed substantially in the shape of a longitudinal concave surface, where said rigid, longitudinally concave shaped cable contacting surfaces are positioned substantially equal distances from and parallel to the central axis of the aperture;

(g) said body includes an elongated hole for receiving an elongated fastener therein, said elongated hole extends along an axis through the top surface towards the bottom surface, with the axis of the hole being located in a solid portion of the body between the front and back surfaces and between the second end surface and a portion of the cable engaging surface that is nearest to the second end surface;

(h) said at least one elongated slot in the body further defining a means for controlling the deformation of the body and the cable engaging surface so that when a cable is placed in the aperture and an external force is applied to the body, the body can readily be deformed in a controlled manner along said at least one elongated slot so that some of the elongated cable contacting surfaces can engage and securely retain the cable within the clip; and

(i) said body further including means for retaining said fastener within said elongated hole.

5,739,475

GROMMET FOR PROTECTING A WIRE HARNESS WITH STRUCTURE FOR ENSURING FLUSH SEATING

Atushi Fujisawa; Hiroo Fujita, both of Yokkaichi; Katsuhide Shiji, and Keisuke Tokoro, both of Nagoya, all of Japan, assignors to Inoac Corporation, Nagoya, and Sumitomo Wiring Systems, Ltd., Mie, both of Japan

Filed Apr. 20, 1995, Ser. No. 425,411

Claims priority, application Japan, Apr. 21, 1994, 6-107898; Mar. 9, 1995, 7-079436

Int. Cl.^{6} H01B *17/26*, H02G *3/22*

U.S. Cl. 174—153 G **11 Claims**

1. A grommet comprising:

a base portion having in an annular outer peripheral wall thereof a mounting groove fittable with an opening edge of a mating member;

a roof portion extending inwardly from an opening end of said base portion; and

a guide portion extending in a cylindrical shape in an axial direction of said grommet from an inner end of said roof portion,

wherein a first annular cavity is formed in an inner wall of said grommet extending from said base portion to said roof portion

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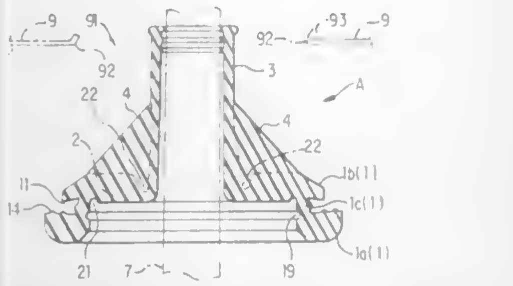
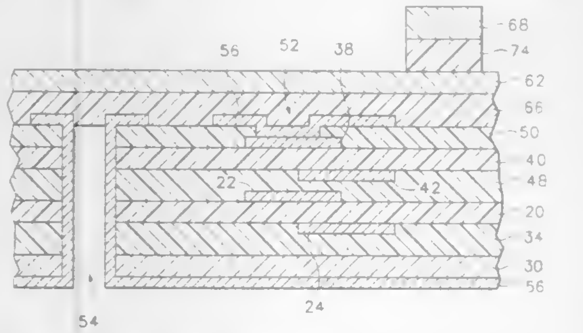


and being indented in a direction of the roof portion, and a second annular cavity is formed in an inner peripheral wall of said base portion corresponding to a position of the mounting groove.

5,739,476
MULTILAYER PRINTED CIRCUIT BOARD LAMINATED WITH UNREINFORCED RESIN

Chung Namgung, 4580 NW. Kahneeta Dr., Portland, Oreg. 97229

Filed Oct. 5, 1994, Ser. No. 318,414
Int. Cl.⁶ H01R *9/09*
U.S. Cl. 174—255 **3 Claims**



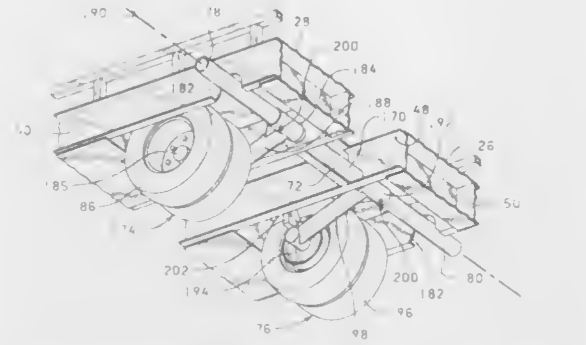
1 A printed circuit board comprising:
a first printed circuit board core having a first surface;
a first cured, unreinforced resin layer covering a portion of the first surface;
a first dried, unreinforced resin layer coating the cured, unreinforced resin layer,
a first component, having a second surface, contacting the first dried, unreinforced resin layer, the first component comprising a second printed circuit board core,
a second cured, unreinforced resin layer covering a portion of the second surface;
a second dried, unreinforced resin layer coating the second cured, unreinforced resin layer; and
a second component, having a third surface, contacting the second dried, unreinforced resin layer.

5,739,477
PORTABLE APPARATUS FOR MONITORING THE WEIGHT OF A VEHICLE

C. Ray Queen, P.O. Box 301, Broken Bow, Okla. 74728

Filed Jan. 12, 1995, Ser. No. 371,942
Int. Cl.⁶ G01G *21/00, 19/08,* **B62D** *21/14*
U.S. Cl. 177—126 **8 Claims**

1 An apparatus for weighing a vehicle on a ground support surface, comprising:
a scale platform adapted to support the vehicle, the platform having a first end a second end, an upper side and a lower side, the lower side defining a ground contact surface engagable with the ground support surface, the ground contact surface having an area sufficient to support the platform and the vehicle on the ground support surface so as to prevent the

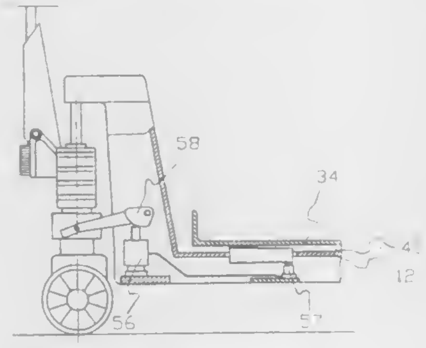


platform from sinking substantially into the ground support surface when the platform is supporting a load; and
a scale positioned on the upper side of the platform so as to be operably engagable with the vehicle to monitor the weight of the vehicle,
wherein the platform is rollingly supported on a plurality of wheels and each of the wheels is connected to an axle assembly, the axle assembly comprising:
an axle tube having a first end and a second end, the axle tube being secured to the platform;
a first axle subassembly having a first end and a second end, the first end slidably and rotatably coupled to the first end of the axle tube so as to be extendible along and rotatable about a horizontal axis, the second end of the first axle subassembly being offset from the horizontal axis and rotatably connected to one of the wheels; and
a second axle subassembly having a first end and a second end, the first end slidably and pivotally coupled to the second end of the axle tube so as to be extendible and rotatable about the horizontal axis, the second end of the second axle subassembly being offset from the horizontal axis and rotatably connected to the other wheel.

5,739,478
WEIGHING SCALE

Uri Zefira, P.O. Box 241, 15241 Kfar Tavor, Israel
PCT No. PCT/US94/07924, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO95/02168, PCT Pub. Date Jan. 19, 1995

PCT Filed Jul. 8, 1994, Ser. No. 591,470
Claims priority, application Israel, Jul. 9, 1993, 106303
Int. Cl.⁶ G01G *19/08*
U.S. Cl. 177—130 **24 Claims**



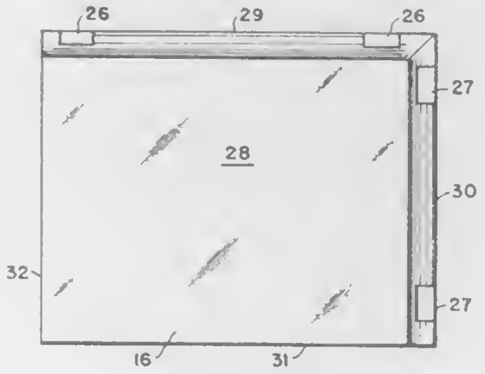
1 A scale for weighing a load comprising:
a base member;
a weighing platform for supporting said load.
a load cell located below said weighing platform so as to alternate between an operational position, in which said weighing platform is supported by said load cell for measuring the weight of said load, and a neutral position, in which said weighing platform is supported by said base member for carrying said load;
a contact member located below said weighing platform so as to reversibly come into contact with said load cell;

wherein said load cell alternates between said operational position and said neutral position due to a relative movement between said load cell and said contact member; and
a generating means for generating said movement;
wherein said scale is incorporated in a pallet carrier;
wherein said pallet carrier comprises a linking bar coupled to said base member for facilitating the lifting of the base member.

5,739,479
GENTLE-BEVEL FLAT ACOUSTIC WAVE TOUCH SENSOR

Marcia M. Davis-Cannon, Mountain View; Robert De Renzi, Pleasanton; Paulo Irulegui Gomes, Santa Cruz; Joel Christopher Kent, Fremont; Michael LeRoy Lewis, Oakland; Michelle Ocampo, Fremont, and Daniel H. Scharff, San Lenadro, all of Calif., assignors to ELO TouchSystems, Inc., Fremont, Calif.

Filed Mar. 4, 1996, Ser. No. 610,260
Int. Cl.⁶ G08C *21/00;* **G09G** *3/02*
U.S. Cl. 178—19 **48 Claims**



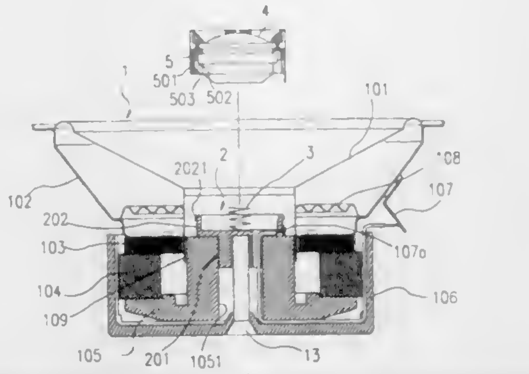
1. An acoustic wave touch sensor comprising:
a substrate, having a front surface, and a bevel having an edge and an angle with respect to said front surface; and
an acoustic wave transducer, mounted to said substrate to electrically transduce an acoustic wave, having a wavelength and traveling in said substrate,
said edge having an effective radius which is small as compared to said wavelength and a bevel angle such that a portion of said acoustic wave is attenuated by less than about 3 dB on transmission through a region of said substrate proximate to and crossing said edge.

5,739,480
SPEAKER BASE FOR ALTERNATIVELY MOUNTING DIFFERENT DRIVERS

Steff Lin, 2F., No. 35, Lane 466, Sec. 4, Ming Chih Rd., Tai San Hsiang, Taipei Hsien, Taiwan

Filed Sep. 24, 1996, Ser. No. 719,275
Int. Cl.⁶ H05K *5/00*
U.S. Cl. 181—144 **5 Claims**

1. A speaker base for alternatively mounting different drivers, the base comprising:
a) a paper cone having a central opening formed therein;
b) a bottom plate having a center through hole aligned with the central opening of the paper cone;
c) a driver holder mounted on the bottom plate, the holder including a base, a rod connected to the base and extending into the center through hole of the bottom plate, and means for securing the rod to the bottom plate;
d) a driver including a bottom skirt; and
e) cooperative engagement means carried by the driver and the driver holder for detachably securing the driver to the driver holder, which engagement means includes a plurality of lugs

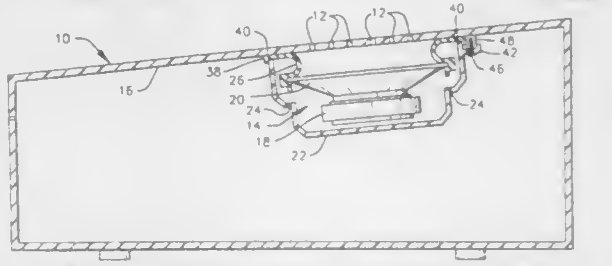


spaced around a periphery of the driver holder base and the bottom skirt of the driver having an inner circumferential groove and a plurality of guide grooves perpendicular to and extending downardly from the circumferential groove to a bottom edge of the skirt for engagement by the lugs.

5,739,481
SPEAKER MOUNTING SYSTEM

John C. Baumhauer, Jr.; Chen-Chieh Lin, both of Indianapolis; Raymond Motluck, and Christopher T. Welsh, both of Noblesville, all of Ind., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 17, 1996, Ser. No. 649,096
Int. Cl.⁶ H05K *5/00;* **G10K** *13/00*
U.S. Cl. 181—148 **15 Claims**



1. A speaker mounting system for mounting a speaker to a support surface wherein the speaker includes a rigid outer basket which tapers inwardly from an open end toward a speaker magnet assembly and an inner vibratory cone coupled to the speaker magnet assembly, said outer basket having an edge surrounding said open end, the mounting system comprising:
a compliant mounting member secured to the outer basket at the open end of said outer basket, said mounting member having an elastic portion extending away from said outer basket open end; and
holding means for clamping said mounting member to said support surface at a location on said elastic portion of said mounting member which is remote from said outer basket open end;
whereby said speaker is held only by said compliant mounting member and can move relative to said support surface as allowed by the elasticity of said elastic portion of said mounting member.

5,739,482
SOUNDPROOF WALL

Hiroshi Shima, Kanagawa-ken, and Toshiyuki Watanabe, Tokyo, both of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Sep. 24, 1996, Ser. No. 718,836
Claims priority, application Japan, Sep. 29, 1995, 7-276826; Jun. 28, 1996, 8-188705
Int. Cl.⁶ G10K *11/00*
U.S. Cl. 181—210 **2 Claims**

1. A soundproof wall for attenuating sound or noise coming from a noise source, comprising:

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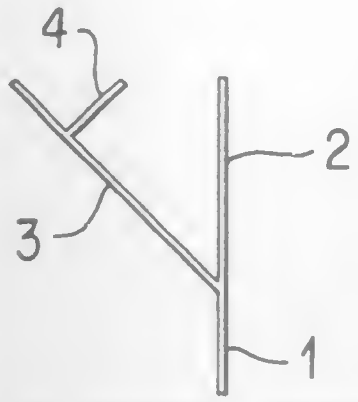

a main wall having the noise source on one side thereof.
a first branch wall extending vertically from a top of said main wall:
a second branch wall extending obliquely from the top of said main wall and away from the noise source, and
a third branch wall extending from an intermediate position along the height of said second branch wall obliquely upward toward said noise source

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5,739,483
AUTOMOBILE EXHAUST NOISE SUPPRESSOR

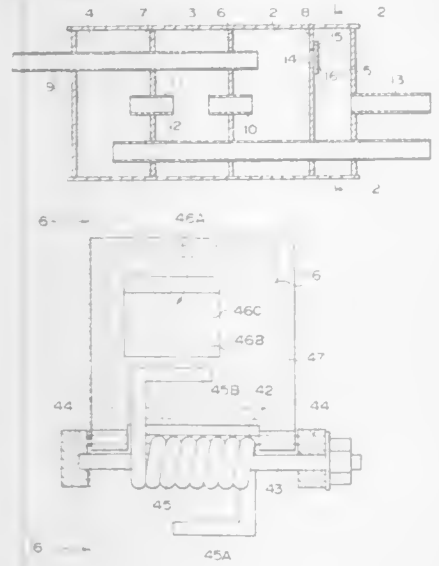
Haruki Yashiro, Fujisawa; Akira Sasaki, Yokosuka, and Kazushige Maeda, Zushi, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Division of Ser. No. 429,091, Apr. 26, 1995, Pat. No. 5,614,699. This application Feb. 10, 1997, Ser. No. 797,332

Claims priority, application Japan, May 9, 1994, 6-095336; Oct. 12, 1994, 6-246355

Int. Cl.^{6} F01N *1/00*

U.S. Cl. 181—254 **29 Claims**



1 An exhaust noise suppressor for suppressing exhaust noise in an automobile engine, comprising

a housing,
a plurality of first chambers in the housing, said plurality of first chambers being partitioned by baffle plates:
an inlet tube opening into one of the plurality of first chambers,
a respective internal tube connecting each of the plurality of first chambers with another of the plurality of first chambers,
a second chamber in the housing, said second chamber being partitioned by baffle plates, said second chamber communicating with said plurality of first chambers via a passage:
a valve positioned to open and close the passage, said valve opening and closing the passage according to an engine exhaust pressure in said plurality of first chambers:
a first discharge pipe for discharging exhaust from said plurality of first chambers: and
a second discharge pipe for discharging exhaust from said second chamber.

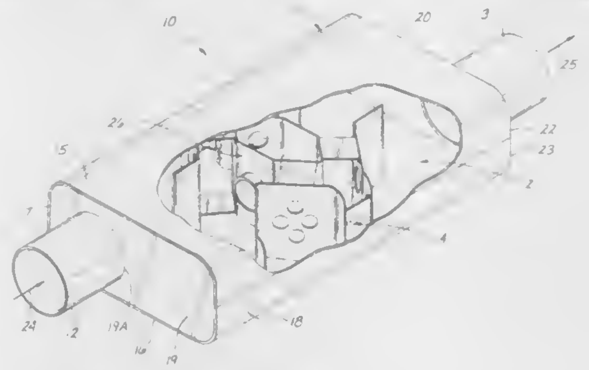
5,739,484
EXHAUST MUFFLER

Mack L. Jones, MAC Products, Inc., 43214 Blackdeer Loop, #113, Temecula, Calif. 92590-3473

Filed Mar. 12, 1997, Ser. No. 820,418

Int. Cl.^{6} F01N *1/08*

U.S. Cl. 181—264 **11 Claims**



1 An exhaust muffler, comprising:

a housing, the housing having opposite top and bottom walls, opposite left and right side walls, and opposite inlet and outlet end walls that enclose an interior of the housing, the interior of the housing including a first quarter bounded by a longitudinally bisecting plane that extends longitudinally through the housing perpendicular to the bottom wall, a transversely bisecting plane that extends transversely through the housing perpendicular to the longitudinally bisecting plane, the inlet end wall, and the left side wall, the interior of the housing including a second quarter bounded by the bisecting planes, the outlet end wall, and the left side wall, the interior of the housing including a third quarter bounded by the bisecting planes, the inlet end wall, and the right side wall, and the interior of the housing including a fourth quarter bounded by the bisecting planes, the outlet end wall, and the right side wall:
means in the form of an inlet tube on the housing for conveying exhaust gases into the interior of the housing through an inlet opening in the inlet end wall of the interior;
means in the form of an outlet tube on the housing for conveying exhaust gases out of the interior of the housing through an outlet opening in the outlet end wall of the interior: and
means in the form of a baffle assembly within the interior of the housing for defining multiple paths for exhaust gases to follow and multiple Helmholtz chambers for the exhaust gases to encounter as the exhaust gases flow through the interior of the housing from the inlet tube to the outlet tube,
  wherein the baffle assembly includes a central structure extending between the top and bottom walls that defines a central chamber, and the baffle assembly includes multiple perforated plates extending between the top and bottom walls that define left and right passageways between the perforated plates and the central chamber, the left and right passageways extending from an upstream region of the interior that is disposed along the longitudinally bisecting plane in a position intermediate the central structure and the inlet end wall, to a downstream region of the interior that is disposed along the longitudinally bisecting plane in a position intermediate the central structure and the outlet end wall.
  wherein the central structure defines an entranceway to the central chamber that faces the upstream region of the interior, a left exit from the central chamber into a downstream portion of the left passageway, and a right exit from the central chamber into a downstream portion of the right passageway, and the central structure includes means in the form of a tube extending through the entranceway for enabling exhaust gases to flow from the upstream region of the interior through the entranceway toward the left and right exits while inhibiting the exhaust gases from flowing in a reverse direction through the entranceway;
wherein the multiple perforated plates include means in the form of a first perforated plate disposed angularly in the first quarter of the interior for cooperating with the left side wall and inlet end wall to define an expansion space proximate the inlet tube, for cooperating with the central structure to define an upstream portion of the left passageway that extends in the first quarter between the upstream region of the interior and the downstream portion of the left passageway, for defining an opening enabling a portion of the exhaust gases to flow from the expansion space directly into the upstream portion of the left passageway, and for defining a path from the expansion space toward the upstream region of the interior;
wherein the multiple perforated plates include means in the form of a second perforated plate disposed angularly in the second quarter of the interior for cooperating with the central structure to define the downstream portion of the left passageway extending in the second quarter from the upstream portion of the left passageway to the downstream region of the interior, and for cooperating with the left side wall to form a first Helmholtz chamber along the downstream portion of the left passageway.
wherein the multiple perforated plates include means in the form of a third perforated plate disposed angularly in the third quarter of the interior for cooperating with the central structure to define an upstream portion of the right passageway that extends in the third quarter between the upstream region of the interior and the downstream portion of the right passageway, and for cooperating with the right side wall to form a second Helmholtz chamber along the upstream portion of the right passageway; and
wherein the multiple perforated plates including means in the form of a fourth perforated plate disposed angularly in the fourth quarter of the interior for cooperating with the right side wall and outlet end wall to define a collection space proximate the outlet tube, for cooperating with the central structure to define the downstream portion of the right passageway extending in the fourth quarter from the upstream portion of the right passageway to the downstream region of the interior, for defining an opening enabling a portion of the exhaust gases to flow from the downstream portion of the right passageway directly into the collection space, and for defining a path from the downstream region of the interior to the collection space

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5,739,485
MOTOR VEHICLE EXHAUST MUFFLER

Vincent Cholet, Metz; Gilbert Duboueix, Saint Nom la Breteche; Philippe Guesdon, Paris, and Dominique Spehner, Sedan, all of France, assignors to Sollac, Puteaux, France

Filed Dec. 20, 1996, Ser. No. 772,272

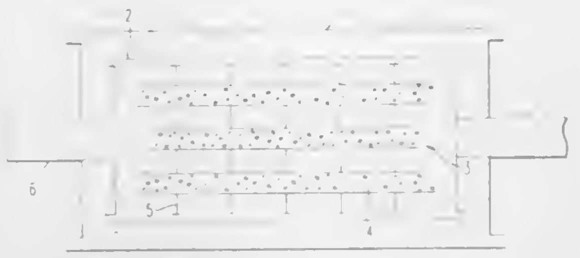
Claims priority, application France, Dec. 20, 1995, 95 15087

Int. Cl.^{6} F01N *7/18*

U.S. Cl. 181—282 **20 Claims**

1 An exhaust muffler comprising an external casing, an internal casing and a central part comprising perforated tubing and transverse partitions which are assembled together to form chicanes, in which at least the central part is made of an enameled steel, wherein the steel has the following composition in thousandths of a percent by weight:

carbon between 0 and 100
manganese between 0 and 500
phosphorus between 0 and 30



sulfur between 0 and 40
aluminum between 0 and 60
titanium between 0 and 200
copper between 0 and 60
nitrogen between 0 and 15,
the remainder being iron and residual impurities,

said steel being obtained by hot rolling at a final rolling temperature exceeding the Ar_3 point to obtain a strip, which is coiled at a temperature higher than 600 degrees Celsius and, after cold rolling, is subjected to a recrystallization annealing

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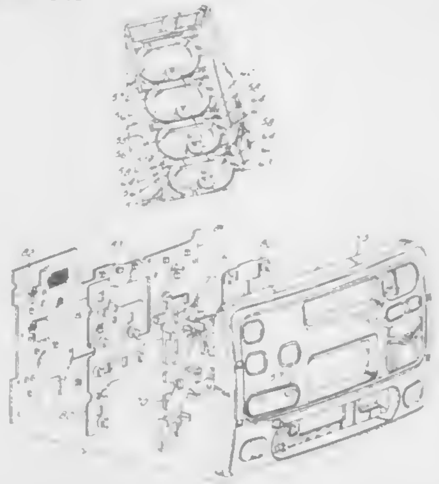
5,739,486
PUSH-BUTTON SYSTEM FOR CONTROL PANELS

Thomas John Buckingham, Allen Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 7, 1996, Ser. No. 689,165

Int. Cl.^{6} H01H *7/26, 9/00*

U.S. Cl. 200—5 A **9 Claims**



1 An electrical control panel comprising.

a plurality of integrally-formed button caps, each button cap including a front push surface, an edge hinge pin substantially tangent with an edge of said button cap, and a rear-projecting finger:
a trim bezel having a curved outside surface and a curved inside surface and including a plurality of non-coplanar button apertures, each button aperture receiving a respective button cap, said trim bezel further including hinge slots in said inside surface substantially tangent with respective button apertures for receiving respective edge hinge pins.
a flexible switch circuit including a plurality of substantially coplanar membrane switches, each membrane switch being aligned with a respective rear projecting finger of a respective button cap, whereby distances between each respective button aperture and its respective membrane switch are not all equal:
a support frame disposed between said flexible switch circuit and said trim bezel, said support frame including a plurality of stanchions each pivotally retaining a respective edge hinge pin in a respective hinge slot.
wherein lengths of each respective stanchion and of each respective rear-projecting finger are determined according to a distance between their respective hinge slots and their respective membrane switches.

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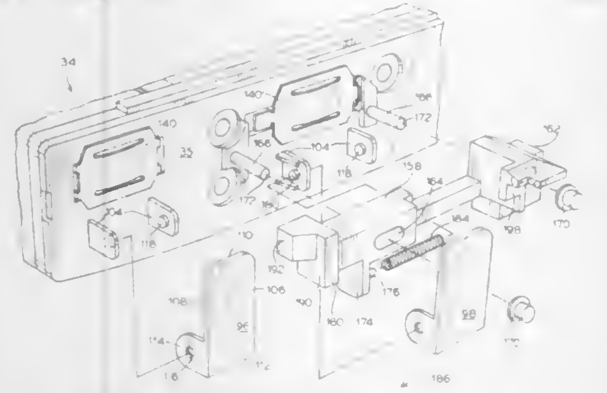
5,739,487
ON SWITCH WITH SEPARATE OFF RELEASE ACTUATOR

Gary R. Best, Hamilton, Ill., assignor to Methode Electronics, Inc., Chicago, Ill.

Filed Feb. 8, 1995, Ser. No. 385,282

Int. Cl.^{6} H01H *9/20*

U.S. Cl. 200—5 E 1 Claim



1. A switching assembly comprising:

(a) an on button having a released position and a depressed position;

(b) a first button driver connected to said on button and responsive to said on button being in said released position or said depressed position;

(c) a first paddle abutting said first button driver and having a first nipple responsive to said on button being in said released position or said depressed position;

(d) a first contactor abutting said first nipple and having an on position and an off position with said position being determine by if said on button is in said depressed position or said released position respectively;

(e) an off button having a released position and a depressed position;

(f) a second button driver connected to said off button and responsive to said off button being in said released position or said depressed position;

(g) a second paddle abutting said second button driver and having a second nipple responsive to said off button being in said released position or said depressed position;

(h) a second contactor abutting said second nipple;

(i) an actuator rod abutting said first button driver and said second paddle for locking said first contactor in said on position when said on button is in said depressed position and releasing said contactor from said on position when said off button is in said depressed position; and

(j) a spring connected to said actuator rod for maintaining said switch in said on position until said actuator rod is forced to release said contactor from said on position.

5,739,488
SWITCH OPERATING MECHANISM INCLUDING HANDLE

Terry Allen Cassity, Paris, and David Emerson Greer, Lexington, both of Ky., assignors to Square D Company, Palatine, Ill.

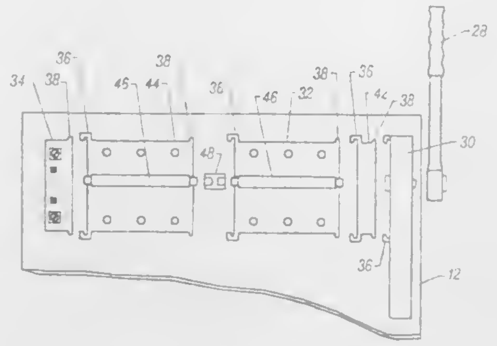
Division of Ser. No. 359,977, Dec. 20, 1994, Pat. No. 5,609,245. This application Jun. 7, 1995, Ser. No. 478,150

Int. Cl.^{6} H01H *3/02*

U.S. Cl. 200—17 R 20 Claims

9. A safety handle for indicating the open close status of contacts in an electrical distribution device and for operating a switch mechanism thereof, the handle comprising

a first piece having an elongated shape with two ends, the first end adapted to be manually controlled by an operator and having a mounting surface, the opposite end having means for securing the handle to the switch mechanism, the first piece being made of a first color material;



a second piece having a complimentary shape for abutting the mounting surface of the first piece at least near the first end, the second piece being made of a second color material, the second color of the complimentary shape blocking visibility of the first color of the first piece when viewed perpendicular to the width of the handle to indicate one condition of the open-close status of the switch mechanism, the first color of the first piece blocking visibility of the second color of the second piece to indicate the opposite condition of the open-close status of the switch mechanism when the handle is rotated to change conditions of the switch mechanism; and

means for fastening the first and second pieces to abut the mounting surface thereof.

5,739,489
ROTARY MECHANISM FOR DRIVING SIGNALLING CONTACTS OF AN ELECTRICAL APPARATUS, IN PARTICULAR A HIGH VOLTAGE GROUNDING SWITCH OR DISCONNECTOR

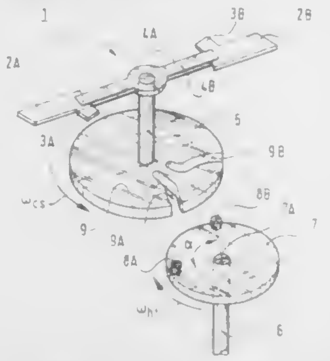
Jean Marmonier, Aix Les Bains, and Bernard Gelloz, St Offenge Dessous, both of France, assignors to GEC Alsthom T & D SA, Paris, France

Filed Oct. 11, 1996, Ser. No. 729,157

Claims priority, application France, Oct. 13, 1995, 95 12025

Int. Cl.^{6} H01H *3/00; 9/26*

U.S. Cl. 200—17 R 5 Claims



1. A drive mechanism in a high voltage electrical apparatus comprising one of a disconnector and a grounding switch, wherein said one of a disconnector and a grounding switch includes main contacts, the high voltage electrical apparatus including main contacts, a rotary signalling switch having a rotary switch shaft and switch contacts, and an actuator mechanism having a rotary actuator shaft and for actuating the main contacts, the drive mechanism connecting the rotary switch shaft of the rotary signalling switch to the rotary actuator shaft of the actuator mechanism, the actuator shaft being displaced at an angular velocity ω_{hl} during an operation to open or close the main contacts of the high voltage electrical apparatus, the drive mechanism comprising a positive action mechanism connected between said rotary actuator shaft and said rotary switch shaft, and including means for driving the rotary switch shaft of the rotary signalling switch at the beginning and at the end of an operation at a velocity ω_{c} greater than ω_{hl}, so that the switch contacts of the rotary signalling switch are opened or closed when the main contacts of the high voltage electrical apparatus are opened or closed.

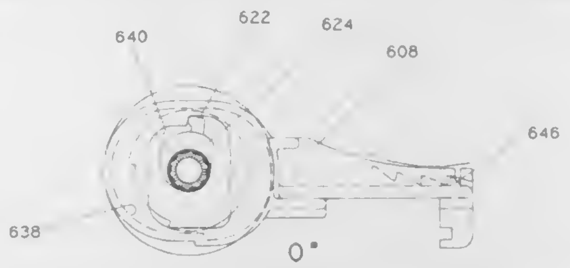
5,739,490
CAM-OPERATED TIMER PAWL DRIVE

Daniel Keith Amonett, Marion County, and Lloyd Curtis Worley, Hendricks County, both of Ind., assignors to Emerson Electric Co., St. Louis, Mo.

Filed May 28, 1996, Ser. No. 654,495

Int. Cl.^{6} H01H *43/00; 7/00*

U.S. Cl. 200—38 B 19 Claims



1. A camstack drive cam and drive pawl, comprising:

(a) a housing;

(b) a motor carried in the housing,

(c) a camstack having a drive blade carried in the housing;

(d) a drive cam rotatably driven by the motor having a pawl engagement cam and

a drive lug; and

(e) a drive pawl biased by the pawl spring having a pawl engagement track that is engaged by the pawl engagement cam to engage, and disengage the drive lug with a drive lug track during predetermined periods to advance the camstack during selectable period of rotation of the drive cam.

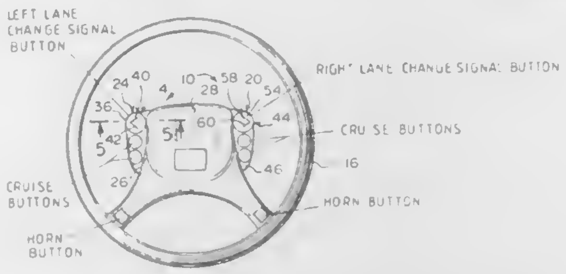
5,739,491
LANE CHANGER APPARATUS

Oliver J. Crosson, Jr., 2205 Belegarde, Bay City, Tex. 77414-8509

Filed Mar. 25, 1996, Ser. No. 622,577

Int. Cl.^{6} B60R *27/00;* **H01H** *3/16*

U.S. Cl. 200—61.54 5 Claims



1. A lane changer apparatus in a motor vehicle comprising:

a) means built into and rotatable with a steering wheel on a steering column in the motor vehicle, for activating left turn signal lights on the motor vehicle accessible to a left thumb on a left hand of a driver of the motor vehicle as said steering wheel is being turned, said left turn activating means comprising a left turn switch assembly which includes a left flange member extending from a left side of a hub pad on the steering wheel, a left stationary contact plate mounted within said left flange member electrically connected to a left turn wire within the steering column, a left movable contact pin unit positioned over said left stationary contact plate, and a left button positioned over said left movable contact pin unit so that when said left button is depressed by the left thumb of the driver the left movable contact pin unit will engage with said left stationary contact plate to close a left turn electrical circuit to cause the left turn signal lights to flash, and

b) means built into and rotatable with the steering wheel on the steering column in the motor vehicle, for activating right turn signal lights on the motor vehicle accessible to a right thumb on a right hand of the driver of the motor vehicle as said steering wheel is being turned, said right turn activating means comprising a right lane change signal button switch assembly which includes a right flange member extending from a right side of the hub pad on the steering wheel, a right stationary contact plate mounted within said right flange member electrically connected to a right turn wire within the steering column, a right movable contact pin unit positioned over said right stationary contact plate, and a right button positioned over said right movable contact pin unit so that when said right button is depressed by the right thumb of the driver said right movable contact pin unit will engage with said right stationary contact plate to close a right turn electrical circuit to cause the right turn signal lights to flash.

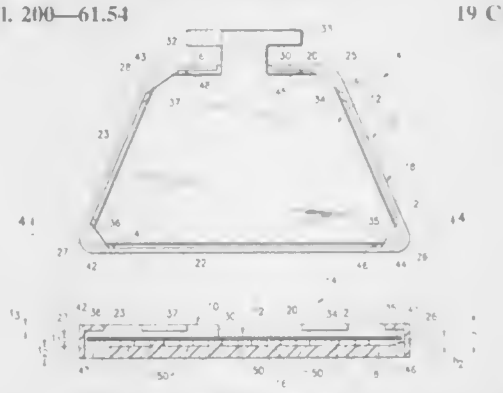
5,739,492
HORN SWITCH INCLUDING A TRAPEZOIDAL SHAPED MEMBRANE SWITCH AND SUPPORT PLATE

Merle K. Ricks, Layton, and Roger T. Lee, Willard, both of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed May 22, 1996, Ser. No. 651,520

Int. Cl.^{6} H01H *9/00*

U.S. Cl. 200—61.54 19 Claims



11. A horn switch assembly for mounting in a horn switch pocket adjacent an airbag module cover of an airbag module, the assembly comprising:

A) a horn switch for closing a horn switch circuit to activate a remote vehicle horn upon being compressed; and

B) a horn switch support plate including:

a generally flat, rigid base supporting the horn switch,

a peripheral wall extending upwardly from and generally perpendicular to the base, the peripheral wall peripherally retaining the horn switch, the wall having a height greater than a thickness of the horn switch so that when the horn switch assembly is contained in a horn switch pocket adjacent an airbag module cover, the horn switch will not be compressed prior to a vehicle driver pressing on the airbag module cover, and

means retaining the horn switch within the peripheral wall

5,739,493
SAFETY DEVICE FOR A MOBILE ELECTRIC UNIT AND ELECTRIC BARBECUE FITTED WITH THIS DEVICE

Alain Betend-Bon, Annecy, France, assignor to SEB S.A., Ecully, France

Division of Ser. No. 431,850, May 1, 1995, Pat. No. 5,621,198. This application Jan. 3, 1997, Ser. No. 778,630

Claims priority, application France, May 6, 1994, 94 05618

Int. Cl.^{6} F24C *7/08;* **H01H** *3/16, 13/18;* **H05B** *3/02*

U.S. Cl. 200—61.58 R 5 Claims

1. An electric barbecue comprising a base, an electric heating element movable relative to said base and a safety device for controlling said electric heating element, said safety device being

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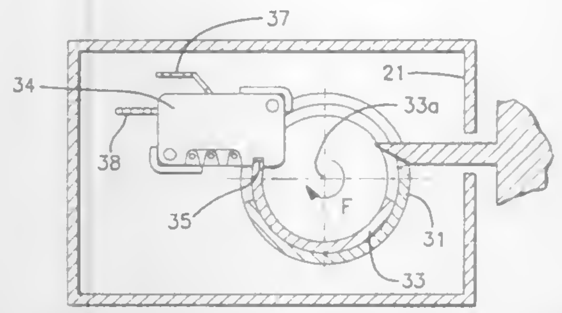
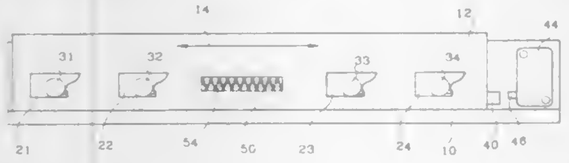


fixed to the electric heating element, wherein said safety device comprises means for controlling operation of said electric heating element between an on position and an off position, means for sensing the position of said electric heating element relatively near or relatively far away from said base, and a single switch controlled by both said control means and said sensing means, said single switch having a connection position in which said electric heating element is connected to electric power supply means and a disconnection position in which said electric heating element is disconnected from said electric power supply means, said switch being located in said connection position when said control means is in the on position and when said sensing means detects the position of said electric heating element relatively near said base, and wherein the sensing means comprises a cam and the base of the barbecue comprises complementary means adapted to rotate said cam when electric heating element is in said position relatively near said base.

5,739,494
SWITCH ACTUATOR WITH MULTIPLE CONTROLS AND A SINGLE SWITCH

Richard L. Frost, Freeport, Ill., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 1, 1996, Ser. No. 625,979
Int. Cl.^{6} H01H *9/06*
U.S. Cl. 200—61.86 **16 Claims**



1. A switch actuator, comprising:
a stationary member;
a movable member, said stationary and movable members being attached together in slideable relation with each other;
a plurality of openings formed through said movable member, each of said plurality of openings having an edge shaped to serve as a cam follower,
a plurality of holes formed through said stationary member, each of said plurality of holes being aligned with an associated one of said plurality of openings,
a plurality of rotatable cams, each of said rotatable cams being disposed within an associated one of said openings and disposed proximate said edge of said associated opening, each of said rotatable cams being rotatable about an associated one of a plurality of central axes, each one of said plurality of central axes extending through an associated one of said plurality of holes, whereby rotation of any one of said plurality of rotatable cams will cause said associated edge to move relative to said central axis of said associated rotatable cam and cause said movable member to move relative to said stationary member;
a switch actuating protrusion attached to said movable member; and
a switch attached to said stationary member, said switch comprising a plunger, whereby said movement of said member relative to said stationary member in a preselected direction moves said switch actuating protrusion against said plunger and actuates said switch; and
wherein:
actuation of said with initial actuation of a selected gas valve of said plurality of gas valves for an initial flow of gas; and
further actuation of the selected gas valve of said plurality of gas valves, results in further rotation of a respective one of said plurality of rotatable cams to cause said associated edge and movable member to move back to an original position relative to said central axis and said stationary member respectively, and to deactuate said switch

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5,739,495
PUFFER-TYPE CIRCUIT BREAKER AND NOZZLE EMITTING GAS WITH COAXIAL ABUTTING PLASTIC TUBE

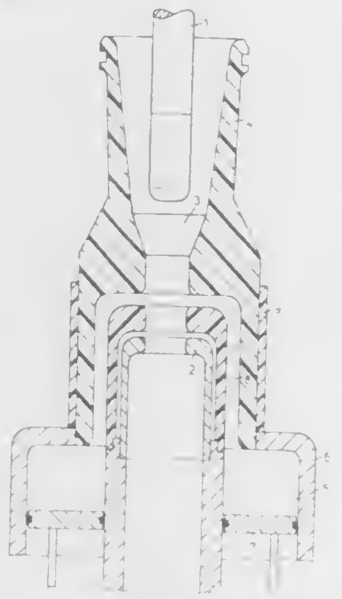
Heiner Marin, Berlin, and Volker Lehmann, Treuenbrietzen, both of Germany, assignors to Siemens Aktiengesellschaft, Münich, Germany

PCT No. PCT/DE95/00631, § 371 Date Nov. 26, 1996, § 102(e) Date Nov. 26, 1996, PCT Pub. No. WO95/33274, PCT Pub. Date Dec. 7, 1995

PCT Filed May 8, 1995, Ser. No. 737,910

Claims priority, application Germany, May 31, 1994, 44 20 386.1

Int. Cl.^{6} H01H *33/985;33/915;33/78*
U.S. Cl. 218—62 **8 Claims**

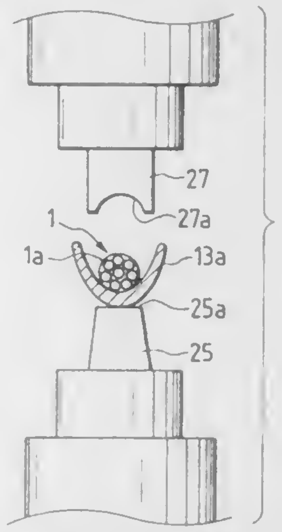


1. A high-voltage compressed-gas circuit breaker, comprising.
two contacts arranged coaxially opposite one another, at least one of said contacts being driveable to move in an axial direction, said contacts defining a contact gap therebetween when in an interrupted state;
a nozzle made of insulating material, said nozzle being connected to the driveable contact, and said nozzle surrounding at least part of the contact gap; and
a high-strength plastic tube coaxially positioned and abutting against an outer circumference of the nozzle at a region of the nozzle exposed to extinguishing gas pressure.

5,739,496
METHOD OF CONNECTING A WIRE TO A TERMINAL AND AN APPARATUS THEREFOR

Nobuyuki Asakura, and Tetsurou Ide, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 621,884
Claims priority, application Japan, Mar. 27, 1995, 7-068052
Int. Cl.^{6} B23K *35/02;11/11*
U.S. Cl. 219—56.22 **4 Claims**

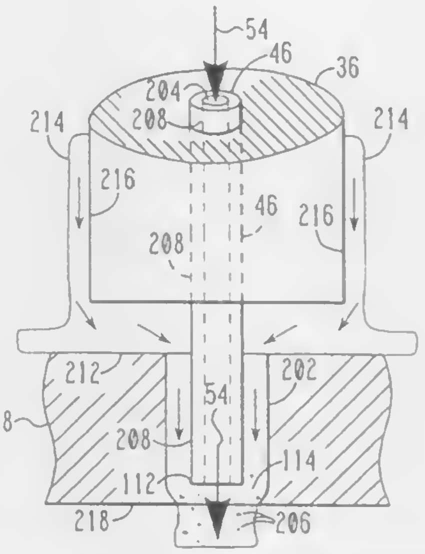


1. A method of connecting a terminal, having a U-shaped wire connecting portion, and a wire by spot welding, comprising the following steps:
forming a concave groove corresponding to a section of said wire in one of a pair of electrodes;
overlaying said wire onto an inner surface of said U-shaped wire connecting portion;
positioning said terminal such that said terminal is disposed between said pair of electrodes with said wire being received in said concave groove of said one electrode;
supplying a current to said electrodes; and
forming another one of said pair of electrodes into a tapered configuration with a distal end of said electrode being narrower than an opposite end thereof, said distal end having a flat surface on which said wire connecting portion abuts.

5,739,497
METHOD OF AND APPARATUS FOR INCREASING THE PRODUCTIVITY OF AN ELECTROEROSION DRILL

Dwight Tanaka, 20290 Pacifica Dr., Cupertino, Calif. 94014
Continuation of Ser. No. 194,846, Feb. 14, 1994, Pat. No. 5,416,289. This application May 11, 1995, Ser. No. 439,353
Int. Cl.^{6} B23H *1/10;9/14*
U.S. Cl. 219—69.14 **18 Claims**

5. An improved drilling apparatus for electroerosively machining a small and deep hole through a workpiece, the drilling apparatus comprising a worktable for receiving the workpiece; a chuck and electrode guide for receiving and securing an elongated and thin tubular electrode, the tubular electrode having a first end which is juxtaposable with the workpiece to establish an electroerosion machining gap therebetween, the tubular electrode also having a hollow inner bore and an outer surface which are both coaxial with a longitudinal axis of the tubular electrode; a fluid supply and pump for supplying a first flow of machining fluid to the inner bore of the tubular electrode and through the inner bore of the tubular electrode into the machining gap established between the first end of the tubular electrode and the workpiece; a power supply for applying a series of electrical machining pulses between the tubular electrode and the workpiece to cause time-spaced electrical discharges across the machining gap thereby electroerosively removing material from the workpiece; and an electrode feed mechanism for relatively displacing the tubular electrode with respect to the workpiece to maintain the machining

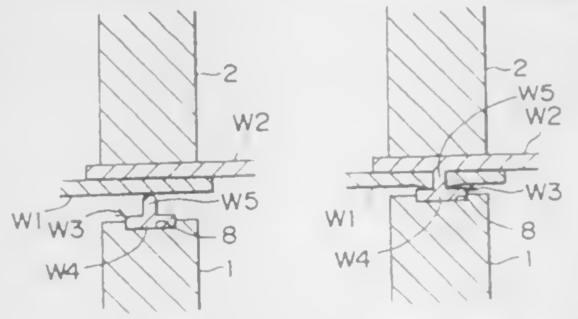


gap between the first end of the tubular electrode and the workpiece, and for advancing the first end of the tubular electrode into the workpiece; wherein the improvement comprises:
a flushing nozzle spaced apart from the workpiece arranged about the tubular electrode for directing a second flow of the machining fluid along the outer surface of and coaxially with the longitudinal axis of the tubular electrode toward the machining gap; and
a secondary machining fluid control for supplying the second flow of the machining fluid to the flushing nozzle during piercing of the workpiece by the tubular electrode, whereby machining speed is not drastically reduced as the tubular electrode pierces through the workpiece.

5,739,498
METHOD OF AND APPARATUS FOR JOINING PLATE MEMBERS BY THE USE OF ANCHOR PEGS

Kenichi Sunamoto, Hiroshima, and Naoki Sasaki, Hiroshima-ken, both of Japan, assignors to Akane Corporation, Hiroshima, Japan

Filed Jan. 24, 1996, Ser. No. 590,824
Int. Cl.^{6} B23K *11/00;9/28;11/10*
U.S. Cl. 219—78.15 **13 Claims**



1. A method of joining a first electroconductive plate member to a second electroconductive plate member, said first and second plate members being prepared from respective metals dissimilar from each other, by the use of at least one anchor peg made of the same metal as the second plate member, said method comprising the steps of:
overlapping the first and second plate members one above the other to provide a plate assembly,
clamping the plate assembly under pressure between welding electrodes with the anchor peg positioned between one of the welding electrodes and the first plate member,
applying an electric current to the welding electrodes to initially cause a portion of the first plate member held in contact with the anchor peg to melt by resistance heating of the anchor peg

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to thereby allow the anchor peg to be pierced through the first plate member and then to cause the anchor peg extending completely across a thickness of the first plate member to be welded to the second plate member.

5,739,499

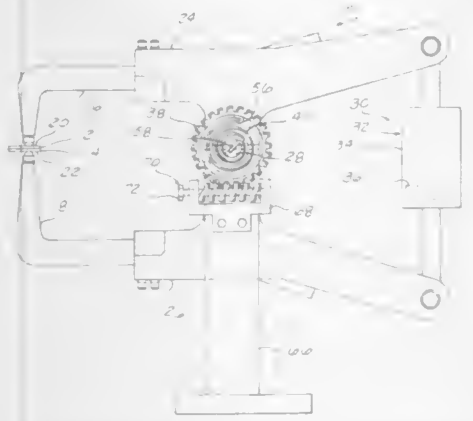
WELD GUN COUNTERBALANCE APPARATUS

Richard F. Suzio, Canton; Michael S. McFadden, Clinton Township, and Ronald R. Hendricks, Hazel Park, all of Mich., assignors to Progressive Tool & Industries Company, Southfield, Mich.

Filed Sep. 12, 1996, Ser. No. 713,249

Int. Cl.⁶ B23K *11/00*

U.S. Cl. 219—90 **20 Claims**



1. An apparatus for bonding a workpiece with pressure applied by first and second electrodes contacting and loading opposite sides of said workpiece during a welding operation comprising,

a pair of tongs for positioning said first and second electrodes with respect to said workpiece to contact and load opposite sides of said workpiece when in a closed welding position, while said tongs rotate with respect to one another about a pivot axis; and

means for counterbalancing said pair of tongs while carrying said first and second electrodes for engagement with opposite sides of said workpiece, said counterbalancing means disposed with respect to said pivot axis for biasing one of said tongs in a rotational direction with respect to said pivot axis, such that said counterbalancing means balances said pair of tongs in any angular orientation of said closed welding position with respect to said pivot axis.

5,739,500

IC CARD CLOSURE AND WELDING APPARATUS

Franciscus Cornelis Van Beers, Rancho Santa Margarita, Calif., assignor to ITT Cannon, Inc., Santa Ana, Calif.

Filed Dec. 20, 1995, Ser. No. 575,459

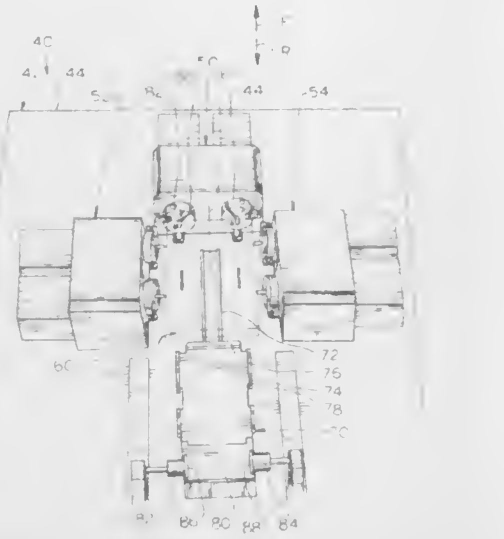
Int. Cl.⁶ B23K *11/00*, **H05K** *1/14*

U.S. Cl. 219—117.1 **14 Claims**

1. Apparatus for completing the assembly of an IC card that has an inner card unit comprising at least a front connector and a circuit board coupled to said front connector, by joining upper and lower sheet metal cover halves around the inner unit, comprising:

first and second weld units, arranged respectively at the right side and left side of a substantially parallelepiped-shaped weld region which has a vertical axis,

a card-holding slide assembly for holding said IC card in said weld region;



each of said weld units including a pair of weld heads each having an electrode holder with an electrode thereon, and including an electrical cable extending from said head, and actuator means for moving said weld heads inwardly to push the electrodes thereon against locations on the sheet metal cover of a card lying in said weld region to form spot welds thereon.

5,739,501

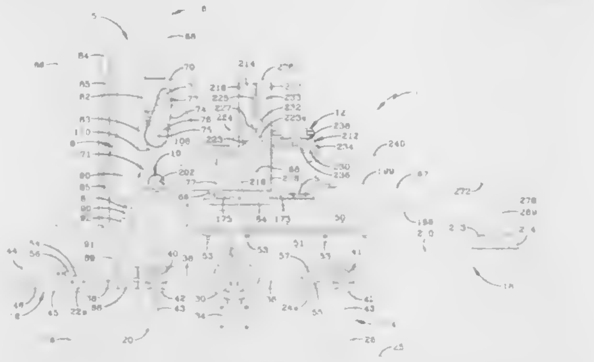
METHOD AND APPARATUS FOR FORMING BLOWER HOUSINGS

Rand L. Peterson, Sebring, Ohio, assignor to Tru-Cut, Inc., Sebring, Ohio

Filed Oct. 11, 1996, Ser. No. 731,252

Int. Cl.⁶ B23K *11/11*

U.S. Cl. 219—117.1 **31 Claims**



1. Apparatus for forming a metal housing having a pair of spaced end panels and an intervening wrap panel connected between the end panels by a plurality of welds, said apparatus including:

a base;

a pair of work holding subassemblies rotatably mounted on the base for holding the end panels in a position for assembly to the wrap panel to form the housing;

rotating means for rotating the work holding subassemblies between a plurality of weld positions,

welding means for welding the end panels to the wrap panel;

guide means for moving the welding means only in a linear path when said welding means welds the end panels to the wrap panel

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5,739,502

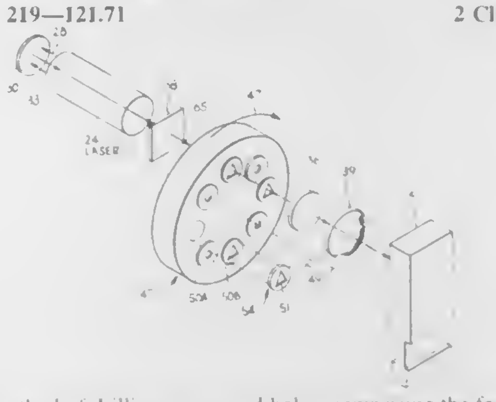
LASER INTENSITY REDISTRIBUTION

Thomas Edwin Anderson, Mason; Gail Robert Dearth, Cincinnati, both of Ohio, and James George Kelley, Cold Springs, Ky., assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 27, 1983, Ser. No. 565,508

Int. Cl.⁶ B23K *26/00*

U.S. Cl. 219—121.71 **2 Claims**



1. A method of drilling compound holes, comprising the following stesp:

(a) drilling a pilot hole using a laser beam having a first, generally conical, shape,

(b) enlarging at least part of the pilot hole by using a laser beam having a second, generally pyrimidal, shape.

5,739,503

SHIELDING GAS MIXTURE AND PROCESS FOR ARC WELDING OF STAINLESS STEEL WORKPIECES

Philippe Rouault, Poissy, and Henri Diot, Saint Ouen L'Aumone, both of France, assignors to L'Air Liquide, Societe Anonyme Pour L'Etude et L'Exploitation des Procedes Georges Claude, Paris, France

PCT No. PCT/FR96/00411, § 371 Date Nov. 22, 1996, § 102(e) Date Nov. 22, 1996, PCT Pub. No. WO96/30158, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 19, 1996, Ser. No. 737,679

Claims priority, application France, Mar. 29, 1995, 95 03714

Int. Cl.⁶ B23K *9/167*

U.S. Cl. 219—137 WM **7 Claims**

6. A process for welding a stainless steel workpiece, comprising the steps of:

forming an electric arc between a nonconsumable electrode and the workpiece; and

at least partially shielding the arc with a shielding gas mixture comprising from 3 to 18% of helium, from one 1 to 3% nitrogen, balance argon.

5,739,504

CONTROL SYSTEM FOR BOILER AND ASSOCIATED BURNER

Richard A. Lyons, Hamden, and Christopher L. Murray, West Haven, both of Conn., assignors to C. Cowles & Company, New Haven, Conn.

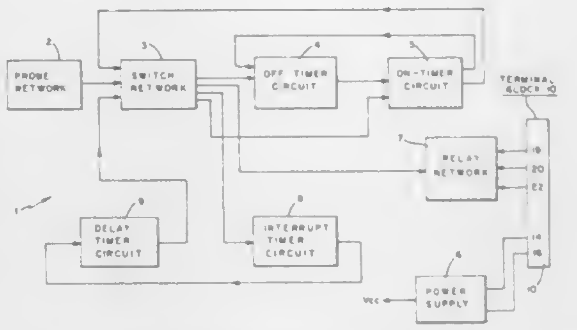
Filed Jul. 28, 1995, Ser. No. 508,467

Int. Cl.⁶ H05B *1/02*; **F22D** *5/26*

U.S. Cl. 219—494 **10 Claims**

9. A process for controlling a boiler having fluid therein and an associated burner comprising the steps of:

a) alternately activating the burner for a first predetermined duration and deactivating the burner for a second predetermined duration, said second predetermined duration defining a time period that allows foam and surging fluid in the boiler to settle;



b) continually monitoring the fluid level in the boiler to determine if the fluid is below a predetermined level,

c) disconnecting the power source from the burner if the burner is currently activated and if in step (b), it is determined that the fluid level is below the predetermined level; and

d) maintaining the disconnection between the power source and the burner if the burner was previously deactivated in step (a) and if in step (b), it is determined that the fluid level is below the predetermined level.

5,739,505

TEMPERATURE CONTROL METHOD AND APPARATUS FOR AN ELECTRIC FURNACE

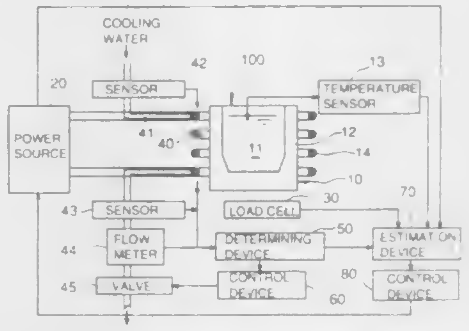
Tamotsu Hasegawa, Nagoya; Norihiro Amano, Toyota; Katsuhito Yamada, Nagoya, and Masuji Oshima, Kariya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Nov. 20, 1996, Ser. No. 752,392

Claims priority, application Japan, Nov. 21, 1995, 7-302658

Int. Cl.⁶ H05B *1/02*

U.S. Cl. 219—494 **9 Claims**



1. A method for controlling temperature in an electric furnace, the electric furnace including a heating device, the heating device including a cooling water passage formed therein permitting cooling water to flow therethrough for preventing the heating device from melting, said method comprising the steps of

passing cooling water through the water passage,

determining a thermal loss which occurs due to said cooling water,

estimating a temperature of molten metal in the furnace by taking said determined thermal loss into account in a molten metal temperature estimation model, and

controlling said molten metal temperature based on the estimation model

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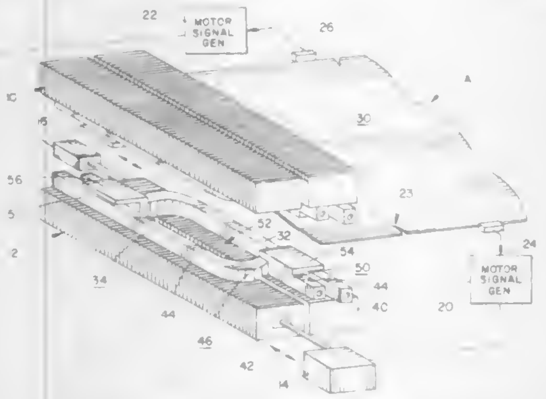
5,739,506
COIL POSITION ADJUSTMENT SYSTEM IN INDUCTION HEATING ASSEMBLY FOR METAL STRIP

David J. Hanton, Vienna, and Nicholas V. Ross, Youngstown, both of Ohio, assignors to Ajax Magnethermic Corporation, Warren, Ohio

Filed Aug. 20, 1996, Ser. No. 700,271

Int. Cl.^{6} H05B *6/10*

U.S. Cl. 219—645 **19 Claims**



1. An adjustable width transverse flux heating apparatus for induction heating of a moving workpiece comprising:

first and second conductor elements disposed in a first relative position in a common plane to comprise an inductive coil and define a middle spacing in an internal cross-sectional area of the inductive coil,

a first workpiece monitor for detecting workpiece fracture positions in the moving workpiece and generating first signals representative of the fracture positions; and

a first position adjustment device for engaging the first conductor element for moving the first conductor element relative to the second conductor element to a second relative position in response to the first signals generated by the first workpiece monitor, without adjustment of the moving of the workpiece for varying the heating of the workpiece at the fracture positions.

5,739,507
KEYBOARD FOR CASH REGISTERS AND OTHER REGISTERS

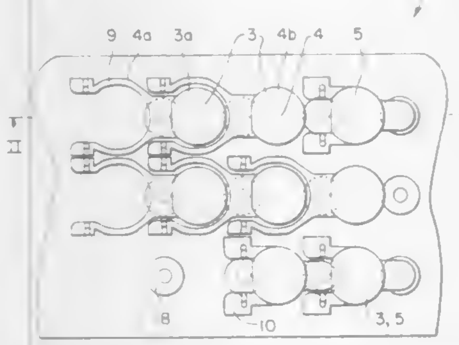
Gerhard Hochgesang, Bad Neustadt, Germany, assignor to Preh-Werke GmbH & Co. KG, Bad Neustadt, Germany

Filed Jan. 26, 1996, Ser. No. 592,685

Claims priority, application Germany, Feb. 24, 1995, 195 06 509.3

Int. Cl.^{6} G06C *7/02 25/00;* **G07G** *1/00*

U.S. Cl. 235—145 R **5 Claims**



1. A keyboard for sales and cash registers and the like having key areas provided with keys having long-strokes for keying in significant functions and keys having shorter strokes;

wherein, with all of the keys having uniform spacing, each of the keys having a shorter stroke is mounted on a short stroke lever having a short key moment arm and a long switch moment arm, thereby forming a short-stroke rocker key assembly, and each of the keys having a longer stroke is mounted on a long-stroke lever with a long key moment arm and a short switch moment arm, thereby forming a long-stroke rocker key assembly, wherein, a first long-stroke lever of a first long-stroke rocker key assembly is a forked lever and wherein in a mounted condition, a key of a second long-stroke rocker key assembly, adjacent said first long-stroke rocker key assembly, lies within a gap formed between bifurcated ends of said forked lever of said first long-stroke rocker key assembly, whereby, said key of said second long-stroke rocker key assembly has the same uniform spacing from a key of said first long-stroke rocker key assembly as do other keys having shorter and longer strokes so that positions of said keys having long strokes can be interchanged with keys having shorter strokes on said key areas while maintaining said uniform spacing.

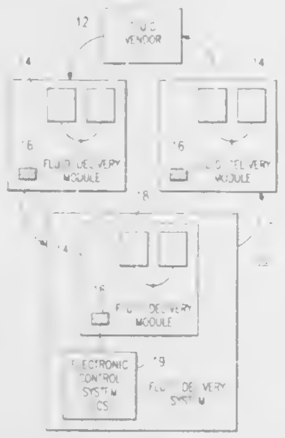
5,739,508
CLOSED LOOP INFORMATION PATH FOR MEDICAL FLUID DELIVERY SYSTEMS

Arthur E. Uber, III, Pittsburgh, Pa., assignor to Medrad, Inc., Indianola, Pa.

Continuation of Ser. No. 273,665, Jul. 12, 1994, abandoned. This application Oct. 11, 1996, Ser. No. 729,098

Int. Cl.^{6} G06C *17/00*

U.S. Cl. 235—375 **7 Claims**



1. A method of storing information on and retrieving information from a record member in association with a medical fluid delivery element comprising the steps of:

a) storing information on the record member at a vendor site.

b) retrieving the stored information at a consumer site;

c) calculating parameters for operation of a medical fluid delivery system which incorporates the medical fluid delivery element based on the retrieved information;

d) storing new information on the record member at the consumer site, and

e) retrieving the new information at the vendor site.

5,739,509
AUTOMATIC TELLER MACHINE EMPLOYING JAM CHECK SHEET FOR CLEANING PAPER MONEY CONVEYOR ROUTE AND OPERATION METHOD FOR SAME

Kohichi Watanabe, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

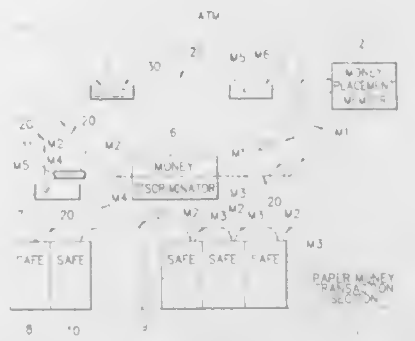
Filed Dec. 26, 1995, Ser. No. 578,137

Claims priority, application Japan, Dec. 26, 1994, 6-323012

Int. Cl.^{6} G06F *17/60;* **G06K** *13/00*

U.S. Cl. 235—379 **9 Claims**

1. An automatic teller machine comprising:



a teller member for identifying paper money consisting of one of paper money incoming from outside the machine and paper money outgoing from inside the machine;

a safe member composed of one of a first safe for storing therein the paper money and a second safe for supplying therefrom the paper money.

a conveyor route composed of a money conveyor for conveying the paper money between the teller member and the safe member, and a route member for enclosing the money conveyor;

a check sheet member conveyable by the money conveyor for checking the conveyor route for a jam; and

a charge circuit means for charging the check sheet member with electricity.

5,739,510
CARD READER TERMINAL AND METHOD FOR THE MULTI-APPLICATIVE OPERATION OF SUCH A TERMINAL

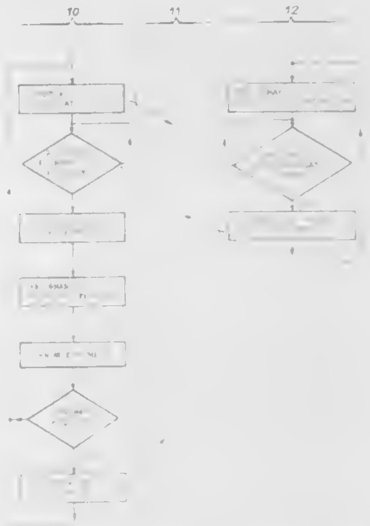
Stéphane Petit, Courseulles, France, assignor to France Telecom, Paris, and La Poste, Boulogne Billancourt, both of France

Filed Jan. 22, 1996, Ser. No. 589,300

Claims priority, application France, Jan. 23, 1995, 95 00722

Int. Cl.^{6} G06K *5/00;19/06*

U.S. Cl. 235—380 **5 Claims**



1. Method for the multi-applicative operation of a card reader terminal (**10**), characterized in that a connection (**11**) is made between the terminal and at least one electronic card (**12**), which card may or may not have a memory and which is dedicated to the performance of an application, said card performing applicative operations and dialoging with the terminal (**10**) for making available inputs-outputs and capabilities of the terminal, the terminal becoming a slave at the applicative level with respect to the electronic card (**12**) in which the application is performed wherein the terminal (**10**) presents to the electronic card (**12**) an applicative interrogation order and then recovers an applicative order to be performed, and the terminal (**10**) interprets the applicative orders, performs the operations allocated thereto and acknowledges them

5,739,511
METHOD FOR EFFECTING AN ELECTRONIC PAYMENT TRANSACTION HAVING A VARIABLE NUMBER OF PAYMENT UNITS, AS WELL AS PAYMENT MEANS AND SYSTEM FOR APPLYING THE METHOD

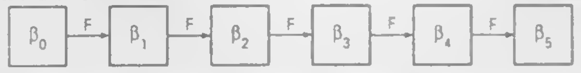
Torben P. Pedersen, Åbyhøj, Denmark, assignor to Koninklijke PTT Nederland N.V., Grnningen, Netherlands

Filed May 13, 1996, Ser. No. 644,949

Claims priority, application Netherlands, May 11, 1995, 1000341; Oct. 9, 1995, 1001376

Int. Cl.^{6} G06K *5/00,* **G06F** *17/60,* **G07D** *7/00*

U.S. Cl. 235—380 **13 Claims**



1. Method for effecting a payment transaction with an electronic payment means and a payment station, comprising the issuing by the payment means to the payment station of at least a first payment value, payment values being representative for one or more payment units to be settled, each subsequent payment value being related to the first payment value by a one-way function in such a manner that the first payment value may be obtained from a further payment value by repeatedly applying the function

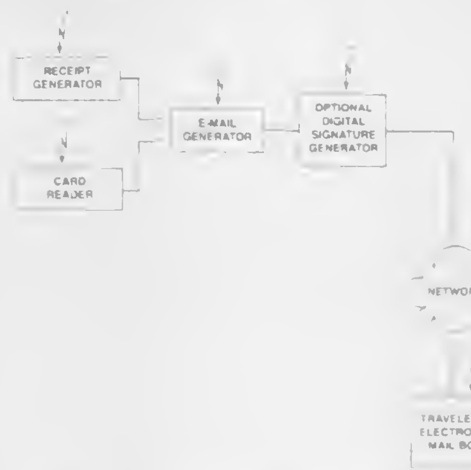
5,739,512
DIGITAL DELIVERY OF RECEIPTS

Bruce Tognazzini, Woodside, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed May 30, 1996, Ser. No. 656,123

Int. Cl.^{6} G06K *5/00*

U.S. Cl. 235—380 **9 Claims**


RECEIPT GENERATOR
CARD READER
E-MAIL GENERATOR
OPTIONAL DIGITAL SIGNATURE GENERATOR
NETWORK
TRAVELER'S ELECTRONIC MAIL BOX

1. Apparatus for handling purchase transactions, comprising

a. a cash register,

b. a card reader for reading cards including at least one electronic mail address and activating said cash register to generate a receipt; and

c. a transmitter for sending an electronic copy of said receipt to said electronic mail address

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5,739,513

AUTOMATED SHOPPING BASKET SYSTEM WITH ACCOUNTING USING MARKS WRITTEN ON ARTICLES

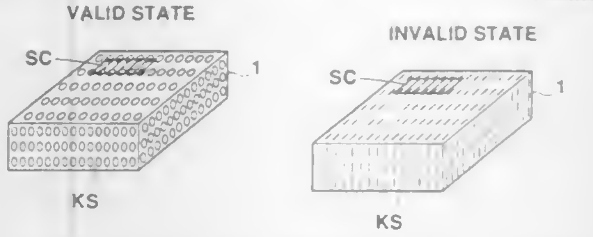
Nobuyuki Watanabe, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 400,853, Mar. 8, 1995, Pat. No. 5,637,847. This application Jan. 28, 1997, Ser. No. 790,323

Claims priority, application Japan, Mar. 10, 1994, 6-039486

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 235—383 11 Claims



1. A system for operating shopping baskets with an accounting function, wherein a "valid" mark is written onto a portion of each article, and the "valid" mark is changed to an "invalid" mark when a status code thereof is not read correctly.

5,739,514

SENSOR AND SECURITY TAG USING THE SAME

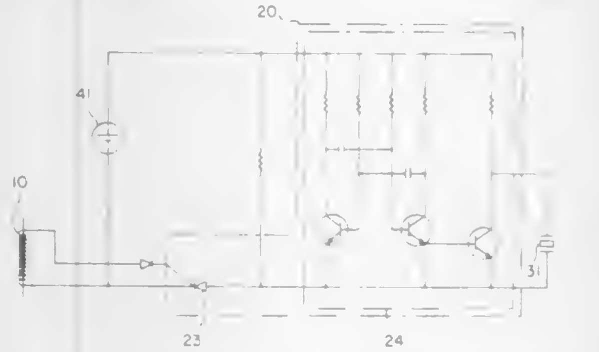
Kenichi Uchida, Kawasaki-ken, Japan, assignor to Fala System Co., Ltd., Japan

Filed Sep. 20, 1996, Ser. No. 717,128

Claims priority, application Japan, Sep. 22, 1995, 7-268050; Jul. 10, 1996, 8-198525

Int. Cl.^{6} G06K *7/00*

U.S. Cl. 235—435 14 Claims



1. A sensor comprising a hollow tube of non-magnetic material, a pulse voltage generating member of a magnetic material, said pulse voltage generating member being inserted into said hollow tube and supported in said hollow tube in a free movement state, and a pick-up coil wound on an outer peripheral surface of said hollow tube.

5,739,515

IC CARD READER/WRITER

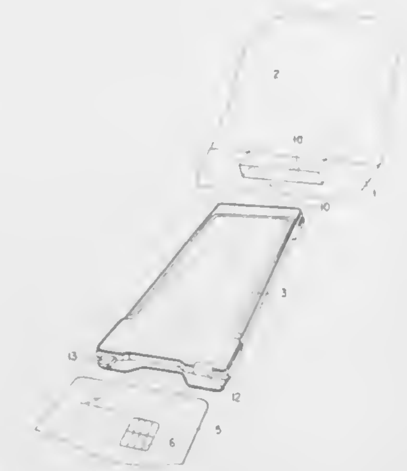
Hisao Takemura, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 24, 1996, Ser. No. 590,759

Claims priority, application Japan, Jan. 24, 1995, 7-008916

Int. Cl.^{6} G06K *7/00*

U.S. Cl. 235—441 10 Claims



1. An IC card reader/writer adapted to be inserted into a memory card storage section of an information processing apparatus, the memory card storage section having an area of connection to a memory card, comprising

first and second plates arranged in an opposite relation to define an IC card storage space therebetween, a width of the plates being substantially equal to that of the IC card, a length of the plates in an insertion direction of the memory card being greater than a depth direction length of the memory card storage section, and a projection formed at a rear end side viewed in the insertion direction and outwardly extending from the memory card storage section;

a connector section provided on a forward end side of the first and second plates in a direction from the insertion direction of the memory card and fixing the first and second plates in place, the connector section being connected to the connection area in the memory card storage section, and

a contact section provided on the first plate to allow connection to be made to terminals of the IC card inserted into the IC card storage space.

5,739,516

CIRCUIT BOARD-MOUNTED CARD RECEIVER

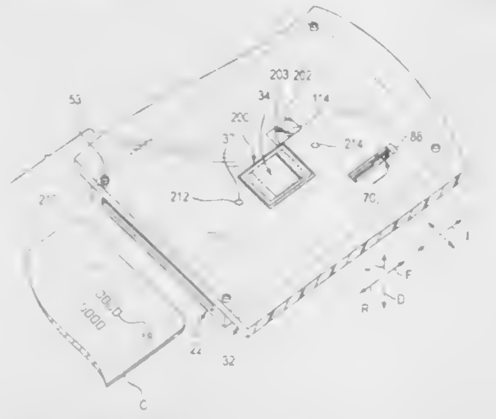
Hervé Guy Bricaud, Dole, France, assignor to ITT Composants ET Instruments, Bagneux, France

Filed Mar. 8, 1996, Ser. No. 613,165

Claims priority, application France, Jun. 1, 1994, 94 06683; Jun. 1, 1994, 94 06684; Jun. 1, 1994, 94 06685

Int. Cl.^{6} G06K *7/00*

U.S. Cl. 235—441 11 Claims



1. A card receiver assembly for mounting on a circuit board that has upper and lower faces and a plurality of contact traces on one of said faces, and for receiving a card that has a face with contact pads thereon, comprising:

a case which has a front-to-rear length and a lateral width, said case having a card receiving slot with an open card-receiving rear end, said case having an upper surface with surface mount portions lying in a plane to lie facewise against said lower face of said circuit board;

an electrical connector which has an insulative connector body and a plurality of contacts, said connector body being mounted on said case, said contacts each having a blade extending into said card-receiving slot and having a contact tail constructed to engage one of said contact traces,

said connector body having a longitudinal length and a lateral width that are respectively less than half the width and length of said case, and said connector body projects by at least one millimeter above said upper surface mount portion to fit into a hole in said circuit board.

5,739,517

APPARATUS AND A METHOD FOR CHECKING AN OBJECT TO BE CHECKED FOR AUTHENTICITY

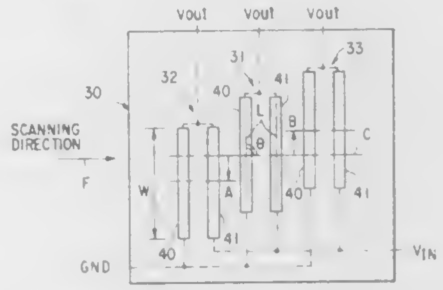
Hidekazu Hoshinn, Yokohama; Masumi Yoda, Zushi, and Minoru Komiya, Yokohama, all of Japan, assignors to NHK Spring Co., Ltd., Yokohama, Japan

Filed Jan. 25, 1996, Ser. No. 591,091

Claims priority, application Japan, Jan. 27, 1995, 7-011839

Int. Cl.^{6} G06K *7/08*

U.S. Cl. 235—449 4 Claims



1. An apparatus for checking an object to be checked for authenticity, the object having a scanning region in which a large number of magnetic pieces of a magnetic material are distributed at random in a base of a nonmagnetic material, said apparatus comprising,

a magnetic detector including a sensor for magnetically detecting the magnetic pieces, and

a transfer mechanism for moving the object relatively to the sensor in a scanning direction in which the magnetic pieces in the scanning region are scanned,

the sensor having a first detecting element pair including a first pair of magneto-electric transducers arranged adjacent to each other so that longitudinal center lines thereof cross a line along the scanning direction, and a second detecting element pair including a second pair of magneto-electric transducers arranged in a vicinity of the first detecting element pair so that the second detecting element pair is deviated from the first detecting element pair in parallel relation, and

the magnetic detector further including a magnetic field generator for applying magnetic fields to the first and second detecting element pairs, a detecting circuit for detecting changes of electrical outputs produced in the individual detecting element pairs and obtaining detection signals as the magnetic pieces in the scanning region pass by the detecting element pairs, a switch for delivering a first detection signal from the first detecting element pair into the detecting circuit when issuing the object to be checked and delivering second detection signals from the first and second detecting element pairs into the detecting circuit when collating the object, a code write section for recording data associated with the first detection signal from the first detecting element pair in a code indicator section, a code read section for reading the data from the code indicator section, and a processor for collating the data of the code indicator section read by the code read section with the second detection signals from the first and second detecting element pairs and concluding that the object to be checked is real if any of the second detection signals corresponds to the data of the code indicator section.

5,739,518

AUTODISCRIMINATION FOR DATAFORM DECODING AND STANDARDIZED RECORDING

Ynjiun P. Wang, Fort Myers, Fla., assignor to Metanetics Corporation, Fort Myers, Fla.

Filed May 17, 1995, Ser. No. 443,909

Int. Cl.^{6} G06K *7/10*

U.S. Cl. 235—454 30 Claims

1. A method employing 2D dataform identification before decoding of a dataform present in a target area, comprising the steps of:

(a) making available feature reference data defining at least a first image feature of at least a first type of 2D dataform;

(b) making available pattern reference data defining at least a first sampling pattern for selecting a limited amount of image data for a predetermined pattern of pixel positions representing less than a complete dataform image;

(c) providing image data, for a two-dimensional array of pixel positions, representative of illumination reflected from said target area;

(d) using step (b) pattern reference data for said first sampling pattern to select image data from pixel positions corresponding to said first sampling pattern from image data provided in step (c);

(e) utilizing step (a) feature reference data for said first image feature to develop an identification indicia representative of a level of compatibility between said sampling pattern image data selected in step (d) and said image feature; and

(f) activating, in response to said identification indicia, a decoding protocol suitable for processing step (c) image data to decode said first type of 2D dataform, in order to attempt to decode said dataform present in said target area.

5,739,519

INFORMATION RECORDING METHOD

Keiji Tsuchiya, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 334,332, Nov. 2, 1994, abandoned. This application Oct. 24, 1996, Ser. No. 736,137

Claims priority, application Japan, Nov. 5, 1993, 5-299067

Int. Cl.^{6} G06K *7/10*

U.S. Cl. 235—456 4 Claims

1. An information recording method comprising

a first searching step of searching for a start position of recording on a recording medium on the basis of a directory recorded on a directory section of the medium,

a second searching step of searching for an actual start position of recording by investigating whether data is recorded on the start position of recording searched by said first searching step, and a portion after the start position of recording, and

a directory recording step of recording, on said directory section of the medium, and in advance of recording file data, infor-

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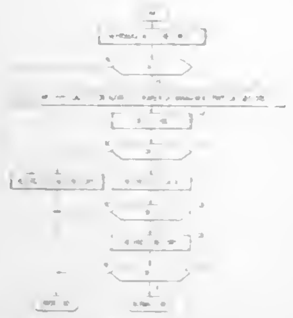


mation indicative of a last recorded position investigated by said second searching step when the actual start position of recording cannot be searched in said second searching step.

5,739,520

BAR CODE READING DEVICE FOR BAR CODE VERIFIER ADAPTED TO VERIFY LONGER BAR CODE

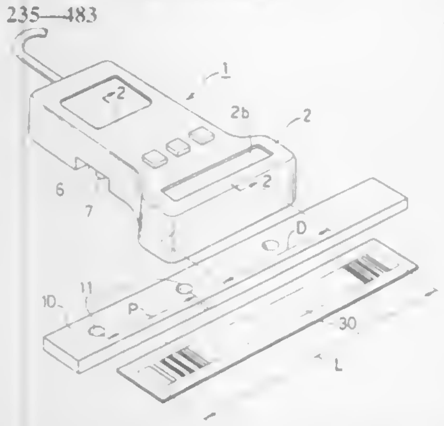
Toru Atsumi; Yasuhiro Kamijo, both of Kariya; Yoshiki Furukawa, and Naoki Matumura, both of Hadano, all of Japan, assignors to Nippon Denso Co., Ltd., and Stanley Electric Co., Ltd., both of Aichi-Ken, Japan

Filed Sep. 21, 1995, Ser. No. 532,002

Claims priority, application Japan, Sep. 22, 1994, 6-254631

Int. Cl.⁶ G06K *7/10*

U.S. Cl. 235—483 15 Claims



1. A bar code reading device for a bar code verifier to verify accuracy of a long bar code comprising

a scanner having a housing, containing a light source, a lens, and an image sensor element for scanning a bar code positioned adjacent to a scanning window in said housing, and a guide aligned to a scanning path of the scanner provided along a surface of the housing and being arranged in spaced parallel fashion with said scanning window;

a guide rail fitted in said guide on which said scanner slides;

positioning means formed by a plurality of projections or holes on said guide rail, for determining a position in which said scanner slides within bounds equal to or less than a maximum scanning path;

securing means provided on the guide of the scanner cooperating with said positioning means for locating said scanner along said guide rail; and

a plurality of switching elements on said guide movable to on or off positions for providing a binary code pattern when said guide is coupled to said guide rail; and

means provided along said guide rail for controlling the turning-on or turning-off of said switching elements so as to detect a scanner position by a binary code pattern produced by a combination of the on and off positions of said switching elements.

5,739,521

LASER DIODE CONTROLLING METHOD AND APPARATUS FOR COMPACT DISK DRIVE

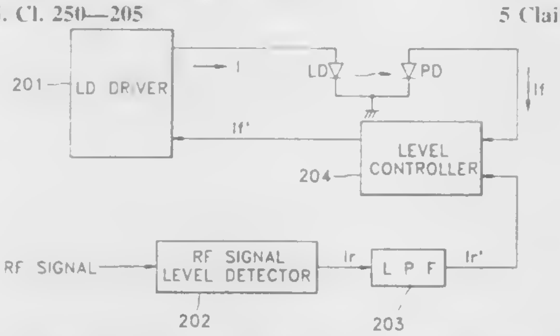
Heung-weon Lee, Kwacheon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 18, 1996, Ser. No. 769,054

Claims priority, application Rep. of Korea, Mar. 13, 1996, 96-6648

Int. Cl.⁶ G01J *1/32*

U.S. Cl. 250—205 5 Claims



1. A laser diode controlling method for a compact disk drive in which light is radiated from a laser diode to a compact disk, and a radio frequency (RF) signal is generated by light reflected from the compact disk, said method comprising the steps of

(a) converting said light output from said laser diode into a first electrical signal;

(b) detecting the level of said RF signal;

(c) generating a second electrical signal by adjusting the level of said first electrical signal on the basis of the level of said RF signal; and

(d) generating a driving current for said laser diode on the basis of said second electrical signal.

5,739,522

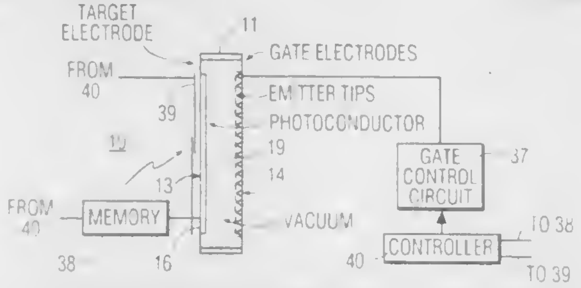
FLAT PANEL DETECTOR AND IMAGE SENSOR WITH MEANS FOR COLUMATING AND FOCUSING ELECTRON BEAMS

Donald R. Ouimette, Plantsville, Conn., assignor to University of Connecticut, Farmington, Conn.

Continuation-in-part of Ser. No. 391,709, Feb. 21, 1995, Pat. No. 5,567,929. This application Aug. 29, 1996, Ser. No. 705,250

Int. Cl.⁶ H01J *40/14*

U.S. Cl. 250—214 VT 20 Claims



1. A flat panel image sensor comprising a housing including first and second surfaces, said surfaces being parallel to one another and including a vacuum therebetween, said first surface including a window for radiation, said window comprising a layer of a radiation-transparant, electrically-conducting material, a photoconductor layer positioned on the underside of said electrically-conducting layer and being electrically coupled thereto, said photoconductor layer having a surface facing said vacuum, said first surface being positioned to receive a multi-pixel, radiation image, said second surface comprising an array of electron beam sources, said sensor including means for impressing a voltage on said electrically-conducting layer for establishing a bias field across said photoconductor layer, and means for activating said electron beam sources in a manner to discharge consecutive charges on said photoconductor layer corresponding to consecutive pixel positions of said image and read out means connected to said electrically conducting layer for reading out the signals produced by the discharges, said sensor also including means for collimating and focusing said electron beam

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5,739,523

OBJECT SENSOR SYSTEM FOR DOORS

Koji Tsutsumi, and Takashi Wada, both of Kobe, Japan, assignors to NABCO Limited, Kobe, Japan

Filed Nov. 6, 1995, Ser. No. 554,565

Claims priority, application Japan, Nov. 7, 1994, 6-298942; Nov. 7, 1994, 6-298943

Int. Cl.⁶ G08B *13/184*

U.S. Cl. 250—221 17 Claims

1. A door sensor system comprising:

light-emitting means for generating light to be projected toward a floor near a door;

focusing means for focusing a component of light generated by said light-emitting means which impinges directly thereon and directing the focused light component directly toward a first region at a location along said door;

variably tiltable reflecting means for reflecting, toward said focusing means, a component of said light which does not directly impinge on said focusing means, and directing said reflected light component toward a second region at a location more remote from said door than said first region; and

light-receiving means adapted to receive light reflected from said first and second regions

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5,739,524

DYNAMIC DISTANCE AND POSITION SENSOR AND METHOD OF MEASURING THE DISTANCE AND THE POSITION OF A SURFACE USING A SENSOR OF THIS KIND

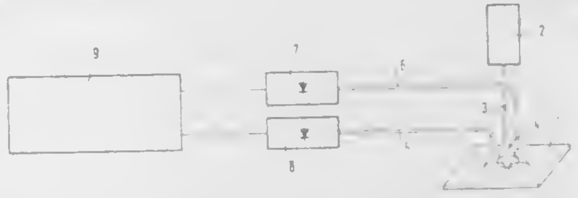
Jacques Fally, Orsay, France, assignor to European Gas Turbines SA, Paris, France

Filed Jul. 12, 1995, Ser. No. 501,306

Claims priority, application France, Jul. 13, 1994, 94 08725

Int. Cl.⁶ G01B *11/14*

U.S. Cl. 250—227.11 15 Claims



1. Dynamic sensor for sensing a distance between a probe of the sensor and a surface moving past the sensor, said dynamic sensor consisting of

a send optical channel having a first end facing the surface moving past the sensor and a second end coupled to a radiation emitter, said radiation emitter emitting radiation towards the surface through said first end of said send optical channel, the surface reflecting or diffusing said emitted radiation,

two receive optical channels, each of said two receive optical channels having a first end facing the surface and a second end coupled to respective opto-electronic converters, each of said two receive optical channels receiving a portion of the reflected or diffused radiation, said first end of said send optical channel and said first ends of said two receive optical channels together forming the probe of the sensor, said opto-electronic converters converting said portion of the reflected or diffused radiation received by the coupled receive optical channel, into an electrical signal, and

a processing device connected to said opto-electronic converters for processing said electrical signals output from said opto-electronic converters, wherein

said send optical channel and said receive optical channels have, respectively, a send axis and receive axes parallel to each other, and wherein

said first end of said send optical channel and said first ends of said receive optical channels are located in a common plane perpendicular to the send and receive axes, respectively, of the send and receive optical channels, each of said first ends constituting the vertex of a triangle contained in said plane, one side of said triangle running from said first end of said send optical channel having a length different than the length of the other side running from said first end of said send optical channel

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5,739,525

DEVICE FOR DETECTING AN ELECTRONIC COMPONENT, AND COMPONENT-MOUNTING MACHINE PROVIDED WITH SUCH A DETECTION DEVICE

Peter F. Greve, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 18, 1997, Ser. No. 800,442

Claims priority, application European Pat. Off., Feb. 19, 1996, 96200419

Int. Cl.⁶ H01J *5/16*

U.S. Cl. 250—227.11 19 Claims

1. A device for detecting an electronic component held in a mounting head, which device comprises a foreground illumination system for illuminating the component and its ambience, and photoelectric means for converting radiation reflected by the component into electric signals, the illumination system being arranged between the component and the photoelectric means and having radiation-generating means, characterized in that a plurality of radiation sources and an optical guide are arranged between the component and the photoelectric means, in that the optical guide has an open upper side facing the component, an apertured lower wall facing the photoelectric means, and four side walls, and in that the walls of the optical guide consist of a radiation

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transmissive material and are provided with a diffusely reflective material on the outer side, with the exception of portions situated opposite the radiation sources.

5,739,526

FIBRE-OPTIC PHOTOELECTRIC BEAM DEVICE HAVING A TRANSMITTING OPTICAL UNIT FOR DETECTING A MOVING OBJECT THROUGH A CONTROL DISTRICT

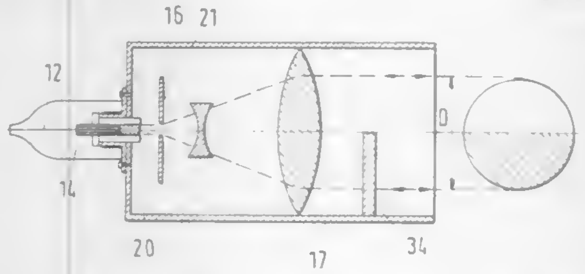
Norbert Furstenau, Braunschweig, and Werner Jungbluth, Konigslutter, both of Germany, assignors to Deutsch Forschungsanstalt fur Luft-und Raumfahrt e.V., Bonn, Germany

Filed Apr. 29, 1996, Ser. No. 639,628

Claims priority, application Germany, May 2, 1995, 195 15 365.0

Int. Cl.^{6} H01J *5/16*

U.S. Cl. 250—227.14 **11 Claims**



1. A photoelectric beam device for detecting a moving object through a control district having first and second ends, said device comprising:

a light source for generating a beam of rays;

a monomode fiber connected at one end thereof to the light source;

a transmitting optical unit having a collimation optical unit connected to said monomode fiber at an opposite end of the monomode fiber, a beam expansion optical unit located at the first end of the control district, and a retro reflector located at the second end of the control district; and

a photo detector at the first end of the control district for tracing a part of the beam of rays reflected from the retro reflector via the transmitting optical unit and the monomode fiber.

5,739,527

NEAR-FIELD OPTICAL MICROSCOPE FOR ANGLE RESOLVED MEASUREMENTS

Bert Hecht, Adliswil; Harald Heinzelmann, Basel; Lukas Novotny, Meilen, and Wolfgang Pohl, Adliswil, all of Switzerland, assignors to International Business Machines Corporatinn, Armonk, N.Y.

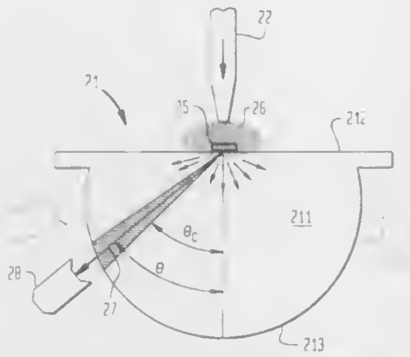
PCT No. PCT/EP93/02713, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/10060, PCT Pub. Date Apr. 13, 1995

PCT Filed Oct. 4, 1993, Ser. No. 635,943

Int. Cl.^{6} H01J *3/14*

U.S. Cl. 250—234 **14 Claims**

1. A near-field optical microscope comprising transparent sample carrying means (**21, 31**) having a supporting face for a sample (**25, 35**) with a critical angle θ_c, near-field means (**2-7, 22-24, 32-34**) for generating a near field (**26, 36**) of light adjacent to said supporting face of said sample carrying means, and positioning means (**4-7**) for adjusting the distance between said supporting face and said near field means, characterized by light detecting means (**8, 28, 281-283, 38, 381**) for measuring the intensity of light including light emerging at an angle θ larger than the critical angle θ_c, said angle θ being measured from the normal to said face.



5,739,528

FAST ATOM BEAM SOURCE

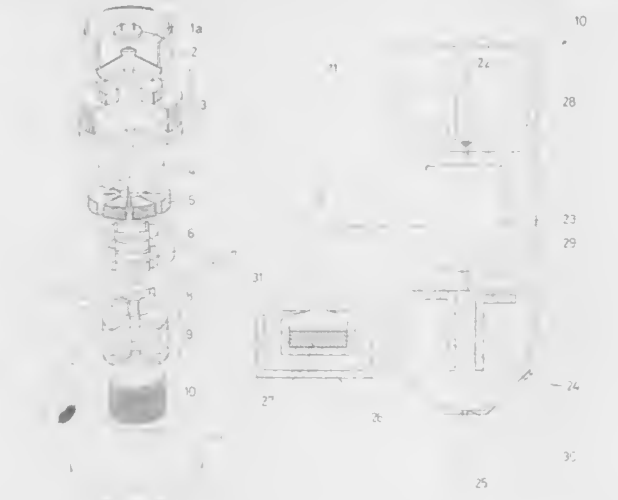
Takao Kato, Tokyo, Japan, assignor to Ebara Corporation, Tokyo, Japan

Filed Nov. 14, 1996, Ser. No. 752,439

Claims priority, applicatinn Japan, Nov. 17, 1995, 7-323802

Int. Cl.^{6} H05H *3/00*

U.S. Cl. 250—251 **38 Claims**



1. A fast atom beam source for generating an electrically neutral fast atom beam comprising:

a metal ion beam generating means for ionizing a liquid metal and generating a metal ion beam having a diameter less than 1 µm and a flux along a path;

a control electrode system for controlling the flux of the metal ion beam;

a neutralizing chamber disposed in the path of the flux for neutralizing the ions in the flux to generate a fast atom beam; and

a neutralizing gas supply means for supplying a neutralizing gas containing a metal element into said neutralizing chamber.

5,739,529

DEVICE AND METHOD FOR THE IMPROVED MASS RESOLUTION OF TIME-OF-FLIGHT MASS SPECTROMETER WITH ION REFLECTOR

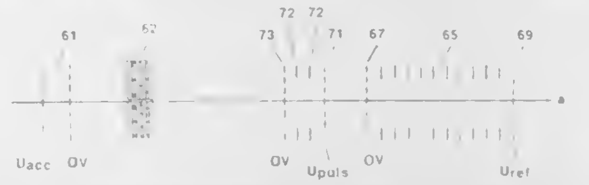
Frank Laukien, Lincoln, Mass.; Jürgen Grotemeyer, Kirchheim, Germany; Johann Grundwürmer, Neuötting, Germany, and Claus Köster, Lilienthal, Germany, assignors to Bruker-Franzen Analytik GmbH, Bremen, Germany

Continuation of Ser. No. 563,962, Nov. 29, 1995, abandoned. This application Jan. 14, 1997, Ser. No. 783,482

Claims priority, application Germany, Nov. 29, 1994, 44 42 348.9

Int. Cl.^{6} B01D *59/44*, **H01J** *49/00*

U.S. Cl. 250—287 **21 Claims**



1. A time-of-flight mass spectrometer with an ion source, an ion flight path and an ion detector at the end of the ion flight path wherein, in the ion flight path, after the ion source and before the ion detector, an ion reflector is placed to compensate for different starting energies of ions of equal masses, the spectrometer comprising:

at least one electrode inside or after the ion reflector, relative to the flight path, to which a pulsed high voltage is applied in such a way that within a predetermined narrow range of ion masses, time-of-flight errors for ions of equal masses due to different formation locations or times in the ion source are compensated for at the ion detector

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5,739,530

METHOD AND DEVICE FOR THE INTRODUCTION OF IONS INTO QUADRUPOLE ION TRAPS

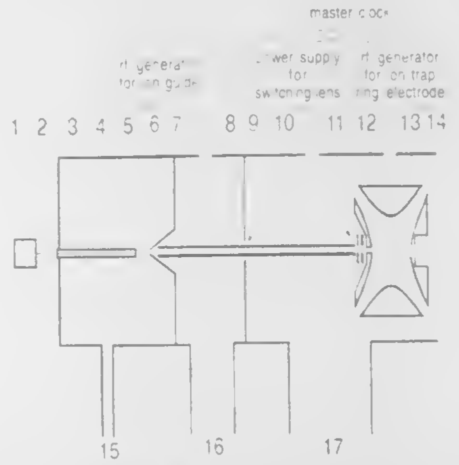
Jochen Franzen, Bremen; Reemt-Holger Gabling, Stuhr, and Yang Wang, Bremen, all of Germany, assignors to Bruker-Franzen Analytik GmbH, Bremen, Germany

Filed May 31, 1996, Ser. No. 656,581

Claims priority, application Germany, Jun. 2, 1995, 195 20 319.4

Int. Cl.^{6} B01D *59/44*; **H01J** *49/00*

U.S. Cl. 250—288 **17 Claims**


master clock
rf generator for ion guide
power supply for switching lens
rf generator for ion trap ring electrode
1 2 3 4 5 6 7
8 9 10
11 12
13 14
15
16
17

14. Device consisting of a quadrupole ion trap with voltage supply, an RF ion guide with voltage supply, and a switchable ion lens made up of three coaxial aperture diaphragms with voltage supply, wherein the ion lens is arranged at the end of RF ion guide and the injection end cap forms the third aperture diaphragm of the lens.

5,739,531

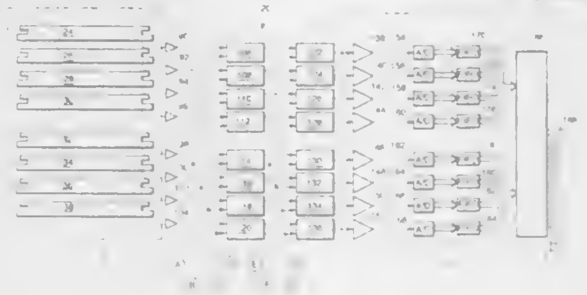
SPRITE THERMAL IMAGING SYSTEM

Richard Saylor, Lake Hopatcong, N.J., assignor to HE Holdings, Inc., Los Angeles, Calif.

Filed Feb. 7, 1997, Ser. No. 797,795

Int. Cl.^{6} H01L *27/146; 31/00*

U.S. Cl. 250—334 **18 Claims**



1. A signal processing in the element (SPRITE) thermal imaging system having automatic gain control, level control, and delining, comprising:

an array of SPRITE detectors for generating a plurality of analog signals which are proportional to the flux of infrared light received by each of said detectors,

a digital scan converter for processing said analog signals generated by said detectors and generating a resultant digital output which contains digital image data for image production of a scene,

a first plurality of sample-servo control loops for providing automatic gain control, said first sample-servo control loops utilizing said digital output,

a second plurality of sample-servo control loops for providing automatic level control, said second sample-servo control loops utilizing said digital output; and

delining means for normalizing differences which result from variations between detectors, said delining means utilizing one pair of said first and second sample-servo control loops as a reference pair to provide gain and level references to the other pairs of the first and second sample-servo control loops.

5,739,532

PYROELECTRIC IR SENSOR

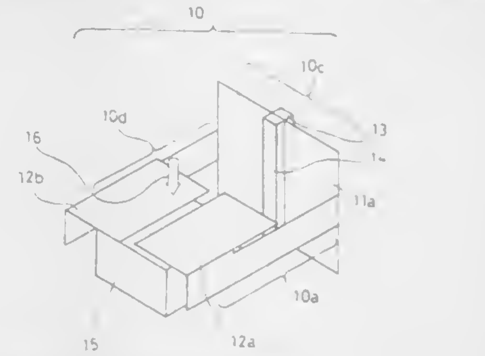
Katsumi Imada, Katano; Takahiro Nishikura, Ikoma, and Osamu Kawasaki, Tsuzuki-gun, all of Japan, assignors to Matsushita Electric Industrial Cn., Ltd., Japan

Filed Nnv. 13, 1996, Ser. Nn. 746,570

Claims priority, application Japan, Nov. 13, 1995, 7-293205; Jun. 12, 1996, 8-150778

Int. Cl.^{6} H01L *37/00*

U.S. Cl. 250—338.2 **10 Claims**



1. A pyroelectric IR sensor comprising

a pyroelectric sensor unit for detecting infrared rays emitted from an object; shielding plates for intercepting incident infrared rays from the pyroelectric sensor unit.

a thin elastic sheet composed of a planar sheet folded into a U shape so as to have three surfaces, out of which a connecting surface connecting the other two surfaces is fixed at its middle

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portion or in the vicinity thereof and said shielding plates are attached, in a shape of hooks, to ends of the other two surfaces; and

piezoelectric members or a piezoelectric member formed on both surfaces or a surface of said connecting surface except a partial region thereof, elongated and contracted with an applied voltage,

wherein said shielding plates are oscillated by warping motions of said thin elastic sheet for shielding said pyroelectric sensor unit from infrared rays incident from said object and releasing the interception of said infrared rays.

5,739,533

THERMAL RADIATION DETECTOR HAVING A SPECTRAL RESPONSIVITY NOT DEPENDENT ON WAVELENGTH

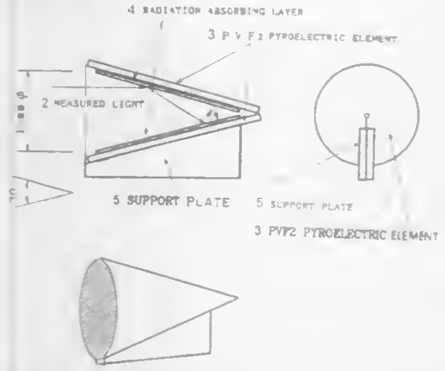
Kazuaki Okubo, Takatsuki, and Yasuo Nakagawa, Omiya, both of Japan, assignors to Matsushita Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 441,690, May 15, 1995, abandoned. This application Dec. 2, 1996, Ser. No. 753,852

Claims priority, application Japan, May 13, 1994, 6-099621

Int. Cl.^{6} G01J *5/02*

U.S. Cl. 250—338.3 25 Claims


4 RADIATION ABSORBING LAYER
3 PVF2 PYROELECTRIC ELEMENT
2 MEASURED LIGHT
5 SUPPORT PLATE
5 SUPPORT PLATE
3 PVF2 PYROELECTRIC ELEMENT

1 A radiation detector comprising:

a flexible thermoelectric converting element having an inner face, an opening and a sufficient rigidity to maintain a predetermined shape, and

a radiation absorbing layer attached to at least a part of said inner face, said radiation absorbing layer lacking a sufficient rigidity to maintain a predetermined shape, said inner face of said flexible thermoelectric converting element supporting said radiation absorbing layer in a shape consistent with said flexible thermoelectric converting element; wherein

said radiation absorbing layer absorbs light to be measured which enters through said opening of said thermoelectric converting element, in a form of heat, and said thermoelectric converting element converts a temperature rise therein into an electric signal, thereby detecting an energy amount of the radiation.

5,739,534

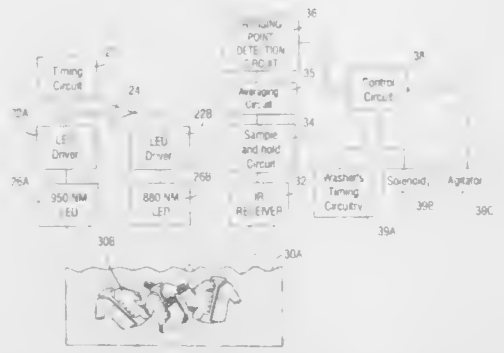
METHODS AND APPARATUS FOR DETECTING FLUIDS

Michael A. Estenson, Ely; J. Scott Petty, and Joseph R. Adamski, both of Cedar Rapids, all of Iowa, assignors to Raytheon Corporation, Lexington, Mass.

Filed Nov. 18, 1996, Ser. No. 752,185

Int. Cl. G01J *5/02*

U.S. Cl. 250—339.11 8 Claims



1 A system for monitoring and adjusting the water level in a washing machine comprising

transmission means for alternately emitting a first infrared electromagnetic signal having a first wavelength and a second electromagnetic signal having a second wavelength,

sensor means for receiving first reflected infrared signals from said first emitted infrared electromagnetic signals and converting said first reflected infrared signals into a first plurality of electrical signals and for receiving second reflected infrared signals from said second emitted infrared electromagnetic signals and converting said second reflected infrared signals into a second plurality of electrical signals;

sample and hold means for sampling said first and second plurality of electrical signals and storing the magnitudes of said first and second plurality of electrical signals;

comparison means for determining the optimum level of water in said washing machine by comparing the magnitudes of said first and second plurality of electrical signals and detecting when the magnitude of either said first or second plurality of electrical signals becomes greater than the magnitude of the other just past a crossing-point;

control means responsive to the passing of said crossing-point for adjusting the water flow into said washing machine.

5,739,535

OPTICAL GAS ANALYZER

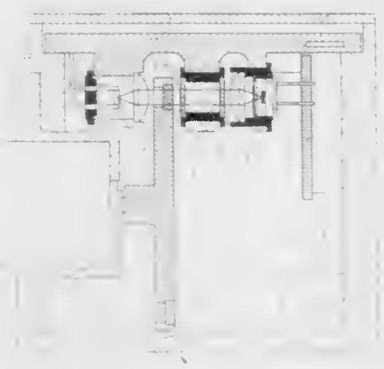
Edmund Koch, Lübeck; Peter Dreyer, Pansdorf; Otto Rosinke, Lübeck; Gerd Peter, Lübeck, and Wajih Al-Soufi, Lübeck, all of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany

Filed Oct. 10, 1996, Ser. No. 731,204

Claims priority, application Germany, Oct. 25, 1995, 195 39 618.9; Jul. 13, 1996, 196 28 310.8

Int. Cl.^{6} G01N *21/25,21/35*

U.S. Cl. 250—339.13 15 Claims



1 An optical gas analyzer comprising:

a radiation source;

a measuring chamber capable of containing a gas sample, said measuring chamber receiving radiation from said radiation source;

a plurality of filters positionable in a beam path from said radiation source to said measuring chamber;

a photoelectric receiver receiving radiation from said radiation source through said measuring chamber, said photoelectric receiver generating a voltage signal in proportion to a

received amount of said radiation, said voltage signal of said photoelectric receiver having a frequency response with a declining branch;

filter wheel means for moving said plurality of filters into and out of said beam path at a filter change frequency f, said filter change frequency f being in said declining branch of said frequency response

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5,739,536

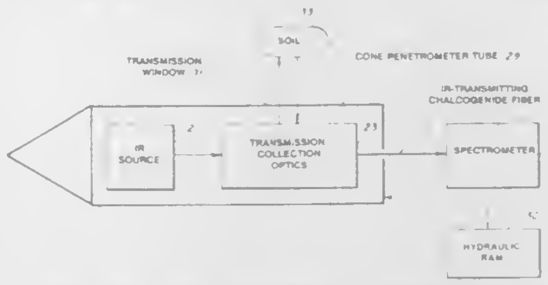
FIBER OPTIC INFRARED CONE PENETROMETER SYSTEM

Frank Bucholtz, Crofton, Md.; Gregory Nau, Alexandria; Ishwar D. Aggarwal, Fairfax Station, both of Va.; Jasbinder S. Sanghera, Greenbelt, and Kenneth J. Ewing, Bowie, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 14, 1995, Ser. No. 572,389

Int. Cl.^{6} G01J *5/02*

U.S. Cl. 250—341.2 27 Claims


SOIL
TRANSMISSION WINDOW
CONE PENETROMETER TUBE 29
IR-TRANSMITTING CHALCOGENIDE FIBER 25
IR SOURCE
2
TRANSMISSION COLLECTION OPTICS
23
27
SPECTROMETER
HYDRAULIC RAM

1 A system for in-situ, subsurface soil measurement of chemicals, including water, in soil said system comprising.

probe means for penetrating the soil, said probe means including interior and exterior surfaces, and a window for allowing infrared radiation within a wavelength range from about 2 microns to about 12 microns to be transmitted between said interior and exterier surfaces of said probe;

means for driving said probe means into the soil to a plurality of different depths;

means for providing infrared radiation within the wavelength range from about 2 microns to about 12 microns, which radiation passes through said window to irradiate the soil adjacent to said window;

an infrared transmitting chalcogenide optical fiber,

optical means disposed within said probe means adjacent to said window for transmitting infrared radiation within about the 2 to 12 micron wavelength range from said providing means through said window into the soil and for collecting infrared radiation within about the 2 to 12 micron wavelength range reflected from the soil back through said window into a first end of said chalcogenide optical fiber, and

means coupled to a second end of said infrared transmitting chalcogenide optical fiber for receiving and analyzing the reflected infrared radiation within about the 2 to 12 micron wavelength range passing through said chalcogenide optical fiber to obtain information on chemicals present at various depths of the soil through which said probe means passes.

5,739,537

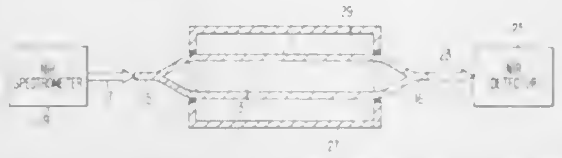
NIR ABSORBANCE MEASURING INSTRUMENT WITH ATR PROBE

Heinz W. Siesler, Essen, Germany, and Ursula Eschenauer, Baltimore, Md., assignors to Perstorp Analytical, Inc., Silver Spring, Md.

Filed Dec. 21, 1995, Ser. No. 576,489

Int. Cl.^{6} G01N *21/17*

U.S. Cl. 250—341.8 12 Claims



1 An attenuated total internal reflectance measuring instrument comprising a light transmitting rod having a solid core portion and an adjacent high purity outer layer having an inner surface in engagement with said core portion and an outer surface, means to transmit near infrared light axially through said outer layer to cause said near infrared light to undergo total internal reflection at said inner surface and said outer surface, and means to detect the near infrared light transmitted through the outer layer

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5,739,538

PNEUMATIC INFRARED GAS DETECTOR

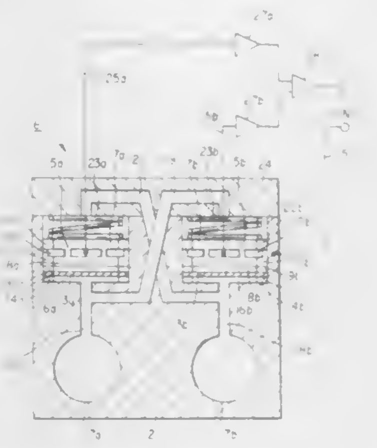
Satoru Sakaue; Mutsumi Nagumo, and Michihiko Tsuruoka, all of Tokyo, Japan, assignors to Fuji Electric Co., Ltd., Japan

Filed Jul. 30, 1996, Ser. No. 689,073

Claims priority, application Japan, Jul. 31, 1995, 7-195272

Int. Cl.^{6} G01N *21/61*

U.S. Cl. 250—345 7 Claims



1 A pneumatic infrared gas detector comprising

first and second expansion chambers,

first and second pressure chambers, each of which is connected at one end thereof to a corresponding one of said first and second expansion chambers,

first and second diaphragms, respectively located in said first and second pressure chambers, for dividing each of said first and second pressure chambers into a first chamber connected to a corresponding one of the first and second expansion chambers and a second chamber, wherein said first chamber of said first pressure chamber is connected to said second chamber of said second pressure chamber through a first communication path, and wherein said second chamber of said first pressure chamber is connected to said first chamber of said second pressure chamber through a second communication path; and

first and second pneumatic pressure detecting elements, respectively located in said first and second pressure chambers, each of said first and second pneumatic pressure detecting elements comprising an electret film having one surface on which an electrode is formed and an electrode plate disposed in opposed relationship with said electret film, wherein said electret film is formed on a first side of a corresponding one of said first and second diaphragms in each of said first and second pressure chambers and said electrode plate is supported and fixed at a position that is opposed to a second side of said corresponding one of said first and second diaphragms

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5,739,539

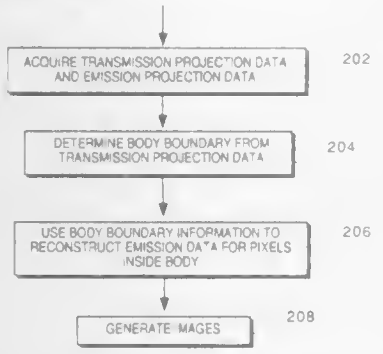
USE OF BODY BOUNDARY INFORMATION TO PERFORM ITERATIVE RECONSTRUCTION IN MEDICAL IMAGING SYSTEM

Xiaohan Wang, Alameda; J. Keenan Brown, San Jose; Steven M. Jones, Pleasanton, and John R. Liebig, San Jose, all of Calif., assignors to ADAC Laboratories, Milpitas, Calif.

Filed Mar. 27, 1996, Ser. No. 625,533

Int. Cl.^{6} G01T *1/166*

U.S. Cl. 250—363.04 **22 Claims**


ACQUIRE TRANSMISSION PROJECTION DATA AND EMISSION PROJECTION DATA
202
DETERMINE BODY BOUNDARY FROM TRANSMISSION PROJECTION DATA
204
USE BODY BOUNDARY INFORMATION TO RECONSTRUCT EMISSION DATA FOR PIXELS INSIDE BODY
206
GENERATE MAGES
208

1. A method of generating images in a gamma camera system, comprising the steps of:

performing a transmission scan of an object about a plurality of projection angles to collect transmission projection data;

performing an emission scan of the object about a plurality of projection angles to collect emission projection data;

generating information locating a boundary of the object based on the transmission projection data; and

reconstructing the emission projection data to generate at least one image, including using the information locating a boundary of the object to avoid reconstructing portions of the emission projection data that correspond to locations outside the boundary of the object

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5,739,540

NUCLEAR MEDICINE DIAGNOSTIC APPARATUS

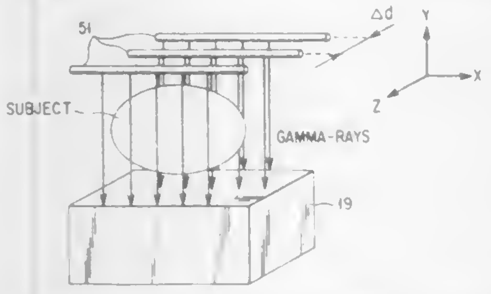
Nobutoku Motomura, Tochigi-ken; Takashi Ichihara, Otawara, and Hiroharu Kawahara, Kuroiso, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 21, 1996, Ser. No. 668,230

Claims priority, application Japan, Jun. 23, 1995, 7-157266

Int. Cl.^{6} G21K *5/00; 5/02*

U.S. Cl. 250—363.04 **24 Claims**



1. In a nuclear medicine diagnostic apparatus, the improvement comprising a source of gamma-rays for an absorption correction, wherein said source has a plurality of line sources, each line source producing a radiation distribution having a peak and defining a half-width distance at which the radiation from said line source is attenuated by one-half said plurality of line sources arrayed at a pitch equal to the half-width distance

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5,739,541

RADIATION DETECTOR

Jukka Kahilainen, Leechburg, Pa., assignor to Rados Technology Oy, Turku, Finland

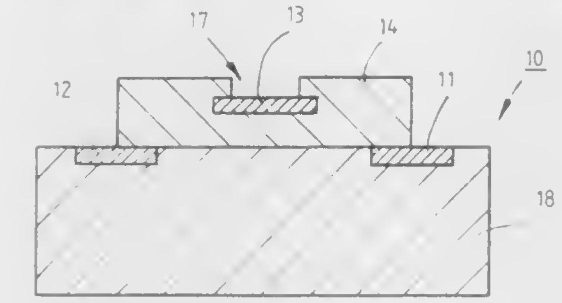
PCT No. PCT/FI94/00487, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/12134, PCT Pub. Date May 4, 1995

PCT Filed Oct. 28, 1994, Ser. No. 637,739

Claims priority, application Finland, Oct. 28, 1993, 934784

Int. Cl.^{6} G01T *1/02; 1/14*

U.S. Cl. 250—370.07 **15 Claims**



1. A method for detecting ionizing radiation comprising

providing a MOSFET transistor which includes a floating gate having an electrically non-insulated surface,

arranging said electrically non-insulated surface of said MOSFET transistor in a space containing air or gas,

forming a desired charge on said floating gate of said MOSFET transistor,

exposing the air or gas space to ionizing radiation whereby the charge on said floating gate is changed,

determining the change in the charge of the floating gate,

and determining the radiation dose based on the change in the charge on the floating gate.

5,739,542

X-RAY ANALYZING

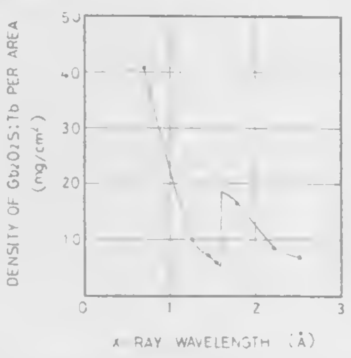
Shuzo Sudo, and Kunio Nakajima, both of Tokyo, Japan, assignors to Seiko Instruments Inc., Tokyo, Japan

Division of Ser. No. 569,861, Dec. 8, 1995, Pat. No. 5,612,987, which is a continuation of Ser. No. 217,355, Mar. 25, 1994, abandoned. This application Nov. 14, 1996, Ser. No. 749,943

Claims priority, application Japan, Mar. 25, 1993, 5-67135; Apr. 19, 1993, 5-91683; Apr. 19, 1993, 5-91688

Int. Cl.^{6} G21K *4/00;* **H01J** *31/50*

U.S. Cl. 250—483.1 **4 Claims**



1. An X-ray detector, comprising an X-ray fluorescent screen made of Gd_2O_2S:Tb and having a surface density ranging from 5 mg/cm^2 to 50 mg/cm^2.

5,739,543

OPTICAL SEMICONDUCTIVE DEVICE WITH INPLANAR COMPRESSIVE STRAIN

Hitoshi Shimizu, and Michinori Irikawa, both of Tokyo, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

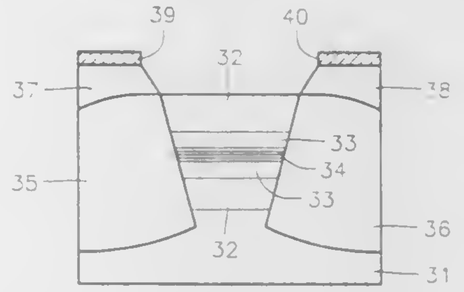
PCT No. PCT/JP94/01980, § 371 Date Jul. 24, 1995, § 102(e) Date Jul. 24, 1995, PCT Pub. No. WO95/15022, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 24, 1994, Ser. No. 495,475

Claims priority, application Japan, Nov. 24, 1993, 5-317325

Int. Cl.^{6} H01L *29/06; 31/0328; 31/0336*

U.S. Cl. 257—14 **21 Claims**



1. An optical semiconductive device having MQW layers, in which current is laterally injected so as to flow parallel to said MQW layers, said MQW layers comprising at least a well layer with inplanar compressive strain applied thereto

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5,739,544

QUANTIZATION FUNCTIONAL DEVICE UTILIZING A RESONANCE TUNNELING EFFECT AND METHOD FOR PRODUCING THE SAME

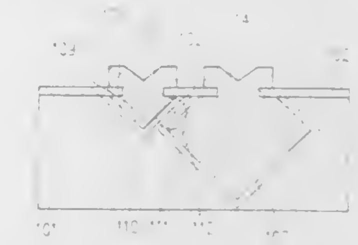
Koichiro Yuki, Neyagawa; Yoshihiko Hirai, Osaka; Kiyoshi Morimoto, Neyagawa; Masaaki Niwa, Hirakata; Juro Yasui, Toyonaka; Kenji Okada, Suita; Masaharu Udagawa, Tokyo, and Kiyoyuki Morita, Yawata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 421,530, Apr. 13, 1995, Pat. No. 5,514,614, which is a division of Ser. No. 249,541, May 26, 1994, Pat. No. 5,486,706. This application Dec. 12, 1995, Ser. No. 571,112

Claims priority, applicatinn Japan, May 26, 1993, 5-123732; Oct. 7, 1993, 5-251565; Dec. 22, 1993, 5-325076; Mar. 24, 1994, 6-53972; Dec. 12, 1994, 6-307411

Int. Cl.^{6} H01L *29/78; 29/88; 29/04*

U.S. Cl. 257—25 **18 Claims**



1. A quantization functional device, comprising:

a silicon thin plate having a plurality of side walls each having a surface orientation of (111), a distance between the plurality of side walls being sufficiently thin so as to allow the silicon thin plate to act as a quantum well;

a pair of tunneling barriers respectively provided on surfaces of the side walls of the silicon thin plate;

a first electrode and a second electrode sandwiching the pair of tunneling barriers; and a third electrode provided in the vicinity of the silicon thin plate and configured for applying a voltage to the silicon thin plate

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5,739,545

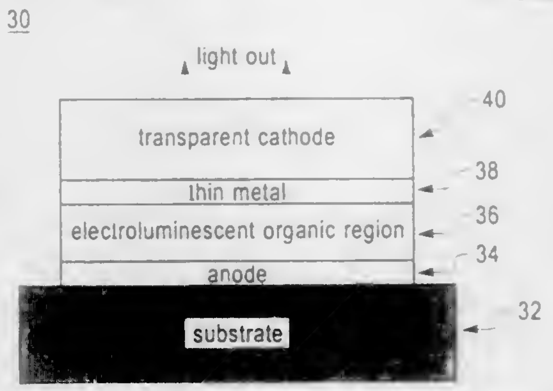
ORGANIC LIGHT EMITTING DIODES HAVING TRANSPARENT CATHODE STRUCTURES

Supratik Guha, Yorktown Heights; Richard Alan Haight, Mahopac; Joseph M. Karasinski, Yorktown Heights, all of N.Y., and Ronald R. Troutman, Ridgefield, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 4, 1997, Ser. No. 794,072

Int. Cl.^{6} H01L *35/24; 51/00*

U.S. Cl. 257—40 **30 Claims**



1. An organic light-emitting diode consisting of, in sequence, a substrate, an anode structure, an organic electroluminescent region, and a cathode structure, the cathode structure further consisting of a thin metal layer in direct contact with the organic medium and covered by a protective layer of a wide bandgap semiconductor.

5,739,546

SEMICONDUCTOR WAFER

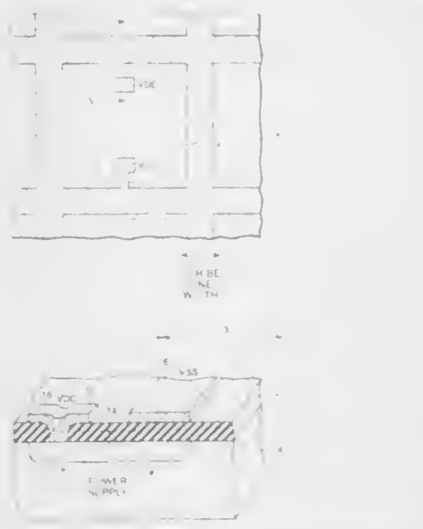
Mitsuhiro Saitou, Obu; Kouji Numazaki, Nukata-gun, and Hiroyuki Ban, Hazu-gun, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 358,084, Dec. 15, 1994, abandoned. This application Jun. 18, 1996, Ser. No. 666,646

Claims priority, application Japan, Dec. 16, 1993, 5-317045

Int. Cl.^{6} H01L *27/10*

U.S. Cl. 257—48 **1 Claim**



1. An arrangement on a semiconductor wafer having a first surface and a second surface opposite said first surface for burn-in testing components formed on said semiconductor wafer, said semiconductor wafer having a plurality of chip regions disposed at said first surface thereof, respective chip regions having an integrated circuit, said arrangement comprising:

a power supply pad associated with each chip region, said power supply pad being defined in a first plane at said first surface of

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said semiconductor wafer, said power sue pad providing power to said integrated circuit in that chip region during burn-in testing;
a ground pad associated with each chip region, said ground pad being defined in said first plane at said first surface of said semiconductor wafer, said ground pad serving to provide power to said integrated circuit in that chip region during burn-in testing;
a scribe line region disposed between said chip regions;
a power supply line connected to said chip regions in which said burn-in testing is to be performed so as to provide power simultaneously to said chip regions in which said burn-in testing is to be performed, wherein said power supply line is connected to said power supply pad in each chip region; and
a ground line connected to said chip regions in which said burn-in testing is to be performed serving to provide electric power to said respective chip regions during said burn-in testing;
wherein said ground line is connected to said ground pad in each chip region;
said power supply line and said ground line are arranged so as to overlap one another;
one of said power supply line and said ground line is composed of a high impurity concentration region of said semiconductor wafer; and
said one of said power supply line and said ground line composed of said high impurity concentration region is defined entirely at said second surface of said semiconductor wafer, and wherein a second electrode is disposed on said second surface of said semiconductor wafer in contact with said high impurity concentration region.

5,739,547

REFLECTION TYPE DISPLAY

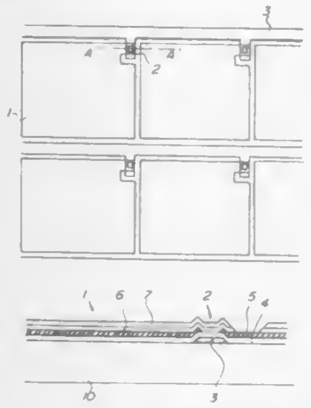
Takao Nomura; Satoshi Yamaue, both of Tenri, and Yoshihiro Endoh, Nara-ken, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jan. 18, 1996, Ser. No. 588,385

Claims priority, application Japan, Jan. 20, 1995, 7-007508

Int. Cl.^{6} H01L *29/786; 29/43*

U.S. Cl. 257—59 **10 Claims**



1\. A reflection type display having a first substrate, a second substrate and a display medium interposed therebetween, comprising:
a plurality of pixel electrodes arranged in rows and columns on the first substrate;
a plurality of scanning lines each disposed adjacent to a respective one of the columns of the pixel electrodes on the first substrate;
a plurality of nonlinear resistance two terminal devices for electrically connecting each of the scanning lines to the pixel electrodes of the respective one of the columns, and
a plurality of signal lines disposed on the second substrate to cross the scanning lines;
wherein each of the pixel electrodes comprises a first metal layer and a second metal layer made of a material different from a material for the first metal layer, the second metal layer being disposed substantially under the entirety of the first metal layer, the material of the first metal layer has the reflectance higher than that of the material of the second metal layer, and each of the pixel electrodes is insulated from the respective one of the scanning lines by an insulating layer, and
wherein each of the nonlinear resistance two terminal devices comprises a pair of electrodes and a nonlinear resistance layer provided between each of the pixel electrodes and the insulating layer, one of the electrodes being a portion of the respective one of the scanning lines while the other electrode is the second metal layer, the nonlinear resistance layer being in contact with the electrodes through a through hole provided in the insulating layer.

5,739,548

SOLID STATE IMAGING DEVICE HAVING A FLATTENING LAYER AND OPTICAL LENSES

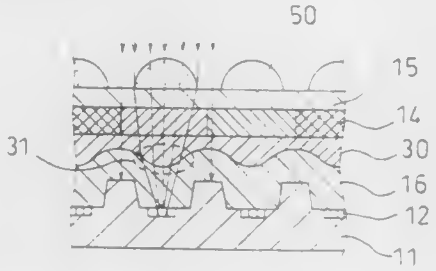
Yoko Shigeta, Nara; Michiyo Ichikawa, Kyoto, and Akira Tsukamoto, Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Apr. 30, 1996, Ser. No. 640,050

Claims priority, application Japan, May 2, 1995, 7-108390

Int. Cl.^{6} H01L *31/036; 79/04*

U.S. Cl. 257—59 **4 Claims**



1\. A solid state imaging device comprising:
a semiconductor substrate having light receiving portions for converting incident light into a charge and having recesses in areas where the light receiving portions are formed;
an insulating film formed on the semiconductor substrate and the light receiving portions, said insulating film having hollows in areas corresponding to the light receiving portions; and
a flattening layer formed on the insulating film for flattening a surface on the insulating film;
wherein the flattening layer is made of a material having a larger refractive index than that of the insulating film, and said hollows operate as lenses to collect light on said light receiving portions.

5,739,549

THIN FILM TRANSISTOR HAVING OFFSET REGION

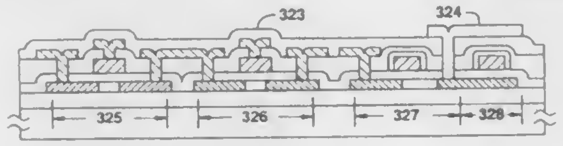
Yasuhiko Takemura, Shiga, and Toshimitsu Konuma, Kanagawa, both of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 479,450, Jun. 7, 1995, abandoned. This application Nov. 18, 1996, Ser. No. 751,559

Claims priority, application Japan, Jun. 14, 1994, 6-156515

Int. Cl.^{6} H01L *29/04*

U.S. Cl. 257—59 **18 Claims**



1\. A semiconductor device comprising:
a semiconductor region formed over an insulating substrate;
impurity regions formed in said semiconductor region;

a gate insulating film formed on said semiconductor region, and
a gate electrode formed on said gate insulating film;
wherein one of said impurity regions is spaced apart from said gate electrode and the other of said impurity regions is overlapped with said gate electrode, and
wherein edges of the impurity regions are substantially vertically provided.

5,739,550

Patent Not Issued For This Number

5,739,551

Patent Not Issued For This Number

5,739,552

SEMICONDUCTOR LIGHT EMITTING DIODE PRODUCING VISIBLE LIGHT

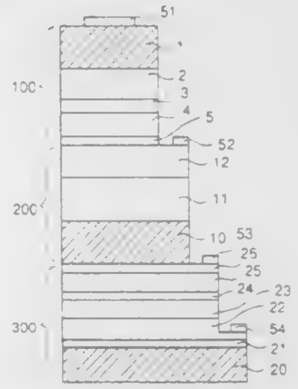
Tatsuya Kimura, and Zempei Kawazu, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 24, 1995, Ser. No. 547,315

Claims priority, application Japan, Oct. 24, 1994, 6-258365

Int. Cl.^{6} H01L *33/00*

U.S. Cl. 257—89 **25 Claims**



1\. A light emitting diode (LED) device producing visible light comprising:
a blue LED including semiconductor crystal layers for emitting blue light,
a green LED including semiconductor crystal layers for emitting green light, and
a red LED including semiconductor crystal layers for emitting red light, the blue, green, and red LEDs being Laminated and united serially in a stack.

5,739,553

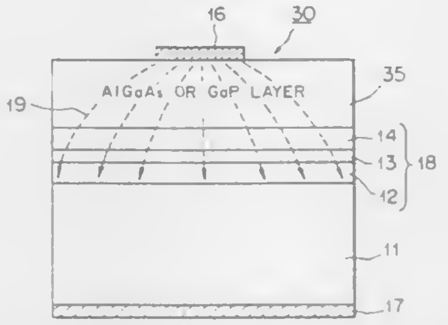
ALGAINP LIGHT-EMITTING DEVICE

Nobuhiko Noto; Keizo Adomi, and Takao Takenaka, all of Gunma-ken, Japan, assignors to Shin-Etsu Handotai, Co., Ltd., Tokyo, Japan

Filed Dec. 26, 1995, Ser. No. 577,961

Int. Cl.^{6} H01L *33/00*

U.S. Cl. 257—94 **16 Claims**



1\. An AlGaInP light emitting device comprising a light-emitting region composed of an AlGaInP double heterojunction structure formed on a GaAs substrate and a current spreading layer formed on the light-emitting region, characterized in that the current spreading layer comprises two layers of an $Al_wGa_{1-w}As$ layer and a $GaAs_{1-v}P_v$ layer formed on the $Al_wGa_{1-w}As$ layer both having energy band gaps of direct type E^{Γ}_g larger than the energy of a photon emitted from an $(Al_xGa_{1-x})_{0.51}In_{0.49}P$ active layer of the light-emitting region, wherein a GaP mixed crystal ratio v of the $GaAs_{1-v}P_v$ layer is a value that satisfies a relation of $0.4 \leq v < 0.8$

5,739,554

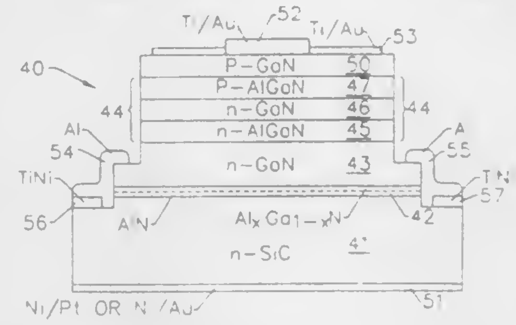
DOUBLE HETEROJUNCTION LIGHT EMITTING DIODE WITH GALLIUM NITRIDE ACTIVE LAYER

John A. Edmond, Cary, and Hua-Shuang Kong, Raleigh, both of N.C., assignors to Cree Research, Inc., Durham, N.C.

Filed May 8, 1995, Ser. No. 436,141

Int. Cl.^{6} H01L *33/00*

U.S. Cl. 257—103 **42 Claims**



1\. A double heterostructure with p-n junction for a light emitting diode, said heterostructure comprising
a layer of aluminum gallium nitride having a first conductivity type,
a layer of aluminum gallium nitride having the opposite conductivity type;
an active layer consisting of gallium nitride between said aluminum gallium nitride layers, said gallium nitride layer being codoped with both a Group II acceptor and a Group IV donor, with one of said dopants being present in an amount greater than the other and sufficient to give said gallium nitride active layer a net conductivity type;
said co-doped gallium nitride active layer forming a p-n junction with the adjacent layer of aluminum gallium nitride having the opposite conductivity type from said codoped gallium nitride active layer; and
said double heterostructure producing a radiant flux of at least 100 microwatts at a forward current of 20 milliamps.

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5,739,555

AMPLIFYING-GATE THYRISTOR WITH AN INCREASED HOLD CURRENT

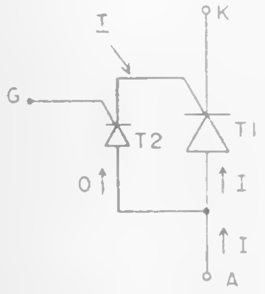
Eric Bernier, and Denis Berthiot, both of Tours, France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Aug. 4, 1994, Ser. No. 286,492

Claims priority, application France, Aug. 6, 1993, 93 09929

Int. Cl.^{6} H01L *29/74;31/111*

U.S. Cl. 257—157 **7 Claims**



1. An amplifying-gate thyristor comprising:
a main thyristor,
an amplifying thyristor of the gate turnoff type, wherein the amplifying thyristor remains in a conductive state while the main thyristor is conductive;
means for detecting the current in the amplifying-gate thyristor; and
means for applying a negative gate voltage to the amplifying thyristor when the current detected is a value substantially equal to the sum of a hold current of the main thyristor and a predetermined value;
wherein the current in the amplifying thyristor is said predetermined value when the current is the main thyristor is close to its hold current.

5,739,556

PRESSURE CONTACT HOUSING FOR SEMICONDUCTOR COMPONENTS

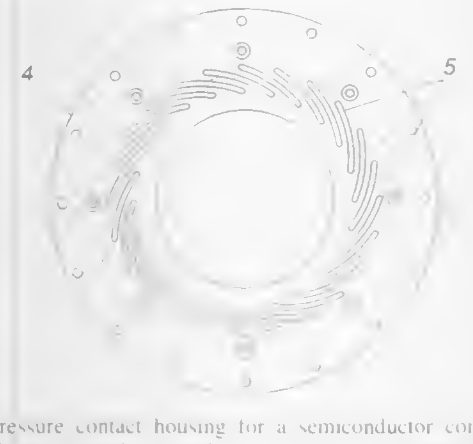
Fabio Bolgiani, Bellinzona, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Feb. 1, 1996, Ser. No. 595,501

Claims priority, application Germany, Feb. 17, 1995, 195 05 387.7

Int. Cl.^{6} H01L *29/74;31/111;23/48*

U.S. Cl. 257—182 **12 Claims**



1. Pressure contact housing for a semiconductor component, which has a first and a second main electrode and a gate electrode, the first and second main electrodes being arranged between two contact plungers and pressure being applied to them by the said plungers, and the gate electrode being connected to a gate electrode contact ring which is routed out of the housing, characterized in that the gate electrode contact ring has spiral recesses, wherein each spiral recess runs along a spiral with a starting point corresponding to a center of the gate electrode contact ring.

5,739,557

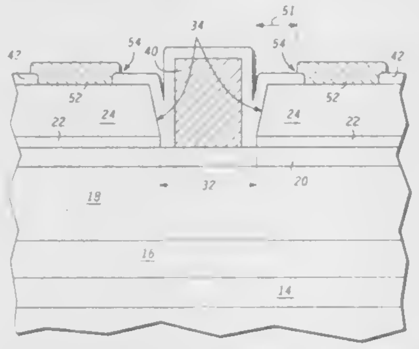
REFRACTORY GATE HETEROSTRUCTURE FIELD EFFECT TRANSISTOR

Vernon Patrick O'Neil, II, Chandler; Jonathan K. Abrokwah; Majid M. Hashemi, both of Tempe; Jenn-Hwa Huang, Gilbert; Vijay K. Nair, Mesa; Farideh Nikpourian, Phoenix, and Saied Nikoo Tehrani, Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 6, 1995, Ser. No. 384,050

Int. Cl.^{6} H01L *31/0328;31/0336*

U.S. Cl. 257—192 **16 Claims**



1. A heterostructure field effect transistor, comprising:
a semi-insulating wafer substrate;
a plurality of semiconductor layers overlying the semi-insulating wafer substrate in an order as follows, a buffer layer, a first supply layer, a channel layer, a second supply layer, a passivation layer, an etch stop layer and a heavily doped cap layer, wherein each semiconductor layer is comprised of group III–V compounds and the etch stop layer is comprised of aluminum arsenide;
ohmic contacts disposed on the heavily doped cap layer wherein the ohmic contacts comprise a non-gold refractory metal; and
a gate contact area formed by etching portions of the heavily doped cap layer and the etch stop layer of the plurality of semiconductor layers, wherein an edge of the heavily doped cap layer which is adjacent to the gate contact and is spaced at least two micrometers from an edge of adjacent one of the ohmic contacts;
a gate contact formed within the gate contact area, wherein the gate contact comprises a refractory metal in direct contact with the passivation layer.

5,739,558

HIGH ELECTRON MOBILITY TRANSISTOR INCLUDING ASYMMETRICAL CARRIER SUPPLY LAYERS SANDWICHING A CHANNEL LAYER

Takao Ishida, and Naohito Yoshida, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

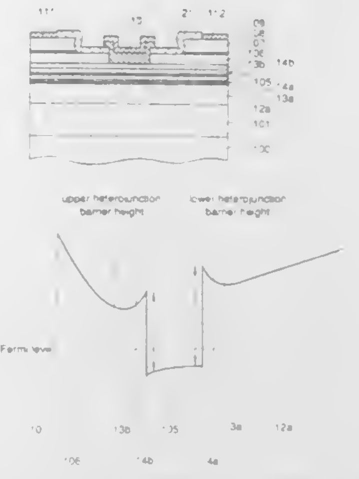
Filed Jan. 21, 1997, Ser. No. 786,210

Claims priority, application Japan, Aug. 8, 1996, 8-208719

Int. Cl.^{6} H01L *31/0328;31/0336*

U.S. Cl. 257—192 **9 Claims**

1. A field effect transistor comprising:
a semi-insulating semiconductor substrate having a surface,
a buffer layer disposed on the surface of the substrate and having a high resistance,
a laminated semiconductor layer structure disposed on the buffer layer and including, serially arranged:
  a first semiconductor layer having a first, relatively high concentration of a dopant impurity,


105
14b
4a
13a
12a
101
upper heterojunction barrier height
lower heterojunction barrier height
Fermi level
13b
3a
106

  a second semiconductor layer having a second, relatively low concentration of a dopant impurity, lower than the first concentration, and
  a third semiconductor layer having a third, relatively high concentration of a dopant impurity:
a fourth semiconductor layer disposed on the laminated semiconductor layer structure; and
a gate electrode disposed on the fourth semiconductor layer wherein the first and third semiconductor layers are ternary semiconductor materials comprising the same three elements, the second semiconductor layer has an electron affinity larger than electron affinities of the first and third semiconductor layers, and the difference between the electron affinities of the first and second semiconductor layers is larger than the difference between the electron affinities of the second and third semiconductor layers.

5,739,559

COMPOUND SEMICONDUCTOR INTEGRATED CIRCUIT WITH A PARTICULAR HIGH RESISTANCE LAYER

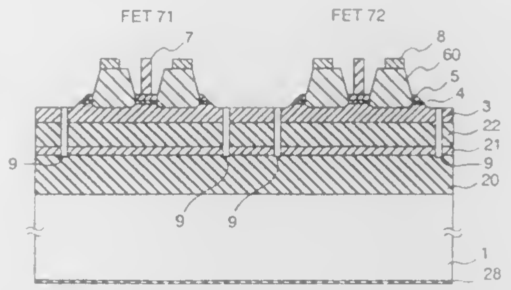
Osamu Kagaya, Hachiouji, and Hiroyuki Takazawa, Hino, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 403,986, Mar. 15, 1995, abandoned. This application Feb. 10, 1997, Ser. No. 798,450

Claims priority, application Japan, Mar. 17, 1994, 6-046719

Int. Cl.^{6} H01L *31/0328;31/0336;29/167*

U.S. Cl. 257—192 **12 Claims**



1. A compound semiconductor integrated circuit comprising:
a semi-insulating substrate;
a high resistance layer having a deep donor level formed by adding an impurity material, said high resistance layer being formed on said semi-insulating substrate;
an undoped semiconductor layer formed over said high resistance layer and a plurality of field effect transistors formed over said undoped layer, said high resistance layer extending under said plurality of field effect transistors, thereby reducing an electric field between said field effect transistors and said semi-insulating substrate and preventing low frequency oscillation.

5,739,560

HIGH FREQUENCY MASTERSLICE MONOLITHIC INTEGRATED CIRCUIT

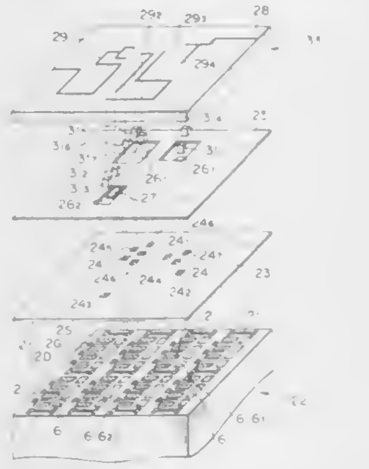
Ichihiko Toyoda; Tsuneo Tokumitsu; Kenjiro Nishikawa, all of Yokosuka, and Kenji Kamogawa, Yokohama, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Sep. 14, 1995, Ser. No. 528,411

Claims priority, application Japan, Sep. 22, 1994, 6-228170

Int. Cl.^{6} H01L *27/10;29/00*

U.S. Cl. 257—211 **31 Claims**



26. A monolithic integrated circuit, comprising:
a semiconductor substrate on which a plurality of active devices are formed, the active devices including a first transistor and a second transistor adjacent the first transistor;
a ground metal layer which is spaced apart from the substrate the ground metal layer covering the first transistor but having a window over the second transistor, the window being aligned with the second transistor and being at least as large as the second transistor;
at least one dielectric film disposed over the ground metal layer, and
means for connecting the second transistor to other active elements to form a circuit which does not include the first transistor, the means for connecting including signal lines which are formed on the at least one dielectric film and which are connected to the second transistor via the window.

5,739,561

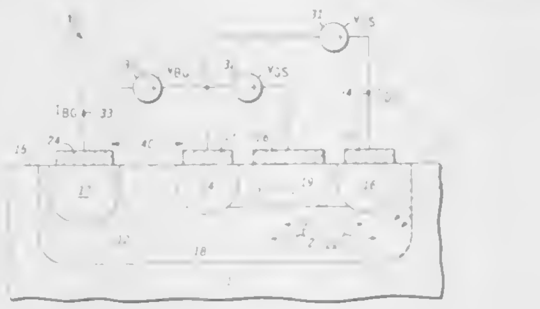
LIGHT SENSITIVE SEMICONDUCTOR DEVICE AND METHOD OF OPERATION

Peter Wennekers, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 30, 1996, Ser. No. 640,222

Int. Cl.^{7} H01L *29/80*

U.S. Cl. 257—257 **21 Claims**



1. A semiconductor device formed in a semiconductor substrate having a surface, the semiconductor device comprising:
a well region of a first conductivity disposed in the semiconductor substrate,

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a first doped region of a second conductivity disposed in the well region such that the first doped region extends from the surface

a second doped region of the second conductivity disposed in the well region such that the second doped region extends from the surface;

a third doped region of the second conductivity disposed between the first doped region and the second doped region to provide a channel region;

a fourth doped region of the first conductivity disposed in the well region such that the fourth doped region extends from the surface and is physically isolated from the first doped region by a first distance;

a Schottky contact to the third doped region,

a first ohmic contact to the first doped region;

a second ohmic contact to the second doped region; and

a third ohmic contact to the fourth doped region.

5,739,562

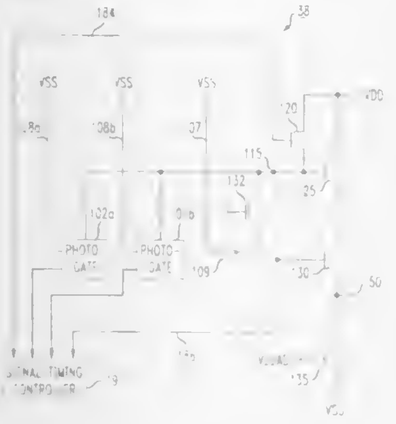
COMBINED PHOTOGATE AND PHOTODIODE ACTIVE PIXEL IMAGE SENSOR

Bryan David Ackland, Old Bridge; Alexander George Dickinson, Neptune, and David Andrew Inglis, Holmdel, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 1, 1995, Ser. No. 509,930

Int. Cl.^{6} H01L *31/062,31/113*

U.S. Cl. 257—291 **28 Claims**



20. An active pixel image sensor comprising.

a plurality of pixels each for converting a portion of an image to an electronic signal, said plurality of pixels including peripheral pixels and interior pixels, each of said pixels including:

a plurality of sensing elements, each configured for capturing a portion of a spectrum from an object to be imaged, at least one of said sensing elements being of a type different than another of said sensing elements, and

an amplifying arrangement for receiving signals from selected ones of said at least one sensing element and for providing output signals

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5,739,563

FERROELECTRIC TYPE SEMICONDUCTOR DEVICE HAVING A BARIUM TITANATE TYPE DIELECTRIC FILM AND METHOD FOR MANUFACTURING THE SAME

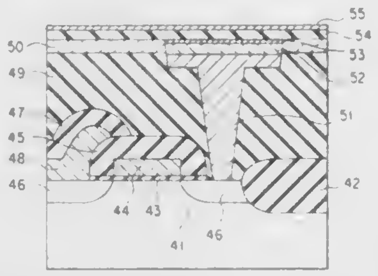
Takashi Kawakubo, Yokohama; Kenya Sano; Kazuhide Abe, both of Kawasaki; Shuichi Komatsu, Yokohama; Noburu Fukushima, Tokyo, and Kazuhiro Eguchi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 17, 1995, Ser. No. 559,945

Claims priority, application Japan, Mar. 15, 1995, 7-082091; Sep. 11, 1995, 7-232509

Int. Cl.^{6} H01L *29/94;27/108*

U.S. Cl. 257—295 **17 Claims**



1. A semiconductor memory device, comprising

a silicon substrate,

a plurality of switching transistors formed on a surface portion of said silicon substrate;

an insulating layer having an opening and formed on a surface portion of said silicon substrate where said plurality of switching transistors are formed; and

a plurality of capacitors formed on said insulating layer for accumulating electric charge and connected respectively to said switching transistors via a conductive film buried in said opening of the insulating layer,

wherein each of said capacitors is provided with a (100) plane-oriented crystalline silicon layer and with a barium titanate type dielectric film coupled with said silicon layer, and

wherein said switching transistors and said capacitors constitute a plurality of memory cells arranged in a two dimensional pattern.

5,739,564

SEMICONDUCTOR DEVICE HAVING A STATIC-RANDOM-ACCESS MEMORY CELL

Yasunobu Kosa; Howard C. Kirsch; Thomas F. McNelly, and Frank Kelsey Baker, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 345,891, Nov. 28, 1994, Pat. No. 5,536,674, which is a continuation of Ser. No. 989,425, Dec. 11, 1992, abandoned. This application Jun. 1, 1995, Ser. No. 460,605

Int. Cl.^{6} H01L *21/265;21/70*

U.S. Cl. 257—298 **20 Claims**

1. A semiconductor device including a static-random access memory cell comprising.

an insulating layer over a semiconductor substrate, wherein the insulating layer has a first opening and a second opening,

a first conductive member, wherein:

at least a portion of the first conductive member lies along a side of the first opening and acts as a first plate of a first capacitor, and

the first conductive member is electrically connected to a first doped region with the semiconductor substrate.

a second conductive member wherein

at least a portion of the second conductive member lies along a side of the second opening and acts as a first plate of a second capacitor; and

the second conductive member is electrically connected to a second doped region with the semiconductor substrate.

a dielectric layer adjacent to the first and second conductive members, wherein the dielectric layer acts as a dielectric for each of the first and second capacitors, and

a third conductive member adjacent to the dielectric layer and overlying the semiconductor substrate, wherein,

portions of the third conductive member act as second plates of the first and second capacitors,

the first capacitor includes portions of the first conductive member, the dielectric layer, and the third conductive member;

the second capacitor includes portions of the second conductive member, the dielectric layer, and the third conductive member;

the first and second capacitors are connected in series between first and second storage nodes of the memory cell, and

the third conductive member electrically floats

5,739,565

SEMICONDUCTOR DEVICE AND MANUFACTURING PROCESS THEREFOR

Yoshio Nakamura, Atsugi; Mamoru Miyawaki, Isehara, and Isamu Ueno, Hadano, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 984,550, Dec. 2, 1992, abandoned. This application Dec. 28, 1994, Ser. No. 365,318

Claims priority, application Japan, Dec. 2, 1991, 3-341762

Int. Cl.^{6} H01L *27/108,29/76;29/94,31/119*

U.S. Cl. 257—301 **2 Claims**

1. A semiconductor device comprising.

a semiconductor substrate having a porous region within which is formed a ramiform gap having a ramiform surface:

a source region and a drain region formed in said substrate:

a gate electrode formed on a surface of said substrate:

an insulating film formed over said ramiform surface to leave an interior ramiform gap, and

a conductive material filling said interior ramiform gap, wherein said porous region, insulating film and conductive material form a capacitor for storing charge, said conductive material being electrically connected to at least one of said source region and said drain region.

5,739,566

NON-VOLATILE SEMICONDUCTOR MEMORY CELL ARRAY

Noriyuki Ota, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 29, 1995, Ser. No. 564,445

Claims priority, application Japan, Nov. 29, 1994, 6-294865

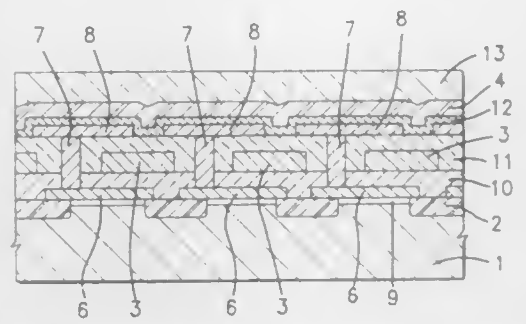
Int. Cl.^{6} H01L *29/788;29/76;29/94 31/119*

U.S. Cl. 257—315 **13 Claims**

1. A floating gate electrode structure in a non-volatile semiconductor memory device comprising:

a base portion horizontally extending on a first gate insulation film positioned over a semiconductor substrate:

a contact portion upwardly extending from the base portion, said contact portion being provided within a vertical contact hole formed in an inter-layer insulator covering said base portion, said inter-layer insulator enclosing bit lines, said bit lines being electrically separated by said inter layer insulator from both said contact portion and said base portion



a head portion horizontally extending over said inter-layer insulator to be in contact with said contact portion, said head portion being electrically separated by said inter layer insulator from said bit lines, said head portion being electrically coupled to said base portion via said contact portion.

a second gate insulation film extending over said head portion so that an area of a first interface between said base portion and said first gate insulation film is smaller than an area of a second interface between said head portion and said second gate insulation film, and

a control electrode extending over said second gate insulation film, said control electrode being positioned above said head portion.

wherein said bit lines are positioned entirely above said base portion and entirely below said head portion.

each of said bit lines extends laterally and is overlaid by said inter-layer insulator positioned under said head portion and

said control electrode is positioned above said head portion and also above sate bit lines.

5,739,567

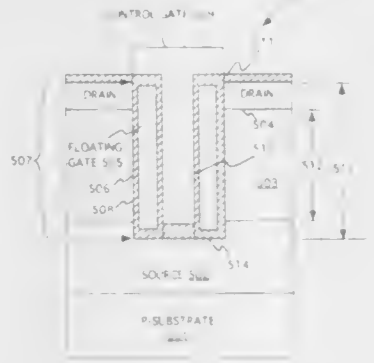
HIGHLY COMPACT MEMORY DEVICE WITH NONVOLATILE VERTICAL TRANSISTOR MEMORY CELL

Chun Chiu D. Wong, 4260 Newberry Ct., Palo Alto, Calif. 94306

Continuation of Ser. No. 970,728, Nov. 2, 1992, Pat. No. 5,386,132. This application Nov. 8, 1994, Ser. No. 336,361

Int. Cl.^{6} H01L *29/06 29/68*

U.S. Cl. 257—316 **15 Claims**



1. An array of vertical memory cells comprising

a plurality of vertical memory cells, wherein each vertical memory cell includes

a source region formed in a substrate.

a channel region formed in operative relation to said source region;

a drain region formed on said channel region.

a floating gate formed in operative relation to said source region, said channel region, and said drain region, and

a control gate formed in operative relation to said floating gate.

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wherein said plurality of vertical memory cells are formed in a sidewall of a single trench in said array, and said control gates for said vertical memory cells are electrically isolated from each other

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5,739,568

NON-VOLATILE MEMORY HAVING A CELL APPLYING TO MULTI-BIT DATA BY DOUBLE LAYERED FLOATING GATE ARCHITECTURE AND PROGRAMMING METHOD FOR THE SAME

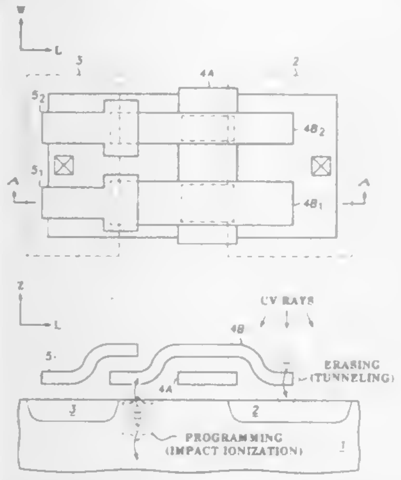
Toshiaki Kojima, Sendai, Japan, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 21, 1995, Ser. No. 563,886

Claims priority, application Japan, Nov. 28, 1994, 6-293343

Int. Cl.⁶ H01L *29/788*

U.S. Cl. 257—316 **11 Claims**



1. A non-volatile memory having a cell applying to multi-bit data by double layered floating gate architecture, which is characterized by a storage cell transistor comprising:

source and drain being formed in a semiconductor substrate distantly from each other;

a single first floating gate being laid between said source and drain above said semiconductor substrate,

a plurality of second floating gates which are distant from each other and face said first floating gate; and

a plurality of control gates corresponding to each of the plurality of second floating gates, the plurality of control gates for programming at least one of the plurality of second floating gates.

5,739,569

NON-VOLATILE MEMORY CELL WITH OXIDE AND NITRIDE TUNNELING LAYERS

Ih-Chin Chen, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 480,723, Jun. 7, 1995, abandoned, which is a division of Ser. No. 386,260, Feb. 9, 1995, which is a continuation of Ser. No. 994,050, Dec. 16, 1992, abandoned, which is a continuation of Ser. No. 701,431, May 15, 1991, abandoned. This application Aug. 21, 1996, Ser. No. 701,212

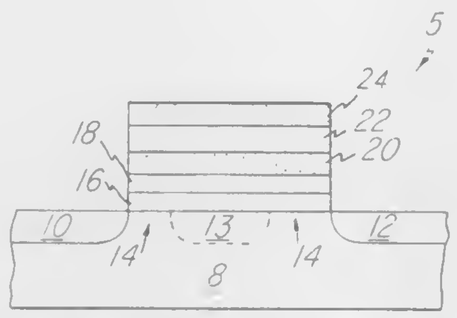
Int. Cl.⁶ H01L *29/788*

U.S. Cl. 257—321 **20 Claims**

1. A non-volatile memory cell structure, comprising:

a semiconductor substrate comprising a first region, a second region and a channel region, said first and second regions highly doped to a first conductivity type, wherein said channel region separates said first and second regions, wherein said channel region is doped to a second conductivity type, said second conductivity type being different than said first conductivity type;

a nitride layer formed over said channel region;



an oxide layer formed over said nitride layer, said oxide layer being between 80 and 100 angstroms thick;

a floating gate formed over said oxide layer, wherein at least a portion of said channel region underlies said floating gate;

an insulating layer formed over said floating gate; and

a control gate formed over said insulating layer.

5,739,570

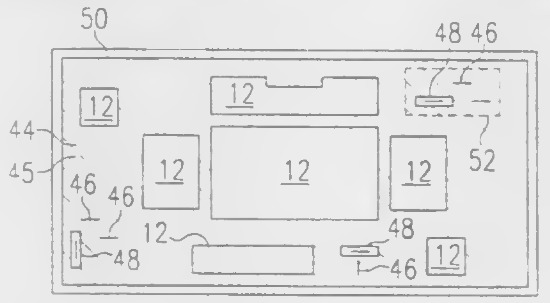
INTEGRATED CIRCUIT

Kevin M. Ovens, Garland, and Jeffrey Alan Niehaus, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 341,855, Nov. 18, 1994, abandoned, which is a continuation of Ser. No. 6,909, Jan. 21, 1993, abandoned, which is a division of Ser. No. 629,922, Dec. 19, 1990, Pat. No. 5,182,223. This application Oct. 31, 1995, Ser. No. 550,966

Int. Cl.⁶ H01L *23/62*

U.S. Cl. 257—355 **5 Claims**



1. An integrated circuit comprising:

a semiconductor layer of a first conductivity type having a defined area;

functional circuitry formed in said semiconductor layer and occupying only a portion of said defined area and thus defining an unoccupied area of said semiconductor layer;

at least one relative positive voltage supply;

at least one relative negative voltage supply;

a bypass capacitor comprising a diode, said diode formed in a substantial portion of said unoccupied area of said semiconductor layer to have a cathode and an anode with substantial inherent capacitance therebetween and having a resistance, wherein said diode comprises a first layer of doped material of a second conductivity type opposite said first conductivity type formed in said layer to form the cathode of said diode, a second layer of doped material of said second conductivity type formed in and surrounded by said first layer, the dopant concentration of said second layer of doped material differing substantially film the dopant concentration of said first layer of doped material, and a third layer of doped material of said first conductivity type formed in and surrounded by said second layer to form the anode of said diode, the capacitance of said diode being determined by the thickness of said second layer, and the resistance of said diode being determined by the relative doping concentrations of said first and second layers of said second conductivity type;

at least one anode contact coupling said anode of said diode with said relative negative voltage supply terminal; and

at least one cathode contact coupling said cathode of said diode with said relative positive voltage supply terminal.

5,739,571

SEMICONDUCTOR DEVICE HAVING PROTECTION DEVICE FOR PREVENTING THE ELECTROSTATIC BREAKDOWN OF OUTPUT BUFFER MOSFETS

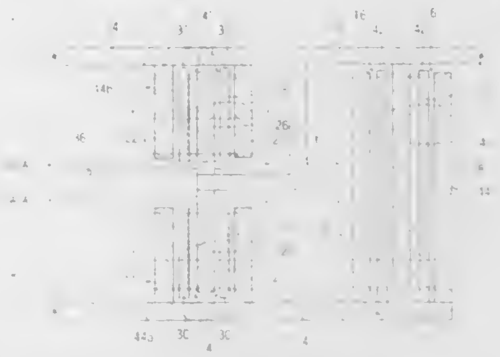
Ikuo Kurachi, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Aug. 24, 1995, Ser. No. 518,832

Claims priority, application Japan, Aug. 31, 1994, 6-206967

Int. Cl.⁶ H01L *23/62*

U.S. Cl. 257—360 **6 Claims**



1. A semiconductor device comprising:

an integrated circuit formed on a first conduction type semiconductor substrate, the semiconductor substrate having a voltage supplied thereto;

an output buffer circuit for outputting a signal obtained from said integrated circuit;

a protection circuit for protecting said output buffer circuit, and said output buffer circuit having buffer MOSFETs

said protection circuit having protection MOSFETs, including impurity diffusion layers, for preventing electrostatic breakdown of said buffer MOSFETs, and

said buffer MOSFETs having impurity diffusion layers separated from said impurity diffusion layers of said protection MOS FETs by an interposed field oxide film.

5,739,572

HIGH VOLTAGE SEMICONDUCTOR DEVICE

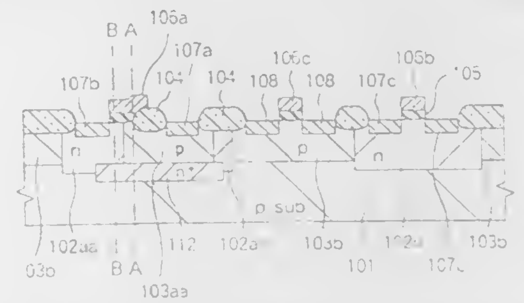
Ko Noguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 607,424, Feb. 28, 1996. This application Feb. 3, 1997, Ser. No. 794,644

Claims priority, application Japan, Feb. 28, 1995, 7-040185

Int. Cl.⁶ H01L *29/76; 29/94*

U.S. Cl. 257—371 **11 Claims**



1. A semiconductor device comprising:

a semiconductor substrate of a first conductivity type;

a first well of a second conductivity type opposite to said first conductivity type, said first well being formed in an annular first surface region of said substrate;

a second well of said first conductivity type formed in a second surface region of said substrate surrounded by said first surface region, said second well having a side surface coupled to a side surface of said first well and a bottom surface substantially flush with at least a part of a bottom surface of said first well,

a third well of said second conductivity type formed within said substrate, said third well being coupled directly to said bottom surface of said second well and coupled directly to said at least a part of said bottom surface of said first well, said third well having an impurity concentration higher than an impurity concentration of said first well; and

a MOSFET having a source formed in said first well, a drain formed in said second well, said source and drain being of said first conductivity type

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5,739,573

SEMICONDUCTOR DEVICE WITH IMPROVED SALICIDE STRUCTURE AND A METHOD OF MANUFACTURING THE SAME

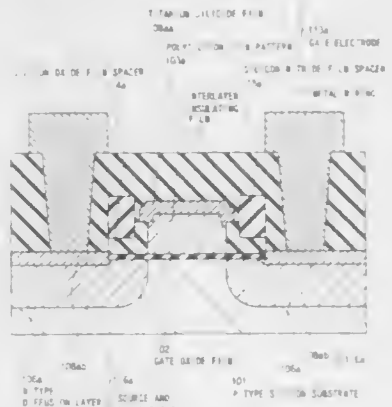
Hiroshi Kawaguchi, Tokyo, Japan, assignor to Nec Corporation, Japan

Continuation of Ser. No. 496,371, Jun. 29, 1995, abandoned. This application Sep. 23, 1997, Ser. No. 935,993

Claims priority, application Japan, Jul. 22, 1994, 6-170604

Int. Cl.⁶ H01L *29/76 29/94 27/088*

U.S. Cl. 257—384 **27 Claims**



1. A semiconductor device, comprising

a gate insulating film on a semiconductor region of a first conductive type,

a gate electrode provided on said gate insulating film, and comprising a conductive polysilicon film and a first titanium silicide film formed on said conductive polysilicon film, a contact length between said conductive polysilicon film and said first titanium silicide film being longer than a gate length defined by the contact length of said conductive polysilicon film and said gate insulating film,

source and drain regions of a second conductive type, each of which comprises an impurity layer formed in a surface region of said semiconductor region and a second titanium silicide film formed on said impurity layer,

an insulating film spacer structure including first and second insulating film spacers, each of said first insulating film spacers being provided to contact with a side surface of said conductive polysilicon film of said gate electrode and each of said second insulating film spacers having the top surface thereof higher than a top surface of said gate electrode wherein said first titanium silicide film is spaced apart from said second insulating film spacers,

an interlayer insulating film covering said gate electrode, said source and drain regions and said insulating film spacer structure and having contact holes to said gate electrode and said source and drain regions, and

a wiring pattern connected to said gate electrode and said source and drain regions through said contact holes

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SOI SEMICONDUCTOR DEVICE WITH LOW CONCENTRATION OF ELECTRIC FIELD AROUND THE MESA TYPE SILICON

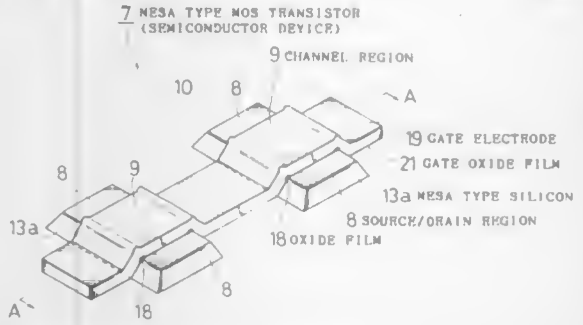
Kazuyo Nakamura, Kitakatsuragi-gun, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 2, 1995, Ser. No. 459,163

Claims priority, application Japan, Dec. 19, 1994, 6-314896

Int. Cl.^{6} H01L *27/01;29/76;29/06;21/265*

U.S. Cl. 257—401 **7 Claims**



1. A semiconductor device comprising:
- a mesa type silicon film with a source/drain region and a channel region formed therein;
- a gate oxide film formed on the mesa type silicon film; and
- a gate electrode provided on the mesa type silicon film through the gate oxide film,
- wherein an oxide film having a thickness greater than that of the gate oxide film is formed only on the top edge section of the mesa type silicon film which is present under the gate electrode.

5,739,575

DIELECTRICALLY ISOLATED SUBSTRATE AND METHOD FOR MANUFACTURING THE SAME

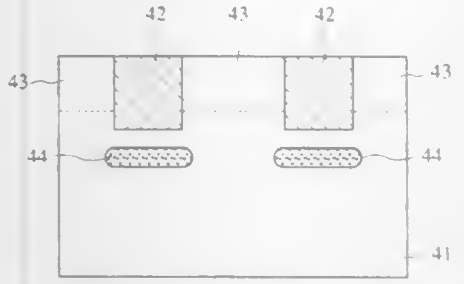
Masanori Numano, Kanagawa-ken; Norihiko Tsuchiya, Tokyo; Hiroyasu Kubota, Chiba-ken; Yoshiaki Matsushita, Kanagawa-ken; Yoshiki Hayashi, Kanagawa-ken; Yukihiro Ushiku, Kanagawa-ken; Atsushi Yagishita, Kanagawa-ken; Satoshi Inaba, Tokyo; Yasunori Okayama, and Minoru Takahashi, both of Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 30, 1996, Ser. No. 705,647

Claims priority, application Japan, Aug. 31, 1995, 7-223963

Int. Cl.^{6} H01L *29/00*

U.S. Cl. 257—513 **13 Claims**



1. A substrate having buried dielectrics for element isolation, the substrate comprising:
- a) a semiconductor substrate;
- b) a plurality of grooves configured to serve as an element isolation region formed in a surface layer of said semiconductor substrate, each of said grooves having an inside and a bottom;
- c) a dielectric buried in the inside of each said groove, the dielectric having a different thermal expansion coefficient from that of the semiconductor substrate; and
- d) a high strained layer consisting of a high impurity concentration region formed locally, just under, and remote from the bottom of each said grooves so as to sandwich a semiconductor region having a lower impurity concentration than the high strained layer between the bottom of each of said grooves and the high strained layer, wherein
- a stress due to a difference of thermal expansion coefficient between the semiconductor substrate and the dielectric is guided toward the high strained layer.

5,739,576

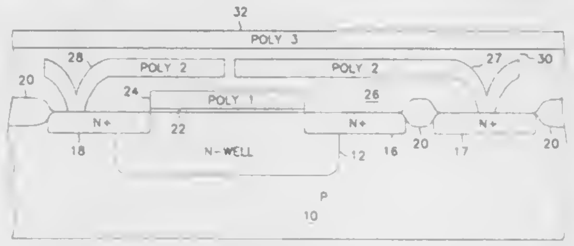
INTEGRATED CHIP MULTILAYER DECOUPLING CAPACITORS

Brian M. Shirley; Stephen L. Casper; Tyler A. Lowrey, and Kevin G. Duesman, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Oct. 6, 1995, Ser. No. 539,855

Int. Cl.^{6} H01L *29/00*

U.S. Cl. 257—532 **1 Claim**



1. A multilayer circuit for providing decoupling capacitors for an integrated circuit formed in a semiconductor substrate, comprising:
- a first capacitor n well electrode supported by the substrate;
- a first and second n+ areas formed on opposite sides of the n well electrode supported by the substrate;
- a second capacitor electrode formed of a conductive material at least partially overlaying the first electrode between the first and second n+ areas;
- a first dielectric layer formed between the first and second capacitor electrodes;
- a third bifurcated capacitor electrode formed of a conductive material, the third capacitor electrode comprising a first portion laterally separated from a second portion, each portion at least partially overlaying the second electrode, and wherein the first portion is coupled to the first n+ area;
- a second dielectric layer formed between the second and third capacitor electrodes;
- a third n+ area supported by the substrate, and isolated from the first and second n+ areas, said third n+ area being electrically coupled to the second portion of the third bifurcated capacitor electrode;
- a fourth capacitor electrode formed of a conductive material at least partially overlaying the third bifurcated capacitor electrode; and
- a third dielectric layer disposed between the third and fourth electrodes such that pairs of electrodes at least partially overlaying each other may be coupled to operate as decoupling capacitors.

5,739,577

RESISTIVE STRUCTURE FOR INTEGRATED CIRCUITS AND METHOD OF FORMING SAME

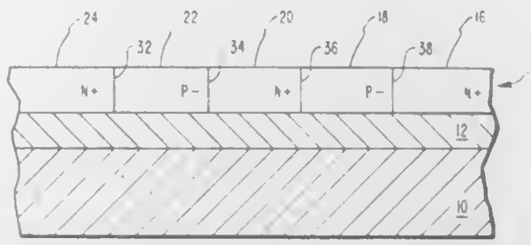
Mark E. Tuttle, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Apr. 21, 1995, Ser. No. 426,045

Int. Cl.^{6} H01L *29/76,29/00*

U.S. Cl. 257—536 **20 Claims**

1. A resistive structure formed on an integrated circuit substrate, the structure providing a high resistance value and comprising:
- a first region which has a first dopant concentration and which exhibits a first type of semiconductor characteristic;



- a second region which has a second dopant concentration and which exhibits a second type of semiconductor characteristic, the second region being adjacent to the first region;
- a third region which has the first dopant concentration and which exhibits the first type of semiconductor characteristic, the third region being adjacent to the second region;
- a fourth region which has the second dopant concentration and which exhibits the second type of semiconductor characteristic, the fourth region being adjacent to the third region;
- a fifth region which has the first dopant concentration and which exhibits the first type of semiconductor characteristic, the fifth region being adjacent to the fourth region; and
- an isolation layer formed between the substrate and the first through fifth regions.

5,739,578

HIGH POWER TRANSISTOR WITH CONTACT PLUGS EXTENDED FROM COLLECTORS THROUGH A SUBSTRATE TO HAVE ENDS CONNECTED TOGETHER IN AN INDENT IN THE SUBSTRATE

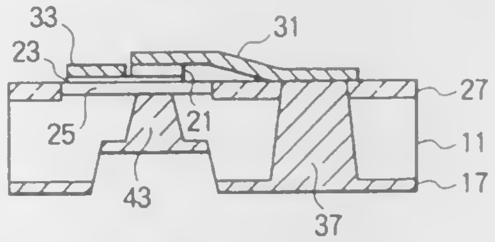
Norio Goto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 14, 1997, Ser. No. 800,376

Claims priority, application Japan, Feb. 15, 1996, 8-028257

Int. Cl.^{6} H01L *27/082;27/102;29/70*

U.S. Cl. 257—578 **4 Claims**



1. A high power bipolar transistor comprising:
- a semiconductor substrate having an obverse surface and a reverse surface;
- a plurality of bipolar transistor fingers on said obverse surface and a ground connection on said reverse surface, each transistor finger including an emitter electrode, a base electrode, and a collector electrode;
- an emitter connection and a base connection connected, respectively, to the emitter electrodes and the base electrodes of said transistor fingers;
- a via-hole member extending through said semiconductor substrate between said ground connection and one of said emitter and said base connections;
- an indent formed in said semiconductor substrate from said reverse surface, said indent forming a bottom surface adjacent to the collector electrodes of said transistor fingers and leaving a substrate layer between said obverse and said bottom surface;
- a plurality of contact plugs extending through said substrate layer to said collector electrodes, respectively, and
- a collector connection connecting said contact plugs along said bottom surface

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5,739,579

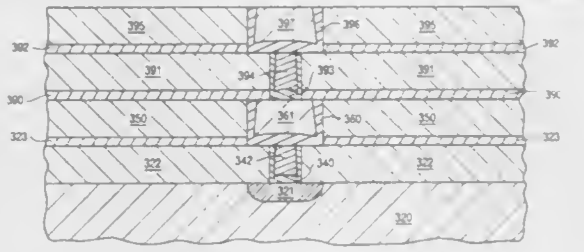
METHOD FOR FORMING INTERCONNECTIONS FOR SEMICONDUCTOR FABRICATION AND SEMICONDUCTOR DEVICE HAVING SUCH INTERCONNECTIONS

Chien Chiang, Fremont, and David B. Fraser, Danville, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 430,759, Apr. 27, 1995, abandoned, which is a division of Ser. No. 314,248, Sep. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 905,473, Jun. 29, 1992, Pat. No. 5,612,254. This application Sep. 10, 1996, Ser. No. 707,027

Int. Cl.^{6} H01L *23/58*

U.S. Cl. 257—635 **14 Claims**



1. A semiconductor device comprising:
- (a) a semiconductor substrate,
- (b) a first patterned dielectric layer disposed over the semiconductor substrate, the first patterned dielectric layer having a first dielectric material and having a first opening filled with first conductive material, the first conductive material being adjacent to and in direct contact with the dielectric layer,
- (c) a second patterned dielectric layer disposed over the first patterned dielectric layer, the second patterned dielectric layer having a second dielectric material and having a second opening; and
- (d) a third patterned dielectric layer disposed over the second patterned dielectric layer, the third patterned dielectric layer having a third dielectric material and having a third opening over the second opening and over at least a portion of the first conductive material, wherein the bottom of the third opening is approximately equal in width and aligned to the second opening;
- wherein the second opening and the third opening are filled with second conductive material over at least a portion of the first conductive material

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5,739,580

OXIDE FORMED IN SEMICONDUCTOR SUBSTRATE BY IMPLANTATION OF SUBSTRATE WITH A NOBLE GAS PRIOR TO OXIDATION

Sheldon Aronowitz, and James Kimball, both of San Jose, Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Division of Ser. No. 434,674, May 4, 1995, Pat. No. 5,707,888. This application Jan. 27, 1997, Ser. No. 788,403

Int. Cl.^{6} H01L *23/58,29/00*

U.S. Cl. 257—647 **8 Claims**

1. A semiconductor substrate having a dense oxide layer formed in a region of said substrate implanted with atoms of noble gas by the steps of implanting said substrate with a noble gas, oxidizing said implanted substrate to form said dense oxide layer and a

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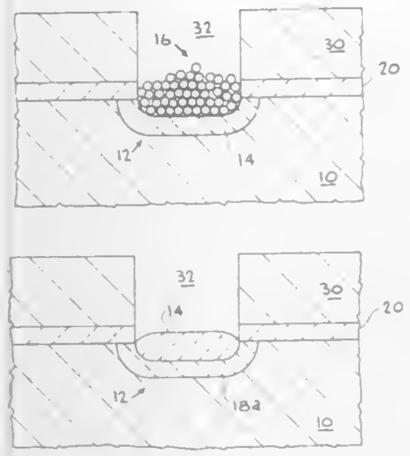

porous oxide layer over said dense oxide layer; and etching said oxidized substrate to remove said porous oxide layer

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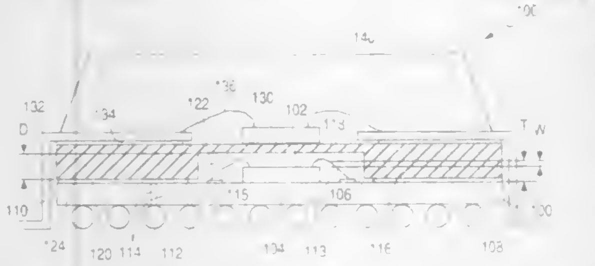
5,739,581

HIGH DENSITY INTEGRATED CIRCUIT PACKAGE ASSEMBLY WITH A HEATSINK BETWEEN STACKED DIES

Satya Chillara, and Shahram Mostafazadeh, both of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Nov. 17, 1995, Ser. No. 560,280
Int. Cl.^{6} H01L *23/495,23/10*

U.S. Cl. 257—668 35 Claims



1 An integrated circuit (IC) package assembly for supporting dies and providing access to dies the package assembly comprising

a substrate having a top surface, a bottom surface and a plurality of first traces from the top surface to the bottom surface.

a first die disposed over the top surface of the substrate and electrically connected to the first traces at the top surface of the substrate.

a heatsink having a top surface and a bottom surface, with the bottom surface of the heatsink disposed over the top surface of the substrate and over the first die.

a leadframe having a plurality of leadframe leads, with the leadframe disposed over the top surface of the heatsink, and

a second die disposed over the top surface of the heatsink and electrically connected to the leads of the leadframe

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5,739,582

METHOD OF PACKAGING A HIGH VOLTAGE DEVICE ARRAY IN A MULTI-CHIP MODULE

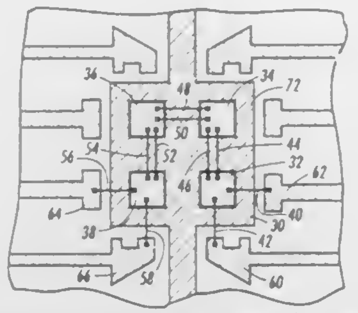
Abdul M. ElHatem, Redondo Beach, Calif.; Hung C. Nguyen, Webster, N.Y., and Mohammad Mojarradi, Pullman, Wash., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 24, 1995, Ser. No. 562,614
Int. Cl.^{6} H01L *23/495;23/34*

U.S. Cl. 257—676 13 Claims

1 A high voltage electronic circuit package comprising

A) at least two high voltage electronic circuit chips wherein each chip has a top surface and a bottom surface.



B) the top surface of each high voltage electronic circuit chip being coated with a layer of non-conductive semi-conductor protective coating and the bottom side of each high voltage electronic circuit wafer being coated with a layer of non-conductive film.

C) a lead frame package with a surface for supporting the at least two high voltage electronic circuit chips.

D) non-conductive epoxy disposed between and adhered to the non-conductive film on the bottom surfaces of said at least two high voltage electronic circuit wafers and the surface for supporting the at least two high voltage electronic circuit wafers on said lead frame package.

5,739,583

Patent Not Issued For This Number

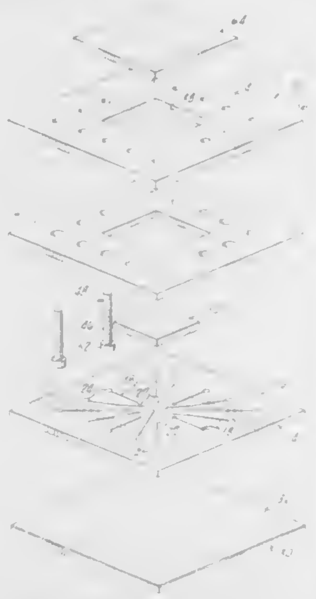
5,739,584

MULTIPLE PIN DIE PACKAGE

Nicholas F. Pasch, Pacifica, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Jun. 7, 1995, Ser. No. 485,060
Int. Cl. H01L *23/48*

U.S. Cl. 257—697 13 Claims



1 A multi-pin integrated circuit package, comprising

a dielectric substrate having a central area and a peripheral area;

a plurality of die connecting pads formed in a first pattern at said central area;

a plurality of pin connecting pads formed in a second pattern at said peripheral area;

a plurality of conductive traces respectively interconnecting individual ones of said die connecting pads with individual ones of said pin connecting pads;

a pin holding frame, bonded to said substrate, and having an open central area and a peripheral area, said frame having a plurality of pin receiving holes extending therethrough in said peripheral area, said pin holding frame having a first side thereof facing said substrate;

a plurality of pins respectively received in individual ones of said pin receiving holes and each having a head positioned at said first side of said pin holding frame;

an integrated circuit die positioned on said substrate, said die having a plurality of die pads electrically connected to said die connecting contact pads of said substrate; and

a closure bonded to a side of said pin holding frame opposite said first side;

wherein said pin holding frame is bonded to said substrate with a gas impermeable adhesive interposed between said pin holding frame and said substrate and encompassing ends of said pins between said pin holding frame and said substrate

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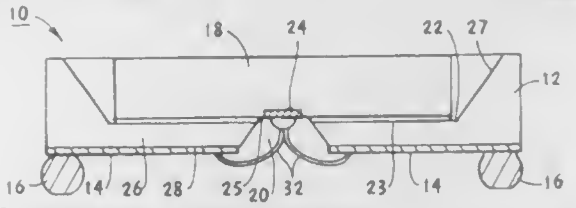
5,739,585

SINGLE PIECE PACKAGE FOR SEMICONDUCTOR DIE

Salman Akram; Alan G. Wood, both of Boise, and Warren M. Farnworth, Nampa, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Division of Ser. No. 563,191, Nov. 27, 1995, Pat. No. 5,674,785. This application Jul. 29, 1996, Ser. No. 688,060
Int. Cl.^{6} H01L *23/02;* **H05K** *3/34*

U.S. Cl. 257—698 30 Claims



1. A semiconductor package comprising:

a silicon package body, said package body comprising a first surface and a second surface, said second surface including a die mounting cavity;

an opening in the package body, said opening extending from the first surface to the die mounting cavity;

an electrically insulating layer formed on the first surface;

a pattern of conductors formed on the insulating layer, said conductors comprising a metal layer having a thickness of from 500 A to 10 μm;

a semiconductor die comprising a plurality of bond pads thereon, said die placed on the die mounting cavity with the bond pads aligned with the opening; and

a plurality of electrical interconnections extending through the opening to place the bond pads and conductors in electrical communication.

5,739,586

HEAT SINK ASSEMBLY INCLUDING A PRINTED WIRING BOARD AND A METAL CASE

Sharon M. Cannizzaro, Roswell; Libbie R. Terwilliger, Lilburn; Timothy B. Tunnell, Lawrenceville; Wayne P. Vaughn, Lilburn, all of Ga., and Steven Veneman, Port Deposit, Md., assignors to Scientific-Atlanta, Inc., Norcross, Ga.

Filed Aug. 30, 1996, Ser. No. 705,609
Int. Cl.^{6} H01L *23/10;23/34;23/28*

U.S. Cl. 257—712 7 Claims

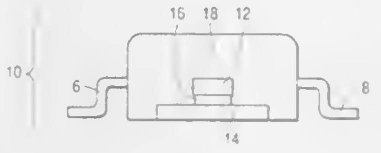
1. An assembly for forming a heat sink comprising:

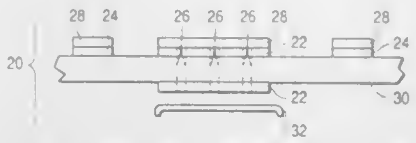
a printed wiring board having first and second metal lands and a plurality of via holes extending through the first and second metal lands;

a piece of tape applied to the second metal land on a reverse surface of the printed wiring board so as to cover the plurality of via holes;

a solder paste layer applied over the first metal land on an obverse surface of the printed wiring board so as to cover the plurality of via holes; and

a circuit package mounted over at least a portion of the solder paste layer that is disposed over the first metal land on the obverse side of the printed wiring board, the circuit package





including a metal slug integrally formed with the circuit package and including a heat dissipating circuit eutectically bonded to the metal slug.

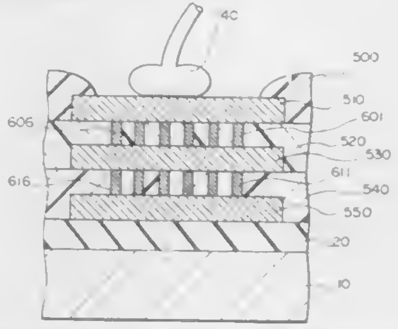
5,739,587

SEMICONDUCTOR DEVICE HAVING A MULTI-LATERED WIRING STRUCTURE

Hisakatsu Sato, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,166
Claims priority, application Japan, Feb. 21, 1995, 7-032707; Feb. 15, 1996, 8-052273
Int. Cl.^{6} H01L *23/48;23/52*

U.S. Cl. 257—758 11 Claims



1. A semiconductor device having a multi-layered wiring structure comprising:

a first conductor layer connected to an external connection terminal;

a second conductor layer;

an electrical insulation layer interposed between said first and second conductor layers; and

a third conductor layer embedded in a through hole selectively formed through said electrical insulation layer, said third conductor layer electrically connecting said first conductor layer to said second conductor layer;

wherein said third conductor layer is filled in said through hole, the height of the top and bottom of said third conductor layer being substantially equal to the height of the top and bottom of said electrical insulation layer and said third conductor layer is harder than said first and second conductor layers

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5,739,588

SEMICONDUCTOR DEVICE

Yoshihiro Ishida; Yoshinobu Ohmori; Ienobu Ikeda, all of Tanashi; Kazuhiko Terashima, and Takeshi Toyoda, both of Tokorozawa, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01622, § 371 Date Apr. 5, 1996, § 102(e) Date Apr. 5, 1996, PCT Pub. No. WO96/05613, PCT Pub. Date Feb. 22, 1996
PCT Filed Aug. 15, 1995, Ser. No. 624,496
Claims priority, application Japan, Aug. 15, 1994, 6-191502
Int. Cl.^{6} H01L *23/48;23/52*

U.S. Cl. 257—782 12 Claims

1 A semiconductor device comprising:

a resin substrate.

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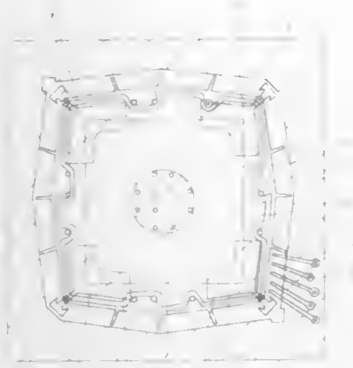


an IC chip to be disposed on the resin substrate and having an outer bottom shape with corner portions and a plurality of electrodes.

a circuit substrate mounted on the resin substrate. said circuit substrate including a die pattern for securing the IC chip onto the resin substrate. said die pattern having an outer shape greater than the outer bottom shape of the IC chip. and a connecting electrode for connecting the electrodes of the IC chip,

an insulating film having an outer shape smaller than that of the die pattern. said insulating film being disposed on the die pattern at a portion at least corresponding to the corner portions of the IC chip. said IC chip being die bonded to the insulating film. and

bonding wires connected between the IC chip and a part of the die pattern exposed from the insulating film.

5,739,589

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE PROCESS FOR FABRICATING THE SAME AND APPARATUS FOR FABRICATING THE SAME

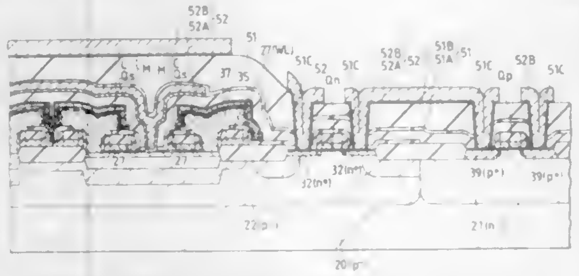
Jun Sugiura, Musashino; Osamu Tsuchiya; Makoto Ogasawara, both of Ohme; Fumio Ootsuka, Ohme; Kazuyoshi Torii, Kodaira; Isamu Asano; Nobuo Owada, both of Ohme; Mitsuaki Horiuchi, Hachinji; Tsuyoshi Tamaru, Ohme; Hiden Aoki, Ohme; Nobuhiro Otsuka, Kokubunji; Seiichirou Shirai, Hamura-machi; Masakazu Sagawa, Ohme; Yoshihiro Ikeda, Ohme; Masatoshi Tsuneoka, Ohme; Toru Kaga, Urawa; Tomotsugu Shimmyo, Kawagoe; Hidetsugu Ogishi, Hachioji; Osamu Kasahara, Hinode-machi; Hiromichi Enami, Tachikawa; Atsushi Wakahara, Ohme; Hiroyuki Akimori, Ohme; Sinichi Suzuki, Ohme; Keisuke Funatsu, Ohme; Yoshinao Kawasaki, Kumage-cho; Tunehiko Tubone, Kudamatsu; Takayoshi Kogano, Iruma, and Ken Tsugane, Ohme, all of Japan, assignors to Hitachi, Ltd., and Hitachi VLSI Engineering Corp., both of Tokyo, Japan

Continuation of Ser. No. 230,021, Apr. 19, 1994, Pat. No. 5,557,147, which is a division of Ser. No. 954,142, Sep. 30, 1992, Pat. No. 5,331,191, which is a division of Ser. No. 496,330, Mar. 20, 1990, Pat. No. 5,202,275. This application Jun. 3, 1996, Ser. No. 657,194

Claims priority, application Japan, Mar. 20, 1989, 1-065849

Int. Cl.⁶ H01L *21/44;21/48*

U.S. Cl. 257—763 21 Claims



1. A semiconductor integrated circuit device comprising:

a semiconductor substrate having a main surface.

an insulating film formed over said main surface of said semiconductor substrate; and

a wiring line formed overlying said insulating film. wherein said wiring line comprises a first refractory metal layer formed by a sputtering method and a second refractory metal layer formed by a CVD method in contact with said first refractory metal layer. wherein said first refractory metal layer has substantially no film stress. wherein said second refractory metal layer is formed on said first refractory metal layer. and wherein said second refractory metal layer includes a same material as that of said first refractory metal layer.

5,739,590

SEMICONDUCTOR DEVICE HAVING IMPROVED SURFACE EVENNESS

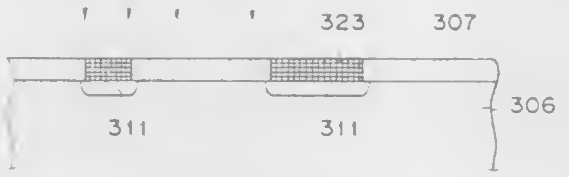
Masaru Sakamoto, Atsugi; Masakazu Morishita, and Shigeru Nishimura, both of Hiratsuka, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 390,548, Feb. 17, 1995, Pat. No. 5,597,741, which is a division of Ser. No. 67,788, May 27, 1993, Pat. No. 5,476,799, which is a division of Ser. No. 755,452, Sep. 5, 1991, Pat. No. 5,242,858. This application Jun. 1, 1995, Ser. No. 457,149

Claims priority, application Japan, Sep. 7, 1990, 2-235893; Sep. 7, 1990, 2-235894; Sep. 28, 1990, 2-257248; Nov. 29, 1990, 2-326052; Jan. 22, 1991, 2-20269

Int. Cl.⁶ H01L *23/48, 23/52, 29/40*

U.S. Cl. 257—775 5 Claims



1. A semiconductor device comprising:

a semiconductor substrate.

an insulating layer. containing an impurity and having a plurality of windows having different sizes formed therein. provided on the semiconductor substrate; and

a first layer provided in at least the windows provided in the insulating layer. the first layer not extending over a periphery of the windows to a surface of the insulating layer.

wherein the surface of the insulating layer and a surface of the first layer opposite the semiconductor substrate are coplanar. and

wherein the semiconductor substrate in contact with the first layer also contains the impurity

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5,739,591

SEMICONDUCTOR DEVICE WITH A CARRIER BODY ON WHICH A SUBSTRATE WITH A SEMICONDUCTOR ELEMENT IS FASTENED BY MEANS OF A GLUE LAYER AND ON WHICH A PATTERN OF CONDUCTOR TRACKS IS FASTENED

Ronald Dekker, and Henricus G. R. Maas, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 548,933, Oct. 26, 1995, abandoned. This application Jul. 8, 1997, Ser. No. 889,716

Claims priority, application European Pat. Off., Nov. 22, 1994, 94203386

Int. Cl.⁶ H01L *23/48*

U.S. Cl. 257—780 20 Claims

1. A semiconductor device, comprising

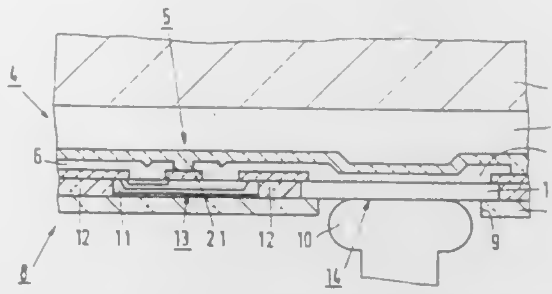
a semiconductor element.

a carrier body.

a substrate fastened to the carrier body, the substrate having a distal side and a proximal side said distal side being disposed adjacent the carrier body and said proximal side being disposed opposite the carrier body.

a contact electrode disposed only at said distal side of the substrate, said contact electrode being coupled to the semiconductor element; and

a window disposed through the substrate at the contact electrode so that said contact electrode is exposed from said proximal side of the substrate. whereby said contact electrode provides for electrical connection to the semiconductor element accessible at said distal side from said proximal side, through the substrate.



5,739,592

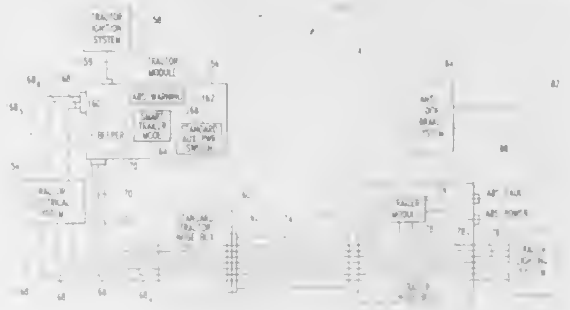
POWER AND COMMUNICATIONS LINK BETWEEN A TRACTOR AND TRAILER

Bruce S. Rigsby, Charlestown, and Troy Lynn Roney, Madison, both of Ind., assignors to Grote Industries, Inc., Madison, Ind.

Filed Jan. 31, 1996, Ser. No. 594,943

Int. Cl.⁶ B60D *1/62*

U.S. Cl. 307—9.1 52 Claims



1. A tractor communication and power switching system for establishing a power and communications link with a trailer comprising:

a plurality of switching devices each having an input switchable between an electrical line forming part of an electrical system of the tractor and one of an electrical power line connected to a source of power associated with the tractor and a single unpowered communication line, and an output connected to the trailer: and

a tractor control module having an input/output connected to said single unpowered communication line for sending and receiving communication signals thereon, said tractor control module controlling said plurality of switching devices to connect the inputs of first and second ones of said switching devices to said communication line and said electrical power line respectively

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5,739,593

VOLTAGE SOURCE CIRCUIT FOR GENERATING A PLURALITY OF VALUES OF VOLTAGES

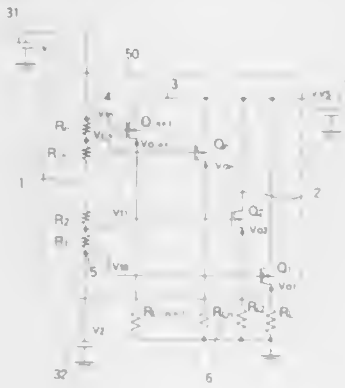
Hiroshi Hayama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 347,075, Nov. 23, 1994. This application Nov. 25, 1996, Ser. No. 753,425

Claims priority, application Japan, Nov. 29, 1993, 5-297167

Int. Cl.⁶ H02J *1/10*

U.S. Cl. 307—43 6 Claims



1. A voltage circuit, comprising:

a first terminal for receiving a first external voltage.

a second terminal for receiving a second external voltage:

n resistors coupled with respect to one another between said first terminal and said second terminal to form n−1 inter resistor nodes, n being an integer greater than one;

n+1 MOS transistors, each having a respective drain, a source and a gate, each drain being connected to a third terminal for receiving a third external voltage. the gate of a first of said n+1 MOS transistors being connected to said first terminal, the gate of a second of said n+1 MOS transistors being connected to said second terminal. and the gate of each of the remaining n 1 of said n+1 MOS transistors being connected to a corresponding one of the inter-resistor nodes. so that the source of each of said n+1 MOS transistors outputs a respective voltage corresponding to a voltage on its gate from its corresponding one of the inter-resistor nodes.

wherein each of said n+1 MOS transistors includes

- an insulating substrate. a first semiconductor region on said insulating substrate having side surfaces, the first semiconductor region comprising a first semiconductor type.
- a second and a third semiconductor region of a second semiconductor type formed on said insulating surface the second and third semiconductor regions being connected to corresponding ones of said side surfaces
- an insulating film on said first semiconductor region
- a first electrode on said insulating film to form the gate of the MOS transistor.
- a second electrode connected to said second semiconductor region to form the source of the MOS transistor. and
- a third electrode connected to said third semiconductor region to form the drain of the MOS transistor. and wherein each of said resistors includes
  - a resistor layer on said insulating substrate.
  - a fourth electrode on said resistor layer.
  - a fifth electrode on said resistor layer and separated from said fourth electrode.

each of said fourth and fifth electrodes being connected to a respective one of the inter resistor nodes

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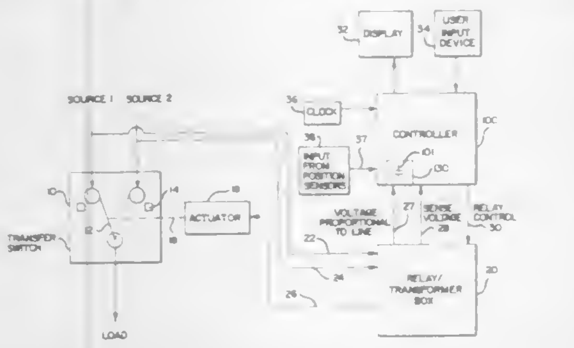
5,739,594
CONTROLLER FOR AUTOMATIC TRANSFER SWITCHES

Kevin T. Sheppard, Chicago; Ronald L. Schultz, Northfield, and Wayne C. Potempa, Willowbrook, all of Ill., assignors to Zenith Controls, Inc., Chicago, Ill.

Filed Feb. 7, 1996, Ser. No. 597,930

Int. Cl.^{6} H02J *3/42*

U.S. Cl. 307—64 5 Claims



1. An automatic transfer switch for selectively energizing a load from either a three-phase normal or a three-phase emergency power source comprising:

- a) switching means associated with the power sources for selectively connecting either the normal or emergency power source to the load.
- b) means for actuating said switching means for movement between the normal and emergency positions;
- c) control means for controlling the actuating means including:
  - i) an open-delta transformer pair connected to the normal power source for sensing two of the phase voltages to sense loss of the two phase voltages.
  - ii) processor means for determining the loss of the third of the phase voltages based on the phase difference between said two phase voltages. said control means energizing said actuating means in response to loss of any one of said phase voltages.

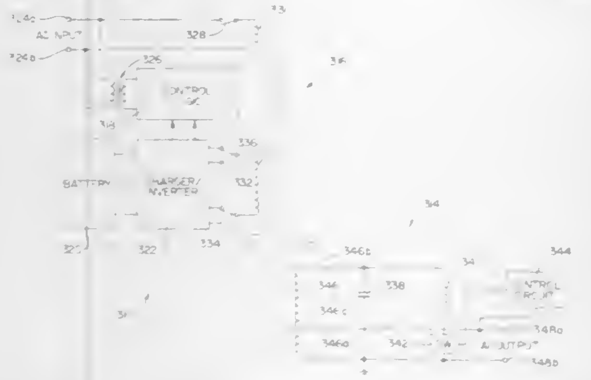
5,739,595
APPARATUS AND METHODS FOR GENERATING AN AC POWER SIGNAL FOR CABLE TV DISTRIBUTION SYSTEMS

Fereydoun Mekanik, Bellingham; Brian M. Kennedy, Everson, and Thomas S. Osterman, Bainbridge Island, all of Wash., assignors to Alpha Technologies, Inc., Bellingham, Wash.

Continuation of Ser. No. 116,012, Sep. 2, 1993, abandoned, which is a continuation-in-part of Ser. No. 967,773, Oct. 28, 1992, Pat. No. 5,410,720. This application Feb. 29, 1996, Ser. No. 610,141

Int. Cl.^{6} H02J *7/00*

U.S. Cl. 307—64 30 Claims



1. A power supply that generates an uninterruptible AC power signal for powering line extending amplifiers spaced along a distribution cable of a communication network, comprising:

line input means operatively connected to a utility power source;
output means operatively connected to the distribution cable;
inverter means operatively connected to a DC power source for generating a standby power signal comprising (a) a positive half-cycle comprising a leading portion, a middle portion, and a trailing portion and (b) a negative half-cycle having a leading portion, a middle portion, and a trailing portion, the inverter means comprising a switch array for generating a pulsed power signal from the DC power source;
control means for controlling the standby power signal such that a waveform shape of the standby power signal is within a set of predetermined parameters defined by characteristics of components of the communications network, the control means comprising an inductor and switch electrically connected to a resonant capacitor and drive means for operating the switch based on an error signal to change an effective capacitance of the resonant capacitor by allowing current to flow through the inductor rather than the resonant capacitor to control a charging rate of the resonant capacitor, resulting in the waveform shape of the AC power signal being within the set of predetermined parameters; and
selecting means for connecting the line input means to the output means such that a line power signal generated by the utility power source forms the AC power signal under normal operation and connecting the inverter means to the output means such that the standby power signal forms the AC power signal when a fault occurs in the utility power source, the selecting means comprising
a ferroresonant transformer having input windings and output windings,
means for connecting the switch array to the input windings of the ferroresonant transformer, and
the capacitor where the resonant capacitor is connected across the output windings of the ferroresonant transformer.

5,739,596
POWER SUPPLY FOR AN ELECTRONIC DEVICE AND POWER DELIVERY METHOD THEREFOR

Yasutoshi Takizawa; Katsunori Nagao, and Shigeo Ikeda, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

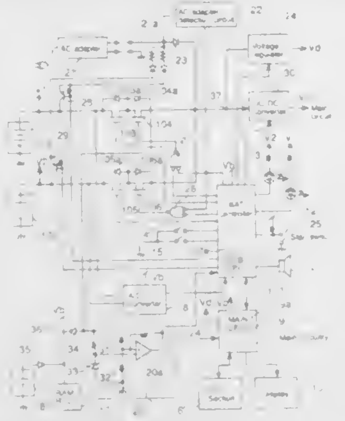
Filed Apr. 5, 1996, Ser. No. 630,956

Claims priority, application Japan, Apr. 6, 1995, 7-081416

Int. Cl.^{6} H02J *7/00*

U.S. Cl. 307—66 17 Claims

1. A power supply for an electronic device, comprising:



first and second main power sources;
a charge detector in communication with said first and second main power sources to individually detect the charge levels of each said first and second main power sources;
a switching circuit in communication with said first and second main power sources for selectively routing respective power signals generated by said first and second main power sources to the electronic device, and
a power controller in communication with said charge detector and said switching circuit for controlling the switching circuit between a single connection mode and a default multiple connection mode according to the charge levels detected by said charge detector, said power controller setting said switching circuit in the multiple connection mode upon electronic device startup;
wherein said power controller sets said switching circuit into the multiple connection mode when the respective charge levels of both said main power sources fail to exceed a predetermined threshold as detected by said charge detector,
wherein, in the single connection mode, said switching circuit electrically connects a selected one of said first and second main power sources to a power input of the electronic device while disconnecting the remaining main power source; and
wherein, in the multiple connection mode, said switching circuit electrically connects both said first and second main power sources in series with respective first and second diode means and in parallel with a power input of the electronic device

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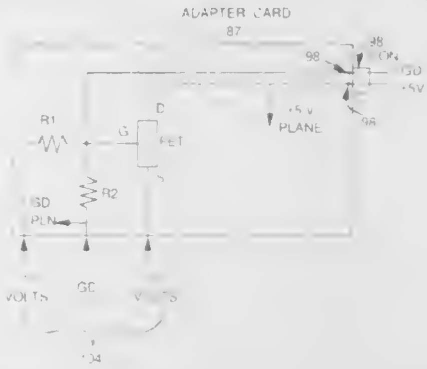
5,739,597
ADAPTER DESIGN FOR DUAL SOURCED POWER

Warren D. Bailey, Pittsboro; Elie M. Najm, Raleigh, and Robin C. Wells, Cary, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 10, 1996, Ser. No. 661,273

Int. Cl.^{6} H04L *12/40*

U.S. Cl. 307—85 12 Claims



1. An adapter card for connecting a device to a communications network comprising:

a communication interface section to connect the card to the communications network.
a system interface section to couple the card to the device;
a protocol handler for coupling the communications interface section and the system interface section; said protocol handler processing frames in accordance with a predetermined communication protocol;
a positive voltage plane for distributing voltage to said adapter card;
a ground plane disposed on said adapter card;
a first voltage interface having a ground terminal and a positive terminal, operatively coupled to the positive voltage plane and the ground plane;
a second voltage interface including a reference terminal and two positive terminals, and
a circuit arrangement including a switching device having a Gate electrode directly connected to the ground terminal of the first voltage interface and a voltage divider means connecting said Gate electrode to selected ones of the terminals in the second voltage interface wherein if a voltage is sensed at the first voltage interface, the switching device is placed in a non-conductive mode and the voltage on the first voltage interface is applied to the card, and if no voltage is sensed, the switching device is rendered conductive

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5,739,598
SELFADJUSTING CAPACITIVE LEVEL SWITCH FOR A NON-CONTACT OR CONTACT SENSING OF MEDIA OR OBJECTS

Andrej Zatler, Aškerčeva 24, Maribor, Slovenia, 62000, and Franc Eferl, Pri šoli 45, Kamnica, Slovenia, 62351

PCT No. PCT/SI94/00013, § 371 Date Jan. 30, 1996, § 102(e) Date Jan. 30, 1996, PCT Pub. No. WO95/04261, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 25, 1994, Ser. No. 596,115

Claims priority, application Slovenia, Jul. 30, 1993, P 9300405; Nov. 10, 1993, P 9300585

Int. Cl.^{6} H03K *17/945*

U.S. Cl. 307—652 23 Claims

11. Self-adjusting capacitive level switch for non-contact or contact sensing of media or objects comprising a sensor (S5), having a dielectric body (db), in one end of which a first electrically conductive plate (p) of a sensing capacitance is mounted and in the other end a second electrically conductive plate (op) acting as the opposing plate of the sensing capacitance is mounted, a first electrically conductive screening plate (sp) being mounted between the first electrically conductive plate (p) and the second electrically conductive plate (op) and an operational amplifier (1), which is provided with negative and positive feedback circuits and a potential at an inverting input of said amplifier coupled to, and which is in phase with the potential at, the first electrically conductive plate (p) and the output of which is grounded through a first capacitor (5) and is connected through a switching signal-shaping circuit to an output terminal of said level switch, the potential of said first screening plate coupled to and following the potential at the output of said operational amplifier (1), wherein an additional electrically conductive screening plate (sp$_1$) is mounted in one end of the dielectric body (db) and the additional screening plate (sp) is connected through a first resistor (r1) to the first screening plate (sp).

5,739,599
ELECTROMAGNETIC ACTUATOR

Masakazu Murai, Miyagi, Japan, assignor to Keihin Corporation, Tokyo, Japan

Filed Jan. 13, 1997, Ser. No. 782,115

Int. Cl.^{6} H02K *33/02*, **H01F** *7/121*

U.S. Cl. 310—14 22 Claims

1. An electromagnetic actuator comprising a bobbin which is disposed between opposite end walls of a housing made of a magnetic material and which has a coil wound therearound, a guide sleeve which is fitted to an inner periphery of said bobbin and which is opposed at one end thereof to one of said end walls of said housing and fitted at the other end thereof into a support bore in the other end wall of said housing, a stationary core fitted into said guide sleeve and caulked to the one end wall of said housing, and a movable core slidably fitted into said guide sleeve and cooperating with said stationary core, wherein

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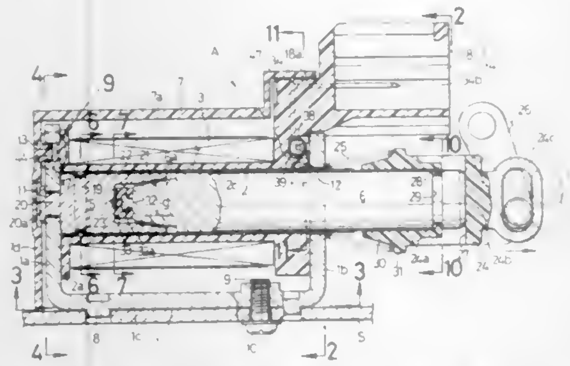


said guide sleeve is placed into close contact with an outer peripheral surface of said stationary core and fixedly coupled thereto.

5,739,600
UNDERWATER MAGNETROSTRICTIVE VIBRATION DEVICE

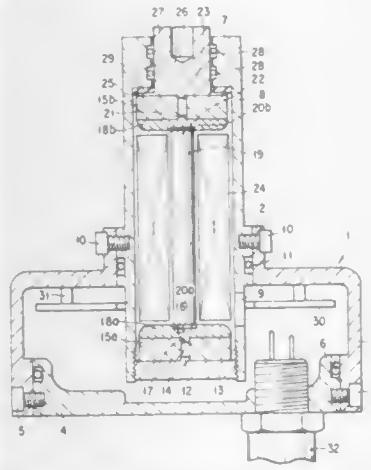
Tadahiko Kobayashi; Isao Sakai, and Kiyohisa Hinohara, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 19, 1996, Ser. No. 618,119

Claims priority, application Japan, Mar. 24, 1995, 7-066191

Int. Cl.^{6} H01L *41/12*

U.S. Cl. 310—26 10 Claims



1. An underwater magnetrostrictive vibration device comprising:

a watertight vessel;

a vibrating unit comprising,

- (a) a magnetic circuit constructing member for constructing a closed magnetic circuit having a first end and a second end, said first end being inserted watertight in said watertight vessel,
- (b) a vibrator made of magnetrostrictive alloy placed in said closed magnetic circuit so as to vibrate in a direction of a line connecting said first end and said second end of said magnetic member, said vibrator facing said first end of said magnetic member being immobilized, whereas said vibrator facing said second end of said magnetic member having a free end,
- (c) a permanent magnet provided in said closed magnetic circuit, for applying a magnetic bias to said vibrator,
- (d) at least one coil provided in the periphery of said vibrator and selected from the group consisting of a magnetic field generating coil and a magnetic field detecting coil,
- (e) stress applying means provided in said closed magnetic circuit, for applying compressive force in a vibration direction of said vibrator,

movable member means capable of moving in a vibration direction of said vibrator and inserted watertight in said second end of said magnetic member; and

a signal processing circuit board provided in said watertight vessel and connected to said at least one coil, for processing at least one signal selected from the group consisting of a vibration-generating signal and a vibration-detecting signal.

5,739,601
MAGNETO-MECHANICAL CONVERTER

Sergei F. Tsodikov, Moscow, Russian Federation, assignor to Magneto Corporation, New York, N.Y.

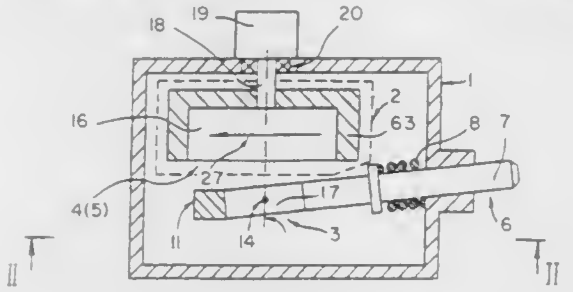
PCT No. PCT/RU94/00249, § 371 Date May 10, 1996, § 102(e) Date May 10, 1996, PCT Pub. No. WO95/13649, PCT Pub. Date May 18, 1995

PCT Filed Nov. 3, 1994, Ser. No. 640,889

Claims priority, application Russian Federation, Nov. 11, 1993, 93050005

Int. Cl.^{6} H01L *41/06*

U.S. Cl. 310—26 14 Claims



1. A magneto-mechanical converter comprising:

a housing;

a magnet system mounted in said housing and comprising a main source of magnetic field,

a core mounted in said housing and having linear dimensions, at least a portion of said core comprising a magnetostrictive material; and

an actuator connected to said core and movable along a displacement direction relative to the housing; wherein:

said main source of magnetic field is a permanent magnet;

said magnet system is mounted in the housing for relative rotation about said core, the axis of said relative rotation being oriented such that the linear dimensions of the core change during relative rotation due to alteration of magnetic flux in the core.

5,739,602
METHOD OF AND DEVICE USING ADHESIVELY CONNECTED PARTS FOR PREVENTING MOTOR ROTATIONAL IMBALANCE CAUSED BY THERMAL EXPANSION

Mitsuo Suzuki; Yukio Itami, both of Yokohama; Wataru Ohtani, Sagamihara; Wataru Kashima, Ebina; Yoshihiro Takahashi, Sibata-gun, and Noriyuki Kadowaki, Sendai, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Mar. 27, 1996, Ser. No. 624,025

Claims priority, application Japan, Mar. 27, 1995, 7-067202

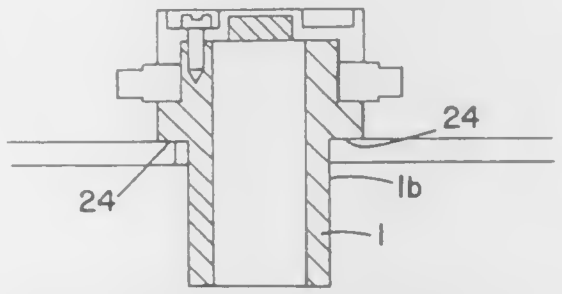
Int. Cl.^{6} H02K *7/00;1/22;* **G02B** *26/08*

U.S. Cl. 310—51 15 Claims

1. A motor operating at a high temperature, comprising:

a first rotatable part made of a fist material having a first thermal expansion coefficient,

a second rotatable part made of a second material having a second thermal expansion coefficient, at least a portion of said second rotatable part engaging said first rotatable part for rotating together, said portion defining an overlapped area, said second rotatable part being disposed at a predetermined



position with respect to said first rotatable part so as to maintain balance during rotation; and

adhesive placed in said overlapped area between said first rotatable part and said second rotatable part to maintain said predetermined position at the high temperature so as to substantially eliminate rotational imbalance caused by a difference in thermal expansion of said first rotatable part and said second rotatable part said adhesive having at least 400 Mega Pascal (MPa) for Young's modulus at 90 degrees Celsius.

5,739,603
ELECTRICAL CONNECTING ELEMENT FOR ELECTRIC MOTOR AND ELECTRIC MOTOR EQUIPPED WITH THIS ELEMENT

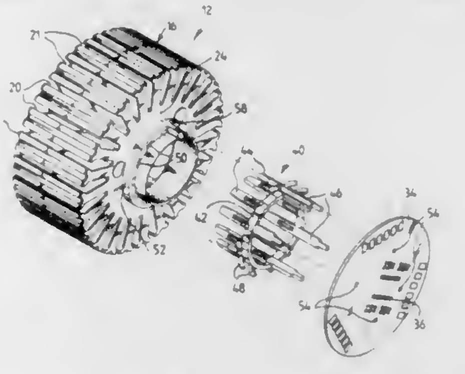
Michel Darceot, Herimoncourt, France, assignor to Ecia-Equipement et Composants pour l'Industrie Automobile, Audincourt, France

Filed Sep. 4, 1996, Ser. No. 707,513

Claims priority, application France, Sep. 4, 1995, 95 10350

Int. Cl.^{6} H02K *11/00*

U.S. Cl. 310—71 16 Claims



1. An electrical connecting element for an electric motor, said motor comprising an armature winding (**12**), equipped with an armature (**16**) carrying conducting coils, and an electronic circuit (**36**) for providing electrical power to, and commutation of, the coils, said connecting element comprising:

a conducting ring (**42**) including a first face, having at least two axial spigots (**44**) for mechanically connecting the ring to the armature, and a second face having at least two conducting axial pins (**46**) for electrically connecting the ring to the electronic circuit; and

at least two conducting peripheral hooks (**48**) for electrically connecting the coils to the ring (**42**),

the spigots (**44**), the pins (**46**) and the hooks (**48**) being integral with the ring (**42**) and forming a single piece therewith, and

the conducting ring (**42**) being sectionable into electrically isolated sectors.

5,739,604
LOW-TORQUE, INTERCHANGEABLE-ROTOR ELECTRIC MOTOR

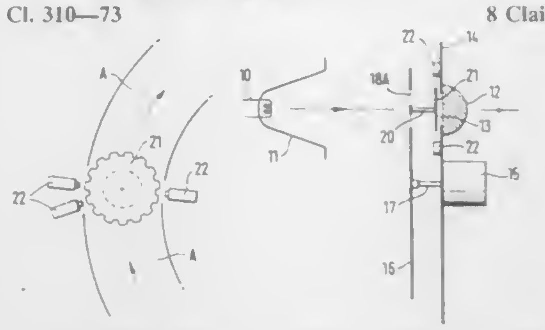
David Thomas Summerland, Leicester, United Kingdom, assignor to Mad Lighting Limited, Leicester, United Kingdom

Filed Feb. 12, 1997, Ser. No. 798,121

Claims priority, application United Kingdom, Feb. 20, 1996, 9603496; Jul. 23, 1996, 9615473

Int. Cl.^{6} H02K *11/00;7/06*

U.S. Cl. 310—73 8 Claims



1. A lighting effect system comprising means for generating a beam of light and moans for interposing in said light beam a selected one of a plurality of light modifying elements, said interposing means comprising a wheel rotatable about an axis generally parallel with the light beam, the light modifying elements being mounted on said wheel in a circumferential array and each rotatable about a respective axis relative to the wheel, and an interrupted annular array of stators having a fixed position relative to the generating means such that by rotating the wheel the elements may be brought selectively to an operative position between the stators, said elements each being adapted to serve as the rotor of a stepping motor comprising said stators such that a selected element indexed to the operative position by the wheel may be rotated about its respective axis by energising the stators.

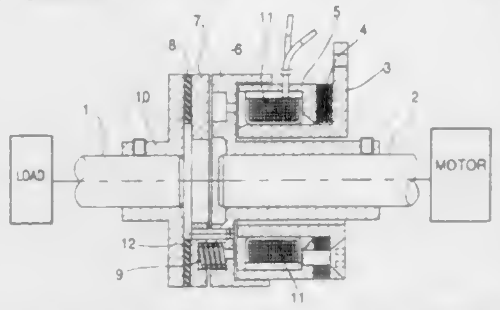
5,739,605
BI-STABLE CLUTCH

Edward D. Lazorchak, Ho-Ho-Kus, N.J., assignor to Electroid Co.,A Division of Valcor Engineering Corp., Springfield, N.J.

Filed Dec. 23, 1996, Ser. No. 780,039

Int. Cl.^{6} H02K *7/114;* **F16D** *27/10*

U.S. Cl. 310—78 3 Claims



1. A bi-stable clutch for alternately engaging and disengaging a drive and driveshaft comprising:

- a) an input shaft,
- b) an output shaft,
- c) a first means for rotating said input shaft which is a prime mover;
- d) a second means rotatably connected to said output shaft to be rotatably driven by said output shaft,
- e) a third means disposed between said input shaft and said output shaft whereby when said input shaft is rotating said output shaft is caused to rotate or stop rotating depending on whether or not said bi-stable clutch is engaged or disengaged, said third means comprising:
  - 1) a hub rotatably disposed about said output shaft,
  - 2) a friction ring one face of which is rotatably connected to said hub for rotation therewith,

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3) a rotor rotatably connected to said input shaft;

4) an armature plate rotatably connected to said rotor and in contact with a second face of said friction ring; and

5) compression springs disposed between said rotor and said armature plate to alternately cause said armature plate to contact and become disengaged from contact with said second face of said friction ring and thereby causing said clutch to alternately become engaged or disengaged depending on whether said compression springs are extended or compressed by DC electrical current means,

said bi-stable clutch further comprising a coil, an inner magnetic pole, an outer magnetic pole, and a permanent magnet disposed between said inner and outer magnetic poles and disposed about said rotor whereby when a pulse of DC current is applied to said coil, having the same polarity as said permanent magnet, a magnetic field is generated thereby overcoming the force caused by said compression springs and thereby causing said armature plate to be magnetically attracted to said rotor and thereby causing said bi-stable clutch to become disengaged.

5,739,606

SUPERCONDUCTING BEARING DEVICE

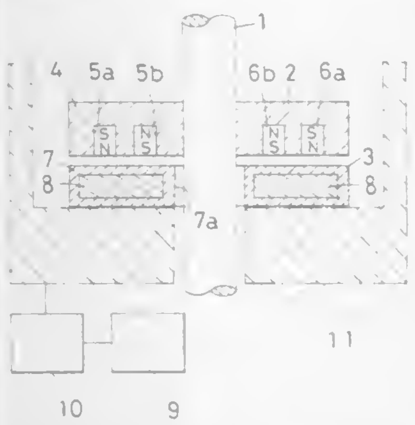
Ryoichi Takahata, Yamatotakada; Motoaki Shibayama, Takamatsu, and Hiroshi Takaichi, Tokyo, all of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, and Shikoku Research Institute Inc., Takamatsu, both of Japan

Continuation-in-part of Ser. No. 117,088, Feb. 8, 1994. This application Apr. 15, 1996, Ser. No. 632,612

Claims priority, application Japan, Mar. 15, 1991, 3-51430; Jul. 16, 1991, 3-175356

Int. Cl.⁶ H02K *7/09*

U.S. Cl. 310—90.5 **6 Claims**



1. A superconducting bearing device comprising

a rotary body having an axis of rotation,

an annular permanent magnet portion disposed concentrically with the rotary body so as to have an axis of rotation coincident with that of the rotary body the permanent magnet portion being configured to have a penetrating magnetic flux distribution does not vary when the rotary body is rotated, the permanent magnet portion comprising a disk of non-magnetic material fixedly mounted on the rotary body and having first and second end faces, and a plurality of annular permanent magnets arranged concentrically so as to provide innermost and outermost permanent magnets, the permanent magnets being embedded in the first face of the disk and being spaced radially from the rotary body and from each other, whereby the non-magnetic material of the disk is interposed between adjacent permanent magnets, each of the permanent magnets having an exposed first end face flush with the end face of the disk and a second end face embedded in the disk, each of the permanent magnets having axially opposite ends magnetized to polarities opposite to each other, the permanent magnets adjacent to each other being magnetized to polarities opposite to each other at their ends positioned toward the same axial direction, and

a superconductor opposed to the first end face of the disk and spaced apart axially from the rotary body, the superconductor having an inside diameter smaller than the inside diameter of the innermost permanent magnet and an outside diameter larger than the outside diameter of the outermost permanent magnet, the superconductor having properties permitting the magnetic flux emitted by the permanent magnets to effectively penetrate into the superconductor and to be pinned thereto.

5,739,607

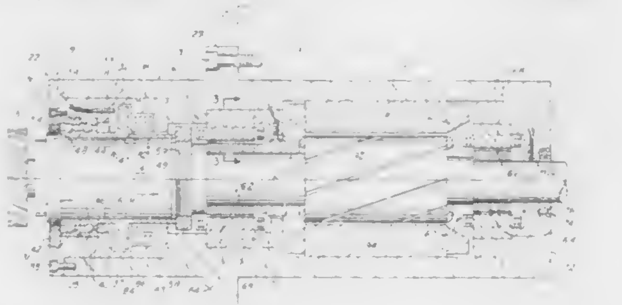
HYBRID SPINDLE BEARING

David B. Wood, III, Maineville, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Continuation of Ser. No. 205,456, Mar. 4, 1994, abandoned. This application Sep. 11, 1996, Ser. No. 707,021

Int. Cl.⁶ H02K *7/08, 7/09*

U.S. Cl. 310—90.5 **21 Claims**



1. A spindle support system for a spindle assembly, for use in a machine for generating radial cutting loads between a cutting tool and a workpiece, said spindle assembly having a housing, a spindle having a spindle nose proximal said cutting loads, and motor means for effecting relative rotation between said housing and said spindle, about a spindle axis, said spindle support system comprising

a first bearing means for supporting said spindle and housing in a predetermined relationship during said relative rotation, said first bearing means comprising a mechanical anti-friction radial and thrust bearing means including anti-friction bearing elements, including pre-loadable rolling elements, said first bearing means being located along said spindle axis proximal said spindle nose such that the major portions of said radial cutting loads are borne by said first bearing means;

a second bearing means for radially supporting said spindle and housing in said predetermined relationship during said relative rotation, said second bearing means comprising a first assembly of magnetic bearing elements remotely spaced from said spindle nose along said spindle axis; and

an axial pre-loading means for varying the pre-load of said pre-loadable rolling elements.

5,739,608

ACTUATOR FOR OPTICAL PICKUP

Eun-goo Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jan. 8, 1997, Ser. No. 780,213

Claims priority, application Rep. of Korea, Jan. 9, 1996, 1996-311

Int. Cl.⁶ H02K *7/09*

U.S. Cl. 310—90.5 **5 Claims**

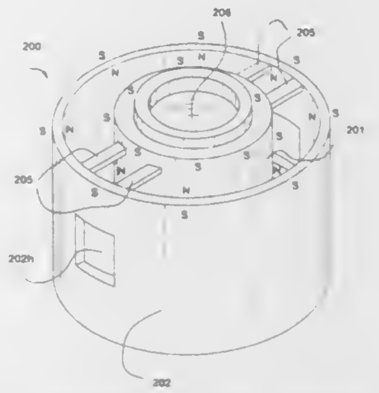
1. An actuator for an optical pickup, comprising:

a first permanent magnet which supports an objective lens;

a focusing coil wound around a circumference of said first permanent magnet and which provides a driving force for vertical movement of said first permanent magnet;

a plurality of tracking coils placed at predetermined portions of the circumference of said first permanent magnet and which provide a driving force for lateral movement of said first permanent magnet; and

a second permanent magnet installed around said first permanent magnet and being separated from said first permanent magnet by a predetermined distance, for levitating said first permanent magnet which has said objective lens and said focusing and tracking coils disposed thereon, by interacting with said first permanent magnet.



5,739,609

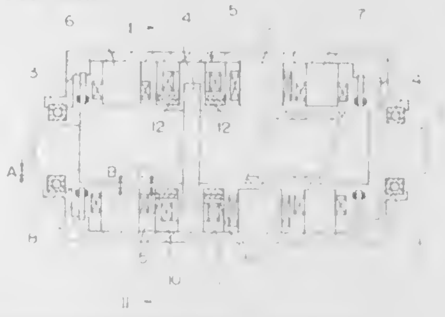
MAGNETIC BEARING APPARATUS

Hirochika Ueyama, Hirakata, and Manabu Taniguchi, Kashihara, both of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Apr. 9, 1997, Ser. No. 827,605

Int. Cl.⁶ H02K *7/09*

U.S. Cl. 310—90.5 **6 Claims**



1. A magnetic bearing apparatus comprising:

a spindle passed through a housing;

a rotor disc fixed to an approximately central part in the axial direction of the spindle,

an axial magnetic bearing supported by the housing and including a pair of electromagnets with said rotor disc interposed therebetween for axially supporting the spindle with a clearance therebetween;

a pair of radial magnetic bearings supported by the housing in positions on both sides in the axial direction of the axial magnetic bearing for radially supporting the spindle with a clearance therebetween;

a pair of first touchdown bearings supported by the housing and opposite to both ends in the axial direction of the spindle; and

a pair of second touchdown bearings supported by the housing and opposite to the approximately central part in the axial direction of the spindle,

a radial internal clearance between the second touchdown bearings and the spindle being larger than a radial internal clearance between the first touchdown bearings and the spindle and smaller than a radial internal clearance between the radial magnetic bearings and the spindle.

5,739,610

ELECTRO-MAGNETIC DEVICE

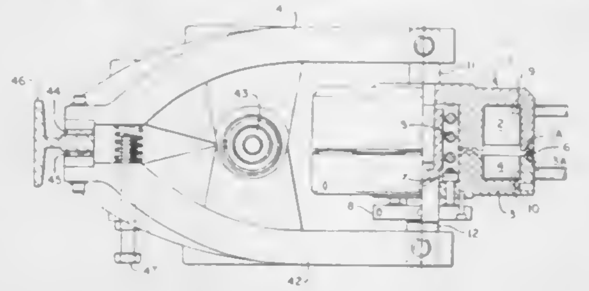
Masahiko Nemoto, Machida; Toshihiko Uematsu, and Kyouichi Kakishima, both of Yamanashi-ken, all of Japan, assignors to Otis Elevator Company, Farmington, Conn.

Filed Apr. 10, 1996, Ser. No. 631,730

Claims priority, application Japan, Apr. 11, 1995, 7-085064; Apr. 11, 1995, 7-085065

Int. Cl.⁶ H02K *7/10; 49/00;* **B60L** *7/00*

U.S. Cl. 310—93 **2 Claims**



1. An electromagnetic actuator for a safety brake, comprising

a generally cylindrical stator with first and second flat annular surfaces surrounding an annular bore;

a generally cylindrical armature having third and fourth flat annular surfaces disposed for axial motion toward and away from said first and second surfaces, respectively, said first and third surfaces being substantially coextensive and forming a first pair of opposing surfaces, said second and fourth surfaces being substantially coextensive and forming a second pair of opposing surfaces;

spring means for urging said armature away from said stator, and

an annular electrical coil in said bore for attracting said armature toward said stator when energized;

characterized by the improvement comprising,

one of said first pair of opposing surfaces having a first annular groove and the other of said first pair of opposing surfaces having a first annular ridge opposing said first annular groove,

one of said second pair of opposing surfaces having a second annular groove and the other of said second pair of opposing surfaces having a second annular ridge opposing said second annular groove; and

each ridge being outside of the related groove when said coil is disenergized and extending into the corresponding groove when said coil is energized, thereby shorting out an amount of magnetic flux in proportion to the distance between said opposing surfaces.

5,739,611

ELECTRO-MAGNETIC CLUTCH WITH MECHANISM

Katsumi Suzuki, Takahama; Mamoru Nakamura, Kariya, and Hideya Hori, Okazaki, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Oct. 27, 1995, Ser. No. 549,177

Claims priority, application Japan, Oct. 28, 1994, 6-265796

Int. Cl.⁶ F16D *27/10*

U.S. Cl. 310—103 **12 Claims**

1. An electro-magnetic clutch comprising:

a first rotating member rotatable about a rotation axis in response to a driving force applied to an input axis;

a second rotating member disposed opposing said first rotating member, freely rotatable about the rotation axis of said first rotating member, and coupled to an output axis;

a movable member formed to be rotatable together with one of said first and second rotating members and disposed opposing the other of said first and second rotating members;

a spring urging said movable member toward one of said first and second rotating members.

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an electric coil for generating a force to drive said movable member toward the other of said first and second rotating members.

hole portions formed on one of said first and second rotating members.

protrusions formed on said movable member and slidably fitting into said hole portions, and

auxiliary slide members disposed in spaces formed between said protrusions and hole portions.

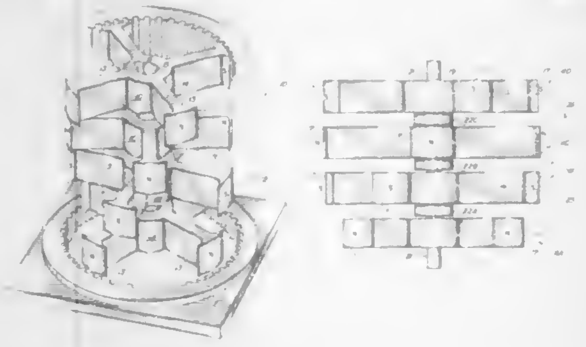
5,739,612
AUXILIARY POWER SOURCE

Norhan Earl Davenport, 1677 Alta Vista Dr., Bullhead City, Ariz. 86442

Filed Sep. 3, 1996, Ser. No. 711,325

Int. Cl.^{6} H02K *47/04*

U.S. Cl. 310—113 **5 Claims**



1 An auxiliary power source comprising

an electric generator driven by an electric motor:

said generator comprising a stator, a rotor and a drive shaft,

said stator comprising a hollow cylindrically shaped magnetic core having a core stack comprising one or more sectors, each sector defining an opening extending logitudinally through its hollow interior and having electrical conductors installed therein and interconnected to obtain a desired output voltage:

said rotor comprising

at least two core elements.

at least one magnetic spacer ring.

at least one field winding. and

a drive shaft.

each of said core elements comprising at least two legs extending radially outward from a central hub, said legs being spaced uniformly thereabout and terminating in flared pole faces that face the stator core:

said core elements being coaxially mounted side by side upon said drive shaft of said rotor inside said stator and the core elements being rotationally oriented thereabout upon said drive shaft of said rotor such that all of said legs of said core elements are uniformly spaced about the circumference of said rotor:

said core elements being spaced apart longitudinally upon said drive shaft by means of said magnetic spacer rings, there being one of said spacer rings interposed between each set of adjacent core elements, and

one each of said field windings being wound over at least one of said magnetic spacer rings, said winding encircling said one of said spacer rings and said drive shaft, and said winding being energized by a direct current to produce a magnetic flux traversing a path through said legs of said rotor core elements and said stator core;

a part of said magnetic flux passing from said rotor via said at least two legs of a first of said core elements into said stator core and returning to said rotor via the said at least two legs of a second of said at least two rotor core elements, thereby producing north (N) poles at said flared pole faces of said first of said at least two core elements and producing south (S) poles at said flared pole faces of said second of said at least two core elements;

whereby said magnetic flux linking said electrical conductors of said stator induces voltages therein as said rotor is rotationally driven by said electric motor.

5,739,613
FLAT THREE-PHASE RELUCTANCE TYPE MOTOR

Itsuki Bahn, Nerima-ku, Japan, assignor to Kabushikigaisha Sekogiken, Tokyo, Japan

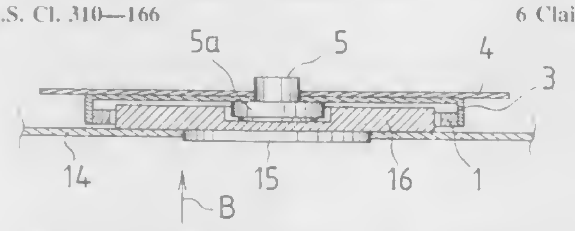
PCT No. PCT/JP95/02245, § 371 Date Jun. 14, 1996, § 102(e) Date Jun. 14, 1996, PCT Pub. No. WO96/15582, PCT Pub. Date May 23, 1996

PCT Filed Nov. 2, 1995, Ser. No. 656,304

Claims priority, application Japan, Nov. 9, 1994, 6-310037; Dec. 15, 1994, 6-337395

Int. Cl.^{6} H02K *17/00*

U.S. Cl. 310—166 **6 Claims**



1 A flat, three-phase, reluctance type motor, comprising:

a flat disk shaped stationary armature, made of laminated layers of silicon steel plates, having a circumferential surface on which there are disposed first, second and third phase magnetic poles each having a width of 120 degrees in terms of electric angle;

first, second and third phase armature coils wound around said first, second and third phase magnetic poles, respectively;

a flat cup-shaped metallic rotor having inner and outer peripheral surfaces at a cup end of the metallic rotor, and having a rotational shaft;

a magnetic rotor, made of laminated layers of silicon steel plates, fixed to the inner peripheral surface of the metallic rotor;

an even number of salient poles protruding from an inner peripheral surface of said magnetic rotor, each having a width of 180 degrees and spaced apart by 180 degrees, in terms of electric angle, from the adjacent pole;

means for rotatably supporting the rotational shaft of said metallic rotor by a bearing disposed at the center of said stationary armature, so as to keep an outer peripheral surface of said magnetic poles always opposing an inner peripheral surface of said salient poles with a slight air gap therebetween when said rotational shaft is rotated.

a single position detecting coil fixed on a main body, having a coil surface opposing the outer peripheral surface of said metallic rotor with a slight air gap therebetween;

a position detecting device for obtaining position detecting signals of said first, second and third phase salient poles by utilizing an impedance change in said position detecting coil which is generated in response to a change in distance between said position detecting coil and said outer peripheral surface of said metallic rotor which occurs when the metallic rotor rotates 120-degrees in terms of electric angle;

semiconductor switching elements connected in series with said first, second and third phase armature coils, respectively;

a DC electric power source for supplying electric power to serial joints of said first, second and third armature coils and a corresponding semiconductor switching element;

a current supply control circuit for supplying current to said first, second and third phase armature coils by turning on the corresponding semiconductor switching elements connected in series with said first, second and third phase armature coils in response to said first, second and third phase position detecting signals, respectively for a time corresponding to a signal width of each position detecting signal;

an electric circuit for transferring magnetic energy stored in the first, second and third armature coils from connecting points of the semiconductor switching elements and said first, second and third armature coils though a diode to a small-capacitance capacitor when the corresponding semiconductor switching element is turned off at a trailing edge of the position detecting signal, and holding the charged energy in said capacitor, thereby quickly reducing current supplied to said armature coil; and

another electric circuit designed for discharging the charged energy back to the first, second and third armature coils when the first, second and third armature coils are to again be supplied with current so that the current to be supplied may rise sharply.

5,739,614
TWO-PHASE UNIPOLAR DRIVING BRUSHLESS DC MOTOR

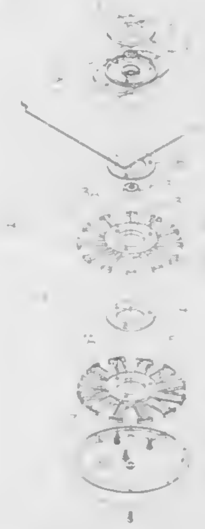
Yuzuru Suzuki; Sakae Fujitani, and Kenichi Makino, all of Asabo-cho, Japan, assignors to Minebea Co., Ltd., Nagano-ken, Japan

Filed Mar. 11, 1997, Ser. No. 814,251

Claims priority, application Japan, Apr. 25, 1996, 8-127639

Int. Cl.^{6} H02K *23/24, 1/10*

U.S. Cl. 310—180 **6 Claims**



1 A two-phase unipolar driving brushless DC motor including

a stator assembly comprising a main pole yoke having an axis and main-poles around which coils are wound and are arranged circumferentially of said main pole yoke and an interpole yoke provided coaxially with said main pole yoke in a superposed manner and having interpoles which are arranged circumferentially of said interpole yoke:

a rotor assembly disposed coaxially with said main pole yoke and said interpole yoke and provided with a rotor magnet having the same number of poles as said main poles

magnetic flux circuits formed in said main poles and said interpoles, for forming circulating magnetic fluxes in said main-poles and said interpoles.

axial magnetic short-circuit means provided in a vicinity of and around said axis of said main pole yoke and at and between said main-pole yoke and said interpole yoke, for guiding a part of said magnetic flux along said axis of said main-pole yoke, and

a rotor position detector disposed at said rotor assembly and provided immovably with respect to said stator assembly

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5,739,615
ROTOR FOR RELUCTANCE MACHINE

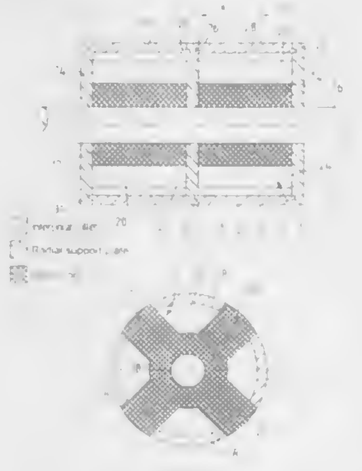
Michael Leo McClelland, Leeds, England, assignor to Switched Reluctance Drives Limited, Harrogate, England

Filed Jul. 22, 1996, Ser. No. 681,216

Claims priority, application United Kingdom, Jul. 24, 1995, 9515111

Int. Cl.^{6} H02K *1/22; 21/12*

U.S. Cl. 310—186 **20 Claims**



1 A rotor for a reluctance machine, the rotor comprising

a rotor shaft extending in an axial direction through the rotor

at least a pair of rotor members mounted on the shaft each rotor member defining rotor poles and interpole regions therebetween,

a filler disposed in each interpole region, and

at least one substantially continuous discate insert mounted on the rotor shaft between the rotor members, the at least one discate insert being free of magnetic members extending in holes therethrough and having a substantially circular outer circumference, the substantially circular outer circumference being substantially continuous, the at least one discate insert defining a plurality of rotor pole contact zones and a plurality filler contact zones, the fillers being secured to the at least one discate insert by at least one securing member in each filler contact zone extending in the axial direction securement of the at least one discate insert to the rotor shaft and the securement of the fillers to the at least one discate insert in each filler contact zone serving to substantially anchor the fillers even at high rotational rotor speeds

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5,739,616

FIXING STRUCTURE OF COIL YOKE

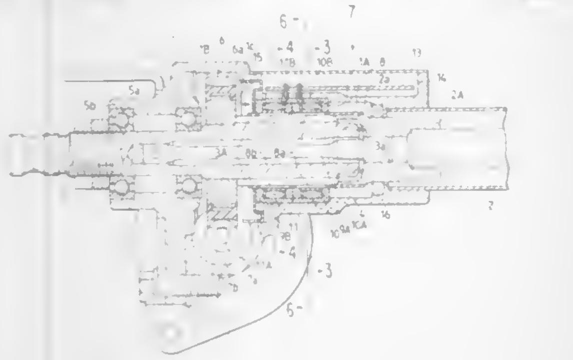
Kazuo Chikaraishi, and Kouichi Satoh, both of Gunma, Japan, assignors to NSK Ltd., Tokyo, Japan

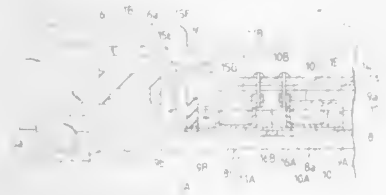
Filed Sep. 27, 1996, Ser. No. 721,468

Claims priority, application Japan, Oct. 3, 1995, 7-278276

Int. Cl.⁶ H02K *17/00*; G01L *3/02*

U.S. Cl. 310—194 **3 Claims**





1. A torque sensor, comprising:
- a coil bobbin around which a coil is wound;
- a coil yoke having a first end face and a second end face, said coil yoke accommodating said coil bobbin;
- a housing having a medium-diameter portion and a small diameter portion, said housing being shaped to receive said coil yoke and having a receiving surface at one end of the small-diameter portion, said first end face of said coil yoke abutting against said receiving surface; and
- a seal member that contacts said second end face of said coil yoke and urges said coil yoke toward said receiving surface to fix a position of said coil yoke in said housing, an outer peripheral surface of said seal member being secured to an inner peripheral surface of said housing at said medium-diameter portion of said housing.

5,739,617

ROTARY ELECTRIC MACHINE

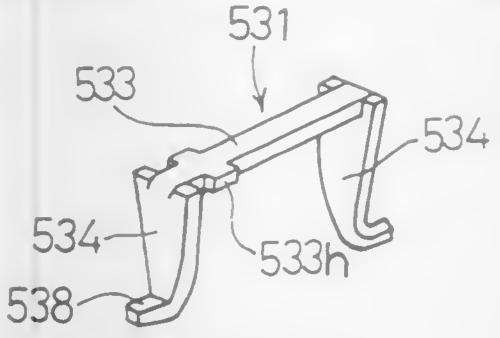
Masahiro Katoh, Chiryu; Masami Niimi, Handa, and Tsutomu Shiga, Nukata-gun, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 571,786, Dec. 13, 1995, abandoned. This application Jun. 2, 1997, Ser. No. 866,573

Claims priority, application Japan, Dec. 14, 1994, 6-310539; Dec. 19, 1994, 6-315330; Feb. 14, 1995, 7-025731; May 26, 1995, 7-128645; Sep. 19, 1995, 7-239901

Int. Cl.⁶ H02K *3/04; 3/16; 3/34*

U.S. Cl. 310—214 **22 Claims**



1. A rotary electric machine comprising:
- a shaft;
- an armature core connected to said shaft and having a plurality of slots on an outer periphery thereof;
- a plurality of pairs of upper coil sections and lower coil sections, each pair of which is disposed in a corresponding one of said slots, each of said upper coil sections having an engagement portion including an axial face;
- a plurality of lower coil-end sections, each having one end which is connected to an end of a corresponding end of said lower coil section and extends toward said shaft;
- a plurality of upper coil-end sections, each of which is connected between an end of a said upper coil section and another end of a corresponding said lower coil-end section and extends toward said shaft to form a smooth contact surface;
- a brush member disposed in contact with said contact surface, and
- restricting structure disposed between said lower coil-end sections and said upper coil-end sections to be in engagement with said engagement portion of said upper coil section, said restricting structure abutting said axial faces of said upper coil sections to restrict axial movement of said upper coil-end sections.

5,739,618

ELECTRIC SYNCHRONOUS MACHINE HAVING SLIP RINGS ARRANGED OUTSIDE THE MACHINE HOUSING, AND A METHOD FOR PRODUCING IT

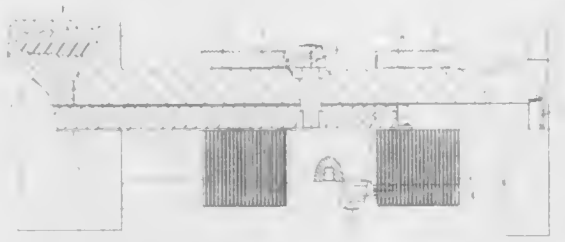
Johann Kleinburger, Hori, and Hans Zimmermann, Mönchaltorf, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Jan. 25, 1996, Ser. No. 591,786

Claims priority, application Germany, Feb. 13, 1995, 195 04 655.2

Int. Cl.⁶ H01R *39/08*

U.S. Cl. 310—232 **3 Claims**



1. An electric machine comprising a machine shaft having first and second ends which are each driven by a respective driving engine, said electric machine further having a slip ring arrangement which is arranged outside of a machine housing, said slip ring arrangement including a pair of slip rings which are mounted in an insulated fashion on a separate slip ring shaft, wherein said slip ring shaft is connected to the machine shaft of the electric machine by means of a first detachable coupling, and wherein a first coupling flange is connected to the slip ring shaft by welding at an end of said slip ring shaft opposite to that connected to said machine shaft.

5,739,619

ELECTRICAL BRUSH HAVING A WEAR INDICATOR

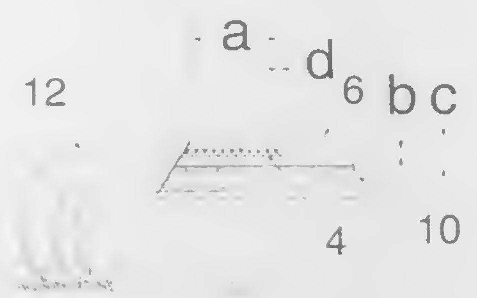
George C. Thornley, Wadmalaw Island, S.C., assignor to Life Cycle Engineering, Inc., North Charleston, S.C.

Filed Mar. 19, 1996, Ser. No. 618,526

Int. Cl.⁶ H02K *13/00*

U.S. Cl. 310—248 **14 Claims**

1. An electrical brush having a non-destructive wear indicator, comprising:



- a. an electrical brush having an end which contacts a collector surface and an end which is opposite the end which contacts the collector surface; and
- b. means for removing a film from the collector surface without damaging the collector surface as the collector surface rotates relative to said brush, wherein said means for removing a film from the collector surface is present within said brush near said end of said brush which is opposite the end which contacts the collector surface, and which extends within said brush generally perpendicularly relative to the surface of the collector surface which the brush contacts, and extends toward the collector surface and the end of the brush which contacts the collector surface, and extends within said brush for a material length to a point which is beyond a required minimum length of said brush.

5,739,620

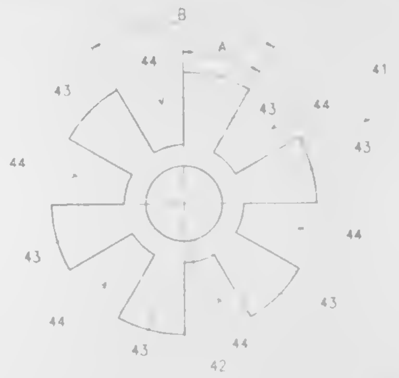
OPTIMUM GROOVE/POLE RATIO FOR BRUSHLESS MOTOR STATOR PROFILE

Min-Der Wu, Tai Chung, and Shyh-Jier Wang, Hsinchu Hsien, both of Taiwan, assignors to Industrial Technology Research Institute, Taipei, Taiwan

Filed Jan. 3, 1997, Ser. No. 775,351

Int. Cl.⁶ H02K *1/12; 19/04; 21/22*

U.S. Cl. 310—254 **3 Claims**



1. A stator for a single-phase axially wound brushless motor with diametrical air-gap having a plate structure with at least one plate, the profile of said plate comprising:
- a central circular hole;
- a plurality of salient poles surrounding said central hole, each of said salient poles having a symmetrical profile, and
- a groove opening between every two adjacent said salient poles, wherein the ratio of the included angle of the two sides of a said groove opening divided by the pitch angle of said salient poles is between 0.55 to 0.68.

5,739,621

VIBRATION TYPE MOTOR DEVICE

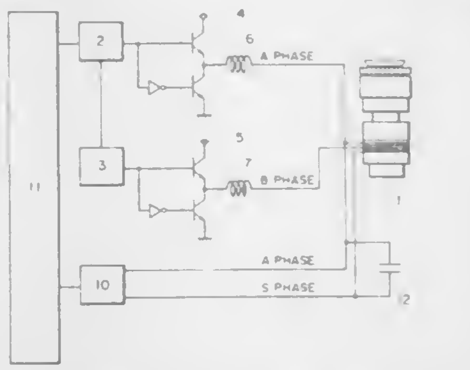
Akio Atsuta, Yokosuka, and Nobuyuki Kojima, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 18, 1995, Ser. No. 574,080

Claims priority, application Japan, Dec. 22, 1994, 6-335309

Int. Cl.⁶ H01L *41/08*

U.S. Cl. 310—316 **12 Claims**



1. A vibration type motor device, which excites a vibration member by applying a frequency signal to an electro-mechanical energy conversion element portion arranged in the vibration member, so as to obtain a driving force, comprising:
- a vibration state detection element portion that detects a vibration state of the vibration member and generates an output corresponding to the detected vibration state,
- a superposition circuit that superposes an output from said vibration state detection element portion on said frequency signal via an impedance element, and
- a driving state detection circuit that detects a driving state of said motor device on the basis of the output, superposed on the frequency signal, from said vibration state detection element portion, and the frequency signal applied to the electro-mechanical energy conversion element portion.

5,739,622

CONVERTER WHEREIN A PIEZOELECTRIC TRANSFORMER INPUT SIGNAL IS FREQUENCY MODULATED BY A PULSE WIDTH MODULATED SIGNAL

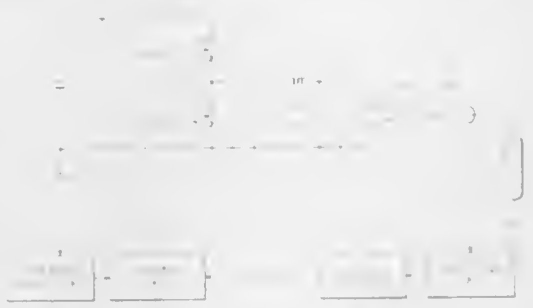
Toshiyuki Zaitsu, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 692,279

Claims priority, application Japan, Aug. 7, 1995, 7-201213; Aug. 8, 1995, 7-202451

Int. Cl.⁶ H01L *41/08*

U.S. Cl. 310—316 **40 Claims**



1. A converter for converting a direct current converter input signal to an alternating current converter output signal for use in driving a load, comprising:
- input means responsive to said direct current converter input signal for generating a transformer input signal of a switched frequency and an adjustable duty ratio;

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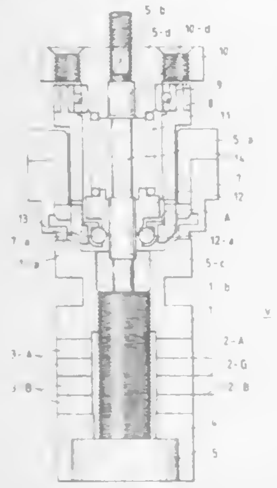
piezoelectric transformer means for transforming said transformer input signal into a transformer output signal.
output means responsive to said transformer output signal for producing said alternating current converter output signal;
detecting means for detecting said alternating current converter output signal to produce a detected voltage signal;
voltage-to-frequency converting means for converting said detected voltage signal to a detected frequency signal.
driving means for driving said input means by a substantially rectangular drive signal to adjust said switched frequency in response to said detected frequency signal from said voltage-to-frequency converting means; and
duty ratio adjusting means for controlling said substantially rectangular drive signal to adjust said duty ratio in response to said direct current converter input signal.

5,739,623

VIBRATION WAVE DRIVEN MOTOR

Hajime Kanazawa, Tama; Tetsuya Nishio, Kawasaki; Kazuki Fujimoto, Kawasaki, and Kazuyuki Omori, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 129,323, Sep. 30, 1993, abandoned. This application Jun. 23, 1995, Ser. No. 494,261
Claims priority, application Japan, Oct. 1, 1992, 4-263622
Int. Cl.^{6} H01L *41/08*
U.S. Cl. 310—323 **20 Claims**



1 A vibration wave driven actuator comprising
a vibrating member for generating a vibration therein.
a contact member arranged in contact with said vibrating member, said vibration creating relative movement between said vibrating member and said contact member;
an urging member for applying a pressure force between said vibrating member and said contact member;
a supporting member for supporting said contact member for rotation about an axis of the actuator, said contact member being tiltable relative to said supporting member.
a bearing mechanism arranged between said supporting member and said contact member, for accommodating a tilt of said contact member relative to said supporting member; and
an output member mounted for rotation about the axis of the actuator, independently of said supporting member for supporting said contact member, and movably engaged with said contact member at a rotation force transmission point, so that a tilt of said contact member is not transmitted to said output member

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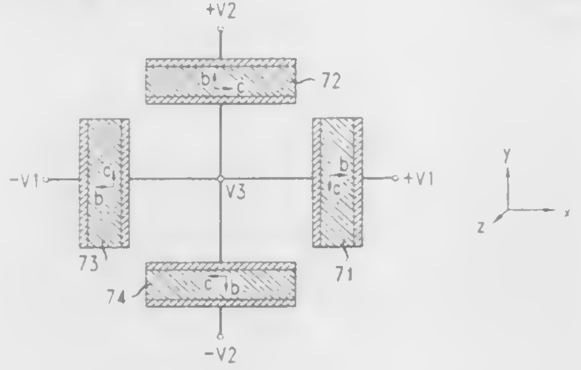
5,739,624

MICROPOSITIONING DEVICES, USING SINGLE-CRYSTAL PIEZOELECTRIC BODIES, HAVING AT LEAST TWO SPATIAL DEGREES OF FREEDOM

Rafael Nathan Kleiman, New Brunswick, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Continuation-in-part of Ser. No. 397,590, Mar. 2, 1995, abandoned. This application Oct. 18, 1995, Ser. No. 531,140
Int. Cl.^{6} H01L *41/08*
U.S. Cl. 310—328 **4 Claims**



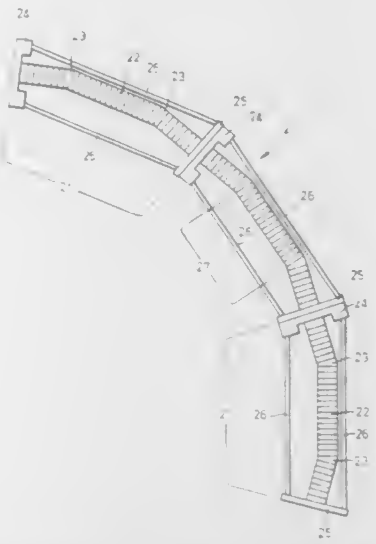
1 A micropositioning device comprising a first, a second, a third, and a fourth single crystal piezoelectric body, each body having a first surface and a second surface opposed to the first surface and each body having a first end face and a second end face opposed to the first end face; and a holder slab attached to the second end face of each body.
wherein at least a first and a second electrode are attached, respectively, to the first and second surfaces of each body, and wherein the first and second electrodes of the second body and the first and second electrodes of the fourth body are oriented essentially perpendicular to the first and second electrodes of the first and third bodies, such that the holder slab is capable of movement in three independent directions in response to voltages applied to the first and second electrodes of the bodies.

5,739,625

SEGMENTED RING TRANSDUCERS

Steven John Falcus, Portland, United Kingdom, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Island, Hants, United Kingdom
PCT No. PCT/GB95/01025, § 371 Date Oct. 28, 1996, § 102(e) Date Oct. 28, 1996, PCT Pub. No. WO95/30496, PCT Pub. Date Nov. 16, 1995
PCT Filed May 5, 1995, Ser. No. 732,312
Claims priority, application United Kingdom, May 9, 1994, 9409133
Int. Cl.^{6} H01L *41/08;* **B06B** *1/06*
U.S. Cl. 310—328 **7 Claims**

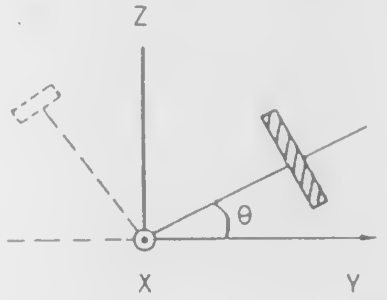
1 A segmented ring transducer comprising a plurality of arcuate ring sections (**21**) coupled together, each section (**21**) comprising a plurality of rectangular piezoelectric ceramic blocks (**22**) arranged into a stack with one or more tapered wedges (**23**) spaced in the stack characterised in that the piezoelectric stack is assembled between opposed end couplings (**24**, **25**) the opposed end couplings (**24**, **25**) being connected together by pre-stress bolts (**26**) in a ring section to hold together the ring section assembly (**21**)



5,739,626

PIEZOELECTRIC SENSOR

Takao Kojima; Hideki Toyoda, and Tetsuma Shimozato, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan
Filed Apr. 9, 1992, Ser. No. 865,993
Int. Cl.^{6} H01L *41/08*
U.S. Cl. 310—360 **2 Claims**



1 A piezoelectric sensor for an internal combustion engine having a cylinder, comprising.
a main body adapted to be attached to the cylinder and defining an axially extending hole therewithin;
a diaphragm attached to one end of said main body for closing said hole; and
a piezoelectric element in the form of a circular or polygonal disc whose major surface is in the x-y plane disposed within said hole so that the pressure within said cylinder is transmitted transverse to the x-y plane of said piezoelectric element disc through said diaphragm.
said piezoelectric element disc having a thickness in the range of 0.3–1.5 mm and being formed of a single crystal piezoelectric ceramic having a Curie temperature higher than the normal operating temperature of the engine and not less than 500° C. and being polarized such that the direction of the polarization is oriented at an angle of 20° or less with respect to said disc x-y plane

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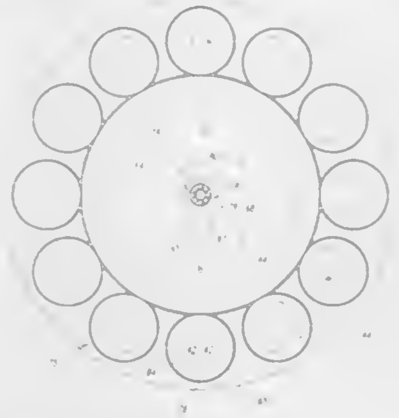
5,739,627

ADJUSTABLE PERMANENT MAGNET COUPLER

Karl J. Lamb, Port Angeles, Wash., assignor to Magna Force, Inc., Port Angeles, Wash.
Continuation-in-part of Ser. No. 237,031, May 3, 1994, Pat. No. 5,477,094, which is a continuation-in-part of Ser. No. 65,867, May 21, 1993, Pat. No. 5,477,093. This application Oct. 20, 1995, Ser. No. 546,480
Int. Cl.^{6} H02K *7/10, 7/06, 49/00*
U.S. Cl. 310—750 **20 Claims**

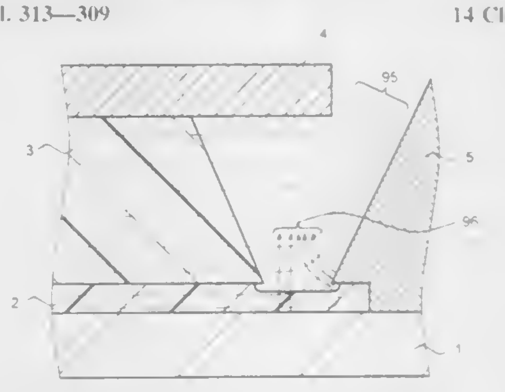


1. An adjustable coupler comprising:
shaft means for establishing a rotary axis.
a magnet unit.
an electroconductive unit.
said units being mounted on said shaft means so that one of said units can be rotated relative to the other unit on said rotary axis.
said magnet unit containing multiple magnet modules spaced from said rotary axis and each presenting two magnet poles of opposite polarity facing said electroconductive unit, and spaced therefrom by an air gap, whereby torque is transferred by magnetic action responsive to rotational movement of one of said units relative to the other one of said units.
said modules being turnable within openings in said magnet unit for torque adjustment.

5,739,628

FIELD EMISSION TYPE COLD CATHODE DEVICE WITH CONICAL EMITTER ELECTRODE AND METHOD FOR FABRICATING THE SAME

Naruaki Takada, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed May 29, 1996, Ser. No. 654,735
Claims priority, application Japan, May 31, 1995, 7-133703
Int. Cl.^{6} H01J *17/36*
U.S. Cl. 313—309 **14 Claims**



8. A field emission cold cathode device comprising:
a substrate with a conductive upper surface;
a first insulating layer on said upper surface.
a second insulating layer on said first insulating layer;
a gate electrode on said second insulating layer.

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an opening extending through Said gate electrode and said first and second insulating layers;

an emitter electrode in said opening, wherein said emitter electrode has a generally conical shape with a sharp upwardly extended apex, is separated from said gate electrode and said second insulating layer, is in electrical contact with said upper surface, and has a skirt with a lower face contacting said first insulating layer adjacent an edge thereof formed by said opening; and

said first insulating layer having a surface exposed in said opening which is recessed relative to a surface of said first insulating layer which is not exposed in said opening for impeding electrons emitted from said skirt of said emitter electrode from reaching surfaces of said first and second insulating layers exposed in said opening

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5,739,629

ELECTRON GUN FOR COLOR CATHODE RAY TUBE PROVIDING TWO ELECTRON BEAM CROSS OVER POINTS

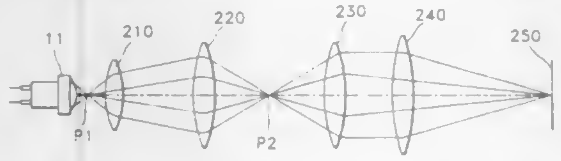
Neung-yong Yun, Seoul, and Hak-cheol Yang, Kyungki-do, both of Rep. of Korea, assignors to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed May 8, 1996, Ser. No. 646,892

Claims priority, application Rep. of Korea, Nov. 24, 1995, 95-43673

Int. Cl.^{6} H01J *29/51*

U.S. Cl. 313—412 4 Claims



1 An electron gun for a color CRT comprising:

a triode having a cathode, a control electrode, and a screen electrode, for generating and controlling an electron beam,

a plurality of focus electrodes sequentially disposed adjacent to said triode, for forming at least one auxiliary lens,

means for applying a dynamic focusing voltage to at least one of said plurality of focus electrodes, the dynamic focusing voltage being synchronized with a deflection voltage; and

a final accelerating electrode disposed adjacent to said plurality of focus electrodes, for forming a main lens, wherein the electron beam generated by said triode includes a first cross over point upstream of said focus electrodes and a second cross over point upstream of the final accelerating electrode and the main lens and proximate the auxiliary lens

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5,739,630

COLOR CATHODE RAY TUBE

Shoji Shirai, Mobara; Kenichi Watanabe, Ohtaki-machi, and Masayoshi Furuyama, Tohgane, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Electronic Devices Co., Ltd., Chiba-ken, both of Japan

Filed Jul. 10, 1995, Ser. No. 499,927

Claims priority, application Japan, Jul. 13, 1994, 6-161333

Int. Cl.^{6} H01J *29/51*

U.S. Cl. 313—414 23 Claims

1 A color cathode ray tube comprising:

an electron gun including an electron beam generating portion arrayed in a horizontal direction for generating three electron beams, and a main lens for focusing said three electron beams from said electron beam generating portion upon a fluorescent face; and a deflection yoke for scanning said three electron beams upon said fluorescent face;

said main lens having electrodes with three electron beams passages including a central electron beam passage and side electron beam passages for passing said three electron beams therethrough, said main lens including:

an accelerating electrode for being supplied with an accelerating voltage,

a first focusing electrode for being supplied with a first focusing voltage, and

a second focusing electrode for being supplied with a second focusing voltage, said second focusing electrode being adjacent to said accelerating electrode;

wherein one of the first focusing voltage and the second focusing voltage is a voltage superposed with a dynamic voltage changing according to the deflection of said electron beams, and

wherein an axially asymmetric electron lens is formed between said first focusing electrode and said second focusing electrode, said axially asymmetric electron lens including at least one element to vertically diverge and horizontally focus said electron beams, and said at least one element of said axially asymmetric electron lens providing a stronger vertically diverging action at said central electron beam passage of said three electron beam passages than at said side electron beam passages of said three electron beam passages

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5,739,631

COLOR CATHODE RAY TUBE HAVING A LOW DYNAMIC FOCUS VOLTAGE

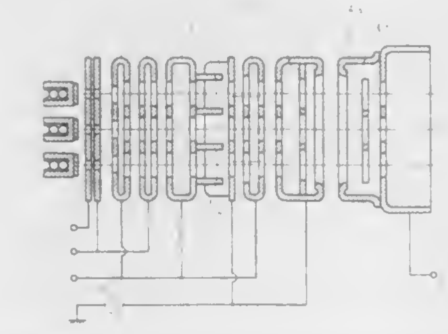
Tutomu Tojyou, Chousei-gun; Shoji Shirai, and Shinichi Kato, both of Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 504,139, Jul. 14, 1995, Pat. No. 5,608,284. This application Mar. 4, 1997, Ser. No. 808,037

Claims priority, application Japan, Jul. 19, 1994, 6-167120

Int. Cl.^{6} H01J *29/38, 29/62*

U.S. Cl. 313—414 17 Claims



1 A color cathode ray tube having an electron gun comprising at least a beam forming region for generating a plurality of electron beams from cathodes and directing said plurality of electron beams toward a phosphor screen along initial paths in parallel with each other in a horizontal plane and a main lens for focusing said plurality of electron beams on said phosphor screen, wherein said main lens has an electrode constitution acting so as to focus said plurality of electron beams strongly horizontally and weakly vertically and weaken a lens action thereof according to an increase in an amount of deflection of said plurality of electron beams, multipole lens acting so as to elongate a cross section of at least one multipole lens acting so as to elongate a cross section of said plurality of electron beams less horizontally with an increasing amount of deflection of said plurality of electron beams is located between said main lens and said beam forming region, at least one correction lens for curvature of an image field for weakening focusing action on said plurality of electron beams horizontally and vertically according to an increase in an amount of deflection of said plurality of electron beams is located between said main lens and said beam forming region, and said at least one correction lens for curvature of the image field has an electrode constitution in which trajectories of outer electron beams among said plurality of electron beams are deflected inwardly according to an increase in an amount of deflection of said plurality of electron beams.

5,739,632

LUMINESCENT PHOSPHOR SCREEN CONTAINING CATENA-POLYPHOSPHATE

Markus Haase, Aachen; Helmut Bechtel, Roetgen; Wolfram Czarnojan, Aachen; Walter Mayr, Würselen, and Joseph Lauter, Aachen, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 1, 1995, Ser. No. 565,768

Claims priority, application Germany, Dec. 1, 1994, 44 42 706.9; Dec. 2, 1994, 44 42 905.3

Int. Cl.^{6} H01J *29/10;* **C09K** *11/08*

U.S. Cl. 313—467 9 Claims

1 A display screen comprising a phosphor composition one or more of a sulphide and selenide-containing phosphor which is provided with a coating which comprises one or more compounds of catena-polyphosphates and one or more alkaline earth metals, zinc, cadmium and manganese.

5,739,633

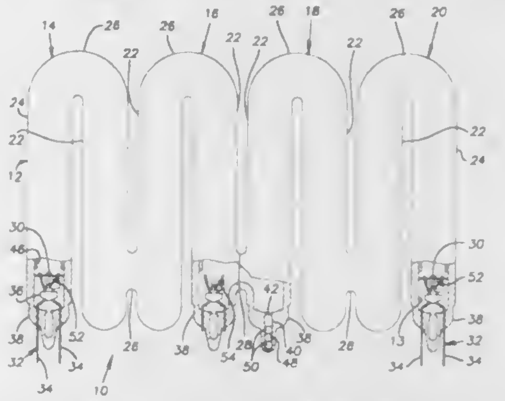
AMALGAM CONTAINING COMPACT FLUORESCENT LAMP WITH IMPROVED WARM-UP

Atilla Biro, Willoughby Hills, Ohio; Sandor Lukacs, Veroce; Edit Katona, Debrecen, both of Hungary, and Helen Rapp, Cleveland Heights, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 14, 1995, Ser. No. 514,674

Int. Cl.^{6} H01J *1/62, 63/04, 17/20; 61/20*

U.S. Cl. 313—490 17 Claims



1 A low-pressure mercury vapor discharge lamp comprising

a sealed envelope having an interior surface forming an interior space;

a phosphor coating disposed on at least a portion of said interior surface;

a fill gas including mercury vapor disposed within said interior space and inergizable to a discharge state,

a pair of electrodes provided at opposite ends of said envelope and having a discharge path therebetween,

electrode support structures attached to said electrodes and supporting said electrodes at said opposite ends, said electrode support structure extending from sealed stems at said opposite ends,

a main amalgam located in said sealed envelope and spaced from said electrodes for controlling mercury vapor pressure in said envelope during a stable discharge period,

auxiliary amalgams located in said envelope and near said electrodes to be heated by said electrodes for emitting mercury vapor during a starting period;

an additional auxiliary amalgam located in said sealed envelope between said electrodes and at an intermediate end of said envelope in said discharge path to be heated by the discharge for emitting mercury vapor during said starting period, and

an amalgam support structure attached to said additional auxiliary amalgam and supporting said additional auxiliary amalgam at said intermediate end, said amalgam support structure extending from a sealed stem at said intermediate end

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5,739,634

DOT MATRIX TYPE VACUUM FLUORESCENT DISPLAY TUBE

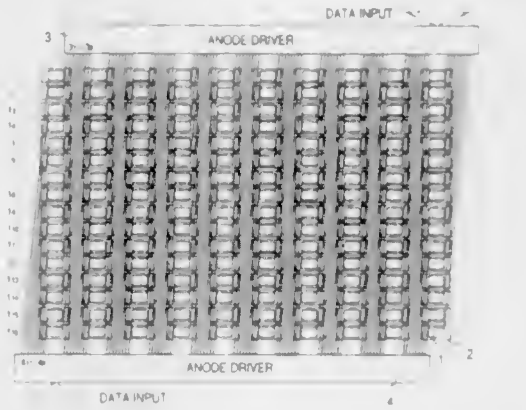
Kazuya Kinoshita, and Tadami Maeda, both of Mie, Japan, assignors to Ise Electronics Corporation, Japan

Filed Sep. 20, 1996, Ser. No. 717,436

Claims priority, application Japan, Sep. 22, 1995, 7-244272

Int. Cl.^{6} G09G *3/30*

U.S. Cl. 313—496 9 Claims



1 A dot matrix vacuum fluorescent display tube comprising

anode electrodes arranged in a matrix on a substrate, said matrix having two ends,

first and second anode drivers, said first anode driver positioned on one end of the matrix and said second anode driver positioned on the second end of said matrix for applying drive signals, respectively, to said anode electrodes,

first and second wiring groups extending in opposite directions wherein said anode electrodes are connected alternatively in a one-to-one correspondence to said wires in said first and second wiring groups, said first wiring group connected to said first anode driver and said second wiring group connected to said second anode driver such that said anode electrodes have a one to-one correspondence to said anode drivers,

light-emitting portions including phosphors and formed on said anode electrodes,

a grid electrode arranged to be spaced apart from said light emitting portions arranged in a matrix by a predetermined distance,

cathode electrodes arranged above said grid electrode, and

an envelope arranged to include at least said anode electrodes, said light emitting portions, said grid electrode, and said cathode electrodes and having a display portion thereon

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5,739,635

ORGANIC ELECTROLUMINESCENT DEVICE

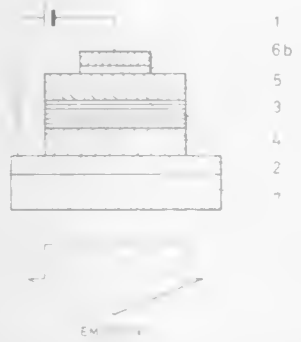
Takeo Wakimoto, Tsurugashima, Japan, assignor to Pioneer Electric Corporation, Tokyo, Japan

Filed Apr. 23, 1996, Ser. No. 636,407

Claims priority, application Japan, Apr. 27, 1995, 7-127181; Mar. 14, 1996, 8-085743

Int. Cl.^{6} H05B *33/22*

U.S. Cl. 313—504 **6 Claims**



1. An organic electroluminescent device comprising an anode made of a conductive material, a positive-hole transport layer made of an organic compound, an emitting layer made of an organic compound, and a cathode made of a conductive material which are layered in sequence, further comprising an electron-injecting layer of an insulator thin film having a thickness of 1–100 angstroms on average, comprising at least one of alkaline metal compounds, and disposed between said emitting layer and said cathode, wherein the alkaline metal compound contained in the electron injecting layer is selected from the group consisting of alkaline metal oxides, alkaline metal peroxides, alkaline metal compound oxides, alkaline metal halides, alkaline metal nitrides, and alkaline metal salts

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5,739,636

CADMIUM DISCHARGE LAMP OF THE SHORT ARC TYPE AND METHOD OF PRODUCING UV LIGHT THEREWITH

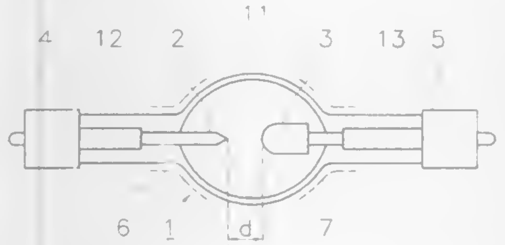
Akiyasu Yamaguchi; Yukio Yasuda; Hiromitsu Matsuno, and Tatsushi Igarashi, all of Himeji, Japan, assignors to Ushiodenki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 22, 1996, Ser. No. 589,703

Claims priority, application Japan, Jan. 20, 1995, 7-024461

Int. Cl.^{6} H01J *61/12*

U.S. Cl. 313—570 **4 Claims**



1. A short arc cadmium discharge lamp having a temperature controlled arc tube which is provided with a pair of opposed, adjacently positioned electrodes, is encapsulated together with metallic cadmium and at least one of the rare gases xenon, krypton, argon and neon at a pressure in stationary lighting operation in the range from 2 kPa to less than 3 kPa, and a source of electrical power connected to said electrodes; wherein the cadmium is provided in a quantity coordinated to discharge current supplied by said source of electrical power in accordance with the relationship

$$1.4 \leqq J/P < 75$$

where J is the discharge current in stationary lighting operation in amperes and P is the cadmium pressure in stationary lighting operation in kPa

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5,739,637

COLD CATHODE VACUUM DISCHARGE TUBE

Gordon E. Boettcher, Albuquerque, N. Mex., assignor to Sandia Corporation, Albuquerque, N. Mex.

Filed Sep. 28, 1995, Ser. No. 535,795

Int. Cl.^{6} H01J *17/48, 17/30; 17/46; 61/54*

U.S. Cl. 313—589 **10 Claims**

1. A cold cathode vacuum discharge tube apparatus comprising
a trigger probe comprising an inner surface, and
a coating on said inner surface selected from the group consisting of carbon vapor deposition coatings and diamond like carbon coatings

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5,739,638

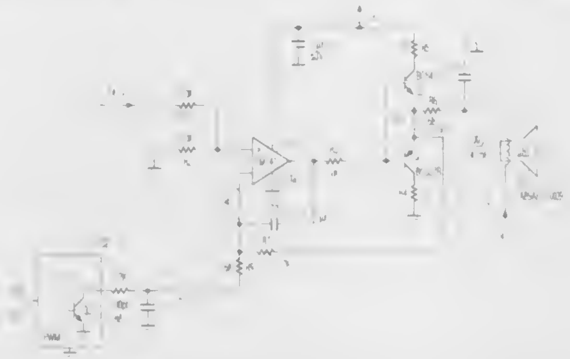
BUS CONTROLLED ARRANGEMENT USING A DUTY CYCLE MODULATED CONTROL SIGNAL IN A CRT

James Albert Wilber, Indianapolis, and Joseph Curt Stephens, Fishers, both of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Jun. 24, 1996, Ser. No. 668,962

Int. Cl.^{6} H04N *9/29*

U.S. Cl. 315—8 **19 Claims**



1. A video display apparatus for controlling a beam landing location in a cathode ray tube, comprising
- a transducer for producing a beam controlling field in said cathode ray tube;
- a transistor switch having a controllable duty cycle;
- an amplifier having an output coupled to said transducer for producing said beam controlling field;
- a feedback network coupled to said output of said amplifier and to a first input of said amplifier for controlling an input voltage at said first input; and
- a pull up resistor coupled to a main current conducting terminal of said transistor switch and to said first input of said amplifier for applying said first input voltage to said resistor to generate in said resistor a toggling current having a duty cycle that is controlled by said transistor switch and an amplitude that is controlled by said input voltage.

5,739,639

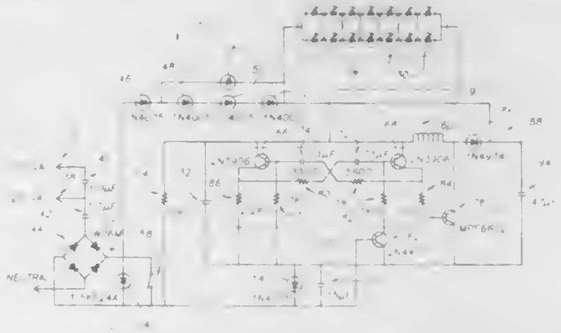
METHOD AND APPARATUS FOR OPERATING LED ARRAY AND CHARGING BATTERY FOR EMERGENCY LED OPERATION INCLUDING DC BOOST CIRCUIT ALLOWING SERIES CONNECTION OF LED ARRAY AND BATTERY

James C. Johnson, Conyers, Ga., assignor to NSI Enterprises, Inc., Atlanta, Ga.

Filed Jul. 3, 1996, Ser. No. 675,109

Int. Cl.^{6} H02J *9/06*

U.S. Cl. 315—86 **23 Claims**



1. In a circuit having an array of light emitting diodes operable on AC mains power and on DC power from a battery when mains power is unavailable, battery charging and charge maintenance circuitry, a current limited source, and a boost converter circuit having an output capacitor, the LED array and the battery being connected across the output of the output capacitor to connect the LED array and the battery in series, thereby allowing the current limited source to operate the LED array on AC mains power with simultaneous charging and maintenance of charge of the battery through the same current path without switching or repositioning circuit components during DC operation

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5,739,640

LOW LINE VOLTAGE DETECTION CONTROL MODULE AND METHOD FOR A FLUORESCENT LAMP

Glenn A. Noble, Nampa, Id., assignor to Beacon Light Products, Inc., Meridian, Id.

Filed Dec. 8, 1995, Ser. No. 569,850

Int. Cl.^{6} H05B *37/00*

U.S. Cl. 315—119 **20 Claims**

12. A method of controlling a fluorescent lamp having cathodes and a medium therebetween which is ionizable into a conductive plasma and which has a characteristic ionization voltage across the cathodes when the medium is ionized and conductive, the cathodes energized by an alternating (AC) power source which provides alternating half cycles of AC line voltage and AC line current to the cathodes, said method comprising the steps of,
- determining whether the medium of the lamp is ionized and conductive;
- determining, in response to the medium of the lamp being determined to be substantially non-ionized and non-conductive, whether the AC line voltage from the AC power source is less than a predetermined line voltage threshold greater than the characteristic ionization voltage of the medium, and
- in response to determining that the medium is substantially non-ionized and non-conductive and in response to determining that the AC line voltage is at least equal to the predetermined line voltage threshold, applying a starting voltage pulse across the cathodes sufficient to ionize the medium and ignite the medium into the conductive plasma when the AC line voltage across the cathodes is at least equal to the predetermined line voltage threshold to sustain the ionization of and conduction by the medium.

5,739,641

CIRCUIT FOR DRIVING PLASMA DISPLAY PANEL

Tadashi Nakamura, and Masahiro Shimizu, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 630,220

Claims priority, application Japan, Apr. 10, 1995, 7-083911

Int. Cl.^{6} G09G *3/28*

U.S. Cl. 315—169.1 **14 Claims**

1. A circuit for driving scan hold electrodes in a plasma display panel which comprises at least a plurality of scan hold electrodes having a scan electrode function and a hold electrode function, and a plurality of data electrodes orthogonal to said scan hold electrodes, the circuit comprising
- a scan pulse drive circuit including an integrated circuit and having a plurality of output terminals for outputting scan pulses to said scan hold electrodes;
- a first diode array including a plurality of diodes, each having a cathode connected to a corresponding one of said plurality of output terminals,
- a first switch element connected between an anode of each of said plurality of diodes of said first diode array and a first power supply,
- a second switch element connected between a high voltage side power supply terminal of said scan pulse driving circuit and a second power supply having a potential lower than that of said first power supply, and
- a pulse control circuit for alternately turning on said first switch element and said second switch element at least during a hold period.

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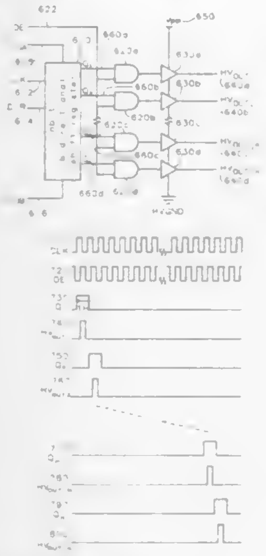
5,739,642
LOW POWER CONSUMPTION DRIVING METHOD FOR FIELD EMITTER DISPLAYS

Chao-Chi Peng, Chupei; Chun-Hui Tsai, Hsinchu, and Tzung-Zu Yang, Chutung, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Dec. 4, 1995, Ser. No. 566,647

Int. Cl.⁶ G09G *3/10*

U.S. Cl. 315—169.3 **16 Claims**



9. An FED display comprising:

a) a plurality of field emitters arranged in a regular pattern of column and rows;
b) a plurality of gate electrodes with each gate electrode aligned with each row of the plurality of field emitters;
c) an anode means onto which a layer of phosphorescent material is disposed;
d) a voltage source coupled to the anode means
e) a plurality of current source means such that each current source is coupled to the field emitters aligned in each column of the plurality of field emitters;
f) a current source activation circuit to activate each current source in a sequential manner so as to activate each column of the plurality of field emitters; and
g) a gate activation circuit to selectively apply a voltage to each gate electrode sequentially to stimulate each field emitter to emit an electron current for a period of time sufficiently small as to minimize power consumption, whereby said gate activation circuit comprises:
  a synchronization means to time the selection of each gate of plurality of gates of an FED display,
  a gate selection means to determine if any gate of the plurality of gates is to be activated,
  a plurality of gate driving means, each of which is coupled to each gate of the plurality of gates for a period of time to provide a voltage to each gate of said plurality of gates to activate the emission of light from the FED display, and
  an output enabling means coupled to the gate driving means to limit the period of time the voltage is provided to each gate of the plurality of gates.

5,739,643
DEVICE FOR SUPPLYING ELECTRIC POWER TO FLASHLAMP AND METHOD THEREOF

Takeshi Usui, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

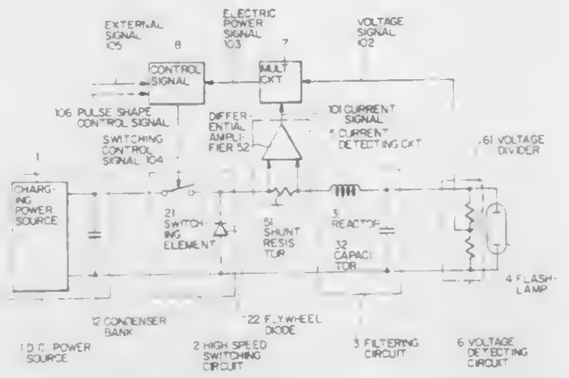
Filed Sep. 27, 1995, Ser. No. 534,823

Claims priority, application Japan, Sep. 30, 1994, 6-236535

Int. Cl.⁶ H05B *37/02*

U.S. Cl. 315—241 S **23 Claims**

1. A pulse power supply device which supplies power to a flashlamp through a series of a high speed switching means and a filtering means for supplying a pulse output, comprising.



first detecting means for detecting a current output from said high speed switching means before said filtering means, said current having a triangular waveform produced according to a conductive state of said high speed switching means;

second detecting means for detecting a voltage applied to said flashlamp;

multiplication means for multiplying said current and said voltage to produce a power signal which increases when said high speed switching means is conductive and decreases when said high speed switching means is non-conductive; and

control means for controlling said high speed switching means such that said high speed switching means is turned on until said power signal reaches a first level and said high speed switching means is turned off until said power signal reaches a second level, said first and second levels being designated over and under a predetermined level.

5,739,644
DISCHARGE LAMP TYPICALLY A SODIUM HIGH-PRESSURE DISCHARGE LAMP, FROM AN A-C POWER NETWORK

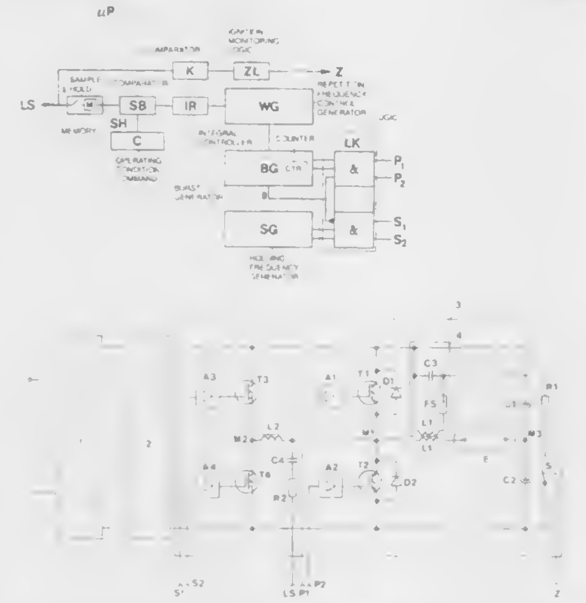
Franz Bernitz, Unterhaching; Andreas Huber, Maisach; Guenther Hirschmann, Munich, and Michael Boenigk, Berlin, all of Germany, assignors to Patent-Treuhand-Gesellschaft F. Elektrische Gluehlampen mbH, Munich, Germany

Filed Mar. 7, 1995, Ser. No. 399,750

Claims priority, application Germany, Mar. 11, 1994, 44 08 314.9; Apr. 20, 1994, 44 13 826.1

Int. Cl.⁶ H05B *41/36*

U.S. Cl. 315—289 **25 Claims**



15. A controlled operating power supply circuit for a discharge lamp (E) fed from an a-c power network wherein, in operation, said lamp is sequentially operated in a power pulse phase and a holding phase, comprising

means (2) for providing d-c energy.

a first half bridge oscillator circuit having two alternately switching transistors (T1, T2) for providing intermittently bursts of power pulses interrupted by pauses:

a second half-bridge oscillator circuit having two alternately switching transistors (T3, T4) for providing holding energy pulses during the pauses of the power pulses.

a first current limiting inductance (L1) coupled between the lamp (E) and a midjunction (M1) between the alternately switching transistors (T1, T2) of the first half-bridge oscillator;

a second current limiting inductance (L2) coupled between the lamp (E) and a second midpoint (M2) between the alternately switching transistors (T3, T4) of the second half-bridge oscillator;

a pair of serially connected capacitors (C1, C2) connected across the first and second oscillators and having their common junction (M3) connected to one electrode of the lamp (E);

a pulse ignition circuit (4) for igniting the discharge lamp, coupled to the lamp (E); and

oscillator control signals (P1, P2, S1, S2) individually coupled to and controlling operation of the first half-bridge oscillator and second half-bridge oscillator, respectively,

said oscillator control means controlling operation of said second half-bridge oscillator during the pauses between bursts of power pulses derived from the first half-bridge oscillator

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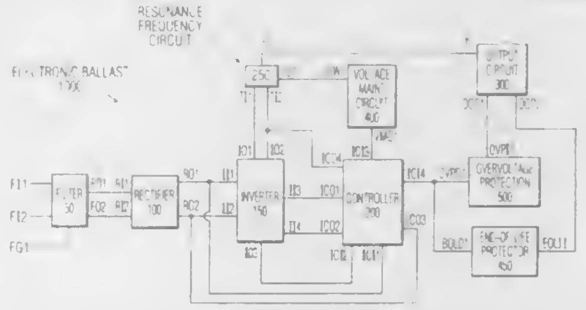
5,739,645
ELECTRONIC BALLAST WITH LAMP FLASH PROTECTION CIRCUIT

Yongping Xia; Xing-Xing Lu, both of Torrance, and John Chou, Monterey Park, all of Calif., assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed May 10, 1996, Ser. No. 645,546

Int. Cl.⁶ G05F *1/00*

U.S. Cl. 315—307 **10 Claims**



1. An electronic ballast including an inverter circuit for powering a lamp, said electronic ballast comprising.

an energy storage device couplable to a power line;

a voltage source having a varying level of voltage including a threshold level based on the energy storage device.

a controller, responsive to the voltage source, for driving the inverter circuit when said voltage source is at or above said threshold level; and

a voltage maintenance circuit for maintaining the voltage source, following decoupling of the energy storage device from said power line, at or above said threshold until said energy stored in said energy storage device is insufficient to permit an ignition of a lamp

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5,739,646
MAGNETIC FIELD ADJUSTING CENTER RODS FOR CYCLOTRON A MAGNET FOR CYCLOTRON, AND CYCLOTRON

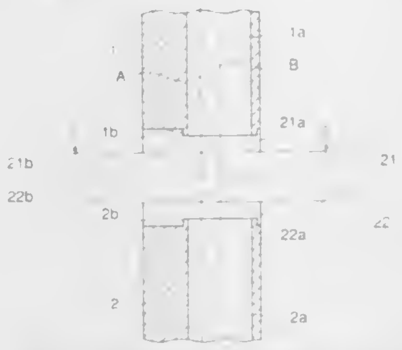
Noriyoshi Nakanishi, Saitama-ken; Shuichiro Wakase, Hokkaido, and Takashi Karasawa, Tokyo-to, all of Japan, assignors to The Institute of Physical and Chemical Research, Wako, and Ion Kasokuki Kabushiki Kaisha, Hakodate, both of Japan

Filed Oct. 17, 1996, Ser. No. 733,264

Claims priority, application Japan, Oct. 17, 1995, 7-311714

Int. Cl.⁶ H05H *13/00*

U.S. Cl. 315—502 **19 Claims**



1. A pair of magnetic field adjusting center rods for a cyclotron, for adjusting magnetic flux density distribution in a magnetic field created between a pair of pole pieces of a main electromagnet included in the cyclotron, the pair of magnetic field adjusting center rods being inserted in central portions of the pair of pole pieces opposite to each other, respectively, so as to be movable along the center axis of the pole pieces, one of the magnetic field adjusting center rods being provided with an ion source receiving hole for receiving an ion source therein extending along the center axis of the pole pieces, the other magnetic field adjusting center rod being provided with a magnetic field adjusting recess, the ion source receiving hole and the magnetic field adjusting recess having a common axis, and the pair of magnetic field adjusting center rods being provided with magnetic field correcting projections for correcting irregularities in the magnetic flux density distribution in a region around the opposite open ends of the ion source receiving hole and the magnetic field adjusting recess

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5,739,647
MULTI-ROTOR ELECTROMECHANICAL TRANSDUCER AND METHOD FOR CONTROLLING SUCH A TRANSDUCER

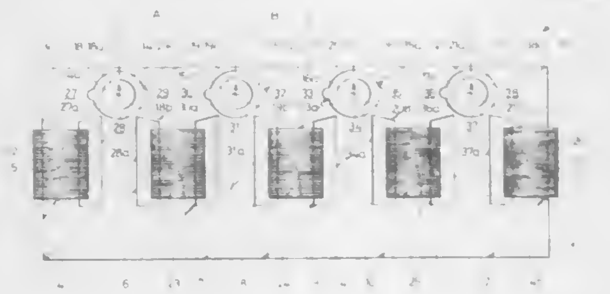
Daho Taghezout, Morges, Switzerland, assignor to Eta SA Fabriques d'Ebauches, Grenchen, Switzerland

Filed Dec. 19, 1996, Ser. No. 769,368

Claims priority, application France, Dec. 28, 1995, 95 15637

Int. Cl.⁶ H02K *16/00*

U.S. Cl. 318—34 **8 Claims**



1. An electromechanical transducer comprising

a stator wherein are arranged N substantially cylindrical openings each defining a central axis, N being any number equal to or greater than two:

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a plurality of coils, and

N rotors each passing through one of the openings, each rotor having an identical axis of rotation to the central axis of the opening through which it passes, and comprising a bipolar permanent magnet situated in such opening and having a magnetisation axis perpendicular to such axis of rotation;

wherein:

the stator comprises two main parts each having two ends and 2N+1 transverse parts each having two ends magnetically coupled respectively to one and the other main parts, the 2N+1 transverse parts each having a determined rank within the transducer going from one to 2N 1;

each of the N openings is arranged in one of the main parts in the prolongation of one of the even rank transverse parts and is surrounded by three stator poles each ending in a pole piece, two of such stator poles being formed by portions of such main part and the third of such stator poles/being formed by a portion of said respective even rank transverse part, the N openings each having a rank going from one to N, rank one being assigned to the opening arranged in the prolongation of the transverse part of rank two, rank two being assigned to the opening arranged in the prolongation of the transverse part of rank four, and so on until the opening arranged in the prolongation of the transverse part of rank 2N to which rank N is assigned, and each of the N rotors having a rank equal to that of the opening through which it passes,

the plurality of coils comprises N+1 coils each surrounding a different transverse part and each having a rank going from one to N+1, the coil of rank one surrounding one of the transverse parts of rank one or rank two, the coil of rank N+1 surrounding one of the transverse parts of rank 2N or 2N+1, and the other coils each surrounding one of the other odd rank transverse parts.

5,739,648

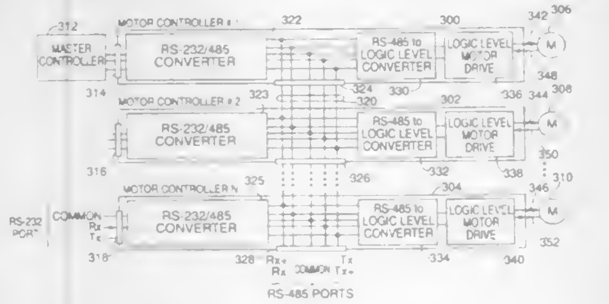
MOTOR CONTROLLER FOR APPLICATION IN A MOTOR CONTROLLER NETWORK

George Henry Ellis, and Gregory Robert Lee, both of Blacksburg, Va., assignors to Kollmorgen Corporation, Waltham, Mass.

Filed Aug. 8, 1996, Ser. No. 694,366

Int. Cl.^{6} H02P *1/54*

U.S. Cl. 318—112 **8 Claims**



1. A motor control network for separately controlling a plurality of electric motors through a plurality of motor controllers from a common master controller, comprising:

(1) a plurality of motor controllers each including
  (a) an RS-232 port;
  (b) an RS-485 port; and
  (c) a logic level motor drive for energizing an associated electric motor according to logic level commands;
  wherein
    (i) each said RS-232 port is coupled to said RS-485 port via a converter; and
    (ii) each said RS-485 port is coupled to said logic level motor drive via a converter to supply said logic level commands from signals at said RS-485 port;
(2) a master controller coupled to one of said RS-232 ports; and
(3) said motor controllers being interconnected via said RS-485 ports for control from said master controller.

5,739,649

FAIL CHECK DEVICE AND METHOD FOR AC MOTOR CONTROL CIRCUIT

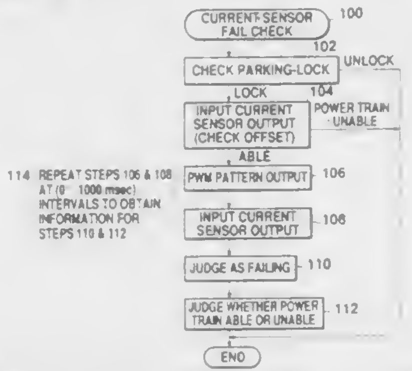
Norihiko Akao, Nagoya, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Aug. 1, 1996, Ser. No. 690,817

Claims priority, application Japan, Sep. 5, 1995, 7-227824

Int. Cl.^{6} H02P *7/63*; B60L *3/00*

U.S. Cl. 318—139 **14 Claims**


CURRENT SENSOR FAIL CHECK
100
102
CHECK PARKING-LOCK
UNLOCK
LOCK
104
INPUT CURRENT SENSOR OUTPUT (CHECK OFFSET)
POWER TRAIN UNABLE
ABLE
114 REPEAT STEPS 106 & 108 AT (0 1000 msec) INTERVALS TO OBTAIN INFORMATION FOR STEPS 110 & 112
PWM PATTERN OUTPUT
106
INPUT CURRENT SENSOR OUTPUT
108
JUDGE AS FAILING
110
JUDGE WHETHER POWER TRAIN ABLE OR UNABLE
112
END

1. A failure check device which is used together with an AC motor controller, said AC motor controller being provided with m, where m is a natural number greater than 2, number of current sensors for detecting respective phase currents passing through an AC motor having m phases and means for controlling each phase current of said AC motor based on phase currents detected by said current sensors, said failure check device comprising:

test electrifying means for supplying current to one or two phases selected from the m phases,

current input means for receiving said phase currents detected by the current sensor or sensors correlated to selected phase or phases when said test electrifying means are operating,

repetition means for operating said test electrifying means and said current input means while changing the selected phase or phases through which a phase current flows so as not to produce substantial torque, and

comprehensive means for detecting a failure in each of said m number of current sensors by comparing a reference value representative of a phase current which would be detected when a corresponding current sensor has not failed with the phase current in the corresponding phase input by said current input means.

5,739,650

MOTOR SYSTEM CAPABLE OF OBTAINING HIGH EFFICIENCY AND METHOD FOR CONTROLLING A MOTOR

Taizou Kimura; Kiyotaka Nishijima; Hiroyuki Yamai; Akio Yamagiwa; Kazunobu Ouyama, and Nobuki Kitano, all of Kusatsu, Japan, assignors to Daiken Industries, Ltd., Osaka, Japan

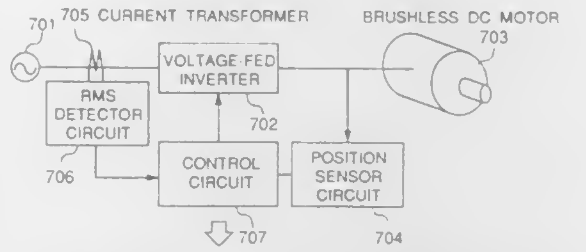
PCT No. PCT/JP95/01468, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO96/03797, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 24, 1995, Ser. No. 619,460

Claims priority, application Japan, Jul. 25, 1994, 6-172910; Sep. 12, 1994, 6-217688; Nov. 8, 1994, 6-273420

Int. Cl.^{6} H02P *6/08*

U.S. Cl. 318—254 **36 Claims**



1. A method for controlling a brushless DC motor comprising the steps of:

detecting a rotation speed and a rotor position of a brushless DC motor driven by a voltage-fed inverter;

detecting an input current of the voltage-fed inverter; and

setting a switching command to the voltage-fed inverter such that the phase of the inverter output voltage relative to the phase of the motor counter-electromotive voltage is set to a specified phase at which motor efficiency comes generally to a peak, in response to the detected rotation speed and the detected input current.

14. A motor system comprising:

a rotor;

a stator having armature coils connected in a three-phase star configuration;

a resistor circuit connected in three-phase star configuration in parallel to said armature coils;

an inverter for switching a voltage pattern to be applied to said armature coils; and

control means for controlling an output of said inverter so that a specified efficiency is obtained, based on a neutral-point voltage of said armature coils, said control means including a level decision means for determining a relationship between a signal representing a voltage difference between neutral points of said armature coils and said resistor circuit and a target value.

5,739,651

APPARATUS AND METHOD FOR DRIVING AND CONTROLLING BRUSHLESS MOTOR

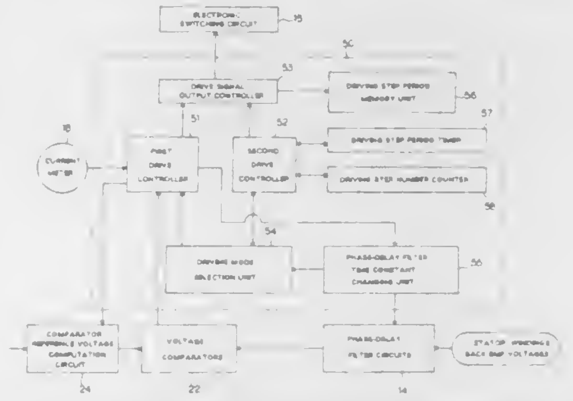
Tadashi Miyazawa, and Toshiyuki Teshigawara, both of Isesaki, Japan, assignors to Sanden Corp., Isesaki, Japan

Filed Jun. 25, 1996, Ser. No. 669,913

Claims priority, application Japan, Jun. 26, 1995, 7-159603

Int. Cl.^{6} H02P *6/02*

U.S. Cl. 318—439 **3 Claims**


ELECTRONIC SWITCHING CIRCUIT
15
50
53
DRIVE SIGNAL OUTPUT CONTROLLER
DRIVING STEP PERIOD MEMORY UNIT
56
57
51
52
18
CURRENT METER
FIRST DRIVE CONTROLLER
SECOND DRIVE CONTROLLER
DRIVING STEP PERIOD TIMER
DRIVING STEP NUMBER COUNTER
58
54
DRIVING MODE SELECTION UNIT
PHASE-DELAY FILTER TIME CONSTANT CHANGING UNIT
56
COMPARATOR REFERENCE VOLTAGE COMPUTATION CIRCUIT
VOLTAGE COMPARATORS
PHASE-DELAY FILTER CIRCUITS
STATOR WINDINGS BACK EMF VOLTAGES
24
22
14

1. A method of driving and controlling a brushless dc motor including

3-phase stator windings having respective winding terminals and a permanent-magnet rotor that is rotated by a rotating magnetic flux generated by the stator windings when energized, the method comprising the steps of:

(a) connecting an electronic switching circuit to a dc power supply that provides a motor drive voltage and a midpoint voltage that is one half of said motor drive voltage for switching said motor drive voltage to produce 3-phase dc voltages;

(b) applying said 3-phase dc voltages to the 3-phase stator windings individually to energize the windings so as to rotate the rotor;

(c) obtaining 3-phase back emf voltages from the 3-phase windings individually while the rotor is in rotation;

(d) providing said 3-phase back emf voltages to 3-phase phase delay circuits individually to delay phases of said 3-phase back emf voltages by an electric angle of less than 90 so as to obtain 3 phase phase-delayed voltages therefrom,

(e) connecting said 3-phase phase-delay circuits to 3-phase voltage comparators individually, each of said 3-phase voltage comparators having a first input terminal, a second input terminal and an output terminal, said first input terminals being individually connected to output terminals of said phase-delay circuits so that said 3-phase phase-delayed voltages are individually provided to said first input terminals,

(f) providing said midpoint voltage to a comparator reference voltage computation circuit for outputting a sawtooth-wave comparator reference voltage having a frequency proportional to a current angular speed of the rotor and an amplitude whose center voltage is equal to said midpoint voltage,

(g) providing said comparator reference voltage commonly to all of said second input terminals of said voltage comparators so as to obtain 3-phase comparator output voltages from said comparators;

(h) providing said 3-phase comparator output voltages individually to a drive control unit, which is a microcomputer;

(i) obtaining in said drive control unit switching control signals in sequential driving steps having driving step periods according to said 3-phase comparator output voltages;

(j) providing said switching control signals in sequential driving steps to said electronic switching circuit so that said electronic switching circuit performs commutation of said motor drive voltage in a first motor driving mode,

(k) monitoring a rotational speed of the rotor,

(l) increasing time constant of all of said phase-delay filter circuits when said monitored rotor speed is below a predetermined speed;

(m) monitoring an amount of motor drive current supplied from said dc power supply,

(n) increasing time constant of all of said phase-delay circuits when said monitored amount of motor drive current is above a predetermined amount;

(o) switching from said first motor driving mode, which is dependent of said 3-phase comparator output voltages, to a second motor drive mode, which is independent of said 3-phase comparator output voltages, for a predetermined time period that equals to a predetermined one driving step time period multiplied by a predetermined number of driving steps when the time constant of said phase delay circuits is increased, and

(p) reverting from said second motor driving mode to said first motor driving mode when said predetermined time period of said second motor driving mode has lapsed.

5,739,652

METHOD AND APPARATUS FOR SENSORLESS OPERATION OF BRUSHLESS PERMANENT MAGNET MOTORS

Tillasthanam V. Sriram, Carmel, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 20, 1996, Ser. No. 770,862

Int. Cl.^{6} H01R *39/46*

U.S. Cl. 318—439 **12 Claims**

1. An apparatus for developing commutation signals for an inverter powered brushless permanent magnet motor having a star-connected poly-phase stator winding including a plurality of phase windings commonly coupled at respective first ends thereof to provide a neutral node and separately coupled at respective second ends thereof to respective phase legs of the inverter each phase winding characterized by a substantially trapezoidal back electromotive force thereacross, the apparatus comprising

means for summing voltages across all phase windings and providing an output voltage signal proportional to the sum;

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a positive half-cycle integrator having an input coupled to the output voltage signal and adapted to integrate only positive portions of the output voltage signal to provide a first integration signal.

a negative half cycle integrator having an input coupled to the output voltage signal and adapted to integrate only negative portions of the output voltage signal to provide a second integration signal, and.

a commutation timing signal generator coupled to the first and second integration signals effective to provide a commutation timing signal whenever either of the first and second integration signals attains a predetermined threshold level

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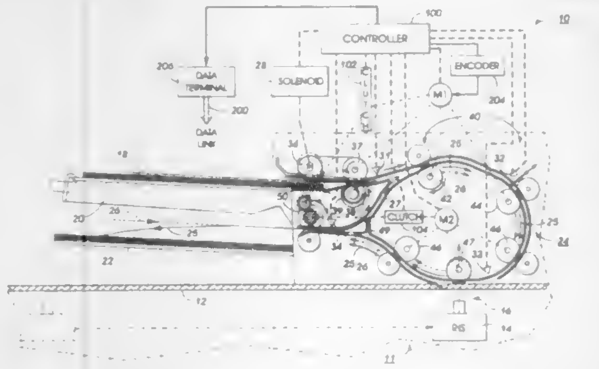
5,739,653
SERVO MOTOR FEEDBACK USED AS DRIVE TRAIN DIAGNOSTIC

Gerald L. Coy, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 777,017

Int. Cl.^{6} B41J *29/38* H02P *1/00*

U.S. Cl. 318—560 **11 Claims**



1 A method of diagnosing faults in a servo motor driven drive train, comprising the steps of

(a) determining an unloaded rotational velocity of a servo motor:

(b) selectively engaging an electrically operable drive train component, whereby the rotational load of the servo motor increases and the rotational velocity of said servo motor to decrease:

(c) determining the rotational velocity of said servo motor with said electrically operable drive train component engaged.

(d) comparing the unloaded rotational velocity determined in step (a) with the rotational velocity determined in step (c) to determined whether the rotational velocity determined in step (c) is within a predetermined proportion of the unloaded rotational velocity, and

(e) identifying a drive train fault if the rotational velocity determined in step (c) is outside of the predetermined proportion of the unloaded rotational velocity

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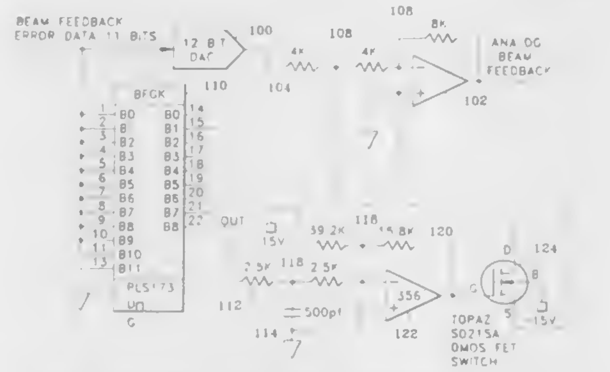
5,739,654
PRECISION TOOL CONTROL SYSTEM FOR A WORKPIECE POSITIONING APPARATUS

Samuel Kay Doran, Wappingers Falls, N.Y., and Erwin Ernst Weissmann, Southbury, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 359,238, Dec. 19, 1994, abandoned. This application Sep. 19, 1996, Ser. No. 715,826

Int. Cl.^{6} G05B *13/00*

U.S. Cl. 318—561 **9 Claims**



1 A tool positioning control circuit comprising:

means for receiving positional information indicating a tool's position with respect to a workpiece.

aligning means for aligning said tool to said workpiece responsive to a control signal;

means for generating said control signal responsive to received positional information.

means for identifying an at rest condition of said tool; and

means for blocking said control signal from being provided to said aligning means during said identified at rest condition

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5,739,655
AMBULATORY ROBOT AND AMBULATION CONTROL METHOD FOR SAME

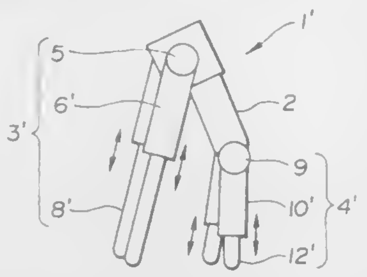
Tetsuo Torii, Yokosuka; Takuya Sakamoto; Mitsuo Hosoi, both of Hiratsuka, and Tomoo Matsuda, Fujisawa, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Japan

Filed Sep. 7, 1995, Ser. No. 525,879

Claims priority, application Japan, Sep. 9, 1994, 6-216225

Int. Cl.^{6} B62D *51/06*

U.S. Cl. 318—568.12 **13 Claims**



1 A robot ambulation control method for a robot comprising a trunk, a plurality of front legs and a plurality of rear legs installed rotatably with respect to the trunk, the front legs and rear legs each having an origin, a terminal portion and a variable length from the origin to the terminal portion, wherein the method comprises:

a first control step of raising either the front legs or the rear legs from the the ground with the other legs maintained in contact with the ground when the ambulatory robot is ambulated.

a second control step of replacing on the ground advanced in the direction of ambulation the raised legs and of raising the legs maintained in contact with the ground during the first control step, and

a third control step of placing on the ground, advanced in the direction of ambulation the legs raised from the surface of " ground in the second control step:

wherein the front legs and rear legs are rotated in such manner that, and the length of the legs is varied so that the trunk is maintained with a substantially erect posture as the ambulatory robot ambulates.

5,739,656
NUMERICAL CONTROLLING METHOD WITH MIRROR IMAGE FUNCTION

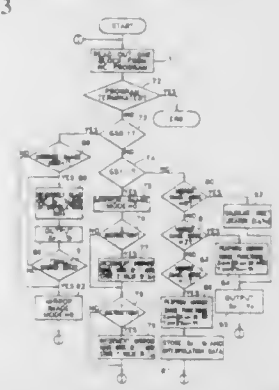
Moon Kang, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Feb. 13, 1996, Ser. No. 600,605

Claims priority, application Rep. of Korea, Feb. 13, 1995, 95-2594

Int. Cl.^{6} G05B *19/25*

U.S. Cl. 318—573 **1 Claim**



1 A numerical controlling method for controlling a mirror image, for use in a machine tool, comprising the steps of:

(a) reading an instruction block from a numerical controlling program;

(b) determining whether a predetermined mirror image code is in said read instruction block;

(c) when said mirror image code is found in said step (b), determining the coordinates of a target location according to said mirror image code;

(d) adding predetermined interpolation data to the coordinates of said target location determined in said step (c) to produce the same cutting direction as an original cutting direction;

(e) moving a tool according to said coordinates of said target location interpolated in said step (d); and

(f) moving said tool in said original cutting direction as instructed in said numerical controlling program, when no image mirror code is found in said step (b) .

5,739,657
APPARATUS FOR CONTROLLING MOTION OF NORMAL WHEELED OMNI-DIRECTIONAL VEHICLE AND METHOD THEREOF

Kuniharu Takayama, Kanagawa; Eiji Nakano, 1-33-33, Hiyoridai, Tomiya-machi, Kurokawa-gun, Miyagi, 981-33; Yoshikazu Mori, and Takayuki Takahashi, both of Miyagi, all of Japan, assignors to Fujitsu Limited, Kawasaki, and Eiji Nakano, Kurokawa-gun, both of Japan

Filed Apr. 30, 1996, Ser. No. 640,319

Claims priority, application Japan, May 10, 1995, 7-112130

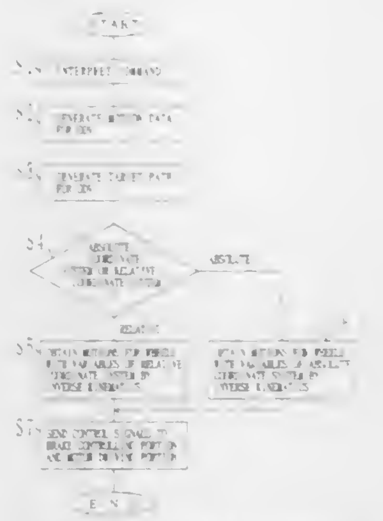
Int. Cl.^{6} G05D *1/02*

U.S. Cl. 318—587 **21 Claims**

1. A controlling apparatus for controlling a motion of a normal wheeled omni-directional vehicle, comprising:

storing means for storing a first control command for designating a motion of a body of the normal wheeled omni-directional vehicle with data of relative variables of a relative coordinate system defined for the body of the normal wheeled omni directional vehicle; and

converting means for converting the first control command into motions of wheels of the normal wheeled omni directional vehicle by calculations of inverse kinematics in the relative coordinate system using the data of the relative variables, obtaining data of drive variables representing the motions of the wheels, and outputting control signals corresponding to the obtained data of the drive variables.



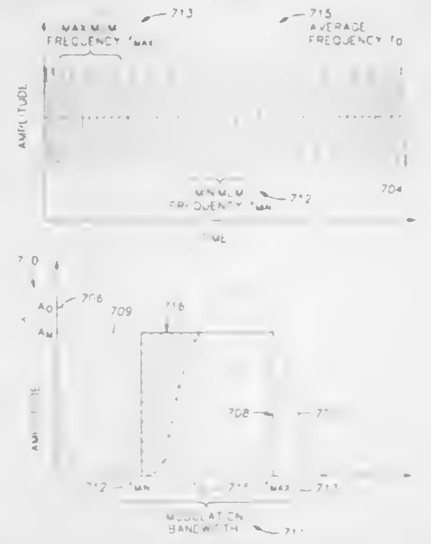
5,739,658
NOISE DITHERING SYSTEM FOR TRANSISTOR SWITCHED DEVICES

Guy Alan Thompson, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 415,008, Mar. 31, 1995, abandoned. This application Dec. 3, 1996, Ser. No. 757,121

Int. Cl.^{6} G05B *11/01*

U.S. Cl. 318—599 **36 Claims**



1 A pulsewidth modulation (PWM) controller, comprising

a PWM control unit with a timing input node, and at least one gating node for producing pulsewidth modulated gating signals on the at least one gating node, said gating signals having a frequency proportional to an analog timing level experienced at the timing input node: and

a timing source coupled to the timing input node for providing the timing level to the timing input node, the timing level repeatedly varying about a predetermined value such that, when the gating node is coupled to an electrical motor, the gating signals drive the electrical motor with electrical switching noise having a broadened bandwidth and reduced amplitude with respect to operation of the electrical motor while the timing level is constant at the predetermined value.

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POSITION DETECTING APPARATUS AND METHOD THEREFOR

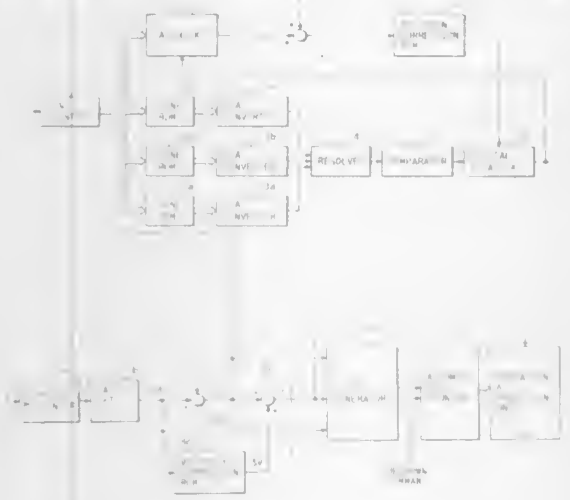
Yasuhiro Ezuka, Maebashi, Japan, assignor to NSK Ltd., Tokyo, Japan

Continuation of Ser. No. 455,031, May 31, 1995, abandoned. This application Nov. 4, 1996, Ser. No. 743,365

Claims priority, application Japan, Jun. 6, 1994, 6-123951

Int. Cl.^{6} G05B *19/31*

U.S. Cl. 318—605 **4 Claims**



1. A position detecting method for deriving position information of a moving part by sampling, at a predetermined period, a resolver signal outputted from a resolver, comprising the steps of:

determining current position data of the resolver from data derived by sampling the resolver signal;

determining position data and velocity data of the resolver for a preceding period from data derived by sampling the resolver signal, and holding the determined position data and velocity data;

calculating correcting position data based on the determined position data and velocity data of the resolver for the preceding period;

deriving a position detection error correction value for the current position of the resolver from pre-stored position detection error correction values, based on the calculated correcting position data; and

correcting the current position data based on the position detection error correction value.

5,739,660

PROCESS AND APPARATUS FOR MONITORING THE MOVEMENT OF A MACHINE COMPONENT

Alfred Gnann, Plochingen, Germany, assignor to Index-Werke GmbH & Co. KG Hahn & Tessky, Esslingen, Germany

Filed Dec. 1, 1995, Ser. No. 566,167

Claims priority, application Germany, Dec. 8, 1994, 44 43 669.6

Int. Cl.^{6} B23Q *17/22, 5/58*

U.S. Cl. 318—626 **14 Claims**

4. Apparatus for monitoring the movement of at least a first machine component moved by a drive along a predetermined path for avoiding any overtravelling of an end position admissible in relation to and defined by an actual position of a second machine component, wherein a support for a series of markings following one another in path direction is fixedly associated with said end position or the first component, and a sensor for scanning the markings and for generating a corresponding sequence of pulses during a movement of the first component relative to the end position is fixedly associated with the first component or the end position, said sequence of pulses having three parameters being (i) the distance between two consecutive pulses, (ii) the length of a pulse and (iii) the height of a pulse, wherein the markings are designed such that at least one of said parameters follows a function of (a) the distance of the first component from the end position, measured in path direction, ard of (b) the relative speed of the first component in relation to the end position, measured in path direction, and wherein the sensor and the drive are connected to a drive control such that the drive is adapted to be switched off when a critical distance between the first component and the end position with respect to the relative speed is reached.

5,739,661

STEPPING MOTOR DRIVER

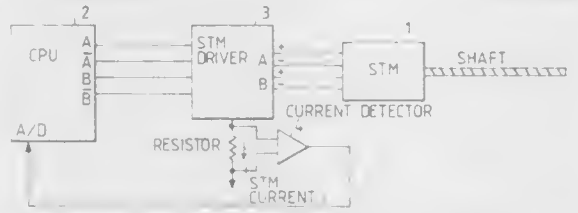
Hiroshi Wakuda, Fukushima-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1996, Ser. No. 611,158

Claims priority, application Japan, Mar. 15, 1995, 7-055919

Int. Cl.^{6} H02P *8/22*

U.S. Cl. 318—685 **10 Claims**



1. A stepping motor driver for transmitting an excitation current to a stepper motor, the excitation current including a plurality of excitation patterns corresponding to excitation phases of the stepping motor, the stepping motor driver comprising:

a current measuring means for measuring the excitation current flowing through the stepping motor during a first excitation phase; and

a control means for changing the excitation current transmitted to the stepping motor from a first excitation pattern corresponding to the first excitation phase to a second excitation pattern corresponding to a second excitation phase when the excitation current measured by the current measuring means exceeds a predetermined value.

5,739,662

LOW COST DRIVE FOR A RELUCTANCE MACHINE HAVING FULLY-PITCHED WINDINGS

Yue Li, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Aug. 30, 1996, Ser. No. 705,786

Int. Cl.^{6} H02P *9/00*

U.S. Cl. 318—701 **24 Claims**

1. A reluctance machine system comprising:

a reluctance machine including a rotor and a stator, the stator having a plurality of fully-pitched phase windings, and

a drive coupled to the fully-pitched phase windings, wherein the drive energizes a first one of the phase windings such that the current established in the phase winding is substantially continuous and uni-polar regardless of the angular position of the rotor.

5,739,663

PHASE ENERGIZATION CONTROLLER AND METHOD FOR CONTROLLING SWITCHED RELUCTANCE MACHINES USING SIMPLE ANGULAR POSITION SENSORS WITH IMPROVED ANGLE INTERPOLATION

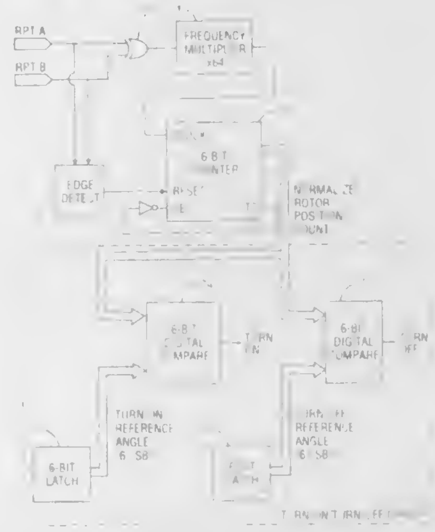
Geoffrey T. Brown, Harrogate, England, assignor to Switched Reluctance Drives Limited, Harrogate, United Kingdom

Filed Nov. 6, 1996, Ser. No. 744,614

Claims priority, application United Kingdom, Nov. 14, 1995, 9523256

Int. Cl.^{6} H02P *7/00; 9/00*

U.S. Cl. 318—701 **32 Claims**



1. A method of determining a conduction angle for a switched reluctance machine having more than one phase winding and using more than one position sensor, said position sensors detecting sensor edges, said method comprising the steps of:

determining an expected value of a counter for each sensor edge;

incrementing said counter during rotation of the machine between sensor edges at a frequency corresponding to the frequency of occurrence of said sensor edges; and

adjusting said counter on each sensor edge, such that the output of the counter is equal to said expected value for the sensor edge.

5,739,664

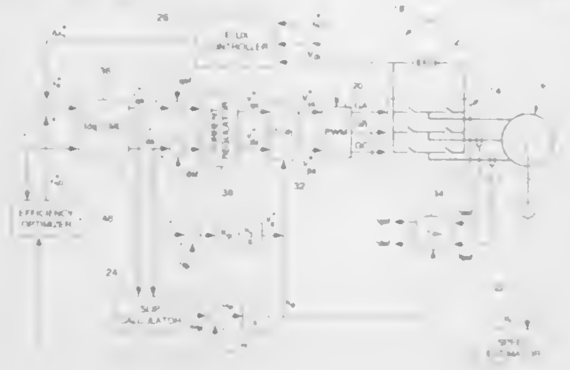
INDUCTION MOTOR DRIVE CONTROLLER

Doug Deng, and Xingyi Xu, both of Canton, Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Feb. 5, 1996, Ser. No. 596,846

Int. Cl.^{6} H02P *5/28*

U.S. Cl. 318—808 **14 Claims**



1. A method for improving torque output of an induction motor at high motor speeds when maximum drive voltage and drive current are applied to the motor, comprising:

generating a stator flux adjustment signal in response to the feedback of a power supply voltage limit available when said maximum drive voltage and said maximum drive current are delivered at an operating limit, said flux adjustment signal reducing a flux current command to maximize torque at said operating limit.

5,739,665

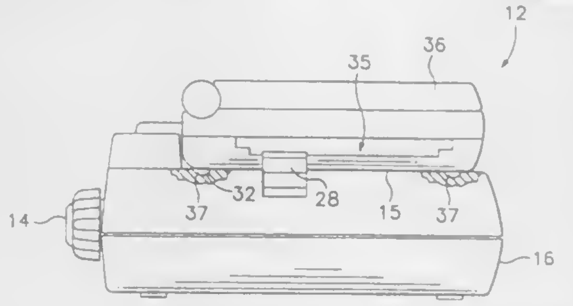
RADIO MODEM DOCKING STATION FOR PALM-SIZED COMPUTER

Steven John Bares, Ridgewood, N.J., assignor to EnBloc, Inc., Portland, Oreg.

Filed Jan. 25, 1996, Ser. No. 590,396

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—2 **13 Claims**



1. A hand-held RF docking station for removably holding a palm-sized computer, comprising:

a radio modem for providing wireless data communication;

a data control circuit coupled between the computer and the radio modem;

a power control circuit having a rechargeable battery selectively coupled to the radio modem and a programmable charging circuit coupled to the battery for increasing battery charge capacity; and

a palm-sized housing for containing the radio modem, the data control circuit, and the power control circuit while at the same time serving as a hand-held docking station for removably holding the computer and for detachably coupling the computer to the modem.

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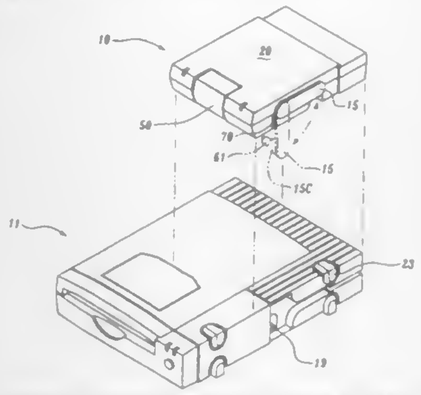
5,739,666
RECHARGEABLE BATTERY PACK FOR BATTERY POWERED DEVICES

David S. Nierescher, 12851 SE 76 Pl., Newcastle, Wash. 98056; David E. Jones, 135 N. Deer Run La., Layton, Utah 84040, and Jeffrey I. Raper, 6051 S. 3050 West, Roy, Utah 84067

Filed Jun. 3, 1996, Ser. No. 658,256

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—2 **13 Claims**



1. A rechargeable battery pack for holding at least one battery and for connecting to a battery powered device for supplying power thereto; the battery pack comprising:

(a) a case for holding the at least one battery;

(b) a recharging means disposed in said case for recharging the at least one battery;

(c) a device powering means for powering the battery powered device using the at least one battery; and

(d) an operation control means for controlling the recharging means and the device powering means, wherein said operation control means includes a first operating mode enabling the recharging means and disabling the device powering means and a second operating mode for enabling the device powering means and disabling the recharging means, and wherein said operation control means comprises a controlling arm rotatably connected to said case for selecting the operating modes and said controlling arm being rotatable from a first position for activating the first operating mode to a second position for activating the second operating mode.

5,739,667
CONTROL SYSTEM FOR CHARGING BATTERIES AND ELECTRONIC APPARATUS USING SAME

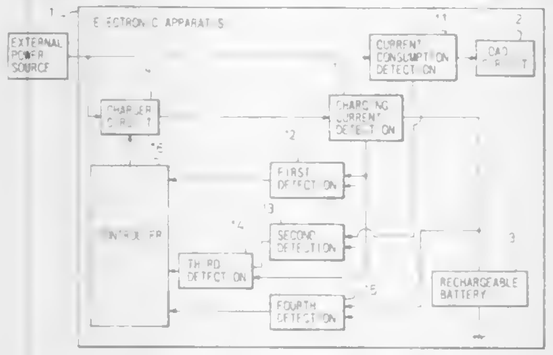
Kouichi Matsuda; Mitsuo Saeki; Nobuo Tanaka, and Hidekiyo Ozawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 26, 1995, Ser. No. 578,805

Claims priority, application Japan, Dec. 26, 1994, 6-321970

Int. Cl.^{6} H02J *7/00*

U.S. Cl. 320—5 **10 Claims**



1. A system for controlling the supply of power from an external power source to rechargeable batteries in an apparatus which can be powered either by the external power source or the rechargeable batteries, comprising:

a first detector for detecting a difference between a maximum permissible charging current allowed by the rechargeable batteries and a charging current flowing to the rechargeable batteries;

a second detector for detecting a maximum useable current by detecting a difference between a maximum suppliable current allowed by the external power source and the current being consumed by the apparatus;

a third detector for detecting a difference between the maximum useable current and the charging current flowing to the rechargeable batteries; and

a controller for controlling power supplied from the external power source to the rechargeable batteries in accordance with the differences detected by the first and third detectors so that the charging current flowing to the rechargeable batteries does not exceed the maximum permissible charging current and does not exceed the maximum useable current.

5,739,668
CHARGING CONTROL SYSTEMS AND CIRCUITS FOR RECHARGING AUTOMOBILE BATTERIES

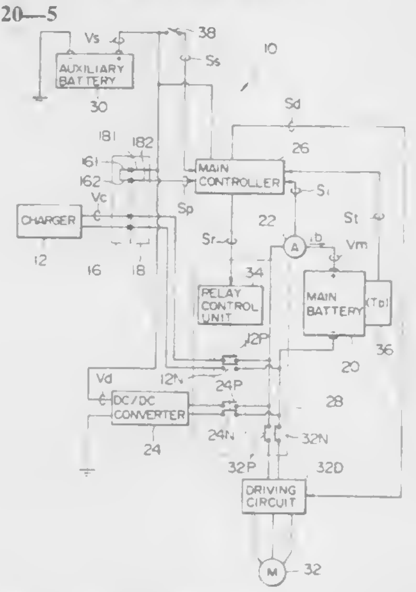
Hidetaka Nishikiori, Hamamatsu, Japan, assignor to Suzuki Motor Corporation, Shizuoka-ken, Japan

Filed Sep. 26, 1996, Ser. No. 721,356

Claims priority, application Japan, Dec. 5, 1995, 7-344470

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—5 **19 Claims**



9. A power system for powering an electric automobile, comprising:

a motor for propelling the automobile;

a main battery for electrically powering said motor;

a charging control system for recharging said main battery in a controlled manner with power supplied from an external charger, said charging control system comprising:

- a first detector for detecting connection of the external charger to the charging control system;
- a second detector electrically connected to said main battery for detecting a predetermined electrical condition, said predetermined electrical condition corresponding to completion of charging of said main battery from the external charger;
- a DC-to-DC converter operably associated with said main battery; and
- a controller electrically connected with said first and second detectors and said DC-to-DC converter for starting operation of said DC-to-DC converter when connection of the external charger is detected by said first detector and for electrically disconnecting said DC-to-DC converter from said main battery when said main battery has been recharged; and

a driving circuit operably associated with said motor and said main battery, wherein said driving circuit drives said motor with power supplied from said main battery

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5,739,669
ELECTRIC BATTERY MANAGEMENT DEVICE

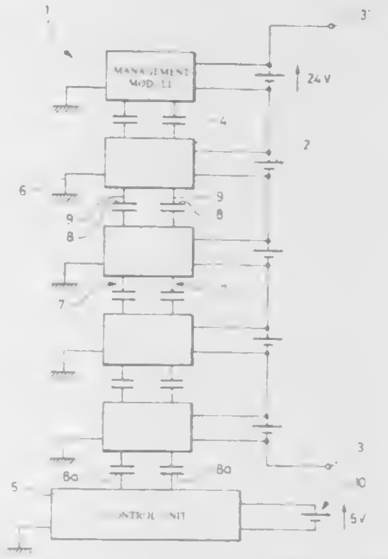
Marcel Brülhardt, Cudrefin, and Christian Terrier, Corcelles, both of Switzerland, assignors to EM Microelectronic-Marin SA, Marin, Switzerland

Filed Sep. 30, 1996, Ser. No. 721,850

Claims priority, application France, Oct. 24, 1995, 95 12519

Int. Cl.^{6} H02J *7/00*

U.S. Cl. 320—6 **10 Claims**



1 A management device (1) for a plurality of electric battery elements (2) connected in series, comprising a plurality of battery management modules (4), each management module being connected in parallel to the terminals of a respective battery element (2) and supplied by its output voltage, the management modules (4) including a digital circuit (11) and being connected to a control unit (5) of the battery by at least a digital liaison (9, 9) so is to be able to exchange binary information between the digital circuits and the control unit of the battery, wherein said management modules (4) are connected in series by said digital liaison (9, 9), and wherein electrical isolation between successive ones of said management modules in said digital liaison is provided by at least one capacitor connected in series in said digital liaison (9, 9) between adjacent ones of said successive management modules, such that the binary information may be exchanged between each management module (4) and the control unit (5) independently of the electric potentials at the terminals of the battery elements (2).

5,739,670
METHOD FOR DIAGNOSING BATTERY CONDITION

Ronald David Brost, Fishers; Michael Scott Sullivan, and Tracy Frye Strickland, both of Noblesville, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

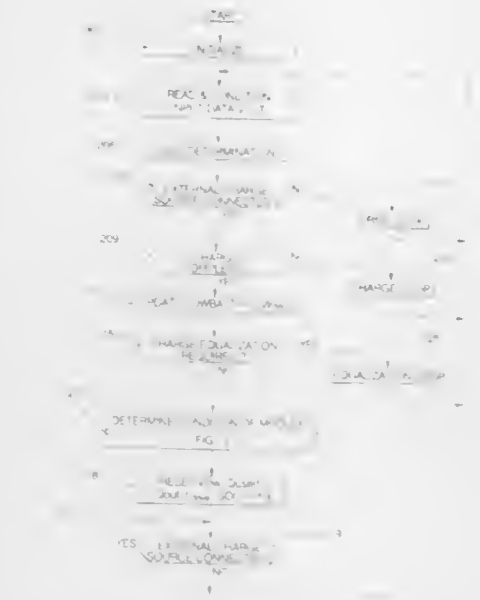
Filed Oct. 31, 1996, Ser. No. 741,742

Int. Cl.^{6} H01M *10/46, 10/44*

U.S. Cl. 320—14 **8 Claims**

7 A method for diagnosing the relative general condition of a rechargeable electrochemical module undergoing discharge periods interposed with charge periods, wherein said discharge periods reduce net module charge and said charge periods increase net module charge, comprising the steps

determining charge removed from one complete charge period characterized by full charge restoral to the module to the next complete charge period characterized by full charge restoral to the module;



determining net charge removed from the module between complete charge periods characterized by full charge restoral to the module;

updating a module state of charge during the discharge periods

calculating module capacity during the discharge periods as a predetermined function of said updated state of charge and said net charge removed from the module; and

calculating a loss value as a predetermined function of said net charge removed from the module and said module capacity wherein said loss value represents incremental degradation of the relative general condition of the module

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5,739,671
DEVICE FOR ACCURATE DETECTION OF REMAINING DISCHARGE CAPACITIES OF A PLURALITY OF BATTERIES

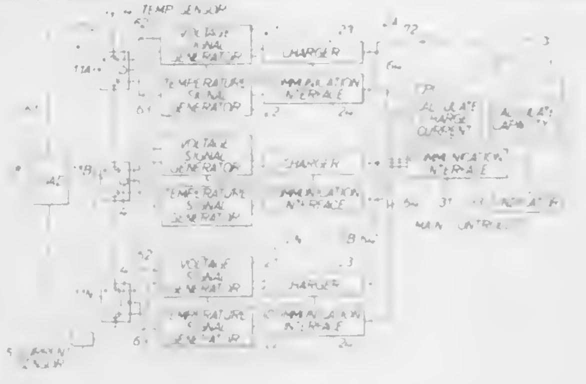
Ken Hamada, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed May 15, 1996, Ser. No. 647,657

Claims priority, application Japan, May 15, 1995, 7-115748

Int. Cl.^{6} H01M *10/46, 10/48*

U.S. Cl. 320—15 **20 Claims**



1 A charge state detecting device for a battery device comprising:

a battery device including a plurality of batteries connected in series;

current detection means for detecting current flowing out of said battery device;

voltage detection means for detecting a respective battery voltage of each individual battery of said plurality of batteries.

capacity calculating means for calculating a respective electric power supplying capacity of each individual battery of said

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plurality of batteries based on said current and said respective battery voltage of each individual battery of said plurality of batteries; and

capacity determination means for determining a minimum capacity among said respective electric power supplying capacities of each individual battery of said plurality of batteries and for setting said minimum capacity as an overall electric power supplying capacity of said battery device.

5,739,672

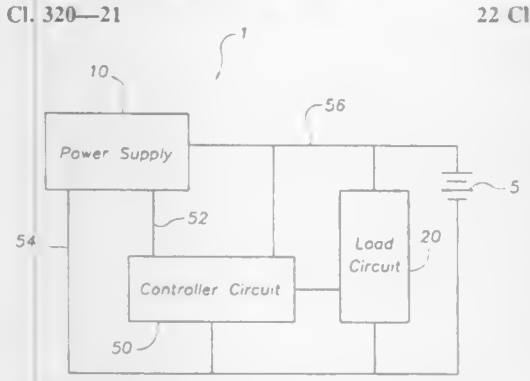
METHOD AND APPARATUS FOR CHARGING BATTERIES

Robert W. Lane, Chandler, Ariz., assignor to United Continental, Phoenix, Ariz.

Filed May 8, 1996, Ser. No. 646,873

Int. Cl.^{6} H01M *10/46*

U.S. Cl. 320—21 **22 Claims**



1. A battery charger for charging a battery comprising:

a sensing circuit which senses at least two different 1st order sense parameters and at least one 2nd order sense parameter;

a charging circuit capable of charging the battery according to a plurality of charging parameters; and

a control circuit which modifies at least two of the charging parameters as a function of the at least two 1st order and at least one 2nd order sense parameters sensed by the sensing circuit.

5,739,673

CONTROL DEVICE FOR THE CHARGING OF AT LEAST ONE BATTERY

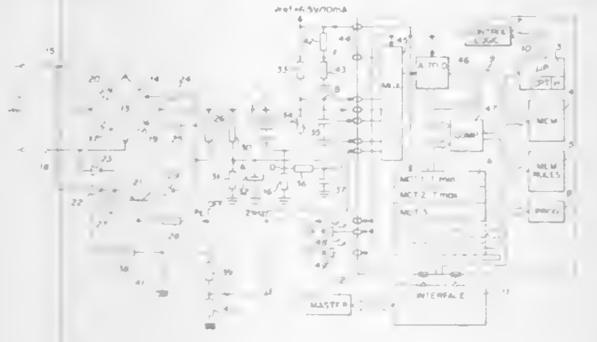
Maurice Le Van Suu, Romainville, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Feb. 27, 1997, Ser. No. 807,823

Claims priority, application France, Feb. 27, 1996, 96 02412

Int. Cl.^{6} H01M *10/44; 10/46;* **H02J** *7/00*

U.S. Cl. 320—31 **33 Claims**



1. A device for controlling the charging of at least one battery, the device comprising:

a microprocessor;

a memory coupled to the microprocessor;

a set of voltage divider bridges for measuring the charging conditions of the at least one battery; and

a circuit for controlling the charging of the at least one battery, wherein the memory includes stored therein:

a set of membership functions associated with signals measured on the set of voltage divider bridges, the set of membership functions forming correspondence values quantified by coefficients of values of these signals, wherein each membership function has a qualification that designates the membership function;

a set of rules setting up correspondence values between the qualifications of the membership functions and further setting up command signals to be applied to the circuit for controlling the charging of the at least one battery;

a program that organizes results of the rules to produce the command signals;

a rotating memory to store several successive states of one of the charging conditions of the at least one battery;

wherein the set of rules includes at least one rule that takes account of the successive states to set up a correspondence with signals to be applied to one of the circuit for controlling the charging of the at least one battery and the set of voltage divider bridges for measuring the charging conditions of the at least one battery.

14. A method of charging a battery, comprising the steps of:

measuring a plurality of signals that respectively relate to a plurality of charging conditions of the battery;

establishing a set of membership functions that assign a qualification to each measured signal, the qualification being quantified by coefficient determined by the membership function;

establishing a set of rules that generate commands based on the quantified qualification assigned by the set of membership functions; and

organizing the rules to generate a battery charging command.

5,739,674

METHOD OF TRANSMITTING AND RECEIVING SIGNAL INDICATIVE OF REMAINING CAPACITY OF STORAGE BATTERY FOR PROPELLING ELECTRIC VEHICLE

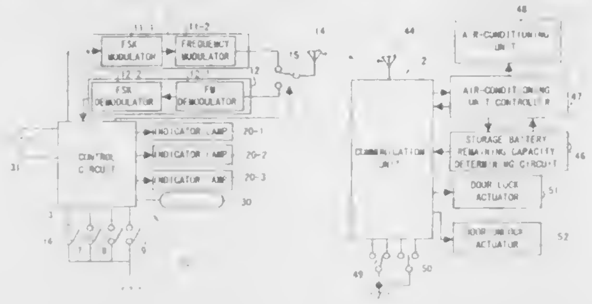
Naohisa Kawahara; Tomoaki Nakai; Yoshikazu Imura, and Makoto Kondo, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 15, 1996, Ser. No. 729,874

Claims priority, application Japan, Oct. 16, 1995, 7-267432

Int. Cl.^{6} H01M *10/44;* **H07J** *7/04*

U.S. Cl. 320—48 **17 Claims**



1. A method of transmitting and receiving a signal indicative of the remaining capacity of a storage battery for propelling an electric vehicle, comprising the steps of:

transmitting a display request signal for displaying the remaining capacity of the storage battery from a portable control unit which has a plurality of indicator lamps corresponding to respective ranges of a rated capacity of the storage battery, to a communication unit on the electric vehicle;

receiving the display request signal with the communication unit,

determining one of said ranges to which the remaining capacity of the storage battery belongs, with the communication unit;

transmitting a remaining capacity display signal representing the determined range from the communication unit to the portable control unit;

receiving the remaining capacity display signal with the portable control unit;

determining whether the signal received by said portable control unit is normal or not; and

turning on one of the indicator lamps which corresponds to the range to which the remaining capacity of the storage battery belongs, based on the received remaining capacity display signal if the received signal is normal, and blinking a predetermined indicator map if the received signal is not normal

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5,739,675

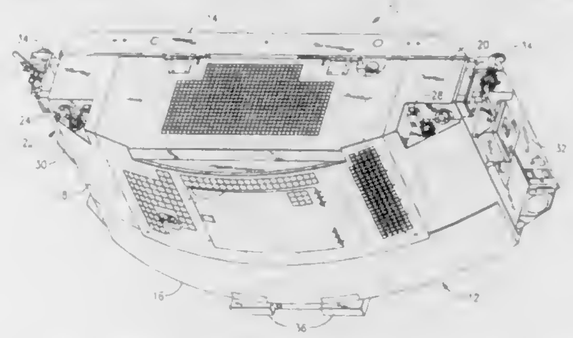
REMOVABLE POWERTRAY FOR A SELF CONTAINED MOTOR GENERATOR SET

Vincent D. Green, East Syracuse; Todd W. Wilson, North Syracuse, and Mark W. Colton, Clay, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Dec. 26, 1995, Ser. No. 578,400

Int. Cl.^{6} H02K *5/00*

U.S. Cl. 322—1 **13 Claims**



1. A self contained engine driven electrical generator comprising:

a support section which comprises: a fuel tank defining a structural support surface, and, a plurality of mounting devices located on said structural support surface; and

a power generation section, which comprises: an engine, an electrical generator drivingly coupled to said engine, and, radiator means for cooling said engine structurally attached to said engine, said engine and said generator having a plurality of mounting devices associated therewith, each located so as to align with one of said mounting devices on said structural support surface when said power generator section is placed on said support surface; and

means for interconnecting said mounting devices on said support surface with said mounting devices on said engine and said generator with which they are aligned.

5,739,676

MULTIPLE-ALTERNATOR ELECTRICAL SYSTEM

Alan Francis Judge, Farmington Hills, and Brent S. Williams, Canton, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

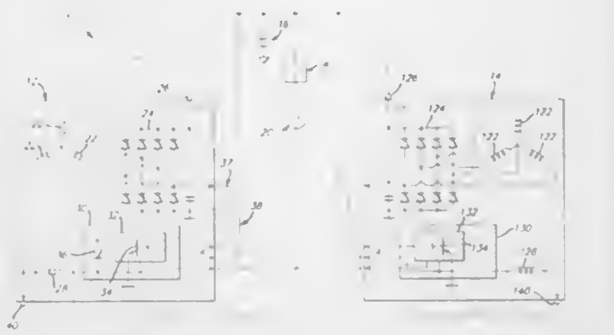
Filed Nov. 4, 1996, Ser. No. 744,079

Int. Cl.^{6} H02P *9/14*

U.S. Cl. 322—22 **13 Claims**

1. An electrical generating system for a motor vehicle, said system comprising:

a first alternator further including a first plurality of electrical power output windings, a first field-generating winding in electromagnetic communication with said first plurality of electrical power output windings and a voltage regulator, said voltage regulator further including an electrical driver coupled to said first field-generating winding to control a current through said first field-generating winding; and



a second alternator further including a second plurality of electrical power output windings and a second field-generating winding in electromagnetic communication with said second plurality of electrical power output windings, said second field-generating winding coupled to said electrical driver for control of electrical current through said second field-generating winding by said electrical driver.

5,739,677

VEHICLE POWER GENERATING SYSTEM

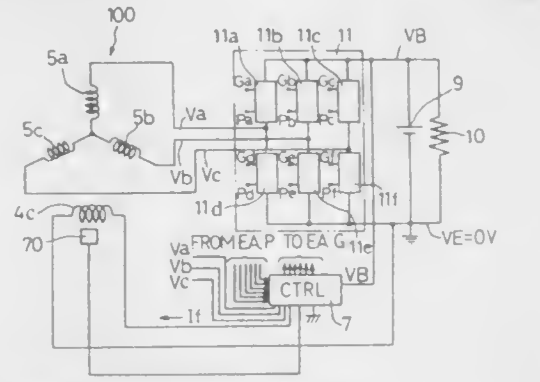
Toshio Tsutsui, Kariya, and Hirohide Sato, Toyokawa, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 22, 1996, Ser. No. 636,142

Claims priority, application Japan, Apr. 24, 1995, 7-098980

Int. Cl.^{6} H02P *9/00*

U.S. Cl. 322—25 **33 Claims**



1. A power generating system comprising:

a power generator having a field winding for generating field magnetic flux and armature windings for producing power-generating outputs, said power generator for being driven by an engine;

AC-DC power converting means for rectifying a voltage outputted from each armature winding and supplying said rectified voltage to an electrical load;

field current control means for controlling a field current supplied to said field winding;

voltage control means for controlling said field current control means to control each of said power-generating outputs produced from said power generator to be a predetermined value;

power generation detecting means for detecting a predetermined quantity of power generation related to a state of power generation of said power generator;

determining means for determining, based on said detected quantity of power generation, an amount of leading phase current to be supplied to each armature winding; and

leading-phase current control means for starting said supply of said leading phase current to each armature winding or increasing said supply based on said amount determined by said determining means, or stopping said supply of said leading phase current thereto or decreasing said leading phase current based on said amount determined by said determining means.

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5,739,678

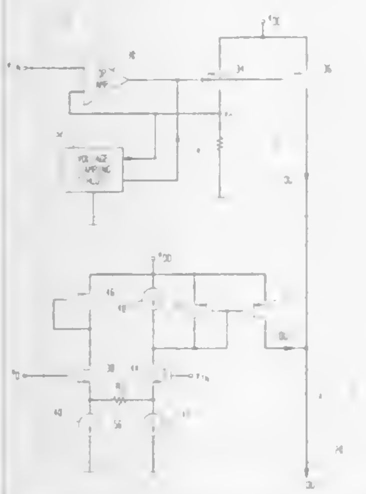
VOLTAGE-TO-CURRENT CONVERTER WITH RAIL-TO-RAIL INPUT RANGE

Krishnaswamy Nagaraj, Somerville, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 18, 1996, Ser. No. 769,287

Int. Cl.⁶ G05F *3/16, 3/20*; **H02M** *7/00*

U.S. Cl. 323—268 **17 Claims**



1. In an integrated circuit, a voltage-to-current converter configured to operate by a power supply generating a predetermined voltage signal supply ranging between a high and a low voltage level, for converting an input voltage signal, V_{IN}, to an output current signal, said voltage-to-current converter comprising:

a closed-loop voltage-to-current converter configured to receive said input voltage signal, V_{IN} and to provide a first output current signal substantially linearly responsive to a predetermined range of said input voltage signal having values between said low voltage level and a predetermined reference voltage level;

an open-loop voltage-to-current converter configured to receive said input voltage signal, said open-loop voltage-to-current converter coupled to said closed-loop voltage-to-current converter, so as to provide a second output current signal, substantially linearly responsive to a predetermined range of said input voltage signal having values ranging between said reference voltage level and said high voltage level; and

an adder for combining said first and second output current signals.

5,739,679

COLD CATHODE TUBE LIGHTING DEVICE USING PIEZOELECTRIC TRANSFORMER

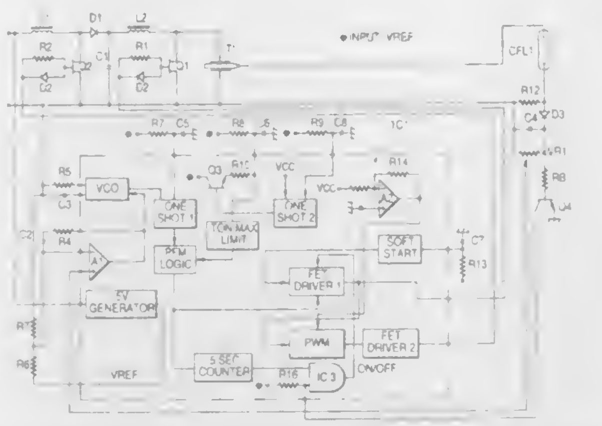
Takao Takehara, Shizuoka, and Shingo Okada, Saijou, both of Japan, assignors to Minebea Co., Ltd., Kitasaku, Japan

Filed Sep. 4, 1996, Ser. No. 707,761

Claims priority, application Japan, Sep. 4, 1995, 7-250194

Int. Cl.⁶ G05F *5/00*

U.S. Cl. 323—299 **6 Claims**



1. A cold cathode tube lighting device having a cold cathode tube and a piezoelectric inverter for lighting the cold cathode tube, wherein a choke coil is connected to primary side of a piezoelectric transformer and a quasi E-class voltage resonance type inverter is thus formed, and a chopper circuit for stepping up an input voltage and supplying a power source to said inverter is installed, and a drive circuit is provided for driving a power switch of the step up chopper at an ON time larger than that of the inverter, in synchronization with a drive signal of a power switching element of the inverter

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5,739,680

CONSTANT VOLTAGE CONTROL DEVICE

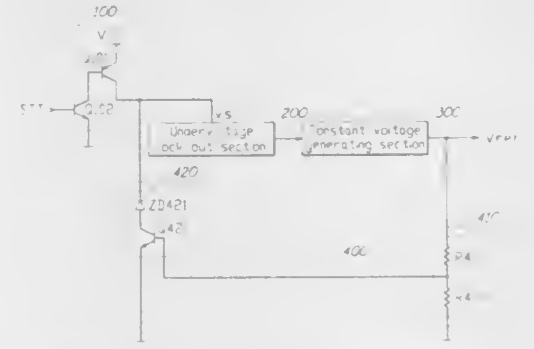
Chang-Sik Lim, Kyungki-do, and Young-Gi Ryou, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 15, 1996, Ser. No. 698,021

Claims priority, application Rep. of Korea, Aug. 16, 1995, 95-25153

Int. Cl.⁶ G05F *3/16*

U.S. Cl. 323—313 **11 Claims**


100
200
300
Undervoltage lock-out section
Constant voltage generating section
Vref
420
400
R4

1. A constant voltage control device, comprising

constant voltage generating means for producing a reference voltage of constant magnitude.

undervoltage lock-out means for operating hysteretically in response to an input supply voltage to produce a signal for controlling the operation of said constant voltage generating means,

operation control means for operating in accordance with an operation control signal input thereto to determine whether to pass over the supply voltage to said undervoltage lock-out means, and

supply voltage control means for feeding back the reference voltage output from said constant voltage generating means to control the output of said operation control means said supply voltage control means comprising:

feedback means for converting the reference voltage output from said control voltage generating means into a constant signal to feed back the signal, said feedback means comprising.

a first resistor having one end connected to the output terminal of said constant voltage generating means and fed with the reference voltage, and

a second resistor having one end grounded, and another end connected to a second end of said first resistor to define a feedback node, and

supply voltage keeping means for operating in accordance with a signal output from said feedback means to keep the supply voltage output from said operation control means at a constant level.

5,739,681

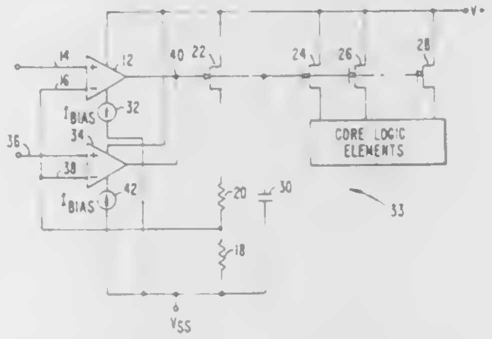
VOLTAGE REGULATOR WITH HIGH GAIN CASCODE CURRENT MIRROR

Gary L. Allman, San Jose, Calif., assignor to Crosspoint Solutions, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 206,566, Mar. 4, 1994, Pat. No. 5,512,814, which is a division of Ser. No. 831,211, Feb. 7, 1992, Pat. No. 5,336,986. This application Oct. 31, 1994, Ser. No. 332,007

Int. Cl.⁶ G05F *3/16*

U.S. Cl. 323—314 **9 Claims**



1. In a semiconductor device having a plurality of core logic elements, a circuit for generating a regulated power supply voltage substantially independent of an external power supply comprising:

a differential amplifier having self-biasing input pair cascode transistors, a feedback network for setting the gain of said amplifier coupled to one input of said amplifier, a plurality of source follower devices for buffering the output of said amplifier, one of said source follower devices adapted for driving said feedback network and the remaining source follower devices adapted for providing a regulated supply voltage to said semiconductor device, and a frequency compensation capacitor coupled between the output of said amplifier and the ground reference; and

a bandgap generator for generating a reference bias voltage coupled to another input of said amplifier; said bandgap generator having a proportional-to-absolute temperature voltage source for generating a substantially temperature-independent reference bias voltage, said proportional-to-absolute temperature voltage source including current injection circuit means for eliminating initial stable states where said reference bias voltage is held low after application of said external voltage.

5,739,682

CIRCUIT AND METHOD FOR PROVIDING A REFERENCE CIRCUIT THAT IS SUBSTANTIALLY INDEPENDENT OF THE THRESHOLD VOLTAGE OF THE TRANSISTOR THAT PROVIDES THE REFERENCE CIRCUIT

Michael R. Kay, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

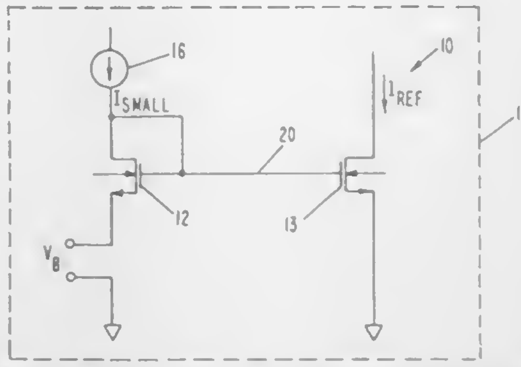
Continuation of Ser. No. 187,257, Jan. 25, 1994, abandoned. This application Nov. 22, 1995, Ser. No. 562,353

Int. Cl.⁶ G05F *3/26*

U.S. Cl. 323—315 **21 Claims**

1. A current source on a single integrated circuit chip, comprising:

a first transistor, having a first element to control a first current in a first current flow path therethrough;



a second transistor, having a second element to control a second current in a second current flow path therethrough between a supply voltage of the current source and a reference potential of the current source, and connected to the first element of said first transistor;

a current source connected at a node to said first transistor to supply the first current in the first current flow path of said first transistor to hold said first transistor on,

the first element of said first transistor being connected to said node;

and a source providing a bias voltage in the current flow path of said first transistor with respect to the reference potential;

wherein the second current flowing through the second transistor is independent of a threshold voltage of the second transistor.

5,739,683

Patent Not Issued For This Number

5,739,684

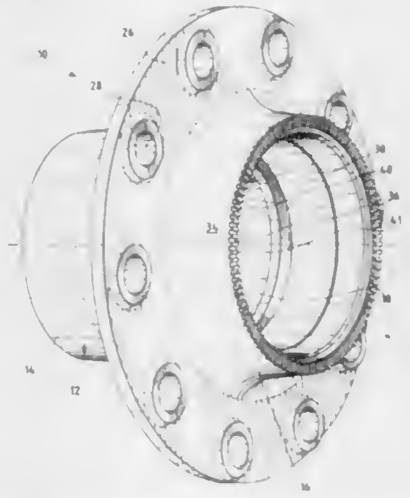
UNITARILY FORMED HUB AND ABS EXCITER RING

Robert J. Burns, Vinemont, Ala., assignor to Webb Wheel Products, Inc., Cullman, Ala.

Filed Aug. 19, 1996, Ser. No. 699,491

Int. Cl.⁶ G01P *3/488; 3/48*; **B60T** *8/08, 8/60*

U.S. Cl. 324—173 **7 Claims**



1. A hub for a motor vehicle having an anti-lock braking system, said hub comprising.

a ferrous hub having a substantially cylindrical body, said cylindrical body including an inboard section and an outboard section, a mounting flange extending from said cylindrical body to mount a rim for a tire, said inboard section of said cylindrical bevy including an annular end face;

means for mounting said hub to an axle of the motor vehicle for rotation about an axis of rotation; and

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a plurality of radially extending grooves unitarily formed in the end face of the inboard section of the hub, said grooves defining a plurality of radially extending pulse teeth therebetween coincidental with said annular end face

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5,739,685

METHOD AND APPARATUS FOR FLAW DETECTION BY LEAKAGE FLUEXES AND LEAKAGE FLUX SENSOR

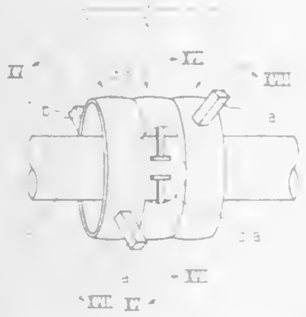
Toshiyuki Suzuma, Osaka, Japan, assignor to Sumitomo Metal Industries Limited, Osaka, Japan

Division of Ser. No. 549,674, Nov. 8, 1995. This application Nov. 18, 1996, Ser. No. 751,693

Claims priority, application Japan, Jun. 23, 1994, 6-142032; May 31, 1995, 7-133408; Jun. 5, 1995, 7-137798; Jun. 9, 1995, 7-143695

Int. Cl.^{6} G01N *27/83*

U.S. Cl. 324—232 **3 Claims**



2. An apparatus for flaw detection by leakage fluxes, comprising

a pair of magnetic pole units which magnetize a tubular material in areas,

sensors for detecting leakage fluxes, said sensors being interposed between said two magnetic pole units while searching for a flaw of the tubular material in an axial direction,

wherein said two magnetic pole units are arranged to magnetize the peripheral surface of the tubular material in two directions, each direction being different from the axial direction of the tubular material, and each of said sensors is provided in each of the magnetization areas, and further comprising

means for calculating the output ratio between said sensors,

means for determining the tilt angle of the target flaw on the basis of a predetermined relationship between the output ratio and the flaw tilt angle on the one hand and the calculated output ratio on the other hand,

means for correcting the amplitude of the output signals of said sensors on the basis of a predetermined relationship between the flaw tilt angle and the amplitude change rate of the sensor output signal on the one hand and the tilt angle of the target flaw determined on the other hand, and

means for calculating the depth of the target flaw on the basis of the corrected amplitude of the output signals.

5,739,686

ELECTRICALLY INSULATING CANTILEVER MAGNETOMETER WITH MUTUALLY ISOLATED AND INTEGRATED THERMOMETRY, BACKGROUND ELIMINATION AND NULL DETECTION

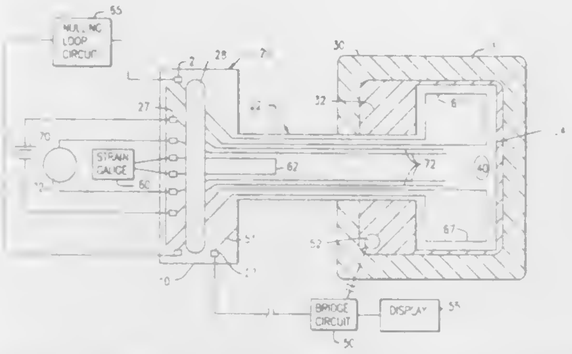
Michael J. Naughton, 10 Fitch St., Churchville, N.Y. 14428, and Murali Chaparala, 1800 E. Paul Dirac Dr., Tallahassee, Fla. 32310

Filed Apr. 30, 1996, Ser. No. 640,101

Int. Cl.^{6} G01R *33/02, 27/28*

U.S. Cl. 324—259 **26 Claims**

1. A cantilever for a cantilever magnetometer, the cantilever comprising:



a dielectric substrate having a planar top surface and a planar bottom surface, a measurement platform, an elongated neck, and a base, the elongated neck connecting the base and the measurement platform;

a coating of an electrical insulating material on the planar top surface;

a first conducting layer one of deposited and etched on to the planar bottom surface, for forming a capacitor plate; and

a second conducting layer which is one of deposited and etched on to the coating, the second conducting layer having a pair of spaced apart symmetrical nulling loops on the measurement platform such that a sample may be placed between them on the measurement platform, the nulling loops being connected to each other and each nulling loop having a nulling loop lead located in the base

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5,739,687

MAGNETIC FIELD GENERATING ASSEMBLY

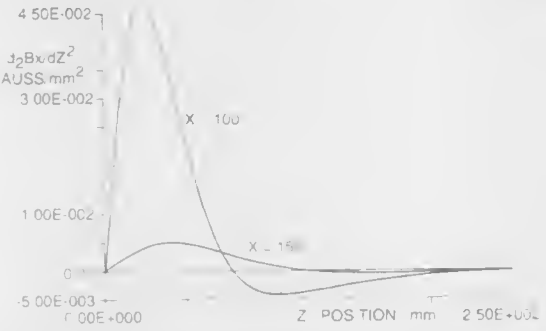
Peter Hanley, Gloucestershire, United Kingdom, assignor to Oxford Instruments (UK) Limited, Oxon, Great Britain

Filed Nov. 12, 1996, Ser. No. 748,013

Claims priority, application United Kingdom, Nov. 15, 1995, 9523415

Int. Cl.^{6} G01V *3/00*

U.S. Cl. 324—303 **11 Claims**



1. A magnetic field generating assembly for use in NMR apparatus, the assembly comprising:

a pair of first magnets arranged coaxially with like poles facing each other and axially spaced apart; and

at least one second magnet positioned between said first magnets, the axis of the at least one second magnet being coaxial with said first magnets, so as to generate a magnetic field defining a working region, the working region being spaced from said first and second magnets and extending substantially parallel with the axis of said first and second magnets, wherein the axial positions and strengths of said first and second magnets are arranged such that at least the first order axial gradient of the magnet field within said working region is substantially zero, the radial dimension of said working region being less than the axial dimension, and the magnetic field within said working region being suitable for obtaining NMR information from material in the working region and exhibiting a radial gradient which is substantially uniform in the axial direction.

5,739,688

MAGNETIC RESONANCE IMAGING METHOD AND APPARATUS EMPLOYING A STATIC MAGNETIC FIELD HAVING A PREDETERMINED INHOMOGENEITY IN ONE SPATIAL DIRECTION

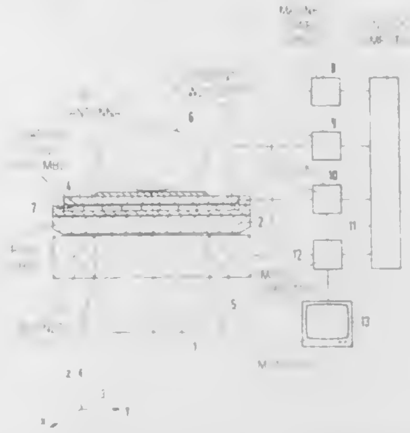
Robert Krieg, Nuernberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 19, 1996, Ser. No. 617,639

Claims priority, application Germany, Mar. 30, 1995, 195 11 835.9

Int. Cl.^{6} G01R *33/34*; G01N *24/08*

U.S. Cl. 324—309 **9 Claims**



1. A method for operating a nuclear magnetic resonance tomography apparatus comprising the steps of:

(a) generating a static magnetic field having a predetermined, chronologically constant inhomogeneity in a first spatial direction, in which an examination subject is disposed.

(b) generating a frequency-selective radio frequency pulse in an excitation phase and thereby exciting nuclear spins in a slice of said examination subject perpendicular to said first spatial direction;

(c) re-phasing the excited nuclear spins in said slice by generating a second radio-frequency pulse.

(d) reading out resulting nuclear magnetic resonance signals in said slice in the form of spin echo signals under a gradient in a second spatial direction;

(e) generating a phase-encoding gradient in a third spatial direction between steps and (b) and (d).

(f) repeating steps (b) through (e) n times with respectively different values of said phase encoding gradient, and

(g) sampling said nuclear magnetic resonance signals in a read-out window in each repetition to obtain sampled values, and entering said sampled values into a row of a raw data matrix in k-space, and generating an image of said slice of said examination subject therefrom.

5,739,689

SUPERCONDUCTING NMR MAGNET CONFIGURATION

Gerhard Roth, Rheinstetten, and Arne Kasten, Karlsruhe, both of Germany, assignors to Bruker Analytik GmbH, Rheinstetten, Germany

Filed Dec. 3, 1996, Ser. No. 757,702

Claims priority, application Germany, Dec. 22, 1995, 195 48 272.7

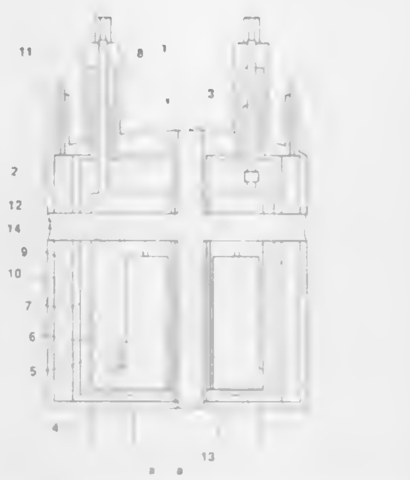
Int. Cl.^{6} G01V *3/00*

U.S. Cl. 324—320 **13 Claims**

1. A superconducting magnet system for an analytic NMR spectrometer comprising

a superconducting solenoid coil for producing a vertically directed extremely homogeneous and stable magnetic field suitable for high resolution NMR spectroscopy in a measuring region said solenoid coil;

a substantially cylindrical cryostat having a vertical cylinder axis, a vertical room temperature bore, and a transverse room temperature access to said vertical room temperature bore, said transverse access disposed directly above said superconducting solenoid coil, said solenoid coil surrounding said room temperature bore; and



tank means for holding a cryogenic liquid in thermal contact with said solenoid coil, said tank means disposed in said cryostat directly above said transverse access

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5,739,690

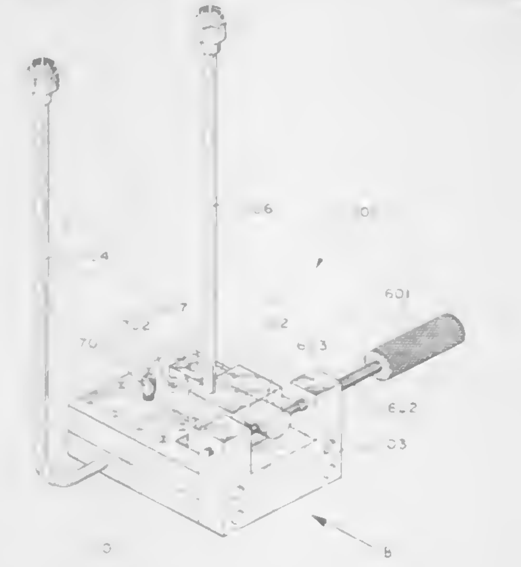
CROSSED-LOOP RESONATOR STRUCTURE FOR SPECTROSCOPY

George A. Rinard, Denver, Colo., assignor to Colorado Seminary, Denver, Colo.

Filed Apr. 4, 1996, Ser. No. 627,263

Int. Cl.^{6} G01V *3/00*

U.S. Cl. 324—321 **20 Claims**



1. A resonator structure comprising

a first resonator comprising a first resonator loop formed by a hollow channel with conductive walls to confine a first high frequency magnetic field, and

a second resonator comprising a second resonator loop formed by a hollow channel with conductive walls to confine a second high frequency magnetic field wherein flux lines of said first magnetic field are substantially orthogonal to flux lines of said second magnetic field, and wherein the first resonator loop and the second resonator loop intersect so that the first and second resonator loops are substantially shielded to prevent coupling of said first and second magnetic fields from the first and second resonator loops

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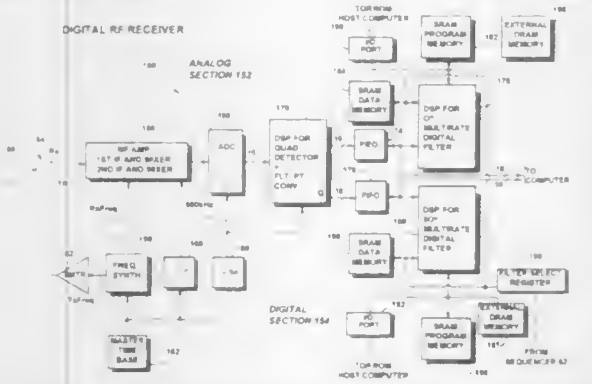
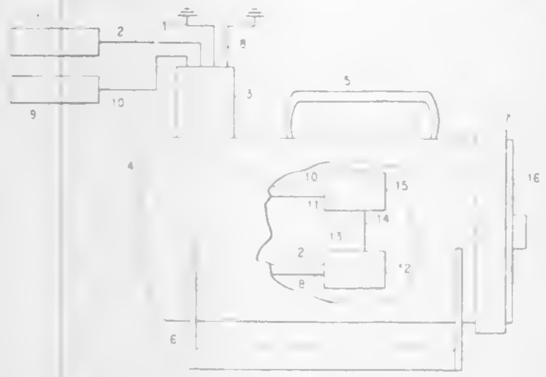
5,739,691
MULTI-FREQUENCY DIGITAL LOW PASS FILTER FOR MAGNETIC RESONANCE IMAGING
John C. Hoenninger, III, Oakland, Calif., assignor to The Regents of the University of California, Oakland, Calif.
Filed Nov. 28, 1995, Ser. No. 563,239
Int. Cl.⁶ G01V *3/00*
U.S. Cl. 324—322 26 Claims



1 In a magnetic resonance imaging system of the type including a computer and a real time sequencer, a method of processing a NMR signal to generate an image comprising the following steps:

(a) prestoring a filter database specifying plural digital filter parameter sets corresponding to plural different digital filters;
(b) receiving a message from the real time sequencer;
(c) selecting one of said plural different digital filter sets based on said received message;
(d) generating a magnetic field;
(e) stimulating nuclear magnetic resonance phenomena with said magnetic field, said phenomena causing a NMR signal to be generated;
(f) sampling said generated NMR signal to provide a digitized input data set;
(g) accessing said selected digital filter set from said prestored filter database;
(h) digitally filtering said digitized input data set based at least in part on said accessed parameters; and
(i) generating, at least in part using the computer, an image in response to said digitally filtered input data set.

5,739,692
DEVICE FOR MONITORING VOLTAGE AND AMPERAGE ON AN ARTICLE BEING PASSED THROUGH AN ELECTROCOATING BATH
Joseph John Subda, Jr., Macomb, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 8, 1995, Ser. No. 554,645
Int. Cl.⁶ G01N *27/02*
U.S. Cl. 324—444 9 Claims

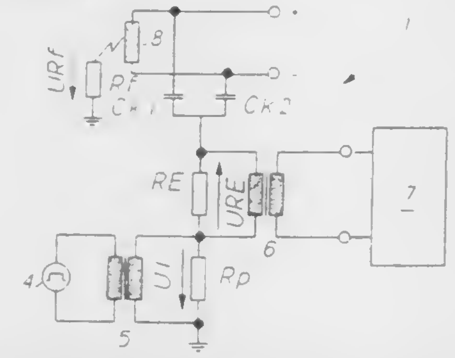


1 A device for monitoring voltage and amperage on an article being electrocoated with a primer composition in an aqueous electrocoating bath which comprises the following components

(1) a sealed container for holding electrical components,
(2) a recording device positioned in the container for recording voltage and amperage;
(3) a voltage measuring circuit board positioned in the container and electrically connected to the recording device containing an electrical circuit for measuring voltage;
(4) a first electrical probe flat and free of any openings positioned outside of the sealed container and attached directly to the surface of the article being electrocoated and electrically connected to the circuit of the circuit board for measuring voltage and a second electrical probe flat and free of any openings positioned outside of the sealed container for measuring amperage and attached to the article being electrocoated and electrically connected to the recording device;

whereby the article being electrocoated with a primer composition is being passed through an aqueous electrocoating bath, measurements of voltage and amperage to which the article is being directly subjected are being taken at set time intervals as the article is being passed through the bath to monitor the voltage and amperage on the article.

5,739,693
METHOD FOR DETECTING GROUND FAULTS ON THE CONDUCTORS OF AN ELECTRICAL MACHINE
Michael Pfiffner, Bonstetten, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland
Filed Sep. 1, 1994, Ser. No. 299,301
Claims priority, application Germany, Sep. 1, 1993, 43 29 381.6
Int. Cl.⁶ G01K *31/34;* **H02H** *7/06*
U.S. Cl. 324—509 10 Claims

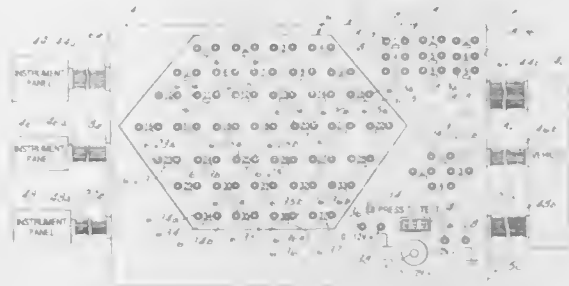


1 A method for detecting ground faults on the conductors of an electrical machine, comprising the steps of:

a) biasing said conductors with respect to a ground potential by means of a low-frequency injection voltage signal Ui of frequency f1, the injection signal Ui having a transmission period S and a pause period P, wherein said step of biasing includes the step of:
b) selecting for the injection signal Ui in the transmission period S a square-wave signal which is switched over periodically between a positive and a negative maximum and has at the start and at the end of the transmission period S a quarter-period either of the positive or of the negative maximum.

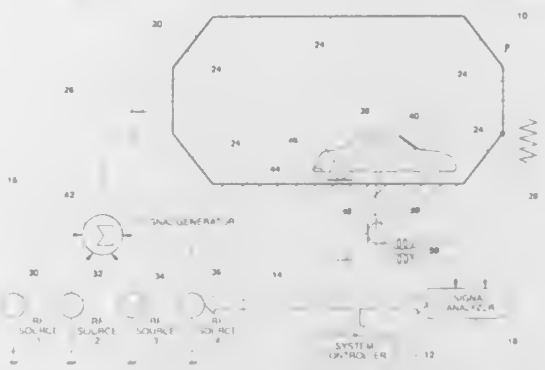
5,739,694
APPARATUS FOR TESTING OPERATION OF A DISPLAY PANEL ADAPTED TO BE CONNECTED TO A DRIVE MECHANISM BY AN ELECTRICAL CABLE OF PREDETERMINED CONNECTOR CONFIGURATION
Frederick R. Grochulski, West Bloomfield, Mich., assignor to Livernois Research and Development, Dearborn, Mich.
Filed Dec. 29, 1995, Ser. No. 580,847
Int. Cl.⁶ G01R *31/02*
U.S. Cl. 324—556 8 Claims

1. Apparatus for testing operation of a display panel adapted to be connected to drive means by an electrical cable of predetermined connector configuration, said apparatus comprising:



a first connector of the same said predetermined connector configuration for connection to said drive means,
a second connector of the same said predetermined connector configuration for connection to said display panel,
each of said first and second connectors having a predetermined number of connection contacts arrayed in identical series and individually identified,
an operator panel,
an array of electrical switch means disposed on said operator panel, each of said switch means having a pair of switch contacts respectively connected to corresponding identically identified contacts of said first and second connectors, and means on said panel responsive to an operator for selectively closing each of said switch means to interconnect within said apparatus the corresponding connector contacts and opening each of said switch means to disconnect from each other the said corresponding connectors contacts of said first and second connectors,
a pair of third electrical connectors on said operator panel adjacent to each of said switch means, each of said third connectors being connected to a corresponding contact of the adjacent said switch means such that each said pair of third electrical connectors is connected in parallel with the adjacent said switch means, and
indicia on operator panel adjacent to each said switch means and the corresponding pair of said third connectors for identifying the contacts of said first and second connectors associated with said adjacent switch means and pair of third connectors.

5,739,695
METHOD FOR DYNAMICALLY TESTING RADIO SYSTEMS FOR THE MOTOR VEHICLE ENVIRONMENT
Richard David Zerod, Livonia, and Richard William Kautz, North Branch, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Sep. 4, 1996, Ser. No. 707,771
Int. Cl.⁶ G01R *27/26*
U.S. Cl. 324—637 13 Claims



1 A method for dynamically testing a radio system having output terminals connectable to a speaker system in a motor vehicle using a dynamometer, a transverse electromagnetic cell, a signal generator and a signal analyzer, the method comprising the steps of:

placing the motor vehicle in the transverse electromagnetic cell,
connecting the output terminals to the signal analyzer;
operating the motor vehicle on the dynamometer inside the transverse electromagnetic cell;
generating a signal using the signal generator,
transmitting the signal from the signal generator to the transverse electromagnetic cell;
emitting the signal onto the motor vehicle, and
measuring an output signal generated by the radio system at the output terminals using the signal analyzer

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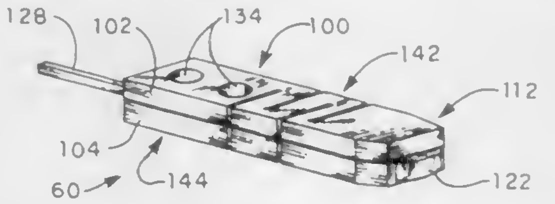
5,739,696
PROBE AND APPARATUS FOR TESTING ELECTRONIC COMPONENTS
Jakob Herrmann, 3620 W. Elgin St., Chandler, Ariz. 85226, and Josef Baumann, 40800 NW. Monarch La., Banks, Oreg. 97106
Filed Aug. 8, 1996, Ser. No. 694,930
Int. Cl.⁶ H01R *43/16*
U.S. Cl. 324—754 29 Claims



1. A probe capable of being used in the testing of electronic components, wherein said probe can be operatively connected to a testing instrument, said probe comprising:

a support body having a flex means located between first and second portions of said body, wherein said flex means has at least a portion that is serpentine in shape and variable in length, wherein said flex means resiliently secures said first portion to said second portion, and wherein said flex means provides a spring action that is thereby inherent in the structure of the support body,
an electrically-conductive contact means secured to the first portion of said support body and capable of contacting a terminal of an electrical component when said component is being tested; and
an electrical connecting means for connecting the contact means to a testing instrument

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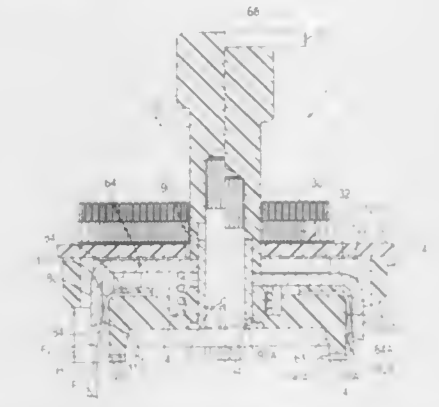
5,739,697
LOCKING MECHANISM FOR IC TEST CLIP
Marik Balyasny, Burbank, and George Ray Hirvela, Corona, both of Calif., assignors to ITT Corporation, New York, N.Y.
Filed Nov. 13, 1995, Ser. No. 557,787
Int. Cl.⁶ G01R *31/02*
U.S. Cl. 324—755 9 Claims



1 A test clip which can test an integrated circuit device having a body of substantially rectangular shape with a body axis and four

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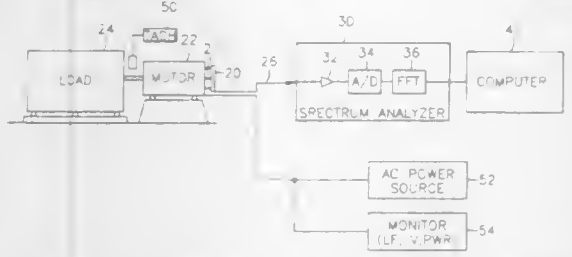
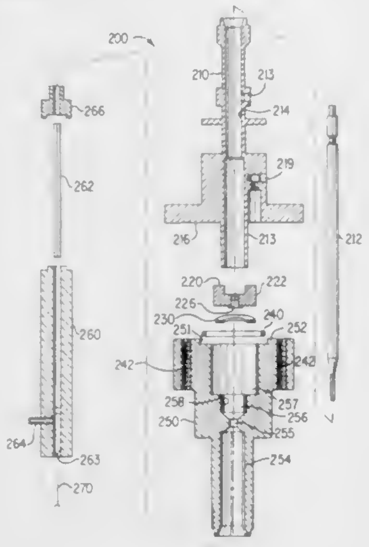
sides and four corner regions, said IC body having an upper portion of predetermined size, a lower portion with a bottom that can rest close to an upper face of a circuit board, and a plurality of leads extending from each of a plurality of said body sides to said circuit board while leaving said corner region free of said leads, comprising:
- a base which has an axis and walls for engaging an IC body, said base including legs for lying at the corner regions of the IC body and for supporting the test clip on the circuit board, said test clip including a plurality of locking fingers which are each movably coupled to said base and which each have body-engaging lower finger ends for engaging said IC body lower portion, with each finger end lying at one of said legs to engage an IC body corner region;
- each of said locking fingers comprises a length of resilient material with an upper end that is fixed with respect to said base and with a middle which extends at a downward-axially outward incline, with said lower finger ends extending primarily horizontally and radially inwardly from said middle; and including
- an actuator which is movable with respect to said base to engage said middles of said locking fingers to resiliently bend them to deflect them primarily radially inwardly so said lower finger ends move radially inwardly.

5,739,698
MACHINE FAULT DETECTION USING SLOT PASS FREQUENCY FLUX MEASUREMENTS
Stewart V. Bowers, and Kenneth R. Piety, both of Knoxville, Tenn., assignors to CSI Technology, Inc., Wilmington, Del.
Filed Jun. 20, 1996, Ser. No. 667,141
Int. Cl.⁶ G01R *31/02*
U.S. Cl. 324—772 **37 Claims**



1. A method of detecting electrical anomalies in an electric machine having a stator and a rotor, said machine producing magnetic leakage flux during operation, the method comprising the steps of:
- producing a comparison time series of flux signals, containing slot pass family frequency components and associated amplitude components, with a flux measurement sensor, said comparison flux signals being representative of the leakage flux of the machine;
- transforming said time series of comparison flux signals to a comparison spectrum representative of the slot pass family frequency components and associated amplitude components of the comparison flux signals;
- providing one or more prior spectra representative of the slot pass family frequencies and related amplitude components of leakage flux produced by said electric machine when no electrical anomalies exist;
- determining one or more comparison parameters from the comparison spectrum;
- determining one or more prior parameters for each of said one or more prior spectra corresponding to said one or more comparison parameters,
- comparing said one or more comparison parameters to said one or more prior parameters of at least one prior spectrum; and
- determining the presence of an electrical anomaly when at least one comparison parameter differs from one or more corresponding prior parameters by a threshold amount.

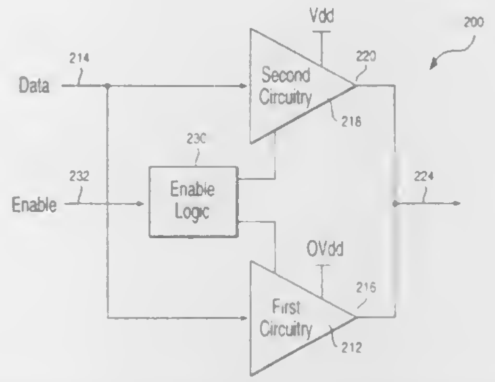
5,739,699
METHOD AND APPARATUS FOR ION DISCRIMINATION IN AN ELECTRON CAPTURE DETECTOR
Mahmoud F. Abdel-Rahman, West Grove, Pa., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Sep. 3, 1996, Ser. No. 706,918
Int. Cl.⁶ G01N *27/64*
U.S. Cl. 324—465 **7 Claims**



1. An electron capture detector for use with a gas chromatography column and a source of make-up gas, comprising:
- an ionization chamber having an entrance opening and an exit opening;
- sample inlet system operably connected between said column and the entrance opening for receiving column effluent and a fluid stream of said make-up gas and for directing a fluid mixture of column effluent and make-up gas through said entrance opening into said ionization chamber;
- an electron source associated with said ionization chamber for generating a plurality of thermal electrons in said fluid mixture, whereby the presence of electron-capturing species in the fluid mixture may react with the thermal electrons;
- anode electrode means and collector electrode means located with respect to said fluid mixture for detecting a subsequent variation in the thermal electron concentration in the fluid mixture; and
- an insulative member interposed between said fluid mixture in the ionization chamber and the anode electrode means having means for concealing the anode electrode means from an ionic current to thereby effect ion discrimination.

5,739,700
METHOD AND APPARATUS WITH DUAL CIRCUITRY FOR SHIFTING THE LEVEL OF A SIGNAL
Douglas Ele Martin, Round Rock, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sep. 9, 1996, Ser. No. 709,706
Int. Cl.⁶ H03K *19/0185*
U.S. Cl. 326—80 **8 Claims**

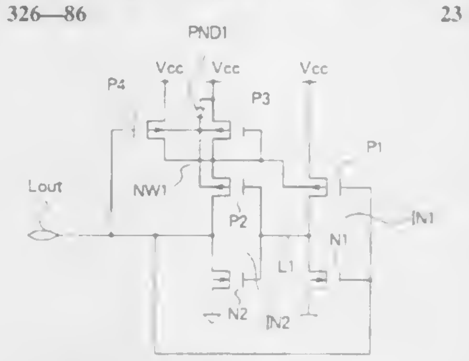
1. A driver for outputting a digital logic signal responsive to, and shifted in voltage level relative to, a digital logic input signal, the driver comprising:
- first circuitry outputting a first signal responsive to, but at higher voltage level than, an input signal; and
- second circuitry outputting a second signal responsive to, and at substantially the same voltage level as, the input signal, so that the second signal responds faster than the first signal,
- wherein the driver output signal is responsive to both the first and second signals, so that the second circuitry improves driver output signal response



5,739,701
INPUT/OUTPUT BUFFER CIRCUIT HAVING REDUCED POWER CONSUMPTION
Masayuki Oshima, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Filed Mar. 28, 1996, Ser. No. 623,002
Claims priority, application Japan, Mar. 30, 1995, 7-074261; Mar. 25, 1996, 8-094822
Int. Cl.⁶ H03K *19/0175*
U.S. Cl. 326—82 **18 Claims**

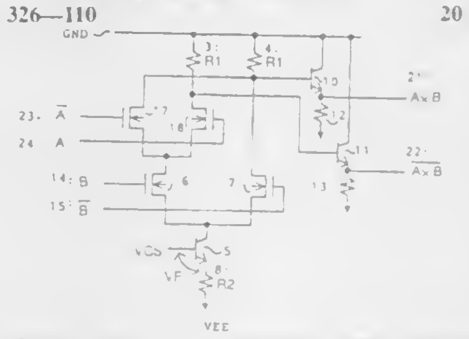
1. An input/output buffer circuit comprising:
- an input/output line having an input/output terminal at one end, the other end thereof being branched into an input line and an output line;
- an input buffer located on said input line for receiving an input signal through an input end thereof;
- an output buffer located on said output line for outputting an output signal through an output end thereof;
- a latch circuit connected to said input/output line for latching voltages in said input and output signals to hold said voltages at an output end of said latch circuit;
- a control terminal receiving a first control signal; and
- a delay circuit connected between said control terminal and said output buffer, said delay circuit outputting a second control signal toward said output buffer later than said first control signal with a given delay time,
- wherein said latch circuit is responsive to said first control signal inputted thereinto through said control terminal for being switched between a first ON state in which said voltages of said input and output signals are latched by said latch circuit and a first OFF state in which the output end of said latch circuit is in high impedance, and
- wherein said output buffer is switched by said second control signal between a second ON state in which said output signal is outputted therefrom and a second OFF state in which the output end of said output buffer is in high impedance.

5,739,702
BUS HOLD CIRCUIT
Hiroshi Shigehara, Oita, and Masanori Kinugasa, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Aug. 29, 1996, Ser. No. 704,995
Claims priority, application Japan, Aug. 31, 1995, 7-224218
Int. Cl.⁶ H03K *19/0175*
U.S. Cl. 326—86 **23 Claims**



1. A bus hold circuit, comprising:
- an input stage inverter connected between a first supply voltage terminal and a second supply voltage terminal, said input stage inventer, including,
  - a first P-channel transistor; and
  - a first N-channel transistor connected in series to said first P-channel transistor, a gate of said first P-channel transistor and a gate of said first N-channel transistor being connected in common to a bus line; and
- an output stage inverter also connected between the first supply voltage terminal and the second supply voltage terminal, said output stage inventer including:
  - a second P-channel transistor;
  - a third P-channel transistor connected in series to said second P-channel transistor; and
  - a second N-channel transistor connected in series to said third P-channel transistor, a gate of said second P-channel transistor being connected to the bus line, a gate of said third P-channel transistor and a gate of said second N-channel transistor being connected in common to a drain of said first P-channel transistor and a drain of said first N-channel transistor, a drain of said third P-channel transistor and a drain of said second N-channel transistor being connected in common to the bus line, and
- wherein back gates of said first, second and third P-channel transistors are all connected to a source of said third P-channel transistor, respectively.

5,739,703
BICMOS LOGIC GATE
Hitoshi Okamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Mar. 11, 1996, Ser. No. 613,881
Claims priority, application Japan, Mar. 10, 1995, 7-079844
Int. Cl.⁶ H03K *19/082; 19/094*
U.S. Cl. 326—110 **20 Claims**



1. A BiCMOS logic circuit operating as a gate comprising
- a pair of nMOS transistors, each source of said pair of nMOS transistors connected together, and each gate of said pair of

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nMOS transistors supplied with one of complementary logic input signals for controlling ON/OFF status of each of said pair of nMOS transistors;

a constant current source connected between the connection of said sources and a negative terminal of a power supply, said constant current source including a bipolar transistor with a base controlled by a reference voltage;

a pair of load elements each of said pair of load elements connected between the drain of a respective one of said pair of nMOS transistors and a positive terminal of said power supply, and each of said pair of load elements generating a respective voltage difference, the respective voltage differences being output as each of complementary logic output signals; and

a pair of emitter followers, each of said pair of emitter followers having a NPN transistor with a base supplied with one of said complementary logic output signals, a collector connected to said positive terminal of said power supply, and an emitter connected through a load capacitance discharging means to a termination power supply, said termination power supply having a predetermined potential between potentials of said positive terminal and said negative terminal of said power supply

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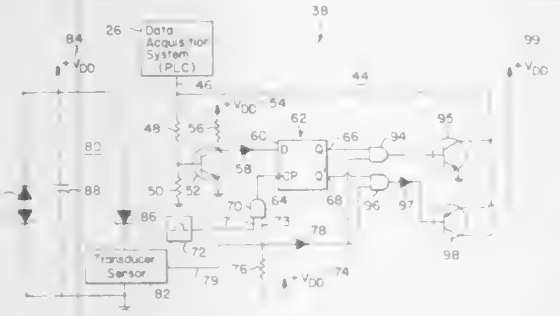
5,739,704
LOGIC SELECTION CIRCUIT
David R. Clark, La Grange, Ill., assignor to Bimba Manufacturing Company, Monee, Ill.
Filed Jul. 22, 1996, Ser. No. 681,279
Int. Cl.⁶ H03K *19/0175*
U.S. Cl. 326—62 **23 Claims**



1 A logic selection circuit for selectively matching a first transistor logic type of a first interfacing circuit with a second transistor logic type of a second interfacing circuit, thereby allowing said first interfacing circuit and said second interfacing circuit to properly communicate with each other in an electrical fashion, said logic selection circuit comprising

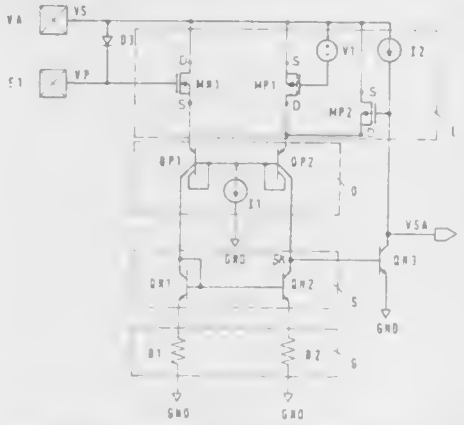
a control interface line connectable to said first interfacing circuit;

a communication interface line connectable to said second interfacing circuit.

circuit matching means for selectively matching said first transistor logic type of said first interfacing circuit with said second transistor logic type of said second interfacing circuit, and

circuit latching means for latching a voltage level of a voltage signal present at an input of said circuit matching means when an enable signal is present on said control interface line.

5,739,705
HYSTERESIS COMPARATOR CIRCUIT FOR USE WITH A VOLTAGE REGULATING CIRCUIT
Udo John, Poing, Germany, assignor to SGS-Thomson Microelectronics GmbH, Grasbrunn, Germany
Filed Nov. 15, 1996, Ser. No. 746,768
Claims priority, application Germany, Nov. 16, 1995, 195 42 823.4
Int. Cl.⁶ H03K *5/153.3/037*
U.S. Cl. 327—74 **29 Claims**



1. A hysteresis comparator circuit for ascertaining in a virtually power-free manner a voltage value to be used for comparison, comprising:

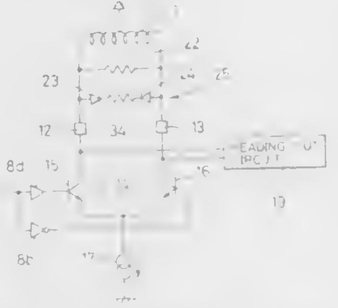
load stage with load transistors;

a differential stage coupled to the load stage; and

an impedance stage coupled to the differential stage,

wherein a control electrode of a first lead transistor, which is a transistor with high input impedance, having an input voltage applied thereto that is to be used for the comparison, and a control electrode of a second load transistor having a reference voltage applied thereto on the basis of which the second load transistor forms a constant load impedance, a third load transistor connected in parallel with the second load transistor, the third load transistor conducting or blocking depending on an output signal of the comparator circuit, so that in accordance with the output signal of the comparator circuit, an impedance of the second load transistor has an additional load impedance connected in parallel thereto or no such connection is made.

5,739,706
MAGNETICALLY RECORDING APPARATUS
Yujiro Okamoto, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan
Continuation of Ser. No. 444,879, May 19, 1995, abandoned.
This application Feb. 28, 1997, Ser. No. 808,807
Claims priority, application Japan, May 20, 1994, 6-106833
Int. Cl.⁶ H03K *3/53*
U.S. Cl. 327—110 **2 Claims**



1 A magnetically recording apparatus comprising.

means for connecting a center of a magnetic head to a constant potential:

differential connected transistors having output electrodes and having control electrodes supplied with a writing signal;

means for connecting said output electrodes of the differential connected transistors across the magnetic head;

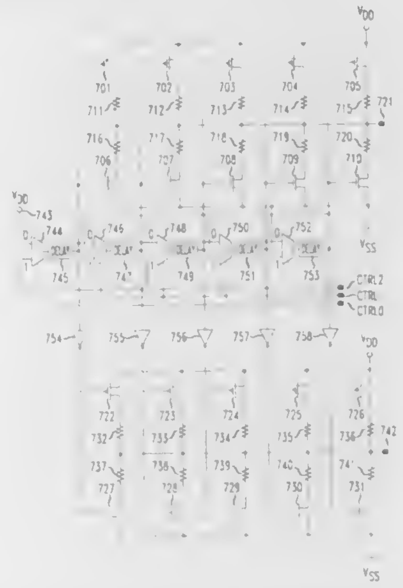
first resistor connected across the magnetic head for damping said writing signal;

a terminating circuit connected in parallel to the first resistor, said terminating circuit including a pair of PN-junctions having polarities opposite to each other; and

a second resistor connected between the pair of PN-junctions,

wherein said terminating circuit is activated when a voltage difference across the magnetic head becomes a predetermined level or above at a time of writing and current flows across the pair of PN-junctions when said terminating circuit is activated.

5,739,707
WAVE SHAPING TRANSMIT CIRCUIT
Stephen Robert Barraclough, Wokingham, England, assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed Jul. 23, 1996, Ser. No. 685,080
Claims priority, application United Kingdom, Sep. 6, 1995, 9518183
Int. Cl.⁶ H03K *17/16;17/687*
U.S. Cl. 327—112 **22 Claims**



1. A driver circuit for driving a data signal onto a communication channel, characterized in that said driver circuit comprises:

a first output buffer including a multiplicity of pull-up transistors and a multiplicity of pull-down transistors coupled to a first output conductor through pull-up resistors and pull-down resistors, respectively;

a multiplicity of delay circuits supplying a plurality of delayed data signals to the control terminals of the pull-up and pull-down transistors; and

control circuitry for selectively activating the delay circuits in accordance with the data input signal

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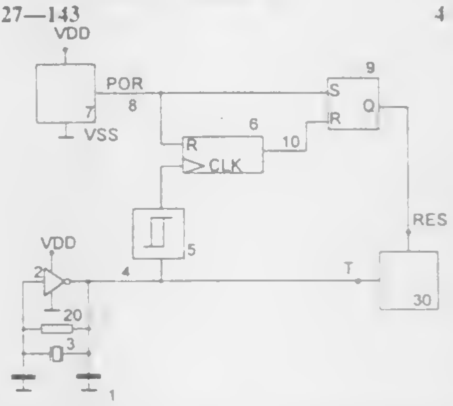
5,739,708
CIRCUIT CONFIGURATION FOR GENERATING AN ENABLE SIGNAL FOR A CLOCK-CONTROLLABLE CIRCUIT
Siegfried LeWalter, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed Sep. 19, 1996, Ser. No. 715,931
Claims priority, application Germany, Sep. 19, 1995, 195 34 785.4
Int. Cl.⁶ H03K *17/22*
U.S. Cl. 327—143 **4 Claims**



1. A circuit configuration for generating an enable signal for a clock-controlled circuit, comprising:

a device for supplying a pulse generated by an increase in supply voltage;

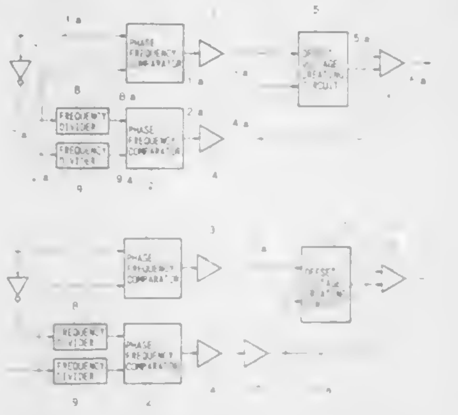
a clock generator supplied by the supply voltage;

a level weighting device triggered by said clock generator;

a counter being clock-controlled by said level weighting device and outputting a signal once a predetermined counter state is reached; and

a memory element to be put into a first of two states by the pulse supplied by said device and into a second of the two states by the signal output by said counter, said memory element having an output for supplying an enable signal for a clock-controlled circuit.

5,739,709
PHASE FREQUENCY DETECTING CIRCUIT
Noriyuki Banno, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan
Filed Sep. 26, 1996, Ser. No. 721,053
Claims priority, application Japan, Sep. 27, 1995, 7-273424
Int. Cl.⁶ H03D *13/00;* **H03L** *7/087*
U.S. Cl. 327—156 **8 Claims**


PHASE FREQUENCY COMPARATOR
5
FREQUENCY DIVIDER
FREQUENCY DIVIDER
PHASE FREQUENCY COMPARATOR
8
9
4
3
PHASE FREQUENCY COMPARATOR
FREQUENCY DIVIDER
FREQUENCY DIVIDER
PHASE FREQUENCY COMPARATOR
9

1. A phase frequency detecting circuit comprising.

a first phase frequency comparator for producing a first phase error signal which is proportional to a difference between a base phase and a reference phase inputted thereto;

a first integration circuit for performing integration on the first phase error signal to produce a control voltage;

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an inverter circuit for effecting phase inversion on the base phase to produce an inverted base phase;

a first frequency divider for performing a frequency dividing operation on the inverted base phase to produce a frequency-divided base phase;

a second frequency divider for performing a frequency dividing operation on the reference phase to produce a frequency-divided reference phase;

a second phase frequency comparator for producing a second phase error signal which is proportional to a difference between the frequency-divided base phase and the frequency-divided reference phase.

a second integration circuit for performing integration on the second phase error signal to produce a frequency-divided control voltage:

an offset voltage creating circuit for producing an offset voltage based on the control voltage and the frequency-divided control voltage, and

an offset imparting circuit, receiving said offset voltage and said frequency-divided control voltage, for imparting the offset voltage to the frequency-divided control voltage to produce an output voltage.

5,739,710

DYNAMIC/STATIC SIGNAL CONVERTING CIRCUIT AND METHOD FOR USE IN A LAMP DRIVING DEVICE

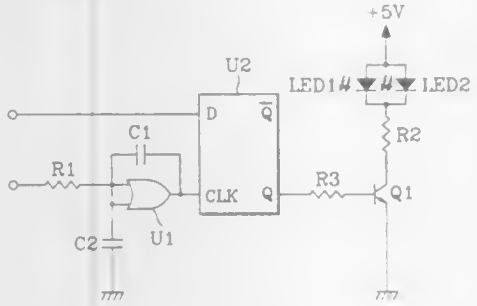
Seung-Gil Baik, Daegu, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 8, 1996, Ser. No. 679,433

Claims priority, application Rep. of Korea, Jul. 8, 1995, 1995-20112

Int. Cl.^{6} H04B *10/04*

U.S. Cl. 327—173 **2 Claims**



1 A signal converting circuit comprising

a D type flip-flop having a D input terminal and a clock input terminal and an output terminal, said D input terminal being connected to an input signal:

a clock delay means for delaying an inputted system clock signal for a predetermined period of time, said clock delay means comprising a first resistor for receiving the inputted system clock signal;

a first capacitor connected between said first resistor and ground

a logic gate having at least one input connected to a junction of said first resistor and said first capacitor and having an output connected to said clock terminal of said D flip-flop and a second capacitor connected between said input and output terminals of said logic gate; and

a driving means connected to said D flip-flop output terminal for driving at least one light emitting diode

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5,739,711

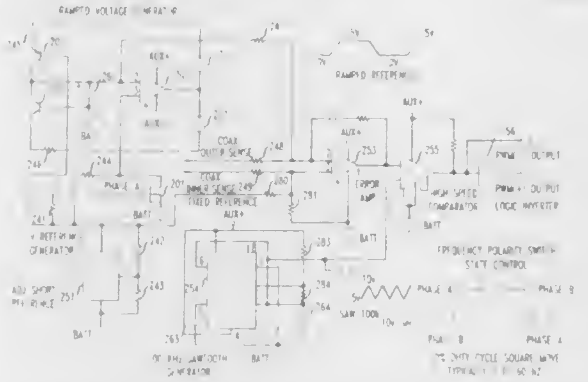
REGULATION CIRCUIT FOR BIPOLAR VOLTAGE SWITCHING CIRCUITS HAVING LOGIC CIRCUITRY USING A SINGLE ERROR AMPLIFIER FOR REGULATION OF BOTH POSITIVE AND NEGATIVE VOLTAGES

Yehoshua Mandelcorn, Dallas, Tex., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 1, 1995, Ser. No. 566,325

Int. Cl.^{6} H03K *3/017*

U.S. Cl. 327—175 **15 Claims**



1. A regulation circuit for regulating oppositely phased first and second power switches to provide opposite polarity regulated voltages at a first and a second output node comprising:

an error amplifier having first and second inputs for accepting a potential sensed at the first output node and the second output node, respectively, the first and second inputs further accepting a substantially fixed reference voltage and a ramp voltage waveform, respectively.

a comparator circuit for comparing an output of the error amplifier with a sawtooth voltage waveform and driving the first power switch in response thereto, the output of the comparator circuit being inverted to drive the second power switch.

5,739,712

POWER AMPLIFYING CIRCUIT HAVING AN OVER-CURRENT PROTECTIVE FUNCTION

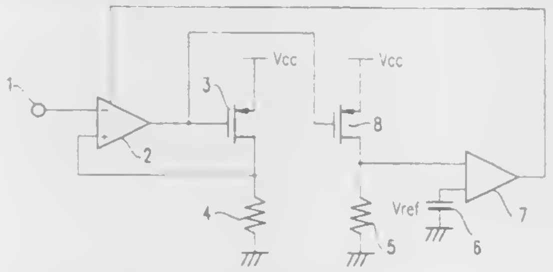
Takashi Fujii, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,237

Claims priority, application Japan, Nov. 29, 1994, 6-294857

Int. Cl.^{6} H02H *9/02*· **H03L** *5/00*

U.S. Cl. 327—323 **14 Claims**



1 An amplifying circuit comprising:

an amplifying section including a first amplifier having an input terminal for receiving an input signal, an output terminal for supplying a first signal and a control terminal for receiving a control signal to control the signal level of said first signal, and a power transistor, having a gate for receiving said first signal, a source connected to a power source line and a drain connected to a load, for supplying a load current to the load and

an over-current protective section including a current detection transistor, having a gate connected to the gate of said power transistor, a source connected to said power source line and a drain for supplying a second signal, and a comparator receiving a third signal corresponding to the magnitude of said second signal and a fourth signal having a constant voltage level, said comparator providing said control signal as the output thereof when said third signal exceeds said constant voltage level, said control signal controlling said load current to decrease

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5,739,713

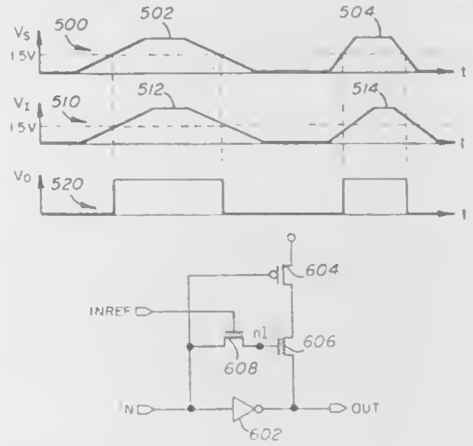
DECONVOLUTION INPUT BUFFER COMPENSATING FOR CAPACITANCE OF A SWITCH MATRIX OF A HIGH DENSITY PROGRAMMABLE LOGIC DEVICE

Bradley A. Sharpe-Geisler, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 19, 1995, Ser. No. 574,776

Int. Cl.^{6} H03K *17/16; 19/00*

U.S. Cl. 327—379 **14 Claims**



1 A buffer comprising

an inverter having an input and an output.

a pull up transistor having a gate connected to the input of the inverter and a source to drain path having a first end connected to V_{DD} and a second end:

a pull up switching transistor having a gate and a source to drain path having a first end connected to the second end of the source to drain path of the pull up transistor and a second end connected to the output of the inverter, and

a pass transistor having a source to drain path with a first end connected to the input of the inverter and a second end connected to the gate of the pull up switching transistor.

5,739,714

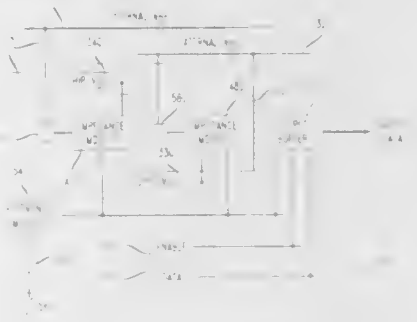
APPARATUS FOR CONTROLLING GROUND BOUNCE

Thaddeus John Gabara, Murray Hill, N.J., assignor to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Oct. 24, 1995, Ser. No. 547,633

Int. Cl.^{6} H03K *17/16*

U.S. Cl. 327—384 **10 Claims**



1 An integrated circuit device having at least one output buffer and first and second voltage source buses, said device comprising at least one adjustable resistive element coupled to a respective one of said first and second voltage source buses, said at least one adjustable resistive element further coupled to corresponding first and second voltage supplies outside of said device, wherein said at least one adjustable resistive element is adjustable to maintain a particular resistance value to compensate for fabrication tolerances of the device and operating conditions of the device in order to damp ground bounce on said respective first or second voltage source buses produced by switching operation of said at least one output buffer

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5,739,715

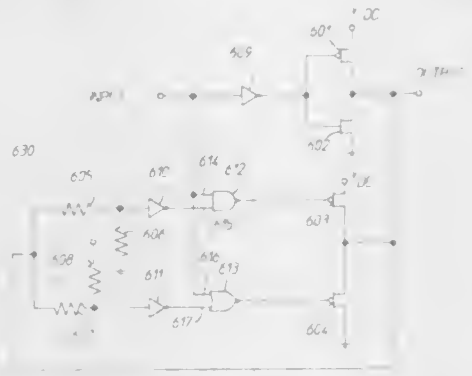
DIGITAL SIGNAL DRIVER CIRCUIT HAVING A HIGH SLEW RATE

William Peter Rawson, Fort Collins, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Filed Oct. 31, 1995, Ser. No. 551,221

Int. Cl.^{6} H03K *17/16; 17/04; 19/003*

U.S. Cl. 327—387 **2 Claims**



1 A driver circuit having a circuit input and a circuit output for driving a digital input signal to an unknown load comprising

a high slew rate driver connected to the circuit output for driving an output signal based on the input signal during input signal transitions between states.

a high slew rate driver controller connected to the circuit input at a first input, the high slew rate driver and the circuit output for controlling the high slew rate driver.

a delay circuit having an input connected to the circuit output and having an output connected to a second input of said high slew rate driver controller, wherein a delayed voltage from the circuit output is applied to the second input to cut off the high slew rate driver the delay circuit comprising a voltage divider circuit and an inverter circuit, wherein an input of the voltage divider circuit is connected to the circuit output, an output of the voltage divider is connected to an input of the inverter circuit, and an output of the inverter circuit is connected to the second input of the high slew rate driver controller and

a termination driver connected to the circuit input and the circuit output for driving the output signal based on the input signal

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5,739,716

PROGRAMMABLE ANALOG SWITCH

Duk Joo Kwak, Kyungki-Do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Choongcheongbuk-Do, Rep. of Korea

Filed Sep. 20, 1996, Ser. No. 718,264

Claims priority, application Rep. of Korea, Sep. 22, 1995, 1995-31434

Int. Cl.^{6} H03K *17/687*

U.S. Cl. 327—427 **4 Claims**

1 In an analog switch including first and second inverters connected in series for sequentially inverting an applied gate voltage, a first analog transmission gate for selectively transmitting an applied input signal in response to output signals from said first and second inverters, a resistance device connected to the first analog transmission gate, and a second analog transmission gate

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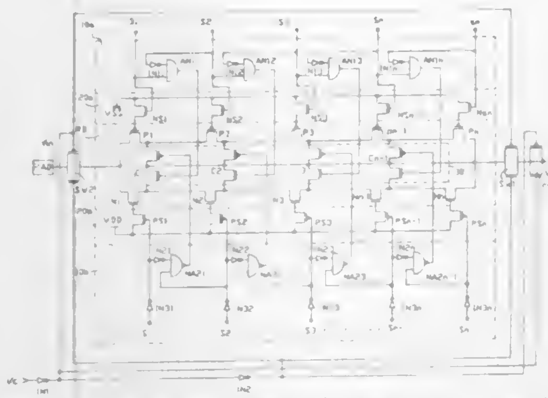


connected to the resistance device for selectively transmitting an output signal from the resistance device in response to the output signals from the first and second inverters, the improvement for making a resistance value of the resistance device programmably variable, comprising:

transmission control means for logically operating upon applied control signals and generating transmission control signals in accordance therewith;

variable resistance control means connected to the resistance device for controlling a resistance of the resistance device in accordance with the applied control signals and inverted versions of the applied control signals; and

transmission means connected to the transmission control means, the resistance device and the second analog transmission gate, for transmitting an output signal of the resistance device to the second transmission gate in accordance with the transmission control signals from the transmission control means.

5,739,717
SEMICONDUCTOR LIGHT EMITTING ELEMENT DRIVING CIRCUIT

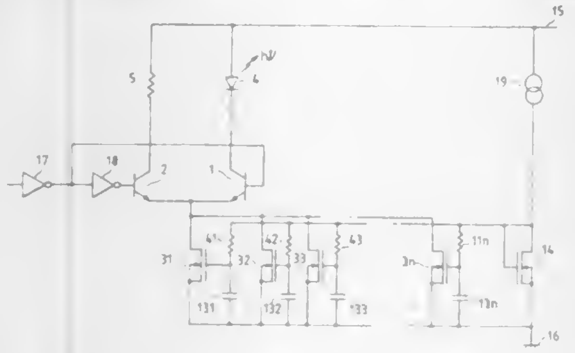
Hiroyuki Nakamura, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 19, 1995, Ser. No. 424,179

Claims priority, application Japan, Apr. 22, 1994, 6-084576; Jun. 6, 1994, 6-147080

Int. Cl.^{6} H01L *31/00*; H03K *17/60*

U.S. Cl. 327—514 **12 Claims**



1 A semiconductor light emitting element driving circuit for driving a semiconductor light emitting element, comprising

a reference voltage source;

a first bipolar transistor having a base, a collector, and an emitter, wherein said semiconductor light emitting element is connected between said reference voltage source and said collector, and said base of said first bipolar transistor is supplied with a first signal,

a second bipolar transistor having a collector and an emitter, and having a base which is supplied with a second signal complementary to the first signal,

a resistor connected between said reference voltage source and said collector of said second bipolar transistor,

a constant current circuit comprising a first insulated gate-type transistor having a source, a drain and a gate, and at least two other insulated gate-type transistors each having a source, a drain and a gate; and

a constant current source, a first end of which is connected to said reference voltage source, said drain of said first insulated gate-type transistor being connected to a second end of said constant current source, said drains of said other insulated gate-type transistors being respectively connected to said emitters of said first and second bipolar transistors, and said gates of said other insulated gate-type transistors being respectively connected to said drain of said first insulated gate-type transistor; wherein said sources of said first and said other insulated gate-type transistors are commonly connected, and said gates of said other insulated gate-type transistors are each connected to a time constant circuit including a resistor and a capacitor

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5,739,718
INTEGRATED CIRCUIT IN WHICH SOME FUNCTIONAL COMPONENTS ARE MADE TO WORK WITH ONE AND THE SAME OPERATING CHARACTERISTIC

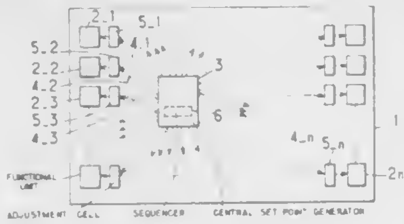
Michel Alain Chevroulet, Neuchatel, Switzerland, assignor to CSEM-Centre Suisse D'Electronique et de Microtechnique SA, Neuchatel, Switzerland

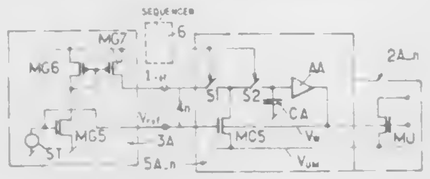
Filed May 17, 1996, Ser. No. 649,478

Claims priority, application France, May 17, 1995, 95 05920

Int. Cl.^{6} H03L *1/00*

U.S. Cl. 327—530 **16 Claims**





1 An integrated circuit which comprises:

central reference generator means for generating at least one setpoint item for determining an operating characteristic required to be common for a plurality of functional components of the integrated circuit;

a plurality of units, each unit including one of said functional components; means for distributing the setpoint item among said units

each of said units comprising local adjustment means connected to receive said setpoint item and to generate an adjustment value, said local adjustment means including a device controlled as a function of said adjustment value;

correction means in each said unit for controlling the operating characteristic of said device as a function of said adjustment value, said device being placed in the proximity to said functional component of said unit and configured such that the operating characteristic which is imposed on said device is also imposed on said functional component

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5,739,719
BIAS CIRCUIT WITH LOW SENSITIVITY TO THRESHOLD VARIATIONS

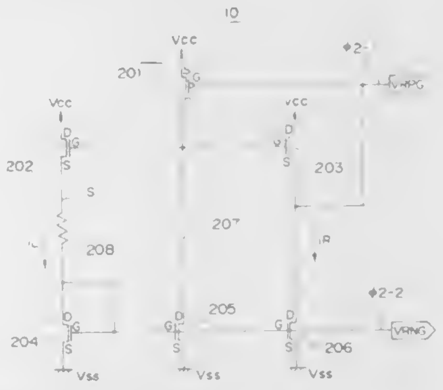
Tetsuya Tanabe, and Satoru Tanoi, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Division of Ser. No. 566,955, Dec. 4, 1995, Pat. No. 5,648,734. This application Mar. 3, 1997, Ser. No. 810,284

Claims priority, application Japan, Dec. 26, 1994, 6-322327

Int. Cl.^{6} G05F *1/10*

U.S. Cl. 327—543 **7 Claims**



1 A bias circuit comprising:

a first transistor having a first terminal connected to a first source node supplied with a first source potential level, a second terminal connected to a first node and a control electrode connected to a first output node;

a second transistor having a first terminal connected to the first source node, a second terminal connected to one end of a resistive means and a control electrode connected to the first node;

a third transistor having a first terminal connected to the first source node, a second terminal connected to the first output node and a control electrode connected to the first node;

a fourth transistor having a first terminal connected to a second source node supplied with a second source potential level, a second terminal connected to the first node and a control electrode connected to a second output node,

a fifth transistor having a first terminal connected to the second source node, a second terminal connected to the other end of the resistive means and a control electrode connected to the other end of the resistive means and the second output node; and

a sixth transistor having a first terminal connected to the second source node, a second terminal connected to the first output terminal and a control electrode connected to the second output node

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5,739,720
SWITCHED CAPACITOR OFFSET SUPPRESSION

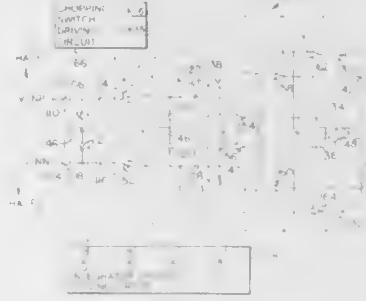
Wai L. Lee, Wilmington, Mass., assignor to Analog Devices, Inc., Norwood, Mass.

Continuation of Ser. No. 447,874, May 23, 1995, abandoned. This application Mar. 11, 1997, Ser. No. 815,336

Int. Cl.^{6} H03F *1/14*

U.S. Cl. 330—9 **22 Claims**

9 A switched-capacitor circuit comprising



a first input node,

a second input node

a first output node,

a second output node,

a first signal path being disposed in a first circuit path between the first input node and the first output node,

a second signal path being disposed in a second circuit path between the second input node and the second output node

a first switch having an input and an output

a second switch having an input and an output, and

a means for alternately disposing both the input and output of the first switch within the first and second signal paths and both the input and output of the second switch within the first and second signal paths.

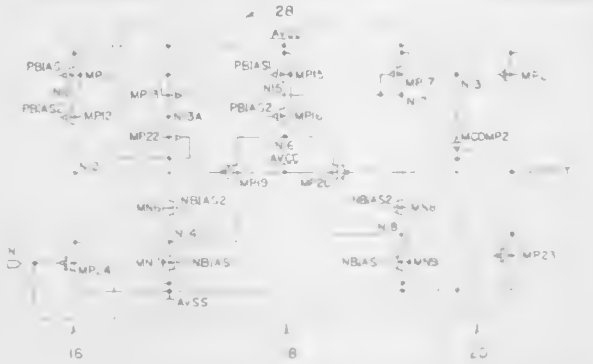
5,739,721
HIGH SWING, LOW POWER OUTPUT STAGE FOR AN OPERATIONAL AMPLIFIER

Geoffrey E. Brehmer, Lexington, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 13, 1996, Ser. No. 600,841

Int. Cl.^{6} H03F *3/45*·*1/14*

U.S. Cl. 330—253 **12 Claims**



1 A high swing, low power output stage for an operational amplifier, comprising:

(a) a source follower input stage having an output and having an input connected to a signal output from an operational amplifier;

(b) a folded-cascode gain stage having an output and having an input connected to said output of said source follower input stage, and

(c) a source follower output stage having an output and having an input connected to said signal output from said operational amplifier, wherein said source follower output is connected to an output of said high swing output stage, and

(d) a current sourcing device having an input connected to said folded-cascode gain stage output, and having an output connected to said source follower output stage output.

5,739,722
LOW-VOLTAGE RAIL-TO-RAIL OPERATIONAL AMPLIFIER

Kuok Y. Ling, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 489,725, Jun. 13, 1995, Pat. No. 5,650,753. This application Nov. 19, 1996, Ser. No. 746,915

Int. Cl.^{6} H03F *3/45*

U.S. Cl. 330—253 **19 Claims**

1. A method of eliminating cross-over distortion in an operational amplifier circuit comprising

summing at least a first current corresponding to a first input voltage and at least a second current corresponding to a second input voltage, thereby producing a summed current, wherein said summed current is proportional to a first pair of currents flowing through a first pair of input transistors which

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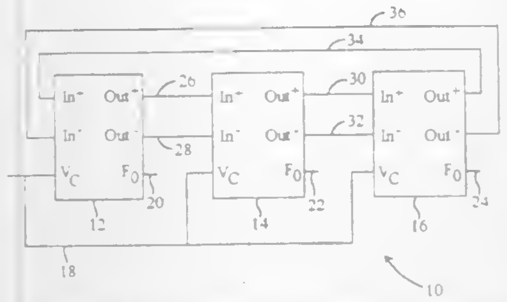


receive said first input voltage upon gate terminals thereof, and wherein said summed current is proportional to a second pair of currents flowing through a second pair of input transistors which receive said second input voltage upon gate terminals thereof;

activating a first current source and deactivating a second current source within said operational amplifier circuit in response to a first value of said summed current; and

activating said second current source and deactivating said first current source in response to a second value of said summed current.

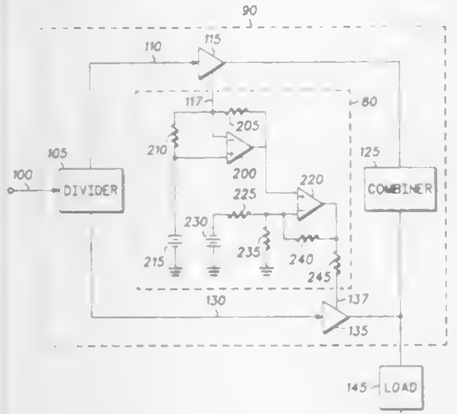
5,739,723
LINEAR POWER AMPLIFIER USING ACTIVE BIAS FOR HIGH EFFICIENCY AND METHOD THEREOF

Bernard Eugene Sigmon, and Robert Michael Jackson, both of Gilbert, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 4, 1995, Ser. No. 566,811

Int. Cl.⁶ H03F *3/68*

U.S. Cl. 330—295 **17 Claims**



1 A power amplifier having an active bias, comprising

a power divider coupled to an RF input signal for producing an inphase signal and a quadrature phase signal from said RF input signal,

a carrier amplifier for amplifying said inphase signal from said power divider;

a peaking amplifier for amplifying said quadrature phase signal from said power divider;

a combiner coupled to both an output of said carrier amplifier and an output of said peaking amplifier, said combiner for combining in additive phase said output of said carrier amplifier and said output of said peaking amplifier; and

an active bias circuit coupled to both of said carrier amplifier and said peaking amplifier, said active bias circuit for determining optimum biasing conditions as said RF input signal varies in magnitude and for achieving maximum RF output power and conversion efficiency of said carrier amplifier and said peaking amplifier, said active bias circuit comprising means for sensing a change in a carrier amplifier bias input, means for generating a reference voltage based on said carrier amplifier bias input, and means for generating a peaking amplifier bias input based on said reference voltage.

5,739,724
CONTROL OF OSCILLATOR FOR DRIVING POWER ULTRASONIC ACTUATORS

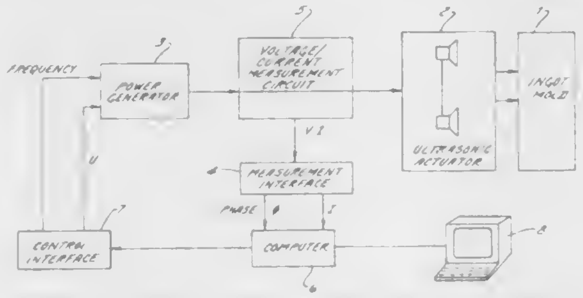
Patrick Alexandre, Metz; Pierre Claessen, Mareil S/Mauldre; Guy Joannes, Ecquevilly, and Michel Nogues, Triel S/Seine, all of France, assignors to Sollac and Ascometal S.A., Puteaux, France

Filed Oct. 25, 1996, Ser. No. 738,410

Claims priority, application France, Oct. 27, 1995, 95 12900

Int. Cl.⁶ B06B *1/06*; H03L *7/00*

U.S. Cl. 331—1 R **8 Claims**



1. Method of driving power ultrasonic actuators (2), which are used to generate power ultrasound in an installation (1), according to which the frequency of an oscillator (3) for driving the said actuators is adjusted as a function of the phase (Φ) between the voltage and the current of the signal supplied by the said oscillator, characterized in that

before putting the installation into service, a nominal frequency (f_0) of the signal is determined, depending on the said installation, and, when the installation is put into service,

the said phase (Φ) is continuously measured,

a measurement sampling cycle is defined having a determined period,

the sign of the variation in the absolute value (|Φ|) of the phase is determined in the course of each sampling period,

and a frequency correction is applied to the frequency of the oscillator, in the same direction as the frequency correction applied previously if the variation in absolute value of the phase is negative, and in the opposite direction if the variation in absolute value of the phase is positive, and, if the variation in absolute value of the phase is zero, a frequency correction of random sign is applied.

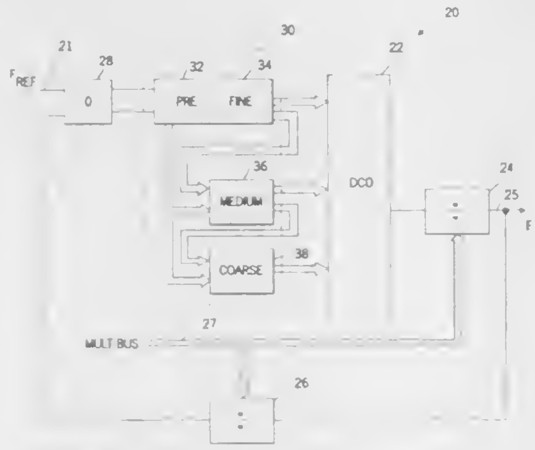
5,739,725
DIGITALLY CONTROLLED OSCILLATOR CIRCUIT

Frank David Ferraiolo, Essex Junction; John Edwin Gersbach, Burlington, and Charles Joseph Masenas, Jr., Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 29, 1996, Ser. No. 593,754

Int. Cl.⁶ H03L *7/06*

U.S. Cl. 331—57 **16 Claims**



1 An oscillator circuit, comprising.

a phase comparator having first and second clock signal inputs, and outputs having predetermined relationships to characteristics of the first and second clock signals,

a ring oscillator circuit,

a first control means connected to a first output of the phase comparator for generating a first control current, the first control current having a value within a first range of control currents, the first control current being supplied to the ring oscillator, resulting in the adjustment of an output frequency of the ring oscillator circuit over a first frequency adjustment range, the first control means also providing as an output a first set of digital signals;

a second control means connected to an output of the first control means for generating a second control current, the second control current having a value within a second range of control currents, the second control current being supplied to the ring oscillator circuit, resulting in adjustment of the output frequency of the ring oscillator circuit over a second frequency adjustment range.

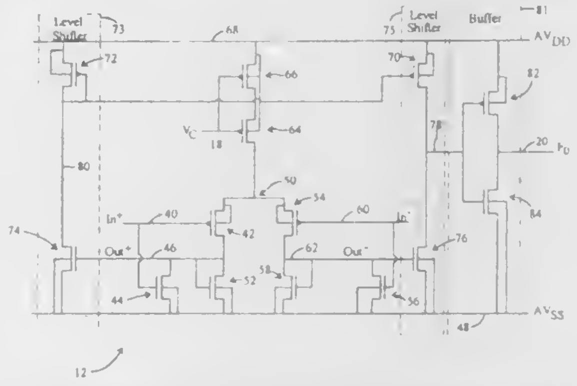
5,739,726
HIGH-SPEED VOLTAGE CONTROLLED OSCILLATOR HAVING A LEVEL SHIFTER FOR PROVIDING RAIL-TO-RAIL OUTPUT

Kuok Y. Ling, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Division of Ser. No. 487,251, Jun. 13, 1995, Pat. No. 5,585,764. This application Nov. 19, 1996, Ser. No. 754,503

Int. Cl.⁶ H03B *5/04*, H03K *19/0185*; H03L *5/00*

U.S. Cl. 331—57 **7 Claims**



1 A level shifter for a voltage controlled oscillator comprising.

a first pulldown transistor coupled between an output conductor and a ground conductor wherein said first pulldown transistor is configured with a first gate terminal connected to receive a first input signal of said level shifter and wherein said first pulldown transistor is capable of discharging said output conductor;

a first pullup transistor coupled between said output conductor and a power supply conductor wherein said first pullup transistor is configured with a second gate terminal connected to an internal conductor and wherein said first pullup transistor is capable of charging said output conductor;

a second pullup transistor coupled between said internal conductor and said power supply conductor wherein said second pullup transistor is configured with a third gate terminal connected to said internal conductor and wherein said second pullup transistor is capable of charging said internal conductor; and

a second pulldown transistor coupled between said internal conductor and said ground conductor wherein said second pulldown transistor is configured with a fourth gate terminal connected to receive a second input signal of said level shifter and wherein said second pulldown transistor is capable of discharging said internal conductor;

wherein said voltage controlled oscillator is configured to provide said first input signal and said second input signal to said level shifter, and wherein said voltage controlled oscillator includes a first clamping transistor coupled between said ground conductor and said first gate terminal, and wherein said first clamping transistor includes a fifth gate terminal coupled to said first gate terminal, and wherein said voltage controlled oscillator further includes a second clamping transistor coupled between said ground conductor and said fourth gate terminal, and wherein said second clamping transistor includes a sixth gate terminal coupled to said fourth gate terminal, whereby a range of said first input signal and said second input signal is limited between a ground voltage upon said ground conductor during use and a second voltage less than a power supply voltage upon said power supply conductor during use.

5,739,727
SAMPLED PHASE LOCKED LOOP BEING LOCKED WITH SUPPORT FROM ANOTHER PHASE LOCKED LOOP

Björn Ove Lofter, Mölndal, and Glenn Axel Sjöberg, Göteborg, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Oct. 4, 1996, Ser. No. 725,493

Claims priority, application Sweden, Oct. 5, 1995, 9503450

Int. Cl.⁶ H03L *7/087*, *7/091*; *7/23*

U.S. Cl. 331—11 **26 Claims**

26 Oscillator device for generating an output signal with one predetermined frequency at a time from a number of predetermined frequencies, said oscillator device comprising.

a first loop which is arranged to operate as a sampled phase locked loop and thereby produce an error signal, upon which a first control signal is dependent;

a second loop which is arranged to operate as a phase locked loop and to produce a second control signal,

a voltage-controlled oscillator which is arranged to generate the output signal with a frequency which is in relation to the first or second control signal, and is arranged to be a part of the first and second control loop;

switching means which is arranged to couple the first control signal or the second control signal to the voltage-controlled oscillator;

measuring and storage means arranged, during a setting procedure, to measure and hold the voltage value of the second control signal when the second loop has phase-locked to a predetermined frequency, in order thereby to produce a stored control signal; and

summation means arranged to sum the stored control signal with the error signal in order thereby to produce the first control signal,

whereby the oscillator device is arranged, via the switching means, to couple the second control signal to the voltage-controlled oscillator during the setting procedure and otherwise to couple the first control signal to the voltage controlled oscillator

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5,739,728
RC OSCILLATOR IN WHICH A PORTION OF CHARGING CURRENT IS SHUNTED AWAY FROM CAPACITOR

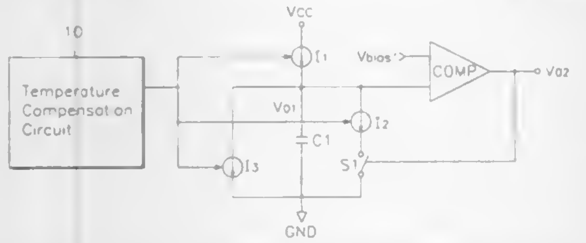
Su-Gyeong Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics, Rep. of Korea

Filed Jun. 27, 1996, Ser. No. 671,410

Claims priority, application Rep. of Korea, Jun. 29, 1995, 1995 18269

Int. Cl.^{6} H03B *5/20;* **H03L** *1/02*

U.S. Cl. 331—111 **18 Claims**



16. A method for generating an oscillating signal comprising.
generating a first current,
shunting a portion of the first current, thereby generating a charge current,
charging a capacitor with the charge current thereby generating a capacitor voltage signal;
comparing the capacitor voltage signal to a bias signal; and
discharging the capacitor;
wherein shunting a portion of the current includes generating a third current.

5,739,729
VOLTAGE-CONTROLLED LC OSCILLATOR

Nikolay Tchamov, Lindforsinkatu 21 A 17, FIN-33720 Tampere, and Petri Jarske, Pirilänkuja 8, Fin-34240 Kämmenniemi, both of Finland

Filed Nov. 22, 1996, Ser. No. 755,039

Claims priority, application Finland, Nov. 24, 1995, 955673

Int. Cl.^{6} H03B *5/12*

U.S. Cl. 331—117 R **8 Claims**

1. A voltage-controlled LC oscillator comprising
a first low impedance transistor stage comprising a first and second main electrode, and a control electrode,
a second low impedance transistor stage comprising a first and second main electrode, and a control electrode,
an LC circuit comprising a first inductance and a serial connection of at least one reverse-biased PN semiconductor junction the serial connection being operationally connected between the first main electrode of the first transistor stage and the corresponding first main electrode of the second transistor stage in such a manner that a control voltage of the oscillator applied to the control electrode of the first transistor stage adjusts reverse-biasing of said at least one PN junction and thereby the capacitance of said at least one PN junction and the resonance frequency of the oscillator;
a second inductance which connects the second main electrode of the first transistor stage to a first operating voltage so that the DC potential at the second main electrode is essentially equal to the first operating voltage.
a third inductance which connects the first main electrode of the second transistor stage to a second operating voltage so that the DC potential at the first main electrode is essentially equal to the second operating voltage.

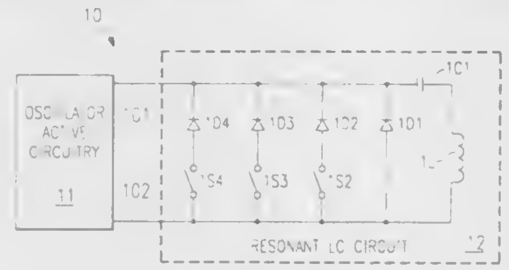
5,739,730
VOLTAGE CONTROLLED OSCILLATOR BAND SWITCHING TECHNIQUE

Robert Rudolf Rotzoll, Allen, Tex., assignor to Microtune, Inc., Plano, Tex.

Filed Dec. 22, 1995, Ser. No. 577,174

Int. Cl.^{6} H03B *5/08;* **H03J** *5/24*

U.S. Cl. 331—177 V **46 Claims**



1. A band switching resonant circuit for a voltage controlled oscillator, said circuit comprising.
an inductor connected in series with a capacitor, wherein a single current flows through both said inductor and said capacitor:
a first diode connected across the series connection of the inductor and the capacitor: and
at least one other diode selectively switchable across said first diode;
wherein said first diode and said other diode provide voltage controlled variable capacitance

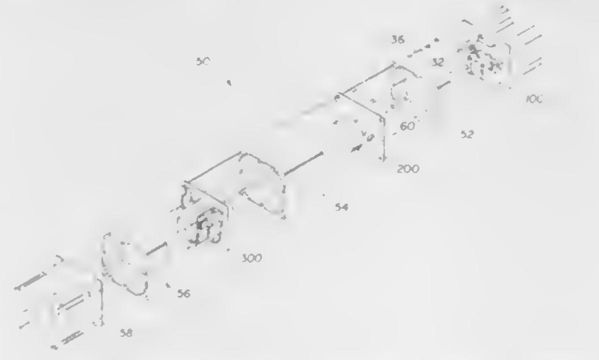
5,739,731
SELF-TUNING RESONANT CAVITY FILTER

John R. Hicks, Lone Oak; David W. Allen, Carrollton, and Peter Mailandt, Dallas, all of Tex., assignors to Allen Telecom Group, Inc., Solon, Ohio

Filed Jan. 18, 1994, Ser. No. 183,054

Int. Cl.^{6} H01P *7/06*

U.S. Cl. 333—17.1 **32 Claims**



1. A method for characterizing a frequency response of a resonant cavity filter comprising the steps of:
(a) inputting a first frequency signal to said resonant cavity filter;
(b) changing dimensions of said resonant cavity until said resonant cavity resonates at said first frequency;
(c) storing information relating to said dimensions of said resonant cavity which cause said resonant cavity to resonate at said first frequency; and
(d) repeating steps (a), (b) and (c) for each frequency at which it is desired to know the frequency response of said resonant cavity filter thereby creating a lookup table

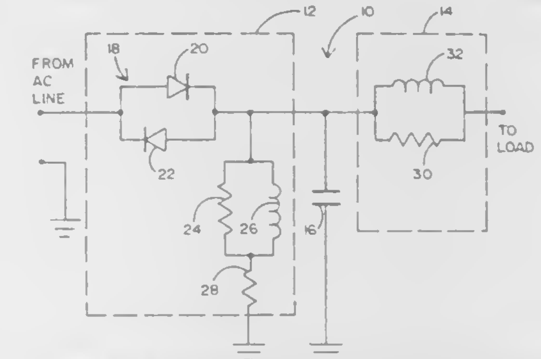
5,739,732
AC NOISE SPIKE SUPPRESSION CIRCUIT WITH PARALLEL BACK-TO-BACK FAST DIODES

Page Huie Man Kit, Rm. 1404, Singga Comm'l. Centre, 148 Connaught Road West, Hong Kong, Hong Kong

Filed Jan. 23, 1996, Ser. No. 589,961

Int. Cl.^{6} H03H *7/06*

U.S. Cl. 333—172 **6 Claims**



1. A noise spike suppression circuit for connection between AC line and a load; the suppression circuit comprising:
a pair of fast diodes connected back-to-back in parallel with each other and in series with said AC line,
a first inductor connected in shunt with said fast diodes,
a capacitor connected in shunt with said fast diodes, and
a second inductor connected in series with said fast diodes,
said first and second inductors each being encased within a material that is resistant to the transmission of radio frequency energy;
and further comprising a damping resistor connected in parallel with said first inductor

5,739,733
DISPERSION COMPENSATION TECHNIQUE AND APPARATUS FOR MICROWAVE FILTERS

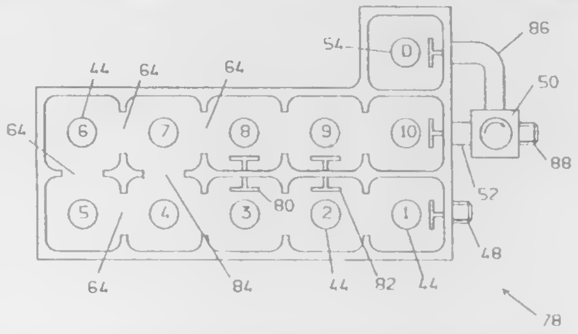
Richard J. Cameron, High Wycombe, England, assignor to Com Dev Ltd., Cambridge, Canada

Filed Mar. 29, 1996, Ser. No. 624,212

Claims priority, application United Kingdom, Apr. 3, 1995, 9506866

Int. Cl.^{6} H01P *1/208*

U.S. Cl. 333—202 **27 Claims**



1. A microwave filter comprising at least one cavity with a dielectric resonator, said at least one cavity having at least one of self-equalizing probes and self-equalizing apertures therein, said filter having an input and an output operatively connected thereto, said output of said filter being connected to an input of a circulator, said circulator having an input/output and an output, said input/output of said circulator being connected to an equalizer, said equalizer containing a dielectric resonator, the resonator of said equalizer being different from the resonator of said filter to permit said equalizer to be tuned at a slighty different frequency from said filter, said equalizer and said at least one of said self-equalizing probes and self-equalizing apertures being capable of being operated to reduce a dispersive slope of said filter, thereby compensating for the group delay therein.

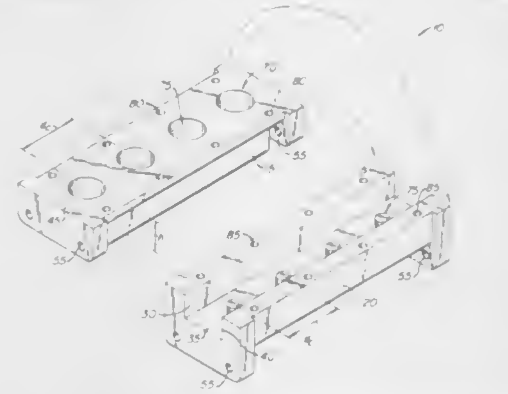
5,739,734
EVANESCENT MODE BAND REJECT FILTERS AND RELATED METHODS

Ming Hui Chen, and Song Mu Yang, both of Taipei, China, assignors to Victory Industrial Corporation, China

Filed Jan. 13, 1997, Ser. No. 782,112

Int. Cl.^{6} H01P *1/219; 11/00*

U.S. Cl. 333—210 **31 Claims**



1. A band reject filter comprising
a waveguide having an input, an output, a first wall between said input and said output, and a second wall opposite said first wall, said first wall being part of a substantially solid first block, said second wall being part of a substantially solid second block, said waveguide capable of transmitting an electromagnetic radiation signal from said input to said output, said signal at an operating frequency above a waveguide cutoff frequency; and
at least one cavity coupled directly to said first wall of said waveguide, said cavity being a substantially cylindrical cavity formed in said first block, said cavity operating in an evanescent mode such that said cavity has a cavity cutoff frequency above the stopband frequency of said band reject filter

5,739,735
FILTER WITH IMPROVED STOP/PASS RATIO

Jarmo Pyykkö , Oulu, and Kimmo Ervasti, Varjakka, both of Finland, assignors to LK Products Oy, Kempele, Finland

Filed Mar. 22, 1996, Ser. No. 620,276

Claims priority, application Finland, Mar. 22, 1995, 951351

Int. Cl.^{6} H01P *7/00*

U.S. Cl. 333—219 **16 Claims**

1. A resonator coupling comprising
a transmission line resonator having an upper end which is open-circuited, a lower end which is short circuited, and a length substantially equal to a quarter wavelength of its resonant frequency;
a transmission line for coupling to the resonator,
a tap point at which the transmission line and the transmission line resonator are in direct contact with each other, said transmission line resonator is divided at the tap point into a first lower part and a second upper part, and

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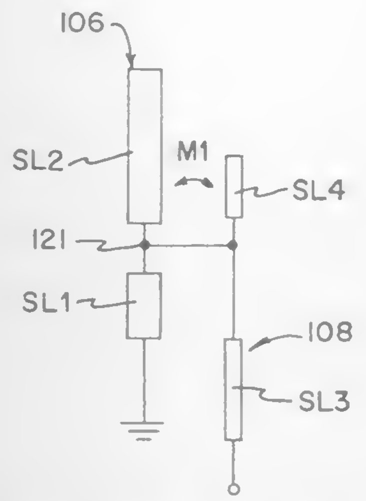

a coupling element in parallel with said transmission line resonator at said tap point and being electromagnetically coupled to said transmission line resonator

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5,739,736
MOUNTING ARRANGEMENT FOR A HIGH-VOLTAGE TRANSFORMER OF A MICROWAVE OVEN

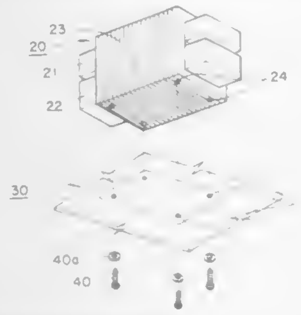
Sung-Ho Lee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 10, 1996, Ser. No. 731,133

Claims priority, application Rep. of Korea, Jan. 6, 1996, 96-135

Int. Cl.^{6} H01F *27/02;27/06;* **H05B** *6/64*

U.S. Cl. 336—65 **3 Claims**



1 A microwave oven comprising:

a housing forming a cooking chamber and a compartment disposed adjacent to the cooking chamber, the compartment including a bottom panel having a plurality of through-holes formed therein;

a magnetron disposed in the compartment for generating electromagnetic waves for cooking food in the cooking chamber;

a high-voltage transformer assembly disposed in the compartment and including a core and a pair of coils disposed therein, and underside of the core having a plurality of holes formed directly therein and aligned with respective ones of the through-holes, the transformer being electrically connected to the magnetron,

fastening means extending upwardly through respective ones of the through-holes and into respective ones of the holes for securing the core directly to the bottom panel.

5,739,737
BLOWN FUSE INDICATOR

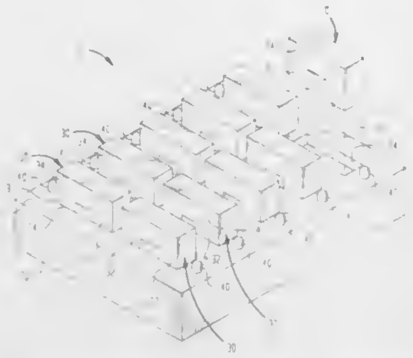
Ken W. Hatton, 2129 W. Giddings, Chicago, Ill. 60625

Filed Apr. 29, 1996, Ser. No. 639,899

Int. Cl.^{6} H01H *85/30;* **G08B** *21/00*

U.S. Cl. 337—206 **14 Claims**

1 A liner for a fuse box comprising



an upper side having a plurality of fuse receptacles for receiving fuses therein;

a lower side having a plurality of protrusions corresponding to the plurality of fuse receptacles, the protrusions sized and configured to extend into fuse box receptacles on a fuse box,

a plurality of contacts extending from the exterior of the protrusions to the interior of the fuse receptacles to communicate a fuse positioned within the fuse receptacle with the fuse box; and

an indicator positioned on the liner and interconnected with one or more of the fuses for indicating a blown fuse

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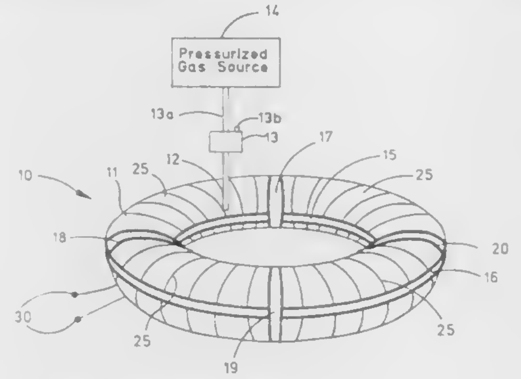
5,739,738
INFLATABLE HI Q TOROIDAL INDUCTOR

Peder M. Hansen, and Eldred M. Smith, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 18, 1994, Ser. No. 278,665

Int. Cl.^{6} H01F *21/02;27/30;27/28*

U.S. Cl. 336—229 **11 Claims**



1 A portable inflatable inductor comprising

an inflatable toroid shell fabricated from a flexible material having a fitting coupled to a pressurized gas source for inflating and deflating said shell;

a conductor winding wrapped around said shell having a pair of terminals, and

a holder disposed on said shell comprising at least one flexible strip attached to said shell and a plurality of spaced securing elements for holding said conductor winding thereon in a predetermined spaced relationship.

5,739,739
FUSE STRUCTURE

Kenji Muramatsu, and Goro Nakamura, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Dec. 2, 1996, Ser. No. 758,886

Claims priority, application Japan, Dec. 1, 1995, 7-314482

Int. Cl.^{6} H01H *85/045*

U.S. Cl. 337—234 **4 Claims**

1 A fuse, comprising

a fusible link element including a pair of terminal portions and a fusible portion through which said terminal portions are con-

nected to each other, said terminal portions having upward locking pieces at upper corners thereof;

a housing for receiving said fusible link element, having stepped recesses between inner and outer walls thereof in which end portions of said upward locking pieces are fitted when said upward locking pieces are bent inwardly; and

a housing cover for closing an open end of said housing, having legs which are extended towards said housing so that said legs are abutted against said end portions of said upward locking pieces when said cover is fitted to said housing, lower ends of said legs having tapes surfaces brought into contact with said outer sides of said upward locking pieces.

5,739,740
SURFACE MOUNTED FUSE WITH END CAPS

Klaus Stärk, Witten, and André Jöllenbeck, Bochum, both of Germany, assignors to Wickmann-Werke GmbH, Germany

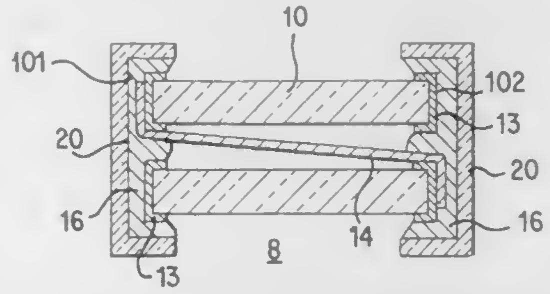
PCT No. PCT/EP95/02507, § 371 Date Feb. 28, 1996, § 102(e) Date Feb. 28, 1996, PCT Pub. No. WO96/00973, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 27, 1995, Ser. No. 600,928

Claims priority, application Germany, Jun. 29, 1994, 9410437 U

Int. Cl.^{6} H01H *85/143*

U.S. Cl. 337—248 **15 Claims**



1 Fuse with an insulator with generally flat face ends and a circumferential area, through which extends from one face end to the opposite face end a cavity, a metal coating covering the face ends and the circumferential area adjacent to the face ends, a fuse element passing through the cavity and whose ends are each conductively connected to electrical connections and laying on corresponding portions of the metal coating, a solder coating covering the ends of the fuse element and portions of the metal coating not covered by these ends, characterized in that the ends of the fuse element are embedded in the solder coating, the solder coating is closing the cavity at the face ends of the insulator and extends into the cavity in the form of a projection, the ends of the insulator have a cross sectionally square or rectangular shape, and the metal coating on both face ends of the insulator extends into the cavity, wherein the electrical connections (**18**, **20**) are exclusively fixed by means of the solder coating (**16**) to the metallized end portions of the insulator (**10**), at least one electrical connection (**18**) is formed by a first wall part (**181**) oriented parallel to the end (**101**, **102**) of the insulator, and on the first wall part (**181**) is placed a second wall part (**182**), which runs substantially perpendicular to the former, so that the electrical connection (**18**) is cross sectionally L-shaped

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5,739,741
METHOD OF INTERRUPTING CURRENT IN FUSE AND FUSE STRUCTURE

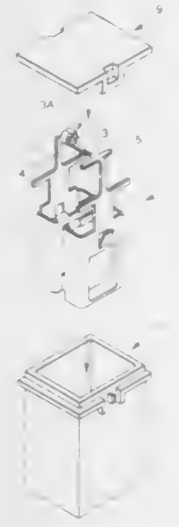
Hisashi Hanazaki, and Mitsuhiko Totsuka, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation of Ser. No. 495,106, Jun. 27, 1995, abandoned. This application Aug. 22, 1996, Ser. No. 701,732

Claims priority, application Japan, Jun. 30, 1994, 6-149913

Int. Cl.^{6} H01H *85/04;85/08*

U.S. Cl. 337—290 **4 Claims**



1 A fuse comprising:

a fusible portion made of electrically-conductive metal having a fusingly severable portion,

a metal chip made of low-melting metal for absorbing heat generated in said fusible portion having a cavity for adjusting fusion characteristics of said metal chip; and

a retaining portion for retaining said metal chip to said fusible portion, wherein the fusion characteristics of said metal chip are adjusted by changing a diameter of said cavity.

5,739,742
ZINC OXIDE CERAMICS AND METHOD FOR PRODUCING THE SAME AND ZINC OXIDE VARISTORS

Atsushi Iga; Masahiro Ito, and Masakazu Tanahashi, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 29, 1996, Ser. No. 705,129

Claims priority, application Japan, Aug. 31, 1995, 7-223674; May 23, 1996, 8-128859

Int. Cl.^{6} H01C *7/10;7/13*

U.S. Cl. 338—21 **25 Claims**

1 A zinc oxide ceramic wherein at least one of boron oxide (B_2O_3), chromium oxide (Cr_2O_3), germanium oxide (GeO_2), lanthanum oxide (La_2O_3), magnesium oxide (MgO), niobium oxide (Nb_2O_5), neodymium oxide (Nd_2O_3), lead oxide (PbO), praseodymium oxide (PrO), antimony oxide (Sb_2O_3), silicon oxide (SiO_2), tin oxide (SnO_2), tantalum oxide (Ta_2O_5), tungsten oxide (WO_3) and yttrium oxide (Y_2O_3) powders is mixed with a bismuth oxide (Bi_2O_3) powder, the mixture thus obtained is heat treated preliminarily at a temperature of 400° to 700° C and ground to prepare a synthetic powder, 0.5 to 20 parts by weight of the synthetic powder

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and 0.1 to 5.0 parts by weight of at least one of nickel oxide, cobalt oxide and manganese oxide powders being added to 100 parts by weight of a zinc oxide powder, and sintered at a temperature of 750° to 1100° C

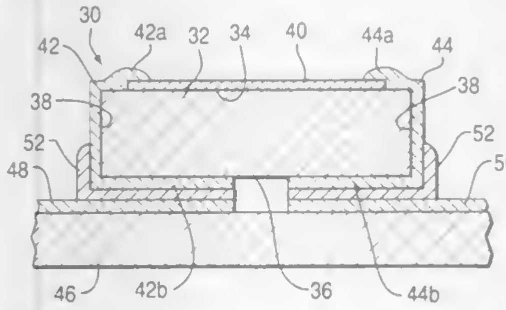
5,739,743
ASYMMETRIC RESISTOR TERMINAL

Joseph B. Mazzochette, Cherry Hill, N.J., assignor to EMC Technology, Inc., Cherry Hill, N.J.

Filed Feb. 5, 1996, Ser. No. 597,498

Int. Cl.^{6} H01C *1/08, 1/012*

U.S. Cl. 338—313 **9 Claims**



1. A resistor comprising:

a substrate of an insulating material having opposed, substantially flat first and second surfaces and edge surface extending between the first and second surfaces;

a layer of a resistance material on the first surface of the substrate and having a pair of ends; and

a separate termination layer of a conductive material on the first surface at each of said spaced ends of the resistance layers, each of said termination layers extending over an edge surface of the substrate and on a portion of the second surface of the substrate, each termination layer having a seperate end on each of the first and second surfaces of the substrate rate with the ends of the termination on layers on each surface of the substrate being spaced apart;

the total area of the termination layer on the second surface of the substrate being greater than the area of the termination layers on the first surface of the substrate.

5,739,744
ELECTRONICALLY SIMULATED ROTARY-TYPE CARDFILE

Robert John Roca, 12543 Woodgreen St., Los Angeles, Calif. 90066, and Ronald Dixon Cranford, 6505 Pharr Mill Rd., Harrisburg, N.C. 28075

Continuation of Ser. No. 485,087, Jun. 7, 1995, abandoned, which is a division of Ser. No. 156,104, Nov. 23, 1993, Pat. No. 5,452,240. This application Apr. 3, 1997, Ser. No. 832,123

Int. Cl.^{6} H03K *17/94;* **H03M** *11/00*

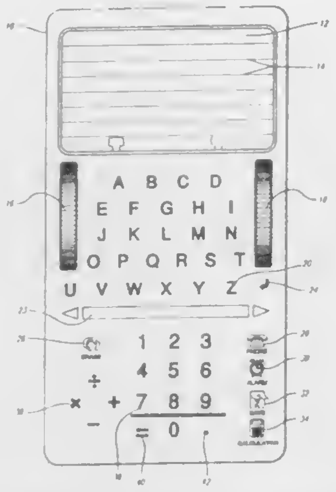
U.S. Cl. 340—20 **28 Claims**

1. A user-actuable control assembly, comprising

an elongate strip;

control signal means operatively associated with said strip for detecting a movement of a thumb, finger or other user-controlled contactor device along said strip and generating a signal indicative of both the speed and the direction of the movement relative to said strip; and

a display screen which can display an image, said signal means causing the image to move forward or backward in the direction and speed as directed by said control signal;



wherein the image is of a rotary card file, and said signal causes the rotary card file to flip card images forward or backward at the indicated direction and speed.

5,739,745
COMPARATOR CIRCUIT AND METHOD OF USING A COMPARATOR SCHEME FOR DETERMINING MATHEMATICAL RESULTS

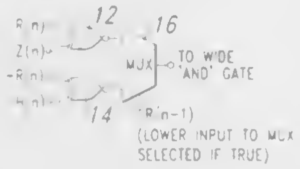
Richard Simpson, Bedford, United Kingdom, assignor to Texas Instruments Incorporated, Dallas, Tex.

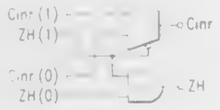
Continuation of Ser. No. 534,963, Sep. 28, 1995, abandoned. This application Mar. 4, 1997, Ser. No. 811,333

Claims priority, application United Kingdom, Sep. 29, 1994, 9419614

Int. Cl.^{6} G06F *7/02*

U.S. Cl. 340—146.2 **11 Claims**





1. A method of using a comparator scheme for determining the result of a mathematical operation without carrying out said mathematical operation, comprising the steps of:

obtaining the value of two or more variables;

comparing said variables with a plurality of predetermined conditions thereby determining whether the result of the mathematical operation will be equal to a predetermined value;

determining if the comparison is positive in which case concluding that the result of the mathematical operation is the predetermined value;

determining if the comparison is negative in which case concluding that the result of the mathematical operation is not the predetermined value; and

in the event that the comparison is negative using the results of the comparison to determine whether the result of the mathematical operation is greater than or less than the predetermined value.

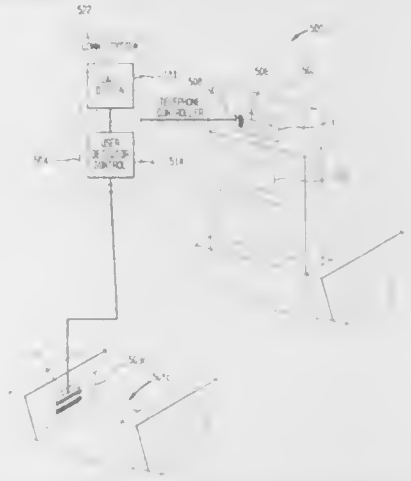
5,739,746
METHOD AND APPARATUS FOR DETERMINING USER PRESENCE IN VEHICULAR COMMUNICATIONS SYSTEMS

Shmuel Shaffer, Palo Alto, and William Joseph Beyda, Cupertino, both of Calif., assignors to Siemens Business Communication Systems, Inc., Santa Clara, Calif.

Filed Nov. 12, 1996, Ser. No. 747,413

Int. Cl.^{6} B60Q *1/00*

U.S. Cl. 340—425.5 **36 Claims**



1. A vehicular telecommunications system, comprising:

a telephone controller comprised in a vehicle and adapted to process a plurality of telephone signals;

a telephone comprised in said vehicle and operably coupled to said telephone controller, wherein said telephone is adapted for use by a user in said vehicle, wherein said telephone is adapted to receive telephone calls for said user associated with said telephone from sources external to the vehicle in which said telephone is installed; and

a user detector comprised in said vehicle and operably coupled to said telephone controller, wherein said user detector is configured to provide a signal to said telephone controller indicative of whether said user associated with said telephone is present in a predetermined location of said vehicle proximate to said telephone, wherein said telephone controller directs a received telephone call for said user to said telephone responsive to said signal indicating that said user is present in said predetermined location of said vehicle proximate to said telephone

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5,739,747
VEHICLE SECURITY SYSTEM INCLUDING A REMOTE UNIT THAT EMULATES SECURITY SYSTEM CONDITION LOCAL INDICATIONS AND RELATED METHODS

Kenneth E. Flick, 5236 Presley Pl., Douglasville, Ga. 30135

Filed Jan. 4, 1996, Ser. No. 582,759

Int. Cl.^{6} B06Q *1/00*

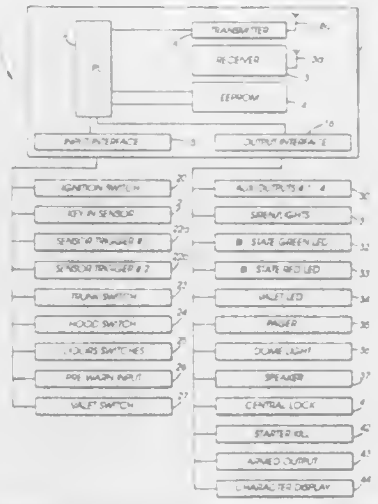
U.S. Cl. 340—426 **45 Claims**

1. A vehicle security system comprising:

at least one vehicle sensor;

a controller positioned in the vehicle for generating a plurality of security system condition signals including an alarm signal responsive to said vehicle sensor;

local indicator means positioned at the vehicle and cooperating with said controller for generating a plurality of local security system condition indications to a user adjacent the vehicle based upon respective security system condition signals from said controller, each of the plurality of local security system condition indications being a predetermined pattern of at least one local indication;



a local transmitter positioned at the vehicle and cooperating with said controller for generating a plurality of transmitted signals based upon respective security system condition signals from said controller; and

remote indicator means adapted to be carried by the user when away from the vehicle for receiving the transmitted signals from said local transmitter and for generating a plurality of remote security system indications to the user emulating the local security system condition indications generated by said local indicator means, each of the plurality of remote security system indications being a predetermined pattern of at least one remote indication and being substantially the same as the at least one local indication for the security system.

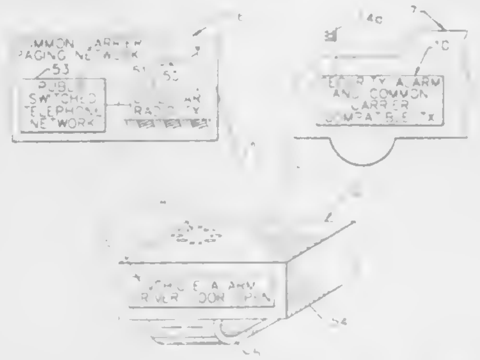
5,739,748
METHOD AND APPARATUS FOR REMOTELY ALERTING A VEHICLE USER OF A SECURITY BREACH

Kenneth E. Flick, 5236 Presley Pl., Douglasville, Ga. 30135

Filed Jul. 29, 1996, Ser. No. 681,581

Int. Cl.^{6} B60R *25/10*

U.S. Cl. 340—426 **41 Claims**


PAGING NETWORK
53
PUBLIC SWITCHED TELEPHONE NETWORK
SECURITY ALARM AND COMMON CARRIER COMPATIBLE TX

1. A method of using a common carrier pager carried by a vehicle user to alert the user of a vehicle security breach, the common carrier pager including a common carrier paging receiver being capable of receiving common carrier paging signals from a common carrier paging network, the method comprising the steps of

providing a vehicle alarm transmitter at the vehicle for transmitting a vehicle security alarm signal compatible with common carrier paging signals,

sensing for a breach of vehicle security using at least one vehicle security sensor;

transmitting the vehicle security alarm signal from the vehicle alarm transmitter responsive to a sensed breach of vehicle security.

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directly receiving the vehicle security alarm signal at the common carrier paging receiver from the vehicle alarm transmitter without using other portions of the common carrier paging network; and

indicating a vehicle security breach to the vehicle user via the common carrier paging receiver responsive to receipt of the vehicle security alarm signal;

whereby the vehicle user can receive both common carrier paging signals and the vehicle security alarm signal using the common carrier paging receiver.

5,739,749

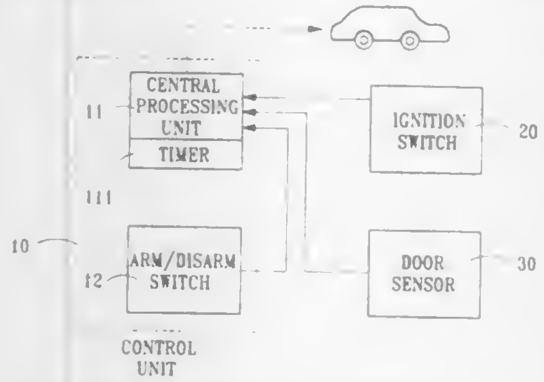
FORCED PASSIVE ANTI-HIJACK SECURITY SYSTEM

Shih Ming Hwang, 17811 Sky Park Cir., Suite D&E, Irvine, Calif. 92714

Filed Sep. 23, 1996, Ser. No. 717,861

Int. Cl.^{6} B60B *25/10*

U.S. Cl. 340—426 **3 Claims**



1. An anti-hijack security system, comprising:

an ignition switch adapted for detecting whether an ignition of an engine of a vehicle is turned on or turned off;

a door sensing means comprising a plurality of door sensors adapted for detecting whether doors of said vehicle are opened or closed; and

a control unit which comprises a central processing unit which is connected to said ignition switch and said door sensors, said central processing unit having built-in a first and a second timer, said first timer starting to count as soon as said ignition switch is turned off, and said second timer starting to count as soon as said ignition switch is turned off and said door sensing means detects one of the doors of said vehicle is opened and then closed, and that said first timer stops and resets only when said ignition switch is turned on, and that while said second timer stops and resets when one of said doors of said vehicle is detected by said door sensing means to be opened and restarts to count when said door is closed back, and that said second timer also stops and resets when said ignition switch is turned on, in which whichever of said first and second timers finish counting first, said anti-hijack security system is automatically armed from a disarmed mode to an armed mode, said central processing unit further comprising an arm/disarm switch for selectively and manually setting said anti-hijack security system between said armed mode and said disarmed mode; and that

said anti-hijack security system further employing a first and a second armed timer, during said armed mode, said first armed timer being only started counting after said ignition switch is turned on and one of said doors has been detected by said door sensing means to be opened and closed, moreover when said the ignition switch is turned off during a countdown of said first armed timer, said first armed timer is put in standby and would only continue counting when said ignition switch is turned back on, said first armed timer being stopped and reset when said door is detected to be opened and being restarted counting when said door is detected to be closed back, and that

said second armed timer starts counting after said ignition switch is turned on and one of said doors has been detected by said door sensing means to be opened, wherein when said ignition switch is turned off during a countdown of said second armed timer, said second armed timer is put in standby and would only continue counting when said ignition switch is turned back on, therefore whichever of said first and second armed timers finish counting first, said central processing unit enables an anti-hijack triggered sequence for sounding a siren and flashing parking lights of said vehicle, and that either manually setting said arm/disarm switch to said disarmed mode or keying in a security code into said central processing unit, said anti-hijack triggered sequence is disabled and said anti-hijack security system is put in said disarmed mode.

5,739,750

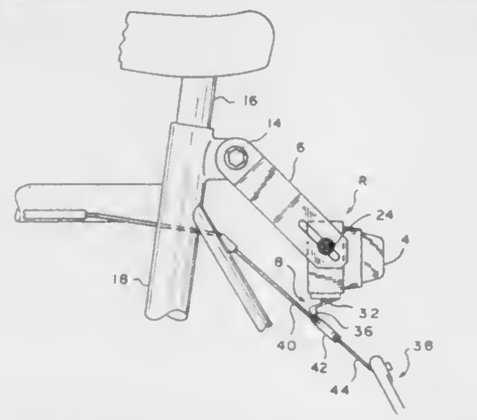
BRAKE LIGHT FOR BICYCLE

Jeff Drake, 7240 Box 3, Telegraph Square Dr., Lorton, Va. 22079

Filed Aug. 14, 1996, Ser. No. 696,800

Int. Cl.^{6} B62J *6/00*

U.S. Cl. 340—432 **16 Claims**



1. A brake light for a bicycle having a caliper brake mechanism including a control cable with a projection, comprising:

a) a bulb operably connected to a power source;

b) a housing;

c) said bulb being secured to said housing;

d) a mounting bracket for securing said housing to the frame of the bicycle;

e) a switch operably connected to said bulb;

f) said switch including a pivotable activating arm biased downwardly, said switch being OFF when said arm is down and ON when said arm is up;

g) said arm including an end portion for being disposed along the control cable of the caliper brake mechanism upstream of a projection on the cable, such that when the brake is activated, the control cable and the projection move upstream to engage said end portion and move said arm upwardly, thereby turning ON said bulb, and

h) said bracket including a slot and said housing is adjustably movable along said slot such that said arm end portion position relative to the cable projection can be adjusted.

5,739,751

HAZARD WARNING LAMP DEVICE

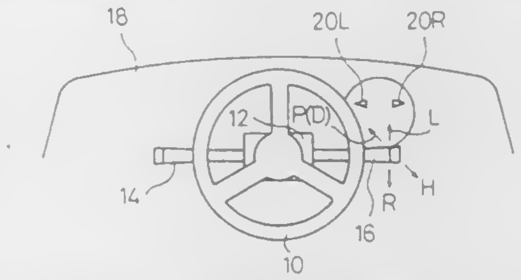
Dai Ishihara; Katsufumi Nagatome; Yoshimitsu Ishida; Kazunari Ishiguro, all of Wako; Norio Takahashi, and Mitsuo Horie, both of Turugashima, all of Japan, assignors to Toyo Denso Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 20, 1996, Ser. No. 618,761

Claims priority, application Japan, Mar. 20, 1995, 7-060689

Int. Cl.^{6} H01H *3/16*

U.S. Cl. 340—475 **11 Claims**



1. A hazard warning lamp device for use with a control lever for controlling turn signals lamps, comprising:

a control lever movable in first and second directions upwardly and downwardly in a vertical plane, wherein movement of said control lever in said vertical plane energizes the turn signal lamps in a turning direction indicating state, said control lever further being operable in a third direction substantially perpendicular to said first and second directions for energizing the turn signal lamps in a hazard warning state,

a displacing member operatively connected with said control lever for controlling said turn signal lamps in the hazard warning state, said displacing member being displaceable in response to operation of the control lever in said third direction; and

a switch mechanism operatively connected with said displacing member and responsive to displacement of said displacing member for closing contacts to generate a signal to energize the turn signal lamps in said hazard warning state,

said control lever further being displaceable in a fourth direction opposite to said third direction, and further comprising a head lamp switch including a pin for switching head lamps between upper and lower beam illumination, said displacing member comprising means for operating said head lamp switch when the control lever is displaced in said fourth direction.

5,739,752

METHOD IN DETECTING MAGNETIC ELEMENTS

Carl Tyren, Antibes, France, assignor to RSO Corporation, N.V., Curacao AN, Netherlands

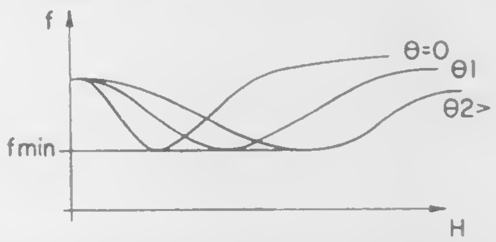
PCT No. PCT/SE95/00453, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/29468, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 25, 1995, Ser. No. 737,642

Claims priority, application Sweden, Apr. 26, 1993, 9401450

Int. Cl.^{6} G08B *13/24*

U.S. Cl. 340—551 **1 Claim**



1. A method for detecting magnetic elements in an interrogation zone by means of magnetic signals, each magnetic element having a high magneto-mechanical coupling factor, wherein properties of length, orientation and position, of the elements in the interrogation zone are detected by exposing the elements to a plurality of different magnetic bias fields affecting the resonance frequencies of the elements and by detecting frequency responses of the elements for each magnetic bias field, characterized by

exposing the elements to a first series of magnetic bias fields, each magnetic bias field of said first series being spatially homogeneous, having a magnitude which does not vary in the interrogation zone;

exposing the elements to a second series of magnetic bias fields, each magnetic bias field of said second series having a spatial gradient in a different direction, having a magnitude which varies in the interrogation zone; and

exposing the elements to magnetic bias fields intermediate the magnetic bias fields of said second series, the intermediate magnetic bias fields being generated by rotating the gradients of magnetic bias fields of said second series.

5,739,753

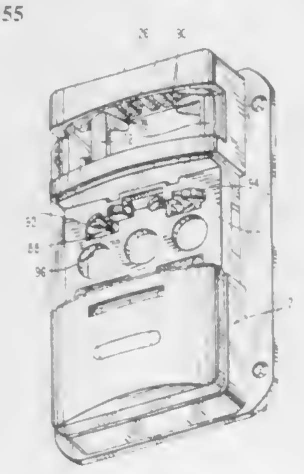
DETECTOR SYSTEM WITH ADJUSTABLE FIELD OF VIEW

James A. Porter, Farmingdale, N.Y., assignor to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Filed Sep. 19, 1996, Ser. No. 716,038

Int. Cl.^{6} G08B *13/18*

U.S. Cl. 340—555 **11 Claims**



1. A detector system with an adjustable field of view to permit selection of the region to be monitored by said detector system, comprising:

a) housing means having a back wall, two side walls, a top wall, a bottom wall and a partial front wall joined to one another to form a substantially closed box with an opening in said front wall,

b) sensing means in said housing means adjacent said opening in said front wall to receive signals from the maximum region which can be monitored by said detector system;

c) selectively positionable blinder means mounted in said housing means between said sensing means and said opening in said front wall, said blinder means capable of being moved to a selected position between a first limit position fully exposing said sensing means and a second limit position fully covering said sensing means, the position of said blinder means determining the region to be monitored, said blinder means further comprises,

d) at least two independent blinder elements, each of which can be moved to a different selected position to monitor a region which is not symmetrical about an axis perpendicular to the plane of said back wall; and

e) at least two operating means, one for each of said blinder elements, to permit said blinder elements to be independently positioned

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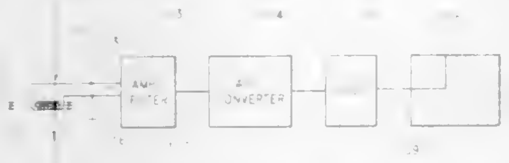
5,739,754
CIRCUIT ANTITHEFT AND DISABLING MECHANISM

Alejandro Gabriel Schrott, New York; Michael John Brady, Brewster; Thomas A. Cofino, Rye; Richard Joseph Gambino, Stony Brook; Robert Jacob Von Gutfeld, New York; Harley Kent Heinrich, Brewster, and Paul Andrew Moskowitz, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 29, 1996, Ser. No. 681,742
Int. Cl.^{6} G08B *13/14*
U.S. Cl. 340—572 **12 Claims**



1 A system for enabling and disabling an electronic circuit comprising:

a. a magnetic sensor that produces a signal when excited by one or more externally applied alternating current (ac) magnetic fields, each magnetic field having a respective frequency, and the signal being an electrical signal that includes the frequency and zero or more harmonics of the frequency;

b. one or more signal sensors, electrically connected to the magnetic sensor, each of the signal sensors filtering the signal to select a respective filtered signal, comparing the filtered signal to a reference, and converting the compared signal to a logic signal; and

c. a logic circuit activated by one or more of the logic signals and sending a critical signal to the electronic circuit when the logic circuit is activated, the logic circuit having a disabling function that disables the electronic circuit when the magnetic sensor is excited by a first externally applied ac magnetic field with a first set of at least one first frequency that activates the logic circuit and where the disabling function is bypassed when the magnetic sensor is excited by a third externally applied ac magnetic field with a third set of at least two bypassing frequencies, the bypassing frequencies not being harmonics of one another, and the bypassing frequencies further not being harmonics of the first frequency

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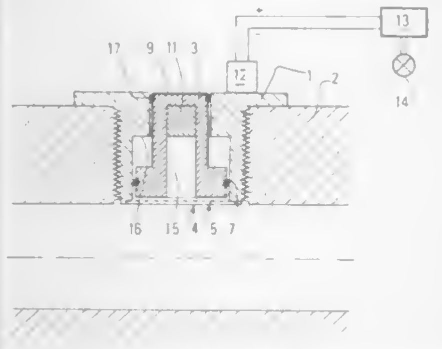
5,739,755
SENSOR FOR MONITORING THE COOLING LIQUID OF HEAT EXCHANGER CIRCUITS

Emanuel Goldenberg, Poissy, France, assignor to Institut Francais du Petrole, Rueil Malmaison, France

Filed Mar. 21, 1996, Ser. No. 619,191
Claims priority, application France, Mar. 21, 1995, 95 03387
Int. Cl.^{6} G08B *21/00*
U.S. Cl. 340—627 **7 Claims**



2 A sensor for monitoring a cooling liquid circulating in a circuit of a heat exchanger comprising:

a support for mounting the sensor on a pipe of the circuit so that said liquid is in contact with at least a part of the sensor,

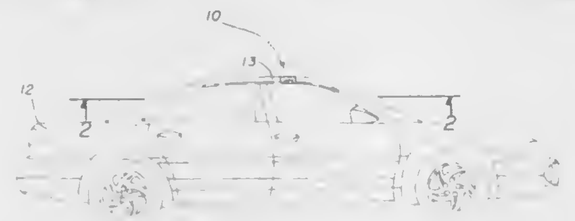
a corrodible membrane in contact with the liquid, and

a visual indicator reacting to the degree of corrosion of the liquid, characterized in that the visual indicator includes a means movable under the combined effect of the breaking of the corrodible membrane and of a pressure difference between inside and outside of the circuit, at least one seal means mounted on the movable means, the visual indicator protruding from the pipe and/or the support when said membrane is corroded, the piston comprises a pointed end and the second seal means is a membrane covering a opening of the piston housing that can be pierced by the pointed end of the piston when the piston moves towards the outside of the pipe.

5,739,756
CARBON MONOXIDE DETECTION SYSTEM FOR MOTOR VEHICLES

Stuart Margulies, 523 Springhill Dr., Harleysville, Pa. 19438

Filed Jan. 23, 1997, Ser. No. 787,955
Int. Cl.^{6} G08B *17/10*
U.S. Cl. 340—632 **8 Claims**



1. A system for detecting dangerous levels of carbon monoxide within a passenger compartment of a motor vehicle, comprising

a carbon monoxide detector mounted by mounting means at the highest point within the passenger compartment;

a visual indicating means associated with the detector to provide a visual signal to an occupant within the passenger compartment upon detection of a dangerous level of carbon monoxide by the detector; and

an audible indicating means associated with the detector to provide an audible signal to an occupant within the passenger compartment upon detection of a dangerous level of carbon monoxide by the detector:

wherein the mounting means comprises a pair of mounting arms, one end of each arm being connected to the detector and a second end of each arm being attached to an interior of the vehicle; and

wherein the one end of each arm is adjustably connected to the detector such that each arm can be adjusted relative to the detector

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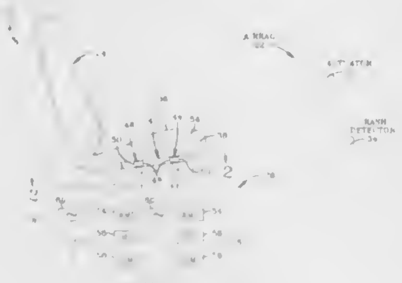
5,739,757
VEHICLE PASSENGER WEIGHT SENSOR

Tony Gioutsos, Brighton, Mich., assignor to Breed Automotive Technology, Inc., Lakeland, Fla.

Filed Jan. 30, 1997, Ser. No. 792,180
Int. Cl.^{6} G08B *21/00*
U.S. Cl. 340—667 **15 Claims**



1 A system for measuring a weight upon a seating surface within a motor vehicle, said system comprising:

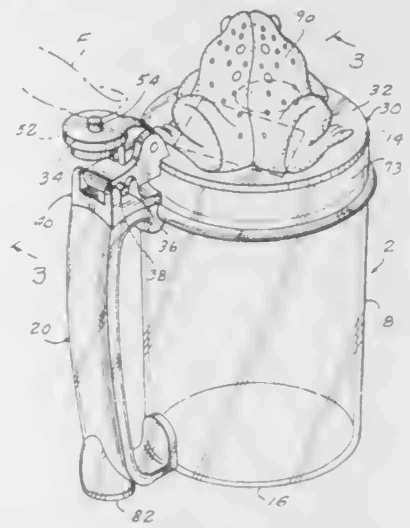
(a) a ferromagnetic element mechanically coupled to the seating surface such that strain is induced in said ferromagnetic element responsive to the weight thereon; and

(b) a first sensor comprising (i) a magnet generating a magnetic field and (ii) an inductor, said magnet and inductor mounted on the vehicle adjacent said ferromagnetic element, said magnetic field altered by said strain in said ferromagnetic element, said inductor generating a signal based upon the alteration in said magnetic field.

5,739,758
SOUND GENERATING DRINKING CONTAINER

John Driska, Princeton Junction, N.J., and Elliott Azrak, New York, N.Y., assignors to Funomenon LLC, New York, N.Y.

Filed Sep. 6, 1996, Ser. No. 709,513
Int. Cl.^{6} G08B *25/08*
U.S. Cl. 340—692 **13 Claims**



1 A drinking container comprising

(A) a fluid-tight container having an open top, a closed bottom, a continuous sidewall connecting said top and bottom, and a handle secured to said sidewall and extending substantially the length of said sidewall,

(B) a rigid lid having a lid body configured and dimensioned to close said open top and a lid lever extending outwardly from said lid body and beyond said handle for pivoting said lid body relative to said open top from a top-closed orientation to a top-open orientation;

(C) means for pivotally securing together said handle and said lid lever so as to enable pivoting of said lid body between said top-closed orientation and said top-open orientation; and

(D) an electronic sound-generating element disposed in said lid body and responsive to an actuating switch disposed on said lid lever such that the normal movement of a user for causing pivoting of said lid body from said top-closed orientation to said top-open orientation also actuates said sound-generating element prior to causing pivoting of said lid body.

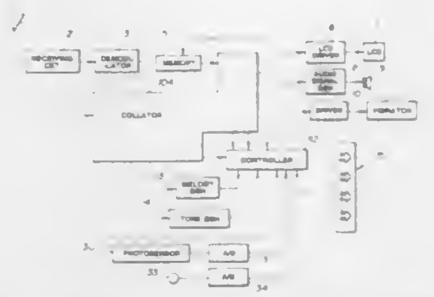
5,739,759
MELODY PAGING APPARATUS

Takeo Nakazawa, and Haruhiko Satoh, both of Hino, Japan, assignors to Toshiba Corporation, Kanagawa-ken, Japan

Continuation of Ser. No. 313,237, Dec. 9, 1994, abandoned.
This application Jun. 7, 1996, Ser. No. 660,412
Claims priority, application Japan, Feb. 4, 1993, 5-017395
Int. Cl.^{6} G08B *3/00;5/22*
U.S. Cl. 340—825.44 **17 Claims**

1 A paging apparatus comprising

a receiving circuit for receiving a signal from an antenna;



decoding means for decoding the signal received by said receiving circuit and outputting an address and message data;

first memory means for storing an address assigned to said paging apparatus;

a comparator for comparing the address output from said decoding means with the address stored in said first memory means;

paging determining means for determining whether said signal is a paging signal for said paging apparatus when said comparator detects the address output from said decoding means coincides with the address stored in said first memory means;

display means for displaying information;

display controlling means for controlling said display means to display a character-string of a message corresponding to said message data output from said decoding means when said paging determining means determines that said signal is a paging signal for said paging apparatus;

paging means, having a plurality of paging sources which comprise sound sources, each sound source playing a melody corresponding to a specific message content, and a vibration source for paging using vibration;

paging instruction detecting means for detecting whether instruction information that instructs use of said paging means is included in a message data output from said decoding means when said determining means determines that said signal is a paging signal for said paging apparatus; and

controlling means for controlling said paging means to use one of said sources corresponding to said instruction information when said paging instruction detecting means detects that said instruction information is included in said message data, and controlling said paging means not to use said sources when said paging instruction detecting means detects that said instruction information is not included in said message data.

5,739,760
METHOD AND SYSTEM FOR REMOTE SUPERVISORY CONTROL

Satomi Hatakeyama, Kawasaki, Japan, assignor to Fujitu Limited, Kanagawa, Japan

Filed Nov. 6, 1995, Ser. No. 554,040
Claims priority, application Japan, Feb. 8, 1995, 7-020455
Int. Cl.^{6} G05B *23/02*; H04Q *5/00;1/00*
U.S. Cl. 340—825.15 **10 Claims**

9 A system for remote supervisory control, comprising a plurality of slave systems, each of said slave systems having a plurality of individual control points in its purview, and performing monitoring of and control of the statuses of each of the individual control points, and a master system which is connected to each of said slave systems via channels, and which performs overall monitoring of the statuses of, or control with respect to, said plurality of individual control points of each of the slave systems, wherein each of said slave system comprises

an individual control point table which holds information related to the statuses of each individual control point, which are collected from each said individual control point,

a representative control point table holding statuses which represent a group of a plurality of said individual control points having the same attributes,

a slave-side status change processing means which, when there is a status change in the information related to the statuses of each individual control point collected from each said indi-

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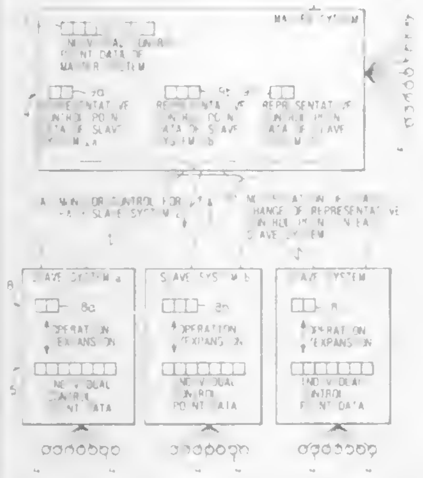

INDIVIDUAL CONTROL POINT DATA
INDIVIDUAL CONTROL POINT DATA
INDIVIDUAL CONTROL POINT DATA

vidual control point, supplies that information as is to said individual control point table, and which supplies said representative control point table with said information after a pre-established operation is performed with respect to said statuses of said plurality of individual control points;

a slave-side representative point configuration file into which are minimally stored the correspondence relationship between said representative control point and said individual control points which belong to it and an arithmetic expression which defines said operation, and

a slave-side expansion/restoration processing means which works in concert with said individual control point table, said representative control point table, and said slave-side representative point configuration file either to expand processing with respect to a representative control point to processing of said individual control points or to restore processing with respect to expanded individual control point to processing with respect to said representative control point.

5,739,761
VEHICULAR CONTROLLER

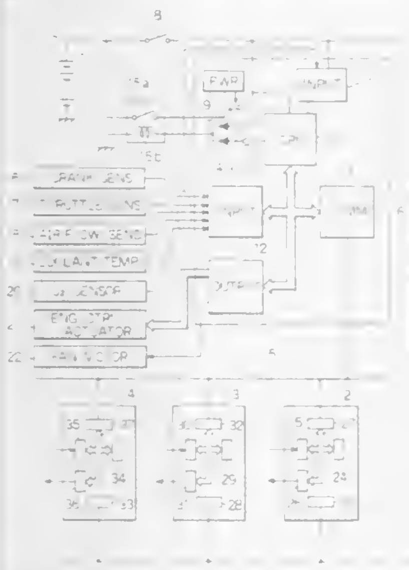
Masayuki Kobayashi, Anjou, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Dec. 1, 1995, Ser. No. 587,446

Claims priority, application Japan, Dec. 2, 1994, 6-300012

Int. Cl. B60R *16/02, 21/08; 25/04*

U.S. Cl. 340—825.16 **13 Claims**



1. A vehicular controller comprising

a first electronic control device and at least one additional electronic control device, each of said control devices being for exchanging information with others of said electronic control devices and for performing malfunction diagnosis with others of said electronic control devices, at least one of said electronic control devices additionally being for executing backup operations responsive to detection of a malfunction in one of said electronic control devices; and

a switch for selectively supplying electrical power to said additional electronic control devices in an actuated state and for terminating electrical power to said additional control devices in a deactuated state, said first electronic control device receiving electrical power even when said switch is in said deactuated state.

5,739,762
TIME CORRECTION SYSTEM FOR RADIO SELECTIVE CALLING RECEIVER

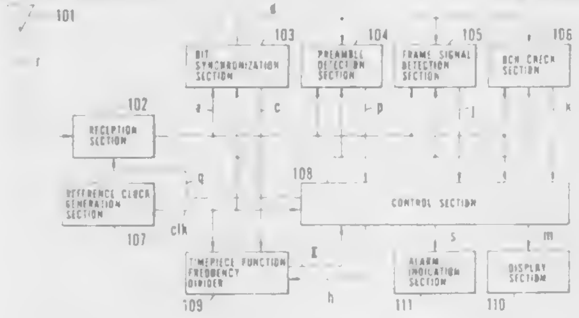
Hiroyasu Kuramatsu, Shizuoka, and Kazuo Morita, Tokyo, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 31, 1995, Ser. No. 414,489

Claims priority, application Japan, Apr. 26, 1994, 6-088133

Int. Cl.⁶ G08B *5/22;* **H04B** *7/00; 1/00, 7/24*

U.S. Cl. 340—825.21 **20 Claims**


101
103
104
105
106
BIT SYNCHRONIZATION SECTION
PREAMBLE DETECTION SECTION
FRAME SIGNAL DETECTION SECTION
BCH CHECK SECTION
102
RECEPTION SECTION
108
CONTROL SECTION
REFERENCE CLOCK GENERATION SECTION
107
clk
TIMEPIECE FUNCTION FREQUENCY DIVIDER
109
h
ALARM INDICATION SECTION
111
DISPLAY SECTION
110

1. A time correction system for a radio selective calling receiver which receives a radio signal containing at least a preamble signal, a frame synchronization signal, and a selective call signal, performs call indication when the selective call signal coincides with a self-selective call number, and has a timepiece function for displaying time on a display section, comprising:

a reception section for generating a digital signal from the radio signal;

a bit synchronization section for establishing bit synchronization of the digital signal for generating a reproduction clock, and generating a phase correction signal indicating a phase difference between the reproduction clock and the digital signal;

a frame signal detection section for establishing frame synchronization of the digital signal and generating a frame synchronized state signal indicating whether the digital signal is in a frame synchronized state or a frame step out state;

a reference clock generation section for generating a reference clock,

a frequency divider for said timepiece function for receiving the frame synchronized state signal, frequency dividing the reference clock by a fixed value when the frame synchronized state signal indicates that the digital signal is in a frame step out state, and variably frequency dividing the reference clock in accordance with the phase correction signal when the frame synchronized state signal indicates that the digital signal is in a frame synchronized state, thereby setting frequency division outputs as timepiece frequency division clocks; and

a time display driving section for causing said display section to display time based on the timepiece frequency division clocks,

said frequency divider synchronizing said reference clock based on said frame synchronization state signal and correcting a phase of said reference clock based on said phase correction signal and outputting a phase corrected, synchronized timepiece clock signal as said timepiece frequency division clocks to said display section,

said system further comprising data selecting means for synchronizing said digital signal based on said frame synchronization state signal and correcting a phase of said digital signal based on said phase correction signal and outputting a phase corrected, synchronized data signal to said display means.

5,739,763
METHOD FOR CONTROLLING ELECTRONIC APPLIANCE CAPABLE OF SUPPRESSING USER'S IRRITATION

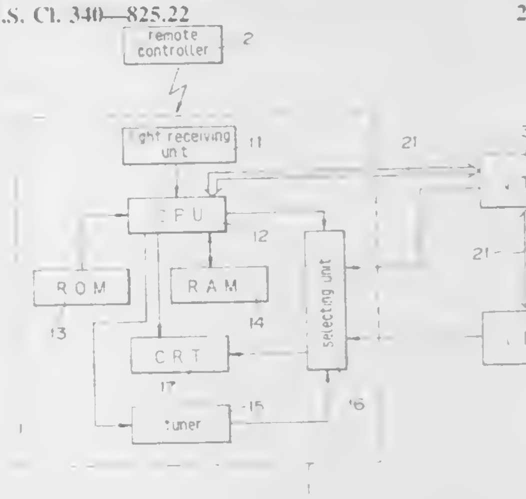
Koji Ouchi, Kanagawa; Masaru Sato, and Shigeo Tanaka, both of Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 5,842, Jan. 11, 1993, abandoned. This application Jan. 5, 1995, Ser. No. 369,272

Claims priority, application Japan, Jan. 14, 1992, 4-024778

Int. Cl.⁶ H04Q *19/02*

U.S. Cl. 340—825.22 **2 Claims**



1. A method for use in an audiovisual electronic appliance for controlling a plurality of audiovisual electronic apparatuses including a video tape recorder, wherein said audiovisual electronic appliance includes a CPU for controlling the operation of said plurality of audiovisual electronic apparatuses, temporary storage means for storing data during operation, and a selector for receiving audio and video outputs from said plurality of audiovisual electronic apparatuses, determining their operating status and routing a selected output to a CRT of said audiovisual electronic appliance, said method comprising the steps of:

receiving a user instruction relating to a record/playback operation of said video tape recorder;

storing information relating to an audio and video connection condition of said selector representing audio and video connections of said plurality of audiovisual electronic apparatuses by monitoring the audio and video signals flowing through said selector when said user instruction is received;

transmitting a first command generated by said CPU causing said video tape recorder to be turned ON;

determining based on said stored information whether said audio and video connection condition of said selector permits the operation of said video tape recorder in accordance with said user instruction;

permitting the user to confirm that said user instruction could be carried out when said audio and video connection condition of said selector is determined to permit the operation of said video tape recorder in accordance with said user instruction.

changing said audio and video connection condition of said selector to permit the operation of said video tape recorder in accordance with said user instruction,

transmitting a second command generated by said CPU causing said video tape recorder to be operated in accordance with said user instruction; and

returning said selector of said audiovisual electronic appliance to said audio and video connection condition stored in the step of storing upon completion of the operation of said video tape recorder

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5,739,764
SELECTIVE CALLING RECEIVER HAVING AN ALERTING TIME AUTO-CONTROL FUNCTION

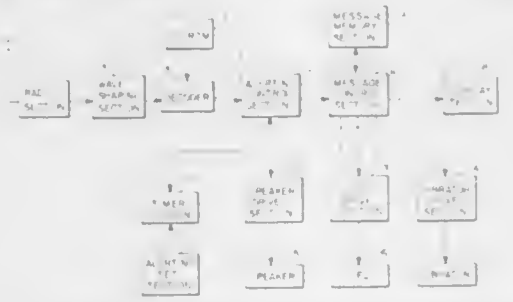
Motoki Ide, Tokyo, and Yasuyuki Mochizuki, Shizuoka, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1994, Ser. No. 364,457

Claims priority, application Japan, Dec. 28, 1993, 5-336923

Int. Cl.⁶ H04Q *7/18*

U.S. Cl. 340—825.44 **25 Claims**



7. A selective calling receiver having an alerting time auto-control function comprising:

an antenna;

radio means for demodulating and amplifying the received signal by the antenna and for outputting the demodulated signal;

wave shaping means for shaping the wave form of said demodulated signal and for outputting a digital signal,

first storing means for storing an identification number,

decoder means for detecting a coincidence of a call signal contained in said digital signal and said identification number to output a coincidence signal, and for decoding a message signal contained in said digital signal to output a message,

alerting means for inputting said coincidence signal to execute an alerting signal;

display means for displaying said message;

second storing means for storing a non-read message and a read out message, said non-read message having the means for indicating the number of times of receipt of said non-read message;

reset means for operation by a user of said receiver when said user notices said alerting, and for outputting a reset signal,

output means for outputting said number of times of receipt of said non-read message coinciding with the content of said message from said memory means;

calculating means for calculating an alerting time based on said number of times of receipt of said non-read message;

counting means for counting said alerting time, and for outputting a count up signal when said alerting time is counted up,

alerting stopping means for stopping said alerting signal and displaying said message when said reset signal or count up signal is inputted,

first converting means for incrementing said number of times of receiving said non-read message by one, which is coincident with said message when said count up signal is input thereto, and outputting said non-read message to said second memory means,

second converting means for converting a non-read message coinciding with said message to a read out message, when said reset signal is input thereto, and outputting said read out message to said second memory means,

third converting means for converting said message to a non-read message when said output means fails to detect a coincidence of said message, and when said count up signal is inputted, thereto, and outputting said non-read message to said second memory means; and

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fourth converting means for converting said message to a read out message, when said output means fails to detect a coincidence of said message, and when said reset signal is inputted thereto, and outputting said read out message to said second memory means.

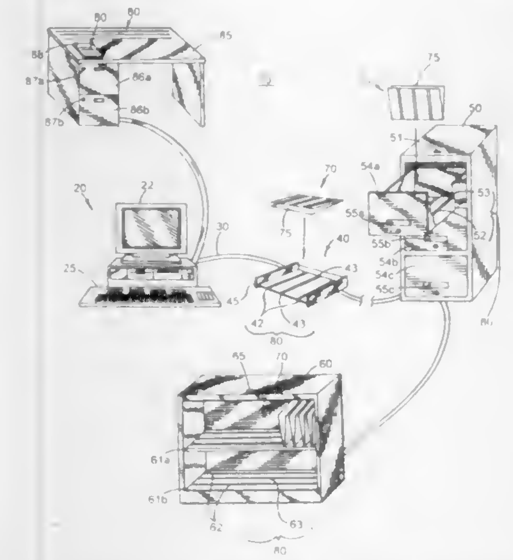
5,739,765
FILE FOLDERS FOR USE IN AN ELECTRONIC FILE LOCATING AND TRACKING SYSTEM

Joel D. Stanfield, Kentwood; Joseph R. Branc, Grand Rapids; Thomas G. Feldpausch, Hastings, and William L. Miller, Ada, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Division of Ser. No. 379,944, Jan. 27, 1995. This application Jul. 18, 1996, Ser. No. 683,082

Int. Cl.^{6} H04Q *1/00*

U.S. Cl. 340—825.49 **41 Claims**



1. A file folder for use in a file tracking system having a processor adapted to provide control signals to a file folder when disposed in a folder retainer, the file folder comprising:

at least one surface;

an addressable device carried by the file folder and having an address;

a first conductor on said surface electrically coupled to said addressable device for providing control signals to said addressable device when said file folder is placed in a folder retainer, said first conductor adapted to communicatively couple to the processor of the file tracking system, the control signals being provided by the processor; and

a second conductor on said surface for providing a return path from said addressable device; and

said first and second conductors are disposed in a pattern that allows for conductive contact between adjacent file folders when said adjacent file folders are in any one of a plurality of different positions.

5,739,766
TRANSPONDER DETECTOR

Christian Chaloux, Mirabel, Canada, assignor to Ilco Unican Inc., Montreal, Canada

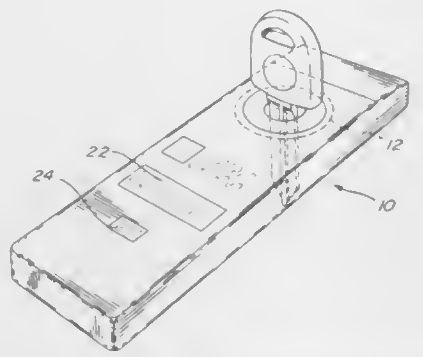
Filed Jul. 12, 1995, Ser. No. 501,429

Int. Cl.^{6} H04Q *5/22*, **G06K** *5/00*; **G08B** *13/14;23/00*

U.S. Cl. 340—825.54 **18 Claims**

1. A transponder detector apparatus comprising:

antenna means for radiating a power signal to an identification transponder of an unidentified type and for reading a response signal characteristic from the transponder;



protocol select means for serially selecting each of a plurality of power signal and response signal characteristic parameters; and

protocol analyzer means for determining whether the response signal characteristic matches the selected parameter and producing an identification match signal.

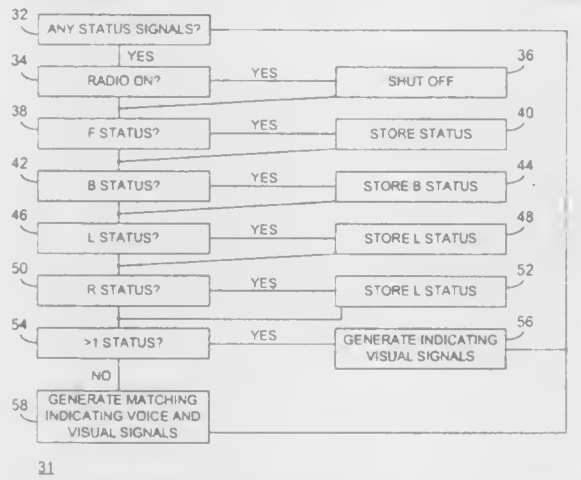
5,739,767
VEHICLE SAFETY WARNING SYSTEM

Asia Carr, 7155 S. Wabash St., Chicago, Ill. 60619

Filed Aug. 9, 1995, Ser. No. 513,073

Int. Cl.^{6} G08G *1/00*

U.S. Cl. 340—902 **2 Claims**



1. A safety warning device comprising:

a. a plurality of siren detectors, each siren detector capable of generating a status signal at an output of each siren detector when activated by a siren;

b. a plurality of visual indicators;

c. a speaker;

d. a microprocessor having a plurality of input, a plurality of output and a memory, the microprocessor's plurality of input are connected to each output of the plurality of siren detectors, the microprocessor's plurality of output connected to the speaker and an input of each of the plurality of visual indicators;

e. one of the microprocessor plurality of output connected to an electrical switch in a vehicle radio;

f. the microprocessor configured to receive and store the status signal from each of the plurality of siren detectors in the microprocessor memory, the microprocessor further configured to generate a voice indicating signal and visual indicating signals, wherein both the voice indicating signal and the visual indicating signals correspond to the status signal from each of the plurality of siren detectors stored in the microprocessor memory;

g. the microprocessor further configured to generate a signal to turn off the vehicle radio when the microprocessor receives the status signal from at least one of the plurality of siren detectors; and

h. the microprocessor further configured to generate only the visual indicating signals when the microprocessor receives the status signal from at least two of the plurality of siren detectors.

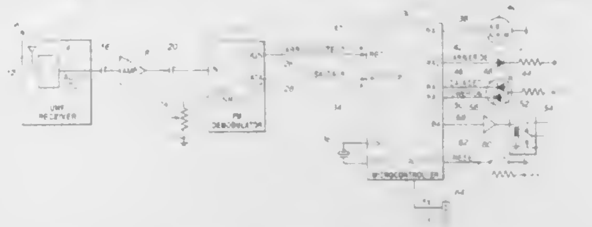
5,739,768
TRAIN PROXIMITY DETECTOR

Brent A. Lane, and Jack M. Erick, both of Amarillo, Tex., assignors to Dynamic Vehicle Safety Systems, Ltd., Amarillo, Tex.

Filed Feb. 12, 1996, Ser. No. 600,351

Int. Cl.^{6} G08G *1/01*

U.S. Cl. 340—933 **23 Claims**



1. A detector for detecting a proximity of a train, comprising:

an amplifier tuned to a carrier frequency uniquely transmitted between a train head end and a train back end;

a demodulator circuit for demodulating signals transmitted on the carrier frequency by the train, and for converting the demodulated signals to corresponding digital signals; and

a processor programmed to process the digital signals and produce an indication used to provide a warning of the proximity of the train.

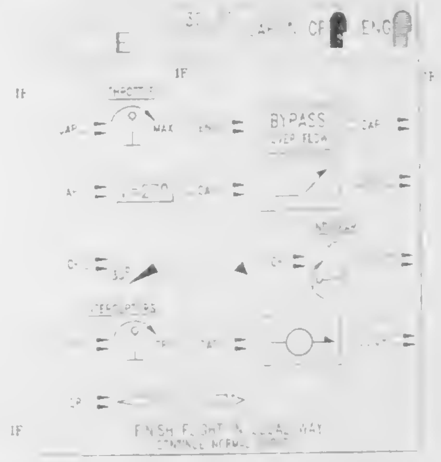
5,739,769
METHOD OF INTELLIGENCE SUPPORT OF AIRCRAFT CREW

Ziberov A. Vladimir; Koupziyanov V. Alexander, both of Moscow Region, and Kosolapov A. Oleg, Moscow, all of Russian Federation, assignors to Anita Trotter-Cox

Filed Aug. 28, 1995, Ser. No. 520,265

Int. Cl.^{6} G08B *21/00*

U.S. Cl. 340—945 **3 Claims**



1. A method of intelligence support and information presentation to an aircraft crew on their actions during in-flight emergency situations, comprising identifying and processing in-flight emergency signals by an on-board computer complex; presenting crew-oriented information on screens of displays in the form of a videocard divided into data fields carrying information about the nature of the in-flight emergency situation, about the crew members to whom the information is addressed, about the tasks to be carried out, and about the mode and order of overcoming the emergency situation, this information being presented as a pattern of pictographic signs and associated functional commands.

5,739,770
OFF-PATH DESCENT GUIDANCE BY A FLIGHT MANAGEMENT SYSTEM

Sam P. Liden, Phoenix, Ariz., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 16, 1996, Ser. No. 586,264

Int. Cl.^{6} G01C *21/00*

U.S. Cl. 340—976 **1 Claim**

1. A method for providing off-path descent vertical guidance of an aircraft by a Flight Management System (FMS), comprising the steps of:

a) determining a current altitude (H) and a corresponding current horizontal distance (X) of the aircraft from a predetermined bottom of descent point (B/D);

b) determining if X is less than a predetermined distance X_c;

c) if X is less than X_c performing a flight simulation of basic descent to produce a Basic Descent Path (BDP) starting at X otherwise performing a descent simulation starting at a point where X is at or near X_c and using aircraft state data obtained from a previous flight plan prediction cycle;

d) storing a plurality of points, each of which corresponds to an altitude (H_i) and horizontal distance (X_i) in a basic descent path array of the BDP obtained from the flight simulation;

e) determining a horizontal distance (X_B) from the B/D point to a bottom point of the BDP array;

f) determining a horizontal distance (X_A) in the BDP array that corresponds to the current aircraft altitude;

g) subtracting X_B from X_A, thereby obtaining a radius around the B/D point of a BDP Circle and displaying this circle on the ND (Navigation Display) unit, and

h) displaying an aircraft symbol on the ND unit at a distance proportional to X_A from the B/D point, thereby indicating the distance remaining until to start of descent of the aircraft.

5,739,771
AMBIGUOUS DIAL INDICATOR WITH SATURATING SETPOINTS

Paul A. Fisher, Scottsdale, Ariz., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 18, 1995, Ser. No. 573,821

Int. Cl.^{6} G01C *21/00*

U.S. Cl. 340—978 **16 Claims**

1. An ambiguous dial indicator display system for an aircraft comprising:

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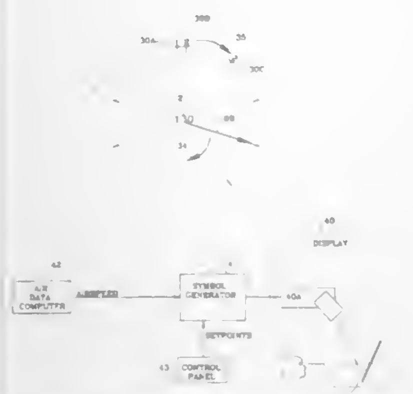


- a) sensor means for measuring the absolute value of a quantity and generating a quantity signal representative of said absolute value;
- b) a control system means for generating at least one setpoint signal, each of said setpoint signals representative of a setpoint value;
- c) symbol generator means, in communication with said sensor means and said control system means, for generating symbology signals representative of an ambiguous dial indicator having,
  - 1) an ambiguous closed scale,
  - 2) a pointer indicative of said absolute value, and,
  - 3) at least one bug representative of one of said setpoint values, said bug characterized such that when said setpoint value is greater than said absolute value plus an offset then said bug is located at a position on said scale corresponding said absolute value plus said offset, when said setpoint value is less than said absolute value plus said offset and greater than said absolute value minus said offset then said bug is located at a position on said scale corresponding to said setpoint value, and when said setpoint value is less than said absolute value minus said offset then said bug is located at a position on said scale corresponding to said absolute value minus said offset; and,
- d) display means, in communication with said symbol generating means, for displaying said symbology signals to an operator, said display means including,
  - 1) a display screen portion on which symbols representative of said symbology signals are displayed.

5,739,772

NAVIGATION SYSTEM FOR VEHICLES

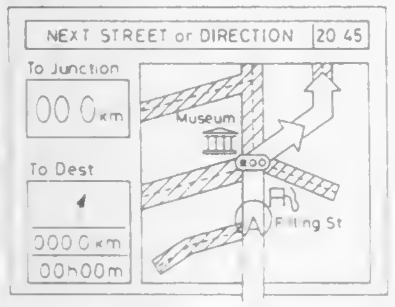
Akimasa Nanba, Anjo, and Shigehito Takahashi, Tokyo, both of Japan, assignors to Aisin AW Co., Ltd., and Alpine Co., Ltd., both of Japan

Filed Aug. 16, 1996, Ser. No. 689,971

Claims priority, application Japan, Aug. 25, 1995, 7-217865

Int. Cl.⁶ G08G *1/123*

U.S. Cl. 340—990 **8 Claims**



1 A navigation system for vehicles, comprising

present position detecting means for calculating a present position of a vehicle;

input means for inputting information necessary for calculating a route;

display means for displaying information for route guidance,

information memory means for storing all data necessary for providing route guidance including guidance road data;

route calculating means for calculating the route based on the information inputted by said input means;

route information memory means for storing information of the route calculated by the route calculating means;

means for reading the route information stored in the route information memory means and for outputting the route information to said display means;

guidance control means for reading an advancing direction at a first guide branch point being approached and an advancing direction at a second guide branch point being approached after the first guide branch point from said route information memory means based on the route calculated by said route calculating means and the present position detected by said present position detecting means and for outputting information of the read advancing directions at the first and second guide branch points including directional arrows indicative of respective advancing directions to said display means; and

said guidance control means displaying the information of the advancing direction at the first guide branch point by partially overlapping it on the information of the advancing direction at the second guide branch point so that at least the heads of each arrow are simultaneously visible on said display means.

5,739,773

VEHICULAR NAVIGATION APPARATUS ENABLING EASY RECOGNITION OF DISPLAYED TRAFFIC INFORMATION

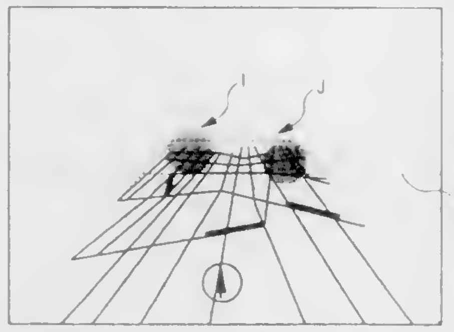
Akihiro Morimoto, Yokohama, and Masahiro Saiki, Sagamihara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 14, 1996, Ser. No. 748,984

Claims priority, application Japan, Nov. 17, 1995, 7-299444

Int. Cl.⁶ G08G *1/123*

U.S. Cl. 340—990 **16 Claims**



1. A vehicular navigation apparatus comprising:

traffic information acquiring means for acquiring road traffic information,

self vehicle position detecting means for detecting a present position of a self vehicle;

means for changing a display form of the traffic information in accordance with a distance of the traffic information from the present position of the self vehicle such that traffic information is displayed in a first form when said traffic information is a first distance from said present position and is displayed in a second form when said traffic information is a second distance from said present position;

means for storing map information

means for changing a display form of the map information in accordance with a distance of the map information from the present position of the self vehicle; and

display means for displaying the display-form-changed traffic information and the display-form-changed map information

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5,739,774

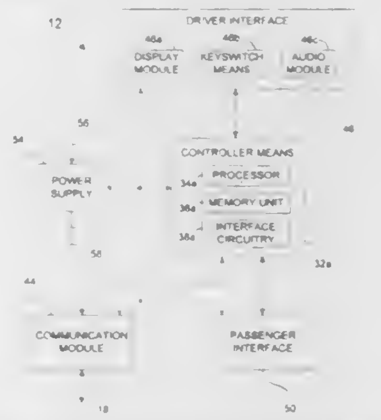
MASS TRANSIT MONITORING AND CONTROL SYSTEM

Antonio Carlos Tambasco Olandesi, 167 Dawson Cir., Staten Island, N.Y. 10314

Filed Jul. 12, 1996, Ser. No. 679,253

Int. Cl.⁶ G08G *1/123*

U.S. Cl. 340—994 **13 Claims**



1 A system to monitor and coordinate the movement of mass transit vehicular traffic on a network of pathways as a plurality of mass transit vehicles traverse predefined routes within the network, each route comprised of a plurality of predetermined passenger drop-off and pickup stops, the system comprising:

- a) a plurality of stop units, one installed at each of a plurality of the passenger drop-off and pickup stops, each stop unit configured to collect and disseminate information related to vehicle arrivals at the passenger stop where the stop unit is installed;
- b) a plurality of vehicle units, one installed in each of the mass transit vehicles traveling on the network, the vehicle units configured to exchange information with the stop units during the interval of time the vehicle unit is in the immediate vicinity of one of the stop units; and
- c) computing means to exchange information with a plurality of the stop units to determine the status and timeliness of the mass transit vehicles traversing at least one of the predefined routes, the timeliness of vehicles related to the actual time a vehicle arrives at a passenger stop with respect to the scheduled time of arrival, wherein a schedule adjustment value is determined by the computing means from the exchanged information;
- d) the system suitably configured so that each mass transit vehicle having a vehicle unit and approaching a scheduled stop transmits a unique identification number comprised of a pre-defined route number and an actual initial starting time the vehicle began to traverse the route, and receives in an exchange of information with the stop unit a unique stop number which is assigned to that particular stop and stop unit.

5,739,775

DIGITAL INPUT AND CONTROL DEVICE

Marco Brandestini, Montagnola, Switzerland, assignor to Bourns, Inc., Riverside, Calif.

Continuation-in-part of Ser. No. 201,739, Feb. 25, 1994, Pat. No. 5,519,393, which is a continuation-in-part of Ser. Nn. 96,047, Jul. 22, 1993, abandoned. This application Dec. 20, 1994, Ser. No. 359,703

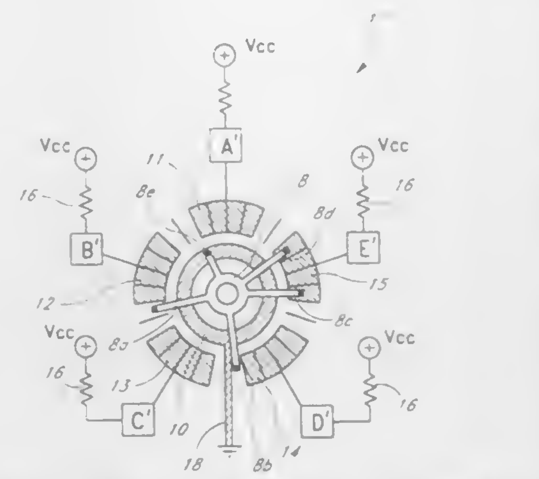
Int. Cl.⁶ H03M *1/22*

U.S. Cl. 341—10 **12 Claims**

1 An absolute digital position encoder, comprising:

a plurality of conductive pick-up segments positioned along a common elongate pick-up track, said pick-up segments electrically insulated from one another, each pick-up segment corresponding to a respective digit of an output code;

a moveable member which is movable relative to said plurality of pick-up segments; and



a plurality of contacts electrically connected to one another such that said contacts are at a common voltage, each of said plurality of contacts positioned in alignment with said common pick-up track and movable into and out of mechanical contact with at least one of said pick-up segments in response to movement of the moveable member;

wherein said pick-up segments, said moveable member and said contacts are arranged such that a sequence of values of said output code generated when said moveable member is moved relative to said pick-up segments is a cyclic Gray code sequence.

5,739,776

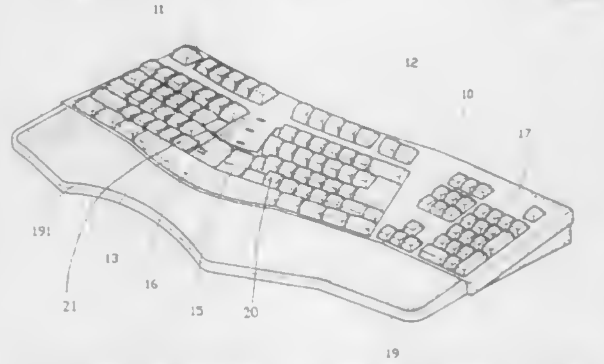
KEY SWITCH ARRANGEMENT FOR COMPUTER KEYBOARDS

Frank Chen, Taipei, Taiwan, assignor to Silitek Corporation, Taipei, Taiwan

Continuation of Ser. No. 437,971, May 10, 1995, abandoned. This application Aug. 8, 1996, Ser. No. 693,503

Int. Cl.⁶ H03M *11/00*

U.S. Cl. 341—22 **1 Claim**



1. A key switch arrangement on a computer keyboard for actuation by a user comprising:

a left and a right key switch unit,

a chamber defined between the left and right switch units,

a crescent space bar; a tab key and a backspace key located in the chamber;

mounting means for respectively engaging the crescent space bar, the tab key and the backspace key side-by-side within the chamber wherein the upper surface of the tab key and the backspace key are below the upper surfaces of adjacent keys in the left and right key switch units;

a power switch mounted near an outside border of the key switch arrangement, and

a wrist pad disposed at the front side of the chamber for resting the wrists of the user wherein the crescent space bar, the tab key and the back space key are all within reach of the hand of the user when the wrists rest on the wrist pad

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5,739,777
INTERFACE SYSTEM COMMON TO V24/V28 AND V35

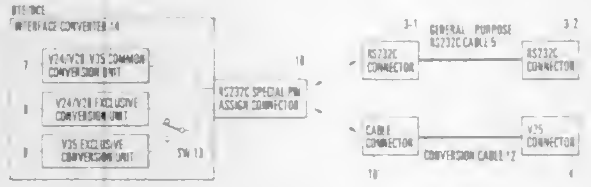
Ryuichi Kaneko, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 15, 1996, Ser. No. 616,616

Claims priority, application Japan, Mar. 17, 1995, 7-086134

Int. Cl.^{6} H04M *7/00*

U.S. Cl. 341—50 **6 Claims**


DTE/DCE
INTERFACE CONVERTER 14
V24/V28-V35 COMMON CONVERSION UNIT
V24/V28 EXCLUSIVE CONVERSION UNIT
V35 EXCLUSIVE CONVERSION UNIT
SW 13
RS232C SPECIAL PIN ASSIGN CONNECTOR
GENERAL PURPOSE RS232C CABLE 5
RS232C CONNECTOR
RS232C CONNECTOR
CABLE CONNECTOR
V35 CONNECTOR
CONVERSION CABLE 12

1. A V24/V28 and V35 common interface system comprising:

a V24/V28-V35 common conversion unit for receiving a first input signal to be converted into a signal which is common to both a V24/V28 signal and a V35 signal and performing an interface conversion on the first signal;

a V24/V28 exclusive conversion unit for receiving a second input signal to be converted into a V24/V28 exclusive signal and performing an interface conversion on the second input signal;

a V35 exclusive conversion unit for receiving a third input signal to be converted into a V35 exclusive signal and performing an interface conversion on the third signal; and

a single connector which receives converted signals from said V24/V28-V35 common conversion unit, and one of said exclusive conversion units, said connector having a pin which is not used when said system is used as a V24/V28 interface and to which a V35 signal is assigned.

5,739,778
DIGITAL DATA FORMATTING/DEFORMATTING CIRCUITS

Won Kun Tae, Seoul, Rep. of Korea, assignor to LG Electroncis Inc., Seoul, Rep. of Korea

Filed Apr. 25, 1995, Ser. No. 429,733

Claims priority, application Rep. of Korea, Apr. 25, 1994, 8747/1994

Int. Cl.^{6} H03M *7/00*

U.S. Cl. 341—55 **10 Claims**

3. A quantized data formatting circuit for formatting quantized data and word length data and scale factor data relating to said quantized data, represented as M bit words, M being a positive integer, the apparatus comprising:

a parallel/serial converter, operable to receive in parallel a stream of said M-bit quantized data, and said word length data and scale factor data, for converting said stream of M bit data to a stream of 1-bit words, and for outputting said stream of 1-bit words to a memory;

an address generator for generating addresses at which to score words said of scream of 1-bit words in said memory so as to arrange consecutively said word length data and scale factor data in locations of said memory prior to locations in said memory for said quantized data;

said memory, organized as a plurality of one-bit storage locations, for storing said stream of 1-bit words from said parallel/serial converter according to addresses from said address generator; and

a serial/parallel converter for receiving a stream of 1-bit words from said memory and for converting said stream of 1-bit words into a stream of N-bit words, N being a positive integer, N≦M, and for outputting said stream of N-bit words in N-bit parallel format.

5,739,779
ENCODING CIRCUIT AND DECODING CIRCUIT

Akiomi Kunisa, Anpachi-gun; Seiichiro Takahashi, Gifu, and Nobuo Itoh, Nagoya, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Aug. 20, 1996, Ser. No. 697,136

Claims priority, application Japan, Aug. 23, 1995, 7-239213; Sep. 20, 1995, 7-267930

Int. Cl.^{6} H03M *7/14*

U.S. Cl. 341—59 **18 Claims**

1. A digital encoding circuit which encodes an m-bit dataword cut out of an input binary data stream one after another to an n-bit codeword by referring to a look-up table, the n-bit codeword satisfying such constraint that two logical 1's should be separated by a run of at least d consecutive logical 0's and any run of consecutive logical 0's has a length of at most k, the m-bit dataword and the n-bit dataword satisfying a formula n>m, comprising:

different types of look-up tables;

reading means for reading a current n-bit codeword indicated by the m-bit dataword from the look-up table being selected by a selecting code;

selecting means for selecting the look-up table according to a number of consecutive logical 0's at lower digits of a preceding n-bit codeword to generate the selecting code; and

replacing means for replacing a bit pattern at lower digits of a current n-bit codeword in accordance with a number of consecutive logical 0's at upper digits of a following n-bit codeword

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5,739,780
DIGITAL TO ANALOG CONVERTER AND DYNAMIC CURRENT MIRROR STRUCTURE TO SIMPLIFY ON-CHIP WAVE SHAPING

Yi Cheng, and Thomas Jefferson Runaldue, both of San Jose, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

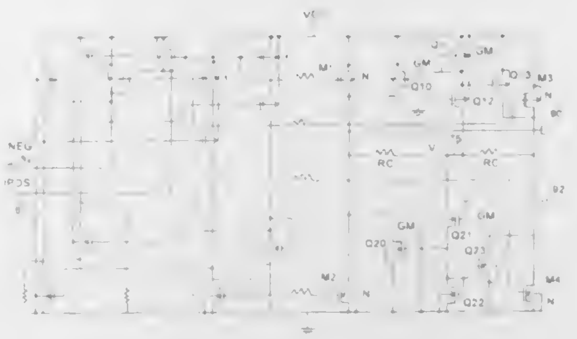
Filed Feb. 12, 1996, Ser. No. 599,653

Int. Cl.^{6} H03M *1/66*

U.S. Cl. 341—135 **1 Claim**

1. A digital to analog conversion circuit, comprising:

circuitry for converting a sequence of positive digital data samples into a first electrical current and for converting a sequence of negative digital data samples into a second electrical current;



current mirror circuitry that generates an analog waveform by combining and amplifying the first and second electrical currents.

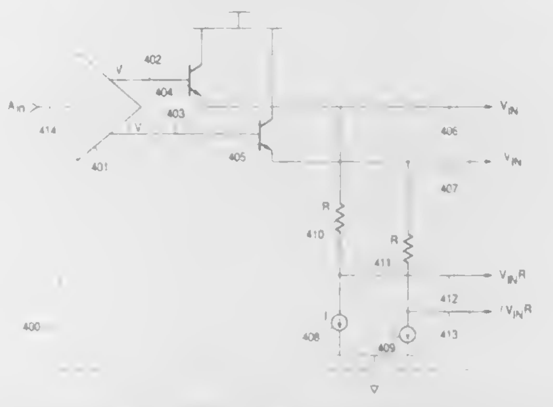
5,739,781
SUB-RANGING ANALOG-TO-DIGITAL CONVERTER WITH OPEN-LOOP DIFFERENTIAL AMPLIFIERS

Mark R. Kagey, Fort Collins, Colo., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Oct. 8, 1996, Ser. No. 727,056

Int. Cl.^{6} H03M *1/00*

U.S. Cl. 341—155 **34 Claims**



1. An apparatus including an analog-to-digital converter (ADC) stage for use in a subranging ADC system, said ADC stage comprising:

a plurality of input amplifiers configured to receive and amplify a plurality of analog input signals and in accordance therewith provide first, second, third and fourth amplified analog signals, wherein said first amplified analog signal has a first amplified voltage, said second amplified analog signal is an inverse of said first amplified analog signal and has a second amplified voltage, said third amplified analog signal has a third amplified voltage which differs from said first amplified voltage by a first voltage offset, and said fourth amplified analog signal has a fourth amplified voltage which differs from said second amplified voltage by a second voltage offset;

a signal interpolation circuit, coupled to said plurality of input amplifiers, configured to receive and interpolate said first and third amplified analog signals and receive and interpolate said second and fourth amplified analog signals and in accordance therewith provide a plurality of analog interpolation signals; and

a signal comparison circuit, coupled to said signal interpolation circuit, configured to receive and compare individual ones of said plurality of analog interpolation signals and in accordance therewith provide one or more digital signals, wherein each one of said one or more digital signals includes asserted and de-asserted states.

5,739,782
RESISTANCE LADDER, D/A CONVERTER AND A/D CONVERTER

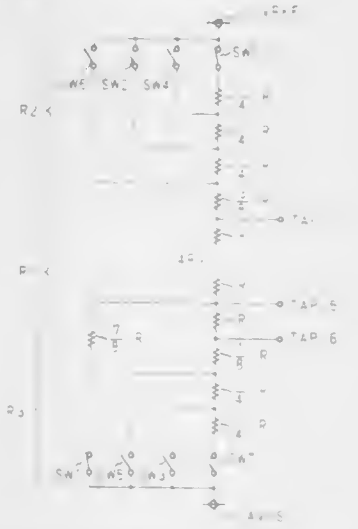
Nobuya Uda, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Mitsubishi Electric Semiconductor Software Co., Ltd., Itami, both of Japan

Filed Dec. 2, 1996, Ser. No. 757,631

Claims priority, application Japan, Jul. 26, 1996, 8-198167

Int. Cl.^{6} H03M *1/78*

U.S. Cl. 341—154 **8 Claims**



1. A D/A converter comprising:

(a) a resistance ladder which comprises

a first resistance group having a resistor string including of a plurality of resistors each having a resistance value of R, connected in series with a total resistance value of (2^m-1).R and 2^m ladder taps for taking out divided voltage between first and second reference voltage sources generated at connection nodes between said resistors and an end of said resistor string;

a second resistance group having a resistor string including $(2^{n-m}-1)$ resistors each having a resistance value of $(1/2^{n-m})$.R (where n>m and each of n and m is an integer) and a resistor having a resistance value of $(2/2^{n-m}-1/2^{n-m+1})$.R with an end being connected to one end of said first resistance group, which are connected in series, and connecting means for selectively connecting an end of said resistor string and the connection nodes between the respective resistors to said first reference voltage source, said resistor string having another end connected to the one end of said first resistance group; and

a third resistance group having a resistor string including $(2^{n-m}-2)$ resistors each having a resistance value of $(1/2^{n-m})$.R and a resistor having a resistance value of $(1/2^{n-m+1})$.R with an end being connected to another end of said first resistance group, which are connected in series, a resistor having a resistance value of $(1\,1/2^{n-m+1})$.R and connecting means for selectively connecting the connection nodes between the respective resistors of said resistor string, an end of said resistor string, and an end of said resistor having the resistance value of $(1\,1/2^{n-m+1})$.R to said second reference voltage source, another end of said resistor having the resistance value of $(1\,1/2^{n-m+1})$.R being connected to a ladder tap adjacent to ladder taps to which said resistor string is connected,

(b) means for selecting one ladder tap from 2^m ladder taps of said first resistance group to take out an analog voltage corresponding to a digital value of the high order m bits among the n bits; and

(c) first control means for, in accordance with a case of converting the high order m bits or a case of converting the low order (n−m) bits, forming a connection route between the first and second reference voltage sources with a resistance of (2^m).R appearing therebetween, by selectively combining the connecting means of said second and third resistance groups and

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for, when converting the low order (n−m) bits, forming said connection route with said ladder tap remaining to be selected, to take out an analog voltage for the m bits from said ladder tap.

5,739,783

DATA RECORDING APPARATUS

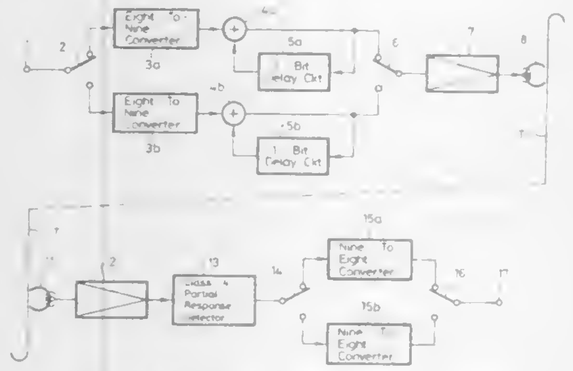
Hiroshi Tajima, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 449,824, May 24, 1995, Pat. No. 5,657,013. This application Apr. 4, 1997, Ser. No. 835,119

Claims priority, application Japan, May 25, 1994, 6-111180

Int. Cl.⁶ H03M *5/00*

U.S. Cl. 341—59 **1 Claim**



1 An apparatus for encoding a digital signal comprising,

switching means for alternately outputting said digital signal from first and second output terminals at every bit,

first eight-to-nine converting means for converting every eight bits of said digital signal output from said first output terminal to a signal of nine bits which will be DC free after NRZI conversion is carried out,

second eight-to-nine converting means for converting every eight bits of said digital signal output from said second output terminal to a signal of nine bits which will be DC free after NRZI conversion is carried out; and

encoding means supplied with outputs from said first and second converting means, alternately combining outputs of said first and second converting means at every bit and obtaining a substantially I-NRZI converted digital signal

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5,739,784

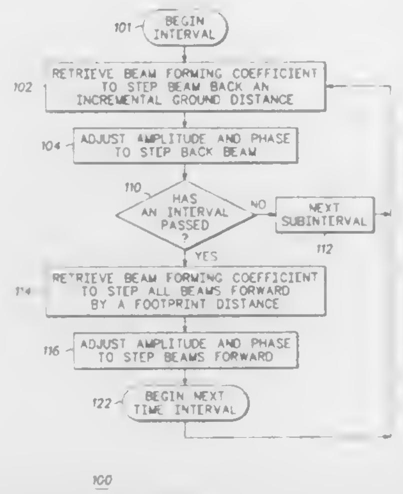
METHOD AND BEAM STEPPING APPARATUS FOR A SATELLITE CELLULAR COMMUNICATION SYSTEM

Yih Guang Jan, and Kenneth Maynard Peterson, both of Phoenix, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 20, 1995, Ser. No. 560,605

Int. Cl.⁶ H04B *7/185*

U.S. Cl. 342—354 **21 Claims**


101
BEGIN INTERVAL
102
RETRIEVE BEAM FORMING COEFFICIENT TO STEP BEAM BACK AN INCREMENTAL GROUND DISTANCE
104
ADJUST AMPLITUDE AND PHASE TO STEP BACK BEAM
110
HAS AN INTERVAL PASSED ?
NO
NEXT SUBINTERVAL
112
YES
114
RETRIEVE BEAM FORMING COEFFICIENT TO STEP ALL BEAMS FORWARD BY A FOOTPRINT DISTANCE
116
ADJUST AMPLITUDE AND PHASE TO STEP BEAMS FORWARD
122
BEGIN NEXT TIME INTERVAL
100

1 In a phased array antenna adapted for use on a satellite that moves with respect to Earth's surface, a method of stepping a plurality antenna beams, said plurality of antenna beams forming a footprint region on Earth's surface, said satellite having a memory for storing first and second sets of beam forming coefficients therein, the method comprising the steps of

stepping back each antenna beam of said plurality to compensate for movement of said satellite; and

stepping forward each antenna beam of said plurality a portion of a distance across said footprint region after repeating the stepping back step a predetermined number of times,

wherein prior to the stepping back step, the method includes the steps of retrieving said first set of beam forming coefficients from said memory, and providing said first set of beam forming coefficients to a controller to control a phase and amplitude of said antenna beams, said first set of beam forming coefficients calculated to step each antenna beam back to compensate for said movement of said satellite, and

wherein the stepping forward step includes the step of retrieving said second set of beam forming coefficients from said memory, and providing said second set of beam forming coefficients to said controller to control said phase and amplitude of said antenna beams, said second set of beam forming coefficients calculated to step said antenna beams forward said distance

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5,739,785

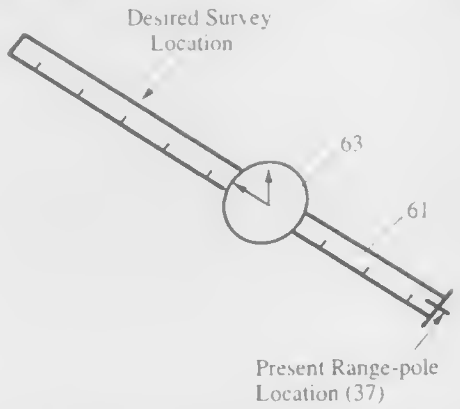
LOCATION AND GENERATION OF HIGH ACCURACY SURVEY CONTROL MARKS USING SATELLITES

Michael Timo Allison, Santa Clara; Mark Nichols, Sunnyvale, and James L. Sorden, Saratoga, all of Calif., assignors to Trimble Navigation Limited, Sunnyvale, Calif.

Continuation of Ser. No. 26,547, Mar. 4, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 587,998

Int. Cl.⁶ G01S *5/02*; G01C *3/04*; B43L *5/00*

U.S. Cl. 342—357 **10 Claims**



1 Apparatus for accurately determining the location coordinates of an already-existing physical survey mark on or near the Earth's surface, using differential position determination in real time, the apparatus comprising

a first Satellite Positioning System (SPS) location determination station with known location coordinates, for receiving SPS signals from at least four SPS signal sources, which are spaced apart from the first SPS station, and for determining location coordinates of the first SPS station from the SPS signals received by the first SPS station;

a second SPS location determination station for receiving SPS signals from at least four SPS signal sources, and for determining location coordinates of the second SPS station relative to the first SPS station from the SPS signals received by the second SPS station, where the second SPS station is provided with the location coordinates of the first SPS station;

an angularly orientable measuring device having first and second ends and a selected length L, with distances marked along the measuring device, for measuring a distance along the measuring device and for measuring an angular orientation in a substantially horizontal plane of a selected direction determined by the first and second ends of the measuring device, and

where, when the measuring device indicates that the second SPS station is within a distance L from the location of a selected physical survey mark, the measuring device is positioned so that the the measuring device extends from the second SPS station location toward the physical survey mark location, and the second SPS station determines location coordinates of the second SPS station relative to the physical survey mark location along the measuring device

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5,739,786

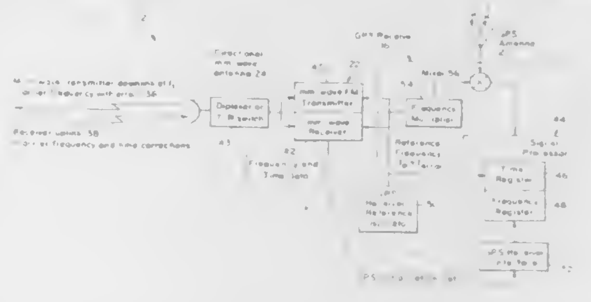
GPS TRANSFER INITIALIZATION SYSTEM

Richard L. Greenspan, Newton, and Joseph M. Przyjemski, Carlisle, both of Mass., assignors to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Jun. 12, 1996, Ser. No. 661,983

Int. Cl.⁶ H04B *7/185*, G01S *5/02*

U.S. Cl. 342—357 **6 Claims**



1 A GPS Transfer Initialization System for initializing a mobile unit from a base unit, comprising:

a GPS receiver in the mobile unit for receiving a GPS signal including a time register, a frequency register, and a GPS reference oscillator for generating a GPS carrier signal of a first frequency,

a mobile transmitter receiver circuit on said mobile unit responsive to said GPS carrier signal, for generating and transmitting a transfer carder signal of a second frequency that is a multiple of said first frequency,

a base transmitter receiver circuit on the base unit including

- a GPS calibrated frequency and time reference for providing a GPS calibrated signal of a third frequency,
- an error detection circuit for comparing said GPS calibrated signal and said transfer carrier signal to generate a frequency error signal determined from the difference between them and representative of the error in the frequency of said GPS reference oscillator, and
- an error correction circuit responsive to said GPS calibrated frequency and time reference and to said error detection circuit for generating and transmitting the GPS time and said error signal;

said mobile transmitter receiver circuit including an initializing circuit responsive to said GPS time and said error signal for adjusting said time register and frequency register to the correct GPS time and frequency

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5,739,787

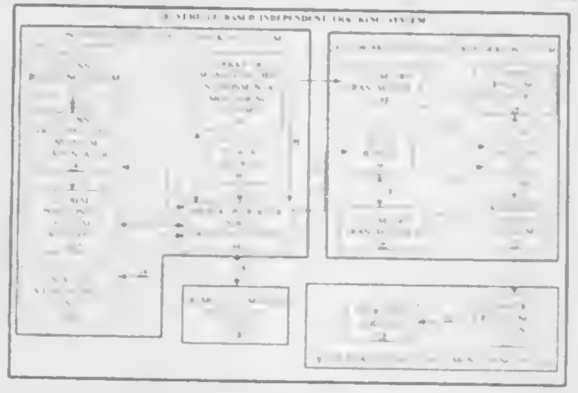
VEHICLE BASED INDEPENDENT TRACKING SYSTEM

Edmund D. Burke, P.O. Box 5090, and Martin S. Waldman, P.O. Box 5473, both of Vandenberg, Calif. 93437

Continuation-in-part of Ser. No. 425,929, Apr. 20, 1995, abandoned. This application Aug. 2, 1996, Ser. No. 702,061

Int. Cl.⁶ G01S *5/02*

U.S. Cl. 342—357 **6 Claims**



1 A vehicle based independent tracking system comprised of

An object orientation and positioning system comprising an inertial measurement means and a global positioning system means capable of determining real-time dynamic space, position and time information solutions of a vehicle from ground operation through geosyncronous orbit mission phases, including high dynamic environments in the vicinity of five thousand meters per second in velocity, 10 g in acceleration, and 10 g per second in differential acceleration during all mission phases nominal or not, said inertial measurement means and global positioning system means being located aboard said vehicle;

said global positioning system means and inertial measurement means connected with a microcontroller system means providing power and data flow orchestration within said vehicle based independent tracking system, said microcontroller system means containing gravity software algorithms and switches to autonomously detect life and property threatening non-nominal vehicle performance, and send appropriately responsive destruct commands to said vehicle upon said vehicle's crossing of pre-determined three dimensional time, space and position information range safety limit lines residing in software, said microcontroller system means containing memory survivable in high dynamic impact scenarios in the vicinity of 100 g, said microcontroller system means also connected with a power means, a mission specific array of application sensor means, a checkout and monitoring system means, a telemetry transmission means, and a radiating antenna system means, said radiating telemetry transmission means communicating with a telemetry receiver means off board said vehicle, said telemetry receiver means connected with a user data terminal means, whereby a user can remotely monitor and respond to real time flight profile parameters of said vehicle during all mission phases

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5,739,788

ADAPTIVE RECEIVING ANTENNA FOR BEAM REPOSITIONING

Robert B. Dybdal, Palos Verdes Estates, and Samuel J. Curry, Redondo Beach, both of Calif., assignors to The Aerospace Corporation, El Segundo, Calif.

Filed Dec. 3, 1996, Ser. No. 758,709

Int. Cl.⁶ H01Q *3/00*

U.S. Cl. 342—359 **5 Claims**

1 A method for adaptively receiving a desired signal in the presence of an interfering signal both arriving within an antenna beam, the method comprising the steps of

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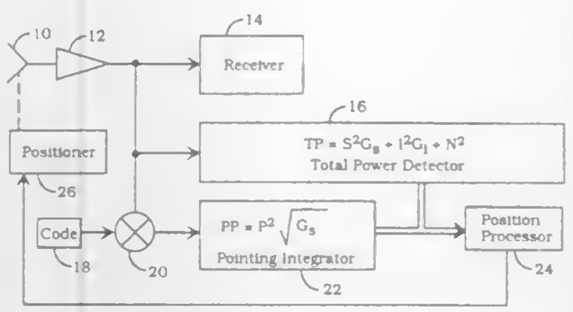


Open Loop Receive Antenna

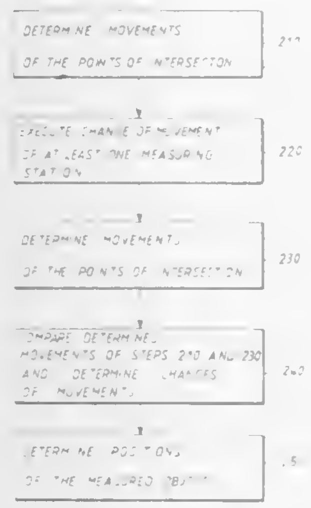
pointing the antenna beam in a source direction to receive the desired signal in the presence of noise, the desired signal and noise have a desired signal to noise ratio above a threshold level.

detecting the presence of the interference signal from an interference direction, the desired signal and interference signal have a desired signal to interference signal ratio, and

repositioning the antenna beam in a direction away from the source direction and away from interference direction to increase the desired signal to interference signal ratio while maintaining desired signal to noise ratio above the threshold level.

5,739,789
METHOD FOR POSITION DETERMINATION

Thomas Rolf Kronhamn, Hälsö , Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed May 8, 1996, Ser. No. 646,886
Claims priority, application Sweden, May 8, 1995, 9501694
Int. Cl.⁶ G01S *3/02, 5/04*
U.S. Cl. 342—465 **7 Claims**


DETERMINE MOVEMENTS OF THE POINTS OF INTERSECTION
210
EXECUTE CHANGE OF MOVEMENT OF AT LEAST ONE MEASURING STATION
220
DETERMINE MOVEMENTS OF THE POINTS OF INTERSECTION
230
COMPARE DETERMINED MOVEMENTS OF STEPS 210 AND 230 AND DETERMINE CHANGES OF MOVEMENTS
240
DETERMINE POSITIONS OF THE MEASURED OBJECTS

1 Method for determining positions of a number of measured objects by determining a number of directions to the measured objects from at least two measuring stations, at least one of the measuring stations being mobile, the method being used to decide which of points of intersection formed between the directions correspond to measured objects and which points of intersection do not correspond to measured objects, the method comprising the steps of.

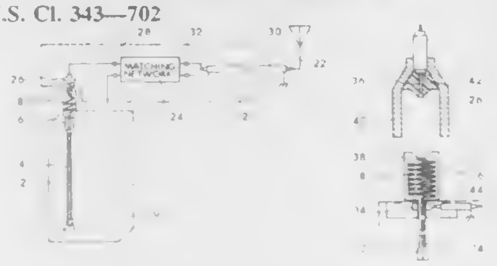
determining movements of the points of intersection by means of the determined directions to the measured objects,

in connection with a determination of the directions to the measured objects, executing a change in the movement of the at least one mobile measuring station in relation to the movement of the points of intersection, and

determining a change of relative movements between the measuring stations and the points of intersection, wherein points of intersection whose movements are not influenced by the change in the movement of the at least one mobile measuring station correspond to positions of the measured objects.

5,739,790
RF DOCKING ADAPTER FOR PORTABLE TRANSCEIVERS, COMMUNICATION SYSTEM AND METHOD FOR USE WITH THE SAME

Donald R. Green, Jr., San Marcos, Calif., assignor to Nippondenso, Co., Ltd., Kariya, Japan
Filed Sep. 18, 1995, Ser. No. 529,723
Int. Cl.⁶ H01Q *1/24*
U.S. Cl. 343—702 **18 Claims**



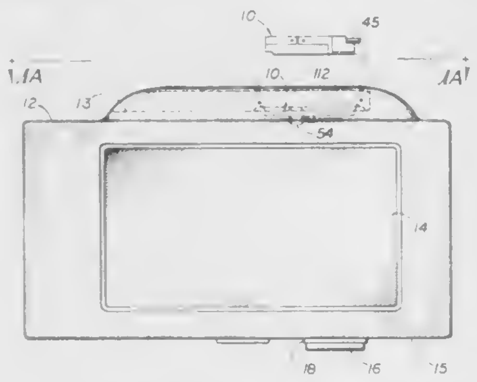
1 A portable communication device comprising.

a unit body including electrical circuitry disposed therein:

antenna means selectively positionable relative to said unit body for in a first position relative to said unit body, functioning as an antenna to radiate energy from said electrical circuitry, and for, in a second position relative to said unit body, functioning as an electrical connector to provide an electrical connection between said electrical circuitry and an external antenna via a capacitive coupling with said electrical circuitry.

5,739,791
ANTENNA FOR USE WITH A RADIO INSTALLED IN AN EXPANSION SLOT OF A COMPUTER SYSTEM

Jonathan D. Barefield, Alpharetta; Hosea D. Dorris, Norcross, and Emory P. Long, Lawrenceville, all of Ga., assignors to LXE Inc., Norcross, Ga.
Filed Nov. 6, 1995, Ser. No. 554,085
Int. Cl.⁶ H01Q *1/24*
U.S. Cl. 343—702 **18 Claims**



1 A radio receiver/transmitter communication system for a computer terminal including an expansion slot for receiving expansion circuit boards and an internal compartment defining an enclosure in the housing of said computer terminal, said internal compartment separated from said expansion slot by a portion of said terminal housing, comprising:

a stand-alone printed circuit board positioned within said enclosure of said internal compartment of said computer terminal:

a radio frequency communication medium etched on a first side of said stand-alone printed circuit board and operable within said enclosure of said computer terminal to support wireless communications.

a radio transmitter receiver on a circuit board installed in said expansion slot, and

a data transmission cable connected to and providing a data communication pathway between said radio frequency communication medium and said radio transmitter receiver

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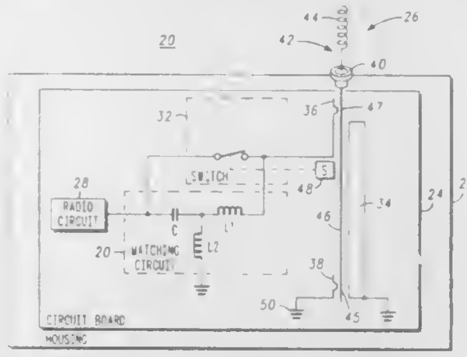
5,739,792
WIRELESS COMMUNICATION DEVICE WITH ELECTRICAL CONTACTS

Brian J. Hassemer, Gurnee; James D. Domoleczny, Round Lake Beach; Stephen J. Gaynes, Wonderlake, and Jin D. Kim, Mundelein, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Dec. 22, 1995, Ser. No. 575,790
Int. Cl.⁶ H01Q *1/24*
U.S. Cl. 343—702 **12 Claims**



1 A wireless communication device comprising

a circuit board having a pad.

an antenna with at least two positions relative the circuit board; and

an electrical contact in a fixed position relative to the circuit board and electrically coupled with the antenna, the electrical contact including a flexible arm whose movement is operatively responsive to the antenna's at least two positions,

wherein the flexible arm is disposed relative to the pad to form a switch so that in a one of the antenna's at least two positions the flexible arm is not electrically coupled with the pad to thus place the switch in an open position, and so that in a other of the antenna's at least two positions the flexible arm is electrically coupled with the pad to thus place the switch in a closed position.

5,739,793
MOBILE COMMUNICATION INFORMATION TERMINAL APPARATUS

Keigo Adachi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 18, 1996, Ser. No. 715,494
Claims priority, application Japan, Jan. 9, 1996, 8-001663
Int. Cl.⁶ H01Q *1/24*
U.S. Cl. 343—702 **16 Claims**

1 A mobile communication information terminal apparatus, comprising

a mobile mainframe:

a radio portion which is provided in said mainframe for transmitting and receiving radio-wave signals over a radio channel.

a control portion which is provided in said mainframe and is connected to said radio portion for transmitting to said radio portion communication control information.

a touch-sensitive display input operating portion which is provided on a surface of said mainframe for providing input function information to said control portion in response to touch operation by a user

an antenna attachment portion which is provided on a surface of said mainframe for coupling said radio-wave signals between said radio portion and an antenna, and

a combination antenna/touch pen which is removably attached to said antenna attachment portion, said combination antenna/touch pen serving as an antenna when attached to said antenna attachment portion and also functioning as an input device for said touch-sensitive display/input operating portion when removed from said antenna attachment portion

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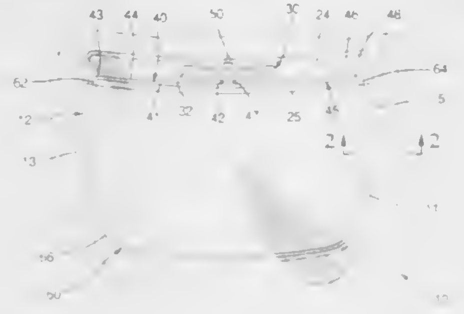
5,739,794
VEHICLE WINDOW ANTENNA WITH PARASITIC SLOT TRANSMISSION LINE

Louis Leonard Nagy, and Douglas Courtney Martin, both of Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., and Delco Electronics Corporation, Kokomo, Ind.
Continuation-in-part of Ser. No. 445,884, May 22, 1995, Pat. No. 5,528,314. This application Apr. 18, 1996, Ser. No. 634,649
Int. Cl.⁶ H01Q *1/32*
U.S. Cl. 343—713 **11 Claims**



1 A vehicle window antenna for receiving radio waves of a predetermined wavelength in a vehicle having an electrically conducting body forming a window with a window glass disposed therein, the window having a window edge surrounding the window and comprising a horizontal upper edge portion the antenna comprising an electrically conducting entity affixed to the window glass, the entity comprising, in combination

a horizontally elongate principal element substantially parallel to and spaced from the upper edge portion of the window and having an effective horizontal length of an odd multiple of one quarter of the predetermined wavelength,

a connecting element connected to the principal element and having a horizontal connecting portion spaced below the principal element by an amount sufficient that no significant slot transmission line is formed therewith, and

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an impedance matching element in the form of a ribbon having one end connected to the connecting element and extending along but spaced from the window edge so as to electrically couple with the window edge to form a slot transmission line therewith, the impedance matching element having a length of an integer multiple of one half the predetermined wavelength, the slot transmission line being parasitically coupled to the principal element by the connecting element.

5,739,795
PORTABLE RECEIVER WITH ANTENNA

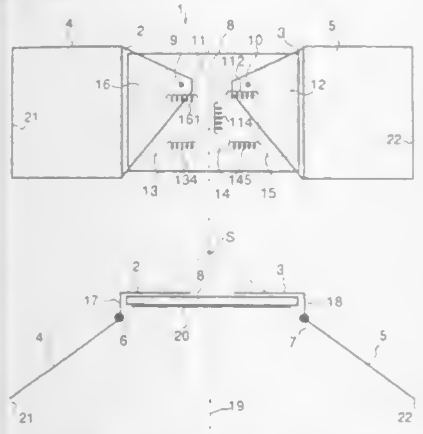
Pierre Chanteau, La Haye Malherbe, France; Bram P. Van Sambeek; Steven T. Slot, both of Eindhoven, Netherlands, and Daniele Santilli, Waalre, Netherlands, assignors to U.S. Philips Corporation, N.Y., N.Y.

Filed Apr. 3, 1996, Ser. No. 626,091

Claims priority, application France, Apr. 5, 1995, 95 04041

Int. Cl.⁶ H01Q *1/24*

U.S. Cl. 343—795 9 Claims



1 Portable receiver with an antenna for receiving electromagnetic waves, comprising a box which accommodates an electronic circuit, characterized in that the antenna comprises for an application in the UHF frequency range:

two electrically conductive main plates, each attached along a line on the exterior and on either one of the two sides of the box, practically symmetrically,

and two parallel plates, which are practically triangular with their points turned to each other and which are contained in the same symmetric plane with respect to each other, and which are connected by one of their edges to the edge turned towards the box of each of the main plates,

and a slewability is provided in the connection line of each main plate and, in the position of use, the main plates and the parallel plates form an angle between them.

5,739,796
ULTRA-WIDEBAND PHOTONIC BAND GAP CRYSTAL HAVING SELECTABLE AND CONTROLLABLE BAD GAPS AND METHODS FOR ACHIEVING PHOTONIC BAND GAPS

Louis J. Jasper, Jr., Fulton, Md.; Lawrence Carin, Chapel Hill, N.C., and K. Ming Leung, Fort Lee, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

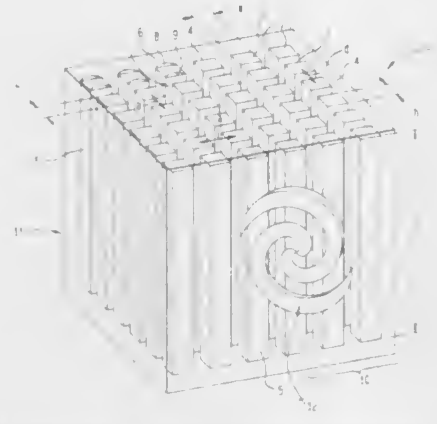
Filed Oct. 30, 1995, Ser. No. 550,040

Int. Cl.⁶ H01Q *1/36*

U.S. Cl. 343—895 64 Claims

1 A two-dimensional ultra wideband photonic band gap crystal comprising:

a first plurality of dielectric rods of the same dimension placed in parallel rows and columns spaced from each other in a predetermined manner and having a rod axis, to form a first lattice,



said first lattice being disposed within a host material to from a first sub-crystal;

a second plurality of dielectric rods placed in parallel rows and columns spaced from each other in a predetermined manner having said rod axis, said second plurality of dielectric rods all having an identical set of dimensions differing from said same dimensions of the first plurality of dielectric rods, to form a second lattice,

said second lattice being disposed within said host material to form a second sub-crystal, said first and said second sub-crystals being aligned in parallel to form a crystal structure; and

said crystal structure having said first and second sub-crystals stacked to provide a wideband photonic band gap for TE waves, an electric field parallel to said first and second plurality of dielectric rods, propagating normal to said rod axis and a band gap for TM waves smaller than said wideband photonic band gap.

5,739,797
HEAD-MOUNTED VIRTUAL IMAGE DISPLAY DEVICE HAVING SWITCHING MEANS ENABLING USER TO SELECT EYE TO VIEW IMAGE

Joji Karasawa; Hiroshi Kamakura; Shoichi Uchiyama; Hiroyuki Shindo; Takeshi Furihata, and Masafumi Sakaguchi, all of Nagano-ken, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

PCT No. PCT/JP95/01250, § 371 Date Jan. 22, 1996, § 102(e) Date Jan. 22, 1996, PCT Pub. No. WO96/00406, PCT Pub. Date Jan. 4, 1996

PCT Filed Jun. 22, 1995, Ser. No. 586,639

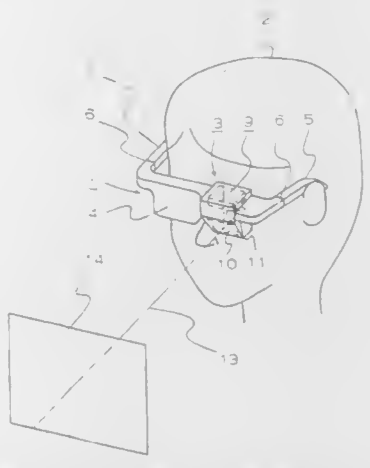
Claims priority, application Japan, Jun. 23, 1994, 6-141968; Jul. 5, 1994, 6-153742; Oct. 14, 1994, 6-249868; Nov. 9, 1994, 6-275386; Nov. 11, 1994, 6-277504; Nov. 28, 1994, 6-293051; Dec. 1, 1994, 6-298440; Jan. 18, 1995, 7-005860; Jan. 18, 1995, 7-005861

Int. Cl.⁶ G02B *27/02*

U.S. Cl. 345—8 20 Claims

1 A head-mounted display device comprising a virtual image forming optical system including an image display element and an enlarging optical means for enlarging an image formed by said image display element as a virtual image; a device main body that houses said image forming optical system; and a switching means mounted in said device main body for holding said virtual image forming optical system in such a way that the system can be moved in the direction of the width of user's eyes and placing said virtual image forming optical system in front of one of the user's eyes, wherein:

said image display element and said enlarging optical means are disposed so that the optical axis of said virtual image forming



optical system approximately aligns with the user's line of sight taken while he or she is looking horizontally

5,739,798
ANALOGUE GREYSCALE ADDRESSING IN A FERROELECTRIC LIQUID CRYSTAL DISPLAY WITH SUB-ELECTRODE STRUCTURE

Neil Lockmuller, Middlesex, England, assignor to Central Research Laboratories Limited, Middlesex, England

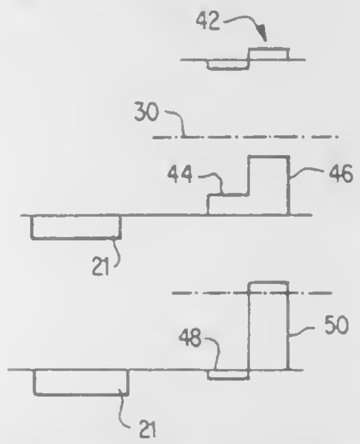
PCT No. PCT/GB94/02533, § 371 Date May 30, 1996, § 102(e) Date May 30, 1996, PCT Pub. No. WO95/15548, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 17, 1994, Ser. No. 647,910

Claims priority, application United Kingdom, Dec. 2, 1993, 9324710

Int. Cl.⁶ G09G *3/03*

U.S. Cl. 345—67 6 Claims



1 A method of addressing a matrix of pixels which are defined by areas of overlap between members of a first set of electrodes on one side of a layer of material and members of a second set of electrodes, which cross the members of the first set of electrodes, on the other side of the layer of material, the material being electrically addressable to change an optical property thereof from one stable state to another stable state, the material having a switching threshold at a predetermined working temperature, each member of the first set of electrodes comprising first and second sub-electrodes which are, at opposing edges thereof, connected by a layer of resistive material at least in the pixel areas, the method comprising the steps of.

applying a blanking pulse of a given polarity to the sub-electrodes of each electrode of the first set of electrodes,

applying thereafter a predetermined strobe signal to one sub-electrode of an electrode from said first set of electrodes while substantially simultaneously applying an auxiliary strobe signal to the other sub-electrode of the same electrode, and

applying, substantially simultaneously with application of said strobe signals, data signals having chosen amplitudes to the electrodes of the second set of electrodes,

the predetermined strobe signal and auxiliary strobe signal being applied to corresponding sub-electrodes of respective electrodes of the first set of electrodes in succession,

each predetermined strobe signal comprising a pre-pulse and a main pulse which are both opposite in polarity to the blanking pulse,

each auxiliary strobe signal comprising a pre-pulse of the same polarity as the blanking pulse and a main pulse which is opposite in polarity to the blanking pulse,

each data signal being of a chosen polarity and, when of non-zero amplitude, comprising a first data pulse which coincides with the pre-pulses of corresponding predetermined and auxiliary strobe signals and a second data pulse which coincides with main pulses of the corresponding predetermined and auxiliary strobe signals,

the first and second data pulses having mutually opposite polarities,

the main pulses of the predetermined and auxiliary strobe signals having magnitudes which are respectively greater than and less than the switching threshold of the layer of material,

a given second data pulse and a corresponding main pulse being such that the magnitude of a voltage waveform across the layer of material of a given pixel is no less than the switching threshold for at least some of the pixels

5,739,799
METHOD OF MEMORY-DRIVING A DC GASEOUS DISCHARGE PANEL AND CIRCUITRY THEREFOR

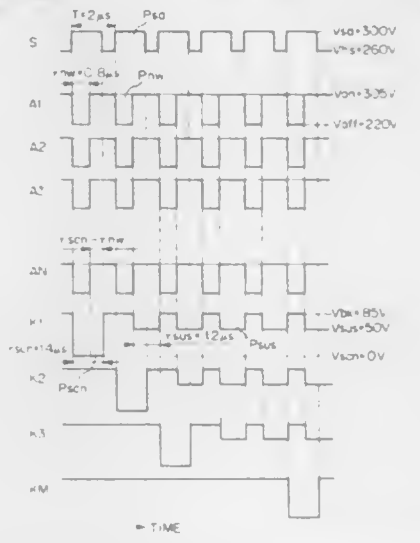
Atsushi Takahashi; Yoshihiko Kobayashi, and Yuji Terouchi, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 671,711

Claims priority, application Japan, Jul. 5, 1995, 7-169124

Int. Cl.⁶ G09G *3/28*

U.S. Cl. 345—68 6 Claims



1 A method of memory-driving a DC gaseous discharge panel having a group of linear first electrodes, a group of linear second electrodes facing said first electrodes and extending perpendicularly to said first electrodes, and a plurality of display cells having a discharge gas filled therein and respectively located at crosses of said first electrodes and said second electrodes in such a manner as to emit light due to discharges between said first electrodes and said second electrodes, said method comprising the steps of

(a) sequentially applying scan pulses each having a pulse width of τscn to each of said second electrodes at a scanning period of T;

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(b) sequentially applying sustain pulses each having a pulse width of τsus to each of said second electrodes after the scan pulse for a preselected period of time;

(c) applying non-write pulses each having a pulse width of τnw to said first electrodes in synchronism with said scan pulses and implemented as a binary signal taking a first logical level if display information for the individual display cell is non-display information, while taking a second logical level if otherwise;

(d) and controlling application of said sustain pulses to said second electrodes such that said sustain pulses do not coincide with said non-write pulses as to timing, and controlling said pulse width τnw to be shorter than said pulse width τscn such that a relation of τscn+τsus>T holds.

5,739,800

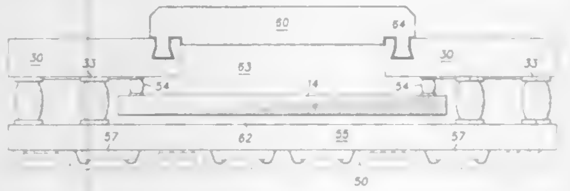
INTEGRATED ELECTRO-OPTICAL PACKAGE WITH LED DISPLAY CHIP AND SUBSTRATE WITH DRIVERS AND CENTRAL OPENING

Michael S. Lebby, Apache Junction; John W. Stafford, Phoenix, and Fred V. Richard, Scottsdale, all of Ariz., assignors to Motorola, Schaumburg, Ill.

Filed Mar. 4, 1996, Ser. No. 610,506

Int. Cl.⁶ G09G *3/32, 5/00,* H01L *27/15*

U.S. Cl. 345—82 46 Claims



1. An integrated electro-optical package comprising:

a light emitting device display chip comprised of an array of light emitting devices cooperating to generate a complete image, the light emitting devices being positioned in rows and columns to define all pixels of the complete image and operably connected to a plurality of external connection/mounting pads adjacent outer edges of the light emitting device display chip;

a mounting substrate defining a central opening therethrough substantially coextensive with the complete image generated by the light emitting device display chip and a plurality of mounting pads formed on a surface surrounding the central opening, the plurality of external connection/mounting pads on the light emitting device display chip being bump bonded to the plurality of mounting pads on the mounting substrate and

a plurality of driver and control circuits connected to the light emitting devices through a plurality of terminals and the plurality of mounting pads on the mounting substrate

5,739,801

MULTITHRESHOLD ADDRESSING OF A TWISTING BALL DISPLAY

Nicholas K. Sheridon, Los Altos, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 15, 1995, Ser. No. 572,775

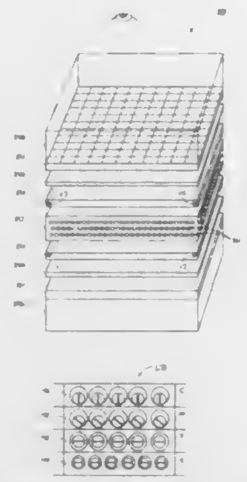
Int. Cl.⁶ G09G *3/34*

U.S. Cl. 345—84 26 Claims

1. A material comprising:

a substrate; and

a plurality of spheroidal balls disposed in the substrate, each ball having an optical anisotropy and an anisotropy for providing an electrical dipole moment, the electrical dipole moment rendering the ball electrically responsive such that when the ball is rotatably disposed in an electric field while the electrical dipole moment of the ball is provided, the ball tends to rotate to an orientation in which the electrical dipole moment aligns with the field, the plurality of balls including



a first set of balls comprising at least one ball, each ball of the first set being associated with a first threshold, and

a second set of balls comprising at least one ball, each ball of the second set being associated with a second threshold, the second threshold being less than the first threshold,

the first and second thresholds being such that

for each ball of each set, a rotation of the ball is facilitated by an application in a vicinity of the ball while the ball is rotatably disposed in the substrate of an electric field having a first electric field strength exceeding the first threshold,

for each ball of the first set, a rotation of the ball is not facilitated by an application in a vicinity of the ball while the ball is rotatably disposed in the substrate of an electric field having a second electric field strength between the first and second thresholds, and

for each ball of the second set, a rotation of the ball is facilitated by an application in a vicinity of the ball while the ball is rotatably disposed in the substrate of an electric field having the second electric field strength.

5,739,802

STAGED ACTIVE MATRIX LIQUID CRYSTAL DISPLAY WITH SEPARATED BACKPLANE CONDUCTORS AND METHOD OF USING THE SAME

Donald E. Mosier, Cedar Rapids, Iowa, assignor to Rockwell International, Costa Mesa, Calif.

Filed May 24, 1995, Ser. No. 449,601

Int. Cl.⁶ G02F *1/1343*

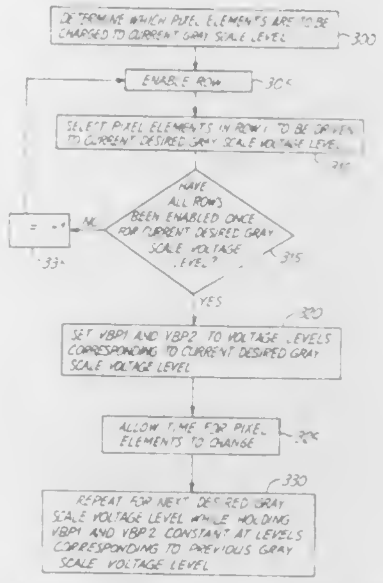
U.S. Cl. 345—89 14 Claims

1. A method of charging select pixel elements of an active matrix liquid crystal display to gray scale voltage levels comprising

determining which pixel elements of the display are to be charged to a first gray scale voltage level,

selecting pixel elements, in each of a plurality of rows, which are to be charged to the first gray scale voltage level, and

after all pixel elements of the display which are to be charged to the first gray scale voltage level have been selected charging all of the selected pixel elements to the first gray scale voltage level.


DETERMINE WHICH PIXEL ELEMENTS ARE TO BE CHARGED TO CURRENT GRAY SCALE LEVEL
300
ENABLE ROW
305
SELECT PIXEL ELEMENTS IN ROW i TO BE DRIVEN TO CURRENT DESIRED GRAY SCALE VOLTAGE LEVEL
HAVE ALL ROWS BEEN ENABLED ONCE FOR CURRENT DESIRED GRAY SCALE VOLTAGE LEVEL?
315
NO
YES
SET VBP1 AND VBP2 TO VOLTAGE LEVELS CORRESPONDING TO CURRENT DESIRED GRAY SCALE VOLTAGE LEVEL
320
ALLOW TIME FOR PIXEL ELEMENTS TO CHANGE
330
REPEAT FOR NEXT DESIRED GRAY SCALE VOLTAGE LEVEL WHILE HOLDING VBP1 AND VBP2 CONSTANT AT LEVELS CORRESPONDING TO PREVIOUS GRAY SCALE VOLTAGE LEVEL

5,739,803

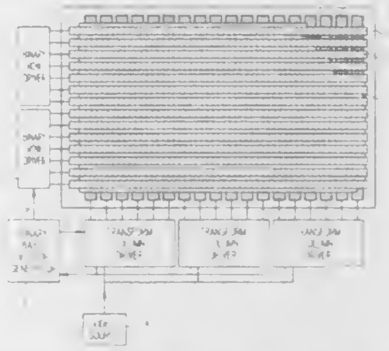
ELECTRONIC SYSTEM FOR DRIVING LIQUID CRYSTAL DISPLAYS

Charles F. Neugebauer, San Jose, Calif., assignor to Arithmos, Inc., Santa Clara, Calif.

Filed Jan. 24, 1994, Ser. No. 186,372

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—98 19 Claims



1. An apparatus for addressing a liquid crystal display with video pixel information, comprising:

(a) analog memory for storing a first and a second value, wherein the first value is representative of the video pixel information and the second value is representative of a square root of a constant minus a square of the video pixel information,

(b) analog computation means for computing a linear transform of the first and second values, and

(c) at least one amplifier for driving at least one column electrode of the liquid crystal display with a first voltage representative of the linear transform of the first value minus the linear transform of the second value and a second voltage representative of the linear transform of the first value plus the linear transform of the second value

5,739,804

DISPLAY DEVICE

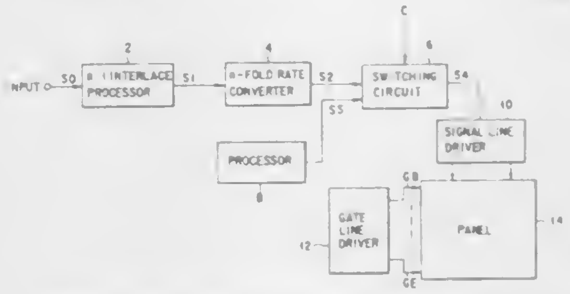
Haruhiko Okumura, Kawasaki, and Go Ito, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 9, 1995, Ser. No. 401,265

Claims priority, application Japan, Mar. 16, 1994, 6-071566

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—99 13 Claims



1. A display device having a pixel selection switching element, comprising:

interlace processing means for performing n (n is an integer of not less than 2), m (m is an arbitrary number of not more than n) interlace processing for a one-frame image signal to form an interlaced image signal;

image display means for displaying an image by driving said pixel selection switching element in accordance with the interlaced image signal,

non-picture period processing means for disconnecting said interlace processing means from said image display means and performing processing other than display for said image display means during a non-picture period after an image signal corresponding to a plurality of pixels is displayed and before an image signal corresponding to a next pixel is displayed, and

wherein the processing performed for said image display means in the non-picture period is processing in which a correction signal is applied to each pixel to improve image quality

5,739,805

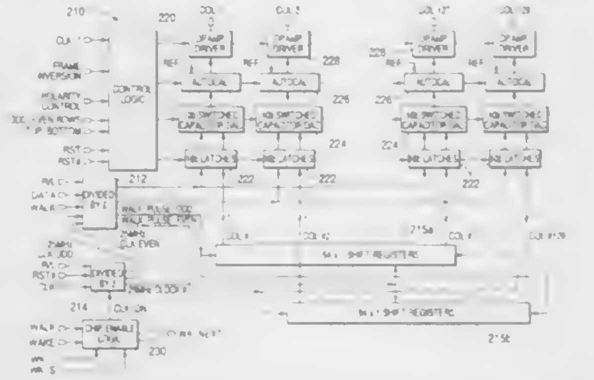
MATRIX ADDRESSED LCD DISPLAY HAVING LCD AGE INDICATION, AND AUTOCALIBRATED AMPLIFICATION DRIVER, AND A CASCADED COLUMN DRIVER WITH CAPACITOR-DAC OPERATING ON SPLIT GROUPS OF DATA BITS

Andrew Gordon Francis Dingwall, Princeton, N.J., assignor to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Dec. 15, 1994, Ser. No. 356,937

Int. Cl.⁶ G09G *3/36*

U.S. Cl. 345—100 18 Claims



1. A column driver circuit for producing drive signals for a plurality of columns of a display which displays lines of picture elements during respective line intervals, the column driver circuit comprising

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register means having a plurality of storage cells which hold digital values corresponding to a respective plurality of picture elements in the display;

switched-capacitor digital-to-analog converter means coupled to respective ones of the plurality of storage cells, which generate analog signal levels representing the digital values, respectively, wherein the switched capacitor digital-to-analog converter means includes a capacitor array means which separately processes a group of least significant bits of the digital values and then a group of most significant bits of the digital values; and

driver amplifier means, responsive to the analog signal levels, which produce signals to drive the respective plurality of columns of the display during an interval greater than one-half of the line time, wherein the driver amplifier means further includes means for autocalibrating the driver amplifier means.

5,739,806
METHOD OF ENTERING AND DISPLAYING THE ADJUSTMENT PARAMETERS OF AN APPARATUS FOR COATING OBJECTS

Hans Hissen, Darmstadt, and Hans Sehumacher, Stuttgart, both of Germany, assignors to Cegelec AEG Anlagen-und Automatisierungstechnik GmbH, Frankfurt, Germany

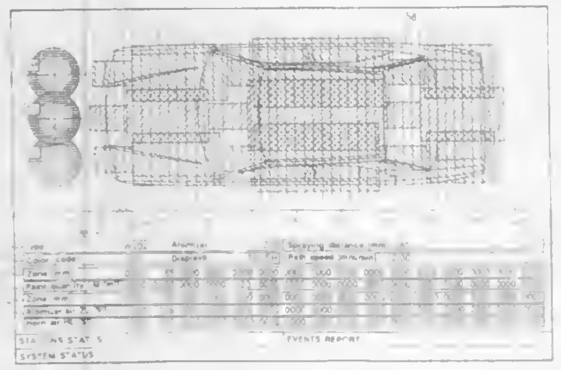
PCT No. PCT/EP93/02525, § 371 Date Mar. 21, 1995, § 102(e) Date Mar. 21, 1995, PCT Pub. No. WO94/07191, PCT Pub. Date Mar. 31, 1994

PCT Filed Sep. 17, 1993, Ser. No. 403,909

Claims priority, application Germany, Sep. 23, 1992, 42 31 766.5

Int. Cl.^{6} G09B *5/00*

U.S. Cl. 345—115 **11 Claims**



1. Method of entering and displaying adjustment parameters of an apparatus for coating objects that are moved into coating positions by a transport apparatus, with at least one spraying or atomizing tool being disposed in a coating station so as to be stationary or to move relative to the objects, and having control elements which are controlled according to the adjustment parameters, and wherein on a monitor of a personal computer which either stores parametrization data generated by an input apparatus for the coating apparatus offline or further conducts the parametrization data online to a program control connected to the coating apparatus, the monitor having at least one window, a graphic view of an object and, next to the view of the object and on an correct scale, a coating surface of the at least one spraying tool present on a surface of the object are represented, that coating zones following one after the other in a transport direction of the object are represented schematically by rectangles along a line extending through the center of the represented spraying tool in the view of the object, the length of the rectangles being a measure for a length of respective coating zones, and the height of the rectangles being a measure for an adjustment value of the respective at least one spraying tool, that rows of an input field containing numerical information about the type of the displayed object and an identification of the spraying tool that can be called up via the input apparatus for parametrization are displayed below the view of the object, and at least the coating zone lengths are displayed with a further adjustment value that can be parametrized, and that the off- or online operating mode of the program control and a summarizing message about interference are displayed.

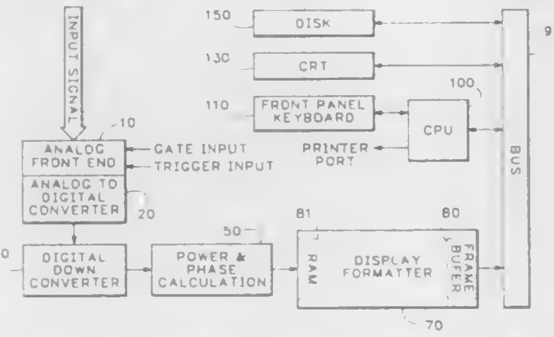
5,739,807
METHOD FOR PRESENTING COMPLEX NUMBER WAVEFORMS

Tran Thong, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sep. 13, 1991, Ser. No. 759,346

Int. Cl.^{6} G09G *5/36*

U.S. Cl. 345—134 **11 Claims**



1. A method of processing a collection of amplitude/phase data pairs, each pair representing the amplitude and phase of a single frequency component of an input signal during a separate sampling interval, comprising the steps of:

formatting each data pair for display such that one of amplitude and phase is represented by a distance from a reference and the other of amplitude and phase is represented by an intensity data value; and

displaying the formatted data

5,739,808
DISPLAY CONTROL METHOD AND APPARATUS

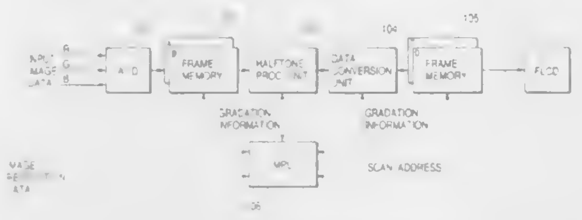
Kazumi Suga, Tokyo, and Hiroshi Inoue, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 25, 1995, Ser. No. 547,807

Claims priority, application Japan, Oct. 28, 1994, 6-265441

Int. Cl.^{6} G09G *5/10*

U.S. Cl. 345—147 **20 Claims**



1. A display control apparatus which displays input image data of a first resolution on a display having a second resolution higher than the first resolution, comprising:

calculation means for calculating a ratio of the first resolution to the second resolution;

determination means for determining a number of gradations on the basis of the ratio calculated by said calculation means, in a case where the display device displays one pixel data of the input image data;

processing mean for halftone processing the input image data to produce a value of the number of gradations determined by said determination means; and

data conversion means for converting the halftone-processed image data into data having a form which can be displayed on the display device

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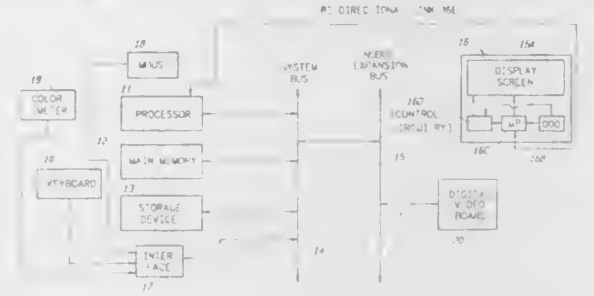
5,739,809
METHOD AND APPARATUS FOR DISPLAY CALIBRATION AND CONTROL

Michael D. McLaughlin, San Jose, and John C. Signa, Sunnyvale, both of Calif., assignors to Radius Inc., Sunnyvale, Calif.

Division of Ser. No. 574,460, Dec. 15, 1995, Pat. No. 5,570,108, which is a continuation of Ser. No. 266,950, Jun. 27, 1994, Pat. No. 5,499,040. This application Apr. 24, 1996, Ser. No. 637,106

Int. Cl.^{6} G09G *5/02, 5/10*

U.S. Cl. 345—150 **12 Claims**



1. A method for generating data for controlling a display, comprising the steps of:

generating a first set of display control data indicative of a set of current values of display parameters,

processing a second set of display control data indicative of the display parameters, and the first set of display control data, to generate adjustment data indicative of differences between corresponding data values in the first set and the second set, and

storing the adjustment data as a first file in a random access memory

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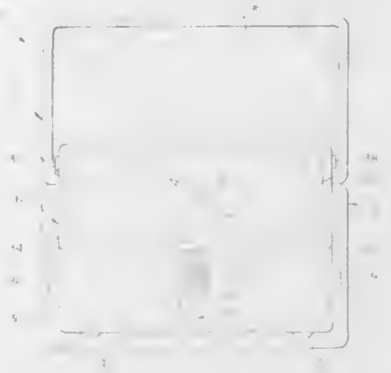
5,739,810
COMPUTER INPUT DEVICE AND METHODS OF MANUFACTURING SAME

Harold S. Merkel, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Aug. 21, 1995, Ser. No. 517,247

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—156 **20 Claims**



1. A computer of the type having a screen, a housing, input storage means, and means for utilizing user-supplied input, wherein a user supplies input, whether in textual or graphical form, for communication to the computer, said computer comprising

an input device housing having top and bottom side surfaces,

first input means mounted to said input device housing top side surface,

second input means mounted to said input device housing bottom side surface, and

means for transmitting input from said first and second input means to the computer,

said input device housing being selectively mountable to the computer housing in one of a first configuration wherein said input housing top side surface faces the screen, and a second configuration wherein said input housing bottom side surface faces the screen,

whereby the user may selectively use either of said first or said second input means to send input to the computer

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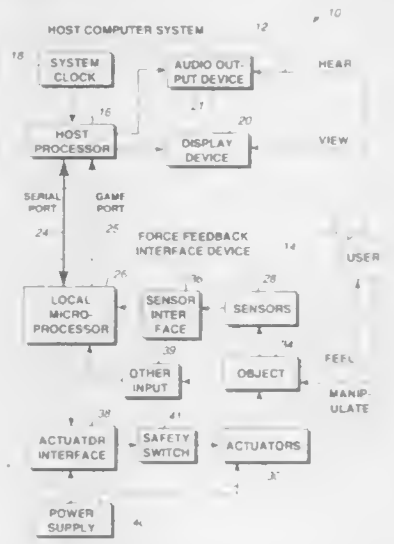
5,739,811
METHOD AND APPARATUS FOR CONTROLLING HUMAN-COMPUTER INTERFACE SYSTEMS PROVIDING FORCE FEEDBACK

Louis B. Rosenberg, Pleasanton, and Bernard G. Jackson, Atherton, both of Calif., assignors to Immersion Human Interface Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 461,170, Jun. 5, 1995, Pat. No. 5,576,727, which is a continuation-in-part of Ser. No. 92,974, Jul. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 489,068, Jun. 9, 1995, Pat. No. 5,721,566. This application Sep. 27, 1995, Ser. No. 534,791

Int. Cl.^{6} G06F *3/033*, **G09G** *5/08*

U.S. Cl. 345—161 **89 Claims**



1. An interface device for use with a host computer displaying a graphical simulation on a display device, said host computer displaying, executing, and updating a graphical simulation in response to user manipulation of said interface device and commanding force feedback sensations in response to said user manipulation and in coordination with events within said graphical simulation the interface device comprising

a user manipulable object coupled to a support system and grasped by a user

a force generator coupled to said user object for receiving a force control signal and providing a resistance force to motion along at least one degree of freedom of said user object and in accordance with said force control signal,

a sensor that detects motion of said user manipulable object along said degree of freedom and outputs a locative signal including information representative of the position of said user object,

a user adjustable switch apparatus providing a state signal representing a state of said switch apparatus, and

a microprocessor local to said interface apparatus, separate from said host computer system, coupled to said host computer system, to said sensor, and to said switch apparatus, said microprocessor receiving

host commands from said host computer system,

said state signal from said switch apparatus, and

said locative signal from said sensor,

said microprocessor executing a local process in parallel with said host execution of said graphical simulation and providing said force control signal to said force generator, said local process involving an execution of at least one local routine

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stored in a local memory coupled to said microprocessor, wherein said microprocessor

enables communication between said microprocessor and said host computer system,

decodes said host commands sent by said host computer system to said microprocessor,

controls said force generator in response to a decoded command received from said host computer system, wherein the control of the force generator is coordinated with an event occurring in said parallel host computer system execution of said graphical simulation, thereby locally creating a meaningful feel sensation that corresponds with a relevant displayed event within said graphical simulation,

reports a representation of said locative signal to said host computer system, wherein said host computer system updates said parallel execution of said graphical simulation in response to said representation of said locative signal, and

reports a representation of said state signal to said host computer system, wherein said host computer system updates said parallel execution of graphical simulation in response to said state of said switch apparatus.

5,739,812

SYSTEM FOR INPUTTING IMAGE AND COMMOND USING THREE-DIMENSIONAL MOUSE CAPABLE OF GENERATING, IN REAL TIME, THREE-DIMENSIONAL IMAGE

Takayasu Mochizuki, Tokyo, Japan, and Tetsuo Gotoh, Saratoga, Calif., assignors to Cipher Co. Ltd., Tokyo, Japan

Filed Aug. 9, 1996, Ser. No. 695,867

Claims priority, application Japan, Jul. 18, 1996, 8-189697

Int. Cl.^{6} G09G *5/08*

U.S. Cl. 345—163 **9 Claims**

1 A system for inputting image and command using a three-dimensional mouse, said system comprising:

a mouse inputting member movable in an outside real space which responds to a virtual space, said mouse inputting member being for radiating a radiation wave which comprises one of an electromagnetic wave, an acoustic wave, and an ultrasonic wave,

a radiation controlling switch connected to said mouse inputting member for controlling said mouse inputting member to radiate said radiation wave;

hologram data collecting means for collecting hologram data in response to said radiation wave;

data processing means connected to said hologram data collecting means for operating an expression in response to said hologram data to produce an image in said virtual space that responds to said mouse inputting member, said expression defining an analogous expression which represents an analogous intensity of a wave which is generated by said hologram data; and

movement distance operating means connected between said radiation controlling switch and said data processing means for operating a movement distance of said mouse inputting member while said radiation controlling switch controls said mouse inputting member to radiate said radiation wave.

5,739,813

THREE-DIMENSIONAL IMAGE SPECIAL EFFECT APPARATUS

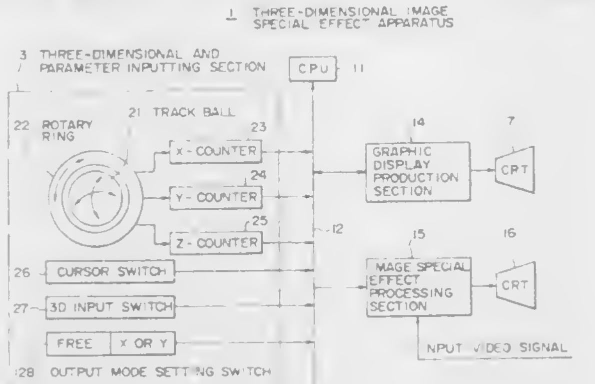
Atsushi Imai, and Yutaka Isobe, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 224,674, Apr. 7, 1994, Pat. No. 5,521,617. This application May 31, 1995, Ser. No. 455,832

Claims priority, application Japan, Apr. 15, 1993, P05-088768; Apr. 15, 1993, P05-088776; Apr. 15, 1993, P05-088781; Apr. 16, 1993, P05-089630; Apr. 16, 1993, P05-089633

Int. Cl.^{6} G09G *5/08*

U.S. Cl. 345—167 **7 Claims**


1 THREE-DIMENSIONAL IMAGE SPECIAL EFFECT APPARATUS
3 THREE-DIMENSIONAL AND PARAMETER INPUTTING SECTION
CPU
11
22 ROTARY RING
21 TRACK BALL
23
X - COUNTER
24
Y - COUNTER
25
Z - COUNTER
12
14
GRAPHIC DISPLAY PRODUCTION SECTION
7
CRT
15
16
IMAGE SPECIAL EFFECT PROCESSING SECTION
CRT
26 CURSOR SWITCH
27 3D INPUT SWITCH
FREE
X OR Y
28 OUTPUT MODE SETTING SWITCH
INPUT VIDEO SIGNAL

1 An image special effect apparatus comprising:

a track ball for operating a special image produced by an image special effect processing section in first and second directions;

first rotation detection means for detecting an amount of rotation of said track ball in said first direction and having a first output signal indicating said amount of rotation of said track ball in said first direction;

second rotation detection means for detecting an amount of rotation of said track ball in said second direction and having a second output signal indicating said amount of rotation of said track ball in said second direction;

rotational amount comparison means for comparing said first and second output signals with each other; and

means for outputting a one of said output signals which is determined by said rotational amount comparison means to have a higher value for operating said special image.

5,739,814

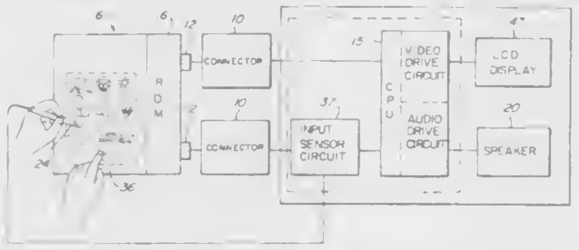
INFORMATION STORAGE SYSTEM AND BOOK DEVICE FOR PROVIDING INFORMATION IN RESPONSE TO THE USER SPECIFICATION

Makoto Ohara, Tokyo, and Shinichirou Sugiura, Fokyo, both of Japan, assignors to Sega Enterprises, Tokyo, Japan

Filed Sep. 28, 1992, Ser. No. 951,862

Int. Cl.^{6} G09G *3/02*

U.S. Cl. 345—173 **22 Claims**



3 A system comprising an information processing device and a removably attachable, book shaped information storage device

(1) the book shaped information storage device including:

(a) a sheet,

(b) a visual indicia located at an arbitrary position on the sheet,

(c) a position selection circuit integrated into the sheet and outputting positional information corresponding to a user-designated position;

(d) a ROM located in the book and storing a visual information packet corresponding to the visual indicia at a ROM address, and

(e) a book connector inputting the ROM address and outputting the visual information packet from the ROM, and

(2) the information processing device including

(a) a base connector detachably connecting to the book connector when said book shaped information storage device is attached to the information processing device,

(b) means for receiving the positional information from the position selection circuit,

(c) control means for generating the ROM address based on the positional information received from the position selection circuit, for retrieving the visual information packet from the ROM by outputting the ROM address to the book connector via the base connector, and for receiving the visual information packet output by the book connector via the base connector; and

(d) data processing means for processing the visual information packet retrieved by the control means to provide a video signal for displaying the visual information packet on a display monitor

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5,739,815

METHOD AND APPARATUS FOR DISPLAYING IMAGE

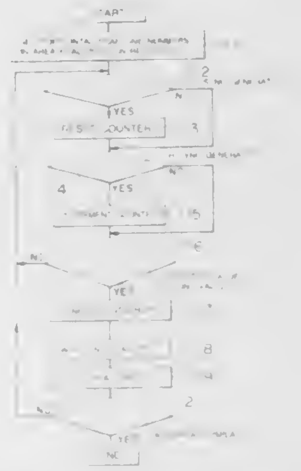
Akihiro Mizutani, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 370,455, Jan. 9, 1995, abandoned, which is a continuation of Ser. No. 115,823, Sep. 3, 1993, abandoned. This application Jul. 16, 1996, Ser. No. 680,973

Claims priority, application Japan, Mar. 15, 1993, 5-053493

Int. Cl.^{6} G09G *5/06*

U.S. Cl. 345—199 **18 Claims**



1 A method of displaying an image on a screen divided into a plurality of small screen areas related to sets of palette data respectively associating color specifying information with display color information using a palette to store the sets of palette data and convert the color specifying information into the display color information, comprising the steps of

(a) defining a position of each of a plurality of small screen areas into which the screen is to be divided,

(b) detecting positional agreement between a scan line to be scanned next and a head position of any of the small screen areas during image display on the screen,

(c) generating an interrupt in response to detection of the positional agreement in step (b), and

(d) writing a set of the palette data for a corresponding small screen area into the palette in response to said generating of the interrupt

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5,739,816

ANALOG VIDEO SIGNAL COMPENSATING APPARATUS AND TFT LIQUID CRYSTAL DISPLAY DEVICE

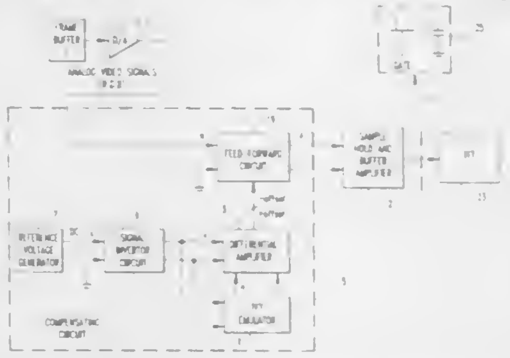
Yoshinao Kobayashi, Hiratsuka, and Yoshitami Sakaguchi, Yokohama, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 13, 1995, Ser. No. 571,745

Claims priority, application Japan, Dec. 13, 1994, 6-308526

Int. Cl.^{6} G09G *5/00*

U.S. Cl. 345—204 **6 Claims**



1 An analog video signal compensating apparatus comprising

a reference voltage generator,

a TFT emulator circuit having a quasi circuit including a buffer amplifier equivalent circuit equivalent to a buffer amplifier used for driving a TFT liquid crystal display panel and a display cell equivalent circuit equivalent to a display cell in said TFT liquid crystal display panel, and a control circuit for controlling a supply of an output from said reference voltage generator to said quasi-circuit and a driver of said display cell equivalent circuit, for outputting a response of said quasi circuit for said output from said reference voltage generator

a difference detecting circuit for detecting a difference between said output of said reference voltage generator and an output of said TFT emulator circuit and

a compensating circuit for compensating analog signals by an output from said difference detecting circuit

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5,739,817

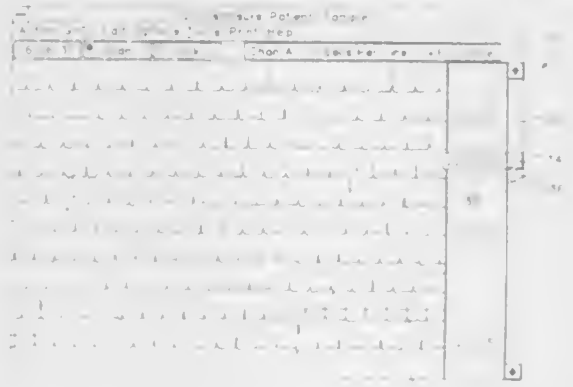
METHOD AND APPARATUS FOR DISPLAYING POSITION INFORMATION ADJACENT TO A SCROLL BOX

Matthew S. Glei, McMinnville; Colin M. Portnuff, Tualatin, and Rommel R. Raj, McMinnville, all of Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 843,489, Feb. 28, 1992, Pat. No. 5,581,275. This application May 6, 1996, Ser. No. 643,660

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—341 **6 Claims**



1 A program storage medium readable by a computer, said program storage medium tangibly embodying a program of instructions executable by said computer to perform method steps

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for locating a predetermined position in a computer file, said method steps comprising:
- displaying a portion of the file in a window having a scroll box on one side thereof for varying which portion of the file is displayed in the window;
- engaging and moving the scroll box with a cursor;
- automatically opening a relatively small data window adjacent the scroll box in response to engagement and movement of the scroll box with the cursor;
- displaying data in the data window indicative of a position of that portion of the file displayed within the window;
- moving the scroll box thereby changing the data in the data window until said predetermined position is located; and
- automatically closing said relatively small data window in response to disengagement of said scroll box with said cursor.

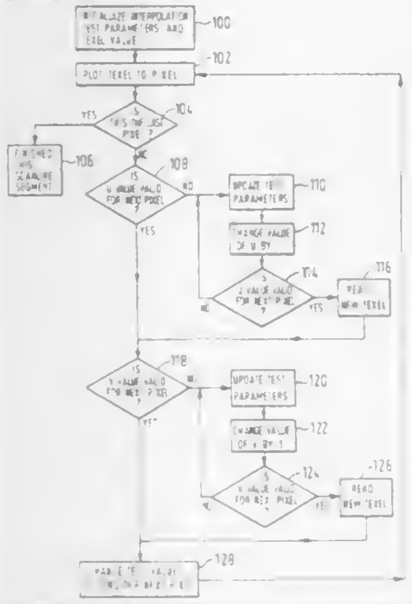
5,739,818
APPARATUS AND METHOD FOR PERFORMING PERSPECTIVELY CORRECT INTERPOLATION IN COMPUTER GRAPHICS

John Neil Spackman, Guildford, England, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 31, 1995, Ser. No. 454,821

Int. Cl.^{6} G06T *11/40;15/20*

U.S. Cl. 345—425 49 Claims



18. An image processing apparatus for interpolating, in a perspectively correct manner, a quantized surface parameter over an object surface, which surface is represented with correct perspective by pixels in a display space, in order to determine values of said surface parameter for a succession of said pixels, said apparatus comprising:
- (a) means for setting a first value of said surface parameter for a first one of said pixels and an initial set of test parameters;
- (b) means for determining a second value of said surface parameter for a second one of said pixels with reference to said test parameters by performing a test on at least one of said test parameters to determine whether said first value of said surface parameter is valid for said second one of said pixels and if it is not updating said at least one test parameter and said first value and repeating the test and said updating until the test indicates that a value of the surface parameter, valid at the second one of said pixels, has been reached;
- (c) means for changing said test parameters to give modified test parameters;
- (d) means for determining a third value of said surface parameter for a third one of said pixels with reference to said modified test parameters by performing said test on at least one of said modified test parameters to determine whether said second value of said surface parameter determined in step (b) is valid for said third one of said pixels and if it is not, updating said at least one modified test parameter and said second value and repeating the test and said updating until the test indicates that a value of said surface parameter, valid at said third one of said pixels, has been reached; and
- (e) at least one of (i) means for using determined values of the surface parameter to display an image of the object surface in a perspectively correct manner, and (ii) means for using determined values of the surface parameter to print an image of the object surface in a perspectively correct manner

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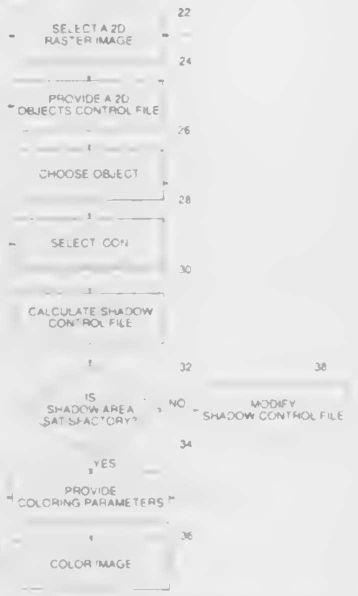
5,739,819
METHOD AND APPARATUS FOR GENERATING AN ARTIFICIAL SHADOW IN A TWO DIMENSIONAL COLOR IMAGE

Guy Bar-Nahum, Bat Yam, Israel, assignor to Scitex Corporation Ltd., Herzelia, Israel

Filed Feb. 5, 1996, Ser. No. 596,761

Int. Cl.^{6} G06T *15/60*

U.S. Cl. 345—426 16 Claims


22
SELECT A 2D RASTER IMAGE
24
PROVIDE A 2D OBJECTS CONTROL FILE
26
CHOOSE OBJECT
28
SELECT CON
30
CALCULATE SHADOW CONTROL FILE
32
38
IS SHADOW AREA SATISFACTORY?
NO
MODIFY SHADOW CONTROL FILE
34
YES
PROVIDE COLORING PARAMETERS
36
COLOR IMAGE

1. A method for generating an artificial shadow in a two dimensional color image comprising:
- providing a shadow scenes library, each shadow scene representing at least one artificial shadow orientation with respect to an object forming said shadow;
- receiving a user input, said user selecting one of said shadow scenes and an object in said two dimensional image to be shadowed,
- forming an artificial shadow to said object to be shadowed in accordance with said selected shadow scene,
- wherein forming said artificial shadow includes:
  - calculating said artificial shadow from said object and an object scene; and
  - moving said calculated artificial shadow to a selected location with respect to said object; and
- wherein calculating said artifical shawdow includes:
  - converting said geometrical feature defining said object from a two dimensional representation to a three dimensional representation;
  - providing parameters defining said selected shadow scene,
  - determining a three dimensional representation of said artificial shadow defined by a corresponding geometrical feature based on said parameters and said three dimensional representation of said object obtained by said converting; and
  - converting the three dimensional representation of said geometrical feature defining said artificial shadow to two dimensional representation thereof, thereby providing said artificial shadow.

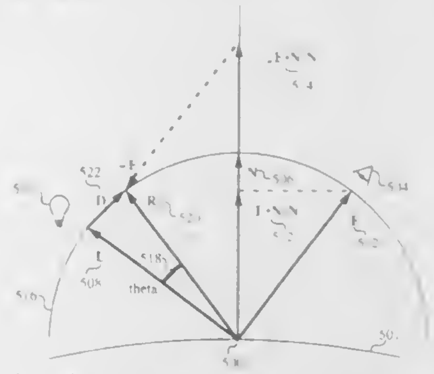
5,739,820
METHOD AND APPARATUS FOR SPECULAR REFLECTION SHADING OF COMPUTER GRAPHIC IMAGES

Richard F. Lyon, Los Altos, Calif., assignor to Apple Computer Inc., Cupertino, Calif.

Filed Nov. 19, 1992, Ser. No. 984,180

Int. Cl.^{6} G06T *15/50*

U.S. Cl. 345—426 6 Claims



5. Specular reflection image calculating means for using a light vector L, an Eye vector E, a Normal vector N', and a shininess parameter n to produce a specular reflection value, comprising.
- means for using said Normal vector N' and a selected one of said Eye vector E and of said Light vector L to produce a Reflection vector R which equals the reflection of the selected vector about the Normal vector N';
- means for subtracting said Reflection vector R from the non-selected one of said Eye vector E and of said Light vector L to produce a Difference vector D,
- means for calculating the dot product of said Difference vector D with itself to produce a squared-magnitude $|D|^2$,
- means for evaluating a shaping function $f(|D|^2, n)$ to produce said specular reflection value; and
- means for using said specular reflection value in generating a pixel signal

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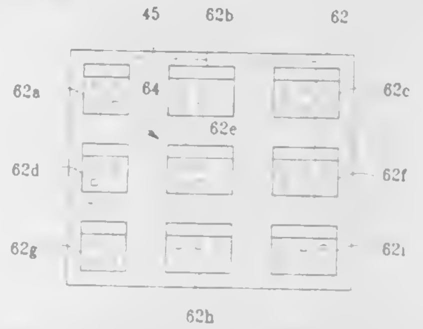
5,739,821
METHOD FOR POINTING A WINDOW FRAME OR AN ICON OF A WINDOW INTERFACE

Heng Chun Ho; Ming Cheng Yang; Wen Hsiung Liu, and Chih Hsiung Wu, all of Taipei Hsien, Taiwan, assignors to Primax Electronics Ltd., Taipei Hsien, Taiwan

Filed Jan. 30, 1997, Ser. No. 791,276

Int. Cl.^{6} G06F *3/00*

U.S. Cl. 345—340 20 Claims



1. A method for pointing a window frame out of a plurality of window frames contained within a window interface by using a pointing device, the window interface being displayed over a monitor screen of a monitor, one of the window frames being designated as a pointed window frame which is displayed over the monitor screen in a predetermined manner, and the other window frames displayed over the monitor screen being displayed in a normal manner, the pointing device comprising a two dimensional control button for generating a two dimensional pointing signal, and a cursor control means for generating cursor control signals to scroll a cursor displayed over the monitor screen according to user inputs, the pointing device being connected to a computer which is connected to the monitor and which comprises a window software for controlling the window frames and the cursor, the window software comprising a frame control module for controlling the pointing of a window frame according to the pointing signal and a cursor control module for controlling the scrolling of the cursor over the monitor screen according to the cursor control signals, the method comprising.
- a. providing a frame position file which contains positions representing the window frames contained within the window interface;
- b. actuating the control button toward a direction by a user to generate a pointing signal,
- c. receiving the pointing signal by using the frame control module;
- d detecting a position of a window frame contained in the frame position file starting from the position of the pointed window frame approximately along the direction of the pointing signal; and
- e designating and displaying the detected window frame as a pointed window frame over the monitor screen

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5,739,822
DATA PROCESSING SYSTEM FOR SURFACING A MODEL

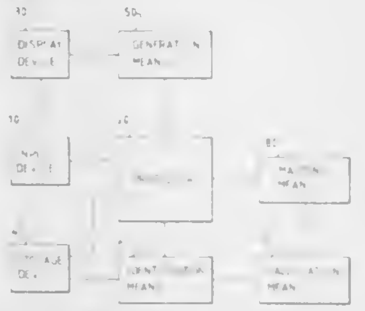
Christopher Paradine, Southampton, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 13, 1995, Ser. No. 502,222

Claims priority, application United Kingdom, Jul. 27, 1994, 9415102

Int. Cl.^{6} G06F *3/14*

U.S. Cl. 345—419 5 Claims



1. In a data processing system for creating a model of a 3D object, the model being stored as 3D topology data in a storage device, and the system including input means (**10**) for enabling a user to define lines representing features of the object, the lines being stored as model data in the storage device (**40**), and means (**30**, **50**) to generate and display an image representing the model from the model data, a surface generating system comprising:
- identification means (**60**) for identifying stored data representing a plurality of the lines on the model that form a first closed loop consisting of edges meeting at nodes and for retrieving such data from the storage device (**40**), and
- processing means (**20**) for generating data defining a convergent series of additional loops to represent a candidate surface bound by the first closed loop, the data for each additional loop in the series being automatically generated from the data representing the nodes and the edge shape of the directly adjacent loop, said processing means further comprising for automatically generating the data for each additional loop, calculation means for generating the edges of that additional loop by a 3D calculation from the corresponding node of the directly adjacent loop and mapping means for generating the edges of that additional loop by translating and scaling a sub-section of the corresponding edge of the directly adjacent loop to fit between the calculated nodes;
- the processing means (**20**) being adapted to receive data representing a line defined by the user via the input means which

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subdivides the first closed loop into a plurality of new closed loops, and then to edit the candidate surface by generating a further series of additional loops for each such new closed loop.

5,739,823

GRAPH DISPLAY DEVICES

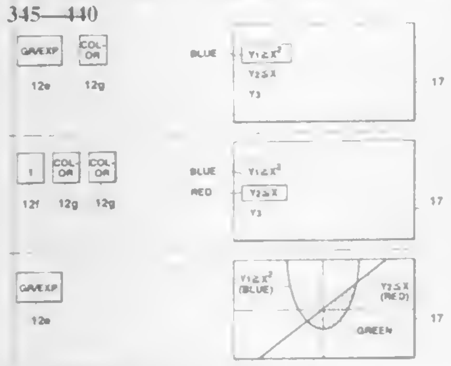
Shunsuke Akaza, Tachikawa; Akihiro Handa, Ome; Hidekazu Tanaka; Makoto Ozawa, both of Akishima, and Kazuhiko Arikawa, Fussa, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Aug. 3, 1995, Ser. No. 510,792

Claims priority, application Japan, Aug. 12, 1994, 6-190377; Dec. 22, 1994, 6-320740; Dec. 22, 1994, 6-320872

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 345—440 **7 Claims**



1 A graph display device comprising:
- an expression input section for inputting functional expression data;
- an expression color setting section for setting a display color for the functional expression data input by said expression input section;
- an expression display section for displaying the input functional expression data in the display color set by said expression color setting section;
- a graph producing section for producing a graph for the functional expression data input by said expression input section based on the input functional expression data; and
- a graph display section for displaying the graph produced by said graph producing section in the same display color as that set for the functional expression data.

5,739,824

METHOD AND APPARATUS FOR CONVEYING HIGHER-DIMENSIONAL TABULAR INFORMATION TO PEOPLE USING LOWER-DIMENSIONAL OUTPUT DEVICES

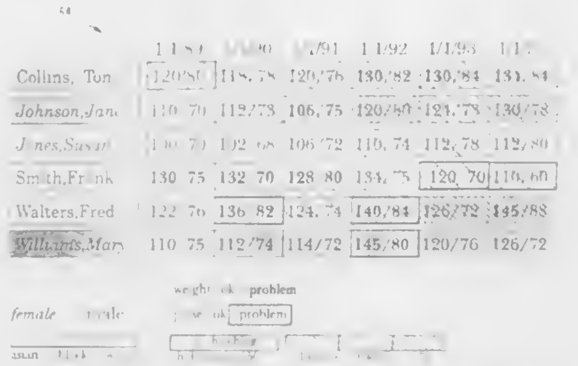
Brenda Lynn Dietrich; Walter C. Dietrich, Jr., both of Yorktown Heights; Elizabeth Jodi Poole, Garrison; John Peter Fasano, Briarcliff Manor, and Jung-Mu Tang, South Salem, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 386,841, Feb. 10, 1995, abandoned. This application Jan. 9, 1997, Ser. No. 781,078

Int. Cl.^{6} G06F *3/14*

U.S. Cl. 345—440 **3 Claims**

1 Computer apparatus comprising:
- 1) means for specifying n (integer) independent information dimensions, wherein each dimension comprises a parameter associated with data comprising an original content and an associated relationship between content in different data elements to be displayed in a two-dimensional display medium;
- 2) means for specifying $k \geq 2$ (integer) data functions defined on subsets of the n information dimensions, wherein each of the $k \geq 2$ data functions comprises a range of possible values;
- 3) means for associating at least one of the $k \geq 2$ functions with one or more aspects of the two-dimensional display medium, wherein each aspect comprises a range of possible values that can be displayed on that aspect;


1/1/92
1/1/93
Collins, Tom
120/80
130/82
130/84
Johnson, Jane
110/70
112/73
106/75
120/80
124/78
130/78
Jones, Susan
106/72
110/74
112/78
112/80
Smith, Frank
130/75
132/70
128/80
120/70
110/60
Walters, Fred
136/82
140/84
126/72
145/88
Williams, Mary
110/75
112/74
114/72
145/80
120/76
126/72
weight ok problem
female
problem

and for each aspect
- 4) means for mapping the range of the functions associated with that aspect to the range of values that can be displayed on that aspect on the two-dimensional display medium so that the original content and relationship of the different data elements are retained invariantly;

and
- 5) a two-dimensional output display for displaying the data.

5,739,825

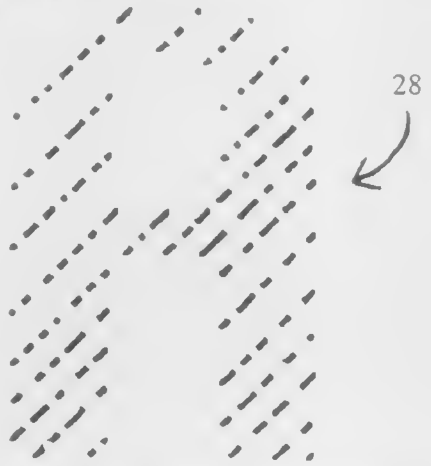
COMPUTER GENERATED HATCH FILLING WITHIN A VECTOR GRAPHIC

John B. Turner, Mountain View, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Oct. 2, 1995, Ser. No. 537,635

Int. Cl.^{6} G06T *11/40*

U.S. Cl. 345—441 **23 Claims**



1 In a computer system having a display device, a method for hatch filling a vector graphic, the method comprising the steps of:
- reading vector graphic data defining a contour of a vector graphic;
- creating a series of intersection lines overlaying the vector graphic,
- defining intersection points that indicate where the intersection lines intersect the contour of the vector graphic, and wherein the intersection points create an array having a row corresponding to each intersection line;
- connecting with a connection line the intersection points of each row; and
- verifying that each of the connection lines are contained within the contour of the vector graphic, and removing portions of any connection lines not contained within the contour of the vector graphic

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5,739,826

POLYGON DISPLAY BASED ON X COORDINATES OF EDGES ON SCAN LINE

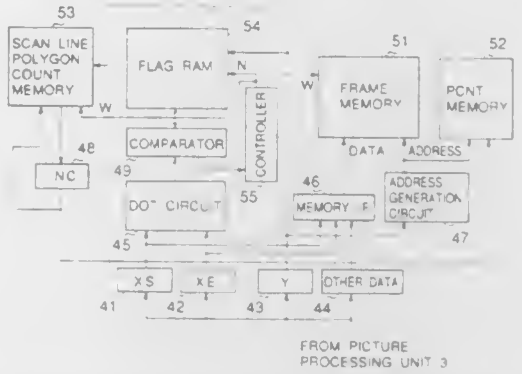
Naoto Shiraishi, Toyonaka; Tatsuya Fujii, Nishinomiya; Masanobu Fukushima; Tatsuya Nakajima, both of Toyonaka, and Yasuhiro Izawa, Suita, all of Japan, assignors to Ricoh Company, Ltd.

Continuation of Ser. No. 102,050, Aug. 4, 1993, abandoned. This application May 6, 1996, Ser. No. 643,409

Claims priority, application Japan, Aug. 8, 1992, 4-232995

Int. Cl.^{6} G06T *11/20*

U.S. Cl. 345—443 **16 Claims**



1. An image processing apparatus which processes image data of a picture including polygons to be displayed on a screen comprising scan lines of a display unit, the image processing apparatus comprising.
- first memory means for storing at least X and Y coordinate data for edge end points of the polygons;
- second memory means for storing polygon numbers, said polygon numbers being arranged in a processing order for the polygons;
- first computing means, connected to said first memory means and said second memory means, for computing, from the data for edge end points stored in said first memory means, data for sides of each of the polygons corresponding to each of said polygon numbers stored in said second memory means,
- second computing means for computing data for a pair of edges in accordance with the data for sides of each of the polygons supplied by said first computing means, each of said pair of edges intersecting with the scan line;
- third computing means for computing coordinate data for a pair of intersection points in accordance with said data for said pair of edges supplied by said second computing means, and
- processing means for comparing said coordinate data of each of the polygons supplied by said third computing means so as to compile dot data which indicates a display portion of the scan line corresponding to the polygons to be displayed, and for outputting said dot data of the polygons by synchronizing with a scan operation of the display unit

---

5,739,827

IMAGE PROCESSING METHOD AND APPARATUS

Mamoru Nagano, Yokohama; Yoshiko Kobari, Kawasaki; Hiroyuki Namiki, and Shigeki Koyama, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

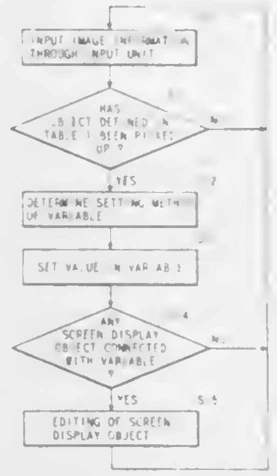
Filed Jan. 17, 1996, Ser. No. 587,660

Claims priority, application Japan, Jan. 19, 1995, 7-006462

Int. Cl.^{6} G06T *11/00*

U.S. Cl. 345—473 **16 Claims**

1 An image processing method in an image processing apparatus having a first table in which a first screen display object, and a variable corresponding to said first screen display object are stored, and a method of setting a value of said variable are defined and a second table in which said variable, a second screen display object interlocked with a value of said variable are stored, and an editing method of editing said second screen display object are defined, comprising:


INPUT IMAGE INFORMATION THROUGH INPUT UNIT
HAS OBJECT DEFINED IN TABLE 1 BEEN PICKED UP ?
NO
YES
DETERMINE SETTING METHOD OF VARIABLE
SET VALUE IN VARIABLE
ANY SCREEN DISPLAY OBJECT CONNECTED WITH VARIABLE ?
NO
YES
EDITING OF SCREEN DISPLAY OBJECT

- a designating step of designating said first screen display object on a screen;
- a first deciding step of deciding said method of setting the value of said variable which was defined in said first table on the basis of a designation step;
- a setting step of setting the value of said variable on the basis of a decision result in said first deciding step;
- a second deciding step of deciding whether said second screen display object, which was defined in said second table and is interlocked with the value of said variable set in said setting step, exists on the screen, and
- an editing step of editing said second screen display object on the basis of the editing method defined in said second table in a case where it is decided in said second deciding step that said second screen display object exits on the screen

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5,739,828

INK JET RECORDING METHOD AND APPARATUS HAVING RESOLUTION TRANSFORMATION CAPABILITY

Jiro Moriyama, Kawasaki; Shigeyasu Nagoshi, Yokohama; Toshiharu Inui, Yokohama; Yuji Akiyama, Yokohama; Kiichiro Takahashi; Fumihiro Gotoh, both of Kawasaki, and Masao Kato, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 16, 1995, Ser. No. 491,602

Claims priority, application Japan, Jun. 17, 1994, 6-135695; Jun. 30, 1994, 6-149372; May 30, 1995, 7-131803

Int. Cl.^{6} B41J *2/01, 29/38*

U.S. Cl. 347—9 **43 Claims**

1 An ink jet recording method using an ink jet recording head having n resolution for performing recording at m (>n) resolution onto a recording medium, said method comprising the steps of
- setting a print mode in accordance with resolution,
- setting a condition for discharging ink droplets (ink volume×number) in a range not exceeding the maximum ink shot amount per unit area of said recording medium in accordance with recording conditions including the resolution and the recording medium and environmental conditions,
- creating binary data for recording from multi-value data in accordance with the resolution and the set print mode, and

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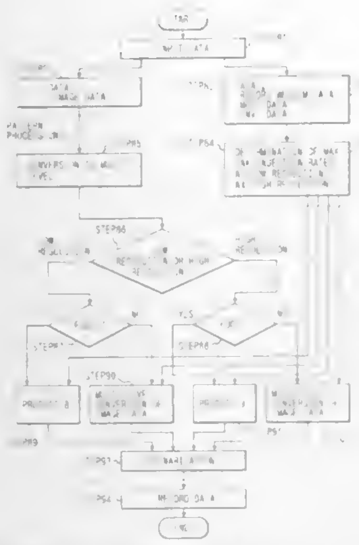


forming an ink droplet image of the size in accordance with the resolution on said recording medium under the set conditions using said binary data for recording.

5,739,829

BUBBLE FLOW DETECTION

John C. Loyd, Centerville, Ohio, assignor to Scitex Digital Printing, Inc., Dayton, Ohio

Filed Apr. 30, 1996, Ser. No. 640,103

Int. Cl.⁶ B41J *2/185*

U.S. Cl. 347—17 **5 Claims**

1 In a continuous ink jet printer for generating a row of parallel selectively charged drop streams from a fluid system, a fluid flow detection method for detecting a fluid flow regime in a catcher vacuum port and a catcher return line to an ink tank of the continuous ink jet printer, the fluid flow detection method comprising the steps of

providing a low airflow catcher device for establishing bubble flow in the catcher vacuum port and the catcher return line, the catcher return line containing catcher return fluid, by generating a tank vacuum in the ink tank;

monitoring pressure fluctuations in the catcher return fluid;

automatically lowering the ink tank vacuum to a preset value,

incrementally lowering the tank vacuum from the preset level as pressure fluctuations are monitored;

maintaining the tank vacuum at a constant level when a magnitude of the pressure fluctuations decreases below a predetermined level due to establishment of bubble flow, and

increasing the tank vacuum by a predetermined increment and maintaining that tank vacuum as an operating point for bubble flow for the printer.

5,739,830

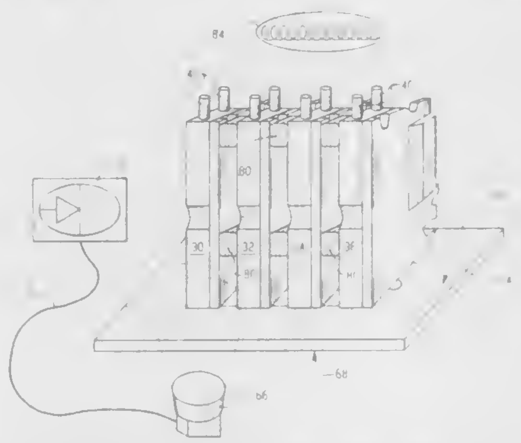
MONOLITHIC PRINTHEADS FOR INK JET PRINTING APPARATUS

Peter J. John, Rochester; Joseph J. Wysocki, Webster; Joseph F. Stephany, Williamson; Richard V. LaDonna, Fairport; Thomas E. Watrobski, Penfield; Gary A. Kneezel, Webster, and James Eaton, Walworth, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 5, 1995, Ser. No. 368,929

Int. Cl.⁶ B41J *2/01*

U.S. Cl. 347—49 **13 Claims**



11 A method of forming a printhead assembly for a printing device, the method comprising the steps of:

determining a location of nozzle openings on a first printhead,

orienting the first printhead based on the location of the nozzle openings on the first printhead,

determining a location of nozzle openings on a second printhead;

orienting the second printhead relative to the first printhead based on the location of the nozzle openings on the second printhead; and

joining the first and second printheads together after the orienting steps, which include temporarily securing the printheads to a holddown surface and providing indicia on the holddown surface to facilitate orienting the printheads; and

providing a transparent surface for the holddown surface whereby the nozzle openings in the printheads can be viewed through the surface

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5,739,831

ELECTRIC FIELD DRIVEN INK JET PRINTER HAVING A RESILIENT PLATE DEFORMABLE BY AN ELECTROSTATIC ATTRACTION FORCE BETWEEN SPACED APART ELECTRODES

Haruo Nakamura; Norihiko Kurashima, and Makoto Matsuzaki, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Sep. 15, 1995, Ser. No. 528,707

Claims priority, application Japan, Sep. 16, 1994, 6-248517; Aug. 23, 1995, 7-237610

Int. Cl.⁶ B41J *2/14;2/16;2/06*

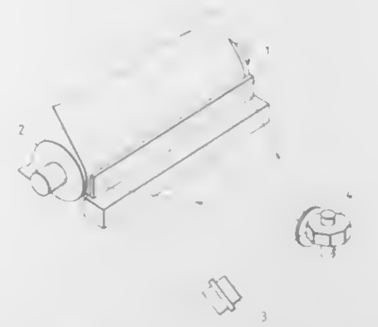
U.S. Cl. 347—51 **18 Claims**

1 An electric-field driven ink jet print head, comprising:

a nozzle plate including an ink spouting hole;

a resilient plate deformable when an electrostatic attraction force is applied thereto;

a pressure generating chamber structure formed between two major surfaces, one of said major surfaces of said pressure generating chamber structure being hermetically covered with



said nozzle plate and another of said major surfaces being hermetically covered with said resilient plate, such that said pressure generating chamber structure, said nozzle plate and said resilient plate form walls of a pressure generating chamber;

a first electrode formed on said resilient plate, said first electrode being located corresponding to said pressure generating chamber;

a second electrode spaced apart from said first electrode a distance corresponding to a predetermined gap, said second electrode being undeformable when receiving the electrostatic attraction force;

a substrate made of transparent material, said substrate including a transparent electrode;

means for switching a potential of said transparent electrode between a potential of said first electrode and another potential; and

a photo conductive layer formed between said second electrode and said substrate, said photo conductive layer selectively conducting in accordance with light signals received through said substrate such that portions of said second electrode are set to said another potential, thereby generating the electrostatic attraction force between said first electrode and second electrode across said gap;

wherein the electrostatic attraction force generated between said first and second electrodes causes said pressure generating chamber to expand into said gap, and removal of the electrostatic attraction force, by switching the potential of said transparent electrode to the potential of said first electrode, allows said pressure generating chamber to compress, to thereby cause said pressure generating chamber to shoot forth ink droplets through said ink spouting hole of said nozzle plate

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5,739,832

DROPLET GENERATOR FOR GENERATING MICRO-DROPS, SPECIFICALLY FOR AN INK-JET PRINTER

Joachim Heinzl, Munich, and Wolfgang Schullerus, Bad Feilnbach, both of Germany, assignors to Pelikan Produktions AG, Egg Zh, Switzerland

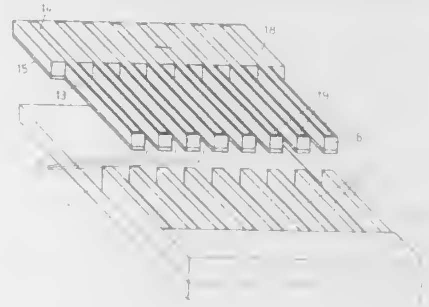
Filed Nov. 22, 1995, Ser. No. 562,004

Claims priority, application Switzerland, Nov. 24, 1994, 3545/94

Int. Cl.⁶ B41J *2/045*

U.S. Cl. 347—68 **12 Claims**

1 Droplet generator for micro-drops, specifically for ink-jet printers, comprising,



a housing (1) defining a chamber (5),

a multitude of piezo-electric flectional benders (19) in the chamber (5) each having a first end (18) and a free second end (16) with each first end (18) fastened to housing (1) and with a separate jet (7) in a chamber wall (2) under each free second end (16) of benders (19), characterized in that the chamber (5) at least adjacent to the second end (16) of the benders (19) is subdivided through separation walls (26) located between said benders.

5,739,833

JET PRINTING INK AND PRINTING METHOD USING THE INK

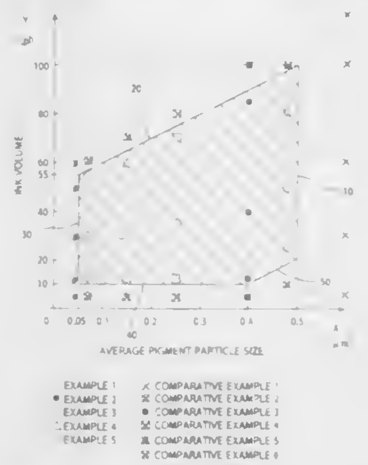
Hideto Yamazaki, Nagoya, and Shunichi Higashiyama, Yokkaichi, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jun. 12, 1995, Ser. No. 489,369

Claims priority, application Japan, Jun. 23, 1994, 6-141561

Int. Cl.⁶ C09D *11/00*, B41J *2/05*, H04N *1/034*

U.S. Cl. 347—100 **7 Claims**



1 An ink usable with an ink jetting device for jetting the ink through a nozzle at a volume Y, measured in picoliters, each time the ink jetting device is energized so as to effect printing on a recording medium, said ink comprising a pigment as a coloring agent, and a non aqueous solvent as an ink solvent, said pigment comprising particles having an average particle size of X μm, wherein X is selected to satisfy the following formulas:

$$0.05 \leq X \leq 0.5,$$

$$10 \leq Y \leq 100X+50, \text{ and}$$

$$100X-30 \leq Y$$

5,739,834

ELECTROSTATIC CHARGE INFORMATION REPRODUCING METHOD

Masato Okabe; Masayuki Iijima, and Takashi Aono, all of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan

Division of Ser. No. 741,504, Jul. 29, 1991, Pat. No. 5,376,955. This application Sep. 12, 1994, Ser. No. 304,784

Claims priority, application Japan, Nov. 29, 1989, 1-311491; Nov. 29, 1989, 1-311492

Int. Cl.⁶ B41J *2/385*, G01D *15/06*; G03G *13/04*

U.S. Cl. 347—111 **4 Claims**

1 An electrostatic charge information reproducing method comprising the steps of,

providing a master electric charge retaining medium having electrostatic charge information formed on an insulating layer stacked on an electrically conductive layer.

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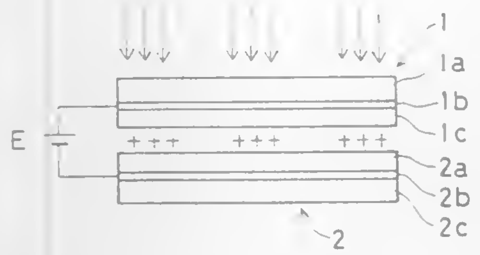


disposing said master electric charge retaining medium face-to-face with a reproductive electric charge retaining medium having a thermosoftening resin layer stacked on an electrically conductive layer;

distorting said reproductive electric charge retaining medium by heating to form a frost image and then cooling said reproductive electric charge retaining medium to fix said frost image, thereby reproducing said electrostatic charge retaining information on said master electric charge retaining medium, characterized in that a softening point of said insulating layer is higher than a heat distortion temperature of said thermosoftening resin layer of said reproductive electric charge retaining medium such that substantially no electrostatic charge on the insulating layer leaks and substantially no deformation occurs, thereby facilitating reproduction a multiple of times.

5,739,835

COLOR PRINTING MACHINE

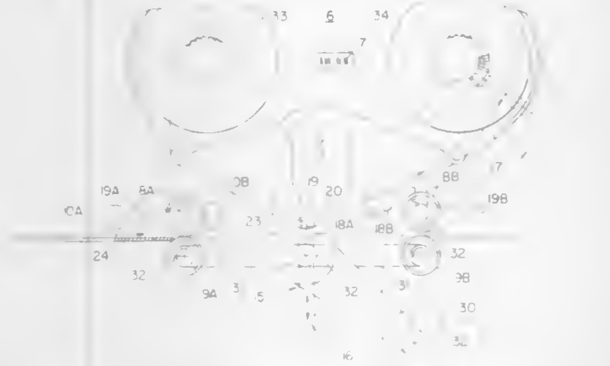
Paul Morgavi, La Ciotat; Jean-Paul Marietti, Mimet, and Jean-Jacques Oubrayrie, Allauch, all of France, assignors to Gemplus Card International, Gemenos, France

Filed Feb. 23, 1995, Ser. No. 394,019

Claims priority, application France, Feb. 24, 1994, 94 02116

Int. Cl.^{6} B41J *2/325*

U.S. Cl. 347—176 12 Claims



1 A machine for the color printing of cards, particularly cards made of plastic, comprising:

a ribbon used as a support for a plurality of repeating sequences of coloring agents and substances arranged in a sequential order, each sequence of coloring agents and substances being preceded by an indicator,

a thermal printer head enabling the transfer of a coloring agent or substance form the ribbon to a card by thermal effect,

a first driving means to drive the ribbon under the thermal printer head,

a second driving means to drive the card to be printed under the thermal printer head and the ribbon,

a third driving means to shift the thermal printer head so as to make it approach or move away from the card,

wherein:

the ribbon has separators between the coloring agents and substances of a sequence,

a first detection device detects the separators and each indicator during the running of the ribbon,

a second detection device detects the entry and exit of the card under the thermal printer head,

a control system, including the first and second detection devices in addition to a third detection device, the control system controlling the first, second and third driving means so as to present the card to be printed under the thermal printer head as many times as there are coloring agents and substances in the sequence

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5,739,836

THERMAL PRINTHEAD ASSEMBLY

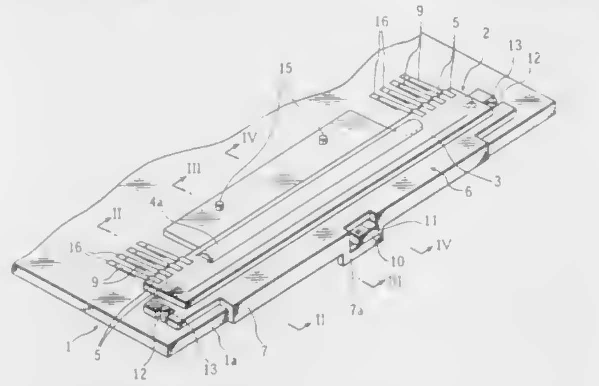
Koji Nishi, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Mar. 21, 1997, Ser. No. 822,452

Claims priority, application Japan, Mar. 22, 1996, 8-065838

Int. Cl.^{6} B41J *2/335*

U.S. Cl. 347—200 10 Claims



1. A thermal printhead assembly comprising.

a metallic heat sink plate having an obverse surface and a reverse surface;

a head circuit board mounted on the obverse surface of the heat sink plate, the head circuit board being formed with a heating resistor; and

a control circuit board electrically connected to the head circuit board for feeding control signals and power supply to the head circuit board;

wherein the reverse surface of the heat sink plate is mounted on the control circuit board so that the heat sink plate is sandwiched between the head circuit board and the control circuit board

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5,739,837

THERMAL PRINTHEAD, AND CLIP-TYPE TERMINAL LEAD AND COVER MEMBER USED THEREFOR

Takaya Nagahata; Tokihiko Kishimoto; Koji Nishi, and Masanori Minamino, all of Kyoto, Japan, assignors to Rohm Co. Ltd., Kyoto, Japan

PCT No. PCT/JP95/02015, § 371 Date May 16, 1996, § 102(e) Date May 16, 1996, PCT Pub. No. WO96/10490, PCT Pub. Date Apr. 11, 1996

PCT Filed Oct. 3, 1995, Ser. No. 646,276

Claims priority, application Japan, Oct. 5, 1994, 6-240985; Dec. 28, 1994, 6-327320; Jan. 25, 1995, 7-010000; Mar. 22, 1995, 7-062541; Oct. 3, 1995, 6-238946

Int. Cl.^{6} B41J *2/335*

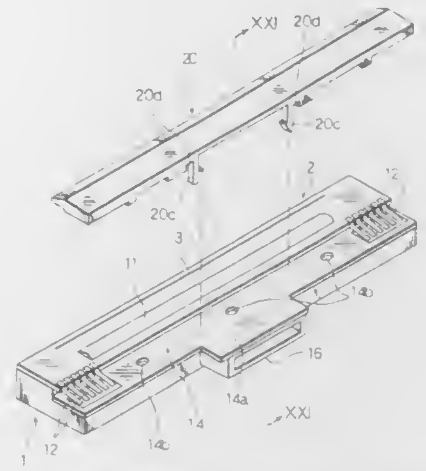
U.S. Cl. 347—200 13 Claims

1 A thermal printhead comprising:

a stepped heat sink plate having an upper first supporting surface and a lower second supporting surface;

a head substrate mounted on the first supporting surface of the heat sink plate and formed with printing dots; and

a printed circuit board mounted on the second supporting surface of the heat sink plate and formed with a wiring pattern;



wherein the head substrate has an edge projecting from the first supporting surface of the heat sink plate toward the second supporting surface; and

wherein the printed circuit board overlaps the projecting edge of the head substrate with a predetermined spacing therebetween; and

wherein the head substrate is provided with a plurality of drive ICs for driving the printing dots, the projecting edge of the head substrate being formed with a plurality of connecting terminals electrically connected to the drive ICs, the printed circuit board being formed with a plurality of connection electrodes corresponding to the connection terminals on the head substrate, each of the connection terminals on the head substrate being electrically connected to a corresponding connection electrode on the printed circuit board via a clip-type terminal lead, the terminal lead having a clip portion which is held in clipping engagement with the projecting edge of the head substrate and a stem portion which extends from the clip portion toward the printed circuit board.

5,739,838

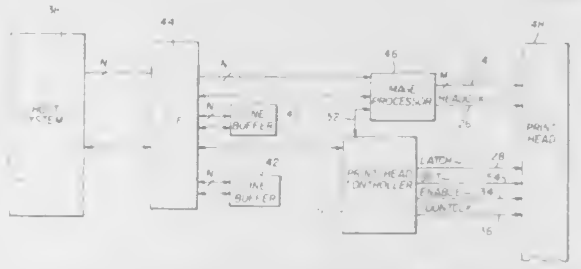
PULSE WIDTH MODULATION METHOD FOR A PARALLEL INPUT PRINT HEAD

James T. Stoops, Walworth, and David A. Johnson, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 20, 1995, Ser. No. 425,278

Int. Cl.^{6} B41J *2/35*

U.S. Cl. 347—211 5 Claims



5. A printer for printing 2^N print levels represented by an image data signal which is N data bits wide, said printer comprising:

a parallel input print head having an M-bit wide parallel data input bus, where $N \geq M$, and

an image processor adapted to process the same data set for each of L print head loads and to output a series of M-bit wide signals to the print head, where L is the minimum number of times that the print head must be loaded with data to achieve all 2^N print levels represented by the image data signal.

5,739,839

THERMAL PRINTER HAVING CARRIAGE AND HOLDER FOR MULTIPLE INK TAPE CASSETTES

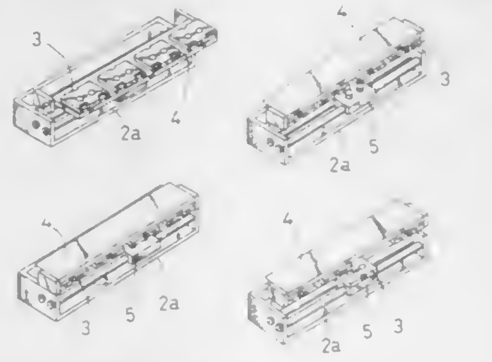
Hiroji Iwai, Yamatokoriyama; Hirotoshi Iemura, Yamabe-gun; Atsushi Kadoya, Nara, and Kunihiko Sakaguchi, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 26, 1995, Ser. No. 452,401

Claims priority, application Japan, Sep. 22, 1994, 6-228227

Int. Cl.^{6} B41J *2/325; 11/00; 32/00;* **G01D** *15/16*

U.S. Cl. 347—214 12 Claims



1 A thermal printer comprising:

a carriage detachably holding a selected cassette, where the selected cassette includes an ink ribbon aligned by the carriage with a thermal printing head for effecting printing on a recording sheet through the ink ribbon,

a guide track for guiding the carriage in a direction perpendicular to a feed direction of the recording sheet,

a carriage driver for reciprocating the carriage along the guide track,

a cassette holder having a plurality of cassette bindings arranged in line each for detachably holding an unselected cassette, wherein a first of a pair of the carriage and one of the cassette bindings includes a pair of rigid latches for detachably holding the selected cassette by relative movements in directions of gripping and releasing the cassette, and a second of the pair of carriage and one of the cassette bindings includes a pair of elastic detents for gripping the second of the pair between the detents so that the selected cassette can be inserted into or pulled out from between the elastic detents;

a first mechanism for moving the cassette holder between a waiting position and a delivering position while supporting the cassette holder so that the line of cassette bindings is parallel with and opposed to the guide track;

a second mechanism for moving the latches between a cassette latched position and a detach position, and

a power source for driving the first and second mechanisms in linked motion

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5,739,840

METHOD OF AND DEVICE FOR THERMAL RECORDING

Shinji Imai, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 1, 1996, Ser. No. 625,130

Claims priority, application Japan, Mar. 31, 1995, 7-074997; Mar. 31, 1995, 7-075047

Int. Cl.^{6} B41J *2/47*

U.S. Cl. 347—232 10 Claims

1 A thermal recording method for recording information on a heat-sensitive recording material comprising a photo-thermo conversion agent which converts supplied light energy into heat energy, a developing agent and a color forming agent which is encapsuled in micro-capsules whose permeability to materials increases with increase in said heat energy and forms a color by reaction with the developing agent wherein the improvement comprises the steps of

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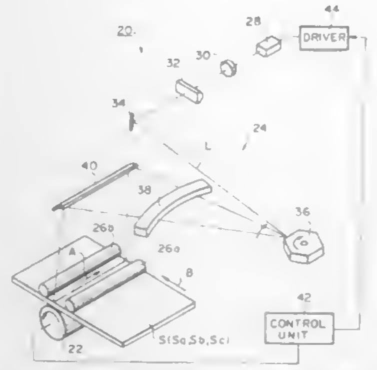


localizing a photo-thermo conversion agent in and/or on microcapsules.

pre-heating the heat-sensitive recording material by supplying the heat-sensitive recording material with heat energy less than energy necessary to cause the heat-sensitive recording material to form a color and

projecting onto the recording material with a light beam modulated according to the information to be recorded, thereby causing the heat-sensitive recording material to form a color in a predetermined density according to heat energy obtained from the light beam.

5,739,841

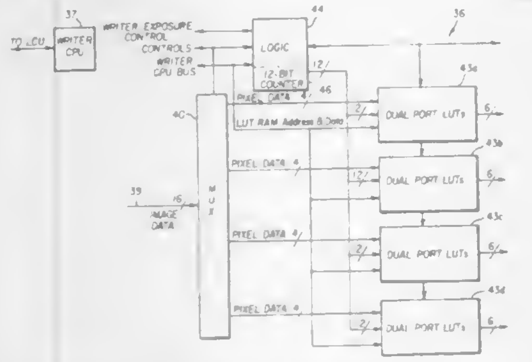
APPARATUS AND METHOD FOR GREY LEVEL PRINTING WITH UNIFORMITY CORRECTION

Yee Seung Ng, Fairport, and Hieu Trong Pham, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 28, 1995, Ser. No. 579,749

Int. Cl.^{6} B41J *2/435;2/47*

U.S. Cl. 347—237 **12 Claims**



1 A non-impact printer apparatus comprising:

a printhead, including a plurality of recording elements, for recording image data, the recording elements emitting radiation for recording on a recording medium;

correction means for correcting for nonuniformities in the recording elements, said correction means including

(a) a first dual port read/write look-up table memory means for storing bin data representing bin numbers based on emission characteristics of the recording elements, wherein at N addresses in said first memory means, bin data, representing M different bin value numbers are stored, wherein N and M are each plural numbers and N>M, said first memory means having an output for outputting signals representing bin numbers;

(b) a second dual port read/write look-up table memory means storing corrected exposure data in plural tables, said second memory means having one address input port connected to the output of the first memory means, and said second memory means having an output for outputting a signal representing corrected exposure data from one of the plural tables;

(c) means for providing image data of a pixel to be printed to said one address input port of said second memory means; and

(d) means responsive to a change in a process condition for selecting a different table of corrected exposure data in said second memory means for use in outputting corrected exposure data.

5,739,842

IMAGE FORMING METHOD AND APPARATUS USING ROTATED SCREEN WITH PULSE WIDTH MODULATION

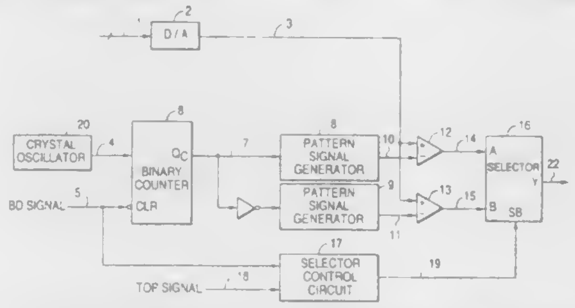
Kazuyuki Murata, Kyoto, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 505,885, Jul. 24, 1995, abandoned, which is a continuation of Ser. No. 974,293, Nov. 10, 1992, Pat. No. 5,477,257. This application Feb. 27, 1997, Ser. No. 807,765

Claims priority, application Japan, Nov. 11, 1991, 3-294131; Mar. 9, 1992, 4-050102

Int. Cl.^{6} B41J *2/47;2/385;* **G01D** *15/14;* **H01N** *1/21*

U.S. Cl. 347—252 **4 Claims**



1 An image forming apparatus for forming half tone images by pulse width modulating multi-valued image signals sampled in both horizontal and vertical directions, comprising:

a pattern signal generator for generating (m^2+n^2) pattern signals, each having an equal frequency corresponding to (m^2+n^2) pixels where m and n are positive integers excluding zero and a same wave-shape but being shifted in the phase by $[\{(m^2+n^2)-(m+n)\}/(m^2+n^2)]\times 360°$;

(m^2+n^2) pulse width modulation means for pulse width modulating the image signal based on (m^2+n^2) pattern signals and outputting (m^2+n^2) pulse width modulation signals, respectively;

a selector for selecting and outputting one of (m^2+n) pulse width modulation signals;

a selector control means for controlling said selector for every scan line so that said selector selects (m^2+n^2) pulse width modulation signals cyclically whereby half tone images are formed with a right-angled screen having a screen angle θ of which tan θ is equal to a rational number defined by m/n.

5,739,843

PIXEL CLOCK METHOD AND APPARATUS FOR SCANNING TYPE PHOTO IMAGING MECHANISMS

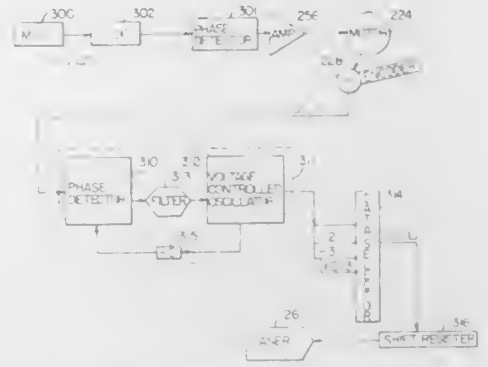
Ronald J. Straayer, S. Windsor, and Bruce L. Davidson, East Hartford, both of Conn., assignors to Gerber Systems Corporation, South Windsor, Conn.

Division of Ser. No. 117,612, Sep. 7, 1993, Pat. No. 5,619,246. This application Aug. 9, 1996, Ser. No. 695,028

Int. Cl.^{6} B41J *2/47*

U.S. Cl. 347—260 **9 Claims**

1. A method of creating a pixel clock for a scanner of the type having a radiant energy source and a rotating spinner mirror which is responsible for redirecting a light beam directed along its spinner axis to a partially cylindric drum support spaced a given distance from the axis, said method comprising the steps of:



providing a spinner motor and connected spinner mirror and rotating the spinner mirror at a constant velocity using said spinner motor.

providing an encoding means at said spinner motor for encoding the motion of said spinner motor to create a first pulse train having a first frequency directly related to said velocity of said spinner mirror;

multiplying said first pulse train by a given constant to create a second pulse train having a second frequency higher than said first frequency; and

using said second pulse train as a pixel clock to shift image data to a radiant energy source to image a media sheet having a photosensitive surface.

5,739,844

METHOD OF CONVERTING TWO-DIMENSIONAL IMAGE INTO THREE-DIMENSIONAL IMAGE

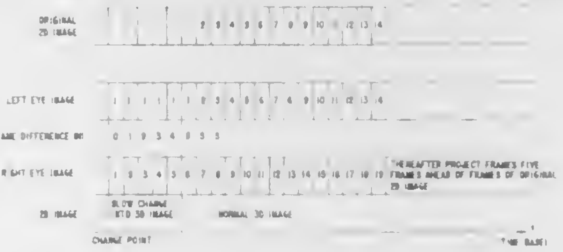
Yukinori Kuwano; Takahisa Andou; Tetsuya Enomoto, all of Osaka-fu, and Nobuaki Uwa, Hyogo-ken, all of Japan, assignors to Sanyo Electric Co. Ltd., Osaka-Fu, Japan

Filed Feb. 3, 1995, Ser. No. 383,207

Claims priority, application Japan, Feb. 4, 1994, 6-012857; Feb. 25, 1994, 6-028435; Mar. 14, 1994, 6-042463

Int. Cl.^{6} H04N *7/18*

U.S. Cl. 348—43 **8 Claims**



1. A method of converting a two-dimensional image into a three-dimensional image, comprising the steps of

taking a two-dimensional image which is constitute by a plurality of frame images which are continuous in time as an image for one eye, while taking a two-dimensional image obtained by shifting said image for one eye by N frames, where N includes the number zero and is not a fixed number, as an image for the other eye, therein to produce a three-dimensional image, wherein said N which is a frame difference is adjusted for each switching of scenes on the two-dimensional image

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5,739,845

OPTICAL IMAGING ARRANGEMENT FOR USE WITH RADIATION SHIELDED ENCLOSURES

Stuart Hansford, and Peter Stead, both of Cheshire, United Kingdom, assignors to British Nuclear Fuels plc, Cheshire, United Kingdom

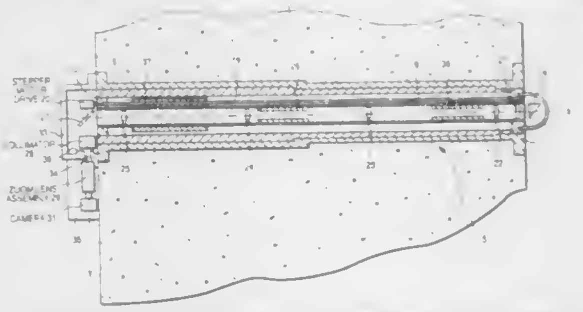
PCT No. PCT/GB95/00534, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO95/24720, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 13, 1995, Ser. No. 545,822

Claims priority, application United Kingdom, Mar. 11, 1994, 9404728

Int. Cl.^{6} H04N *7/18*

U.S. Cl. 348—83 **20 Claims**



1 An arrangement for forming an optical image of the interior of an enclosure contained within a radiation shield, the enclosure being one in which remote handling operations are carried out on radioactive material and the shield having a passage therethrough from an outer end to an inner end at said enclosure, said shield having a thickness extending between the outer and inner ends of the passage, which arrangement includes at least adjacent to the inner end of the passage:

optical guiding means for guiding optical radiation from scenes within the enclosure along a path through the said passage, located at least adjacent to the outer end of the passage:

deflection means for deflecting optical radiation which has been guided along the said path: and

a photodetector arranged outside the shielded enclosure and outside the radiation shield to receive optical radiation which has been deflected by the deflection means

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5,739,846

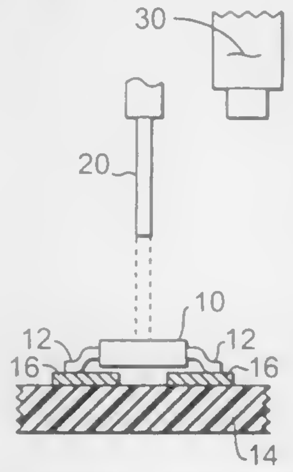
METHOD OF INSPECTING COMPONENT PLACEMENT ACCURACY FOR EACH FIRST SELECTED CIRCUIT BOARD TO BE ASSEMBLED OF A BATCH

Koen A. Gieskes, Binghamton, N.Y., assignor to Universal Instruments Corporation, Binghamton, N.Y.

Filed Feb. 5, 1996, Ser. No. 596,499

Int. Cl.^{6} H04N *7/18*

U.S. Cl. 348—87 **9 Claims**



1 A method of inspecting a circuit board after completing assembly thereof by an assembly machine and verifying the pres

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ence, accuracy of placement, and correctness of each assembled component at each corresponding placement position of said circuit board, said circuit board having been assembled according to a particular program by sequentially addressing each said placement position with a pick and place spindle of said assembly machine and assembling each said component thereat by means of said spindle, said method comprising the steps of:

positioning a camera within said assembly machine after said assembly, said camera being capable of acquiring an image of each said assembled component and furnishing said image to a display screen on which said image is presentable in magnified form;

addressing each said placement position with its component assembled thereon sequentially with said camera, according to at least a portion of said program;

utilizing said camera for acquiring and furnishing an image of each said placement position and said assembled component thereat to said display screen so as to present thereon a magnified image; and

visually monitoring said display screen and performing said inspecting by observing each said magnified image, in turn.

5,739,847

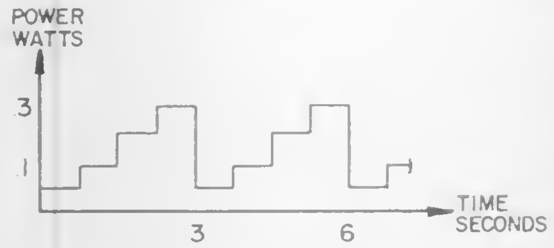
VARIED INTENSITY AND/OR INFRARED AUXILIARY ILLUMINATION OF SURVEILLANCE AREA

Charles J. Tranchita, Glen Ellyn; Paul D. Lang, Palatine, and Ronald B. Jones, Hoffman Estates, all of Ill., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Mar. 20, 1995, Ser. No. 406,423

Int. Cl.⁶ H04N *7/18*

U.S. Cl. 348—143 **4 Claims**



1. A method of recording successive frames of images of subjects in a surveillance field of view by means of a surveillance camera which method includes illuminating said field of view with a source of illumination, and varying the intensity of said illumination as a function of time at a rate with respect to the timing of said successive frames of recorded images to assure each subject being recorded in said successive frames at varying levels of intensity of illumination of the subject.

5,739,848

OBJECT RECOGNITION APPARATUS AND METHOD

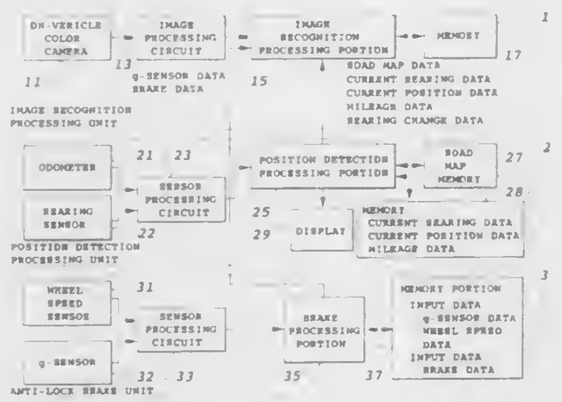
Hiroshi Shimoura, and Kenji Tenmoku, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 301,434, Sep. 7, 1994, Pat. No. 5,638,116. This application Oct. 16, 1996, Ser. No. 731,582

Claims priority, application Japan, Sep. 8, 1993, 5-223357; Sep. 8, 1993, 5-223358; Nov. 25, 1993, 5-295631; Dec. 7, 1993, 5-306725

Int. Cl.⁶ H04N *7/00;* G06K *9/00;* G06F *7/70*

U.S. Cl. 348—119 **10 Claims**



1. A camera attitude parameter generating apparatus comprising:

an on-vehicle camera mounted on a vehicle to acquire an image ahead of or behind the vehicle;

means for detecting a pair of road parallel lines in the image acquired by said on vehicle camera while the vehicle is traveling on a road, each of said road parallel lines being parallel with the longitudinal direction of the road;

means for obtaining the intersection of the pair of orad parallel lines, thereby generating the intersection as a road vanishing point;

parameter generating mean for generating at least one of camera attitude parameters on the basis of the pair of road parallel lines and the road vanishing point, said camera attitude parameters representing the attitude of said on-vehicle camera with respect to the road; and

a position detection device including sensors and road map data, said position detection device detecting first support information including a bearing, a position, and a mileage of the vehicle, wherein said parameter generating means uses the first support information in generating said camera attitude parameters, and

wherein said parameter generating means obtains the bearing of the vehicle from the position detection device, and inhibits the generation of the camera attitude parameters if the change in the bearing of the vehicle is greater than a predetermined value.

5,739,849

ELECTRO-DEVELOPING RECORDING MEDIUM UPON WHICH AN IMAGE IS SENSED

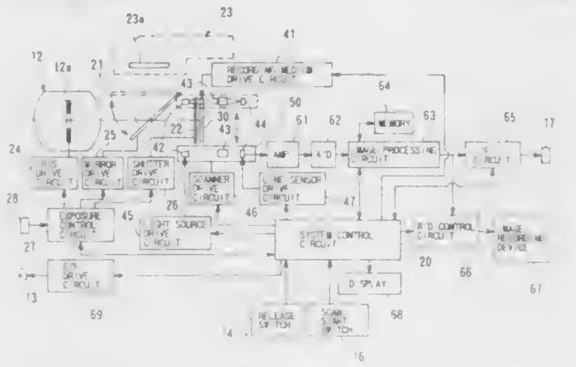
Harumi Aoki, and Tahei Morisawa, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1995, Ser. No. 543,326

Claims priority, application Japan, Oct. 14, 1994, 6-275575

Int. Cl.⁶ H04N *5/225*

U.S. Cl. 348—207 **25 Claims**



1. An image signal generating device, comprising:

a first optical system;

an electro-developing recording medium that electronically develops an image formed by said first optical system,

a shutter positioned between said first optical system and said electro-developing recording medium, said shutter being selectively openable;

a light source that illuminates said electro-developing recording medium, said light source being selectively positioned between said first optical system and said shutter;

a second optical system disposed on an optical path of a light beam generated by illuminating said electro-developing recording medium;

a sensor that is moved to an imaging plane on which an image is formed by said second optical system, said sensor generating a pixel signal in accordance with said formed image;

a sub-scanning mechanism that moves said sensor on said imaging plane to sense said image; and

a reader that reads out said pixel signal from said sensor, wherein a light beam emitted by said light source passes through said shutter, when said shutter is opened, to illuminate said electro-developing recording medium to develop said image formed by said first optical system, said sensor being moved, by said sub-scanning mechanism, to sense said image developed on said electro-developing recording medium after said shutter is opened.

5,739,850

APPARATUS FOR IMPROVING THE IMAGE AND SOUND PROCESSING CAPABILITIES OF A CAMERA

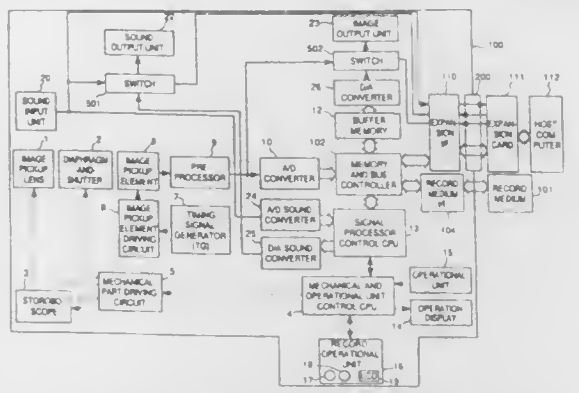
Masashi Hori, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 346,022, Nov. 29, 1994, abandoned. This application May 14, 1996, Ser. No. 649,112

Claims priority, application Japan, Nov. 30, 1993, 5-299785; Dec. 24, 1993, 5-328034

Int. Cl.⁶ H04N *5/76*

U.S. Cl. 348—231 **37 Claims**



1. An image pickup apparatus having a camera which converts an object image into object image data, comprising:

recording means for recording the object image data;

connecting means for connecting a unit having a signal processing circuit which processes the object image data stored in said recording means; and

a branching means for determining either the camera or said recording means from which the object image data is transmitted via said connecting means when the unit is connected.

5,739,851

DRIVING METHOD FOR SOLID STATE IMAGING DEVICE

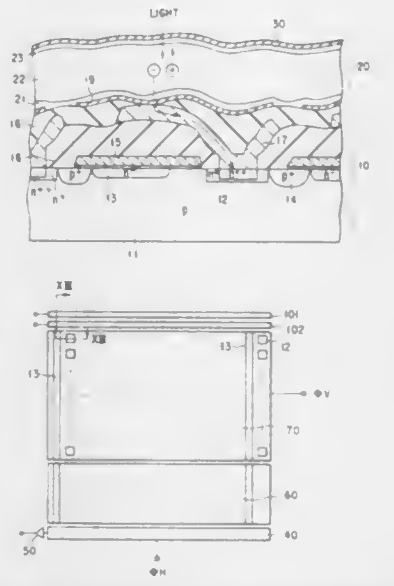
Shinji Ohsawa, Ebina; Yoshiyuki Matsunaga, Kamakura, and Nahoko Endo, Sendai, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 11, 1995, Ser. No. 526,453

Claims priority, application Japan, Sep. 14, 1994, 6-220100; Aug. 17, 1995, 7-209603

Int. Cl.⁶ H04N *5/335*

U.S. Cl. 348—311 **12 Claims**



1. A driving method for a solid state imaging device with a horizontal blanking period for each scanning line and a vertical blanking period for each field, the imaging device including a plurality of cell sections formed in a matrix form on a semiconductor substrate, the plurality of cell sections including a plurality of signal charge storage sections for storing signal charges, a plurality of readout sections for reading out the signal charges from the signal charge storing sections, a plurality of signal charge transferring sections for transferring the readout signal charges, and a plurality of pixel electrodes electrically connected to the plurality of signal charge storage sections; a photoelectric converting layer including at least one photoelectric converting film stacked on the plurality of pixel electrodes, the photoelectric converting film being electrically connected to the electrodes and having a pn junction; at least one transparent electrode formed on the photoelectric converting film; and an output section for sequentially receiving the transferred signal charges and sequentially outputting the signal charges; comprising the steps of:

storing the signal charges on the signal charge storing sections with a reverse bias applied to the pn junction of the photoelectric converting film;

reading out the stored signal charges to the readout sections in the vertical blanking period, and

applying at least one forward bias pulse having a preset amplitude and width to the pn junction of the photoelectric converting film in the vertical blanking period after reading out the signal charges.

5,739,852

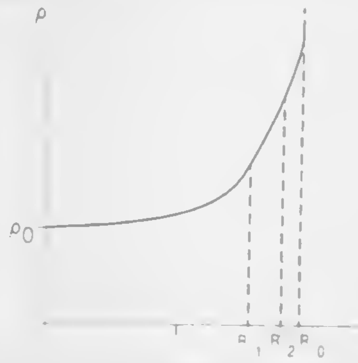
ELECTRONIC IMAGING SYSTEM AND SENSOR FOR USE THEREFOR WITH A NONLINEAR DISTRIBUTION OF IMAGING ELEMENTS

Charles Patrick Richardson, Barrington, and Bruce Edward Stuckman, Algonquin, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 352,307, Dec. 8, 1994, Pat. No. 5,489,940. This application Aug. 9, 1995, Ser. No. 512,876

Int. Cl.⁶ H04N *3/14*

U.S. Cl. 348—315 **23 Claims**



1. An electronic imaging system for capturing an image, the system comprising

a lens for producing a optical image; and

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an imaging sensor, having a surface in optical communication with the lens, for converting the optical image into a corresponding output signal, the imaging sensor comprising a plurality of imaging elements, the plurality of imaging elements having a distribution on the surface representable by a nonlinear function;

wherein the distribution of imaging elements has a relatively low density at a center point of the surface and a relatively high density at a point along a periphery of the surface and wherein each of the plurality of imaging elements is addressable by a two-dimensional address.

5,739,853
DEVICE FOR SUPPORTING OPTICAL SYSTEM OF TELEVISION CAMERA AND HAVING TWO SPRING SYSTEMS FOR REDUCING RATTLING IN TWO DIFFERENT DIRECTIONS

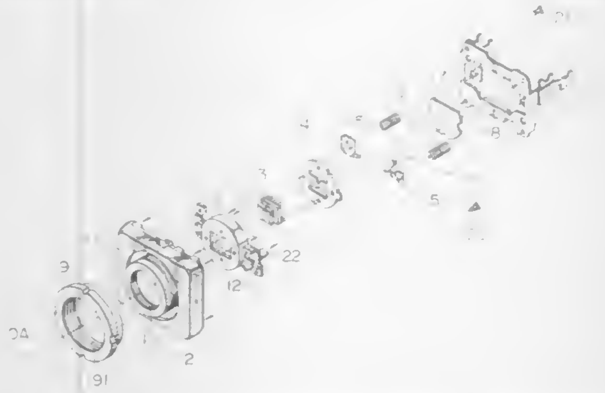
Masami Takahashi, Zushi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 306,413, Sep. 15, 1994, abandoned. This application Feb. 1, 1996, Ser. No. 593,111

Claims priority, application Japan, Jan. 13, 1994, 6-002212

Int. Cl.^{6} H04N *5/225*

U.S. Cl. 348—335 4 Claims



1. A device for supporting an optical system of a television camera, comprising:

an escutcheon having at a first side a first positioning portion serving as a positioning reference in first and second mutually orthogonal directions which are orthogonal to an optical axis of said optical system, said escutcheon having a lens holding portion,

a flange-back adjusting ring rotatably mounted on a second side of said escutcheon, said second side being opposite to said first side;

an image pickup element;

a bracket mounted on said first side of said escutcheon, said bracket holding said image pickup element and having a second positioning portion positioned to cooperate with said first positioning portion of said escutcheon to position said image pickup element relative to said escutcheon in said first and second directions,

first spring means comprising at least one plate spring for urging said bracket in one circumferential direction relative to said escutcheon, said circumferential direction being defined with respect to said optical axis of the optical system, to absorb rattling motion of said bracket in said circumferential direction; and

second spring means for absorbing rattling motion of said bracket in a direction of said optical axis thereof.

5,739,854
IMAGE PICKUP APPARATUS

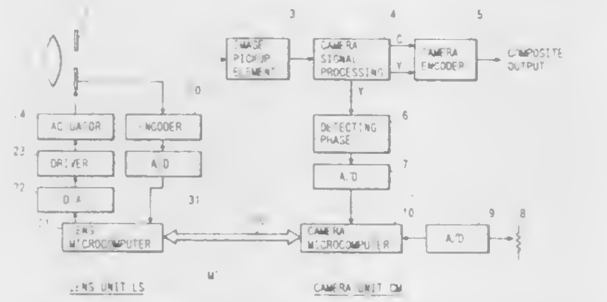
Yoshikazu Nishikawa, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 271,578, Jul. 7, 1994, abandoned, which is a continuation of Ser. No. 870,947, Apr. 20, 1992, abandoned. This application Sep. 24, 1996, Ser. No. 718,602

Claims priority, application Japan, Apr. 22, 1991, 3-090149; Aug. 30, 1991, 3-220131

Int. Cl.^{6} H04N *5/232*

U.S. Cl. 348—335 28 Claims



1. A camera system having a camera unit and a lens unit detachably mounted on said camera unit, both said units being so arranged that a controlled object on the lens unit side is controlled by said camera unit by transmissions to said lens unit, said system comprising:

A) control information generating means in said camera unit for generating control information for said controlled object and outputting said control information at a predetermined interval,

B) transmitting means for transmitting said outputted control information to said lens unit at said predetermined interval;

C) operation means in said lens unit for decoding the control information transmitted from said camera unit and converting each of the control information into a plurality of driving values for driving said controlled object by dividing an amount of driving for said controlled object corresponding to said control information into said plurality of driving values,

D) setting means for setting a dividing number of said amount of driving; and

E) control means for driving said controlled object a plurality of times corresponding to said dividing number within the predetermined interval based on the plurality of driving values output by said operation means.

5,739,855
OPTICAL LOW-PASS FILTERING

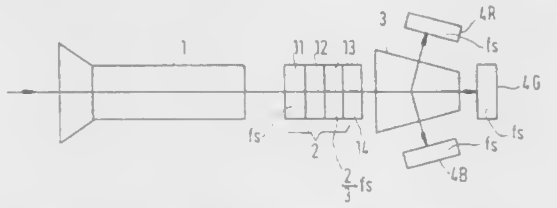
Petrus G. M. Centen; Franciscus P. Van De Weegen, and Pieter P. Brouwer, all of Breda, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 20, 1995, Ser. No. 575,540

Claims priority, application European Pat. Off., Dec. 22, 1994, 94203721

Int. Cl.^{6} H04N *5/225;* **G02B** *5/30*

U.S. Cl. 348—342 3 Claims



1. An optical low-pass filter arrangement comprising

a first birefringent optical filter element for providing a frequency response with a frequency trap point at a sampling frequency (fs) of an image sensor (4R, 4G, 4B) to be arranged in an optical path including the optical low-pass filter arrangement and the image sensor (4R, 4G, 4B); and

a second birefringent optical filter element for providing a frequency response with a first frequency trap point at two thirds of the sampling frequency (fs) of the image sensor (4R, 4G, 4B), and a second frequency trap point at twice the sampling frequency (fs) of the image sensor (4R, 4G, 4B)

5,739,856
PHOTOGRAPHIC SUBJECT POSITION PREDICTING APPARATUS

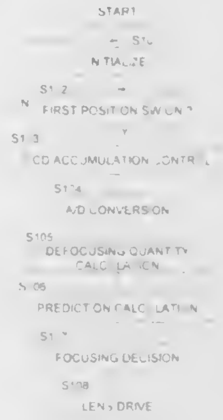
Toshimi Watanabe, Machida, Japan, assignor to Nikon Corporation, Chiyoda, Japan

Continuation of Ser. No. 319,024, Oct. 6, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 807,954

Claims priority, application Japan, Oct. 7, 1993, 5-251992; Oct. 7, 1993, 5-251993; Oct. 7, 1993, 5-251994

Int. Cl.^{6} H04N *5/232;* **G03B** *13/00*

U.S. Cl. 348—349 13 Claims



1. A photographic subject position predicting apparatus comprising

a focal point detection device that detects a focal point adjustment state of a photographic lens,

a memory device that stores in memory said focal point adjustment state detected by said focal point detection device,

a reliability calculation device that calculates an identical photographic subject reliability, which indicates a possibility of a photographic subject for which focal point detection has been performed in a most recent operation being the same as a photographic subject for which focal point detection was performed in a previous operation, based upon a most recent focal point adjustment state detected by said focal point detection device and a past focal point adjustment state stored in said memory device, said identical photographic subject reliability indicting a probability of the photographic subject for which focal point detection has been performed in the most recent operation being the same as the photographic subject for which focal point detection was performed in the previous operation, said probability changing as a real value on a continuum between and including a minimum value and a maximum value,

a moving speed calculation device which calculates a predicted moving speed of said photographic subject, based upon said identical photographic subject reliability calculated by said reliability calculation device, and

a prediction device that predicts a future position of said photographic subject based upon said predicted photographic subject moving speed calculated by said moving speed calculation device.

5,739,857
IMAGE PICKUP DEVICE WITH SETTABLE IMAGE DETECTING REGION

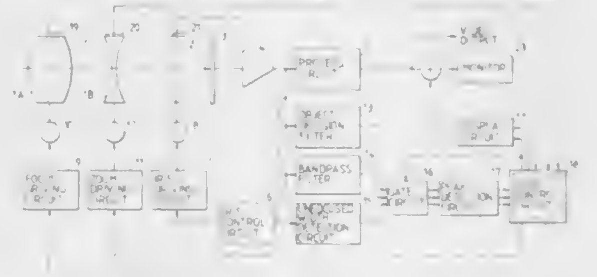
Kitahiro Kaneda, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 158,187, Nov. 24, 1993, abandoned, which is a continuation of Ser. No. 650,758, Feb. 5, 1991, abandoned. This application May 20, 1997, Ser. No. 859,567

Claims priority, application Japan, Feb. 8, 1990, 2-30674; Mar. 9, 1990, 2-58765; Mar. 9, 1990, 2-58766

Int. Cl.^{6} H04N *5/232*

U.S. Cl. 348—349 42 Claims



1. An image pick-up device capable of moving a detection region set on a picked up image, comprising

(A) detection means for detecting an object position on said picked-up image;

(B) region setting means for controlling a setting position of said detection region based on the output of said detection means, and

(C) control means for controlling said region setting means to restrict a movable range of controlling said detection region in accordance with information concerning a depth of field

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5,739,858
AUTOMATIC FOCUSING DEVICE USING A PLURALITY OF DIFFERENT FREQUENCY COMPONENTS EXTRACTED AT THE SAME POINT

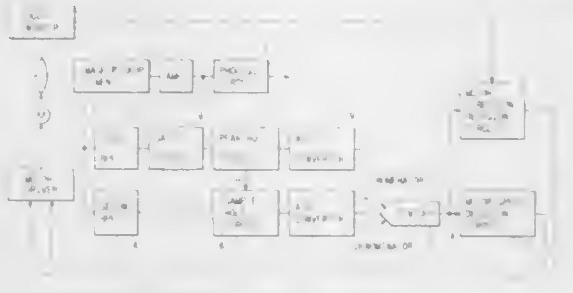
Hirofumi Suda, Yokohama, and Hideyuki Arai, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 874,592, Apr. 27, 1992, abandoned. This application Sep. 20, 1994, Ser. No. 309,555

Claims priority, application Japan, May 2, 1991, 3-100738

Int. Cl.^{6} G03B *13/00;* **H04N** *5/232*

U.S. Cl. 348—355 39 Claims



1. An automatic focusing device comprising

(A) image pickup means for outputting an image pickup signal,

(B) extraction means for simultaneously extracting from the image pickup signal outputted by said image pickup means a first and a second frequency components at a point in a focus detecting area defined on an image screen in a same field or frame, said first and second frequency components being different from each other;

(C) detection means for detecting a focusing condition on the basis of a result of computation of a ratio between the first and second frequency components, extracted by said extraction means, and

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(D) focusing means for performing a focusing operation based on the ratio output from said detection means.

5,739,859

VIDEO CAMERA WITH A ROTATABLY MOUNTED VIEWFINDER

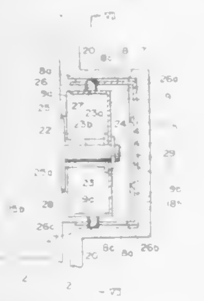
Mitsuo Hattori, Gifu; Tomohiro Harata, and Koji Yaginuma, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 11, 1995, Ser. No. 541,126

Claims priority, application Japan, Oct. 21, 1994, 6-281522

Int. Cl.⁶ H04N *5/225*

U.S. Cl. 348—375 **1 Claim**



1. A video camera comprising:

a video camera body having a storage region formed in a side surface thereof;

imaging means housed in said video camera body for imaging an object and generating a video signal corresponding to an imaged object:

an electronic viewfinder for monitoring the video signal generated by said imaging means, said viewfinder being sized to fit substantially within said storage region;

an angularly movable support attached to said video camera body for movably supporting a first side edge of said electronic viewfinder for angular movement about a first axis, so as to move a second side edge of said electronic viewfinder opposite said first side edge away from said storage region,

auxiliary angularly moving means attached to said angularly movable support for mounting said electronic viewfinder for angular movement about a second axis parallel to a face of said viewfinder and perpendicular to said first axis, so that one of said face or a back side of said electronic viewfinder can be selected for storage into said storage region; and

means for locking said electronic viewfinder against angular movement about one of said first axis and said second axis while allowing said electronic viewfinder to move angularly about the other of said first axis and said second axis, wherein said means for locking comprises a guide rib disposed in said storage region and having an arcuate edge whose center of curvature is aligned with said first axis, and a shaft connected to said electronic viewfinder for angular movement about said first axis, said shaft having an axis aligned with said second axis and a slit defined in an end of said shaft for receiving said arcuate edge therein.

5,739,860

METHOD OF AND APPARATUS FOR DECODING MOVING PICTURE AND OUTPUTTING DECODED MOVING PICTURE IN NORMAL OR FRAME-SKIPPED REPRODUCING OPERATION MODE

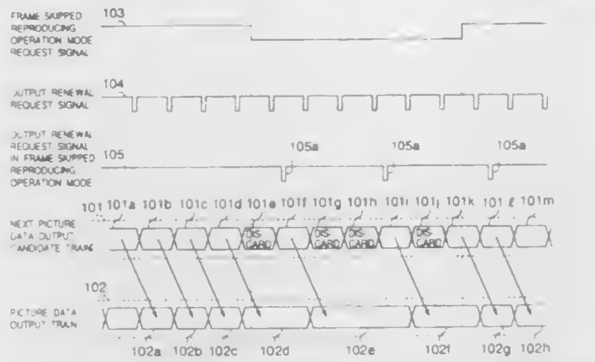
Akio Hoshino, Kodaira; Takafumi Kikuchi, Kokubunji; Tadashi Saitoh, Koganei; Jonichi Kimura, Hachioji; Yutaka Okunoki, Kawaguchi, and Masao Oshimi, Kawasaki, all of Japan, assignors to Hitachi, Ltd., and Sega Enterprises, Ltd., both of Tokyo, Japan

Filed Nov. 17, 1995, Ser. No. 560,372

Claims priority, application Japan, Nov. 17, 1994, 6-283839

Int. Cl.⁶ H04N *7/26*

U.S. Cl. 348—384 **11 Claims**


FRAME SKIPPED REPRODUCING OPERATION MODE REQUEST SIGNAL
103
OUTPUT RENEWAL REQUEST SIGNAL
104
OUTPUT RENEWAL REQUEST SIGNAL IN FRAME SKIPPED REPRODUCING OPERATION MODE
105
105a
105a
105a
101 101a 101b 101c 101d 101e 101f 101g 101h 101i 101j 101k 101 ℓ 101m
NEXT PICTURE DATA OUTPUT CANDIDATE TRAIN
DIS-CARD
DIS-CARD
DIS-CARD
DIS-CARD
102
PICTURE DATA OUTPUT TRAIN
102a 102b 102c 102d 102e 102f 102g 102h

1. In a moving picture decoding apparatus having memory areas for storing four decoded picture data each corresponding to one frame, said moving picture decoding apparatus decoding a coded picture data train carrying moving picture information and outputting the decoded picture data train by using said memory area, a moving picture decoding method capable of a frame-skipped reproducing operation comprising the steps of:

in a predetermined mode, outputting again decoded picture data being outputted and discarding picture data already decoded and scheduled to be outputted subsequently; and

in said predetermined mode, in response to a control signal for renewing output appearing in said predetermined mode, outputting picture data already decoded and scheduled to be outputted subsequently and discarding outputted picture data.

5,739,861

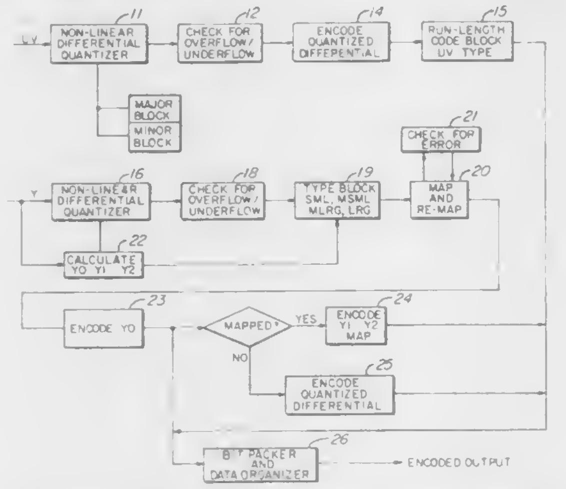
DIFFERENTIAL ORDER VIDEO ENCODING SYSTEM

John D. Music, P.O. Box 891028, Temecula, Calif. 92589-1028

Filed May 6, 1996, Ser. No. 642,900

Int. Cl.⁶ H04N *7/12*; H04J *11/02*

U.S. Cl. 348—391 **11 Claims**


UV
11
NON-LINEAR DIFFERENTIAL QUANTIZER
12
CHECK FOR OVERFLOW/ UNDERFLOW
14
ENCODE QUANTIZED DIFFEPENTIAL
15
RUN-LENGTH CODE BLOCK UV TYPE
MAJOR BLOCK
MINOR BLOCK
21
CHECK FOR ERROR
Y
16
NON-LINEAR DIFFERENTIAL QUANTIZER
18
CHECK FOR OVERFLOW/ UNDERFLOW
19
TYPE BLOCK SML, MSML MLRG, LRG
20
MAP AND RE-MAP
22
CALCULATE YO Y1 Y2
23
ENCODE YO
MAPPED?
YES
NO
24
ENCODE Y1 Y2 MAP
25
ENCODE QUANTIZED DIFFERENTIAL
26
BIT PACKER AND DATA ORGANIZER
ENCODED OUTPUT

1. In a digitally coded, data compressed television system, the improvement for high definition with narrow bandwidth, comprising:

means for calculating adjacent pixel Y luminosity differential.

means for generating nonlinear quantization of the adjacent pixel Y luminosity differential.

means for variable bit length encoding of said nonlinear quantized pixel Y luminosity, and

means for quantizing and encoding YO differentials, using YO of previous block where first YO in each row is absolute YO wherein small blocks are characterized as blocks where the quantized differential Y for all 9 pixels is within +/−1 with respect to quantized YO, medium small blocks have quantized differentials within the range of +/−5, and medium large blocks have all 9 quantized differentials within the range of +/−26, while large blocks have all 9 quantized differentials in the full range.

5,739,862

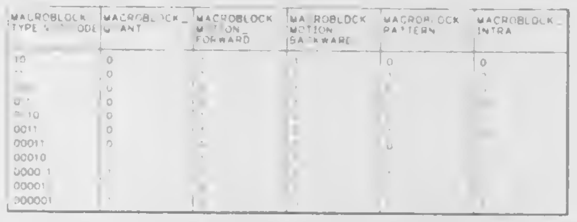
REVERSE PLAYBACK OF MPEG VIDEO

Shanwei Cen, Aloha, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed Dec. 23, 1996, Ser. No. 774,291

Int. Cl.⁶ H04N *7/36*

U.S. Cl. 348—402 **2 Claims**



MACROBLOCK TYPE [illegible] CODE	MACROBLOCK_QUANT	MACROBLOCK MOTION_FORWARD	MACROBLOCK MOTION BACKWARD	MACROBLOCK PATTERN	MACROBLOCK_INTRA
10	0	[illegible]	[illegible]	0	0
[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
0011	0	[illegible]	[illegible]	[illegible]	[illegible]
00011	0	[illegible]	[illegible]	0	[illegible]
00010	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0000 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
00001	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
000001	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1. A method of reverse playback of an MPEG IB data stream from a random access source comprising the steps of:

providing the MPEG IB data stream from the random access source in reverse playback sequence to produce a reversed MPEG data stream;

detecting the B frames from the reversed MPEG data stream,

parsing each detected B frame in the MPEG IB data stream to build a motion vector table for B frames within the IB data stream indicating where motion vector bits are located within the B frames;

for each detected B frame reversing an identity of a motion vector from forward to backward, and vice versa, and swapping data bits representing a forward motion vector with data bits representing a backward motion vector to produce reversed B frames; and

providing the reversed B frames as part of the reversed MPEG data stream to an MPEG decoder.

5,739,863

SELECTION OF QUANTIZATION STEP SIZE IN ACCORDANCE WITH PREDICTED QUANTIZATION NOISE

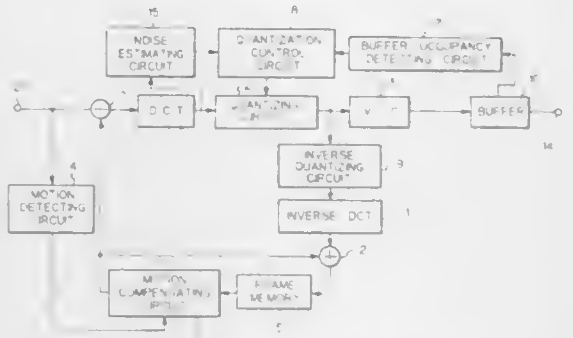
Tomoyuki Ohtsuki, Chiba, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuatinn of Ser. No. 410,721, Mar. 27, 1995, Pat. No. 5,654,760. This application Apr. 4, 1997, Ser. No. 832,788

Claims priority, application Japan, Mar. 30, 1994, 6-084088

Int. Cl.⁶ H04N *7/12, 11/02; 11/04*

U.S. Cl. 348—405 **1 Claim**



1. A quantization control apparatus for controlling a quantization operation of an encoder, which encodes I, P and B pictures said apparatus comprising.

quantization noise curve estimating means for estimating a quantization noise curve for said encoder by determining quantization noise as a function of a quantization step size for a block of image data and limiting said quantization noise curve to a quantization step size which becomes saturated such that said quantization noise is a maximum for larger values of said quantization step size; and

selecting means for selecting an actual quantization step size in accordance with the estimated quantization noise curve such that said actual quantization step size is not saturated, and said actual quantization step size is a maximum of 3.

5,739,864

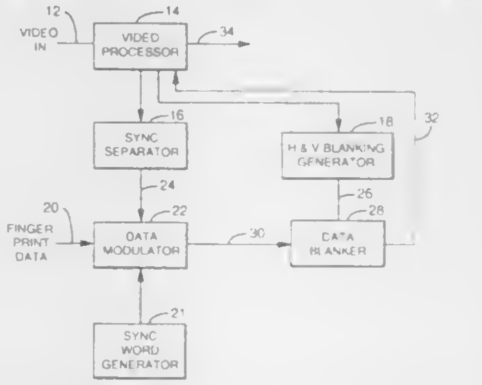
APPARATUS FOR INSERTING BLANKED FORMATTED FINGERPRINT DATA (SOURCE ID, TIME/DATE) IN TO A VIDEO SIGNAL

Gregory C. Copeland, San Jose, Calif., assignor to Macrovision Corporation, Sunnyvale, Calif.

Filed Aug. 24, 1994, Ser. No. 294,983

Int. Cl.⁶ H04N *7/08*

U.S. Cl. 348—473 **10 Claims**



1. An apparatus to incorporate source identification data into a video signal comprising:

a video processor having a video input signal, wherein said video input signal is coupled to a sync separator,

said sync separator generates a vertical triggering pulse, wherein said vertical triggering pulse is coupled to a data modulator

source identification data is inputted to said data modulator,

said data modulator generates a serial data stream comprising a sync word and said source identification;

horizontal and vertical blanking pulses are generated in said video processor and coupled to a data blanker;

said serial data stream is coupled to said data blanker wherein said serial data stream is blanked during horizontal and vertical blanking intervals of said video input signal to create a blanked data signal, and

said blanked data is combined with said video input signal

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5,739,865
IMAGE PROCESSING SYSTEM WITH SELECTIVE REPRODUCTION USING THINNING OUT OR INTERPOLATION

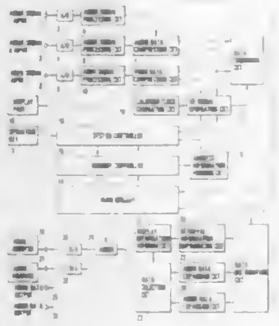
Koji Takahashi, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 22, 1995, Ser. No. 493,654

Claims priority, application Japan, Jul. 1, 1994, 6-150869

Int. Cl.⁶ H04N *7/01;7/32*

U.S. Cl. 348—441 **14 Claims**



1 An image processing system comprising:

a) input means for inputting an image signal of a first frame frequency; and

b) reproducing means for reproducing the image signal inputted by said input means at a second frame frequency or a third frame frequency which is lower than the first frame frequency, the first frame frequency being a common multiple of the second frame frequency and the third frame frequency;

wherein said reproducing means performs reproduction by carrying out an inter-picture thinning-out process on the image signal of the first frame frequency, if a time resolving power of the image signal to be obtained by said reproducing means is not higher than a time resolving power of the image signal of the first frame frequency, or by carrying out a picture interpolating process on the basis of the image signal of the first frame frequency, if the time resolving power of the image signal to be obtained by said reproducing means is higher than the time resolving power of the image signal of the first frame frequency

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5,739,866
SYSTEM AND METHOD FOR INSERTING AND RECOVERING AN ON DATA SIGNAL FOR TRANSMISSION WITH A VIDEO SIGNAL

William E. Kim, King County; Nathan P. Myhrvold, Bellevue, and Gideon A. Yuval, Mercer Island, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

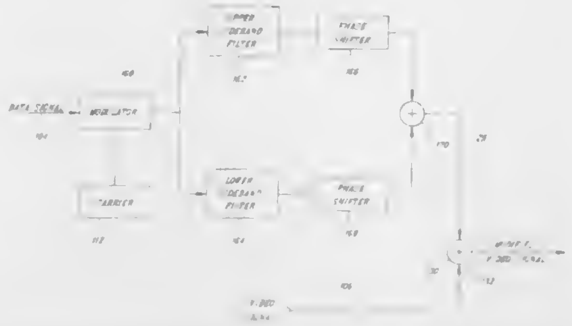
Continuation of Ser. No. 237,265, May 3, 1994, Pat. No. 5,621,471. This application Nov. 25, 1996, Ser. No. 755,970

Int. Cl.⁶ H04N *7/081*

U.S. Cl. 348—473 **19 Claims**

1 A system for inserting a data signal into a video signal, comprising:

a signal generator operatively receiving the data signal and generating a modulated signal at a predetermined carrier frequency and having upper and lower sidebands, said upper and lower sidebands of said modulated signal having a phase relationship such that said upper and lower sidebands of said modulated signal are substantially 180° apart with respect to each other;



an adder adding said modulated signal and the video signal to produce a modified video signal;

a transmitter transmitting said modified video signal,

a signal processor receiving said modified video signal and generating a recovered signal having upper and lower sidebands, each containing said modulated signal and the video signal, said recovered signal having a phase relationship of substantially 0° between said modulated signal in said upper sideband of said recovered signal and said modulated signal in said lower sideband of said recovered signal, said recovered signal also containing the video signal having a phase relationship of substantially 180° between the video signal of said upper sideband of said recovered signal and the video signal in said lower sideband of said recovered signal; and

a demodulator demodulating said recovered signal to recover the data signal and to substantially cancel the video signal, whereby the data signal is inserted into the video signal, transmitted with the video signal, and after receipt separated from the video signal.

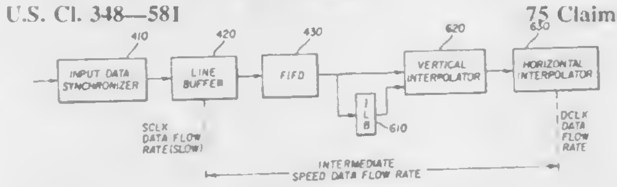
5,739,867
METHOD AND APPARATUS FOR UPSCALING AN IMAGE IN BOTH HORIZONTAL AND VERTICAL DIRECTIONS

Alexander J. Eglit, Half Moon Bay, Calif., assignor to Paradise Electronics, Inc., San Jose, Calif.

Filed Feb. 24, 1997, Ser. No. 804,623

Int. Cl.⁶ H04N *7/01*

U.S. Cl. 348—581 **75 Claims**



1. A method of upscaling a source image frame in both vertical and horizontal directions to generate a destination image frame, the source image frame including a plurality of source scan lines, with each of said plurality of source scan lines including a plurality of source pixel data, the destination image frame including a plurality of destination lines, each of said plurality of destination lines including a plurality of destination pixel data, said method comprising the steps of:

(a) receiving said plurality of source pixel data included in said source image frame using a first clock signal;

(b) generating a second clock signal,

(c) upscaling said source image frame in both vertical and horizontal directions to generate said plurality of destination pixel data representative of said destination image frame; and

(d) providing said plurality of destination pixel data representative of said destination image frame using said second clock signal,

wherein said second clock signal is generated to have a clock period such that the time to provide said plurality of destination pixel data is equal to a period to receive said source pixel data in said source image frame

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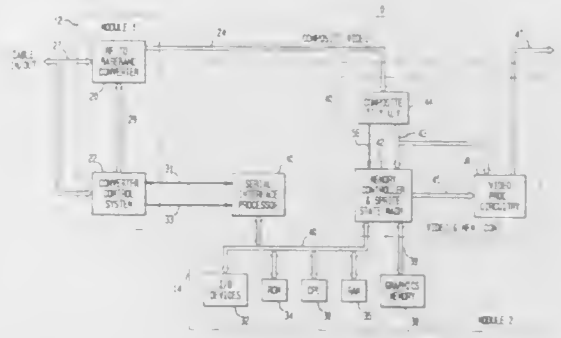
5,739,868
APPARATUS FOR PROCESSING MIXED YUV AND COLOR PALETTIZED VIDEO SIGNALS

Donald S. Butler, and Richard S. Amano, both of Scottsdale, Ariz., assignors to General Instrument Corporation of Delaware, Hatboro, Pa.

Filed Aug. 31, 1995, Ser. No. 523,396

Int. Cl.⁶ H04N *9/74;5/262*

U.S. Cl. 348—584 **22 Claims**



1 Apparatus for processing mixed video and graphic signals for display on a standard interlaced television receiver comprising:

buffering and processing means responsive to a reception of first and second horizontal lines of sprite pixel data from first and second fields, respectively, of each of one or more sprites to be selectively displayed in separate selected predetermined areas of a display of the standard interlaced television receiver, for generating therefrom first, second, and third output signals including sequential sprite pixel data for three adjacent horizontal lines of a picture for display on the television receiver, where pixel data for sprites of a highest priority are outputted for each pixel position of the first, second, and third output signal at any instant of time when sprites overlap an area of the display on the television receiver, and the first and third output signals include sprite pixel data for lines of one of the first and second fields, and the second output signals includes sprite pixel data for lines of the other one of the first and second fields and includes chrominance data when the sprite data relates to the true color format; and

convolving means for receiving the first, second, and third output signals from the buffering and processing means and generating therefrom an output signal providing a weighted average for a central pixel of a predetermined matrix of pixel data for transmission to the television receiver when a sprite is included in a pixel area of the display of the television receiver, where the central pixel is part of the second output signal from the buffering and processing means, and for transmitting a live video signal to the display of the television receiver when no sprite is included in a pixel area of the display of the television receiver.

5,739,869
ELECTRONIC LIBRETTO DISPLAY APPARATUS AND METHOD

Patrick G. Markle, Santa Fe, N. Mex.; Geoffrey J.H. Webb, New York, and Ronald E. Erkman, Staten Island, both of N.Y., assignors to Figaro, Inc., Santa Fe, N. Mex.

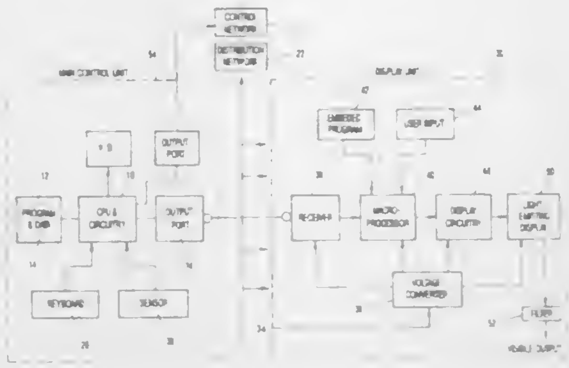
Continuation-in-part of Ser. No. 120,004, Sep. 10, 1993, abandoned. This application Jul. 13, 1995, Ser. No. 502,108

Int. Cl.⁶ H04N *1/02*

U.S. Cl. 348—589 **18 Claims**

1. An apparatus for storing, transmitting and simultaneously displaying a preselected sequence of text in a selected language at least one remote site, the apparatus comprising:

main control unit means for storing said preselected sequence of text, wherein said preselected sequence of text comprises at least one language and an apparatus for converting at least



one predetermined portion of said preselected sequence of text into one or more data packets,

means for simultaneously distributing each data packet of said one or more data packets, said each data packet comprising said at least one predetermined portion of said preselected sequence of text and a display que from said main control unit means; and

at least one remote display for receiving said one or more data packets comprising:

a buffer for storing data from each of said one or more data packets;

an apparatus for selecting said at least one language,

a display que identifier; and

an apparatus for a simultaneous visual presentation of said at least one predetermined portion of said selected at least one language upon receipt of a signal from said display que identifier.

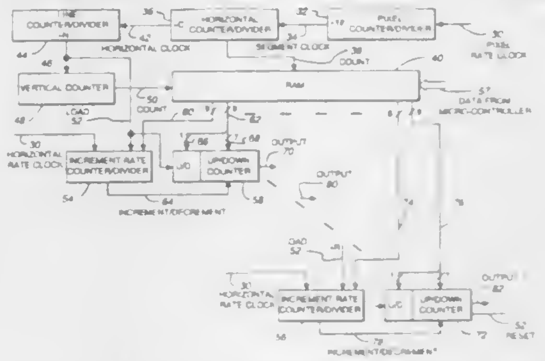
5,739,870
MATH ENGINE FOR GENERATING FONT GRADIENTS

Ron C. Simpson, Erie, Colo., assignor to Display Laboratories, Inc., Boulder, Colo.

Filed Mar. 11, 1996, Ser. No. 613,902

Int. Cl.⁶ H04N *17/00*

U.S. Cl. 348—628 **4 Claims**



2 A method of generating a pulse density signal for correcting geometries in a video monitor said pulse density signal having predetermined correction numbers that change at a predetermined rate comprising the steps of:

loading a counter with a predetermined starting count number representative of said predetermined correction numbers said pulse density signal;

generating a rate control signal corresponding to said predetermined rate of change of said correction numbers,

applying said rate control signal to said counter to produce said pulse density signal having said predetermined number of starting pulses and said predetermined rate of change.

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5,739,871

AUTOMATIC HIGH-LUMINANCE COMPRESSION METHOD AND CIRCUIT ADOPTING THE SAME

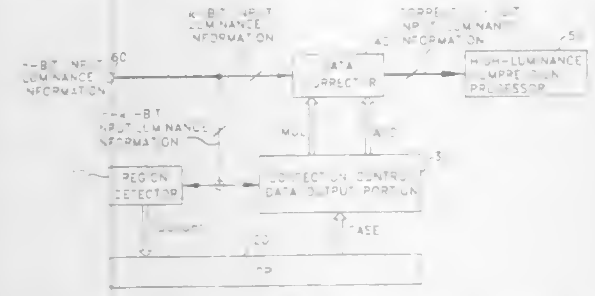
Ji-ho Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Aug. 31, 1995, Ser. No. 522,086

Claims priority, application Rep. of Korea, Aug. 31, 1994, 94-21915

Int. Cl.^{6} H04N *9/68;5/16*

U.S. Cl. 348—674 **16 Claims**


INFORMATION
DATA CORRECTOR
HIGH-LUMINANCE COMPRESSION PROCESSOR
REGION DETECTOR
CORRECTION CONTROL DATA OUTPUT PORTION
CASE

1. An automatic high-luminance compression circuit for compressing input luminance information for a high-luminance expression of an image, said automatic high-luminance compression circuit comprising:

an input end for receiving n-bit luminance information,

control means for receiving (n-k)-bit input luminance information comprised of (n-k) bits starting from the most significant bit (MSB) among the n-bit input luminance information received via the input end, and generating a region select signal for selecting a sub-region for enhancing a luminance expression degree among sub-regions according to a distribution result of the (n-k)-bit input luminance information with respect to the sub-regions which exist in a high-luminance region and are discriminated with each other according to a value of the (n-k)-bit input luminance information,

correction means for correcting k-bit input luminance information comprised of k bits starting from the least significant bit (LSB) in the n-bit input luminance information received via the input end, so that the sub-region selected by the region select signal occupies a wide range in the high-luminance region and at least one sub-region occupies a narrow range therein, in order to output corrected n-bit input luminance information; and

a high-luminance compression processor for compressing the corrected n-bit input luminance information output from the correction means according to a stored high-luminance compression characteristic.

5,739,872

HIGH-SPEED MOTION ESTIMATING APPARATUS FOR HIGH-DEFINITION TELEVISION AND METHOD THEREFOR

Hyung Suk Kim, and Sang Hoon Choi, both of Seoul, Rep. of Korea, assignors to LG Electronics Inc., Seoul, Rep. of Korea

Filed Aug. 16, 1995, Ser. No. 515,593

Claims priority, application Rep. of Korea, Aug. 18, 1994, 1994/20383

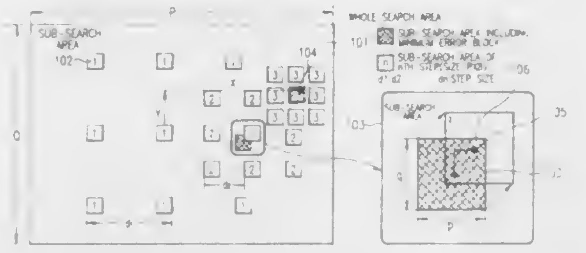
Int. Cl.^{6} H04N *7/30*

U.S. Cl. 348—699 **6 Claims**

1. A high-speed motion estimating apparatus for a high-definition television comprising:

a sub-screen forming portion for forming and outputting sub-search areas corresponding to predetermined step sizes from an input reference image and prediction blocks from an input prediction image;

a motion estimating portion for comparing the sub-search areas to the prediction blocks for obtaining and outputting a minimum average absolute error and a corresponding motion vector for each compared sub-search area, and


P
SUB-SEARCH AREA
102
104
WHOLE SEARCH AREA
101
SUB-SEARCH AREA INCLUDING MINIMUM ERROR BLOCK
SUB-SEARCH AREA OF nTH STEP SIZE
d1 d2
dn STEP SIZE
106
103
Q
P

a minimum average absolute error motion vector detecting portion for obtaining and outputting a final minimum average absolute error and a corresponding final motion vector, the minimum average absolute error motion vector detecting portion being configured to:

(a) detect an overall minimum average absolute error and a corresponding motion vector from among the minimum average absolute errors of a set of sub-search areas,

(b) decide whether the motion vector corresponding to the overall minimum average absolute error is included in a central sub-search area of the set,

(c) upon deciding that the motion vector corresponding to the overall minimum average absolute error is not included in the central sub-search area of the set, set a next step size, establish positions of a next set of sub-search areas, set the position of a central sub-search area of the next set so that the central sub-search area includes the motion vector corresponding to the overall minimum average absolute error, and repeat steps (a) and (b); and

(d) upon deciding that the motion vector corresponding to the overall minimum average absolute error is included in the central sub-search area of the set, output the motion vector as the final motion vector.

5,739,873

METHOD AND APPARATUS FOR PROCESSING COMPONENTS OF A DIGITAL SIGNAL IN THE TEMPORAL AND FREQUENCY REGIONS

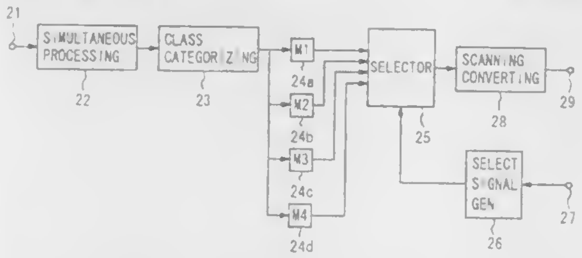
Tetsujiro Kondo, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 451,057, May 25, 1995, Pat. No. 5,555,465. This application Mar. 7, 1996, Ser. No. 612,055

Claims priority, application Japan, May 28, 1994, 6-138054; May 28, 1994, 6-138055

Int. Cl.^{6} H04N *9/64·7/01*

U.S. Cl. 348—720 **26 Claims**



1. An apparatus for converting a first digital image signal having a first resolution into a second digital image signal having a second resolution, said second resolution being a higher resolution than said first resolution, said apparatus comprising:

means for analyzing the first digital image signal to categorize the first digital image signal into a third signal having a component processed in a temporal region and a fourth signal having a component processed in a frequency region,

means for categorizing the first digital image signal into the third signal and the fourth signal in response to an output of said analyzing means;

first processing means for adaptively processing the third signal categorized by said categorizing means in the temporal region to form the second digital image signal having the second resolution;

second processing means for adaptively processing the fourth signal categorized by said categorizing means in the frequency region to form the second digital image signal having the second resolution, and

means for combining an output signal from said first processing means and an output signal from said second processing means to generate the second digital image signal having the second resolution.

5,739,874

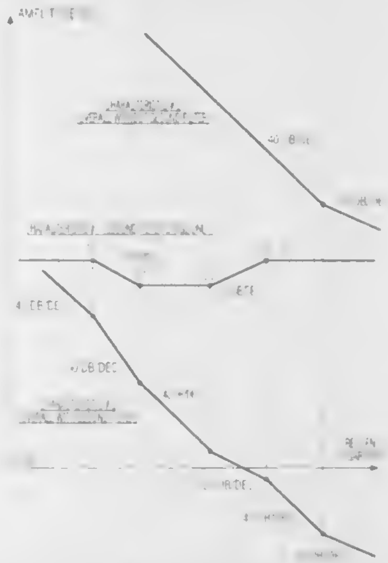
TUNING SYSTEM FOR A DIGITAL SATELLITE RECEIVER WITH FINE TUNING PROVISIONS

David Mark Badger; John Sidney Stewart, both of Indianapolis, and Michael Anthony Pugel, Noblesville, all of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Continuation-in-part of Ser. No. 467,097, Jun. 6, 1995. This application Dec. 28, 1995, Ser. No. 579,782

Int. Cl.^{6} H04N *5/50*

U.S. Cl. 348—731 **20 Claims**



1. Apparatus for processing digital signals modulated on to ones of a plurality of RF carrier signals, comprising:

a RF input for receiving said plurality modulated RF carrier signals;.

a tuning control phase locked loop including a local oscillator for generating a local oscillator signal;

a mixer coupled to said RF input and to said local oscillator for producing an IF signal modulated with digital signals corresponding to a selected RF signal of said plurality of RF signals;

an IF filter having a center frequency; said IF signal having a nominal frequency corresponding to said center frequency of said IF filter;

a digital signal demodulator including a carrier recovery loop means for demodulating said IF to produce said digital signals carried by said IF signal; and

means for controlling the operation of said tuning control phase locked loop in response to at least one control signal generated by said carrier recovery loop which indicates the status of operation of said carrier recovery loop;

said controlling means controlling said tuning control phase locked loop to (1) establish an initial local oscillator frequency corresponding to said selected RF signal during an acquisition mode starting when said selected RF signal is initially selected and ending when said second closed loop is properly demodulating said IF signal, and (2) change the local oscillator frequency from said initial local oscillator frequency to a reduce a frequency offset of said IF signal from said nominal IF frequency during a fine tuning mode;

said controlling means further selectively changing the relative response times of said tuning control phase locked loop and said carrier recovery loop during said fine tuning mode to allow said carrier recovery loop to track frequency changes of said IF signal due to changes of said local oscillator frequency and thereby maintain the proper demodulation of said IF signal.

5,739,875

PROJECTION UNIT FOR PROJECTION TYPE DISPLAY APPARATUS

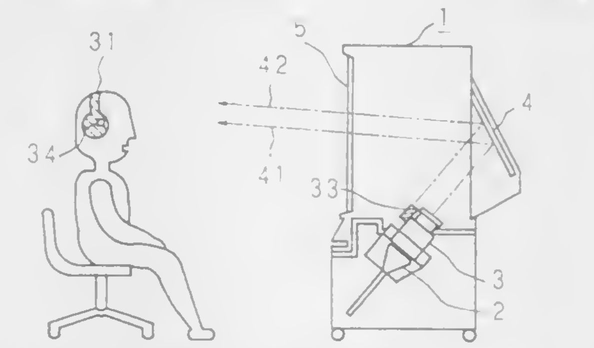
Eiichi Toide; Naoki Kawamoto; Toshihide Kaneko, and Kazuo Tsukagoshi, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 271,672, Jul. 7, 1994, Pat. No. 5,570,140. This application Jun. 18, 1996, Ser. No. 665,535

Claims priority, application Japan, Jul. 8, 1993, 5-169054; Jul. 16, 1993, 5-176676; Aug. 6, 1993, 5-215146; Aug. 19, 1993, 5-205133; Sep. 21, 1993, 5-234994; Apr. 8, 1994, 6-70697

Int. Cl.^{6} H04N *5/74*

U.S. Cl. 348—744 **17 Claims**



1. A project type display apparatus comprising:

a screen including a Fresnel lens plate and a lenticular plate;

a projection lens for magnifying and projecting the image formed by an image forming means; and

a light transmitter self-contained such that a light signal emitted therefrom is sent outside of said display apparatus through said screen, said light transmitter being provided independent of said image forming means.

5,739,876

METHOD OF BACKLIGHTING A DISPLAY PANEL OF AN ATM

Mark J. Stewart, Dundee, Scotland, assignor to NCR Corporation, Dayton, Ohio

Filed Sep. 10, 1996, Ser. No. 711,520

Claims priority, application United Kingdom, May 16, 1996, 9610240

Int. Cl.^{6} G02F *1/1335*

U.S. Cl. 349—1 **4 Claims**

1. A self-service terminal for allowing a customer to carry out a transaction, the self-service terminal comprising:

a card reader for receiving a customer identifying card from the customer and reading data from the card to verify the identity of the customer;

a display panel having a back side and a front side for displaying information to be viewed by the customer while the customer is carrying out the transaction;

a transparent piece encircling at least a portion of the display panel and through which sunlight can be transmitted, and

an optical unit located in the vicinity of the back side of the display panel for (1) receiving sunlight transmitted through the

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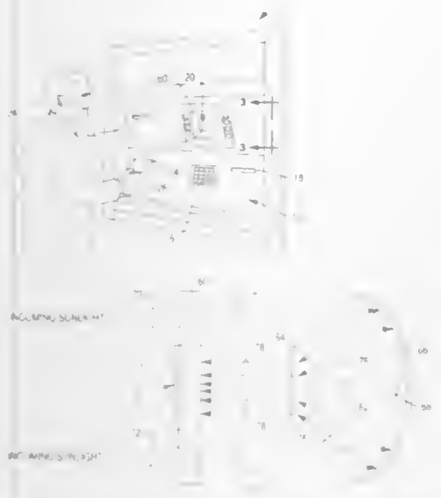


transparent piece, (ii) reflecting the received sunlight, and (iii) directing the reflected sunlight towards the back side of the display panel to backlight the display panel to enable the customer to view the front side of the display panel while the customer is carrying out the transaction,

the optical unit including a lens system which focuses the reflected sunlight towards the back side of the display panel, the optical unit including a mirrored surface which receives sunlight and reflects the sunlight towards the lens system, the mirrored surface being parabolic.

5,739,877

ACTIVE MATRIX LIQUID CRYSTAL DISPLAY IN WHICH THE GATE AND/OR DRAIN LINES ARE MADE OF A CR-MO ALLOY

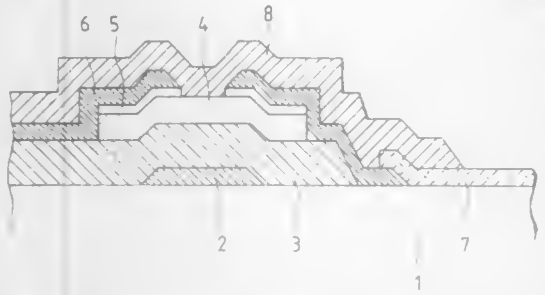
Kenichi Onisawa, Hitachinaka; Tsutomu Sato, Mobara; Takashi Suzuki, Mobara; Kouichi Anno, Mobara; Hideaki Yamamoto, Tokorozawa, and Toshiki Kaneko, Chiba, all of Japan, assignors to Hitahci, Ltd., Tokyo, Japan

Filed Nov. 9, 1995, Ser. No. 555,416

Claims priority, application Japan, Nov. 18, 1994, 6-284755

Int. Cl.^{6} G02F *1/136;1/1343*

U.S. Cl. 349—42 **9 Claims**



1. A liquid crystal display apparatus comprising

a pair of substrates,

a liquid crystal layer interposed between said pair of substrates;

gate lines and drain lines formed on one of said pair of substrates, wherein said gate lines and said drain lines cross each other in a matrix form;

thin film transistors formed near the intersections of said gate lines and said data lines, and

pixel electrodes formed on said one substrate, each connected to a corresponding thin film transistor of said thin film transistors,

wherein said gate lines and/or said drain lines are formed by a Cr—Mo alloy and wherein the resistivity of said Cr—Mo alloy is lower than 20 μΩcm, and

wherein said Cr—Mo alloy contains lower than or equal to 70 wt % of Mo.

5,739,878

LIQUID CRYSTAL DISPLAY HAVING COMMON ELECTRODE WITH PORTIONS REMOVED AT THIN FILM TRANSISTORS

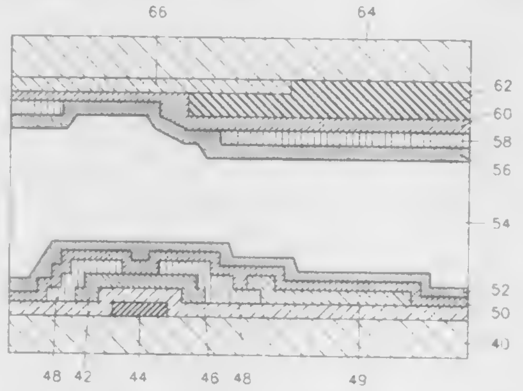
Byung-seong Bae, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 8, 1996, Ser. No. 612,780

Claims priority, application Rep. of Korea, Apr. 13, 1995, 95-8665

Int. Cl.^{6} G02F *1/136;1/1343*

U.S. Cl. 349—42 **2 Claims**



1. A liquid crystal display device, comprising

a first substrate on which an array of thin film transistors, a first ITO electrode, and a gate line are formed,

a second substrate on which an array of color filters and a second ITO electrode are formed, wherein said first and second substrates are joined so as to define a space therebetween; and

a liquid crystal provided in said space between said joined first and second substrates,

wherein at least one portion of said second ITO electrode, positionally corresponding to a thin film transistor of said array of thin film transistors, is removed.

5,739,879

BACKLIGHTING DEVICE FOR LIQUID CRYSTAL DISPLAYS

Tzeng-Shii Tsai, Hsinchu Hsien, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan, .

Filed Nov. 13, 1995, Ser. No. 555,942

Int. Cl.^{6} G02F *1/1335;* **G01D** *11/28*

U.S. Cl. 349—62 **20 Claims**

1. A backlighting device for liquid crystal displays comprising

(a) a UV lamp for emitting UV light, said UV lamp having a UV transmitting envelop;

(b) a light guide disposed in front of said UV lamp which allows visible light to travel therethrough, said light guide having a front surface, a rear surface, and a proximal edge surface,

(c) a lamp holder with a UV-reflecting interior surface, said UV-reflecting interior surface and said proximal edge surface of said light guide cooperatively enclosing said UV lamp, and

(d) a fluorescent layer placed between an exterior surface of said UV transmitting envelop of said UV lamp and said proximal edge surface of said light guide capable of converting UV light into visible light.

5,739,880

LIQUID CRYSTAL DISPLAY DEVICE HAVING A SHIELDING FILM FOR SHIELDING LIGHT FROM A LIGHT SOURCE

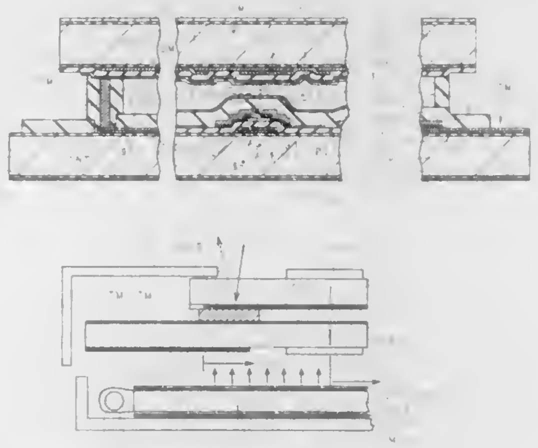
Masahiko Suzuki, Mobara; Tsutomu Isono, Ohtaki-machi; Kimitoshi Ohgiichi, Mobara; Akira Ishii, Mobara, and Jun-ichi Ohwada, Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 29, 1996, Ser. No. 753,765

Claims priority, application Japan, Dec. 1, 1995, 7-314406

Int. Cl.^{6} G02F *1/1333,1/1345*

U.S. Cl. 349—110 **19 Claims**



1. A liquid crystal display device comprising,

a first substrate having a display region formed by arranging a plurality of pixel electrodes and thin film transistors for selecting said pixel electrodes, in a matrix shape over a transparent insulating substrate;

a second substrate composed of a transparent insulating substrate and overlapping with said first substrate with a liquid crystal layer being disposed therebetween;

a seal member formed in peripheral edge portions of said first and second substrates, around a region in which said liquid crystal layer exists outside said display region, and interposed between said first and second substrates to fix the substrates,

an upper case covering peripheries of said first and second substrates, having an opening for exposing said display region to an outside, and composed of a shielding frame;

illuminating means for illuminating a face of said first substrate opposed to said second substrate with a light, and

a black matrix composed of a light shielding film, covering said thin film transistors, and provided on said second substrate;

wherein said black matrix overlaps said seal member partially and covers a region between said display region and said seal member,

wherein said black matrix in said seal member has a portion not overlapping said upper case, and

wherein shielding means is mounted in a region not covered with said upper case and said black matrix, at a face of said first substrate opposed to a face confronting said seal member.

5,739,881

NORMALLY WHITE TWISTED NEMATIC LCD WITH POSITIVE AND NEGATIVE RETARDERS

Gang Xu, Northville, and John A. VanderPloeg, Highland, both of Mich., assignors to OIS Optical Imaging Systems, Inc., Northville, Mich.

Continuation of Ser. No. 559,275, Nov. 15, 1995, Pat. No. 5,657,140, which is a continuation-in-part of Ser. No. 167,652, Dec. 15, 1993, Pat. No. 5,570,214. This application Apr. 3, 1997, Ser. No. 826,520

Int. Cl.^{6} G02F *1/1335*

U.S. Cl. 349—118 **1 Claim**

1. A normally white twisted nematic liquid crystal display comprising:

a twisted nematic liquid crystal layer for twisting at least one normally incident visible wavelength of light from about 80°–100° as it passes therethrough when said liquid crystal layer is in substantially the off-state thereby defining a twisted nematic normally white display

a positive retarder having a retardation value of from about 80–200 nm, and

a negative uniaxial retarder means for retarding light passing therethrough, said negative uniaxial retarder means being defined by $n_x = n_y > n_z$, where n_x, n_y, and n_z are indices of refraction and the "z" direction is substantially perpendicular to the plane defined by said negative uniaxial retarder means and the "x" and "y" directions are substantially parallel to the plane defined by said negative uniaxial retarder means, and wherein said negative uniaxial retarder means has a retardation value of from about −60 to −220 nm.

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5,739,882
LCD POLYMERIZED COLUMN SPACER FORMED ON A MODIFIED SUBSTRATE, FROM AN ACRYLIC RESIN, ON A SURFACE HAVING HYDROPHILIC AND HYDROPHOBIC PORTIONS, OR AT REGULAR SPACINGS

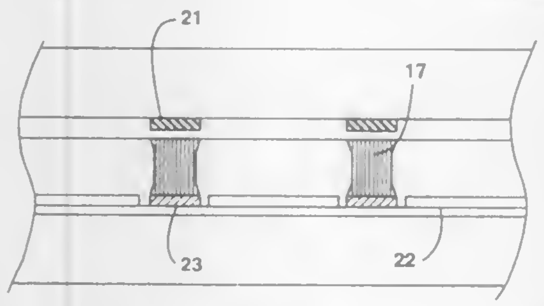
Michio Shimizu, Chiba; Toshimitsu Konuma, and Takeshi Nishi, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Continuation-in-part of Ser. No. 207,125, Mar. 8, 1994, Pat. No. 5,490,001, which is a continuation-in-part of Ser. No. 793,539, Nov. 18, 1991, Pat. No. 5,305,127. This application May 19, 1994, Ser. No. 246,241

Claims priority, application Japan, May 20, 1993, 5-177195; May 21, 1993, 5-142884; May 24, 1993, 5-144303; May 27, 1993, 5-148544

Int. Cl.⁶ G02F *1/1337;1/1339*

U.S. Cl. 349—123 **30 Claims**



5 A method for fabricating a liquid crystal electro-optical device, the method comprising the steps of:

partially modifying a state of a surface of at least one of a pair of substrates wherein the surface is in contact with a mixture of a liquid crystal material and an uncured resin, to precipitate the uncured resin at a desired position;

holding the mixture between the pair of substrates;

precipitating the uncured resin from the mixture; and

curing the precipitated uncured resin.

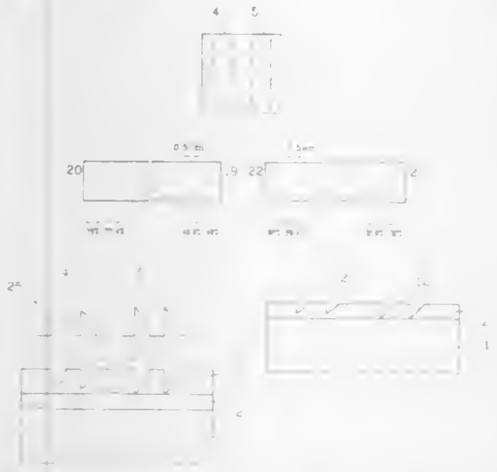
5,739,883
MANUFACTURING METHOD AND STRUCTURE FOR ALIGNER OF LIQUID CRYSTAL DISPLAY

Kun-Ti Chen, Tainan, Taiwan, assignor to Nan Ya Technology Corporation, Taipei, Taiwan

Filed Aug. 30, 1996, Ser. No. 705,731

Int. Cl.⁶ G02F *1/1337*

U.S. Cl. 349—124 **4 Claims**



1 A method for making a LCD aligner which comprises the following steps:

(1) forming a pre etched aligner layer on an electrode substrate.

(2) coating a photoresist layer on the surface of the pre etched aligner layer:

(3) employing a photomask which has a gradually changing transparency line pattern to form a photoresist pattern with different vertical depths;

(4) using vertical non-selective etching to remove part of said photoresist layer and pre-etched aligner layer;

(5) removing all the remaining photoresist.

5,739,884
FERROELECTRIC LCD WITH A PRETILT ANGLE OF 1.6-3.1 DEGREES AND A SURFACE TENSION OF 11-15 DYNE/CM

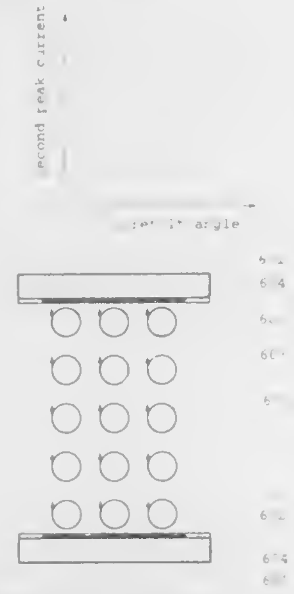
Takeshi Nishi, and Toshimitsu Konuma, both of Kanagawa, Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, Japan

Filed Apr. 28, 1994, Ser. No. 233,952

Claims priority, application Japan, May 6, 1993, 5-131307

Int. Cl.⁶ G02F *1/141;1/13*

U.S. Cl. 349—133 **14 Claims**



1 A liquid crystal device comprising:

a pair of substrates;

an electrode arrangement formed on said substrates,

a liquid crystal layer comprising a material selected from the group consisting of a ferroelectric liquid crystal and an anti-ferroelectric liquid crystal, and

at least one orientation control layer formed in contact with said liquid crystal layer,

wherein a value of a polar term of surface tension on a surface of said orientation film ranges from 11 dyne/cm to 15 dyne/cm and molecules of said liquid crystal layer have a pretilt angle within a range of 1.6° to 3.1°.

5,739,885
FERROELECTRIC LIQUID CRYSTAL DISPLAY

Akihiro Mochizuki; Shigeo Kasahara; Tetsuya Makino, and Masashi Watanabe, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 98,027, Jul. 28, 1993, abandoned. This application Apr. 4, 1997, Ser. No. 832,961

Claims priority, application Japan, Jul. 28, 1992, 4-200834

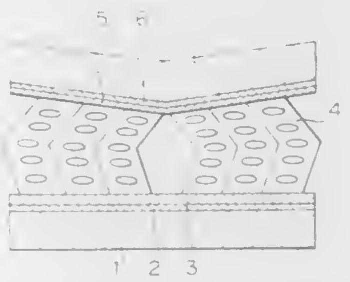
Int. Cl.⁶ G02F *1/141*

U.S. Cl. 349—135 **4 Claims**

1 A ferroelectric liquid crystal display device comprising:

a pair of transparent substrates having respective major surfaces in opposed, spaced relationship.

a pair of transparent electrodes respectively provided on the opposed major surfaces of the pair of transparent substrates;



aligning films, of a common resin, respectively formed on the exposed major surfaces of the transparent electrodes and having respective, exposed major surfaces remote from the respective transparent substrates; and

a ferroelectric liquid crystal layer sandwiched between and contacting the exposed major surfaces of the aligning films,

wherein said common resin has a total content of Cl^-, $(COO_2)^{2-}$ and CH_3COO of 100 ppm or less and the content of each of said ions is 50 ppm or less, and said common resin has a total content of impurity cations of 200 ppm or less, and

wherein said total content of Cl^-, $(COO_2)^{2-}$, and CH_3COO and said total content of impurity cations in said common resin is sufficiently low to prevent substantial Coulomb interaction at the interface of said liquid crystal layer and said aligning films, whereby the liquid crystal molecules of said liquid crystal layer are free to move relative to said aligning films, thereby reducing distortion of said liquid crystal layer when the panel is deformed.

5,739,886
LIQUID CRYSTAL DISPLAY WITH REVERSE STAGGERED THIN FILM TRANSISTORS AND OPPOSITE ELECTRODE, AND FABRICATION METHOD THEREOF

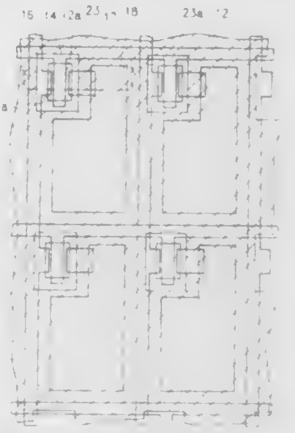
Hideo Shibahara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 357,287, Dec. 13, 1994, abandoned. This application Apr. 3, 1997, Ser. No. 825,814

Claims priority, application Japan, Dec. 20, 1993, 5-344931

Int. Cl.⁶ G02F *1/1343*

U.S. Cl. 349—139 **7 Claims**



1 A liquid crystal display, comprising:

a pair of scan lines;

a pair of data lines extending in a perpendicular direction to the scan lines so that a pixel region is defined by the scan lines and the data lines;

a pixel electrode formed in the pixel region;

a reverse staggered thin film transistor formed in the pixel region, the reverse staggered thin film transistor having a gate thereof connected to a corresponding one of the scan lines, a drain thereof connected to a corresponding one of the data lines and a source thereof connected to the pixel electrode,

a common opposite electrode opposing the pixel electrode;and

a liquid crystal region disposed between the common opposite electrode and the pixel electrode;

the common opposite electrode having an opening formed so that an active region of the reverse staggered thin film transistor faces the opening of the common opposite electrode;

the common opposite electrode extending over a substantial portion of the scan lines and data lines and the opening not extending over the substantial portion of the scan lines and data lines

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5,739,887
LIQUID CRYSTAL DISPLAY DEVICE WITH REDUCED FRAME PORTION SURROUNDING DISPLAY AREA

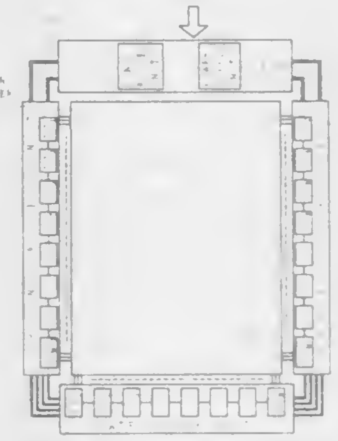
Shiro Ueda, Mobara, Japan; Shunichi Kumanka, Cupertino, Calif.; Masumi Sasuga, Mobara, Japan; Katsuhiko Shibata, Mobara, Japan; Yoichi Igarashi, Mobara, Japan, and Naoto Kobayashi, Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Device Engineering Co., Ltd., Chiba-ken, both of Japan

Filed Oct. 13, 1995, Ser. No. 542,962

Claims priority, application Japan, Oct. 21, 1994, 6-256426; Oct. 21, 1994, 6-256427; Oct. 21, 1994, 6-256428

Int. Cl.⁶ G02F *1/1345*

U.S. Cl. 349—149 **17 Claims**



1 A liquid crystal display device comprising, drive ICs mounted on one of two superposed insulating substrates, wherein at least one of the substrates is transparent; and at least one multi layered flexible substrate is arranged in an outer periphery of at least one side of the at least one of the substrates and having a pattern portion of three or more conductor layers,

wherein a pattern portion made of either one conductor layer or two conductor layers of the at least one multi-layered flexible substrate is electrically connected with an input terminal pattern of the drive ICs, which is formed on and in a direction substantially normal to the at least one side of the at least one of the substrates;

wherein an anisotropic conductive film is used both for mounting the drive ICs on the at least one of the substrates, and for connecting the pattern portion made of either one conductor layer or two conductor layers of the at least one multi-layered flexible substrate with the input terminal pattern; and

wherein the at least one multi layered flexible substrate is folded by approximately 180 degrees at a foldable portion having one conductor layer or two conductor layers

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5,739,888

LIQUID CRYSTAL DISPLAY ELEMENT

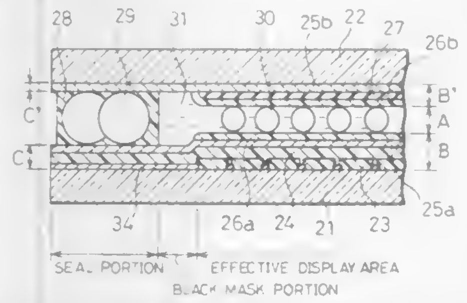
Masami Ogura, Kashihara; Hiroshi Takanashi, Soraku-gun; Tohru Okuda, and Kenji Yasutake, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 24, 1996, Ser. No. 685,469

Claims priority, application Japan, Sep. 14, 1995, 7-237463

Int. Cl.^{6} G02F *1/1333; 1/1339*

U.S. Cl. 349—153 8 Claims



1. A liquid crystal display element, which has an effective display area for displaying images and a seal portion located around its periphery, comprising:

- a pair of substrates that face each other with a gap in between, each of the substrates having an opposing surface whereon thin films are formed,
- a seal material for bonding the substrates to each other, the seal material being placed at a location corresponding to the seal portion of the respective substrates in the gap in such a manner as to surround portions of the respective substrates corresponding to the effective display area; and
- a liquid crystal layer including liquid crystal that is sealed in the gap,
- wherein the seal material contains spherical spacers that are made of glass and that are used for maintaining a predetermined gap between the substrates, the spacers being mixed into the seal material at a rate of 7 to 20 Wt % to the seal material

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5,739,889

LIQUID CRYSTAL DISPLAY DEVICE AND A PRODUCTION METHOD FOR THE SAME

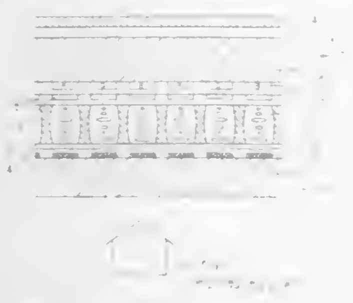
Nobuaki Yamada, Higashiosaka; Masahiko Kondo, Nara-ken; Masayuki Okamoto, Tenri, and Shuichi Kozaki, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 54,454, Apr. 27, 1993, Pat. No. 5,473,450. This application Oct. 18, 1994, Ser. No. 324,976

Claims priority, application Japan, Oct. 19, 1993, 5-261356; Oct. 27, 1993, 5-268612; Jul. 25, 1994, 6-172740

Int. Cl.^{6} G02F *1/1339; 1/1335*

U.S. Cl. 349—156 9 Claims



1. A liquid crystal display device comprising:

- a pair of electrode substrates, and
- a display medium sandwiched between the electrode substrates and including a polymeric walls and liquid crystal regions at least partly surrounded by the polymeric walls,
- wherein the polymeric walls are tightly attached to both the electrode substrates, and include polymeric liquid crystal.

5,739,890

LIQUID CRYSTAL DISPLAY DEVICE AND A METHOD OF FABRICATING SAME

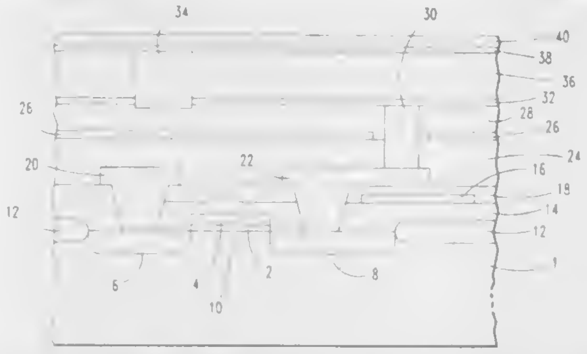
Mitsuru Uda; Masami Shinohara, and Mamoru Nishida, all of Shiga-ken, Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 6, 1996, Ser. No. 597,206

Claims priority, application Japan, Feb. 6, 1995, 7-017692

Int. Cl.^{6} G02F *1/1339*

U.S. Cl. 349—156 6 Claims



1. A liquid crystal display device having a plurality of light reflecting films that reflect incident light and also function as a display electrode, an opposing electrode installed opposite to said reflecting films on the incidence side thereof, a liquid crystal layer sealed between said light reflecting films and said opposing electrode, pillar-shaped spacers formed in said liquid crystal layer so as to maintain specified cell gaps, and an optical absorbing layer formed at least between said plurality of light reflecting films below them, characterized in that:

- said spacers are formed on the regions between said light reflecting films and not directly on said light reflecting films, and
- said optical absorbing layer is formed by laminating Ti about 100 Å in thickness, Al about 1,000 Å in thickness, and TiN about 500 Å in thickness in this order

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5,739,891

TEMPLE MOUNTING STRUCTURE OF AN EYEGLASSES

Mo Sui Wei, P.O. Box 82-144, Taipei, Taiwan

Filed Feb. 18, 1997, Ser. No. 802,531

Int. Cl.^{6} G02C *5/16; 5/00; 5/22*

U.S. Cl. 351—113 2 Claims

1. A temple mounting structure comprising:

- a rim lug extended from the periphery of a rim of an eyeglass frame, said rim lug comprising a first vertical stop wall and a second vertical stop wall connected at right angles at one end, a vertical axle hole disposed adjacent to the and equally spaced from said first vertical stop wall and said second vertical stop wall, and a transverse guide slot extended through said first vertical stop wall and said second vertical stop wall and disposed in communication with said vertical axle hole;
- a circular swivel block turned in the vertical axle hole of said rim lug, said circular swivel block comprising a transverse axle hole disposed in communication with the guide slot of said rim lug, and a vertical pin hole perpendicularly extended from said transverse axle hole;

- a socket, said socket comprising a cylindrical open chamber at one end, a longitudinal axle hole at an opposite end in communication with said cylindrical open chamber, and a shoulder disposed between said cylindrical open chamber and said longitudinal axle hole;
- a temple having a shoulder stopped at one end of said socket, and a coupling rod inserted through the longitudinal axle hole and cylindrical open chamber of said socket into the transverse guide slot of said rim lug and the transverse axle hole of said circular swivel block, said coupling rod having a smoothly curved side notch;
- a locating pin mounted in the vertical pin hole of said circular swivel block and forced into engagement with the smoothly curved side notch of the coupling rod of said temple to secure said temple to said circular swivel block;
- a compression spring mounted around the coupling rod of said temple within the cylindrical open chamber of said socket and stopped at the shoulder of said socket; and
- a stepped, tubular stop member mounted around the coupling rod of said temple and stopped between one of the first vertical stop wall and second vertical stop wall of said rim lug and said compression spring outside said socket, said stop member having a front extension section inserted into the cylindrical open chamber of said socket and stopped against said compression spring.

5,739,892

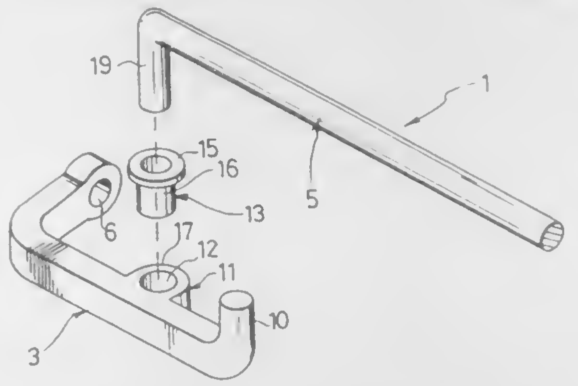
EYEGLASSES FRAME

Mitsuo Kobayashi, 6-9 Ebata-cho, Fukui-shi, Fukui-ken, 918, Japan

Filed Jan. 22, 1997, Ser. No. 787,470

Int. Cl.^{6} G02C *5/22*

U.S. Cl. 351—153 3 Claims



1. An eyeglasses frame comprising a front and two temples hinged to the opposite sides of the front, each temple being pivotally connected to an associated joint piece, which is connected to each lens or rim of the front, thus permitting the temple to fold on the front;

- wherein one of said joint piece and said temple having a bearing integrally connected thereto, said bearing having a through hole or blind hole and a resin hollow plug press-fitted in the through hole or blind hole, thus providing the bearing hole, the other of said joint piece and said temple having a pivot axle integrally connected thereto, said pivot axle being inserted in the bearing hole, said joint piece having an abutment to hold the temple in its opening position relative to the front.

5,739,893

HEAD-MOUNTED IMAGE DISPLAY APPARATUS

Joji Karasawa; Shoichi Ishizawa; Shoichi Uchiyama, and Yoko Miyazawa, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

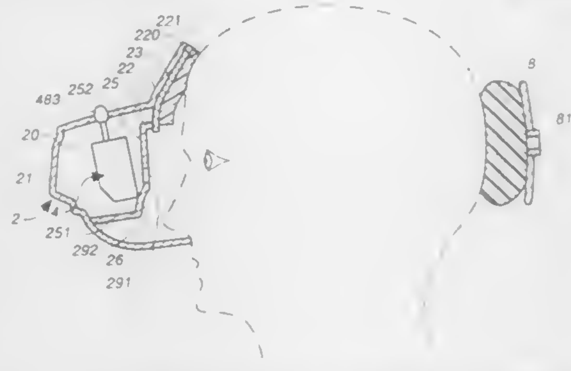
PCT No. PCT/JP94/01248, § 371 Date Jun. 22, 1995, § 102(e) Date Jun. 22, 1995, PCT Pub. No. WO95/06271, PCT Pub. Date Mar. 2, 1995

PCT Filed Jul. 29, 1994, Ser. No. 416,893

Claims priority, application Japan, Aug. 20, 1993, 5-206393; Sep. 1, 1993, 5-217552; Sep. 17, 1993, 5-231963; Sep. 29, 1993, 5-242791

Int. Cl.^{6} G02C *1/00*

U.S. Cl. 351—158 38 Claims



1. A head-mounted image display apparatus for viewing an image comprising:

- a main apparatus comprising image display means for forming an image, enlarging means for virtually enlarging an image, a frontal region support member which is to be positioned at the frontal region on the head, and an occipital region support member which is to be positioned at the occipital region on the head;
- said main apparatus further comprising a lower gap positioned below an eye level when the display apparatus is mounted on the head, said gap providing an air flow and see through area, and
- securing means for holding the frontal region support member and the frontal region of the head in contact when the main apparatus is worn on the head.

5,739,894

METHOD FOR EXHIBITING CINEMATIC IMAGES PHOTOGRAPHED AT TWO DIFFERENT FRAME RATES

Robert C. Weisgerber, 245 E. 93d St., Apt. 32A, New York, N.Y. 10128

Continuation-in-part of Ser. No. 519,244, Aug. 25, 1995. This application Aug. 23, 1996, Ser. No. 702,063

Int. Cl.^{6} G03B *21/32*

U.S. Cl. 352—46 13 Claims

1. A method for imparting different image components onto a strip of motion picture film for exhibition to audiences, wherein certain image components recorded onto a first strip of motion picture film at a lower frame rate are combined with different image components recorded onto a second strip of motion picture film at a higher frame rate to produce a resultant cinematic image on a third strip of motion picture film, with the resultant image imparted onto said third film strip to be shown to the members of said audiences, comprising:

- a. photographing or printing successive visual image components onto said first strip of motion picture film; said image components photographed or printed at a frame rate of thirty frames per second or less, where such frame rate is not twenty-four frames per second; and
- b. photographing or printing successive visual image components which are different from those photographed or printed onto the first strip of motion picture film, the image components on said second strip of motion picture film photo

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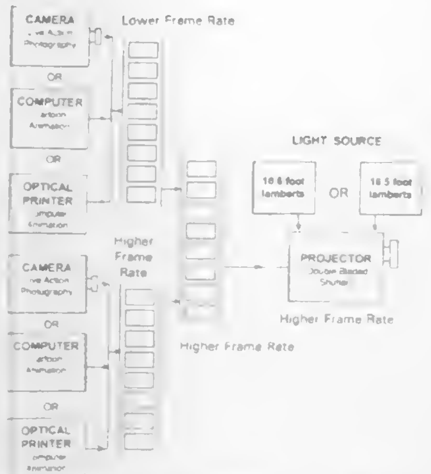


graphed or printed at a frame rate in excess of thirty frames per second, said frame rate being double the frame rate at which the images photographed or printed onto said first strip of motion picture film are photographed or printed thereon, and such frame rate is not forty-eight frames per second; and

c. superimposing the image components on said first strip of motion picture film and the image components on said second strip of motion picture film, for exhibition to motion picture audiences at the same frame rate that was used for photographing or printing said image components onto the second strip of film, said third strip of motion picture film further containing audio and other nonpicture information normally imparted onto such films for exhibition.

5,739,895

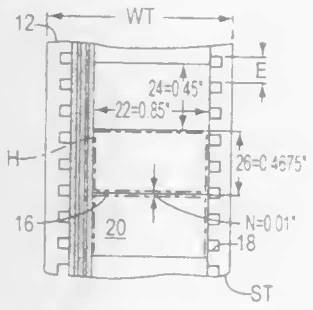
FILM SAVING SYSTEM

Richard Vetter, Pacific Palisades, Calif., assignor to United Artists Theatre Circuit, Inc., Englewood, Colo.

Continuation-in-part of Ser. No. 221,036, Mar. 31, 1994, Pat. No. 5,534,954, which is a continuation-in-part of Ser. No. 807,056, Dec. 12, 1991, abandoned. This application Jan. 11, 1996, Ser. No. 584,165

Int. Cl.⁶ G03C *1/76*

U.S. Cl. 352—79 11 Claims



1. A new commercial theater motion picture distribution film for projecting onto a theater screen, comprising a length of film stock that has two rows of new perforations wherein the new perforation spacing distance is uniform along each row, and which has new film frames spaced along the length of the film, wherein:

- said new distribution film has about the same width as standard 35 mm film stock, which has a width of about 35 mm;
- said new film frames have centers that are spaced by a distance which is two plus a fraction of a standard 35 mm perforation spacing distance, with said film frames being spaced by more than 0.38 inch but no more than 0.55 inch.
- said new perforation spacing distance is chosen so the number of new perforation spacings that equals the spacing of a pair of new film frames, is an integer

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5,739,896

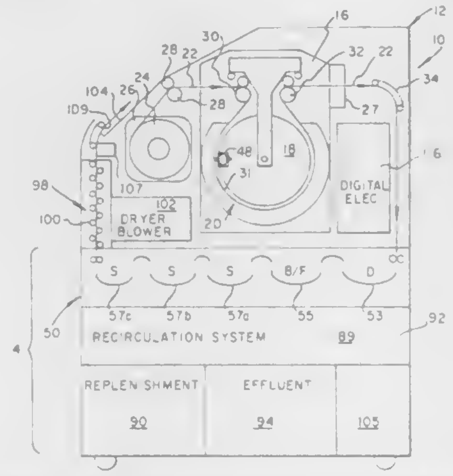
METHOD AND APPARATUS FOR DIGITALLY PRINTING AND DEVELOPING IMAGES ONTO PHOTOSENSITIVE MATERIAL

David Lynn Patton, Webster; Roy Bernard Ference, Fairport; Douglas Harold Smith, Spencerport, and John Howard Rosenburgh, Hilton, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 3, 1995, Ser. No. 383,283

Int. Cl.⁶ G03B *27/32;* H04N *1/21*

U.S. Cl. 355—27 24 Claims



1. A digital color printing and processing apparatus comprising:

- a digital color printer for printing an image obtained from digital input signals onto a photosensitive material, and
- a developing section for processing the photosensitive material that has been passed through said digital printer, said developing section having a low volume thin channel processor for processing the photosensitive material

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5,739,897

METHOD AND SYSTEM FOR CREATING INDEX PRINTS ON AND/OR WITH A PHOTOGRAPHIC PRINTER

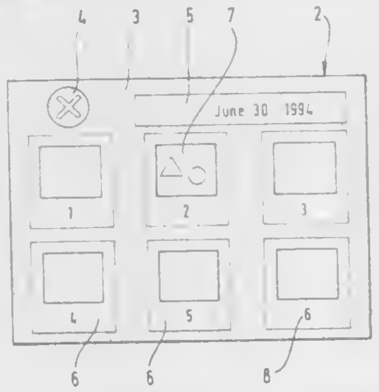
Beat Frick, Buchs; Robert Wahli, Wollerau, and Max Nussbaumer, Bellikon, all of Switzerland, assignors to Gretag Imaging AG, Regensdorf, Switzerland

Filed Aug. 15, 1995, Ser. No. 515,171

Claims priority, application European Pat. Off., Aug. 16, 1994, 94810471; Switzerland, Nov. 15, 1994, 3425/94

Int. Cl.⁶ G03B *27/52;27/72;27/44*

U.S. Cl. 355—40 37 Claims



1. Method for creating index prints on a photographic printer, comprising the steps of:

- scanning a number of successive photographic copies on a film strip photoelectrically to obtain density values;
- converting the density values into printer control values;
- storing the printer control values; and

- producing an index print which includes plural individual images produced using the printer control values, said step of producing further including steps of;
- grouping the individual images of the index print as a two-dimensional matrix with column elements and line elements,
- successively exposing the individual images of the matrix photographically, directly from photographic copies of the film strip, exposure data being derived from the stored printer control values; and
- providing the individual images of the index print with individual image field data.

5,739,898

EXPOSURE METHOD AND APPARATUS

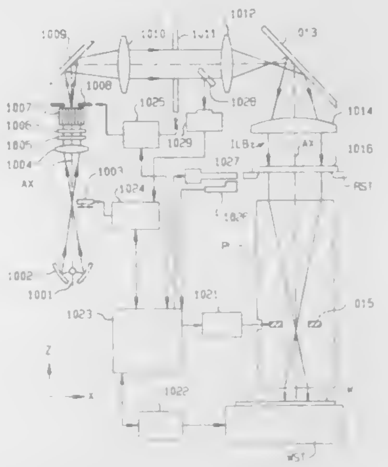
Toshihiko Ozawa, Yokohama; Masaya Komatsu, Fukaya; Masato Shibuya, Ohmiya; Hiroshi Ooki, Yokohama; Masaomi Kameyama, Bunkyo-ku, and Yoshifumi Tokoyoda, Chiba, all of Japan, assignors to Nikon Corporation, Japan

Continuation-in-part of Ser. No. 191,383, Feb. 3, 1994, abandoned. This application Sep. 26, 1994, Ser. No. 312,241

Claims priority, application Japan, Mar. 8, 1994, 6-036750; Mar. 9, 1994, 6-038794; May 31, 1994, 6-118966; Jul. 8, 1994, 6-157389; Jul. 28, 1994, 6-177262; Sep. 6, 1994, 6-212440

Int. Cl.⁶ G03B *27/32;27/42*

U.S. Cl. 355—53 30 Claims



1. A projection exposure apparatus for exposing a photosensitive material having a characteristic in which effective light intensity is nonlinear to an intensity of incident light to be applied thereto, said apparatus comprising:

- a projection optical system for projecting a first pattern from a first region of a first photo-mask and a second pattern from a second region of a second photo-mask onto said photosensitive material; and
- a mechanism for moving said first photo-mask related to said photo sensitive material to project said second pattern onto said photosensitive material, wherein the respective intensity distributions of said first and second patterns projected on said photosensitive material are partially overlapped and the peaks thereof are isolated, wherein no portion of the positions occupied by said first and second regions, when said first and second patterns are respectively projected, is overlapped, and wherein a distance between the peaks of the intensity distributions is less than a distance defined by the limit of resolution of the projection optical system.

5,739,899

PROJECTION EXPOSURE APPARATUS CORRECTING TILT OF TELECENTRICITY

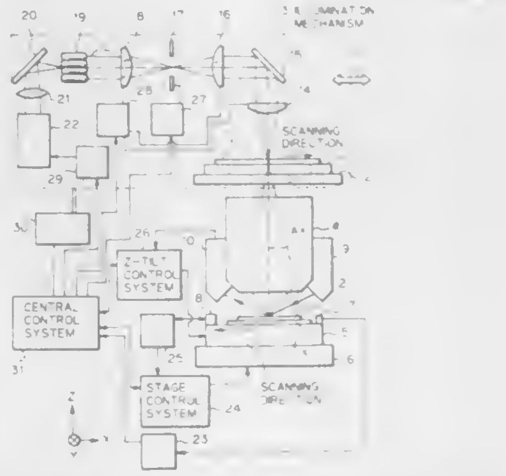
Kenji Nishi, Kanagawa-ken; Seiro Murakami, Chiba-ken, and Hiroshi Chiba, Kanagawa-ken, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 649,815

Claims priority, application Japan, May 19, 1995, 7-120950; Jul. 11, 1995, 7-198181

Int. Cl.⁶ G03B *27/42;27/52;27/54*

U.S. Cl. 355—53 29 Claims



1. A projection exposure apparatus wherein a pattern formed on a mask is projected onto a substrate through a projection optical system, said projection exposure apparatus comprising:

- an illumination optical system for illuminating said mask by exposure light;
- a first adjusting member for changing telecentricity on said substrate, said first adjusting member being disposed in said illumination optical system;
- a second adjusting member for adjusting at least one of a position of said substrate in a direction of an optical axis of said projection optical system and a tilt of said substrate, and
- a control system for controlling said first adjusting member and said second adjusting member, said control system locally correcting a position of a spatial image formed by said projection optical system.

5,739,900

CYLINDRICAL MEMBER AND ENGAGEMENT MEMBER ASSEMBLY USING PLURAL FITTING PORTION PAIRS

Hironobu Isobe, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

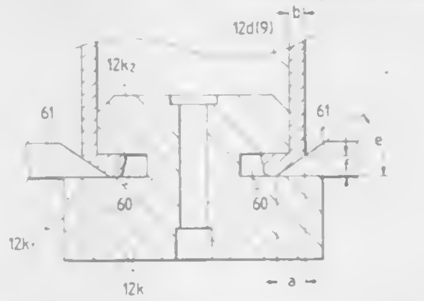
Continuation of Ser. No. 619,133, Mar. 20, 1996, abandoned, which is a continuation of Ser. No. 169,530, Dec. 20, 1993, abandoned. This application Jul. 31, 1997, Ser. No. 903,742

Claims priority, application Japan, Feb. 1, 1993, 5-034007; Oct. 1, 1993, 5-247056

Int. Cl.⁶ G03G *15/00*

U.S. Cl. 355—109 28 Claims

1. A roller member to be used in an electrophotographic image



forming apparatus to which an engagement member is connected, said roller member comprising

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an engagement member having plural fitting portion pairs each having two opposed fitting portions at least one pair of said plural fitting portion pairs being unused; and

a cylindrical member to which said engagement member is connected by fitting end portions of said cylindrical member to at least one fitting portion pair among said plural fitting portion pairs of said engagement member by cutting and bending said end portions while leaving at least one of said plural fitting portion pairs, wherein, to disconnect said engagement member and said cylindrical member after using said roller member for a predetermined time period, said cut and bent end portions of said cylindrical member are cut and removed, and to reconnect said engagement member or another engagement member and said cylindrical member for reusing said cylindrical member after a predetermined restoration thereof, end portions of said cylindrical members are cut and bent to said at least one fitting portion pair remaining on said engagement member

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5,739,901
DISTANCE MEASURING APPARATUS AND DISTANCE MEASURING METHOD FOR A VEHICLE

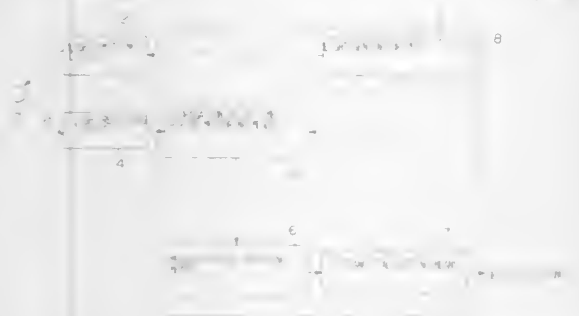
Hiroshi Fujioka; Masahira Akasu, and Shoichi Tanaka, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 13, 1995, Ser. No. 542,842

Claims priority, application Japan, May 12, 1995, 7-114435

Int. Cl.⁶ G01C *3/08*

U.S. Cl. 356—5.01 **10 Claims**



1 A distance measuring apparatus for a vehicle comprising:

an irradiating means for emitting and irradiating an electromagnetic wave;

a receiving means for receiving a reflected wave produced when the electromagnetic wave is reflected by an obstacle and generating a receiving signal;

a propagation delay time period measuring means, having a variable comparison value which is larger when a propagation delay time period is shorter, for comparing the receiving signal with the variable comparison value, and measuring the propagation delay time period between the time when the electromagnetic wave is irradiated and a time when the receiving signal is equal to or larger than the variable comparison value, and

a distance calculating means for calculating a distance between the obstacle and the vehicle based on the propagation delay time period.

5,739,902
LIQUID FLOW CYTOMETER

Oddhjørn Gjelsnes, Gladvollterrasse 2., 1168 Oslo, and Reidar Tangen, Herregårdsveien 57B, N-1168, Oslo, both of Norway

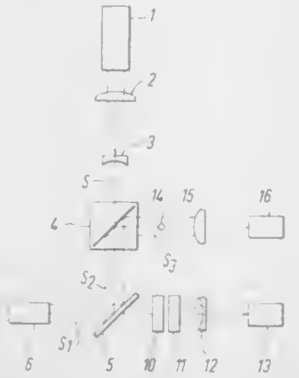
PCT No. PCT/NO94/00106, § 371 Date Jan. 23, 1996, § 102(e) Date Jan. 23, 1996, PCT Pub. No. WO94/29695, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 8, 1994, Ser. No. 553,627

Claims priority, application Norway, Jun. 8, 1993, 932088

Int. Cl.⁶ G01N *15/02;21/00;* **G01J** *4/00*

U.S. Cl. 356—73 **11 Claims**



1 A liquid flow cytometer for counting and classification of particles such as biological cells or other microscopic particles in liquids, where the cytometer comprises an optical system for irradiation and detection in a metering zone (7), thus enabling optical dispersion and fluorescence caused by the particles to be simultaneously detected when the particles pass the metering zone, wherein the optical system in a first beam path (S_1) comprises a mirror reflector (9) with its focal point in the metering zone (7), a quarter-wave plate (8) between the metering zone (7) and the mirror reflector (9), a lens (6) with its focal point in the metering zone (7) and located between the metering zone (7) and a dichroic mirror (5), the dichroic mirror (5) being provided in such a manner that it gives a partial reflection substantially orthogonal to the axis of the lens (6), the reflection direction being in a second beam path (S_2) of the optical system, and in the second beam path (S_2) a beam splitter (4) located between the dichroic mirror (5) and a light source (1), the beam splitter (4) producing a third beam path (S_3) orthogonal to the second beam path (S_2), wherein the cytometer further comprises a first detector (13) provided in the first beam path (S_1) after the dichroic mirror (5) and arranged for the detection of fluorescence emitted by the particles in the metering zone (7), together with a second detector (16) provided in the third beam path (S_3) and arranged for the detection of optical dispersion caused by the particles in the metering zone (7).

5,739,903
HOUSEHOLD VESSEL CONTAINING A RADIOMETER WITHIN VESSELS STRUCTURE

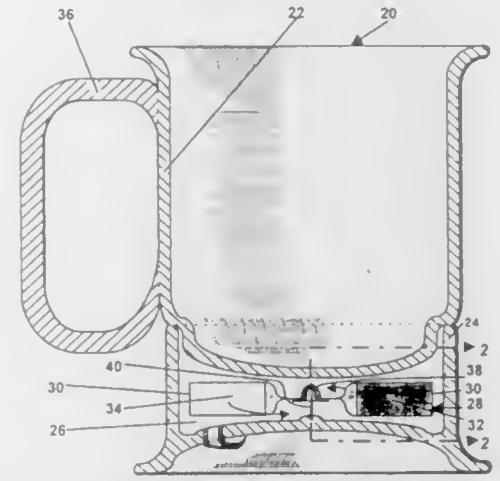
Erl E. Kepner, 256 Blue Ridge Dr., Boulder Creek, Calif. 95006

Filed Mar. 10, 1997, Ser. No. 815,368

Int. Cl.⁶ B65D *77/00*

U.S. Cl. 356—216 **20 Claims**

1 A vessel, comprising, a side wall, said side wall being suitably transparent, a bottom, said bottom being suitably transparent, joining means for joining said side wall and said bottom, a evacuated hollow volume suitably within the joined structure of said side wall and said bottom, said evacuated hollow volume being substantially coin shaped within said bottom of said vessel and substantially cylindrically shaped in said side wall of said vessel, said evacuated hollow volume being suitably evacuated of gas and suitably concentric with the central axis of said vessel, a assembly within said evacuated hollow volume, a plurality of vanes in said assembly, said vanes radiating outward from the central axis of said vessel, said vanes having a light absorbing surface on one side and a light reflective surface on the other side, said vanes arranged such that all have said light absorbing surfaces facing the same rotational direction, said vanes surfaces are substantially in line with a radius of said vessel and substantially parallel with the central axis of said vessel, the axial means for pivotably supporting the mass of said assembly on another surface along the central axis of said vessel, whereby light shining on said vanes will result in said assembly spinning thus providing animation within what is normally a static object



5,739,904
METHOD OF OPTICALLY MEASURING THE SURFACE OF YARN PACKAGES

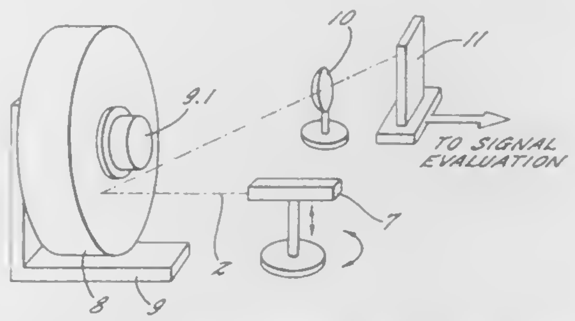
Gerald Berger, and Jorg Oulabi, both of Wuppertal, Germany, assignors to Barmag AG, Remscheid, Germany

Continuation of Ser. No. 500,775, Jul. 11, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 824,076

Claims priority, application Germany, Jul. 11, 1994, 44 24 038.4

Int. Cl.⁶ G01N *21/00*

U.S. Cl. 356—238 **11 Claims**



1 A method of optically measuring the surface of yarn packages, wherein the package surface is scanned by a light beam and the reflected light signal is evaluated, the light beam Scanning the package surface along a predefined scanning path, characterized by the steps of

directing at each predetermined measuring time the light beam to a scanning spot on the package surface and so as to determine the two plane coordinates (x, y) of the scanning spot;

determining the desired elevation coordinate (z) of the scanning spot;

focusing a portion of the light rays diffused from the scanning spot, and directing same to a surface sensor, so that they arrive at the surface sensor in one point of

measuring with the surface sensor the actual position of the point of incidence on the surface sensor and including measuring and evaluating the intensity of the incident light by means of the surface sensor at each of a plurality of scanning spots,

associating the determined two plane coordinates (x, y) and the desired elevation coordinate (z) of the scanning spot to the point of incidence for determining its desired geometric position; and

determining the difference between the actual position and the desired position of the point of incidence and determining therefrom the actual elevation coordinate of the scanning spot

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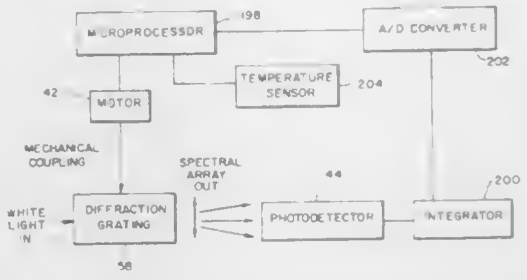
5,739,905
SPECTROPHOTOMETER WITH ELECTRONIC TEMPERATURE STABILIZATION

Robert J. Hutchinson, Pittsford, N.Y., assignor to Lucid Technologies, Inc., Henrietta, N.Y.

Filed Feb. 26, 1997, Ser. No. 806,825

Int. Cl.⁶ G01J *3/06;3/18*

U.S. Cl. 356—319 **4 Claims**



1 In a spectrophotometer having a dispersive element mechanically actuated by a motor, a temperature stabilization system which comprises a controller connected to the motor for mechanically actuating the dispersive element so as to provide spectral measurements, a temperature sensor thermally coupled to the spectrophotometer, the temperature sensor being connected to the controller for operating the controller to utilize the motor as a heat source when required to increase the temperature of the spectrophotometer and when spectral measurements are not being carried out

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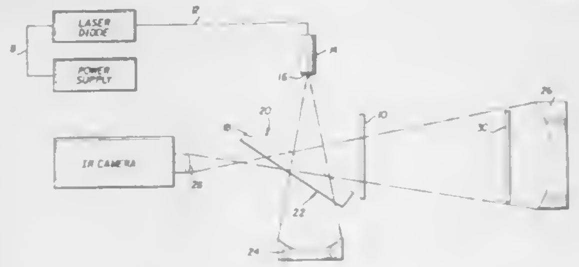
5,739,906
INTERFEROMETRIC THICKNESS VARIATION TEST METHOD FOR WINDOWS AND SILICON WAFERS USING A DIVERGING WAVEFRONT

Christopher James Evans, Gaithersburg, Md., and Robert Edson Parks, Tucson, Ariz., assignors to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Jun. 7, 1996, Ser. No. 663,021

Int. Cl.⁶ G01B *9/02*

U.S. Cl. 356—357 **21 Claims**



1 A method of detecting variations in the thickness of an object, said method comprising the steps of

(A) providing an object to be measured which is transparent to a wavelength of electromagnetic radiation;

(B) providing a radiation source which emits a beam of electromagnetic radiation at said wavelength, said beam having a diverging wavefront;

(C) splitting said beam into a reference beam and a test beam,

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(D) positioning said object in a first position in said test beam at which the test beam irradiates a first central portion of said object;

(E) directing said test beam through said first central portion of said object.

(F) causing said reference beam to interfere with said test beam which has passed through said first central portion to form a first interferometric fringe pattern; then

(G) changing the length of the test beam which has passed through said object until said first interferometric pattern is changed into a desired second interferometric fringe pattern.

(H) determining a central thickness of said object in accordance with an amount by which the length of the test beam was changed in step (G);

(I) moving said object in said test beam to a second position in said test beam where said test beam irradiates a second portion of said object which is larger than said first central portion thereof; then

(J) causing said reference beam to interfere with said test beam which has passed through said second portion to form a third interferometric fringe pattern; and

(K) determining thickness variations relative to said central thickness by detecting the third interferometric fringe pattern and calculating the thickness variations in accordance with said detected third interferometric fringe pattern.

5,739,907

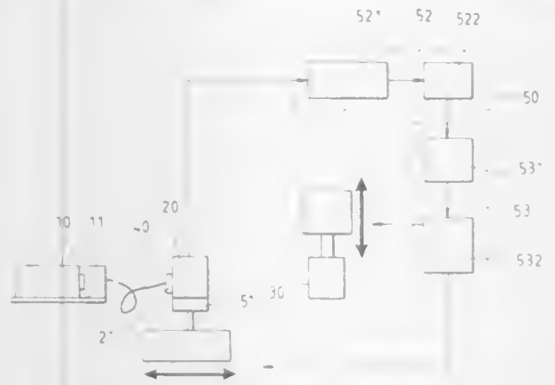
LASER INTERFERENCE DISPLACEMENT MEASURING SYSTEM CAPABLE OF AUTOMATIC LASER PATH ALIGNMENT

Jenq-Shyong Chen, No. 64-5, San Hsing Tsun, Ming Hsiung Hsiang, Chia I Hsien, Taiwan

Filed Nov. 22, 1996, Ser. No. 753,297

Int. Cl.^{6} G01B *9/02*

U.S. Cl. 356—358 **7 Claims**



1 A laser interference system for measuring displacement, said system comprising

a laser head.

an interference means.

an optic fiber transmission member for transmission and reception of laser beam between said laser head and said interference means, and

an automatic laser path alignment unit comprising a photodiode, a data processing member and a control member, said photodiode being located at a lower end of a reflecting residual light of said interference means, said photodiode having a sensing surface for sensing a reflecting residual light position brought about on said interference means by a laser beam source, said data processing unit being intended for converting an output signal of said residual light position into a voltage value, which is transmitted to said control member for regulating relative displacement between said interference means and a reflector

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5,739,908

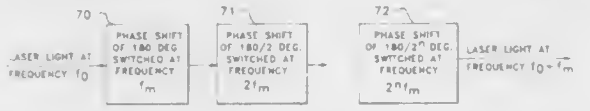
LIQUID CRYSTAL OPTICAL FREQUENCY SHIFTER

Tyler Alan Brown, Schaumburg, Ill.; Robert Theodore Weverka, Boulder, Colo., and Mark Olmsted Freeman, Hsinchu, Taiwan, assignors to The Regents of the University of Colorado, Boulder, Colo.

Filed May 1, 1995, Ser. No. 431,773

Int. Cl.^{6} G02F *1/05*

U.S. Cl. 356—367 **31 Claims**


70
71
72
LASER LIGHT AT FREQUENCY f0
PHASE SHIFT OF 180 DEG SWITCHED AT FREQUENCY fm
PHASE SHIFT OF 180/2 DEG. SWITCHED AT FREQUENCY 2fm
PHASE SHIFT OF 180/2^n DEG. SWITCHED AT FREQUENCY 2^nfm
LASER LIGHT AT FREQUENCY f0+fm

1 A method providing a frequency shift to an input coherent light beam, comprising the steps of:

providing an input coherent light beam of a relatively constant frequency,

presenting said input beam to a cascade arrangement of n phase shift units numbered 1 through n, each phase shift unit comprising a serial configuration of a quarter wave plate and a ferroelectric liquid crystal (FLC),

providing n electrical signal generators whose alternating current output frequencies bear the frequency relationship f, 2f,—2^nf.

connecting said n electrical signal generators to the FLCs of said n phase shift units in the relationship output frequency f to phase shift unit 1, output frequency 2f to phase shift unit 2,—output frequency 2^nf to phase shift unit n, and

providing an output light beam from phase shift unit n that is of a higher frequency than said frequency of said input coherent light beam.

5,739,909

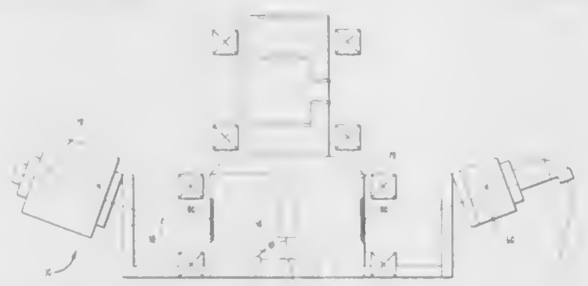
MEASUREMENT AND CONTROL OF LINEWIDTHS IN PERIODIC STRUCTURES USING SPECTROSCOPIC ELLIPSOMETRY

Nadine Blayo, Pontivy; Arnaud Grevoz, Creteil, both of France, and Tseng-Chung Lee, New York, N.Y., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Oct. 10, 1995, Ser. No. 543,570

Int. Cl.^{6} G01B *11/02*, G01N *21/21*

U.S. Cl. 356—369 **18 Claims**



1 A method of inspecting a periodic structure having a pitch comprising a feature and a space, comprising:

directing an incident beam of elliptically polarized light at the periodic structure for obtaining a reflected beam.

detecting the reflected beam for determining its intensity and polarization at a first wavelength:

comparing the change in phase between the incident beam and the reflected beam for calculating an angle Δ.

finding the ratio of the amplitude of the incident beam to the reflected beam for calculating an angle Ψ, and

determining if the values of Δ and Ψ are within a specified control range for accepting the periodic structure:

wherein the values Δ and Ψ are used to determine that the periodic structure is accepted as having feature linewidths in an acceptable range of linewidths

5,739,910

METHOD FOR DETERMINING THE CONCENTRATION OF A SPECIFIC GAS AND AN ANALYZER

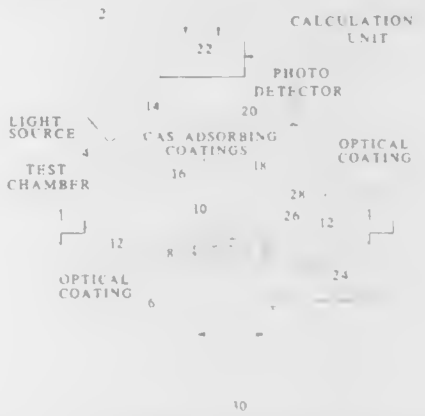
Rolf Castor, Hägersten, Sweden, assignor to Siemens Elema AB, Solna, Sweden

Filed Nov. 26, 1996, Ser. No. 756,690

Claims priority, application Sweden, Dec. 11, 1995, 9504417

Int. Cl.^{6} G01J *4/00*

U.S. Cl. 356—369 **13 Claims**



1 A method for determining a concentration of a specific gas in a gas mixture, comprising the steps of

passing at least a portion of said gas mixture across a first coating applied to a light-reflective surface, said first coating adsorbing said specific gas;

directing an incident light beam having a predetermined polarization onto said first coating and said light-reflective surface;

detecting polarization of a reflected light beam formed by said incident light beam reflected off of said coating and said light-reflective surface;

determining changes in polarization between said incident light beam and said reflected light beam caused by adsorption of said specific gas by said first coating which affect a complex refractive index of said first coating; and

determining the concentration of said specific gas from said changes in polarization.

5,739,911

POSITION MEASURING SYSTEM

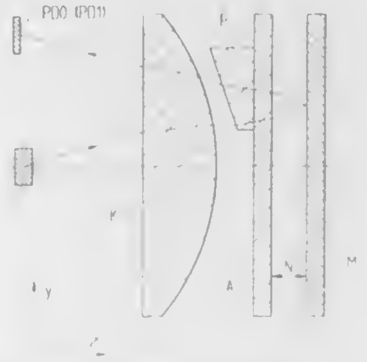
Wolfgang Holzapfel, Obing, and Walter Huber, Traunstein, both of Germany, assignors to Dr. Johannes Heidenhain GmbH, Traunreut, Germany

Filed Jul. 12, 1996, Ser. No. 679,201

Claims priority, application Germany, Jul. 15, 1995, 195 25 874.6

Int. Cl.^{6} G01B *11/00*

U.S. Cl. 356—375 **25 Claims**



1 A position measuring system comprising

an illuminating device for generating a first beam of light.

a graduation support comprising a graduation and a reference marker with a first set of graduation markings, said graduation support receiving said first beam of light which is reflected on said first set of graduation markings and generating a second beam of light;

a scanning plate comprising a second set of graduation markings moving along a measuring direction for scanning said first set of graduation markings of said reference marker

said scanning plate receiving said second beam of light and generating a third beam of light and a fourth beam of light.

a first photodetector for receiving said third beam of light and a second photodetector for receiving said fourth beam of light and generating position-dependent electrical signals.

wherein said second set of graduation markings have an optical deflecting structure which deflects said third beam of light in said measuring direction.

5,739,912

OBJECT PROFILE MEASURING METHOD AND APPARATUS

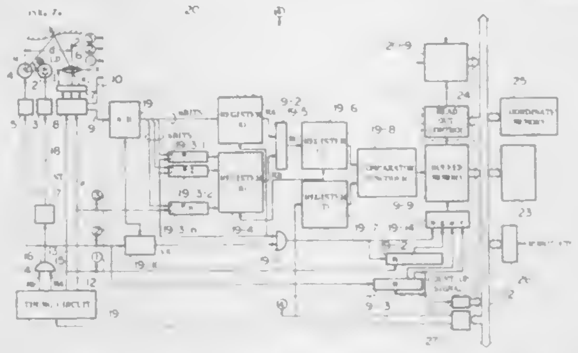
Akira Ishii, Tokyo, Japan, assignor to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Continuation of Ser. No. 533,354, Sep. 25, 1995, abandoned, which is a continuation-in-part of Ser. No. 236,012, May 2, 1994, abandoned, which is a continuation of Ser. No. 873,117, Apr. 24, 1992, abandoned. This application Dec. 20, 1996, Ser. No. 770,800

Claims priority, application Japan, Apr. 26, 1991, 3-123026; Dec. 9, 1991, 3-349426

Int. Cl.^{6} G01B *11/24*

U.S. Cl. 356—376 **7 Claims**



1. A method for measuring an external profile of an object in robotic arc-welding, said method being based on triangulation operations and capable of performing a measurement under existence of arc light with fluctuating intensity at relatively low frequency, said method for measuring an external profile comprising the steps of.

intermittently emitting a laser beam onto a surface of said object at a sufficiently shorter time interval than a fluctuation period of intensity of the arc-light,

repeatedly sensing reflected light from said surface during a predetermined sensing period in synchronism with emission of the laser beam by means of a plurality of charge storage type light receiving elements arrayed in line.

generating output signals responsive to said reflected laser beam and to the arc light.

generating delayed signals, for said output signals, delayed by one line period of the charge storage type light receiving array.

obtaining difference values between said output signals and said delayed signals so that said difference values are indicative of the difference between output signals while said laser beam is on and while said laser beam is off to enable elimination of influence of said arc light; and

determining positions of points on said surface based on said difference values

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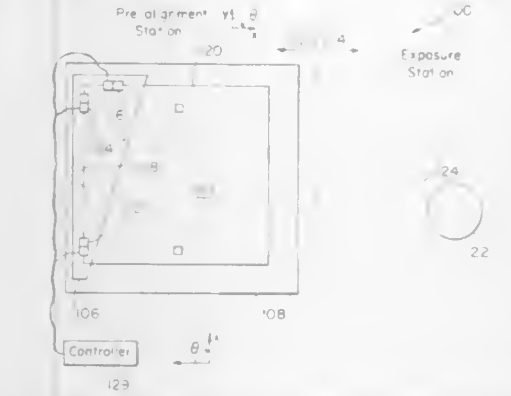
5,739,913
NON-CONTACT EDGE DETECTOR

John D. Wallace, Newburyport, Mass., assignor to MRS Technology, Inc., Chelmsford, Mass.

Filed Aug. 2, 1996, Ser. No. 693,469

Int. Cl.⁶ G01B *11/00*

U.S. Cl. 356—401 **20 Claims**



1. An alignment system for a lithography system having a stage for supporting a substrate, the alignment system including a plurality of substrate edge detectors, each of the edge detectors comprising:

- a projector located above the substrate, which projects a light field onto the substrate and the stage the light field having a predetermined shadow line that is directed to extend across a respective edge of the substrate; and
- a camera located above the substrate, which detects an image of the light field including the shadow line;
- the alignment system further including a controller that receives the light field images detected by the cameras of each of the edge detectors, locates shifts in the shadow lines caused by a height differential between the substrate and the stage, and determines a position of the substrate.

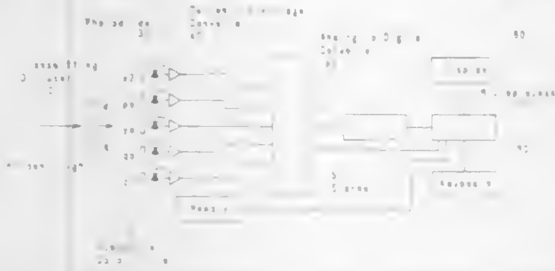
5,739,914
COLORIMETRIC INSTRUMENT

Naoki Chida, and Kenji Murakami, both of Tokyo, Japan, assignors to Yokogawa Instrument Corporation, Tokyo, Japan

Filed Nov. 12, 1996, Ser. No. 748,245

Int. Cl.⁶ G01J *3/51*

U.S. Cl. 356—405 **10 Claims**



1. In a stimulus values direct reading colorimetric instrument comprising:

- a plurality of photoelectric sensors having different spectral responsivities equal to approximately equal to color matching functions and producing output signals in response to light to be measured and supplied thereto, and
- means for measuring and displaying tri-stimulus values and chromomaticity of said light to be measured by computing said output signals; the improvement comprising:
- at least one corrective photoelectric sensor for producing output signals in response to said light to be measured and supplied thereto by taking maximum values of spectral responsivities in a vicinity of a transmission threshold wavelength of photoelectric sensors having spectral responsivities approximately equal to the color matching functions; and
- calculating means for calculating sum of said output signals from said plurality of photoelectric sensors and said at least one corrective photoelectric sensor, whereby said output signal from said at least one corrective photoelectric sensor is used to correct the output signals from said other plurality of photoelectric sensors.

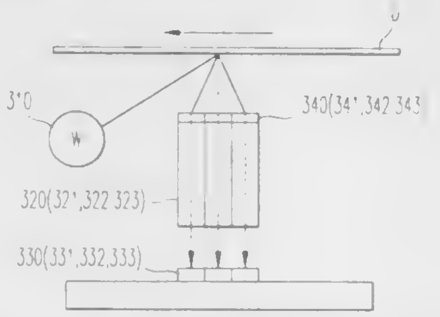
5,739,915
ELECTRO-OPTICAL SYSTEM FOR SCANNING COLOR DOCUMENTS

Jen-Jr Gau, Taipei, and Hsiu-Hua Chuang, Hsinchu, both of Taiwan, assignors to United Microelectronics Corp., Hsinchu, Taiwan

Filed May 8, 1996, Ser. No. 646,752

Int. Cl.⁶ G01J *3/51*

U.S. Cl. 356—406 **3 Claims**



1. An electro-optical system for scanning a color object into at least three electrical signals indicative of an RGB set of color components of the color object, comprising:

- (a) means for generating a beam of white light for illuminating the color object;
- (b) a self-focus lens array consisting of at least a first row, a second row, and a third row of rod lenses, for receiving light reflected from the color object;
- (c) a first film of red filter attached to one end of said first row of rod lenses in said self-focus lens array;
- (d) a second film of green filter attached to one end of said second row of rod lenses in said self-focus lens array;
- (e) a third film of blue filter attached to one end of said third row of rod lenses in said self-focus lens array; and
- (f) photosensor means, receiving light from said self-focus lens array, for generating at least three electrical signals representative of the red, green, and blue components of the reflected light from the color object.

5,739,916
APPARATUS AND METHOD FOR DETERMINING THE CONCENTRATION OF SPECIES IN A SUBSTANCE

Darell E. Englehaupt, Madison, Ala., assignor to University of Alabama at Huntsville, Huntsville, Ala.

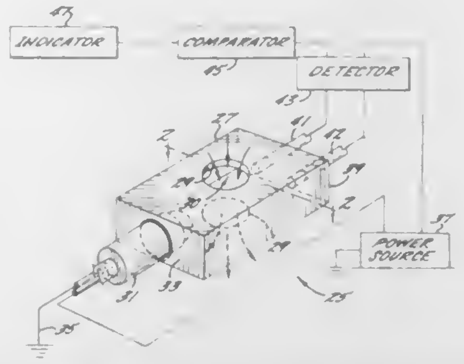
Filed Dec. 4, 1995, Ser. No. 567,995

Int. Cl.⁶ G01N *21/25*

U.S. Cl. 356—414 **26 Claims**

1. An instrument for determining the concentration of at least one species in a substance, said instrument comprising:

- an instrument housing having a chamber for receiving at least a portion of the substance;
- a broad band light source associated with said housing and positioned in illuminating contact with said chamber for illuminating the substance in said chamber,
- means for separating the optical signals transmitted through said substance into signals of different wavelengths that are preselected for absorbance by at least one species in the substance and for attenuating light outside the wavelengths transmitted, thereby providing a continuous increase in absorbance as the concentration of the species in the substance increases for any single transmitted wavelength independent of the wavelength for peak absorbance by the species,
- means for generating electrical signals from the optical signals that are proportional to the absorbance of the optical signals by the at least one species in the substance; and
- means electrically connected to said means for generating electrical signals for determining from the electrical signals the concentration of at least one species in the substance in dependence upon the absorbance of the optical signals by the species as light is transmitted through the substance, said means comparing the electrical signals with electrical signals corresponding to the substance in the substantial absence of the species.



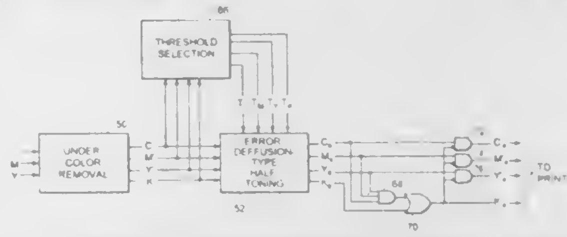
5,739,917
ERROR-DIFFUSION-TYPE HALF-TONING EMPLOYING ADAPTIVE THRESHOLDING FOR ENHANCED SMOOTHNESS

Joseph S. Shu, San Jose, and Jack Boyce, El Cerrito, both of Calif., assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,644

Int. Cl.⁶ H04N *1/40, 1/46;* **G03F** *3/08;* **G06K** *9/36*

U.S. Cl. 358—298 **28 Claims**



1. For operating a printing mechanism to produce a display in response to electrical source-image signals representing a source image consisting of an array of pixels, the value of each of which consists of more than one relatively fine-resolution component value associated with that pixel, a method comprising the steps of:

- A) performing a sequence of at least one image-revision step, in which sequence each image-revision step receives an input image consisting of input pixels and produces therefrom an output image consisting of output pixels, the input image of the first image-revision step is the source image, the input image of any subsequent image-revision step is the output image of the preceding image-revision step, and one said image-revision step is a half-toning step that comprises performing, for each of a plurality of input component values associated with each pixel, an error-diffusion-type half-toning operation that generates a relatively coarse-resolution component value of a corresponding output pixel of the half toning step in accordance with an error-augmented comparison of that input component value with:
  - i) a first threshold set if that input component value as augmented by the half-toning operation exceeds each other component value, as augmented by the half toning operation, of a plurality of input component values associated with that pixel; and
  - ii) a second threshold set if that input component value as augmented by the half-toning operation is less than each other component value, as augmented by the half-toning operation, of the plurality of input component values associated with that pixel, and
- B) applying to the printing mechanism electrical command signals that represent the output image produced by the last image-revision step.

5,739,918
FACSIMILE MACHINE WITH A MAILBOX FUNCTION

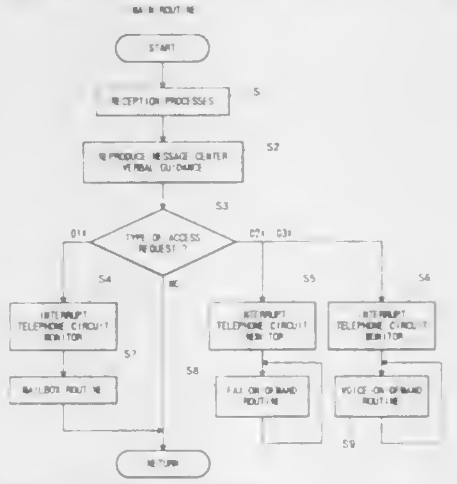
Tetsuya Ouchi, Tajimi, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed May 16, 1996, Ser. No. 648,575

Claims priority, application Japan, May 30, 1995, 7-131587

Int. Cl.⁶ H04N *1/00*

U.S. Cl. 358—403 **8 Claims**


MAIN ROUTINE
START
RECEPTION PROCESSES
S
REPRODUCE MESSAGE CENTER VERBAL GUIDANCE
S2
S3
TYPE OF ACCESS REQUEST ?
S4
S5
S6
INTERRUPT TELEPHONE CIRCUIT MONITOR
INTERRUPT TELEPHONE CIRCUIT MONITOR
INTERRUPT TELEPHONE CIRCUIT MONITOR
S7
S8
MAILBOX ROUTINE
FAX-ON-DEMAND ROUTINE
VOICE-ON-DEMAND ROUTINE
S9
RETURN

1. A facsimile machine comprising:

- a mailbox comprising a memory that stores predetermined data;
- a speaker connectable to a telephone circuit during an answering machine mode of the facsimile machine, the speaker converting signals exchanged over the telephone circuit between the facsimile machine and a remote device to audio signals,
- reception means for receiving signals inputted to the facsimile machine from the remote device;
- access permission means for allowing access to the predetermined data of the mailbox when the reception means receives a request-for-access signal and a password signal corresponding to the mailbox, and
- monitor interrupt means for interrupting the audio conversion, by the speaker, of the signals exchanged over the telephone circuit when the reception means receives the request-for-access signal.

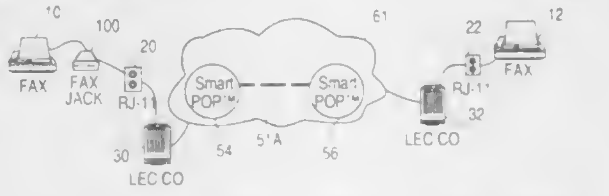
5,739,919
POINT OF PRESENCE (POP) FOR DIGITAL FACSIMILE NETWORK

Warren S. Lee; David W. Copp, both of Jacksonville, Fla.; Dale T. Platteter, Pittsford, N.Y., and Neil P. Carrier, Jacksonville, Fla., assignors to NKO, Inc., Jacksonville, Fla.

Filed May 17, 1996, Ser. No. 649,571

Int. Cl.⁶ H04N *1/00*

U.S. Cl. 358—407 **15 Claims**



1. A facsimile communications apparatus for sending facsimile data in packet format from a sending fax machine to a receiving

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fax machine over a digital data link. said sending and receiving fax machines respectively connected with first and second local exchange carriers (LECs) over respective first and second telephone links. comprising:

a first data communications apparatus connected to the sending fax machine through the first LEC. the first data communications apparatus including.
  first input means connected to the respective first LEC and configured to receive a request for sending fax information to the receiving fax machine over a digital data link;
  first processing means. connected to the first input means and configured to determine if the request can be performed over the digital data link. for sending a signal to initiate the sending of fax information over the digital data link if the request can be performed over the digital data link. the first processing means further configured to packetize the fax information into one or more packets. and
  first output means connected to the first input means. the first processing means and the digital data link. and configured to send the packetized fax information over the digital data link: and
a second data communications apparatus connected to the receiving fax machine through the respective second LEC. the second data communications apparatus including.
  second input means connected to the digital data link and configured to receive the packetized fax information over the digital data link:
  second processing means connected to the second input means and configured to determine if the second data communications apparatus and the receiving fax machine are currently capable of receiving the fax information: and
  second output means connected to the second input means. the second processing means and the second LEC. and configured to convert the packetized fax information to a non-packetized format and to send the fax information in the non-packetized format to the receiving fax machine through the respective second LEC.
wherein a communications path is established and maintained for the fax transmission via the first and second LECs. the first and second data communications apparatuses. the digital data link and the receiving fax machine.

5,739,920

IMAGE PROCESSING APPARATUS

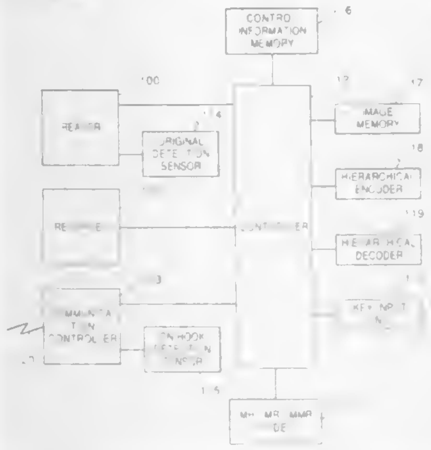
Toshifumi Nakajima, Tokyo, and Hideki Shimizu, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 4, 1993, Ser. No. 71,104

Claims priority, application Japan, Jun. 8, 1992, 4-147725; Jun. 30, 1992, 4-173439

Int. Cl.⁶ H04N *1/41*

U.S. Cl. 358—426 **10 Claims**



1 An image processing apparatus for reading an original image and copying/transmitting the image. comprising:

input means for inputting image information of an image including at least one picture:
hierarchical coding means for performing hierarchical coding of original image information: and
control means for controlling said hierarchical coding means to hierarchically code the input image information. said coding means coding the image information both when a plurality of copies are designated for the image and when transmission of the image to an external device is instructed. wherein said coding means begins coding at least for the plurality of copies after the entire image information of the at least one picture has been input

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5,739,921

COMMUNICATION SYSTEM WITH LINE-MASTER, MASTER-SLAVE DISCONNECTION DETECTION MEANS

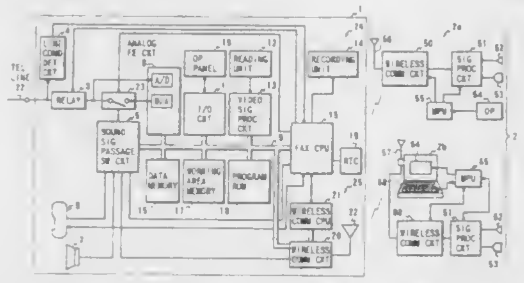
Ikuo Kitajima, Tokyo, Japan, assignor to Matsushita Graphic Communication Systems Inc., Japan

Filed Aug. 23, 1996, Ser. No. 701,983

Claims priority, application Japan, Aug. 30, 1995, 7-221363

Int. Cl.⁶ H04N *1/32*

U.S. Cl. 358—442 **11 Claims**



1 A communication system: comprising a master communication apparatus coupled to a communication line and at least a slave communication apparatus communicating with said master communication apparatus and said communication line using wireless communication. wherein said master communication apparatus comprises:

detection means for detecting a disconnection between said master communication apparatus and said communication line and between said master communication apparatus and said slave communication apparatus and detecting a cause of said disconnection:
data generation means responsive to said detection means for generating logging data in accordance with said disconnection and said cause:
storing means for storing said logging data from said data generation means; and
reading means for reading said logging data from said storing means in response to a request

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5,739,922

IMAGE PROCESSING METHOD AND APPARATUS FOR REDUCING THE EFFECT OF IMAGE INFORMATION HAVING PERCEPTIBLE FILM GRAININESS

Tohro Matama, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa-ken, Japan

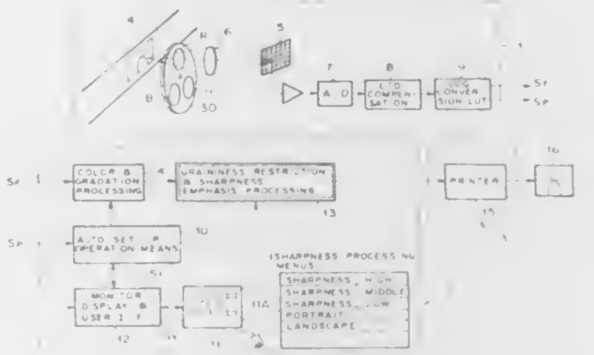
Filed Feb. 9, 1996, Ser. No. 598,918

Claims priority, application Japan, Feb. 9, 1995, 7-021842; Dec. 25, 1995, 7-337510

Int. Cl.⁶ G06K *9/40*, H04N *1/40*

U.S. Cl. 358—447 **62 Claims**

1 An image processing method for carrying out processing on an image signal, which represents a given image, comprising the steps of


COLOR & GRADATION PROCESSING
GRAININESS RESTRICTION & SHARPNESS EMPHASIS PROCESSING
PRINTER
AUTO SET UP OPERATION MEANS
SHARPNESS PROCESSING MENUS
MONITOR DISPLAY
SHARPNESS HIGH
SHARPNESS MIDDLE
SHARPNESS LOW
PORTRAIT
LANDSCAPE
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i) separating the image signal into low frequency components. middle frequency components. and high frequency components.
ii) carrying out emphasis and restriction processing. with which said high frequency components are emphasized and said middle frequency components are restricted. and
iii) combining said high frequency components and said middle frequency components. which have been obtained from said emphasis and restriction processing. and said low frequency components with one another. a processed image signal being thereby obtained

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5,739,923

PICTURE IMAGE INPUT DEVICE

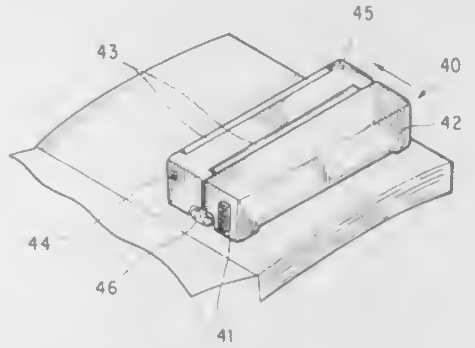
Atsushi Kawahara, Kanagawa-ken, Japan. assignor to Nikon Corporation, Tokyo, Japan

Filed Nov. 24, 1995, Ser. No. 562,579

Claims priority, application Japan, Nov. 24, 1994, 6-314098

Int. Cl.⁶ H04N *1/024; 1/04*

U.S. Cl. 358—473 **19 Claims**



1. A picture image input device, comprising:
a light source that emits light to illuminate an original medium for reading:
an image sensor:
a projection optical system that forms an image of the original medium on the image sensor:
a driving unit that moves the original medium relative to the image sensor: and
a folding joint unit that changes a usage state of the picture image input device between an open state and a folded state. wherein the driving unit moves the original medium when the picture image input device is in the folded state and moves the picture image input device along the original medium in the open state.

5,739,924

PHOTOGRAPHED IMAGE PRINTING APPARATUS CAPABLE OF CORRECTING IMAGE QUALITY

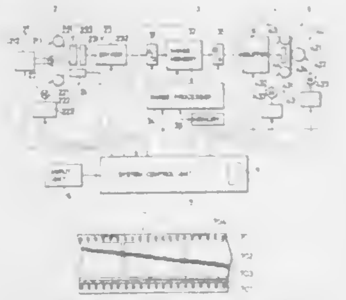
Homare Sano, Sagamihara, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Nov. 30, 1994, Ser. No. 346,755

Claims priority, application Japan, Dec. 9, 1993, 5-309356

Int. Cl.⁶ H04N *1/46*, G03F *3/08*

U.S. Cl. 358—487 **32 Claims**



1 An image processing apparatus comprising
an image sensor operable to optically read an image on a recording medium and to output an electrical signal representative of the read image.
an information reader operable to read information on the recording medium that is indicative of conditions of the image on the recording medium.
an image quality correction manager responsive to the information reader and operable to judge based on the read information whether image quality correction is necessary. and determine a proper image quality correction. if necessary. and
an image corrector responsive to the image quality correction manager and operable to correct the read image by processing the electrical signal in accordance with the determined image quality correction

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5,739,925

FACSIMILE APPARATUS COVER AND FEEDING MECHANISM

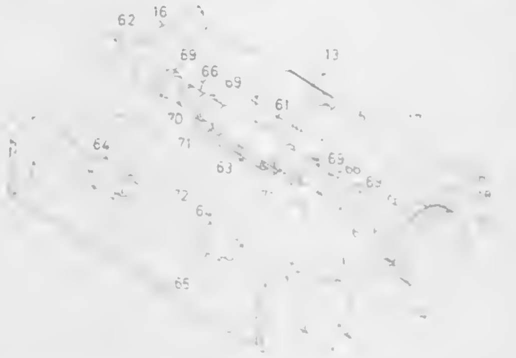
Yoshikatsu Kameyama, Hashima-gun; Yasuhito Bandai, Nagoya; Tomohisa Higuchi, Nagoya; Hiroaki Yazawa, Nagoya, and Makoto Yamada, Gifu, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 275,731, Jul. 19, 1994, abandoned. This application May 16, 1996, Ser. No. 649,975

Claims priority, application Japan, Nov. 1, 1993, 5-297256

Int. Cl.⁶ H04N *1/12*

U.S. Cl. 358—498 **24 Claims**



1 A facsimile apparatus comprising
a stationary main body frame having an opening:
a cover element entirely covering the opening in said stationary main body frame and pivotally attached to said stationary main body frame for selectively covering a front upper side of the facsimile apparatus.
a document feeding mechanism for feeding a document sheet. wherein all rollers in said document feeding mechanism are attached to said stationary main body frame. the opening of

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the main body frame exposing the rollers of the document feeding mechanism when the cover element is in an open position; and

an operating knob for manual rotating operation of the exposed rollers of said document feeding mechanism so as to remove the document sheet in a jammed state.

5,739,926

METHOD OF TRANSMITTING AND RECEIVING IMAGE DATA AND APPARATUS WHICH IS USED IN SUCH A METHOD

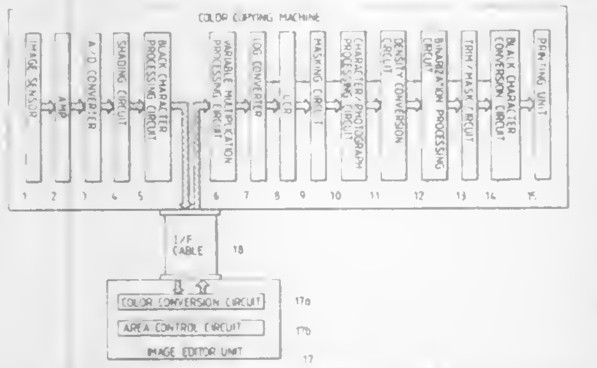
Kazuyoshi Takahashi, Kawasaki, and Yasuhiro Yamada, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 285,522, Aug. 4, 1994, which is a continuation of Ser. No. 956,478, Oct. 2, 1992, which is a continuation of Ser. No. 614,501, Nov. 16, 1990. This application Jun. 7, 1995, Ser. No. 477,266

Claims priority, application Japan, Nov. 28, 1989, 1-310001

Int. Cl.^{6} H04N *1/46;* **G03F** *3/08;15/00*

U.S. Cl. 358—529 **18 Claims**


COLOR COPYING MACHINE
IMAGE SENSOR
AMP
A/D CONVERTER
SHADING CIRCUIT
BLACK CHARACTER PROCESSING CIRCUIT
VARIABLE MULTIPLICATION PROCESSING CIRCUIT
LOG CONVERTER
MASKING CIRCUIT
CHARACTER/PHOTOGRAPH PROCESSING CIRCUIT
DENSITY CONVERSION CIRCUIT
BINARIZATION PROCESSING CIRCUIT
TRIM/MASK CIRCUIT
BLACK CHARACTER CONVERSION CIRCUIT
PRINTING UNIT
I/F CABLE
18
COLOR CONVERSION CIRCUIT
17a
AREA CONTROL CIRCUIT
17b
IMAGE EDITOR UNIT
17

1. A method of processing image data comprising plural pixels of an image, the image data including pixel data corresponding to each of the plural pixels, said method comprising the steps of:

generating pixel control data corresponding to each of the plural pixels, the pixel control data for each pixel representing whether that pixel is within a designated area of the image; and

transmitting, for each pixel in the image, the pixel data and the pixel control data time-sequentially using a common cable.

5,739,927

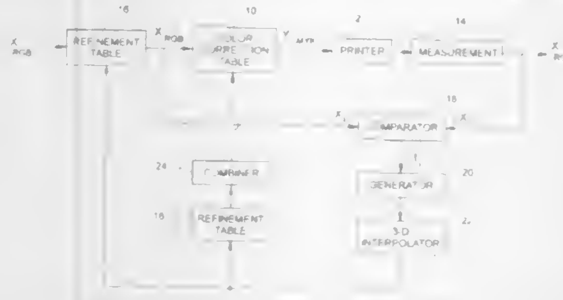
METHOD FOR REFINING AN EXISTING PRINTER CALIBRATION USING A SMALL NUMBER OF MEASUREMENTS

Thyagarajan Balasubramanian, Webster, and Martin Sidney Maltz, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 7, 1995, Ser. No. 480,972

Int. Cl.^{6} H04N *1/46*

U.S. Cl. 358—518 **14 Claims**



1. A method of refining a color imaging system of a printer including a pre-generated color correction table having a plurality of locations comprising:

selecting a set of RGB locations from a color space, the set of RGB locations being less in number than the plurality of locations of the pre-generated color correction table;

mapping the set of RGB locations through the pre-generated color correction table and obtaining a set of CMYK values;

printing a set of color patches, each color patch corresponding to one value from the set of CMYK values obtained from the pre-generated color correction table and measuring a colorimetric RGB location for each of the printed color patches;

determining an actual error value for each of the color patches printed, the actual error value being a difference between the colorimetric RGB location of a color patch and a corresponding RGB location from the selected set of RGB locations mapped through the pre-generated color correction table;

generating a refinement table by generating a correction value for each location of the refinement table from the determined actual error values, including interpolating the determined actual error values to form the correction values for the refinement table such that each location of the refinement table refines a corresponding location in the pre-generated color correction table, the interpolating including using a weighted average of the actual error values, each actual error value being weighted in accordance with Euclidean distances between the location for each correction value and the RGB locations of the actual error values.

5,739,928

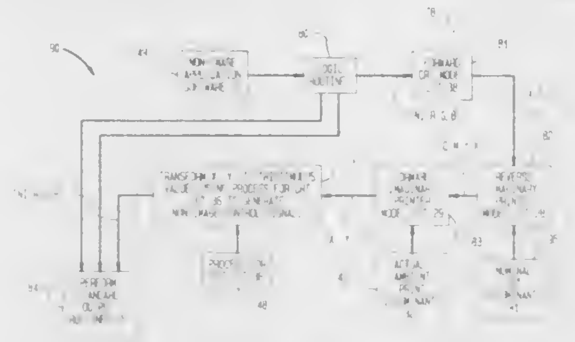
TECHNIQUE PARTICULARLY SUITED FOR USE IN A PRINT PREVIEW FUNCTION FOR ADAPTING CRT COLORIMETRY TO AMBIENT LIGHTING CONDITIONS

Kevin Craig Scott, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 12, 1991, Ser. No. 758,053

Int. Cl.^{6} G03F *3/08;3/10*

U.S. Cl. 358—520 **26 Claims**



1. A color electronic imaging system for processing color input data of an object, the system comprising:

an illumination input means for providing spectral content data representative of the spectral content of an ambient illuminant under which a print of an image of said object will be viewed;

a color display monitor for displaying thereon said object image;

a computer connected to said illumination input means and said color display monitor, wherein said computer uses said spectral content data to transform said color input data such that colors of said object image will appear on said display monitor substantially as said colors would appear on said print of said object image when said print is viewed under said ambient illuminant; and wherein said illumination input means further includes light sensing means for sensing the spectral content of the ambient illuminant, and wherein said light sensing means includes approximately seventeen channels, each of said channels measuring a component of said spectral content occurring in a desired frequency band of the spectrum.

5,739,929

METHOD AND DEVICE FOR HOLOGRAPHIC STORAGE

Roger Morton Macfarlane, Menlo Park, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 17, 1996, Ser. No. 665,258

Int. Cl.^{6} G03H *1/02;1/04,* **G11C** *11/22*

U.S. Cl. 359—3 **13 Claims**

1. A method for writing to a holographic recording medium comprising a photorefractive material doped with an excitation dopant selected from rare earth ions and an ionization dopant selected from the group consisting of transition metal ions or rare earth ions, the method comprising the steps of

(i) separating a first coherent radiation beam at a first wavelength into a reference beam and spatially modulated object beam;

(ii) intersecting the reference beam and the spatially modulated object beam in a recording region of holographic recording medium; and

(iii) directing a second radiation beam at a second wavelength different from the first wavelength to the recording region whereby photons of the first and second wavelengths are absorbed by the excitation dopant which transfers energy to the ionization dopant thereby generating charge carriers to record a charge grating in the holographic recording medium

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5,739,930

DISPLAY APPARATUS

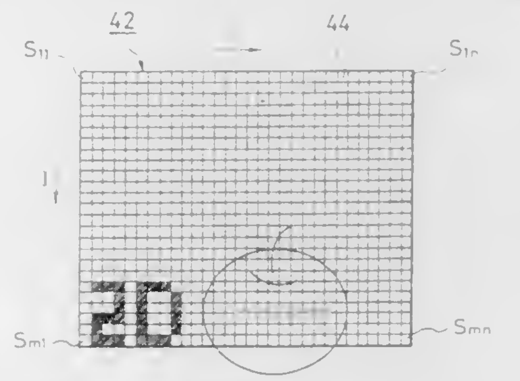
Noriko Sato; Hirokazu Aritake; Masayuki Kato, and Manabu Ishimoto, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 135,480, Oct. 13, 1993, abandoned. This application Dec. 21, 1995, Ser. No. 576,164

Claims priority, application Japan, Oct. 13, 1992, 4-274023

Int. Cl.^{6} G03H *1/26;1/08,* **G02B** *5/32*

U.S. Cl. 359—23 **24 Claims**



1. A display apparatus comprising:

display means for displaying a 2-dimensional graphical image and hologram information, said display means comprising a display image plane arranged with a plurality of cells displaying the 2-dimensional graphical image, each cell including a plurality of pixels displaying the hologram information, said 2-dimensional graphical image being based on 2-dimensional display data, and said hologram information being based on hologram display data;

display data forming means for producing the 2-dimensional display data and the hologram display data together with corresponding display control data; and

display control means for controlling said display means using the 2-dimensional display data and the hologram display data produced by said display data forming means.

5,739,931

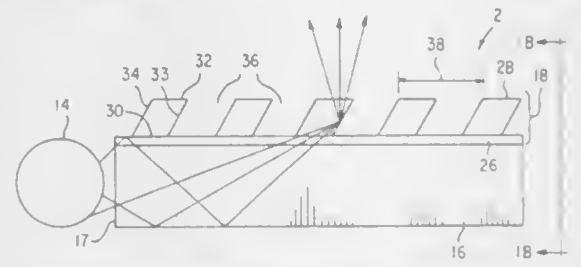
ILLUMINATION SYSTEM EMPLOYING AN ARRAY OF MICROPRISMS

Scott M. Zimmerman, Basking Ridge; Karl W. Beeson, Princeton; Janpu Hou, Bridgewater, and John C. Schweyen, Midland Park, all of N.J., assignors to AlliedSignal Inc., Morris Township, N.J.

Continuation of Ser. No. 394,098, Feb. 24, 1995, Pat. No. 5,555,109, which is a continuatinn of Ser. No. 242,525, May 13, 1994, Pat. No. 5,428,468, which is a continuation-in-part of Ser. No. 149,219, Jan. 11, 1994, Pat. No. 5,396,350. This application Aug. 1, 1996, Ser. No. 691,072

Int. Cl.^{6} G02F *1/335*

U.S. Cl. 359—40 **12 Claims**



1. An illumination assembly comprising:

(a) a light transmitting means having at least one light accepting surface;

(b) reflecting means comprising an array of microprisms wherein at least one microprism comprises:

(i) a light input surface optically coupled to said light transmitting means;

(ii) a light output surface distal from said light input surface and having a surface area at least equal to the surface area of said light input surface;

(iii) a first pair of sidewalls disposed between said light input surface and said light output surface and at least one of said sidewalls forms a first tilt angle with respect to the normal of the surface of said light transmitting means, and

(iv) a second pair of sidewalls disposed between said light input surface and said light output surface and at least one of said sidewalls forms a second tilt angle with respect to the normal of the surface of said light transmitting means

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5,739,932

OPTICAL TRANSMISSION SYSTEM CONSTRUCTING METHOD AND SYSTEM

Keiji Tomooka, Yokohama; Naohiro Sakakida, Kawasaki; Shin Nishimura, Yokohama; Yoshihiro Ashi, Yokohama; Hironari Matsuda, Yokohama; Satoshi Aoki, Chigasaki; Yukio Nakano, Zama; Masahiro Takatori, Hachiouji; Toru Kazawa, Kokubunji; Shinya Sasaki, Kodaira; Ryoji Takeyari, Koganei, and Hiroyuki Nakano, Asaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 44,425, Apr. 7, 1993, Pat. No. 5,555,477, which is a continuation-in-part of Ser. No. 23,546, Feb. 26, 1993, Pat. No. 5,500,756. This application Jun. 20, 1996, Ser. No. 667,214

Claims priority, application Japan, Apr. 8, 1992, 4-087247

Int. Cl.^{6} H04B *10/08*

U.S. Cl. 359—110 **6 Claims**

1. An optical transmission system comprising:

an optical transmission medium connected to a plurality of line terminals and at least a repeater connected between two of said line terminals for repeating a main signal of a first wavelength transmitted between two of said line terminals;

multiplexing means in at least one of said two of said line terminals, for wavelength multiplexing said main signal with a second signal of a second wavelength, said second signal being a signal for surveillance or control of said main signal,

monitoring means in at least one of said repeater and said line terminals, for performing said surveillance or control of said

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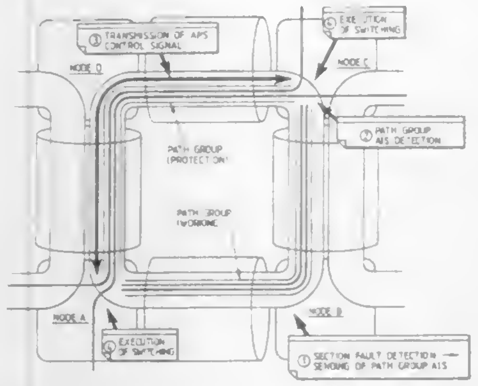

③ TRANSMISSION OF APS CONTROL SIGNAL
④ EXECUTION OF SWITCHING
NODE D
NODE C
② PATH GROUP AIS DETECTION
PATH GROUP (PROTECTION)
PATH GROUP (WORKING)
NODE A
NODE B
④ EXECUTION OF SWITCHING
① SECTION FAULT DETECTION — SENDING OF PATH GROUP AIS

main signal by use of said second signal in the wavelength-multiplexed signals; and

controlling means in at least one of said repeater and said line terminals, for controlling transmission of said main signal by use of said second signal in the wavelength multiplexed signals, based upon the result of the monitoring performed by said monitoring means.

5,739,933

OPTICALLY CONTROLLED OPTICAL SWITCHING MODULE, METHOD OF OPTICALLY CONTROLLING AN OPTICAL SWITCHING NETWORK, AND OPTICAL SWITCHING NETWORK

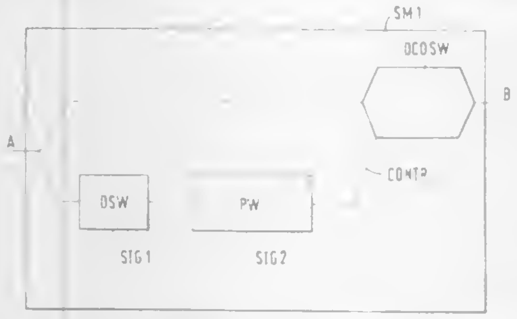
Lars Dembeck, Stuttgart; Jörg Schmitz, Bergisch-Gladbach, and Eugen Lach, Marbach, all of Germany, assignors to Alcatel N.V., Rijswijk, Netherlands

Filed May 28, 1996, Ser. No. 653,539

Claims priority, application Germany, Jun. 2, 1995, 195 19 735.6

Int. Cl.^{6} H04J *14/08*

U.S. Cl. 359—117 **10 Claims**



1 An optically controlled optical switching module (SM1 to SM4, SM'), wherein the optical switching module (SM1 to SM4, SM') comprises at least one optical switch (OCOSW; OCOSW11 to OCOSW22) for switching an optical intelligence signal, said optical switch being controllable via an optical control input (CONTR), and an optical pulse shaper (PW; PW11 to PW22) connected to said control input (CONTR) for providing switching pulses for the at least one optical switch (OCOSW; OCOSW11 to OCOSW22) from an optical control signal, characterized in that the pulse shaper (PW; PW11 to PW22) is a laser with saturable absorber.

5,739,934

WAVELENGTH DIVISION MULTIPLEXING LIGHTWAVE TRANSMISSION SYSTEM

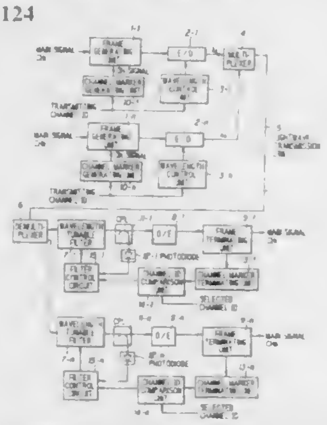
Kenichi Nomura, and Takaaki Ogata, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Aug. 9, 1996, Ser. No. 695,853

Claims priority, application Japan, Aug. 9, 1995, 7-202647

Int. Cl.^{6} H04J *14/02*

U.S. Cl. 359—124 **7 Claims**



1 A WDM lightwave transmission system, comprising:

a transmitter, comprising:

- transmission frame-generating means, which respectively add channel-identifying marker signals to main signal to be transmitted,
- electrical to optical signal converting units, which respectively convert said transmission frames into lightwave signals with different wavelengths, and
- lightwave signals multiplexing means, which multiplexes said lightwave signals to be supplied to a lightwave transmission line; and

a receiver which receives and demultiplexes said multiplexed lightwave signals transmitted from said transmitter to form demultiplexed lightwave signals, filters said demultiplexed lightwave signals using lightwave filter means having tunable wavelength-selecting characteristics to form filtered lightwave signals, converts said filtered lightwave signals into electrical signals, and extracts said channel-identifying marker signals from said transmission frames, said receiver including:

- comparison units, which compare said extracted channel-identifying marker signals with predetermined channel-identifying marker signals and output compared signals,
- received signal level-detecting means which detect signal levels of said filtered lightwave signals, wherein said received signal level-detecting means outputs detected signal levels, and
- control means, which respectively sweep and control said tunable wavelength-selecting characteristics in response to said detected signal levels and said compared signals.

5,739,935

MODULAR OPTICAL CROSS-CONNECT ARCHITECTURE WITH OPTICAL WAVELENGTH SWITCHING

Roberto Sabella, Rome, Italy, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

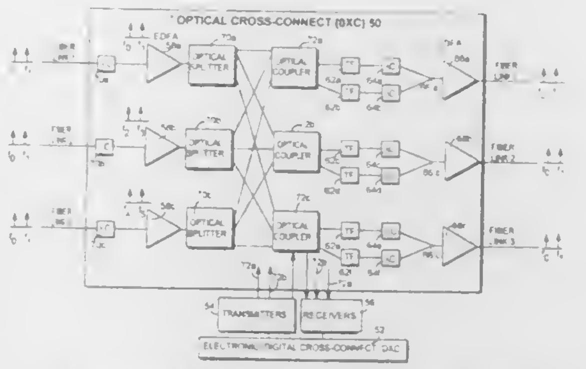
Continuation-in-part of Ser. No. 555,716, Nov. 14, 1995. This application Feb. 26, 1996, Ser. No. 607,313

Int. Cl.^{6} H04J *14/02*

U.S. Cl. 359—128 **24 Claims**

1 A single stage optical cross-connect node for routing and switching wavelength communications channels at high speed, the single stage comprising:

- optical fiber input links and output links, each link containing plural wavelength channels;
- optical splitters, each optical splitter coupled to a corresponding one of the input links;



- optical star couplers coupled to each of the optical splitters, each optical star coupler receiving all wavelength channels from all of the input links;
- tunable optical filters each connected to one of the optical star couplers for selecting any one of the input wavelength channels received on any of the input links;
- optical wavelength converters each corresponding and connected to one of tunable optical filters for translating the selected wavelength channel to a different wavelength channel; and
- optical combiners for combining selected wavelength channels generated by the wavelength converters onto corresponding optical fiber output links,

wherein the optical splitters, optical star couplers, tunable optical filters, optical wavelength converters, and optical combiners are included in the single stage.

5,739,936

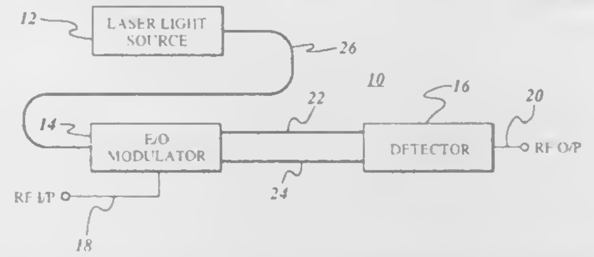
ELECTRO-OPTICAL CIRCUIT FOR SIGNAL TRANSMISSION

Christopher Paul Yakymyshyn, Raleigh, N.C.; Peter Bernard Roemer, North Andover, Mass., and Ronald Dean Watkins, Niskayuna, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 27, 1995, Ser. No. 430,052

Int. Cl.^{6} H04B *10/12*

U.S. Cl. 359—154 **14 Claims**



1. An electro-optical circuit for transmitting an information signal to a predetermined location, comprising.

- a laser for generating a coherent light beam;
- modulating means for receiving said coherent light beam and said information signal for generating first and second modulated light signals by modulating said coherent light beam with said information signal and an inversion of said information signal:
- detector means at said predetermined location for converting said first modulated light signal into electric current components comprising a first DC current component corresponding to said coherent light beam and a first information current component corresponding to said information signal, and for converting said second modulated light signal into electric current components comprising a second DC current component corresponding to said coherent light beam and a second information current component corresponding to the inversion of said information signal:
- said detector means further comprising conductor means for combining said first and second DC current components to mutually nullify effects thereof, and for combining said first and second information current components to mutually reinforce one another to provide an output signal representing said information signal; and
- means for establishing respective first and second optical transmission paths for said first and second modulated light signals between said modulating means and said detector means

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5,739,937

OPTICAL UNIT FOR RESTORING A PULSE PATTERN, RECEIVER SUITABLE FOR USE IN A TRANSMISSION SYSTEM COMPRISING SUCH A UNIT

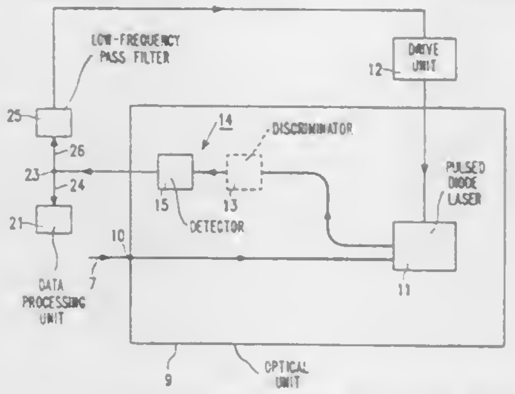
Coen T. H. F. Liedenbaum, and John J. E. Reid, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 22, 1995, Ser. No. 532,123

Claims priority, application European Pat. Off., Sep. 23, 1994, 94202745

Int. Cl.^{6} H04B *10/00*

U.S. Cl. 359—161 **15 Claims**



1 An optical unit for restoring a pulse pattern, said optical unit comprising.

- an input for receiving a light signal pulse series at a modulation period T and wavelength λ_p; and
- a non-linear optical element for supplying a plurality of light pulses in accordance with the signal pulse series, wherein said non-linear optical element is a pulsed laser for supplying a light pulse series whose distance between two consecutive pulses is equal to n·T, wherein n is an integer and is variable throughout the pulse series, further wherein pulses of the signal pulse series are injected into the pulsed laser, said optical unit further comprising a detection system in a path of a radiation emitted by the pulsed laser for measuring a variation of a feedback-sensitive parameter of the pulsed laser

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5,739,938

OPTICALLY-POWERED DIRECTLY-MODULATED FIBER OPTIC LINK

Akis P. Goutzoulis, Pittsburgh, and John M. Zomp, N. Huntingdon, both of Pa., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Sep. 10, 1996, Ser. No. 711,566

Int. Cl.^{6} H04B *10/04*

U.S. Cl. 359—187 **23 Claims**

1 An optically powered, directly modulated, fiber optic link having a fiber optic transmitter and a fiber optic receiver, said fiber optic transmitter comprising:

- a laser transmit module having,
  - a directly modulated laser diode for transmitting a modulated laser signal over a fiber optic cable, said laser diode having a laser diode output power which may vary with temperature changes of the laser diode, and
  - a pin diode for monitoring the laser diode output power and producing a pin diode current which varies with the laser diode output power and thus the temperature of the laser diode;

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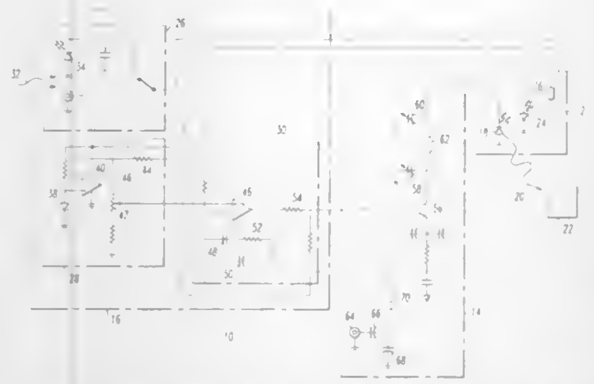


an optical power source having a fiber optic cable for transmitting an optic power signal and an optical power converter connected to an end of said fiber optic cable for receiving said input optical power signal and producing an electric power signal;

a reference circuit for receiving the electric power signal and providing a regulated DC voltage and for receiving said pin diode current and providing a stabilizing voltage based on said pin diode current whereby said stabilizing voltage varies with said pin diode current and thus said laser diode output and thus said temperature of said laser diode;

an optical power regulator for producing a laser diode current based on the regulated DC voltage and said stabilizing voltage, said laser diode current varying with said stabilizing voltage, and thus said pin diode current, and thus said laser diode output and thus said laser diode temperature;

an amplifier biased by said laser diode current for passing said laser diode current to said laser diode to thereby drive said laser diode and for receiving an RF signal and passing an amplified RF signal to said laser diode to thereby modulate said laser diode,

wherein said laser diode current, said pin diode current and said stabilizing voltage vary with the temperature of the laser diode such that the laser diode output power remains constant,

whereby said fiber optic link has a low noise figure, a high spurious free dynamic range and a low operating power.

5,739,939
OUTPUT SCANNER

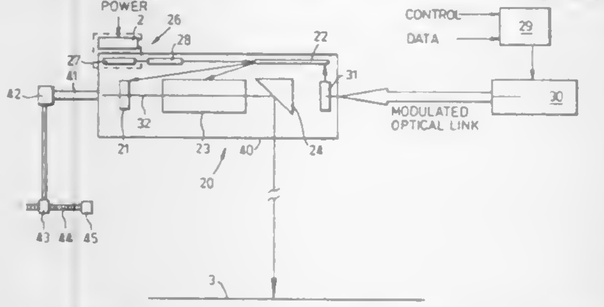
Paul Antony Merritt, Hertfordshire, United Kingdom, assignor to Crosfield Electronics Limited, Hertfordshire, Great Britain

Filed Jul. 31, 1996, Ser. No. 688,788

Claims priority, application United Kingdom, Aug. 16, 1995, 9516771

Int. Cl.^{6} G02B *26/08*

U.S. Cl. 359—204 **8 Claims**



1. An output scanner for recording an image on a radiation sensitive medium, the scanner comprising an at least partially cylindrical support which carries said medium, said medium facing radially inwardly; a scanning unit positioned radially inwardly of said support and having means for generating a plurality of modulated radiation beams, said beams being modulated with respective image information, and a reflector for reflecting said plurality of beams onto said medium at respective, different positions; means for focusing said beams onto said medium; and means for causing relative rotation and traverse movement between said scanning unit and said support about and along the axis of said support respectively.

5,739,940
MULTI-BEAM SCANNING OPTICAL DEVICE WITH A CHROMATIC ABERRATION CANCELLATION FEATURE

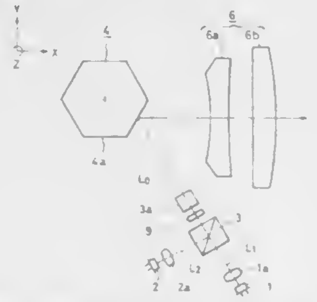
Kazuyuki Kondo, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1996, Ser. No. 727,232

Claims priority, application Japan, Oct. 11, 1995, 7-289234

Int. Cl.^{6} G02B *26/08*

U.S. Cl. 359—204 **8 Claims**



1. A multi-beam scanning optical device comprising:

light source means for generating a plurality of light beams having different wavelengths;

beam synthesizing means for synthesizing a synthetic beam from the plurality of light beams;

scanning means for performing scanning by using the synthetic beam;

an optical system for forming an image on a predetermined surface from the synthetic beam; and

a grating lens, provided in an optical path of the synthetic beam, for offsetting a chromatic aberration of said optical system.

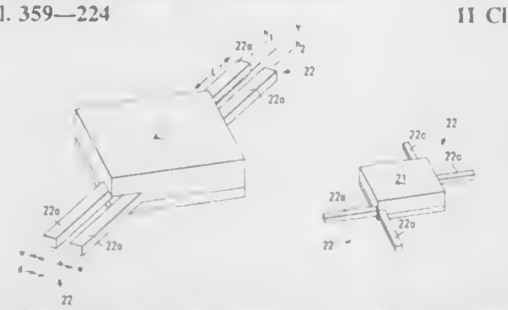
5,739,941
NON-LINEAR HINGE FOR MICRO-MECHANICAL DEVICE

Richard L. Knipe, McKinney, Tex., and Douglas A. Webb, Chandler, Ariz., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jul. 20, 1995, Ser. No. 504,861

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—224 **11 Claims**



1. An improved micro-mechanical device having at least one rotating element that is supported by a hinge, such that said rotating element may rotate about an axis of rotation, wherein said improvement comprises:

said hinge being comprised of at least two hinge strips, said hinge strips being parallel and laterally spaced apart in the same plane, such that the axis of rotation of at least one of said hinge strips is parallel to, but offset from, the axis of rotation of said rotating element, and wherein said hinges strips have dimensions of width relative to length such that edges of said hinge undergo a non-linear elongation strain when said rotating element rotates.

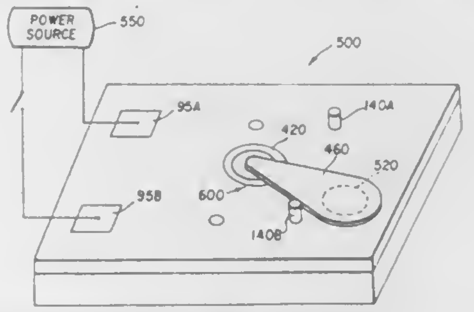
5,739,942
MICROCERAMIC OPTICAL SHUTTER

Edward P. Furlani, Lancaster; Syamal K. Ghosh, and Dilip K. Chatterjee, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 12, 1997, Ser. No. 798,080

Int. Cl.^{6} G02B *26/02*

U.S. Cl. 359—230 **4 Claims**



1. A microceramic optical shutter comprising:

(a) a unitary ceramic body which has been formed with first and second internal cavities, a coil structure formed in the first internal cavity and a ferromagnetic stator formed in the second internal cavity and disposed in operative relationship with the coil structure;

(b) the unitary ceramic body being formed with a light aperture therethrough and having a recess; and

(c) a shutter drive mechanism mounted in the recess and in operative relationship to the stator and having a shutter blade which is movable between light blocking and light passing positions relative to the light aperture so that when a drive voltage is applied to the coil structure in a first direction, a field is created through the stator which provides a driving force to the shutter drive mechanism to move it to the light passing position, and when the drive voltage is applied in the opposite direction to the coil structure the shutter drive mechanism moves the shutter from the light passing position to the light blocking position.

5,739,943
POLARIZATION CONTROL UNIT

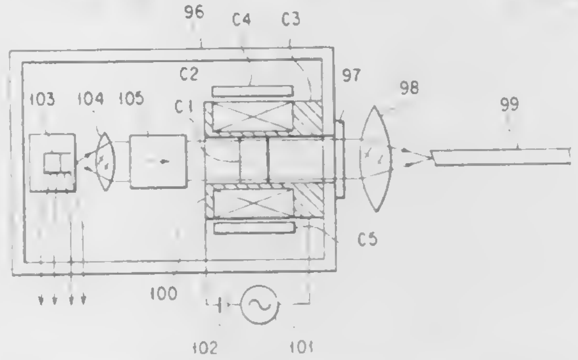
Shigeru Ohshima, Yokohama; Tazuko Tomioka, Tokyo; Mitsuko Nakamura, Yokohama; Senji Shimanuki, Atsugi; Manish Sharma, Kawasaki; Hiroyuki Ibe, Yokohama; Hitoshi Takahira, Tokyo, and Shu Yamamoto, Shiki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, and Kokusai Denshin Denwa Co., Ltd., Tokyo, both of Japan

Filed Aug. 23, 1996, Ser. No. 697,446

Claims priority, application Japan, Aug. 24, 1995, 7-215736; Aug. 24, 1995, 7-215790; Feb. 6, 1996, 8-019890

Int. Cl.^{6} G02F *1/09*

U.S. Cl. 359—281 **20 Claims**



1. A polarization control unit comprising:

a Faraday device for rotating the polarization state of incident parallel light beams by an amount corresponding to the direction of a magnetic field applied;

magnetic field forming means respectively disposed near said Faraday device, arranged to apply, to said Faraday device, magnetic fields from a plurality of directions and to generate a Synthesized magnetic field, the direction of which is changed in response to an operation signal; and

an operation signal source for generating the operation signal

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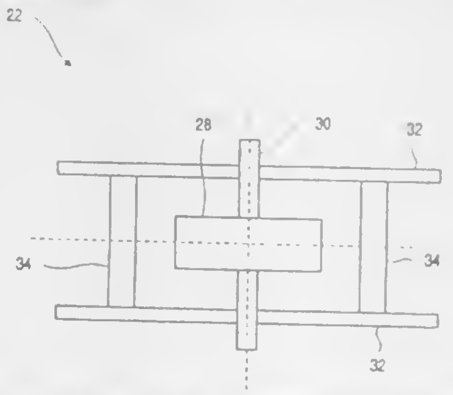
5,739,944
SUPPORT SYSTEM FOR RESONATING ELEMENT OF PHASE MODULATOR

Richard B. Dyott, Oak Lawn, and Steven R. Emge, Mokena, both of Ill., assignors to KVH Industries, Inc., Middletown, R.I.

Filed Oct. 28, 1996, Ser. No. 738,724

Int. Cl.^{6} G02F *1/11*, **G01B** *11/02*

U.S. Cl. 359—287 **14 Claims**



1. A support system for use in a phase modulator comprising:

a resonating element; and

supports contacting the resonating element, said supports have a length which is an odd number of quarter wavelengths of a longitudinal acoustic wave excited in the supports by the resonating element.

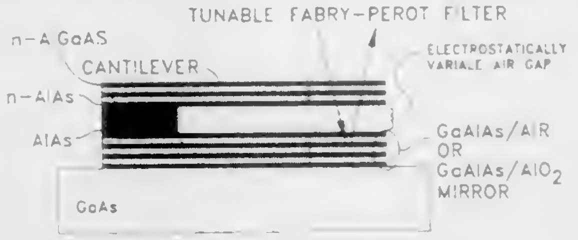
5,739,945
ELECTRICALLY TUNABLE OPTICAL FILTER UTILIZING A DEFORMABLE MULTI-LAYER MIRROR

Parviz Tayebati, 118 Pierce Rd., Watertown, Mass. 01720

Filed Sep. 27, 1996, Ser. No. 726,050

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—291 **6 Claims**


TUNABLE FABRY-PEROT FILTER
n-A GaAS
CANTILEVER
ELECTROSTATICALLY VARIALE AIR GAP
n-AlAs
AlAs
GaAlAs/AIR OR GaAlAs/AlO2 MIRROR
GaAs

(b) BROADLY TUNABLE FABRY-PEROT FILTERS

1. An electrically tunable optical filter comprising

a laterally-extending base comprising an optically-transparent semiconductor material;

a first laterally-extending mirror comprising alternating layers of (i) said optically-transparent semiconductor material, and (ii) air;

a second laterally-extending mirror comprising alternating layers of (i) said optically-transparent semiconductor material, and (ii) air;

said first laterally-extending mirror being fixedly mounted to said laterally-extending base;

said second laterally-extending mirror being movably mounted to said laterally-extending base such that an air gap extends between said first laterally-extending mirror and said second laterally-extending mirror.

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- a first electrode electrically connected to said first laterally-extending mirror; and
- a second electrode electrically connected to said second laterally-extending mirror;

whereby when a voltage difference is applied across said first and second electrodes, the electrically tunable optical filter will change its spectral response

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5,739,946
DISPLAY DEVICE

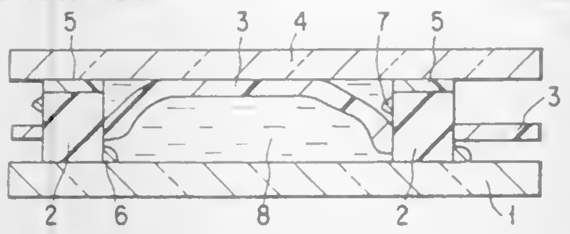
Hiroki Iwanaga; Seizaburo Shimizu; Masaki Okajima; Masayuki Saito; Atsushi Sugahara; Kazuyuki Sunohara, all of Yokohama, and Aira Hotta, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 19, 1996, Ser. No. 716,529

Claims priority, application Japan, Sep. 21, 1995, 7-242250

Int. Cl.^{6} G02B *26/00*

U.S. Cl. 359—296 17 Claims



1. A display device comprising a pair of substrates and a light modulation layer arranged between said substrates, wherein said light modulation layer includes a functional gel adapted to be deformed by an electric field applied between electrodes interposed between said substrates, and the light incident on said light modulation layer is regulated by the deformation of said functional gel.

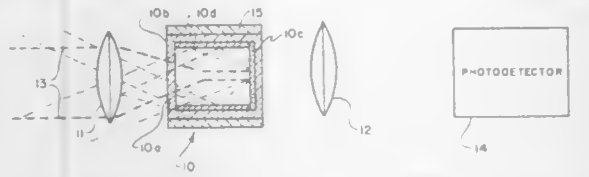
5,739,947
NONLINEAR OPTICAL POWER LIMITER USING SELF-TRAPPING OF LIGHT

Gary L. Wood, 7419 Larne La., Lorton, Va. 22079; Edward J. Sharp, 11404 Indian Head Hgwy., Fort Washington, Md. 20744, and Richard R. Shurtz, 3319 Cranbrook Ct., Oakton, Va. 22124

Filed Mar. 25, 1985, Ser. No. 742,081

Int. Cl.^{6} G02F *1/35*

U.S. Cl. 359—299 4 Claims



1 An optical device for protecting a sensitive photodetector from the high-intensity portion of radiation including optical scene radiation and high-intensity radiation, wherein said device includes:

- a radiation-limiting cell;
- a first lens for focussing radiation to a focal point in said cell;
- a second lens for collecting radiation passing through said cell and directing such radiation onto said photodetector, wherein said cell includes an optical medium whose index of refraction is dependent on radiation intensity such that radiation equal to or greater than a predetermined intensity level is self-trapping in said medium and further includes an optically-switchable material between said medium and said second lens and which acts as a diffuse reflector for radiation equal to or greater than an other predetermined intensity level; whereby radiation of an intensity less than said predetermined intensity level is focussed to said focal point by said first lens, passes through said optically-switchable material, and is collected and focussed onto said photodetector by said second lens; and whereby radiation of an intensity equal to or greater than said predetermined intensity is self-focussing in said optical medium such that its image at said focal point is trapped in said medium and falls on said optically-switchable material essentially at said image size and at an intensity equal to or greater than said other predetermined intensity level and is thus diffusivly reflected by said optically-switchable material.

5,739,948
REFRACTIVE INDEX MODULATION DEVICE AND METHOD OF REFRACTIVE INDEX MODULATION

Nobuo Kushibiki, Kanagawa; Fumito Nishida, Tokyo; Takuya Ogawa, Kanagawa, all of Japan, and Toshio Suzuki, Midland, Mich., assignors to Dow Corning Asia, Ltd., Tokyo, Japan

Filed Oct. 8, 1996, Ser. No. 730,721

Claims priority, applicatinn Japan, Oct. 12, 1995, 7-263914; Jan. 31, 1996, 8-015174

Int. Cl.^{6} G02F *1/00*

U.S. Cl. 359—321 13 Claims

1 A refractive index modulation device comprising a refractive index modulation element formed from a polysiloxane material having a spectral transmission factor on average higher than 80% within the range of 350 nm to 1,600 nm, and a refractive index temperature dependence of −0.001/° C. to −0.00005/° C.

5,739,949
FREQUENCY CONVERTER COMPRISING A HETEROSTRUCTURE SEMICONDUCTOR WAVEGUIDE

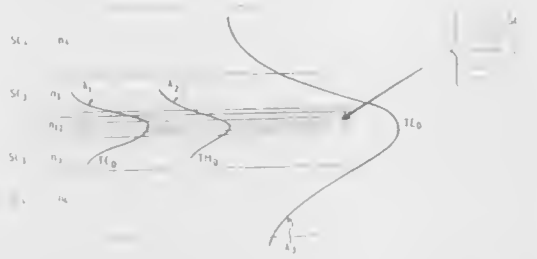
Emmanuel Rosencher, Bagneux, and Vincent Berger, Paris, both of France, assignors to Thomson-CSF, Paris, France

Filed Jun. 28, 1996, Ser. No. 671,694

Claims priority, application France, Jun. 30, 1995, 95 07918

Int. Cl.^{6} G02F *1/35*

U.S. Cl. 359—332 9 Claims



1 An electromagnetic wave frequency converter capable of generating an electromagnetic wave of frequency ω_3, comprising a heterostructure semiconductor waveguide formed by alternating layers of materials M_I and M_{II}:

wherein:

- at least one of said materials is a non linear semiconductor;
- a plane of each of said alternating layers is parallel to a direction of propagation of electromagnetic waves in the waveguide;

said waveguide is supplied with two electromagnetic pump waves with frequencies ω_1 and ω_2 having a difference in frequency equivalent to ω_3; and

said electromagnetic pump waves with frequencies ω_1, ω_2 achieve matched phases based on propagation modes (TE) and (TM) that are different between the pump waves.

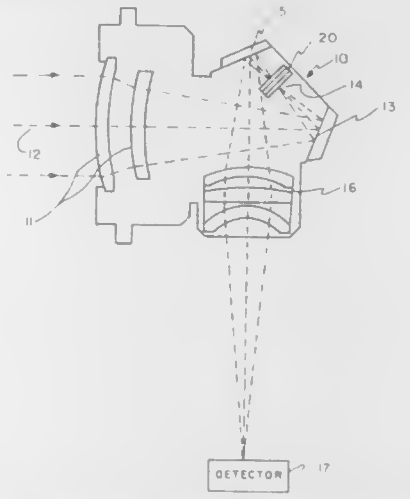
5,739,950
BROADBAND PROTECTOR FOR PHOTODETECTORS

Gary L. Wood, 5448 New London Park Dr., Fairfax, Va. 22032; William W. Clark, III, 6847 Silver Ann Dr., Lorton, Va. 22079; Byong H. Ahn, 6501 Park View Ct., Springfield, Va. 22152, and Edward J. Sharp, 14 Windsor Rd., Fredericksburg, Va. 22405

Filed Sep. 1, 1989, Ser. No. 411,157

Int. Cl.^{6} G02B *5/20*

U.S. Cl. 359—359 5 Claims



1 Broadband means for protecting a sensitive photodetector in an optical instrument against high-intensity electromagnetic energy, said means being in the form of a trilaminar device, of thickness less than d_{max}, wherein d_{max} is the maximum device thickness which will allow a predetermined minimum amplitude of electromagnetic radiation to reach said photodctector, said device placed at an intermediate focus of the optical instrument, wherein the device includes:

- a first layer of material which exhibits two-photon absorption in the presence of extremely high-intensity electromagnetic radiation;
- a second layer of material which undergoes thermal damage in the presence of intermediate high-intensity electromagnetic radiation; and
- a third layer of a nonlinear optical material which acts as a scatterer in the presence of saturating but non-damaging high-intensity electromagnetic radiation, wherein below a predetermined electromagnetic radiation intensity level, said device is at least partially transparent to said electromagnetic radiation, as determined by d_{max}.

5,739,951
POLARIZATION INDEPENDENT OPTICAL DEVICE

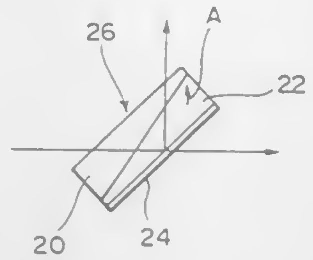
Norihisa Naganuma, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 604,088, Feb. 20, 1996, abandoned, which is a division of Ser. No. 291,558, Aug. 16, 1994, abandoned, which is a division of Ser. No. 799,159, Nov. 27, 1991, Pat. No. 5,377,040. This application Mar. 14, 1997, Ser. No. 818,033

Claims priority, application Japan, Nov. 27, 1990, 2-320769

Int. Cl.^{6} G02B *5/30*

U.S. Cl. 359—494 3 Claims



3. A polarization independent optical device comprising:

- a tapered double-refractive crystal having an input side and an exit side, and being disposed in such a manner than an optical axis thereof is perpendicular to an incident optical path, said tapered double-refractive crystal being capable of converting a linearly polarized light beam inputted on the input side into a non-polarized state on the exit side; and
- a dielectric multi-layer coupler film disposed on the exit side of said tapered double-refractive crystal, said coupler film being adapted to split the light beam including ordinary light and extraordinary light in a predetermined splitting ratio.

5,739,952
POLARIZING BEAM SPLITTER AND OPTICAL HEAD ASSEMBLY

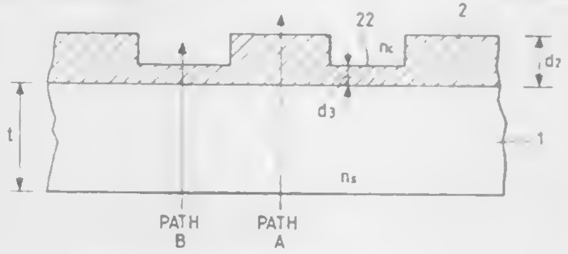
Tadashi Takeda; Yoshio Hayashi, both of Nagano; Hideo Takezoe, and Ken Ishikawa, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Sankyo Seiki Seisakusho, Nagano, Japan

Filed Apr. 14, 1995, Ser. No. 421,904

Claims priority, application Japan, Apr. 14, 1994, 6-100668; Apr. 14, 1994, 6-100669; Apr. 14, 1994, 6-100670; May 31, 1994, 6-141147

Int. Cl.^{6} G02B *5/18*

U.S. Cl. 359—495 20 Claims



1 A polarizing beam splitter comprising

- an optically isotropic substrate;
- a layer of birefringent material formed on said optically isotropic substrate; and
- a periodic pattern of ridges and grooves formed on a surface of said optically isotropic substrate to form a grating,

wherein said grooves are filled with an optically isotropic material that has a refractive index (nc) that satisfies the following relationship with the refractive index of said birefringent material for ordinary light (no) and the refractive index for extraordinary light (ne):

$$nc = no + m(no-ne), (m = \pm1, \pm2, \pm3 \quad)$$
$$= ne + l(no-ne); (l = \pm1, \pm2, \pm3 \quad).$$

5,739,953
OPTICAL SYSTEM CAPABLE OF CORRECTING IMAGE POSITION

Susumu Sato, Chiba, Japan, assignor to Nikon Corporation, Tokyo, Japan

Division of Ser. No. 401,792, Mar. 10, 1995, Pat. No. 5,646,779. This application Aug. 7, 1996, Ser. No. 692,224

Claims priority, application Japan, Mar. 15, 1994, 6-070034; Mar. 29, 1994, 6-082454

Int. Cl.^{6} G02B *27/64, 15/14*

U.S. Cl. 359—557 23 Claims

1. An optical system capable of correcting an image position, comprising, in the following order from the object side

- a first lens group having a positive refractive power,
- a second lens group having a negative refractive power; and

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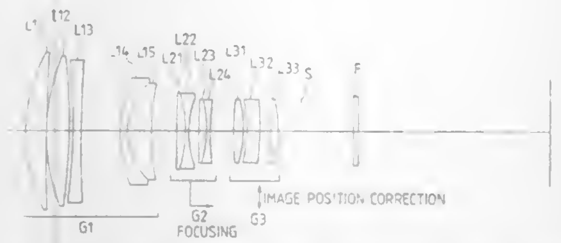


a third lens group having a positive refractive power, wherein said second lens group is movable along a direction of an optical axis,

said third lens group comprises an image position correction group which is movable in a direction substantially perpendicular to the optical axis,

an aperture stop is arranged in an optical path between said second and third lens groups, and

said optical system satisfies:

$$-0.2 \leqq \phi23 \leqq 0.002$$

$$0.2<\phi1/|\phi2|<0.7$$

where $\phi23$ is the synthesized refractive power of said second and third lens groups, $\phi1$ is the refractive power of said first lens group, and $\phi2$ is the refractive power of said second lens group.

5,739,954

Patent Not Issued For This Number

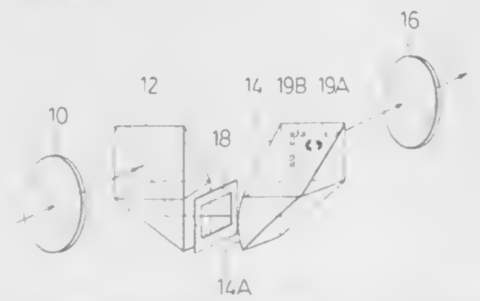
5,739,955
HEAD MOUNTED DISPLAY OPTICS

Ian Marshall, Hove, Great Britain, assignor to Virtuality (IP) Limited, Leicester, United Kingdom
PCT No. PCT/GB95/01891, § 371 Date Feb. 10, 1997, § 102(e) Date Feb. 10, 1997, PCT Pub. No. WO96/05532, PCT Pub. Date Feb. 22, 1996
PCT Filed Aug. 10, 1995, Ser. No. 776,779
Claims priority, application United Kingdom, Aug. 10, 1994, 9416118; Mar. 1, 1995, 9504141
Int. Cl.⁶ G02B *27/14*
U.S. Cl. 359—631 **24 Claims**

1 Head-mounted display apparatus comprising
a display screen (**501**) on which an image is displayed,
a crossed beamsplitter device (**502**, **508**) which directs light from the display screen into two separate optical paths for viewing of respective images of the display screen at left and right exit pupils (**507**),
a first optical system (**503**) for relaying an image of the display screen towards the beamsplitter device, and
a pair of second optical systems (**505**) for magnifying and collimating the relayed image for viewing at the left and right exit pupils, respectively,
wherein the first optical system comprises a concave mirror (**503**) disposed optically on the opposite side of the beamsplitter device to the display screen,
the beamsplitter device comprises two semi-reflecting beamsplitter elements (**502**, **508**) disposed one above the other and mutually inclined, and
light from the display screen (**501**) passes through the beamsplitter elements (**502**, **508**), is reflected by the concave mirror (**503**) back towards the beamsplitter device, and is then deflected by the beamsplitter device such that part of said light is reflected by one of the beamsplitter elements (**502**) towards one of the second optical systems (**505**), and such that part of said light is reflected by the other beamsplitter element (**508**) towards the other of the second optical systems (**505**).

5,739,956
REAL IMAGE ALBADA FINDER

Katsuhiro Ohtake, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan
Filed Oct. 16, 1996, Ser. No. 733,141
Claims priority, application Japan, Oct. 17, 1995, 7-268494
Int. Cl.⁶ G02B *17/00;25/00*
U.S. Cl. 359—643 **7 Claims**



1. A real image Albada finder having an objective lens for focusing a subject light to form a real image on a predetermined focal plane, an eyepiece through which said real image is observed, and an erecting optical system arranged between said objective lens and said eyepiece for erecting an inverted image, comprising:
an optical member or optical members which compose said erecting optical system and are arranged such that a whole surface of said optical member or members is away from said focal plane so as to make dust on said surface and foreign substances mixed in said optical member or members and close to said surface inconspicuous;
a visual field frame provided on said focal plane; and
Albada display means for forming a virtual image of a mark within said focal plane in an Albada method.

5,739,957
OBJECTIVE LENS SYSTEM FOR FLUORESCENCE MICROSCOPES

Hirokazu Konishi, Hachinji, Japan, assignor to Olympus Optical Co., Ltd., Tokyn, Japan
Filed Feb. 17, 1995, Ser. No. 391,222
Claims priority, application Japan, Feb. 18, 1994, 6-043320
Int. Cl.⁶ G02B *21/02*
U.S. Cl. 359—659 **5 Claims**

1 An objective lens system for fluorescence microscopes comprising, in order from an object to an image side:
a first lens unit comprising a lens component which has a convex surface on the image side and a positive refractive power;

a second lens unit comprising a plurality of cemented lens components; and
a third lens unit comprising a cemented lens component which consists, in order from the object side, of a positive lens element and a negative lens element,
wherein the lens component which is disposed in said first lens unit and has the positive refractive power is a cemented lens component consisting of a plano-convex lens element and a meniscus lens element having a concave surface on the object side, and wherein said objective lens system satisfies the following conditions

$$0.7<|f_1|/f<1.4$$

$$2<f_2/f<6$$

$$n_{3p}<1.62$$

$$35<\nu_{3p}<55$$

wherein the reference symbols f_1 and f_2 represent focal lengths of the first lens unit and the second lens unit respectively, the reference symbol f designates a focal length of said objective lens system as a whole, and the reference symbols n_{3p} and ν_{3p} represent a refractive index and an Abbe's number, respectively, of the positive lens element disposed in said third lens unit

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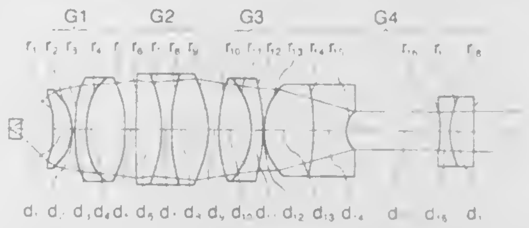
5,739,958
MICROSCOPE OBJECTIVE LENS SYSTEM WITH CORRECTION RING

Katsuyuki Abe, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Oct. 17, 1995, Ser. No. 544,311
Claims priority, application Japan, Oct. 17, 1994, 6-250783
Int. Cl.⁶ G02B *21/02*
U.S. Cl. 359—660 **17 Claims**


G1
G2
G3
G4
r1 r2 r3 r4 r5 r6 r7 r8 r9
r10 r11 r12 r13 r14 r15
r16 r17 r18
d1 d2 d3 d4 d5 d6 d7 d8 d9 d10 d11 d12 d13 d14 d15 d16 d17

1. A microscope objective lens system, in order from the object side, comprising:
a first lens unit having a positive refractive power,
a second lens unit having a positive refractive power;
a third lens unit comprising a surface having a negative refractive power and strong divergent power; and
a fourth lens unit having negative refractive power, wherein
said first lens unit comprises a positive meniscus lens component having a concave surface on the object side and suitable for converting a light bundle coming from an object to be observed into a substantially parallel light bundle,
said second lens unit comprises diverging cemented surfaces and is movable along an optical axis, and wherein said second lens unit is movable relative to said first lens unit and said third lens unit in conjunction with a thickness of a transparent plane parallel plate disposed between said first lens unit and a surface of said object

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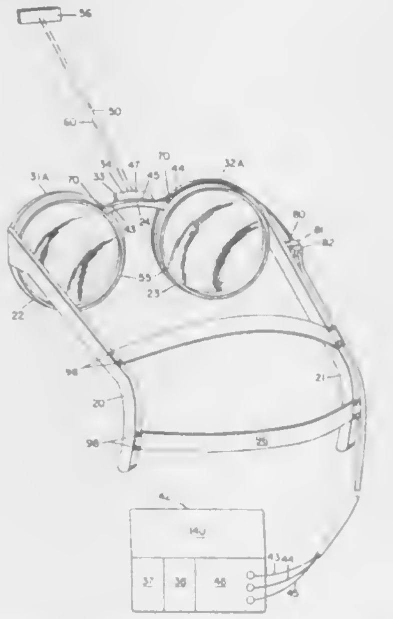
5,739,959
AUTOMATIC FAST FOCUSING INFINITELY VARIABLE FOCAL POWER LENS UNITS FOR EYEGLASSES AND OTHER OPTICAL INSTRUMENTS CONTROLLED BY RADAR AND ELECTRONICS

Lawrence D. Quaglia, 917 Quincy Ave., Bronx, N.Y. 10465, assignor to Lawrence D. Quaglia, Bronx, N.Y.
Division of Ser. No. 94,852, Jul. 20, 1993, Pat. No. 5,440,357.
This application Aug. 7, 1995, Ser. No. 512,085
Int. Cl.⁶ G02B *1/06,3/12*
U.S. Cl. 359—666 **22 Claims**



1 A lens system for infinitely variable focal power comprising
a first lens element and a second lens element mounted adjacent to each other with said first lens element being a forward lens, closer to an object to be viewed, and said second lens element being a rearward lens, further from said object to be viewed;
wherein said first and second lenses' inner surfaces are mounted in juxtaposed relationship with a space formed between said lenses' inner surfaces for receiving a transparent fluid medium there between,
a circular reservoir being substantially C-ring shaped in cross section to contain the transparent fluid medium between said first and second lenses;
said circular reservoir and stablizer rings connected to said first lens and said second lens by an adhesive;
a set of current connection wires and other components connected to the circular reservoir by said adhesive,
said forward lens, and said rearward lens form lens units,
an electromagnet affixed to the rearward lens, the electromagnet being connected to a power supply, and
a permanent magnet affixed to the forward lens and being magnetically aligned so that its north pole is adjacent to the north pole of the electromagnet, when the electromagnet is energized;
an electromagnet affixed to the forward lens, the electro magnet being connected to a power supply; and
a permanent magnet affixed to the rearward lens and being magnetically aligned so that its south pole is adjacent to the south pole of the electromagnet, when the electromagnet is energized

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5,739,960
ZOOM LENS DEVICE WITH FIVE LENS UNITS

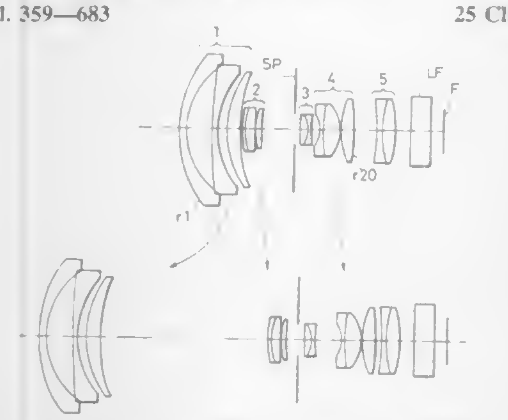
Tsunefumi Tanaka, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 22, 1997, Ser. No. 787,544

Claims priority, application Japan, Jan. 25, 1996, 8-031452

Int. Cl.⁶ G02B *15/14;3/02*

U.S. Cl. 359—683 **25 Claims**



1. A zoom lens device comprising, in order of lens units from the lens unit closest to an object side of said zoom lens device:

a first lens unit having a negative refractive power;
a second lens unit having a positive refractive power;
a third lens unit having a negative refractive power;
a fourth lens unit having a positive refractive power; and
a fifth lens unit having a positive refractive power;
wherein during magnification change, said first lens unit, said second lens unit, and said fourth lens unit move along an optical axis of said zoom lens device, while said third lens unit and said fifth lens unit are stationary, and
wherein the following conditions are satisfied:

$$0.7<f_2/f_T<1.2,$$

$$2.2<|f_3|/f_W<3.5,$$

$$0.6<|f_3|/f_4<1.45, \text{ and}$$

$$f_T<f_4<f_5,$$

where f_2, f_3, f_4, and f_5 represent the focal lengths of said second lens unit, said third lens unit, said fourth lens unit, and said fifth lens unit, respectively, and where f_T and f_W represent the focal lengths of said zoom lens device at a telephoto end and a wide-angle end, respectively

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5,739,961
ZOOM LENS

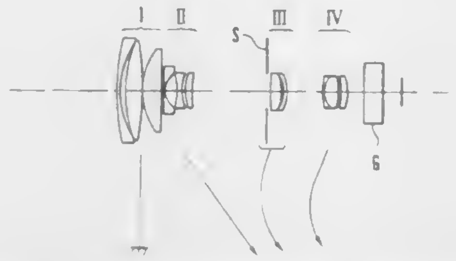
Hiroki Nakayama; Akihisa Horiuchi; Hitoshi Mukaiya, all of Kanagawa-ken; Yasunori Murata, Tokyo, and Fumihito Wachi, Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 149,364, Nov. 9, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 474,186

Claims priority, application Japan, Apr. 30, 1992, 5-128207; Nov. 13, 1992, 4-303929; Nov. 13, 1992, 4-303938; Nov. 13, 1992, 4-303939; Apr. 30, 1993, 5-128205; Apr. 30, 1993, 5-128206; Apr. 30, 1993, 5-128208; Apr. 30, 1993, 5-128213

Int. Cl.⁶ G02B *15/14*

U.S. Cl. 359—687 **4 Claims**



1. A zoom lens of the rear focus type comprising, from front to rear, a stationary first lens unit of positive refractive power, a second lens unit of negative refractive power, a stop, a third lens unit of positive refractive power and a fourth lens unit of positive refractive power,

wherein during zooming from a wide-angle end to a telephoto end, said second lens unit is moved toward the image side, said third lens unit and said stop are moved in unison in a locus convex toward an object side, said fourth lens unit is moved in a locus convex toward the object side, and a spacing between said third lens unit and said fourth lens unit is varied, and
wherein during focusing, said fourth lens unit is moved.

5,739,962
LENS MOUNT

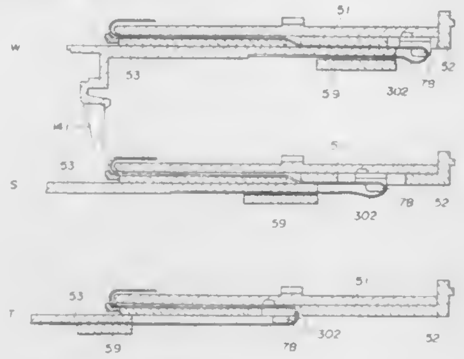
Yasuo Asakura; Mitsuhiro Sato, both of Hachioji; Shinya Takahashi, Kodaira, and Keita Takahashi, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd, Tokyo, Japan

Division of Ser. No. 269,641, Jun. 30, 1994, Pat. No. 5,661,609. This application Oct. 31, 1995, Ser. No. 551,144

Claims priority, application Japan, Jul. 6, 1993, 5-156208; Jul. 6, 1993, 5-167209; Jul. 6, 1993, 5-167211

Int. Cl.⁶ G02B *15/14*

U.S. Cl. 359—700 **12 Claims**



1. A lens mount comprising,

a moving frame on which an actuator and electric parts are arranged and so arranged as to be retractable in an optical-axis direction;
a flexible printed circuit member provided within the lens mount and having one end thereof which is connected to the actuator and the electric parts which are provided on said moving frame, and another end which is connected to a side of a camera body; and
a movable guide element for guiding said flexible printed circuit member to assume a U-shape about said guide element at a location rearward of said moving frame, wherein an amount of retraction of said guide element in the optical-axis direction is substantially half an amount of retraction of said moving frame in the optical-axis direction.

5,739,963
LENS ASSEMBLY

Takashi Kato, Sakai, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Aug. 12, 1996, Ser. No. 695,877

Claims priority, application Japan, Aug. 21, 1995, 7-211806

Int. Cl.⁶ G02B *15/14*

U.S. Cl. 359—704 **31 Claims**

1. A lens assembly comprising:

an outer barrel;
an inner barrel which is inserted in said outer barrel;
a plurality of lenses, all of said lenses being movable substantially along an axial barrel direction when at least one of said outer barrel and said inner barrel is rotated; and
said inner barrel including an interlocking portion which extends toward the outside of said inner barrel;
wherein said interlocking portion is so constructed that, when said inner barrel is inserted in said outer barrel, said interlocking portion is elastically bent toward the inner direction thereby allowing the insertion and, after completion of the insertion, said interlocking portion returns towards the outer direction thereby preventing the barrels from being removed

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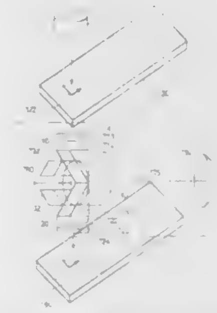
5,739,964
MAGNIFICATION CORRECTION FOR SMALL FIELD SCANNING

Paul C. Allen, Beaverton, Oreg., assignor to Etec Systems, Inc., Nev.

Filed Mar. 22, 1995, Ser. No. 409,251

Int. Cl.⁶ G02B *17/00*

U.S. Cl. 359—727 **25 Claims**



1. A projection lens assembly, comprising:

projection optics; and
magnification adjusting optics, wherein the magnification optics comprises,
a first lens element having a convex surface;
a second lens element having a first concave surface and a second concave surface, the first concave surface being disposed adjacent to the convex surface of the first lens element to define a first gap between the first and second lens elements, wherein the first concave surface has a radius of curvature equal to that of the convex surface of the first lens element;
a third lens element having a convex surface disposed adjacent to the second concave surface of the second lens element to define a second gap between the second and third lens elements, wherein the convex surface of the second lens element has a radius of curvature equal to that of the second concave surface of the second lens element; and
means for moving the second lens element relative to the first and third lens elements so that second gap narrows as the first gap widens.

5,739,965
WIDE ANGLE LENS SYSTEM FOR CAMERA

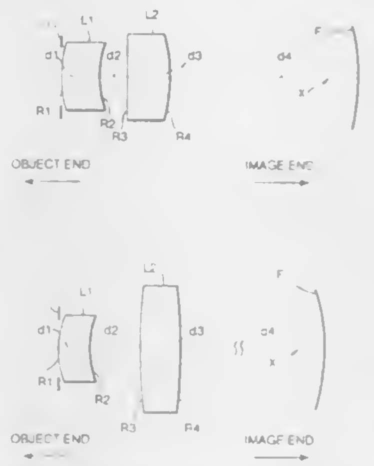
Kazunori Ohno, Saitama, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama, Japan

Filed May 31, 1996, Ser. No. 655,901

Claims priority, application Japan, May 31, 1995, 7-158401

Int. Cl.⁶ G02B *13/04,13/18;9/04*

U.S. Cl. 359—753 **15 Claims**



1. A wide angle lens system, comprising in order from the object end to the image end an aperture stop a first meniscus lens element L_1 having a convex object end surface and a second positive power lens element L_2, the wide angle lens satisfying the following conditions.

$$-0.10<f_2/f_1<0.7$$

$$4.0<f/R_1<7.5$$

$$0<f/R_3<1.6$$

$$0.01<D/f<0.22$$

where f_1 is the focal length of the first lens element L_1, f_2 is the focal length of the second lens element L_2, f is the overall focal length of the wide angle lens, R_1 is the radius of curvature of the object end surface of the first lens element L_1, R_3 is the radius of curvature of the object end surface of the second lens element L_2, and D is the axial distance between the object end surface of the first lens element L_1 and the image plane

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5,739,966
IMAGING LENS SYSTEM

Kazuyuki Tanaka, Chohu, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 18, 1997, Ser. No. 801,210

Claims priority, application Japan, Feb. 19, 1996, 8-053695

Int. Cl.⁶ G02B *9/34,13/22,13/18,13/04*

U.S. Cl. 359—779 **10 Claims**

1. An imaging lens system comprising in order from the object side: a front lens unit having a positive refractive power; and a rear lens unit having a positive refractive power, wherein a stop is

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disposed in the lens system and wherein said lens system satisfies the following conditions (1) and (2):

(1) $1.0<ffb/D<3.0$

(2) $0.5<f_F/f_B<2.0$

wherein the reference symbol ffb represents a distance as measured from an object side surface of said rear lens unit to a front focal point of said rear lens unit, the reference symbol D designates a distance as measured from an exit pupil of said front lens unit to the object side surface of said rear lens unit, the reference symbol f_F denotes a focal length of said front lens unit and the reference symbol f_B represents a focal length of said rear lens unit.

5,739,967

LENS BARREL HAVING A REDUCED DIAMETER

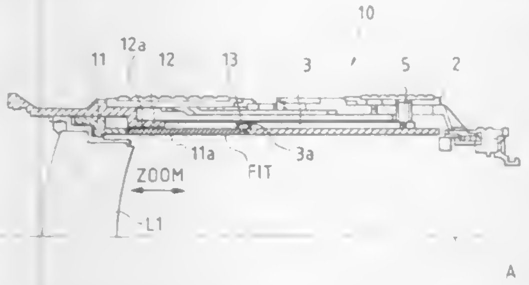
Masatsune Tanaka, Kuroiso, and Junichi Kurita, Ohtawara, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Aug. 26, 1996, Ser. No. 701,792

Claims priority, application Japan, Aug. 31, 1995, 7-223150

Int. Cl.^{6} G02B *7/02;15/14*

U.S. Cl. 359—826 **5 Claims**



1. A lens barrel comprising:

a lens unit movable in an optical-axis direction of said lens barrel;

a lens holding drum, having a sliding portion protruded in the optical axis direction at its end portion, to hold said lens unit;

a fixed drum having a portion with the same outer diameter as that of a portion of said lens holding drum and provided with a guiding portion at its end portion, to accommodate said sliding portion and rectilinearly guiding said sliding portion in the optical-axis direction; and

a driving mechanism to drive said lens unit by acting upon said lens holding drum.

5,739,968

RECORDING/PLAYBACK APPARATUS FOR DIVIDING ENCODED DIGITAL VIDEO DATA INTO ESSENTIAL INFORMATION AND HIGH-PRECISION INFORMATION AND FOR RECORDING BOTH THE HIGH-PRECISION INFORMATION ONTO A MAGNETIC TAPE

Sadayuki Inoue; Junko Ishimoto; Haruhisa Inoue, and Ken Onishi, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 106,722, Aug. 16, 1993, Pat. No. 5,499,144. This application Dec. 19, 1995, Ser. No. 575,035

Claims priority, application Japan, Aug. 24, 1992, 4-224084; Dec. 1, 1992, 4-321676; Jul. 15, 1993, 5-175363

Int. Cl.^{6} G11B *5/09;5/584*

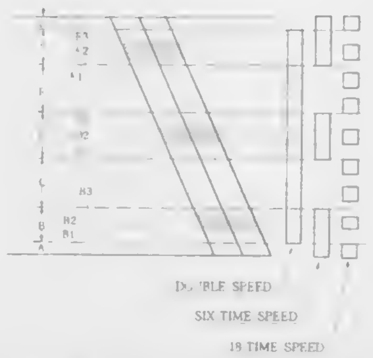
U.S. Cl. 360—48 **20 Claims**

1. A magnetic recording/playback apparatus comprising

first means for performing high-efficiency encoding by assimilating input digital video data for a plurality of pixels into blocks;

second means for recording digital video data encoded by the first means onto a magnetic tape using at least two rotary leads;

third means for playing back the recorded digital video data from the magnetic tape using the at least two rotary heads; and



recording format generating means for dividing the high-efficiency encoded digital video data into essential information and high-precision information, and for generating a recording format for recording the essential information at central portions along a longitudinal direction of tracks of the magnetic tape and at portions near upper and lower ends of the tracks, and for recording the high-precision information at intermediate portions between the central portions and the portions near upper and lower ends of the tracks, the second means recording the essential and high-precision information onto the magnetic tape based upon the generated recording format, wherein the essential information includes DC, relatively low frequency AC, and mid-range frequency AC components of the digital video data and the high-precision information includes relatively high frequency AC components of the digital video data, and wherein the DC and relatively low frequency AC components of the digital video data are stored in a first relatively central location in at least one of the central, upper end or lower end portions of the tracks and mid-range frequency AC components of the digital video data are stored in a second relatively peripheral location in the same at least one of the central, upper end or lower end portions of the tracks.

5,739,969

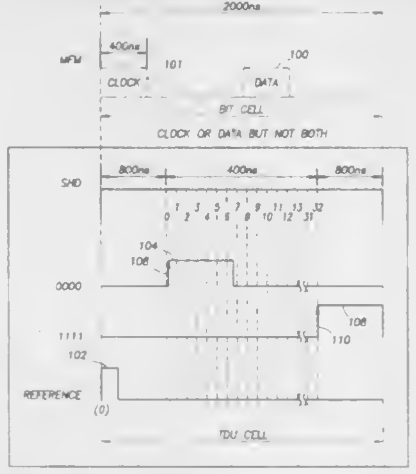
DIGITAL DATA STORAGE USING PREDETERMINED INCREMENTS OF TIME WHEREIN EACH INCREMENT REPRESENTS A PLURALITY OF BITS OF INFORMATION

Ricardo R. Garza, Pasadena, Tex., assignor to Inwave Technologies, Inc., Houston, Tex.

Filed Jul. 26, 1994, Ser. No. 280,775

Int. Cl.^{6} G11B *5/09;5/02*

U.S. Cl. 360—51 **27 Claims**



1. A high density magnetic media data storage system wherein an interval of time in which a pulse may be written to the magnetic media is called a "TDU cell", comprising:

a data buffer for storing data words to be stored on the magnetic media, said data buffer operable to output said stored data words in a predetermined order to be recorded on the magnetic media;

a timing system for defining a plurality of TDU cells on the surface of the magnetic media along the surface thereof as the surface passes a fixed point, each of said TDU cells having a defined time length and moving sequentially past said fixed point;

said timing system operable to define a reference pulse for each of said TDU cells;

a modulator for defining a variable length of time from said reference pulse to a record time within said TDU cell, said variable length of time defined by the value of one of said data words received from said data buffer, the variable length of time being divided into a plurality of increments, each of the increments constituting a predetermined length of time offset from said reference pulse, each increment referenced to the reference pulse such that each incremental value of said data word corresponds to one of the increments,

a recording mechanism for recording a magnetic flux pulse on the magnetic media at said record time for each of said TDU cells, such that the magnetic flux pulse represents a data word having a plurality of bits of information based upon the selected increment in which the magnetic flux pulse is recorded, and

a data controller for sequentially feeding said data words to said modulator from said data buffer

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5,739,970

MAGNETIC TAPE UNIT

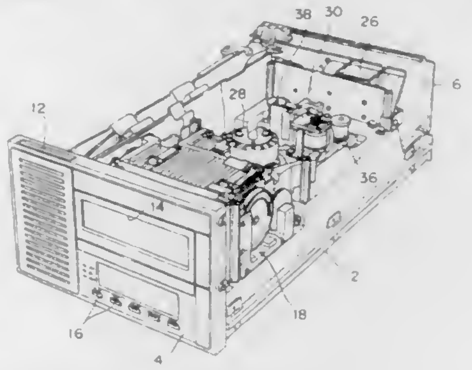
Masayoshi Kobayashi; Keisuke Hoshino; Masaru Ohshita; Akira Takano; Makoto Sasaki; Makoto Matsuda, and Toshihiko Fujii, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 17, 1995, Ser. No. 503,200

Claims priority, application Japan, Sep. 20, 1994, 6-224825; Mar. 3, 1995, 7-044510; Mar. 8, 1995, 7-048432

Int. Cl.^{6} G11B *15/18;15/43*

U.S. Cl. 360—75 **9 Claims**



1. A magnetic tape unit comprising:

a magnetic head for reading and writing data from and onto a magnetic tape;

driving means for traveling said magnetic tape kept in contact with said magnetic head during a read/write operation of said magnetic head; and

means for preventing adhesion of said magnetic tape to said magnetic head including:

means for performing a reciprocating motion of said magnetic tape by a small distance with a predetermined period during a rest period where the read/write operation of said magnetic head is not performed:

a temperature sensor for detecting a temperature in the vicinity of said magnetic head: and

control means for changing said predetermined period of said reciprocating motion according to said temperature detected by said temperature sensor

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5,739,971

HEAD-POSITION CONTROLLING DEVICE

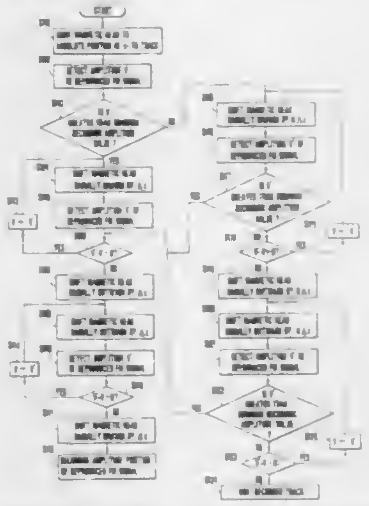
Hideaki Yamaki, Kanagawa-ken, and Tomotaka Muramoto, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 741,635, Aug. 7, 1991, abandoned. This application Jul. 21, 1994, Ser. No. 279,266

Claims priority, application Japan, Aug. 17, 1990, 2-217931

Int. Cl.^{6} G11B *5/596;21/10*

U.S. Cl. 360—77.06 **26 Claims**



1. A method of controlling a position of a head with respect to a recording track on recording medium, comprising the steps of

(A) moving the head with respect to the recording track on the recording medium,

(B) detecting a level of a reproduced signal which is reproduced from the recording track on the recording medium by the head; and

(C) controlling movement of the head to change a moving characteristic of the head on the basis of the detected level of the reproduced signal so that, in the case that the detected level of the reproduced signal is lower than a predetermined level, the head is moved at a first moving amount in one of inward and outward direction in which a detected level of the newly reproduced signal becomes greater than a previously detected level, and in the case that the detected level of the reproduced signal becomes greater than said predetermined level, the head is moved at a second moving amount which is smaller than the first moving amount in a second moving mode in one of inward and outward direction in which a detected level of the newly reproduced signal becomes greater than a previously determined level and stopped at a position where the level of the reproduced signal is maximum

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5,739,972

METHOD AND APPARATUS FOR POSITIONING A MAGNETORESISTIVE HEAD USING THERMAL RESPONSE TO SERVO INFORMATION ON THE RECORD MEDIUM

Gordon J. Smith, 5321 Countrycreek Ct., SE., Rochester, Minn. 55904, and Hal Hjalmar Ottesen, 4230 Stoneham La.,NW., Rochester, Minn. 55901

Filed Jan. 2, 1996, Ser. No. 581,981

Int. Cl.^{6} G11B *5/596*

U.S. Cl. 360—77.03 **23 Claims**

1. A storage device, comprising.

a magnetoresistive (MR) head:

a storage medium mounted to allow relative movement between said MR head and said storage medium, said storage medium including servo information provided to induce a thermal response in said MR head, and

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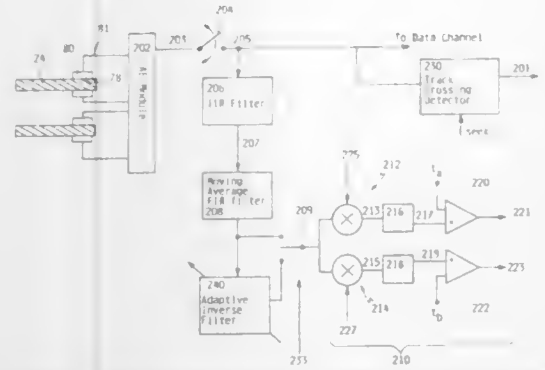


- a controller provided to control the relative movement between said MR head and said storage medium using said thermal response in said MR head.

5,739,973
APPARATUS FOR RECORDING A MIXED VIDEO AND TRACKING SIGNAL ON A MAGNETIC RECORDING MEDIUM

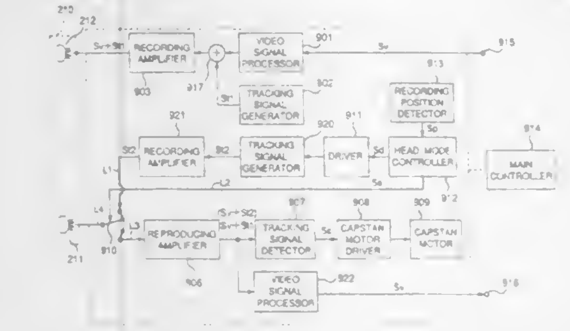
Noriyasu Echigo, Ashiya, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Continuation of Ser. No. 317,546, Oct. 4, 1994, abandoned. This application Sep. 30, 1996, Ser. No. 724,147

Claims priority, application Japan, May 10, 1993, 5-249013

Int. Cl.⁶ G11B *5/58*

U.S. Cl. 360—77.15 **4 Claims**



1. A magnetic recording apparatus for magnetically recording a signal on a recording tape comprising,

- first tracking signal generating means for generating a first signal having a first predetermined frequency;
- first head means for writing said first signal on said recording tape to form a first track,
- second tracking signal generating means for generating a second signal having a second predetermined frequency, said second signal being mixed with a video signal to form a mixed signal;
- second head means for writing said mixed signal on said recording tape to form a second track, said mixed signal forming an entirety of said second track, and
- tracking means for tracking said first head means over said first and second tracks, said first head means reproducing said first and second signals such that said first and second signals have the same amplitude.

5,739,974
SYSTEM FOR CALIBRATING A MAGNETIC TAPE DRIVE

Kevin L. Miller, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 9, 1993, Ser. No. 28,741

Int. Cl.⁶ G11B *5/55*

U.S. Cl. 360—78.02 **3 Claims**

1. A method of calibrating a mechanism for driving a magnetic head in a magnetic tape drive, the method comprising the following steps:

- moving the magnetic head, with the mechanism, in a substantially continuous motion, over a plurality of tracks;
- measuring a number of actual position values of the magnetic head during the movement of the magnetic head, wherein the number of actual position values measured is at least twice the number of tracks in the plurality of tracks,
- filtering the actual position values;
- computing track position values from the filtered actual position values, and
- storing the computed track position values.

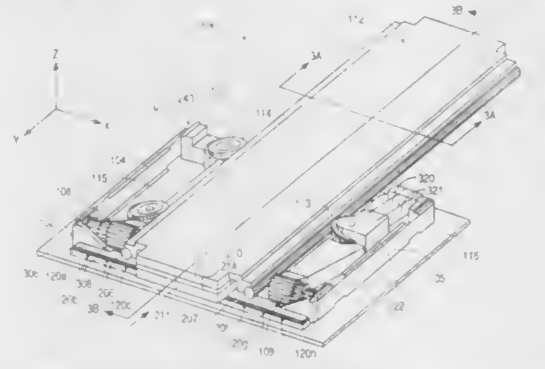
5,739,975
MEMORY STORAGE MODULE FOR STARING AND ACCESSING MAGNETICALLY ENCODED DATA ON LINEAR TRACKS

A. Harold Parks, San Leandro; James R. W. Clymer, Cupertino; Douglas A. Reim, San Jose; William N. Aldrich, Redwood City; Ajeet Singh, Berkeley; Albert S. Hoagland, Saratoga, and Hi-Dong Chai, San Jose, all of Calif., assignors to Cartesian Data, Inc., Sunnyvale, Calif.

Division of Ser. No. 215,140, Mar. 18, 1994, Pat. No. 5,521,774. This application Feb. 23, 1996, Ser. No. 606,170

Int. Cl.⁶ G11B *5/52*

U.S. Cl. 360—81 **3 Claims**



1. A memory storage module comprising

- a storage medium having a memory storage area arranged in relation to X-axis and a Y-axis, said X-axis being perpendicular to said Y-axis, said medium being substantially flat along a plane defined by said X-axis and said Y axis;
- a plurality of read/write heads positioned adjacent to said medium;
- a first motor coupled to said read/write heads, wherein said first motor creates a reciprocating substantially linear motion between said read/write heads and said medium in parallel with said X-axis, and
- a second motor which creates linear motion between said read/write heads and said medium in parallel with said Y-axis, wherein said read/write heads store or access information on said medium as said read/write heads move across said medium in parallel with said X-axis, wherein said read/write heads operate in parallel to store or access information on said medium.

5,739,976
MAGNETIC RECORDING AND REPRODUCING APPARATUS

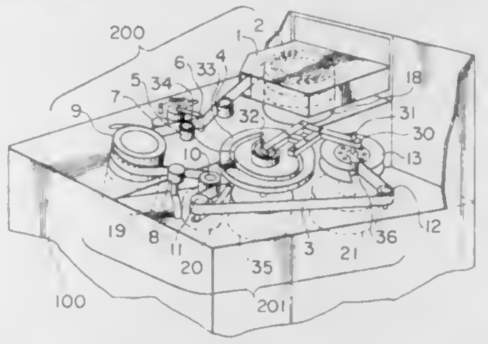
Kazuo Sakai, Ibaraki-ken; Fumio Takeda, Ushiku; Taichiro Yamashita; Fujio Tajima, both of Tsuchiura; Takao Terayama, Ushiku; Tomokazu Ishii, Ibaraki-ken; Kooetsu Okuyama, Tsuchiura; Takayuki Munemoto, Ibaraki-ken; Nobuyuki Kaku, Kanagawa-ken; Kenmei Masuda, Yokohama; Shigeyuki Kobata, Odawara; Fukuyasu Abe, Fujisawa; Kenji Ogiro, Yokohama, and Shigemitsu Higuchi, Fujisawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 118,401, Sep. 9, 1993, abandoned. This application Oct. 30, 1995, Ser. No. 550,226

Claims priority, application Japan, Sep. 9, 1992, 4-240367; Sep. 18, 1992, 4-249566

Int. Cl.⁶ G11B *15/67*

U.S. Cl. 360—85 **2 Claims**



1. A magnetic recording and reproducing apparatus into which a magnetic tape accommodated around a supply reel in a cartridge is loaded to record and reproduce information to and from said magnetic tape, said magnetic recording and reproducing apparatus comprising:

- a cylindrical drum having a magnetic head for recording and reproducing information to and from said magnetic tape while being rotated;
- a take-up reel for taking up said magnetic tape, said take-up reel being arranged such that a tape edge of a tape portion from said supply reel in said cartridge to said cylindrical drum has a predetermined angle of not 0° with respect to a tape edge of a tape portion from said cylindrical drum to said take-up reel;
- a capstan for driving said magnetic tape;
- a magnetic-tape threading means for extracting an end of said magnetic tape from said cartridge, wrapping said tape around said drum and by the capstan along a predetermined path and threading to said take-up reel, said magnetic-tape threading means comprising a threading pin, an arm, a link, a driving motor, a cam member and a cam follower member, which magnetic tape threading means performs a threading operation of said magnetic tape along a predetermined three dimensional path; and
- a tape guide means which moves from a first position not in contact with said tape to a second position wrapping said tape around said drum at a predetermined timing with respect to tape threading motion and which moves from said second position to said first position during a reinstalling of said tape into said cartridge.

5,739,977
POLE BASE MOVING APPARATUS OF TAPE RECORDER

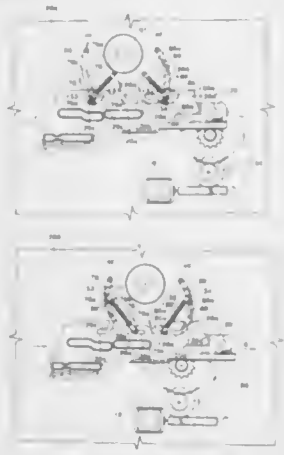
Byung-sam Son; Yong-chae Jeong; Myoung-sub Jang, all of Suwon, and Chung-ung Kim, Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 774,358

Claims priority, application Rep. of Korea, Mar. 29, 1996, 96-9186

Int. Cl.⁶ G11B *15/665; 15/61*

U.S. Cl. 360—85 **2 Claims**



1. A pole base moving apparatus of a tape recorder, comprising:

- a deck on which a head drum is installed and a pair of guide slots is formed on opposite sides of said head drum;
- first and second pole bases movably, respectively combined with said guide slots and formed with first and second protrusions, respectively;
- first and second link members whose one ends are rotatably connected to said first and second pole bases, respectively, other ends of which respectively have third and fourth protrusions, and whose middle portions respectively have slots;
- first and second fixing pins which are fixedly installed on said deck and are respectively positioned within the slots of said first and second link members; and
- a slide member installed on said deck and having first and second moving slots respectively linked to said guide slots and to which said first and second protrusions of said first and second pole bases are movably combined, and third and fourth moving slots to and from which said third and fourth protrusions enter and exit,
- wherein when said slide member moves rectilinearly, said first and second protrusions respectively move along said first and second moving slots, the one ends of said first and second link members move up, said pole bases respectively exit from said first and second moving slots and ascend along said guide slots, the other ends of said first and second link members rotate centering around said first and second fixing pins, and said third and fourth protrusions are respectively inserted into said third and fourth moving slots.

5,739,978
CARTRIDGE HANDLING SYSTEM WITH MOVING I/O DRIVE

John F. Ellis; Daniel W. Hoekstra, both of Louisville, Colo., and Daniel J. Woodruff, Kalispell, Mont., assignors to Exabyte Corporation, Boulder, Colo.

Filed May 17, 1996, Ser. No. 649,250

Int. Cl.⁶ G11B *15/68*

U.S. Cl. 360—92 **39 Claims**

1. An automated cartridge handling system for storing cartridges of information storage media, the cartridge handling system comprising:

- a cartridge holder which defines a cartridge storage location whereat at least one cartridge can be mounted,

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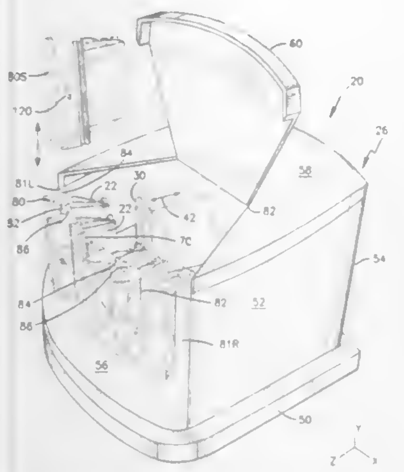

a tape drive movably mounted with respect to the cartridge holder;

a transport system for transporting the tape drive in a drive transport path between a unloaded position and a cartridge loaded position, and wherein in being transported from the unloaded position to the cartridge loaded position by the transport system the tape drive receives at least a portion of the at least one cartridge: and

wherein the cartridge holder is stationary relative to the drive transport path

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5,739,979

RECORDING AND REPRODUCING APPARATUS HAVING A COMPACT CASSETTE HOLDER FOR ACCOMMODATING CASSETTES OF DIFFERENT SIZES

Andreas Busch, Guntramsdorf, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 22, 1996, Ser. No. 589,434

Claims priority, application Austria, Jan. 30, 1995, 156/95

Int. Cl.^{6} G11B *15/675*

U.S. Cl. 360—94 **12 Claims**

1 A recording and/or reproducing apparatus comprising

a cassette holder with a holder compartment bounded by a bottom wall and into which cassette holder. either a first cassette having first main surfaces. or at least one second cassette having second main surfaces can be inserted,

the first main surfaces being larger in at least one dimension than the second main surfaces.

and said cassette holder comprising at least one positioning device for positioning the second cassette in the holder compartment.

which positioning device is movable between a positioning position and a non-positioning position. said positioning device comprising a positioning element for the second cassette.

which positioning element in the positioning positions is disposed in the holder compartment and is movable out of and into the holder compartment in the area of the bottom wall of the cassette holder and:

in the non-positioning positions the positioning element is disposed substantially outside the holder compartment.

and said cassette holder further comprising a blocking device operably coupled to the positioning device.

which blocking device is movable between a blocking position and a non-blocking position. said blocking device comprising a blocking element.

which blocking element in the blocking position engages the positioning device and locks the positioning device in its positioning position and.

in the non-blocking position allows the positioning device to move into its non-positioning position, and

which blocking device comprises a detection element for the mechanical detection of the first cassette for setting the blocking device to its non-blocking position when the first cassette is loaded into the cassette holder.

characterized in that the positioning device and the blocking device are arranged on the cassette holder in the area of the bottom wall, and

in that the detection element is arranged and adapted to cooperate with the first main surface of the first cassette which faces the bottom wall of the cassette holder.

5,739,980

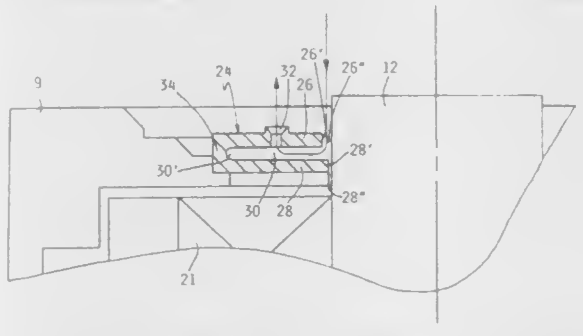
SEAL FOR DISK DRIVES

Peter E. Brooks, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 22, 1996, Ser. No. 621,297

Int. Cl.^{6} G11B *33/14*

U.S. Cl. 360—99.08 **15 Claims**



1 A direct access storage device comprising one or more data storage disks, and a rotatable seal for removing contaminants from gas, said seal configured to inhibit the contact of said one or more data storage disks with said contaminants. said seal comprising an upper portion and a lower portion. said seal having a first open side. a second closed side and at least one opening in said seal upper portion, said upper portion. lower portion. and second closed side defining a cavity. wherein when said seal is rotated. said seal draws gas through said seal first open side and vents gas from the opening in said seal upper portion. said gas contaminants collecting in the cavity of said seal.

5,739,981

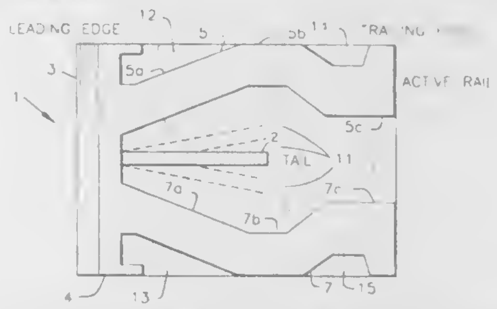
MAGNETIC HEAD SUB-AMBIENT AIR PRESSURE SLIDER FOR A DISK DRIVE DEVICE OR THE LIKE

Ellis Taeho Cha, 1520 Vista Club Cir. #202, Santa Clara, Calif. 95054, and Jia-Kuen Jerry Lee, 1398 Sajak Ave., San Jose, Calif. 95131

Continuation of Ser. No. 358,432, Dec. 20, 1994, abandoned. This application Sep. 4, 1996, Ser. No. 707,827

Int. Cl.^{6} G11B *5/60*

U.S. Cl. 360—103 **24 Claims**



1 A sub-ambient pressure. air bearing slider for positioning a magnetic read/write head proximately to a rotating disk. said slider comprising:

first and second rails extending along the bottom side of said slider from a leading edge of said slider to a trailing edge of said slider. said bottom side of said slider for facing a rotating disk, each of said first and second rails including.

a thigh extending at an angle from said leading edge to a generally perpendicular lateral edge of said slider;

a foot having a first part extending inwardly at an angle from said lateral edge of said slider. a second part extending from the first part in a direction generally parallel with the lateral edge to the trailing edge. and a third part extending from the second part along the trailing edge to the lateral edge of said slider wherein the trailing edge is generally perpendicular to the lateral edge; and

a knee at said lateral side of said slider coupling said foot to said thigh;

wherein said first and second rails form first and second thigh recesses located towards and extending to the lateral side of said respective thighs:

wherein said first and second rails form first and second foot recesses located on the bottom side of said slider towards and extending to the lateral edge of said respective feet wherein said rails separate respective foot and thigh recesses from each other; and

wherein said first and second rails form a central recess located on the bottom side of said slider between said thighs. knees. and feet.

5,739,982

LASER TREATMENT OF HEAD GIMBAL ASSEMBLY COMPONENTS

Satya Prakash Arya; Darrell Dean Palmer; Surya Pattanaik, all of San Jose; Mathew Kayhan Shafe, Campbell, and Randall George Simmons, San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 23, 1996, Ser. No. 702,072

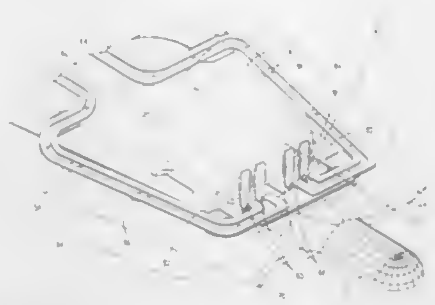
Int. Cl.^{6} G11B *5/48*

U.S. Cl. 360—104 **19 Claims**

1 A method of assembling an integrated head gimbal assembly comprising:

providing a rigid load member and a flexure pivotally attached thereto, the flexure comprising a slider end. an actuator end. and a first flexure surface having a plurality of conductive leads formed thereon extending from the slider end of the flexure to the actuator end of the flexure. the conductive leads being bent at 90° angles at the slider end of the flexure:

impinging laser energy on the bent portions of the conductive leads, thereby annealing conductive leads:



mounting a slider on the first flexure surface at the slider end of the flexure such that an end face of the slider is proximate the annealed conductive leads; and

bonding the annealed conductive leads to contact pads on the end face of the slider.

5,739,983

MAGNETIC HEAD CARRIAGE FORMED OF SHEET METAL WITH WEDGE-SHAPED FEED SCREW ENGAGEMENT ELEMENT

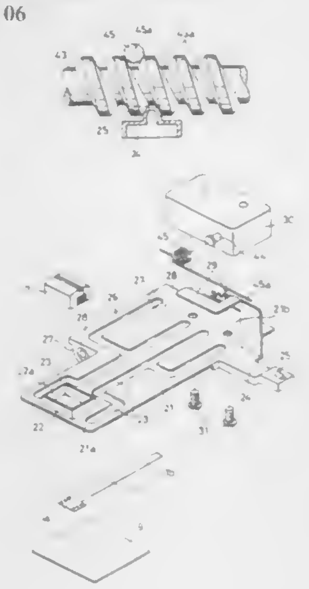
Tatsuhiko Shigemoto, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 525,607, May 21, 1990, Pat. No. 5,166,846. This application Dec. 30, 1991, Ser. No. 814,693

Claims priority, application Japan, May 25, 1989, 1-132431; May 25, 1989, 1-132432

Int. Cl.^{6} G11B *5/55*

U.S. Cl. 360—106 **4 Claims**



1 A floppy disk drive assembly having a magnetic head for recording information on and/or reproducing information from a floppy disk comprising: a carriage formed of sheet metal for carrying the magnetic head: and drive means for driving the carriage so as to enable the magnetic head to scan a track formed on a side of the floppy disk. in which the drive means includes a feed screw and a motor for driving the feed screw and in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed. upraised. wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal. the sheet-metal being the same sheet metal forming the carriage so as to form a unitary structure. whereby a torque of the motor is transmitted to the carriage through the feed screw and the wedge shaped element of the carriage.

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5,739,984

DAMPING LOOP FOR A TAPE DRIVE ACTUATOR WITH A SERVO CONTROL SYSTEM

Eric Alan Eckberg, Rochester, Minn., assignor to International Business Machines Corporation, Armnnk, N.Y.

Filed Aug. 28, 1996, Ser. No. 704,072

Int. Cl.⁶ G11B *5/55*

U.S. Cl. 360—106 **9 Claims**

1 A magnetic recording device for recording data onto a tape media comprising

- a read/write head for recording information on the tape media and reading information from the tape media.
- an actuator including a rigid movable portion which supports said read/write head and is movable to displace said read/write head transversely to the direction of travel of said tape media;
- a flexible member attached to said actuator rigid movable portion and attached to a rigid stationary location of said device; and
- damping means contacting a surface of said flexible member for attenuating vibration of the actuator rigid movable portion, wherein said damping means is disposed between said flexible member and an overlying flexible member to form a constrained layer damper.

5,739,985

HEAD DRUM ASSEMBLY

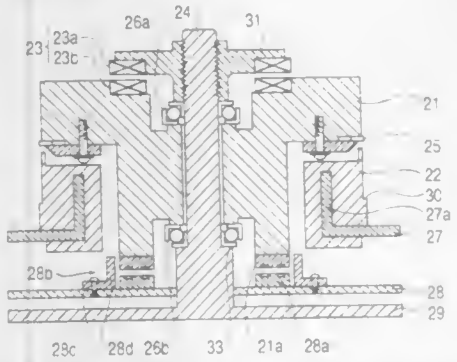
Keum-Mo Kim, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 30, 1996, Ser. No. 774,441

Claims priority, application Rep. of Korea, Dec. 29, 1995, 95-51410 U

Int. Cl.⁶ G11B *15/61*

U.S. Cl. 360—107 **15 Claims**



1 A head drum assembly of a magnetic recording/reproducing apparatus having a main chassis, a deck of a tape-running system located above the main chassis, and a main located on the main chassis for controlling various components of said magnetic recording/reproducing apparatus, said head drum assembly comprising:

- an upper drum having at least two video heads at an outer bottom portion of said upper drum and having a rotor transformer at an inner bottom portion of said upper drum;
- a boss formed by bending said deck upwardly.
- a lower drum formed on said boss and under said upper drum and having a cylindrical shape with a same diameter as that of said upper drum, and a lead line for leading a magnetic tape positioned on an outer periphery of said lower drum;
- a stator transformer located on said main printed circuit board, said stator transformer corresponding to said rotor transformer;
- a shaft integral with said main chassis, wherein said upper drum is rotatably mounted to said shaft; and
- a motor for rotating said upper drum relative to said shaft, wherein part of the motor is positioned on said upper drum.

5,739,986

MAGNETIC TAPE RECORDING/REPRODUCING DEVICE COMPRISING A HEAD-DRUM UNIT USING CAPACITIVE AND INDUCTIVE COUPLINGS TO TRANSFER SIGNALS FROM AND TO THE WRITE AND READ HEADS

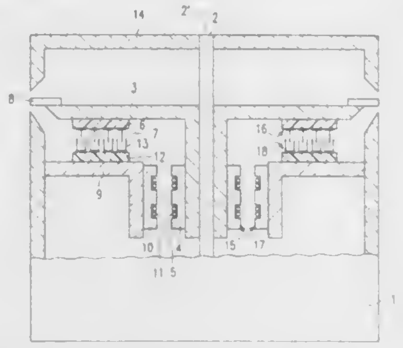
Johannes J. L. M. Van Vlerken, and Theodorus P. H. G. Jansen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 9, 1996, Ser. No. 767,595

Claims priority, application European Pat. Off., Dec. 14, 1995, 95203485

Int. Cl.⁶ G11B *5/52*

U.S. Cl. 360—108 **20 Claims**



1. A head-drum unit for use in a magnetic-tape recording/reproducing device, the head-drum unit having a rotatable supporting member and a stationary part, characterized in that the head-drum unit comprises first and second means for signal transmission between the stationary part and a magnetic head arranged on the supporting member, the first means for signal transmission transmitting signals by means of a substantially inductive coupling, and the second means for signal transmission transmitting signals by means of a substantially capacitive coupling.

5,739,987

MAGNETORESISTIVE READ TRANSDUCERS WITH MULTIPLE LONGITUDINAL STABILIZATION LAYERS

Samuel W. Yuan, San Francisco; Daniel A. Nepela, San Jose, and Marcos M. Lederman, San Francisco, all of Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

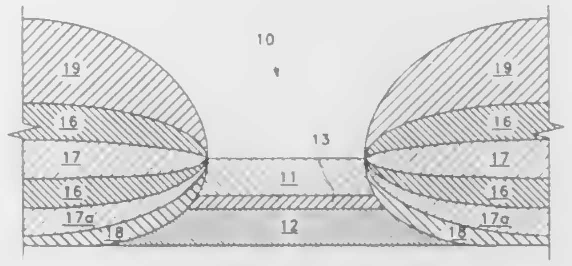
Filed Jun. 4, 1996, Ser. No. 658,000

Int. Cl.⁶ G11B *5/39;5/127*

U.S. Cl. 360—113 **8 Claims**

1 A read transducer assembly comprising:

- a magnetoresistive structure having a top surface, a bottom surface and end surfaces, and
- multilayered biasing structures including alternating layers of antiferromagnetic material and layers of soft magnetic material in contact with said antiferromagnetic material;



- said multilayered biasing structures being located adjacent to and in magnetic contact with said end surfaces of said magnetoresistive structure.

5,739,988

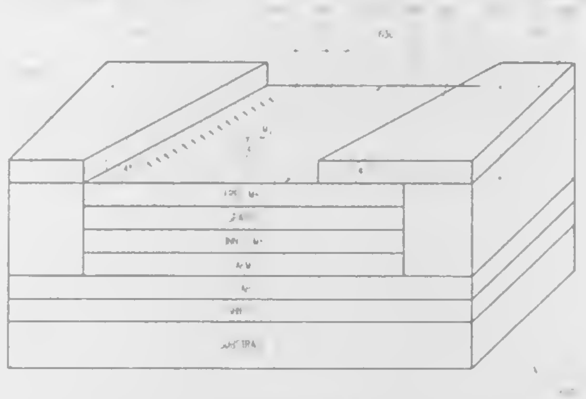
SPIN VALVE SENSOR WITH ENHANCED MAGNETORESISTANCE

Hardayal Singh Gill, Portola Valley, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 18, 1996, Ser. No. 715,200

Int. Cl.⁶ G11B *5/127;5/39*

U.S. Cl. 360—113 **22 Claims**



1. A spin valve (SV) magnetoresistive sensor having an air bearing surface (ABS), said spin valve sensor comprising:

- end regions separated by a central region;
- a magnetoresistive (MR) element formed in said central region, said MR element including:
  - a pinned layer formed in said central region, said pinned layer having a pinned layer magnetization perpendicular to said ABS;
  - a free layer formed in said central region, said free layer having a free layer magnetization perpendicular to said pinned layer magnetization; and
  - a spacer layer formed in said central region, said spacer layer disposed between said free layer and said pinned layer; and
- a first and a second electrical lead in contact with said free layer, each of said electrical leads having a slanted conducting edge for orienting current flow at a non-zero less than 90 degree angle with respect to said free layer magnetization, each of said slanted conducting edges are contiguous with said free layer.

5,739,989

Patent Not Issued For This Number

5,739,990

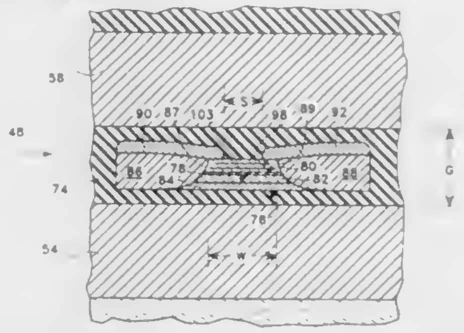
SPIN-VALVE GMR SENSOR WITH INBOUND EXCHANGE STABILIZATION

Durga P. Ravipati, Saratoga, and Samuel W. Yuan, San Francisco, both of Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

Filed Nov. 13, 1996, Ser. No. 748,063

Int. Cl.⁶ G11B *5/39*

U.S. Cl. 360—113 **17 Claims**



16 A spin valve giant magnetoresistive transducer comprising.

- first and second layers of ferromagnetic material, each of said layers of ferromagnetic material having end portions spaced by an active region;
- a spacer layer of nonmagnetic material disposed between said first and second layers of ferromagnetic material;
- first and second electrical lead layers formed of electrically conductive material, said electrical lead layers being disposed respectively in laterally abutting contact with said end portions of said layers of ferromagnetic material;
- first and second longitudinal magnetic bias layers, said longitudinal magnetic bias layers being disposed above said electrical lead layers respectively and in contact with the end portions of said first layer of ferromagnetic material, for providing a longitudinal magnetic bias to said first ferromagnetic layer; and
- a third magnetic bias layer disposed in contact with said second layer of ferromagnetic material, said third magnetic bias layer providing a pinning bias to said second layer of ferromagnetic material.

5,739,991

COMPOSITE THIN FILM HEAD HAVING MAGNETORESISTIVE AND INDUCTIVE HEAD PORTIONS WITH NONMAGNETIC THIN FILM INTERPOSED BETWEEN CORE AND SHIELD PORTIONS OF CORE LAYER

Naoto Matono, Kadoma; Shinji Kobayashi, Daito, and Masahiro Nakata, Osaka, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Continuation of Ser. No. 380,995, Jan. 31, 1995, abandoned. This application Dec. 9, 1996, Ser. No. 761,933

Claims priority, application Japan, Feb. 1, 1994, 6-010495; Oct. 28, 1994, 6-265650

Int. Cl.⁶ G11B *5/39;5/147*

U.S. Cl. 360—113 **6 Claims**

1 A composite thin film head comprising a magnetoresistive head portion and an inductive head portion which are superposed on a substrate, the inductive head portion comprising a lower core layer disposed on one side of a gap spacer layer and adjacent to the

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magnetoresistive head portion, and an upper core layer disposed on the other side of the gap spacer layer, the upper core layer having a width in conformity with a track width on a recording medium at least in a vicinity of a medium-opposed face positioned opposite to the recording medium, the lower core layer comprising a core portion positioned toward the upper core layer, a shield portion positioned toward the magnetoresistive head portion and a nonmagnetic thin film interposed between the shield portion and the core portion, the shield portion of the lower core layer having a larger width than the core portion at least in the vicinity of the medium-opposed face, and the nonmagnetic thin film extending only in a partial region which is adjacent to the medium-opposed face and the shield portion and the core portion abut one another in a region spaced from the medium opposed face.

4 A composite thin film head comprising a magnetoresistive head portion and an inductive head portion which are superposed on a substrate, the inductive head portion comprising a lower core layer disposed on one side of a gap spacer layer and adjacent to the magnetoresistive head portion, and an upper core layer disposed on the other side of the gap spacer layer, the upper core layer having a width in conformity with a track width on a recording medium at least in a vicinity of a medium-opposed face positioned opposite to the recording medium, the lower core layer comprising a core portion positioned toward the upper core layer, a shield portion positioned toward the magnetoresistive head portion and a nonmagnetic thin film interposed between the shield portion and the core portion, the shield portion of the lower core layer having a larger width than the core portion at least in the vicinity of the medium-opposed face, and the nonmagnetic thin film extending only in a partial region which is spaced from the medium-opposed face and the shield portion and the core portion abut one another in a region adjacent to the medium opposed face.

5,739,992

MULTIPLE DISC CARTRIDGE DISC MAGAZINE

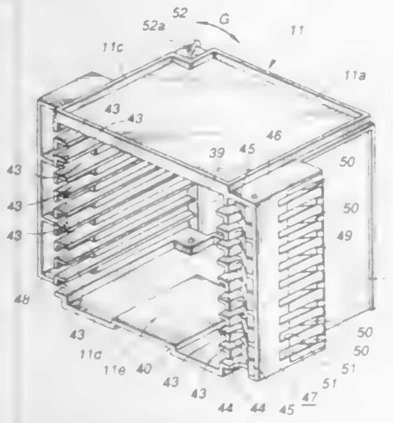
Fumio Horie, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 379,220, Jan. 27, 1995, Pat. No. 5,640,288. This application Apr. 5, 1996, Ser. No. 628,197

Claims priority, application Japan, Jan. 31, 1994, 6-025900

Int. Cl.^{6} G11B *23/03; 17/08*

U.S. Cl. 360—133 5 Claims



1 A disc magazine comprising:

a casing substantially in the form of a parallelepiped for housing a plurality of disc cartridges so that the major surfaces thereof run parallel to one another, said casing having apertures on opposite lateral sides thereof for taking out and housing a plurality of the disc cartridges,

holding means for engaging with recesses in the disc cartridges housed within said casing via one of the apertures in said casing for holding said disc cartridges in said casing, and

stop means in the opposite aperture in the casing for prohibiting the disc cartridges from retreating from the casing via said opposite aperture.

5,739,993

SHUTTER FOR DISK CARTRIDGE INCLUDING INTEGRALLY FORMED DISPLAY SURFACE

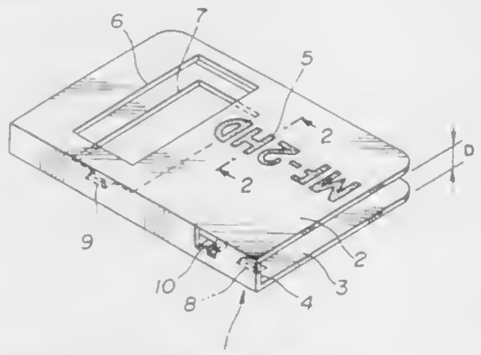
Shuichi Kikuchi; Yoshinori Miura, and Yuji Iwaki, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 16, 1996, Ser. No. 714,662

Claims priority, application Japan, Sep. 18, 1995, 7-238251

Int. Cl.^{6} G11B *23/03*

U.S. Cl. 360—133 11 Claims



1 A shutter for a disk cartridge, comprising:

a shutter body formed of a metallic plate material;

an outer side of said shutter body having a display surface portion formed thereon; wherein

said display surface portion is defined by pressing and deforming a predetermined portion of said outer side for forming a matt display area having a surface roughness greater than other outer surface portions of said shutter body.

5,739,994

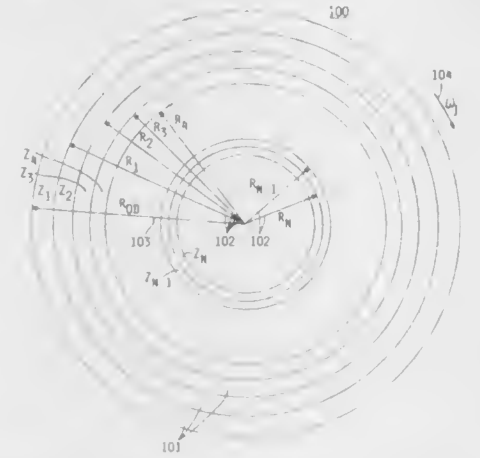
OPTIMALLY BANDED DISK FOR USE WITH MULTIPLE FREQUENCY CHANNEL

Hal Hjalmar Ottesen, and Gordon J. Smith, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 1, 1996, Ser. No. 626,731

Int. Cl.^{6} G11B *5/82*

U.S. Cl. 360—135 15 Claims



5 A method of allocating concentric track locations on a disk storage medium into N concentric zones, N being an integer greater than 2, data being stored on the disk at an inner radius of each zone at a substantially constant linear density, the method comprising the step of selecting radii r_i defining each of the N concentric zones such that a ratio of radii r_i defining any two adjacent ones of the N concentric zones is substantially constant.

5,739,995

DETACHABLE MAGNETIC DISK APPARATUS

Takao Ohmi, Kamakura, and Shigeru Takekado, Tokyo-To, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

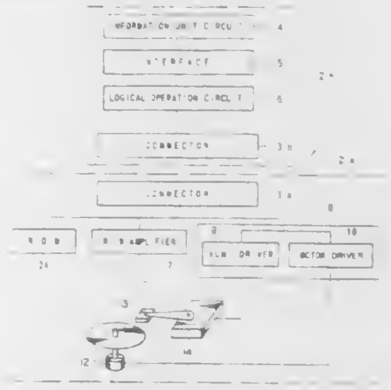
Continuation of Ser. No. 862,205, Apr. 2, 1992, Pat. No. 5,359,504. This application Jul. 28, 1994, Ser. No. 281,111

Claims priority, application Japan, Apr. 3, 1991, 3-70728

The portion of the term of this patent subsequent to Oct. 25, 2011, has been disclaimed.

Int. Cl.^{6} G11B *23/03*

U.S. Cl. 360—137 7 Claims



1. A magnetic disk apparatus comprising:

a magnetic disk;

a magnetic head for recording and reproducing information to and from said magnetic disk;

disk driving means for driving said magnetic disk;

head driving means for driving said magnetic head;

a mechanical portion driving circuit for operating said disk driving means and said head driving means;

an interface having a hard disk controller;

a logical operation circuit having a memory for storing position controlling information for controlling a position of said magnetic head, a channel circuit for converting a data signal from said hard disk controller into a data waveform for magnetic recording and for performing code processing of a data signal from said magnetic head, and a servo controller for supplying said position controlling information from said memory to said mechanical portion driving circuit;

a first group including at least said magnetic disk, said magnetic head, said disk driving means, said head driving means and a first connector, said first group being contained in a first containing portion; and

a second group including at least said logical operation circuit and a second connector, said second group being contained in a second containing portion substantially separated from said first containing portion, wherein said first and second connectors are for electrically connecting said first and second groups and wherein said first and second containing portions are mechanically detachable from each other

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5,739,996

APPARATUS FOR DISK DRIVE MODIFICATION INCLUDING A VACUUM

Phillip P. Bennett, Portola Valley, and Edwin E. Flores, San Bruno, both of Calif., assignors to Scitex Corporation Ltd., Herzlia B., Israel

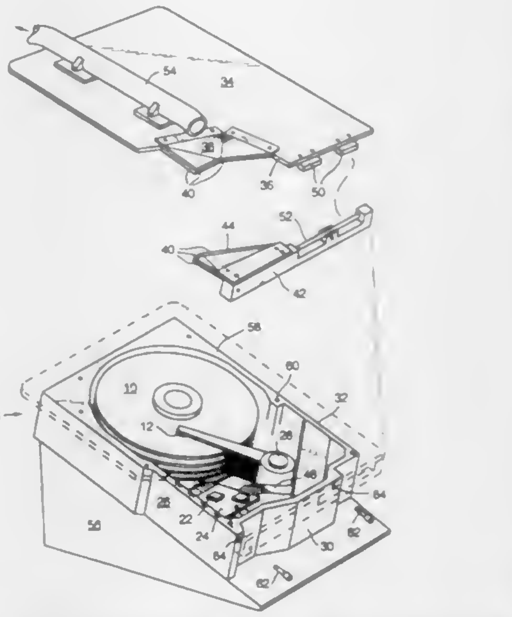
Division of Ser. No. 294,926, Aug. 23, 1994, Pat. No. 5,491,607, which is a continuation of Ser. No. 868,474, Apr. 14, 1992, abandoned. This application May 30, 1995, Ser. No. 453,622

Int. Cl.^{6} G11B *5/012*

U.S. Cl. 360—137 9 Claims

1. A disk drive having modification apparatus attached thereto, comprising:

at least one rotating platter;



a plurality of transducer heads for recording and retrieving electronic data to and from the at least one rotating platter;

positioning means for movably positioning the transducer heads relative to the at least one rotating platter;

first conductors for directing data to and from each of the transducer heads;

second conductors connected to the first conductors for allowing data to be directed to and from the transducer heads through the connected first and second conductors in a parallel fashion;

a plate secured to the disk drive to substantially cover an open side of the disk drive, the plate having a cut-away section and a flange connected to the plate along the cut-away section which extends into an interior of the disk drive; and

a vacuum tube, attached to the plate, having an open end located adjacent the cut-away section of the plate vacuuming in the vicinity of the cut-away section of the plate,

wherein the second conductors are added during modification of the disk drive which is performed in the cut-away section of the plate after a manufacture of the disk drive

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5,739,997

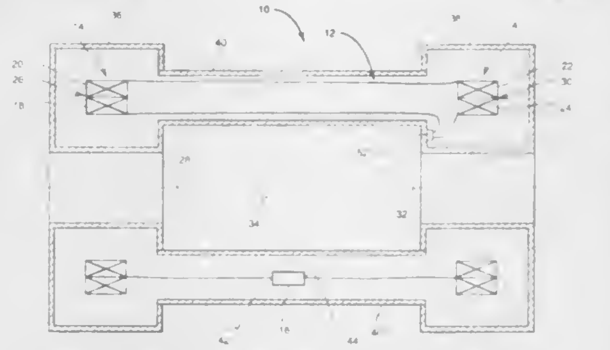
SUPERCONDUCTING-MAGNET ELECTRICAL CIRCUIT OFFERING QUENCH PROTECTION

Dan Arthur Gross, Niskayuna, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 30, 1995, Ser. No. 565,139

Int. Cl.^{6} H02H *7/00*

U.S. Cl. 361—19 9 Claims



1 A superconductive-magnet electrical circuit comprising:

a) a superconductive-coil assemblage including first, second, third, and fourth superconductive-coil portions together having a total electrical impedance, wherein said second superconductive-coil portion is coupled in series with and

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between said first and third superconductive-coil portions, wherein said third superconductive-coil portion is coupled in series with and between said second and fourth superconductive-coil portions, wherein said first and second superconductive-coil portions abut each other and together define a generally annular-shaped first superconductive coil having a generally longitudinally-extending first axis, wherein said third and fourth superconductive-coil portions abut each other and together define a generally annular-shaped second superconductive coil having a generally longitudinally-extending second axis, wherein said second superconductive coil is longitudinally spaced apart from said first superconductive coil, and wherein said second axis is generally coaxially aligned with said first axis; and

b) a bipolar currant-bypass electrical-circuit element having a first terminal, a second terminal, and an electrical impedance less than generally one-thousandth of said total electrical impedance, wherein said bipolar current-bypass electrical-circuit element is coupled to said superconductive-coil assemblage only through said first and second terminals, wherein said first terminal is only coupled to said superconductive-coil assemblage in parallel with said first and second superconductive-coil portions, and wherein said second terminal is only coupled to said superconductive-coil assemblage in parallel with said third and fourth superconductive-coil portions.

5,739,998

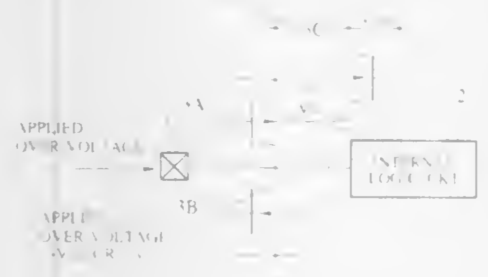
PROTECTIVE CIRCUIT AND SEMICONDUCTOR INTEGRATED CIRCUIT INCORPORATING PROTECTIVE CIRCUIT

Satoshi Wada, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 12, 1996, Ser. No. 679,114

Int. Cl.^{6} H02H *9/00*

U.S. Cl. 361—56 **18 Claims**



1. A protective circuit for protecting against an over voltage of more than a predetermined voltage potential level supplied to an input/output terminal for receiving and transferring signals in a semiconductor circuit, comprising

a first MOS FET of a first conductivity type having a drain electrode connected to the input/output terminal and a source electrode and a gate electrode connected to a first power source; and

a second MOS FET of a second conductivity type having a source electrode connected to a back gate of the first MOS FET, a drain electrode and a gate electrode connected to the first power source, and a back gate connected to a second power source.

5,739,999

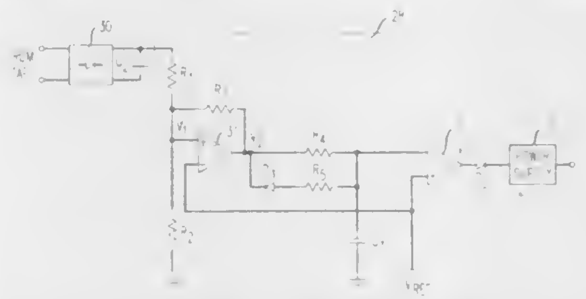
CURRENT LIMITING CIRCUIT

Patricia Lynn Gruber, Morris Township, Morris County; David Stevens Kerr, Morris Plains, and Roman Ostapiak, Pine Brook, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 5, 1996, Ser. No. 692,249

Int. Cl.^{6} H72H *9/00*

U.S. Cl. 361—56 **9 Claims**



1. A circuit for re-setting a current limiting element to a low impedance state after said element has been triggered into a high impedance state comprising:

a voltage sensing element connectable to the current limiting element for sensing voltage from the current limiting element;

a switch coupled to the sensing element so as to disconnect the current limiting element from power in response to an indication of a low voltage state; and

a timing element coupled to the switch so as to reconnect the current limiting element a predetermined period of time after the current limiting element returns to a low impedance state.

5,740,000

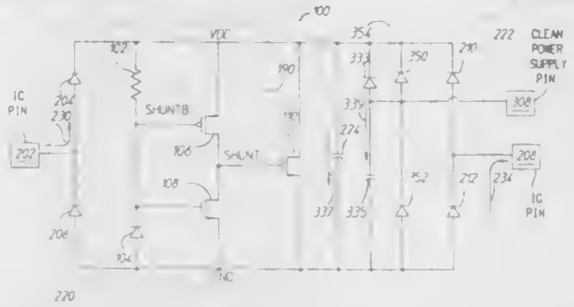
ESD PROTECTION SYSTEM FOR AN INTEGRATED CIRCUIT WITH MULTIPLE POWER SUPPLY NETWORKS

Blaine Stackhouse, and Gordon Motley, both of Fort Collins, Colo., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed Sep. 30, 1996, Ser. No. 724,595

Int. Cl.^{6} H02H *9/00*

U.S. Cl. 361—56 **6 Claims**



1. An ESD protection system for an integrated circuit (IC) with multiple power supplies, comprising:

a ground network,

a first power supply network,

a second power supply network;

a first ESD current routing circuit for conducting ESD current from a first IC pin to said first power supply network;

a second ESD current routing circuit for conducting ESD current from said ground network to a second IC pin;

a charge sharing circuit for conducting ESD curient from said first power supply network to said second power supply network,

wherein said charge sharing circuit comprises a charge sharing diode having an anode connected to said first power supply network and a cathode connected to said second power supply network,

wherein said first ESD current routing circuit comprises a first diode having an anode connected to said first IC pin and a cathode connected to said first power supply network, and

wherein said second ESD current routing circuit comprises a second diode having an anode connected to said ground network and a cathode connected to said second IC pin,

wherein said core shunt comprises,

a switch connected between said first power supply network and said ground network;

a CMOS amplifier having an input and an output, said output being coupled to said switch;

timing resistance between said main power supply network and said input; and,

a timing capacitance between said input and said ground network.

5,740,001

PATIENT MONITORING MODULE

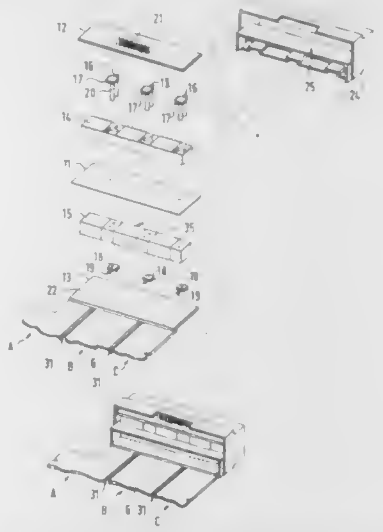
Erwin Flachslaender, Calw; Matthias Muehle, Stuttgart, and Wolfgang Kehrer, Boeblingen, all of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 24, 1996, Ser. No. 669,202

Claims priority, application European Pat. Off., Jul. 27, 1995, 95111807

Int. Cl.^{6} H02H *3/20*

U.S. Cl. 361—91 **12 Claims**



1. A signal processing module with electrical over-voltage protection and signal isolation, comprising:

a lower housing with a first internal surface;

a first printed circuit board with a first connector and an isolation block, the first printed circuit board mounted on the first internal surface of said lower housing;

an isolation piece with an upper surface, mounted over the first printed circuit board and having a first opening for the isolation block and a first indentation for a second connector, the second connector coupling the module to a monitoring system and a power supply,

second printed circuit boards mounting on the upper surface of the isolation piece and coupled to the first printed circuit board by the isolation block, the second connector being coupled to one of the second printed circuit boards; and

an upper housing mounting over the second printed circuit boards and mechanically coupled to the lower housing and the isolation piece to form the signal processing module

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5,740,002

ELECTRONIC LOAD RELAY FOR MOTOR VEHICLES

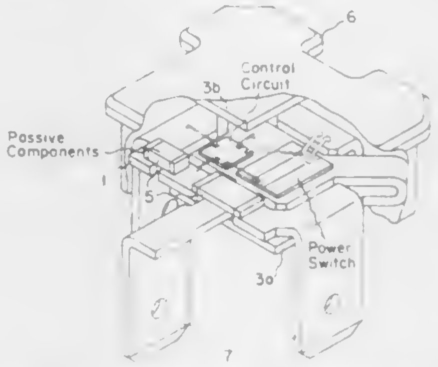
Volker Jenss, and Petrik Lange, both of Lippstadt, Germany, assignors to Hella KG Hueck & Co., Lippstadt, Germany

Filed May 24, 1995, Ser. No. 449,670

Claims priority, application Germany, May 31, 1994, 44 19 005.0

Int. Cl.^{6} H02H *3/00*

U.S. Cl. 361—93 **13 Claims**



1. Electronic load relay for motor vehicles including a power switch and an integrated control circuit formed as a solid state relay, wherein the electronic power switch and the integrated control circuit are mounted on a two-dimensionally-structured, non-insulating, metallic wiring support so that they are electrically-conductively coupled to the metallic wiring support, wherein the metallic wiring support forms coupling terminals which are shaped to form an industry standard motor-vehicle plug contact assembly and wherein, the electronic power switch, the integrated control circuit and the metallic wiring support are embedded together in a resinous plastic material which supports these elements relative to one another.

5,740,003

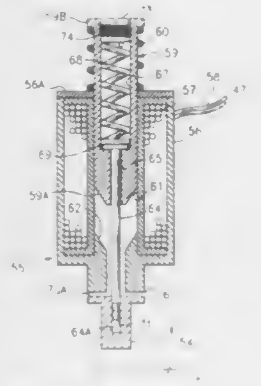
CIRCUIT BREAKER SHUNT TRIP ACCESSORY WITH MECHANICAL OVERRIDE

Raymond K. Seymour, and Michael R. Koller, both of Plainville, Conn., assignors to General Electric Company, New York, N.Y.

Filed Sep. 19, 1996, Ser. No. 715,723

Int. Cl.^{6} H01H *73/00*

U.S. Cl. 361—115 **13 Claims**



1. A flux shifter device comprising

a housing;

a solenoid within said housing, said solenoid including a coil and a plunger, said plunger being arranged for propulsion to an extended position when said coil is supplied with a first voltage and being held in said extended position when said coil is supplied with a second voltage;

a return spring arranged for returning said plunger to a home position when said second voltage is removed,

tripping means within said housing, said tripping means arranged for propulsion outside said housing when said coil is

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supplied with said second voltage and said plunger remains in said extended position;
said plunger includes a cylindrical passage.
said tripping means is arranged partially within said passage;
said tripping means comprises a non-ferrous metal pin.
said pin terminates within a button at one end and at a pin plate at an opposite end, and
said pin plate is captured in said cylindrical passage within said plunger.

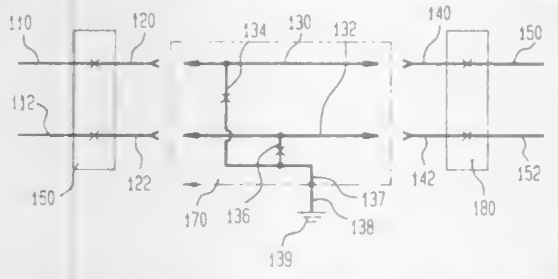
5,740,004
SMALL PAIR CONNECTOR BUILDING ENTRANCE PROTECTOR

Bassel Hage Daoud, Parsippany, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 14, 1995, Ser. No. 528,029

Int. Cl.^{6} H02H *1/00*

U.S. Cl. 361—124 **22 Claims**



1. A protector device for protecting customer premises communications equipment comprising:
a terminal block comprising a series of input terminals and output terminals,
a plurality of protector module terminals having a first series of terminals of a first length and a second series of terminals of a second length;
a series of fusible links connecting the input terminals to the second series of protector module terminals;
a series of wires connecting the output terminals to the first series of protector module terminals, and
a separation board defining a series of board apertures;
wherein the second length of the second series of protector module terminals exceeds the first length of the first series of protector module terminals enabling the second series to extend through the series of board apertures.

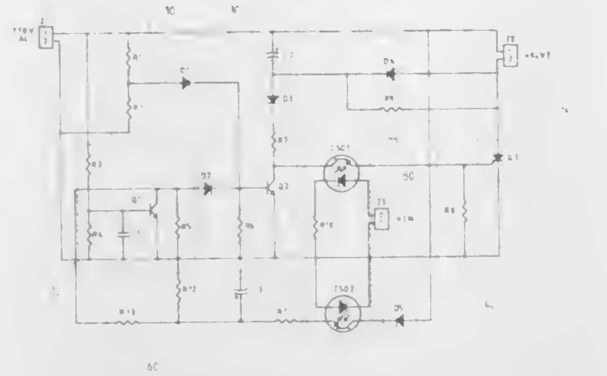
5,740,005
SOLENOID VALVE BOOSTER

Chun-Chun Chen, 3F, No. 40, Lane 1448, Jung Hua Road, Chupei, Hsinchu Hsien; Chih-Shun Chuang, 36, Lane 40, San Duo 4th Road, Kaohsiun, and Winifred Yu-Chuang Lin, 6F, No. 1, Lane 35, Ju Guang Road, Hsinchu, all of Taiwan

Filed Apr. 29, 1997, Ser. No. 848,279

Int. Cl.^{6} H01H *47/04*

U.S. Cl. 361—160 **2 Claims**



1 A solenoid valve booster comprising a control circuit connected between an power input of a solenoid valve and an AC power source;
said control circuit comprising:
a positive half wave turn-on voltage control circuit made up of two resistors R1, R2, connected with an input of said AC power source, outputting a voltage value to a logic NOR gate circuit,
a negative half wave turn-off delay control circuit made up of three resistors R3, R4, R5, a capacitor C1 and a transistor Q1, connected with the input of said AC power source, outputting a voltage value to said logic NOR gate circuit,
said logic NOR gate circuit made up of two resistors R6, R7, three diodes D1, D2, D3 and a transistor Q2, connected with an output of said positive half wave turn-on voltage control circuit and said negative half wave turn-off delay control circuit, outputting a voltage value value to a phase control circuit;
said phase control circuit made up of a resistor R8 and a SCR Q3, connected with an output of said logic NOR gate circuit, conducting a source to a rectifying and filtering circuit;
said rectifying and filtering circuit made up of a resistor R9, a capacitor C2, a diode D4 and a SCR Q3, connected with an input of said phase control circuit, performing or stopping filtering work in accordance with alteration of the input voltage of said phase control circuit, and,
a start delay circuit made up of three resistors R11, R12, R13, a capacitor C3 and a diode D5, controlling the output of said negative half wave turn-off delay control circuit so that said negative half wave turn-off delay circuit control may not function during tens of milliseconds when AC power source is inputted, but be delayed in sending its output;
a whole positive half wave of AC power source supplied to a coil of a solenoid valve at the moment when said solenoid valve booster is electrified, average voltage being the highest at that moment, said coil providing the largest magnetic force as to increase opening force of said solenoid valve and thereby increase pressure value of fluid opened by said solenoid valve, said negative half wave turn-off delay control circuit recovering normal work after tens of milliseconds so that average voltage may be lowered as low as a value enough for maintaining the opened condition of said solenoid valve, said solenoid valve thus able to be kept opened with a low power consumption with little loss of power.

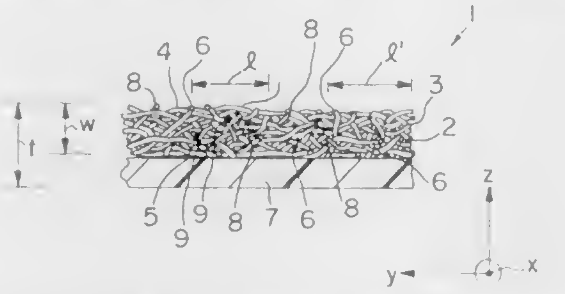
5,740,006
IONIZING MACHINE PART FOR STATIC ELIMINATION

William J. Larkin, 27 Parsons Dr., Swampscott, Mass. 01907

Division of Ser. No. 247,051, May 20, 1994, Pat. No. 5,501,899. This application Sep. 29, 1995, Ser. No. 536,473

Int. Cl.^{6} H05F *3/06*

U.S. Cl. 361—213 **16 Claims**



1 An ionizing part for an apparatus through which insulative material flows or is propelled, said part comprising:
a part surface past which said material is to be passed;
a low profile fibrous network having an exposed and an adhered surface and comprising a multiplicity of electrically conductive microfibers crossing one another to be in electrically conductive communication with one another across said network, the lengths of said microfibers being selected to provide a multiplicity of microfiber ionizing points disposed across said network at or near said exposed surface, the thickness of said network being less than the average length of said microfibers; and
an adhesive means comprising an adhesive layer to bond said adhered surface to said part surface such that, when said network is electrically grounded or electrically charged, air between said ionizing points and said material passing said exposed surface is sufficiently ionized to remove static charge from said material or to attract or repel said material to or from said part surface

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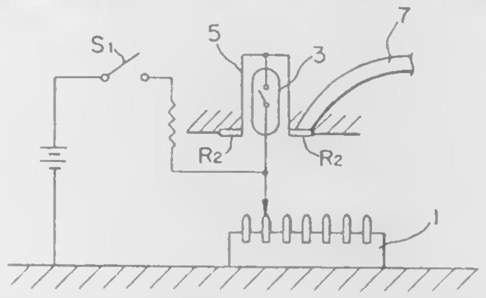
5,740,007
CDM SIMULATOR

Toshiyuki Nakaie; Akira Yoshino; Shin Yoshida, and Kenichi Sengo, all of Wakayama, Japan, assignors to Hanwa Electronic Ind. Co., Ltd., Wakayama, Japan

Filed Jun. 10, 1996, Ser. No. 662,433

Int. Cl.^{6} H05F *3/00*

U.S. Cl. 361—220 **6 Claims**



1 In a CDM simulator having a mercury lead switch provided between a grounding conductor and a terminal of an integrated circuit to release electric charge from the integrated circuit connected to the grounding conductor, the improvement comprising that:
the mercury lead switch is contained in a cylindrical conductor with one end of the mercury lead switch connected to the cylindrical conductor and an opposite end connected to the terminal of the integrated circuit,
an end of the cylindrical conductor closer to the terminal of the integrated circuit is connected to the grounding conductor, and
a resistance wire connected to the grounding conductor is radially provided at the end of the cylindrical conductor that is closer to the integrated circuit

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5,740,008
CHARGING MEMBER AND DEVICE

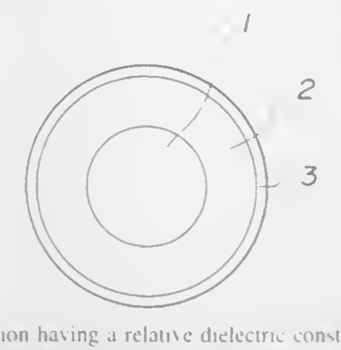
Yoshitomo Masuda, Hamura; Yasushi Inoue, Kodaira; Takahiro Kawagoe; Shigeru Kijima, both of Tokorozawa, and Yuko Maeda, Akishima, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Apr. 17, 1996, Ser. No. 633,432

Claims priority, application Japan, Apr. 18, 1995, 7-092474; Aug. 30, 1995, 7-221797

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 361—225 **19 Claims**



1 A charging member for electrically charging an object by placing the member in contact with the object and applying voltage between them, said member comprising a shaft and an elastic layer and a conductive layer successively formed around the shaft and having a capacitance of up to 1×10^{-7} F., said conductive layer comprising a resin composition and a conductive substance, the resin composition having a relative dielectric constant of up to 40 when it has a volume resistivity of 10^{8} Ω-cm

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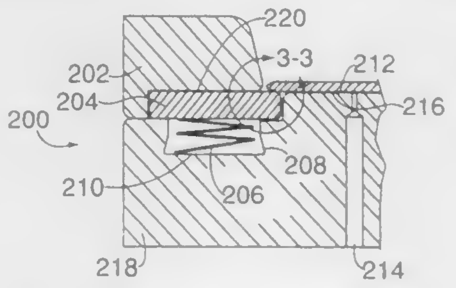
5,740,009
APPARATUS FOR IMPROVING WAFER AND CHUCK EDGE PROTECTION

Bryan Pu; Hongching Shan, both of San Jose; Kuang-Han Ke, Mountain View; Michael Welch, Livermore; Semyon Sherstinsky, San Francisco; Alfred Mak, Union City; Ling Chen, Sunnyvale; Sue Zhang, Milpitas; Leonel Arturo Zuniga, San Jose, and Samuel C. Wilson, Sunnyvale, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Nov. 29, 1996, Ser. No. 758,531

Int. Cl.^{6} H02N *13/00*

U.S. Cl. 361—234 **24 Claims**



1. Apparatus for supporting a wafer comprising:
a pedestal;
a protection ring having an inner diameter that is less than the outer diameter of the wafer; and
a bias element, located between said pedestal and said protection ring for biasing said protection ring into contact with a surface of said wafer.

5,740,010
PRINTING AND ADHERING PATTERNED METAL ON A LAID-UP MULTI-LAYER GREEN WAFER BEFORE FIRING SO AS TO LATER FORM PRECISE INTEGRAL CO-FIRED CONDUCTIVE TRACES AND PADS ON SELECTED TOP AND BOTTOM SURFACES OF MONOLITHIC, BURIED-SUBSTRATE, CERAMIC MULTIPLE CAPACIT

Daniel F. Devoe, 610 First St., Coronado, Calif. 92118, and Alan D. Devoe, 5715 Waverly Ave., La Jolla, Calif. 92037

Continuation-in-part of Ser. No. 342,595, Nov. 21, 1994, abandoned, which is a division of Ser. No. 964,150, Oct. 21, 1992, Pat. No. 5,367,430. This application Sep. 15, 1995, Ser. No. 528,885

Int. Cl.^{6} H01G *4/00*

U.S. Cl. 361—321.1 **8 Claims**

1 A monolithic ceramic multiple capacitor comprising
a three-dimensional ceramic body having a length, and exterior side and top surface
a multiplicity of electrically conductive parallel layers disposed in the body and layered along the length thereof, at least some of the layers having an edge connection extending to a side surface of the body.

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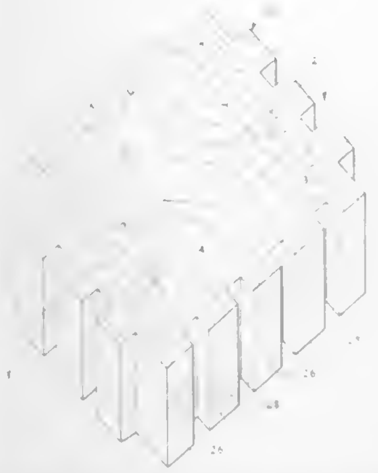


- a plurality of electrically-conductive bus strips, extending along the side surfaces of the body, selectively electrically interconnecting the edge connections of the multiplicity of electrically-conductive parallel layers so as to form a plurality of capacitors, the bus strips and the edge connections jointly forming a plurality of external electrical connections to the capacitors, which external electrical connections appear at the edges of the top surface of the body;
- a patterned electrically-conductive top surface layer integral to the body, the patterning of this integral top surface layer serving to selectively electrically connect the external electrical connections appearing at the edges of top surface of the body, and the plurality of capacitors to which these external electrical connections electrically connect, to pads upon the top surface of the body to which pads electrical connection may suitably be made;

wherein the patterned electrically-conductive top surface layer is integrally incorporated into the three-dimensional ceramic body at the same times as are the plurality of electrically-conductive parallel layers therein the body, and is itself but an uppermost, outwardly-disposed and -exposed, particularly patterned, electrically conductive layer;

wherein the electrically-conductive top surface layer is fully as integral to the three-dimensional ceramic body as are the plurality of electrically-conductive parallel layers therein.

5,740,011
SUPPORTING MECHANISM OF DISK UNIT IN MAGNETIC DISK APPARATUS HAVING LINK MECHANISMS ALIGNED WITH THE CENTER OF GRAVITY OF THE DISK ASSEMBLY

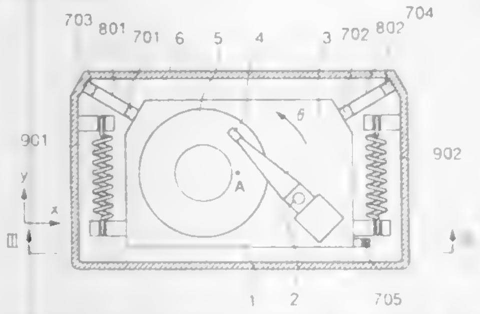
Isao Kobayashi; Jiro Kaneko; Kouki Uefune, all of Odawara; Tomio Suzuki, Hiratsuka, and Tsuyoshi Takahashi, Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 14, 1995, Ser. No. 557,816

Claims priority, application Japan, Nov. 30, 1994, 6-297005

Int. Cl.^{6} G06F *1/16*, G11B *33/08*

U.S. Cl. 361—685 **9 Claims**



1 A magnetic disk apparatus comprising a hard disk assembly supported by a fixing unit, wherein

said apparatus includes at least two link mechanisms, each having a flexible portion on each end of a hard member, and wherein

one end of each said link mechanism is attached to said fixing unit and an opposite end is attached to said hard disk assembly so that the flexible portions of said link mechanism are located on a straight line which passes through the center of gravity of said hard disk assembly.

5,740,012
COMPUTER SYSTEM HAVING A STRUCTURE FOR EASY ASSEMBLING/DISASSEMBLING OF PERIPHERAL EQUIPMENT

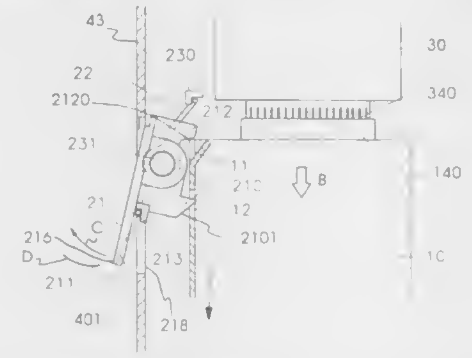
Phil-Kyu Choi, Suwon-si, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 18, 1996, Ser. No. 714,334

Claims priority, application Rep. of Korea, Oct. 30, 1995, 95-38056

Int. Cl.^{6} H05K *7/14*; H01K *13/639*

U.S. Cl. 361—686 **13 Claims**



1 A computer system, comprising:

a computer having a case enclosing a motherboard, a first wall, a second wall extending generally orthogonally to said first wall and being perforated by a plurality of orifices, said second wall providing access to each of a plurality of discrete bays inside said case, and a cover encasing a visual display panel providing varying visual displays of information under control of said motherboard; and

a latch comprising:

- a one piece monolithic lever;
- a torsion spring wound around said lever, biasing said lever to rotate,
- a detent, formed on said computer case, fixing said torsion spring and said lever to said computer case, said latch being mounted on said case, providing a self-latching of a peripheral component within the corresponding one of said bays, in response to insertion of a peripheral component operationally participating in said control while within said corresponding one of said bays, by directly engaging the peripheral component.

said computer case exposing said latch to manipulation by a user,

said latch responding to said manipulation by disconnecting said peripheral component from said motherboard;

said latch maintaining an electrical connection between said computer and the peripheral component during said self-latching,

said latch simultaneously interrupting said electrical connection between said computer and the peripheral component and providing a partial initial ejection of the peripheral component from said corresponding one of said bays in response to manipulation of said latch.

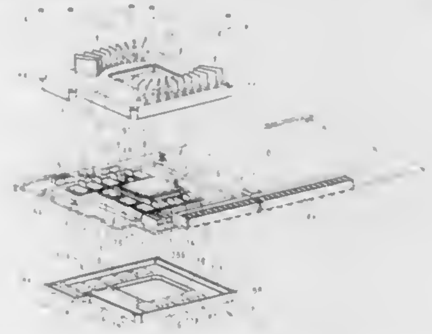
5,740,013
ELECTRONIC DEVICE ENCLOSURE HAVING ELECTROMAGNETIC ENERGY CONTAINMENT AND HEAT REMOVAL CHARACTERISTICS

Arlen L. Roesner, Fort Collins; Guy R. Wagner, Loveland, and Samuel M. Babb, Fort Collins, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 3, 1996, Ser. No. 676,602

Int. Cl.^{6} H05K *7/20*; *9/00*

U.S. Cl. 361—697 **30 Claims**



1 An enclosure mounted on a printed circuit board in proximity to at least one primary electronic component and at least one secondary electronic component which are mounted on said printed circuit board, said enclosure comprising.

a first enclosure portion including

- a. an upper wall member extending substantially parallel to said printed circuit board, wherein said upper wall member has a lower surface facing said printed circuit board, an upper surface opposite said lower surface and at least one opening therein located proximate said at least one primary component;
- b. a plurality of leg wall members extending transversely from said upper wall member toward an upper surface of said printed circuit board;
- c. at least one contact member extending from said upper wall member lower surface toward said printed circuit board upper surface, wherein said at least one contact member is in contact with said at least one secondary component;

at least one second enclosure portion having a lower surface in contact with said at least one primary component;

wherein said at least one second enclosure portion is located within said at least one first enclosure portion opening and is in electrical contact with said first enclosure portion.

5,740,014
CPU HEAT SINK

Chun Sheng Lin, 31, Sec. 1, Min-1 Road, Wu-Ku Hsiang, Taipei Hsien, Taiwan

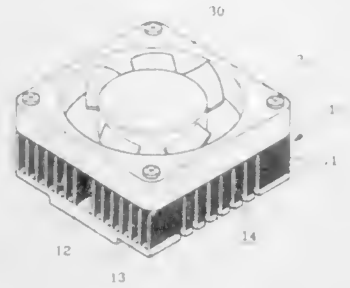
Filed Dec. 11, 1996, Ser. No. 763,812

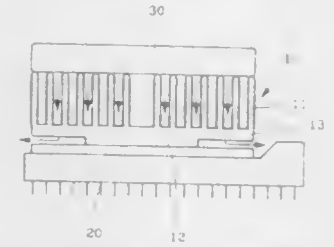
Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—697 **1 Claim**

1 A CPU heat sink mounted on a CPU an carrying a fan above said CPU, the CPU heat sink comprising

- a flat base mounted on said CPU, said flat base comprising a thicker middle section disposed in contact with said CPU, and two thinner lateral sections bilaterally extended from said thicker middle section and having a respective top side disposed in flush with said thicker middle section and a respective bottom side spaced above said CPU at a distance,
- a plurality of upright fins longitudinally raised from said flat base;
- a plurality of ventilation grooves transversely cut through said upright fins for guiding currents of air from said fan through said upright fins; and.





- a plurality of ventilation slots transversely cut through said upright fins and the thinner lateral sections of said flat base for guiding currents of air from said fan toward said CPU

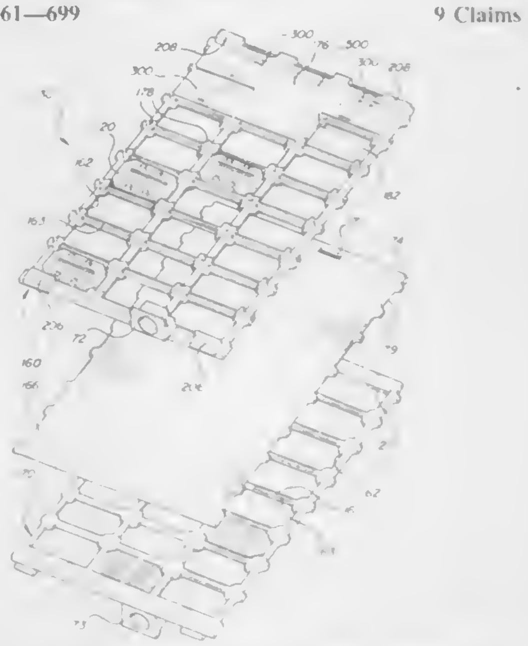
5,740,015
HEAT EXCHANGER

Kevin J. Donegan, Merrimack, N.H.; Gary M. Colello, Lunenberg, Mass.; Gary P. Millas, Avon, Conn., and Richard T. Salter, II, Bedford, Mass., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed May 2, 1996, Ser. No. 641,930

Int. Cl.^{6} H05K *7/20*

U.S. Cl. 361—699 **9 Claims**



1 A cold plate assembly for cooling power transistors, said assembly comprising:

- a frame member having a plurality of windows therein,
- a plurality of transistor modules supporting power transistors secured within said windows, said transistor modules including at least one transistor connected to a support plate said support plate disposed within one of said windows,
- a base plate connected to said frame member and spaced from said frame member to establish a cavity to allow coolant to flow between said base plate and said frame member for cooling said transistor modules.

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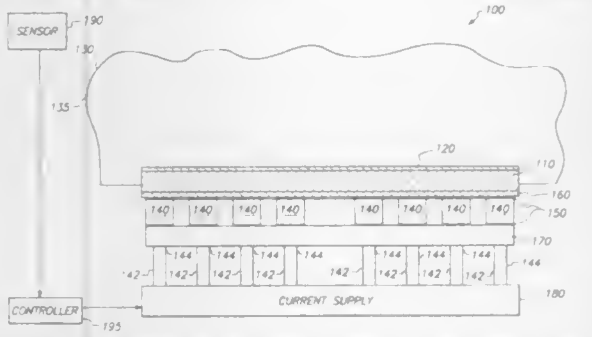
5,740,016
SOLID STATE TEMPERATURE CONTROLLED SUBSTRATE HOLDER

Rajinder Dhindsa, Milpitas, Calif., assignor to LAM Research Corporation, Fremont, Calif.
Filed Mar. 29, 1996, Ser. No. 623,713
Int. Cl.^{6} H05K *7/20*
U.S. Cl. 361—704 **43 Claims**



1. In a semiconductor processing system for processing a substrate in a a vacuum processing chamber, a temperature controlled substrate support comprising:

a plurality of thermoelectric modules in heat transfer contact with a substrate support surface enclosed in the vacuum processing chamber; and

a current supply interface, connected to said plurality of thermoelectric modules, for applying controlled currents to said thermoelectric modules to control the temperature of the substrate support surface and to provide a desired temperature distribution across the substrate during semiconductor processing of the substrate within said vacuum processing chamber

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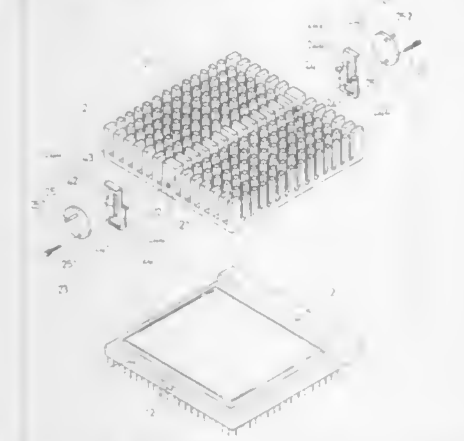
5,740,017
ENGAGEMENT ASSEMBLY FOR CONNECTING A HEAT DISSIPATION DEVICE TO AN INTEGRATED CIRCUITS

Ching-Shen Horng, Kaohsiung, Taiwan, assignor to Sunonwealth Electric Machine Industry Co., Ltd., Kaohsiung, Taiwan
Filed Sep. 10, 1996, Ser. No. 709,868
Int. Cl.^{6} H05K *7/20*
U.S. Cl. 361—704 **5 Claims**



1. An engagement assembly for connecting a heat dissipation device to an integrated circuit mounted to a pin seat, the pin seat having at least one protrusion formed on each of two parallel sides thereof, the heat dissipation device including a plurality of spaced fins on an upper side thereof in which each of the two outermost opposite rows of fins includes a holed fin having a hole defined therein, the engaging assembly comprising:

an engaging plate mounted to each said holed fin, each said engaging plate including at least one first slot defined in a lower portion thereof for releasably engaging with the associated protrusion on the pin seat and a second slot defined in a mediate portion thereof, each said engaging plate further including a lip formed at a top thereof;

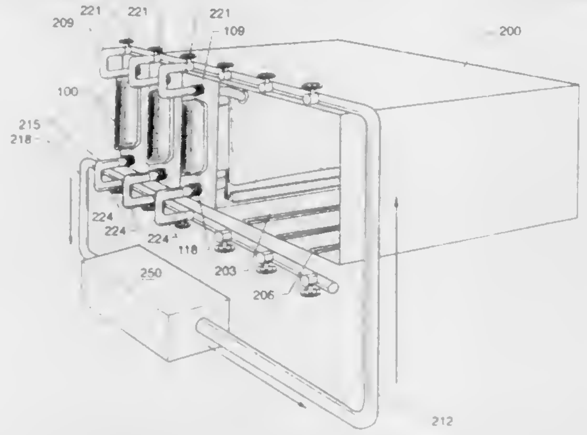
a press plate mounted outside each said engaging plate, each said press plate including an eccentric hole defined therein; and

a positioning element extended through the eccentric hole of each said press plate, the second slot of the associated engaging plate, and the hole of the associated holed fin,

wherein when the press plate is rotated through a pre-determined angle rotated about the positioning element to bear against the lip of the associated engaging plate, the engaging plate is moved upwardly such that the first slot of the engaging plate firmly engages with the associated protrusion.

5,740,018
ENVIRONMENTALLY CONTROLLED CIRCUIT PACK AND CABINET

John T. Rumbut, Jr., Assonet, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Feb. 29, 1996, Ser. No. 613,783
Int. Cl.^{6} H05K *7/20*
U.S. Cl. 361—720 **6 Claims**



5. A cabinet for holding multiple circuit card enclosures comprising:

an external housing having a plurality of circuit card slots and top, bottom, and side panels;

a plurality of mounting means disposed within said external housing, said plurality of mounting means defining the location of said slots;

a plurality of cooled circuit board modules attached to said mounting means within the slots, each said circuit board module comprising:

an external enclosure having a sealable rear panel,

means for mounting and stabilizing said circuit board modules disposed within said enclosure:

an electrical connector mounted on said rear panel of said enclosure such that electrical leads are presented both internal to and external to said enclosure;

a hollow coolant envelope attached to said top, bottom, and side panels thereby creating an enclosed space along the plane of said mounting means;

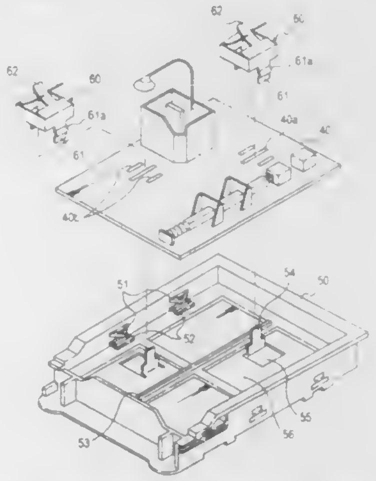
an input coolant port attached to said envelope and extending through said rear panel of said enclosure;

an output coolant port attached to said envelope and extending through said rear panel of said enclosure; and

a coolant transmission network attached to said external housing and said circuit board modules.

5,740,019
APPARATUS FOR MOUNTING A PRINTED CIRCUIT BOARD IN A MONITOR CASE

Man-yeab Lee, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Sep. 6, 1995, Ser. No. 524,442
Claims priority, application Rep. of Korea, Sep. 6, 1994, 94-22876
Int. Cl.^{6} H05K *5/00*
U.S. Cl. 361—759 **14 Claims**



1. A printed circuit board fixing apparatus for affixing a printed circuit board onto which a variety of electronic components are mounted within a monitor case and shielding the printed circuit board from electromagnetic waves, the printed circuit board having a thin copper film surface on a first side thereof, an engaging slot and an insertion aperture adjacent the slot, said printed circuit board fixing apparatus comprising:

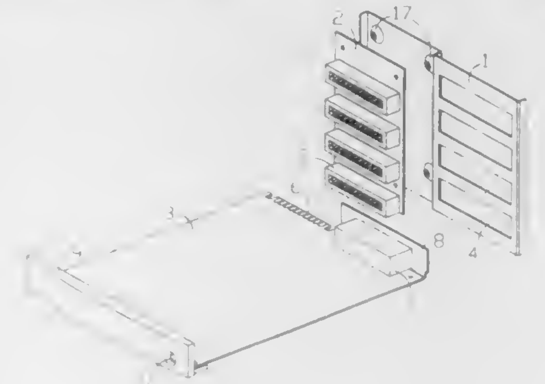
a frame including at least two opposing side walls, each of said side walls having a protrusion for supporting the printed circuit board with the film surface disposed upward;

a shield plate attached to the bottom of said frame and including an integral engaging pin extending upward to be received in the engaging slot of the printed circuit board; and

a resilient clip including a contact device and an affixing tab receivable in the insertion aperture for securing the printed circuit board to said frame, said contact device adapted to contact said engaging pin to provide contact between said shield plate and the printed circuit board through said engaging pin.

5,740,020
COMPUTER HOUSING AND EXPANSION CARD FORMAT FOR CONSUMER ELECTRONICS DEVICES

Dennis Palatov, 36 Nightingale Dr., Aliso Viejo, Calif. 92656
Division of Ser. No. 605,278, Feb. 7, 1996. This application Jan. 27, 1997, Ser. No. 791,472
Int. Cl.^{6} H05K *7/14;* **H01R** *23/68*
U.S. Cl. 361—796 **7 Claims**



1. A computer expansion card comprising:

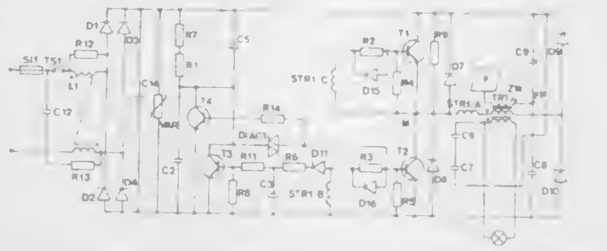
a printed circuit board having a front edge and a back edge.

a bus connector located along said back edge of said printed circuit board, and

an electrical connector for attachment of external cables co-located with said bus connector along said back edge of said printed circuit board.

5,740,021
SWITCHING POWER SUPPLY FOR THE OPERATION OF ELECTRIC LAMPS

Reinhard Lecheler, Neuburg an der Donau, and Franz Raiser, Munich, both of Germany, assignors to Patent-Treuhand-Gesellschaft Für elektrische Gluchlampen mbH, Munich, Germany
PCT No. PCT/DE95/00653, § 371 Date Nov. 11, 1996, § 102(e) Date Nov. 11, 1996, PCT Pub. No. WO95/33299, PCT Pub. Date Dec. 7, 1995
PCT Filed May 17, 1995, Ser. No. 737,431
Claims priority, application Germany, May 30, 1994, 44 18 886.2
Int. Cl.^{6} H02M *5/458;* **H05B** *37/02*
U.S. Cl. 363—37 **16 Claims**



1. A switching power supply for the operation of electric lamps connected to an alternating voltage mains network or direct voltage source, comprising

a switching portion (HB), which contains one or more switches (T1, T2) for generating a switched voltage, and which because of unavoidable parasitic capacitances also acts as an interference source capacitively coupled to the environment;

a radio interference suppression circuit for reducing interference signals generated by the switching portion,

a trigger (TG; STR1-A-STR1-C; RK-a-RK-c) or controller for the switching portion (HB),

a decoupling circuit (TR1), to which at least one electric lamp (HG) is connected either indirectly, via optionally one or more downstream further switching power supply or switching power supplies, or directly,

characterized in that

the radio interference suppression circuit has one or more controlled additional source (or additional sources) (ZW, F, GE, F; WE2; WE3) and a control circuit (TR1, WE1; I, T) connected to the switching portion and synchronizing the additional source or additional sources,

wherein said control circuit comprises one of an open-loop control circuit (TR1, WE1, I, T) and

a closed-loop control circuit (SE, T, WE1), wherein the additional source (or additional sources) and the control circuit contain an inverter and generating one compensation signal per additional source (ZW, F, GE, F; WE2, WE3), which compensation signal is inverted relative to the interference signal generated by the switching portion; and

wherein the additional source (or sources) is (are) connected either parallel or serially to the interference source, whereby a compensation between the interference signal and the compensation signal is attained.

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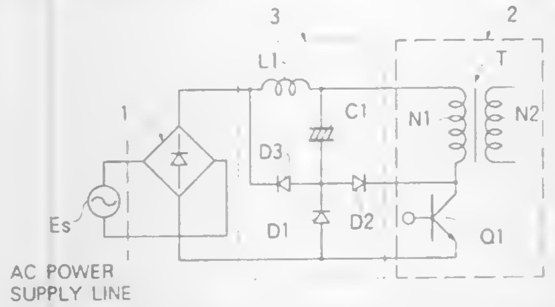
5,740,022
POWER FACTOR IMPROVING CIRCUIT

Shigeo Abe, Kawagoe, Japan, assignor to Toko, Inc., Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 695,206
Claims priority, application Japan, Aug. 19, 1995, 7-233480
Int. Cl.^{6} H02J *1/02*
U.S. Cl. 363—39 **4 Claims**



1 A power factor improving circuit disposed in a power supply circuit applying an output voltage of a rectifier connected to a commercial ac power supply to a series circuit consisting of a primary winding of a transformer and a switching device and causing an ON/OFF operation of the switching device to induce a voltage on a secondary winding of the transformer so as to obtain a desired output voltage, the power factor improving circuit comprising:

- a choke coil connected between one of the output terminals of the rectifier and one end of the primary winding of the transformer;
- a smoothing capacitor connected at one end thereof to a connecting point between the choke coil and the primary winding of the transformer;
- a first unidirectional conduction means connected between the other end of the smoothing capacitor and the other output terminal of the rectifier and having a forward direction thereof along which a discharge current of the smoothing capacitor flows toward said series circuit consisting of the primary winding of the transformer and the switching device;
- a second unidirectional conduction means connected between a connecting point of the primary winding of the transformer and the switching device and the other end of the smoothing capacitor and having a forward direction thereof along which a charging current flows toward the smoothing capacitor when the switching device is in its on state, and
- a third unidirectional conduction means connected between a connecting point of the choke coil and the rectifier and the other end of the smoothing capacitor and having a forward direction thereof along which the smoothing capacitor is charged up by an energy release of the choke coil

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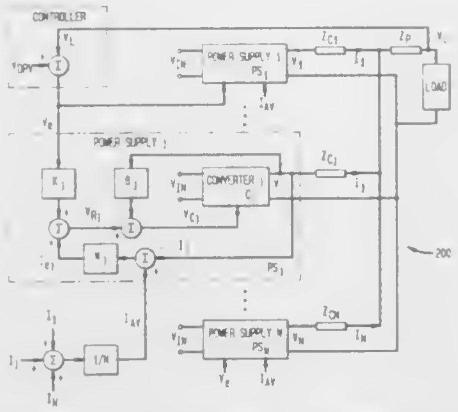
5,740,023
CONTROL SYSTEM FOR A MODULAR POWER SUPPLY AND METHOD OF OPERATION THEREOF

John Christopher Brooke; Chris Allan Lanzone, both of Dallas, and Vijayan Joseph Thottuvelil, Collin, all of Tex., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 24, 1996, Ser. No. 655,334
Int. Cl.^{6} H02M *11/00*
U.S. Cl. 363—65 **29 Claims**

1 In a modular power supply having a plurality of module slots capable of receiving power supply modules therein, a system for controlling said power supply modules to regulate an overall output characteristic of said modular power supply, comprising:

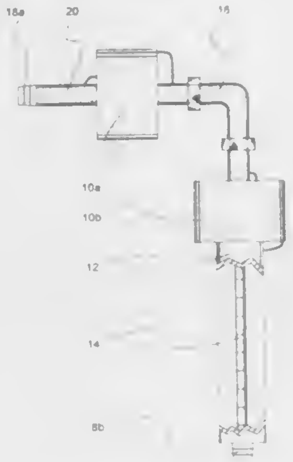
- an overall control circuit for sensing said overall output characteristic of said modular power supply and developing therefrom an overall error signal representing a deviation of said overall output characteristic from a reference characteristic; and
- a separate module control circuit for each of said power supply modules, said separate module control circuit sensing an output characteristic of an associated power supply module and developing therefrom and from said overall error signal a regulating signal for said associated power supply module, said regulating signal controlling said output characteristic of said associated power supply module to control said overall output characteristic of said modular power supply.



5,740,024
TWO-STAGE, HIGH VOLTAGE INDUCTOR

Nathaniel M. Johnson, Laconia, and Edward Neister, New Dunham, both of N.H., assignors to Zero Emissions Technology Inc., Portsmouth, N.H.

Continuation-in-part of Ser. No. 417,130, Apr. 5, 1995, Pat. No. 5,629,842. This application Nov. 27, 1996, Ser. No. 759,966
Int. Cl.^{6} G05F *1/455*
U.S. Cl. 363—44 **17 Claims**



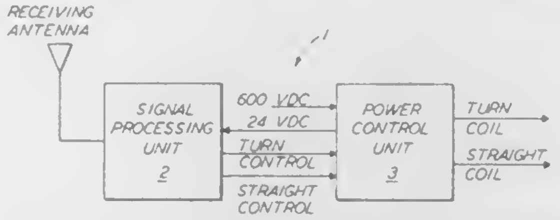
1 A two-stage inductor assembly comprising:

- a. at least one first inductor member defined by a plurality of turns of a continuous length of wire, and
- b. at least one second inductor member defined by a plurality of ferrite beads positioned in end-to-end relationship, wherein the first and second inductor members are electrically connected in series between a power supply and at least one electrode of an electrostatic precipitator for increasing voltage, reducing ripple, and absorbing high frequency energy in the power supplied to the electrodes.

5,740,025
ELECTRONIC CONTROLLER FOR A TROLLEY POLE SWITCH MECHANISM

Charles C. Siegling, III, Greenville, S.C.; Francis A. Launier, Laval, Canada, and John H. Corvin, Greer, S.C., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed May 1, 1996, Ser. No. 644,402
Int. Cl.^{6} H02M *7/00*
U.S. Cl. 363—65 **22 Claims**



1 An electronic controller for controlling a trolley pole switch, such trolley pole switch having at least one frog for switching the path of travel therethrough of an energy collector assembly of a trolley pole at a junction of power conduits at which a turn power conduit and a straight power conduit diverge from such straight power conduit, said electronic trolley pole switch controller comprising:

- (a) a signal processing means for detecting and processing a modulated turn signal indicative of a request to switch the path of travel through such at least one frog to such turn power conduit and a modulated straight signal indicative of a request to switch the path of travel through such at least one frog to such straight power conduit, and for generating in response to such modulated turn signal an intermediate turn command signal indicative of a command to supply power to one electrical operator of such at least one frog for effecting the switch in the path of travel through such at least one frog to such turn power conduit and in response to such modulated straight signal an intermediate straight command signal indicative of a command to supply power to another electrical operator of such at least one frog for effecting the switch in the path of travel through such at least one frog to such straight power conduit; and
- (b) a power controlling means for receiving said intermediate command signals from said signal processing means and for supplying in response thereto power to such electrical operator corresponding to said intermediate command signal so received thereby energizing such corresponding electrical operator and therethrough compelling such at least one frog to switch the path of travel that such energy collector assembly will take through such at least one frog to a corresponding one of such power conduits.

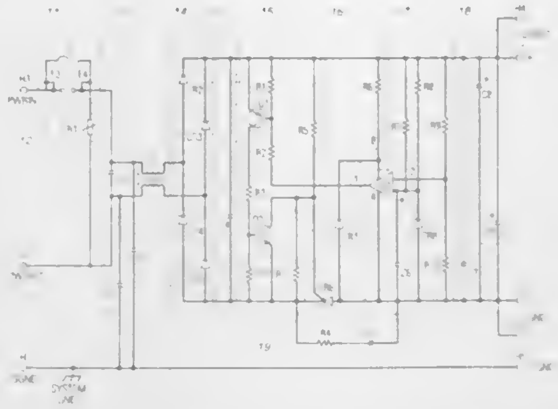
5,740,026
CONTROLLED INPUT CIRCUIT FOR AN SCR TO ACCEPT EITHER AC OR DC VOLTAGE

Gregory Michael Karol, Norton, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Sep. 20, 1996, Ser. No. 716,982
Int. Cl.^{6} H02M *5/42, 1/10*
U.S. Cl. 363—86 **19 Claims**

1. A power supply circuit having a power input and a power output, said power supply circuit comprising:

- a rectifier circuit having an unrectified input and a rectified output, said unrectified input being coupled to said power input;
- an SCR having a first current carrying terminal, a second current carrying terminal and a control input, said first current carrying terminal being coupled to said rectifier output, said second current carrying terminal being coupled to said power output such that said SCR is configured to interrupt an electrical path from said power input to said power output; and

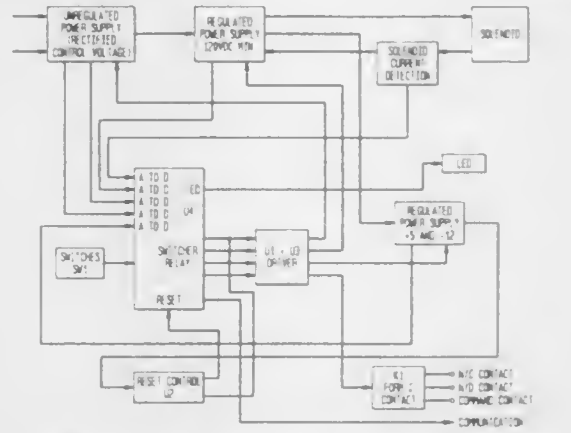


- a control circuit coupled to said control input of said SCR and said power output, said control circuit configured to send on and off control signals to said control input of said SCR in response to a voltage at said power output such that said voltage at said power output is a regulated DC voltage when AC is applied to said power input and an unregulated DC voltage when DC is applied to said power input.

5,740,027
TRIP DEVICE FOR AN ELECTRIC POWERED TRIP UNIT

Stuart R. Akers, Raleigh, and Erskine Barbour, Benson, both of N.C., assignors to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Jun. 28, 1996, Ser. No. 674,641
Int. Cl.^{6} H02M *7/155*
U.S. Cl. 363—97 **19 Claims**



1. A power supply for an undervoltage trip device, comprising

- diode bridge means having an input for receiving an input voltage thereat, said diode bridge means producing a first output voltage having a first DC level upon proper polarized connection of an input voltage to said input of diode bridge means, and for producing said first output voltage of a known polarity;
- first impedance means connected to said first output voltage for storage of electrical energy,
- resonant circuit means connected to said first impedance means and producing a second output voltage in response to an oscillation signal, said second output voltage i) derived from and related to said electrical energy stored in said first impedance means ii) and having a DC level greater than said first DC level;
- oscillation signal means connected to said resonant circuit means,

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a second impedance means, and
a unidirectional voltage means connected to pass said second output voltage from said resonant circuit means to said second impedance means, said second impedance means storing said second output voltage whereby said oscillation signal means controls oscillation of said resonant circuit such that said second output voltage remains at a predetermined level as long as the input voltage level remains within a predetermined range.

5,740,028
INFORMATION INPUT/OUTPUT CONTROL DEVICE AND METHOD THEREFOR

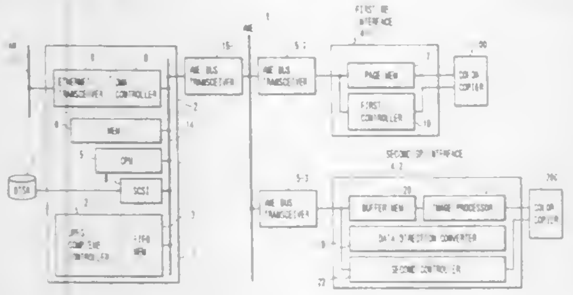
Mitsumasa Sugiyama, Kawasaki; Susumu Sugiura, Atsugi; Yoshikazu Yokomizo, Yokohama; Yoshinobu Mita, Kawasaki; Makoto Takaoka, Yokohama; Shigetada Kobayashi, Tokyo; Junichi Shishizuka, Kawasaki; Tsutomu Negishi, Tokyo; Osamu Yamada, Yokohama; Yukari Toda, Yokohama; Kazuhiro Saito, Yokohama; Masanari Toda, Yokohama; Yasuhiko Hashimoto, Tokyo, and Yasuo Fukuda, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 182,228, Jan. 18, 1994, abandoned. This application May 29, 1997, Ser. No. 864,903

Claims priority, application Japan, Jan. 18, 1993, 5-021704

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 364—130 21 Claims



1. A control apparatus for a plurality of terminal devices, said apparatus comprising:
input means for inputting data transmitted from an external apparatus;
supervision means for supervising working conditions of the plurality of terminal devices;
execution means for causing the plurality of terminal devices to execute functional procedures; and
allowing means for allowing said input means to input the data,
wherein said allowing means is operative, in a case where said input means has inputted first data specifying a first functional procedure to be executed by a first one of the plurality of terminal devices, to allow said input means to input other data even if abnormality information indicating abnormality of the first terminal device is received while the first terminal device is executing the first functional procedure, and
wherein, when said input means inputs second data specifying a second functional procedure to be executed by a second one of the terminal devices subsequent to inputting the first data, and further when the first functional procedure has been interrupted prior to its completion due to abnormality of the first terminal device, said execution means causes the second terminal device to execute the second functional procedure prior to completion of the first functional procedure.

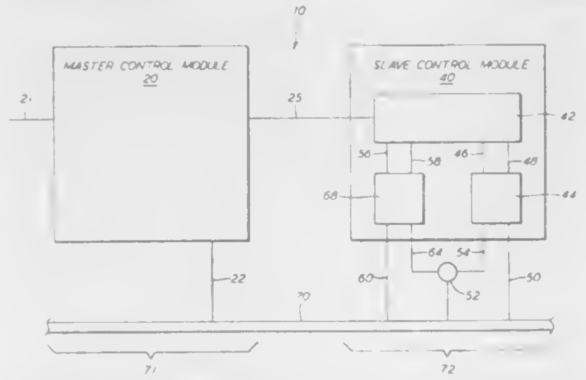
5,740,029
SOFTWARE ALGORITHM PROVIDING DYNAMIC CONFIGURATION OF DEAD BAND CONTROL CRITERIA WITHIN A MICRO BASED REAL TIME PROCESS CONTROL ENVIRONMENT

Vincent Ferri, Pittsburgh; Robert D. Dimsa, Elizabeth; Joseph C. Gray, Turtle Creek, and Michael E. Romansky, North Huntingdon, all of Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Feb. 21, 1996, Ser. No. 604,656

Int. Cl.⁶ G05B *15/00;* **B60T** *13/00;* **B61C** *17/12*

U.S. Cl. 364—132 12 Claims



1. A real time process control system for control of preselected machinery, said real time process control system comprising:
(a) a master control module disposed within a lead locomotive of a train consist;
(b) a slave control module disposed within a remote locomotive of such train consist;
(c) a control effector, having at least one effect causing quality, connected to receive a first control signal from said master control module, said first control signal causing changes in said effect causing quality of said control effector, said control effector connected to receive a second control signal from said slave control module, said second control signal causing changes in said effect causing quality of said control effector;
(d) means connected to said master control module and said slave control module for sending a third control signal from said master control module to said slave control module, and for sending a signal indicative of an operating mode of such train;
(e) means disposed in said slave control module for using said third control signal to determine a target value for said effect causing quality of said control effector, and for generating a deadband signal based on said signal indicative of an operating mode of such train;
(f) sensing means connected to said control effector and to said slave control module for determining an actual value of said effect causing quality and for generating signals in said slave control module indicative of said actual value of said effect causing quality;
(g) a feedback loop having at least a portion thereof disposed within said slave control module for adjusting said actual value of said effect causing quality in accordance with said target value of said effect causing quality and said deadband signal, said deadband being at least sufficient to permit said actual value of said effect causing quality to have a difference from said target value during an event in which said third control signal is interrupted, said difference exceeding a predetermined level; and
(h) means responsive to said difference exceeding said predetermined level to generate a fourth control signal to cause a change in said effect causing quality of said control effector, said change being appropriate to said event in which said third control signal is interrupted.

5,740,030
DEVICE FOR CLEANING THE WORKING SURFACES OF A PRINTING PRESS IN PARTICULAR BLANKET WASHING PLANT

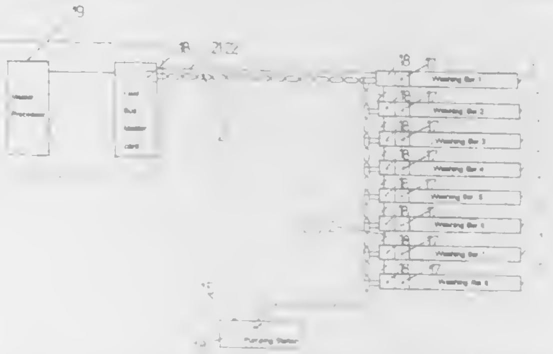
Josef Ottl, Diedorf, and Karl-Heinz Reichel-Langer, Wemding, both of Germany, assignors to Grafotec GmbH, Diedorf, Germany

Filed Jun. 6, 1996, Ser. No. 660,795

Claims priority, application Germany, Jul. 26, 1995, 195 27 249.8

Int. Cl.⁶ G05B *11/00*

U.S. Cl. 364—138 23 Claims



1. A device for cleaning working surfaces of a printing press, the printing press having a plurality of washing units divided into subsets with each subset having at least one washing unit, a central processing unit connected to the plurality of washing units, and actuators and sensors, the device comprising:
a plurality of communication modules, each module being located near a respective washing unit and assigned to the respective washing unit and to the central processing unit,
a transmission channel; and
means connecting all of said plurality of communications modules to said transmission channel whereby signals can be transmitted and received via said transmission channel, the module of each washing unit being connected to a local control means by a signal line for activation of the actuators and for selection of the sensors and for execution of operational sequences.

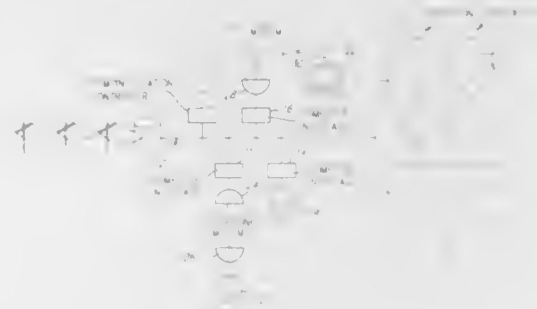
5,740,031
CONTROL SYSTEM FOR THE IRRIGATION OF WATERING STATIONS

Romain Gagnon, Saint-Bruno, Canada, assignor to Smart Rain Corp. Inc., Quebec, Canada

Filed Sep. 7, 1995, Ser. No. 528,648

Int. Cl.⁶ G05B *11/01*

U.S. Cl. 364—145 17 Claims



1. An irrigation system for controlling a plurality of irrigating stations whereby each said irrigation station is irrigated in accordance with its soil needs for irrigation, each said irrigation station including valve actuating means, said irrigation system comprising
a) computer means including display means for displaying the soil needs for irrigation and the water content measured from each irrigation station, said computer means establishing irrigation schedules for said irrigation stations;
b) a plurality of irrigation controllers, one at each of said irrigation stations, each said irrigation controller comprising
a power line protection unit being coupled to a power line network;
a power line transceiver and a power supply being coupled to said power line protection unit,
sensing means for collecting soil data including soil water content to measure the soil needs for irrigation and permittivity of the soil using a probe attached to said sensing unit and buried in soil at said irrigation station,
a micro-processor being coupled to said power line transceiver and said sensing means, said micro-processor including a stored firmware program to independently control said valve actuating means based on said irrigation schedules downloaded from said computer means and said soil data collected by said sensing means,
an actuating circuitry, coupled to said micro-processor, for activating said valve actuating means, and
a valve end protection unit connected to said actuating circuitry, wherein said power supply feeds low voltage direct current to said micro-processor, said power line transceiver, said sensing means and said actuating circuitry;
c) said power line network for supplying power to said irrigation controllers and said valve actuating means and acting as a two way communication medium through which said irrigation controllers communicate between one another and said computer means; and
d) a computer interface for interfacing said power line network with said computer means

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5,740,032

Patent Not Issued For This Number

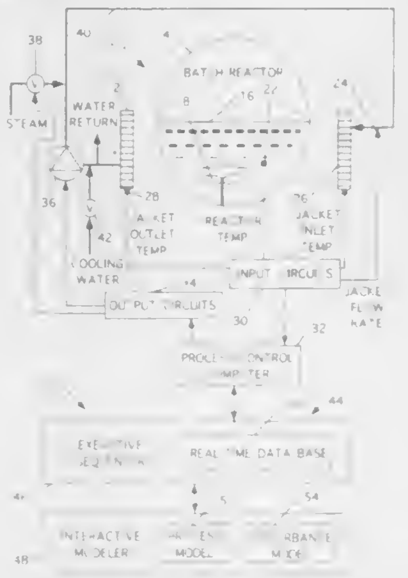
5,740,033
MODEL PREDICTIVE CONTROLLER

John M. Wassick; Patrick S. McCroskey; John J. McDonough, and David K. Steckler, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 13, 1992, Ser. No. 959,629

Int. Cl.⁶ G05B *13/04*

U.S. Cl. 364—149 20 Claims



1. In a process control system having input means for receiving signals indicative of measured process parameters, and output means for transmitting command signals which include at least one manipulated parameter value that is used to govern physical process equipment, a model predictive controller comprising

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interactive modeling means for estimating the current state of at least one unmeasured process variable and for determining the value of at least one said manipulated parameter value for said process equipment at selected intervals, said interactive modeling means having both a process model which represents the dynamic behavior of the physical process equipment being controlled and an independent disturbance model which represents current deviations from said process model and future deviations over a predetermined prediction horizon, said process model including at least one nonlinear function which is specifically related to the physical process being controlled;

real-time executive means for directing the operation of said interactive modeling means, said real-time executive means having means for periodically transferring said signals indicative of measured process parameters to said interactive modeling means and means for transferring said manipulated parameter value from said interactive modeling means to said output means; and

means for testing the validity of said signals which are indicative of measured process parameters, the current estimated state of said unmeasured process variable, and the value of said manipulated parameter value.

5,740,034

POSITIONING APPARATUS AND PROCESS SYSTEM HAVING THE SAME

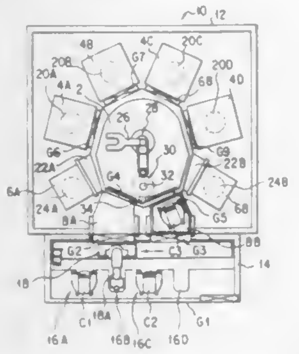
Hiroaki Saeki, Yamanashi-ken, Japan, assignor to Tokyo Electronic Limited, Tokyo, Japan

Filed Mar. 19, 1996, Ser. No. 618,153

Claims priority, application Japan, Mar. 20, 1995, 7-087483

Int. Cl.^{6} B65H *1/00;* G01B *11/24*

U.S. Cl. 364—167.01 16 Claims



1. A positioning apparatus for positioning an object to be processed which has a substantially circular contour as a dominant contour and a positioning cut-out in a peripheral portion, comprising:

a rotatable table for supporting the object;

detection means for optically detecting a peripheral shape of the object on said table,

first arithmetic means for combining two half-cycle components of a first peripheral shape signal corresponding to a 360-degree revolution of the object and output from said detection means to obtain a second peripheral shape signal, the components being shifted in phase by 180 degrees;

peak extracting means for extracting a peak portion from the second peripheral shape signal;

data invalidating means for setting a certain range, of the first peripheral shape signal, including the peak portion and a range shifted from the certain range by 180 degrees as invalid data;

first curve approximation means for obtaining a third peripheral shape signal by performing curve approximation of the first peripheral shape signal on the basis of valid data obtained by removing the invalid data from the first peripheral shape signal, and

second arithmetic means for obtaining an eccentricity direction and amount of the object with respect to a rotation center of said table on the basis of the third peripheral shape signal.

5,740,035

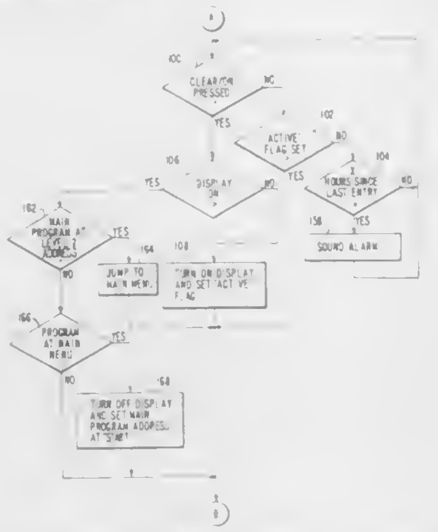
SELF-ADMINISTERED SURVEY SYSTEMS, METHODS AND DEVICES

Gerald B. Cohen; Louis W. Conley, both of Gaithersburg; Roberta M. McConochie, Annapolis; Robert H. Patchen, Bethesda; James D. Peacock, Laurel; Claude A. Rankin, Columbia, and Thomas W. White, Annapolis, all of Md., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Jul. 23, 1991, Ser. No. 734,585

Int. Cl.^{6} G06F *159/00*

U.S. Cl. 364—401 R 37 Claims



23. A self-administered survey device, comprising: display means for providing a display of information to a survey respondent; control means for controlling the display means to display to the respondent at least one time-based survey question concerning a possible event occurring within a predetermined survey time period; input means for entering survey response data from the respondent; and memory means for storing survey response data entered by the input means; the control means including means for controlling the memory means to store a corresponding response entered by the input means and means for determining whether a response entered upon the display of the time-based survey question concerns an event occurring prior to the survey time period and to produce a corresponding prior event signal in response to such determination.

5,740,036

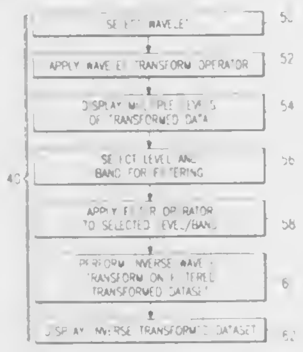
METHOD AND APPARATUS FOR ANALYZING GEOLOGICAL DATA USING WAVELET ANALYSIS

Chander M. Ahuja, and Charles C. Mosher, both of Plano, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Sep. 15, 1995, Ser. No. 528,916

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—321 21 Claims


SELECT WAVELET
APPLY WAVELET TRANSFORM OPERATOR
52
DISPLAY MULTIPLE LEVELS OF TRANSFORMED DATA
54
SELECT LEVEL AND BAND FOR FILTERING
40
APPLY FILTER OPERATOR TO SELECTED LEVEL/BAND
58
PERFORM INVERSE WAVELET TRANSFORM ON FILTERED TRANSFORMED DATASET
DISPLAY INVERSE TRANSFORMED DATASET

1. A method of operating a computer to analyze geological measurements taken at a survey region of the earth, comprising:

retrieving, from memory, an input signal dataset corresponding to a discrete space-domain representation of geological measurements over a selected portion of the survey region;

performing an initial wavelet transform-filter operation upon the input signal dataset to produce a first-level filtered dataset, wherein the initial wavelet transform-filter operation comprises a wavelet transform of the input signal dataset, a filter operation upon the results of the wavelet transform, and an inverse transform upon the results of the filter operation to produce the first-level filtered dataset;

performing a first wavelet transform-filter operation upon the first-level filtered dataset, comprising the steps of:

selecting a first scale-wavelet function pair for application to the first-level filtered dataset;

transforming the first-level filtered dataset by applying the selected first scale-wavelet function pair to the first-level filtered dataset;

then filtering results of the transforming step using a first selected filter; and

then inverse-transforming results of the filtering step, by applying the selected first scale-wavelet function pair thereto, to produce a first second-level filtered dataset; and

displaying the first second-level filtered dataset.

5,740,037

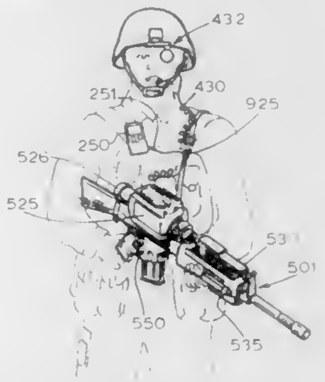
GRAPHICAL USER INTERFACE SYSTEM FOR MANPORTABLE APPLICATIONS

Thomas E. McCann, Huntington Beach; Andrew Ausman, Garden Grove; Douglas M. Kavner, Orange; Michael W. Brogan, Hermosa Beach, all of Calif.; Larri Rosser, Ft. Worth, and John R. Tiffany, Grand Prarie, both of Tex., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jan. 22, 1996, Ser. No. 589,682

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 364—400 27 Claims



1. In a multiple function warfare system worn by an individual soldier, a device for interfacing said individual soldier with said warfare system, said device comprising:

a processing section carried by said individual soldier and configured to organize information developed by the warfare system into a first category, a second category, and a third category, the first, second and third categories each being associated with a respective task encountered by the soldier;

an input section connected to said processing section for permitting the soldier to input data into the processing section; and.

an output section connected to said processing section for outputting the information organized in a respective one of the first, second, and third categories, when the soldier is engaged in the respective task associated with the respective one of the categories.

5,740,038

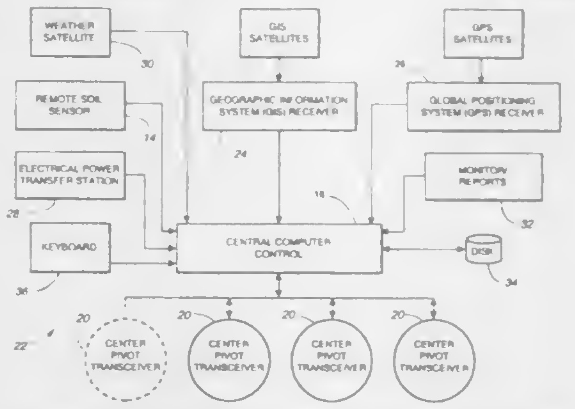
SYSTEM AND METHOD FOR OPTIMIZED CONTROL OF MOVING IRRIGATION SYSTEMS

C. David Hergert, 110465 County Rd. 17, Mitchell, Nebr. 69357

Filed Sep. 26, 1996, Ser. No. 721,226

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 364—420 18 Claims



1. A system for optimizing operation of a plurality of independent soil irrigation systems comprising in combination.

a global positioning system receiver receiving satellite transmission position information for each of said irrigation systems to generate a map;

a geographical information system (GIS) receiver receiving GIS satellite transmitted soil condition information for said irrigation systems on said map;

a programmable computer having a data storage device for storing data coupled to said GPS and GIS receivers for mapping said soil condition information onto said map;

a software program means in said computer for integrating said position information and said soil condition information to produce a priority schedule for operation of each of said irrigation systems in accordance with predetermined irrigation criteria; and

transmission means coupled to said computer and to each of said irrigation systems for sending a control signal to each of said irrigation systems in accordance with said priority schedule.

5,740,039

VEHICLE WHEEL SUSPENSION ARRANGEMENTS

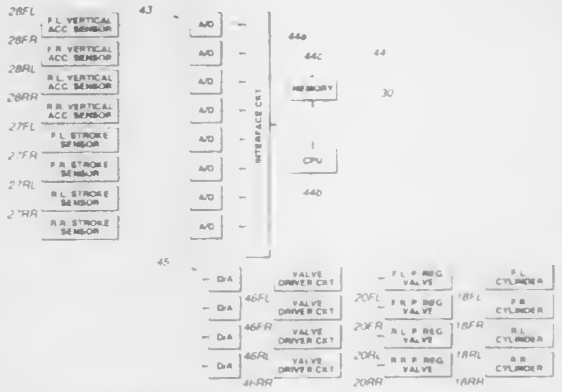
Michihito Hirahara; Takeshi Kimura, and Hideo Tobata, all of Yokosuka, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 30, 1995, Ser. No. 550,000

Claims priority, application Japan, Oct. 28, 1994, 6-265525; Oct. 28, 1994, 6-265526

Int. Cl.^{6} B60G *17/015*

U.S. Cl. 364—424.046 22 Claims



1. A wheel suspension arrangement for a vehicle having a vehicle body, comprising.

a wheel carrier movably mounted on the vehicle body.

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a suspension spring acting between said wheel carrier and the vehicle body;

an actuator operable in response to a control signal to produce a body supporting force acting between the body and the wheel carrier; and

a controller operable to develop the control signal,

the controller being operable to derive a combined force acting on the body by the suspension spring and by the actuator in response to the vertical component of vibrations of the wheel carrier,

the controller being operable to modify the derived combined force and also operable to determine a force counterbalancing the modified derived combined force,

the controller being operable to vary the control signal such that the body supporting force varies by the determined counterbalancing force,

the derived combined force being modified in such a manner as to insulate transmission of vibrations to the body in the range of body resonance as well as transmission of vibrations to the body in the range of wheel carrier resonance.

5,740,040

ELECTRIC POWER STEERING APPARATUS WITH ENHANCED ROAD FEEL

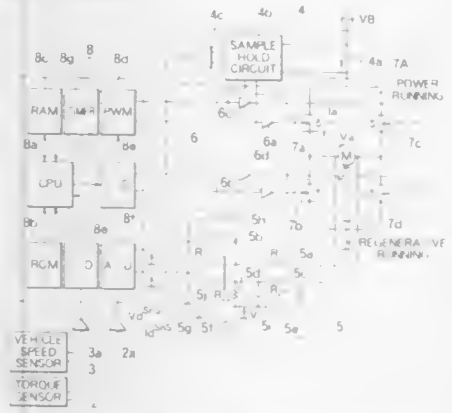
Takayuki Kifuku, and Shunichi Wada, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,585

Claims priority, application Japan, Dec. 21, 1994, 6-318350

Int. Cl.⁶ B62D *5/04; 153/00*

U.S. Cl. 364—424.051 17 Claims



1 An electric power steering apparatus, comprising:

a) a motor connected to a steering system;

b) PWM control means for driving and controlling said motor on the basis of a PWM control signal;

c) motor-applied voltage detection means having a low pass characteristic for converting the detected voltage applied to said motor to a predetermined level after removing a PWM carrier frequency component therefrom with the aid of the low pass characteristic and outputting the resultant voltage, wherein the cutoff frequency of the low pass characteristic is set to be below the PWM carrier frequency contained in said control signal;

d) angular velocity estimation means for estimating the angular velocity of said motor on the basis of the outputted resultant voltage; and

e) current value calculation means for calculating a current target of said motor on the basis of the estimated angular velocity.

5,740,041

VEHICLE OCCUPANT RESTRAINT SYSTEM RESPONSIVE TO ACCELLERATION

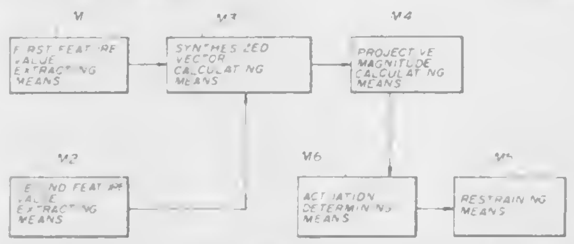
Motomi Iyoda, Seto, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Oct. 19, 1995, Ser. No. 545,225

Claims priority, application Japan, Oct. 25, 1994, 6-260528

Int. Cl.⁶ B60R *21/32;* **G01P** *15/00*

U.S. Cl. 364—424.055 9 Claims


M1
FIRST FEATURE VALUE EXTRACTING MEANS
M3
SYNTHESIZED VECTOR CALCULATING MEANS
M4
PROJECTIVE MAGNITUDE CALCULATING MEANS
M2
SECOND FEATURE VALUE EXTRACTING MEANS
M6
ACTUATION DETERMINING MEANS
M5
RESTRAINING MEANS

1 An occupant restraint system for a vehicle, an acceleration being generated on said vehicle when an external force is exerted on said vehicle, said occupant restraint system comprising:

restraining means for restraining a passenger in said vehicle when said external force exceeds a predetermined value;

external force assuming means for assuming a magnitude and a direction of the external force exerted on said vehicle;

projective magnitude calculating means for calculating a projective magnitude of a projective vector obtained from an external force vector corresponding to the external force, said external force vector obtained from the magnitude and the direction assumed by said external force assuming means, said projective vector being a projection of said external force vector with respect to a predetermined direction; and

actuation determining means for determining actuation of said restraining means by comparing said projective magnitude with a predetermined threshold value so that said restraining means is actuated when said projective magnitude is greater than said predetermined threshold value.

5,740,042

ANTISKID CONTROL DEVICE WITH A DRIVE MADE JUDGING MEANS FOR A PART-TIME 4-WHEEL DRIVE VEHICLE

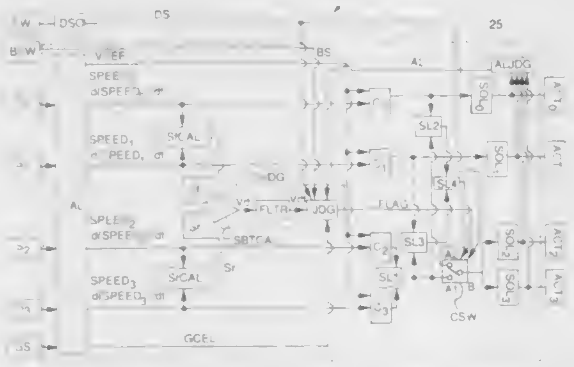
Hideaki Fujioka, Itami, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 17, 1995, Ser. No. 423,636

Claims priority, application Japan, May 18, 1994, 6-104129

Int. Cl.⁶ B60T *8/00;* **B60K** *17/34*

U.S. Cl. 364—426.015 18 Claims



1 An antiskid control device for use in a motor vehicle which can be changed between 2WD and 4WD by a changeover means, comprising:

drive signal output means for outputting a drive signal indicating that the changeover means is set to one of 2WD and 4WD such that changeover between antiskid control for 2WD and antiskid control for 4WD is performed in accordance with the drive signal; and

drive mode judging means which detects, based upon behavior of wheels of the motor vehicle, that an actual drive mode of the motor vehicle is 2WD when the drive signal indicates that the changeover means is set to 4WD;

wherein when the drive mode judging means has detected that the actual drive mode of the motor vehicle is 2WD, antiskid control for 4WD is changed to antiskid control for 2WD,

wherein the drive mode judging means includes longitudinal speed difference calculating means for calculating and outputting a longitudinal speed difference equal to a difference between an average front wheel speed and an average rear wheel speed and smooth longitudinal speed difference calculating means for calculating and outputting a smooth longitudinal speed difference obtained by smoothing the longitudinal speed difference,

wherein when the smooth longitudinal speed difference falls out of a range between a predetermined upper threshold value and a predetermined lower threshold value when the drive signal indicates that the changeover means is set to 4WD, the drive mode judging means judges that the actual drive mode of the motor vehicle is 2WD.

5,740,043

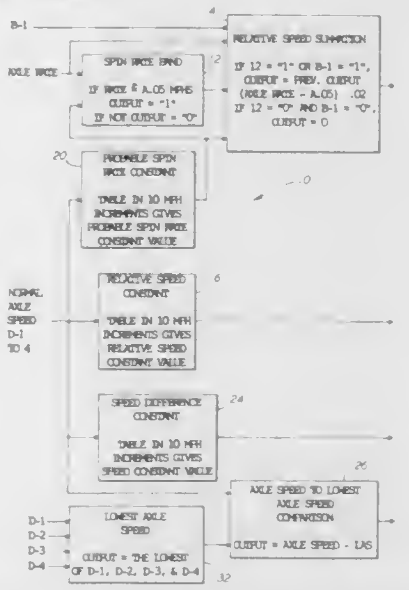
RELATIVE SPIN SPEED TRACTION CONTROL

James A. Wood, Spartanburg; David E. Schweikert, Moore, both of S.C., and David A. Greer, Gahanna, Ohio, assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Mar. 4, 1996, Ser. No. 610,727

Int. Cl.⁶ B60T *8/32;* **B61C** *15/08*

U.S. Cl. 364—426.015 27 Claims


B-1
AXLE RATE
SPIN RATE BAND
IF RATE ≥ A.05 MPHS OUTPUT = "1"
IF NOT OUTPUT = "0"
12
RELATIVE SPEED SUMMATION
IF 12 = "1" OR B-1 = "1", OUTPUT = PREV. OUTPUT (AXLE RATE - A.05) .02
IF 12 = "0" AND B-1 = "0", OUTPUT = 0
PROBABLE SPIN RATE CONSTANT
TABLE IN 10 MPH INCREMENTS GIVES PROBABLE SPIN RATE CONSTANT VALUE
RELATIVE SPEED CONSTANT
TABLE IN 10 MPH INCREMENTS GIVES RELATIVE SPEED CONSTANT VALUE
NORMAL AXLE SPEED D-1 TO 4
SPEED DIFFERENCE CONSTANT
TABLE IN 10 MPH INCREMENTS GIVES SPEED CONSTANT VALUE
26
AXLE SPEED TO LOWEST AXLE SPEED COMPARISON
OUTPUT = AXLE SPEED - LAS
D-1
D-2
D-3
D-4
LOWEST AXLE SPEED
OUTPUT = THE LOWEST OF D-1, D-2, D-3, & D-4
32

1. An apparatus for providing relative spin speed traction control on a railway vehicle having steel wheels which operates on steel rails, said apparatus comprising:

(a) a wheel spin detection means disposed on such railway vehicle and connected to receive a first plurality of input signals, at least one of said first plurality of said input signals being an externally generated and communicated axle rate signal which is representative of an acceleration/deceleration rate of a particular wheel/axle set being monitored with respect to wheel slippage, for generating and communicating a spin speed selection output signal representative of an actual spin speed value and for generating and communicating a respective axle's wheel spin detection signal;

(b) a wheel spin correction means disposed on such railway vehicle and connected to receive a second plurality of input signals, one of said second plurality of said input signals being an externally generated and communicated power/brake signal which is representative of when such railway vehicle is in one of a braking mode and a non braking mode and at least two of said second plurality of said input signals being said spin speed selection output signal representative of an actual spin speed value and said respective axle's wheel spin detection signal generated and communicated from said wheel spin detection means, for determining and communicating an appropriate output force command signal selected from remove, hold and apply and for generating and communicating an output signal representative of one of a spin correction being in progress for a respective axle and an absence of a spin correction being in progress for such respective axle;

(c) a wheel spin axle force command signal generating means disposed on such railway vehicle and connected to receive each of such externally generated and communicated power/brake signal, said output force command signal selected from remove, hold and apply and said output signal representative of said one of said spin correction being in progress on a respective axle and said absence of said spin correction being in progress on such respective axle for generating a respective truck 1 and truck 2 re-application jerk limiting output signal and communicating said respective truck 1 and truck 2 re-application jerk limiting output signal to respective truck 1 and truck 2 propulsion control units disposed on such railway vehicle and for generating and communicating an output signal representative of one of a spin correction occurring and an absence of said spin correction occurring; and

(d) a speed normalization means disposed on such railway vehicle and connected to receive each of said raw axle speed signals, said power/brake signal, said axle rate signals and said output signal representative of car level spin for generating and communicating an output signal representative of normalized axle speeds and an output signal representative of a highest axle speed

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5,740,044

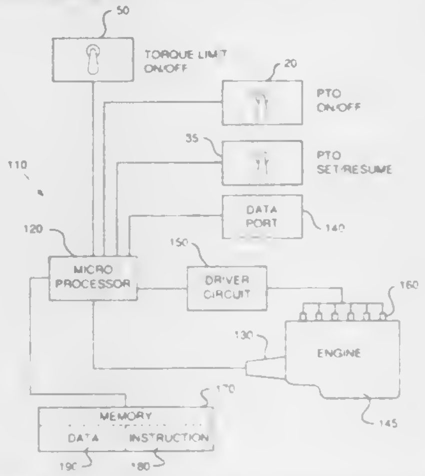
TORQUE LIMITING POWER TAKE OFF CONTROL AND METHOD OF OPERATING SAME

Kevin D. Ehrenhardt, Eureka; Gregory S. Gauger, Pekin; Prasad V. Parupalli, Peoria, and Thomas R. Sandborg, Mapleton, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Jun. 16, 1995, Ser. No. 491,443

Int. Cl.⁶ B60K *41/20;* **F02D** *31/00*

U.S. Cl. 364—426.033 5 Claims



1 An apparatus for controlling a vehicle engine, said engine being connected to a power-take-off, the apparatus automatically limiting the maximum torque output of the engine, said apparatus comprising:

a microprocessor;

a torque limit on/off switch being positionable in an on position and in an off position and being electrically connected to said microprocessor;

memory means electrically connected to said microprocessor,

driver circuitry electrically connected to said microprocessor and electrically connected to a fuel injector;

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speed sensing means connected to said engine for producing an electrical signal corresponding to said engine speed, said speed sensing means being electrically connected to said microprocessor;

a torque limit value stored in said memory means;

a torque curve stored in said memory means;

wherein said microprocessor produces a fuel injection signal delivered to said driver circuit as a function of the torque curve when said torque limit on/off switch is in the off position; and

wherein said microprocessor produces a fuel injection signal delivered to said driver circuit as a function of the torque curve when the value of said curve is less than said torque limit value and as a function of said torque limit value when said torque curve is greater than or equal to said torque limit value when said torque limit on/off switch is in the on position.

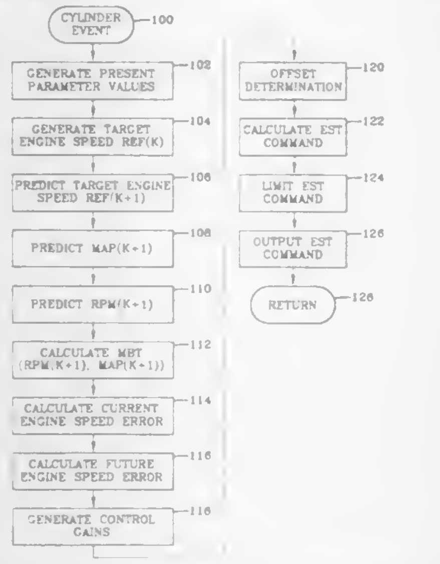
5,740,045
PREDICTIVE SPARK CONTROLLER

Mike Livshiz, Southfield, and David Jeffrey Sanvido, Novi, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 29, 1995, Ser. No. 556,548

Int. Cl.^{6} F02D *43/00;* F02P *5/04*

U.S. Cl. 364—431.03 13 Claims


CYLINDER EVENT
100
GENERATE PRESENT PARAMETER VALUES
102
GENERATE TARGET ENGINE SPEED REF(K)
104
PREDICT TARGET ENGINE SPEED REF(K+1)
106
PREDICT MAP(K+1)
108
PREDICT RPM(K+1)
110
CALCULATE MBT (RPM(K+1), MAP(K+1))
112
CALCULATE CURRENT ENGINE SPEED ERROR
114
CALCULATE FUTURE ENGINE SPEED ERROR
116
GENERATE CONTROL GAINS
116
OFFSET DETERMINATION
120
CALCULATE EST COMMAND
122
LIMIT EST COMMAND
124
OUTPUT EST COMMAND
126
RETURN
126

1 In an internal combustion engine receiving intake air in an intake manifold for distribution to at least one engine cylinder having at least one spark plug for igniting, at an ignition timing, a mixture including the intake air and an injected fuel quantity, a method of varying engine output torque through ignition timing control to drive engine speed toward a target engine speed, comprising the steps of:

providing a present target engine speed;

providing a future target engine speed;

predicting future intake manifold air pressure,

sampling present actual engine speed;

predicting a future engine speed.

calculating present engine speed error as a difference between present target engine speed and present actual engine speed.

calculating future engine speed error as a difference between future target engine speed and predicted future engine speed.

referencing a minimum spark advance for best torque ignition timing command (MBT command) as a function of the predicted future engine speed and predicted future intake manifold air pressure;

generating an ignition timing command as a predetermined function of the present and future engine speed errors and of the MBT command, and

igniting the mixture at a timing corresponding to the generated ignition timing command to vary engine output torque.

5,740,046
METHOD TO CONTROL IN A TRACK TRAFFIC SYSTEM MOVING UNITS, DEVICE FOR EFFECTING OF SUCH CONTROL AND PROCESS FOR INSTALLATION OF THE DEVICE

Peter Elestedt, Göteborg, Sweden, assignor to ABB Daimler Benz Transportation Signal AB, Gothenburg, Sweden

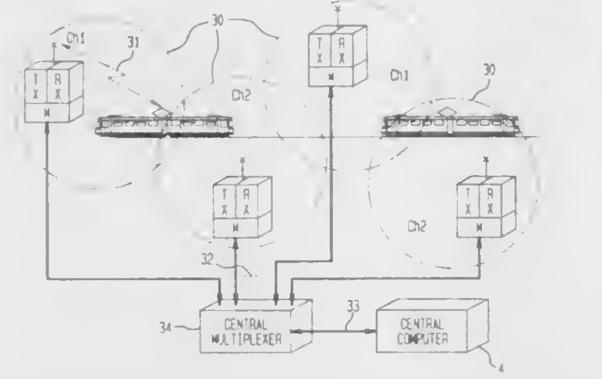
PCT No. PCT/SE93/00713, § 371 Date Feb. 28, 1995, § 102(e) Date Feb. 28, 1995, PCT Pub. No. WO94/05536, PCT Pub. Date Mar. 17, 1994

PCT Filed Aug. 31, 1993, Ser. No. 392,802

Claims priority, application Sweden, Aug. 31, 1992, 9202493

Int. Cl.^{6} G08G *1/00;* B61L *3/16*

U.S. Cl. 364—436 15 Claims



1 A method for controlling a plurality of mobile units in a network comprising a central control unit, a plurality of mobile control units each associated with one of said plurality of mobile units, and a plurality of passive position determining members located throughout said network, said method comprising storing data relative to the positions of said plurality of passive position determining members within said network in each of said plurality of mobile control units, scanning said passive position determining members whereby the position of said plurality of mobile units within said network can be determined, sensing the distance traversed by said plurality of mobile units within said network, whereby each of said plurality of mobile control units can continuously determine the momentary position of each of said plurality of mobile units within said network, storing said momentary positions of said plurality of mobile units within said mobile control units, storing data relating to the nature of said network in said central control unit, communicating between said mobile control units and said central control unit for generating control data for controlling each of said plurality of mobile units within said network, said control data being communicated from said central control unit to said plurality of mobile control units including the assignment of a free running distance based upon an allowable minimum distance to a predetermined point in said network, maintaining said free running distance on each of said plurality of mobile units, and forcing the retardation of said mobile units based upon said free running distance being reached.

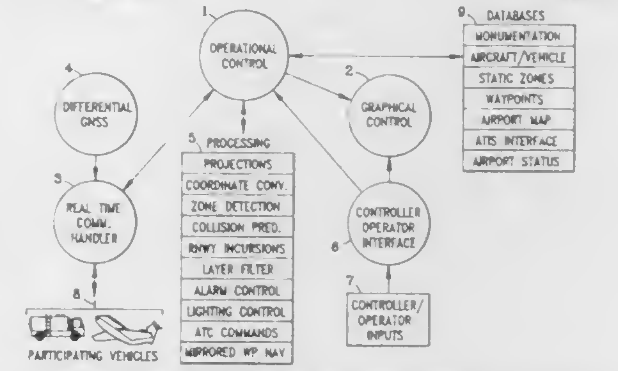
5,740,047
GNSS BASED, SEAMLESS, MULTI-DIMENSIONAL CONTROL AND MANAGEMENT SYSTEM FOR VEHICLES OPERATING IN A MULTI-DIMENSIONAL ENVIRONMENT

Harold Robert Pilley, and Lois V. Pilley, both of Hillsboro, N.H., assignors to Harold R. Pilley, Hillsboro, N.H.

Continuation of Ser. No. 117,920, Sep. 7, 1993, Pat. No. 5,548,515, which is a continuation-in-part of Ser. No. 758,852, Sep. 12, 1991, abandoned, which is a continuation-in-part of Ser. No. 593,214, Oct. 9, 1990, Pat. No. 5,200,902. This application May 21, 1996, Ser. No. 651,837

Int. Cl.^{6} G06F *163/00*

U.S. Cl. 364—439 11 Claims



1. A method for GNSS compatible traffic management using a computer system incorporating zone incursion processing located on a vehicle including aircraft and surface vehicular equipment, said method comprising the steps of:

a. adopting a coordinate reference system for processing by said computer system, where said adopted coordinate reference system is the Earth Centered Earth Fixed coordinate reference;

b. selecting a geographical region for said traffic management; said selected region being referenced to said adopted coordinate reference system;

c. establishing a static zones database, for said selected region, said static zones database containing descriptive data representing selected spatial characteristics referenced to said adopted coordinate reference system;

d. determining GNSS position data of said vehicle;

e. establishing a vehicle database, said vehicle database containing said position data referenced to said adopted coordinate reference system;

f. determining if said position data of said vehicle database incur a static zone, said static zone being defined within said static zones database; and

g. enabling a static zone incursion flag for said vehicle if said position data incur said static zone of said static zones database thereby making a static zone incursion alert.

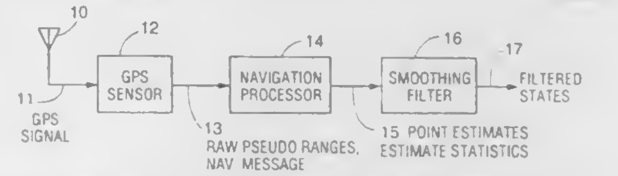
5,740,048
METHOD AND APPARATUS FOR GPS POSITIONING, FILTERING AND INTEGRATION

Jonathan S. Abel, 184 Tennyson Ave., Palo Alto, Calif. 94301, and James W. Chaffee, P.O. Box 4613, Austin, Tex. 78765

Filed Aug. 7, 1992, Ser. No. 927,936

Int. Cl.^{6} G01C *23/00*

U.S. Cl. 364—443 32 Claims



1 A two-stage filter for processing navigation data, including:

a navigation processor for computing point position and/or bias estimates from input pseudorange data; and

a smoothing filter for receiving and smoothing the point position and/or bias estimates output from the navigation processor.

5,740,049
RECKONING SYSTEM USING SELF RECKONING COMBINED WITH RADIO RECKONING

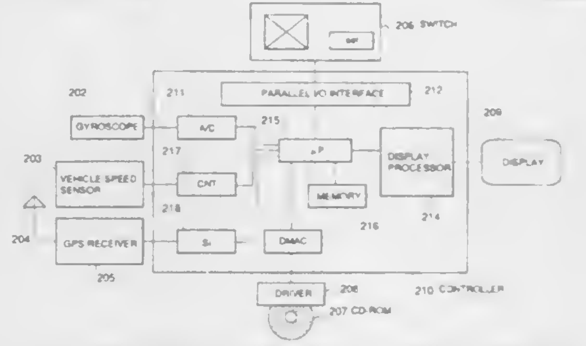
Yasutoshi Kaise, Zama, Japan, assignor to Xanavl Informatics Corporation, Zama, Japan

Filed Dec. 4, 1995, Ser. No. 566,632

Claims priority, application Japan, Dec. 5, 1994, 6-300930

Int. Cl.^{6} G06F *165/00;* G01C *21/12*

U.S. Cl. 364—450 12 Claims



1. A reckoning system for mounting on a vehicle travelling on a road and for detecting a current location of the vehicle, the reckoning system comprising:

a heading measurement means for measuring a heading of the vehicle;

a distance measurement means for measuring a distance the vehicle has travelled;

a speed measurement means for measuring a first speed of the vehicle;

a storage means for storing road map information;

a self-reckoning means for determining a first provisional current location on the basis of a last-determined current location of the vehicle and measurement results of the heading measurement means and the speed measurement means;

a map matching means for matching at least the first provisional current location with map information of an area around the first provisional current location, stored in said storage means, so as to find a second provisional current location which resides at a road and matches best with the first provisional current location;

a radio reckoning means for determining a current location of the vehicle as a third provisional current location, based on radio waves received from a plurality of artificial satellites, and for measuring a second speed of the vehicle;

a speed comparator means for comparing the first speed measured by said speed measurement means with the second speed measured by said radio reckoning means to provide a matching degree in speed; and

a current location determination means for determining a conclusive current location such that the conclusive current location is determined based on the second provisional current location when the matching degree in speed obtained by said speed comparator means is lower than a predetermined level, and based on the third provisional current location when said matching degree in speed is equal to or higher than the predetermined level,

wherein said speed comparator means decides that the matching degree is lower than the predetermined level when the following inequality is satisfied, and, otherwise, the matching degree is higher than the predetermined level

$$\gamma S1<|S2-S1|/S1$$

where "S1" and "S2" indicate said first and second speeds, respectively, and "γ" indicates a positive weight coefficient

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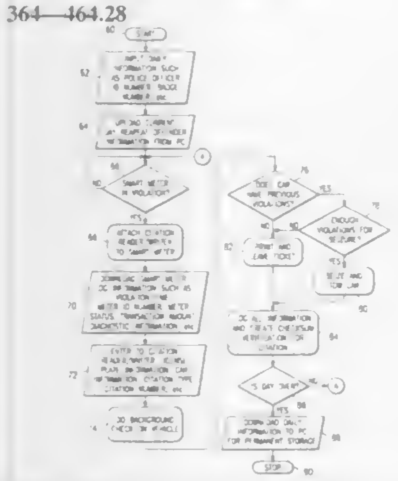
5,740,050
PARKING ENFORCEMENT SYSTEM

Seth Ward, II, Little Rock, Ark., assignor to POM Incorporated, Russellville, Ark.

Filed Sep. 27, 1996, Ser. No. 722,571

Int. Cl.⁶ G06F *17/00*

U.S. Cl. 364—464.28 **58 Claims**



1. A parking enforcement system, comprising:

a portable module including at least one microprocessor, said microprocessor being connectable to a data input subsystem, data output circuitry, data storage circuitry, and a communication interface, said communication interface being capable of communicating with an electronic parking meter which receives payment for time vended;

said microprocessor being programmed to send commands to said parking meter, through said communication interface, when entering citation data into said module using said data input subsystem;

said microprocessor being programmed to receive information from said parking meter, to store said information in said data storage circuitry, and to output, using said data output circuitry, a complete citation record, said citation record including said citation data as well as said information received from said parking meter at the time said citation data was entered.

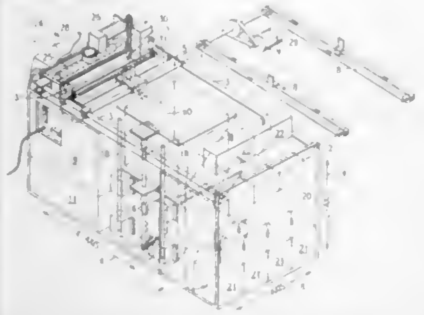
5,740,051
3-D MODEL MAKING

Royden C. Sanders, Jr., Wilton; John L. Forsyth, S. Lyndeborough, and Kempton F. Philbrook, Lyndeborough, all of N.H., assignors to Sanders Prototypes, Inc., Wilton, N.H.

Continuation-in-part of Ser. No. 378,947, Jan. 26, 1995, Pat. No. 5,506,607, which is a continuation of Ser. No. 112,437, Aug. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 87,705, Jul. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 646,153, Jan. 25, 1991, abandoned. This application Nov. 8, 1995, Ser. No. 555,037

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—468.26 **52 Claims**



1. A method of producing a 3-D model by forming a contiguous plurality of parallel layers of modeling material on a platform comprising the steps of:

a) producing a plurality of bead producing drops of the modeling material for deposition from a drop on demand jet at desired locations to solidify into beads to form at least a portion of a layer of said parallel layers;

b) controlling the locations of deposition by simultaneously coordinating relative movement in the X-Y coordinates for a support arrangement of said jet to produce vectors, defined by overlapping pluralities of the beads, in any and all directions required to produce, by vector plotting, at least a desired outer surface defining wall;

c) timing the production of said plurality of beads, at least, when producing said desired outer surface defining wall to overlap previously deposited beads to a desired extent and to meld with previously deposited beads to produce said vectors, thereby forming said desired outer surface defining wall with a desired surface finish;

d) adjusting the distance of the location of drop production to the location of drop deposition following formation of said layer in preparation for the formation of a subsequent said layer; and

e) repeating steps a), b), c), and d) as required to complete the model.

5,740,052
METHOD AND APPARATUS FOR MANUFACTURE OF SEMICONDUCTOR DEVICES

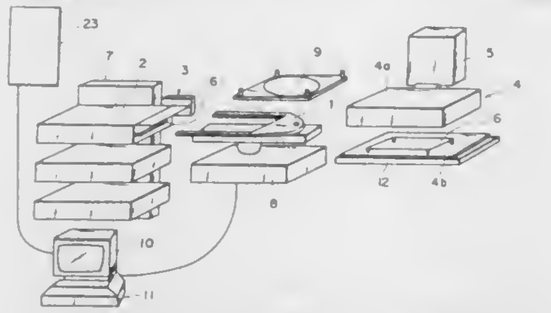
Gen Nakamura, Utsunomiya, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1996, Ser. No. 651,038

Claims priority, application Japan, May 23, 1995, 7-146868

Int. Cl.⁶ B65G *49/07*

U.S. Cl. 364—468.28 **7 Claims**



1. A semiconductor device manufacturing apparatus, comprising:

a reticle library for accommodating therein a first reticle cassette;

a cassette table for holding thereon a second reticle cassette of a shape different from that of the first reticle cassette;

a first opening and closing mechanism for opening/closing the first reticle cassette in accordance with a predetermined first sequence;

a second opening and closing mechanism for opening/closing the second reticle cassette in accordance with a predetermined second sequence different from the first sequence;

a reticle stage for holding a reticle as unloaded from the first reticle cassette, for use of the reticle in said apparatus;

a reticle hand for conveying a reticle as unloaded from said reticle stage; and

control means operable to discriminate one of the first and second reticle cassettes into which one cassette the reticle as unloaded from said reticle stage is to be accommodated, on the basis of reticle control information, said control means further being operable to move, through said reticle hand, the reticle into the first reticle cassette as being opened by said first opening and closing mechanism when said control means concludes that the reticle is to be accommodated in the first

reticle cassette, and also to move, through said reticle hand, the reticle into the second cassette as being opened by said second opening and closing mechanism when said control means concludes that the reticle is to be accommodated in the second reticle cassette

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5,740,053
METHOD OF CONTROLLING MONITOR USED IN CLEANING MACHINE AND OBJECT PROCESSING MACHINE AND MONITOR APPARATUS

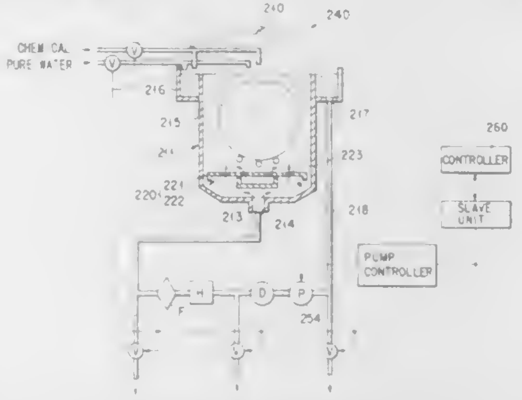
Tatsuyuki Iwama, Tosu, Japan, assignor to Tokyo Electron Limited, Tokyo, Japan

Filed Jul. 23, 1996, Ser. No. 681,404

Claims priority, application Japan, Jul. 31, 1995, 7-214121; Jul. 31, 1995, 7-214122; Jul. 31, 1995, 7-214123

Int. Cl.⁶ G06F *19/00;* G06G *7/66*

U.S. Cl. 364—468.28 **27 Claims**



10. A monitor controlling method of controlling a display of a master computer which displays a processing procedure of a cleaning machine comprising a transfer unit for transferring a to-be-processed object and a processed object, a plurality of cleaning units for cleaning the to-be-processed object transferred by the transfer unit, and a slave computer for controlling said transfer unit and said cleaning unit in association with said master computer, comprising the steps of,

preparing a plurality of processing menus which respectively concern an ordinary operator who executes processing in accordance with an ordinary processing procedure and an expert operator who is in charge of adjustment of said cleaning machine, and which include a plurality of processing items;

displaying, when said master computer is powered on, fixed information which is included in the processing menu concerning the ordinary operator and is fixedly determined by said cleaning machine, and user information including processing items selected in advance by a user from processing items of said cleaning machine,

displaying the processing menu concerning the expert operator only upon input of a password by the expert operator; and

displaying, when the ordinary operator and the expert operator respectively select the processing items of the corresponding processing menus, processing information corresponding to the selected processing items to be sent to and executed by said slave computer

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5,740,054
CUTTING-REGISTER FEEDBACK-CONTROL DEVICE ON CROSS-CUTTERS OF ROTARY PRINTING PRESSES

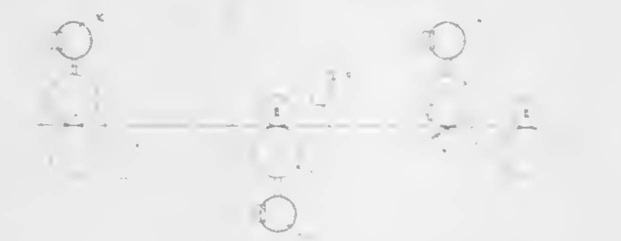
Wolfgang Dürr, Meckesheim; Gerog Rössler, Angelbachtal, and Rolf Spilz, Mannheim, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Continuation of Ser. No. 151,298, Nov. 12, 1993, abandoned. This application Sep. 4, 1996, Ser. No. 709,322

Claims priority, application Germany, Nov. 13, 1992, 42 38 387.0

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—469.01 **8 Claims**



1. In a cross cutter of a rotary printing press for printing on a printing-carrier web, the cross-cutter having a driven cutting cylinder, and the rotary printing press having printing-unit cylinders, drawing devices for the printing carrier web and positioning devices for adjusting the position of the printing-carrier web, the improvement comprising: a cutting-register feedback-control device including a plurality of rotary sensors respectively coupled to the printing-unit cylinders for monitoring angular positions of the cylinders and to a cutting cylinder for sensing the angular position of the cutting cylinder, the rotary sensors being connected to a first one of at least two summing circuits, and control circuits operatively connected with the positioning devices for the printing-carrier web so as to effect a correction in a position of the printing-carrier web if there should be an angular deviation between the printing-unit cylinders and the driven cutting cylinder, the cutting-register feedback-control device including further rotary-position sensors for sensing the angular positions of the drawing devices, a first control loop for a drive of the drawing devices, said rotary sensors for the printing-unit cylinders and for the drawing devices being connected in said first control loop, a second control loop for a drive of the cutting cylinder wherein said first and second control loops are mutually coupled by an angle controller operative for maintaining synchronization between said printing-unit cylinders and said cutting cylinder, wherein the cutting cylinder is disposed in an open-sheet delivery of the printing press, and including another sensor for detecting a printed image position on the printing-carrier web said other sensor being disposed upstream of the cutting cylinder, as viewed in a travel direction of the printing-carrier web through the printing press, and, wherein said other sensor, said rotary-position sensor for the cutting cylinder and said rotary-position sensor for the printing unit cylinders are mutually connected so that a signal Φ [illegible] of said other sensor is feedable to superimposed signals $\Phi_{cutting}$ [illegible] of said rotary-position sensor for the cutting cylinder and Φ_{main} [illegible] of the rotary-position sensor for the printing-unit cylinders.

5,740,055
PROCESS AND APPARATUS FOR PREPARING DATA FOR CUTTING OUT AND EMBROIDERING AN APPLIQUE

Susumu Iwata, Ichinomiya, Japan, assignor to Kabushikikaisha Barudan, Ichinomiya, Japan

Filed Jan. 19, 1994, Ser. No. 183,425

Claims priority, application Japan, Jan. 25, 1993, 5-029945; Jan. 30, 1993, 5-034240

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—470 **22 Claims**

1. A process for preparing data for cutting out an applique and embroidering it, comprising the steps of

inputting data on an outline of said applique only once

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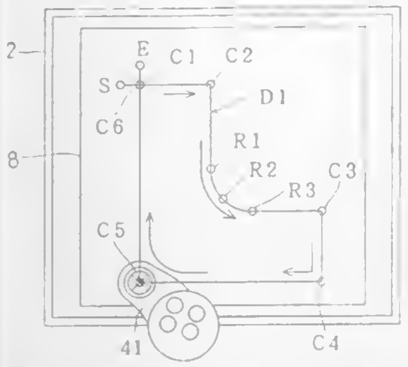


preparing data for cutting out said applique with a cutting device based upon said data on said outline; and

preparing data for embroidering said applique with an embroidering machine based upon said data on said outline.

5,740,056
METHOD AND DEVICE FOR PRODUCING EMBROIDERY DATA FOR A HOUSEHOLD SEWING MACHINE

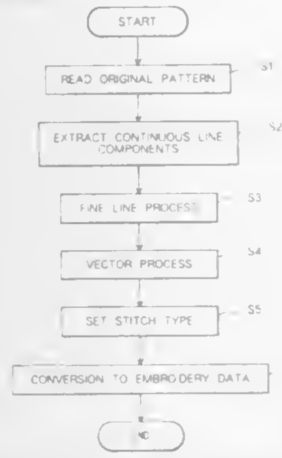
Masao Futamura, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi-Ken, Japan

Continuation-in-part of Ser. No. 321,222, Oct. 11, 1994, Pat. No. 5,515,289. This application Oct. 19, 1995, Ser. No. 545,436

Claims priority, application Japan, Oct. 19, 1994, 6-253599

Int. Cl.⁶ G06F *15/46*

U.S. Cl. 364—470.09 **19 Claims**



1. An embroidery data producing device for producing embroidery data used in a sewing machine for embroidering on cloth, the device comprising.

- image input means for inputting pattern image data representing embroidery patterns, the pattern image data containing pattern components making up the embroidery patterns, each of the pattern components having a thickness;
- fine-line producing means for producing fine-line data based on the pattern image data obtained from said image input means, wherein said fine-line data represents fine-line images of each of the pattern components, each of the fine-line images having a predetermined thickness,
- characteristic amount calculation means for calculating shape characteristic amount relating to the thickness of pattern components based on the pattern image data obtained from said image input means; and
- embroidery data producing means for producing embroidery data for embroidering the embroidery patterns based on the shape characteristic amount and the fine-line data

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5,740,057
EMBROIDERY DATA CREATING DEVICE

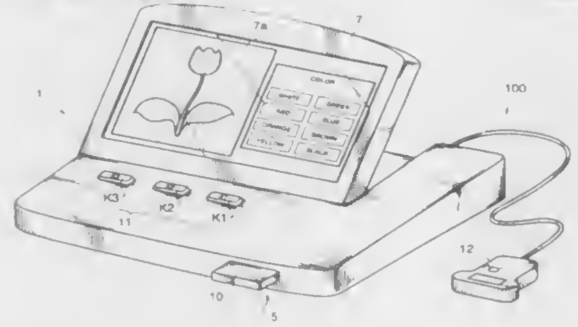
Masao Futamura, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed Nov. 16, 1995, Ser. No. 558,673

Claims priority, application Japan, Nov. 22, 1994, 6-287664

Int. Cl.⁶ D05B *21/00*

U.S. Cl. 364—470.09 **27 Claims**



4. An embroidery data creating device for creating data to be used by a sewing machine, said device comprising:

- an image data inputting device for obtaining an image data;
- means for determining at least one area of said image on which stitches are to be made;
- means for displaying said at least one area determined by said determining means;
- means for designating one of said at least one area displayed on said displaying means;
- means for selecting an attribute which is to be applied to said one of said at least one area designated by said designating means; and
- means for creating said embroidery data, said embroidery data including information of said at least one area and attributes for the respective at least one area.

5,740,058
AUTOMATIC POSITIONING SYSTEM

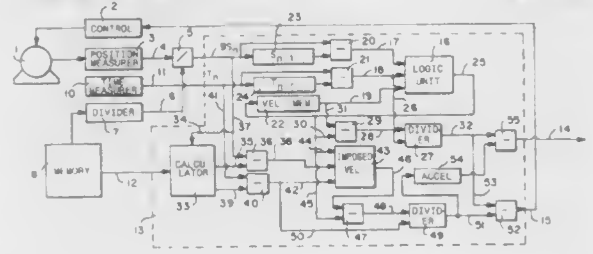
Giorgio Bergamini, Bari, and Vito Gargano, Bitetto, both of Italy, assignors to Nuovo Pignone S.p.A., Florence, Italy

Filed Aug. 22, 1995, Ser. No. 517,699

Claims priority, application Italy, Aug. 30, 1994, MI94A1787

Int. Cl.⁶ G05B *19/416*

U.S. Cl. 364—474.27 **4 Claims**



1. A system for automatic positioning in accordance with a predefined theoretical relationship, comprising:

- a drive member with a relative control device,
- a position measurer,
- a time measurer,
- a main memory storing at least a set velocity V^*_{set}, a set acceleration a*, an initial position S_0 and a final required position S_{set},
- a dividing element divides the space between said initial position S_0 and said final position S_{set} into a predetermined number of measurement positions at predetermined non-uniform intervals, the dividing element is connected with said position measurer, to a comparator having an output that activates a measurement and calculation means for determining effective velocity and acceleration values at said measurement positions, and from the velocity and acceleration values the measurement and calculation means calculates an extent of disturbance as an acceleration difference and as an acceleration change to be made to said drive member to compensate for said disturbance.

5,740,059
METHOD OF TRANSPORTING SUBSTRATES AND APPARATUS FOR TRANSPORTING SUBSTRATES

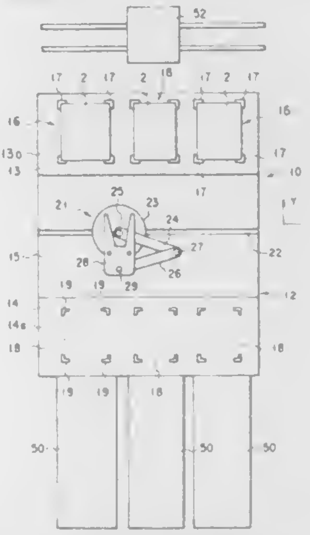
Noriyuki Hirata, Yokohama, and Syoji Komatsu, Hidaka, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 17, 1996, Ser. No. 649,992

Claims priority, application Japan, May 18, 1995, 7-120194

Int. Cl.⁶ B65G *49/07;65/00*

U.S. Cl. 364—478.01 **23 Claims**



1. A method of transferring a substantially rectangular substrate from a first position to a second position by transferring means, the method comprising the steps of:

- detecting at least two points on one side of the substrate located at the first position by non-contact manner and generating detection signals;
- generating positional data in accordance with the detection signals, the positional data representing an angle at which the one side of the substrate inclines to the transferring means and a distance for which the one side of the substrate is displaced along a line extending at a predetermined angle to the one side; and
- transferring the substrate from the first position to the second position and to position the substrate at the second position by the transferring means while controlling the transferring means in accordance with the positional data.

5,740,060
STORAGE AND MATERIALS HANDLING FACILITY

Yasuhisa Mishina, Aichi-ken, Japan, assignor to Daifuku Co., Ltd., Osaka, Japan

Filed Aug. 5, 1996, Ser. No. 691,020

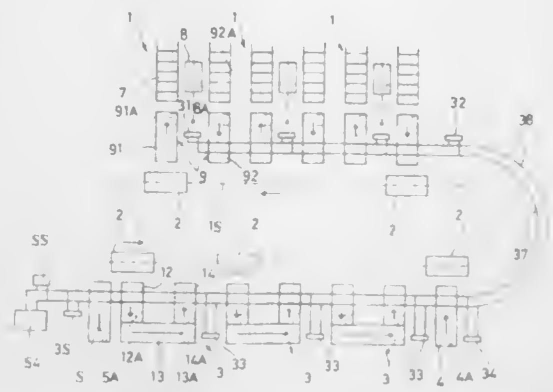
Claims priority, application Japan, Aug. 7, 1995, 7-200124; Sep. 13, 1995, 7-234536

Int. Cl.⁶ G06F *19/00*

U.S. Cl. 364—478.02 **3 Claims**

1. A storage and materials handling facility comprising in combination storing apparatuses such as automated warehouses and materials handling apparatuses such as load conveying vehicles and conveyor devices, characterized by:

- a first communication cable and a second communication cable laid between the storing apparatuses and the materials handling apparatuses;



- a first communication device and a second communication device both provided in control units of the storing apparatuses and the materials handling apparatuses;
- a first branch interface for connecting the first communication cable to the first communication device and a second branch interface for connecting the second communication cable to the second communication device;
- said first communication device in each of the control units being adapted to transmit first data through the first branch interface and the first communication cable, and said second communication device being adapted to transmit second data through the second branch interface and the second communication cable,
- each of said branch interfaces being adapted to repeatedly transmit data inputted from each of the communication devices through each of the communication cables;
- each of said branch interfaces having a detecting function to detect interruption in each of the communication cables such that if interruption is detected in one of the communication cables, both the first and second data are transmitted through the other of the communication cables.

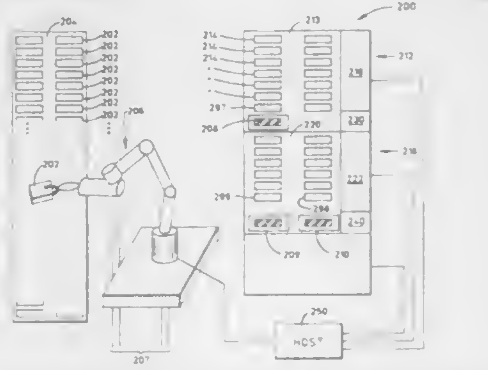
5,740,061
CARTRIDGE SHIFTING OPTIMIZATION IN A SUPER LIBRARY

Douglas William Dewey; Kamal Emile Dimitri; Barbara Ann McNaughton; Rodney Jerome Means, and Daniel James Winarski, all of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 451,388, May 26, 1995, abandoned. This application May 28, 1997, Ser. No. 864,181

Int. Cl.⁶ G06F *17/00;* **G06G** *7/48*

U.S. Cl. 364—478.02 **52 Claims**



1. A method for efficiently distributing data storage cartridges among multiple small libraries in a super library to reduce wait time prior to access of the cartridges in the small libraries, said super library including a main library with a plurality of cartridge slots, the multiple small libraries, and a main picker to transfer cartridges between the libraries, where each small library includes multiple cartridge slots, at least one data drive, and a mini picker to transfer cartridges between the at least one data drive and the small library's slots, said method comprising the steps of

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each small library receiving a number of cartridges into the cartridge slots of the small library, these cartridges forming a mount queue for the small library, each small library also receiving at least one data exchange request for each cartridge in its mount queue;

estimating a mount queue time for each small library, each said mount queue time comprising a period of time required by the small library to process all cartridges in the small library's mount queue by loading each cartridge to a data drive of the small library, accessing the loaded cartridge to complete the requested data exchanges for the loaded cartridge, and unloading the cartridge from the data drive; and

operating the main library picker to transfer cartridges from a first one of the small libraries to a second one of the small libraries, when the estimated mount queue time for the second small library is less than the estimated mount queue time for the first small library.

5,740,062

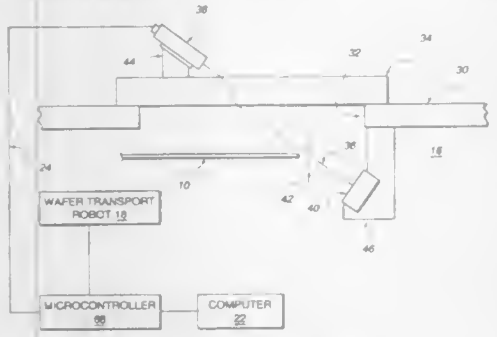
WAFER POSITIONING SYSTEM

Lloyd M. Berken, Fremont; Frederik W. Freerks, Cupertino; William H. Jarvi, San Jose, and Hatice Sahin, Cupertino, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 224,622, Apr. 5, 1994, Pat. No. 5,563,798. This application Sep. 30, 1996, Ser. No. 723,002

Int. Cl.⁶ G05B *11/01*

U.S. Cl. 364—478.06 **3 Claims**



1. A wafer positioning system comprising:

a wafer handling chamber, said wafer handling chamber having at least a portion of a wall formed from a substantially transparent material;

a wafer storage apparatus within said wafer handling chamber having a plurality of locations for storing wafers;

a wafer transport robot capable of translating a wafer along a first coordinate direction and along a second coordinate direction, said wafer transport robot having a blade adapted for carrying wafers, and

at least one position sensor comprising:

a light source disposed external to said wafer handling chamber, said light source aligned to direct an incident beam of light through said substantially transparent material into said wafer handling chamber;

a reflector disposed within said wafer handling chamber so that at least a portion of said incident beam of light is reflected from said reflector as a reflected beam of light, wherein said reflector directs said reflected beam of light through said substantially transparent material, and

a detector disposed external to said wafer handling chamber to receive said reflected beam of light from said reflector, wherein said light source and said detector are disposed to detect an edge of said wafer when said wafer intercepts a beam of light as said wafer is transported from said wafer storage apparatus to a position within said wafer handling chamber disposed away from said wafer storage apparatus;

means for detecting a position of said wafer transport robot as said edge of said wafer intersects both a first detection position and a second detection position within said wafer handling chamber;

a converter which generates an interrupt signal, and

means for checking the state of said position sensor in response to said interrupt signal.

5,740,063

MEASURING INSTRUMENT

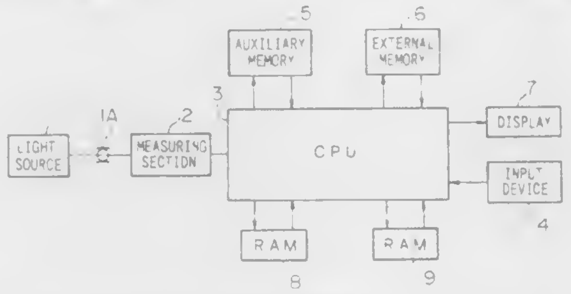
Tomoyuki Nishikawa, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan

Filed Aug. 28, 1996, Ser. No. 704,076

Claims priority, application Japan, Aug. 30, 1995, 7-245385

Int. Cl.⁶ G01R *23/16*

U.S. Cl. 364—481 **2 Claims**



1. A measuring instrument comprising:

first and second memories for storing measured data,

data display means for displaying the measured data stored in the first memory;

data writing means for writing a new measured data in the first memory and for transferring a previously measured data from the first memory to the second memory before the new measured data is written in the first memory; and

data restoring means for transferring the old measured data to the first memory in response to a data restore command.

5,740,064

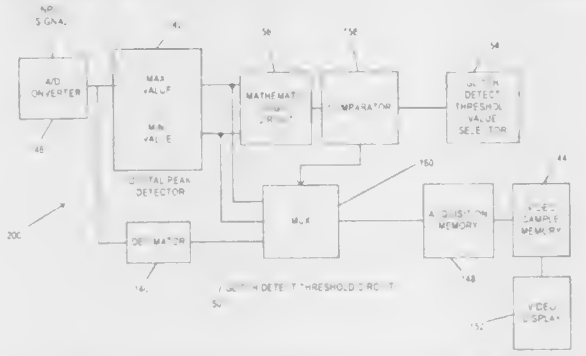
SAMPLING TECHNIQUE FOR WAVEFORM MEASURING INSTRUMENTS

Robert A. Witte, Monument, and Matthew S. Holcomb, Colorado Springs, both of Colo., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed Jan. 12, 1996, Ser. No. 585,854

Int. Cl.⁶ G01R *13/20*

U.S. Cl. 364—487 **17 Claims**



10. A sampling circuit in a waveform measuring instrument, the circuit comprising:

a) a digital peak detector producing min/max sample data for each decimated sample interval of a series of digital signal samples;

b) a decimator producing decimated sample data for each decimated sample interval of the series of digital signal samples; and

c) a glitch detect threshold circuit comprising,

i) min/max sample data inputs;

ii) a decimated sample data input; and

iii) means to select whether the min/max sample data or the decimated sample data of a given decimated sample interval will be transferred to a video sample memory

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5,740,065

METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE

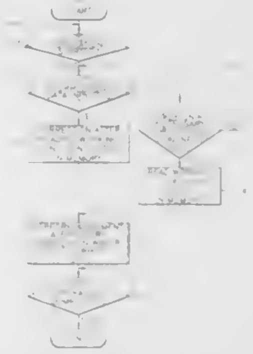
Young-Chul Jang, Suwon; Hyo-Seok Choi, Seoul; Dong-Heui Jang, and Sun-Yong Lee, both of Suwon, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 24, 1995, Ser. No. 449,853

Claims priority, application Rep. of Korea, May 25, 1994, 11408/1994

Int. Cl.⁶ H01L *21/68;* G01B *11/26,* G06F *17/18*

U.S. Cl. 364—488 **12 Claims**



1. A method for manufacturing a semiconductor device with manufacturing equipment performing a process having a working condition, said manufacturing equipment being adapted to manufacture said semiconductor device in units of lots, said method comprising the steps of:

extracting an optimal working condition by accumulatively averaging working conditions of lots previously processed using said process performed by said manufacturing equipment;

extracting a correction condition by extracting information corresponding to an alignment state of said process;

setting a current working condition by adding said correction condition to said optimal working condition; and

performing said process for an entire lot according to said current working condition.

5,740,066

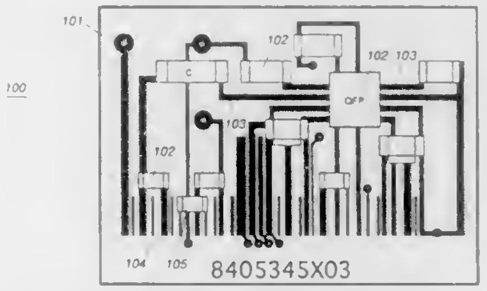
ELECTRICAL CIRCUIT BOARD AND CIRCUIT BOARD ASSEMBLY

Anthony J. Suppelsa; Anthony B. Suppelsa, both of Coral Springs; Henry F. Liebman, Tamarac, and John M. Cook, Margate, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 3, 1995, Ser. No. 497,974

Int. Cl.⁶ H05K *1/00*

U.S. Cl. 364—489 **8 Claims**



1. An electrical circuit board comprising

a substrate;

a metallized bar code pattern disposed on the substrate; and

an electrical circuit metallization pattern disposed on the substrate, the electrical circuit metallization pattern incorporating at least a portion of the metallized bar code pattern

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5,740,067

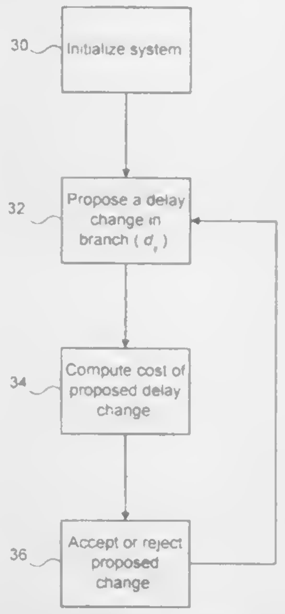
METHOD FOR CLOCK SKEW COST CALCULATION

David James Hathaway, Underhill Center, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1995, Ser. No. 547,686

Int. Cl.⁶ G06F *17/50*

U.S. Cl. 364—489 **19 Claims**


30
Initialize system
32
Propose a delay change in branch (d_i)
34
Compute cost of proposed delay change
36
Accept or reject proposed change

1. A method for determining a change in clock skew cost resulting from a delay change in a clock tree, said delay change affecting the delay to a delayed node, said clock tree comprising a root and a plurality of nodes, said plurality of nodes including a plurality of leaves, said plurality of nodes including ancestors and descendants in the clock tree, each of said plurality of nodes having an associated set of node values, the method comprising the steps of:

a) propagating any stored unpropagated incremental changes in the ancestors of said delayed node, to said delayed node;

b) updating said node values of said delayed node for effects of said proposed delay change;

c) propagating effects of said proposed delay change to said root of said clock tree; and

d) computing said change in clock skew cost based upon said propagated effects at said root of said clock tree

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5,740,068

FIDELITY ENHANCEMENT OF LITHOGRAPHIC AND REACTIVE-ION-ETCHED IMAGES BY OPTICAL PROXIMITY CORRECTION

Lars Wolfgang Liebmann, Poughquag; Robert Thomas Sayah, Beacon, both of N.Y., and John Edward Barth, Jr., Williston, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 30, 1996, Ser. No. 655,790

Int. Cl.⁶ G03F *7/00;* H01J *37/304*

U.S. Cl. 364—489 **23 Claims**

1. A method for performing optical proximity correction to control the accuracy in VLSI patterning operations, said method comprising the steps of:

a) inputting a design data set that define a preselected chip design including design levels that define electrical functionality parameters of said chip;

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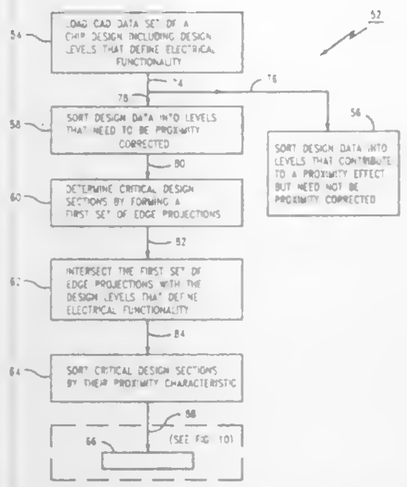

LOAD CAD DATA SET OF A CHIP DESIGN INCLUDING DESIGN LEVELS THAT DEFINE ELECTRICAL FUNCTIONALITY
54
52
74
76
78
SORT DESIGN DATA INTO LEVELS THAT NEED TO BE PROXIMITY CORRECTED
58
56
SORT DESIGN DATA INTO LEVELS THAT CONTRIBUTE TO A PROXIMITY EFFECT BUT NEED NOT BE PROXIMITY CORRECTED
80
DETERMINE CRITICAL DESIGN SECTIONS BY FORMING A FIRST SET OF EDGE PROJECTIONS
60
82
INTERSECT THE FIRST SET OF EDGE PROJECTIONS WITH THE DESIGN LEVELS THAT DEFINE ELECTRICAL FUNCTIONALITY
62
84
SORT CRITICAL DESIGN SECTIONS BY THEIR PROXIMITY CHARACTERISTIC
64
86
66
(SEE FIG. 10)

b) sorting said design data set into levels that need to be proximity corrected and into levels that contribute to a proximity effect but need not be proximity corrected;

c) gathering said levels that need to be proximity corrected and forming a first set of edge projections;

d) intersecting said first set of edge projections with said design levels that define electrical functionality and gathering the common sections therebetween;

e) sorting said common sections by their proximity correction characteristic; and

f) creating said sorted common sections into final proximity corrected photomask features.

5,740,069

LOGIC DEVICE (PLD) HAVING DIRECT CONNECTIONS BETWEEN CONFIGURABLE LOGIC BLOCKS (CLBS) AND CONFIGURABLE INPUT/OUTPUT BLOCKS (IOBS)

Om Prakash Agrawal, San Jose; Michael James Wright, Menlo Park, and Ju Shen, San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Division of Ser. No. 596,679, Feb. 5, 1996, Pat. No. 5,598,346, which is a division of Ser. No. 423,303, Apr. 18, 1995, Pat. No. 5,490,074, which is a division of Ser. No. 271,872, Jul. 7, 1994, Pat. No. 5,422,823, which is a division of Ser. No. 12,573, Feb. 1, 1993, Pat. No. 5,329,460, which is a division of Ser. No. 394,221, Aug. 15, 1989, Pat. No. 5,212,652. This application Aug. 16, 1996, Ser. No. 700,616

Int. Cl.^{6} H03K *17/693*

U.S. Cl. 364—489 43 Claims

1 A programmable integrated circuit, comprising:

(a) a plurality of programable configurable logic blocks ("CLBs") for carrying out program-defined logic functions, wherein said plurality of CLBs includes:
  a first CLB positioned a first distance from a first adjacent CLB;
  a first next-adjacent CLB positioned a second distance from said first CLB, the second distance being greater than the first distance,
    wherein said plurality of CLBs are arranged in an array having C columns and R rows of CLBs and wherein said first CLB, first adjacent CLB and first next-adjacent CLB are arranged consecutively in a first row of said R rows of CLBs;

(b) an interconnect network for providing routing of signals between said plurality of programable configurable logic blocks, said interconnect network including
  first direct connect means for providing a first dedicated direct connection between said first CLB and said first adjacent CLB; and
  second direct connect means for providing a second dedicated direct connection between said first CLB and said first next-adjacent CLB.

5,740,070

APPARATUS FOR AUTOMATICALLY GENERATING LOGIC CIRCUIT

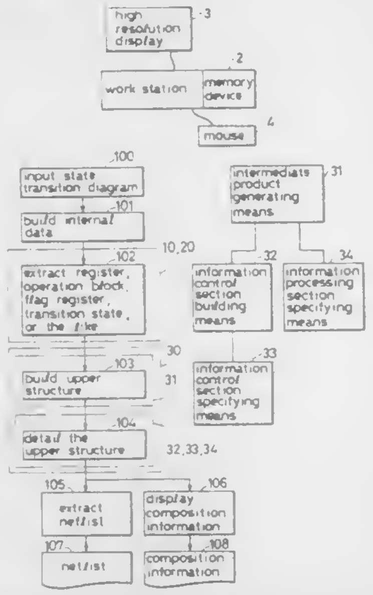
Masakazu Nishimoto; Tetsuo Furuichi; Takeyoshi Hashimoto, and Takahiro Masuda, all of Suita, Japan, assignors to Mega Chips Corporation, Osaka, Japan

Filed Jun. 9, 1992, Ser. No. 895,375

Claims priority, application Japan, Jun. 11, 1991, 3-168935; Nov. 28, 1991, 3-342156; Jan. 7, 1992, 4-020493

Int. Cl.^{6} H03K *19/00*

U.S. Cl. 364—490 11 Claims


high resolution display
3
work station
memory device
2
mouse
4
100
input state transition diagram
101
build internal data
10,20
102
extract register, operation block, flag register, transition state, or the like
30
103
build upper structure
31
104
detail the upper structure
32,33,34
intermediate product generating means
31
32
information control section building means
34
information processing section specifying means
33
information control section specifying means
105
extract netlist
106
display composition information
107
netlist
108
composition information

1 An apparatus for automatically generating a logic circuit comprising:

transition information inputting means for extracting a transition information between states in a state transition diagram which is input to the apparatus;

processing content inputting means for extracting a processing content of each state in the state transition diagram; and

logic circuit object generating means for automatically generating an object of a logic circuit in an expression style in accordance with the transition information between states and the processing content in each state, said logic circuit object generating means comprising:

  intermediate product generating means for generating an intermediate product comprising an information control part, which outputs an information transfer math control signal that selects a transfer path of an information and a memory control signal that specifies some of a plurality of memories and controls a write timing of each specified memory, and an information processing part, which includes operators that operate said processing content in each state in said state transition diagram and memories that store results of the operations and conducts the operations in accordance with said information transfer path control signal and said memory control signal,

information control part building means for building said information control part by specifying said information control part as two generators, i.e., a transition state generator, which outputs a next transition position information in accordance with a control signal showing characteristics and contents of the operation results of the signal processing part and a transition position information output from said information control part itself, and a control signal generator, which outputs said information transfer path control signal and said memory control signal in accordance with the transition position information output from said transition state generator;

information control part specifying means for specifying said transition state generator and said control signal generator as combinations of memory circuits, logic operation circuits, signal selecting circuits, and numerical value generating circuits, which are realized by combinations of logic elements and wirings, and wirings between these circuits; and

information processing part specifying means for specifying said information processing part as a combination of memory circuits, logic operation circuits, signal selecting circuits, and numerical value generating circuits, which are realized by combinations of logic elements and wirings, and wirings between these circuits, in accordance with instructions described in the state transition diagram.

5,740,071

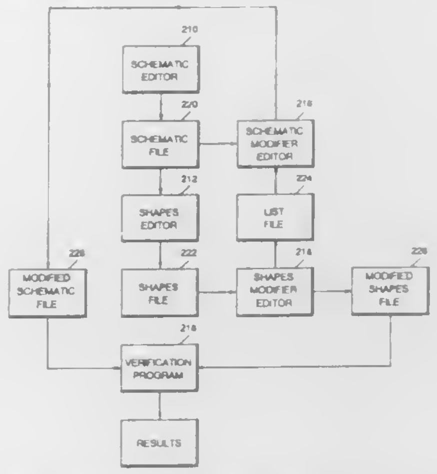
METHOD AND APPARATUS FOR SELECTIVE SHAPE ADJUSTMENT OF HIERARCHICAL DESIGNS

William Charles Leipold, Essex Junction, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 487,814

Int. Cl.^{6} G06F *17/50*

U.S. Cl. 364—490 16 Claims



1 A data processing system, comprising:

a memory for storing a schematic file and shapes file, each of said schematic file and shapes file containing a first cell hierarchy; and

adjusting means for selectively adjusting said shapes file so that said shapes file has a second cell hierarcy different from said first cell hierarchy, and for selectively adjusting said schematic file to have said second cell hierarchy

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5,740,072

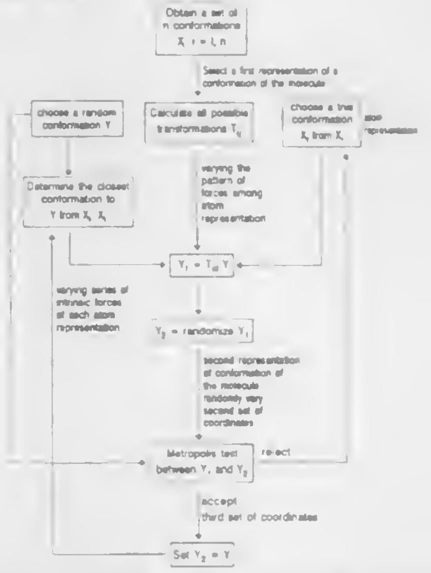
RAPIDLY CONVERGENT METHOD FOR BOLTZMANN-WEIGHTED ENSEMBLE GENERATION IN FREE ENERGY SIMULATIONS

W. Clark Still, New York; Frank Guarnieri, Brooklyn, and Hanoch Senderowitz, New York, all of N.Y., assignors to The Trustees of Columbia Universuty in the City of New York, New York, N.Y.

Filed Oct. 7, 1994, Ser. No. 320,255

Int. Cl.^{6} G06F *17/50*; G01N *37/00*

U.S. Cl. 364—499 2 Claims


Obtain a set of n conformations X, i = 1, n
Select a first representation of a conformation of the molecule
choose a random conformation Y
Calculate all possible transformations T
choose a the conformation X from X
Determine the closest conformation to Y from X, X
varying the pattern of forces among atom representation
Y1 = T Y
varying series of intrinsic forces of each atom representation
Y2 = randomize Y1
second representation of conformation of the molecule randomly vary second set of coordinates
Metropolis test between Y1 and Y2
reject
accept
third set of coordinates
Set Y2 = Y

1 A method of using a computer processor for generating possible representations of a molecule to design a molecular receptor comprising the steps of.

a) selecting a first representation of a conformation of the molecule characterized by a first set of coordinates associated with each atom representation in the molecule by the presence of a pattern of forces among such atom representations and by a series of intrinsic forces associated with each atom representation;

b) varying the pattern of forces among such atom representations in a non-random manner and randomly varying the series of intrinsic forces associated with each atom representation so as to generate a second representation of a conformation of the molecule characterized by a second set of coordinates associated with each atom representation in the molecule, by a second pattern of forces among each atom representation and by a second series of intrinsic forces associated with each atom representation; and

c) randomly varying the second set of coordinates so as to obtain a third set of coordinates thereby generating the molecular receptor.

5,740,073

LUBRICANT PROPERTY DETERMINATION

Sylvie Bages, Lavera; Bernard Descales, Marseilles; Didier Lambert, Saint-Mitre-Les-Remparts; Jean-Richard Llinas, Marseilles, and Andre Martens, Chateauneuf-Les-Martigues, all of France, assignors to BP Chemicals Limited, and BP Oil International Limited, both of London, England

Filed Jun. 6, 1995, Ser. No. 465,920

Claims priority, application European Pat. Off., Oct. 7, 1994, 94430012

Int. Cl.^{6} G01N *31/08*, G06F *15/42*

U.S. Cl. 364—499 28 Claims

1 A method of determining or predicting a value P, of a property of a material X or a property of a product of a process from said material or yield of said process, which method comprises measuring the absorption of said material D, at more than one wavelength in the region 600 2600 nm, comparing the said

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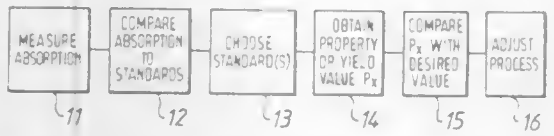
MEASURE ABSORPTION
COMPARE ABSORPTION TO STANDARDS
CHOOSE STANDARD(S)
OBTAIN PROPERTY OR YIELD VALUE P_x
COMPARE P_x WITH DESIRED VALUE
ADJUST PROCESS
11
12
13
14
15
16

absorptions or a derivative thereof with absorptions D_{im} or derivatives thereof at the same wavelengths for a number of standards S in a bank for which the said property is known, and choosing from the bank at least one standard S_m with properties P_m having the smallest average value of the absolute difference at each wavelength i between the absorption D_ix (or derivative thereof) for the material and the absorption D_im (or derivative thereof) for the standard S_m to obtain P_x, with averaging of said properties or yields P_m, when more than one standard S_m is chosen and wherein said material X is a composition comprising part of a lubricating oil fraction obtainable from a distillation of oil

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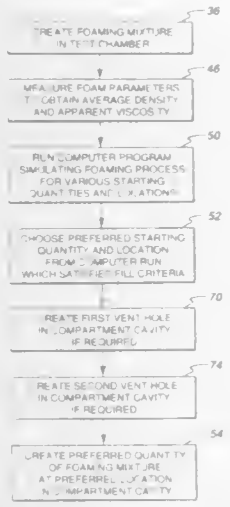
5,740,074
METHOD FOR FILLING A COMPARTMENT CAVITY WITH FOAM

Hsin-Pang Wang, Rexford; Erin Marie Perry, Niskayuna, and Harold John Jenkins, Jr., Amsterdam, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 15, 1996, Ser. No. 751,043

Int. Cl.^{6} C06F *17/50*

U.S. Cl. 364—500 **11 Claims**


CREATE FOAMING MIXTURE IN TEST CHAMBER
36
MEASURE FOAM PARAMETERS TO OBTAIN AVERAGE DENSITY AND APPARENT VISCOSITY
46
RUN COMPUTER PROGRAM SIMULATING FOAMING PROCESS FOR VARIOUS STARTING QUANTITIES AND LOCATIONS
50
CHOOSE PREFERRED STARTING QUANTITY AND LOCATION FROM COMPUTER RUN WHICH SATISFIES FILL CRITERIA
52
CREATE FIRST VENT HOLE IN COMPARTMENT CAVITY IF REQUIRED
70
CREATE SECOND VENT HOLE IN COMPARTMENT CAVITY IF REQUIRED
74
CREATE PREFERRED QUANTITY OF FOAMING MIXTURE AT PREFERRED LOCATION IN COMPARTMENT CAVITY
54

1. A method for filling a compartment cavity having a known geometry with a foam produced by an expansion and solidification of a foaming mixture of predetermined chemicals, said method comprising the steps of:

a) creating a known mount of said foaming mixture in a test chamber cavity,

b) measuring as a function of time preselected parameters of said foam produced by said foaming mixture created in step a) to obtain the average density and apparent viscosity of said foam as a function of time;

c) running a computer program which utilizes the average density and apparent viscosity of said foam as a function of time obtained in step b) to mathematically simulate the expansion of said foam as a function of time of a prechosen quantity of said foaming mixture created at a prechosen location in an enclosure cavity having the same geometry as the known geometry of said compartment cavity.

d) repeating step c) for various different prechosen quantities and various different prechosen locations;

e) choosing a preferred quantity and preferred location from the prechosen quantities and prechosen locations of a particular computer run from steps c) and d) which satisfies predetermined fill criteria, and

f) creating said preferred quantity of said foaming mixture at said preferred location in said compartment cavity.

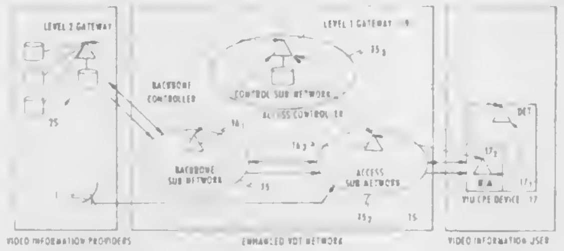
5,740,075
ACCESS SUBNETWORK CONTROLLER FOR VIDEO DIAL TONE NETWORKS

John A. Bigham, Pottstown, Pa.; Regina S. Lightfoot, New Carrollton, Md.; William D. Goodman, Collegeville, Pa.; Ulric E. Arthur, Burtonsville, Md.; Edward Mihm, Warminster, Pa.; Kamran Sistanizadeh, Arlington, Va., and Bahman Amin-Salehi, Washington, D.C., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 304,174, Sep. 12, 1994. This application Mar. 28, 1995, Ser. No. 413,810

Int. Cl.^{6} H04H *1/00*

U.S. Cl. 364—514 C **21 Claims**



1. A communication network comprising:

a plurality of user terminals receiving and processing broadband information;

a plurality of information provider systems.

a backbone subnetwork providing point-to-point communication sessions;

an access subnetwork receiving broadcast information signals and distributing the broadcast information signals to authorized ones of the user terminals and receiving digital broadband information signals from a selected interactive information provider system via the backbone subnetwork for transmission to one of the user terminals, the access subnetwork comprising:

(1) a broadcast provider interface receiving digital signals from respective broadcast information providers and combining the received digital signals into a consolidated broadcast signal.

(2) a plurality of broadcast headend nodes receiving the consolidated broadcast signal, each broadcast headend node receiving a corresponding local broadcast signal and outputting a combined digital broadcast signal carrying at least a portion of the consolidated broadcast signal and the corresponding local broadcast signal.

(3) groups of end offices receiving the combined digital broadcast signals from the respective broadcast headend nodes, each end office outputting to a selected group of the user terminals the combined digital broadcast signal from the corresponding broadcast headend node and a specified portion of the digital broadband information signals from the backbone subnetwork, and

an access subnetwork controller controlling the access subnetwork including at least the end offices thereof to establish broadcast and dedicated connections therethrough in response to connection requests and providing reports regarding specific connections.

5,740,076
SYSTEM FOR DESCRIBING A COLOR GAMUT IN A GRAPHICAL DATA PROCESSING SYSTEM

Bruce J. Lindbloom, Eden Prairie, Minn., assignor to Candela, Ltd., Burnsville, Minn.

Filed Nov. 30, 1995, Ser. No. 565,065

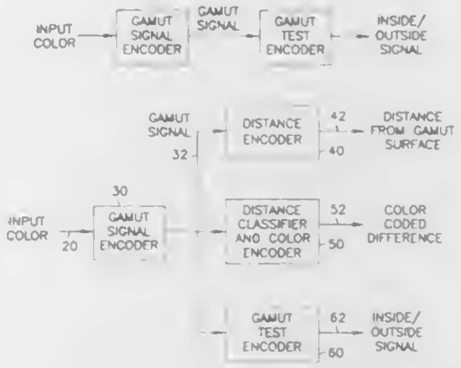
Int. Cl.^{6} G03F *3/00;* **G06F** *17/00*

U.S. Cl. 364—514 R **15 Claims**

1. A system for characterizing a color gamut, comprising

a gamut signal encoder, receiving an input color signal and producing a gamut signal;

a distance encoder receiving the gamut signal and producing a distance signal;



a distance classifier and color encoder, receiving the gamut signal and producing a color coded difference signal; and

a gamut test encoder, receiving the gamut signal and producing an inside/outside signal.

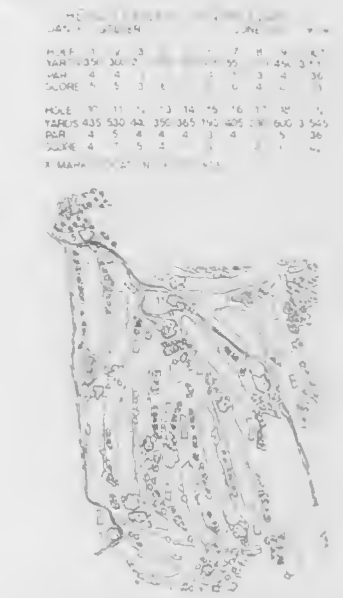
5,740,077
GOLF ROUND DATA SYSTEM

G. George Reeves, 3324 Octavia St., Raleigh, N.C. 27606

Filed Feb. 3, 1995, Ser. No. 383,215

Int. Cl.^{6} A63B *69/36;* **G06F** *19/00*

U.S. Cl. 364—561 **30 Claims**



1. A portable golf round data system for providing distance information to a player and for recording stroke data, comprising:

(a) a portable data collection unit adapted to be carried by said user including a receiver for receiving at least one external locating signal from which the user's current location on a golf course can be determined;

(b) course data storage in said data collection unit for storing data relating to the location of golf course features;

(c) a microcomputer in said data collection unit operatively connected to the receiver and to the data storage for determining a player's current location on said course from said external locating signal and for calculating distances between said current location and at least one of said golf course features retained in the said data storage;

(d) a display on said data collection unit connected to said processor and operative to display the distance between said current location and at least one selected golf course feature;

(e) stroke register means on said data collection unit to register each stroke taken by a user, said stroke register means being manually actuated by the user to record each stroke;

(f) said microcomputer being responsive to said stroke register means to maintain a count of the strokes taken during a round, wherein said count is incremented each time a stroke is registered;

(g) said microcomputer being further responsive to said stroke register means to calculate, based on said external locating signal, the location on said course from which each stroke is taken; and

(h) stroke data storage in said data collection unit for storing the location on said course of each stroke taken until the end of play so that stroke locations can be subsequently retrieved at the end of a golf round

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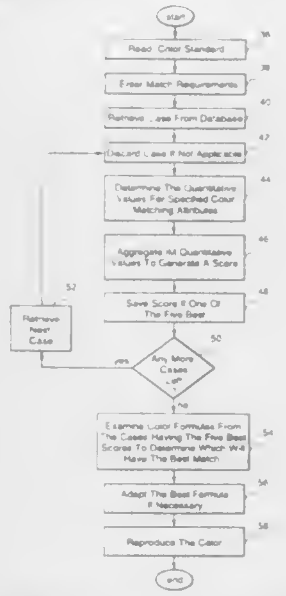
5,740,078
METHOD AND SYSTEM FOR DETERMINING OPTIMUM COLORANT LOADING USING MERIT FUNCTIONS

William Estel Cheetam, Clifton Park, N.Y., and John Frederick Graf, Vienna, W. Va., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 18, 1995, Ser. No. 573,978

Int. Cl.^{6} G01J *3/46*

U.S. Cl. 364—526 **17 Claims**


start
Read Color Standard
36
Enter Match Requirements
38
Retrieve Case From Database
40
Discard Case If Not Applicable
42
Determine The Quantitative Values For Specified Color Matching Attributes
44
Aggregate All Quantitative Values To Generate A Score
46
Save Score If One Of The Five Best
48
Retrieve Next Case
52
Any More Cases Left ?
50
yes
no
Examine Color Formulas From The Cases Having The Five Best Scores To Determine Which Will Have The Best Match
54
Adapt The Best Formula If Necessary
56
Reproduce The Color
58
end

1. A computer-implemented method for determining total colorant loading and relative colorant proportions for a color formula used for reproducing a color standard according to desired property and appearance specifications, the method comprising the steps of:

measuring spectral reflectance of the color standard;

specifying a plurality of color matching attributes used for attaining a match with the color standard that are in accordance with the desired property and appearance specifications;

developing a merit function scale for quantifying how well a previously used color match corresponds to the color standard for each of the specified plurality of color matching attributes, the merit function scale comprising a plurality of qualitative descriptions for each of the specified plurality of color matching attributes and a corresponding range of quantitative values;

searching a plurality of previously used color matches and using the merit function scale for determining a set of color matches that best approximates the color standard;

determining a color match from the set of previous color matches that optimally reproduces the color standard; and

using colorant loading and relative colorant proportions of a color formula from the color match to reproduce the color standard.

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5,740,079
METHOD FOR DETERMINING COLORIMETRIC VALUE

Yoshihiro Shigemori, Koshigaya; Kazuo Sano, Tokyo; Tomio Saito, Tokyo; Fumiyoshi Saito, Tokyo, and Tomiko Yoshida, Abiko, all of Japan, assignors to Dainichiseika Color & Chemicals Mfg. Co., Ltd., Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,467

Claims priority, application Japan, Mar. 13, 1995, 7-080680; Mar. 13, 1995, 7-080681

Int. Cl.^{6} G01J *3/46*

U.S. Cl. 364—526 8 Claims

1. A method for determining the colorimetric value of a colored material comprising the steps of:

measuring the spectral reflectance or transmittance of a sample colored material at at least two different temperatures with a spectrophotometer;

calculating a correction factor for the spectral reflectance or transmittance based on the change in spectral reflectance or transmittance in a temperature range between the at least two different temperatures;

measuring the spectral reflectance or transmittance of the colored material at an arbitrary temperature using a spectrophotometer;

calculating the spectral reflectance or transmittance of the colored material at a predetermined temperature by modifying the measured spectral reflectance or transmittance of the colored material with the correction factor; and

predicting the colorimetric value of the colored material at the predetermined temperature utilizing the calculated spectral reflectance or transmittance.

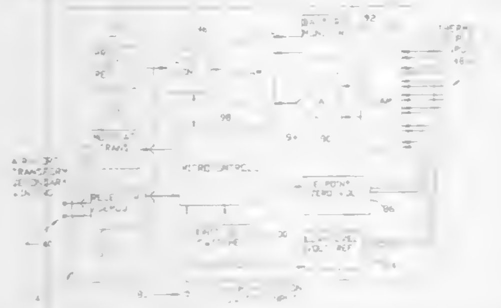
5,740,080
APPARATUS FOR MEASURING AND TRANSMITTING PROCESS CONDITIONS

William B. Shook, 111 Glencoe Rd., Columbus, Ohio 43214-3711; Dennis R. Pugh, 1769 Renee Ct., Galena, Ohio 43021, and Karl W. Olson, 527 Stevenson Ave., Worthington, Ohio 43085

Continuation of Ser. No. 288,567, Aug. 10, 1994, Pat. No. 5,572,445, which is a continuation of Ser. No. 991,285, Dec. 15, 1992, Pat. No. 5,416,727. This application Jul. 16, 1996, Ser. No. 680,831

Int. Cl.^{6} G01K *7/00*

U.S. Cl. 364—557 13 Claims



1. A system for real-time measuring, transmitting, and receiving of process conditions, comprising:

a sensor unit for detecting a measurable condition signal having a plurality of inputs, said sensor unit having:

a) an amplifier circuit for amplifying said measurable condition signal detected by said sensor unit;

b) an analog-to-digital converter circuit for converting said amplified measurable condition signal to digital form;

c) a multiplexer circuit in electrical communication with said plurality of inputs, and

d) an ice-point/zero-voltage reference in electrical communication with said multiplexer circuit;

a signal transmitter in association with said sensor unit for transmitting a signal characterizing said measurable condition signal detected by said sensor unit, via an air core signal transformer including a primary winding and a secondary winding, such that communication is established via magnetic energy linking said primary and secondary windings, said transmitter adapted to enable transmitting from said sensor unit to a conductor which conveys said transmitted signal,

a communication circuit for receiving said transmitted signal, and generating output characterizing said condition; and

wherein said sensor unit, signal transmitter, and communication circuit are physically remote from one another.

5,740,081
METHOD OF CORRECTING A DEVIATION OF A TOOL POSITION IN A MACHINE TOOL

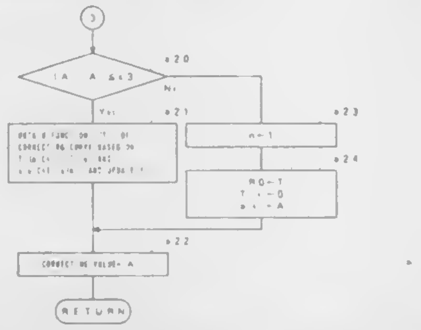
Ryuji Suzuki, Yamanashi, Japan, assignor to Fanuc Ltd., Yamanashi, Japan

Filed Nov. 2, 1995, Ser. No. 552,010

Claims priority, application Japan, Nov. 4, 1994, 6-293664

Int. Cl.^{6} G01K *5/00*

U.S. Cl. 364—559 5 Claims



1. A method of correcting a deviation of a reference position of a tool with respect to a workpiece mounted on a table of a machine tool, comprising the steps of:

(a) providing a detector for detecting an operating surface of said tool on said table;

(b) measuring a relative position of said tool with respect to said table widen the operating surface of said tool is detected by said detector under a predetermined standard condition and storing the measured position as a reference position;

(c) measuring a relative position of the tool with respect to the table when the operating surface of said tool is detected by said detector at least three times with an arbitrary time interval;

(d) obtaining an amount of deviation between each of positions measured in said step (c) and said reference position stored in said step (b), storing said amount of deviation together with its respective time of measuring, and obtaining a function of a curve representing a relationship between a time of measuring and an amount of deviation based on said obtained amount of deviation and said stored time of measuring;

(e) obtaining an estimated amount of deviation at a present time based on said function obtained in said step (d); and

(f) correcting a commanded position of the tool based on said estimated amount of deviation obtained in said step (e).

5,740,082
COLLOCATED SENSOR ACTUATOR

Donald L. Edberg, Irvine, Calif., assignor to McDonnell Douglas Corporation, Huntington Beach, Calif.

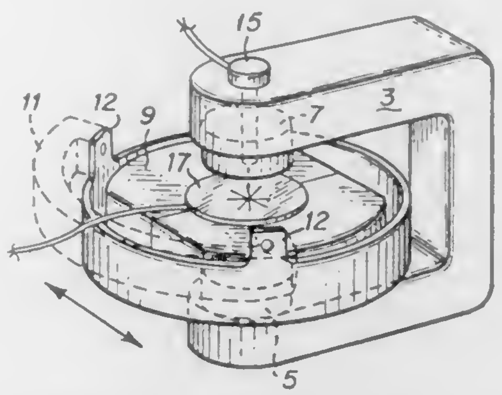
Filed Dec. 21, 1995, Ser. No. 576,232

Int. Cl.^{6} G01B *101/10*

U.S. Cl. 364—559 14 Claims

1. An actuator and position sensor combination comprising:

wide gap magnetic actuator means having a paddle and a magnetic frame, said paddle and magnetic frame being relatively moveable for coupling to respective structure members of a pair of relatively moveable structure members, said paddle and magnetic frame having a base position; and position determining means for representing the relative position of said paddle and said magnetic frame to said base position, said position determining means comprising photosensor means that is integral with at least one of said paddle and said magnetic frame, said position determining means further comprising light projecting means for projecting a beam of light toward said photosensor means, said light projecting means being integral with the other of said paddle and magnetic frame.



5,740,083
DELTA TIME MEASUREMENT CIRCUIT FOR DETERMINING PARAMETER DERIVATIVES OF A ROTATIONAL VELOCITY SENSOR SIGNAL

Robert Lee Anderson, Saline, Mich.; Marcella Evelyn Meyer, Austin, and Gary Lynn Miller, Round Rock, both of Tex., assignors to Ford Motor Company, Dearborn, Mich., and Motorola, Inc., Schaumburg, Ill.

Filed Apr. 1, 1996, Ser. No. 625,152

Int. Cl.^{6} G01P *3/427*

U.S. Cl. 364—565 3 Claims

1. A digital microprocessor for use in a control system that requires a variable that depends upon rotational speed of a rotary member and derivatives of that speed, said microprocessor comprising:

means for sensing rotational speed of said rotary member and creating electrical pulses having a frequency directly related to said rotational speed;

a first digital counter, means for pre-loading said first counter with a predetermined count value, means for transferring said electrical pulses to said first counter whereby said pulses are counted;

a second digital counter and an electronic timing clock adapted to record processor operating time in clock ticks;

control logic adapted during each background control loop of said microprocessor to record each instant said first counter counts said predetermined count value and to simultaneously clear said second counter and record the elapsed time for counting to said predetermined count value;

a stack of temporary data storage registers, means for transferring to a first of said storage registers the recorded number of said clock ticks as said second counter is cleared;

said stack of storage registers being adapted to shift clock tick counts from said first storage register to a second storage register and from said second storage register to a third storage register as clock ticks are stored in sequence in said first storage register during each background control loop;

means for addressing said storage registers during an elapsed measuring time to obtain clock tick values, and

means for computing rotational velocity and derivatives of said rotational velocity using said clock tick values in said storage registers and said elapsed time;

said first counter being a down counter adapted to count down from a pre-loaded constant count value to zero, said second counter being an up counter adapted to count the number of clock ticks following a clearing of said second counter by said control logic during each background control loop, the rotational velocity being determined using the equations

$$V_1 = \frac{1}{\Delta t_1},\ V_2 = \frac{1}{\Delta t_2} \text{ and } V_3 = \frac{1}{\Delta t_3}$$

where V_1, V_2 and V_3, respectively, are the recorded clock ticks in real time intervals Δt_1, Δt_2, and Δt_3 in said first, second and third storage registers.

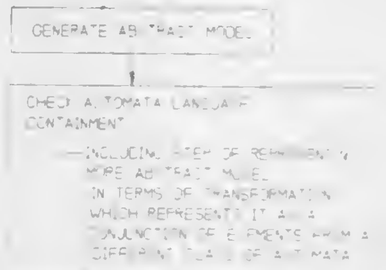
5,740,084
VERIFICATION OF HOMOMORPHISM BETWEEN TWO SYSTEM MODELS

Rnnald H. Hardin, Pataskala, Ohio, and Robert P. Kurshan, New York, N.Y., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 906,082, Jun. 29, 1992, Pat. No. 5,483,470. This application Feb. 6, 1995, Ser. No. 384,100

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 364—578 3 Claims


GENERATE ABSTRACT MODEL
CHECK AUTOMATA LANGUAGE CONTAINMENT
IN TERMS OF TRANSFORMATION

1. A process of testing whether a system, defined by a specification S, accomplishes a task, defined by behavior T, comprising:

a) defining a large model M p and a small model M o,

b) testing for language containment of the following type: L(M o)<L(T), and, if said containment is found to fail further performing the steps of

c) defining an error track E, and

d) testing for language containment of the following type: L(E)<L(M p).

5,740,085
DATA PROCESSING APPARATUS FOR THE MODELING OF LOGIC CIRCUITRY

Peter R. Wavish, East Grinstead, England, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed Jun. 30, 1995, Ser. No. 498,289

Claims priority, application United Kingdom, Jun. 30, 1994, 9413127

Int. Cl.^{6} G06F *9/455*

U.S. Cl. 364—578 10 Claims

1. A data processing apparatus comprising:

means for modelling a first asynchronous logic circuit as a plurality of circuit elements, the functions of said plurality of

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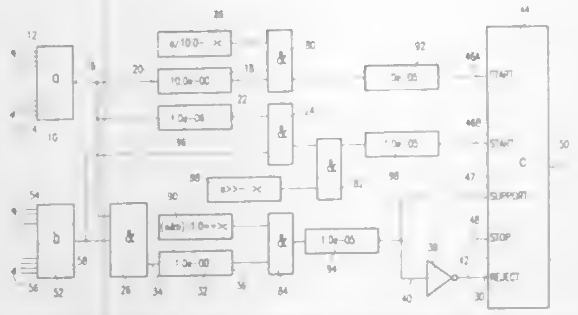


circuit elements being governed by a set of rules, each rule defining a response to a given condition;

means for responding to any condition being satisfied by generating an associated response, wherein two or more of the circuit elements function as registers, each register having an internal value and two or more output states; and

means arranged to apply a constraint linking internal values or output states of two or more register function elements and, in response to a change in an internal value or an output state of one of the register function elements, to detect the change and modify a corresponding internal value or output state of the other register function element or one of the other register function elements to maintain validity of the constraint.

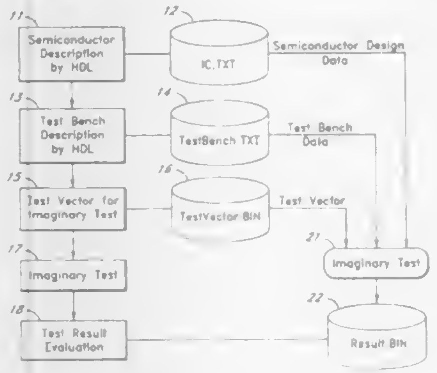
5,740,086
SEMICONDUCTOR TEST SYSTEM LINKED TO CAD DATA

Yoshio Komoto, San Jose, Calif., assignor to Advantest Corp., Tokyo, Japan

Filed Jan. 11, 1996, Ser. No. 584,112

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 364—580 **5 Claims**



1. A semiconductor test system for testing a semiconductor device by applying test signals to the semiconductor device under test for each reference clock period and comparing the resulting output signal from the device under test with expected data, comprising:

means for extracting, from CAD design data for the semiconductor device under test, design information on predetermined terminals of a semiconductor device under test and waveform changes in a test vector to be applied to the semiconductor device under test, said extracting means including means for converting time data in said CAD design data with respect to said waveform changes which is asynchronous with said reference clock period of said semiconductor test system to delay time data expressed relative to said reference clock period;

an event memory for storing event data indicating existence of said waveform changes within said reference clock period in the test vector extracted from said CAD design data with respect to the data indicating the terminals of said semiconductor device under test;

a delay data memory for storing said delay time data from said extracting means indicating the time delay of said waveform changes expressed as time differences from said reference clock period;

a waveform data memory for storing waveform data indicating a type of waveform with respect to each of said waveform changes,

means for providing address signals to each of the memories at said reference clock period; and

a time delay circuit for adding the delay time to an output signal read out from the event memory at said reference clock period, based on the delay time data read out from the delay data memory

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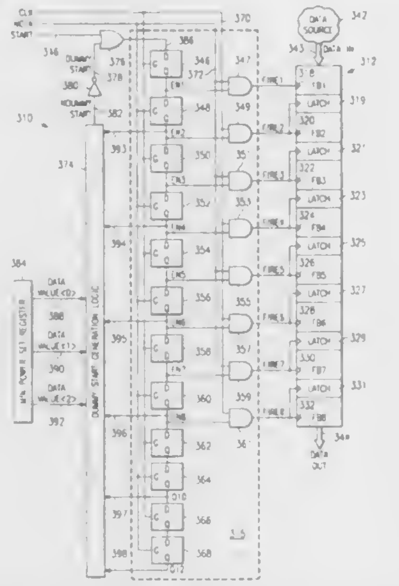
5,740,087
APPARATUS AND METHOD FOR REGULATING POWER CONSUMPTION IN A DIGITAL SYSTEM

David R. Smentek, Columbia, Md.; Craig A. Heikes, Fort Collins, and Robert H. Miller, Jr., Loveland, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 31, 1996, Ser. No. 656,125

Int. Cl.^{6} G06F *1/00*

U.S. Cl. 364—707 **11 Claims**



1. Apparatus for regulating power consumption in a digital system, said digital system of the kind comprising at least one triggerable functional block for processing data and wherein said at least one triggerable functional block consumes more power when triggered than when not triggered, said apparatus for regulating power consumption comprising.

circuitry for generating a start signal when it is time for said at least one triggerable functional block to begin processing data of interest;

first indication circuitry for indicating the approximate level of power being consumed by said at least one triggerable functional block;

second indication circuitry for indicating an approximate desired level of power to be consumed by said at least one triggerable functional block when it is not processing data of interest;

circuitry for generating a dummy start signal when it is desired to increase power consumption in said digital system regardless of whether it is time for said at least one triggerable functional block to begin processing data of interest, said circuitry for generating a dummy start signal responsive to said first and second indicator circuitry; and

circuitry for triggering said at least one triggerable functional block responsive to both of said circuitry, for generating a start signal and said circuitry for generating a dummy start signal

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5,740,088
CONTROL SIGNAL GENERATING DEVICE GENERATING VARIOUS CONTROL SIGNALS USING STORAGE UNIT HAVING SMALL STORAGE CAPACITY

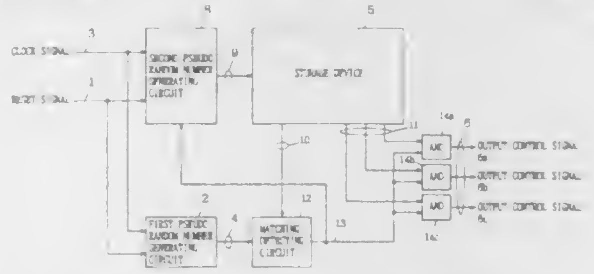
Shinichi Nakagawa; Kiyofumi Kawamoto; Kazuya Ishihara; Satoshi Kumaki, and Atsuo Hanami, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Electric Engineering Co., Ltd., both of Tokyo, Japan

Filed Sep. 19, 1995, Ser. No. 530,497

Claims priority, application Japan, Oct. 25, 1994, 6-260297

Int. Cl.^{6} G06F *1/02*

U.S. Cl. 364—717 **12 Claims**


CLOCK SIGNAL
RESET SIGNAL
SECOND PSEUDO RANDOM NUMBER GENERATING CIRCUIT
STORAGE DEVICE
FIRST PSEUDO RANDOM NUMBER GENERATING CIRCUIT
MATCHING DETECTING CIRCUIT
OUTPUT CONTROL SIGNAL

1. A control signal generating device, comprising:

first numerical data generating means responsive to a clock signal for sequentially generating numerical data;

second numerical data generating means for generating an initial value, and then, responsive to a first signal and the clock signal for sequentially generating numerical data;

storing means in which data corresponding to every numerical data generated by said second numerical data generating means is stored;

detecting means for detecting matching between at least a part of the corresponding data corresponding to the numerical data generated by said second numerical data generating means of the data stored in said storing means and the numerical data generated by said first numerical data generating means, to generate said first signal; and

control signal generating means responsive to said first signal from said detecting means and at least another part of said corresponding data for generating a control signal,

each of said first and second numerical data generating means generating pseudo random number data.

5,740,089
ITERATIVE INTERPOLATOR

Andreas Menkhoff, Freiburg, and Klaus Heberle, Reute, both of Germany, assignors to Deutsche ITT Industries GmbH, Freiburg, Germany

Continuation of Ser. No. 388,289, Feb. 14, 1995, abandoned. This application Mar. 17, 1997, Ser. No. 823,896

Claims priority, application Germany, Feb. 26, 1994, 44 06 300.8

Int. Cl.^{6} G06F *7/38*

U.S. Cl. 364—723 **25 Claims**

1. An apparatus for linear interpolation between known values defined by a n-dimensional coordinate system, comprising:

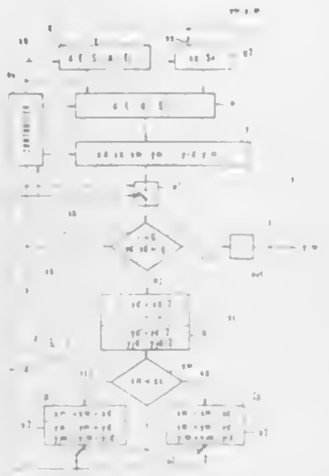
a controller for providing a plurality of control signals;

a first register coupled to said controller and responsive to one of said control signals for storing data corresponding to coordinate values of said known values;

a second register coupled to said controller and responsive to another one of said control signals for storing coordinate values of an intermediate value to be interpolated;

a selection circuit coupled to said controller and responsive to another one of said control signals for selecting known coordinate values from said first register which are adjacent to one of said intermediate values of said second register, said known coordinate values including at least a first known value and a second known value;

an initialization stage coupled to said controller and said selection circuit, said initialization stage responsive to another one of said control signals for forming a first approximate value



(xm) and a first difference value (xd) from said first and second coordinate values (xa,xe;ya,ye) of said first and second known values, with said first difference value xd being equal to (xe−xa)/2, with xa being preferably less than xe, wherein said first approximate value (xm) is calculated by means of the following relationship: xm=xa+xd;

iteration loop means coupled to said controller and said initialization stage, said iteration loop means responsive to another one of said control signals for performing an interval nesting process in a first coordinate direction with respect to said intermediate value by means of said first approximate value and said first difference value, the iteration being performed between first coordinate values of said first and second known values to thereby provide a modified first approximate value, and

copying means coupled to said controller and responsive to another one of said control signals for linearly transferring said interval nesting process carried out in said first coordinate direction to a coordinate section in a second coordinate direction, said coordinate section defined by second coordinate values of said first and second known values, whereby a modified second approximate value is output as the required interpolation value via an output stage when a breakoff criterion is reached

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5,740,090
FILTER, REPETITIVE CONTROL SYSTEM AND LEARNING CONTROL SYSTEM BOTH PROVIDED WITH SUCH FILTER

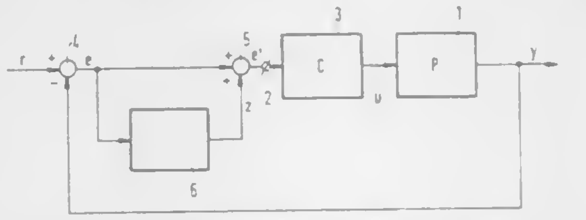
Maarten Steinbuch, and Gerrit Schootstra, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 27, 1995, Ser. No. 549,108

Claims priority, application European Pat. Off., Oct. 28, 1994, 94203148

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—724.07 **5 Claims**



1. A filter having a transfer function $H=G/(1-G)$ in which G is in at least a predetermined frequency range approximately equal to

$$\sum_{n=1}^{N} W_n \cdot e^{-nT}.$$

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or equal to

$$\sum_{n=1}^{N} Wn \cdot e^{n}.$$

with s being a Laplace operator, e being a basic value of a natural logarithm, N being an integer greater than or equal to 2, q being an integer equal to Tp/Ts, Ts being a sample period in a time discrete system,

$$\sum_{n=1}^{N} Wn$$

being less than p, p being a value approximately equal to 1, and

$$\sum_{n=1}^{N} n \cdot Wn$$

being less than 1.

5,740,091
IIR TYPE DIGITAL FILTER

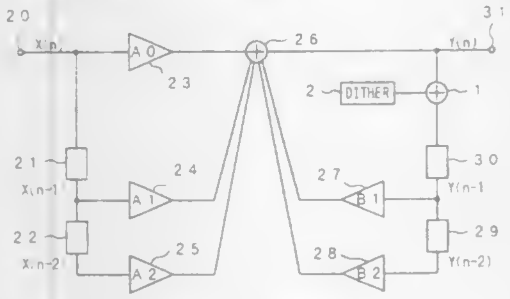
Takao Fukui, and Kazutoshi Nomoto, both of Kanagawa, Japan, assignors to Sony Corporation

Filed Dec. 13, 1995, Ser. No. 571,651

Claims priority, application Japan, Dec. 15, 1994, 6-333449

Int. Cl.^{6} G06F *17/10*

U.S. Cl. 364—724.17 **2 Claims**



1. An IIR type digital filter, comprising:

an input terminal for receiving an input signal containing input data;

a plurality of first delay devices connected to said input terminal;

a plurality of first multiplication devices connected to a respective connection node of said plurality of first delay devices;

a first addition device for adding an output from each of said plurality of first multiplication devices;

an output terminal connected to an output of said first addition device;

a second addition device connected to said output terminal, said second addition device receiving an added signal from said first addition device;

a plurality of second delay devices connected to an output of said second addition device;

a plurality of second multiplication devices connected to a respective connection node of said plurality of second delay devices;

connecting means for connecting each of said plurality of second multiplication devices to said first addition device such that said plurality of second multiplication devices provides respective feedback signals to said first device by way of said connecting means; and

dither generating means connected to said second addition device for generating dither, said dither being added to said added signal from said first addition device by said second addition device to form a dithered added signal, wherein said dithered added signal is supplied to said plurality of second multiplication devices through said plurality of second delay devices such that said feedback signals from said plurality of second multiplication devices are dithered to prevent a DC limit cycle from occurring.

5,740,092
SIGNAL PROCESSOR

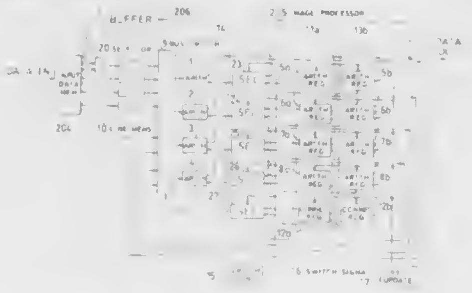
Jiro Miyake; Tamotsu Nishiyama; Katsuya Hasegawa, and Kazuki Ninomiya, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 1, 1994, Ser. No. 299,598

Claims priority, application Japan, Sep. 2, 1993, 5-218553; Dec. 14, 1993, 5-312933

Int. Cl.^{6} G06F *7/38;* **H04N** *9/64*

U.S. Cl. 364—736.06 **3 Claims**



1. A signal processor comprising:

(a) K arithmetic units where the number K is an integer greater than or equal to 2;

said each arithmetic unit having at least one input signal line and having at least one output signal line;

wherein said each arithmetic unit performs an arithmetic operation on data on said input signal line thereby providing an arithmetic operation result found onto said output signal line;

(b) switch means;

said switch means having at least (K+1) input data lines and having at least (K+1) output data lines;

K of said (K+1) input data lines of said switch means being connected with said K output signal lines of said K arithmetic units;

wherein one of the (K+1) input data lines of the switch means receives external data and the remaining K input data lines receive outputs of the K arithmetic units;

K of said (K+1) output data lines of said switch means being connected with said K input signal lines of said K arithmetic units;

wherein output data to the outside is obtained from one of the (K+1) output data lines of said switch means and data on the remaining K output data lines are used as data to the K arithmetic units;

wherein said switch means establishes detachable and interchangeable connections of said (K+1) input data lines with said (K+1) output data lines;

(c) a plurality of register sets;

said each register set holding arithmetic control information designating contents of arithmetic operation processes to be performed by said K arithmetic units;

said each register set holding connection control information designating connection ways of said (K+1) input data lines and said (K+1) output data lines of said switch means;

(d) means to allow any of said plural register sets to be selected to switch processes of said signal processor; and

(e) means to update information held by said plural register sets to switch processes by said signal processor,

wherein signal process switching operations by said register set selection are performed each time one field of input image data is processed

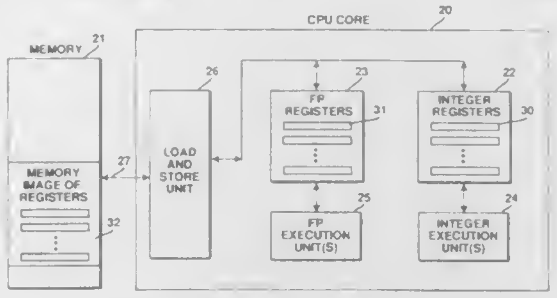
5,740,093
128-BIT REGISTER FILE AND 128-BIT FLOATING POINT LOAD AND STORE FOR QUADRUPLE PRECISION COMPATIBILITY

Harshvardhan Sharangpani, Santa Clara, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1995, Ser. No. 575,912

Int. Cl.^{6} G06F *7/38*

U.S. Cl. 364—748.19 **3 Claims**



1. A computer system comprising:

a memory having a 128-bit boundary;

a processor which includes an execution unit that executes instructions, and a floating point unit having a floating point register file and a load/store unit, the load/store unit performing a bit transfer and mapping between the memory and the floating point register file in response to execution of a load instruction or a store instruction, and wherein the floating point unit is operable to perform single, double, and extended precision calculations on data stored in the floating point register file, and

a software emulator that performs quad precision calculations on data stored in the memory;

execution of the store instruction transferring an 80-bit field of a first floating point register in the floating point register file to most significant bit positions of a 128-bit boundary field in the memory specified by an address, whereas execution of the load instruction specifying the address transferring the most significant bit positions of the 128-bit boundary field in the memory to a second floating point register in the floating point register file;

the load and store instructions being compatible with a new floating point architecture having 128-bit floating point registers.

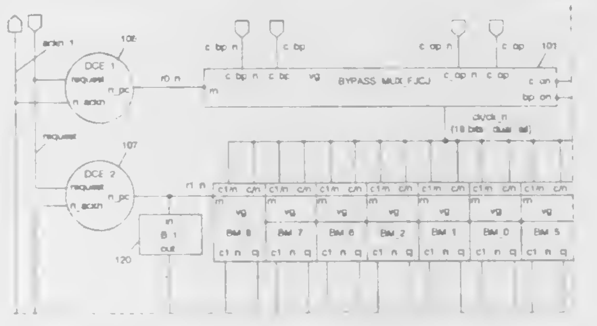
5,740,094
SELF-TIMED MULTIPLIER ARRAY

Peter Juergen Klim, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 21, 1995, Ser. No. 515,335

Int. Cl.^{6} G06F *7/52*

U.S. Cl. 364—754 **9 Claims**



1. A method for performing logic operations on data in a pipeline of logic circuitry, wherein said pipeline comprises a plurality of cascaded stages, wherein each of said plurality of stages includes logic circuitry, said method comprising the steps of:

receiving first data into a first stage of logic circuitry;

performing a logic operation on said first data with said first stage of logic circuitry to produce second data;

outputting said second data from said first stage of logic circuitry;

transferring said second data from said first stage to a second stage of logic circuitry;

monitoring said second data;

placing a third stage of logic circuitry into a standby state in response to said monitoring step;

receiving said second data at said second stage of logic circuitry;

performing a logic operation on said second data with said second stage of logic circuitry to produce third data;

outputting said third data from said second stage of logic circuitry;

transferring said third data from said second stage to said third stage of logic circuitry; and

performing a logic operation on said third data with said third stage of logic circuitry.

5,740,095
PARALLEL MULTIPLICATION LOGIC CIRCUIT

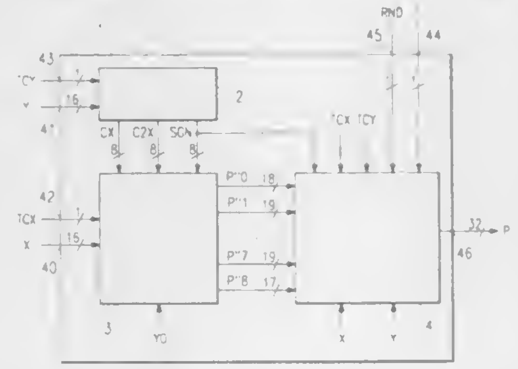
Philippe Parant, Biviers, France, assignor to SGS-Thomson Microelectronics, S.A., Gentilly, France

Filed Jul. 12, 1995, Ser. No. 501,675

Claims priority, application France, Jul. 15, 1994, 94 08950

Int. Cl.^{6} G06F *7/52*

U.S. Cl. 364—760 **20 Claims**



1. A parallel multiplication logic circuit receiving first and second n-bit logic signals, representing a multiplicand and a multiplier, and producing 2*n output logic signals representing an output binary data element encoded on 2*n bits, comprising:

a circuit producing logic selection signals from the second signals;

a partial product generator producing intermediate logic signals by the combination of the first signals and of the selection signals;

a computation and formatting circuit receiving the intermediate signals and producing the output signals;

wherein the computation circuit comprises an incrementation circuit to produce input signals from signals received by this incrementation circuit by the modification, through the action of the control signals received by the logic circuit, of the signals received, as a function of at least one control signal received by the logic circuit which are representative of formats of said first and second signals and said output logic signals

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5,740,096

FILTER CIRCUIT FOR COMMUNICATION

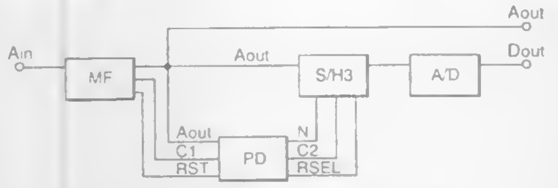
Guoliang Shou; Changming Zhou; Makoto Yamamoto, all of Tokyo; Mamoru Sawahashi; Fumiyuki Adachi, both of Kanagawa, and Sunao Takatori, Tokyo, all of Japan, assignors to NTT Mobile Communications Network, Inc., and Yozan, Inc., both of Tokyo, Japan

Filed Sep. 6, 1996, Ser. No. 708,986

Claims priority, application Japan, Sep. 8, 1995, 7-255758

Int. Cl.^{6} G06G *7/02*

U.S. Cl. 364—825 **2 Claims**



1. A filter circuit for communication comprising

i) a means for addition and multiplication for
  a) sequentially holding an analog input signal by a plurality of a first sampling and holding circuits,
  b) performing weighted addition by PN code of said analog input signal on each holding point, and
  c) outputting an addition result as an analog output signal,
ii) a peak detecting portion for deciding a timing to take said signal according to a peak of said analog output signal, and
iii) an A/D converter for converting said analog output signal into a digital signal, comprising:
  a) a second sampling and holding circuit for holding a signal only on said timing to take said signal, and
  b) a quantizing portion for digitizing an output of said second sampling and holding circuit.

5,740,097

CONTENT-ADDRESSABLE-MEMORY CONTROL CIRCUIT

Akashi Satoh, Yamato, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 28, 1995, Ser. No. 563,830

Claims priority, application Japan, Nov. 28, 1994, 6-292556

Int. Cl.^{6} G11C *15/00*

U.S. Cl. 365—49 **14 Claims**

1. A content-addressable-memory control circuit to be connected to a content addressable memory which comprises a memory element, a data input terminal, and a switching element provided between a match-line and a ground terminal and which, if comparison data is input through said data input terminal, will switch on or off said switching element according to a result of comparison between said comparison data and data stored in said memory element, including one of pull-up and pull-down means comprising:

first switching means provided on said match-line between the opposite side of said switching element to said ground terminal and a power supply; and

first control means for switching on said first switching means during a time period, the time period being the period that said content addressable memory is switching on or off said switching element according to said result of comparison.

5,740,098

USING ONE MEMORY TO SUPPLY ADDRESSES TO AN ASSOCIATED MEMORY DURING TESTING

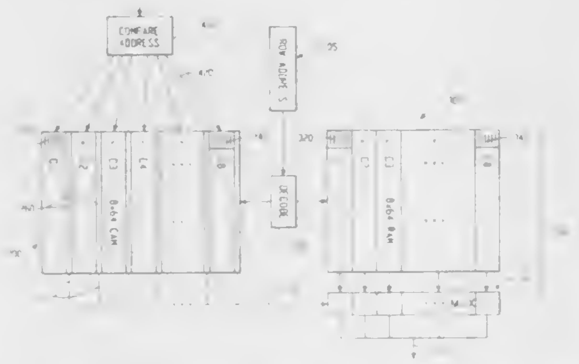
Robert Dean Adams, Essex Junction; John Connor, Burlington; James J. Covino; Roy Childs Flaker, both of Essex Junction; Garrett Stephen Koch, Cambridge; Alan Lee Roberts, Jericho; Jose Roriz Sousa, and Luigi Ternullo, Jr., both of Colchester, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 398,465, Mar. 3, 1995, Pat. No. 5,563,833.

This application Jun. 27, 1996, Ser. No. 671,279

Int. Cl.^{6} G11C *15/00*

U.S. Cl. 365—49 **5 Claims**



5. A method of outputting data from a RAM through a gating means that is activated by a CAM, wherein the method comprises the following steps;

a) addressing a row in both the RAM and CAM,
b) sending a compare address to each column in the CAM,
c) comparing each CAM location in the addressed row to the compare address,
d) outputting a control signal from the CAM column that contains a match to the compare address;
e) outputting all data from the selected row in the RAM to a gating device; and
f) receiving the control signal at the gating device at about the same time the gating device receives the RAM data, to prevent all but one column of the addressed RAM row of data from being output from the gating device.

5,740,099

SEMICONDUCTOR MEMORY DEVICE HAVING PERIPHERAL CIRCUIT AND INTERFACE CIRCUIT FABRICATED ON BULK REGION OUT OF SILICON-ON-INSULATOR REGION FOR MEMORY CELLS

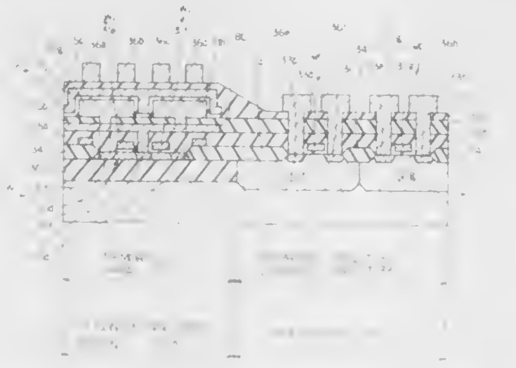
Takaho Tanigawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 5, 1996, Ser. No. 596,567

Claims priority, application Japan, Feb. 7, 1995, 7-019555

Int. Cl.^{6} G11C *11/24*

U.S. Cl. 365—51 **8 Claims**



1. A semiconductor memory device fabricated on a semiconductor substrate including a bulk region and a semiconductor-on-insulator region having an insulating layer isolating a first semiconductor layer from a second semiconductor layer, comprising:

a memory cell array fabricated on said first semiconductor layer in said semiconductor-on-insulator region for storing pieces of data information;

an interface circuit fabricated on said bulk region for transferring said pieces of data information to an external device; and

a peripheral circuit coupled between said memory cell array and said interface circuit for selectively transferring said pieces of data information therebetween and having first logic circuits fabricated on said bulk region.

5,740,100

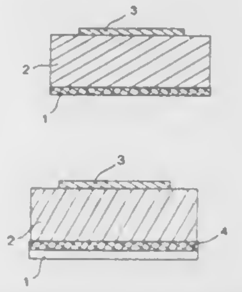
METHOD FOR PREVENTING POLARIZATION LOSS IN FERROELECTRIC CAPACITORS BY CONTROLLING IMPRINT

In-Kyeong Yoo, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Oct. 5, 1995, Ser. No. 539,469

Int. Cl.^{6} G11C *11/22*

U.S. Cl. 365—145 **7 Claims**



1. A method for preventing polarization loss in a ferroelectric capacitor by controlling imprint of said capacitor, comprising the steps of:

fabricating a ferroelectric capacitor to achieve bistable polarization states, the bistable states including both a non-zero polarization state and a zero polarization state; and

consecutively applying partial switching signals to the ferroelectric capacitor to utilize the bistable polarization states as memory logic.

5,740,101

TIME-STABLE LABELING OF INDIVIDUAL ATOMS OR GROUPS OF ATOMS IN THE SURFACE OF A SOLID, AND THE STORAGE OF INFORMATION UNITS IN THE ATOMIC RANGE

Harald Fuchs, Carlsberg; Thomas Schimmel, Hof, and Harald Keller, Bad Durkheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 1, 1991, Ser. No. 723,881

Claims priority, application Germany, Jul. 3, 1990, 40 21 077.4

Int. Cl.^{6} G11C *13/02*

U.S. Cl. 365—151 **5 Claims**

1. A process for the time-stable labeling of individual atoms or groups of atoms in the surface of a solid comprising either a chemical compound or a fully mixed alloy by effecting either a structural or an electronic change in configuration in the surface of the solid, which process comprises,

a) imaging the surface of said solid using a scanning tunneling microscope having a tunneling voltage and a tunneling tip,
b) applying voltage pulses, superimposed on the tunneling voltage, between the tunneling tip and the surface of the solid, by means of a pulse generator, and
c) labeling individual atoms or groups of atoms by selectively removing individual atoms or groups of atoms from the surface of the solid without essentially changing the atomic lattice structure of the atoms or groups of atoms which remain, wherein the type of atoms removed from the surface of the solid is different from the type of atoms which remain when observed with a surface-sensitive scanning probe, and observation of the atomic lattice structure shows the change in apparent height of the atoms neighboring the removed ones.

5,740,102

DATA RETENTION CIRCUIT AND SEMICONDUCTOR MEMORY DEVICE USING THE SAME

Shoichiro Kawashima, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

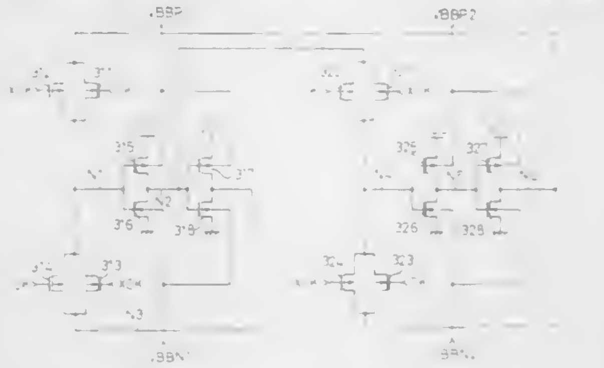
Division of Ser. No. 377,216, Jan. 24, 1995, Pat. No. 5,600,588.

This application Nov. 22, 1996, Ser. No. 754,124

Claims priority, application Japan, Jan. 24, 1994, 6-006025

Int. Cl.^{6} G11C *11/00*

U.S. Cl. 365—154 **4 Claims**



3. A data retention circuit comprising:

a data latch part including at least one flip-flop circuit having transistors of CMOS structure;

a gating means responsive to a control signal, for controlling an inputting of data into said data latch part and an outputting of data from said data latch part; and

means for controlling a back-bias voltage of at least one of the transistors constituting said flip-flop circuit to be a first voltage in an active state of said data retention circuit, and for controlling said back-bias voltage to be a second voltage different from said first voltage in a stand-by state of said data retention circuit, wherein said data latch part comprises a master flip-flop circuit including two series-connected CMOS inverters, and a slave flip-flop circuit including two series-connected CMOS inverters, and

wherein said master flip-flop circuit and said slave flip-flop circuit are brought to the active state or the stand-by state alternately to each other, according to the control signal applied to said gating means.

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5,740,103
ELECTRICALLY PROGRAMMABLE MEMORY CELL

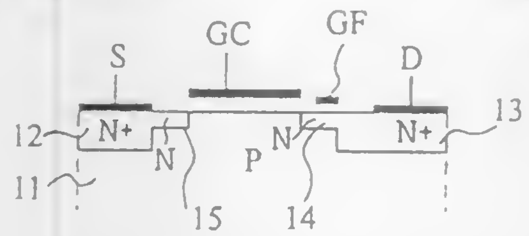
Constantin Papadas, Grenoble, and Bernard Guillaumot, Le Fontanil, both of France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

Division of Ser. No. 413,206, Mar. 28, 1995. This application Mar. 6, 1997, Ser. No. 812,016

Claims priority, application France, Mar. 30, 1994, 94 04146

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—185.01 6 Claims



1. A method for programming a memory cell, wherein the memory cell includes a substrate of a first conductivity type having a channel region having a first side and a second side, a control gate located on the channel region, a drain region of a second conductivity type located on the substrate adjacent to the first side of the channel region. the drain region having a low-doped region adjacent to the channel region, a source region of the second conductivity type located on the substrate adjacent to the second side of the channel region, and an insulated floating gate located on the low-doped area of the drain region adjacent to the control gate, the method comprising the steps of:

a) connecting the drain, the source and the substrate to a ground;
b) applying a voltage pulse to the control gate, said voltage pulse being positive with respect to the ground if the substrate is of a P-type.

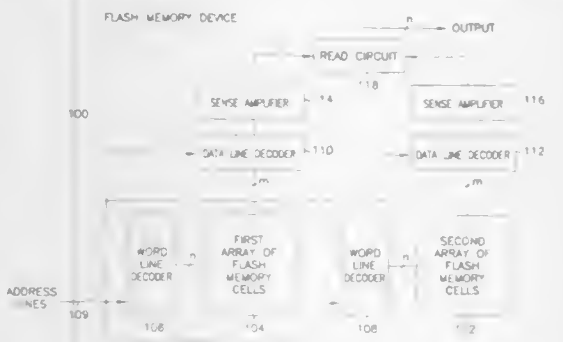
5,740,104
MULTI-STATE FLASH MEMORY CELL AND METHOD FOR PROGRAMMING SINGLE ELECTRON DIFFERENCES

Leonard Forbes, Corvallis, Oreg., assignor to Micron Technology, Inc., Boise, Id.

Filed Jan. 29, 1997, Ser. No. 790,903

Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—185.03 14 Claims



1. A flash memory cell, comprising:

a transistor with a control gate coupled to a word line, a drain region coupled to a data line, and a floating gate that stores a value that represents a number of bits of data; and

wherein the floating gate comprises a number of nano-crystals of silicon implanted at a position in a gate oxide of the transistor electron injection.

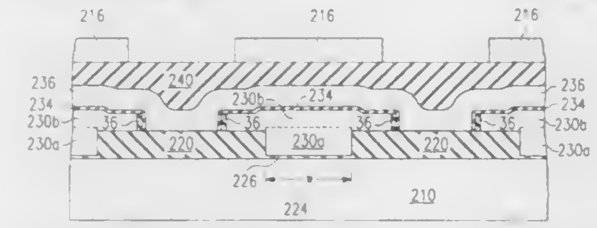
5,740,105
MEMORY CELL ARRAY WITH LOCOS FREE ISOLATION

Manzur Gill, Arcola, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 364,528, Dec. 23, 1994, abandoned, which is a continuation of Ser. No. 68,473, May 27, 1994, abandoned. This application Oct. 17, 1996, Ser. No. 731,649

Int. Cl.^{6} G11C *11/34*

U.S. Cl. 365—185.05 10 Claims



1. A method for forming an array of memory cells in rows and columns on a semiconductor substrate, each said memory cell formed in an active area of said semiconductor substrate, each said memory cell including a floating gate having a lower polysilicon layer and an upper polysilicon layer separately deposited on said lower polysilicon layer, said method comprising:

forming thick field oxide strips between said active areas of each said column of memory cells;

each said lower polysilicon layer of each said floating gate formed between said thick field oxide strips, and each said upper polysilicon layer of each said floating gate formed above said thick field oxide strips;

forming word lines insulated from said upper polysilicon layer of each said floating gate in rows of said memory cells; and

each said memory cell including a source in said active area, said method further including forming source lines in said active areas connecting said sources in rows of said cells, said source lines parallel to said word lines.

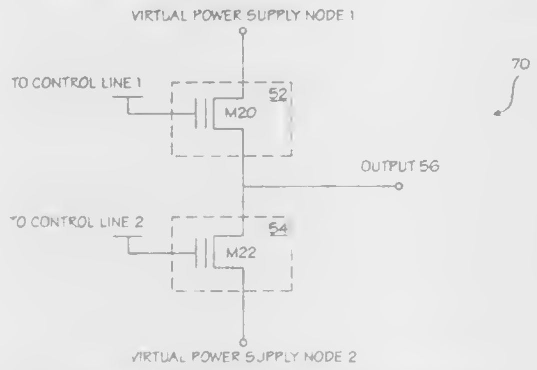
5,740,106
APPARATUS AND METHOD FOR NONVOLATILE CONFIGURATION CIRCUIT

Hagop A. Nazarian, San Jose, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Continuation of Ser. No. 496,343, Jun. 29, 1995, abandoned. This application Apr. 9, 1997, Ser. No. 835,586

Int. Cl.^{6} G11C *11/40*

U.S. Cl. 365—185.1 38 Claims



1. A programmable configuration device comprising

a nonvolatile pull-up cell including a depletion-type first nonvolatile transistor coupled to a first output node and for coupling to a first power supply voltage;

a nonvolatile pull-down cell including an enhancement-type second nonvolatile transistor coupled to said nonvolatile pull-up cell and to said first output node and for coupling to a second power supply voltage.

wherein said first output node is directly coupled to a controlled circuit.

5,740,107
NONVOLATILE INTEGRATED CIRCUIT MEMORIES HAVING SEPARATE READ/WRITE PATHS

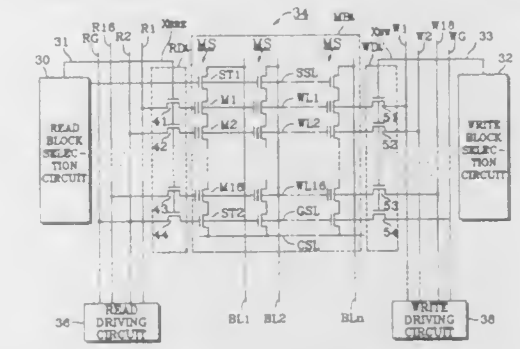
Seung-Keun Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 24, 1996, Ser. No. 653,344

Claims priority, application Rep. of Korea, May 27, 1995, 1995/13571

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—185.11 9 Claims



1. A nonvolatile integrated circuit memory comprising:

an array of rows and columns of memory cells, each memory cell comprising a transistor having a floating gate and a control gate;

a plurality of word lines, a respective one of which is connected to the respective memory cell transistors in a row of the array;

a plurality of read transfer switches associated with the array, a respective one of which is connected to a respective one of the plurality of word lines of the array, to provide a read driving voltage to a selected word line of the array so that data is read from at least one selected memory cell of the array during a read operation; and

a plurality of write transfer switches associated with the array, a respective one of which is also connected to a respective one of the plurality of word lines of the array, to provide a write driving voltage to a selected word line of the array so that data can be written into at least one selected memory cell of the array during a write operation;

wherein said plurality of read transfer switches associated with the array comprise a plurality of first field effect transistors, and wherein said plurality of write transfer switches associated with the array comprise a plurality of second field effect transistors;

wherein said plurality of first field effect transistors each includes a source and a drain, wherein only one of the source and drain includes a relatively heavily doped portion and a relatively lightly doped portion; and

wherein said plurality of second field effect transistors each includes a source and a drain, wherein both the source and drain include a relatively heavily doped portion and a relatively lightly doped portion.

5,740,108
SERIES-STRUCTURED READ-ONLY MEMORY HAVING WORD LINES ARRANGED INDEPENDENTLY FOR EACH ROW OF A MEMORY CELL ARRAY

Hiizu Okubo, Nishinomiya, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 9, 1996, Ser. No. 762,450

Claims priority, application Japan, Dec. 12, 1995, 7-323021

Int. Cl.^{6} G11C *17/12*

U.S. Cl. 365—185.17 15 Claims

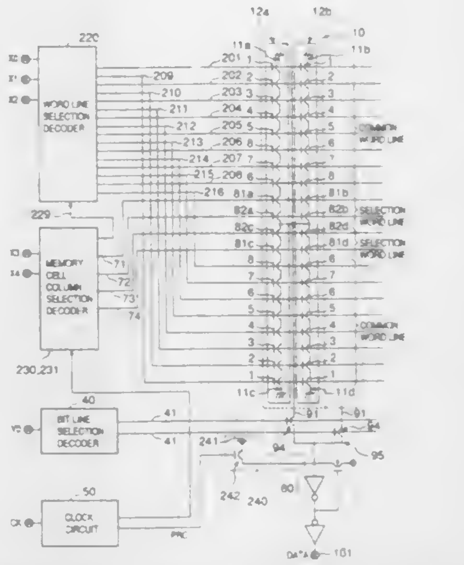
1. A semiconductor memory device comprising:

a first memory block including a pair of memory cell columns each of which includes a plurality of memory cells connected in series, said memory cell columns being connected in series in a column direction along which said memory cells are arranged, said memory cells being selected by address data comprising first address data and second address data;

a plurality of word lines each of which is connected on a one to one basis to a corresponding one of said memory cells included in said first memory block;

a memory cell column selection decoder outputting a memory cell column selection signal for selecting one of said memory cell columns based on said first address data, and

a word line selection decoder connected to each of said word lines for selecting at least one of said word lines based on said second address data and a control signal which is generated from said first address data.



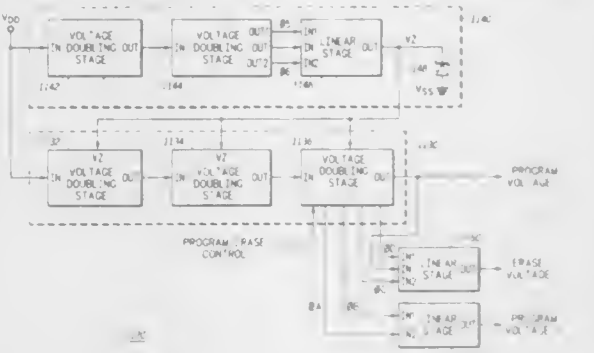
5,740,109
NON-LINEAR CHARGE PUMP

Bruce L. Morton, Austin; Yangming Su, Cedar Park, and Kuo-Tung Chang, Austin, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 23, 1996, Ser. No. 703,173

Int. Cl.^{6} G11C *11/34;7/00;* G05F *1/10*

U.S. Cl. 365—185.18 23 Claims



1. A charge pump comprising:

a voltage reference generating circuit having at least one output terminal for providing a corresponding reference voltage;

a first regulated voltage doubling charge pump stage having a voltage input terminal connected to a power supply voltage terminal, a reference input terminal coupled to said voltage reference generating circuit for receiving a first reference voltage, and a voltage output terminal for providing a first regulated voltage, and having a first capacitor having a first dielectric thickness used to double a voltage at said voltage input terminal to provide said first regulated voltage, and

a second regulated voltage doubling charge pump stage having a voltage input terminal connected to said voltage output terminal of said first regulated voltage doubling charge pump stage,

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a reference input terminal coupled to said voltage reference generating circuit for receiving a second reference voltage, and an output terminal for providing a second regulated voltage, and having a second capacitor having a second dielectric thickness, said second dielectric thickness greater than said first dielectric thickness used to double a voltage at said voltage input terminal to provide said first regulated voltage

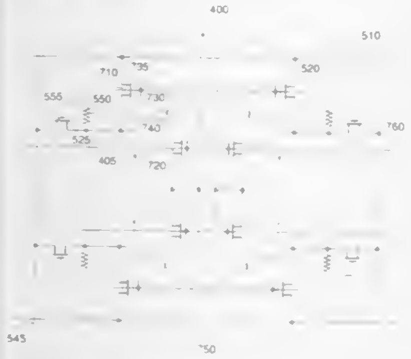
5,740,110
DYNAMIC NONVOLATILE MEMORY CELL

Raminda U. Madurawe, Sunnyvale, Calif., assignor to Altera Corporation, San Jose, Calif.

Division of Ser. No. 536,026, Sep. 29, 1995. This application Aug. 30, 1996, Ser. No. 708,020

Int. Cl.⁶ G11C *11/34*

U.S. Cl. 365—185.25 11 Claims



1. A dynamic memory cell comprising:
- a tunnel dielectric;
- a floating gate device, coupled between a voltage source and an output node, wherein a floating gate of said floating gate device is coupled to said tunnel dielectric;
- a tunnel diode, coupled to said tunnel dielectric, wherein said tunnel dielectric transfers charge between said floating gate and said tunnel diode;
- a select transistor, coupled between an erase node and said tunnel diode; and
- a charging transistor, coupled between a charge pumping node and said output node, wherein a precharge signal, coupled to said charge pumping node, periodically refreshes said output node to a voltage level representing a logic high.

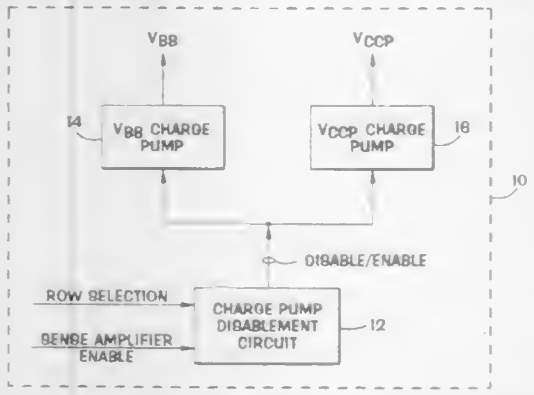
5,740,111
CHARGE PUMP DISABLEMENT APPARATUS

Kevin Duesman, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jan. 24, 1996, Ser. No. 590,935

Int. Cl.⁶ G11C *7/00*

U.S. Cl. 365—189.09 6 Claims



1. In an integrated circuit memory for controlling operation of a charge pump, said memory having an array of memory cells and having a sense amplifier coupled to said array of memory cells, said array of memory cells being arranged in rows and columns, and said memory generating a row selection signal to select a row of memory cells and generating a sense amplifier enable signal to activate said sense amplifier, the improvement comprising:
- circuitry responsive to the row selection signal for disabling the operation of said charge pump
- and responsive to the sense amplifier enable signal for enabling the operation of said charge pump.

5,740,112
SENSE AMPLIFIER FOR USE IN AN EEPROM

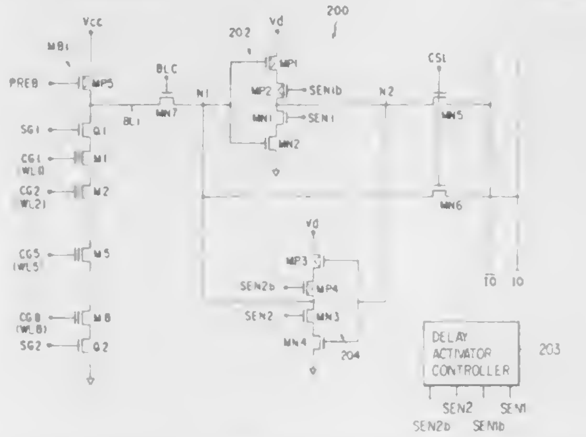
Tomoharu Tanaka, Yokohama; Yoshiyuki Tanaka, Tokyo; Kazunori Ohuchi, Yokohama; Masaki Momodomi, Yokohama; Yoshihisa Iwata, Yokohama; Koji Sakui, Tokyo; Shinji Saito, Yokohama, and Hideki Sumihara, Ooita, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 448,786, May 24, 1995, abandoned, which is a continuation of Ser. No. 208,678, Mar. 11, 1994, abandoned, which is a division of Ser. No. 834,200, Feb. 12, 1992, abandoned. This application Jan. 4, 1996, Ser. No. 583,533

Claims priority, application Japan, Feb. 19, 1991, 3-24769; Mar. 29, 1991, 3-91469

Int. Cl.⁶ G11C *7/00*

U.S. Cl. 365—189.01 17 Claims



5. A sense amplifier for signal detection for use in an electrically erasable and programmable read-only memory, said memory including a plurality of NAND cell units coupled to parallel bit lines, each of which cell units includes a predetermined number of memory cell transistors, each memory cell transistor comprising a field effect transistor with an insulated charge-storage layer, said sense amplifier comprising:
- a first inverter having a first input connected to a bit line and a first output,
- a second inverter having a second input connected to said first output and second output connected to said first input;
- a delay activator controller for controlling activation of said second inverter to occur after a predetermined delay after activation of said first inverter.

5,740,113
SEMICONDUCTOR MEMORY DEVICE

Tetsuya Kaneko, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshira, Kawasaki, Japan

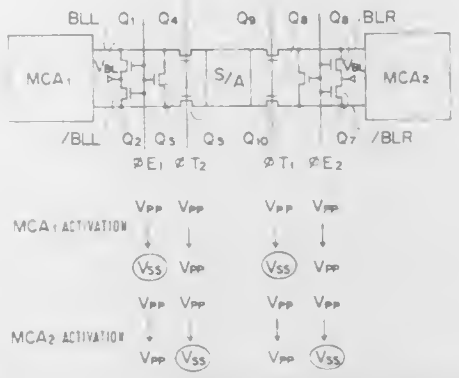
Filed Dec. 12, 1995, Ser. No. 571,135

Claims priority, application Japan, Dec. 19, 1994, 6-312991

Int. Cl.⁶ G11C *7/00*

U.S. Cl. 365—189.11 49 Claims

1. A semiconductor memory device comprising:
- a booster circuit for generating a boosted potential,



- a first memory cell array including first pairs of bit lines;
- a second memory cell array including second pairs of bit lines;
- a sense amplifier circuit;
- a first transmission gate circuit having pairs of transistors for connecting the first pairs of bit lines to the sense amplifier circuit;
- a second transmission gate circuit having pairs of transistors for connecting the second pairs of bit lines to the sense amplifier circuit;
- a first equalizing circuit having transistors for equalizing the first pairs of bit lines;
- a second equalizing circuit having transistors for equalizing the second pairs of bit lines, and
- a control circuit applying the boosted voltage respectively to gates of the transistors in the first and the second transmission gate circuits and gates of the transistors in the first and the second equalizing circuits when none of memory cells in the first and the second memory cell arrays is selected.

5,740,114
REDUNDANT MEMORY CELL SELECTING CIRCUIT HAVING FUSES COUPLED TO MEMORY CELL GROUP ADDRESS AND MEMORY CELL BLOCK ADDRESS

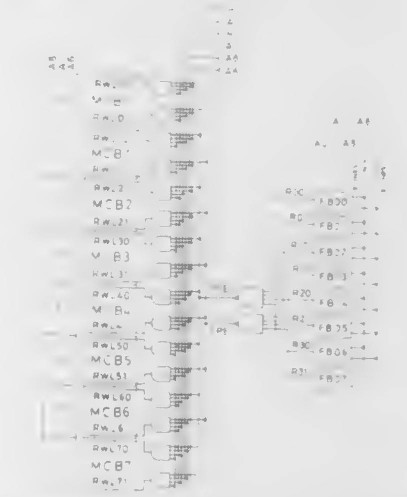
Hiroshige Hirano, Nara; Hisakazu Kotani, Hyogo, and Naomi Miyake, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 35,213, Mar. 22, 1993, abandoned. This application May 10, 1995, Ser. No. 438,919

Claims priority, application Japan, Mar. 23, 1992, 4-064582; Jun. 26, 1992, 4-168783

Int. Cl.⁶ G11C *7/00*

U.S. Cl. 365—200 4 Claims



1. A redundant memory cell selecting circuit comprising:
- a plurality of memory cell blocks each of which includes a plurality of memory cell groups and first and second redundant memory cell groups;
- a first selecting fuse circuit block, which includes first fuses for storing a memory cell block having a defective memory cell group, for outputting a first selection signal when the memory cell block stored by the first fuses is selected by a memory cell block selection signal;
- a second selecting fuse circuit block, which includes second fuses for storing a memory cell block having a defective memory cell group, for outputting a second selection signal when the memory cell block stored by the second fuses is selected by the memory cell block selection signal;
- first logic circuits, coupled to said second selecting fuse circuit block and provided respectively corresponding to the memory cell blocks, each for outputting a first signal when the first selection signal is output from the first selecting fuse circuit block and the corresponding memory cell block is selected by the memory cell block selection signal;
- second logic circuits, coupled to said second selecting fuse circuit block and provided respectively corresponding to the memory cell blocks, each for outputting a second signal when the second selection signal is output from the second selecting fuse circuit block and the corresponding memory cell block is selected by the memory cell block selection signal,
- wherein in each of the memory cell blocks, the first redundant memory cell group is made active instead of the defective memory cell group when the first signal is output from the corresponding first logic circuit, and the second redundant memory cell group is made active instead of the defective memory cell group when the second signal is output from the corresponding second logic circuit

5,740,115
SEMICONDUCTOR MEMORY DEVICE

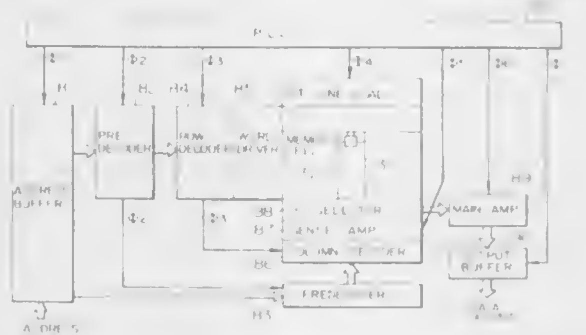
Koichiro Ishihashi, Kodaira; Kunihiro Komiyaji; Kiyotsugu Ueda, both of Hachioji, and Hiroshi Toyoshima, Hino, all of Japan, assignors to Hitachi, Ltd., and Hitachi ULSI Engineering Corporation, both of Tokyo, Japan

Filed Jul. 6, 1995, Ser. No. 498,969

Claims priority, application Japan, Jul. 8, 1994, 6-156927; Sep. 9, 1994, 6-215587

Int. Cl.⁶ G11C *7/00*

U.S. Cl. 365—203 15 Claims



1. In a semiconductor memory device of synchronous type having an address buffer for latching an address signal, a decoder for decoding said address signal from said address buffer, a word driver for amplifying the output from said decoder and thereby driving a word line, a data line for use in taking out a signal from a memory cell selected by said word line, a sense amplifier for detecting said signal on said data line, a main amplifier for amplifying said signal detected by said sense amplifier, an output buffer for supplying said signal amplified by said main amplifier to the outside as data, and a control circuit, whereby an address input and a data signal output are synchronous with an external clock signal input to said control circuit, the improvement wherein said control circuit comprises:
- a control signal generator for generating a plurality of control signals of different phases in synchronism with said external clock signal, said plurality of control signals of different phases being respectively supplied to at least said address

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buffer, said decoder, said data line, said sense amplifier, said main amplifier, and said output buffer, thereby precharging said address buffer and said decoder, and equalizing said data line, said sense amplifier, said main amplifier and said output buffer, during a predetermined time for each control signal, wherein after said predetermined time for each control signal, said output buffer outputs data corresponding to the address signal input to said address buffer in response to said control signal respectively supplied thereto.

5,740,116
CURRENT LIMITING DURING BLOCK WRITES OF MEMORY CIRCUITS

Robert J. Proebsting, Los Altos Hills, Calif., assignor to Townsend and Townsend and Crew, LLP, San Francisco, Calif.

Filed Dec. 22, 1995, Ser. No. 578,885
Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—205 **20 Claims**

1. A memory circuit comprising:

a plurality of sense amplifiers disposed adjacent to each other on one side of an array of memory cells and sensing data from the same row of memory cells in said array at a given time,

each one of said plurality of sense amplifiers having a first bias node coupled to a first bias line and a second bias node coupled to a second bias line, at least one of said first and second bias lines being divided into a plurality of separate segments, each segment of said plurality of separate segments being coupled to a subset of said plurality of sense amplifiers; and

a first plurality of enable devices each one respectively coupling one segment of said plurality of separate segments to a first bias source.

5,740,117
OPTICAL MEMORY FOR STORING DATA

Gian-Luca Bona, Hedingen; Roland Germann, Wangen, and Huub Salemink, Adliswil, all of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

PCT No. PCT/EP94/03095, § 371 Date Feb. 27, 1997, § 102(e) Date Feb. 27, 1997, PCT Pub. No. WO96/08826, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 15, 1994, Ser. No. 793,763
Int. Cl.^{6} G11C *19/30*

U.S. Cl. 365—215 **17 Claims**

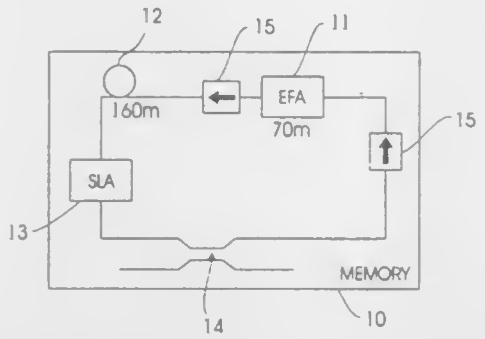
1. Random-access optical memory (**20**) with a plurality of memory cells each comprising

a data line (**21**),

an active waveguide coupler (**23**) which can be switched from a first state to a second state, and

a closed waveguide memory loop (**22**) for storing a light pulse (**24**) circulating therein,

said data line (**21**) being optically coupled via said active waveguide coupler (**23**) to said memory loop (**22**) such that a light pulse (**24**) on said data line (**21**) is coupled into said memory loop (**22**) if the active waveguide coupler (**23**) is in the first state, or passes the active waveguide coupler (**23**), without being coupled into said memory loop (**22**), if it is in the second state, the length L of said memory loop (**22**) being such that the circulation frequency of said light pulse (**24**) in said memory loop (**22**) is equal to the clock frequency at which said optical memory (**20**) is designed to be operated.

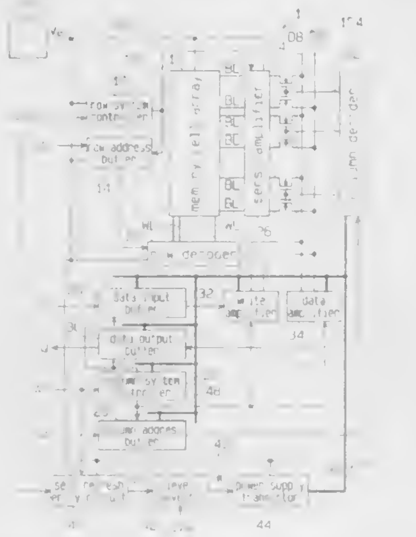


5,740,118
SEMICONDUCTOR MEMORY DEVICE

Hajime Sato, and Yoshiyuki Ishida, both of Kasugai, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 21, 1996, Ser. No. 754,805
Claims priority, application Japan, Nov. 22, 1995, 7-304663
Int. Cl.^{6} G11C *13/00*

U.S. Cl. 365—222 **10 Claims**



1. A semiconductor memory device comprising:

a row-system circuit for receiving a first power from a power supply and operable in accordance with a row address strobe signal,

a column-system circuit operable in accordance with a column address strobe signal; and

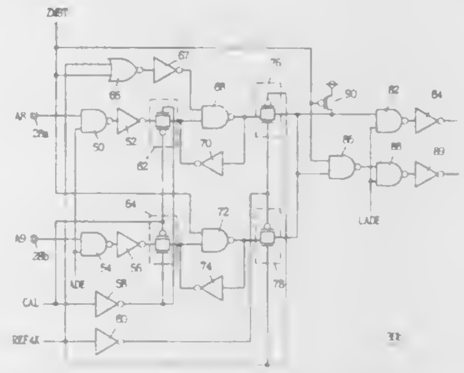
a switch circuit, connected to said column-system circuit, for receiving said first power from said power supply and supplying said first power to said column-system circuit in an active mode and for shutting of the supply of the first power to said column-system circuit in a standby mode.

5,740,119
SEMICONDUCTOR MEMORY DEVICE HAVING INTERNAL ADDRESS CONVERTING FUNCTION, WHOSE TEST AND LAYOUT ARE CONDUCTED EASILY

Mikio Asakura; Hideto Hidaka; Kiyohiro Furutani, and Kenichi Yasuda, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 26, 1996, Ser. No. 756,505
Claims priority, application Japan, Nov. 28, 1995, 7-309311
Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—222 **6 Claims**



1. A semiconductor memory device, comprising:

a memory array having a plurality of memory cells arranged in rows and columns, the memory cells of each of said rows being connected to a word line;

refresh cycle specify signal generating means for generating a refresh cycle specify signal specifying one of first and second refresh cycle modes different from each other in the number of word lines brought into a selected state during a refresh operation;

selecting means for selecting a plurality of memory cells simultaneously from said memory array according to a multi-bit address signal having a predetermined number of address signal bits degenerated,

said predetermined number of address signal bits including a first address signal bit degenerated when said first refresh cycle is specified and made valid when said second refresh cycle is specified, a second address signal bit made valid when said first refresh cycle is specified and degenerated when said second refresh cycle is specified, and a third address signa bit of at least one bit degenerated regardless of which of said first and second refresh cycle is specified, and

address switching means responsive to said refresh cycle specify signal specifying said first refresh cycle for switching said first address signal bit to said second address signal bit, said second address signal bit to said third address signal bit of at least one bit, and one of said address signal bit to said first address signal bit.

5,740,120
SEMICONDUCTOR MEMORY HAVING IMPROVED DATA BUS ARRANGEMENT

Junichi Okamura, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Tokyo, Japan

Filed Jan. 4, 1996, Ser. No. 582,675
Claims priority, application Japan, Jan. 5, 1995, 7-000128
Int. Cl.^{6} G11C *8/00;7/00*

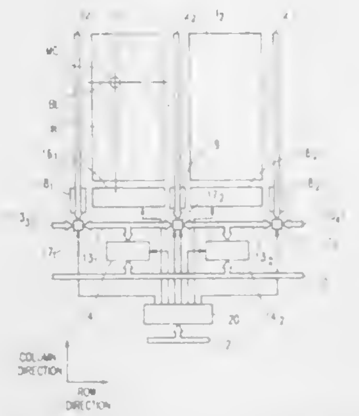
U.S. Cl. 365—230.03 **23 Claims**

1. A semiconductor memory, comprising

a first, a second and a third data bus extending in a column direction;

a first memory cell array having a plurality of memory cells arranged in a matrix, the first memory cell array arranged between the first and the second data busses;

a second memory cell array having a plurality of memory cells arranged in a matrix, the second memory cell array arranged between the second and the third data busses;



a fourth data bus extending in a row direction adjacent to one end of the first memory cell array;

a fifth data bus extending in the row direction adjacent to one end of the second memory cell array;

a first switch circuit for selectively coupling the first data bus to the fourth data bus;

a second switch circuit for selectively coupling the second data bus to either the fourth data bus or the fifth data bus,

a third switch circuit for selectively coupling the third data bus to the fifth data bus; and

a control circuit for controlling the first, the second, and the third switch circuits,

wherein the control circuit either

selects the first memory cell array, by controlling the first switch circuit to couple the first data bus to the fourth data bus, and by controlling the second switch circuit to couple the second data bus to the fifth data bus; or

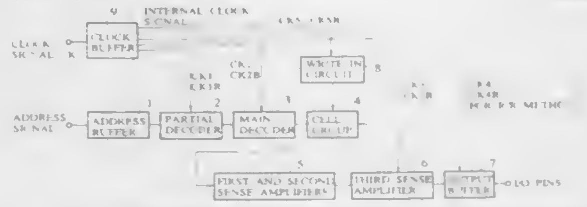
selects the second memory cell array, by controlling the second switch circuit to couple the second data bus to the fourth data bus, and by controlling the third switch circuit to couple the third data bus to the fifth data bus.

5,740,121
SYNCHRONOUS-TYPE MEMORY

Azuma Suzuki, Tokyo, and Hatsuhiro Kato, Hakodate, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 357,289, Dec. 13, 1994, abandoned.
This application Oct. 15, 1996, Ser. No. 730,211
Claims priority, application Japan, Dec. 13, 1993, 5-312105
Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—233 **11 Claims**



1. A synchronous-type memory performing in synchronization with a clock signal having rising edges and falling edges provided from an external device, comprising

a plurality of memory cells for storing data, and selected by one of a plurality of word lines,

decoder means for latching an address signal in order to select one of said word lines in accordance with one of said rising edges and falling edges of said clock signal, selecting said one word line, and deselecting said one word line in accordance with a subsequent and consecutive edge with respect to said one of said rising edges and falling edges of said clock signal,

store means for storing said data transferred from said one word line selected by said decoder means in synchronism with said one of said rising edges and falling edges of said clock signal before all of said word lines are switched by the decoder means to a deselected state, synchronized with the subsequent

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and consecutive edge with respect to said one of said rising edges and falling edges of said clock signal.

5,740,122
SEMICONDUCTOR MEMORY DEVICE

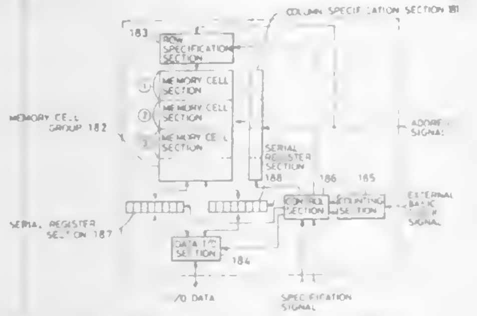
Haruki Toda; Shozo Saito, and Kaoru Tokushige, all of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 463,394, Jun. 5, 1995, Pat. No. 5,612,925, which is a continuation of Ser. No. 223,222, Apr. 5, 1994, Pat. No. 5,500,829, which is a division of Ser. No. 775,602, Oct. 15, 1991, Pat. No. 5,313,437. This application Jan. 7, 1997, Ser. No. 779,902

Claims priority, application Japan, Oct. 15, 1990, 2-273170; Oct. 2, 1991, 3-255354

Int. Cl.^{6} G11C *7/00*

U.S. Cl. 365—233 **10 Claims**



1 A semiconductor memory device, comprising:

a memory cell group having a plurality of memory cell sections, each of the memory cell sections having a plurality of memory cell arrays with memory cells arranged in a matrix;

a first circuit for receiving an externally supplied basic clock signal and for counting a number of clock cycles in the basic clock signal;

a second circuit for receiving a plurality of externally supplied control signals and for generating a first internal control signal and a second internal control signal, which are based on the number of clock cycles counted by the first circuit;

a third circuit for receiving externally supplied address signals and the first internal control signal and for latching the address signals in response to the first internal control signal; and

a fourth circuit for receiving the second internal control signal and data signals output from the memory cell array, the data signals corresponding to the address signals latched by said third circuit, said fourth circuit outputting the data signals based on the basic clock signal, said data signals being output from the fourth circuit upon receipt of the second internal control signal.

5,740,123
SEMICONDUCTOR INTEGRATED CIRCUIT FOR CHANGING PULSE WIDTH ACCORDING TO FREQUENCY OF EXTERNAL SIGNAL

Toshiya Uchida, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 3, 1997, Ser. No. 808,907

Claims priority, application Japan, Aug. 29, 1996, 8-228323

Int. Cl.^{6} G11C *7/00*

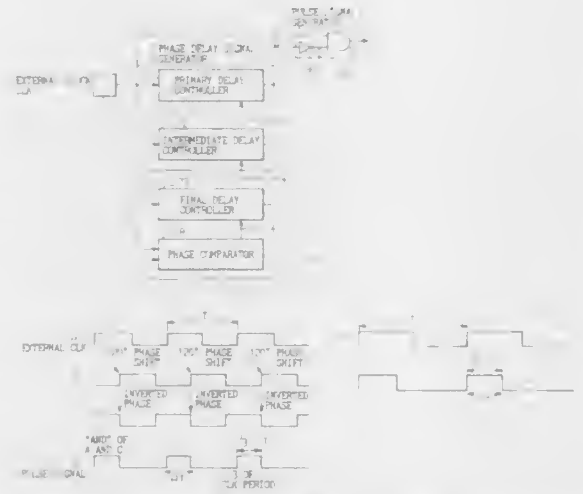
U.S. Cl. 365—233 **14 Claims**

1 A semiconductor integrated circuit comprising:

a primary delay controller for receiving an external control signal,

at least one intermediate delay controller cascaded to said primary delay controller;

a final delay controller cascaded to said intermediate delay controller;



a phase comparator for comparing a phase of the external control signal with a phase of an output signal of said final delay controller, and for controlling delays in said primary, intermediate, and final delay controllers in accordance with the comparison result; and

a pulse signal generator for receiving the external control signal and an output signal of any one of said primary and intermediate delay controllers, and for providing a pulse signal whose pulse width is dependent on a period of the external control signal and a value specific to the received output signal.

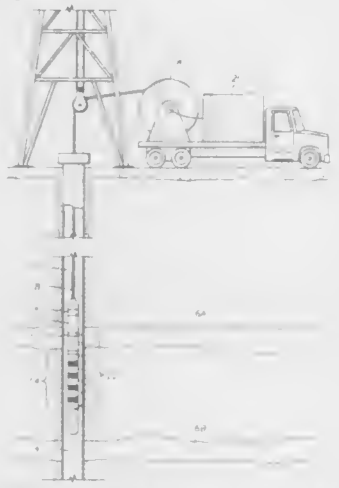
5,740,124
METHOD FOR DETERMINING ACOUSTIC VELOCITY OF EARTH FORMATIONS BY SIMULATING RECEIVER WAVEFORMS FOR AN ACOUSTIC ARRAY WELL LOGGING INSTRUMENT

Raghu K. Chunduru, Houston, and Xiaoming Tang, Sugar Land, both of Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Nov. 19, 1996, Ser. No. 752,327

Int. Cl.^{6} G01V *1/40, 1/36*

U.S. Cl. 367—73 **5 Claims**



1 A method of determining acoustic velocities of earth formations from signals generated by an array acoustic well logging instrument, comprising:

generating an initial model, said initial model including a value of velocity selected at random from within a possible range of said values for each propagation mode for which said velocities are to be determined;

synthesizing acoustic waveforms for a plurality of receiver locations on said acoustic logging instrument using said velocities in said model;

determining a difference between said synthesized waveforms and measured waveforms generated by acoustic energy detected at corresponding receiver locations by said acoustic logging instrument, and

adjusting said initial model, resynthesizing said waveforms based on said adjusted initial model, and determining said difference until said difference is determined to be at a minimum, wherein said step of adjusting is performed by simulated annealing, said simulated annealing including successively limiting a perturbation range for successive ones of said adjusted models by a function related to an annealing temperature, said simulated annealing including limiting perturbation of said adjusted initial model to about two perturbations per annealing temperature

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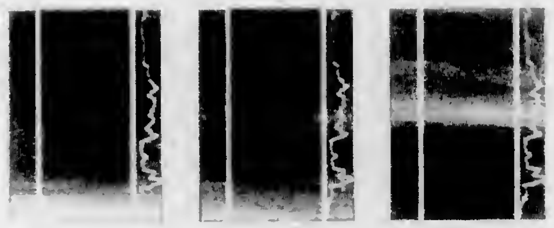
5,740,125
CROSS-WELL CONNECTIVITY MAPPING INCLUDING SEPARATION OF COMPRESSIONAL AND SHEAR WAVE ENERGY

Yu Taik Chon, Houston; Walter R. Turpening, Stafford, and Tawassul A. Khan, Cypress, all of Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Aug. 30, 1996, Ser. No. 705,780

Int. Cl.^{6} G01V *1/40*

U.S. Cl. 367—75 **12 Claims**



1 A method of determining continuity of earth formations between wellbores from analysis of seismic energy imparted to said formations in one wellbore and received in another wellbore, comprising:

separating compressional and shear components of said seismic energy received in said another wellbore;

determining a frequency spectrum of said compressional component and said shear component of said seismic energy at selected depths in said formations;

assembling common imparted depth stacks of said compressional components and said shear components at selected depths in said one wellbore at which said seismic energy is imparted,

assembling common received depth stacks of said compressional components and said shear components at selected depths at which said energy is received in said another wellbore;

plotting said assembled common imparted depth stacks of said compressional components and said shear components; and

plotting said assembled common received depth stacks of said compressional components and said shear components so that formations having related frequency spectra of said compressional components and formations having related frequency spectra of said shear components may be identified.

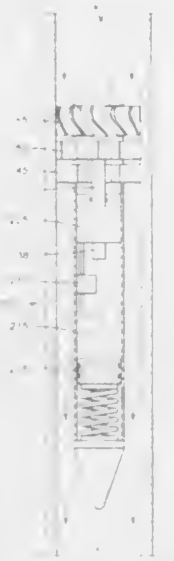
5,740,126
TURBO SIREN SIGNAL GENERATOR FOR MEASUREMENT WHILE DRILLING SYSTEMS

Wilson C. Chin, Houston, and Thomas E. Ritter, Katy, both of Tex., assignors to Halliburton Energy Services, Inc., Houston, Tex.

Division of Ser. No. 296,109, Aug. 25, 1994, Pat. No. 5,586,083. This application Dec. 6, 1995, Ser. No. 568,081

Int. Cl.^{6} G01V *1/40*

U.S. Cl. 367—84 **13 Claims**



1 A telemetry system for a bottomhole drilling assembly through which drilling mud flows dining drilling operations, comprising:

a sensor for measuring at least one parameter downhole and producing a signal indicative thereof,

an encoder receiving said signal from said sensor and providing an encoded signal in response;

a pressure pulse generator for generating acoustic signals in the drilling mud based on said encoded signal, said pressure pulse generator comprising a self-propelled mud siren modulator assembly including a turbine, a rotor, and a stator, said turbine being positioned upstream from the rotor and said stator being positioned downstream from the rotor.

5,740,127
PULSE PRODUCTION AND CONTROL IN DRILL STRINGS

Donald H. Van Steenwyk, San Marino, and Roy W. Case, Atascadero, both of Calif., assignors to Scientific Drilling International, Houston, Tex.

Filed Aug. 21, 1996, Ser. No. 700,884

Int. Cl.^{6} F16K *31/04;* **E21B** *47/022;* **G01V** *1/40*

U.S. Cl. 367—85 **31 Claims**

1. In fluid pulsing apparatus operable in a well drilling pipe string in which drilling fluid flows, the combination comprising

a) a structure including first means to produce pulses in the well fluid and defining a first hydraulic path, and while said fluid is flowing in said string through a second hydraulic path located in parallel to the first hydraulic path, said pulses being transmitted upward in the string.

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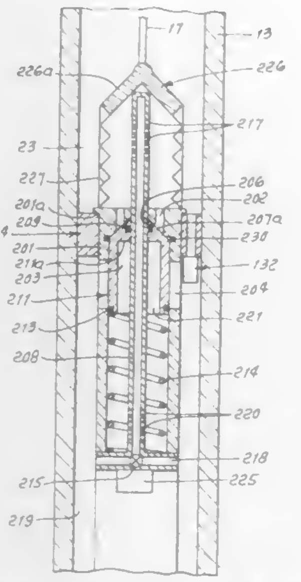

- b) and other means for varying the cross sectional flow area of the second hydraulic path, for controlling the amplitude and other characteristics of said upwardly transmitted pulses,
- c) and including a wireline connected to said structure for displacing said structure upwardly in the string

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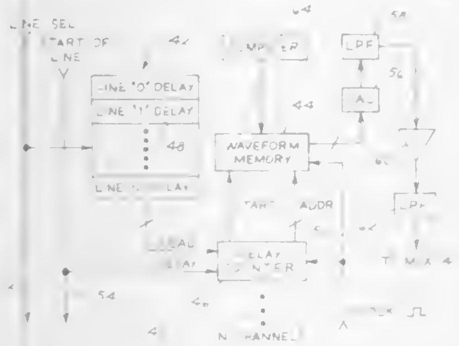
5,740,128
ULTRASONIC HARMONIC IMAGING SYSTEM AND METHOD

John A. Hossack, Palo Alto; Christopher R. Cole, Cupertino, and Jian-Hua Mo, Milpitas, all of Calif., assignors to Acuson Corporation, Mountain View, Calif.

Continuation-in-part of Ser. No. 397,833, Mar. 2, 1995, Pat. No. 5,608,690. This application May 3, 1996, Ser. No. 642,528

Int. Cl.⁶ H04B *1/02*

U.S. Cl. 367—138 — 54 Claims



1 In a method for imaging a target, said method comprising the steps of (a) transmitting ultrasonic energy at a fundamental frequency and (b) receiving reflected ultrasonic energy at a harmonic of the fundamental frequency, the improvement wherein step (a) comprises the step of:

(a1) transmitting ultrasonic energy in power bursts, each power burst comprising a respective envelope shape, each envelope shape rising gradually to a respective maximum value and falling gradually from the respective maximum value.

5,740,129
REAL TIME CLOCK

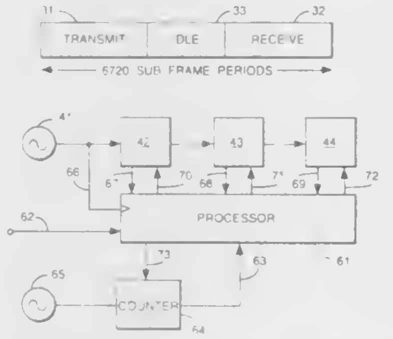
Simon Frampton, Surrey, England, assignor to Nokia Mobile Phones Limited, Salo, Finland

Filed Feb. 6, 1996, Ser. No. 597,619

Claims priority, application United Kingdom, Feb. 7, 1995, 9502350

Int. Cl.⁶ G04B *45/00*

U.S. Cl. 368—10 — 17 Claims



1 A real time clock for generating output clocking signals indicative of a time of day, comprising:

a first oscillating device for continuously producing a first clocking signal;

a second oscillating device for producing a second cocking signal during an on-period of operation;

clock frequency adjustment means for processing said first clocking signal and for producing said output clocking signals, said adjustment means being responsive to a calibration value; and

processing means for periodically re-determining said calibration value during said on-period of operation, said calibration value being determined by comparing said second clocking signals to external clocking signals derived from a periodic transmission structure transmitted by a cellular base station for mobile telephones.

5,740,130
DECORATION DISPLAY DEVICE AND TIMEPIECE COMPRISING SUCH DISPLAY DEVICE

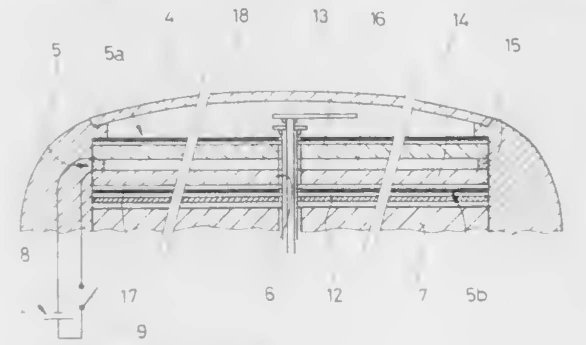
Joachim Grupp, Neuchâtel; Yvan Terés, Cressier, and Jean-Charles Poli, Les Geneveys-sur-Coffrane, all of Switzerland, assignors to SMH Management Services AG, Biel, Switzerland

Filed Jan. 13, 1997, Ser. No. 785,136

Claims priority, application France, Jan. 23, 1996, 96 00741

Int. Cl.⁶ G04C *19/00;17/00;* G02F *1/1343*

U.S. Cl. 368—82 — 10 Claims



1. A display device comprising.

a coloured decorative design,

an optical shutter having a front face through which the decorative design is observed and a back face behind which is placed a diffuse reflector and against which the coloured decorative design is placed, said shutter being capable of

passing from an opaque state to a transparent state by application of an electric voltage thereto, and

an power source provided with a control device arranged for applying the electric voltage necessary for the change of state of said optical shutter,

wherein said diffuse reflector is not of the lambertian type and wherein the coloured decorative design is formed by an ink directly printed onto said diffuse reflector, without appreciably modifying the surface aspect.

5,740,131
STABILISING OF AN ELECTRONIC CIRCUIT FOR REGULATING A MECHANICAL MOVEMENT OF A TIMEPIECE

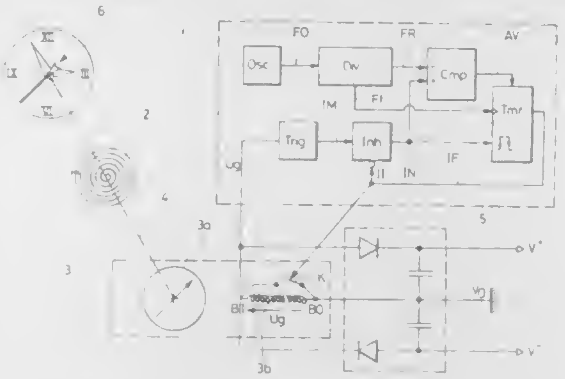
Ermanno Bernasconi, Neuchâtel, Switzerland, assignor to Asulab S.A., Bienne, Switzerland

Filed Apr. 25, 1997, Ser. No. 845,406

Claims priority, application France, May 7, 1996, 96 05720

Int. Cl.⁶ G04B *25/02;1/00*

U.S. Cl. 368—148 — 6 Claims



I A timepiece comprising:

an electrical energy generator comprising a rotor and means for supplying said electrical energy in response to rotation of said rotor.

a source of mechanical energy mechanically coupled to said rotor to cause said rotation of said rotor, measuring means coupled to said generator for producing measurement pulses of the angular frequency of an alternating voltage supplied by the generator which corresponds to the angular frequency of the rotor.

braking means responsive to a braking command signal for applying a braking torque to said rotor, and

an electronic circuit comprising reference means for producing a signal having a reference frequency, and slaving control means arranged to control said braking means when said measurement pulses are ahead with respect to the reference signal such that the reference frequency regulates the angular frequency of said rotor and of said mechanical source, wherein said electronic circuit further comprises inhibition means synchronous with said measurement pulses and arranged such as to avoid a splitting of said measurement pulses.

5,740,132
ELECTRONIC TIMEPIECE AND METHOD OF CHARGING THE SAME

Yasuhiro Ohshima, and Joji Kitahara, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed May 11, 1995, Ser. No. 439,527

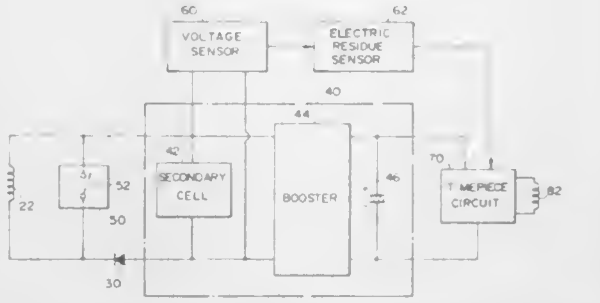
Claims priority, application Japan, May 13, 1994, 6-124144

Int. Cl.⁶ G04B *1/00*

U.S. Cl. 368—204 — 5 Claims

1. An electronic timepiece comprising:

power generation means for outputting an electric charging energy;



a secondary power supply chargeable by the electric charging energy, said secondary power supply including a secondary cell with electrodes of conductive polymer;

a timepiece circuit actuatable by a charged energy of the secondary power supply;

voltage sensor means for sensing a voltage of the secondary power supply;

electric residue sensor means responsive to the sensed voltage of the secondary power supply for sensing an electric residue of the secondary power supply, said electric residue sensor means being operative to output an electric residue detection signal corresponding to a reference voltage preset for an electric residue in the secondary cell only when said sensed voltage exceeds the reference voltage for a predetermined reference time; and

electric residue warning means for warning a user in response to said electric residue detection signal, to charge the secondary power supply.

5,740,133
MAGNETO-OPTICAL RECORDING MEDIUM CAPABLE OF DOUBLE MASK READOUT

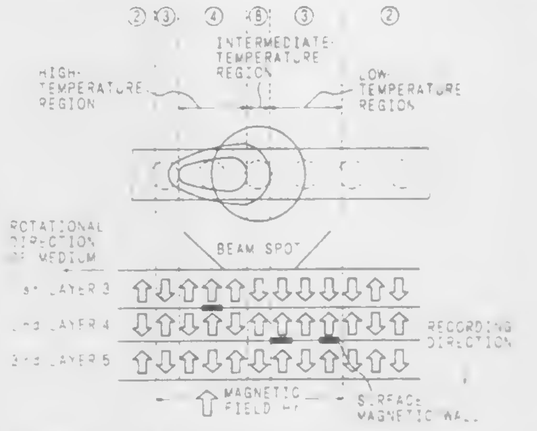
Ken Tamanoi; Koji Matsumoto, and Keiji Shono, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 28, 1996, Ser. No. 654,063

Claims priority, application Japan, Jun. 9, 1995, 7-143615; Sep. 22, 1995, 7-244492; Mar. 19, 1996, 8-063272

Int. Cl.⁶ G11B *11/00*

U.S. Cl. 369—13 — 17 Claims



1 A magneto-optical recording medium comprising

a first magnetic layer;

a second magnetic layer magnetically coupled with said first magnetic layer: and

a third magnetic layer magnetically coupled with said second magnetic layer.

wherein an exchange coupled force between said first magnetic layer and said second magnetic layer decreases with increasing temperature, while an exchange coupled force between said second magnetic layer and said third magnetic layer increases with increasing temperature.

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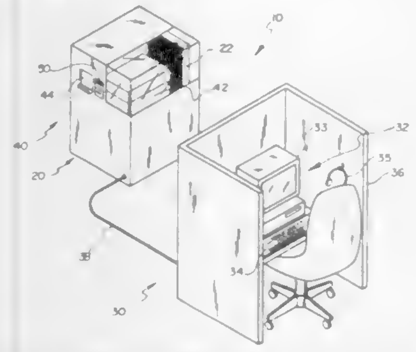
5,740,134
MUSICAL CD CREATION UNIT
Tim Peterson, 2332 Watkins Dr., Columbus, Ga. 31907
Filed Aug. 13, 1996, Ser. No. 696,045
Int. Cl.^{6} G11B *17/22*
U.S. Cl. 369—30 14 Claims



1. A unit for creating a customized digital audio product on a recordable digital medium, comprising:

a storage means for storing a plurality of digital musical selections;

a selection means connected with said storage means for selectively reviewing said plurality of digital musical selections and selecting a user-selected musical compilation from said plurality of digital musical selections to be compiled into said customized digital audio product.

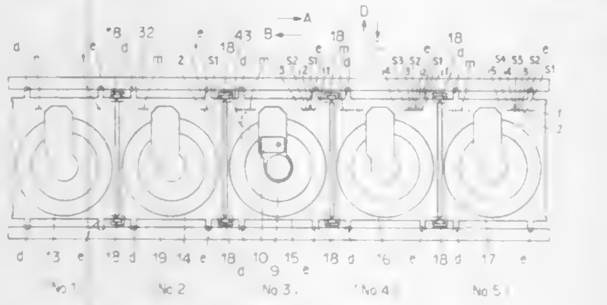
said selection means including a plurality of preselected musical compilations each corresponding to a specific musical criterion, wherein said specific musical criterion comprises at least one of a selected musical artist, a selected musical type, and a selected musical popularity,

said selection means including an audio output means for enabling a user to listen to a selected one of said plurality of digital musical selections;

a production means connected with said selection means and said storage means for reproducing at least one of said user-selected musical compilation and one of said plurality of preselected musical compilations on said recordable digital medium to create said customized digital audio product; and

a payment means for permitting on-site purchase of said customized digital audio product.

5,740,135
DISC REPRODUCING APPARATUS CAPABLE OF SELECTING A PREDETERMINED DISC
Munekazu Nakagawa, Higashihiroshima; Kazunori Iwaki, Kamo-gun, and Norihiro Kurokawa, Higashihiroshima, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 21, 1995, Ser. No. 407,636
Claims priority, application Japan, May 24, 1994, 6-109980
Int. Cl.^{6} G11B *17/22*
U.S. Cl. 369—34 11 Claims



1. A disc reproducing apparatus, comprising:

a disc tray array including a plurality of disc trays each having means for placing a disc thereon, said plurality of disc trays being movably connected with each other;

a disc reproducing portion for reproducing said disc placed on said disc tray selected from said disc tray array;

a disc tray transfer means for transferring said selected disc tray to said disc reproducing portion, wherein said selected disc tray moves relative to other disc trays of the discs tray array;

a disc number detecting mark having a longitudinal axis provided in a predetermined position on each of said plurality of disc trays and consisting of at least one first portion to be detected for identifying each of said disc trays;

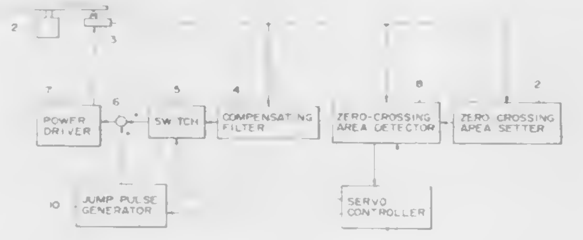
a stop position detecting mark having a longitudinal axis provided in a predetermined position on each of said plurality of disc trays and consisting of a second portion to be detected the longitudinal axis of the stop position detecting mark having a width wider than a width along the longitudinal axis of the disc number detecting mark of the first portion to be detected of said disc number detecting mark for detecting said disc tray reaching a predetermined position of said disc reproducing portion;

a mark sensor for detecting said disc number detecting mark and said stop position detecting mark; and

a drive control portion responsive to a detection result of said mark sensor for controlling driving of at least said disc tray transfer means, wherein

said disc number detecting mark and said stop position detecting mark are provided on a straight line along the longitudinal axis of each along a direction of moving of said disc tray.

5,740,136
DISK DRIVING DEVICE AND METHOD FOR OPTICAL RECORDING AND REPRODUCION WITH ACCELERATION/DECELERATION OF FOCUSING MEANS BEING BASED ON A FOCUS ERROR SIGNAL LEVEL
Keiichi Tsutsui, and Motohisa Kobayashi, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Aug. 1, 1996, Ser. No. 691,136
Claims priority, application Japan, Aug. 4, 1995, 7-199356
Int. Cl.^{6} G11B *7/00*
U.S. Cl. 369—44.25 22 Claims



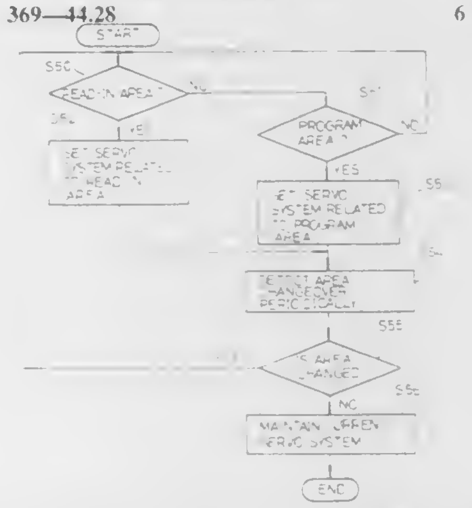
11. A method for driving a pickup for an optical recording medium having a plurality of recording layers, comprising the steps of:

focusing a light beam at a focal point on a respective one of said recording layers;

accelerating or decelerating an objective lens in response to a focus jump command, thereby displacing said focal point; and

controlling acceleration or deceleration of said objective lens during a predetermined period in which said focal point is displaced from one of said plurality of recording layers to another of said plurality of recording layers, said step of controlling including detecting a focus error signal level and selectively controlling said acceleration or deceleration based on the detected focus error signal level being within a reference range that is defined by a first predetermined threshold value and a second predetermined threshold value such that said acceleration is stopped when the detected focus error signal level is substantially equal to said first predetermined threshold value and said deceleration is started when the detected focus error signal level is substantially equal to said second predetermined threshold value.

5,740,137
SERVO CONTROL METHOD FOR AN OPTO-MAGNETIC DISC
See-Wean Kim, Seoul, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Seoul, Rep. of Korea
Division of Ser. No. 563,062, Nov. 27, 1995. This application Dec. 17, 1996, Ser. No. 767,681
Claims priority, application Rep. of Korea, Nov. 28, 1994, 1994-31419
Int. Cl.^{6} G11B *7/09*
U.S. Cl. 369—44.28 6 Claims


START
READ-IN AREA?
NO
YES
SET SERVO SYSTEM RELATED TO READ-IN AREA
PROGRAM AREA?
NO
YES
SET SERVO SYSTEM RELATED TO PROGRAM AREA
DETECT AREA CHANGEOVER PERIODICALLY
IS AREA CHANGED
NO
MAINTAIN CURRENT SERVO SYSTEM
END

1. A servo control method for an opto-magnetic disc, said method comprising:

(i) jumping a servo control apparatus to a first area for a predetermined time to execute a servo control operation related to an optional target track located in the first area;

(ii) detecting in the first area whether a predetermined signal according to a state in which a laser beam converges on a light receiving device by executing the servo control operation related to the first area, to output a first servo error signal;

(iii) judging whether or not a servo area has changed from the first area to a second area while executing step (ii);

(iv) converting a first servo system of said servo control apparatus into a second servo system corresponding to the changed area when the current servo area has changed in step (iii);

(v) maintaining the first current servo system when the current servo area has not changed in step (iii); and

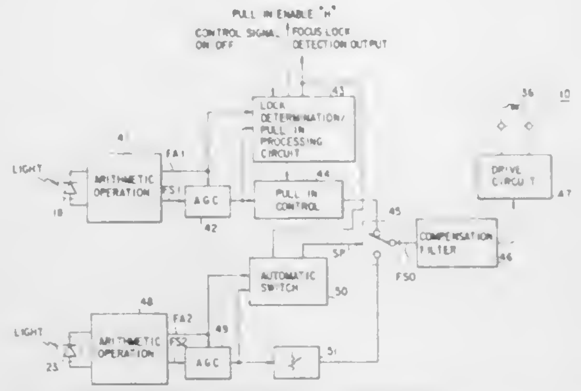
(vi) judging whether or not the jumping position of the servo control apparatus is the position of target track, repeatedly executing the operation after step (i) when the jumping position of the servo control apparatus is not the position of the target track, and executing an information playback operation in a corresponding position when the jumping position of the servo control apparatus is the position of the target track.

5,740,138
APPARATUS FOR RECORDING INFORMATION ON A PRIMARY OPTICAL DISK TO MANUFACTURE OPTICAL DISKS
Isao Hoshino; Toyoki Taguchi, both of Yokohama; Masaaki Matsumaru, Funabashi, and Masahiko Tanaka, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 6, 1995, Ser. No. 523,961
Claims priority, application Japan, Sep. 6, 1994, 6-212245; Sep. 12, 1994, 6-216866
Int. Cl.^{6} G11B *7/085*
U.S. Cl. 369—44.29 14 Claims

1. An apparatus for recording information on a primary optical disk adapted to manufacture optical disks, said apparatus comprising:

a first light source for emitting a light beam;

an objective lens for converging said light beam from said first light source on said primary optical disk;



a second light source for emitting a light beam;

first detection means for detecting a first reflection light beam from the first light source which is reflected from the primary optical disk while the information is being recorded on the primary optical disk, and for subjecting a signal of the first reflection light beam to an arithmetic operation process, thereby detecting a first focus error signal;

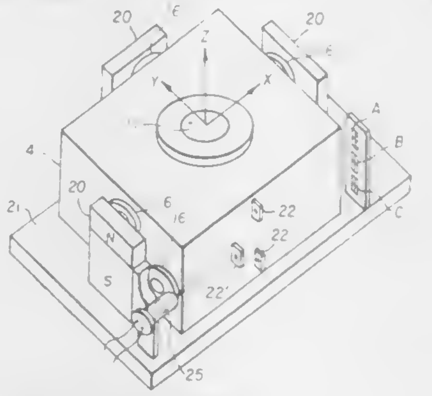
second detection means for detecting a second reflection light beam from the second light source which is reflected from the primary optical disk while the information is not being recorded on the primary optical disk, and for subjecting a signal of the second reflection light beam to an arithmetic operation process, thereby detecting a second focus error signal;

means for selecting one of a first state and a second state in accordance with the first focus error signal and the second focus error signal,

first control means for controlling a focus error between said objective lens and said primary optical disk on a basis of the first focus error signal detected by said first detection means when the first state is selected by the selection means, and

second control means for controlling said focus error on a basis of the second focus error signal detected by said second detection means when the second state is selected by the selection means.

5,740,139
MAGNETICALLY SUSPENDED OPTICAL RECORDING ACTUATOR
Philip F. Marino, and Charles J. Simpson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 9, 1996, Ser. No. 694,974
Int. Cl.^{6} G11B *7/095*
U.S. Cl. 369—44.32 6 Claims



1. An optical actuator comprising:

a) a base;

b) a moveable lens holder including an objective lens and positioned relative to the base;

c) at least six planar magnetic coils and a plurality of magnetic assemblies arranged to be associated with the coils, each of the assemblies including magnetic means with two or more

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poles fixed to the actuator base, the coils and the magnetic assemblies being mounted relative to each other on the lens holder and the base,

d) means for applying signals to the coils to induce magnetic fields in the coils for positioning the lens holder;

e) detector means for providing signals representing the four degrees of freedom of positions of the lens holder with respect to the base; and

f) computation means responsive to the detector means signals for determining the coil signals for positioning the moveable lens holder in six degrees of freedom of motion relative to the base.

5,740,140

DATA REPRODUCTING APPARATUS WITH CONTROLLED COMPARATOR FOR REDUCING CONNECTION ERROR OF MAIN DATA WITH CORRESPONDING ABSOLUTE TIME DATA

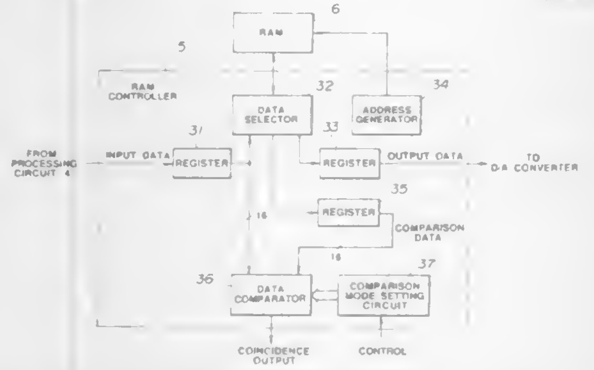
Yuji Arataki; Shozo Masuda, both of Tokyo; Kenichi Kabasawa, and Tohru Kadono, both of Saitama, all nf Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 441,950, May 16, 1995, Pat. No. 5,596,558, which is a continuation of Ser. No. 11,192, Jan. 29, 1993, abandoned. This application Oct. 21, 1996, Ser. No. 735,212

Claims priority, application Japan, Jan. 31, 1991, 4-040660

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—53 2 Claims



1. A data reproducing apparatus, for reproducing recording data from a recording medium, the recording data having main data added to an absolute time data, the apparatus comprising:

signal processing means for separating the main data and the absolute time data from the recording data read out from the recording medium;

memory means for storing the separated main data from the signal processing means, the main data characterized by a reliability;

data reliability determining means for determining the reliability of the main data,

comparing means for comparing with the absolute time data corresponding to last stored main data in the memory means and an absolute time data corresponding to main data outputted from the signal processing means;

data connecting means for connecting the main data read from the memory means and the main data outputted from the signal processing means in accordance with the output signal from the comparing means;

first control means for controlling a write operation of the memory means to store the main data from the signal processing means subsequently according to the timing at which the output signal of the comparing means is obtained; and

second control means for controlling the comparison condition of the comparing means in accordance with the reliability of the main data.

5,740,141

SIGNAL PROCESSING DEVICE FOR AN OPTICAL INFORMATION REPRODUCING APPARATUS

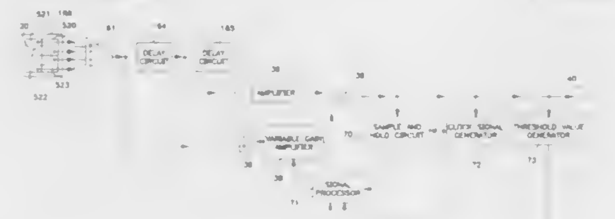
Kousei Sano, Neyagawa, and Shin-ichi Kadowaki, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 8, 1994, Ser. No. 207,859

Claims priority, application Japan, Mar. 9, 1993, 5-047701; Mar. 10, 1993, 5-048917; Apr. 2, 1993, 5-076636

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—859 8 Claims



1. An apparatus capable of optically reproducing information from a recording medium, the apparatus comprising:

an optical pickup head in which, when information is to be reproduced by a light beam from the recording medium having tracks in which the information are recorded by digitally and selectively forming optically readable marks having discrete lengths substantially corresponding to integer multiples of T, where T is a fundamental period of the marks, a desired position on a series of tracks on the recording medium is defined as a first position, and at least one position located apart from the first position by any integer multiple of T is defined as a second position group, the integer excluding 0, the optical pickup head optically and simultaneously reading the first position and the second position group while moving relative to the recording medium, and the optical pickup head outputting a main signal mainly including information recorded at the first position and an adjacent signal group including information recorded at the second position group;

a first signal processor for outputting a signal represented by:

$$S(0)-k_1\,S(n_1\cdot T)-k_2\cdot S(n_2\cdot T)-k_N\cdot S(n_N\cdot T)$$

where N is an arbitrary natural number, and i is an integer equal to or smaller than N, where if it is assumed that k_i is a real number larger than 0 and equal to or smaller than 1, the ith variable gain amplifier includes a group of N variable gain amplifiers which outputs signals obtained by multiplying the input signal by k_i, and an operation circuit which performs an adding or subtracting operation for two or more signals, where the main signal mainly including the information recorded at the first position is represented by S(0), and a signal including the information recorded at a position located apart from the first position by x is represented by S(x), and where n_1 to n_N are integers excluding 0 which are not overlapped, and the adjacent signal groups including the information recorded at the second position group are represented by $S(n_1\cdot T)$, $S(n_2\cdot T)$, . . . , $S(n_N\cdot T)$;

a clock signal generator for generating and outputting a clock signal which is synchronized with the information recorded on the recording medium; and

a second signal processor for, in response to the clock signal, periodically varying the coefficient in a synchronous manner with the information recorded on the recording medium.

5,740,142

METHOD AND APPARATUS FOR FAST TRANSFER OF DATA IN RECORDING AND REPRODUCING SYSTEM

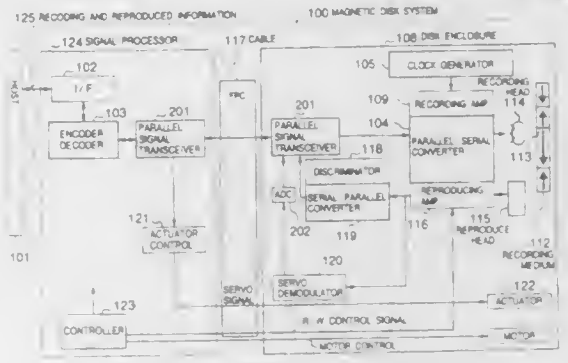
Nobumasa Nishiyama, Odawara, and Hajime Aoi, Tachikawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 691,191

Claims priority, application Japan, Aug. 7, 1995, 7-201149

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—59 20 Claims



1. A data recording system for recording data in a recording medium, comprising:

a signal processor including an input circuit to which data is supplied and a clock generator generating a sequence of pulses, thereby providing said data with different phases of signal inversion in the form of parallel bits of data, each of said bits having mutually different inversion timings,

a transmission cable connected to said signal processor to transmit said parallel data having said different phases of signal inversion; and

a disk enclosure including a converter connected to said transmission cable to convert said parallel data into serial data, data record and reproduce heads connected to said converter, and a recording medium.

5,740,143

DISC REPRODUCING APPARATUS

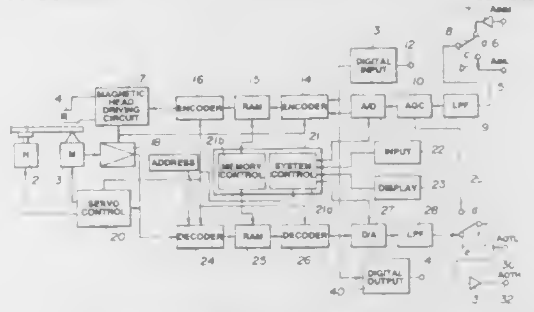
Tatsuto Suetomi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 618,078, Mar. 18, 1996, abandoned, which is a continuation of Ser. No. 261,346, Jun. 16, 1994, abandoned. This application Sep. 10, 1996, Ser. No. 710,054

Claims priority, application Japan, Jun. 18, 1993, 5-147648

Int. Cl.^{6} H04N *5/76*

U.S. Cl. 369—60 13 Claims



1. A reproducing apparatus for a disc-shaped recording medium, comprising:

an optical head for radiating a light beam on the disc-shaped recording medium for reading out data recorded thereon;

servo means for effectuating servo control of said optical head based upon error signals generated based upon output signals of said optical head,

a memory in which the data read out from the disc-shaped recording medium by said optical head is transiently stored and from which the data stored therein is read out at a readout rate slower than the write rate of the data read out from the disc-shaped recording medium by said optical head; and

control means for controlling said optical head and said memory so that, by alternately setting a first period during which data recorded on the disc-shaped recording medium is read out by said optical head and written in said memory and a second period during which readout of data recorded on the disc-shaped recording medium by the optical head is discontinued and only readout of the data stored in the memory is made, the data recorded on the disc-shaped recording medium is read out intermittently, said control means discontinuing the operation of said servo means and reducing the output level of the light beam from said optical head to a lower level during said second period.

5,740,144

DISK REPRODUCING APPARATUS

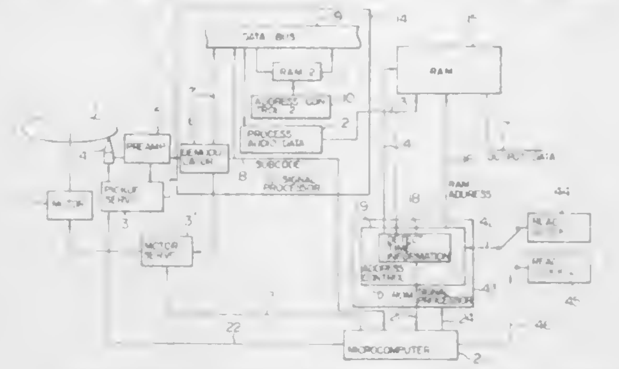
Izumi Kimura; Munehiro Nishioka; Toshifumi Takeuchi, and Hiroshi Tadokoro, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 181,542, Jan. 14, 1994, Pat. No. 5,615,194. This application Feb. 7, 1997, Ser. No. 797,305

Claims priority, application Japan, Jan. 21, 1993, 5-008188

Int. Cl.^{6} H04N *5/76*

U.S. Cl. 369—60 10 Claims



1. A disk reproducing apparatus for reproducing a disk on which digital information is recorded, comprising

a pickup for reading modulated subcodes and digital information recorded on said disk, each subcode including a physical address of the disk for controlling a read position of said pickup,

a reproducing processor for outputting a demodulated subcode read by the pickup and generating an output signal in which a corresponding subcode and the digital information are multiplexed in one-to-one corresponding relation,

an apparatus for receiving said output signal from said reproducing processor, wherein said subcode of said demodulated output signal is used to monitor proper continuous handling of said digital information; and

a controller for controlling the read position of the pickup using the said demodulated subcode generated by said reproducing processor

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5,740,145

ACTIVE FOCUS ALIGNMENT SYSTEM FOR MULTILAYER OPTICAL DISK STORAGE BASED ON DITHER FREQUENCY DOUBLING

Lawrence Jacobowitz, Wappingers Falls, and Casimer Maurice DeCusatis, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 1, 1996, Ser. No. 625,968

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—100 15 Claims

1. An optical information storage system comprising

a rotatable optical disk containing stored information;

a source of laser light;

lens means for focusing said laser light in the vicinity of the optical disk;

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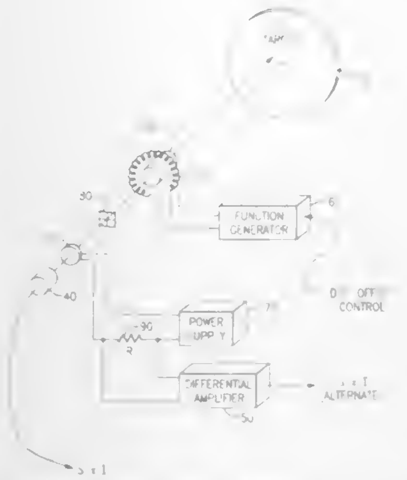


dithering means to cause relative oscillation at a selected dithering frequency of said source of light toward and away from said optical disk so as to modulate light reflected from said optical disk;

a light detector for receiving light from said light source which has been reflected from said disk and for converting said light, as modified by said stored information and as modulated by said dithering, to an electrical signal; and

integrator means for integrating, over at least one period of dithering oscillation, said electrical signal and for providing therefrom, based upon said modulation, a feedback control electrical signal which is proportional to an amount by which said light source is to be moved relative to said disk to achieve focus.

5,740,146

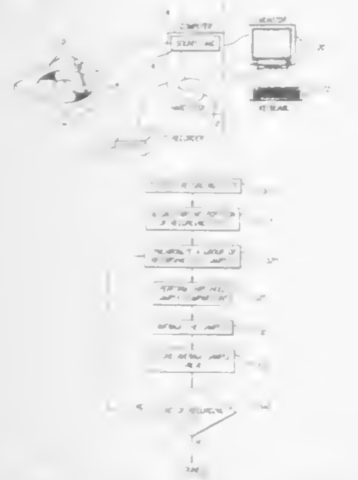
METHOD AND APPARATUS FOR REDUCING NOISE USING A PLURALITY OF RECORDING COPIES

Ronald I. Webster, Sagaponack, N.Y., assignor to Disney Enterprises, Inc., Burbank, Calif.

Filed Oct. 22, 1996, Ser. No. 735,332

Int. Cl.^{6} G11B *3/64, 5/86*

U.S. Cl. 369—107 **27 Claims**



1 An apparatus for reducing noise in a recording comprising:

a means for digitizing a plurality of copies of said recording to form digital recording files, wherein said recording files comprise a plurality of samples;

a synchronizing means for synchronizing said recording files;

a computing means for computing a composite value for corresponding samples in said recording files;

a compiling means for compiling an output recording file comprised of said composite values.

5,740,147

PHASE COMPENSATION OF OPTICAL ELEMENTS BY TILTING A HALF WAVE PLATE IN A MAGNETO-OPTIC DISK HEAD

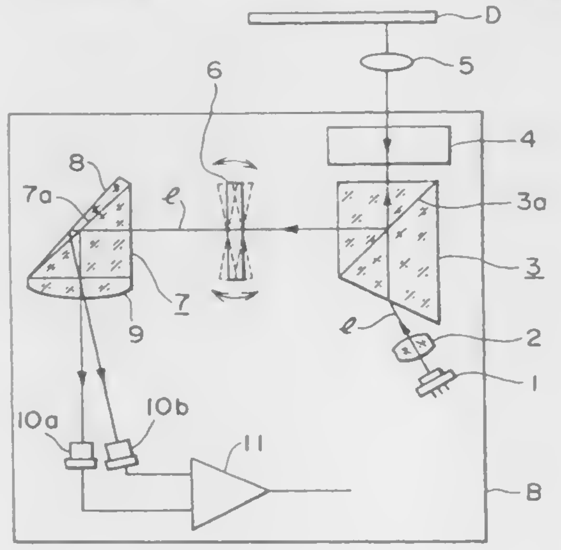
Toshiyuki Kase, and Hiroshi Nishikawa, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 685,973

Claims priority, application Japan, Jul. 25, 1995, 7-189463

Int. Cl.^{6} G11B *7/95; 19/02*

U.S. Cl. 369—110 **13 Claims**



1 An information reproducing device, comprising:

means for irradiating linearly polarized light on a magnetic film of a magneto-optic disk;

a retarder that optically rotates the polarized light, said retarder being tilted with respect to an optical axis of the polarized light that is reflected by the magnetic film;

a separating optical element that separates at least one polarization component in a predetermined direction from the polarized light that has passed through the retarder; and

means for detecting the at least one polarization component of the polarized light separated by the separating optical element.

5,740,148

STATIONARY OPTICAL DATA STORAGE SYSTEM USING HOLOGRAPHIC OR ACOUSTO-OPTICAL DEFLECTION

Yu Hong Ja, San Jose, Calif., assignor to Read-Rite Corporation, Milpitas, Calif.

Filed Jan. 7, 1997, Ser. No. 779,463

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—112 **35 Claims**

1 An optical data storage system for use with a stationary data storage medium, the system comprising in combination:

stationary optical head for steering an optical beam using an acousto-optical method across the data storage medium; and

said optical head including:

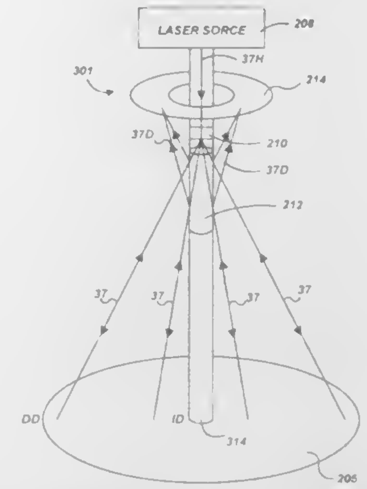
an optical source for generating said optical beam;

a beam steering element for steering said optical beam; and

a photo-detector for detecting the relative intensity of said deflected optical beam for determining the type of recorded data bits;

said beam steering element including an acousto-optical crystal for controlling the bidirectional sweeping of said optical beam;

wherein said acoustic-optical crystal is an elasto-optic crystal;



wherein said optical beam is a coherent laser beam having a predetermined wavelength,

wherein said beam steering element further generates two acoustic waves (AWx) having a substantially similar wavelength, intensity and amplitude, that impinge simultaneously upon said elasto-optic crystal from two opposite sides along an X direction to form an interference pattern which is normal to said acoustic waves, and

wherein due to an elasto-optic effect of said crystal, an optical refractive index "n" of said elasto optic crystal is modulated by said interference pattern of said acoustic waves.

5,740,149

PHASE-CHANGE TYPE OPTICAL RECORDING AND REPRODUCING METHOD

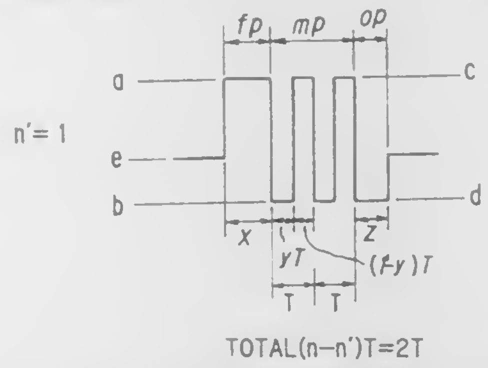
Hiroko Iwasaki, Tokyo; Yukio Ide, Mishima; Yoshiyuki Kageyama, Yokohama; Makoto Harigaya, Hiratsuka, and Michiharu Abe, Yokohama, all of Japan, assignors to Ricoh Company, Limited, Tokyo, Japan

Division of Ser. No. 631,327, Apr. 12, 1996. This application Jan. 29, 1997, Ser. No. 791,786

Claims priority, application Japan, Apr. 14, 1995, 7-089464; Aug. 7, 1995, 7-201021; Sep. 11, 1995, 7-232547; Apr. 8, 1996, 8-085307

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—116 **2 Claims**



1 A data recording/regenerating method in which, by irradiating an electro-magnetic wave to a data recording medium to generate a phase change in a recording layer, data is one of recorded in, rewritten to and regenerated from said data recording medium, comprising the steps of:

recording data for testing in a pattern consisting of a not recorded section and a recorded section by changing a recording power P to said data recording medium from time to time, an amplitude of the recorded signal corresponding to the recording power P being monitored by regenerating the data recorded for testing;

calculating a standardized gradation g (P) using the following expression:

$$g(P)=(\Delta m/m)/(\Delta P/P)$$

wherein m is amplitude of the pulse modification for recording, ΔP indicates a minute change rate near P and Δm indicates a minute change rate corresponding to ΔP near m, and an optimal recording power is decided and set by evaluating one of excess and shortage of a recording power according to said standardized gradation g (P).

5,740,150

GALVANOMIRROR AND OPTICAL DISK DRIVE USING THE SAME

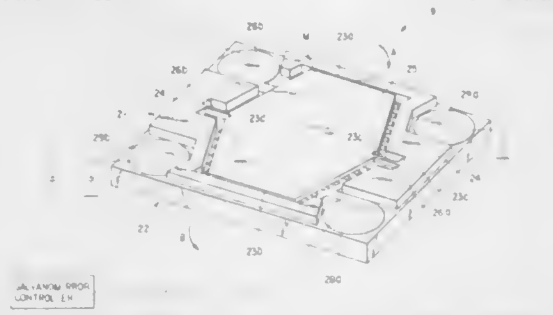
Kiyotaka Uchimaru, Tokyo; Akihiro Kasahara, Chiba-ken, and Masayuki Sekimura, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 22, 1996, Ser. No. 753,323

Claims priority, application Japan, Nov. 24, 1995, 7-305777; Nov. 24, 1995, 7-305782; Nov. 24, 1995, 7-305783

Int. Cl.^{6} G11B *7/00*

U.S. Cl. 369—119 **34 Claims**



33 An optical disk drive having a drive unit for driving a storage medium and an optical head, driven relative to the storage medium, for focusing a laser beam onto the storage medium, a galvanomirror for correcting a light passage of the laser beam, a lens for focusing the laser beam from the galvanomirror onto the storage medium, and light receiving means for receiving the laser beam reflected by the storage medium, said optical head including a light source for emitting the laser beam, said galvanomirror comprising:

a rocking portion having first and second surfaces, said rocking portion being electrically chargeable, said first surface having a reflection surface for reflecting said laser beam;

a support portion having first and second end portions for rockably supporting said rocking portion, said first end portion being connected to said rocking portion;

a fixing member connected to said second end portion of said support portion and having an opposed portion opposed to said second surface of the rocking portion with a predetermined gap interposed therebetween, said second surface of said rocking portion opposing said fixing member,

first and second electrodes provided at positions on said opposed portion of said fixing member, which positions are symmetric with respect to an axis of rocking movement of said rocking portion; and

a control unit for charging said first and second electrodes to have a same polarity and for changing potentials of said first and second electrodes with respect to a potential of said rocking portion to electromagnetically move said rocking portion about said axis of rocking movement,

wherein at least one of said second surface of said rocking portion and said opposed portion of said fixing member is provided with a passage for reducing an air pressure caused when said rocking portion is rocked, said passage being provided within a peripheral edge of said second surface of said rocking portion when provided on said rocking portion, said passage being provided within an outer peripheral edge of said fixing member when provided on said opposed portion of said fixing member.

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5,740,151
OPTICAL TEST DISK HAVING A PLURALITY OF DIFFERENT FORMATS

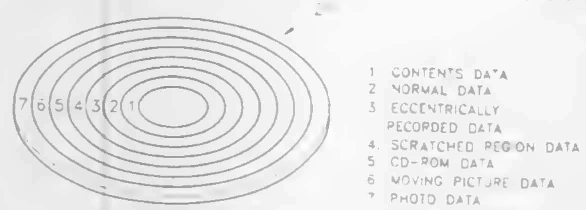
Young-ok Koh, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Nov. 20, 1996, Ser. No. 754,267

Claims priority, application Rep. of Korea, Feb. 8, 1996, 96-3058

Int. Cl.^{6} G11B *7/24*

U.S. Cl. 369—275.3 5 Claims



1 A test disk for testing operation of a disk drive, wherein a plurality of types of data necessary for various testing operations of said disk drive are recorded on the test disk, the test disk being divided into track portions and each one of said plurality of types of data being sequentially recorded on a respective one of said track portions of the test disk.

5,740,152
SPINDLE SERVO CIRCUIT IN AN APPARATUS FOR PLAYING AN OPTICAL DISK HAVING SYNCHRONOUS MARKS AND DATA MARKS SATISFYING CERTAIN CRITERIA

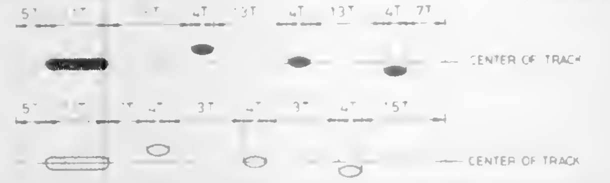
Fumihiko Yokogawa, and Hideki Hayashi, both of Tsurugashima, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Continuation of Ser. No. 699,191, Aug. 19, 1996, Pat. No. 5,629,924, which is a continuation of Ser. No. 337,229, Nov. 7, 1994, abandoned. This application Feb. 3, 1997, Ser. No. 794,018

Claims priority, application Japan, Nov. 11, 1993, 5-282514

Int. Cl.^{6} G11B *7/24*

U.S. Cl. 369—275.3 2 Claims



1 A spindle servo circuit for controlling rotational speed of an optical disk through a spindle motor in an apparatus for playing said optical disk, said optical disk comprising a synchronous mark for a synchronizing signal, and a data field for recording data on each track,

wherein, if:

a length of one pit interval of said data is given by T;

a length of said synchronous mark in a direction of the track is given by nT (where n is an integer);

a maximum detection error generated when reading said synchronous mark is given by αT, and

a maximum inversion interval between recorded marks with respect to said data is given by mT,

the integer n is set to satisfy the following two expressions

$$(n-\alpha)T>mT$$

$$mT\times(n+\alpha)/n<nT,$$

where $\alpha\geqq 2$, and

said spindle servo circuit comprising,

inversion interval detecting means for detecting an inversion interval indicative of said synchronous signal from a signal which is optically read from said optical disk by a pickup;

means for generating a spindle control signal based on an output of said inversion interval detecting means and a reference value indicative of a predetermined time length; and

means for driving said spindle motor in accordance with said spindle control signal.

5,740,153
MAGNETO-OPTICAL DISK, OPTICAL PICKUP, AND MAGNETO-OPTICAL DISK DRIVE

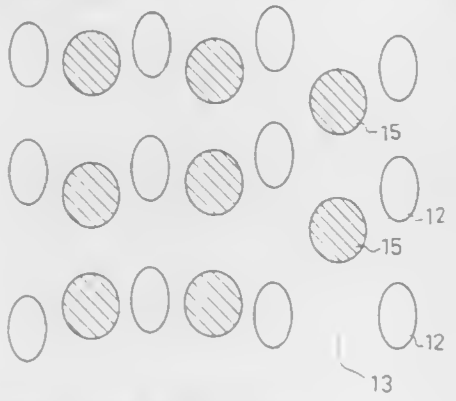
Kenji Ohta, Kitakatsuragi-gun; Shigeo Terashima, Tenri, and Akira Takahashi, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 267,453, Jun. 28, 1994, abandoned. This application Feb. 19, 1997, Ser. No. 801,245

Claims priority, application Japan, Jun. 29, 1993, 5-158871

Int. Cl.^{6} G11B *7/24*

U.S. Cl. 369—275.2 8 Claims



1. A magneto-optical disk comprising:

a transparent substrate;

pit strings containing information recorded in spiral or concentric form on a surface of said transparent substrate,

a dielectric film formed on said transparent substrate;

a magneto-optical recording medium layer, formed immediate on said dielectric film, for covering the surface of said transparent substrate having said pit strings formed thereon, said magneto-optical recording medium layer including a first magnetic film layer, which shows in-plane magnetization at room temperature and perpendicular magnetization at a higher temperature, and a perpendicularly magnetized second film layer made of rare earth transition metal, formed on said first magnetic film layer; and

magneto-optical recording areas formed by spiral or concentric flat portions between adjacent pit strings.

5,740,154
MAGNETOOPTICAL RECORD MEDIUM HAVING ADJACENT HEADER SIGNALS

Haruhiko Izumi; Masakazu Taguchi; Michio Matsuura; Yoshihide Fujita, and Akihiro Itakura, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 611,249, Mar. 5, 1996, abandoned. This application Mar. 28, 1997, Ser. No. 825,421

Claims priority, application Japan, Aug. 17, 1995, 7-209813

Int. Cl.^{6} G11B *7/24*

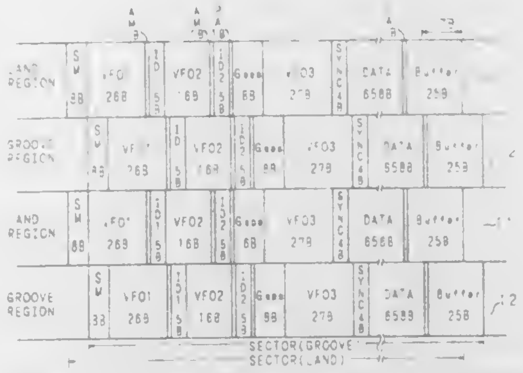
U.S. Cl. 369—275.3 9 Claims

1 A magnetooptical record medium comprising.

a plurality of adjacent record tracks;

header signals each having an ID signal portion for identifying a data sector recorded in said plurality of adjacent record tracks;

ID signal portions of said header signals of one of said plurality of adjacent record tracks being aligned with non-ID signal portions of said header signals of another of said plurality of adjacent record tracks.



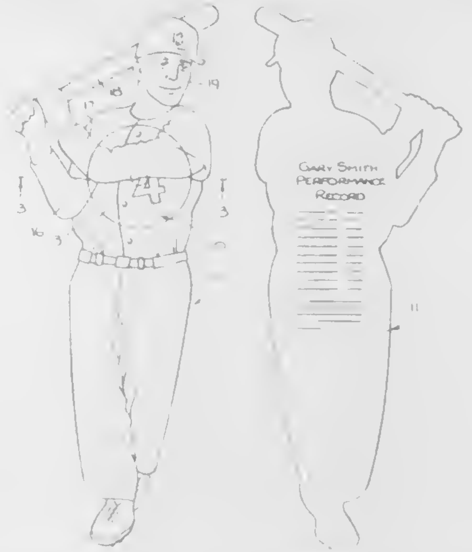
5,740,155
DISPLAY PANEL AND COMPACT DISC ASSEMBLY

Donald Spector, 380 Mountain Rd., Union City, N.J. 07087

Continuation-in-part of Ser. No. 821,062, Jan. 16, 1992, abandoned, which is a continuation-in-part of Ser. No. 701,078, May 16, 1991, Pat. No. 5,090,561. This application Jul. 27, 1992, Ser. No. 919,243

Int. Cl.^{6} G11B *23/03;* **B65O** *85/57*

U.S. Cl. 369—291 5 Claims



1 A display panel and compact disc assembly comprising.

(a) a panel on whose front face is recessed a circular well having a flat base; and

(b) a compact disc nested in the well, one side of the disc carrying a recording relating to a well-known individual, character or other subject, this side lying adjacent the base of the well, the other side of the disc being substantially flush with the front face of the panel and having a printable surface, an image of said subject being printed on the front face and on the disc surface, whereby a portion of the image appears on the disc surface, the same portion being printed on the base of the well so that the image is fully seen whether or not the compact disc is in place in the well, said compact disc being provided with a center hub hole which excises a sub-portion of the portion of the image printed on the surface of the disc, which excised portion is seen through the hole on the base of the well, said panel being contoured to define a silhouette of the image, thereby forming a two-dimensional replica of the subject, said panel being of flexible material and said compact disc fitting snugly in said well, whereby when the panel is flexed, the disc pops out of the well.

5,740,156
PACKET SWITCHING SYSTEM HAVING SELF-ROUTING SWITCHES

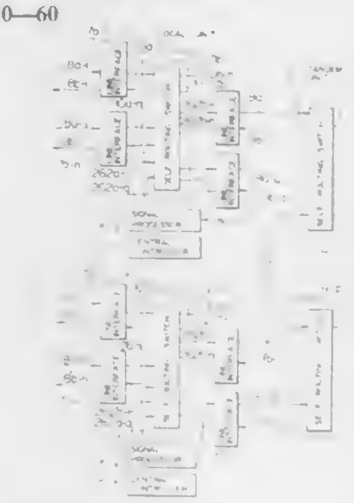
Shirou Tanabe, Hachioji; Taihei Suzuki, Kodaira; Shinobu Gohara; Yoshito Sakurai, both of Yokohama; Kenichi Ohtsuki, Kanagawa-ken; Takao Kato, Yokohama; Hiroshi Kuwahara, Kodaira, and Eiichi Amada, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 96,011, Sep. 14, 1987, Pat. No. 5,043,979. This application Jan. 24, 1991, Ser. No. 645,491

Claims priority, application Japan, Sep. 16, 1986, 61-215767; Sep. 16, 1986, 61-215768; Feb. 25, 1987, 62-040205; Jan. 24, 1990, 2-12540

Int. Cl.^{6} H04L *12/56*

U.S. Cl. 370—60 15 Claims



1 A packet switching system comprising.

a plurality of local units each accommodating a plurality of packet circuits, each of said local units including label conversion means, a self-routing switch and control means for performing call processing control in respect of a control packet, said label conversion means being operable to generate first routing information indicative of an output port of said self-routing switch depending upon a virtual channel identifier of a packet received from one of said packet circuits and said self routing switch being operable to effect self routing of said packet based on the first routing information, and

a tandem unit including at least one self-routing switch for interconnecting said local units;

each of said local units further including means for setting between the local unit and said tandem unit, the same virtual channel as that between said tandem unit and a destination local unit which is one of a remainder of said plurality of local units, with respect to a call to be transferred to said destination local unit through said tandem unit and means for inserting second routing information indicative of an output port of the self-routing switch of said tandem unit into a packet to be transferred to said destination local unit through said tandem unit, whereby when a call control packet from one of said local units arrives at said tandem unit, said call control packet is transferred to said destination local unit based on said second routing information without undergoing call processing control

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5,740,157

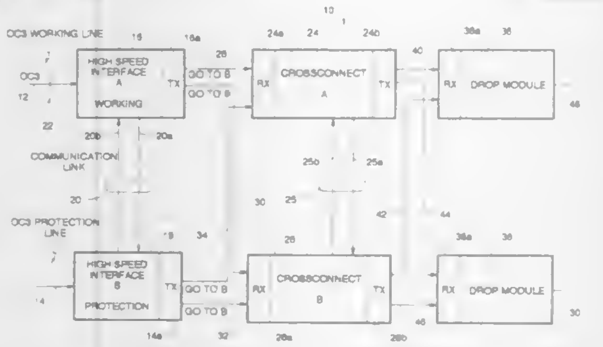
DISTRIBUTED CONTROL METHODOLOGY AND MECHANISM FOR IMPLEMENTING AUTOMATIC PROTECTION SWITCHING

Sahabettin C. Demiray; Dale L. Krisher, both of Raleigh, and Raymond E. Tyrrell, Wake Forest, all of N.C., assignors to Alcatel Network Systems, Inc., Richardson, Tex.

Filed May 21, 1992, Ser. No. 887,156

Int. Cl.^{6} H04L *1/22*

U.S. Cl. 370—219 20 Claims



1 Apparatus having automatic protection switching, comprising.

a working transmit interface (**16**), responsive to a selection command signal (**20*b***) and to an input working signal (**12**), for providing a working status signal (**20*a***) and a pair of identical output working signals including a first output working signal (**28**) and a second output working signal (**30**) having data and selection information;

a protection transmit interface (**18**), responsive to the working status signal (**20*a***) and to an input protection signal (**14**), for providing the command signal (**20*b***) and a pair of identical output protection signals including a first output protection signal (**34**) and a second output protection signal (**32**) having data and selection information;

working receive interface (**24**), responsive to the first output working signal (**128**) and to the first output protection signal (**34**) for selecting one of the first output working and protection signals (**28**, **34**) according to the selection information therein; and

a protection receive interface (**26**), responsive to the second output working signal (**30**) and to the second output protection signal (**32**) for selecting one of the second output working and protection signals (**30**, **32**) according to the selection information therein.

5,740,158

ATM COMMUNICATION SYSTEM

Kaoru Aoki; Masataka Takano, both of Yokohama; Junichirou Yanagi, Kodaira; Tetsushi Nakano, Fujisawa, and Miho Iino, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 314,776, Sep. 29, 1994, Pat. No. 5,604,729, which is a continuation-in-part of Ser. No. 566,702, Dec. 4, 1995, Pat. No. 5,657,321, which is a continuation of Ser. No. 230,152, Apr. 19, 1994, Pat. No. 5,487,062. This application Oct. 10, 1996, Ser. No. 728,786

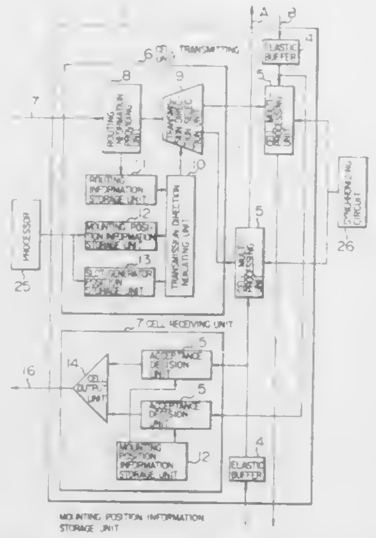
Claims priority, application Japan, Oct. 1, 1993, 5-246563

Int. Cl.^{6} H04L *12/437*

U.S. Cl. 370—224 3 Claims

1 An ATM communication apparatus used in a loop type communication network in which at least three ATM communication apparatuses are connected with two transmission lines having opposite cell transmission directions relative to each other so as to form first and second loops, each of said loops having a logical start point and an end point of cell transmission in said ATM communication apparatus, comprising:

first and second cell multiplexing circuits for multiplexing cells to be transmitted to each of said first and second loops and outputting multiplexed cells;



a routing information providing circuit for adding routing information which identifies an ATM communication apparatus by which cells to be transmitted are to be received;

a selection circuit for distributing cells to be transmitted to either said first cell multiplexing circuit or said second cell multiplexing circuit;

a first memory corresponding to each ATM communication apparatus, said first memory stores first positional information of said ATM communication apparatus, said first positional information indicates a position of said ATM apparatus on said loops,

a second memory corresponding to each ATM communication apparatus, said second memory stores second positional information of said ATM communication apparatus, said second positional information indicates a logical start point on said loops; and

a direction indicating circuit for controlling said selection circuit based on said information stored in said first and second memories and said routing information,

wherein the cells are transmitted to the ATM communication apparatus by which said cells to be transmitted are received by selecting either said first loop or said second loop based on said first positional information, second positional information and said routing information.

5,740,159

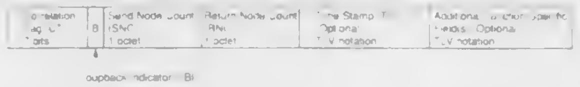
LOOPBACK MECHANISM FOR FRAME RELAY OAM

Khalid Ahmad, Nepean, and Jan Medved, Ottawa, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed May 23, 1996, Ser. No. 652,061

Int. Cl.^{6} H04B *17/02*

U.S. Cl. 370—249 8 Claims



1 A method of performing a loopback function in a telecommunications network for frame relay services, comprising steps of:

a source node sending an FR OAM frame towards a loopback node, the FR OAM frame having a loopback indicator field set to sending, a send node count field set to the number of intermediate frame relay nodes and a return node count field set to a predetermined value;

intermediate frame relay nodes successively incrementing the return node count field when the loopback indicator field is set to sending and forwarding the FR OAM frame downstream; and

on the condition that the values of the send node count field and return node count field meet certain criteria, the loopback node setting the loopback indicator field to loopback and looping back to the source node the FR OAM frame.

5,740,160

SETTING NETWORK IDENTIFIER IN WIRELESS LOCAL AREA NETWORK

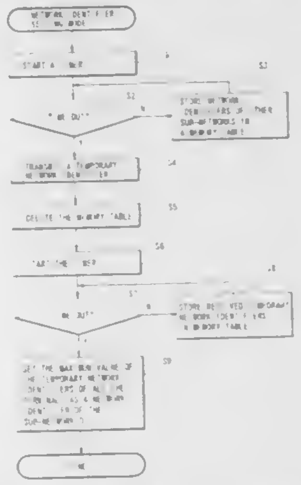
Yoshikazu Ikegami, and Kenichi Ariga, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Mar. 4, 1996, Ser. No. 610,988

Claims priority, application Japan, Mar. 6, 1995, 7-045611; Mar. 6, 1995, 7-045612

Int. Cl.^{6} H04L *12/28*; H04Q *7/20*

U.S. Cl. 370—255 12 Claims



1 A method of automatically setting a network identifier of a wireless network which is newly added to one or more existing wireless networks, each of which has a network identifier, said newly added network including a plurality of terminals, comprising the steps of.

receiving and storing network identifiers of the existing networks for a predetermined time period in each of said plurality of terminals in a network identifier setting mode;

automatically determining a network identifier of said newly added wireless network based on the stored network identifiers of the existing wireless networks;

setting the determined network identifier in each of said plurality of terminals; and

switching a terminal mode from the network identifier setting mode to a normal mode in each of said plurality of terminals.

5,740,161

METHOD AND APPARATUS FOR SYNCHRONIZING VIEWED INFORMATION IN A CONFERENCING ENVIRONMENT

Daniel R. Porter, Beaverton; David L. Anderson; Anthony C. Salvador, both of Portland; Rune A. Skarbo, and Terry A. Alexander, both of Hillsboro, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Nov. 8, 1995, Ser. No. 555,492

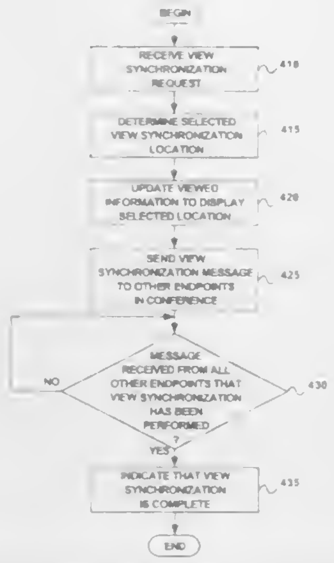
Int. Cl.^{6} H04L *12/18*

U.S. Cl. 370—260 17 Claims

1. A method of synchronizing viewed information between multiple endpoints of a conferencing environment such that a first endpoint and a second endpoint display a same location of the viewed information, the method comprising the steps of.

(a) receiving a request to synchronize the viewed information.

(b) receiving an identifier of the location to which the viewed information is to be synchronized, and


BEGIN
RECEIVE VIEW SYNCHRONIZATION REQUEST
410
DETERMINE SELECTED VIEW SYNCHRONIZATION LOCATION
415
UPDATE VIEWED INFORMATION TO DISPLAY SELECTED LOCATION
420
SEND VIEW SYNCHRONIZATION MESSAGE TO OTHER ENDPOINTS IN CONFERENCE
425
MESSAGE RECEIVED FROM ALL OTHER ENDPOINTS THAT VIEW SYNCHRONIZATION HAS BEEN PERFORMED ?
430
NO
YES
INDICATE THAT VIEW SYNCHRONIZATION IS COMPLETE
435
END

(c) updating the viewed information at the first endpoint according to the identifier to display the location, the updating being responsive to the request.

5,740,162

ISDN TERMINAL ADAPTER

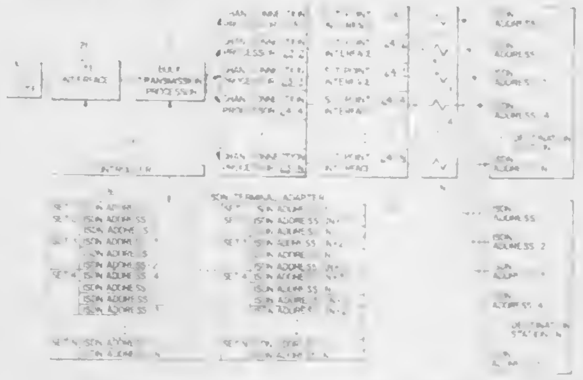
Naoki Kozuka, Tokyo, and Shigeru Natsume, Shizuoka, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed May 29, 1996, Ser. No. 654,673

Claims priority, application Japan, May 29, 1995, 7-130145

Int. Cl.^{6} H04Q *3/00*

U.S. Cl. 370—264 4 Claims



1 An ISDN terminal adapter for providing bulk data communication through channels of an ISDN channel exchange network to a plurality of destination stations having terminal equipment, comprising:

a memory means for storing a first set of addresses identifying each destination station of said plurality of destination stations, each element of said first set consisting of at least one second set of addresses, each address of said second set respectively corresponding to a unique ISDN destination address of said destination station, and each destination address respectively corresponding to one number within a variable range of a variable number of ISDN addresses, such that each set of said second sets corresponds to one or more ISDN addresses and such that each set in said second set of addresses corresponds to a given data transmission rate; and

a control means for matching an element of said first set of addresses stored in said memory means with a respective destination station and matching said second set of addresses stored in said memory means to a predetermined transmission rate for bulk data transmission to a destination station through an ISDN channel exchange network.

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5,740,163
DUAL-MODE ISDN/STN VIDEO TELEPHONY TERMINAL

Philippe Herve, Thorigne-Fouillard, France, assignor to Thomson-CSF, Paris, France

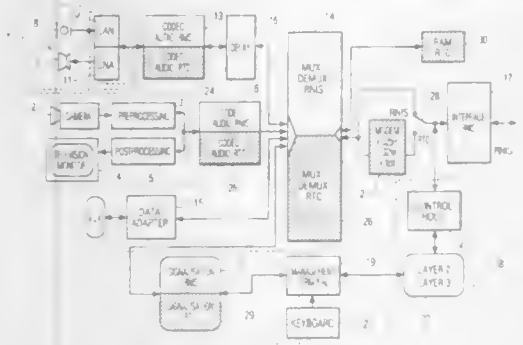
PCT No. PCT/FR94/01230, § 371 Date Jul. 23, 1996, § 102(e) Date Jul. 23, 1996, PCT Pub. No. WO95/12281, PCT Pub. Date May 4, 1995

PCT Filed Oct. 21, 1994, Ser. No. 628,730

Claims priority, application France, Oct. 26, 1993, 93 12755

Int. Cl.⁶ H04N *7/14*

U.S. Cl. 370—271 **3 Claims**



1 Dual-mode visiophone terminal for use on an integrated services digital network (ISDN) or a switched telephone network (STN), including at least one audio equipment and one video equipment respectively connected to an ISDN via a dual-mode ISDN/STN audio coder/decoder incorporating an ISDN audio coder, an ISDN audio decoder, an STN audio coder and an STN audio decoder, and via a dual-mode ISDN/STN video coder/decoder incorporating an ISDN video coder, an ISDN video decoder, an STN video coder, and an STN video decoder, wherein in order to provide an answering/recording function in said visiophone terminal a RAM memory is used to store audiovisual messages in STN mode, and wherein the outputs of the ISDN audio and video decoders are connected respectively to the inputs of the STN audio and video coders in order to record in the RAM an audiovisual message sent by a calling party via a remote terminal, and wherein the outputs of the STN audio and video decoders are connected respectively to the inputs of the ISDN audio and video coders in order to send an audiovisual message, stored in the RAM, inviting said calling party to leave a message.

5,740,164
TRAFFIC ROUTING FOR SATELLITE COMMUNICATION SYSTEM

Moshe Lerner Liron, Palo Alto, Calif., assignor to Teledesic Corporation, Kirkland, Wash.

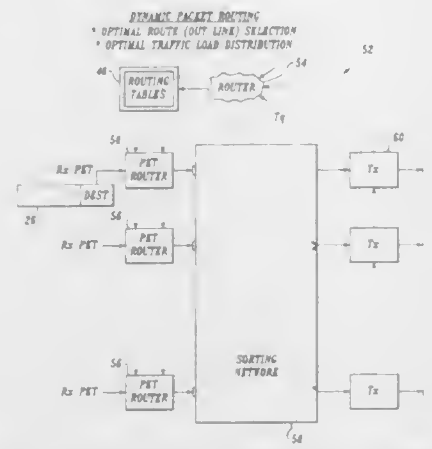
Continuation-in-part of Ser. No. 16,204, Feb. 9, 1993, abandoned, and Ser. No. 203,140, Feb. 28, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 481,573

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—316 **11 Claims**

1 A method of transporting each packet (**26**) of a message which includes a plurality of packets (**26**) from an origin node (OUR-NODE) to a destination node (DEST-NODE); said origin node (OUR-NODE) and said destination node (DEST-NODE) being located among a plurality of satellites (S) and among a plurality of stationary gateways (G) on the Earth, said method comprising the steps of

(A.) receiving each said packet (**26**) at said origin node (OUR NODE) synchronously transmitted from one of
  a plurality of portable terminals (P),
  a plurality of mobile terminals (M),
  a plurality of fixed terminals (F),
  said plurality of stationary gateways (G) and
  said plurality of satellites (S);
    each of said plurality of satellites (S) having aboard a fast packet switch (**22**),



  each one of said plurality of packets (**26**) including a header (**28**) containing an address and a payload (**30**);

(B.) calculating a plurality of propagation delay vectors which estimate a time delay which said packet (**26**) would encounter in traveling from said origin node (OUR-NODE) to said destination node (DEST-NODE) over a plurality of links ℒ) using orbit position information about each node; said orbit position information being generated onboard each of said plurality of satellites (S); each of said plurality of satellites (S) traveling in low Earth orbits and constantly moving with respect to the Earth; said vectors using an algorithm in which one of said plurality of propagation delay vectors in one of
  said plurality of links ℒ) between said origin node (OUR-NODE) and said destination node (DEST-NODE) is represented by a variable "OUR-DELAY-EST (DEST-NODE, ℒ)",
  a current propagation time delay in one of said plurality of links ℒ) connecting said origin node (OUR NODE) to a neighboring node (OUR-NEIGHBOR ℒ)) is represented by a variable "LINK-PROP-DELAY ℒ)",
  a current link time delay for packet queuing, including time to be spent by said packet (**26**) in a link buffer awaiting transmission (Twait-in-q) and time for transmission (Ttx), is represented by a variable "LINK Q-DELAY ℒ)";
  a least time delay for transmission of said packet (**26**) from a neighboring node (OUR-NEIGHBOR ℒ)) to said destination node (DEST-NODE) determined by said neighboring node calculating a time delay of packet transmission over each link ℒ) from said neighboring node (OUR-NEIGHBOR ℒ)) to said destination node (DEST-NODE), is represented by a variable "OUR-NEIGHBOR-DELAY-EST (DEST-NODE, OUR-NEIGHBOR ℒ))",
  said algorithm having the form

OUR-DELAY-EST (DEST NODE, ℒ) = LINK-PROP-DELAY (ℒ) +
LINK-Q-DELAY(ℒ)+OUR-NEIGHBOR-DELAY-EST(DEST NODE
OUR NEIGHBOR(ℒ)).

(C.) selecting one of said plurality of propagation delay vectors (OUR DELAY-EST (DEST-NODE, ℒ) which constitutes a minimum time delay for forwarding said packet (**26**) from said origin node (OUR-NODE) to said destination node (DEST NODE) and designating that selected propagation delay vector as an optimal link (opt-link); said optimal link having at least one next-node-in-path-to-destination;

(D.) selecting for said packet (**26**), at each said next-node-in-path-to-destination of said optimal link (opt-link), one of said plurality of propagation delay vectors (OUR-DELAY-EST (DEST NODE, ℒ) which constitutes a minimum time delay for forwarding said packet (**26**) from said next-node-in-path to said destination node (DEST-NODE) and designating that selected propagation delay vector as a next optimal link (opt-link);

(E.) routing said packet (**26**) from said origin node (OUR-NODE) asynchronously through said fast packet switch (**22**) aboard one of said plurality of satellites (S) to said destination node (DEST-NODE) via said optimal links (opt-link) between said fast packet switch (**22**) and said destination node (DEST-NODE), said fast packet switch (**22**) being capable of functioning as a sovereign, autonomous and independent switching node among said plurality of satellites (S) traveling in low Earth orbit;

(F.) repeating steps (A.) through (E.) for each one of said plurality of packets (**26**) until each said packet (**26**) reaches said destination node (DEST-NODE); and

(G.) sorting said plurality of packets (**26**) in said fast packet switch (**22**) at said destination node (DEST-NODE) to account for out-of sequence arrival and transmitting said packets (**26**) in a restored sequence to one of said portable terminals (P), mobile terminals (M) and fixed terminals (F).

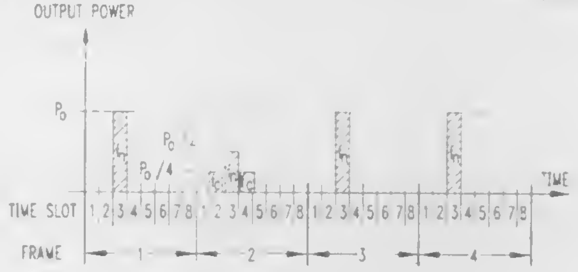
5,740,165
WIRELESS TDMA TRANSMITTER WITH REDUCED INTERFERENCE

Giovanni Vannucci, Township of Middletown, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 29, 1996, Ser. No. 608,878

Int. Cl.⁶ H04J *3/00*

U.S. Cl. 370—330 **42 Claims**



1 A method for operating a time division Multiple access transmitter (TDMA) comprising the steps of:

transmitting bursts of an information-bearing signal in predetermined ones of frames which each consist of a predetermined number of time slots, the burst in each of said predetermined ones of frames being transmitted at a predetermined carrier frequency within a first predetermined numbered one or more of said time slots for a predetermined duration at a predetermined power level; and

in frames other than said predetermined ones of said frames, said other frames being ones in which a burst of said information-bearing signal is not transmitted or is transmitted not at said predetermined power level and/or not for said predetermined duration, transmitting an interference-compensating signal at a compensation frequency different from said carrier frequency, said interference-compensating signal being transmitted within at least a second predetermined numbered one or more of said time slots of said other frames, but within less than all the time slots of said other frames.

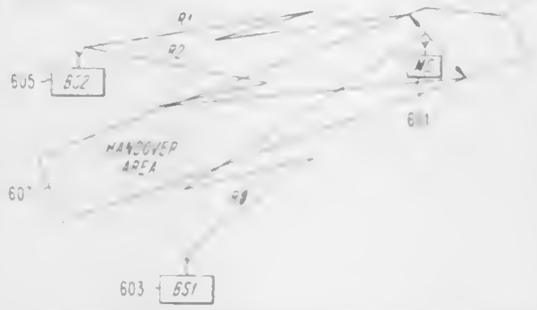
5,740,166
UNITED ACCESS CHANNEL FOR USE IN A MOBILE COMMUNICATIONS SYSTEM

Sven Harald Ekemark, Storvreta, and Johan Karoly Peter Galyas, Täby, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Mar. 18, 1996, Ser. No. 617,406

Int. Cl.⁶ H04B *7/26*

U.S. Cl. 370—331 **22 Claims**



1 A method of operating a first base station in a cellular telecommunications system, wherein the first base station has first and second transceivers that receive radio signals that are divided into uplink time slots, the method comprising the steps of
  operating the first transceiver in synchronization with a first frame of uplink time slots,
  operating the second transceiver in synchronization with a second frame of uplink time slots, wherein the second frame of uplink time slots are offset by a predetermined amount of time relative to the first frame of uplink time slots; and
  using a first time slot in each of the first and second transceivers in combination so as to provide a united random access channel, whereby when a mobile station transmits an uplink radio frequency burst, access of the first base station by the mobile station is recognized if the uplink radio frequency burst is received by the first transceiver during the first transceiver's first time slot, and access of the first base station by the mobile station is recognized if the uplink radio frequency burst is received by the second transceiver during the second transceiver's first time slot,
  wherein the uplink radio frequency burst is received by both the first and second transceivers during the respective first time slots of the first and second transceivers,
  and further comprising the steps of
  detecting a first access attempt during the first time slot of the first transceiver;
  detecting a second access attempt during.the first time slot of the second transceiver; and
  comparing at least one of message contents, frame number and access delay of the first and second access attempts and determining that they correspond to an access attempt by one mobile station on the basis of the comparison

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5,740,167
DUAL MODE MULTIPLE ACCESS METHOD FOR COMMON RADIO CHANNEL

Masanori Taketsugu, and Kazutomo Kobayashi, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Apr. 4, 1996, Ser. No. 628,139

Claims priority, application Japan, Apr. 4, 1995, 7-078788

Int. Cl.⁶ H04J *3/16*

U.S. Cl. 370—337 **24 Claims**

1 A method for accessing a common channel from a plurality of terminals, comprising the steps of
  a) allowing packet signal transmission by any of said terminals through said common channel to a base station on a random access mode as long as received packets at the base station have low error rate;
  b) sequentially polling the terminals to transmit packet signals on a controlled access mode so long as received packet signals at the base station have high error rate; and

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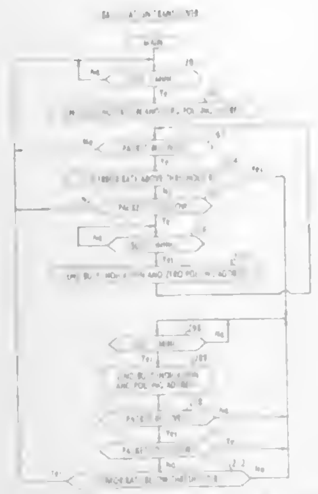


c) at each of steps (a) and (b), when a packet containing a packet-to-follow indication is received at the base station, reserving the next time slot for one of the terminals which transmitted the packet containing the packet-to-follow indication.

5,740,168
METHOD AND APPARATUS FOR SWITCHING RADIO LINKS IN MOBILE COMMUNICATION

Takehiro Nakamura; Narumi Umeda, and Akira Hiroike, all of Yokosukashi, Japan, assignors to NTT Mobile Communication Network Inc., Tokyo, Japan

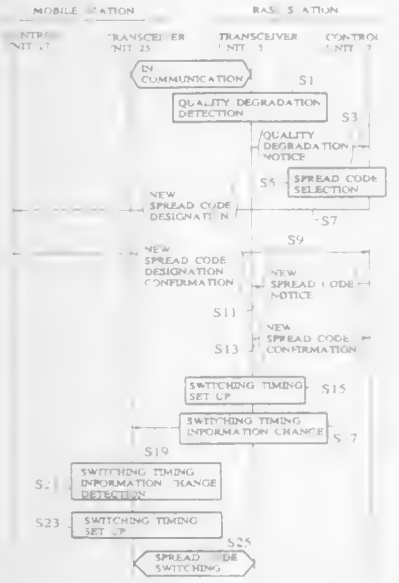
PCT No. PCT/JP94/01708, § 371 Date Jun. 12, 1995, § 102(e) Date Jun. 12, 1995, PCT Pub. No. WO95/10920, PCT Pub. Date Apr. 20, 1995

PCT Filed Oct. 13, 1994, Ser. No. 448,342

Claims priority, application Japan, Oct. 13, 1993, 5-255808; May 26, 1994, 6-112734; May 26, 1994, 6-112739; Jul. 11, 1994, 6-158846; Jul. 11, 1994, 6-158852

Int. Cl.⁶ H04J *3/16*

U.S. Cl. 370—347 54 Claims


MOBILE STATION
BASE STATION
TRANSCEIVER UNIT 25
TRANSCEIVER UNIT
CONTROL UNIT
IN COMMUNICATION
S1
QUALITY DEGRADATION DETECTION
S3
QUALITY DEGRADATION NOTICE
S5
SPREAD CODE SELECTION
NEW SPREAD CODE DESIGNATION
S7
S9
NEW SPREAD CODE DESIGNATION CONFIRMATION
NEW SPREAD CODE NOTICE
S11
NEW SPREAD CODE CONFIRMATION
S13
SWITCHING TIMING SET UP
S15
SWITCHING TIMING INFORMATION CHANGE
S19
SWITCHING TIMING INFORMATION CHANGE DETECTION
S23
SWITCHING TIMING SET UP
S25
SPREAD CODE SWITCHING

1. A method for switching a radio link in a mobile communication between a base station and a mobile station, comprising the steps of:

carrying out a communication between the base station and the mobile station through the radio link given in terms of frames while providing a switching timing information formed by a layer 1 bit data in each frame of the radio link;

changing the switching timing information in at least one of the frames of the radio link at the base station to indicate a switching of the radio link whenever a need for switching the radio link between the base station and the mobile station arises;

transmitting the changed switching timing information from the base station to the mobile station;

switching the radio link at the base station to a new radio link at a switching timing which is a first prescribed period of time after each frame in which the switching timing information is changed at the changing step;

detecting the changed switching timing information transmitted from the base station at the mobile station; and

switching the radio link at the mobile station to the new radio link at a switching timing which is a second prescribed period of time after each frame in which the changed switching timing information is detected at the detecting step.

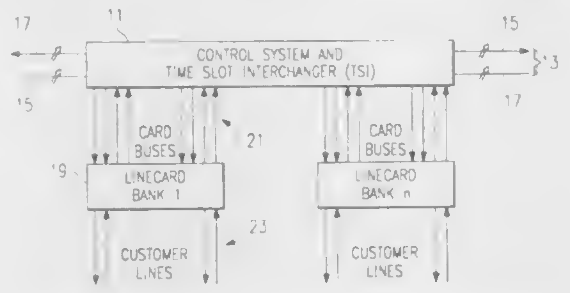
5,740,169
SUBSCRIBER INTERFACE FOR A FIBER OPTIC COMMUNICATIONS TERMINAL

Thomas R. Eames, Santa Rosa, Calif., assignor to DSC Communications Corporation, Plano, Tex.

Division of Ser. No. 597,061, Oct. 15, 1990, Pat. No. 5,301,057. This application Jan. 3, 1994, Ser. No. 176,787

Int. Cl.⁶ H04J *1/16*

U.S. Cl. 370—362 18 Claims



1. For use with a communications terminal having a plurality of connectors connected with at least first and second buses that each have a capacity of a predetermined number of communication channels, a circuit card for inserting into any of said plurality of connectors and providing a connection with at least one of a plurality of communication circuits, comprising:

means for interconnecting at least one communication channel of the first bus with at least one of said plurality of communication circuits;

means for communicating signals from at least one of said plurality of communication circuits to a selected one or more communication channels of the first bus;

means for sending and receiving data and service requests over at least one overhead channel of the first bus that is in addition to said communication channels,

means for interconnecting at least one communication channel of the second bus with at least one of said plurality of communication circuits,

means for communicating signals from at least one of said plurality of communication circuits to the first bus and to a selected one or more communication channels of the second bus to handle excess capacity beyond a capability of the first bus.

5,740,170
METHOD AND APPARATUS FOR PROVIDING COMMUNICATION BETWEEN GROUPED RECEIVERS AND MANAGEMENT THEREOF

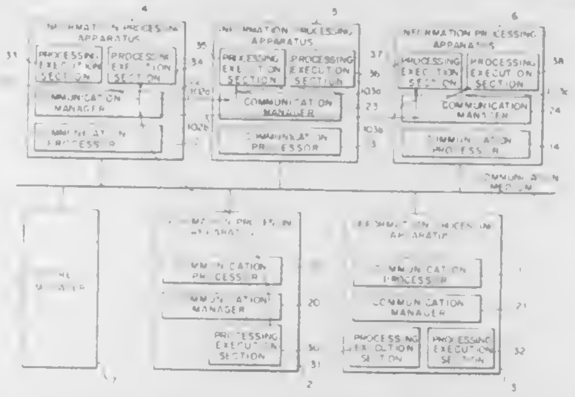
Nobuyoshi Andou, Sagamihara; Masayuki Orimo, Kawasaki; Shigeki Hirasawa, Sagamihara; Yusuke Hino, Hadano; Hisashi Hashimoto, and Hiroshi Fujise, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 7, 1996, Ser. No. 597,966

Claims priority, application Japan, Jul. 7, 1995, 7-019291

Int. Cl.⁶ H04L *12/00*

U.S. Cl. 370—390 18 Claims


4
5
6
INFORMATION PROCESSING APPARATUS
PROCESSING EXECUTION SECTION
COMMUNICATION MANAGER
COMMUNICATION PROCESSOR
20
21
30
31
32
2
3

1. A communication method performed in an information processing system including a plurality of information processing apparatuses, said plurality of information processing apparatus being grouped into a plurality of groups, and a communication line for interconnecting said plurality of information processing apparatuses, said communication method comprising the steps of:

when sending information from a sending information processing apparatus to others of a plurality of information processing apparatuses of a group, selecting, by said sending information processing apparatus, one information processing apparatus from said plurality of information processing apparatuses of said group as a representative information processing apparatus;

sending, by said sending information processing apparatus, said transmission information to said representative information processing apparatus;

receiving said transmission information in said representative information processing apparatus; and

sending said transmission information from said representative information processing apparatus to any other information processing apparatuses in said group to which said representative information processing apparatus belongs.

5,740,171
ADDRESS TRANSLATION MECHANISM FOR A HIGH-PERFORMANCE NETWORK SWITCH

Mario Mazzola, San Jose; Tom Edsall, Mountain View, and Luca Cafiero, Palo Alto, all of Calif., assignors to Cisco Systems, Inc., Palo Alto, Calif.

Filed Mar. 28, 1996, Ser. No. 621,718

Int. Cl.⁶ H04L *12/66*

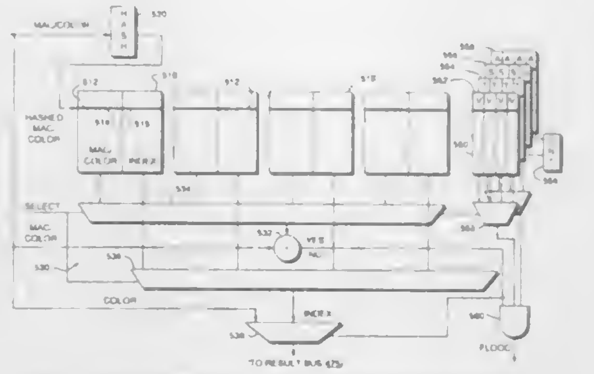
U.S. Cl. 370—392 20 Claims

1. An address translation mechanism for quickly rendering forwarding decisions for data frames transported among ports of a high-performance switch, the translation mechanism comprising:

a plurality of forwarding tables, each table containing entries having unique index values that translate to selection signals for ports destined to receive the data frames;

means for transforming a numerical quantity to a key value for accessing a selected table entry; and

a comparison circuit arrangement for validating the contents of the selected table entry, the circuit arrangement comparing he numerical quantity with a similar value stored in the selected entry to ensure that the contents of the entry contain a correct unique index value.



5,740,172
METHOD FOR SEARCHING A PACKET TRANSMISSION PATH IN A BROADBAND INFORMATION AND COMMUNICATION SYSTEM

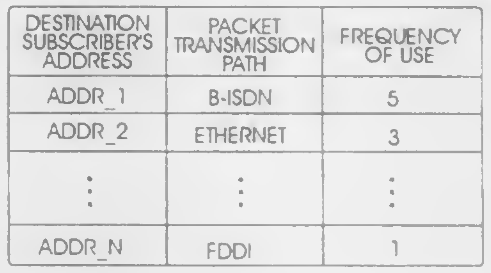
Sung-Bong Kang, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 10, 1996, Ser. No. 663,586

Claims priority, application Rep. of Korea, Jun. 9, 1995, 15234/1995

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—392 14 Claims



DESTINATION SUBSCRIBER'S ADDRESS	PACKET TRANSMISSION PATH	FREQUENCY OF USE
ADDR_1	B-ISDN	5
ADDR_2	ETHERNET	3
⋮	⋮	⋮
ADDR_N	FDDI	1

4. A method of searching for a packet transmission path in a broadband information and communication system comprising a memory including a first queue of packet transmission paths corresponding to destination subscribers' addresses and a frequency of use of the packet transmission paths corresponding to the destination subscribers' addresses, and a second queue of packet transmission paths corresponding to destination subscribers' addresses, said method comprising the steps of:

receiving and temporarily storing an incoming packet in said memory, said packet containing a destination subscriber's address to which the packet is to be transmitted;

initially searching for, at said first queue, a packet transmission path for transmitting the packet stored in said memory to the destination subscriber's address contained in the packet by determining whether any packet has ever been transmitted to said destination subscriber's address contained in said packet,

when it is determined at said first queue that no packet has ever been transmitted over the packet transmission path corresponding to said destination subscriber's address contained in said packet, searching for, at said second queue, a packet transmission path for transmitting said packet to said destination subscriber's address contained in the stored packet,

storing a searched packet transmission path at said first queue, after the packet transmission path for transmitting said packet stored in said memory at said second queue has been searched; and

transmitting said packet stored in said memory over the searched packet transmission path at said first queue.

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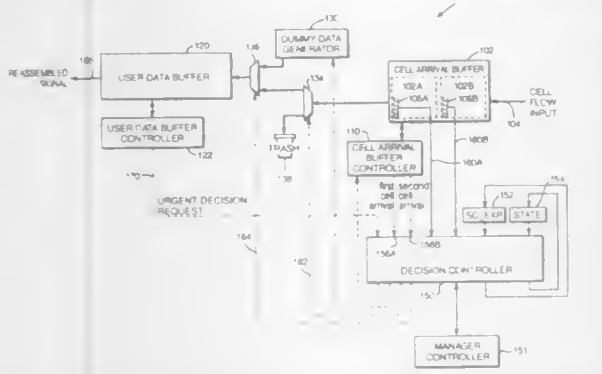
5,740,173
ASYNCHRONOUS TRANSFER MODE (ATM) CELL ARRIVAL MONITORING SYSTEM

Paolo Fiorini, Arezzo, Italy, assignor to Telefonaktiebolaget Lm Ericsson, Stockholm, Sweden

Filed Feb. 28, 1996, Ser. No. 613,826

Int. Cl.⁶ H04L *12/56*

U.S. Cl. 370—394 **44 Claims**



1 A method of monitoring cell arrival in an asynchronous transfer mode (ATM) network, the method comprising:

(a) accepting a received cell if is recognized as the next expected cell;

(b) delaying an acceptance decision for the received cell if it is not recognized as the next expected cell until reception of a subsequent cell unless the acceptance decision is prompted by an underflow condition of a user data buffer; and

(c) when the reception of the acceptance decision is prompted by the underflow condition of the user data buffer, using a sequence number of the received cell to determine if the received cell is to be discarded.

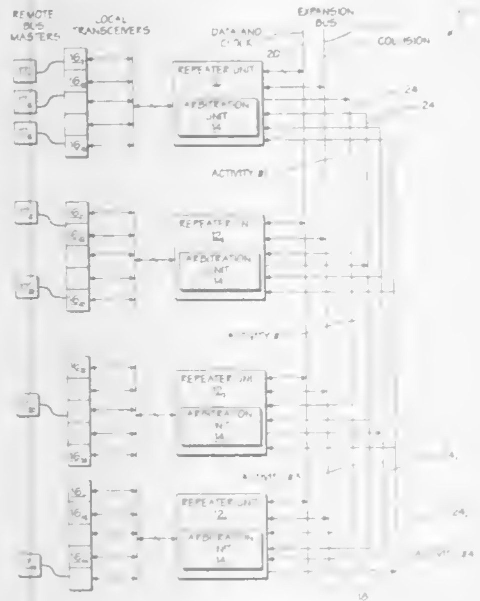
5,740,174
METHOD AND APPARATUS FOR PERFORMING COLLISION DETECTION AND ARBITRATION WITHIN AN EXPANSION BUS HAVING MULTIPLE TRANSMISSION REPEATER UNITS

Gregory B. Somer, Mountain View, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Filed Nov. 2, 1995, Ser. No. 552,272

Int. Cl.⁶ H04L *12/413*

U.S. Cl. 370—402 **12 Claims**



1 A repeater unit, comprising:

an interface unit configured to communicate with one or more associated bus masters, and

an arbitration unit coupled to the interface unit and configured to interface with an expansion bus having a data bus, a separate collision line and a plurality of separate activity lines, wherein said arbitration unit comprises:

an activity detector configured to receive an indication of data to be transmitted on said data bus and to transmit an activity signal on one of said activity lines to indicate an upcoming transmission of said data on said data bus;

a delay unit coupled to said activity detector and configured to delay said transmission of said data on said data bus for a predetermined period of time;

an activity signal monitor configured to monitor said activity lines for another activity signal; and

a transmission unit coupled to said delay unit and to said activity monitor and configured to transmit said data on said data bus after said predetermined period of time if no other activity signals are detected by said activity monitor

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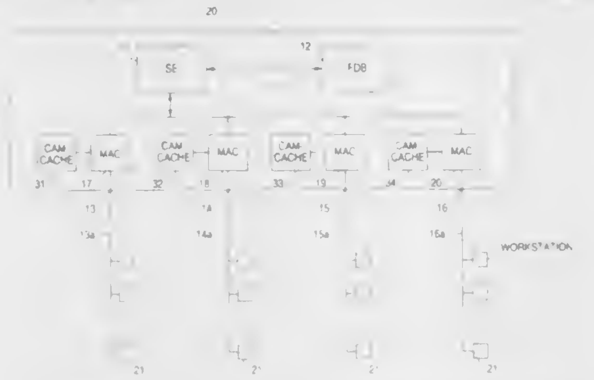
5,740,175
FORWARDING DATABASE CACHE FOR INTEGRATED SWITCH CONTROLLER

Laurence N. Wakeman, Mountain View, and Roy T. Myers, Jr., Santa Clara, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Oct. 3, 1995, Ser. No. 538,321

Int. Cl.⁶ H04Q *11/04*

U.S. Cl. 370—422 **8 Claims**



1. A switch for routing a data packet including a destination address within a network having a plurality of workstations attached thereto, said switch comprising:

a microprocessor;

a random access database for storing address-to-port mappings, said database being coupled to said microprocessor;

a plurality of ports coupled to said workstations;

a plurality of media access controllers each coupled to one of said ports and to said microprocessor; and

a cache device coupled to a first one of said media access controllers, said cache device for storing selected ones of said address-to-port mappings, wherein if any of said selected ones of said address-to-port mappings stored in said cache device corresponds to said destination address of said data packet, said first one of said media access controllers forwards said data packet to said destination address without accessing said database.

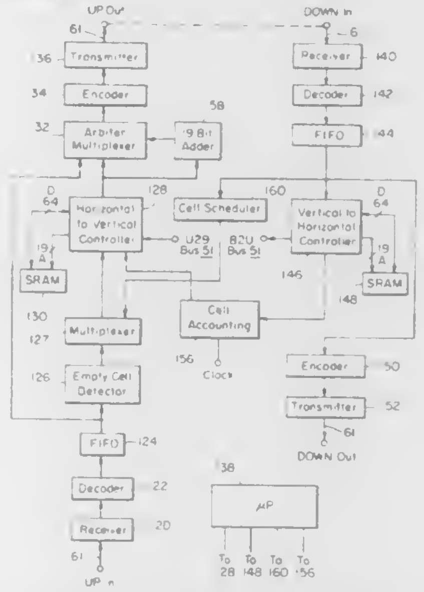
5,740,176
SCALABLE MULTIMEDIA NETWORK

Dev Vrat Gupta, Flemington; Yu-Ren Brian Chen, Somerville, both of N.J.; Craig A. Sharper, Los Altos, Calif., and Alan E. Stone, Morristown, N.J., assignors to DAGAZ Technologies, Inc., San Jose, Calif.

Division of Ser. No. 269,370, Jun. 30, 1994, Pat. No. 5,555,244, which is a continuation-in-part of Ser. No. 243,059, May 19, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 638,761

Int. Cl.⁶ H04L *12/40*

U.S. Cl. 370—440 **15 Claims**



1 In a communication system comprising first and second uni-directional buses oppositely directed, a plurality of units, each said unit and at least one end unit coupled to both buses, said at least one end unit for generating cells on said first bus, said cells including request, idle, empty, and payload cells, at least another end unit for connecting said first bus to said second bus, a method for controlling transmission of said cells, including the steps of:

generating at said at least one end unit a cell pattern comprising a series consisting of a request cell of first priority followed by N empty cells of first priority, said series repeating x times and y idle cells;

transmitting said cell pattern at said at least one end unit onto said first bus;

receiving said cell pattern at one of said units on said first bus;

modifying said request cell at said one unit in response to at least one packet having been collected in a priority queue in said unit;

transmitting said modified request cell at said one unit onto said first bus;

receiving said request cell at said at least one end unit on said second bus and modifying a priority counter in response to a logical value of said request cell,

generating said empty cells at said at least one end unit onto said first bus in response to a logical value of said priority counter

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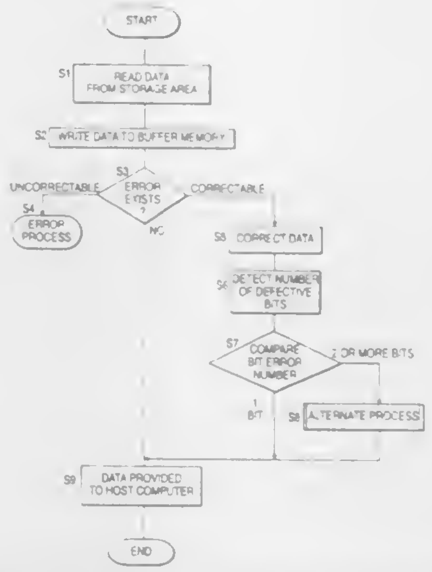
5,740,177
METHOD OF CORRECTING ERROR, SUITABLE FOR STORAGE DEVICE

Manabu Miyata, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Nov. 4, 1996, Ser. No. 740,899

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 371—10.2 **7 Claims**



1 A method of determining if a spare region of a storage medium is to be used, which is suitable for use with a storage device, wherein when an error exists in data read from a storage region of the storage medium having the storage region and the spare region and the read data is correctable, the read data is corrected, comprising:

detecting a number of defective bits included in the read data;

storing data obtained by correcting the read data in said storage region when the number of the defective bits is less than a predetermined number;

prohibiting use of said storage region storing therein the read data only when the number of the defective bits exceeds or is equal to the predetermined number; and

executing an alternate process for storing the data obtained by correcting the read data in said spare region only when the number of the defective bits exceeds or is equal to the predetermined number.

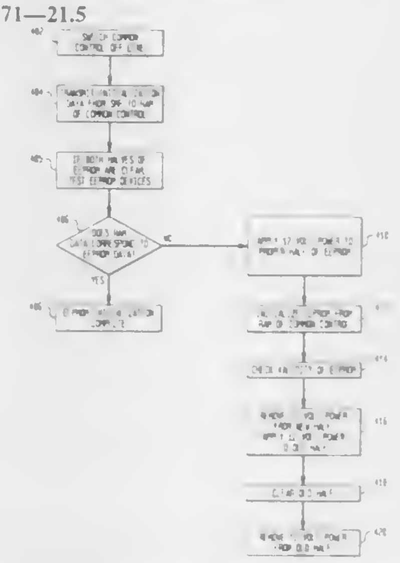
5,740,178
SOFTWARE FOR CONTROLLING A RELIABLE BACKUP MEMORY

Steven Anthony Jacks, Villa Park, Ill., and Kevin John McNeley, Succasunna, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 29, 1996, Ser. No. 703,144

Int. Cl.⁶ G06F *11/00*

U.S. Cl. 371—21.5 **9 Claims**



1 A method of initializing a random access memory (RAM) from the contents of an electrically erasable programmable read only memory (EEPROM) comprising the steps of

storing in the EEPROM data for initializing said RAM, said data comprising error

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check data for an initialized version of said RAM.
storing in said EEPROM a series of programs for controlling the initialization of said RAM;
initializing said RAM under the control of said series of programs; and
checking that the initialized blocks of memory of said RAM have the same check sums as the check sums stored for the said RAM in said EEPROM.

5,740,179

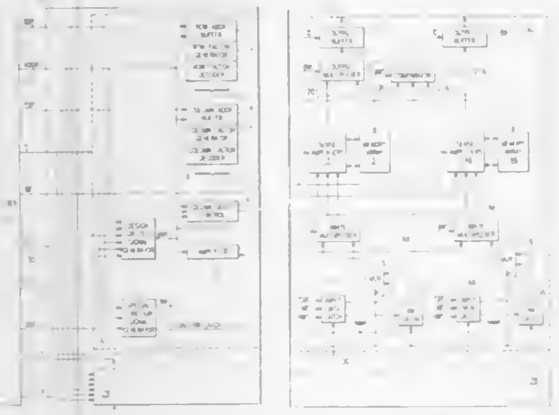
METHOD AND APPARATUS FOR A DESIGN FOR TEST, PARALLEL BLOCK WRITE OPERATION

Timothy Dominic Dorney, Houston, and Anthony Michael Balistreri, Sugar Land, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 235,591, Apr. 29, 1994, abandoned. This application Aug. 30, 1996, Ser. No. 707,044

Int. Cl.^{6} G11C *29/00*

U.S. Cl. 371—21.2 **20 Claims**



1. An integrated circuit memory device comprising:
a plurality of input/output pins;
plural arrays of addressable storage cells;
a writing circuit for applying, through a common data-in lead, plural copies of a test data bit, applied through one of the input/output pins, for storage in an addressed storage cell in each of the plural arrays of addressable storage cells;
a circuit, including the common data-in lead, for receiving an expected data bit;
a readout circuit for reading out through common data-out lead a result of a comparison between the test data bits stored in the addressed storage cell in each of the plural arrays of addressable storage cells and an expected data bit, wherein the test data bits stored in each of the plural arrays of addressable storage cells are simultaneously retrieved and compared with the expected data bit to provide a common comparison bit to be applied to the common data-out lead; and
the writing circuit being arranged to apply the test data bit byway of the common data-in lead for writing simultaneously in multiple column address locations in each of the plural arrays.

5,740,180

CIRCUIT AND TEST METHOD FOR TESTING INPUT CELLS

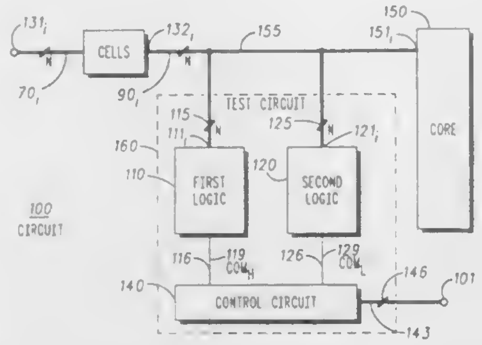
Udi Barel, Rishon Le Zion; Boaz Shahar, Givataim, and Ido Reuveny, Rishon Le Zion, all of Israel, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 18, 1997, Ser. No. 801,451

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—22.1 **17 Claims**

1. A circuit having a plurality of input cells and a test circuit for testing the proper operation of said input cells,
said circuit characterized in that



said input cells receive during testing of said circuit consecutively a first pattern and a second pattern of first signals, said pattern providing that said input cells receive first signals at a first threshold and at a second threshold, whereby properly operating input cells provide a plurality of second signals having equal logical states with one of said patterns being applied;
in said test circuit, a control circuit consecutively provides a first control signal to a first logic and a second control signal to a second logic; and
said plurality of said second signals is related by said first logic and by said second logic and that any second signal originating from a non-properly operating input cell changes said first control signal or said second control signal so that a circuit having at least one non-properly operating input cell is detected.

6. A circuit having a core, a plurality of input cells and a test circuit for testing the proper operation of said input cells, said test circuit of said circuit comprising:
a first reference terminal and a second reference terminal;
a first transistor of a first type, a first transistor of a second type,
a plurality of second transistors of said first type, a plurality of second transistors of said second type, each transistor having a first current electrode, a second current electrode, and a control electrode,
said first transistor of said second type having its second current electrode coupled to said second reference terminal, its first current electrode coupled to the first current electrodes of said second transistors of said first type at a first line, said first transistor of said first type having its second current electrode coupled to said first reference terminal, its first current electrode coupled to the first current electrodes of said second transistors of said second type at a second line, said second transistors of said first type having their second current electrodes coupled to said second reference terminal,
said second transistors of said second type having their second current electrodes coupled to said first reference terminal,
said second transistors having their control electrodes coupled to said input cells,
said first transistors receiving at their control electrodes a level select signal,
wherein depending on said level select signal said first line is pulled to said second reference terminal by said first transistor of said second type or said second line is pulled to said first reference terminal by said first transistor of said first type, and wherein any not properly operating input cell causes any of said second transistors to pull said lines to the opposite reference terminal.

5,740,181

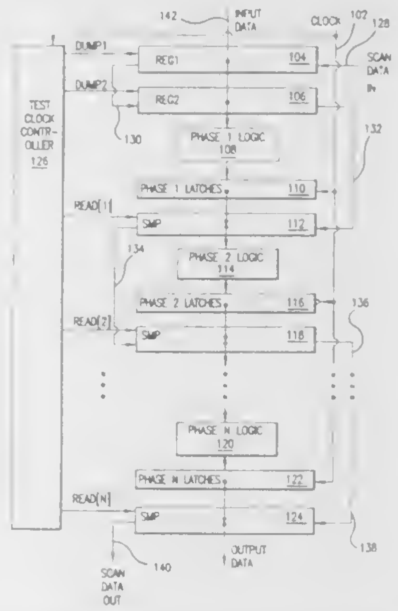
METHOD AND APPARATUS FOR AT SPEED OBSERVABILITY OF PIPELINED CIRCUITS

Craig A. Heikes; Glenn T. Colon-Bonet, both of Fort Collins, Colo.; David R. Smentek, Columbia, Md., and Robert H. Miller, Jr., Loveland, Colo., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed Jun. 12, 1996, Ser. No. 662,403

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 371—22.3 **15 Claims**



1. A method of observing pipelined circuitry, comprising the steps of:
(a) propagating a set of data through said pipelined circuitry while continuously clocking said pipelined circuitry, said pipelined circuitry comprising a plurality of stages, each of said plurality of stages having a set of outputs; and,
(b) sampling each of said set of outputs of said plurality of stages as said set of data is propagated through each of said set of outputs.

5,740,182

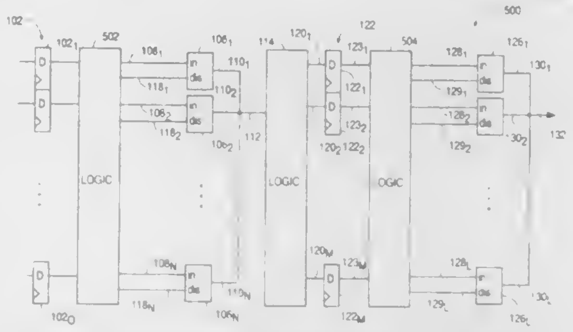
METHOD AND APPARATUS FOR TESTING A CIRCUIT WITH REDUCED TEST PATTERN CONSTRAINTS

Prakash Narain, San Carlos, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 672,990

Int. Cl.^{6} G01R *31/28*

U.S. Cl. 371—22.3 **32 Claims**



1. A method for testing a circuit, said method comprising:
loading a first storage element of said circuit with a first test value while said circuit is in a test mode;
loading a second storage element of said circuit with a second test value while said circuit is in said test mode,
providing a first input signal dependent on said first test value to a first logic circuit of said circuit,
providing a second input signal dependent on said second test value to said first logic circuit,
causing said first logic circuit to provide a first output signal and a second output signal, said first and second output signals dependent on said first and second input signals,
providing said first output signal to a first driver, said first driver providing on an output lead of said first driver a first driver output signal dependent on said first output signal; and
providing said second output signal to a second driver, said second driver providing on an output lead of said second dryer a second driver output signal dependent on said second output signal, said output lead of said second driver being electrically connected to said output lead of said first driver,
wherein, said first driver and said second driver provide said first driver output signal and said second driver output signal substantially simultaneously, said first driver output signal having a logic value different from a logic value of said second driver output signal.

5,740,183

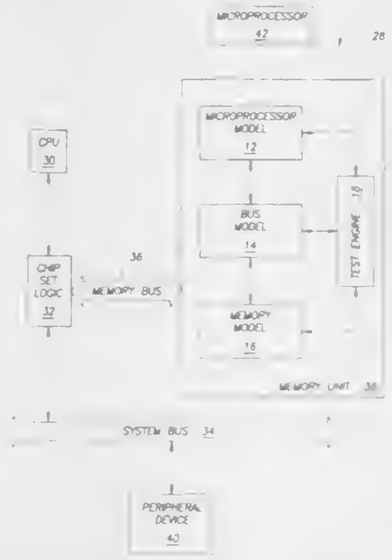
METHOD AND APPARATUS FOR THE OPERATIONAL VERIFICATION OF A MICROPROCESSOR IN THE PRESENCE OF INTERRUPTS

William M. Lowe, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 5, 1996, Ser. No. 761,005

Int. Cl.^{6} G06F *11/00*

U.S. Cl. 371—25.1 **30 Claims**



1. A method for testing a microprocessor, comprising
providing a microprocessor model adapted to perform an activity of interest;
using said microprocessor model to ensure an interrupt signal occurs during said activity of interest;
substituting a microprocessor for said microprocessor model, wherein the microprocessor responds to said interrupt signal by producing a result; and
comparing said result to an expected result to determine whether said microprocessor properly operates when undergoing both said activity of interest and said interrupt signal

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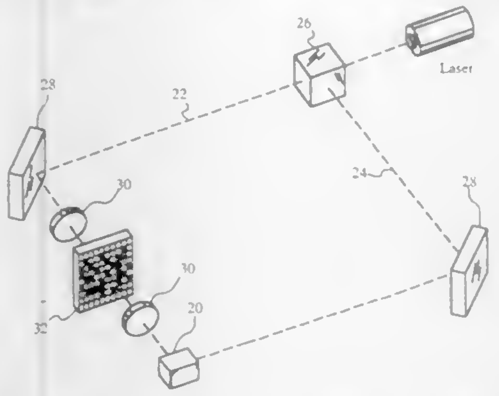
5,740,184
DECISION FEEDBACK VITERBI DETECTOR FOR PAGE-ACCESS OPTICAL MEMORIES

John F. Heanue, San Mateo; Korhan Gürkan, Palo Alto, and Lambertus Hesselink, Woodside, all of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Apr. 1, 1996, Ser. No. 625,561

Int. Cl.^{6} G11C *13/04*

U.S. Cl. 371—30 **23 Claims**



16. A method of obtaining decoded bits $\{d_k\}$ from stored bits $\{b_k\}$ stored in a page-access optical memory, said method comprising the steps of:

- a) reading out from said memory a signal r_k corresponding to a bit b_k, said signal r_k depending on said bit b_k and on a known bit f;
- b) obtaining a processed signal g_k by subtracting from said signal r_k a transfer factor, said transfer factor being proportional to said known bit f and to a transfer coefficient $h(f,b_k)$.
- c) obtaining a decoded bit d_k directly from said processed signal g_k

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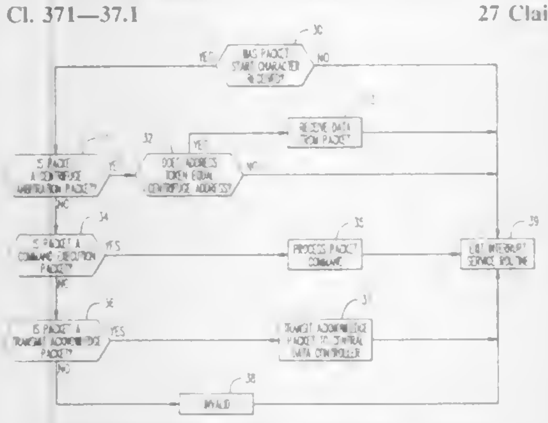
5,740,185
INTERLEAVED DATA COMMUNICATIONS SYSTEM FOR CONTROLLING MULTIPLE CENTRIFUGES

Steven D. Bosse, Canton, Conn., assignor to Sorvall Products, L.P., Newtown, Conn.

Filed Oct. 11, 1996, Ser. No. 730,546

Int. Cl.^{6} H03M *13/00;* **G01N** *33/48;35/00*

U.S. Cl. 371—37.1 **27 Claims**



1. A communication system for transmitting instructions to, and receiving data from, a plurality of instruments using a central data controller, said system comprising:

- means for transmitting instructions to said instruments in the form of discrete data packets, said packets comprising: (a) a first data packet which comprises a first arbitration packet containing at least one command for a first instrument; (b) a second data packet which comprises: (i) a first command execution packet which is capable of commanding said first instrument to execute the at least one command contained in said first arbitration packet, and (ii) a second arbitration packet, containing at least one command for a second instrument; and (c) a third data packet which comprises: (i) a first transmit acknowledge packet which is capable of commanding said first instrument to transmit data generated in response to said first arbitration packet to said central data controller; (ii) a second command execution packet which is capable of commanding said second instrument to execute the at least one command contained in said second arbitration packet; and (iii) a third arbitration packet containing at least one command for a third instrument; and
- a communications link connecting said plurality of instruments to said central data controller.

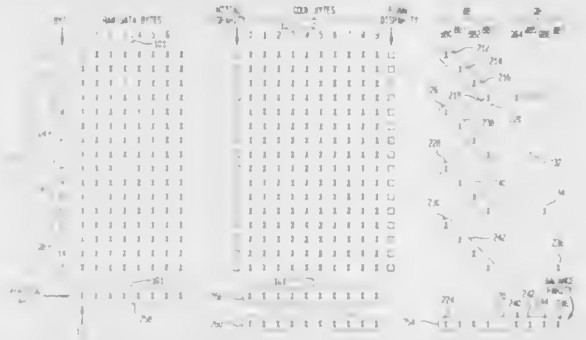
5,740,186
APPARATUS AND METHOD FOR ERROR CORRECTION BASED ON TRANSMISSION CODE VIOLATIONS AND PARITY

Albert X. Widmer, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 332,327, Oct. 31, 1994. This application Jun. 13, 1996, Ser. No. 663,433

Int. Cl.^{6} H03M *13/00*

U.S. Cl. 371—37.1 **14 Claims**



1. A method of correcting errors in bits transmitted from a first electronic device to a second electronic device comprising the steps of:

- providing in said first electronic device a frame of bits:
- said frame contains a plurality of bytes of bits,
- said bits have a first value or a second value,
- each of said bytes has a first to a last bit;
- determining a first parity for said frame;
- said first parity has a first to a last bit each of which corresponds to said first to said last bits, respectively, of each of said plurality of bytes;
- each of said bits of said first parity has one of a first value and a second value if there is an even number of first values in each of said corresponding bits of said plurality of bytes and each of said bits of said first parity has the other of said first values and said second value if there are an odd number of first values in each of said corresponding bits of said plurality of bytes;
- transforming each of said bytes to a coded byte and said frame into a coded frame;
- transforming said first parity to a first coded parity;
- determining a balance for each of said coded bytes;
- said balance has a first value if there are an equal number of first and second values in each of said coded bytes;
- said balance has a second value if there are an unequal number of first and second values in each of said coded bytes,
- forming a plurality of balance bytes,
- grouping said plurality of coded bytes into words of said coded bytes, each of said words has a first to a last byte;
- each of said words corresponds to one of said plurality of balance bytes;
- each of said balance bytes has a first to a last bit;
- determining a second parity for said plurality of balance bytes;
- said second parity has a first to a last bit;
- each of said bits of said second parity has one of a first value and a second value if there is an even number of first values in each of said corresponding bits of said plurality of said balance bytes and each of said bits of said second parity has the other of said first value and said second value if there is an odd number of first values in each of said corresponding bits of said plurality of said balance bytes;
- transmitting said coded frame, said first coded parity and said second parity to said second electronic device as a transmitted frame, a transmitted first parity and a transmitted second parity;
- said second electronic device redetermines said first parity as a redetermined first parity from said transmitted frame,
- said second electronic device redetermines said second parity as a redetermined second parity from said transmitted frame; and
- comparing said transmitted first parity to said redetermined first parity and said transmitted second parity to said redetermined second parity to determine if there is an error in said transmitted frame.

5,740,187
DATA PROCESSING USING INTERPOLATION OF FIRST AND SECOND INFORMATION BASED ON DIFFERENT CRITERIA

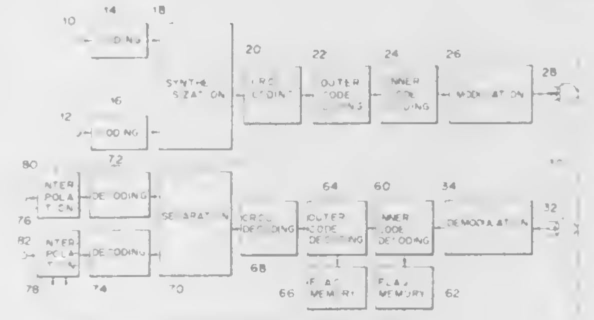
Mitsugu Tanaka, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 7, 1993, Ser. No. 72,093

Claims priority, application Japan, Jun. 9, 1992, 4-149382

Int. Cl.^{6} G11B *20/18*

U.S. Cl. 371—37.4 **7 Claims**



1. A data processing apparatus comprising:

- (a) receiving means for receiving first and second information data having a different information amount with error detection check codes and error correction check codes, in units of a block, where each block which includes first and second information data also includes the error detection check codes, the error detecting check codes include outer codes of a product code and inner codes of the product code, the outer codes are included in each block including first and second information data, and the inner codes are able to detect that an uncorrectable error exists in a unit other than the block;
- (b) error correction means for correcting errors in the first and second information data by using the error correction check codes and for generating an error flag when an uncorrectable error exists;
- (c) error detection means for detecting errors in each block by using the error detection check codes included, in that block;
- (d) first error concealing means for concealing errors in the first information data in a unit of the block according to an output of said error detection means; and
- (e) second error concealing means for concealing errors in the second information data according to the error flag.

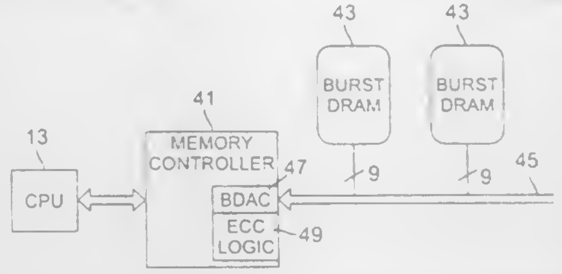
5,740,188
ERROR CHECKING AND CORRECTING FOR BURST DRAM DEVICES

Sompong P. Olarig, Cypress, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed May 29, 1996, Ser. No. 654,853

Int. Cl.^{6} G06F *11/10*

U.S. Cl. 371—40.11 **11 Claims**



1. A method of detecting and correcting errors in a computer having a memory subsystem comprising a burst DRAM device, comprising the steps of:

- beginning a write operation of N data bits to the burst DRAM device;
- generating M check bits from said N data bits;
- writing said N data bits and said M check bits to the burst DRAM device;
- reading said N data bits and M check bits from the burst DRAM device,
- generating X syndrome bits from said N data bits and said M check bits;
- using said X syndrome bits to detect and correct any single bit error within said N data bits and said M check bits and to detect any double bit error within said N data bits and said M check bits

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5,740,189
INTEGRITY CHECK METHOD AND SYSTEM FOR SERIAL-BASED COMMUNICATION

Kevin Mark Tiedje, Farmington Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 3, 1996, Ser. No. 725,042

Int. Cl.^{6} G06F *11/10;* **H03F** *13/00*

U.S. Cl. 371—53 **20 Claims**

7. A method for checking the integrity of a full duplex multi-word serial transfer between first and second devices, the transfer including an actual last word, the method comprising

- (a) transmitting a count word from the first device to the second device, the count word indicating a number of words to be transmitted including an expected last word.

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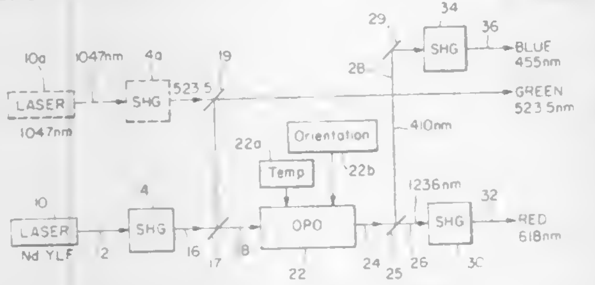
(b) transmitting the actual last word from the first device to the second device;
(c) transmitting, substantially simultaneously to (b), a check code word from the second device to the first device, the check code word having a selected value if the actual last word is the expected last word, and another value otherwise; and
(d) determining a transfer error if the value of the check code word is other than the selected value.

5,740,190
THREE-COLOR COHERENT LIGHT SYSTEM

Peter Moulton, Concord, Mass., assignor to Schwartz Electro-Optics, Inc., Orlando, Fla.

Filed May 23, 1996, Ser. No. 652,098
Int. Cl.^{6} H01S *3/10*

U.S. Cl. 372—23 **18 Claims**



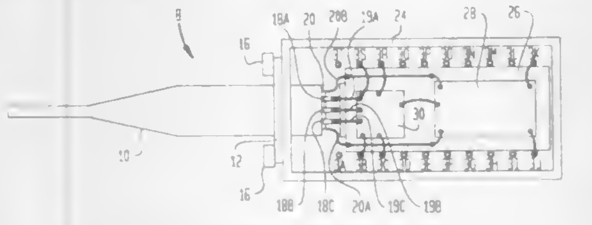
1 A three-color coherent light system comprising:
a laser source for generating a laser beam in the 1000–1100 nm wavelength region;
means, responsive to said laser source, for generating a second harmonic of said laser beam;
an optical parametric oscillator for providing a signal beam and an idler beam,
means for splitting said second harmonic of said laser beam into a first beam for providing a source of coherent green light and a second beam for pumping said optical parametric oscillator to produce said signal and idler beams;
means for generating the second harmonic of said signal beam as a source of coherent blue light; and
means for generating the second harmonic of said idler beam as a source of coherent red light.

5,740,191
WIDE TEMPERATURE RANGE UNCOOLED LIGHTWAVE TRANSMITTER HAVING A HEATED LASER

Bryon Lynn Kasper, Allentown, and Fridolin Ludwig Bosch, Bethlehem, both of Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 13, 1996, Ser. No. 678,438
Int. Cl.^{6} H01S *3/04*

U.S. Cl. 372—34 **25 Claims**



1 A laser transmitter comprising:
a semiconductor laser having an associated operating temperature;
a heating element thermally coupled to said semiconductor laser, and
a heating control circuit that (i) senses a temperature substantially representative of an ambient temperature of an environment surrounding said laser transmitter, (ii) energizes said heating element to provide heat to said semiconductor laser when said temperature substantially representative of said ambient temperature is sensed below a predetermined minimum temperature, and (iii) upon energizing the heating element, controls heating of said heating element based on said temperature substantially representative of said ambient temperature.

5,740,192
SEMICONDUCTOR LASER

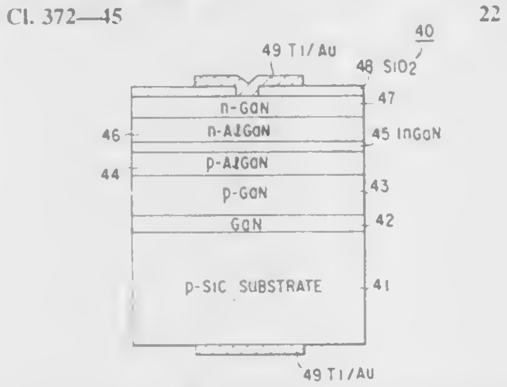
Ako Hatano, Tokyo; Yasuo Ohba, Yokohama; Hidetoshi Fujimoto, Kawasaki; Kazuhiko Itaya, Yokohama, and Johji Nishio, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation-in-part of Ser. No. 567,982, Dec. 11, 1995, Pat. No. 5,617,438. This application Dec. 17, 1996, Ser. No. 767,673

Claims priority, application Japan, Dec. 19, 1994, 6-314901; Mar. 26, 1996, 8-069590

Int. Cl.^{6} H01S *3/19*, H01L *33/00*

U.S. Cl. 372—45 **22 Claims**



9 A semiconductor laser exhibiting an oscillation wavelength of 450 nm or less and comprising:
a substrate;
a lower clad layer formed on or above said substrate and mainly composed of a III-V Group compound semiconductor;
an active layer formed directly on said lower clad layer and mainly composed of a III-V Group compound semiconductor; and
an upper p-type clad layer formed directly on said active layer and mainly composed of a III-V Group compound semiconductor;
said upper p-type clad layer containing Mg and one or more acceptor impurities for Compensating residual donors.

5,740,193
SEMICONDUCTOR LIGHT-EMITTING DEVICE

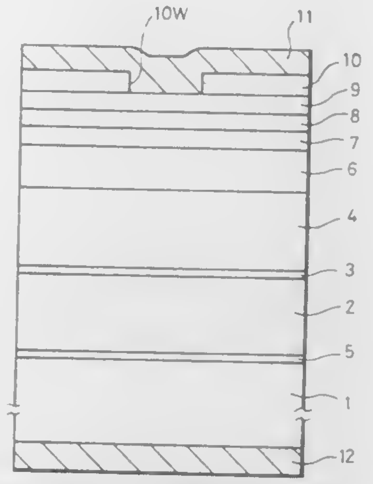
Hiroyuki Okuyama; Akira Ishibashi; Eisaku Kato, all of Kanagawa; Hiroshi Yoshida; Kazushi Nakano, both of Tokyo; Masakazu Ukita, Kanagawa; Satoru Kijima, Kanagawa, and Sakurako Okamoto, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 508,966, Jul. 28, 1995, Pat. No. 5,657,336. This application Apr. 2, 1997, Ser. No. 832,065

Claims priority, application Japan, Jul. 29, 1994, 6-178773; Feb. 3, 1995, 7-017327

Int. Cl.^{6} H01S *3/19*

U.S. Cl. 372—45 **9 Claims**



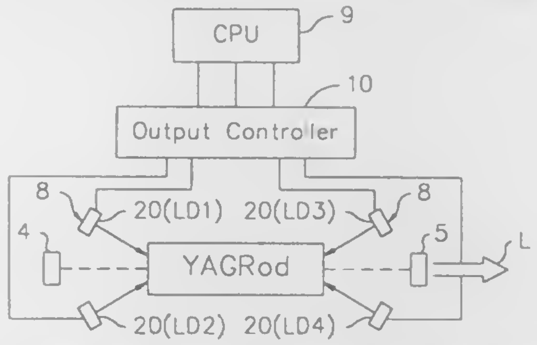
1 A method of generating laser radiation comprising:
a first step of providing a semiconductor laser structure comprised of a substrate;
at least a first cladding layer of a first conductivity type on the substrate;
an active layer on the first cladding layer; and
a second cladding layer of a second conductivity type on the active layer, wherein at least said active layer is formed of a II–VI group compound semiconductor and said active layer contains a dopant at a concentration of greater than 1×10^{15} cm^{-3} and less than 5×10^{16} cm^{-3}, and
a second step of oscillating the semiconductor laser structure.

5,740,194
SOLID-STATE LASER APPARATUS

Takahiro Uchida, and Shinichi Nakayama, both of Noda, Japan, assignors to Miyachi Technos Corporation, Chiba, Japan

Filed Mar. 15, 1996, Ser. No. 616,324
Claims priority, application Japan, Mar. 17, 1995, 7-059003
Int. Cl.^{6} H01S *3/091*

U.S. Cl. 372—75 **4 Claims**



1. Solid state laser apparatus for generating laser beam by emitting light from excitation source onto solid-state laser active medium thereby to excite atoms in active substance within said solid-state laser active medium, which is characterized in that said excitation source is formed by a plurality of laser diodes, and an output controller is provided so as to control outputs of said laser diodes by driving successively laser diodes one by one or by driving successive simultaneous combinations of a plurality of laser diodes in sequence.

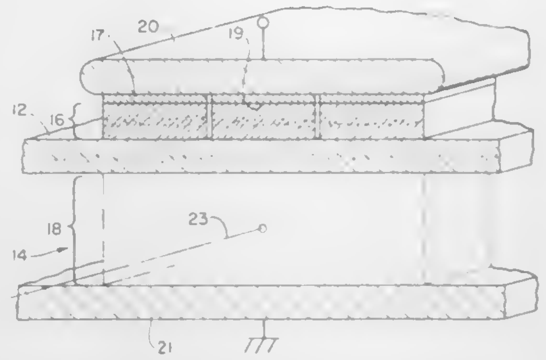
5,740,195
TEMPERATURE COMPENSATED RESISTIVE LASER ELECTRODE ASSEMBLY

Michael W. Murray, Palm City, and Kevin M. Dickenson, Jupiter, both of Fla., assignors to Lite Jet, Inc., Jupiter, Fla.

Filed Aug. 25, 1995, Ser. No. 519,851
Int. Cl.^{6} H01S *3/097*

U.S. Cl. 372—87 **49 Claims**

1. A layered resistive electrode assembly for a TE/TEA laser, comprising:



means for increasing the resistivity of the electrode assembly at a discrete location as the electrode assembly increases in temperature at said discrete location; and
a conductive layer, wherein said conductive layer is adjacent to said means for increasing the resistivity of the electrode assembly

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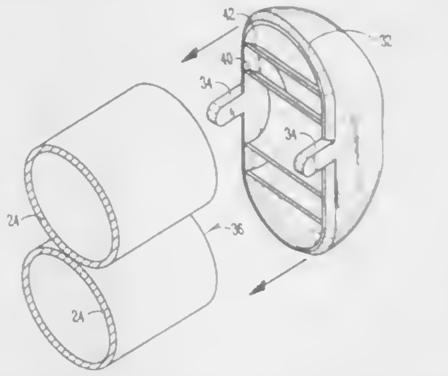
5,740,196
END CAPS AND ELBOWS FOR COOLING COILS FOR AN ELECTRIC ARC FURNANCE

Eric N. Johnson, Clinton; Roger E. Johnson, Camanche, and Craig S. Johnson, Clinton, all of Iowa, assignors to J.T. Cullen Co., Inc., Fulton, Ill.

Filed Mar. 25, 1996, Ser. No. 621,429
Int. Cl.^{6} F27D *1/12*

U.S. Cl. 373—71 **17 Claims**



13. A cooling system for an electric arc furnace, comprising
a plurality of adjacent pipes each having opposite open ends,
a plurality of curved end caps, each cap being connected to a pair of adjacent pipes in covering relation over the open ends so as to provide fluid communication between the adjacent pipes;
at least one curved turning vane mounted within each end cap to define a plurality of fluid flow channels in each end cap.

5,740,197
COOLED PROBE FOR USE IN HIGH TEMPERATURE PROCESS VESSELS

George W. Taggart, deceased, late of Dallas, Tex., by Carole Taggart; Lory Johnson, Oklahoma City, Okla.; Orville C. Ungerer, Dallas, and F. Ellis Vandiver, Plano, both of Tex., assignors to Koch Enterprises, Inc., Wichita, Kans.

Filed Aug. 18, 1995, Ser. No. 506,275
Int. Cl.^{6} G01K *1/12*

U.S. Cl. 374—148 **37 Claims**

1 A cooled probe, comprising
a cooling medium inlet;
a cooling medium outlet,
a lance comprising an outer annulus and an inner annulus.

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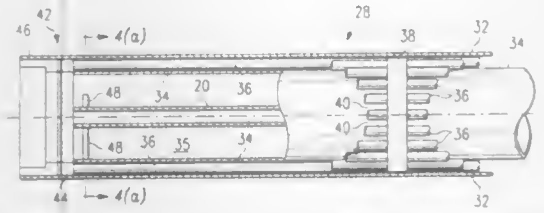
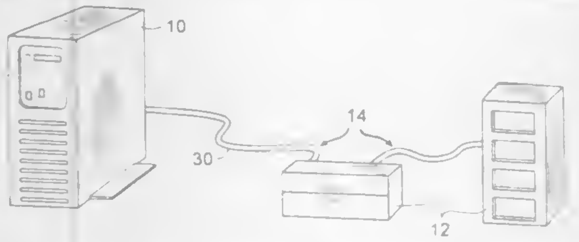


a plurality of tubes positioned between the inner annulus and the outer annulus, the inner annulus defining a center passage;
the tubes communicating with the cooling medium inlet for the flow of cooling medium to the distal end of the lance, and
a plurality of interspacial areas defined by the outer annulus, inner annulus and plurality of tubes for directing the flow of cooling medium from the tubes at the distal end of the lance to the cooling medium outlet.

5,740,198
APPARATUS FOR INCREASING SCSI BUS LENGTH THROUGH SPECIAL TRANSMISSION OF ONLY TWO BUS SIGNALS

William E. Ham, Andover, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed Jun. 17, 1994, Ser. No. 262,083
Int. Cl.⁶ H04B *3/00;* **H01B** *11/18*
U.S. Cl. 375—257 **8 Claims**



1 Apparatus for transmitting communications bus signals between devices, said communications bus signals including a control signal subject to a wired-or glitch, the apparatus comprising:
- a cable comprising:
  - a first conductor for transmitting the control signal subject to said wired-or glitch, the first conductor having a first characteristic impedance, the first characteristic impedance being sufficiently low to ensure that the wired-or glitch resulting from the deassertion of said control signal on said first conductor by one of said devices does not exceed a minimum threshold signal assertion voltage;
  - other conductors for transmitting the remaining communications bus signals, each of said other conductors having a second characteristic impedance higher than said first characteristic impedance; and
- connectors coupled to the cable, each said connector adapted for mating with a device connector on one of said devices, each said connector coupled to said first conductor and said other conductors for transfer of the communications bus signals between devices such that the control signal subject to the wired-or glitch is transmitted via the first conductor

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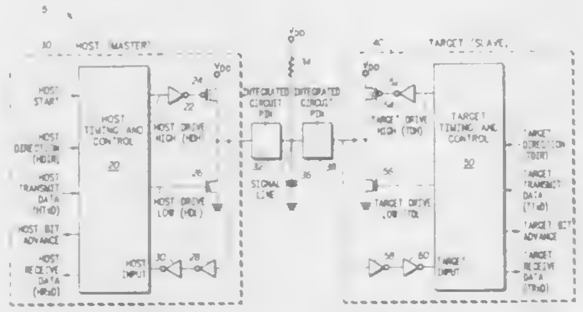
5,740,199
HIGH SPEED WIRE-OR COMMUNICATION SYSTEM AND METHOD THEREFOR

James M. Sihigtroth, Round Rock, Tex., assignor to Motorola Inc., Schaumburg, Ill.
Continuation of Ser. No. 216,391, Mar. 23, 1994, abandoned. This application Sep. 13, 1995, Ser. No. 527,990
Int. Cl.⁶ H03K *7/08*
U.S. Cl. 375—219 **37 Claims**

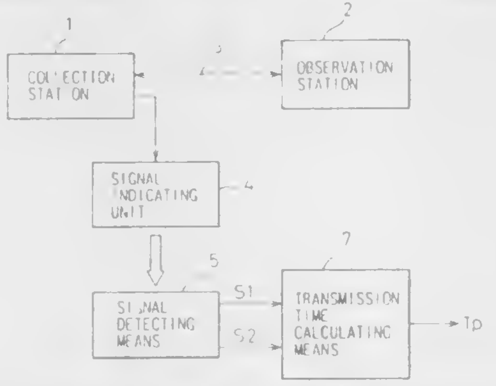
1 A data processing system, comprising:



- a single wired-OR communication wire for bidirectionally communicating both data and timing information;
- host logic means coupled to the single wired-OR communication wire for providing a first host drive signal to enable the single wired-OR communication wire to communicate a first logic value and for providing a second host drive signal to enable the single wired-OR communication wire to communicate a second logic value; and
- target logic means coupled to the single wired-OR communication wire for detecting a first timing value transferred by the single wired-OR communication wire, the target logic means selectively providing a first target drive signal in response to the first timing value to enable the single wired-OR communication wire to communicate a third logic value, the target logic means selectively providing a second target drive signal in response to the first timing value to enable the single wired-OR communication wire to communicate a fourth logic value.

5,740,200
APPARATUS FOR MEASURING TRANSMISSION TIME UTILIZED FOR DATA COLLECTION SYSTEM

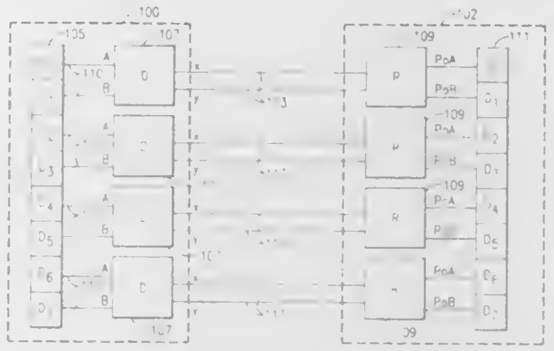
Shigeo Kamata, Tokyo, Japan, assignor to Fujitsu Limited, Kanagawa, Japan
Filed Mar. 20, 1996, Ser. No. 619,967
Claims priority, application Japan, Mar. 20, 1995, 7-060941
Int. Cl.⁶ H04B *3/46;17/00*
U.S. Cl. 375—224 **14 Claims**



1 An apparatus for measuring transmission time that is utilized for a data collection system including an observation station situated in a given region, a collection station for collecting data from said observation station over a transmission line, and a signal indicating unit for indicating the states of arbitrary signals to be transmitted through a transmission path within said transmission line, and that is designed for measuring the transmission time necessary for said signal to propagate through said transmission path, comprising
- a signal detecting means for taking out, from said signal indicating unit, and detecting a first signal to be sent from said collection station to said observation station in order to start data collection, and a second signal to be returned from said observation station to said collection station in order to notify that said first signal has been received, in a state in which said data collection system is kept operating and the electrically uncoupled state relative to said transmission line is retained,
- a transmission time calculating mean for calculating the transmission time of a signal propagating through said transmission path on the basis of a difference between the time instant at which said first and second signals are detected; and
- wherein said signal indicating unit includes light emitting devices for indicating said states of signals in said transmission path by means of lights, wherein said signal detecting means includes light receiving units for receiving light signals emanating from said light emitting devices and converting them into electrical signals, and comparing means for comparing patterns of electrical signals supplied from said light receiving units with a given pattern registered in advance and checking if both patterns coincide with each other, and when said both patterns coincide with each other, it is recognized that at least one of said first and second signals has been detected.

5,740,201
DUAL DIFFERENTIAL AND BINARY DATA TRANSMISSION ARRANGEMENT

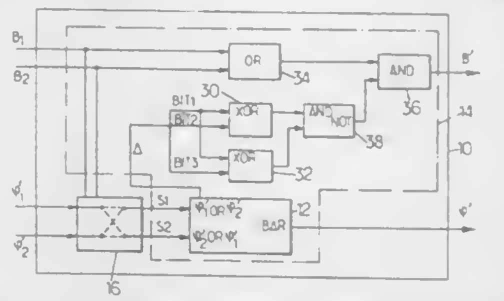
David Tinsun Hui, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 10, 1993, Ser. No. 165,275
Int. Cl.⁶ H04L *25/34;25/49*
U.S. Cl. 375—286 **6 Claims**



1. In a computer system comprising a plurality of subsystems, data transmission apparatus arranged to reduce Delta-I transmission noise in the transmission of a multibit data word between the subsystems, the transmission apparatus comprising:
- a data register having a plurality of data bit locations and storing a plurality of independent binary encoded data signals each defined by two discrete signal levels; a data transmitter having a pair of transmitter input terminals connected to a pair of the data bit locations and a pair of transmitter output terminals and responsive to two independent binary encoded data signals stored in the pair of data bit locations and concomitantly occurring on the pair of transmitter input terminals to simultaneously generate two separate, four level encoded output signals on the pair of transmitter output terminals, the two separate output signals having differing signal levels for each combination of the two independent binary encoded data signals, the combination of output signals on the pair of transmitter output terminals together defining the states of the signals on the transmitter input terminals;
- a pair of transmission conductors, each transmission line connected to one of the transmitter output terminals;
- a dual differential receiver having a pair of receiver output terminals and a pair of receiver input terminals, each receiver input terminal connected to one of the transmission conductors, the receiver responsive to the two separate four level output signals on the pair of transmitter output terminals to simultaneously generate on the pair of receiver output terminals a pair of binary encoded signals, each binary encoded signal generated on the receiver output terminals defined by two discrete signal levels, the pair of binary encoded output signals on the pair of receiver output terminals corresponding to the binary encoded signals on the pair of transmitter input terminals, and
- wherein the data transmitter further comprises first second interconnected current switches connected to first and second common nodes and wherein the first transmitter input terminal is connected to the first current switch and the second transmitter input terminal is connected to the second current switch and the first and second transmitter output terminals are connected to the first and second common nodes, respectively.

5,740,202
METHOD AND APPARATUS FOR DIGITALLY EVALUATING THE PHASE OF A MODULATED CARRIER

Ivar Mortensen, Toulouse; Marie-Laure Boucheret, Goyrans; Henri Favaro, Sainte Foy d'aigrefeuille, and Eric Belis, Toulouse, all of France, assignors to France Telecom, Paris, France
Filed Sep. 22, 1995, Ser. No. 532,454
Claims priority, application France, Sep. 23, 1994, 94-11389
Int. Cl.⁶ H04L *27/14,27/16;27/22*
U.S. Cl. 375—326 **9 Claims**



1. A method of digitally evaluating a phase of an rPSK phase modulated carrier where r is a number of modulation phase states of the carrier, comprising the steps of: recovering a clock of the carrier, sampling said carrier to obtain samples, digitizing in-phase and quadrature coordinates of each of the samples and processing said samples in polar coordinates, said processing including:
- reducing a range over which a phase of each sample is defined to a range of from $+\pi/r$ to $-\pi/r$, and
- performing successive averaging calculations, each time on two phase values, according to an N-step tree structure beginning with $2^N/2$ computations each on a set of two successive said samples until a center of gravity of 2^N successive samples, where N is an integer, is obtained, further comprising assigning an index specifying a degree of reliability to each average value resulting from one of said calculations and ignoring those average values which have a reliability index lower than a predetermined reliability threshold in subsequent calculations of average values in the tree structure

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5,740,203
TRELLIS DEMAPPER OF A CONVOLUTIONAL DECODER FOR DECODING PRAGMATIC TRELLIS CODES SUITABLE FOR USE IN A MULTI-CHANNEL RECEIVER OF SATELLITE, TERRESTRIAL AND CABLE TRANSMITTED FEC COMPRESSED-DIGITAL TELEVISION DATA

Kumar Ramaswamy, and John Sidney Stewart, both of Indianapolis, Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.
Filed Sep. 14, 1995, Ser. No. 528,370
Int. Cl.⁶ H03M *13/12*
U.S. Cl. 375—341 **19 Claims**

1 In a convolutional decoder of a plurality of pragmatic trellis codes each of which is defined by a series of convolutionally encoded symbol packets applied as in-phase (I) and quadrature-phase (Q) digital input signals thereto, wherein said plurality of

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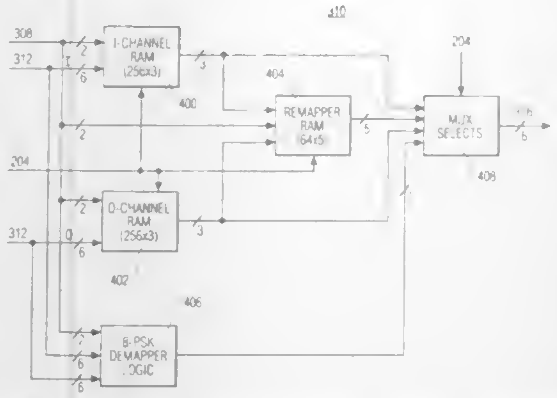


pragmatic trellis codes comprise a distinct code for each constellation set of symbols in the I,Q plane that includes an even power of 2 number of symbols arranged in a square-grid bit-to-symbol mapping to produce square-grid symbol constellations, with the largest of said square-grid symbol constellations including 2^{2y} symbols, where y is a first positive integer having a given value of at least 2; and wherein said convolutional decoder includes a trellis demapper for demapping each of said plurality of pragmatic trellis codes; the improvement wherein (1) the bit-to-symbol mapping of said square grid of each constellation set is such that alternate cells of odd rows of said square grid define a first subset of symbols, the remaining cells of odd rows of said square grid define a second subset of symbols, alternate cells of even rows of said square grid define a third subset of symbols, and the remaining cells of even rows of said square grid define a fourth subset of symbols, and (2) said trellis demapper comprises:

an I-channel random access memory (RAM) having an effective depth of $2^{(x+2)}$ storage locations, where x is a second positive integer having a given value larger than said first positive integer, each storage location having an effective width at least sufficient to store an entry of an I-defining lookup table of y-bits,

a Q-channel RAM having an effective depth of $2^{(x+2)}$ storage locations, each storage location having an effective width at least sufficient to store an entry of a Q-defining lookup table of y-bits;

first means for applying a first x-bit input to said I-channel RAM to define the value of said in-phase (I) digital input signal and for applying a second x-bit input to said Q-channel RAM to define the value of said quadrature (Q) digital input signal;

second means for applying a 2-bit input to both said I-channel RAM and said Q-channel RAM to define a selected one of said four subsets in accordance with the binary value of said applied 2-bit input;

third means for preloading said lookup table of said I-channel RAM in accordance with a selected one of said constellation sets of symbols such that the bits mapping the I component of that symbol of the selected one of said four subsets of said selected one of said constellation sets which is closest in value to the value defined by the in-phase (I) digital input signal to said I-channel RAM is read out as the output of said I-channel RAM; and

fourth means for preloading said lookup table of said Q-channel RAM in accordance with a selected one of said constellation sets of symbols such that the bits mapping the Q component of that symbol of the selected one of said four subsets of said selected one of said constellation sets which is closest in value to the value defined by the quadrature (Q) digital input signal to said Q-channel RAM is read out as the output of said Q-channel RAM

5,740,204

DIGITAL RADIOCOMMUNCATION RECEIVER

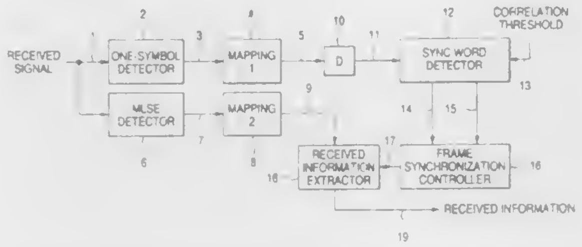
Yasuyuki Nagashima, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 695,190

Claims priority, application Japan, Aug. 31, 1995, 7-223600

Int. Cl.^{6} H04L *27/06*

U.S. Cl. 375—341 18 Claims



1. A digital radiocommunication receiver, comprising:

demodulation means for a one-symbol unit for detecting a received signal in a unit of one symbol and for outputting a received bit sequence;

demodulation means involving maximum likelihood sequence estimation for outputting a received bit sequence from a received signal sequence concerning a plurality of symbols;

sync word detecting means for determining the detection or nondetection of a sync word from the received bit sequence outputted from said demodulating means for a one-symbol unit, a timing of said bit sequence being made to coincide with a timing of the bit sequence outputted from said demodulating means involving the maximum likelihood sequence estimation;

synchronization controlling means for determining a timing of a received frame, and for controlling, as required, a transmission timing, using information on the sync word detection pulse; and

received information extracting means for extracting received information from an output of said demodulating means involving the maximum likelihood sequence estimation, based on the timing of the received frame determined by said synchronization controlling means.

5,740,205

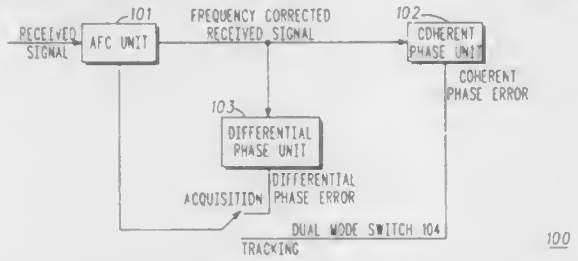
APPARATUS AND METHOD FOR MAXIMIZING FREQUENCY OFFSET TRACKING PERFORMANCE IN A DIGITAL RECEIVER

Kevin L. Baum, Rolling Meadows; David Paul Gurney, Algonquin, and Stephen Leigh Kuffner, Algonquin, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 280,038, Jul. 25, 1994, abandoned. This application Dec. 16, 1996, Ser. No. 767,173

Int. Cl.^{6} H04L *27/07*

U.S. Cl. 375—344 16 Claims



1. An apparatus for providing frequency correction utilizing novel feedback for a received phase-modulated signal in a digital receiver wherein frequency offset tracking performance is maximized, comprising:

A) a dual-selection automatic frequency control unit, operably coupled to a coherent phase unit, a differential phase measurement unit, and to the received signal, for determining a frequency correction value using at least one of: a differential phase error output of the differential phase measurement unit and a coherent phase error output of the coherent phase unit, and shifting a frequency of the received signal by said frequency correction value in accordance with a dual-mode scheme to provide a corrected received signal, wherein the dual-mode scheme provides for differential phase error correction during acquisition and coherent phase error correction during tracking,

B) said coherent phase unit, operably coupled to the automatic frequency control unit, selectively used after a symbol sampling phase is determined, for utilizing the corrected received signal to provide the coherent phase error output, and

C) the differential phase measurement unit, operably coupled to the dual-selection automatic frequency control unit, for utilizing the corrected received signal in an absence of symbol timing information to provide the differential phase error output, at least until the symbol sampling phase is determined,

wherein the differential phase unit is updated at a rate that is greater than the symbol rate.

5,740,206

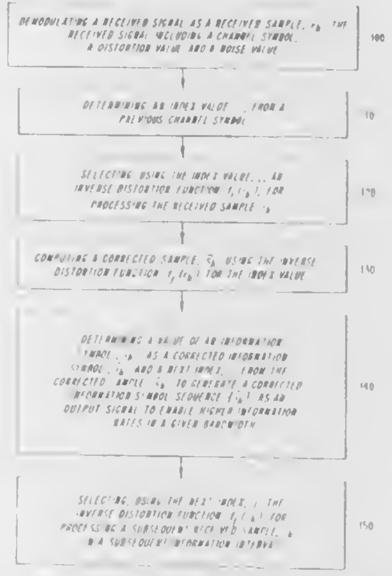
ADAPTIVE NONLINEAR EQUALIZER FOR DIGITAL FM SIGNALS

Gary R. Lomp, New York, and Donald L. Schilling, Sands Point, both of N.Y., assignors to InterDigital Technology Corporation, Wilmington, Del.

Continuation of Ser. No. 732,199, Jul. 19, 1991, abandoned. This application Aug. 20, 1993, Ser. No. 109,480

Int. Cl.^{6} H04B *1/10*

U.S. Cl. 375—346 9 Claims


DEMODULATING A RECEIVED SIGNAL AS A RECEIVED SAMPLE, r_k, THE RECEIVED SIGNAL INCLUDING A CHANNEL SYMBOL, A DISTORTION VALUE AND A NOISE VALUE
100
DETERMINING AN INDEX VALUE, FROM A PREVIOUS CHANNEL SYMBOL
110
SELECTING, USING THE INDEX VALUE, AN INVERSE DISTORTION FUNCTION, FOR PROCESSING THE RECEIVED SAMPLE
120
COMPUTING A CORRECTED SAMPLE, USING THE INVERSE DISTORTION FUNCTION FOR THE INDEX VALUE
130
DETERMINING A VALUE OF AN INFORMATION SYMBOL, AS A CORRECTED INFORMATION SYMBOL, AND A NEXT INDEX, FROM THE CORRECTED SAMPLE, TO GENERATE A CORRECTED INFORMATION SYMBOL SEQUENCE AS AN OUTPUT SIGNAL TO ENABLE HIGHER INFORMATION RATES IN A GIVEN BANDWIDTH
140
SELECTING, USING THE NEXT INDEX, THE INVERSE DISTORTION FUNCTION FOR PROCESSING A SUBSEQUENT RECEIVED SAMPLE IN A SUBSEQUENT INFORMATION INTERVAL
150

1. A method using a demodulator and a processor for reducing distortion of a k^{th} information symbol of an information symbol sequence, $\{i_k\}$, with k^{th} being one of a plurality of information symbols in the information symbol sequence, with each information symbol of the plurality of information symbols having an information interval with n bits, with n being a number of bits in the information interval, the information symbol sequence being transformed to a channel symbol sequence of an M-ary signalling scheme with index value, j, $1 \leq j \leq M$, with M being a number of channel symbols, for modulating a carrier signal, comprising the steps of:

demodulating with said demodulator a received signal as a received sample, r_k, the received signal including a channel symbol, a distortion value and a noise value,

determining with said processor an index value, j, from a previous channel symbol;

selecting with said processor, using the index value, j, an inverse distortion function, $f_j(r_k)$, for processing the received sample, r_k;

computing with said processor a corrected sample, $\hat{s}_k$, using the inverse distortion function, $f_j(r_k)$, for the index value,

determining with said processor for each value of an information symbol i_k as a corrected information symbol, $\hat{i}_k$, and determining with said processor a next index, j, from the corrected sample, $\hat{s}_k$;

generating, using the corrected information symbol for each value of the information symbol sequence and the next index from the corrected sample, a corrected information symbol sequence, $\{\hat{i}_k\}$, as an output signal to enable higher information rates in a given bandwidth.

5,740,207

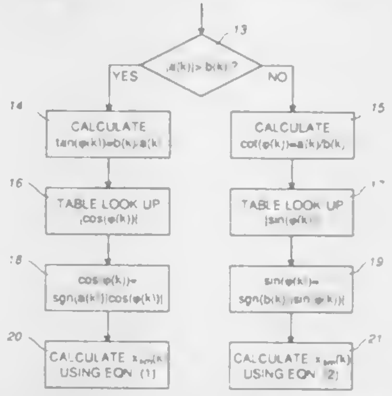
COMPLEX SIGNAL LIMITING

Wen Tong, and Rui Wang, both of Ottawa, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Oct. 19, 1995, Ser. No. 545,182

Int. Cl.^{6} H04B *1/10;* **H03K** *5/08;* **H03D** *3/00*

U.S. Cl. 375—346 4 Claims


13
|a(k)|> |b(k)| ?
YES
NO
14
CALCULATE tan(φ(k))=b(k)/a(k)
15
CALCULATE cot(φ(k))=a(k)/b(k)
16
TABLE LOOK UP |cos(φ(k))|
17
TABLE LOOK UP |sin(φ(k))|
18
cos(φ(k))= sgn(a(k))|cos(φ(k))|
19
sin(φ(k))= sgn(b(k))|sin(φ(k))|
20
CALCULATE x(k) USING EQN (1)
21
CALCULATE x(k) USING EQN (2)

1. A method of reducing co-channel interference in a frequency modulated signal, comprising the steps of:

sampling the frequency modulated signal to produce signal samples represented by a complex number a(k)+jb(k) where a(k) and b(k) are real numbers and k is an integer which identifies each sample; and

limiting each sample to produce a limited output signal sample by the steps of:

determining a ratio r which has a magnitude less than one and which in a first case is equal to b(k)/a(k) and in a second case is equal to a(k)/b(k);

determining a variable p with a magnitude equal to $1/\sqrt{1+r^2}$, and

determining a number equal to sgn(a(k))p(1+jr) in the first case and equal to sgn(b(k))p(r+j) in the second case representing the limited output signal sample

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5,740,208

INTERFERENCE CANCELLATION APPARATUS FOR MITIGATING THE EFFECTS OF POOR AFFILIATION BETWEEN A BASE STATION AND A MOBILE UNIT

Anthony Peter Hulbert, Southampton, and David Peter Chandler, Hampshire, both of Great Britain, assignors to Roke Manor Research Limited, England

Continuation of Ser. No. 373,300, Jan. 23, 1995. This application Aug. 8, 1996, Ser. No. 695,674

Claims priority, application United Kingdom, Jun. 25, 1993, 9313078; Aug. 9, 1993, 9316491

Int. Cl.^{6} H04B *1/10*

U.S. Cl. 375—346 20 Claims

1. An apparatus for use in equipment providing a digital radio link between base stations and mobile units of a mobile radio system, said apparatus comprising: means for affiliating a first base station of the base stations with a first mobile unit, and cancellation means for canceling at least one interfering signal transmitted by at least one of the first base station and a second base station to a second mobile unit and received by the first mobile station as a

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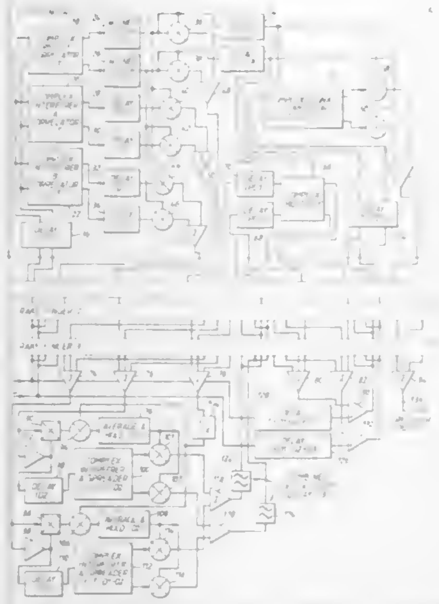

result of the first mobile unit being affiliated to the first base station, when the first base station produces non-optimum reception, said cancellation means including a plurality of Rake fingers arranged to receive an inphase and quadrature phase input signal, wherein each Rake finger includes a first correlator connected to Wiener filter means for detecting a pilot signal from a base station, at least one second correlator for detecting said at least one interfering signal, a third correlator, and at least one corresponding interferer spreading means connected to said Rake fingers and arranged in combination with said second correlator to regenerate said interfering signal, a plurality of scaling means for scaling outputs of said interferer spreading means in accordance with signals derived from signals generated by said second correlator, combining means for combining outputs from said scaling means, and filtering means for reproducing transmit and receiver filter effects on signals output from the scaling means, a multiplying means receiving output signals from the filtering means and scaling signals derived from the Wiener filter means for generating said interfacing signals to be subtracted from said input signals to said third correlator, from which said third correlator operates by to generate an interference free signal, thereby obviating a need to provide the mobile radio system with apparatus for effecting a soft hand-off or an instantaneous hard hand-off

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5,740,209

METHOD OF ADJUSTING FOR DOPPLER SHIFTS IN COMMUNICATION SIGNALS

Timothy E. Snodgrass, Palo, Iowa, assignor to Rockwell International, Costa Mesa, Calif.

Filed Sep. 18, 1996, Ser. No. 715,676

Int. Cl.^{6} H04L *1/00; 25/08*

U.S. Cl. 375—346 **18 Claims**

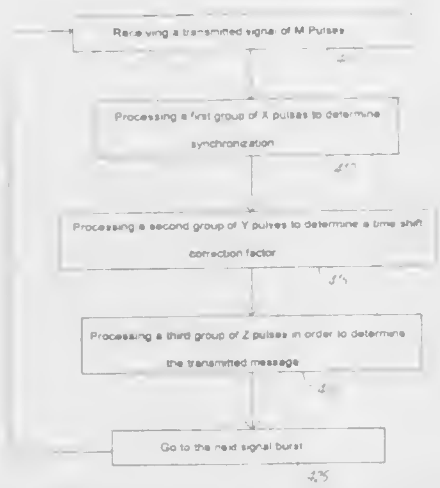
1. A method of processing data signals in a wireless communication system having bursts of individual data pulses comprising the transmitted signal, comprising the steps of:

receiving a transmitted signal of M pulses, wherein each pulse is comprised of N bits;

processing a first group of pulses, X, of the received transmitted signal, wherein X is an integer value no greater than M minus three, in order to synchronize the received signal with a predetermined decoding scheme;

processing a second group of pulses, Y, of the received transmitted signal, wherein Y is an integer value no greater than M minus X minus one in value, in order to determine a time shift correction factor of the transmitted signal; and

applying the time shift correction factor in processing a third group of pulses, Z, of the received transmitted signal, wherein


Receiving a transmitted signal of M Pulses
Processing a first group of X pulses to determine synchronization
Processing a second group of Y pulses to determine a time shift correction factor
Processing a third group of Z pulses in order to determine the transmitted message
Go to the next signal burst
425

Z equals M minus the sum of X plus Y, and yields the transmitted message corrected for Doppler shift within the M pulses of the signal

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5,740,210

DATA DISCRIMINATING CIRCUIT AND A PARALLEL DATA RECEIVER USING THE SAME

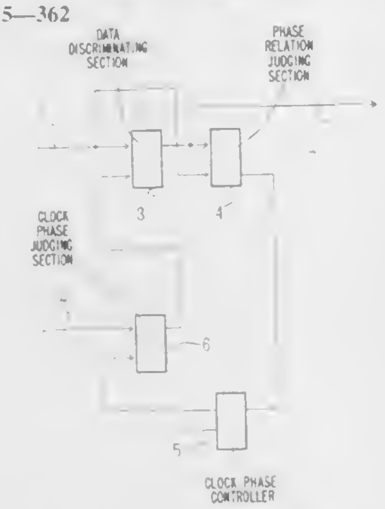
Hiroyuki Rokugawa, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 125,754, Sep. 24, 1993, abandoned. This application Jan. 11, 1996, Ser. No. 583,961

Claims priority, application Japan, Jan. 21, 1993, 5-026251

Int. Cl.^{6} H04L *7/04*

U.S. Cl. 375—362 **46 Claims**


DATA DISCRIMINATING SECTION
PHASE RELATION JUDGING SECTION
3
4
CLOCK PHASE JUDGING SECTION
6
5
CLOCK PHASE CONTROLLER

1. A data discriminating circuit comprising:

a data discriminating section discriminating input data in synchronism with a clock signal and outputting resultant data as discriminated data;

a phase relation judging section receiving the input data and the discriminated data and judging a phase relation therebetween;

a clock phase controller producing a phase control signal to control an initially-determined phase of the clock signal, based on an output of the phase-relation judging section; and

a clock phase judging section determining a phase of the clock signal and altering the initially determined phase of the clock signal in accordance with the phase control signal from the clock phase controller.

5,740,211

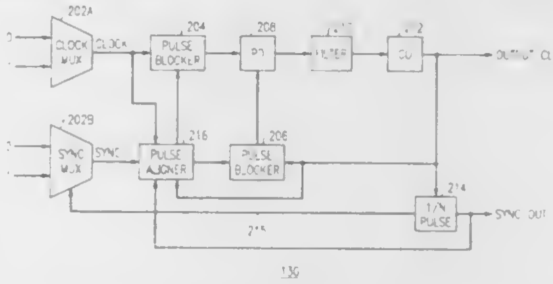
METHOD AND APPARATUS FOR A HITLESS SWITCH-OVER BETWEEN REDUNDANT SIGNALS

Paul Stephan Bedrosian, Andover, Mass., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 12, 1996, Ser. No. 745,540

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 375—371 **11 Claims**



1. An apparatus for switching between a plurality sets of data pulse trains without incurring a data error, comprising:

a multiplexer for selecting one set of pulse trains from the plurality of pulse train sets to be connected to a set of multiplexer output terminals, said selected set of pulse trains including a clock pulse train and a synchronization pulse train which are delivered to a clock output terminal and a synchronization output terminal, respectively;

a first pulse dropping means for selectively dropping at least one pulse of the selected clock pulse train having an input connected to said clock output terminal and an output terminal;

a phase detector having a first input connected to said output of said first pulse dropping means, a second input and an output;

a filter having an input connected to said output of said phase detector and an output;

a controlled oscillator having a control input connected to said output of said filter and an output

a divide by N means connected to said output of said controlled oscillator for providing at an output thereof a pulse very similar to one of the pulses of said controlled oscillator for every N pulses of said controlled oscillator, where N is an integer,

a second pulse dropping means having a clock input connected to said controlled oscillator output, a control input and an output which is connected to said second input of said phase detector; and

a pulse aligner having a first input connected to said output of said divided by N means, a second input connected to said synchronization output terminal of said multiplexer, a first output connected to said first pulse dropping means and a second output connected to said second pulse dropping means,

said pulse aligner senses the difference between said synchronization pulse train from said multiplexer and said output of said divide by N means and controls said first and second pulse dropping means to drop pulses from their respective trains to drive said phase detector to control said oscillator to reduce the difference sensed by said pulse aligner until said difference is very small, upon reaching said very small difference sensed by said pulse aligner, said first and second pulse dropping means are disabled and become essentially closed switches allowing said phase detector to drive said controlled oscillator in typical phase locked loop operation.

5,740,212

DELAY CIRCUIT OF PCM DATA

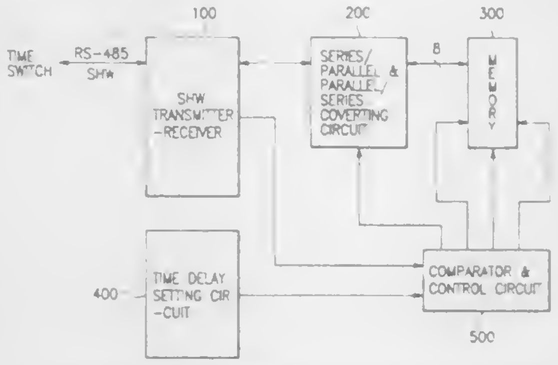
Don-Sung Oh; Dong-Jin Shin, and Young-Dae Lee, all of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Filed Aug. 13, 1996, Ser. No. 696,090

Claims priority, application Rep. of Knrea, Oct. 31, 1995, 1995-38766

Int. Cl.^{6} H04L *7/00*

U.S. Cl. 375—372 **3 Claims**


100
200
300
TIME SWITCH
RS-485
SHW
SHW TRANSMITTER -RECEIVER
SERIES/ PARALLEL & PARALLEL/ SERIES COVERTING CIRCUIT
8
MEMORY
400
TIME DELAY SETTING CIR -CUIT
COMPARATOR & CONTROL CIRCUIT
500

1. In a delay circuit of PCM data, the delay circuit of PCM data comprising:

a sub-highway SHW transmitting and receiving means for transmitting and receiving a PCM data of a predetermined channel of serial form received from a time switching device;

a serial/parallel and parallel/serial converting means for either converting the PCM data of serial form received through the sub-highway transmitting and receiving means to a parallel data of predetermined bits for storing to a memory in response to an operating clock to be provided or else converting the PCM data of parallel form stored in the memory to a serial,

the memory for storing once the PCM data converted through the serial/parallel and parallel/serial converting means,

the delay time setting means for setting a delay time of data at initial time or during operation; and

a comparing and controlling means for comparing a setting value of the delay time setting means and a writing address of the memory in response to a clock and synchronous pulse fed from the sub-highway transmitting and receiving means, providing an address and access control signal either for initiating a reading address of the memory or else for writing or reading to the memory, and providing the operating clock to the serial/parallel and parallel/serial converting means, and

characterized by making to delay the PCM data of a predetermined channel during any frame.

5,740,213

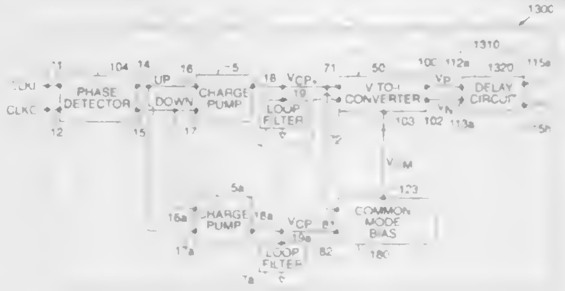
DIFFERENTIAL CHARGE PUMP BASED PHASE LOCKED LOOP OR DELAY LOCKED LOOP

Stephen F. Dreyer, P.O. Box 60323, Sunnyvale, Calif. 94086

Filed Jun. 3, 1994, Ser. No. 253,537

Int. Cl.^{6} H03D *3/24* **H04L** *23/60*

U.S. Cl. 375—374 **24 Claims**



19. A circuit for aligning a phase of a first signal and a second signal comprising:

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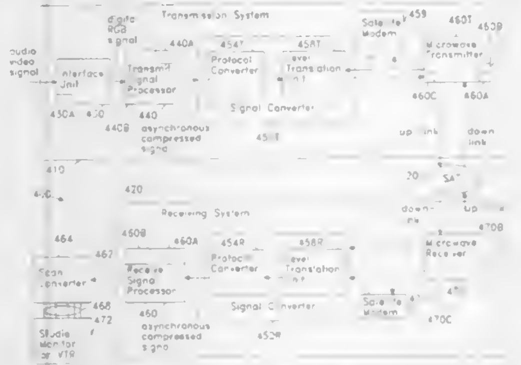
a differential charge pump circuit having a first input terminal, a second input terminal, a first output terminal and a second output terminal, wherein said differential charge pump circuit generates at said first output terminal and said second output terminal a differential signal in response to a phase difference between said first signal and said second signal; and

a voltage-controlled delay circuit coupled to said first output terminal and said second output terminal of said differential charge pump circuit, wherein said voltage-controlled delay circuit generates said second signal.

5,740,214
INTEGRATED COMMUNICATION SYSTEM

Mihailo V. Rebec, and Mohammed S. Rebec, both of Bristol, Ind., assignors to Trans Video Electronics, Ltd., Bristol, Ind.
Continuation of Ser. No. 47,089, Apr. 16, 1993, abandoned. This application Nov. 21, 1995, Ser. No. 561,168
Int. Cl.^{6} H04H *1/00*
U.S. Cl. 375—377 **56 Claims**



1. A portable integrated transmission system to be used with a satellite communications system to establish a satellite communications up-link, comprising:

transmit interface means for transforming an analog signal into a digital signal;

transmit signal processing means for compressing said digital signal into a compressed asynchronous signal;

transmit asynchronous-to-synchronous satellite signal converting means for converting said compressed asynchronous signal into a compressed synchronous signal capable of being transmitted via a microwave signal directly to a satellite in the satellite communications system, and

microwave satellite transmitting means for generating a microwave signal, modulating said microwave signal with said compressed synchronous signal to produce a modulated microwave satellite signal and for directly transmitting said modulated microwave satellite signal to the satellite in the satellite communications system in a manner so as to achieve the satellite communications up-link.

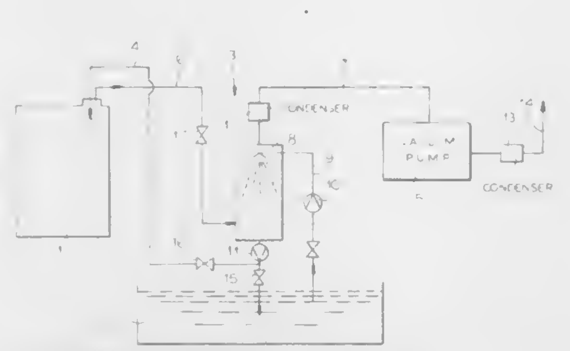
5,740,215
SYSTEM FOR BACKCOOLING RADIOACTIVE-WASTE CONTAINERS

Konrad Gluschke, Wickede, and Horst-D. Ekrut, Sprockhövel, both of Germany, assignors to GNB Gesellschaft fur Nuklear-Behalter mbH, Essen, Germany
Filed Feb. 24, 1997, Ser. No. 805,407
Claims priority, application Germany, Jan. 17, 1997, 197 01 549.2
Int. Cl.^{6} G21C *19/08*; G21F *5/10*
U.S. Cl. 376—272 **6 Claims**

1. A method of backcooling a transport/storage container holding spent radioactive fuel elements, the method comprising the steps of:

a) withdrawing gases from inside the container to create a subatmospheric pressure therein;

b) feeding coolant water from a reservoir into the container;

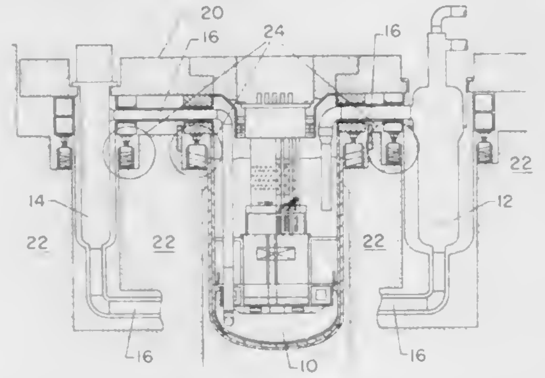


c) withdrawing steam from the container; and

d) condensing the steam outside the container into condensate water.

5,740,216
VERTICAL SEISMIC ISOLATION STRUCTURE OF COMMON DECK SYSTEM FOR NUCLEAR REACTOR COMPONENTS

Masaki Morishita, Mito, Japan, assignor to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo-to, Japan
Filed Aug. 30, 1995, Ser. No. 520,785
Claims priority, application Japan, Dec. 12, 1994, 6-332032
Int. Cl.^{6} G21C *13/04*
U.S. Cl. 376—285 **2 Claims**



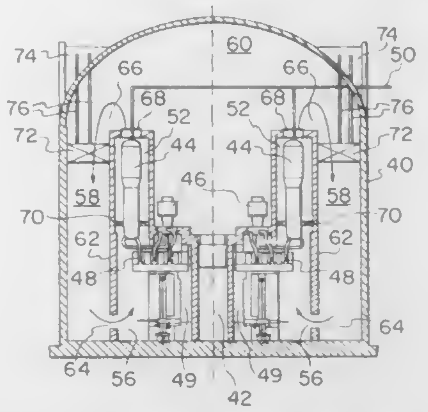
1. A common-deck type vertical seismic isolation structure for nuclear reactor components, characterized in that a nuclear reactor vessel, circulating pumps and heat exchangers, all of which are connected to each other by primary pipings in which a coolant is circulated, are mounted on a common deck, vertical seismic isolators each of which has laminated large coned disc springs and is capable of expanding and contracting in only the vertical direction are installed on the top of a concrete wall surrounding the respective nuclear reactor components, and the common deck is placed on all the vertical seismic isolators.

5,740,217
PASSIVE EMERGENCY HYDROGEN MITIGATION SYSTEM FOR WATER-COOLED NUCLEAR REACTORS

Norman J. Spinks, Deep River, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Canada
Continuation of Ser. No. 550,662, Oct. 31, 1995, abandoned. This application May 15, 1997, Ser. No. 856,729
Int. Cl.^{6} G21C *9/00*; *15/18*
U.S. Cl. 376—301 **4 Claims**

1. In a water cooled nuclear reactor having within its outer containment wall a reactor core and coolant lines associated therewith and at least one steam generator enclosure, a system for removing hydrogen from containment atmosphere generated in the event of loss of coolant accident occasioned by a break in said coolant lanes, comprising:

means for establishing within containment an air upflow path and an air downflow path in convective exchange, path



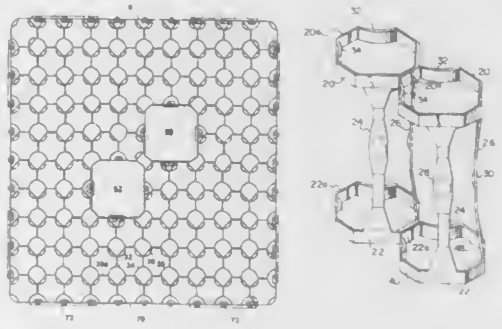
between said containment wall and said baffle wall at an elevation near said upper end of said baffle wall and in convective heat exchanger relation with an elevated pool of water said air upflow path disposed in the area of said coolant lines and effective to entrain hydrogen from said break and said air donwflow path in the area adjacent said containment wall, said means comprising a baffle wall disposed between the area of said coolant lines and the outer containment wall and having a lower and upper aperture, said baffle wall defining an air upflow path from said lower aperture to said upper aperture through the area of said coolant lines and an air downflow path from said upper aperture to said lower aperture in the area between said baffle wall and the outer containment wall;

means for ducting said air upflow path downstream of said coolant lines effective to confine said entrained hydrogen to the ducked air upflow path, said means for ducting comprising structural members located at an elevation above said coolant lines configured to duct said air upflow through said at least one steam generator enclosure and blank off alternative air upflow paths; and

at least one catalytic hydrogen recombiner located in said at least one steam generator enclosure such that said ducked air upflow path passes therethrough for recombining said entrained hydrogen with oxygen.

5,740,218
SPACER FOR A TRANSPORTABLE NUCLEAR FUEL ROD BUNDLE

Christian D. Frederickson, Wilmington; Robert B. Elkins, Wilmington; Edward A. Croteau, Wilmington; Harold B. King, Wilmington, and David G. Smith, Leland, all of N.C., assignors to General Electric Company, Schenectady, N.Y.
Filed Mar. 26, 1996, Ser. No. 621,879
Int. Cl.^{6} G21C *3/34*
U.S. Cl. 376—442 **3 Claims**



1. A spacer for a nuclear fuel rod bundle comprising:

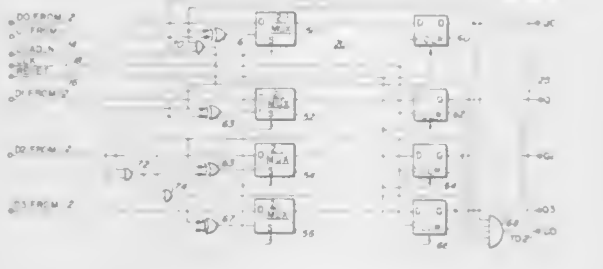
a generally rectilinear grid having opposed sides and defining a plurality of cells for receiving fuel rods extending in generally parallel relation to one another;

each cell being formed of a discrete ferrule including a wall for encompassing a fuel rod, said wall having a pair of stops spaced from one another along a side of said cell and at least one spring along an opposite side wall of said cell generally in opposition to said stops for biasing the fuel rod into engagement with said stops, the wall of each said cell including upper and lower fuel rod encompassing arms, said stops being spaced along said upper arm and a second pair of stops spaced along said lower arm at like sides of said cell as said pair of stops along said upper arm, said spring interconnecting said upper and lower arms and having a fuel rod contact point intermediate said upper and lower arms,

said cells being arranged in said spacer with a number of said cells in excess of 50% of said plurality of cells within the spacer having both said stops oriented in a common direction toward one side of said grid.

5,740,219
DIGITAL COUNTER TEST CIRCUIT

David John O'Dell, Phoenix, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.
Filed Dec. 3, 1996, Ser. No. 753,922
Int. Cl.^{6} H03K *21/40*
U.S. Cl. 377—29 **8 Claims**



1. A system for testing a counter of mn stages in which the counter is organized into m segments, each of n bits, with a carry output for each of said m segments and a carry input for each of said m segments, said system including in combination:

a source of clock pulses applied to said counter for advancing the count therein;

an exclusive OR gate having an output and first and second inputs coupled between each of said m segments of said counter, with the carry output of a lower order one of said m segments connected to the first input of said exclusive OR gate and the output of said exclusive OR gate connected to the carry input of the next higher order one of said m segments, and

a source of test enable signals connected to the second inputs of each of said exclusive OR gates for enabling said exclusive OR gates to respond to the carry output of said m counter segments in a test mode of operation of said counter.

5,740,220
SIGNAL GENERATING DEVICE INCLUDING PROGRAMMABLE COUNTERS AND A PROGRAMMABLE SERIAL BIT PATTERN GENERATOR

Frederik Zandveld, Eindohoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 499,556, Jul. 7, 1995, abandoned, which is a continuation of Ser. No. 93,230, Jul. 16, 1993, abandoned. This application Nov. 7, 1996, Ser. No. 744,499
Claims priority, application European Pat. Off., Jul. 17, 1992, 92202241
Int. Cl.^{6} H03K *5/156*
U.S. Cl. 377—72 **16 Claims**

1. A signal generating device, comprising:

a first programmable counting device having a count input coupled to a clock signal for generating a first control signal upon counting from a first selectively variable count value to a first final count value;

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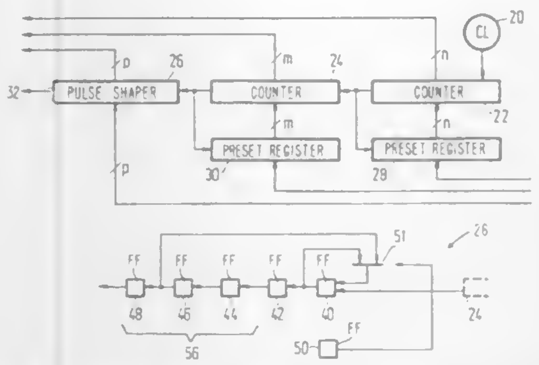


a second programmable counting device having a count input coupled to said first control signal for generating a second control signal upon counting from a second selectively variable count value to a second final count value; and

a programmable serial bit pattern generator for outputting a serial bit stream output signal, said pattern generator comprising a serial shift register having a plurality of stages, said stages each having a (i) data input for receiving a data bit, whereby said shift register receives a programmed bit pattern value, and (ii) a shift input for receiving a shift control signal for controlling the frequency of shifting of data in said shift register, at least one of said stages having a data input for receiving successive bits of said second control signal, and control means for controlling the loading of said second control signal into said at least one stage so that said output signal selectively includes selected bits of said second control signal.

5,740,221

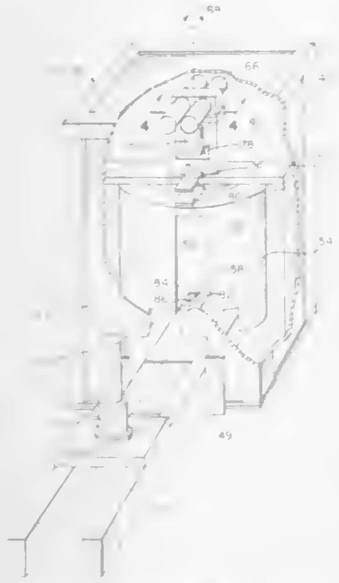
AIRBAG INFLATOR X-RAY INSPECTION APPARATUS WITH ROTATING ENTRY AND EXIT DOORS

Kerry J. Norman, Brigham; Brian L. Baxter, Hooper; Kenneth D. Fowler, Farmington; Daren L. Sagers; Michael J. Hill, both of Logan, and Jeffery P. England, Clinton, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Oct. 29, 1996, Ser. No. 738,627

Int. Cl.^{6} G01N *23/04*

U.S. Cl. 378—58 **22 Claims**



1. An article x-ray inspection apparatus, which comprises

an x-ray impermeable housing defining an interior chamber having spaced apart entry and exit openings and an x-ray inspection section intermediate thereto;

an x-ray source disposed inside said interior chamber and positioned so as to direct x-ray beams at an article in said inspection section;

a visual imager disposed inside said interior chamber and positioned so as to receive said x-ray beams and convert said x-ray beams into a visual image;

a conveyor extending through said entry and exit openings and said inspection section to transport said article into and out of said interior chamber; and,

rotatable entry and exit doors rotatably mounted respectively across said entry and exit openings to substantially prevent escape of x-ray beams from the interior chamber to an exterior of said housing while permitting said article to be conveyed into and out of said interior chamber,

each rotatable door comprising an x-ray impermeable rotatable drum having a hollow interior cavity and one opening along a sidewall thereof leading into said interior cavity, said one drum opening being generally configured to receive said article, said one drum opening being rotatably alignable in a first position so as to enable open communication between said exterior of said housing and the interior cavity in said drum, and said one drum opening being rotatably alignable in a second position so as to enable open communication between said interior chamber and the interior cavity in said drum.

5,740,222

RADIATION COMPUTED TOMOGRAPHY APPARATUS

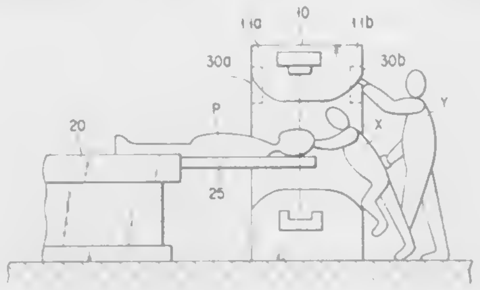
Hidehiro Fujita; Masatoshi Tomura, both of Otawara; Hisashi Tachizaki, Nasu-gun; Hideki Fujimoto, Otawara; Manabu Hiraoka, Tochigi-ken; Masaharu Tsuyuki, Otawara; Naoko Hasegawa, Tochigi-ken; Tomoyasu Komori, Otawara; Makoto Suzuki, Tochigi-ken; Hiroshi Hori, Otawara, and Yasuo Maruyama, Utsunomiya, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 348,101, Nov. 25, 1994, abandoned. This application Feb. 24, 1997, Ser. No. 804,574

Claims priority, application Japan, Nov. 26, 1993, 5-296944; Nov. 26, 1993, 5-297021; Nov. 26, 1993, 5-297023

Int. Cl.^{6} A61B *6/00*

U.S. Cl. 378—4 **18 Claims**



1. A radiation computed tomography apparatus for obtaining a tomographic image of a patient, comprising,

a couch,

a top board which carries the patient and is slidably arranged on said couch;

a gantry wich has an opening and acquires projection data of the patient by guiding the patient carried on said top board into the opening,

reconstruction means for reconstructing the tomographic image of the patient by reconstructing the projection data acquired by said gantry;

display means for displaying the tomographic image of the patient reconstructed by said reconstruction means;

designating means for designating a position of a tip of an insertion object and a target object on the tomographic image displayed on said display means;

recognition means for recognizing a CT value at a tip position of the insertion object and a position of the target object designated by said designating means; and

monitor means for monitoring movement direction of the insertion object in the patient, and moving means for moving a slice position according to a monitoring result, wherein said

monitor means includes means for outputting a distance information between the tip of the insertion object and the target object in the patient.

5,740,223

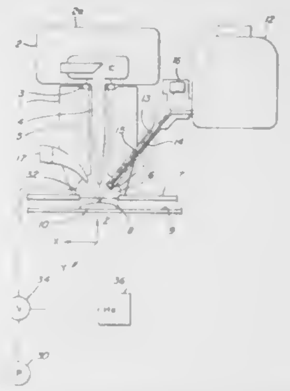
FLUORESCENT X-RAY ANALYZER WITH SEALED X-RAY SHIELD WALL

Sumito Ozawa; Yoshinori Hosokawa; Kozo Kashihara, and Gensiro Setou, all of Miyanohigashi-machi, Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Dec. 4, 1996, Ser. No. 759,371

Int. Cl.^{6} G21K *1/04*

U.S. Cl. 378—161 **10 Claims**



1. In a fluorescent X ray analyzer characterized by leading a primary X-ray generated by an X-ray generator into an X-ray irradiation area by an X-ray guide tube, emitting the primary X ray to a sample on a sample stage through an opening formed in an X-ray shield wall disposed in the X-ray irradiation area, and detecting the fluorescent X-ray generated with an X-ray detector, the improvement comprising

a resin film of a low X-ray absorption rate sealingly stretched in the opening of the X-ray shield wall to divide the shield wall into a first space comprising the X-ray guide tube and X-ray detector and a second space comprising the sample stage, and

means for placing the first space in an approximately vacuum state.

5,740,224

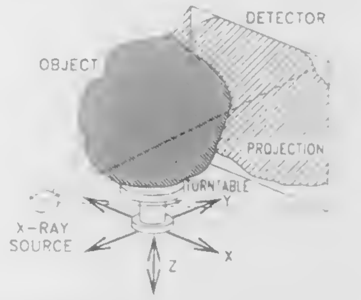
CONE BEAM SYNTHETIC ARRAYS IN THREE-DIMENSIONAL COMPUTERIZED TOMOGRAPHY

Martin Müller, Fellbach, Germany; Gonzalo R. Arce, Wilmington, Del., and Robert A. Blake, Jr., Apollo, Pa., assignors to University of Delaware, Newark, Del., and Aluminum Co. of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 313,735, Sep. 27, 1994, abandoned. This application Nov. 30, 1995, Ser. No. 564,854

Int. Cl.^{6} L01N *23/083*

U.S. Cl. 378—11 **12 Claims**



1. A scanning and data acquisition method for 3-D cone beam computerized tomography (CT) imaging of an object within a field of view, said method comprising,

providing a cone beam x-ray source and a detector array having a total area which is insufficient to contain the field of view,

successively scanning said object and acquiring partial cone beam x-ray data sets at a plurality of relative positions of said object and said x-ray source and detector array, said object being translated along the x and y axes, and optionally the z-axis, and rotated through a rotation angle of 360° relative to said x-ray source and detector array at every position,

combining said partial data sets to yield a full data set covering the entire field of view from which to reconstruct an image of said object.

5,740,225

RADIATION THERAPY PLANNING METHOD AND ITS SYSTEM AND APPARATUS

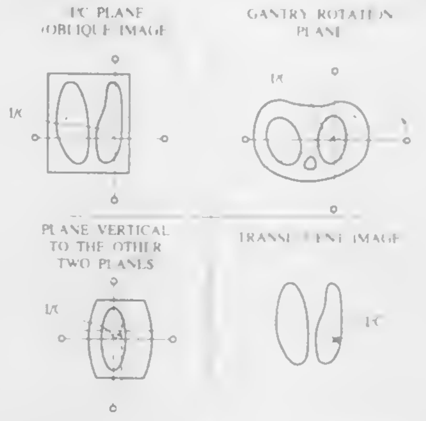
Takeo Nabatame, Tochigi, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 6, 1996, Ser. No. 761,141

Claims priority, application Japan, Dec. 7, 1995, 7-318706

Int. Cl.^{6} A61N *5/10*

U.S. Cl. 378—65 **12 Claims**



1. A radiation therapy planning method of estimating the direction of radiation and/or the field of radiation prior to actual radiation treatment, comprising the steps of

producing voxel data of a region of interest in a subject to be treated;

constructing a translucent image of the subject from the voxel data which is viewed from a desired location or direction, and

determining the field of radiation over the translucent image

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5,740,226

FILM THICKNESS MEASURING AND FILM FORMING METHOD

Satoshi Komiya; Naoki Awaji, and Shunji Kashiwagi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 27, 1996, Ser. No. 757,622

Claims priority, application Japan, Nov. 30, 1995, 7-312441

Int. Cl.^{6} G01N *23/201*

U.S. Cl. 378—70 **16 Claims**

1. A film thickness measuring method comprising the steps of measuring reflectances of X rays on a film, extracting interference oscillations from the measured X-ray reflectances, and Fourier transforming the interference oscillations to compute a film thickness of the film,

an average reflectance being given by fitting the measured X ray reflectances to an analysis formula including a term of a product of a power function of an incident angle, which expresses attenuation of reflectances on a smooth surface of the film, and an exponent function which expresses influence of roughness of the surface of the film, and a constant term expressing a background added to the product.

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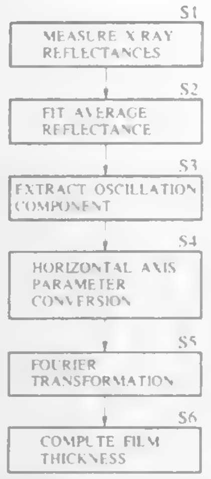

S1
MEASURE X RAY REFLECTANCES
S2
FIT AVERAGE REFLECTANCE
S3
EXTRACT OSCILLATION COMPONENT
S4
HORIZONTAL AXIS PARAMETER CONVERSION
S5
FOURIER TRANSFORMATION
S6
COMPUTE FILM THICKNESS

the interference oscillations being extracted by using the measured X-ray reflectances and the average reflectance.

5,740,227

X-RAY APPARATUS WITH A CEILING SUSPENSION

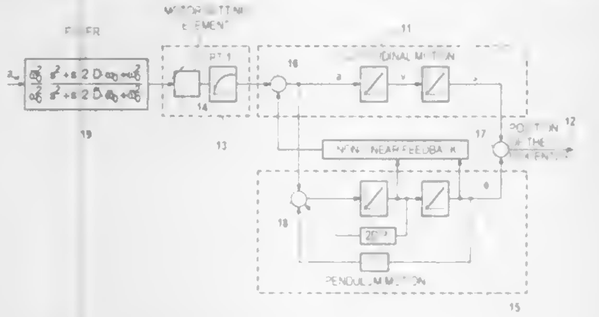
Jochen Kusch, Effeltrich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed May 1, 1997, Ser. No. 848,874

Claims priority, application Germany, Jun. 10, 1996, 196 23 115.9

Int. Cl.^{6} H05G *1/08*

U.S. Cl. 378—91 2 Claims



1. An x-ray apparatus comprising:

a plurality of x-ray diagnostic components;

suspension means for suspending said plurality of x-ray diagnostic components from a ceiling, including a motor for moving said plurality of x-ray diagnostic components along the ceiling, said suspension means and said plurality of x-ray diagnostic components comprising a system which exhibits a system behavior including pendulum-like oscillations when moved, and

a motor control circuit which emits control signals for operating said motor, including means for electronically modeling a longitudinal motion of said system along the ceiling, means for electronically modeling said pendulum-like oscillations and superimposing the modeled pendulum-like oscillations on the longitudinal motion, and filter means for producing a selected compensating factor in an output signal of said motor control circuit for eliminating said pendulum-like oscillations, and a setting stage having an output signal which drives said motor, said setting stage being connected between said filter and said means for modeling said longitudinal motion.

5,740,228

X-RAY RADIOLUCENT MATERIAL, METHOD FOR ITS MANUFACTURE, AND ITS USE

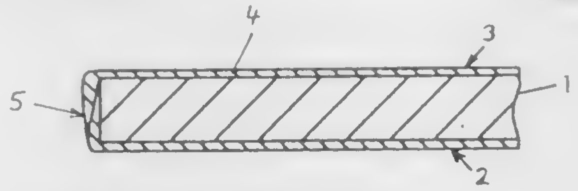
Martin Schmidt, Berlin, and Thomas Zetterer, Engelstadt, both of Germany, assignors to Institut für Mikrotechnik Mainz GmbH, Mainz, Germany

Filed Aug. 2, 1996, Ser. No. 691,482

Claims priority, application Germany, Aug. 2, 1995, 195 28 329.5

Int. Cl.^{6} G21K *1/00*

U.S. Cl. 378—161 4 Claims



1. An X-ray radiolucent material comprising

a substrate consisting of beryllium;

a protective coating connected to said substrate;

said protective coating comprised of at least one component selected from the group consisting of silicon oxide, silicon nitride, silicon carbide, and amorphous carbon;

wherein said protective layer comprises up to 20% hydrogen.

5,740,229

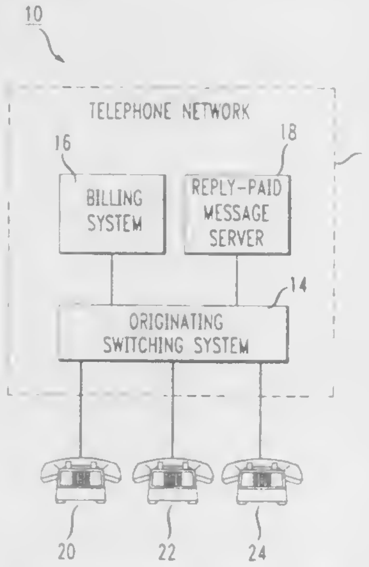
METHOD AND APPARATUS FOR A PRE-PAID RETURN CALL

Stephen Emmord Hanson, Edgewood, Md., and Ashok N. Rudrapatna, Basking Ridge, N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Mar. 15, 1996, Ser. No. 616,413

Int. Cl.^{6} H04M *3/48,3/50;15/16*

U.S. Cl. 379—67 20 Claims



1. A method for automatically providing a telecommunications connection between a calling party and a recipient party in a telephone network having a telecommunication switching system connected to a message server and a billing system connected to both said switching system and said message server, said method comprising the steps of:

a) providing for leaving a message with said message server, wherein said message is generated by said calling party;

b) delivering said message to said recipient party with said message server;

c) providing for returning a call to said calling party, wherein said return call is initiated by said recipient party in response to said message, and providing the calling party an option to prepay the return call.

5,740,230

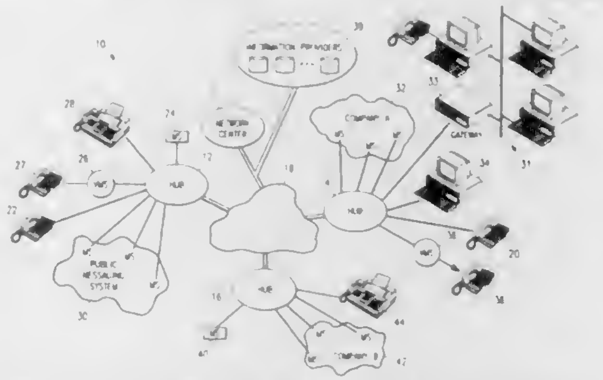
DIRECTORY MANAGEMENT SYSTEM AND METHOD

Gregory M. Vaudreuil, Dallas, Tex., assignor to Octel Communications Corporation, Milpitas, Calif.

Filed May 31, 1996, Ser. No. 657,775

Int. Cl.^{6} H04L *12/58* **G06F** *15/163*

U.S. Cl. 379—88 41 Claims



36. A method of validating messages using a communications network, comprising the steps of:

receiving at a receiving messaging system a message addressed to a recipient and a time stamp of a sending system directory entry associated with the recipient, the sending system directory entry used by a sending messaging system for a recipient confirmation;

getting from the receiving messaging system a time stamp of a receiving system directory entry associated with the recipient; and

validating the recipient confirmation by comparing the time stamp of the receiving system directory entry to the time stamp of the sending system directory entry.

5,740,231

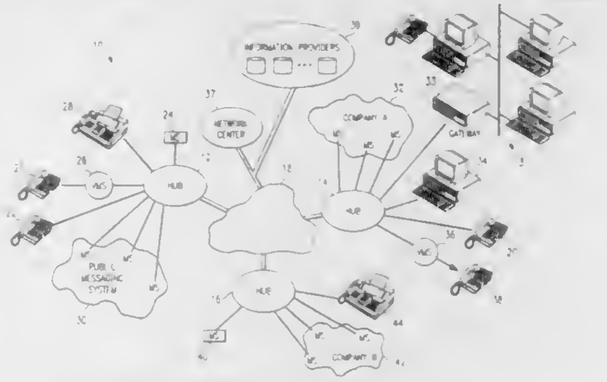
NETWORK-BASED MULTIMEDIA COMMUNICATIONS AND DIRECTORY SYSTEM AND METHOD OF OPERATION

Robert S. Cohn, Saratoga, Calif.; Gregory M. Vaudreuil; Carl F. Schoeneberger, both of Dallas, Tex.; David M. Reece, Arlington, Tex.; Carlton C. O'Neal, Dallas, Tex.; Carl W. Kalbfleisch, Richardson, Tex.; Mark B. Whipple, Dallas, Tex.; James R. Swoopes, Plano, Tex.; Alan T. Huch, and Michael P. Dimitroff, both of Dallas, Tex., assignors to Octel Communications Corporation, Milpitas, Calif.

Filed Sep. 16, 1994, Ser. No. 307,517

Int. Cl.^{6} H04M *1/64;3/50*

U.S. Cl. 379—89 56 Claims



1. A communications system, comprising:

a network system operable to be connected to external voice messaging systems;

interface systems resident in the network system and operable to be coupled to the external voice messaging systems, the network system operable to receive communications traffic through the interface systems from the external voice messaging systems, at least two of the external voice messaging systems communicating with the network system using disparate communications protocols.

database storage resident within the network system operable to store user profile information associated with users of the communications system connected through at least two of the external voice messaging systems, the user profile information comprising routing information for particular users of the communications system specifying the routing of messages according to the contents of the messages and the external messaging systems available to the particular users;

a network center coupled to the network system through an internal data communication path, the network center containing network support systems for the administration, tracking and operation of the communications system; and

the network center comprises a message tracking system operable to store status information associated with messages being processed by the system, the message tracking system operable to report the status of messages being processed by the system and further operable to stop the delivery of messages at the request of the sender of the message

5,740,232

SMART CARD BASED SYSTEM FOR TELEPHONE-SECURIZED TRANSACTIONS

Jean-Claude Pailles, Epnon, and Jacques Delaballe, Meudon, both of France, assignors to France Telecom, Paris; La Poste, Boulogne Billancourt, and Cogecom, Paris, all of France

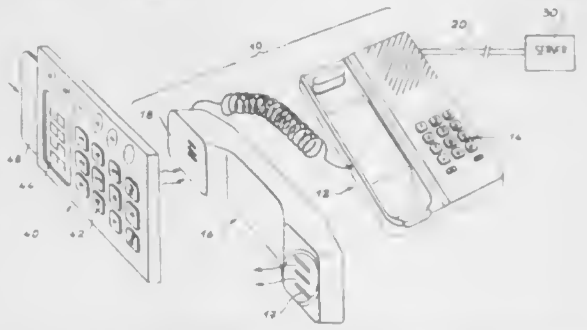
PCT No. PCT/FR95/00591, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/30975, PCT Pub. Date Nov. 16, 1995

PCT Filed May 5, 1995, Ser. No. 569,132

Claims priority, application France, May 6, 1994, 94 05615

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 379—93.02 2 Claims



1. A smart card based system for telephone-securized transactions comprising:

a telephone terminal comprising,

a loudspeaker, and

a transmitter, said telephone terminal being connected to a server by way of a telephone network,

a smart card configured to calculate security parameters using a security function operation mechanism stored therein, and

a portable securing device configured to connect to the smart card and to secure a transaction between a user of the portable securing device and the server by performing a bidirection information exchange operation between the server and the smart card, said portable securing device comprising,

a keypad,

a display,

an internal sound signal transmitter that is configured to produce acoustic energy therefrom that is directly received by said transmitter of said telephone terminal,

a bus configured to couple the smart card to the keypad, the display, and the internal sound signal transmitter, wherein, said information exchange operation using a communications channel from said server to said smart card comprising,

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- a link between said server and said loudspeaker where said server produces voice signals indicative of data produced at said loudspeaker and recognizable by said user, and
- a link between said user and said keypad where said user enters said data on said keypad in response to said data being produced at said loudspeaker, said keypad passing said data via said bus to said smart card, and

said information exchange operation using another communications channel from said smart card to said server comprising,
- a link between said internal sound signal transmitter and said transmitter of said telephone terminal, and
- a link between said telephone terminal and said server

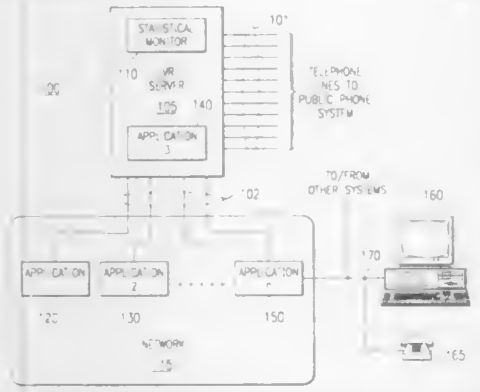
5,740,233
SYSTEM AND METHOD FOR STATISTICAL DIAGNOSIS OF THE OPERATION OF AN AUTOMATED TELEPHONE SYSTEM

Ellis K. Cave, Garland; Eric K. Weeren, Carrollton; David C. Cheng, Plano, and Daren K. Wilson, McKinney, all of Tex., assignors to InterVoice Limited Partnership, Reno, Nev.

Filed Nov. 2, 1995, Ser. No. 556,813

Int. Cl.⁶ H04M *15/00; 15/06*

U.S. Cl. 379—113 **50 Claims**



38. A method of diagnosing the operation of an automated telephone system coupled to a plurality of telephone lines, the method comprising the steps of:
- monitoring the plurality of telephone lines to detect an initiation and a termination of each incoming call on each of the telephone lines,
- measuring the duration of each of the incoming calls;
- counting a total number of incoming calls received on each line;
- comparing each duration of each incoming call on a first selected telephone line to a maximum threshold duration and to a minimum threshold duration; and
- generating a system alarm if more than a predetermined number of the last N incoming calls fall below the minimum threshold duration or exceed the maximum threshold duration.

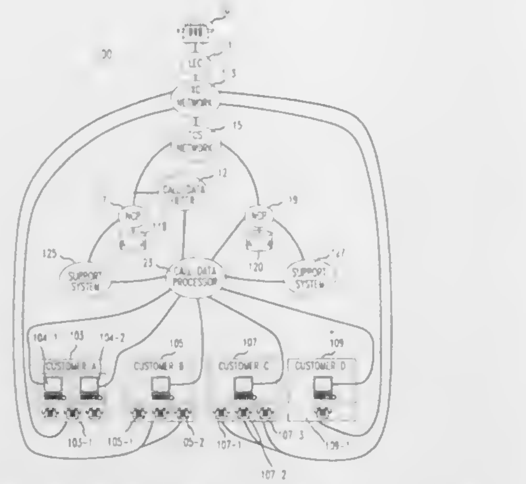
5,740,234
TELEPHONE CALL MONITORING METHOD AND APPARATUS

James Edward Black, Galena, Ohio; Brian Dean Freeman, Howell, N.J.; Richard D. Jordan, Columbus, Ohio; Steven Todd Kaish, Bridgewater, N.J.; Paul G. Sherry, Pickerington, Ohio; Ruth E. Smilan, Westerville, Ohio; Ronald W. Tamkin, Pataskala, Ohio; Neng H. Wang, Tinton Falls, N.J.; Alex Cherry Wilkinson, Princeton Junction, N.J.; Bret A. Cooper, Columbus, Ohio; Donald M. Gert, Dublin, Ohio, and Yogeesh H. Kamath, Gahanna, Ohio, assignors to AT&T Corp., Middletown, N.J.

Filed Sep. 29, 1992, Ser. No. 953,040

Int. Cl.⁶ H04M *15/00; 3/42*

U.S. Cl. 379—115 **27 Claims**



1. A method for use in monitoring call attempts processed by the network of an interexchange carrier in which the switches of said network route said call attempts in response to received instructions, the method characterized by the steps of:
- collecting, at a call data processor of said interexchange carrier, information relating to call attempts placed to at least one destination entity, said collecting being performed for each respective one of said call attempts prior to any routing of it by any of said switches; and
- periodically supplying to said destination entity information relating to call attempts placed to said at least one destination entity as it is collected without waiting for the termination of said call attempts, said supplying being independent of said call attempts for which said information is collected in said collecting step and said supplied information including at least a portion of said information collected in said collecting step.

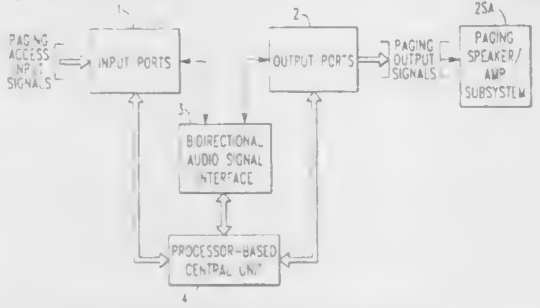
5,740,235
USER-PROGRAMMABLE PAGING SYSTEM CONTROLLER HAVING PRIORITY-BASED, MULTIPLE INPUT PAGING ACCESS CAPABILITY FOR SELECTIVELY ACTIVATING ONE OR MORE AUDIO/VISUAL PAGING OUTPUT DEVICES

James William Lester, Ventura; Terri Runyan Shafer, Camarillo, both of Calif.; Dennis Carl Chimienti, Snohomish, Wash., and Randall Mark Wagner, Thousand Oaks, Calif., assignors to Harris Corporation, Melbourne, Fla.

Filed Feb. 9, 1994, Ser. No. 194,363

Int. Cl.⁶ H04M *1/60;* **H04Q** *1/30;* **G08B** *5/22*

U.S. Cl. 379—170 **49 Claims**



1
2
25A
PAGING ACCESS INPUT SIGNALS
INPUT PORTS
OUTPUT PORTS
PAGING OUTPUT SIGNALS
PAGING SPEAKER/AMP SUBSYSTEM
3
BIDIRECTIONAL AUDIO SIGNAL INTERFACE
PROCESSOR-BASED CENTRAL UNIT
4

1. A paging system control apparatus comprising
- a plurality of input ports to which paging access input signals from plural types of input devices are supplied,
- a plurality of output ports from which paging output signals may be supplied to plural types of paging output devices;
- an audio signal interface circuit coupled to selected ones of said input ports and being operative to condition audio paging signals for application to audio paging output devices coupled to selected ones of said plurality of output ports, and being operative to couple audio/tone signals to one of said plurality of input ports, and
- a processor-based control unit coupled to said audio signal interface circuit and selected ones of said input and output ports, and being operative to enable prescribed types of paging signals to be delivered to said output ports in accordance with paging access input signals supplied to said input ports, and further including
- a plurality of user-programmable zone switch units, a respective user-programmable zone switch unit having an input/output port the function of which is user-programmable as either an input port or an output port, and wherein
- a respective user-programmable zone switch unit has a plurality of switch contacts which are selectively connectable with respect to said input/output port so as to provide an input signal path to said control unit, or an output connectivity path for a paging output device, said output connectivity path being controllably effected in accordance with a control signal supplied from said control unit.

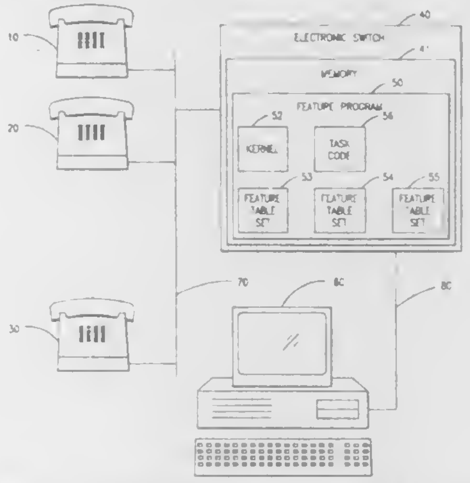
5,740,236
SYSTEM FOR PROVIDING FEATURE SERVICES IN A TELECOMMUNICATIONS SYSTEM

Leonard Eugene Pruitt, The Colony, Tex., assignor to Ericsson, Inc., Research Triangle PK., N.C.

Filed Dec. 21, 1995, Ser. No. 576,510

Int. Cl.⁶ H04M *3/42*

U.S. Cl. 379—201 **21 Claims**



1. A system for providing a telecommunications service feature within a telecommunications switch having an erasable memory, wherein said telecommunications service feature is represented using a plurality of states and a plurality of variables and is provided by transiting from a current state to a next state, said system comprising:
- a task code software module comprising a plurality of executable instructions for providing said telecommunications feature which are organized into a plurality of tasks wherein executable instructions within each of said tasks perform a common function of said telecommunications feature and wherein each of said tasks is represented by an unique numerical value;
- a first table scored as data within said erasable memory and including pointers no lists of said unique task values, wherein a particular one of said pointers is indexed and retrieved from said first table by indexing via:
  - a first numerical value representing a state said telecommunications feature is currently associated with;
  - a second numerical value representing an event that was precipitated by said telecommunications switch; and
  - a relational expression;
- a second table stored as data within said erasable memory and including said lists of task values; and
- a third table stored as data within said erasable memory and including a value representing a next state for a current state responsive to said indexing.

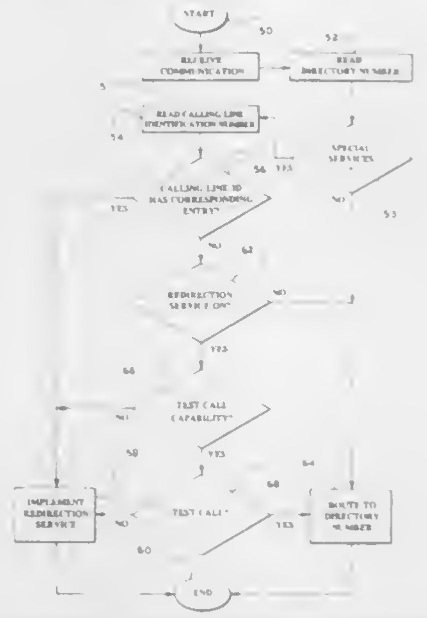
5,740,237
METHOD AND SYSTEM FOR A SINGULAR ACTIVATION OF A REDIRECTION SERVICE WITHOUT GENERAL ACTIVATION OF THE SERVICE

Dale Malik, Dunwoody, and Robert Koch, Norcross, both of Ga., assignors to BellSouth Corporation, Atlanta, Ga.

Filed Sep. 14, 1995, Ser. No. 527,855

Int. Cl.⁶ H04M *3/54*

U.S. Cl. 379—211 **11 Claims**



START
50
52
RECEIVE COMMUNICATION
READ DIRECTORY NUMBER
READ CALLING LINE IDENTIFICATION NUMBER
54
SPECIAL SERVICES
CALLING LINE ID HAS CORRESPONDING ENTRY?
REDIRECTION SERVICE ON?
TEST CALL CAPABILITY?
YES
NO
IMPLEMENT REDIRECTION SERVICE
TEST CALL?
ROUTE TO DIRECTORY NUMBER
60
END

1. In an intelligent switched telephone network including a switch and a service control point, said service control point being functionally connected to said switch and said service control point including a database of subscriber information, a method for a singular activation of a network communication redirection service for redirecting a communication directed to a directory number pursuant to a subscriber preselected redirection scheme, comprising the steps of:

A. setting up a network communication redirection service with respect to a directory number associated with a subscriber line such that,
  1. said network communication redirection service has an active state or an inactive state,
  2. when said network communication redirection service is in said active state, then communications directed to said directory number are redirected pursuant to said subscriber preselected redirection scheme,
  3. when said network communication redirection service is in said inactive state, then said communications directed to said directory number are routed to said directory number,
  4. also when said network communication redirection service is in said inactive state, providing a singular activation of said network communication redirection service in said inactive state in response to a request for said singular activation, said singular activation providing for the redirection of a communication pursuant to said subscriber preselected redirection scheme, and
  5. a calling line identification number with respect to said directory number serves as an indicator of said request for said singular activation;

B. placing said network communication redirection service in said inactive state,

C. receiving, at said switch, said communication from a calling line having said calling line identification number and said communication being directed to said directory number having said network communication redirection service in said inactive state;

D. causing said switch to read identification information associated with said communication and to provide said identification information to said service control point, said identification information including said directory number and said calling line identification number;

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E. causing said service control point
1 to read said directory number and said calling line identification number included in said identification information.
2. to search for a matching entry to said directory number in said database of subscriber information.
3. in response to finding said matching entry to said directory number, to search for a corresponding entry to said calling line identification number in said database.
4 in response to finding said corresponding entry to said calling line identification number, to implement said singular activation of said network communication redirection service by providing said switch with redirection routing instructions to route said communication pursuant to said subscriber preselected redirection scheme; and
F causing said switch to respond to said redirection routing instructions by routing said communication pursuant to said subscriber preselected redirection scheme.

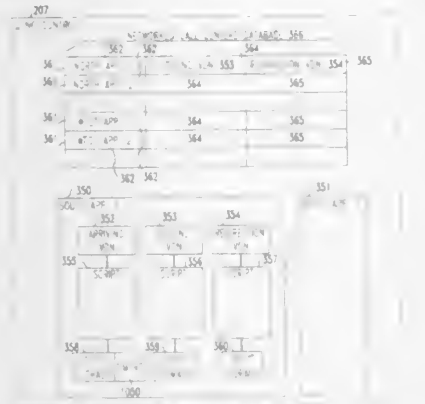
5,740,238
METHOD AND APPARATUS FOR QUEUING A CALL TO THE BEST BACKUP SPLIT

Andrew Derek Flockhart, Thornton, Colo., and Eugene Paul Mathews, Barrington, Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 3, 1995, Ser. No. 552,641

Int. Cl.^{6} H04M *7/00*, H04Q *3/64*

U.S. Cl. 379—221 **36 Claims**



1. A call-distribution arrangement for a call-handling system that has, for each one of a plurality of calls, a primary call-handling facility and a plurality of backup call-handling facilities, comprising:

first means responsive to an inability of a call's primary call-handling facility to expeditiously handle the call, for determining which one of considered ones of the plurality of backup call-handling facilities for the call will handle the call most expeditiously, and

second means responsive to a determination by the first means, for directing the call to the considered backup call-handling facility that will handle the call most expeditiously

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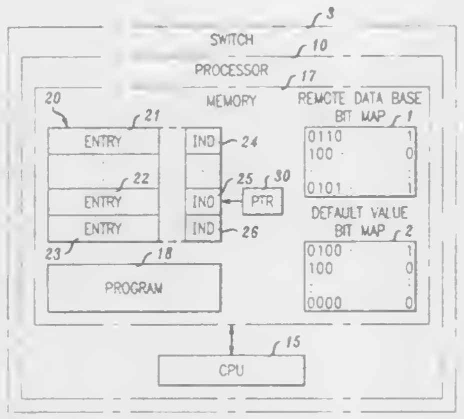
5,740,239
METHOD AND APPARATUS USING BIT MAPS TO ACCESS DATA FOR PROCESSING TELEPHONE CALLS

Promod Kumar Bhagat, Morganville, N.J., and Dana Lee Garoutte, Wheaton, Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 27, 1995, Ser. No. 534,534

Int. Cl.^{6} H04M *3/00*

U.S. Cl. 379—243 **28 Claims**



26. In a telecommunications network, comprising a switching system and a data base shared by a plurality of switching systems, a switching system for processing a call using specialized data, said call comprising a telephone number of identifying a party of said call, wherein said specialized data is related to said telephone number, and wherein said specialized data has a plurality of attributes common to a class of service of a large number of telephone numbers, said switching system comprising:

memory for storing a plurality of bit maps, each bit map, having one bit per potential telephone number served by said switching system, for identifying whether a telephone number has specialized data represented by the common attribute associated said bit map; and

processor means operative under program control for executing the steps of

accessing said plurality of bit maps, using said telephone number;

if any of said bit maps indicates that said telephone number has said specialized data corresponding to one of said common attributes, using the common attribute associated with said any one bit map; and

otherwise accessing said data base to obtain said specialized data for said telephone number.

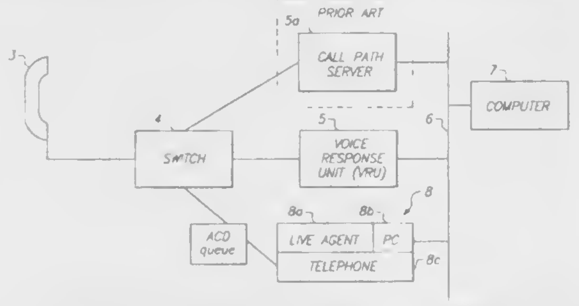
5,740,240
COMPUTER TELEPHONY INTEGRATION SYSTEM AND METHOD

Charles H. Jolissaint, Sunnyvale, Calif., assignor to Edify Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 419,103, Apr. 10, 1995. This application Sep. 15, 1995, Ser. No. 528,893

Int. Cl.^{6} H04M *3/50*

U.S. Cl. 379—265 **2 Claims**



1 A method of connecting a caller to a live agent in an automatic call distribution queue connected to a private branch exchange in turn connected to a voice response unit which is connected to a network having a computer storing a caller information database, comprising:

receiving a call from the caller through a private branch exchange,

electronically asking the caller for caller identification.

using the caller identification information to retrieve caller data.

transmitting at least a portion of the retrieved caller data to the caller.

offering the caller a menu of response alternatives including the choice of speaking with one of a number of live agents.

receiving a request for a live agent.

connecting with a live agent.

asking the live agent for identification.

using the identification to identify a computer associated with the live agent which has been identified.

providing a signal to the live agent indicating receipt of the data.

providing the data associated with the caller to the live agent selected for live agent communication and

providing a signal to the live agent indicating to the live agent to begin speaking to the caller.

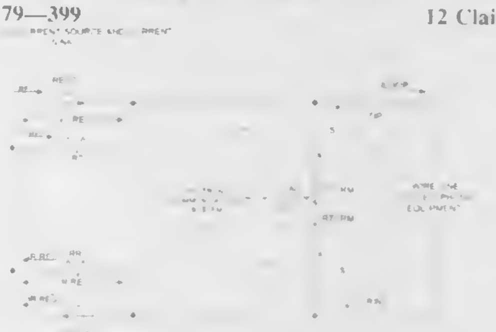
5,740,241
T1 CHANNEL BANK CONTROL PROCESS AND APPARATUS

Roger L. Koenig; Thomas Bullington, and Phillip Clark, all of Boulder, Colo., assignors to Carrier Access Corporation, Boulder, Colo.

Filed May 12, 1995, Ser. No. 440,099

Int. Cl.^{6} H04M *19/00*; G05F *1/40*

U.S. Cl. 379—399 **12 Claims**



1 A DC power supply for a telephone terminating equipment located at the far end of a wire line, said DC power supply comprising:

a DC voltage power source;

a current regulated source I_1 connected in series to a positive lead of the DC voltage power source,

a current regulated sink I_2 connected in a series to a negative lead of the DC voltage power source and connected in a series to the current regulated source I_1;

an AC coupling device connected in series to said regulated current source I_1 and said current regulated sink I_2;

a first resistor R_1 in parallel with I_1 and a second resistor R_2 is parallel with I_2, whereby I_1 I_2 I_f and I_1 and I_2 maintain a high impedence state, thereby not significantly impairing an AC communications signal transmitted by said AC coupling device;

capacitor from said AC coupling device connected in series to the current regulated source I_1, functioning to prevent I_1, from flowing to the AC coupling device, and providing a circuit having excellent longitudinal balance performance and immunity to an induced noise.

5,740,242
ECHO CANCELER

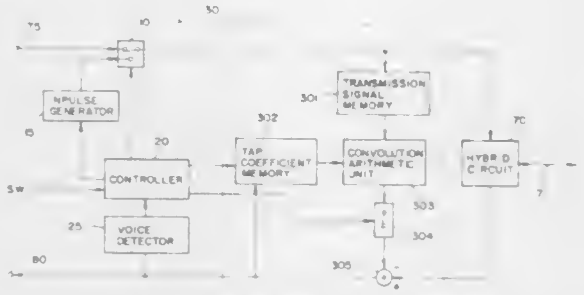
Kensuke Hayashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 22, 1996, Ser. No. 620,493

Claims priority, application Japan, Mar. 22, 1995, 7-062345

Int. Cl.^{6} H04B *3/23*, H04M *1/74*

U.S. Cl. 379—411 **5 Claims**



1 An echo canceler comprising

a voice detector for detecting a silent state of input signals.

an impulse generator for supplying an impulse signal to a transmitting line during the silent state.

a switch for switching off the supply of detected echo components to a receiving line during the silent state; and

an operation means for executing a convolution operation between the impulse signal on the transmitting line and a response signal on the receiving line which is formed in response to the impulse signal

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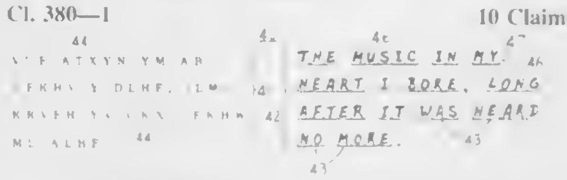
5,740,243
CRYPTOGRAPHIC GUESSING GAME

Peter Horst Rehm, 30 N. 700 East #4, Provo, Utah 84606

Continuation-in-part of Ser. No. 291,608, Aug. 16, 1994, Pat. No. 5,479,506, which is a division of Ser. No. 873,872, Apr. 21, 1992, Pat. No. 5,338,043, which is a continuation of Ser. No. 553,189, Jul. 13, 1990, abandoned, which is a division of Ser. No. 381,147, Jul. 13, 1989, abandoned. This application Dec. 26, 1995, Ser. No. 577,968

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 380—1 **10 Claims**



1 A computer readable memory storage medium comprising

a substrate from which a computer can read program codes and data, said substrate containing a computer program comprising:

means for directing the computer to obtain a message, to generate a cipher, and to create a ciphertext message by enciphering said message according to said cipher, said cipher including a plurality of pairing relationships between plaintext characters and ciphertext characters, each pairing relationship of said plurality of pairing relationships including a cipher character and a plain character paired together;

means for directing the computer to display said ciphertext message and a developing solution corresponding with said ciphertext message, said ciphertext message when displayed including a plurality of displayed cipher characters,

means for directing the computer to input a guess pair, said guess-pair including a plain guess character and a cipher guess character;

means for directing the computer to compare said guess pair to said cipher to determine whether said guess pair equals any of said plurality of pairing relationships,

means for directing the computer, in the event a guess pair to pairing relationship match was found, to update said developing solution according to said guess-pair by displaying said plain guess character of said guess-pair at every designated place corresponding to one of said displayed cipher characters which equals said cipher guess character;

means for directing the computer, in the event a guess pair to pairing relationship match was not found, to select one of said pairing relationships of said cipher and to update said developing solution according to the selected pairing relationship by displaying the plain character of said selected pairing relationship at every designated place corresponding to one of said displayed cipher characters which equals the cipher character of said selected pairing relationship, and

means for directing the computer, after updating said developing solution, to at least once return to said input step

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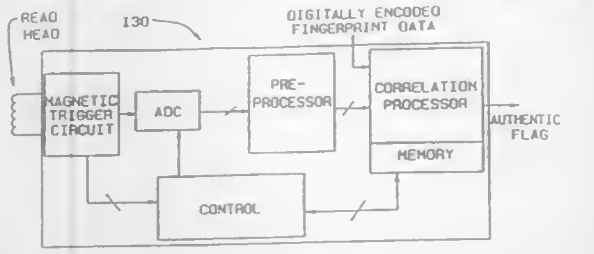
5,740,244
METHOD AND APPARATUS FOR IMPROVED FINGERPRINTING AND AUTHENTICATING VARIOUS MAGNETIC MEDIA

Ronald Scott Indeck, Olivette; Marcel Wettstein Muller, St. Louis; George Lawrence Engel, St. Louis, and Alan Lee Hege, St. Louis, all of Mo., assignors to Washington University, St. Louis, Mo.

Continuation of Ser. No. 303,690, Sep. 9, 1994, Pat. No. 5,546,462, which is a continuation-in-part of Ser. No. 222,693, Apr. 4, 1994, Pat. No. 5,428,683, which is a continuation-in-part of Ser. No. 46,040, Apr. 9, 1993, Pat. No. 5,365,586. This application May 7, 1996, Ser. No. 646,001

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—4 16 Claims



1. A card-like device for interacting with a database and having its fingerprint recorded for the later verification of its identity, said card-like device including

- an on-board electronic memory for coupling with said database; and
- a magnetic medium portion disposed separate from said memory, said fingerprint comprising a remanent noise for said magnetic medium portion.

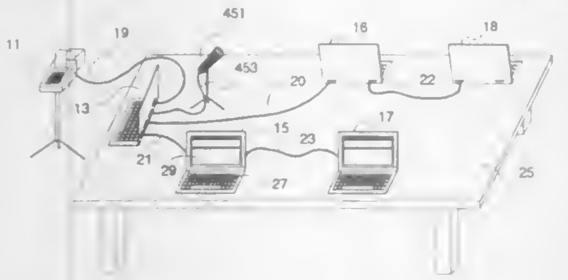
5,740,245
DOWN-LINE TRANSCRIPTION SYSTEM FOR MANIPULATING REAL-TIME TESTIMONY

James D. Bennett, Chicago, and Lawrence M. Jarvis, Wheaton, both of Ill., assignors to Engate Incorporated, Wheaton, Ill.

Continuation of Ser. No. 36,488, Mar. 24, 1993, Pat. No. 5,369,704. This application Nov. 15, 1994, Ser. No. 339,771

Int. Cl.^{6} H04K *1/02*

U.S. Cl. 380—9 8 Claims



1. A transcription system used to transcribe spoken words into a textual form, the transcription system comprising

- transcription means for producing, in real time, transcript signals representative of spoken words,
- a terminal capable of performing a predefined function;
- the terminal comprising evaluation means for evaluating the transcript signals produced by the transcription means to determine whether the transcript signals contain a predefined word selection, and
- the evaluation means initiating the performance of the predefined function if the transcript signals representative of the spoken words contain the predefined word selection.

5,740,246
CRYPT KEY SYSTEM

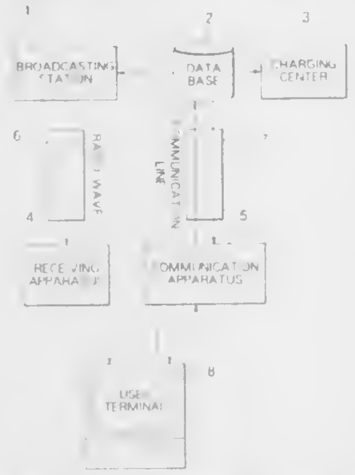
Makoto Saito, Tokyo, Japan, assignor to Mitsubishi Corporation, Tokyo, Japan

Filed Dec. 13, 1995, Ser. No. 573,958

Claims priority, application Japan, Dec. 13, 1994, 6-309292

Int. Cl.^{6} H04N *7/167*, **H04L** *9/30*

U.S. Cl. 380—21 16 Claims



15. A crypt key system comprising a CATV station, a data managing center, a receiving apparatus, a data communication apparatus, and a user terminal, wherein

- a public-key of a user is registered with said data managing center in advance;
- said data managing center encrypts a public-key of said data managing center by said public-key of each user and generates a digital signature on said encrypted public-key of said data managing center by a private-key of said data managing center;
- encrypted said public-key of said data managing center and said digital signature of data managing center are sent to said CATV station;
- said CATV station broadcasts received said encrypted public-key of data managing center and said digital signature,
- said user decrypts said received encrypted public-key of data managing center by said private-key of said user and recognizes said digital signature by decrypted said public-key of said data managing center.

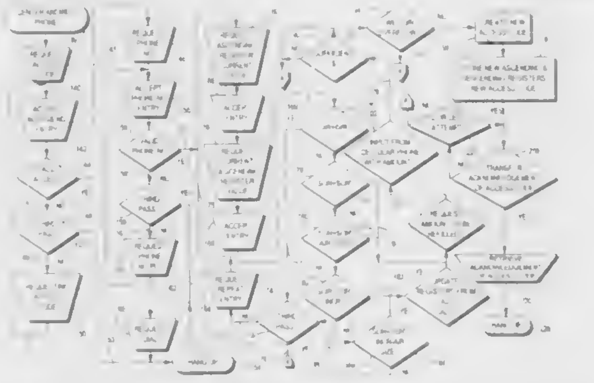
5,740,247
AUTHORIZED CELLULAR TELEPHONE COMMUNICATION PAYMENT REFILL SYSTEM

Anthony F. Violante, Stratford, and Ronald P. Sansone, Weston, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 22, 1995, Ser. No. 577,312

Int. Cl.^{6} H04L *9/00*

U.S. Cl. 380—24 17 Claims



1. A method for paying for the use of a cellular telephone, said method comprising steps of:

- connecting a cellular telephone to a telephone network when one or more encrypted authentication signals are the same;
- answering the connected cellular telephone call from a cellular telephone user to establish two-way communication;
- formulating a response for transmission to the user requesting the input of data, that includes an access code number uniquely identifying the cellular telephone to be recharged with funds or units;
- processing at a central location the input data, upon receipt, to check the authenticity of the call,
- determining at a central location a new access code for each request for additional payment that uniquely identifies the cellular telephone;
- updating the user's file at a central location and in the cellular telephone to reflect the fact that the identified cellular telephone is to be recharged with additional funds or units, and
- transmitting the amount of funds or units requested by the caller and the new access code.

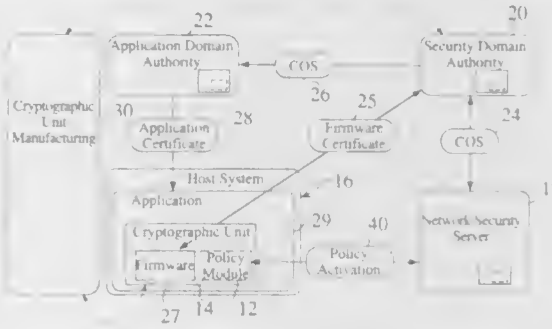
5,740,248
SOFTWARE LEVEL TOUCHPOINTS FOR AN INTERNATIONAL CRYPTOGRAPHY FRAMEWORKS

Helmut Fieres, Mountain View; Roger Merckling, and Keith Klemba, both of Palo Alto, all of Calif., assignors to Cheyenne Property Trust, San Francisco, Calif.

Division of Ser. No. 748,085, Nov. 12, 1996. This application Dec. 19, 1996, Ser. No. 770,747

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 380—25 90 Claims



1. A method for establishing and maintaining areas of an object as software touchpoints that are not usable to a host or system environment until preprocessed, comprising the steps of:

- establishing a trust boundary within said host or system environment;
- providing at least one software touchpoint within said object and outside of said trust barrier; and
- preprocessing said software touchpoint with information and procedures inside said trust barrier within said host system or environment.

5,740,249
ENCRYPTION APPARATUS AND METHOD CAPABLE OF CONTROLLING ENCRYPTION PROCESS IN ACCORDANCE WITH AN INTERNAL STATE

Hideo Shimizu, Kawasaki, and Shinichi Kawamura, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

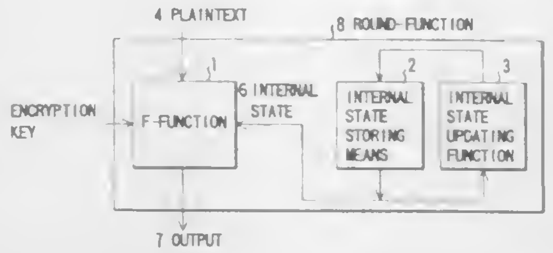
Filed Apr. 9, 1996, Ser. No. 628,105

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 380—28 16 Claims

1. An encryption apparatus including a plurality of rungs of transform sections, each transform section comprising

- storing means for storing an internal state;
- internal state updating means for updating the internal state stored in the storing means, and



- encrypting means for executing an encryption upon receipt of data to be encrypted, an encryption key, and the internal state stored in the storing means,
- wherein the internal state stored in the storing means is updated by the internal state updating means every time the encryption is executed by the encrypting means.

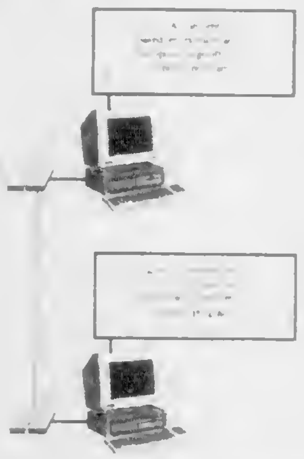
5,740,250
TAME AUTOMORPHISM PUBLIC KEY SYSTEM

Tzuong-Tsieng Moh, 305 Park La., West Lafayette, Ind. 47906

Filed Aug. 9, 1996, Ser. No. 694,995

Int. Cl.^{6} H04K *1/00*

U.S. Cl. 380—28 32 Claims



1. A method of electronically transmitting messages comprising the steps, applying an encryption algorithm to encode a plain text message into a cyphertext message for electronic transmission transmitting the cyphertext message over an electronic medium; receiving the cyphertexted message, and decrypting the cyphertext message, characterized in that the encrypting and decrypting steps utilize a tame automorphism based algorithm using a product of at least two automorphism based polynomials as an encryption key and a mapping of the inverse of said encryption key as a decryption key in said applying and decrypting steps.

5,740,251
DATA PROCESSING APPARATUS

Masato Tajima, Yokohama, and Taro Shibagaki, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 69,105, May 28, 1993, Pat. No. 5,517,614. This application Apr. 25, 1995, Ser. No. 428,364

Claims priority, application Japan, May 29, 1992, 4-139424; May 29, 1992, 4-139425

Int. Cl.^{6} H04L *9/00 9/28*

U.S. Cl. 380—49 10 Claims

1. A data processing module comprising:

- a function processor, which stores a plurality of different function algorithms for encryption therein, for selecting one function algorithm which is externally designated from among the plurality of function algorithms for encryption, performing an encrypting function operation on input data on the basis of the

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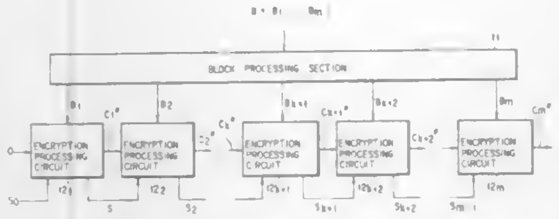

BLOCK PROCESSING SECTION
ENCRYPTION PROCESSING CIRCUIT
ENCRYPTION PROCESSING CIRCUIT
ENCRYPTION PROCESSING CIRCUIT
ENCRYPTION PROCESSING CIRCUIT
ENCRYPTION PROCESSING CIRCUIT
11
12₁
12₂
12k+1
12k+2
12m
S0
S2
Sk+1
Sk+2
Sm

selected function algorithm and outputting a processing result of the encrypting function operation; and

an algorithm selection controller for receiving the processing result of the encrypting function operation that is output from said function processor, designating from among the plurality of function algorithms a subsequent function algorithm to be performed on next input data which is determined on the basis of at least part of the processing result, and outputting the subsequent function algorithm to said function processor

5,740,252

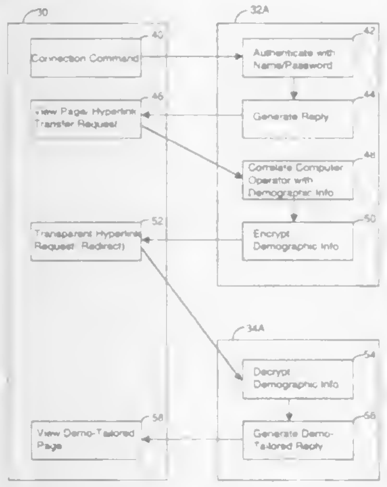
APPARATUS AND METHOD FOR PASSING PRIVATE DEMOGRAPHIC INFORMATION BETWEEN HYPERLINK DESTINATIONS

Halsey M. Minor, San Francisco, Calif.; Munish Gandhi, Bridgewater, N.J.; William E. Headapohl, San Francisco, Calif., and Jonathan Rosenberg, Annandale, N.J., assignors to C/NET, Inc., San Francisco, Calif.

Filed Oct. 13, 1995, Ser. No. 542,564

Int. Cl.⁶ H04L *9/00; 9/32*

U.S. Cl. 380—49 **21 Claims**


30
32A
40
Connection Command
42
Authenticate with Name/Password
46
View Page, Hyperlink Transfer Request
44
Generate Reply
48
Correlate Computer Operator with Demographic Info
52
Transparent Hyperlink Request Redirect
50
Encrypt Demographic Info
34A
54
Decrypt Demographic Info
58
View Demo-Tailored Page
56
Generate Demo-Tailored Reply

7. A method of passing demographic information between computers, said method comprising the steps of:

connecting an end-user computer to an entry site computer with an authentication operation identifying the computer operator on said end-user computer;

generating, at said end-user computer, a hyperlink transfer request to a remote site computer;

accessing, at said entry site computer, in response to said hyperlink transfer request, a remote site information repository to identify a remote site destination address and a remote site encryption key;

associating, at said entry site computer, demographic information characterizing said computer operator;

encrypting said demographic information with said remote site encryption key to form an encrypted demographic signal segment;

combining said encrypted demographic signal segment with said remote site destination address to form an encrypted demographic hyperlink transfer request;

delivering said encrypted demographic hyperlink transfer request to said end-user computer; and

redirecting said encrypted demographic hyperlink transfer request to the remote computer specified by said remote site destination address.

5,740,253

STEROPHONIC SOUND FIELD EXPANSION DEVICE

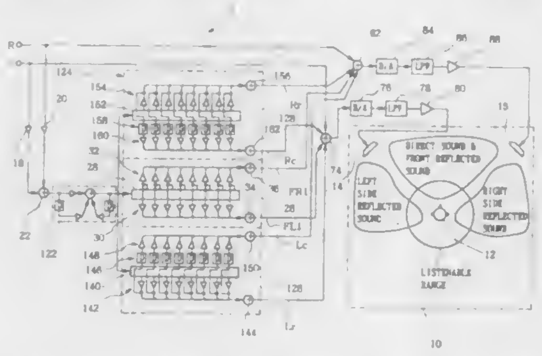
Eiji Takeuchi, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed Apr. 26, 1996, Ser. No. 638,494

Claims priority, application Japan, Apr. 28, 1995, 7-129477

Int. Cl.⁶ H04R *5/00*

U.S. Cl. 381—1 **8 Claims**



1. A stereophonic sound field expansion device comprising

left channel reflected sound signal generation means for generating left channel reflected sound signals of an input tone signal having different delay times and different levels;

right channel reflected sound signal generation means for generating right channel reflected sound signals of an input tone signal having different delay times and different levels;

left channel cancel signal generation means for generating left channel cancel signals by delaying the left channel reflected sound signals individually with delay times which enable localization of the respective left channel reflected sound signals at different listening points determined for the respective left channel reflected sound signals in a space outside of a space in front of and between speakers and by inverting phase of the respective left channel reflected sound signals;

right channel cancel signal generation means for generating right channel cancel signals by delaying the right channel reflected sound signals individually with delay times which enable localization of the respective right channel reflected sound signals at different listening points determined for the respective right channel reflected sound signals in a space outside of a space in front of and between speakers and by inverting phase of the respective right channel reflected sound signals,

a left channel speaker provided on the front left side of a listening position of a listener for reproducing the left channel reflected sound signals and the right channel cancel signals; and

a right channel speaker provided on the front right side of the listening position for reproducing the right channel reflected sound signals and the left channel cancel signals.

5,740,254

SYSTEM FOR PROVIDING SOUND DISTINCTIONS FOR AUDITORY CONDITIONING AND METHOD THEREFOR

Billie M. Thompson, and Kirk D. Thompson, both of 1635 E. Seldon La., Phoenix, Ariz. 85020

Filed Jun. 17, 1996, Ser. No. 664,640

Int. Cl.⁶ H04K *5/02*

U.S. Cl. 351—25 **12 Claims**

1. An apparatus for providing sound distinctions for auditory conditioning comprising, in combination:

audio storage means for storing multiple channel audio recordings wherein said multiple channel audio recordings stored on

said audio storage means has one channel for an air conduction signal and one channel for a bone conduction signal;

multiple channel audio player means for playing said multiple channel audio recordings stored on said audio storage means,

channel adjustment means coupled to said multiple channel audio player means for adjusting a strength of each channel of said multiple channel audio player means,

said channel adjustment means comprising:

first adjustment means for adjusting a strength of said signal for air conduction to a right ear of a user;

second adjustment means for adjusting a strength of said signal for air conduction to a left ear of said user; and

third adjustment means for adjusting a strength of said signal for bone conduction to said user;

listening means coupled to said channel selection means for allowing a user of said apparatus to listen to at least one channel of said multiple channel audio recordings stored on said audio storage means; and

wherein said audio storage means provides said bone conduction signal to said listening means sooner than said air conduction signal.

5,740,255

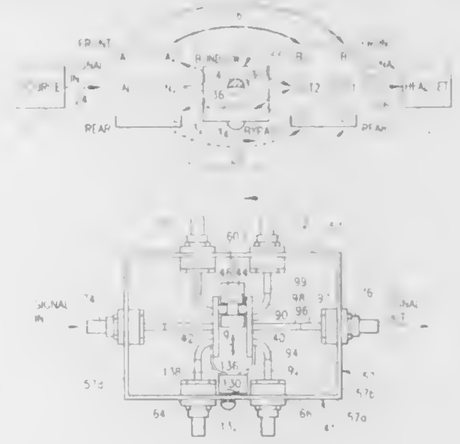
HIGH FIDELITY AUDIO CABLE COMPARATOR AND METHOD THEREFOR

David B. Salz, Dania, Fla., assignor to Wire World by David Salz, Inc., Ft. Lauderdale, Fla.

Filed Nov. 29, 1995, Ser. No. 564,397

Int. Cl.⁶ H04R *29/00*

U.S. Cl. 381—58 **13 Claims**



2. An interconnect cable comparator for comparing the sonic characteristics of two pair of audio interconnect cables, one pair of interconnect cables being designated as reference cables and another pair of interconnect cables being designated as test cables, said cable comparator being electrically connected between an audio source generating two channels of analog electrical signals respectively representing left and right audio signals, an amplifier and a pair of speakers for respectively converting said two channels of analog electrical signals into audible sounds, said comparator comprising:

a switch assembly having a pair of signal input terminals, a first and a second pair of switchable cable output terminals switchably coupled to said pair of signal input terminals, a pair of signal output terminals and a first and a second pair of switchable cable input terminals switchably coupled to said pair of signal output terminals,

a pair of signal input ports coupled to said pair of signal input terminals of said switch assembly and adapted to be electrically connected to said audio source;

a pair of signal output ports coupled to said pair of signal output terminals of said switch assembly and adapted to be electrically connected to said amplifier and pair of speakers,

four pair of interconnect cable ports, a respective pair of cable ports coupled via independent electrical channels to said first and second pair of switchable cable output terminals and said first and second pair of switchable cable input terminals,

wherein electrical losses and electrical signal distortion between said independent electrical channels established through said signal input ports, said switch assembly, said four pair of interconnect cable ports and said signal output ports are substantially identical, and

wherein said reference cables are adapted to be removably attached between a first and a second pair of cable ports of said four pair of interconnect cable ports which are electrically coupled to said first pair of switchable cable output terminals and said first pair of switchable cable input terminals; and

wherein said test cables are adapted to be removably attached between a third and a fourth pair of cable ports of said four pair of interconnect cable ports which are electrically coupled to said second pair of switchable cable output terminals and said second pair of switchable cable input terminals;

whereby sonic characteristics of said test cables and said reference cables are audibly detectable based upon a control position of said switch assembly and said sonic conditions are not substantially affected by said switch assembly, said signal input ports, said four pair of interconnect cable ports and said signal output ports due to said substantially identical electrical losses and electrical signal distortion.

5,740,256

ADAPTIVE NOISE CANCELLING ARRANGEMENT, A NOISE REDUCTION SYSTEM AND A TRANSCEIVER

Paulo M. Castello Da Costa; Cornelis P. Janse, and Patrick A. A. Timmermans, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

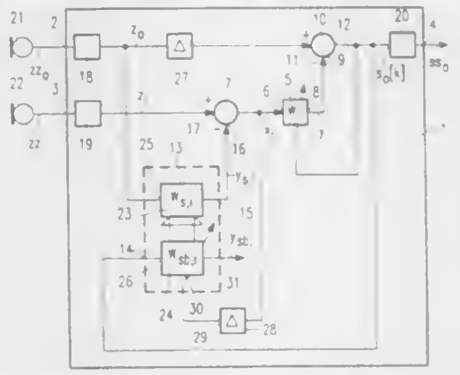
Filed Dec. 11, 1996, Ser. No. 762,682

Claims priority, application European Pat. Off., Dec. 15, 1995, 95203507

Int. Cl.⁶ H04B *15/00*

U.S. Cl. 361—94.7 **10 Claims**

1. An adaptive noise cancelling arrangement for cancelling noise in a noise disturbed signal, said adaptive noise cancelling arrangement comprising:



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a primary signal input for receiving a primary signal which is disturbed with noise,
at least one reference signal input;
a signal output for providing a noise cancelled signal;
a first subtracter having a first input coupled to the reference signal input;
an adaptive noise filter having an input coupled to to an output of the first subtracter;
a second subtracter having a first input coupled to an output of the adaptive noise filter, a second input coupled to the primary signal input, and an output coupled to the signal output; and
an adaptive cross-talk filter having an input coupled to the signal output, and an output coupled to a second input of the first subtracter, characterised in that the adaptive cross-talk filter comprises a pre-filter section for pre-filtering the primary signal, and an adaptive filter section for determining coefficients of the pre-filter section, an input of the pre-filter section being coupled to the primary signal input, and an input of the adaptive filter section being coupled to the signal output, the adaptive noise cancelling arrangement further comprising a first delay section and second delay section, the first delay section being coupled between the primary signal input and the second input of the second subtracter, and the second delay section being coupled between the input of the adaptive noise filter and a further input of the adaptive cross-talk filter.

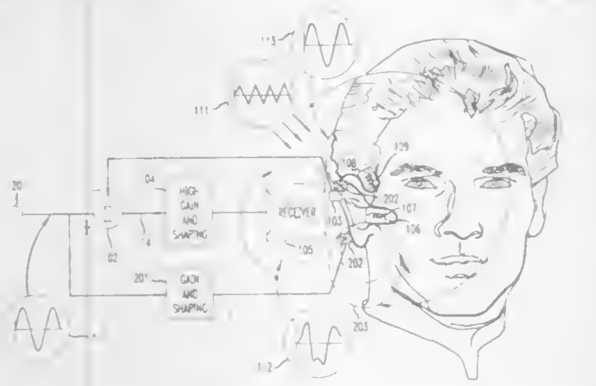
5,740,257
ACTIVE NOISE CONTROL EARPIECE BEING COMPATIBLE WITH MAGNETIC COUPLED HEARING AIDS

Larry Allen Marcus, Hamilton County, Ind., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 19, 1996, Ser. No. 769,985

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—71.6 **18 Claims**



1. Apparatus for use in an active noise control arrangement comprising:
receiver apparatus including an interior cavity and acoustic output ports for emanating sound into an ear cavity;
an input for an input signal;
a receiver element disposed in the interior cavity and being supplied with a first signal for emitting an acoustic signal into the interior cavity;
a transducer arranged so that it will be disposed in the ear cavity when in use or be disposed in the interior cavity for communicating to the ear cavity when in use by an acoustic point for generating a second signal representative of the acoustic signal including any ambient noise signal present in the ear cavity;
an algebraic combining unit for algebraically subtracting the second signal from the input signal to generate a third signal;
modification apparatus for modifying the third signal in a manner to generate the first signal, and
a coil arrangement disposed in the interior cavity and being responsive to a modified version of the input signal for generating a magnetic field substantially free of room noise effects, the magnetic field being intended to drive a magnetically coupled hearing aid including a telecoil being employed by a user of the handset, so that reduced acoustic noise coupling is realized to magnetically coupled hearing aids to be employed by users

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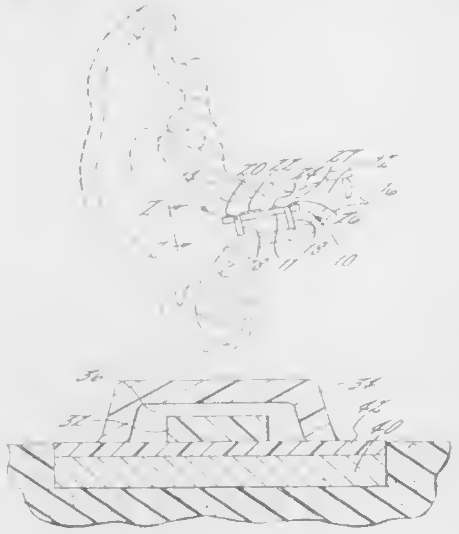
5,740,258
ACTIVE NOISE SUPRESSORS AND METHODS FOR USE IN THE EAR CANAL

Scott H. Goodwin-Johansson, Pittsboro, N.C., assignor to MCNC, Research Triangle Park, N.C.

Filed Jun. 5, 1995, Ser. No. 461,001

Int. Cl.⁶ H03B *29/00;* **A61F** *11/06;* **H04R** *25/00*

U.S. Cl. 381—72 **31 Claims**



1. A noise suppressor for selectively reducing an undesired noise portion of sound pressure waves in an ear canal having an entrance and an ear drum, said noise suppressor comprising:
an input transducer which generates an electrical signal in response to said sound pressure waves in said ear canal,
an output transducer which produces inverse noise pressure waves in said ear canal, said inverse noise pressure waves being approximately out of phase with respect to said undesired noise portion of said sound pressure waves, thereby reducing said undesired noise portion, and
an acoustically unobstructing housing which supports said input transducer and said output transducer in said ear canal, said acoustically unobstructing housing defining a clear passage for said sound pressure waves from said entrance of said ear canal to said ear drum, thereby allowing said sound pressure waves to pass to said ear drum

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5,740,259
PRESSURE WAVE TRANSDUCING

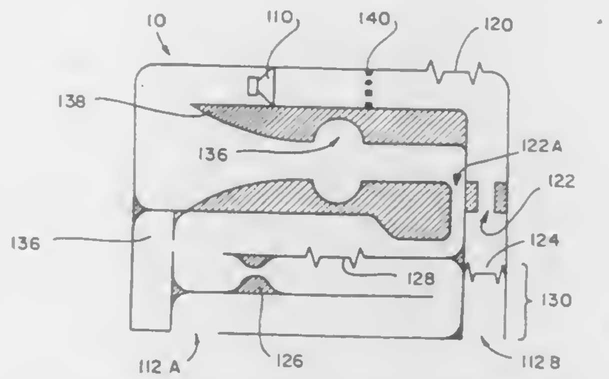
Charles Dunn, Framingham, Mass., assignor to Bose Corporation, Framingham, Mass.

Continuation of Ser. No. 893,458, Jun. 4, 1992, abandoned. This application Apr. 28, 1995, Ser. No. 430,247

Int. Cl.⁶ H04R *1/02*

U.S. Cl. 381—90 **15 Claims**

1. An electroacoustical transducing system for exchanging pressure wave energy with a medium that propagates pressure waves in the audio frequency range comprising,
an electroacoustical transducer having a vibratile surface,
at least one low-loss pressure wave waveguide,
said waveguide having one end adjacent to said vibratile surface and the other end adjacent to said medium, and
at least one acoustic immittance element imposed in the length of said waveguide dimensioned and positioned to alter the transfer characteristic of said waveguide between said vibratile surface and said medium at said other end,
wherein said acoustic immittance element is positioned and dimensioned to reduce audible noise and alter the frequency response of said system while allowing said pressure wave waveguide to more efficiently transfer electroacoustical energy between said electroacoustical transducer and said medium as a result of being characterized by a waveguide impedance and effective length that reduces impedance mismatch between said vibratile surface and said medium,
wherein said effective length corresponds substantially to a quarter wavelength at the lowest frequency of pressure wave energy to be transmitted between said medium and said vibratile surface.



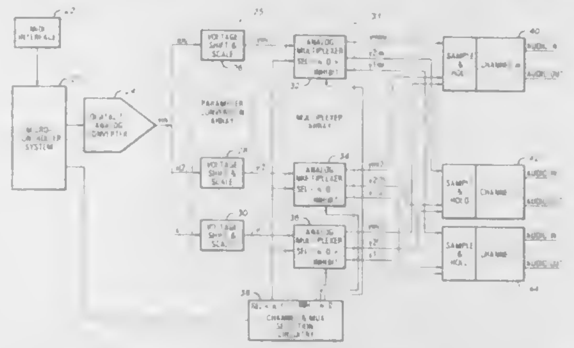
5,740,260
MIDI TO ANALOG SOUND PROCESSOR INTERFACE

Leo J. Odom, Baton Rouge, La., assignor to Presonus L.L.P., Baton Rouge, La.

Filed May 22, 1995, Ser. No. 445,688

Int. Cl.⁶ H04B *1/00;* **G01D** *5/00;* **H03G** *5/00*

U.S. Cl. 381—119 **20 Claims**



1. An audio processing system for processing one or more audio inputs according to one or more parameters, the audio processing system receiving one or more signal processing parameters for one or more audio channels in a digital format and providing the processed version of the audio inputs as audio outputs, the audio processing system comprising:
a microprocessor for receiving, storing and outputting each of the one or more signal processing parameters for the one or more audio channels, the signal processing parameters being received, stored and output in a digital format,
a converter coupled to said microprocessor and receiving the digital output signal processing parameters, said converter converting each of said digital output signal processing parameters into respective analog parameter signals;
a plurality of parameter conversion circuits coupled to said converter, said parameter conversion circuits modifying each of said analog parameter signals as appropriate for each parameter;
analog signal processors, one analog signal processor for each of the audio channels, said analog signal processors coupled to said conversion circuits to receive said analog parameter signals for the respective audio channel, said analog signal processors processing the audio inputs in accordance with said analog parameter signals and providing the processed audio outputs; and
each analog signal processor receiving a plurality of analog parameter signals generated by a corresponding plurality of said parameter conversion circuits.

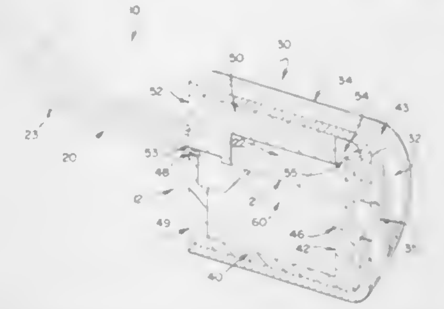
5,740,261
MINIATURE SILICON CONDENSER MICROPHONE

Peter V. Loeppert, Hoffman Estates, and David E. Schafer, Glen Ellyn, both of Ill., assignors to Knowles Electronics, Inc., Itasca, Ill.

Filed Nov. 21, 1996, Ser. No. 752,584

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—168 **38 Claims**



1. A housing for shielding a transducer of the type mounted on a silicon die attached to a flexible circuit, said housing comprising
a jacket, said jacket having a longitudinal axis, a shell extending from a top portion, and an opening at an opposing end, said shell being substantially parallel to said longitudinal axis,
a bottom cup, said bottom cup engaging an inner surface of said shell and said transducer wherein said transducer is fixed within said jacket, and said bottom cup having a light barrier and a sealing member, said light barrier being positioned adjacent said top portion, and said sealing member being positioned at said opening, and,
a top cup, said top cup engaging said inner surface of said shell, and said top cup having an open end which mates with said light barrier, and a closed end.

5,740,262
NOISE REMOVING APPARATUS USING A MICROPHONE

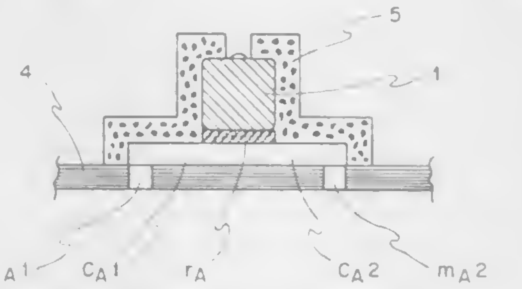
Toshio Yoshida, and Michitaka Sisido, both of Tokyo, Japan, assignors to NEC Corporation, Toyko, Japan

Filed Dec. 27, 1994, Ser. No. 364,613

Claims priority, application Japan, Dec. 28, 1993, 5-338494

Int. Cl.⁶ H04R *25/00*

U.S. Cl. 381—169 **4 Claims**



1. An arrangement for noise removal comprising
a microphone located in an end of an open ended pipe, an non-woven fabric positioned in direct contact with said microphone and inside said pipe;
an acoustic filter means positioned in front of said microphone,

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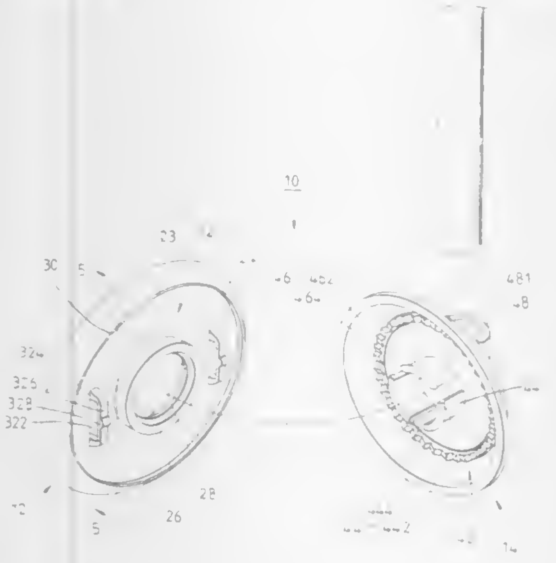
wherein said acoustic filter means includes:
- at least one sound input hole bored in a casing of an electronic apparatus incorporating said microphone to provide an acoustic inertance;
- a filter body installed within said casing, said filter body having at least one cavity communicating with said at least one hole to constitute at least one acoustic compliance and a holding hole for receiving and supporting said microphone, said compliance being determined by the length and bore of said pipe; and
- the non-woven fabric being positioned within the holding hole to constitute an acoustic resistance, said acoustic resistance being determined by the volume and material of said non-woven fabric, and said acoustic filter being tuned to reject ambient background noise.

5,740,263
MULTI-MEDIA MICROPHONE SEAT
Lu-Lee Liao, No. 5, Shi-An South Lane, Shi-Tung District, Taichung City, Taiwan

Filed Oct. 23, 1996, Ser. No. 731,951

Int. Cl.^{6} H04R *25/00*

U.S. Cl. 381—187 **7 Claims**



1 A multimedia microphone seat comprising.
- a support seat provided with a round hole with an axis perpendicular to a plane of the support seat, said hole having on an inner wall thereof a first retaining portion; and
- a rotating member provided having a flange perpendicular to a plane of the rotating member, said flange having a second retaining portion which is engaged through the inside of the round hole with said first retaining portion of said support seat so that the rotating member is coaxially rotatable around the axis of the round hole, said rotating member further provided with a receiving portion for mounting thereon a microphone;
- wherein said support seat is provided with at least a first locating portion;
- wherein said rotating member is provided with a plurality of second locating portions corresponding in locating to and engageable with said first locating portion of said support seat when said rotating member is rotated;
- wherein said first retaining portion is a shoulder formed on said inner wall of said round hole; wherein said second retaining portion is a projected edge formed on said flange; and wherein said projected edge is engaged on said shoulder when said rotating member is joined with said support seats

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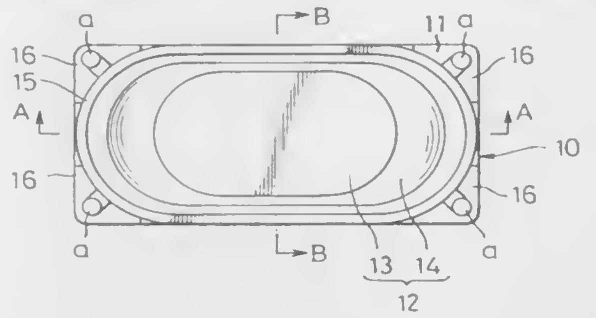
5,740,264
MINIATURE ELECTROACOUSTIC TRANSDUCER
Koichi Kojima, Akishima, Japan, assignor to Foster Electric Co., Ltd., Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,087

Claims priority, application Japan, Aug. 29, 1995, 7-243710

Int. Cl.^{6} H04R *25/00*

U.S. Cl. 381—193 **8 Claims**



1. An electroacoustic transducer comprising.
- a diaphragm body including:
  - a planar diaphragm having an outer periphery in an elongated generally elliptical shape with semicircular ends and major and minor axes.
  - an elastometic edge having an outer periphery in an elongated generally elliptical shape with semicircular ends and major and minor axes aligned with the major and minor axis of the diaphragm, respectively, the edge being narrower parallel to the major axis than parallel to the minor axis, the edge being coupled at an inner periphery to the outer periphery of the diaphragm and having a concave cross-section perpendicular to the diaphragm.
  - a cylindrical voice coil bobbin secured at one end to a central area of the diaphragm, and
  - a voice coil wound on the voice coil bobbin; and
- a molded resin frame having a generally rectangular shape and including an opening conforming in shape to and receiving the diaphragm body, connected to and supporting an outer periphery of the edge, the frame including a central base containing a magnetic circuit for driving the diaphragm in response to an electrical signal applied to the voice coil.

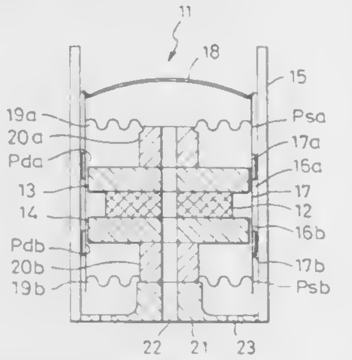
5,740,265
LOUDSPEAKER UNIT AND LOUDSPEAKER SYSTEM EMPLOYING THE UNIT
Hidetoshi Shirakawa, Akishima, Japan, assignor to Foster Electric Co. Ltd., Tokyo, Japan

Filed Dec. 23, 1996, Ser. No. 773,235

Claims priority, application Japan, Dec. 26, 1995, 7-351841

Int. Cl.^{6} H04R *25/00*

U.S. Cl. 381—199 **5 Claims**



1 A loudspeaker system comprising:
- a pair of loudspeaker units disposed opposite to each other, each of the loudspeaker units including.
- a magnet.

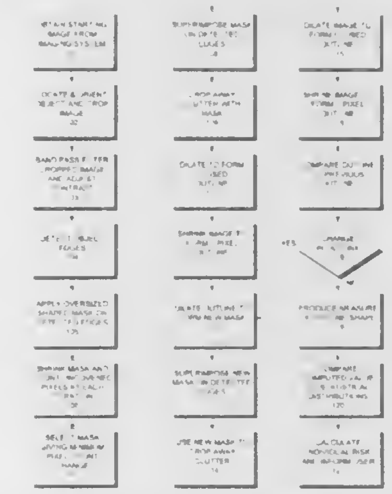
- first and second plates having the same thickness and disposed on opposite sides of the magnet.
- a yoke, acting as a frame, disposed at outer peripheries of the magnet and the first and second plates.
- a voice coil bobbin carrying first and second voice coils, mutually connected, having the same number of turns and the same width, but wound in opposite directions, the voice coil bobbin being disposed in first and second magnetic gaps formed between the first and second plates and the yoke, respectively.
- a diaphragm mounted on the voice coil bobbin, and
- first and second dampers supporting the voice coil bobbin wherein during a non-operational state only a half of the first voice coil proximate the magnet is disposed in the first magnetic gap and only a half of the second voice coil proximate the magnet is disposed in the second magnetic gap whereby magnetic driving force driving the diaphragm is constant regardless of vibratory amplitude of the diaphragm; and
- a hollow frame having opposed first and second sides with respective central openings in the first and second sides, the pair of loudspeaker units being disposed inside the frame for radiating from the central opening in the first side forward-reproduced sound emitted from both of the loudspeaker units and for radiating from the central opening in the second side rearward-reproduced sound emitted from both of the loudspeaker units.

5,740,266
IMAGE PROCESSING SYSTEM AND METHOD
Theodore F. Weiss, Quakertown, Pa., and Erwin Donath, Princeton, N.J., assignors to Base Ten Systems, Inc., Trenton, N.J.

Filed Apr. 15, 1994, Ser. No. 227,947

Int. Cl.^{6} G06K *9/46*

U.S. Cl. 382—128 **44 Claims**



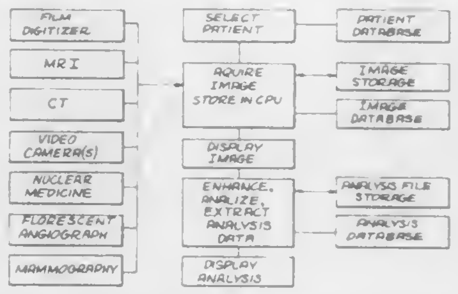
1 A method for processing a digital image of an object, comprising the steps of:
- forming a single pixel image outline of an object by
  - a) superimposing a mask over edges of the object to crop away image portions outside the mask;
  - b) forming a first single pixel outline from the remaining image portions;
  - c) creating a new mask from the first single pixel outline;
  - d) superimposing the new mask over edges of the object in the image to crop away image portions outside the mask.
  - e) forming a second single pixel outline from the remaining image portions;
  - f) comparing the second outline to the first outline for changes; and
  - g) repeating steps c) to f) until the changes are below a preselected number and
- producing at least one single number measure of the outline shape.

5,740,267
RADIOGRAPHIC IMAGE ENHANCEMENT COMPARISON AND STORAGE REQUIREMENT REDUCTION SYSTEM
Scott J. Echerer, 428 Lafayette Ave., Cayce, S.C. 29033, and Stephen R. McNeill, 1809 Woodvalley Ct., Columbia, S.C. 29212

Continuation-in-part of Ser. No. 47,261, Apr. 13, 1993, Pat. No. 5,384,862, which is a continuation-in-part of Ser. No. 891,406, May 29, 1992, Pat. No. 5,272,760. This application Nov. 15, 1994, Ser. No. 339,817

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—132 **20 Claims**



1 A system for analyzing a radiograph in the form of a digital image, said system comprising
- a central processing unit;
- input means for receiving said digital image, said input means controlled by said central processing unit.
- permanent storage means responsive to said central processing unit for permanently storing said digital image received by said input means so that said stored digital image cannot be modified.
- temporary storage means responsive to said central processing unit for temporarily storing said digital image for display, said temporary storage means storing said digital image separate from said permanent storage means;
- means in communication with said temporary storage means for displaying a copy of said digital image stored in said temporary storage means.
- means for making enhancements for said displayed copy, and
- enhancement storage means in communication with said central processing unit for storing said enhancements separate from said digital image stored in said permanent storage means and in said temporary storage means, said central processing unit causing said enhancements to be brought from said enhancement storage means and making said enhancements to said displayed copy whenever said copy is to be displayed, so that no enhanced image need be saved.

5,740,268
COMPUTER-AIDED METHOD FOR IMAGE FEATURE ANALYSIS AND DIAGNOSIS IN MAMMOGRAPHY
Robert M. Nishikawa, Chicago; Takehiro Ema; Hiroyuki Yoshida, both of Westmont, and Kunio Doi, Willowbrook, all of Ill., assignors to Arch Development Corporation, Chicago, Ill.

Division of Ser. No. 235,530, Apr. 29, 1994, abandoned. This application Sep. 29, 1995, Ser. No. 536,253

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—132 **39 Claims**

1 A method for automated detection in mammography of an abnormal anatomic region, comprising
- obtaining a digital image of an object including said anatomic region;
- processing said digital image to identify in said digital image locations which correspond to potential abnormal regions.
- determining an edge gradient for each of the locations identified in said processing step:

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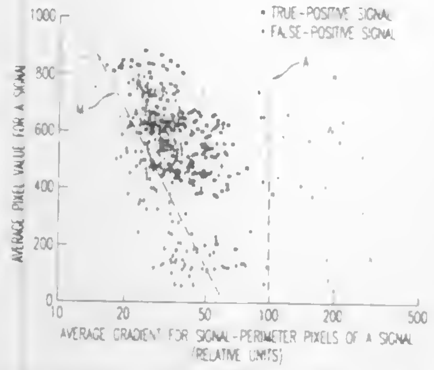

comparing each edge gradient with at least one threshold, comprising comparing each edge gradient with a predetermined number; and

eliminating locations identified in said processing step from consideration as an abnormal region based on a result of said comparing step, comprising eliminating those regions having an edge gradient exceeding said predetermined number.

5,740,269

METHOD AND APPARATUS FOR ROBUST BIOLOGICAL SPECIMEN CLASSIFICATION

Seho Oh, Mukilteo; Shih-Jong J. Lee, Bellevue; Wendy R. Bannister, Seattle, and Chih-Chau L. Kuan, Redmond, all of Wash., assignors to NeoPath, Inc., Redmond, Wash.

Filed Sep. 20, 1994, Ser. No. 309,209

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—133 29 Claims

1 An automated apparatus for classification of a Pap stained slide, the automated apparatus comprising.

(a) means for acquiring at least one image from the Pap stained slide having at least one image output;

(b) means for obtaining at least one slide feature from the at least one image having at least one slide feature output,

(c) a plurality of classifiers, each connected to the at least one slide feature output and each having a classification output;

(d) means for applying an offset to each classification output of the plurality of classifiers wherein the means for applying an offset has a plurality of offset outputs;

(e) means for membership generation connected to the at least one slide feature output wherein the means for membership generation has a plurality of membership value outputs;

(f) means for adjusting the plurality of offset outputs with the membership value outputs wherein the means for adjusting the plurality of offset outputs has a plurality of adjusted classification outputs, and

(g) means for aggregating the adjusted classification outputs wherein the means for aggregating the adjusted classification outputs has an aggregated classification output

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5,740,270

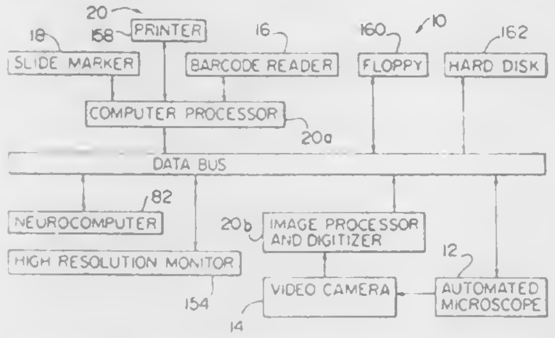
AUTOMATED CYTOLOGICAL SPECIMEN CLASSIFICATION SYSTEM AND METHOD

Mark R. Rutenberg, Monsey, N.Y., and Thomas L. Hall, Pasadena, Calif., assignors to Neuromedical Systems, Inc., Suffern, N.Y.

Continuation of Ser. No. 502.611, Mar. 30, 1990, abandoned, which is a continuation-in-part of Ser. No. 179,060, Apr. 8, 1988, Pat. No. 4,965,725, Ser. No. 420,105, Oct. 11, 1989, Pat. No. 5,287,272, and Ser. No. 425,665, Oct. 23, 1989. This application Jun. 7, 1995, Ser. No. 486,961

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—133 13 Claims



1 A method of determining the reliability of cytological screening test, comprising the steps of:

a) viewing at least part of a cytological specimen;

b) creating an image of the view;

c) producing a digital representation of the image;

d) ranking individual objects in an order in the digital representation based on the degree to which each respective object has characteristics more likely found in a typical premalignant or malignant cell than in a typical benign cell; and

e) displaying for review by an operator the images of at least a minimum number of the highest ranked objects such that objects of a predetermined cell type are displayed in the absence of premalignant or malignant cells; wherein the detection by the operator of the presence in the display of at least one cell of the predetermined cell type tends to indicate that the test is reliable.

5,740,271

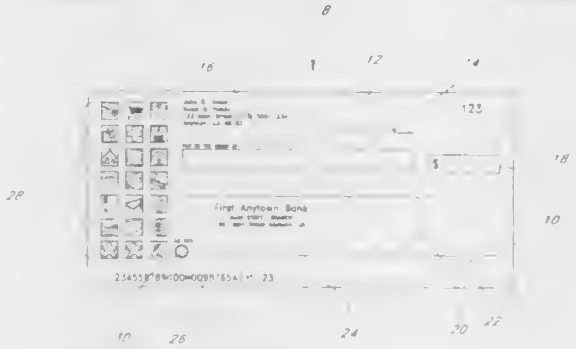
EXPENDITURE MONITORING SYSTEM

Todd M. Kunkler, Lake View Ter.; Daniel R. Davidson, Downey, and Scott J. Sanner, Huntington Beach, all of Calif., assignors to On-Track Management System, Downey, Calif.

Filed Jul. 27, 1994, Ser. No. 281,441

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—137 26 Claims



1 A method for tracking and categorizing expenditure transactions, comprising the following steps.

a providing at the point of each said expenditure transaction a predetermined number of pictographic icons each said icon being representative of a particular expenditure category which can be directly marked on the icon by an individual conducting said transaction to indicate that said expenditure is of a type corresponding to said marked icon representative of said particular expenditure category.

b. scanning said array of pictographic icons to determine the existence of a mark made directly on one or more of said pictographic icons,

c recording information representative of each said marked icon or corresponding expenditure category in association with other information representative of each said corresponding expenditure transaction; and

d. periodically organizing said information representative of each said expenditure transaction and each said associated marked icon or corresponding expenditure category into a statement of expenditures broken down by expenditure category

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5,740,272

INSPECTION APPARATUS OF WIRING BOARD

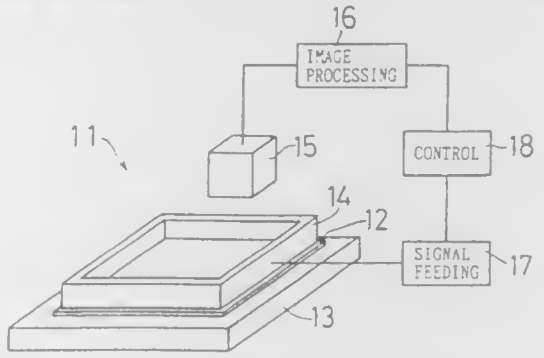
Yoshinori Shimada, Yamatokoriya, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 23, 1996, Ser. No. 606,344

Claims priority, application Japan, Feb. 27, 1995, 7-038763

Int. Cl.^{6} G01R *31/02;* **G01J** *5/10*

U.S. Cl. 382—149 9 Claims



1. An inspection apparatus for a wiring board in which wirings are formed by repeating a wiring pattern, the apparatus comprising.

a table for receiving a wiring board to be inspected:

a signal feeding means for feeding an inspection signal to each wiring of the wiring board,

imaging means for capturing an infrared image of the wiring board;

image processing means for responding to an output of the imaging means and dividing the infrared image into regions of the wiring board of a predetermined size;

detection means for responding to an output of the image processing means, comparing an infrared image of a first arbitrary region of the wiring board to adjacent arbitrary regions of the wiring board, and detecting a difference between the compared regions; and

judging means for responding to an output of the detection means and judging whether a defect is present in the first arbitrary region of the wiring board

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5,740,273

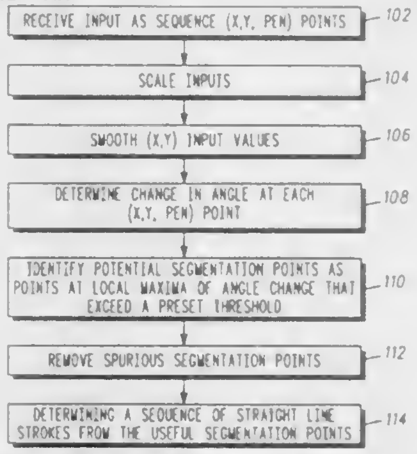
METHOD AND MICROPROCESSOR FOR PREPROCESSING HANDWRITING HAVING CHARACTERS COMPOSED OF A PREPONDERANCE OF STRAIGHT LINE SEGMENTS

Kannan Parthasarathy, and John L. C. Seybold, both of Palo Alto, Calif., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 463,366, Jun. 5, 1995, abandoned. This application Aug. 22, 1996, Ser. No. 701,571

Int. Cl.^{6} G06K *9/10, 9/42*

U.S. Cl. 382—187 30 Claims


RECEIVE INPUT AS SEQUENCE (X,Y, PEN) POINTS
102
SCALE INPUTS
104
SMOOTH (X,Y) INPUT VALUES
106
DETERMINE CHANGE IN ANGLE AT EACH (X,Y, PEN) POINT
108
IDENTIFY POTENTIAL SEGMENTATION POINTS AS POINTS AT LOCAL MAXIMA OF ANGLE CHANGE THAT EXCEED A PRESET THRESHOLD
110
REMOVE SPURIOUS SEGMENTATION POINTS
112
DETERMINING A SEQUENCE OF STRAIGHT LINE STROKES FROM THE USEFUL SEGMENTATION POINTS
114

1 A method of preprocessing a handwritten pen input for characters composed of a preponderance of straight line segments, comprising the steps of

A) receiving the handwritten input as a sequence of (x, y) points where x and y are coordinates in a two dimensional coordinate system;

B) determining a change in angle at each of the points;

C) identifying potential segmentation points as each of the points having a local maximum of angle change exclusive of any other points and an angle change exceeding a preset threshold;

D) removing spurious segmentation points to provide useful segmentation points, where spurious segmentation points are each of the potential segmentation points which is less than a preset distance from another of the potential segmentation points; and

E) determining a sequence of straight line strokes to represent the handwritten input from the useful segmentation points.

5,740,274

METHOD FOR RECOGNIZING OBJECT IMAGES AND LEARNING METHOD FOR NEURAL NETWORKS

Shuji Ono, and Akira Osawa, both of Kanagawa-ken, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation-in-part of Ser. No. 944,768, Sep. 14, 1992, abandoned. This application Aug. 29, 1994, Ser. No. 294,865

Claims priority, application Japan, Sep. 12, 1991, 3-233213; Sep. 26, 1991, 3-247478; Dec. 5, 1991, 3-321727; Dec. 6, 1991, 3-323342; Dec. 6, 1991, 3-323343; Dec. 6, 1991, 3-323344; Jul. 14, 1992, 4-186717

Int. Cl.^{6} G06K *9/46; 9/66*

U.S. Cl. 382—190 45 Claims

1 A method for recognizing an object image, which comprises the steps of:

i) extracting a candidate for a predetermined object image from an overall image, and

ii) making a judgment as to whether the extracted candidate for the predetermined object image is or is not the predetermined object image.

wherein said extracting step comprises.

a) causing the center point of a view window, which has a predetermined size, physically to travel on said overall image to the position of said candidate for the predetermined object image, such that the portion of the overall image within the

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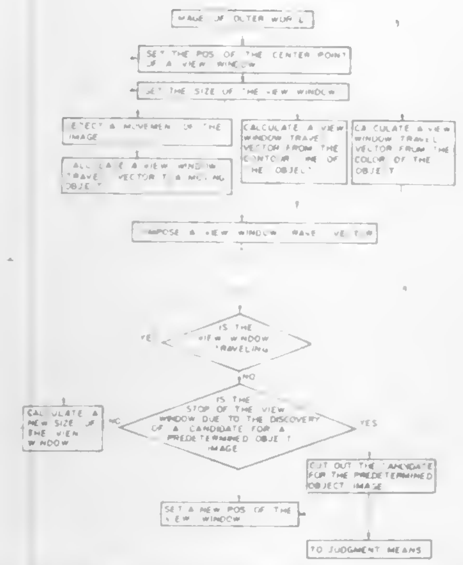


IMAGE OF OUTER WORLD
SET THE POS OF THE CENTER POINT OF A VIEW WINDOW
SET THE SIZE OF THE VIEW WINDOW
DETECT A MOVEMENT OF THE IMAGE
CALCULATE A VIEW WINDOW TRAVEL VECTOR TO A MOVING OBJECT
CALCULATE A VIEW WINDOW TRAVEL VECTOR FROM THE CONTOUR LINE OF THE OBJECT
CALCULATE A VIEW WINDOW TRAVEL VECTOR FROM THE COLOR OF THE OBJECT
COMPOSE A VIEW WINDOW TRAVEL VECTOR
IS THE VIEW WINDOW TRAVELING
YES
NO
IS THE STOP OF THE VIEW WINDOW DUE TO THE DISCOVERY OF A CANDIDATE FOR A PREDETERMINED OBJECT IMAGE
CALCULATE A NEW SIZE OF THE VIEW WINDOW
CUT OUT THE CANDIDATE FOR THE PREDETERMINED OBJECT IMAGE
SET A NEW POS OF THE VIEW WINDOW
TO JUDGMENT MEANS

view window varies, said causing step comprising the steps of: composing a first travel vector relating to a detected contour line of said candidate; composing a second travel vector related to an object image exhibiting a movement different from background movement of the overall image; composing a third travel vector related to a region which approximately coincides in color with said candidate; and composing a composite travel vector from said first, second and third travel vectors, said composite travel vector being used to cause the center point of the view window to travel over the overall image to the position of said candidate; and

b) determining an extraction area in accordance with predetermined characteristics of said candidate for the predetermined object image while using the center point of said view window as a reference.

5,740,275

METHOD AND APPARATUS FOR PROCESSING CHARACTERS USING PATTERN DATA CONVERSION

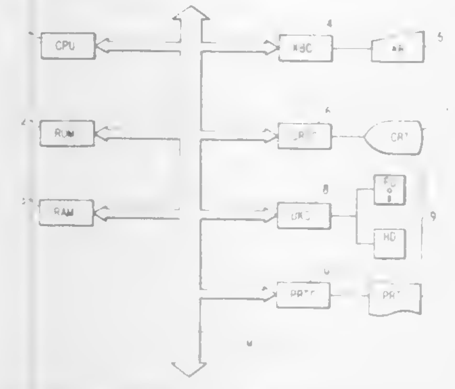
Masayuki Yoshida, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 921,364, Jul. 28, 1992, abandoned, which is a continuation of Ser. No. 668,150, Mar. 12, 1991, abandoned. This application Nov. 1, 1993, Ser. No. 144,549

Claims priority, application Japan, Mar. 14, 1990, 2-64973

Int. Cl.⁶ G06K *9/48*

U.S. Cl. 382—197 **27 Claims**



1. A character processing apparatus comprising:

deriving means for deriving a number of control points comprising vector form data for generation of a curve pattern relating to a character pattern to be output,

selection means for selecting a first method of generating a curve if said number of the control points derived by said deriving means is a prescribed number and for selecting a second method of generating a curve if said derived number is not the prescribed number;

generating means for generating curve data based on the control points using either one of the first and second curve generation methods selected by said selection means; and

memory means for storing the curve data generated by said generating means for a subsequent output operation,

wherein one of the first method of generating a curve and the second method of generating a curve is a Bezier method.

5,740,276

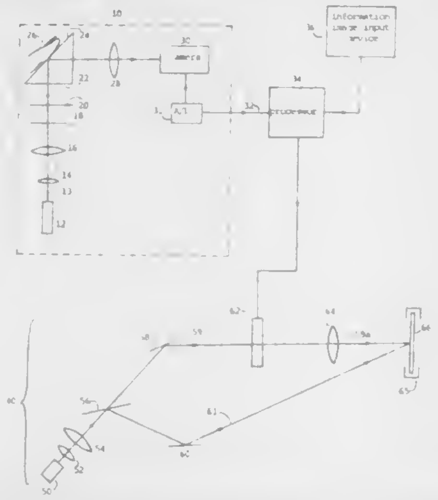
HOLOGRAPHIC METHOD FOR ENCRYPTING AND DECRYPTING INFORMATION USING A FINGERPRINT

George J. Tomko, East York, and Alexei Stoianov, Toronto, both of Canada, assignors to Mytec Technologies Inc., Don Mills

Filed Jul. 27, 1995, Ser. No. 508,297

Int. Cl.⁶ G06K *9/76*

U.S. Cl. 382—210 **27 Claims**



1. A holographic method for encrypting an information image, comprising the following steps:

obtaining a fingerprint image signal;

obtaining a cipher signal based on a Fourier transform of said fingerprint image signal;

obtaining a transformed information image signal to be encrypted;

at least one of said cipher signal and said transformed information image signal chosen so that a spatial frequency content of said transformed information image signal overlaps with a spatial frequency content of said cipher signal;

recording a hologram based on said cipher signal and said transformed information image signal such that a complex amplitude of a spatial grating of said hologram comprises a spatial complex conjugate of said transformed information image signal divided by a spatial complex conjugate of said cipher signal.

5,740,277

IMAGE ENCODING DEVICE IN WHICH ZERO-VALUED POINTS AND POINTS SUBORDINATE THERETO ARE NOT ENCODED

Jiro Katto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

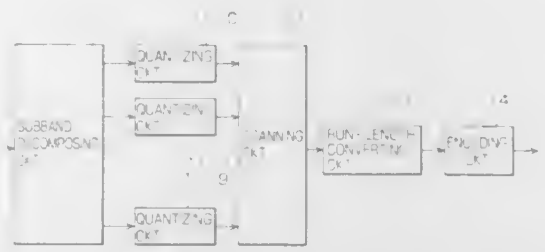
Filed Nov. 15, 1995, Ser. No. 559,270

Claims priority, application Japan, Nov. 15, 1994, 6-280915

Int. Cl.⁶ G06K *9/36*

U.S. Cl. 382—232 **42 Claims**

1. An image encoding device for encoding an input image signal to produce an output encoded signal, said image encoding device comprising:



decomposing means responsive to the input image signal for decomposing the input image signal into a plurality of frequency subbands each subband including a plurality of sample points, wherein the frequency subbands are classified into lower frequency subbands and higher frequency subbands and the sample points in the frequency subbands are divided into a plurality of subsets of sample points, the sample points in each of the subsets representing the same domain on the input image signal; and

encoding means, connected to said decomposing means, for encoding the sample points subset by subset in consideration of correlation between the frequency subbands to produce the output encoded signal so that when a particular sample point in a lower frequency subband indicates a zero value, said encoding means carries out no encoding operation on subordinate sample points which are subordinate to the particular sample point having a zero value in the lower frequency subband

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5,740,278

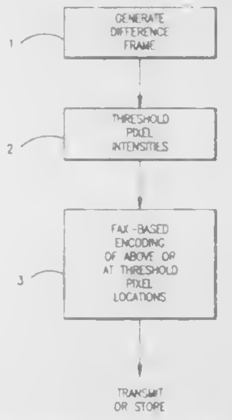
FACSIMILE-BASED VIDEO COMPRESSION METHOD AND SYSTEM

Toby Berger, and Yi-Jen Chiu, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Feb. 16, 1996, Ser. No. 606,043

Int. Cl.⁶ G06K *9/36*, H04N *7/12*

U.S. Cl. 382—232 **46 Claims**


GENERATE DIFFERENCE FRAME
THRESHOLD PIXEL INTENSITIES
FAX-BASED ENCODING OF ABOVE OR AT THRESHOLD PIXEL LOCATIONS
TRANSMIT OR STORE
1
2
3

1. A method for compressing digital image data comprising the steps of:

a) generating a plurality of pixel intensity data words, each of which corresponds to a pixel in a digital image having an intensity magnitude that is above or equal to a threshold value;

b) forming a set of pixel locations, each of which corresponds to one of said pixel intensity data words;

c) assigning a digital value to each pixel location in said set of pixel locations, said digital value being the same for all pixel locations in said set; and

d) compressing said digital image by using a facsimile-based encoding technique to encode only said pixel locations which have been assigned said digital value.

5,740,279

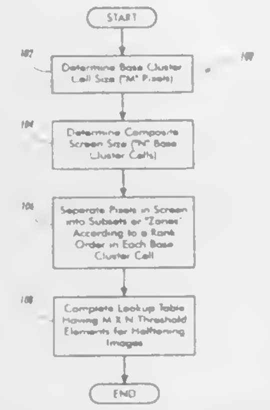
CLUSTER DOT HALFTONING SYSTEM

Shen-ge Wang, Fairport; Tse-kee Chan, Penfield, and Fritz F. Ehner, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 26, 1996, Ser. No. 753,576

Int. Cl.⁶ H04N *1/405*

U.S. Cl. 382—237 **10 Claims**


START
Determine Base Cluster Cell Size ("M" Pixels)
Determine Composite Screen Size ("N" Base Cluster Cells)
Separate Pixels in Screen into Subsets or "Zones" According to a Rank Order in Each Base Cluster Cell
Complete Lookup Table Having M X N Threshold Elements for Halftoning Images
END

1. A method of constructing a composite screen for halftoning a digitized image, comprising:

selecting a cluster screen halftoning system having a cell size of m cluster pixels;

selecting a stochastic screen halftoning system size having a set of n stochastic pixels; and

merging the set of n pixels and m pixels into a composite stochastic screen of halftone cluster LUT having a set of threshold elements

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5,740,280

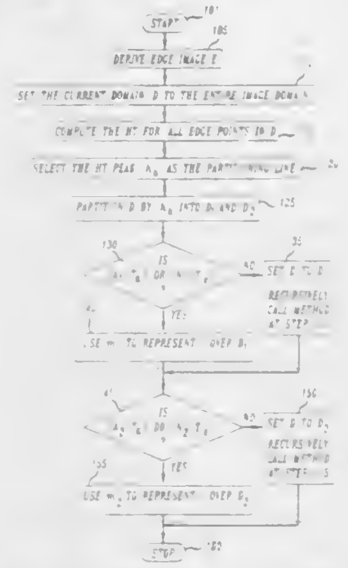
IMAGE REPRESENTATION USING TREE-LIKE STRUCTURES

Riccardo Leonardi, Geneva, Switzerland; Bruce F. Naylor, Summit, and Hayder Sadiq Radha, Freehold, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 769,138, Sep. 30, 1991, Pat. No. 5,274,718. This application Oct. 1, 1993, Ser. No. 131,261

Int. Cl.⁶ H04N *1/41*

U.S. Cl. 382—240 **17 Claims**


START
DERIVE EDGE IMAGE E
SET THE CURRENT DOMAIN D TO THE ENTIRE IMAGE DOMAIN
COMPUTE THE HT FOR ALL EDGE POINTS IN D
SELECT THE HT PEAK AS THE PARTITIONING LINE
PARTITION D BY INTO AND D₂
IS
NO
YES
SET D TO D
RECURSIVELY CALL METHOD AT STEP
USE TO REPRESENT OVER D₁
SET D TO D₂
USE TO REPRESENT OVER D₂
STOP
125
130
135

1. A method for use in developing in an image coding system a signal that represents an image having N dimensions contained within a signal containing images, said method comprising the steps of:

selecting a set of arbitrarily shaped surfaces having N−1 dimensions which are representable by a finite number of param-

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eters, each of said surfaces being selected from any of the surfaces that intersect and partition said image; said surfaces partitioning said image into a finite set of bounded arbitrarily shaped regions, and

forming a signal representing a binary tree in such a way that each non-leaf node of the binary tree contains at least a description of at least one arbitrarily shaped surface of the set of arbitrarily shaped surfaces and each leaf node of said binary tree contains at least a description of one of said bounded arbitrarily shaped regions that description being a representation of an estimate of the nature of the signal for said image within said one region.

5,740,281

METHOD OF COMPRESSING AND DECODING SHAPE-DATA

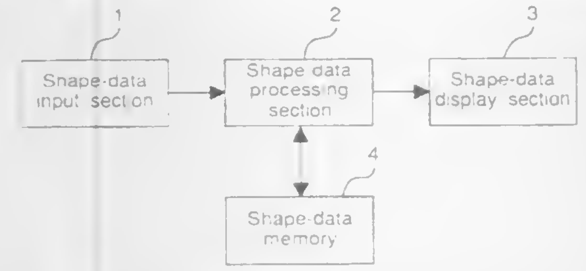
Makoto Hirai, Suita, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 27, 1994, Ser. No. 364,242

Claims priority, application Japan, Dec. 27, 1993, 5-333859

Int. Cl.^{6} G06K *9/46*

U.S. Cl. 382—243 **19 Claims**



1. A method of compressing shape-data used in an image generating apparatus, said method comprising:

a first step of inputting shape-data for a plurality of parts into the image generating apparatus, wherein the plurality of parts are obtained from partitioning a whole shape;

a second step of obtaining a distribution of coordinate values of the shape-data for each part and determining quantizing parameters for quantizing each coordinate value of the shape-data for each part based on the respective distribution obtained;

a third step of quantizing each coordinate value of the shape-data for each part using the quantizing parameters determined in said second step; and

a fourth step of inputting part coordinate transformation parameters, which consist of data relating to the positional relationship of the plurality of parts, into the image generating apparatus and obtaining parameters of an inverse quantizing and coordinate transformation by calculating the part coordinate transformation parameters based on inverse quantizing parameters for inverse-quantizing the coordinate values which were quantized.

5,740,282

SYSTEM AND METHOD FOR CONTRACTIVE MAPPING RESYNCHRONIZATION OF A DATA TRANSMISSION

Lyman P. Hurd, Atlanta, Ga., assignor to Iterated Systems, Inc., Atlanta, Ga.

Filed Jun. 30, 1995, Ser. No. 497,218

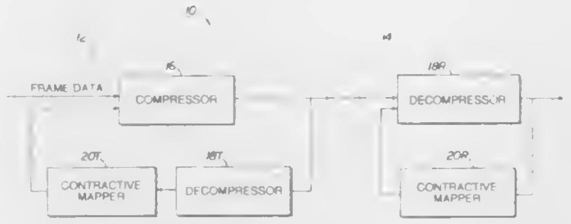
Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—248 **21 Claims**

1. A system for synchronizing a compressed data transmission comprising:

a transmitter including

a compressor for compressing a data frame into a compressed representation.



a first decompressor for decompressing said compressed representation by performing the inverse function of said compressor,

a first contractive mapper for contractively mapping said decompressed representation so that said compressor may compress a next data frame using said contractively mapped decompressed representation; and

a receiver including

a second decompressor for decompressing said compressed representation received from said compressor of said transmitter, and

a second contractive mapper for contractively mapping said decompressed representation of said received data frame so that errors in said decompressed representation are attenuated to facilitate resynchronization with said transmitter; and

wherein said first and second contractive mapper perform scalar multiplication of substantially all elements in the decompressed representation of the received frame data to contractively map the decompressed image and where the scalar multiplication is adjustable to compensate for transmission line conditions.

5,740,283

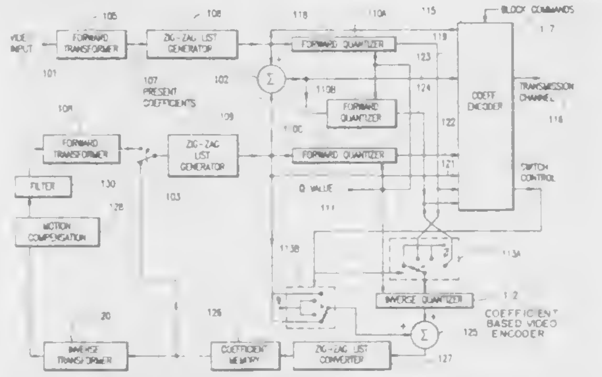
DIGITAL VIDEO COMPRESSION UTILIZING MIXED VECTOR AND SCALAR OUTPUTS

G. William Meeker, Silver Spring, Md., assignor to Rubin, Bednarek & Associates, Inc., Washington, D.C.

Filed Jul. 6, 1995, Ser. No. 500,392

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—248 **25 Claims**



1. Apparatus for compressing video data comprising.

a. means for transforming a representation of a present image using a given transform function and for transforming a representation of a previous image using the same transform function image to obtain a plurality of transformed values of said previous image and a plurality of transformed values of said present image;

b. means for subtracting each one of said plurality of transformed values of said previous image from a corresponding one of said plurality of transformed values of said present image to derive a plurality of difference values, the number of said plurality of difference values being equal to the number of said plurality of transformed values of said previous image and to the number of said plurality of transformed values of said present image;

c. means for determining which of the difference values require a vector representation and which of the difference values can be represented by a scalar representation;

d. means for representing for transmission or storage said plurality of difference values as a combination of vectors and scalars, said means for representing operable to represent difference values selectively as vectors and scalars based on the determination of the means for determining, said vectors constituting an ordered set comprising a value and a run length and said scalars constituting a value or a command.

5,740,284

CODING METHOD AND APPARATUS FOR RESAMPLING AND FILTERING IMAGES USING DISCRETE COSINE TRANSFORMS

Munib A. Wober, Haverhill, and Michael L. Reisch, Carlisle, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 159,795, Nov. 30, 1993, abandoned.

This application May 18, 1995, Ser. No. 427,457

Int. Cl.^{6} G06K *9/03*; H04N *1/415*

U.S. Cl. 382—250 **32 Claims**

1. A method of generating a resampled image comprising the steps of.

acquiring an input signal comprising values of discrete image data points corresponding to input pixels of an input image at an initial sampling rate, said values defining at least one spatial domain matrix, each said at least one spatial domain matrix spanning over a given range;

producing a discrete even cosine transform (DECT) basis matrix corresponding to said at least one spatial domain matrix;

producing a DECT signal comprising DECT coefficients of at least one DECT matrix in response to both said DECT basis matrix and said at least one spatial domain matrix;

selecting a resampling rate to set a number of output pixels of said resampled image over said given range;

determining, for said resampling rate, an interval between said output pixels represented as Δx;

producing a hybrid inverse discrete even cosine transform (IDECT) basis matrix corresponding to said at least one DECT matrix at said resampling rate;

generating a hybrid IDECT signal comprising IDECT coefficients of at least one hybrid IDECT matrix in response to both said hybrid IDECT basis matrix and said DECT signal; and

producing the resampled image from said hybrid IDECT signal.

5,740,285

IMAGE REDUCTION/ENLARGEMENT TECHNIQUE

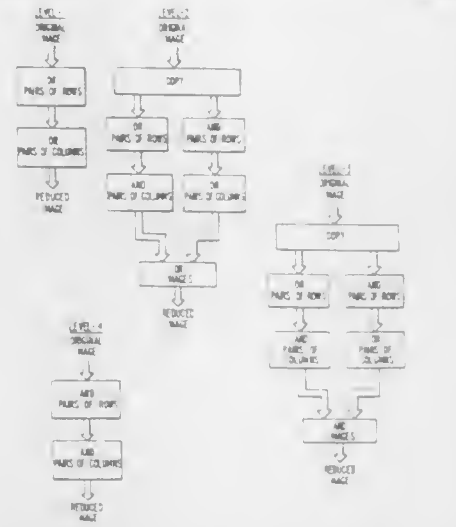
Dan S. Bloomberg, and Daniel Davies, both of Palo Alto, Calif., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 449,627, Dec. 8, 1989, abandoned.

This application Jan. 29, 1993, Ser. No. 10,825

Int. Cl.^{6} G06T *3/40*; *5/30*

U.S. Cl. 382—299 **44 Claims**



1. A method of reducing a binary input image to a binary reduced image, via one or more intermediate images, each intermediate image being of the same size as the reduced image and being produced by operating on the input image, wherein the input image includes non-overlapping subregions, each subregion having m rows of n pixels, each subregion corresponding to a respective pixel in the reduced image, the pixel in the reduced image corresponding to a given subregion in the input image being ON if and only if the number of ON pixels in the given subregion is no less than a designated threshold value, the threshold value being greater than 1 and less than mn, the method comprising the steps of.

performing a set of logical operations between the rows of the input image or one of the intermediate images, designated row operations; and

performing a set of logical operations between the columns of the input image or one of the intermediate images, designated column operations;

wherein at least one of the column and row operations is a logical AND and at least one of the column and row operations is a logical OR;

the sets of column and row operations depending on the values of m, n, and the threshold value, and resulting in the reduced image

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5,740,286

DIGITAL INFORMATION DECODING METHOD HAVING A RE-READING STEP

Masahiro Esashi, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 7, 1996, Ser. No. 612,309

Claims priority, application Japan, Mar. 10, 1995, 7-051441

Int. Cl.^{6} G06K *9/00*

U.S. Cl. 382—312 **5 Claims**

1. A digital information decoding method for reading digital information from a recording carrier on which, by virtually setting matrix meshes corresponding to bits on a flat recording surface of the recording carrier and by giving an optically recognizable mark to each of the meshes, the digital information is recorded as a two-dimensional pattern together with a positioning mark for indicating position of each of the meshes and an error detection code for detecting a read error, comprising the steps of

(a) converting the two-dimensional pattern recorded on the recording surface into image data composed of image bits having a density higher than density of the meshes.

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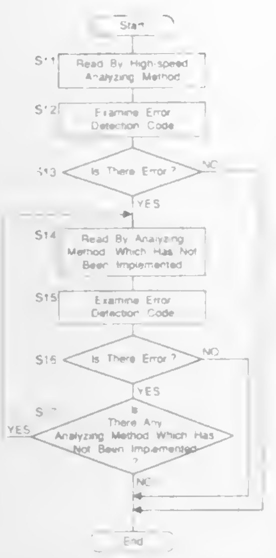

Start
S11 Read By High-speed Analyzing Method
S12 Examine Error Detection Code
S13 Is There Error ?
NO
YES
S14 Read By Analyzing Method Which Has Not Been Implemented
S15 Examine Error Detection Code
S16 Is There Error ?
NO
YES
S17 Is There Any Analyzing Method Which Has Not Been Implemented ?
YES
NO
End

(b) calculating a center position of each of the meshes of the image data based on the positioning mark;

(c) examining only a value of an image bit located in the calculated center position in the image data;

(d) reading a value of the image bit examined at step (c) as a value of the mesh;

(e) deciding whether or not a read error is in the values of the read meshes by examining the error detection code; and

(f) re-reading the values of the meshes by executing, instead of a first analyzing method comprising the steps (b) to (d), a second analyzing method, when a read error is in the value of the read meshes.

5,740,287

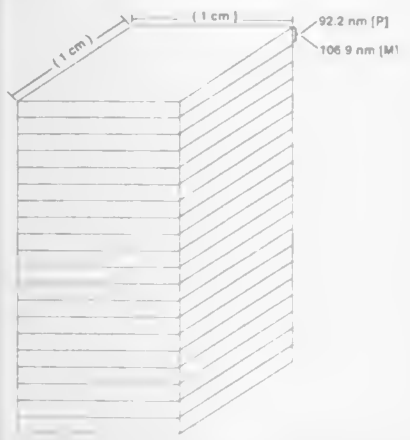
OPTICAL SWITCH THAT UTILIZES ONE-DIMENSIONAL, NONLINEAR, MULTILAYER DIELECTRIC STACKS

Michael Scalora; Jonathan P. Dowling; Charles M. Bowden, all of Huntsville; Mark J. Bloemer, Athens, and Michael D. Tocci, Huntsville, all of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 7, 1995, Ser. No. 568,728

Int. Cl.⁶ G02B *6/10*

U.S. Cl. 385—6 13 Claims



1. An optical switch in a one-dimensional multilayer dielectric stack having a photonic band gap, comprising:

(a) a stack of at least two groups of layers of dielectric material whose operational frequency is near the edge of said photonic band gap;

(b) at least one layer of each of said groups being composed of a nonlinear c_3 dielectric polymer material creating an intensity-dependent shift in the location of said photonic band gap and producing a dynamical change in the transmissive and reflective properties of said structure in response to changes in the intensity of light or the transmittance of electromagnetic radiation passing through said multilayer dielectric nonlinear stack;

(c) wherein said one layer of each of said groups has a negative nonlinear coefficient c_3, such that the index of refraction of one of the materials in said stack, $n_2=n_0-c_3I$, where I equals the intensity of the light propagating in said dielectric stack, for generating switching behavior, with linear and nonlinear absorption coefficients not exceeding 840/cm and 9×10^{-5} cm/kW, respectively; such that the magnitude of the nonlinear index of refraction not be smaller than $c_3=2\times10^{-7}$ cm²/kW, and

(d) wherein the width of said photonic band gap is determined by the differences between the refractive indices of said nonlinear dielectric polymer material and that of the other layers of dielectric material in said multilayer dielectric stack.

5,740,288

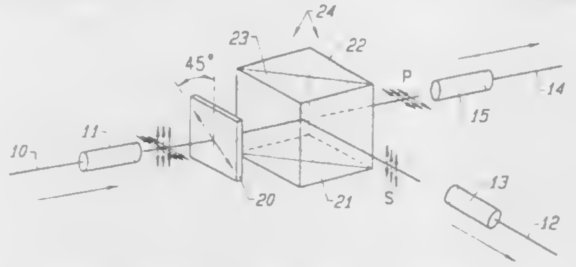
VARIABLE POLARIZATION BEAM SPLITTER, COMBINER AND MIXER

Jing-Jong Pan, Milpitas, Calif., assignor to E-Tek Dynamics, Inc., San Jose, Calif.

Continuation of Ser. No. 406,212, Feb. 22, 1995, abandoned. This application Mar. 14, 1997, Ser. No. 818,369

Int. Cl.⁶ G02B *6/00;* **G02F** *1/1335*

U.S. Cl. 385—11 24 Claims



1. A variable polarization beam splitter comprising:

a first collimator subassembly holding an end of a first optical fiber in coaxial relationship with a first collimator;

a beam splitter in an input light path from the first collimator to direct a first portion of the input light having a first polarization along a first polarization path, and to direct a second portion of the input light having a second polarization along a second polarization path;

a second collimator subassembly holding an end of a second optical fiber in said first polarization path;

a third collimator subassembly holding an end of a third optical fiber in said second polarization path; and

at least one liquid crystal cell interposed between said first collimator subassembly and said beam splitter, said cell controllably rotating the polarization of light from said first collimator subassembly responsive to control signals so that said input light signals from said first optical fiber can be controllably and variably split into said first polarization portion and said second polarization portion.

5,740,289

OPTICAL ARRANGEMENT FOR AMPLIFYING WDM SIGNALS

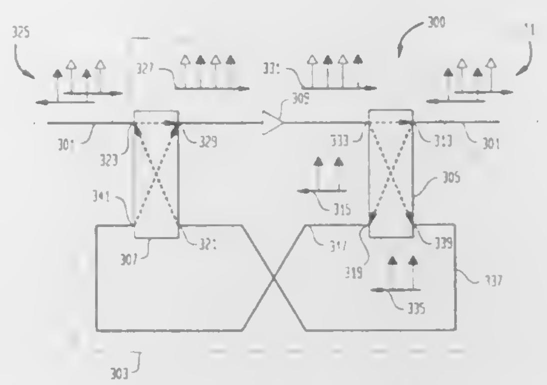
Bernard Glance, Colts Neck, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 30, 1996, Ser. No. 775,473

Int. Cl.⁶ G02B *6/28;* **H04J** *14/00*

U.S. Cl. 385—24 24 Claims

1. An amplification circuit for amplifying a plurality of wavelength-division-multiplexed signals in a fiber optic network,



said network including a plurality of links for simultaneously bidirectionally propagating said plurality of signals, said circuit comprising:

an optical amplifier; and

frequency router circuitry coupled to a first portion of said network, to said amplifier, and to a second portion of said network; whereby

said frequency router circuitry receives from said first portion of said network a first subplurality of said signals and receives from said second portion of said network a second subplurality of said signals, multiplexes said first and second subpluralities of said signals, and routes said multiplexed first and second subpluralities of said signals to said amplifier;

said amplifier amplifies said multiplexed first and second subpluralities of said signals, and

said frequency router circuitry receives from said amplifier said amplified first and second subpluralities of said signals, demultiplexes said amplified first and second subpluralities of said signals, routes said amplified first subplurality of said signals to said second portion of said network, and routes said amplified second subplurality of said signals to said first portion of said network.

15. A method of amplifying a plurality of wavelength-division-multiplexed signals between first and second fiber-optic links, each said link providing simultaneous bidirectional signal propagation, said method comprising the steps of:

multiplexing a first subplurality of said signals having a first plurality of respective unique wavelengths received from said first link with a second subplurality of said signals having a second plurality of respective unique wavelengths received from said second link;

amplifying said multiplexed first and second subpluralities of said signals;

routing said first subplurality of said signals to said second link, and

routing said second subplurality of said signals to said first link.

5,740,290

OPTICAL FILTERING

Kevin Christopher Byron, Bishop's Stortford, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada

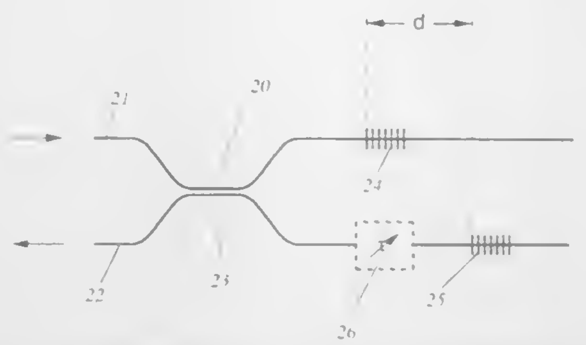
Division of Ser. No. 594,471, Jan. 31, 1996, Pat. No. 5,647,037. This application Feb. 13, 1997, Ser. No. 800,261

Claims priority, application United Kingdom, Feb. 1, 1995, 9501973

Int. Cl.⁶ G02B *6/26;6/42*

U.S. Cl. 385—27 4 Claims

1. A method of filtering a noise contaminated optical signal the spectral width of which signal is small compared with the spectral width of a channel within which the signal is constrained to lie, in which method the noise contaminated signal is divided into components which are caused to propagate different optical path distances before being recombined after reflection in, or transmission through, spectrally matched spectrally selective optical filter elements that are spectrally matched with the spectral width of the channel, wherein the difference in said optical path distances is



great enough substantially to preclude coherent recombination of noise power extending over the spectral range of the filter elements while being small enough to provide substantially complete coherent recombination of the signal power.

5,740,291

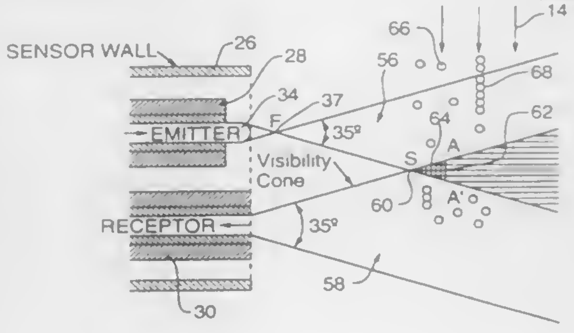
FIBER OPTIC SENSOR FOR SENSING PARTICLE MOVEMENT IN A CATALYTIC REACTOR

Hugo I. De Lasa; Brad J. Young, and Stefan Krol, all of London, Canada, assignors to The University of Western Ontario, Canada

Filed Oct. 13, 1995, Ser. No. 543,197

Int. Cl.⁶ G01N *21/49*

U.S. Cl. 385—31 27 Claims



1. An optical probe for sensing presence of small moving particles passing through a defined sensing region, said probe comprising:

i) an emitter optic fibre for transmitting from its tip radiant energy outwardly of said probe;

ii) a receptor optic fibre for receiving radiant energy reflected or emitted by such particles moving through said sensing region;

iii) a lens for focusing radiant energy emitted from said emitter tip into a focal region spaced outwardly of said probe and which radiant energy diverges outwardly from said focal region into a defined high density radiant energy region,

iv) said receptor optic fibre defining a diverging viewing region projecting outwardly towards said high density radiant energy region, said receptor optic fibre being positioned relative to said lens to project said viewing region to overlap a useful portion of said high density radiant energy region to define thereby said sensing region.

5,740,292

MODE COUPLING OPTICAL WAVEGUIDE GRATING

Thomas A. Strasser, Chatham, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 12, 1996, Ser. No. 712,694

Int. Cl.⁶ G02B *6/34*

U.S. Cl. 385—37 18 Claims

1. An article comprising an optical waveguide adapted for guiding electromagnetic radiation of at least two wavelengths λ_1 and λ_2 in a spectral region of spectral width $\Delta\lambda$, said optical waveguide

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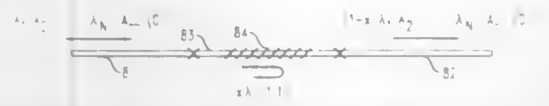


comprising a length of multimode optical waveguide, said length of multimode optical waveguide comprising a blazed refractive index grating of pitch Λ and blaze angle θ, with Λ and θ selected such that the grating causes coupling between a symmetric fundamental spatial mode of electromagnetic radiation of wavelength λ_i and a higher order spatial mode of said electromagnetic radiation of wavelength λ_i;

CHARACTERIZED IN THAT

a) the blazed refractive index grating is a short-period refractive index grating, with Λ<1 μm;

b) the blaze angle θ is greater than θ_o, where θ_o is a blaze angle that provides essentially optimal coupling between said symmetric fundamental spatial mode and said higher order spatial mode for electromagnetic radiation of wavelength λ_i; and

c) θ is selected such that the grating causes substantially less reflection of said symmetric fundamental mode radiation of wavelength λ_i than is caused by an, otherwise identical, comparison grating having $\theta=\theta_o$.

5,740,293

OPTOELECTRONIC DEVICE WITH A COUPLING BETWEEN A SEMICONDUCTOR DIODE LASER MODULATOR OR AMPLIFIER AND TWO OPTICAL GLASS FIBRES

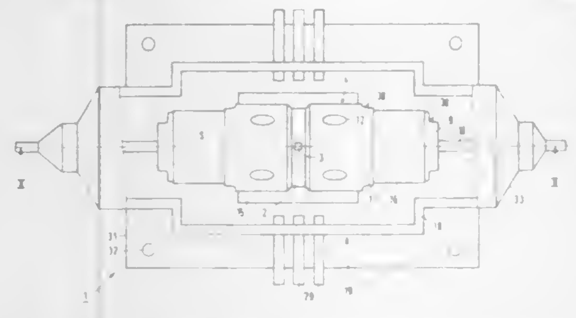
Remigius S. M. Van Roemburg; Lukas F. Tiemeijer; Cornelis M. Groeneveld, and Willem Schouten, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 9, 1996, Ser. No. 598,879

Claims priority, application European Pat. Off., Feb. 10, 1995, 95200324

Int. Cl.^{6} G02B *6/36*

U.S. Cl. 385—92 **22 Claims**



1. An optoelectronic device comprising an optoelectronic module including a first holder, a second holder, and a third holder, the first holder being for a semiconductor diode laser component, the second holder being disposed on at least one side of the component in the radiation path (S) and integral to the first holder, the second holder comprising a bush and a plate, the bush extended from the plate and having near the plate at least one opening, the plate having an opening aligned with the component and being provided with a lens holder, the lens holder being fastened to the plate from within the bush, and the third holder being for an optical glass fibre aligned with the component arranged in the radiation path (S) on at least one side of the first holder

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5,740,294

OPTICAL SOUND HEAD COMBINED WITH A SOUND FILM PROJECTOR

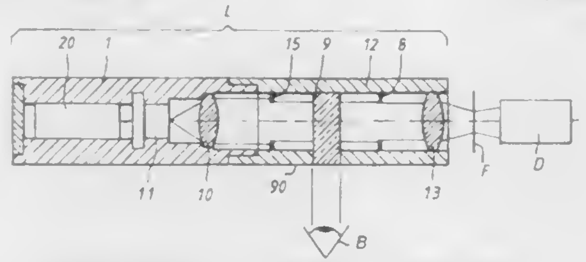
Hans Baumann, Raisdorf, and Jürgen Perkams, Probsteierhagen, both of Germany, assignors to Raytheon Anschuetz GmbH, Kiel, Germany

Filed May 28, 1996, Ser. No. 654,177

Claims priority, application Germany, Jun. 9, 1995, 195 21 034.4

Int. Cl.^{6} G02B *6/36;* H01S *3/18;* G03B *31/00*

U.S. Cl. 385—93 **11 Claims**



1. An optical sound head, consisting of the following:

a replaceable assembly (**1**), containing

a laser diode (**11**) of narrow-band emission in a visible range of the spectrum and an elliptical beam divergence,

a collimator (**10**)

another assembly (**12**) having a cylindrical lens (**9**), a cylindrical axis of which is provided in the direction of the large semi-axis of the elliptical beam divergence of the laser diode

a fixed aperture slot (**8**) consisting of an unsupported slotted opaque carrier, being provided in the direction of the cylinder axis of the cylindrical lens,

a reducing lens (**13**), providing a reduced image of the aperture slot (**8**) on a film plane (F),

an inspection window (**90**), and

an arrangement diverging visible light from the beam path of the optical sound head (L) to the inspection window (**90**).

5,740,295

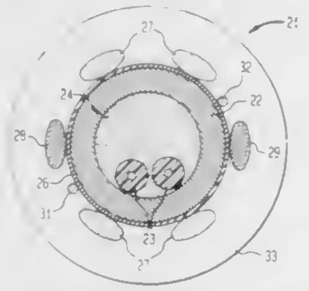
LOW FIBER COUNT OPTICAL CABLE

Michael Douglas Kinard, Lawrenceville; Andrew John Panuska, Buford; Parbhubhai Dahyabhai Patel, Dunwoody, and Walter Joseph Paucke, Tucker, all of Ga., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 2, 1994, Ser. No. 333,197

Int. Cl.^{6} G02B *6/44*

U.S. Cl. 385—109 **26 Claims**



1. A low fiber count optical fiber cable comprising:

a hollow tubular member of dielectric material and substantially circular cross section having an inside diameter D,

the exterior surface of said tubular member being coated with a hydrophilic material,

at least one optical fiber configuration enclosed within said tubular member and having a diameter of d_f;

said inside diameter D being sized for containing one or more of a plurality of any of said fiber configurations and being greater than a critical dimension d_c where d_c is that value of D just sufficient to enclose all of the fiber within said tubular member;

said fiber member having a length within said tubular member that is greater than the length of said tubular member by an excess length l_e and is given in part by the ratio d_f/D, and a bend radius within the tubular member given by the ratio D_b/D, where D_b is twice said bend radius;

said ratio d_c/D and the value of D, and of l_e being an optimum value regardless of the type of fiber configuration enclosed within said tubular member; and wherein at the optimum value of D, a maximum packing density commensurate with excellent optical and mechanical performance including low bending strain and low attenuation within said tubular member results for supporting any of said fiber configurations.

5,740,296

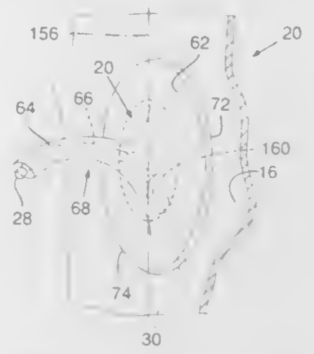
ADJUSTABLE TERMINAL HOUSING FOR OPTICAL FIBER

Laura Lee Harris, Eugene, Oreg., assignor to Inwave Corporation, Eugene, Oreg.

Filed Sep. 5, 1996, Ser. No. 708,650

Int. Cl.^{6} G02B *6/06*

U.S. Cl. 385—116 **21 Claims**



1. A terminal housing for supporting an output terminal of an optical conductor, comprising:

a neck having a base and a top;

an arcuate optical conductor support channel within the neck, the channel having changing angular displacement between an entry position at the base and a distal position at the top; and

a medial position corresponding to a predetermined angular output orientation with respect to the base such that severing the channel at the medial position forms an output end of the channel at the medial position such that the output end is adapted for orienting the output terminal of the optical conductor in a predetermined output angular orientation.

5,740,297

DISPERSION-COMPENSATING FIBER AND METHOD OF FABRICATING THE SAME

Masashi Onishi; Chie Fukuda, and Hiroo Kanamori, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Aug. 30, 1996, Ser. No. 705,993

Claims priority, application Japan, Aug. 31, 1995, 7-223605

Int. Cl.^{6} G02B *6/22*

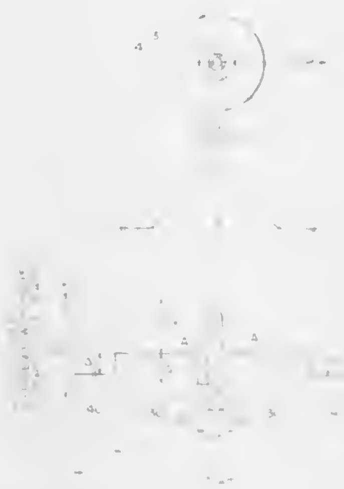
U.S. Cl. 385—127 **26 Claims**

1. A dispersion-compensating fiber mainly composed of silica glass, said dispersion-compensating fiber comprising:

a core portion containing at least 10 mol % of GeO_2 and having an outer diameter of 2 to 4 μm and a predetermined refractive index; and

a cladding portion formed around an outer periphery of said core portion and having a refractive index set lower than that of said core portion, said cladding portion comprising

a first cladding which is a glass region formed around the outer periphery of said core portion in close contact therewith, said first cladding containing a predetermined amount of an impurity for reducing refractive index, having an outer diameter of 4 to 20 μm, and constituting a part of an optical cladding;



a second cladding which is a glass region formed around an outer periphery of said first cladding in close contact therewith, said second cladding having a higher refractive index than said first cladding, and constituting said optical cladding together with said first cladding; and

a third cladding which is a glass region formed around an outer periphery of said second cladding in close contact therewith, said third cladding having a lower glass viscosity than said second cladding at a predetermined temperature, and constituting a physical cladding.

5,740,298

OPTICAL FIBRE ORGANIZER

Luk Jozef Macken, Antwerp; Daniel Daems, Berchem; Pieter De Coster, Linden, and Lodewijk Cordula Michael Van Noten, Louvain, all of Belgium, assignors to N.V. Raychem S.A., Kessel-lo, Belgium

PCT No. PCT/GB94/01913, § 371 Date Mar. 6, 1996, § 102(e) Date Mar. 6, 1996, PCT Pub. No. WO95/07480, PCT Pub. Date Mar. 16, 1995

PCT Filed Sep. 2, 1994, Ser. No. 605,211

Claims priority, application United Kingdom, Sep. 8, 1993, 9318633

Int. Cl.^{6} G02B *6/36*

U.S. Cl. 385—135 **21 Claims**

1. A base for an optical fibre organizer, which comprises:

a first passage along one longitudinal edge portion for incoming fibres,

a second passage along an opposite longitudinal edge portion for outgoing fibres,

a plurality of first fibre guides separated from one another along the length of the base and extending from the first passage

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across the base towards the second passage where fibres in said guides are directed away from the plane of the base;

a plurality of second fibre guides separated from one another along the length of the base and extending from the second passage across the base towards the first passage where fibres in said guides are directed away from the plane of the base.

5,740,299

ASSEMBLY FOR USE IN CONNECTING OPTICAL FIBERS HAVING PIVOTALLY MOUNTED HOUSINGS

Laurence Llewellyn, Chepstow Gwent; Mark George Graveston, Newport; Simon Charles Tristan Benton, Felixstowe; Ispran Sharma Kandasamy, Newport Gwent; Peter George Hale, Bristol, and Peter David Jenkins, Woodbridge, all of England, assignors to Pirelli General PLC, London, England

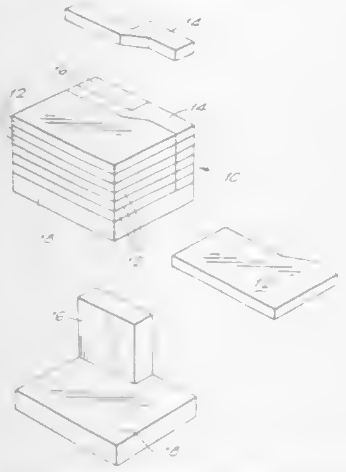
PCT No. PCT/GB94/02111, § 371 Date Mar. 28, 1996, § 102(e) Date Mar. 28, 1996, PCT Pub. No. WO95/09374, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 28, 1994, Ser. No. 619,705

Claims priority, application United Kingdom, Sep. 29, 1993, 9320101

Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—135 **11 Claims**



1. An assembly for use in connecting optical fibres, the assembly comprising a plurality of housings for housing optical fibre connections, each housing being pivotally mounted to, and supported by, a respective rigid routing member having passage means for routing fibres to that housing via a respective flexible conduit means extending between the routing member and that housing, said routing members being rigidly connected one to another such that said housings are arranged in an aligned bank when in stowed positions, each housing being pivotable for providing access thereto from its stowed position out of alignment with the other housings.

5,740,300

TRANSCEIVER MODULE SUPPORT APPARATUS WITH FIBER MANAGEMENT FEATURES

Ronald L. Hodge, Flowery Branch, Ga., assignor to Scientific-Atlanta, Inc., Norcross, Ga.

Filed May 1, 1996, Ser. No. 640,707

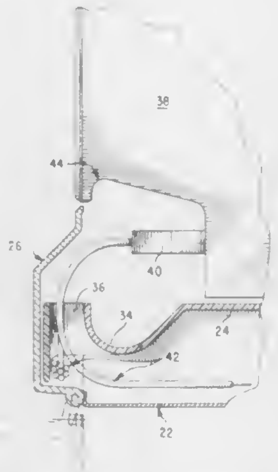
Int. Cl.^{6} G02B *6/00*

U.S. Cl. 385—135 **19 Claims**

1. An apparatus for supporting a plurality of electronic modules and routing and guiding optic fiber cables thereto, said apparatus comprising

a chassis; and

a support tray matingly received in said chassis, said tray comprising



a plurality of module guide means for guiding the modules into proper position on a first side of said tray.

cable guiding and routing means for guiding and routing a cable from a second side of said tray to a connector of each of the modules arranged on said first side, said cable guiding and routing means including a smoothly contoured surface of a predetermined bending radii to prevent excessive bending, twisting and tangling of the cable.

5,740,301

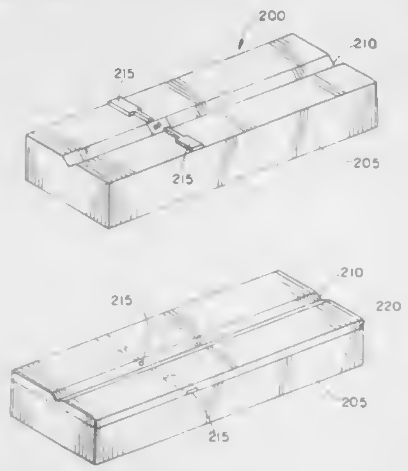
FUSION SPLICING BLOCK WITH ELECTRODES DISPOSED ON PLANAR SURFACE

Murray R. Harman, Glouchester; James D. Marshall, Stittsville, and Gordon A. Clark, Nepean, all of Canada, assignors to Fiberlign division of Preformed Line Products Ltd., Napean, Canada

Continuation-in-part of Ser. No. 266,205, Jun. 27, 1994, Pat. No. 5,596,672. This application Aug. 11, 1994, Ser. No. 289,200

Int. Cl.^{6} G02B *6/255*

U.S. Cl. 385—14.7 **23 Claims**



12. A fusion element comprising:

a non-conductive substrate;

at least two portions of conductive material disposed on an outer surface of said non-conductive substrate and adapted for making contact with an operatively associated external voltage source;

at least two substantially planar conductive electrodes having electrode tips overlaying a layer of the substrate, said at least two substantially planar conductive electrodes being electrically isolated from each other and each electrode being electrically connected to a one of the at least two outer portions, the electrode tips defining an arc region therebetween.

means defining through holes in the non-conductive substrate; and,

at least two plated conductive members in said through holes, each plated conductive member electrically interconnecting at least one of the electrodes with at least one of the portions of conductive material.

5,740,302

CIRCUIT FOR INSERTING AND SEPARATING A FIELD COUNT INTO A LUMINANCE SIGNAL AND METHOD THEREFOR

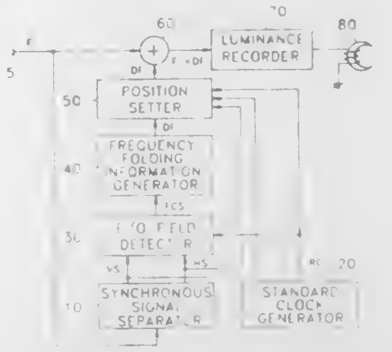
Yong-je Kim, Suwon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Sep. 20, 1991, Ser. No. 763,291

Claims priority, application Rep. of Korea, Oct. 31, 1990, 90-17587

Int. Cl.^{6} H04N *9/80*

U.S. Cl. 386—33 **22 Claims**



1. A frequency folding information inserting circuit in a video processing apparatus for folding a high frequency video signal into a low frequency video signal and recording the folded video signal on a recording medium having a limited bandwidth, said circuit comprising:

an even/odd number field detector for detecting whether current fields of said folded video signal are one of an even number field and an odd number field, and for generating an even/odd number field detector signal having different logic states;

a frequency folding information generator for responding to said even/odd number field detector signal to generate frequency folding information representing a frequency folding state of said folded video signal;

an adder for inserting said frequency folding information into the folded video signal; and

a position setter connected between said frequency folding information generator and said adder, and for supplying said frequency folding information to said adder when reaching a position where the frequency folding information is to be inserted into the folded video signal.

5,740,303

MAGNETIC RECORDING SYSTEM AND METHOD FOR A DIGITAL STILL VIDEO RECORDER

Young-Kyun Ban, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 31, 1990, Ser. No. 636,128

Claims priority, application Rep. of Korea, Dec. 29, 1989, 1989-20081

Int. Cl.^{6} H04N *5/225;5/228*

U.S. Cl. 386—38 **4 Claims**

1. A magnetic recording system for a digital still video recorder, said system comprising:

sensing means for generating release timing data, white balance correction data and exposure data in response to user control and detected image characteristics.

controlling means for receiving said release timing data, said white balance correction data, and said exposure data from the sensing means and for generating iris driving control signals,

driving signal generation control signals, recording control signals, and display control signals.

driving signal generating means for receiving said driving signal generation control signals from said controlling means and for generating driving signals.

still image sensing means for receiving images of an object through a lens as optical signals, said still image sensing means comprising:

means for converting said optical signals into internally-generated still image signals;

means for amplifying the internally-generated still image signals; and

means for performing chrominance separation, gamma correction and white balance correction according to said iris driving control signals from said controlling means and the driving signals from the driving signal generating means to generate red, green and blue internal still chrominance signals;

external image signal input means for receiving externally-generated composite image signals, said external image signal input means comprising.

decoder means for separating red, green and blue external chrominance signals from the externally-generated composite image signals;

amplifier means for amplifying the red, green and blue external chrominance signals received from said decoder means; and

separator means for separating synchronizing signals from said externally-generated composite image signals, said synchronizing signals being input to said controlling means, said controlling means generating said driving signal in response to said synchronizing signals, and said externally-generated composite image signals being received from an external source at said external image signal input terminal;

input switching means for generating first input selection control signals, said controlling means receiving said first input selection control signals and for generating second input selection control signals in response to said first input selection control signals.

input selection means for selecting and providing one of the red, green and blue internal still chrominance signals generated from said still image sensing means and said red, green and blue external chrominance signals from said external image signal input means as selected still image signals, according to said second input selection control signals

digital signal processing means for receiving the selected still image signals from said input selection means, for converting said selected still image signals into digital still image signals and for processing said digital still image signals in preparation for recording on a recording medium;

magnetic data recording means for recording the digital still image signals processed by said digital signal processing means on a disc according to the recording control signals, and

display means for receiving said display control signals and display a status of said magnetic data recording means.

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5,740,304

METHOD AND APPARATUS FOR REPLAYING RECORDING MEDIUM FROM ANY BOOKMARK-SET POSITION THEREON

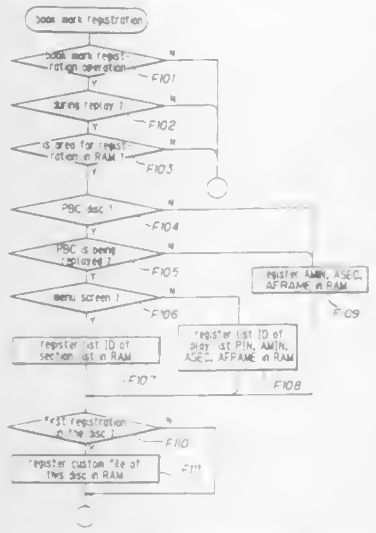
Akira Katsuyama; Shuichi Nagano, and Takashi Koya, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 497,414, Jun. 30, 1995, abandoned. This application Mar. 10, 1997, Ser. No. 814,456

Claims priority, application Japan, Jul. 4, 1994, 6-173170

Int. Cl.^{6} H04N *5/76; 5/92*

U.S. Cl. 386—46 13 Claims


book mark registration
book mark regist-ration operation
F101
during replay ?
F102
F103
PBC disc ?
F104
PBC is being executed ?
F105
menu screen ?
F106
register AMIN, ASEC, AFRAME in RAM
F109
register list ID of section list in RAM
F107
F108
first registration of the disc ?
F110
register custom file of this disc in RAM
F111

1. A reproducing apparatus for reproducing audio and video data from any predetermined position on a recording medium having recorded thereon compressed audio and video data and playback control data which is operable to provide a user interactive operation on said audio and video data, said reproducing apparatus comprising

reproducing means for reproducing said one of said compressed audio and video data from said recording medium;

input means for specifying a replay start position indicating a bookmark address on said recording medium;

memory means for storing at least one of said bookmark address and playback control data providing a substantially immediate access to said replay start position;

discrimination means for determining whether said playback control data has been recorded on said recording medium prior to the current replay of said audio and video data, and

control means for controlling said memory means to store only said bookmark address if said playback control data has not been recorded on said recording medium, said control means controlling said memory means to store at least said playback control data if said playback control data has been recorded on said recording medium.

5,740,305

APPARATUS FOR CODING AND DECODING EDITED INFORMATION DATA

Yoshihiro Murakami, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 12, 1995, Ser. No. 570,977

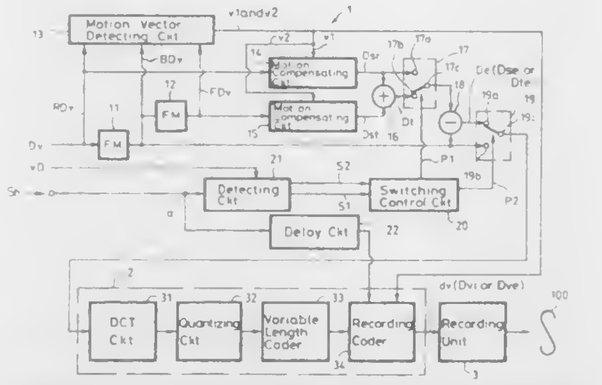
Claims priority, application Japan, Dec. 12, 1994, 6-307714

Int. Cl.^{6} H04N *5/92*

U.S. Cl. 386—52 10 Claims

1. Apparatus for coding information data comprising

motion compensating means for compensating motion of moving image data selectively in accordance with one-way prediction or two-way prediction of input information by detecting motion vector information relative to said input information to generate motion compensation information.



predictive error detecting means for detecting a predictive error between motion compensation information and said input information to generate predictive error information;

means for coding said predictive error information and said input information to generate coded information containing interframe-coded information and intraframe-coded information; and

means for receiving edit information, wherein said motion compensating means selects either said one-way prediction or said two-way prediction in response to said edit information and wherein said means for coding adds said edit information to said coded information together with said motion vector information.

5,740,306

DIGITAL SIGNAL RECORDING DEVICE AND PLAYBACK DEVICE

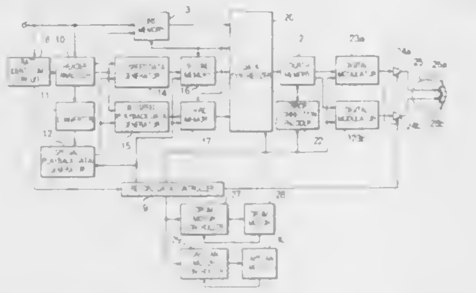
Junko Shinohara; Sadayuki Inoue; Tatsuo Yamasaki, and Ken Onishi, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1996, Ser. No. 588,903

Claims priority, application Japan, Jan. 25, 1995, 7-009870; Feb. 3, 1995, 7-017056; Sep. 4, 1995, 7-226703

Int. Cl.^{6} H04N *5/91*

U.S. Cl. 386—67 20 Claims



1. A digital signal recording device for recording data on a recording medium, comprising

transmission rate identifying means for receiving a data signal including a plurality of transport packets, and for identifying a transmission rate of the transport packets;

recording mode setting means for setting a recording mode based on the identified transmission rate, the recording mode being a rate at which to record data on the recording medium;

data extracting means for extracting intraframe or intra-field coded digital video data from the transport packets,

special playback data generating means for generating special playback data by reconstructing the extracted intra frame or intra-field coded digital video data, and

recording means for generating recording format such that the transport packets and the special playback data are recorded at predefined positions on tracks of the recording medium, for recording the transport packets and the special playback data according to the generated recording format, and for varying a number of repetitions of the special playback data based on the set recording mode

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5,740,307

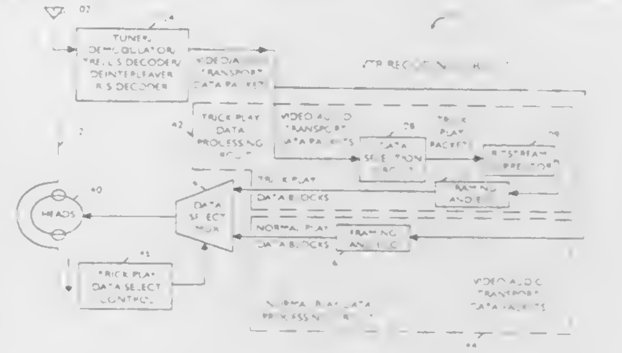
METHODS FOR MONITORING A TRICK PLAY DATA STREAM TO INSURE MPEG COMPLIANCE

Frank Anton Lane, Medford Lakes, N.J., assignor to Hitachi America, Ltd., Tarrytown, N.Y.

Division of Ser. No. 481,022, Jun. 7, 1995. This application Nov. 15, 1996, Ser. No. 751,140

Int. Cl.^{6} H04N *5/783*

U.S. Cl. 386—68 12 Claims


TUNER, DEMODULATOR, TRELLIS DECODER/ DEINTERLEAVER R.S. DECODER
VIDEO/AUDIO TRANSPORT DATA PACKET
TRICK PLAY DATA PROCESSING
HEADS
TRICK PLAY DATA SELECT CONTROL
NORMAL PLAY DATA
VIDEO/AUDIO TRANSPORT DATA PACKETS

1. A method of processing a bitstream comprising the steps of

receiving a first bitstream including video data, the video data including first PCRs,

reading the first PCRs included in the first bitstream;

calculating second PCRs from the first PCRs; and

generating a trick play bitstream from the first bitstream by replacing the first PCRs with the second PCRs.

5,740,308

Patent Not Issued For This Number

5,740,309

RECORDING SIGNAL CONTROL APPARATUS CAPABLE OF OPTIMIZING RECORDING CONDITIONS FOR MAGNETIC RECORDING MEDIUM

Yoshiaki Mimura, Nagaokakyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 134,005, Oct. 12, 1993, Pat. No. 5,579,119. This application Mar. 29, 1996, Ser. No. 625,049

Claims priority, application Japan, Oct. 19, 1992, 4-279753; Oct. 19, 1993, 5-260202

Int. Cl.^{6} H04N *5/923, 5/782*

U.S. Cl. 386—93 36 Claims

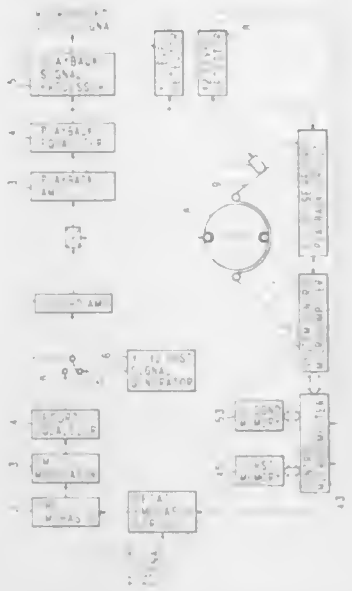
1. In a magnetic recording and reproduction apparatus for recording and reproducing recording signals on a magnetic recording medium, a recording signal control apparatus capable of improving recording conditions for the magnetic recording medium, comprising

reading means for reading information indicating the magnetic recording medium is a type of magnetic tape,

detail emphasizing means capable of varying an amount of detail emphasis applied to the recording signals;

memory means for storing the different types of at least two magnetic tapes and characteristic data concerning an optimum amount of detail emphasis for each of the at least two magnetic tapes; and

control means for controlling the amount of detail emphasis to be applied by said detail emphasizing means at a time of recording of the recording signals, based on the type of



magnetic tape read by said reading means and the characteristic data stored in said memory means

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5,740,310

METHOD OF MAINTAINING DISPLAY CONTINUITY FROM A CD WITH SLOW-MOTION OR FREEZE CAPABILITY

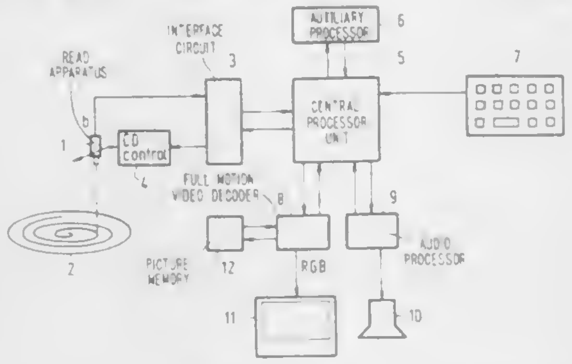
Wiebe De Haan, and Jan Van Der Meer, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 707,527, May 30, 1991, abandoned. This application Jun. 28, 1994, Ser. No. 269,941

Claims priority, application United Kingdom, Jun. 5, 1990, 9012538; Netherlands, Aug. 6, 1990, 9001771

Int. Cl.^{6} H04N *7/52, 5/781; 5/783*

U.S. Cl. 386—95 12 Claims



1. A method of transmitting a sequence of pictures of a full motion video scene, which picture sequence is converted into a series of video blocks having unpredictably differing respective lengths, each block including the entire encoded picture information for at least one picture of said sequence, by means of an encoding algorithm,

wherein said method comprises the further step of adding a header to each video block, said header comprising reference information referring to the location of a predetermined video block in the series of video blocks

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5,740,311

Patent Not Issued For This Number

5,740,312

FILM IMAGE READING SYSTEM AND IMAGE PROCESSING METHOD

Hiroshi Tanaka; Atsuhiko Ishihara; Manabu Hyodo, and Makoto Nakazawa, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 4, 1995, Ser. No. 416,315

Claims priority, application Japan, Apr. 11, 1994, 6-072079

Int. Cl.⁶ H04N *5/97, 9/11*

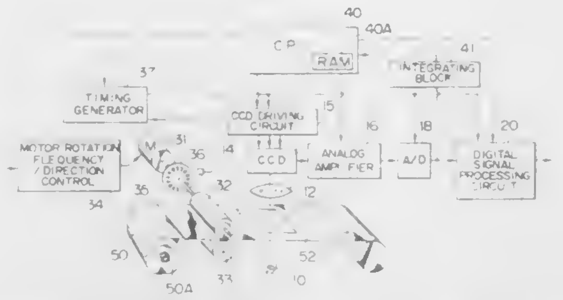
U.S. Cl. 386—129 **7 Claims**

1. A film reading system comprising

an image sensor for reading frames of developed film;

a film feeding mechanism for feeding developed film past said image sensor at a set speed;

brightness detecting means for detecting, during a setup mode, the brightness level for the film frame to be read by said image sensor; and



exposure control means for controlling an electronic shutter function which adjusts the exposure time for the film frame being read by discharging unwanted electric charge from said image sensor at a set rate, said exposure control means controlling said electronic shutter function in accordance with the brightness level detected during the setup mode, wherein said exposure control means adjusts the exposure time by varying said electronic shutter function for brightness levels in a first exposure adjustment range and maintains said electronic shutter function at a maximum for brightness levels in a second exposure adjustment range and a third exposure adjustment range.

5,740,313

LIGHT BEAM HEATING APPARATUS

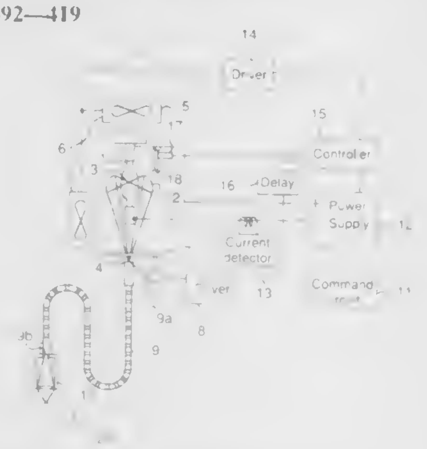
Masayoshi Ueda, Ashiya; Tamotsu Ikeda, Toyonaka; Moriaki Kawasaki, Habikino, and Nobuyuki Haji, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Oct. 31, 1995, Ser. No. 550,610

Claims priority, application Japan, Oct. 31, 1994, 6-266954

Int. Cl.⁶ F21V *7/00*

U.S. Cl. 392—419 **11 Claims**



1. A light beam heating apparatus comprising

a light source including a lamp;

a condensing means for condensing a light emitted by said light source;

a cooling device for cooling said lamp;

a command means for sending a command to set a lighting power;

a power supply for supplying current to said lamp according to a command received from said command means;

a current detector for detecting the current supplied by said power supply;

a delay element for delaying an output signal of said current detector;

a controller for sending a command to said cooling device when said controller receives an output of said delay element; and

a driver for driving said cooling device when a command is received from said controller

5,740,314

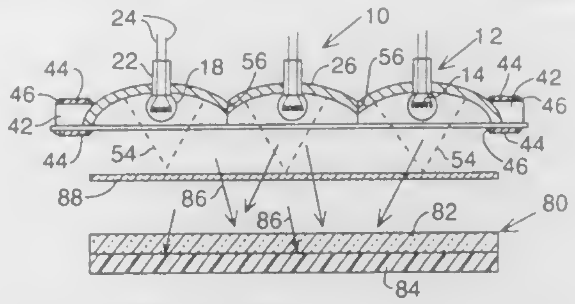
IR HEATING LAMP ARRAY WITH REFLECTORS MODIFIED BY REMOVAL OF SEGMENTS THEREOF

Robert A. Grimm, Columbus, Ohio, assignor to Edison Welding Institute, Columbus, Ohio

Filed Aug. 23, 1996, Ser. No. 702,746

Int. Cl.⁶ F21V *7/00*

U.S. Cl. 392—420 **21 Claims**



1. A heating method comprising:

a) providing a first infrared lamp with a first elongate filament and a first reflector with a first focal length focusing to a first focal point;

b) providing a second infrared lamp with a second elongate filament and a second reflector with a second focal length focusing to a second focal point;

c) forming a first reflector first edge by removing a segment of said first reflector;

d) forming a second reflector first edge by removing a segment of said second reflector;

e) juxtaposing said first reflector first edge with said second reflector first edge one to the next;

f) positioning said first elongate filament and said second elongate filament substantially parallel to a work piece heating line;

g) positioning a work piece at a distance of about twice said first focal length from said first infrared lamp and at a distance of about twice said second focal length from said second infrared lamp; and

h) applying a potential difference to said first filament and said second filament.

5,740,315

FLUID HEATING APPARATUS

Tetsuo Onishi; Hiromasa Takamatsu, and Makio Tsubota, all of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

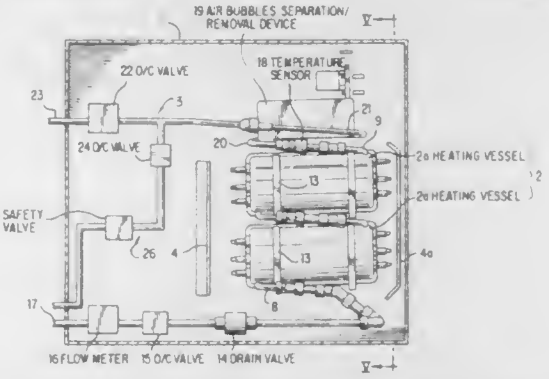
PCT No. PCT/JP93/00894, § 371 Date Dec. 22, 1994, § 102(e) Date Dec. 22, 1994, PCT Pub. No. WO94/00720, PCT Pub. Date Jan. 6, 1994

PCT Filed Jun. 29, 1993, Ser. No. 356,247

Claims priority, application Japan, Jun. 30, 1992, 4-172560

Int. Cl.⁶ F24H *1/10*

U.S. Cl. 392—489 **15 Claims**



1. A fluid heating apparatus comprising a casing having a first portion containing a heating unit, a second portion containing a fluid supply adjusting unit and a heat shield plate disposed between said first and said second portions, wherein said heating unit and said fluid supply adjusting unit are in fluid communication by way of an inlet tube to the heating unit and an outlet tube from the heating unit, and said second portion of the casing is adjacent to, but separated from, said first portion of the casing

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5,740,316

Patent Not Issued For This Number

5,740,317

PROCESS FOR FINDING THE OVERALL MONITORING THRESHOLD DURING A BIT-RATE-REDUCING SOURCE CODING

Robert Sedlmeyer, Ismaning; Andreas Brefort, Krefeld; Jens Groh, München; Wolfgang Krafft, München; Klaus Rosinski, München; Detlef Wiese, Neufahrn; Gerhard Stoll, Zolling, and Martin Link, München, all of Germany, assignors to Institut Fuer Rundfunktechnik GmbH, Munich, Germany

PCT No. PCT/EP92/01658, § 371 Date Sep. 17, 1993, § 102(e) Date Sep. 17, 1993, PCT Pub. No. WO93/02508, PCT Pub. Date Feb. 4, 1993

Continuation of Ser. No. 119,109, Sep. 17, 1993, abandoned. This PCT application Jul. 21, 1992, Ser. No. 520,765

Claims priority, application Germany, Jul. 24, 1991, 4124493.1

Int. Cl.⁶ G10L *7/02,* **H04B** *1/66*

U.S. Cl. 395—2.36 **18 Claims**

1. A method of determining a global masking threshold used for source coding digitized audio signals having sampling values, comprising:

providing the sampling values of the digitized audio signals to a quantizer, the sampling values being one of time or spectral domain sampling values, the sampling values having permissible quantizing noise;

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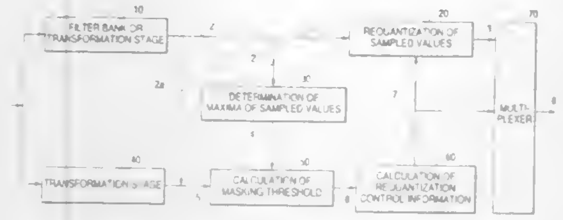
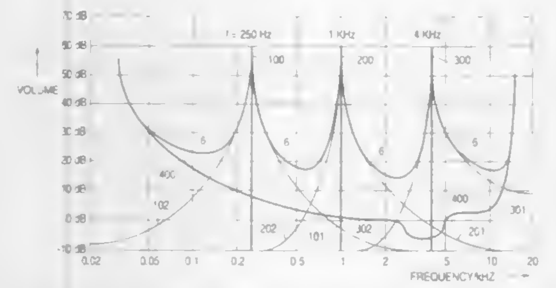

FILTER BANK OR TRANSFORMATION STAGE
REQUANTIZATION OF SAMPLED VALUES
DETERMINATION OF MAXIMA OF SAMPLED VALUES
MULTI-PLEXER
TRANSFORMATION STAGE
CALCULATION OF MASKING THRESHOLD
CALCULATION OF REQUANTIZATION CONTROL INFORMATION



requantizing the sampling values with the quantizer according to the permissible quantizing noise thereof in response to a coding and requantizing control signal;

multiplexing the coding and requantizing control signal and the sampling values requantized in said requantizing step, into a time multiplexed frame in accordance with a bit rate reduction employed;

wherein the coding and requantizing control signal is derived from the sampling values by determining a global masking threshold using all relevant maskers which are tonal maskers and noise maskers, and which result from the sampling values, and using a resting threshold, the global masking threshold being determined by the following steps:

(a) converting levels of all relevant maskers into logarithmic levels and using intensities of the maskers to determine the coefficients of lower order polynomials;

(b) segmenting masking edges of all relevant maskers in individual segments with the lower order polynomials; and

(c) determining the global masking threshold, step-wise, masker by masker, beginning with a highest frequency masker, at individual possible base points, from the lower order polynomials describing masking edges of the possible maskers, taking into consideration the resting threshold, using a different spectral spacing in lower, middle and upper frequency ranges.

5,740,318

SPEECH ENDPOINT DETECTION METHOD AND APPARATUS AND CONTINUOUS SPEECH RECOGNITION METHOD AND APPARATUS

Masaki Naito, Tokyo; Shingo Kuroiwa, Fujimi; Kazuya Takeda, Nagoya, and Seiichi Yamamoto, Urawa, all of Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Sep. 27, 1995, Ser. No. 534,805

Claims priority, application Japan, Oct. 18, 1994, 6-251773

Int. Cl.⁶ G10L *5/06*

U.S. Cl. 395—2.62 **11 Claims**

3. A speech endpoint detection method comprising the steps of:

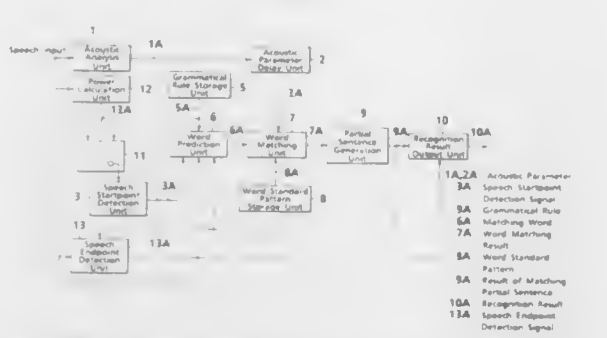
continuously matching an input speech with word standard patterns according to a grammatical rule;

determining partial sentences and corresponding matching scores by matching the input speech with the word standard patterns;

determining whether or not a first condition is met depending on whether the matching score of a partial sentence accepted by the grammatical rule is the best of all partial sentences;

determining whether or not a second condition is met depending on whether a duration time of an input speech determined to coincide with a silent standard pattern is more than a predetermined time; and

First Embodiment


Speech Input
Acoustic Analysis Unit
Power Calculation Unit
Grammatical Rule Storage Unit
Acoustic Parameter Delay Unit
Word Prediction Unit
Word Matching Unit
Partial Sentence Comparison Unit
Recognition Result Output Unit
Speech Startpoint Detection Unit
Word Standard Pattern Storage Unit
Speech Endpoint Detection Unit
1A,2A Acoustic Parameter
3A Speech Startpoint Detection Signal
5A Grammatical Rule
6A Matching Word
7A Word Matching Result
8A Word Standard Pattern
9A Result of Matching Partial Sentence
10A Recognition Result
13A Speech Endpoint Detection Signal

determining a time at which the first and second conditions are both met as an end of speech

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5,740,319

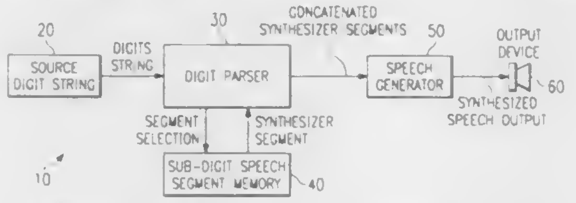
PROSODIC NUMBER STRING SYNTHESIS

Frederick C. Wedemeier, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 24, 1993, Ser. No. 157,791

Int. Cl.⁶ G10L *5/02*

U.S. Cl. 395—2.75 **6 Claims**



1. A synthesizer for a human voice for numbers comprising:

means for storing human voiced leading-digit utterance segments, human voiced trailing-digit utterance segments, human voiced digit group pause segments, and human voiced digit pair utterance segments; and

means coupled to said storage means and responsive to a data string of numbers for reading out for each digit a pair of said stored human voiced segments according to said string of numbers to produce a natural sound of a human voice

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5,740,320

TEXT-TO-SPEECH SYNTHESIS BY CONCATENATION USING OR MODIFYING CLUSTERED PHONEME WAVEFORMS ON BASIS OF CLUSTER PARAMETER CENTROIDS

Kenzo Itoh, Yokosuka, Japan, assignor to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Continuation of Ser. No. 207,424, Mar. 8, 1994, abandoned. This application May 7, 1997, Ser. No. 852,705

Claims priority, application Japan, Mar. 10, 1993, 5-049321

Int. Cl.⁶ G10L *5/04*

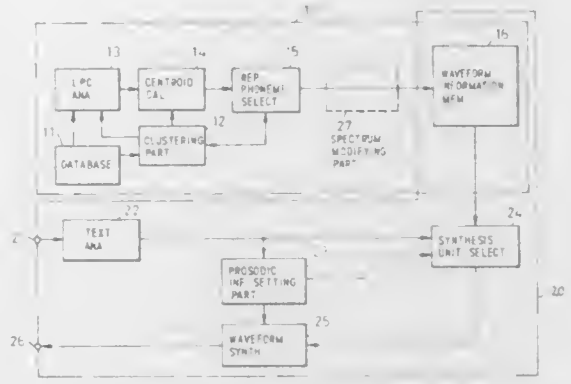
U.S. Cl. 395—2.76 **18 Claims**

2. A waveform compilation type speech synthesizer comprising:

waveform pre-classifying means for pre-classifying each of a plurality of phoneme waveforms in natural speech waveforms into a corresponding one of a plurality of clusters according to a phoneme in combination with one or more neighboring context phonemes;

calculating means for calculating a centroid for each of the clusters according to parameters representing spectra of the phoneme waveforms in the cluster;

waveform storing means for storing, as a representative phoneme waveform, one of said phoneme waveforms in each of said clusters representing a parameter nearest the centroid; and



synthesizing means comprising sequential reading means for sequentially reading desired ones of said representative phoneme waveforms from said waveform storing means and concatenating means for concatenating the representative phoneme waveforms read out from said waveform storing means for output as a synthesized speech waveform.

5,740,321

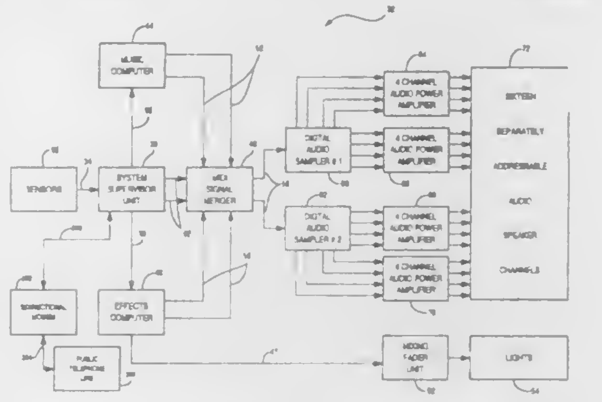
BEHAVIORAL BASED ENVIRONMENTAL SYSTEM AND METHOD FOR AN INTERACTIVE PLAYGROUND

Bradley L. Huffmann, Chandler, Ariz., and Victor H. Lang, Ft. Collins, Colo., assignors to Semborg Recrob, Corp., Fort Collins, Colo.

Filed Nov. 30, 1994, Ser. No. 348,363

Int. Cl.⁶ G06F *9/44;15/18*

U.S. Cl. 395—10 **18 Claims**



1. A behavioral based system for controlling an interactive playground comprising:

a playground environment;

at least one sensor for detecting changes in the playground environment,

at least one signal transmitted from the at least one sensor, the transmitted signal representing the detected changes;

a set of files, including a current rule file, at least one stored rule file, and a scene file comprising a plurality of scenes, at least one system response being associated with each scene.

a system supervisor, coupled to the at least one sensor, for maintaining the set of files, the system supervisor using the current rule file to select a scene from the scene file responsive to the at least one transmitted signal, the system supervisor further selecting a next rule file in response to the at least one transmitted signal; and

an output device, coupled to the system supervisor, for transmitting the at least one system response associated with the selected scene to the playground environment

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5,740,322

FUZZY-NEURAL NETWORK SYSTEM

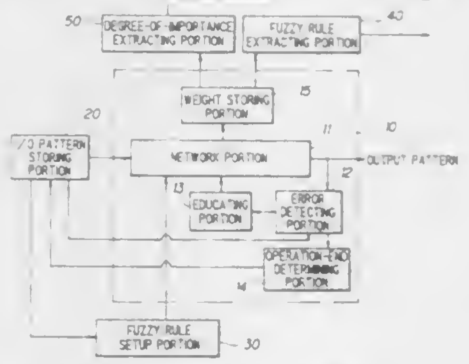
Tsuyoshi Inoue, Chiba, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 25, 1996, Ser. No. 622,523

Claims priority, application Japan, Apr. 12, 1995, 7-087158

Int. Cl.⁶ G06F *15/00;15/18;* **G06G** *7/00*

U.S. Cl. 395—10 **4 Claims**



2. A fuzzy-neural network system comprising:

a fuzzy-neural network having function of learning, said learning being performed by determining degrees of coincidence of rules from combinations of membership functions for realizing fuzzy rules, constructing a network based on the number of input and output items in such a manner as to produce output in conformity with the degrees of coincidence, to thereby properly simulate relations between input and output as to sample data represented by a subject input pattern and an output pattern corresponding thereto, said network having

an input layer composed in accordance with the number of said input items so as to be composed of a pair of nodes for each one of said input items;

a membership layer front-half portion coupled with the input layer and composed with each input item;

a membership layer rear-half portion coupled with the membership layer front-half portion and composed with each input item;

a rule layer coupled with the membership layer rear-half portion and performing an operation upon a first output from the membership layer rear-half portion, based on a certain input item, and upon a second output from the membership layer rear-half portion, based on another input item different from said certain input item; and

an output layer coupled with the rule layer and composed of at least one node, the number of nodes being determined in accordance with the number of output items, and

a fuzzy rule extracting portion for extracting each fuzzy rule from one or more weight values obtained from coupling between the rule layer and the output layer of said fuzzy-neural network, after learning.

5,740,323

EVOLUTIONARY ADAPTATION TYPE INFERENCE KNOWLEDGE EXTRACTING APPARATUS CAPABLE OF BEING ADAPTED TO A CHANGE OF INPUT/OUTPUT DATE AND POINT OF SALES DATA ANALYZING APPARATUS USING THE APPARATUS

Tatsuya Nomura, Nara, and Tsutomu Miyoshi, Sakura, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 3, 1996, Ser. No. 627,111

Claims priority, application Japan, Apr. 5, 1995, 7-080220

Int. Cl.⁶ G06F *15/18*

U.S. Cl. 395—13 **9 Claims**

1. An evolutionary adaptation type inference knowledge extracting apparatus comprising:

an input/output data storing section which stores input/output data constituted by a combination of input data comprised of

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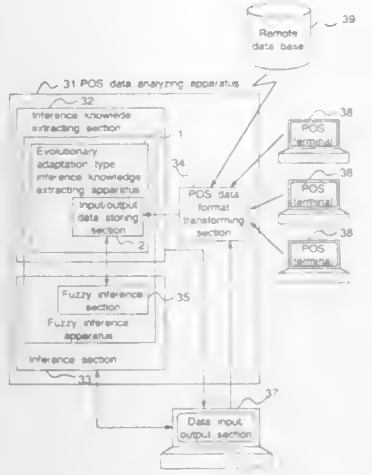

39
Remote data base
31 POS data analyzing apparatus
32
Inference knowlede extracting section
1
Evolutionary adaptation type inference knowledge extracting apparatus
34
Input/output data storing section
2
POS data format transforming section
38
POS terminal
38
POS terminal
38
POS terminal
Fuzzy inference section
35
Fuzzy inference apparatus
Inference section
33
37
Data input output section

a plurality of numeric values and output data comprised of one discrete value or non-numeric value;

a fuzzy rule gene associating section which associates each of a plurality of fuzzy rules stored in a fuzzy rule storing section with an individual comprised of a gene string for expressing a parameter of each fuzzy membership function of the fuzzy rule by a real number value;

a fuzzy rule individual group storing section which stores a group of a plurality of individuals associated with the fuzzy rule having an identical discrete value or non-numeric value in a posterior part thereof by the fuzzy rule gene associating section;

an individual fitness calculating section which operates, based on a fitness of an anterior part of the fuzzy rule associated with an individual by the fuzzy rule gene associating section with respect to all input/output data stored in the input/output data storing section, to calculates a fitness of the individual;

a fuzzy rule individual selecting section which stochastically selects an individual having a high fitness to the set of the input/output data stored in the input/output data storing section based on the fitness of each individual calculated by the individual fitness calculating section;

a fuzzy rule individual gene manipulating section which generates a new individual by subjecting the individual stored in the fuzzy rule individual group storing section to a gene manipulating operation; and

a rule weight deciding section which operates, based on the fitness calculated by the individual fitness calculating section, to normalize the fitness of each individual every group, thereby deciding a weight of the fuzzy rule corresponding to the individual; whereby each individual fitted to a characteristic of the input/output data stored in the input/output data storing section is selected, and a fuzzy rule is extracted that is evolutionarily adapted to the input/output data by subjecting the group of the selected individuals to an evolutionary adaptation operation.

5,740,324
METHOD FOR PROCESS SYSTEM IDENTIFICATION USING NEURAL NETWORK

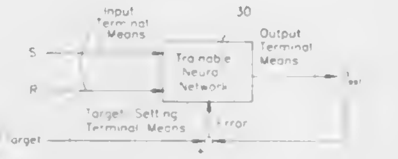
Anoop Mathur, Shoreview, and Tariq Samad, Minneapolis, both of Minn., assignors to Honeywell, Minneapolis, Minn.

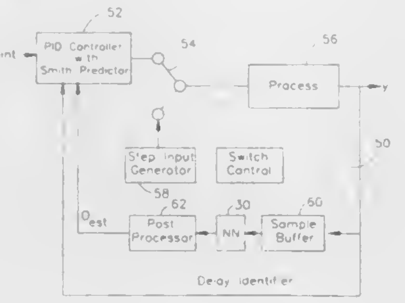
Division of Ser. No. 618,002, Mar. 18, 1996, abandoned, which is a continuation of Ser. No. 296,270, Aug. 25, 1994, abandoned, which is a continuation of Ser. No. 983,102, Nov. 27, 1992, abandoned, which is a continuation of Ser. No. 594,927, Oct. 10, 1990, abandoned. This application Jul. 11, 1996, Ser. No. 678,130

Int. Cl.⁶ G06F *15/18; 15/46*

U.S. Cl. 395—22 12 Claims

1. A method for making a neural network tool for identifying parameters of a system which is modeled by an equation:





$$\frac{d}{dt}x(t) = -\frac{1}{t_p}x(t) + \frac{K_p}{t_p}u(t-\theta)$$

wherein x(t) is a response of the system, t_p is a time constant parameter of the system, K_p is a gain parameter of the system and θ is a delay parameter of the system, said method comprising the steps of:

providing a neural network having an arrangement of processing elements, each of said elements having an input and an output, and adjustable weights connecting the outputs of some of said elements to the inputs of other of said elements, said network having input and output terminal means and target setting terminal means;

providing learning algorithm operational means for said network for adjusting said weights wherein output values on said output terminal means are biased to converge respectively to target values applied to said target setting terminal means;

making a data process system model of said equation and utilizing said model to generate sets of training data for said neural network with each of said sets having selected values of said parameters within respective predetermined ranges and a resulting response which is said x(t); and

sequentially applying said sets of training data to said neural network with each of said sets having said resulting response thereof applied to said input terminal means and said values of said parameters being applied to said target setting terminal means.

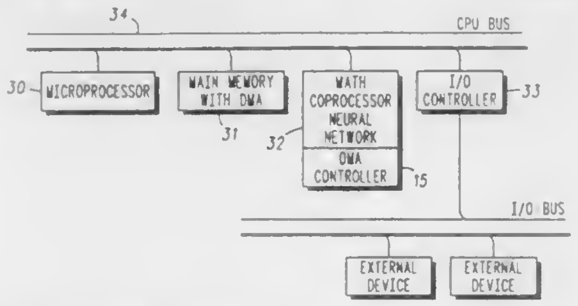
5,740,325
COMPUTER SYSTEM HAVING A POLYNOMIAL CO-PROCESSOR

Shay-Ping Thomas Wang, Long Grove, Ill., assignor to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 235,996, May 2, 1994, Pat. No. 5,583,964. This application Dec. 9, 1996, Ser. No. 764,113

Int. Cl.⁶ G06F *15/16; 15/18*

U.S. Cl. 395—22 18 Claims



1. An apparatus, comprising

a software program having a plurality of instructions,

a memory storing the software program;

a processor for generating a processor output signal as a function of the instructions;

a polynomial co-processor for generating a co-processor output signal in response to the processor output signal, wherein the co-processor output signal is based on a summation series of a plurality of co-processor inputs multiplied by a plurality of coefficients, the plurality of coefficients being selected as a function of the processor output signal; and

a bus operatively coupled to the memory, the processor, and the polynomial co-processor.

5,740,326
CIRCUIT FOR SEARCHING/SORTING DATA IN NEURAL NETWORKS

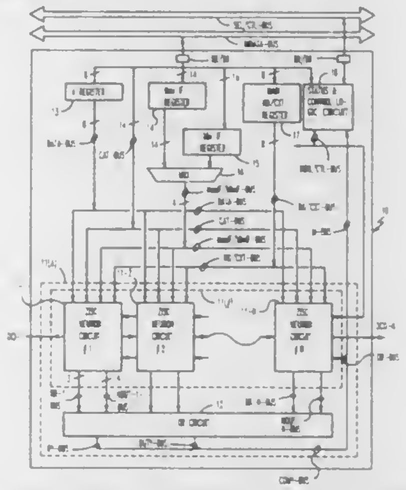
Jean-Yves Boulet, Ballancourt Sur Essonne; Pascal Tannhof, Cely En Biere, and Guy Paillet, Montpellier, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 486,658

Claims priority, application European Pat. Off., Jul. 28, 1994, 94480071

Int. Cl.⁶ G06F *15/18*

U.S. Cl. 395—27 3 Claims



1. In a neural network comprised of N neuron circuits (**11**-**1**, . . . , **11**-i, . . . , **11**-N), a plurality of said N neuron circuits having calculated a distance between an input vector (A) and the prototype vector (B), said distance being p bits wide and stored in the neuron's weight memory, an aggregate circuit (**517**) comprising:

a plurality of search/sort circuits, each of said plurality of search/sort circuits being in one of said plurality of N neuron circuits, each search/sort circuit (**502**-i) comprising:

at least p series connected elementary search/sort units (**510**-1i to **510**-pi), each said elementary search/sort unit (**510**-ki) receiving a distance bit signal (dki), an exclude output signal (EXCLINki) and a feedback signal ORk) and, generating therefrom a local (neuron) output signal (NOUTk-i) and an exclude output signal (EXCLOUTki), and

said exclude output signal of each said series connected elementary search/sort unit being the exclude input signal of the next said series connected elementary search/sort unit;

each of said plurality of search/sort circuits forming a column, such that each said search/sort circuit's at least p series connected elementary search/sort units of said aggregate circuit form a matrix;

said distance bit signals of the same bit rank forming an input row for each said elementary search/sort unit in said matrix row;

each said neuron circuit's local output signal (NOUTk-i) being equal to the complemented value of the neuron circuit's distance bit signal (dki) if the elementary search/sort unit's exclude input signal is inactive (EXCLINki=0) or being equal to the true value thereof if the elementary search/sort unit's exclude input signal is active,

the elementary search/sort unit's exclude output signal is active (EXCLOUTki=1) if the feedback bit signal (ORk) is the complement of the distance bit signal (dki);

each feedback bit signal (ORk) resulting from ORing all of the local output bit signals (NOUTk-**1** to NOUTk-N) generated by each of the elementary search/sort units of row k for all the columns of the matrix, each of the elementary search/sort unit comprising:

first logic circuit means (**520**) comprised of inverting means (**524**-i) connected to the last elementary search/sort unit (**510**-pi) processing the last bit (dpi) for producing a signal (XOR-i) equal to the complement of the exclude output signal (EXCLOUTpi) generated therein, and,

second logic circuit means (**519**) for processing the first distance bit signal (d1i) as an exclude input signal (EXCLIN-i) and comprised of a two-way OR gate (**522**-i) connected in series with a latch (**523**-i), the output of said latch being connected to the first elementary search/sort unit (**510**-**1**i) and connected to the first input terminal of said two-way OR gate, the other input of said two way OR gate receiving said signal (XOR-i) generated by the said first logical circuit means.

5,740,327
METHOD OF AND APPARATUS FOR ROBOT TIP TRAJECTORY CONTROL

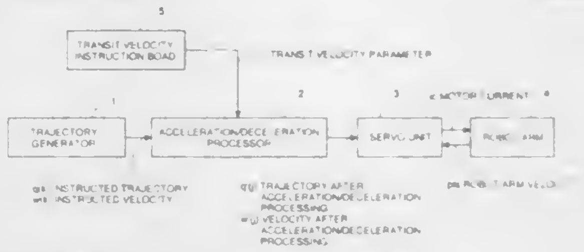
Koichi Funaya, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 26, 1995, Ser. No. 578,495

Claims priority, application Japan, Dec. 27, 1994, 6-324564

Int. Cl.⁶ G05B *15/00, 19/00*

U.S. Cl. 395—89 6 Claims


5
TRANSIT VELOCITY INSTRUCTION BOAD
TRANSIT VELOCITY PARAMETER
1
2
3
MOTOR CURRENT
4
TRAJECTORY GENERATOR
ACCELERATION/DECELERATION PROCESSOR
SERVO UNIT
INSTRUCTED TRAJECTORY
INSTRUCTED VELOCITY
TRAJECTORY AFTER ACCELERATION/DECELERATION PROCESSING
VELOCITY AFTER ACCELERATION/DECELERATION PROCESSING

1. A method of controlling a robot comprising:

a step of detecting a transit time km of an instructed trajectory generated as a first vector function of time, said transit time km being a sampling time of said instructed trajectory when an axis of the robot being required to produce an acceleration/deceleration value beyond an allowable limit for said axis,

a step of calculating a transit point by said first vector function from said transit time km,

a step of setting an initial start time km−kp before said transit time km and an initial end time km+kn' after said transit time km;

a step of storing said initial start time km−kp and said initial end time km+kn' in a register as a provisional start time km−kp and a provisional end time km+kn' respectively;

a step of revising said provisional start time km−kp' and said provisional end time km+kn', including steps of,

calculating a provisional start point and a provisional end point by said first vector function from said provisional start time km−kp and said provisional end time km+kn respectively,

calculating a provisional start velocity w(km−kp) and a provisional end velocity w(km+kn) of the robot tip using said first vector function from said provisional start time km−kp and said provisional end time km+kn respectively,

calculating a first provisional average velocity wp of the robot tip between said provisional start point and said transit point and a second provisional average velocity wn

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of the robot tip between said transit point and said provisional end point, from said provisional start point, said provisional start time km−kp', said transit point, said transit time km, said provisional end point and said provisional end time km+kn',

calculating a provisional transit velocity wcb' as a linear combination of said first provisional average velocity wp' and said second provisional average velocity wn' referring to a transit velocity parameter r and coefficients rp and rn specified by a user, according to an equation

$$wcb'=(1-r)(rp\cdot wp'+rn\cdot wn')$$

calculating a first provisional time period jp' necessary for accelerating/decelerating the robot tip from said provisional start velocity w(km−kp') to said provisional transit velocity wcb' and a second provisional time period jn' necessary for accelerating/decelerating the robot tip from said provisional transit velocity wcb' to said provisional end velocity w(km+kn'), requiring no axis of the robot to produce an acceleration/deceleration value beyond an allowable limit for said axis, by equations

$$jp'=\max(|wcb'_i-w_i(km-kp')|/amax_i) \text{ and}$$

$$jn'=\max(|w_i(km+kn')-wcb'_i|/amax_i),$$

where wcb'$_i$, w$_i$(km−kp') and w$_i$(km+kn') represent i-th component of said provisional transit velocity wcb', said provisional start velocity w(km−kp') and said provisional end velocity w(km+kn') respectively, amax$_i$ representing a maximum value of i-th component of acceleration of the robot tip allowable for corresponding i-th axis of the robot and max(x$_i$) being a function to give a maximum value among components x$_i$ (i=1, 2, . . . , n) of a vector x,

calculating a revised start time km−kp" and a revised end time km+kn" from said transit time km, said first provisional time period jp', said second provisional time period jn', said transit velocity parameter r and said coefficients rp and rn by equations

$$km-kp''=km-jp'/2-(1-r)\cdot rp\cdot(rp\cdot jp'+rn\cdot jn')/2$$

and

$$km+kn''=km+jn'/2+(1-r)\cdot rn\cdot(rp\cdot jp'+rn\cdot jn')/2,$$

calculating differences between said revised start time km−kp" and said provisional start time km−kp' stored in said register and between said revised end time km+kn" and said provisional end time km+kn' stored in said register, and

rewriting values of said provisional start time km−kp' and said provisional end time km+kn' in said register with values of said revised start time km−kp" and said revised end time km+kn" respectively when any one of said differences is not smaller than a predetermined threshold value,

a step of repeating said step of revising until both of said defferences become samller than said predetermined threshoIed value;

a step of outputting said provisional start time km−kp', said provisional end time km+kn', said provisional start velocity w(km−kp'), said provisional end velocity w(km+kn'), said first provisional time period jp', said second provisional time period jn' and said provisional transit velocity wcb' as a start time km−kp, an end time km+kn, a start velocity w(km−kp), an end velocity w(km+kn), a first time period jp, a second time period jn and a transit velocity wcb when both of said differences become smaller than said predetermined threshold value;

a step of calculating a first acceleration/deceleration value ap and a second acceleration/deceleration value an from said start velocity w(km−kp), said end velocity w(km+kn), said transit velocity wcb, said first time interval jp and said second time interval jn by equations

$$ap=(wcb-w(km-kp))/jp \text{ and}$$

$$an=(w(km+kn)-wcb)/jn, \text{ and}$$

a step of generating a trajectory after acceleration/deceleration processing as a second vector function of time to accelerate/decelerate the robot tip from said start time km−kp with said first acceleration/deceleration value ap for said first time period jp and with said second acceleration/deceleration value an for said second time period jn succeeding said first time period jp.

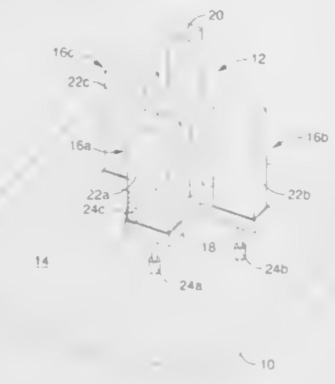
5,740,328
APPARATUS FOR ROBOTIC POSITIONAL REFERENCING AND CALIBRATION

Bahram Ravani, Davis, and Walter W. Nederbragt, Petaluma, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Aug. 12, 1996, Ser. No. 695,631

Int. Cl.^{6} G05B *19/00; 19/42; 19/10*

U.S. Cl. 395—93 **12 Claims**



1. An apparatus for measuring relative position between objects, comprising:

(a) a position sensing table having a planar surface, said position sensing table including means for providing an output signal indicative of the position of a transducer contacting the surface of said position sensing table relative to a fixed position on said position sensing table;

(b) a plurality of probes coupled to a support member in a triangular configuration, each probe having a displaceable tip, each said probe having means for providing an output signal indicative of the valve of displacement of said probe tip relative to a fixed position on said support member,

(c) said probe tip having transducer means which uses said position sensing table for sensing when said probe tip contacts the surface of said position sensing table; and

(d) processing means for determining the relative position of said support member and said position sensing table from position signals provided from said position sensing table and displacement signals provided from said probes.

5,740,329
ROBOT WRIST HAVING AN OFFSET AND A METHOD FOR ORIENTATING A ROBOT WRIST HAVING AN OFFSET

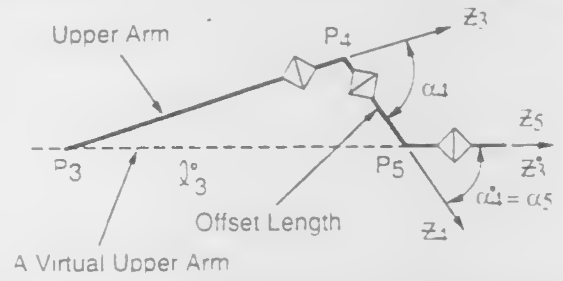
Kwang Sae Lee, Pusan, and Young Il Youm, Pohang, both of Rep. of Korea, assignors to Pohang Iron & Steel Co., Ltd., and Research Institute of Industrial Science & Technology, both of Kyong Sang Book-Do, Rep. of Korea

Filed Dec. 7, 1992, Ser. No. 987,167

Claims priority, application Rep. of Korea, Dec. 7, 1991, 91-22408

Int. Cl.^{6} G05B *15/00*

U.S. Cl. 395—97 **10 Claims**



1. A method of orientating three rotational axes of articulation of a robot wrist having an offset in which said rotational axes of articulations constituting said robot wrist do not coincide at one point, wherein α_4 and α_5 are twist angles between said three rotational axes of articulation, said method comprising the steps of

positioning two of said three rotational axes of articulation wherein said twist angle α_4 is within the range of $0\leqq|\alpha_4|\leqq 180°$ with regard to said twist angles α_4 and α_5 between three said rotational axes of articulations constituting said robot wrist, and

positioning the remaining one of said three rotational axes of articulation wherein said twist angle α_5 wherein the magnitude of said twist angle α_5 is determined to be equal to a twist angle α_4' which is determined by the following formulas,

$$\alpha_4' = a\cos\left(\frac{(l_3')^2+(d_5)^2-(l_3)^2}{2 * l_3' * d_5}\right)$$

wherein the signs of said twist angles α_4 and α_5 are according to an established direction of an initial coordinate system, l_3 is a length of a robot upper arm, d_5 is a length of said wrist offset, and $0\leqq\alpha_4'\leqq 180°$

5,740,330
EXPOSURE CONTROLLING METHOD AND AN EXPOSURE CONTROLLING APPARATUS

Takuya Abe, Chiba, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 6, 1995, Ser. No. 417,992

Claims priority, application Japan, Apr. 8, 1994, 6-070578

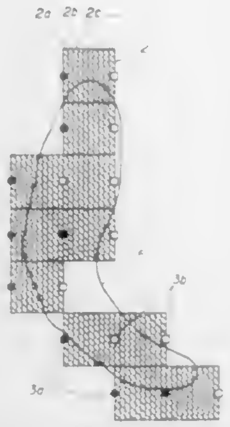
Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—102 **20 Claims**

1. An exposure controlling method for use in a laser printer whereby an amount of light energy of laser beams irradiated on a photoreceptor is controlled for every pixel to form a latent image, comprising the steps of

determining representative points based on the positions of peripheral pixels in each black pixel group made up of at least one or more black pixels;

depicting a curve by a curve-fitting approximation method based on the representative points; and



controlling the amount of light energy for every pixel based on said curve

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5,740,331
SYSTEM AND PROCESS FOR CONVERTING IMAGE INFORMATION

Gerd Goldmann, München, and Markus Löbel, Schwaben, both of Germany, assignors to Oce Printing Systems GmbH, Poing, Germany

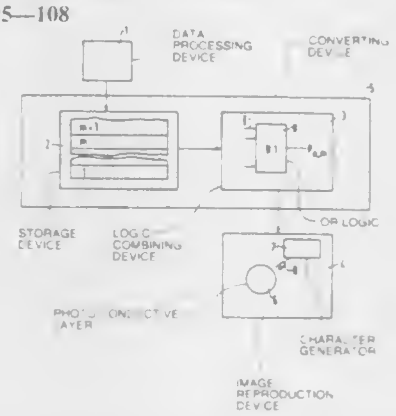
PCT No. PCT/DE94/00919, § 371 Date Feb. 13, 1996, § 102(e) Date Feb. 13, 1996, PCT Pub. No. WO95/05643, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 9, 1994, Ser. No. 596,299

Claims priority, application Germany, Aug. 19, 1993, 43 27 967.8

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—108 **9 Claims**



1. A system for converting first image information in matrix form and for positive image generation into second image information for inverse image generation for an electrographic printer or copier, the system comprising

a data processing device coupled to a converting device,

the converting device having a storage device for storing at least two consecutive lines of the first image information suitable for positive image generation,

the converting device also having a logic combining device which is coupled to the storage device and logically ORs the first image information suitable for positive image generation of a first pixel with at least one further item of first image information of an adjacent pixel in order to generate an item of second image information suitable for inverse image generation of said first pixel, and

an image reproduction device coupled to the converting device

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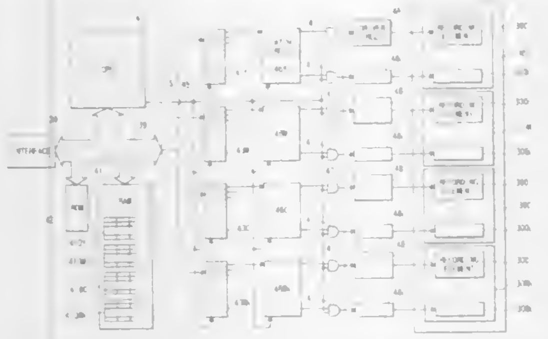
5,740,332
IMAGE FORMING DEVICE

Atsushi Murakami, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Aug. 22, 1996, Ser. No. 701,745
Claims priority, application Japan, Aug. 22, 1995, 7-213262
Int. Cl.⁶ H04N *1/46*
U.S. Cl. 395—108 17 Claims



1. An image forming device for forming images on a recording medium, the device comprising:

a recording head for recording dots in a dot matrix form with a plurality of recording elements,

scanning means for scanning one of the recording head and a recording medium relative to each other in dot intervals in a scanning direction, the recording elements being aligned with an interval in the scanning direction,

storage means capable of storing a plurality of data sets, each data set being for a corresponding one of the plurality of recording elements, each data set including a predetermined number of dots' worth of recording data which are to be successively supplied to the corresponding recording element and recorded by the corresponding recording element in the scanning direction, the interval, at which the recording elements are aligned along the scanning direction, being different from a multiple of the predetermined number of the dot intervals; and

writing means for writing, in the storage means, the data sets for the plurality of recording elements at timings shifted from one another

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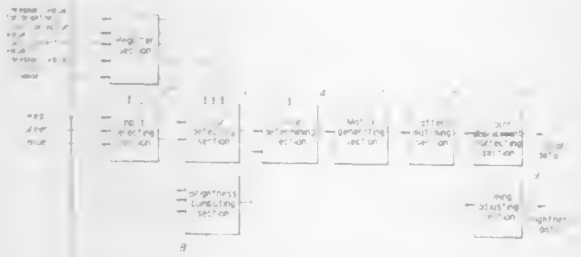
5,740,333
IMAGE PROCESSING METHOD AND IMAGE PROCESSING APPARATUS FOR CONVERTING AN INPUTTED COLOR IMAGE INTO A TWO-COLOR IMAGE

Anki Yoh, Tokyo; Kouichi Kamon, Yokohama; Masaaki Ito, Zama; Yoshiyuki Namizuka, Sagamihara; Hiroyuki Kawamoto, Kawasaki, and Takeharu Tone, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Apr. 26, 1995, Ser. No. 428,990
Claims priority, application Japan, Apr. 27, 1994, 6-089879
Int. Cl.⁶ C06F *15/00*; H04N *1/46*, G03F *3/08*
U.S. Cl. 395—109 16 Claims

11. An image processing method for converting an inputted color image consisting of a plurality of pixels to a 2 color image consisting of a black color and a specified color, comprising the steps of:



determining whether an object pixel is for said specified color and, if said object pixel has been determined not to be for said specified color, determining whether said object pixel is for white or black,

converting data for said object pixel to represent the specified color, black or white in accordance with the results of said determining step;

arranging data representing converted input pixels of said color image, including said object pixel, into a matrix,

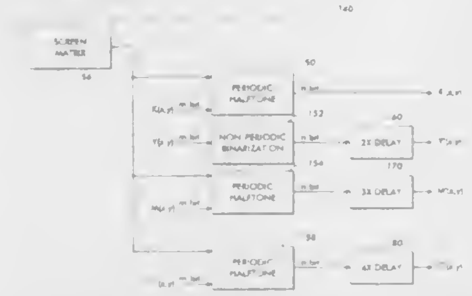
comparing at least one portion of the matrix, which includes the converted data for said object pixel, with at least one reference pattern,

obtaining resultant pixel data by changing the object pixel data in response to a match in said comparing step but keeping the object pixel data unchanged in the absence of a match, wherein said step of changing comprises converting the object pixel data to represent color if said determining step resulted in a non color determination and to represent black if said determining step resulted in a color determination; and

outputting said resultant pixel data

5,740,334
QUANTIZATION METHOD FOR COLOR DOCUMENT REPRODUCTION IN A COLOR PRINTING SYSTEM

Ying-wei Lin, Penfield, and Katherine Loj, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Jul. 1, 1996, Ser. No. 674,178
Int. Cl.⁶ H04N *1/52*
U.S. Cl. 395—109 18 Claims



1. An apparatus for creating multiple color images using multiple marking colors, including:

an image-on-image printing system capable of rendering each of the multiple marking colors with n output density levels in superposed positions on a substrate to produce selected colors;

a source of image signals describing a multiple color document with a plurality of color separations, each image signal representing optical density with one of m levels, where m is greater than n;

a processor for preparing color documents for printing, said color documents each including a plurality of color separations, each color separation represented as a set of image signals describing optical density using m density levels;

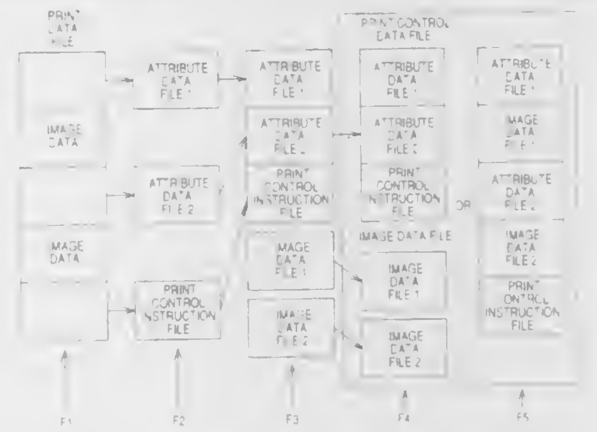
a non-periodic halftone processor connected to said source of image signals, said non-periodic halftone processor reducing the number of levels m representing optical density in a first color separation to a number of levels n_n, representing optical density, wherein the first color separation is the least visually perceptible of the multiple marking colors, said halftone processor generating a non periodic pattern thereby;

a periodic halftone processor connected to said source of image signals, said periodic halftone processor reducing the number of levels m representing optical density in at least one additional separation to a number of levels n_p, representing optical density, said periodic halftone processor generating a periodic pattern thereby; and

means for directing signals processed at the non periodic halftone processor and the periodic halftone processor to said printer to print said processed color image.

5,740,335
METHOD AND DEVICE FOR TRANSMITTING AND PROCESSING PRINT DATA USED FOR PRINTER

Toshihiro Takayanagi, Okazaki; Kenji Yanase, and Kiyoji Muramatsu, both of Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Division of Ser. No. 305,321, Sep. 15, 1994, Pat. No. 5,619,623.
This application Dec. 30, 1996, Ser. No. 777,056
Claims priority, application Japan, Sep. 21, 1993, 5-234476; Sep. 21, 1993, 5-234477; Sep. 21, 1993, 5-234478
Int. Cl.⁶ G06K *15/00*
U.S. Cl. 395—109 3 Claims



1. A method of transmitting print data from a computer to a print control device, in a data transmission mode of the computer, for controlling a printer, said method comprising:

a retrieving step of retrieving a file name of each of at least one set of direct image data stored in memory means, said file name is included in non-direct image data which are data other than said direct image data and which comprise print control data for controlling at least a printing operation according to said direct image data, said print data comprising said direct image data and said non-direct image data; and

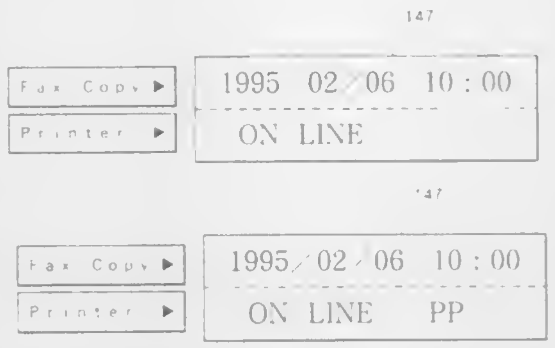
a transmitting step of retrieving from said memory means said each of at least one set of direct image data, on the basis of said file name retrieved in said retrieving step, and transmitting to said print control device said at least one set of direct image data and said non-direct image data such that said at least one set of direct image data and said non-direct image data are not interspersed with each other, wherein said print control data comprise at least one of attribute data and print control instruction data, said attribute data comprising at least one of image position data, image size date, image color data, image rotation data and window date, and wherein said image position data, said image size data, said image color data and said image rotation data respectively represent a position, a size, a color and an attribute of an image represented by the set of image data accompanied by said attribute data, said window data representing a window associated with said image.

5,740,336
FACSIMILE/PRINTER DEVICE HAVING AN LCD FOR SEPARATELY DISPLAYING INFORMATION ABOUT FACSIMILE AND PRINTER OPERATIONS

Noriko Wakisaka, Bisai, and Wataru Tomida, Owariasahi, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Mar. 1, 1996, Ser. No. 609,873
Claims priority, application Japan, Mar. 2, 1995, 7-043026
Int. Cl.⁶ H04N *1/32*
U.S. Cl. 395—113 22 Claims

1. A device having both a facsimile function and a printer function, comprising:

a recorded section having an input for receiving data to be recorded on a recording sheet,



a facsimile section communicatable with a remote facsimile device, said facsimile section receiving facsimile data from the remote facsimile device and applying the facsimile data to the input of said recording section to record the facsimile data on the recording sheet;

a printer section operatively connected to an external device, said printer section receiving print data from the external device and applying the print data to the input of said recording section to record the print data on the recording sheet, and

a single display unit separated into a plurality of display regions including a first display region and a second display region, the first display region displaying selected one of plural pieces of information including first information about operations pertaining to said facsimile section, second information about operations pertaining to said printer section, and third information about operations common to both said facsimile sections and said printer section, the second display region displaying any one of the non-selected plural pieces of information as a result of selection for said first display region

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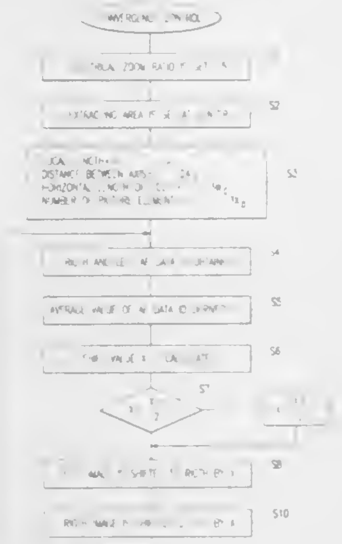
5,740,337
STEREOSCOPIC IMAGING SYSTEM WITH ELECTRONICALLY CONTROLLED CONVERGENCE ANGLE

Toshiyuki Okino, Kadoma; Haruhiko Murata, Takatsuki; Toshiya Iinuma, Moriguchi, and Hideyuki Kanayama, Kadoma, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Continuation of Ser. No. 264,860, Jun. 23, 1994, abandoned.
This application Dec. 12, 1996, Ser. No. 763,921
Claims priority, application Japan, Jun. 25, 1993, 5-155259
Int. Cl.⁶ G00T *3/00*
U.S. Cl. 395—119 9 Claims



1. A stereoscopic imaging system comprising:

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- a first imaging device having a plurality of first pixels for providing a first analog signal for each first pixel based upon the projection of an object onto an extraction area of the first imaging device;
- a second imaging device having a plurality of second pixels for providing a second analog signal for each second pixel based upon the projection of the object onto an extraction area of the second imaging device;
- a first analog-to-digital converter for providing a first digital signal based upon the first analog signal;
- a second analog-to-digital converter for providing a second digital signal based upon the second analog signal;
- a first electronic zooming device, the first electronic zooming device including a first memory device for storing data based upon the first digital signal for representing the projection of the object onto the extraction area of the first imaging device, for zooming the projection of the object onto the extraction area of the first imaging device by a first predetermined scale based upon the stored data representing the projection of the object onto the extraction area of the first imaging device;
- a second electronic zooming device, the second electronic zooming device including a second memory device for storing data based upon the second digital signal for representing the projection of the object onto the extraction area of the second imaging device, for zooming the projection of the object onto the extraction area of the second imaging device by a second predetermined scale based upon the stored data representing the projection of the object onto the extraction area of the second imaging device;
- a distance detector for measuring a distance from the object to the stereoscopic imaging system to provide a distance measurement based upon at least one of data retrieved from the first memory device and data retrieved from the second memory device; and
- a controlling device for controlling the effective position of the extraction area of the first imaging device and the effective position of the extraction area of the second imaging device according to the distance measurement by controlling an address for reading data from at least one of the first memory device and the second memory device.

5,740,338
METHOD FOR MERGING VARIABLE IMAGE DATA INTO A TEMPLATE IMAGE

Forrest P. Gauthier, Maineville, and Dimitrije L. Jovic, Cincinnati, both of Ohio, assignors to Varis Corporation, Mason, Ohio

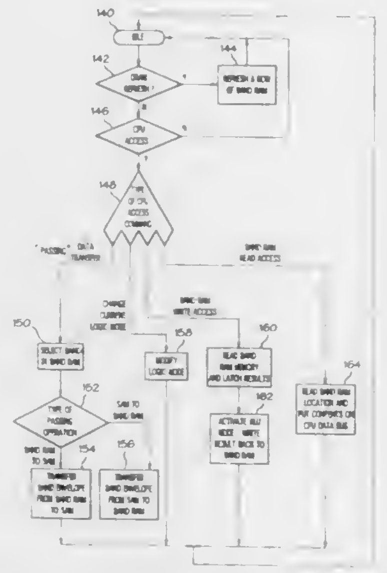
Continuation of Ser. No. 558,007, Nov. 13, 1995. This application Apr. 9, 1996, Ser. No. 629,966

Int. Cl.^{6} G09G *5/36*

U.S. Cl. 395—116 **14 Claims**

11 A method for merging variable image data into a template image to create a merged image and for transmitting the merged image to a print engine, the template image defined by rendering commands derived from a page description language file, the variable image data being taken from a file containing at least one list of a plurality of variable data items, the method comprising the steps of:

- rendering a template image in accordance with the set of rendering commands, said template image being broken into a plurality of template image data blocks and said rendering step renders said template image one of said template image data blocks at a time and deposits said template image data blocks into a dynamic RAM of a dual-port memory,
- transferring said template image data blocks from said dynamic RAM to a mass storage,
- retrieving a first one of said template image data blocks from said mass storage to said dynamic RAM,



- logically merging variable image data from the variable image data file with said first one of said template image data blocks to produce a merged image data block, said merging step depositing said merged image data block into said dynamic RAM;
- transmitting said merged image data block from said dynamic RAM to the print engine; and
- transmitting a second one of said template image data blocks from said mass storage to said print engine.

5,740,339
OUTPUTTING METHOD AND APPARATUS

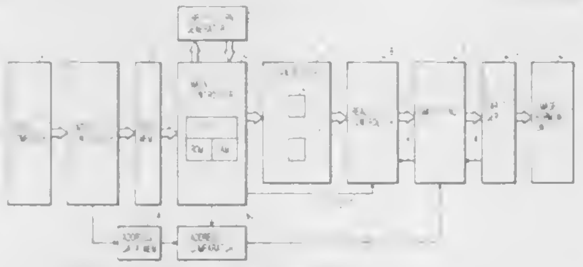
Naoki Ohyama, Machida, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 65,031, May 24, 1993, abandoned, which is a continuation of Ser. No. 785,937, Oct. 31, 1991, abandoned. This application Feb. 17, 1995, Ser. No. 390,167

Claims priority, application Japan, Nov. 26, 1990, 2-324564

Int. Cl.^{6} G06K *15/00*

U.S. Cl. 395—117 **10 Claims**



1. A print control apparatus comprising:

- input means for inputting, from a host computer, input data having corresponding addresses, the input data comprising in mixture an image area in which an image pattern exists, a character area in which a character code exists and control codes for designating the image area and the character area, where the image area has a first address and the character area has a second address,
- distinguishing means for distinguishing the first address and the second address on the basis of the control codes;
- an address memory for storing the first and second addresses distinguished by said distinguishing means;
- conversion means for converting the character code into a character pattern;
- a pattern memory for storing the character pattern and the image pattern;
- output means for outputting the character pattern and the image pattern in accordance with the addresses of the input data, and
- control means for comparing the addresses of the input data with the first and second addresses stored in said address memory and for controlling said output means in accordance with comparison results to automatically output the image pattern without a smoothing process and to automatically output the character pattern with a smoothing process.

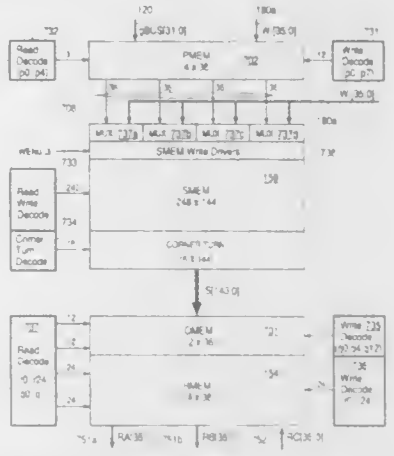
5,740,340
2-DIMENSIONAL MEMORY ALLOWING ACCESS BOTH AS ROWS OF DATA WORDS AND COLUMNS OF DATA WORDS

Stephen C. Purcell, Mountain View, and Subroto Bose, Santa Clara, both of Calif., assignors to C-Cube Microsystems, Inc., Milpitas, Calif.

Division of Ser. No. 105,253, Aug. 9, 1993. This application Aug. 28, 1995, Ser. No. 520,286

Int. Cl.^{6} G06T *3/00*

U.S. Cl. 395—118 **13 Claims**



13 A register file, comprising:

- a first register, storing a first higher-order half-word, and a first lower-order half-word;
- a second register, storing a second higher-order half-word, and a second lower-order half-word; and
- a data selector for accessing said first second registers, said data selector receiving a register address, such that (i) when said data selector receives as said register address a first predetermined value, said data selector accesses said first higher-order half-word and said first lower-order half-word; (ii) when said data selector receives as said register address a second predetermined value, said data selector accesses said second higher-order half-word and said second lower-order half-word, (iii) when said data selector receives as said register address a third predetermined value, said data selector accesses said first higher order half-word and said second lower-order half-word, and (iv) when said data selector receives as said register address a fourth predetermined value, said data selector accesses said second higher-order half word and said first lower order half-word

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5,740,341
DESIGN AND PRODUCTION SUPPORTING SYSTEM FOR COMPONENT ARRANGEMENT AND PIPE ROUTING

Yoshimi Oota, Mito; Toshiaki Yoshinaga, Hitachi, and Shigeru Oheoshi, Takahagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 20, 1994, Ser. No. 230,527

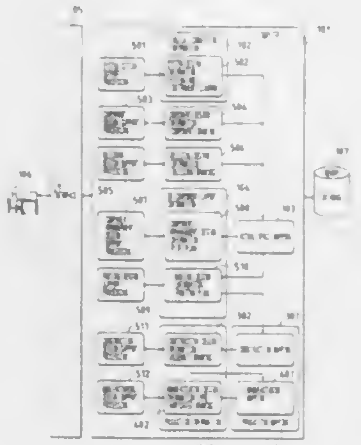
Claims priority, application Japan, Apr. 21, 1993, 5-094094; Sep. 1, 1993, 5-216787

Int. Cl.^{6} G06T *17/40*

U.S. Cl. 395—120 **3 Claims**

1 A design and production supporting system for component arrangement and pipe routing comprising:

- inputting means for inputting basic design information including arrangement space information, component design information, and logical connection information representing connectivity relationship among components,



- three-dimensional component mapping means for generating three-dimensional components layout information from said basic design information,
- wherein said three-dimensional component mapping means includes,
  - means for arranging and displaying components in a two-dimensional plane assigned in an object three-dimensional arrangement space in such a way as to preserve said connectivity relationship among said components,
  - means for interactively moving and arranging three dimensionally each of said components in such a way that said connectivity relationship is displayed in said two-dimensional place in said object three-dimensional arrangement space, and
  - routing means for deciding routes connecting said components arranged in said object three-dimensional arrangement space, further comprising,
- means for inputting component arrangement constraint conditions, wherein said three dimensional component mapping means comprising
  - means for automatically arranging said components based on said basic design information and said component arrangement constraint conditions,
  - wherein said three-dimensional component mapping means comprises means for automatically deciding pipe routing among said components based on said basic design information and said component arrangement constraint conditions,
- wherein said means for automatically deciding pipe routing among said components comprises
  - means for dividing a route to be laid out into sub-routes and generating a sub-route list which includes information on a start point and an end point and further linkage directions of said sub-routes,
  - means for specifying a space for layout of said sub-route containing said start and end point and evaluating said sub route searched by using said basic design information under said constraint condition requiring most reduction of routing distance between said start and end point of said sub-route in said specified space, and
- means for laying out the most highly evaluated sub routes in said specified space

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5,740,342
METHOD FOR GENERATING A THREE-DIMENSIONAL, LOCALLY-UNSTRUCTURED HYBRID GRID FOR SLOPING FAULTS

Sait Kocberber, Houston, Tex., assignor to Western Atlas International, Inc., Houston, Tex.

Filed Apr. 5, 1995, Ser. No. 417,643

Int. Cl.^{6} G06T *17/50*

U.S. Cl. 395—120 **9 Claims**

1 An improved method of simulating the physical structure of an earth formation to show complex geometry around a fault, comprising:

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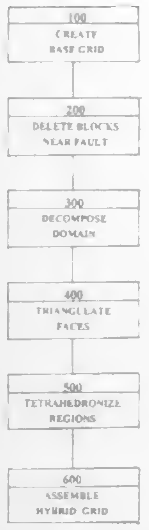


(a) entering formation data into a computer system, wherein the formation data includes the physical location and structure of the fault and horizons of the formation;
(b) transforming the formation data into a three-dimensional, structured finite-difference grid of hexahedrons;
(c) identifying regions at the intersections of the fault with the horizons and removing the hexahedrons in the identified regions from the structured grid;
(d) decomposing the identified regions around the fault into topologically and geometrically simple volume, face and line components;
(e) generating volume nodes for the volume components of the identified regions by an automatic process comprising the steps of:
  (1) generating line nodes along the line components of the identified regions,
  (2) generating a two-dimensional finite-element grid for the face components of the identified regions using an automatic triangulation process on the line nodes,
  (3) generating interior volume nodes for the volume components from face nodes of the two-dimensional finite-element grid, and
  (4) combining the face nodes and interior volume nodes;
(f) generating a three-dimensional, unstructured finite-element grid for the volume components of the identified regions using an automatic tetrahedronization process on the volume nodes; and
(g) combining the unstructured grid of tetrahedrons with the remainder of the structured grid of hexahedrons to form a three-dimensional, locally-unstructured hybrid grid.

5,740,343
TEXTURE COMPOSITING APPARATUS AND METHOD
Gary Tarolli, Concord, Mass.; Scott Sellers, Menlo Park, and James E. Margeson, III, Santa Clara, both of Calif., assignors to 3DFX Interactive, Incorporated, Mountain View, Calif.

Filed Nov. 3, 1995, Ser. No. 552,740
Int. Cl.^{6} G06T *11/40*
U.S. Cl. 395—130 **28 Claims**

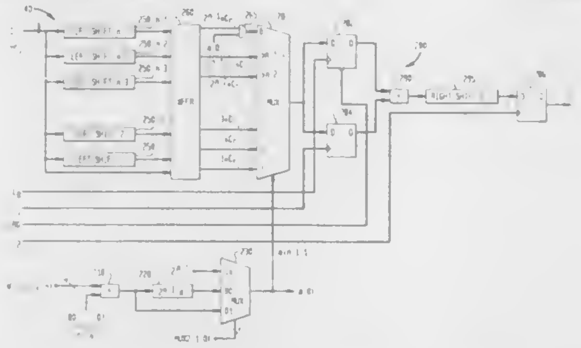
1. An apparatus, receiving a plurality of texture signals each representing a texture, for combining signals representing at least three of said textures during a single pixel rendering pass, the apparatus comprising:

a first texture composite unit, disposed to receive a first texture signal and a second texture signal of said plurality of texture signal, said first and second texture signals representing independent texture, and a first control signal representing a first relationship between said first texture signal and said second texture signal, for combining said first texture signal and said second texture signal in accordance with said first relationship to generate a first output texture signal;

a second texture composite unit, disposed to receive said first output texture signal, a third texture signal of said plurality of texture signals, and second control signal representing a second relationship between said first output texture signal and said third texture signal, for combining said first output texture signal and said third texture signal in accordance with said second relationship to generate a second output texture signal, wherein said second output texture signal is generated from said first, second, and third texture signals in a single pixel rendering pass.

5,740,344
TEXTURE FILTER APPARATUS FOR COMPUTER GRAPHICS SYSTEM
Yu-Ming Lin, Hsinchu; Chun-Kai Huang, Taichung, and Wei-Kuo Chia, Hsinchu, all of Taiwan, assignors to ITRI-Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Feb. 8, 1996, Ser. No. 598,521
Int. Cl.^{6} G06T *11/40*
U.S. Cl. 395—130 **7 Claims**

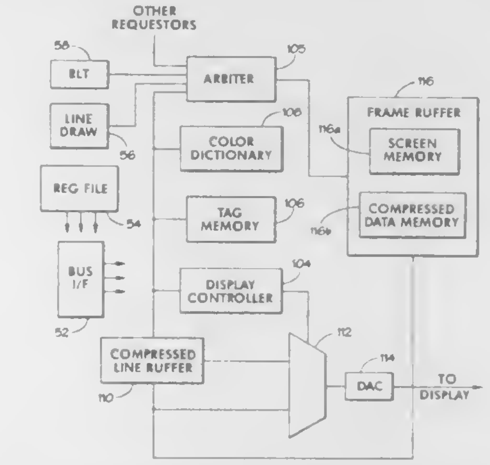


6. An apparatus for determining a texture color value C_r to map onto a point of an object surface in 3D space, wherein said object surface point is a distance $0<W<1$ from a first texture data point C_i and a distance $1-W$ from a second texture data point C_j, wherein said texture color value C_r is an interpolated color value C_r between the texture color values C_{ri} and C_{rj} of said first and second texture data points C_i and C_j, said apparatus comprising:
(a) a product circuit for multiplying each of said first and second texture color values C_{ri} and C_{rj} by each integer from 0 to 2^{n-1}, to produce 2^n-1 products for each of said texture color values C_{ri} and C_{rj}, wherein n is an integer >2,
(b) a multiplexer for selecting said product of C_{ri} with $2^{n-1}-W'$ and said product of C_{rj} with W', wherein W' is an n-bit representation of $W\cdot 2^{n-1}$ with n−1 integer bits and 1 decimal bit,
(c) an adder for adding said selected products $(2^{n-1}-W')\cdot C_{ri}$ and $W'\cdot C_{rj}$ together to produce a sum $(2^{n-1}-W')\cdot C_{ri}+W'\cdot C_{rj}$, and

(d) a divider for dividing said sum $(2^{n-1}-W')\cdot C_{ri}+W'\cdot C_{rj}$ by 2^{n-1} to produce said interpolated color value C_r.

5,740,345
METHOD AND APPARATUS FOR DISPLAYING COMPUTER GRAPHICS DATA STORED IN A COMPRESSED FORMAT WITH AN EFFICIENT COLOR INDEXING SYSTEM
Brian H. Danielson, Tomball; John J. Watters, Spring, and Timothy J. McDonald, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Mar. 28, 1995, Ser. No. 411,453
Int. Cl.^{6} G06T *11/00*
U.S. Cl. 395—131 **22 Claims**



1. A method of generating data for output to a computer display comprising a plurality of pixels, comprising the steps of:
for each pixel of the display, storing color information in a respective location in a screen memory,
storing selected color information for a predetermined number of colors in a color dictionary, each color associated with an index, wherein said selected color information is responsive to data received from driver software;
storing color information corresponding to all or a portion of the pixels of the display in a compressed data memory wherein a run of one or more pixels of the same color are represented by reference to one of said indices and a count of the number of pixels in the run;
accessing color information from said compressed data memory to output to said display.

5,740,346
SYSTEM AND METHOD FOR DYNAMIC NETWORK TOPOLOGY EXPLORATION
Thomas M. Wicki, Palo Alto, Calif.; Patrick J. Helland, Redmond, Wash.; Wolf-Dietrich Weber, La Honda, and Winfried W. Wilcke, San Jose, both of Calif., assignors to Fujitsu, Ltd., Japan

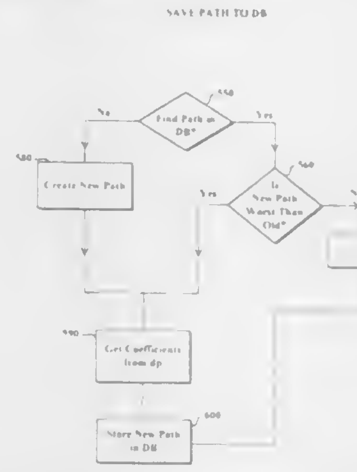
Filed Feb. 22, 1996, Ser. No. 605,676
Int. Cl.^{6} H04L *12/56*
U.S. Cl. 395—182.02 **15 Claims**

1. A method for dynamically a determining network topology information of a network, the network including a plurality of network elements including a first node and a first element coupled to a destination element, comprising the steps of:
(a) generating a ping frame including first routing information identifying a first route from the first node to the destination element, and second routing information identifying a second route from the first element of said network elements to the first node;
(b) transmitting said first ping frame to said destination element via said first route;

(c) receiving a ping frame at the destination element through a first port of said destination element;
d) generating an echo frame in response to said ping frame, said echo frame including first connectivity information, third routing information, and a destination element identifier, said first connectivity information identifying network elements that are adjacent to the destination element and said third routing information including said second routing information and an identifier of said first port;
(e) transmitting said echo frame from said destination element to the first node via said third route;
(f) receiving said echo frame at said first node, and
(g) updating the network topology information by including said destination element identifier and said first connectivity information.

5,740,347
CIRCUIT ANALYZER OF BLACK, GRAY AND TRANSPARENT ELEMENTS
Jacob Avidan, Los Altos, Calif., assignor to Synopsys, Inc., Mountain View, Calif.

Filed May 1, 1995, Ser. No. 429,430
Int. Cl.^{6} G06F *13/00*
U.S. Cl. 395—183.09 **27 Claims**



1. A method for checking the timing of a circuit during static circuit analysis, said circuit including a stage having a pass transistor under the control of a clock, said method comprising:
searching paths in said circuit;
making said stage transparent; and
performing timing checks on paths including said transparent stage.

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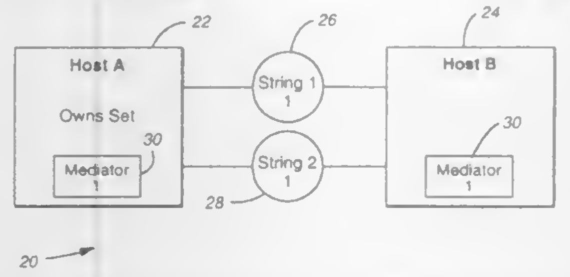
5,740,348

SYSTEM AND METHOD FOR SELECTING THE CORRECT GROUP OF REPLICAS IN A REPLICATED COMPUTER DATABASE SYSTEM

Joseph E. Cunliffe, and Dale R. Passmore, both of Colorado Springs, Colo., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 673,082
Int. Cl.^{6} G06F *11/18*
U.S. Cl. 395—182.04 **18 Claims**



1. A computer implemented method for ensuring the selection of a most current copy of a group of database copies in a replicated database of a computer system, said method comprising the steps of:

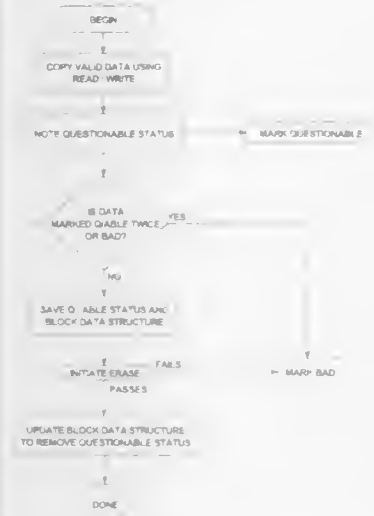
- providing a plurality of state database replicas, wherein each replica is used to store configuration of metadevices and the state of said metadevices associated with one of the database copies,
- establishing at least one mediator for monitoring the currency of accesses to said replicas;
- determining availability of each replica,
- comparing data in each available replica with data stored in the at least one mediator to determine if each available replica is current; and
- in response to determining that half of the replicas are available, relying on said database copies associated with said available replicas if said at least one mediator indicates that said replicas are current.

5,740,349

METHOD AND APPARATUS FOR RELIABLY STORING DEFECT INFORMATION IN FLASH DISK MEMORIES

Robert N. Hashun, Shingle Springs, and Steven E. Wells, Citrus Heights, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 19,768, Feb. 19, 1993, abandoned.
This application Jun. 7, 1995, Ser. No. 481,927
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—182.06 **17 Claims**


BEGIN
COPY VALID DATA USING READ WRITE
NOTE QUESTIONABLE STATUS
MARK QUESTIONABLE
IS DATA MARKED Q/ABLE TWICE OR BAD?
YES
NO
SAVE Q ABLE STATUS AND BLOCK DATA STRUCTURE
INITIATE ERASE
FAILS
PASSES
MARK BAD
UPDATE BLOCK DATA STRUCTURE TO REMOVE QUESTIONABLE STATUS
DONE

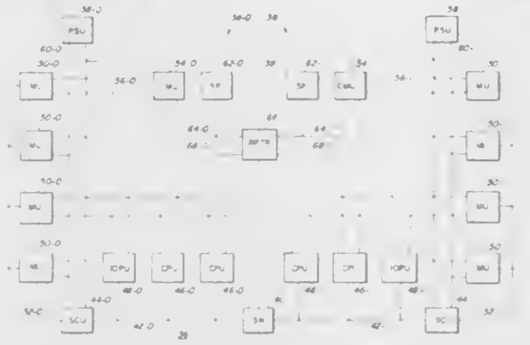
1. A controller for controlling a flash memory array which includes a microprocessor, read only memory which contains a single bad block bitmap table and control processes to be run by the microprocessor for controlling the flash memory array, wherein the read only memory can be written from a first state to a second state without erasing the read only memory after writing to the first state, random access memory, circuitry for accessing the flash memory array, circuitry for detecting new bad blocks within the flash memory array during operation of the flash memory array subsequent to an initial determination of which blocks of the flash memory array are bad, and circuitry for writing bad block data to the bitmap table contained in the read only memory by overwriting, for each of a plurality of new bad blocks, a same portion of the bitmap table which corresponds to each of the plurality of new bad blocks without erasing the same portion of the bitmap table between each overwrite.

5,740,350

RECONFIGURABLE COMPUTER SYSTEM

Leonard Rabins, Scottsdale; David A. Bowman, Glendale; David W. Selway, Phoenix; Clark D. McCaslin, Phoenix, and Donald R. Kesner, Phoenix, all of Ariz., assignors to Bull HN Information Systems Inc., Billerica, Mass.

Continuation of Ser. No. 497,063, Jun. 30, 1995, abandoned.
This application Mar. 18, 1997, Ser. No. 823,663
Int. Cl.^{6} G06F *13/00;15/00*
U.S. Cl. 395—182.08 **2 Claims**



1. In a reconfigurable computer system including:

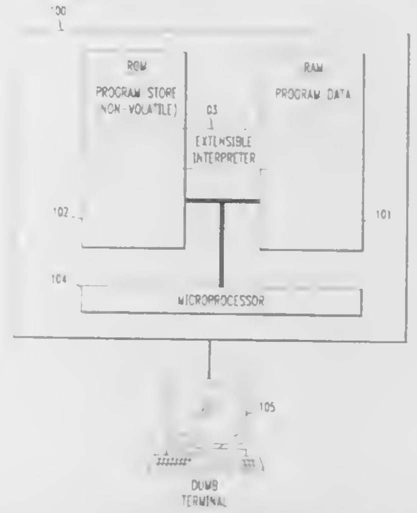
- a first and a second computer subsystem, each computer subsystem including a system control unit (SCU), at least one central processing unit (CPU), at least one input output processor unit (IOPU), a plurality of memory units (MU)s, a power supply unit (PSU), a clock and maintenance unit (CMU), a service processor (SP), a system bus (SB), the SB including data lines, address lines, command lines, and control lines, a memory bus (MB), a clock and maintenance bus (CMB), a power supply bus (PSB), and a local area network bus (LANB); error detection circuit means incorporated in each unit for detecting errors and producing error signals identifying each error detected; the SCU interconnecting and controlling the system bus and memory bus, the CPUs and IOPU's being connected to the SB, MUs being connected to the MB, the CMU being connected to each of the units of a subsystem by the CMB, the PSU being connected to each of the units of a subsystem by the PSB, and the SP being connected to the CMU by the LANB; the CMU receiving error signals produced by said error detection circuits of the units of a subsystem, said error signals being transmitted to the SP via the LANB, the SP being programmed to analyze errors reported by the units of a subsystem and to initiate appropriate corrective action via the CMU and CMB, the SP upon the occurrence of a single point failure that will render a subsystem inoperative, shutting down the subsystem; wherein the improvements comprise
- incorporating additional control lines in the SBs of the two computer subsystems,
- switch means having a closed state and an open state, said switch means in its closed state electrically connecting corresponding lines of each SB to merge the two subsystems into a single computer system, said switch means in its open state electrically isolating said lines; the additional control lines of the SBs when the switch means are closed and the subsystems merged permitting the SCUs of the first and second computer subsystem to communicate with each other, the SCU of one of the two subsystems controlling access to the SBs of both subsystems by the units connected to said SBs, the SCU in control; the SCU of the other subsystem following the lead of the SCU in control when the two subsystems are merged; the switch means when open electrically isolating the lines of the SB of the first computer subsystem from the lines of the second computer subsystem to reconfigure the computer system so that each computer subsystem can function independently;
- repeater circuit means for connecting the LANBs of the two computer subsystem so that the SPs of the two subsystems receive information transmitted by the CMUs of either subsystem over the. LANBs and outputs produced by the other SP, such as that a SP has detected that a single point of failure has occurred in its subsystem and that said SP is shutting down its subsystem;
- a repeater control bus (RCB) for connecting the CMU of each subsystem to the repeater circuit means, the CMUs of each subsystem controlling the operation of the repeater circuit means;
- the SP of a subsystem detecting a single point failure having occurred in its subsystem causing the CMU of its subsystem to render the repeater circuit means inoperative and the switch means to open;
- the SP of a subsystem learning that a single point of failure has occurred in the other subsystem causing the CMU of its sub-system to render the repeater circuit means inoperative and the switch means to open to reconfigure the computer system to isolate the two subsystems so that the subsystem that has not suffered a single point failure can continue to operate.

5,740,351

APPARATUS AND METHOD FOR DEBUGGING/MODIFYING ROM-BASED SOFTWARE SYSTEMS EMPLOYING AND EXTENSIBLE INTERPRETER

Philip S. Kasten, Nashua, N.H., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 968,024, Oct. 29, 1992, abandoned.
This application Sep. 13, 1995, Ser. No. 527,463
Int. Cl.^{6} G06F *11/00;9/445*
U.S. Cl. 395—183.11 **10 Claims**



1. A method for dynamically modifying a read-only-memory "ROM"-based embedded software system, said system including a ROM for storing a fixed equipment system program and a Random Access Memory (RAM) for storing data, said method comprising the steps of:

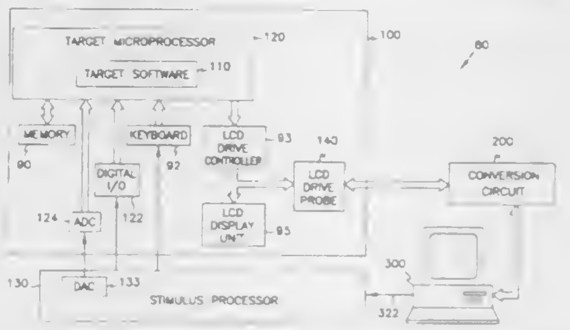
- executing the fixed equipment system program, said fixed equipment system program including at least one request for a Customized Call-Out (CCO) from the ROM-based embedded software system, and
- invoking at least one dynamic extension to the fixed equipment system program by
- (1) transferring control of the ROM-based software system from said fixed equipment system program to an extensible interpreter program embedded in the ROM by executing the request for a Customizable Call-Out (CCO) during said executing step and, upon executing the request for a Customizable Call-Out (CCO), passing the identity of the CCO to the extensible interpreter program, and
- (2) executing the identified CCO by the extensible interpreter program to allow modification in the RAM of the capabilities of the ROM-based embedded software system in accordance with the identified CCO

5,740,352

LIQUID-CRYSTAL DISPLAY TEST SYSTEM AND METHOD

Richard L. Philipp, Mound; Richard L. Murphy-Newman, Richmond, and Michael S. Louden, Mound, all of Minn., assignors to B-Tree Verification Systems, Inc., Minnetonka, Minn.

Filed Sep. 27, 1995, Ser. No. 534,603
Int. Cl.^{6} G06F *11/00*
U.S. Cl. 395—183.16 **21 Claims**



1. A test system for non-invasively testing a microcomputer system having one or more input stimulus signals and a display screen, the test system comprising:

- a electronic probe which generates digital drive data representative of an electronic signal which drives the display screen,
- a signal converter coupled to the electronic probe, which converts the digital drive data into pixel data, wherein each of the pixel data comprise a value representing an optical attribute for at least one pixel of the display screen, and
- a frame storage coupled to the signal converter for storing the pixel data, wherein the signal converter samples a plurality of pixel values within each of a plurality of frames of the digital drive data and at least one of the plurality of pixel values sampled from a first one of the plurality of frames is combined with a corresponding one of the plurality of pixel values sampled from a second one of the plurality of frames to generate a combined pixel value, and the combined pixel value is saved in the frame storage

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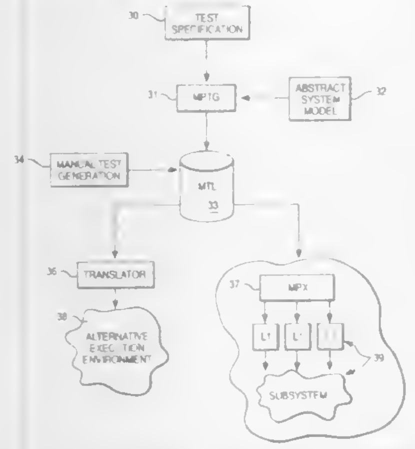
METHOD AND APPARATUS FOR CREATING A MULTIPROCESSOR VERIFICATION ENVIRONMENT

Jeffrey Thomas Kreulen; Sriram Srinivasan Mandyam; Brian Walter O'Krafka; Shahram Salamian, all of Austin, and Ramanathan Raghavan, Round Rock, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 14, 1995, Ser. No. 572,472
Int. Cl.⁶ G06F *11/00*
U.S. Cl. 395—183.18 14 Claims



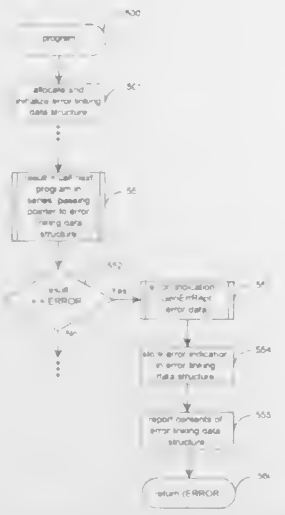
1. A method, implemented in a computer, for providing a multiprocessor verification testing environment for testing storage components, comprising:
   providing a test specification of a cache coherence multiprocessor configuration having a plurality of caches and main memories to be tested in said multiprocessor verification testing environment.
   preloading initialization information for said caches and main memories:
   generating a set of test cases for exercising all transaction types and cache states for said caches and main memories in said cache coherence multiprocessor configuration based on said test specification;
   applying said test cases to a cache-coherent multiprocessor system having storage hierarchy mechanism to verify operation of said system;
   monitoring the completion of said test cases in said cache coherent multiprocessor system; and
   inputting data values for a subset of addresses in said caches and main memory.

5,740,354
METHOD AND SYSTEM FOR ASSOCIATING RELATED ERRORS IN A COMPUTER SYSTEM

Or Ben-Natan; Michael L. Davis, both of Bellevue, and Bruce W. Copeland, Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Nov. 27, 1995, Ser. No. 562,823
Int. Cl.⁶ G06F *11/00*
U.S. Cl. 395—183.21 18 Claims

1. A method in a computer system for associating an error reported by a first program with an error reported by a second program that calls the first program, the method comprising the steps of:
   under the control of the second program:
      calling the first program,
   under the control of the first program:
      detecting the occurrence of an error, and
      generating a first error report containing information describing the error detected under the control of the first program, the first error report being associated with a first error report identifier;
   under the control of the second program
      detecting the occurrence of an error, and

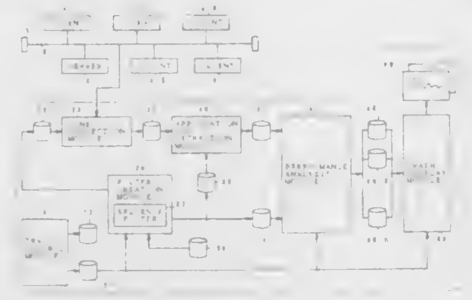


      generating a second error report containing information describing the error detected under the control of the second program, the second error report being associated with a second error report identifier; and
   based upon the program that generated the first error report having been called by the program that generated the second error report generating an indication that the error reports associated with the first error report identifier and the second error report identifier are related.

5,740,355
TRANSACTION TRACING APPARATUS

Yutaka Watanabe; Yasuaki Muraki, and Takashi Nakagawa, all of Kawasaki, Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Filed Jun. 4, 1996, Ser. No. 661,582
Claims priority, application Japan, Oct. 27, 1995, 7-279983
Int. Cl.⁶ G06F *11/00*
U.S. Cl. 395—183.21 17 Claims



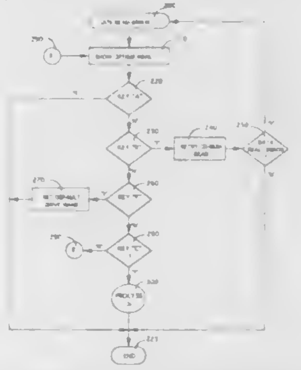
1. A transaction tracing apparatus for a computer network having a plurality of units connected via a transfer path, wherein transactions are processed by exchange of transmission information using a conversational format of request and reply between at least two units, said transaction tracing apparatus comprising:
   a trace control module which controls the transaction tracing apparatus based on a trace instruction file having a log file name, a filter file name, and analysis instructions having corresponding specification information:
   a filter creation module which creates an extraction filter and an analysis filter used in the extraction of a particular conversation sequence from a packet log:
   a line collection module which collects transmission information from said transfer path thereby creating a transmission log,
   an application log extraction module which extracts from the transmission log an application log of the particular conversation sequence specified by the extraction filter;
   a performance analysis module which extracts the particular conversation sequence, specified by the analysis filter, from said application log, and analyzes the transaction producing an analysis result;

   and a graph display module which displays graphs based on the analysis results of said performance analysis module.

5,740,356
READ-ERROR MANAGEMENT DURING RETRIEVING DATA STORAGE-MEDIUM EMPLOYING A DATA-RETRIEVING OPTICAL BEAM

Shwn-Jian Liang, and Wei-chang Chen, both of Taipei, Taiwan, assignors to Delta Electronics, Inc., Taipei, Taiwan

Filed Feb. 1, 1996, Ser. No. 595,343
Int. Cl.⁶ G06F *11/00*
U.S. Cl. 395—183.22 9 Claims



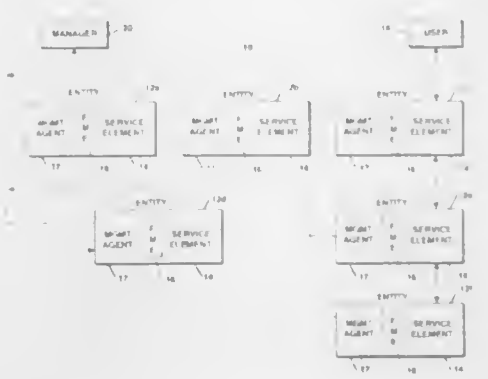
1. A method for resolving a detected read-error for a compact disk read-only-memory (CD-ROM) data handling system in reading data from a CD by employing a CD drive controlled by a computer through an CD-interface to operate at several reading speeds, said method comprising the steps of:
   (a) detecting a read error in reading data from said CD and executing a read-error resolving program to stop reading data from said CD,
   (b) providing a user interface message for a user to make one selection among a plurality of options including aborting, retrying, or changing speed in reading data from said CD;
   (c) receiving a user input providing said one selection among said plurality of options;
   (d) responding to a user input of changing speed by displaying a second user interface message providing a plurality of user options including selection of reading data from said CD with a user designated slower reading speed;
   (e) receiving said user designated slower reading speed and issuing a reading speed command corresponding to said user designated slower reading speed; and
   (f) reading data from said CD again at a user designated slower reading speed for a whereby said read-error may be resolved.

5,740,357
GENERIC FAULT MANAGEMENT OF A COMPUTER SYSTEM

Jeffrey L. Gardiner, Needham, Mass.; Gerhard K. Heider, Valbonne, France; Larry W. Emlich, Colorado Springs, Colo.; Bruce H. Luhrs, Merrimack, N.H.; Michael C. Li, Redmond, Wash.; Michael R. Masters, Castle Rock, Colo.; Russell Lloyd Myers, Grafton, Mass.; Harlo A. Peterson, Colorado Springs; Frank M. Robbins, Monument, both of Colo., and Mark J. Seger, Harvard, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 60,884, May 12, 1993, abandoned, which is a continuation of Ser. No. 515,180, Apr. 26, 1990, abandoned. This application Oct. 26, 1994, Ser. No. 329,800
Int. Cl.⁶ G06F *11/30*
U.S. Cl. 395—185.1 8 Claims

1. A method of managing faults in a plurality of entities of a computer system, comprising the steps of:
   providing a functional hierarchy for performing error detection and error handling, said functional hierarchy including a plurality of levels wherein higher level entities are clients for services of lower level entities;

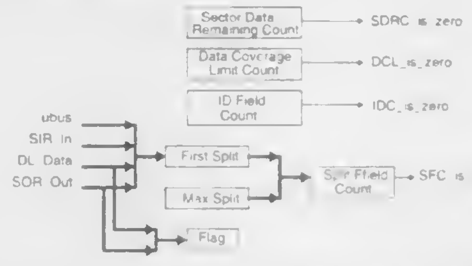


   providing a management hierarchy for performing fault handling, said management hierarchy including a plurality of levels wherein higher level entities manage lower level entities;
   operating said functional hierarchy to detect and handle each error occurring during operation of the computer system, including forwarding information regarding each error to said management hierarchy;
   operating said management hierarchy separately from said functional hierarchy to handle a fault that caused said error including the step of refining, at said management hierarchy, said information received from said functional hierarchy to isolate said fault; and
   controlling communication between entities on one hierarchical level and entities on a higher hierarchical level or between entities on one hierarchical level and entities on a lower hierarchical level by decentralized control means located within each of said entities.

5,740,358
DEFECT MANAGEMENT AND SPLIT FIELD PROCESSING IN DISK STORAGE SYSTEMS

John S. Geldman, Los Gatos; Son H. Ho, San José; Petro Estakhri, Pleasanton, all of Calif., and John J. Schadegg, Longmont, Colo., assignors to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 905,588, Jun. 26, 1992, abandoned, and a continuation-in-part of Ser. No. 904,804, Jun. 25, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 478,354
Int. Cl.⁶ G11B *5/09*
U.S. Cl. 395—184.01 4 Claims



INTER-FIELD LOGIC BLOCK DIAGRAM

1. In a disk storage system for storing digital data, the storage system having at least one disk having a plurality of concentric tracks, each track being subdivided into a plurality of sectors, a method of processing data field sections within a sector, comprising the steps of
   (a) providing a sector having an identification field and at least one data field, the data field having synchronization information and at least one data byte, the identification field having a first split field count that is indicative of a number of data bytes in a first data field.

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(b) providing a maximum split count and a sector data remaining count, the maximum split count being indicative of a maximum number of data bytes in the sector, and the sector data remaining count being indicative of a number of unprocessed data bytes remaining in the sector;
(c) processing data bytes in a first split in accordance with the first split field count;
(d) processing data bytes in subsequent splits in accordance with the maximum split field count;
(e) decrementing the sector data remaining count corresponding to all data bytes, and
(f) continuing steps (d) and (e) until the sector data remaining count is zero.

5,740,359
PROGRAM EXECUTION SYSTEM HAVING A PLURALITY OF PROGRAM VERSIONS

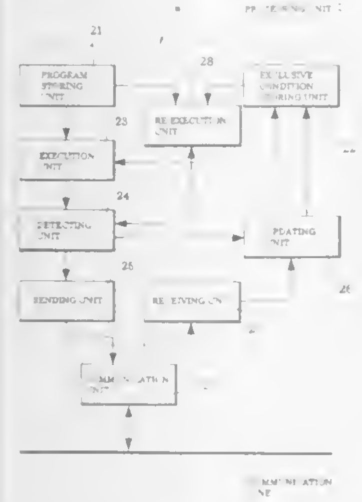
Tetsuo Hasegawa, and Yasukuni Okataku, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Dec. 20, 1995, Ser. No. 580,032

Claims priority, application Japan, Dec. 27, 1994, 6-324889

Int. Cl.⁶ G06F *13/00;15/16*

U.S. Cl. 395—184.01 **5 Claims**



1 A program executing system for a program having one or more versions, comprising:
program storing means for storing a plurality of program versions, each version corresponding to a process;
exclusive condition storing means for storing invocation data of a process terminated abnormally, as an exclusive condition, in order to exclude the version of the program corresponding to the process terminated abnormally;
executing means for selecting one of the plurality of program versions, based on the invocation data stored in said exclusive condition storing means, for invoking the process based on the selected program version, and for executing the process;
detecting means for detecting an abnormality of the executing process; and
updating means for transferring the invocation data associated with the abnormally executing process detected by said detecting means into said exclusive condition storing means as one of the exclusive conditions

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5,740,360
APPARATUS AND METHOD FOR RESETTING A MICROPROCESSOR IN THE EVENT OF IMPROPER PROGRAM EXECUTION

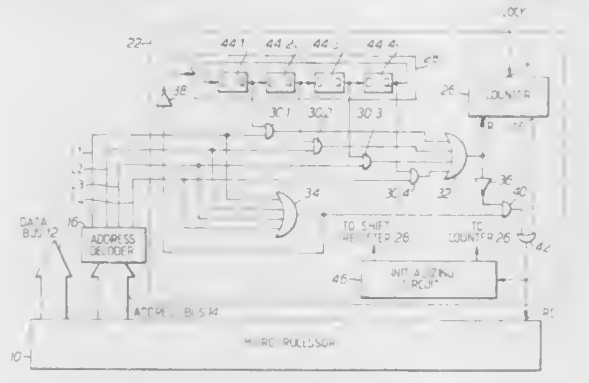
Stephen Arthur Huckstepp, Riverdene, England, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 25, 1991, Ser. No. 659,683

Claims priority, application United Kingdom, Mar. 8, 1990, 9005250

Int. Cl.⁶ G06F *11/28*

U.S. Cl. 395—185.03 **10 Claims**



1 A microprocessor apparatus comprising:
microprocessor means for executing a predetermined program which includes a plurality of watchdog instructions which are different from one another and all of which would be executed during complete execution of said program wherein a first watchdog instruction is located in a main loop of said program and a second watchdog instruction is located in a sub-routine that is non-conditionally called for during execution of said main loop;
watchdog instruction decoder means connected to an output of said microprocessor means for decoding a signal supplied at said output in response to execution of each watchdog instruction including each of the first and second watchdog instructions to provide a respective one of a plurality of activation signals on one of a plurality of output lines thereof such that, if said microprocessor means is operating correctly, said output lines will be provided with said activation signals in a predetermined sequence; and
watchdog circuit means connected to said output lines for resetting said microprocessor means in response to an occurrence of said activation signals on said output lines in other than said predetermined sequence.

5,740,361
SYSTEM FOR REMOTE PASS-PHRASE AUTHENTICATION

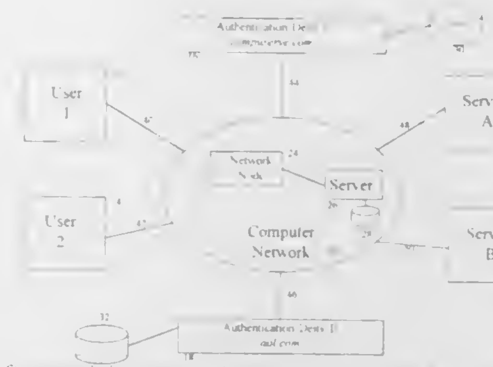
Gary S. Brown, Columbus, Ohio, assignor to CompuServe Incorporated, Columbus, Ohio

Filed Jun. 3, 1996, Ser. No. 656,936

Int. Cl.⁶ G06F *12/14*

U.S. Cl. 395—187.01 **26 Claims**

1 A method of authentication, said method comprising the steps of:
(a) assigning a first identifier and a first pass-phrase to a first entity, said first identifier and said first pass-phrase associated with a realm;
(b) assigning a second identifier and a second pass-phrase to a second entity, said second identifier and said second pass-phrase associated with said realm;
(c) storing said first identifier, said first pass-phrase, said second identifier, and said second pass-phrase at an authentication entity.
(d) requesting access to said second entity, said request initiated by said first entity and including said first identifier;
(e) transmitting a first challenge from said second entity to said first entity;



(f) transmitting a second challenge from said first entity to said second entity;
(g) calculating a first response involving said realm, first identifier, said first pass-phrase, said first challenge, said second identifier, and said second challenge, said first response calculated by said first entity;
(h) calculating a second response involving said realm, said second identifier, said second pass-phrase, said second challenge, said first identifier, and said first challenge, said second response calculated by said second entity;
(i) transmitting said first response to said second entity;
(j) transmitting said realm, said first identifier, said first challenge, said first response, said second identifier, said second challenge, and said second response to said authentication entity;
(k) verifying said first response, said verification involving said realm, said first identifier, said first pass-phrase, said first challenge, said first response, said second identifier, and said second challenge, and said verification performed by said authentication entity;
(l) verifying said second response, said verification involving said realm, said first identifier, said first challenge, said second identifier, said second pass phrase, and said second challenge, and said verification performed by said authentication entity;
(m) generating a first authentication proof for said first entity, said first authentication proof generated by said authentication entity and involving said realm, said first identifier, said first pass-phrase, said first challenge, said second identifier, and said second challenge;
(n) generating a second authentication proof for said second entity, said second authentication proof generated by said authentication entity and involving said realm, said first identifier, said first challenge, said second identifier, said second pass-phrase, and said second challenge;
(o) transmitting said first authentication proof and said second authentication proof from said authentication entity to said second entity; and
(p) verifying said second authentication proof, said verification performed by said second entity,
(q) transmitting said first authentication proof from said second entity to said first entity, and
(r) verifying said first authentication proof, said verification performed by said first entity.

5,740,362
MANAGEMENT OF NETWORK DISTRIBUTED AGENTS IN A DISTRIBUTED COMPUTING ENVIRONMENT

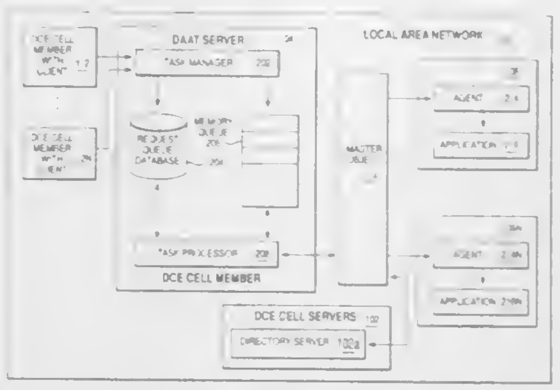
Larry Lee Buickel, Austin; Debbie Ann Godwin, Pflugerville; Howard Daniel Hamilton; Kathryn Isohel Hansen, both of Austin, all of Tex., and Charlie Buddy Harvey, Jr., Golden, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 6, 1995, Ser. No. 554,431

Int. Cl.⁶ G06F *17/30*

U.S. Cl. 395—200.03 **18 Claims**

1 A method of invoking the resources of application programs executing in a distributed computing environment, each one of said



application programs having an agent and a principal name, each one of said agents being identified by an individual binding handle, said method comprising the steps of
storing said principal names and said binding handles together in a principal name list of a master object,
locating, in said principal name list, one of said stored binding handles for an identified one of said application programs to execute a request, and
executing said agent identified by said binding handle to invoke said identified application program to execute said request

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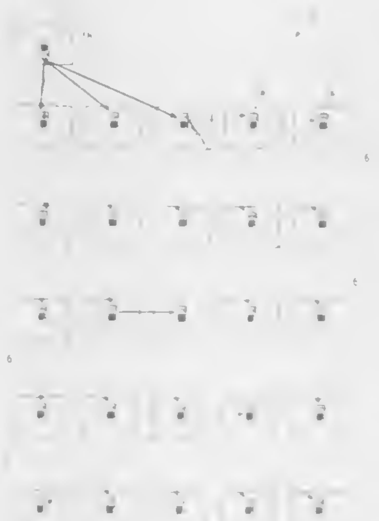
5,740,363
METHOD AND APPARATUS FOR LOW POWER COMMUNICATIONS BETWEEN MOBILE COMPUTING DEVICES

Thomas M. Siep; Carl M Panasik, both of Garland, and Ronald E. Stafford, Wylie, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 26, 1996, Ser. No. 753,563

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.3 **20 Claims**



1 A method of communicating a data packet to a plurality of mobile computing devices within a defined setting, comprising the steps of
broadcasting a data packet using wireless transmission from a first mobile computing device at a power sufficient to reach some but not all of the other mobile computing devices,
repeating the steps of

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- receiving said data packet in a set of said other mobile computing devices, and
- rebroadcasting said data packet from said set of other mobile computing devices to reach mobile computing devices which have not received the data packet

until all of said plurality of mobile computing devices have received the message packet.

5,740,364

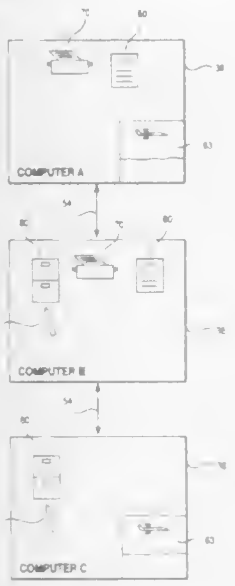
SYSTEM AND METHOD FOR CONTROLLING DATA TRANSFER BETWEEN MULTIPLE INTERCONNECTED COMPUTER SYSTEMS WITH A PORTABLE INPUT DEVICE

Bernard Charles Drerup, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 434,905, May 1, 1995, Pat. No. 5,579,481, which is a continuation of Ser. No. 922,900, Jul. 31, 1992, abandoned. This application Jul. 26, 1996, Ser. No. 686,851

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—200.09 **12 Claims**



1 A method of transferring data between data processing systems which are connected one to another via a network, the method comprising the steps of.

- assigning a user to a portable input device which contains an identification of the user that is detectable by each of the data processing systems;
- detecting the identification of the user at a first one of the data processings via the portable input device.
- selecting, with said portable input device, data from the first one of the data processing systems for transfer to an unidentified one of the data processing systems.
- detecting the identification of the user at a second one of the data processing systems via the portable input device; and
- transferring, in response to the detection of the identification, the selected data to the second data processing system via the network.

5,740,365

PERSONAL SERVICE COMPUTER DIRECTLY CONNECTED TO COMMUNICATION SYSTEMS HAVING PROGRAM STRUCTURE FOR GENERATING ADMINISTRATION AND MAINTENANCE INSTRUCTIONS AND COMMUNICATING THOSE INSTRUCTIONS TO RESPECTIVE COMMUNICATION SYSTEM

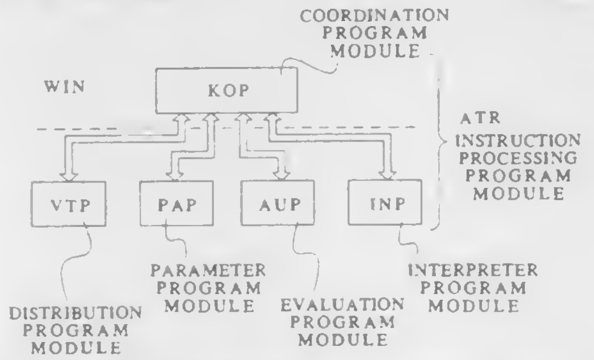
Andreas Pfeiffer; Wolfgang Kaufel: Christine Vogt-Wingerath; Frank Renner; Michael Kreutzer, and Manfred Weiser, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 23, 1995, Ser. No. 447,951

Claims priority, application Germany, May 25, 1994, 44 18 231.7

Int. Cl.⁶ G06F *9/00*

U.S. Cl. 395—200.11 **15 Claims**


COORDINATION PROGRAM MODULE
WIN
KOP
ATR
INSTRUCTION PROCESSING PROGRAM MODULE
VTP
PAP
AUP
INP
PARAMETER PROGRAM MODULE
INTERPRETER PROGRAM MODULE
DISTRIBUTION PROGRAM MODULE
EVALUATION PROGRAM MODULE

1 A system for administering and maintaining a plurality of communication systems, comprising:

- a plurality of communication systems;
- a personal service computer connected to the communication systems, said personal service computer having a personal computer operating system, a window-oriented operating system, and a program structure for administering and maintaining by administration and maintenance instructions containing administration and maintenance parameters said program structure comprising a user, visualization, an administration and maintenance, and a circuit-oriented program structure;
- said user program structure being formed by user program modules for generating and visualizing administration and maintenance parameters initializable and controllable by a user surface as well as administration and maintenance instructions, and for also initializing and controlling communication to and from a communication system;
- said visualization program structure being formed by program modules for displaying communication system errors and messages;
- said administration and maintenance program structure comprising:
  - an instruction-processing program module designed such that administration and maintenance parameters communicated from the user program modules are inserted into administration and maintenance instructions and administration and maintenance parameters and information can be read from the administration and maintenance instructions communicated from the communication systems and can be transferred to the user program modules, such that communication of every administration and maintenance instruction to and from the communication system is controlled and monitored, and such that an administration and maintenance information received from a communication system as a reaction to an administration and maintenance instruction that was transmitted is evaluated and a corresponding or no corresponding administration and maintenance reaction is initiated dependent on informational content,
- an access program module for controlling and monitoring the communication with the communication system via a communication interface, and
- a communication interface program module realized in the window oriented operating system for procedurally controlling the communication interface, and

- said circuit-oriented program structure having at least one asynchronous communication interface driver realized in at least one of the window-oriented operating system and the personal computer operating system.

5,740,366

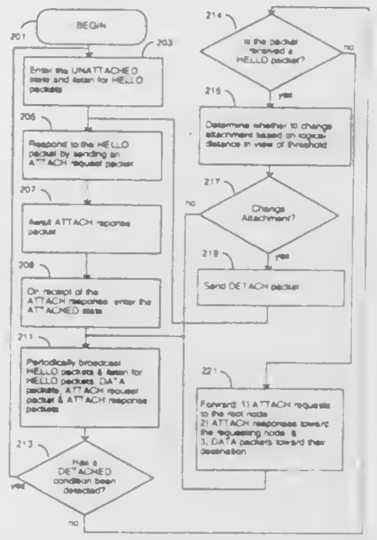
COMMUNICATION NETWORK HAVING A PLURALITY OF BRIDGING NODES WHICH TRANSMIT A BEACON TO TERMINAL NODES IN POWER SAVING STATE THAT IT HAS MESSAGES AWAITING DELIVERY

Ronald L. Mahany; Robert C. Meier, both of Cedar Rapids, and Ronald E. Luse, Marion, all of Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Continuation of Ser. No. 255,848, Jun. 8, 1994, Pat. No. 5,394,436, which is a continuation of Ser. No. 970,411, Nov. 2, 1992, abandoned, which is a continuation-in-part of Ser. No. 968,990, Oct. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 769,425, Oct. 1, 1991, abandoned. This application Feb. 28, 1995, Ser. No. 395,555

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—20.12 **32 Claims**


BEGIN
201
203
Enter the UNATTACHED state and listen for HELLO packets
206
Respond to the HELLO packet by sending an ATTACH request packet
207
Await ATTACH response packet
208
On receipt of the ATTACH response, enter the ATTACHED state
211
Periodically broadcast HELLO packets & listen for HELLO packets, DATA packets, ATTACH request packet & ATTACH response packets
213
Has a DETACHED condition been detected?
yes
no
214
Is the packet received a HELLO packet?
no
yes
215
Determine whether to change attachment based on logical distance in view of threshold
217
Change Attachment?
no
yes
219
Send DETACH packet
221
Forward: 1) ATTACH requests to the root node 2) ATTACH responses toward the requesting node & 3) DATA packets toward their destination

1 A communication network supporting wireless communication throughout an area, said communication network comprising:

- a plurality of battery-powered, wireless terminal nodes that roam throughout the area;
- a plurality of bridging nodes which, together, form a spanning tree that specifies wireless communication pathways for relaying messages between said plurality of battery-powered, wireless terminal nodes as said plurality of battery-powered, wireless terminal nodes roam throughout the area:
- at least one of said plurality of battery-powered, wireless terminal nodes selectively enters and exits a sleep mode
- each of said plurality of bridging nodes transmits at predetermined intervals hello messages that indicate the presence of pending messages;
- each of said plurality of bridging nodes stores messages destined for said plurality of battery-powered, wireless terminal nodes,
- each of said plurality of bridging nodes forwards stored messages to the said plurality of battery-powered, wireless terminal nodes upon request from said plurality of battery-powered, wireless terminal nodes, and
- while in a sleep mode, the at least one of said plurality of battery-powered, wireless terminal nodes wakes to listen to the hello message transmissions to determine whether to exit the sleep mode to retrieve pending messages

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5,740,367

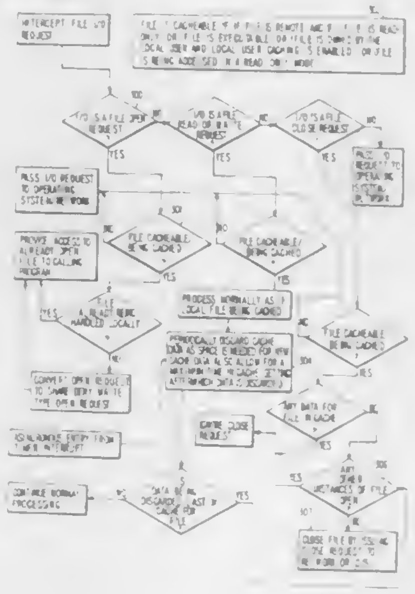
METHOD AND APPARATUS FOR IMPROVING THE THROUGHPUT OF A LOCAL AREA NETWORK

Michael L. Spilo, 248 E. 31st St., New York, N.Y. 10016

Filed Nov. 3, 1995, Ser. No. 552,690

Int. Cl.⁶ G06F *12/08;13/14*

U.S. Cl. 395—200.31 **29 Claims**



1. A method of storing data obtained from a LAN connection in local storage associated with a Workstation so that subsequent attempts to access the data do not impinge on the LAN, comprising.

- a. a local storage manager cache which maintains data on a least recently used basis in a buffer in local memory or hard disk;
- b. a file I/O trap routine which provides enhanced file level caching through a Network Interface (NI) which allows network caching by:
  - (1) examining all I/O requests to any given file by intercepting the I/O requests made by a user program before they are processed by an operating system;
  - (2) determining whether a given file I/O request is cacheable by the following logic: If file is determined as remote (determined as residing on any other computer on the LAN) then if the file is cacheable then said determination is affirmative;
  - (3) if said determination is affirmative and said file I/O request is a file open request and said file is already under control of the NI (open), returning access to said file to the user program;
  - (4) if said determination is affirmative and said file I/O request is a file open request and said file is not already under control of the NI, modifying said file open request to an open request in a mode that allows other LAN users to read the file but not to write or delete it, such as the DOS mode known as the OPEN SHARE DENYWRITE mode, or write protecting the file if no such mode is available:
  - (5) if said determination result is affirmative and said file I/O is a data read or write request, caching said read or write request using a local storage manager;
  - (6) if said determination result is affirmative, and said file I/O request is a file close request, ignoring such close request by not passing said close request to the operating system until such time as all open instances of the file have been closed and there is no longer any data from said file located in the local storage manager; and

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(7) closing said file marked as closed within the NI once no data from said file, as determined by interrogation of or notification from the local storage manager, is located within the local storage manager.

5,740,368

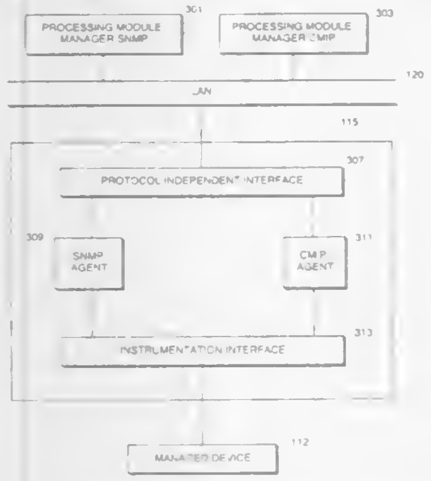
METHOD AND APPARATUS FOR PROVIDING INFORMATION ON A MANAGED PERIPHERAL DEVICE TO PLURAL AGENTS

Victor Villalpando, Costa Mesa, Calif., assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 30, 1995, Ser. No. 497,418

Int. Cl.^{6} G06F *13/42*

U.S. Cl. 395—200.32 **36 Claims**


PROCESSING MODULE MANAGER SNMP
301
PROCESSING MODULE MANAGER CMIP
303
120
LAN
115
PROTOCOL INDEPENDENT INTERFACE
307
309
SNMP AGENT
CMIP AGENT
311
INSTRUMENTATION INTERFACE
313
MANAGED DEVICE
112

1 In a computer system having plural processing modules and at least one peripheral device coupled via a network, each processing module including a manager for managing the at least one peripheral device using a predetermined one of plural management protocols and the at least one peripheral device having plural agents each using a different one of the predetermined management protocols for exchanging management information with the managers over the network, apparatus for interfacing the plural agents with the managed peripheral device, comprising:

receiving means for receiving an information request from the one of the plural agents operating under the same management protocol as the management protocol of a manager requesting information,

determining means for determining whether the information request is for local information stored on the apparatus or for information stored on the managed peripheral device:

sending means for sending a calling signal to the managed peripheral device for information on the managed peripheral device in a case that the information request is for information on the managed peripheral device;

receiving means for receiving information signals from the managed peripheral device in response to the calling signal.

generating means for generating data on the managed peripheral device in response to the information signals in the case that the information request is for information on the managed peripheral device; and

sending means for sending, to the one of the plural agents operating under the same management protocol as the requesting manager, (1) the data generated by the generating means in the case that the information request is for information on the managed peripheral device, and (2) local information in the case that the information request is for local information.

5,740,369

INFORMATION DELIVERY SYSTEM AND PORTABLE INFORMATION TERMINAL

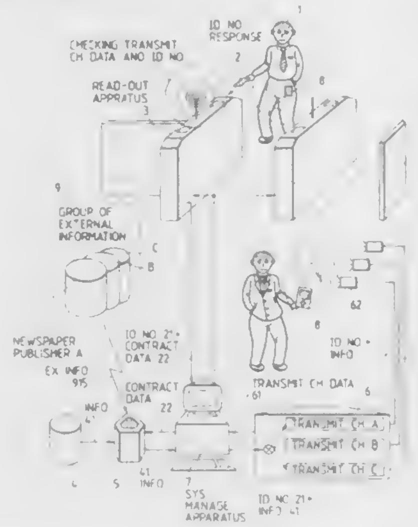
Tooru Yokozawa, Chigasaki; Hiroshi Shimizu; Wataru Kitayama, both of Yokohama; Hidefumi Goto, Yokosuka; Tadashi Kuwabara, Yokohama; Tomohiro Esaki, Yokohama, and Yoshihiro Yamada, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 6, 1995, Ser. No. 470,219

Claims priority, application Japan, Jun. 17, 1994, 6-135362; Jul. 4, 1994, 6-152199

Int. Cl.^{6} G06F *15/40*

U.S. Cl. 395—200.47 **14 Claims**



4 An information delivery system, comprising:

a portable memory medium capable of being carried by a user for storing and keeping a plurality of items of data:

input/output apparatuses installed at all entrances and exits of a specified area for reading out data from and writing data to said portable memory medium, said data being a different type of data other than entry/exit data for said specified area:

an information storing apparatus for storing various kinds of information:

an information management apparatus for controlling said information storing apparatus:

a portable information terminal for displaying the contents stored in said portable memory medium: and

a system management apparatus for effecting overall system control, wherein

said portable memory medium stores terms of a contract to supply information to the user:

said input/output apparatus includes means for reading out the terms of the contract stored in said portable memory medium in said specified area:

said information management apparatus includes means for reading out information according to the terms of a contract from said information storing apparatus, and

said input/output apparatuses further includes means for writing information read out from said information storing apparatus in said portable memory medium.

5,740,370

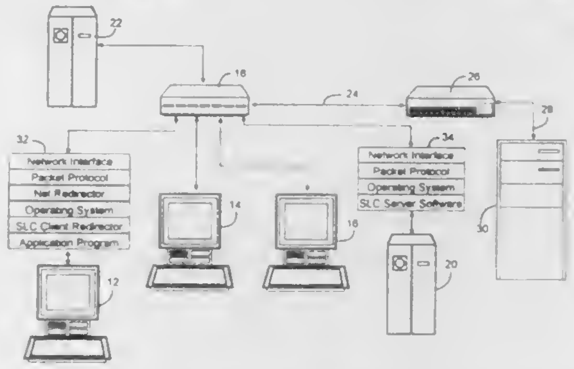
SYSTEM FOR OPENING CACHE FILE ASSOCIATED WITH DESIGNATED FILE OF FILE SERVER ONLY IF THE FILE IS NOT SUBJECT TO BEING MODIFIED BY DIFFERENT PROGRAM

Clinton Brenton Battersby, Stoughton, and James Gerard Luth, Mansfield, both of Mass., assignors to Clinton Battersby, Stoughton, Mass.

Filed Mar. 27, 1996, Ser. No. 624,699

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 395—200.49 **20 Claims**



1 A method for caching data transferred to a client computer over a network pathway from a file server, said method comprising, in combination, the steps of:

providing a cache storage unit connected to said client computer for persistently storing cache files.

executing a program on said client computer which issues file open and file read requests directed to a designated file on said file server, and

providing a redirector program on said client computer for performing the steps of:

responding to each of said file open requests by:

opening said designated file on said file server, and

opening a cache file associated with said designated file on said cache storage unit only if said designated file while open on said file server is not subject to being modified by a different executing program, and

responding to each file read request for specified data in said designated file by:

transferring said specified data to said client computer from said designated file on said file server for use by said program if there is no open cache file corresponding to said designated file which contains said specified data, and

otherwise transferring said specified data to said client computer from said open cache file when said open cache file contains said specified data.

5,740,371

LOAD BALANCING OF CONNECTIONS TO PARALLEL SERVERS

Graham Derek Wallis, Locks Heath, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 18, 1996, Ser. No. 617,461

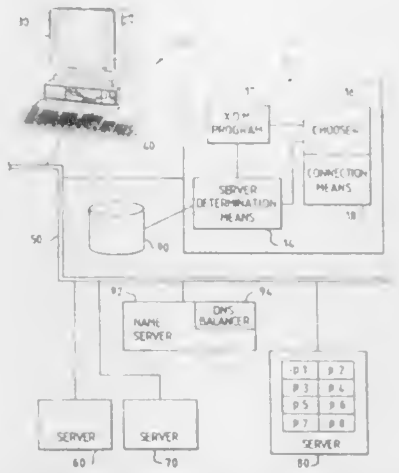
Claims priority, application United Kingdom, Sep. 30, 1995, 9520035

Int. Cl.^{6} G06F *15/16*; H04L *12/26*

U.S. Cl. 395—200.59 **10 Claims**

1. A system for facilitating connection of a terminal (**20**) to a server (**60**, **70**, **80**) to enable the server to perform a task on behalf of the terminal, there being a plurality of servers which the terminal may connect to, and the system comprising:

server determination means (**14**) for retrieving from a storage means (**90**) data identifying the plurality of servers, and for referencing an address conversion means (**92**, **94**) to determine an address currently associated with each server;



chooser means (**16**) for providing information about the plurality of servers to the terminal, the terminal being arranged to display this information so as to enable the user to select one of said servers for connection to the terminal: and

connection means (**18**), responsive to a signal from the terminal indicating a user selection of one of said servers, to initiate connection of the terminal to the selected server:

the system being characterised by

at least one of the plurality of servers having multiple processors, the data in the storage means (**90**) identifying that server being a generic identifier for the processors within that server;

the address conversion means (**92**, **94**) having means (**94**) for periodically identifying one of the processors of that server based on predetermined criteria, and for updating the information in the address conversion means such that at any instant in time, the address associated with the generic identifier is the address of the identified processor; and

the server determination means (**14**) being adapted to recognise any generic identifier, and to reference the address conversion means to determine the address associated with that generic identifier after a user selection of the server corresponding to that generic identifier has been made

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5,740,372

CIRCUIT WHICH DETECTS A SIGNAL IN SUCCESSIVE FRAMES BY FEEDING BACK LOOK UP DATA WITH ONE FRAME DELAY AS ADDRESSES TO LOOK UP MEMORY

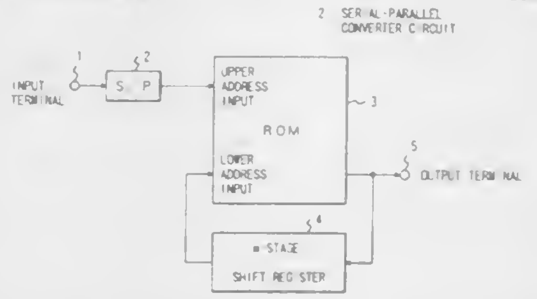
Keiichiro Hijino, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Sep. 11, 1995, Ser. No. 526,213

Claims priority, application Japan, Sep. 26, 1994, 6-229410

Int. Cl.^{6} G06F *15/163*; *13/00*

U.S. Cl. 395—200.61 **15 Claims**



1 A signal detection circuit which receives a data stream containing a signal to be detected, the data stream having frames with P time slots, each time slot having L bits, for detecting said contained to-be-detected signal, said circuit comprising

a memory circuit presenting data for detecting said to-be-detected signal and for outputting, based on first and second

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data inputted as first and second addresses, respectively, data stored in a corresponding storage area;

a serial to parallel converter circuit for serial to parallel converting the data stream into L bit outputs and feeding input data from said converted data stream to said memory circuit as said first data; and

a P-stage shift register for shifting the output data from said memory circuit, and feeding said shifted output data from said memory circuit to said memory circuit as said second data;

said memory circuit outputting a given signal as said output data when said first data is said to-be-detected signal.

5,740,373
PACKET SWITCHING SYSTEM HAVING COMMUNICATION CONTROL UNIT FOR SENDING ACKNOWLEDGMENT TO THE SOURCE UPON RECEIVING THE RECEIVE RESPONSE DATA ASSOCIATED WITH THE LAST CELL

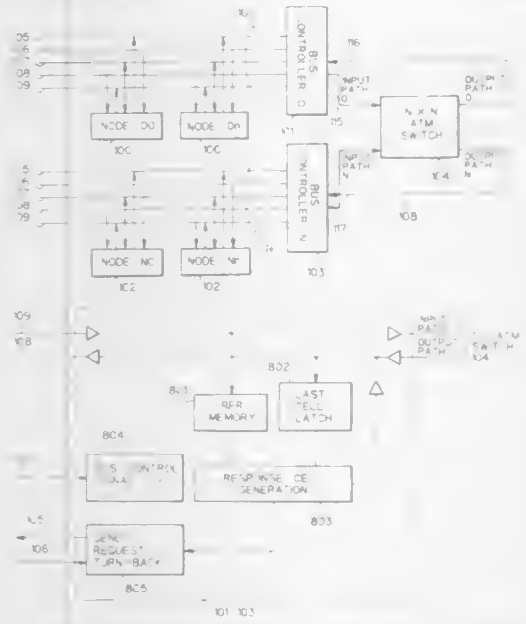
Masazumi Isaka, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 509,901

Claims priority, application Japan, Aug. 2, 1994, 6-181589

Int. Cl.^{6} G06F *13/42*

U.S. Cl. 395—200.67 **18 Claims**



1 A method of switching packets, comprising the steps of

(a) at a source node, dividing a variable length of original data into pieces of data and forming a plurality of cells, each of which has a predetermined length and comprises any of the pieces of data and a header which includes a destination code, a source code, and a sequence code;

(b) sequentially sending the plurality of cells from the source node to a destination node via a communication control unit which controls lines;

(c) at the destination node, receiving the plurality of cells and reconstructing the variable length of original data from the plurality of cells received;

(d) at the communication control unit, detecting the sequence code when each of the plurality of cells arrives from the source node, and detecting a last cell of the plurality of cells on the basis of the sequence code,

(e) at the destination node, when each of the plurality of cells arrives, generating receive response data indicative of whether or not the cell has been normally received by the destination node, and returning a resulting series of receive response data sequentially to the communication control unit;

(f) at the communication control unit, generating, upon receiving the receive response data associated with the last cell, a response cell indicative of how the plurality of cells were received at the destination node on the basis of the series of receive response data and the last cell detected; and

(g) sending the response cell from the communication control unit to the source node to thereby notify the source node of whether or not the plurality of cells have been normally transmitted.

5,740,374
SYSTEM FOR TRANSFERRING MESSAGES VIA DIFFERENT SUB-NETWORKS BY CONVERTING CONTROL CODES INTO REFERENCE CODE COMPATIBLE WITH A REFERENCE PROTOCOL AND ENCAPSULATING THE CODE WITH THE MESSAGE

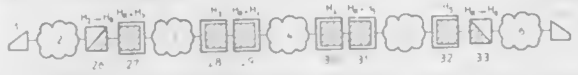
Maria Johanna Elisabeth Raffali-Schreinemachers, The Hague, Netherlands, assignor to Koninklijke PTT Nederland N.V., Groningen, Netherlands

Filed Jul. 6, 1995, Ser. No. 498,907

Claims priority, application Netherlands, Jul. 11, 1994, 9401142

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—200.68 **6 Claims**



1 A system for transmitting an electronic message via a network including various sub-networks which use their own transmission protocol, said message being provided by a source sub-network and source transmission codes relating to said message being generated for transmission with said message, which transmission codes are compatible with the transmission protocol of said source sub-network, after which the message is transferred to a destination sub-network via various intermediate sub-networks, said system comprising:

a first converter for converting said source transmission codes into reference codes which are compatible with a reference protocol, at an interface of the source sub-network and a first said intermediate sub-network;

an encapsulation member in each intermediate sub-network for encapsulating said message and said reference codes with intermediate transmission codes related to the transmission of said message and said reference codes through the respective intermediate sub-network, in the event that the reference codes are not compatible with the transmission protocol of said intermediate sub-network, in order to transfer the message and reference codes in an encapsulated form through the intermediate sub-networks to a destination sub-network, said intermediate transmission codes being compatible with the transmission protocol of the respective intermediate sub-network, and

a second converter for converting said reference codes into transmission codes which are compatible with the transmission protocol of the destination sub-network, after the message and the reference codes are transferred to the destination sub-network by the intermediate sub-networks.

5,740,375
FORWARDING INTERNETWORK PACKETS BY REPLACING THE DESTINATION ADDRESS

James W. Dunne, Boston, and Igor Lasic, Allston, both of Mass., assignors to Bay Networks, Inc., Santa Clara, Calif.

Filed Feb. 15, 1996, Ser. No. 601,779

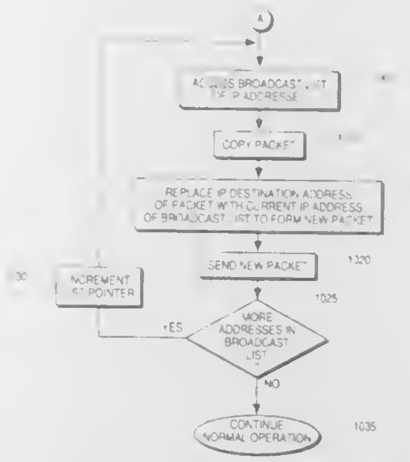
Int. Cl.^{6} H04J *15/00*

U.S. Cl. 395—200.68 **8 Claims**

1 A method for filtering and forwarding local broadcast traffic across network boundaries, comprising:

receiving a local broadcast packet from a source network, said packet having said source network in a destination address field,

copying the local broadcast packet to produce a copied packet;


A
ACCESS BROADCAST LIST OF IP ADDRESSES
COPY PACKET
REPLACE IP DESTINATION ADDRESS OF PACKET WITH CURRENT IP ADDRESS OF BROADCAST LIST TO FORM NEW PACKET
SEND NEW PACKET
1020
INCREMENT LIST POINTER
1025
MORE ADDRESSES IN BROADCAST LIST
YES
NO
CONTINUE NORMAL OPERATION
1035

writing a new address of a destination network to said destination address field of the copied packet, said new address being across a network boundary; and

transmitting the copied packet to the destination network.

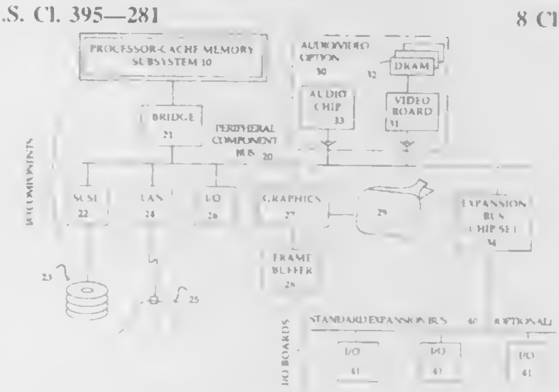
5,740,376
SIGNALING PROTOCOL FOR A PERIPHERAL COMPONENT INTERCONNECT

Dave Carson, Hillsboro; Bruce Young, Tigard; Norman Rasmussen, Hillsboro, all of Oreg.; Stephen Fischer, Rancho Cordova, and Jeffrey Rabe, Fair Oaks, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 467,085, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 876,577, Apr. 30, 1992, Pat. No. 5,467,295. This application Feb. 12, 1997, Ser. No. 799,526

Int. Cl.^{6} G06F *13/372*

U.S. Cl. 395—281 **8 Claims**



1 In a computer system including at least one master device and at least one slave device, a bus for permitting the master to write data to a target slave or read data from the target slave, the bus comprising:

a FRAME# signal line coupled to the at least one master device and coupled to the at least one slave device, for carrying a signal which is asserted by the master having control of the bus;

a DEVSEL# signal line coupled to the at least one master device and coupled to the at least one slave device, the target slave claiming the data transfer by asserting the DEVSEL# signal line, a bridge to a standard bus claiming the data transfer when the DEVSEL# signal line is not asserted,

a STOP# signal line coupled to the at least one master and coupled to the at least one slave device, for the designated target slave to indicate to the master with control of the bus that the data transfer must be terminated.

5,740,377
ELECTRONIC DEVICE FOR COMPUTER

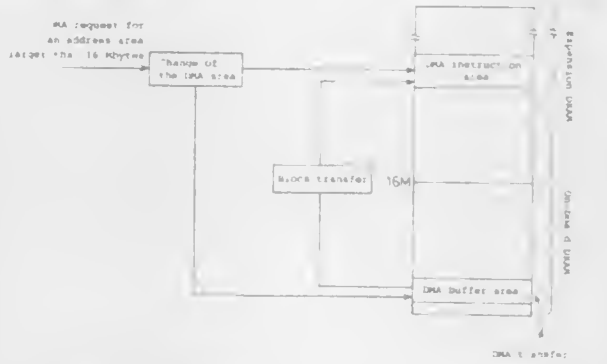
Yoshiiku Sonobe, Nagoya, Japan, assignor to Melco, Inc., Aichi-ken, Japan

Filed Mar. 1, 1996, Ser. No. 609,165

Claims priority, application Japan, Mar. 7, 1995, 7-077200

Int. Cl.^{6} G06F *13/00; 12/00*

U.S. Cl. 395—282 **15 Claims**



1 A computer comprising

a mother board having a first CPU mounted thereon,

an expansion board having a second CPU mounted thereon connected to said mother board, said expansion board being connected to said mother board such that an address and data bus of said second CPU is connected to an address and data bus of said first CPU, said expansion board further including

an expansion memory bus which is connected to a terminal for memory control of said second CPU and which has a bus width wider than a bus width of said address bus of said first CPU;

a memory means allocated in an expanded memory address area expanded by said expansion memory bus; and

a memory control means connected to said expansion memory bus and to a control signal line for memory control, said memory control means causing said second CPU to access said memory means when a memory address specified by said second CPU is in said expanded memory address area, wherein said second CPU controls said computer

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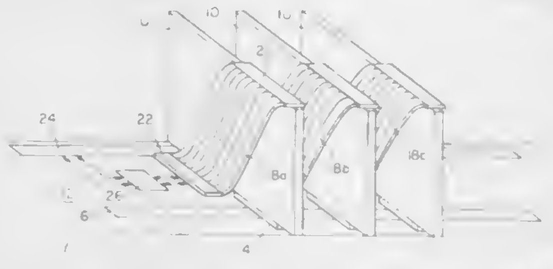
5,740,378
HOT SWAP BUS ARCHITECTURE

F. Christian Rehl, Medway, Mass., and Mark D. Polomski, Hollis, N.H., assignors to VideoServer, Inc., Burlington, Mass.

Filed Aug. 17, 1995, Ser. No. 516,343

Int. Cl.^{6} H01J *13/00*

U.S. Cl. 395—283 **10 Claims**



3 Apparatus for replacing a circuit board in a live communication system without powering down comprising

a backplane including a plurality of first connectors to a first bus and a plurality of second connectors to a second bus

a plurality of circuit boards each coupled to the backplane by one of the plurality of first connectors at a first board edge;

a plurality of data bus cables each removably coupled between one of the circuit boards at a second board edge and one of the second connectors for carrying first and second clock signals and bi directional data signals, and

isolation circuitry mounted on the backplane comprising

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(a) clock circuitry operable to pass first clock signals received from a respective circuit board to the second bus and to pass second clock signals received from the second bus to the respective circuit board, and

(b) switching circuitry operable to pass through bi-directional data signals to and from the second bus and the respective circuit board.

the isolation circuitry being responsive to a selection signal to disable the clock and switching circuitry when the respective circuit board is being replaced such that the second bus is isolated from the circuit board.

5,740,379

METHOD FOR GENERATING UNIQUE ADDRESSES FOR ELECTRICAL DEVICES FROM INPUT BIT PATTERNS BEING VERIFIABLE FOR ADMISSIBILITY

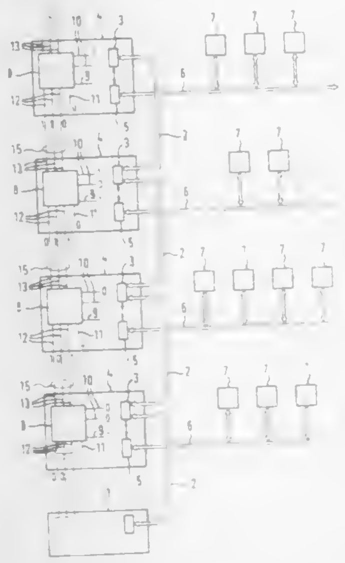
Reinhold Hartwig, Mantel, Germany, assignor to Siemens Aktiengesellschaft, München, Germany

Filed Aug. 15, 1995, Ser. No. 515,481

Claims priority, application Germany, Aug. 19, 1994, 44 29 433.6

Int. Cl.^{6} G06F *12/00;13/00*

U.S. Cl. 395—284 **8 Claims**



1 A method for assigning addresses to an assembly of an electrical device, comprising the steps of:

a) supplying the assembly with an input bit pattern electronically from an upstream assembly, wherein the input bit pattern includes of a number of logical ones and a number of logical zeros;

b) comparing the input bit pattern to a plurality of admissible bit patterns;

c) determining an address assigned to the input bit pattern and activating the assembly when the input bit pattern matches one of the plurality of admissible bit patterns, whereby which the assembly can respond to a bus system;

d) maintaining the number of ones in all of the plurality of admissible bit patterns the same;

e) determining with the assembly an output bit pattern based on the input bit pattern, which output bit pattern includes a number of logical ones and a number of logical zeros; and

f) making the output bit pattern available to a downstream assembly.

5,740,380

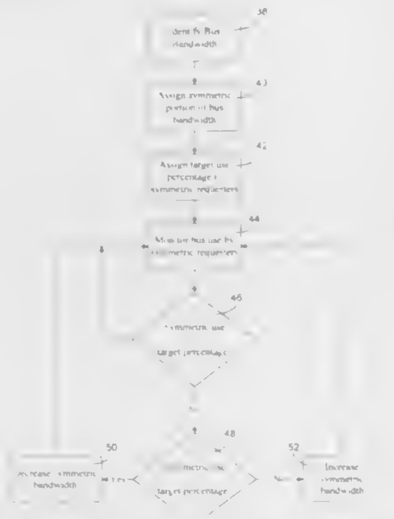
METHOD AND SYSTEM FOR APPORTIONING COMPUTER BUS BANDWIDTH

Paul A. LaBerge, Shoreview; Joe Jeddeloh, Minneapolis, and A. Kent Porterfield, New Brighton, all of Minn., assignors to Micron Electronics, Inc., Nampa, Id.

Filed Jul. 15, 1996, Ser. No. 680,464

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—287 **15 Claims**


38
Identify Bus bandwidth
40
Assign symmetric portion of bus bandwidth
42
Assign target use percentage to symmetric requesters
44
Monitor bus use by symmetric requesters
46
symmetric use
target percentage
48
target percentage
50
Decrease symmetric bandwidth
Yes
52
No
Increase symmetric bandwidth

1 A computer-implemented method of interfacing a plurality of bus requesters with a computer bus having a bus bandwidth, the method comprising:

assigning to a selected one of the bus requesters an initial bus bandwidth portion;

assigning to the selected bus requester a target use percentage of the initial bus bandwidth portion assigned to the bus requester;

monitoring how much at least one of the bus requesters uses the bus within a defined period,

comparing how much the selected bus requester used the bus during the defined period to the target use percentage assigned to the selected bus requester; and

apportioning the bus bandwidth among the plurality of bus requesters by assigning to the selected bus requester a portion of the bus bandwidth based on how much at least one of the bus requesters used the bus during the defined period, wherein the apportioning step assigns a new bus bandwidth portion to the selected bus requester based on how much the selected bus requester used the bus since being assigned the initial bus bandwidth portion and the apportioning step assigns the new bus bandwidth portion for the selected bus requester based on the comparing step.

5,740,381

EXPANDABLE ARBITRATION ARCHITECTURE FOR SHARING SYSTEM MEMORY IN A COMPUTER SYSTEM

Chih-Chan Yen, Hsinchu, Taiwan, assignor to United Microelectronics Corporation, Hsinchu, Taiwan

Filed Dec. 22, 1995, Ser. No. 577,555

Int. Cl.^{6} G06F *13/00;13/36*

U.S. Cl. 395—293 **9 Claims**

1 An expandable arbitration architecture for sharing a system memory suited for a computer system, comprising:

a core logic chip set;

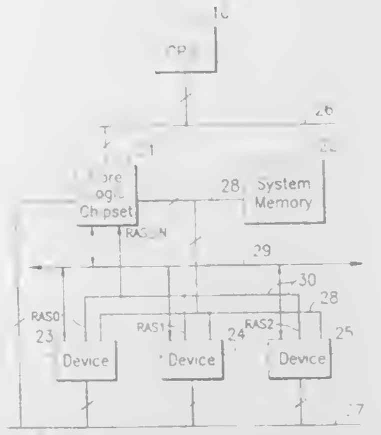
a system memory;

a plurality of peripheral devices;

a shared memory bus for connecting the core logic chip set, the system memory and the plurality of peripheral devices; and

an arbitration bus for connecting the plurality of peripheral devices with the core logic chip set;

wherein



the plurality of peripheral devices include:

request signalling means for generating first and second request signals through the arbitration bus to the core logic chip set for requesting access to the system memory via the shared memory bus; and

grant signal receiving means for receiving a grant signal through the arbitration bus from the core logic chip set for granting access to the system memory,

the plurality of peripheral devices can communicate with the system memory via the shared memory bus,

when one of the plurality of peripheral devices issues a first request signal, the core logic chip set thereafter responds with the grant signal during a first predetermined time interval,

when the one of the plurality of peripheral devices issues the second request signal, the core logic chip set thereafter responds with the grant signal during a second predetermined time interval,

when the core logic chip set requests use of the system memory, the grant signal is ineffective and thereafter first and second request signals are ineffective during a third predetermined time interval, and

a new peripheral device can be electrically connected to the shared memory bus and the arbitration bus thereby expanding the expandable arbitration architecture.

5,740,382

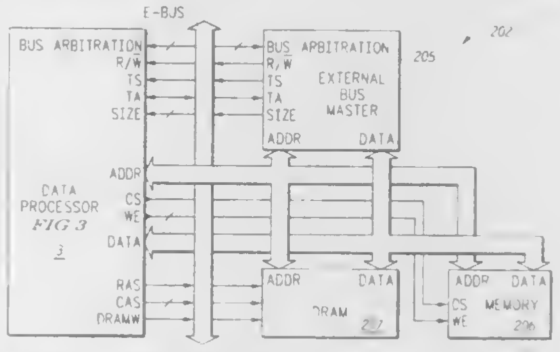
METHOD AND APPARATUS FOR ACCESSING A CHIP-SELECTABLE DEVICE IN A DATA PROCESSING SYSTEM

Nancy G. Woodbridge; Thomas A. Volpe; James G. Gay, and Michael R. Miller, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 28, 1996, Ser. No. 623,482

Int. Cl.^{6} G06F *1/06*

U.S. Cl. 395—293 **26 Claims**



1 A data processor, comprising.

a central processing unit for providing a plurality of internal address signals, a plurality of internal data signals, and a plurality of internal control signals to an internal bus;

an external bus controller for communicating a plurality of external control signals and a plurality of external address signals between the internal bus and at least one device external to the data processor,

a control register for storing an external acknowledge bit that selectively indicates when the data processor should generate a transfer acknowledge signal; and

a memory controller coupled to the internal bus for asserting the transfer acknowledge signal in response to an access initiated by an external bus master when the external acknowledge bit is in a first logic state, for keeping the transfer acknowledge signal in an inactive state in response to an access initiated by the external bus master when the external acknowledge bit is in a second logic state, the memory controller being coupled to the control register for receiving the external acknowledge bit and coupled to the external bus controller for providing the transfer acknowledge signal

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5,740,383

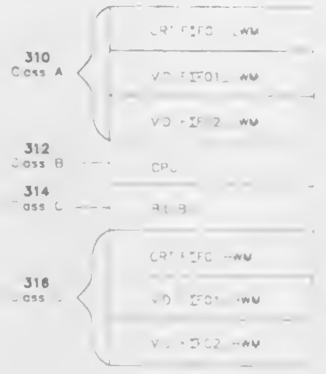
DYNAMIC ARBITRATION PRIORITY

Robert Marshall Nally; Pete Edward Nelsen, both of Plano; Douglas Hamilton, Allen, and Douglas Michael Berk, Plano, all of Tex., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Dec. 22, 1995, Ser. No. 577,351

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—296 **42 Claims**



1. Arbitration circuitry in a computer system, comprising

a first device having a predetermined high water mark and a predetermined low water mark associated therewith, first selected activity at the low water mark causing the first device to issue a first request having a first priority, second selected activity at the high water mark causing the first device to issue a second request having a second priority,

circuitry for granting the first request; and

circuitry for chaining the second request to the first request

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5,740,384

INTERACTIVE MULTIMEDIA SYSTEM USING ACTIVE BACKPLANE HAVING PROGRAMMABLE INTERFACE TO RECONFIGURE THE MEDIA STREAM PRODUCED BY EACH COMPONENT

Abhaya Asthana, Berkeley Heights, and Venkatesh Krishnaswamy, Highland Park, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 242,384, May 13, 1994, abandoned. This application Feb. 16, 1996, Ser. No. 603,022

Int. Cl.^{6} G06F *13/36 13/00*

U.S. Cl. 395—306 **31 Claims**

1 A system for integrating media streams to provide a variety of real time services, the system comprising:

a plurality of autonomous, intelligent components for performing basic functions, each component containing a set of predefined resources having a given set of properties within memory associated with the component, each component further having an independent execution thread associated therewith for managing the resources, said thread containing

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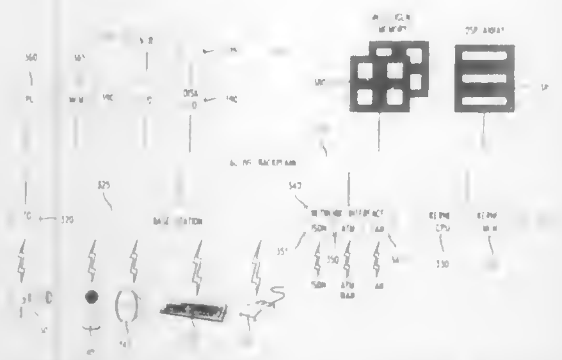


information representative of the functioning, input/output (I/O) capabilities, execution requirements and limitations of the component with which said thread is associated, and

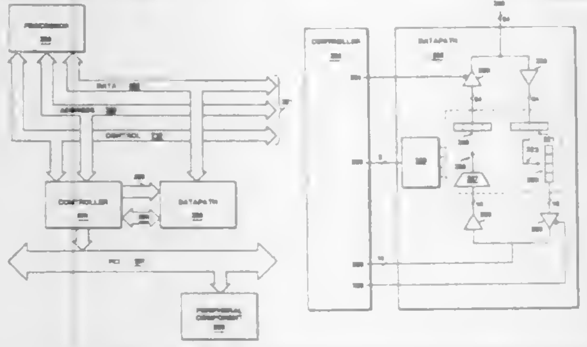
an active backplane including one or more programmable interfaces which receive each of the components, the interface and each of the components being combined to form a basic service for performing a particular operation which is operable independent from the other components, said basic service receiving process and control flow information from the active backplane, said basic service being autonomous, self managing and capable of directly initiating interactions with other services over said active backplane to implement at least a one of said real-time services wherein said backplane contains control logic capable of reconfiguring the media streams produced by each component.

5,740,385
LOW LOAD HOST/PCI BUS BRIDGE

George R. Hayek, Cameron Park; Brian K. Langendorf, El Dorado Hills, both of Calif.; Aniruddha Kundu, Hillsboro, Oreg.; Kuljit S. Bains, Folsom, Calif., and Gary A. Solomon, Hillsboro, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 19, 1994, Ser. No. 358,359
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—308 **53 Claims**



1 A bridge for coupling a first bus operating at a first bus speed to a second bus operating at a second bus speed, said bridge comprising:

a controller coupled to said first bus to transfer an address from said first bus,

a datapath coupled to said first bus to transfer data from said first bus; and

a plurality of signal lines coupled to said second bus, said second bus being capable of supporting only a finite number of loads, each signal line of said plurality of signal lines to transfer at least a portion of both said address and said data to said second bus, said plurality of signal lines contributing a first amount of load on said second bus that is less than a second amount of load that would be contributed on said second bus if each signal line of said plurality of signal lines were dedicated to transferring only said portion of said address.

5,740,386
ADAPTIVE EXPANSION BUS

Kevin L. Miller, and Victor K. Pecone, both of Austin, Tex., assignors to Dell USA, L.P., Round Rock, Tex.

Filed May 24, 1995, Ser. No. 449,501
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—308 **22 Claims**

1 A bus system comprising:

a first bus, the first bus conforming to a bus standard;

a second bus, the second bus being physically and electrically separate from the first bus, the second bus conforming to the bus standard;

a switch coupled to the first bus and second bus, the switch being electrically controllable for selectively connecting the first bus and the second bus to provide a single bus;

a first terminator, the first terminator being coupled to the first bus physically adjacent the switch, the first terminator being active when the switch circuit is inactive; and

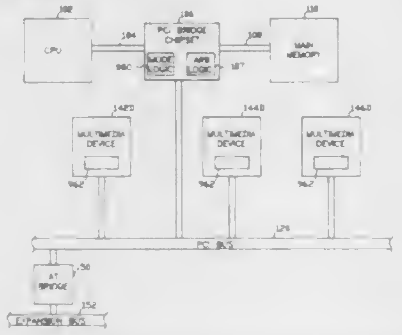
a second terminator, the second terminator being coupled to the second bus physically opposite the switch.

5,740,387
COMPUTER SYSTEM HAVING AN EXPANSION BUS WHICH INCLUDES NORMAL AND REAL TIME MODES

Andy Lambrecht, and Drew Dutton, both of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 559,661, Nov. 20, 1995. This application May 17, 1996, Ser. No. 649,539
Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—309 **18 Claims**



1 A computer system including a bus which is operable in either a normal mode or a real time mode, comprising

a CPU;

main memory coupled to the CPU which stores data accessible by the CPU;

bridge logic coupled to the CPU and to the main memory, wherein the bridge logic includes a memory controller coupled to the main memory and also includes expansion bus interface logic,

an expansion bus coupled to the bridge logic,

a plurality of multimedia devices coupled to said expansion bus, wherein each of said multimedia devices perform operations on said expansion bus, wherein each of said multimedia devices includes expansion bus interface logic for accessing said expansion bus and performing data transfers on said expansion bus; and

wherein said bridge logic includes mode logic coupled to provide a real time mode signal onto said expansion bus, wherein said real time mode signal indicates either a normal mode or a real time mode, wherein said expansion bus is operable in either said normal mode or said real time mode in response to said real time mode signal

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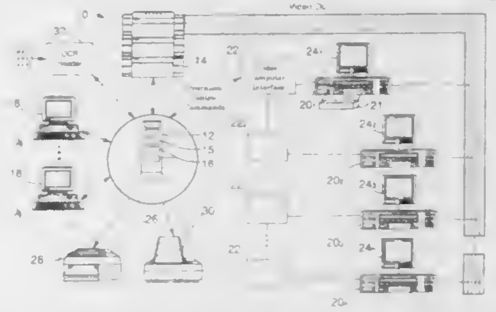
5,740,388
APPARATUS FOR CREATING INDIVIDUALLY CUSTOMIZED VIDEOS

Gregory W. Hunt, West Chester, Pa., assignor to Custom Communications, Inc., West Chester, Pa.

Filed May 10, 1996, Ser. No. 644,471
Int. Cl.^{6} G06T *1/00*

U.S. Cl. 395—328 **16 Claims**



1 An apparatus for creating individually customized video products, the apparatus comprising:

(a) a video file server for storing a plurality of video segments and adapted to simultaneously output the same or different stored video segments on plural video output channels;

(b) at least one computer workstation having a display and input means for interaction with a user;

(c) a plurality of video recorders connected to respective video output channels of the video file server, each video recorder being adapted to receive video segments therefrom and make a recording of the received segments on a portable storage medium inserted therein, the recorded portable storage medium being the video product; and

(d) a central computer connected to the video file server, the computer workstation and the plurality of video recorders, the central computer including:

  (i) means for prompting a user on the workstation display to enter information into the input means of the workstation, the information including selection choices,

  (ii) means for selecting and ordering a subset of video segments on the video file server corresponding to the entered selection choices, each selected video segment being directly related to the entered information,

  (iii) means for controlling the video file server to output the selected and ordered subset to one or more of the video recorders, and

  (iv) means for controlling the state of the video recorders in coordination with the video file server

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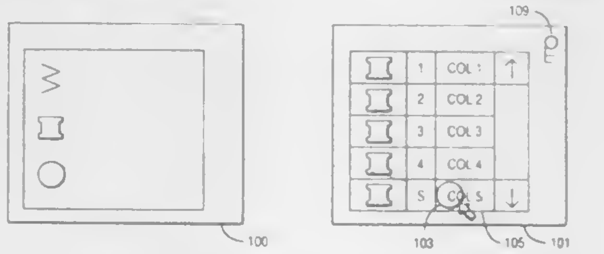
5,740,389
SCROLLING A TARGET WINDOW DURING A DRAG AND DROP OPERATION

Shih-Gong Li, and Theodore Jack London Shrader, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 174,507, Dec. 23, 1993, Pat. No. 5,548,702. This application May 14, 1996, Ser. No. 647,504
Int. Cl.^{6} G06F *3/14*

U.S. Cl. 395—346 **18 Claims**



1 A method for transferring a graphical object in a graphical user interface on a computer display from a source window to a target window, comprising the steps of

responsive to user input, dragging a graphical object from a source location in a source window to a position proximate to an internal boundary of the source window;

determining that the graphical object is native to the source window;

responsive to the determination that the graphical object is native to the source window, preventing scrolling of the source window to allow the graphical object past the interior boundary of the source window;

responsive to user input, dragging the graphical object to a position proximate to an interior boundary of a target window;

determining that the graphical object is foreign to the target window;

responsive to the determination that the graphical object is foreign to the target window, scrolling the target window so long as the graphical object is present at the interior boundary of the target window; and

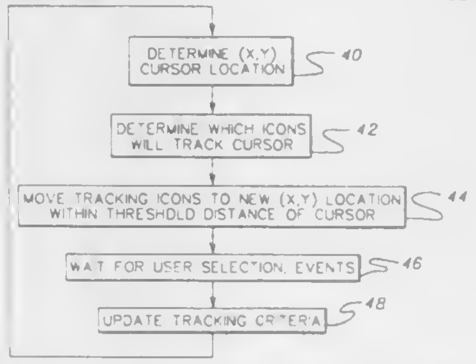
locating the graphical object at a target location in the target window.

5,740,390
METHOD AND SYSTEM FOR FACILITATING THE SELECTION OF ICONS

Clifford A. Pickover, Yorktown Heights, and Michael Stephen Schwartz, Bronx, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 227,149, Apr. 13, 1994, Pat. No. 5,564,004. This application Sep. 17, 1996, Ser. No. 715,158
Int. Cl.^{6} G06F *3/00*

U.S. Cl. 395—348 **12 Claims**


DETERMINE (X,Y) CURSOR LOCATION
40
DETERMINE WHICH ICONS WILL TRACK CURSOR
42
MOVE TRACKING ICONS TO NEW (X,Y) LOCATION WITHIN THRESHOLD DISTANCE OF CURSOR
44
WAIT FOR USER SELECTION EVENTS
46
UPDATE TRACKING CRITERIA
48

1 A method for facilitating selection of one of a plurality of icons located on a computer display said method comprising the steps of

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moving a cursor located on said computer display within a predetermined distance from an icon to be selected, said predetermined distance being close to, but not touching said icon, and

selecting said icon when said cursor has moved within said predetermined distance

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5,740,391

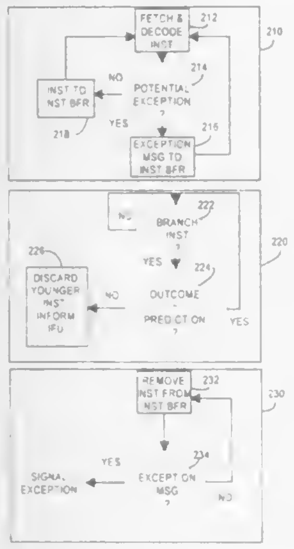
PREVENTING PREMATURE EARLY EXCEPTION SIGNALING WITH SPECIAL INSTRUCTION ENCODING

Douglas B. Hunt, Fort Collins, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Filed Mar. 1, 1996, Ser. No. 609,207

Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—376 **19 Claims**



1. A computing system for preventing premature signaling of early exceptions, said system comprising:

an instruction fetch unit for fetching an instruction from an instruction cache, said instruction fetch unit comprising:

early exception detection means for determining whether execution of said instruction will result in an early exception condition if executed, and

insertion means for inserting an instruction code encoded as an early exception message into an instruction buffer if said early exception detection means determines that said instruction will result in an early exception condition if executed and for inserting an instruction code encoded as said instruction into said instruction buffer if said early exception detection means determines that said instruction will not result in an early exception condition if executed,

an execution unit for executing said instruction code if said instruction code is encoded as said instruction; and

an instruction retire unit comprising:

instruction removal means for removing said instruction code from said instruction buffer in program order:

decoding means for decoding said instruction code; and

early exception signaling means for signalling an early exception if said instruction code is an encoded early exception message

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5,740,392

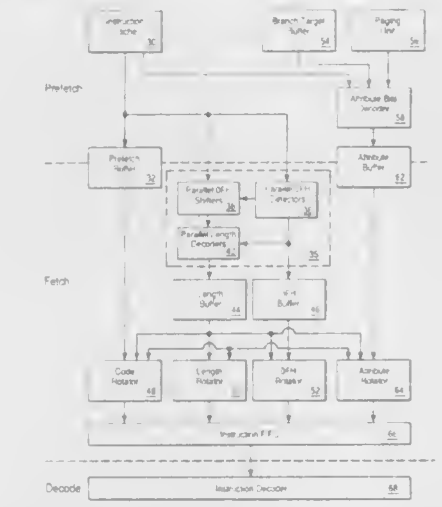
METHOD AND APPARATUS FOR FAST DECODING OF 00H AND OFH MAPPED INSTRUCTIONS

Bob Brennan, Saratoga, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 27, 1995, Ser. No. 579,419

Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—386 **24 Claims**



1. An apparatus for decoding the length of variable length instructions embedded in an instruction stream without differentiation, each instruction including one or more blocks, wherein some types of blocks contain no instruction length information, the apparatus comprising.

a detector coupled to receive a first block of the instruction stream, wherein the detector generates a detector signal that indicates whether or not the first block contains instruction length information,

a shifter coupled to the detector, wherein the shifter selects a first plurality of blocks including the first block if the first block contains length information, wherein the shifter selects a second plurality of blocks not including the first block if the first block does not contain length information; and

a length decoder, coupled to the shifter, for decoding an instruction length indicated by the selected plurality of blocks.

5,740,393

INSTRUCTION POINTER LIMITS IN PROCESSOR THAT PERFORMS SPECULATIVE OUT-OF-ORDER INSTRUCTION EXECUTION

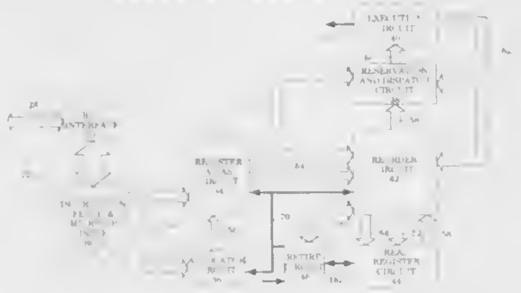
Rohit A. Vidwans, Beaverton; Darrell D. Boggs, Aloha; Michael A. Fetterman, and Andrew F. Glew, both of Hillsboro, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 138,470, Oct. 15, 1993, abandoned.

This application Sep. 30, 1996, Ser. No. 723,286

Int. Cl.^{6} G06F *9/38;9/30*

U.S. Cl. 395—391 **53 Claims**



1. A method for enforcing an instruction pointer limit in an out-of-order processor, comprising the steps of:

reading a set of reorder buffer entries, the reorder buffer entries storing a set of result data values from out-of-order speculative execution of a set of instructions, wherein the reorder buffer entries comprise a first and a second reorder buffer entry, a first instruction corresponding to the first reorder buffer entry occurring before a second instruction corresponding to the second reorder buffer entry;

determining a speculative instruction pointer for each reorder buffer entry, wherein a first speculative instruction pointer for the first reorder buffer entry is determined by adding an instruction pointer to an instruction pointer delta value from the first reorder buffer entry that indicates a length of the first instruction, and a second speculative instruction pointer for the second reorder buffer entry is determined by adding the instruction pointer to the instruction pointer delta value for the first instruction and an instruction pointer delta value from the second reorder buffer entry that indicates a length of the second instruction;

determining whether each speculative instruction pointer exceeds the instruction pointer limit; and

committing the result data value of each reorder buffer entry to the architectural state if the speculative instruction pointer for the result data value does not exceed the instruction pointer limit.

5,740,394

APPARATUS FOR TRANSFERRING DATA DIVIDED INTO BLOCKS WITH ADDRESS BOUNDARIES

Harumi Minemura, and Shunichiro Nakamura, both of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

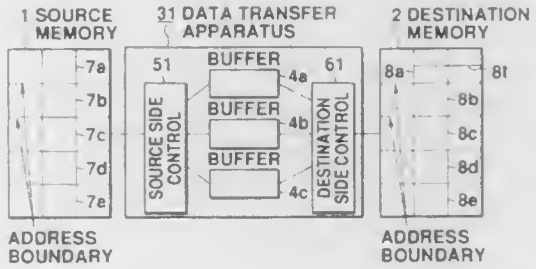
Continuation of Ser. No. 311,575, Sep. 23, 1994, abandoned.

This application Apr. 23, 1997, Ser. No. 844,993

Claims priority, application Japan, Oct. 7, 1993, 5-251495

Int. Cl.^{6} G06F *12/02*

U.S. Cl. 395—411 **4 Claims**



1. A data transfer apparatus for transferring data between a source memory and a destination memory each having a number of data blocks separated by address boundaries, each data block having a capacity to hold an amount of data, the apparatus comprising:

(a) three or more buffers for temporarily storing the data being transferred, wherein each buffer has a capacity to hold at least as much data as each data block;

(b) source side control means situated between said buffers and the source memory for switching said buffers and for transferring the data in units of blocks in such a manner that a head of one of the buffers coincides with an address boundary of the source memory; and

(c) destination side control means situated between said buffers and the destination memory for switching said buffers and for controlling the transfer of the data in units of blocks; wherein after data from a first data block is transferred from the source side control means to the buffers, said destination side control means transfers data to the destination memory simultaneously when said source side control means transfers data to the buffers, whether or not a source memory address boundary of the first data block coincides with a destination address boundary

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5,740,395

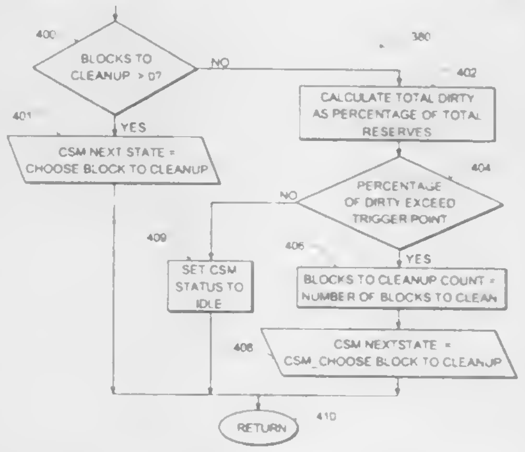
METHOD AND APPARATUS FOR CLEANING UP A SOLID STATE MEMORY DISK STORING FLOATING SECTOR DATA

Steven Wells, Citrus Heights, and Robert N. Hasbun, Shingle Springs, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Oct. 30, 1992, Ser. No. 969,760

Int. Cl.^{6} G06F *12/02*

U.S. Cl. 395—430 **30 Claims**


400
BLOCKS TO CLEANUP > 0?
NO
380
402
CALCULATE TOTAL DIRTY AS PERCENTAGE OF TOTAL RESERVES
401
YES
CSM NEXT STATE = CHOOSE BLOCK TO CLEANUP
404
NO
PERCENTAGE OF DIRTY EXCEED TRIGGER POINT
409
406
YES
SET CSM STATUS TO IDLE
BLOCKS TO CLEANUP COUNT = NUMBER OF BLOCKS TO CLEAN
408
CSM NEXTSTATE = CSM_CHOOSE BLOCK TO CLEANUP
RETURN
410

1. A method of cleaning up a solid state memory disk, the solid state memory disk communicating with a host computer via a conventional disk drive interface, the solid state memory disk including a multiplicity of nonvolatile semiconductor memory devices, each nonvolatile semiconductor memory device including a multiplicity of blocks and wherein each nonvolatile semiconductor memory device is erasable only in blocks, each block storing valid sectors and dirty sectors, the method of cleaning up comprising the steps of:

a) selecting a first block to clean-up;

b) allocating a sufficient amount of memory in a second block to store a valid sector located within the first block;

c) checking whether an amount of data remaining to be copied from the first block exceeds a threshold,

d) copying the data from the first block to the second block if the amount of data remaining to be copied from the first block does not exceed the threshold, otherwise copying a portion of the data remaining to be copied from the first block to the second block;

e) repeating steps c) and d) until all of the valid sectors from the first block have been copied to the second block; and

f) erasing the first block

5,740,396

SOLID STATE DISK DEVICE HAVING A FLASH MEMORY ACCESSED BY UTILIZING AN ADDRESS CONVERSION TABLE TO CONVERT SECTOR ADDRESS INFORMATION TO A PHYSICAL BLOCK NUMBER

Colin Mason, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 598,535

Claims priority, application Japan, Feb. 16, 1995, 7-028287

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—430 **16 Claims**

1. A semiconductor disk device comprising

a non-volatile, electronically programmable and erasable flash memory including a plurality of blocks, each block having a plurality of sectors and being a unit of erasure for the flash memory,

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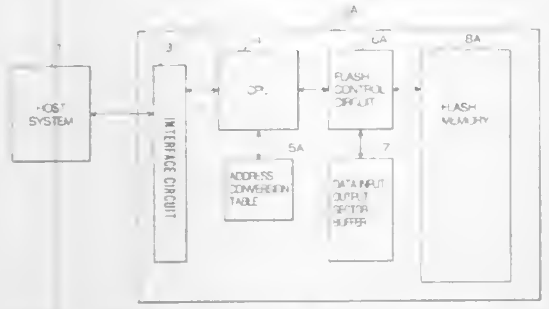

interface means for exchanging data and addresses with an external system;

an address conversion table for converting sector address information input from the external system into a physical block number for identifying a block of the plurality of blocks, and

means for converting the sector address information input from the external system into the physical block number, by referring to the address conversion table, and for accessing the flash memory according to the physical block number

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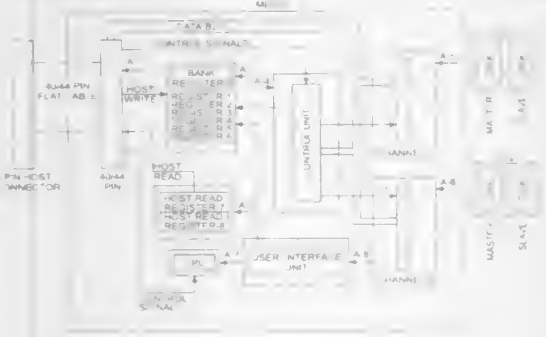
5,740,397
IDE DISK DRIVE ADAPTER FOR COMPUTER BACKUP AND FAULT TOLERANCE

Itzik Levy, Hollywood, Fla., assignor to ARCO Computer Products, Inc., Hollywood, Fla.

Filed Oct. 11, 1995, Ser. No. 540,765

Int. Cl.^{6} G06F *11/16*

U.S. Cl. 395—441 **7 Claims**



1 An adapter for use in a computer system, the computer system including at least an IDE connector, a pre-existing IDE interface controller on a motherboard and a plurality of drives, the adapter comprising:

means for connecting the adapter via the IDE connector simultaneously to both the IDE interface controller and the plurality of drives and for enabling the adapter to monitor information transmitted between the IDE interface controller and the plurality of drives,

means for determining whether each of the plurality of drives is serviceable.

means for determining whether data on each of the plurality of drives are equal.

means for directing identical data to each of the plurality of drives when data on each of the plurality of drives are equal.

means for preventing data from being directed to at least one of the plurality of drives when data on each of the plurality of drives are not equal, and

means for selecting one of the plurality of drives as a drive from which to read data.

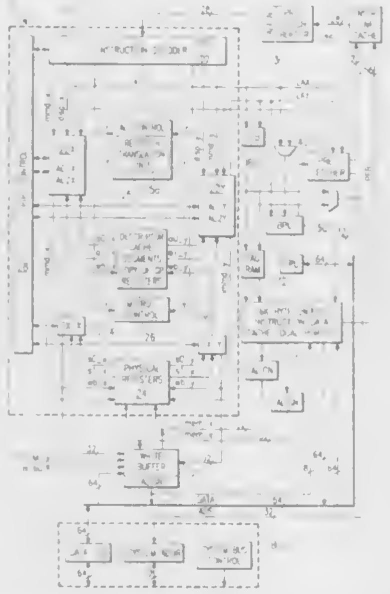
5,740,398
PROGRAM ORDER SEQUENCING OF DATA IN A MICROPROCESSOR WITH WRITE BUFFER

Marc A. Quattromani, Allen, and Nital Patwa, Richardson, both of Tex., assignors to Cyrix Corporation, Richardson, Tex.

Filed Oct. 18, 1993, Ser. No. 138,651

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 395—444 **7 Claims**



1 A microprocessor, comprising

a central processing unit core, for processing data according to operations defined by executable instructions in a program order to produce results,

a write buffer, comprising a plurality of buffer entries, and coupled to said central processing unit core for receiving data therefrom corresponding to the results of said instructions, said plurality of buffer entries arranged in first and second sections;

a cache having a plurality of locations, said cache coupled to said write buffer for receiving data therefrom, and coupled to said central processing unit core for presenting data thereto,

a memory bus, coupled to said cache, for receiving data from and presenting data to said cache;

control logic for controlling the presenting of data from said write buffer to said cache so that the results of said instructions stored in the write buffer are presented to said cache in the program order.

each buffer entry in said first and second sections including a plurality of cross-dependency control bits, each cross dependency control bit corresponding to one of the buffer entries in the second and first sections, respectively and indicating, when set, that the corresponding buffer entry was allocated in advance thereof and its contents have not yet been presented to said cache, and

said control logic presents the data of each write buffer entry to said cache only when its cross-dependency control bits are clear

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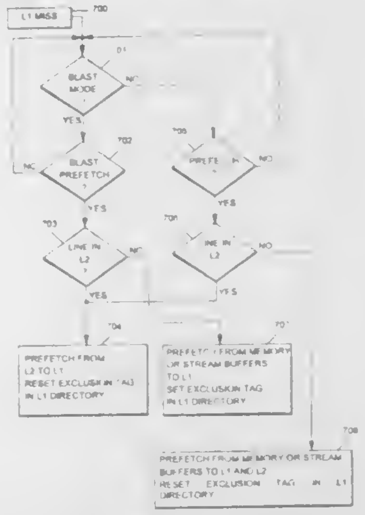
5,740,399
MODIFIED L1/L2 CACHE INCLUSION FOR AGGRESSIVE PREFETCH

Michael John Mayfield, Austin; Trinh Huy Nguyen, Pflugerville; Robert James Reese, and Michael Thomas Vaden, both of Austin, all of Tex., assignors to International Business Machines Corporation

Filed Aug. 23, 1995, Ser. No. 518,348

Int. Cl.^{6} G06F *12/08*

U.S. Cl. 395—464 **5 Claims**


L1 MISS
700
BLAST MODE
NO
YES
702
BLAST PREFETCH
NO
YES
703
LINE IN L2
NO
YES
PREFETCH
NO
YES
LINE IN L2
NO
YES
704
PREFETCH FROM L2 TO L1
RESET EXCLUSION TAG IN L1 DIRECTORY
PREFETCH FROM MEMORY OR STREAM BUFFERS TO L1
SET EXCLUSION TAG IN L1 DIRECTORY
708
PREFETCH FROM MEMORY OR STREAM BUFFERS TO L1 AND L2
RESET EXCLUSION TAG IN L1 DIRECTORY

5 In a data processing system, a method for prefetching data into a primary cache, wherein said primary cache is associated with a processor, and wherein a secondary cache is also associated with said processor and said primary cache, said method comprising the steps of,

receiving a request for a cache line N from said processor;

in response to said request, determining if said cache line N resides in said primary cache,

if said cache line N does not reside in said primary cache, determining if said cache line N resides in said secondary cache; and

if said cache line N does not reside in said secondary cache, fetching said cache line and prefetching cache line N+1 into said primary cache and not into said secondary cache.

5,740,400
REDUCING CACHE SNOOPING OVERHEAD IN A MULTILEVEL CACHE SYSTEM WITH MULTIPLE BUS MASTERS AND A SHARED LEVEL TWO CACHE BY USING AN INCLUSION FIELD

James E. Bowles, Austin, Tex., assignor to Advanced Micro Devices Inc., Sunnyvale, Calif.

Filed Jun. 5, 1995, Ser. No. 462,985

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—471 **3 Claims**

1. A method of reducing cache snooping overhead in a two-level cache system with a first bus master, a second bus master, a first level 1 cache connected to said first bus master via a first internal bus, a second level 1 cache connected to said second bus master via a second internal bus, a shared level 2 cache connected to said first level 1 cache and said second level 1 cache and a main memory, the method comprising the steps of.

monitoring said first internal bus by said first level 1 cache for a memory read request by said first bus master;

detecting said memory read request on said first internal bus by said first level 1 cache;

determining if said first level 1 cache can process said memory read request by determining if a tag-address of said memory read request corresponds to a tag-address for each of a plurality of storage locations in said first level 1 cache.

processing said memory read request if a correspondence is found in said first level 1 cache.

comparing said tag address of said memory read request to a tag-address for each of a plurality of storage locations of said shared level 2 cache if said first level 1 cache cannot process said memory read request;

if there is a correspondence in said shared level 2 cache, checking an inclusion field for a corresponding storage location in said shared level 2 cache to determine if said second level 1 cache contains the tag-address corresponding to said memory read request;

if said second level 1 cache contains the tag-address corresponding to said memory read request, obtaining data corresponding to the corresponding tag-address of said memory read request from said second level 1 cache and storing said corresponding data in said shared level 2 cache:

writing said corresponding data from said shared level 2 cache to a storage location within said first level 1 cache.

writing said corresponding data from said first level 1 cache to said first bus master; and

updating an inclusion field for said corresponding storage location within said shared level 2 cache to indicate that said corresponding data resides in both said first level 1 cache and said second level 1 cache

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5,740,401
MULTIPROCESSOR SYSTEM HAVING A PROCESSOR INVALIDATING OPERAND CACHE WHEN LOCK-ACCESSING

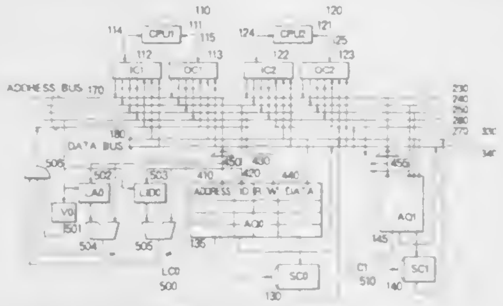
Makoto Hanawa, Niiza; Tadahiko Nishimukai, Sagamihara; Osamu Nishii, Kokubunji, and Makoto Suzuki, Niiza, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 26, 1993, Ser. No. 9,077

Claims priority, application Japan, Jan. 31, 1992, 4-015912

Int. Cl.^{6} G06F *12/14; 12/08*

U.S. Cl. 395—479 **3 Claims**



1 A multiprocessor system comprising

a memory;

a bus including a first bus for sending a memory access request to said memory and a second bus for returning data read from said memory in response to said memory access request;

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a plurality of processors connected to each other through said bus, each of said plurality of processors having an instruction cache and an operand cache,

said memory being connected to said plurality of processors via said bus;

a memory access control circuit connected to said plurality of processors via said bus, including a flag register, an address register, an identification number register, and a signal gate circuit; and

an access queue connected to said bus and said memory, constituted by a first-in-first-out (FIFO) memory;

wherein a bus ownership of said first bus is arbitrated independently of a bus ownership of said second bus, said first bus and said second bus being provided with respective, separate arbiters;

wherein in each processor, in the case of lock accessing data, said processor invalidates data in said operand cache included in said processor, the invalidated data corresponding to locked data in said memory;

wherein each of said plurality of processors sends an identification number, a read/write signal and a lock signal to said first bus at the same cycle as said processor sends an access request address to said first bus, after acquiring a bus ownership of said first bus, and said first bus is released after the cycle;

wherein said memory stores data shared by said processors;

wherein said FIFO memory stores access request addresses, identification numbers and read/write signals transmitted through said first bus and write data of write access requests sent from one of said plurality of processors to said second bus,

wherein data read from said memory and one of said identification number stored in said FIFO memory are sent to said second bus after acquiring a bus ownership of said second bus;

wherein said flag register registers a flag indicating said lock access responsive to said lock signal on said first bus;

wherein said address register registers a lock access address;

wherein said identification number register registers an identification number of a processor which requests a lock access;

wherein an address comparator compares an address registered in said address register with an address on said first bus;

wherein an identification number comparator compares an identification number registered in said identification number register with an identification number on said first bus;

wherein said signal gate circuit is supplied with an output from said flag register, an output from said address comparator and an output from said identification number comparator;

wherein, when said flag indicating said lock access is set in said flag register, a signal for rejecting acceptance of a memory access request and for prompting access retry is generated as an output from said signal gate circuit of said memory access control circuit when an address registered in said address register coincides with an address on said first bus and when an identification number registered in said identification number register does not coincide with an identification number on said first bus; and

wherein, when said flag indicating said lock access is set in said flag register, a signal for accepting a memory access request is generated as an output from said signal gate circuit of said memory access control circuit when an address registered in said address register does not coincide with an address on said first bus.

5,740,402

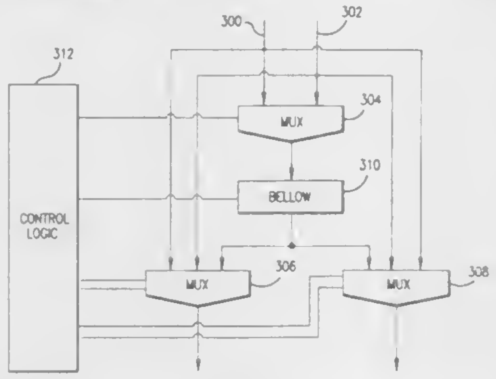
CONFLICT RESOLUTION IN INTERLEAVED MEMORY SYSTEMS WITH MULTIPLE PARALLEL ACCESSES

Joseph P. Bratt, San Jose; John Brennen, Mountain View; Peter Y. Hsu, Fremont; Joseph T. Scanlon, Sunnyvale; Man Kit Tang, Milpitas, all of Calif., and Steven J. Ciavaglia, Willinston, Vt., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Continuation of Ser. No. 168,827, Dec. 15, 1993, abandoned. This application Jun. 13, 1995, Ser. No. 487,240

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—484 7 Claims



1 In a processor capable of issuing more than one memory operation per cycle and having an interleaved memory system with a plurality of pipelined memory banks, a memory request conflict resolution system comprising:

a cross-connect switch for routing at least one memory request to at least one of the plurality of banks;

an address register coupled to the cross-connect switch for temporarily storing a selected memory request; and

control logic coupled to the cross-connect switch and the address register to reorder a sequence of memory requests to maximize the occurrence of alternating memory bank requests to avoid bank request conflicts in the same cycle,

wherein, the reordering maintains priority of memory requests as originally assigned by a single instruction stream, and

wherein, the pipelined memory banks allow each memory bank to be accessed once per cycle, eliminating a bank busy condition.

5,740,403

PROCESS CIRCUIT & SYSTEM FOR PROTECTING AN INTEGRATED CIRCUIT AGAINST FRAUDULENT USE

Jacek Kowalski, Trets, France, assignor to Gemplus Card International, Gemenos, France

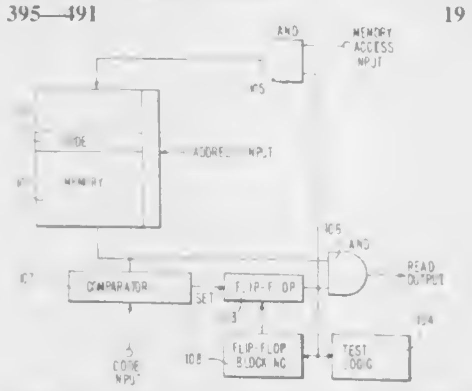
PCT No. PCT/FR92/00157, § 371 Date Jul. 14, 1993, § 102(e) Date Jul. 14, 1993, PCT Pub. No. WO92/15074, PCT Pub. Date Sep. 3, 1992

PCT Filed Feb. 18, 1992, Ser. No. 90,117

Claims priority, application France, Feb. 19, 1991, 91 01933

Int. Cl.^{6} G06F *12/14*

U.S. Cl. 395—491 19 Claims



1 A process for protecting an integrated circuit against unauthorized use, said integrated circuit incorporating a memory, comprising the steps of during manufacture of the integrated circuit, while the integrated circuit is on a single wafer with other integrated circuits entering a secret code implemented physically in at least one secret address of the memory, by means of the geometery of at least one of the masks used to manufacture said integrated circuit, and provide comparison means within the integrated circuit to lock out at least a writing input of the memory until said comparison means receives on an input the contents of said secret address, and means to enter a code to be compared with said stored code at said address, and if said codes be identical, then running out an unlocking operation.

5,740,404

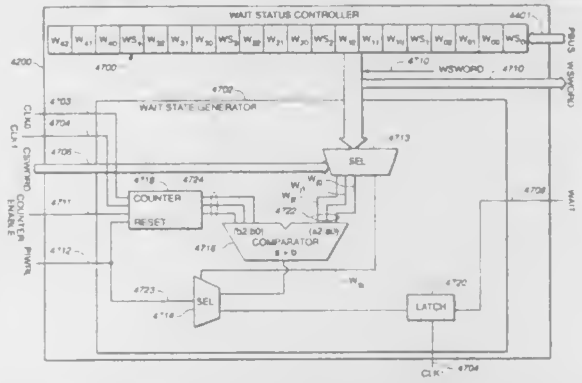
DIGITAL SIGNAL PROCESSOR WITH ON-CHIP SELECT DECODER AND WAIT STATE GENERATOR

Toru Baji, San Jose, Calif., assignor to Hitachi America Limited, Tarrytown, N.Y.

Filed Sep. 27, 1993, Ser. No. 127,682

Int. Cl.^{6} G06F *12/00; 13/00; 1/04*

U.S. Cl. 395—494 9 Claims



1 A parallel interface for communicating on an external address bus and an external data bus with an external memory and for use in a digital signal processor having a plurality of separate internal data busses and internal address busses, said external memory having a particular memory configuration selected from among a plurality of memory configurations, said parallel interface comprising:

means for selectably routing an address from a specific address bus of said internal address busses onto said external address bus and routing data between a specific data bus of said internal data busses and said external data bus when access to said external memory is requested,

a chip select decoder having

a programmable chip select mode register for storing a mode configuration word that identifies said particular memory configuration from among said plurality of memory configurations; and

a decoder circuit, responsive to both a plurality of bits of said address and said mode configuration word, for generating a chip select signal to enable a specific memory device of said external memory to be accessed with said address on said external address bus so as to receive or provide said data on said external data bus; and

a wait status controller for generating an output wait release signal to indicate when said specific memory device is available for being accessed,

said wait status controller having

a programmable wait state control register for storing a corresponding wait state packet for each memory device of said external memory, said wait state packet comprising a wait status indicator and a wait state count, said wait status indicator when set to a first predefined value indicating internal wait state generation and when set to a second predefined value indicating external wait state generation, said wait state count representative of a delay prior to allowing access to a corresponding memory device of said external memory,

a first selector, responsive to said chip select signal from said decoder circuit, for selecting a wait state packet stored in said programable wait state control register corresponding to said specific memory device;

a counter for generating a count of machine cycles of said digital signal processor when access to said external memory is requested;

a comparator for comparing said wait state count of said selected wait state packet and said generated count and generating an internal wait release signal when said wait state count of said selected wait state packet and said generated count are equal;

means, responsive to a ready signal generated by an external wait state generator indicating that said specific memory device is ready to be accessed, for generating an external wait release signal; and

a second selector, responsive to said wait status indicator of said selected wait state packet, for selectably providing one of said internal wait release signal and said external wait release signal as said output wait release signal

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5,740,405

METHOD AND SYSTEM FOR PROVIDING DATA COMPATIBILITY BETWEEN DIFFERENT VERSIONS OF A SOFTWARE PROGRAM

Kevin Henry DeGraaf, Seattle, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Dec. 17, 1992, Ser. No. 992,069

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—500 8 Claims

KEYBOARD
DISPLAY DEVICE
PERMANENT STORAGE
DOCUMENT
VERSION ONE EXTERNAL FORMAT
VERSION INDEPENDENT DATA FORMAT
COMPUTER
I/O
CPU
MEMORY
WORD PROCESSING PROGRAM VERSION TWO
FILING SYSTEM
CONVERSION SUBPROGRAM
DOCUMENT
VERSION ONE EXTERNAL FORMAT
VERSION INDEPENDENT DATA FORMAT

1 A method executed in a computer system for providing compatibility between a prior version of a computer program and a later version of the computer program, the computer including a memory storing a file with data in both a version dependent external format specific to the prior version of the computer program and data in a version independent data format, the method comprising the steps of.

receiving a request to process the data stored in the file using the later version of the computer program;

determining whether the data stored in the version dependent external format can be processed by the later version of the computer;

when the data can be processed by the later version of the computer program, loading the data into memory;

when the data cannot be processed by the later version of the computer program, retrieving the data in the version independent data format, converting the retrieved data to a version dependent internal format that can be processed by the later version of the computer program, and loading the converted data into memory; and

processing the loaded data using the later version of the computer program.

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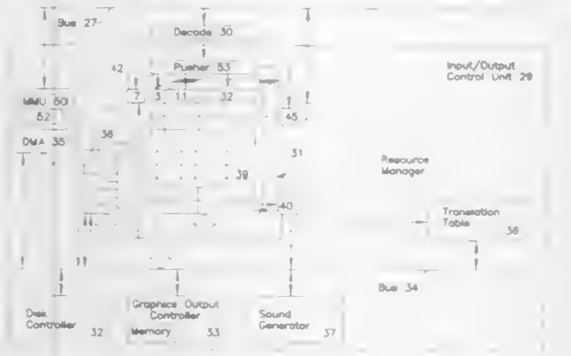
5,740,406

METHOD AND APPARATUS FOR PROVIDING FIFO BUFFER INPUT TO AN INPUT/OUTPUT DEVICE USED IN A COMPUTER SYSTEM

David S. H. Rosenthal, Palo Alto, and Curtis Priem, Fremont, both of Calif., assignors to NVidia Corporation, Sunnyvale, Calif.

Filed May 15, 1995, Ser. No. 443,878
Int. Cl.^{6} G06F *13/10*

U.S. Cl. 395—500 **24 Claims**



1 An input circuit for an input/output device adapted for use in a computer system in which an application program writes commands directly to the input/output device which command includes information indicating the application program which initiated the command, the input circuit comprising:

a first-in first-out (FIFO) buffer circuit having a plurality of stages, each stage providing storage for commands from application programs including both data and an address for the data.

means for determining from a command an application program which has initiated a command, and means for assuring that commands from only one application program reside in the FIFO buffer at any time.

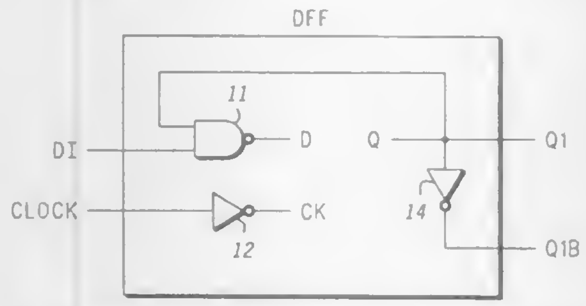
5,740,407

METHOD OF GENERATING POWER VECTORS FOR CIRCUIT POWER DISSIPATION SIMULATION HAVING BOTH COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS

Gary Yeap, Gilbert; Alberto Reyes, Phoenix, and Sean Tyler, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 5, 1995, Ser. No. 498,454
Int. Cl.^{6} G06F *9/455;17/50*

U.S. Cl. 395—500 **13 Claims**



1 A method for generating complete power vectors for a circuit having combinational logic circuitry and sequential logic circuitry, the method comprising:

providing a netlist of the circuit;

removing sequential logic circuitry from the netlist of the circuit;

treating output nodes of the sequential logic circuitry as inputs of remaining combinational logic circuitry;

treating input nodes of the sequential logic circuitry as outputs of said remaining combinational logic circuitry; and

generating power vectors for said remaining combinational logic circuitry, wherein said step of generating power vectors includes the steps of:

generating primitive power vectors that cause outputs of said remaining combinational logic circuitry to transition;

generating internal power vectors that cause internal nodes of said remaining combinational logic circuitry to transition without transitioning any of said outputs;

generating static power vectors for said remaining combinational logic circuitry wherein said primitive, internal, and static power vectors are generated using a logic simulation program;

characterizing operation of each sequential logic circuit of said sequential logic circuitry,

generating a list of operational characteristics for each sequential logic circuit of said sequential logic circuitry; and

storing said list of operational characteristics of each sequential logic circuit of said sequential logic circuitry in a database

5,740,408

METHOD FOR AUTOMATED SOFTWARE APPLICATION TESTING

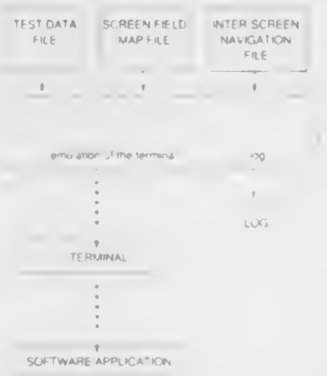
Francois Bonne, Bordeaux; Jean-Marie Grillet, Merignac; Guy Mansel, Pessac, and Paul Rouah, Blanquefort, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 336,358, Nov. 8, 1994, Pat. No. 5,594,892. This application Oct. 9, 1996, Ser. No. 729,227

Claims priority, application France, Dec. 22, 1993, 93480232.3

Int. Cl.^{6} G06F *11/00;11/23*

U.S. Cl. 395—500 **2 Claims**



1. A method for automatically testing a software application program by executing a plurality of test steps in a computer running the program and equipped with a displaying means for displaying information and a keying means for entering data into the computer, said computer also including;

a TEST DATA file containing data for testing the program.

a SCREEN FIELD MAP file containing a record for each screen specifying fields to be displayed, and

an INTER-SCREEN NAVIGATION file containing information defining the sequential relationships between the screens.

said method including the following steps.

collecting useful data for each of the test steps to be executed from the TEST DATA file and the SCREEN FIELD MAP file and storing the data in a STEP DATA work file;

for each of said test steps searching the INTER-SCREEN NAVIGATION file for a path linking the screens and generating a PATH work file; and

reading the PATH and STEP DATA work files in a predetermined sequence for emulating keying in by a user to the computer, for each of said test steps, the data stored in the STEP DATA work file to test the application program

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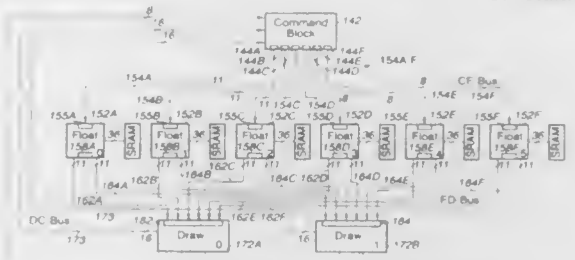
5,740,409

COMMAND PROCESSOR FOR A THREE-DIMENSIONAL GRAPHICS ACCELERATOR WHICH INCLUDES GEOMETRY DECOMPRESSION CAPABILITIES

Michael F. Deering, Los Altos, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 1, 1996, Ser. No. 673,494
Int. Cl.^{6} G06F *15/16;15/00;* **G06K** *9/74*

U.S. Cl. 395—503 **23 Claims**



1. A command for a graphics accelerator, comprising.

one or more input buffers adapted for coupling to a bus for receiving geometry input data, wherein said geometry input data includes compressed geometry input data and non-compressed geometry input data, wherein said geometry input data comprises information corresponding to one or more polygons to be rendered on an output video device;

a geometry decompression unit coupled to an output of the input buffers for receiving the compressed geometry input data, wherein the decompression unit operates to decompress the compressed geometry input data to produce decompressed geometry input data;

a multiplexer including a first input receiving an output from the input buffers, and a second input for receiving an output from the geometry decompression unit, wherein the first input of the multiplexer receives non-compressed geometry data from the one or more input buffers, wherein the second input of the multiplexer receives decompressed geometry input data from the geometry decompression unit, wherein the multiplexer includes an output which selectively provides either said non-compressed geometry data or said decompressed geometry input data:

one or more output buffers coupled to receive data from the multiplexer, wherein the output buffers provide output primitive data.

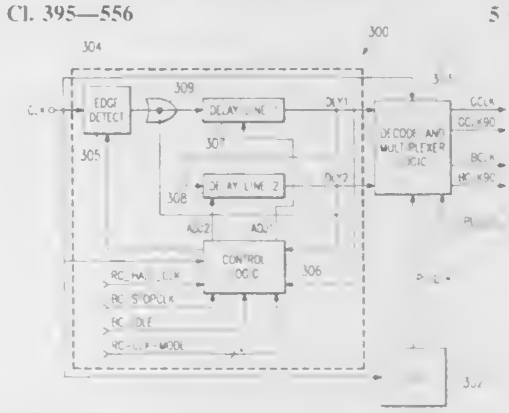
5,740,410

STATIC CLOCK GENERATOR

Mark W. McDermott, Austin, Tex., assignor to Cyrix Corporation, Richardson, Tex.

Filed Dec. 15, 1995, Ser. No. 573,172
Int. Cl.^{6} G06F *1/08*

U.S. Cl. 395—556 **5 Claims**



1 A static clock generator comprising:

(a) an edge detector having an input coupled to receive an initiating clock signal and an output.

(b) a logical OR gate having first and second inputs and an output, the first input coupled to the output of the edge detector.

(c) a delay line having a signal input, at least one control input, an output, and a tap between the input and the output, the output being coupled to the second input on the logical OR gate; and.

(d) control logic circuitry having a plurality of inputs and at least one control output, a first input being coupled to the tap on the delay line, a second input being coupled to output of the delay line, the at least one control output being coupled to the at least one control input on the delay line

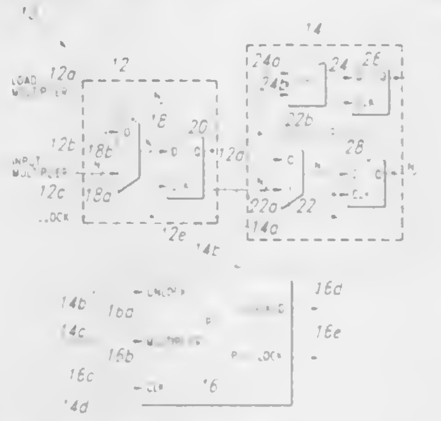
5,740,411

CONTROLLABLY SWITCHED PHASE LOCKED LOOP CIRCUITS, SYSTEMS, AND METHODS

Alan S. Hearn, Richardson, and Larry R. Hite, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 26, 1996, Ser. No. 756,669
Int. Cl.^{6} H03L *7/06*

U.S. Cl. 345—558 **18 Claims**



1 A clock circuit system, comprising.

a phase locked loop circuit having a clock signal input, a clock signal lock input, and a clock adjustment signal input;

circuitry for coupling a clock signal to the clock signal input,

circuitry for coupling a first clock adjustment signal to the clock adjustment signal input.

circuitry for comparing the first clock adjustment signal to a second clock adjustment signal; and

circuitry responsive to said comparing circuitry, said circuitry comprising:

circuitry for coupling a signal to the clock signal lock input such that the phase locked loop circuit indicates an unlocked state; and

circuitry for coupling the second clock adjustment signal to the clock adjustment signal input after the phase locked loop circuit indicates an unlocked state

5,740,412

SET-SELECT MULTIPLEXER WITH AN ARRAY BUILT-IN SELF-TEST FEATURE

Yuen Hung Chan, Poughkeepsie; Pong-Fei Lu, Yorktown Heights, and Antonio Raffaele Pelella, Highland Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., .

Filed May 6, 1996, Ser. No. 642,985
Int. Cl.^{6} G16F *1/04*

U.S. Cl. 395—559 **13 Claims**

1 A signal selector circuit driven by a clock signal defining a clock timing cycle comprising

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a multiplexer for receiving a plurality of data-sets and having means for outputing a selected data-set in response to the activation of a select-data-set signal corresponding with said selected data-set;

a set select multiplexer to supply said selected data set comprising:

at least one first operation circuit responsive to a first enabling signal and to a plurality of first control signals each corresponding to one of said data-sets, and wherein said enabling signal, first control signals and

data-sets commence at a different time within said clock timing cycle, said first operation circuit including a means for transferring said first control signals to a first turn-on signal for said one of said data-sets in response to said first enabling signal;

at least one second operation circuit responsive to a second enabling signal and to a plurality of second control signals each corresponding to one of said data-sets, and wherein said second enabling signal, second control signals and data-sets commence at a different time within said clock timing cycle, said second operation circuit including a control latching circuit to latch said second enabling signal and form a latched enabling signal, and a means for transferring said second control signals to a second turn-on signal for each of said data-sets in response to said latched enabling signal;

a plurality of logic controllers for each said different one of said data-sets coupled to, and activated by, said first and second turn-on signals, and including means for forming a set-enable signal for each said different one of said data-sets; and

a plurality of set-enable latches having means for receiving and latching each said set-enable signal for said different one of said data-sets, and having means for forming said select-data-set signal to feed said multiplexer;

a first delay circuit coupled to receive said select-data-set signal and having means for forming a first reset signal, said first reset signal being coupled to reset said control latching circuit thereby making said control latching circuit ready for a next clock timing cycle operation;

a second delay circuit coupled to receive said selected-data-set, and having means for forming a second reset signal, said second reset signal being coupled to deactivate said plurality of logic controllers thereby making said logic controller ready for said next clock timing cycle operation, and

a third delay circuit coupled to receive said second reset signal having means for forming a third reset signal, said third reset signal being coupled to reset said plurality of set-enable latches making said set-enable latches ready for said next clock timing cycle operation.

5,740,413

METHOD AND APPARATUS FOR PROVIDING ADDRESS BREAKPOINTS, BRANCH BREAKPOINTS, AND SINGLE STEPPING

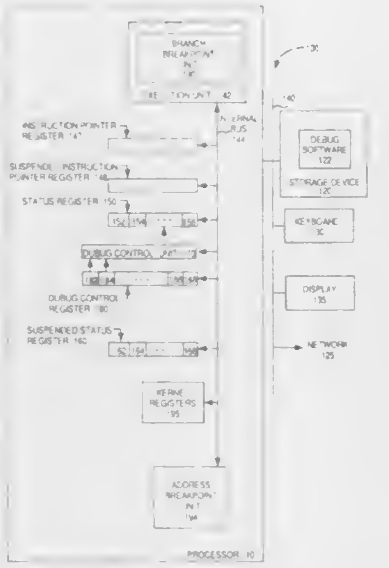
Donald Alpert, Santa Clara, and Gary Hammond, Campbell, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 492,366, Jun. 19, 1995, abandoned. This application Jul. 23, 1997, Ser. No. 899,085

Int. Cl.⁶ G06F *11/30*

U.S. Cl. 395—568 17 Claims

1. In a computer system, a method for providing single stepping, said method comprising the steps of:



storing information to cause a first address breakpoint event to occur on a second instruction that sequentially follows a first instruction in a routine;

executing said first instruction;

if execution of said first instruction causes flow of execution to branch to a third instruction in said routine, causing a branch breakpoint event;

if flow of execution passes to said second instruction, causing said first address breakpoint event;

in response to said branch breakpoint event, executing a first debug routine which stores information to cause a second address breakpoint to occur on a fourth instruction in said routine that sequentially follows said third instruction; and

in response to said first address breakpoint event, executing a second debug routine which stores information to cause a third address breakpoint to occur on a fifth instruction in said routine that sequentially follows said second instruction.

5,740,414

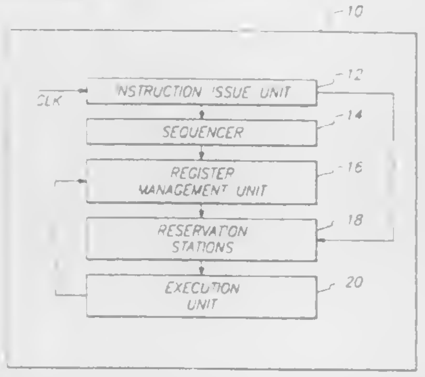
METHOD AND APPARATUS FOR COORDINATING THE USE OF PHYSICAL REGISTERS IN A MICROPROCESSOR

DeForest W. Tovey, Los Gatos, Calif.; Michael C. Shebanow, Plano, Tex., and John Gmuender, Cary, N.C., assignors to HAL Computer Systems, Inc., Campbell, Calif.

Continuation of Ser. No. 388,364, Feb. 14, 1995, abandoned. This application Aug. 17, 1995, Ser. No. 516,230

Int. Cl.⁶ G06F *12/00;9/30*

U.S. Cl. 395—580 8 Claims



1. A superscalar processor which concurrently processes a plurality of instructions, the processor comprising:

a register file unit comprising a plurality of physical registers, a logical-to-physical register map comprising a plurality of locations, each of said locations identifying a physical register in response to a logical register value, an address valid map which designates the validity of each of said locations of said logical-to-physical register map, and at least one checkpoint RAM to store said address valid map in response to a speculative branch instruction;

a register reclaim file unit comprising a plurality of locations, each of said locations indexed by an instruction sequence number, each of said locations storing a prior mapping of a logical register to a physical register and having a first portion for storing a logical register value and a second portion for storing a physical register tag which identifies the physical register associated with said logical register during execution of said instruction identified by said instruction sequence number;

a freelist unit which stores a plurality of physical register tags, each tag stored by said freelist unit indicating a free physical register which may be assigned to a logical register, said freelist unit including a head pointer to identify the next tag to be assigned to a logical register, and at least one checkpoint register which stores the value of said head pointer in response to a speculative branch instruction; and

a control unit which receives said instructions and determines if an instruction of said received instructions is a speculative branch instruction, and which generates a checkpoint by causing, in response to said speculative branch instruction, the contents of said address valid map to be stored into said checkpoint RAM, and by causing, in response to said speculative branch instruction, storage of the contents of said head pointer to said checkpoint register, said control unit backing up said processor to said checkpoint to restore said processor to a state prior to said speculative branch instruction in response to a misprediction of said branch instruction, said control unit further backstepping said processor to an instruction which lies between two checkpoints in response to an exception condition to restore said processor to a state prior to said exception condition by determining the instruction sequence number of said instruction causing said exception condition, retrieving from said register reclaim file unit the logical register value and the physical register tag corresponding to said instruction sequence number, determining, from said logical-to-physical register map, which physical register is currently assigned to said logical register, invalidating a location in said address valid map corresponding to said current logical to physical register assignment, writing said logical register value obtained from said register reclaim file unit to said logical to physical register map and validating said location in said address valid map.

5,740,415

INSTRUCTION SUPPLYING APPARATUS WITH A BRANCH TARGET BUFFER HAVING THE CONTENTS SO UPDATED AS TO ENHANCE BRANCH PREDICTION ACCURACY

Tetsuya Hara, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 3, 1995, Ser. No. 538,494

Claims priority, application Japan, Oct. 12, 1994, 6-246346

Int. Cl.⁶ G06F *9/00,9/32*

U.S. Cl. 395—585 27 Claims

1. An instruction processing apparatus comprising:

a branch target buffer having a plurality of entries each storing branch instruction specifying information and a validity bit indicating one of validness and invalidness of a related branch instruction,

prediction means for predicting presence/absence of a branch caused by a branch instruction in accordance with said validity bit included in information read out from a corresponding

entry of said branch target buffer when a supplied instruction is said branch instruction;

branch determination means executing said branch instruction for determining whether or not the prediction said prediction means is correct in accordance with the result of the execution, said branch instruction including an instruction part indicating processing to be executed and a branch probability indicating part indicating a possibility with which a branch is caused by said branch instruction is high, and

change means for changing the content of said corresponding entry of said branch target buffer in accordance with data of said branch probability indicating part included in said branch instruction when the result of the determination made by said branch determination means indicates that said prediction by said prediction means is incorrect, said change means including means for setting said validity bit in an invalid state when said validity bit in said corresponding entry indicates validness and said branch probability indicating part indicates that a possibility of branching is small

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5,740,416

BRANCH PROCESSING UNIT WITH A FAR TARGET CACHE ACCESSED BY INDIRECTION FROM THE TARGET CACHE

Steven C. McMahan, Richardson, Tex., assignor to Cyrix Corporation, Richardson, Tex.

Continuation-in-part of Ser. No. 324,992, Oct. 18, 1994, abandoned. This application Feb. 26, 1996, Ser. No. 606,668

Int. Cl.⁶ G06F *9/38*

U.S. Cl. 395—585 6 Claims

1. In a pipelined processor with instruction, a branch processing unit including a far target cache that stores far target segment limits, comprising:

(a) a target cache in the branch processing unit with a plurality of entries, each entry including target addressing information for change of flow (COF) instructions, at least some of which are far COFs; and

(b) a far target cache with a plurality of entries, each entry including segment limit information for a far target with a corresponding entry in the target cache.

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(c) each entry in the target cache including an FTC index field such that, when a far COF is allocated into the target cache, the corresponding FTC index field stores an index pointing to the entry in the far target cache storing segment limit information for such far COF;

(d) such that for far COFs that hit in the target cache, the target cache outputs corresponding far target addressing information and the associated FTC index to indirectly access the far target cache to obtain the associated segment limit information.

5,740,417

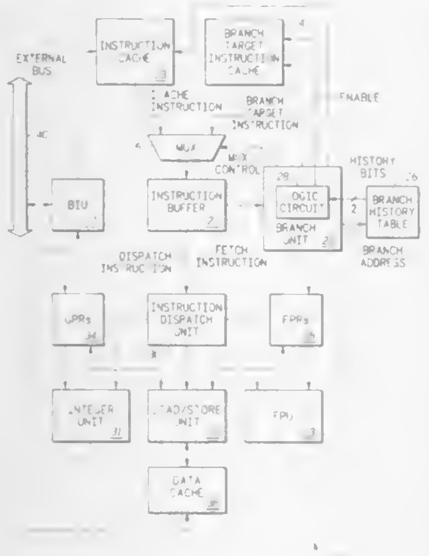
PIPELINED PROCESSOR OPERATING IN DIFFERENT POWER MODE BASED ON BRANCH PREDICTION STATE OF BRANCH HISTORY BIT ENCODED AS TAKEN WEAKLY NOT TAKEN AND STRONGLY NOT TAKEN STATES

A. Richard Kennedy, Austin, and Cody B. Croxton, Georgetown, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 5, 1995, Ser. No. 567,591

Int. Cl.⁶ G06F *9/38*

U.S. Cl. 395—586 **14 Claims**



1. A low-power pipelined data processor comprising

a branch history table for storing in each of a plurality of entries an address and at least one history bit encoding a corresponding branch prediction state of a plurality of branch prediction states, said branch history table having an input for receiving a branch instruction address and an output for providing said at least one history bit of an entry of said plurality of entries whose address matches said branch instruction address;

said plurality of branch prediction states including a taken state, a weakly not taken state, and a strongly not taken state;

a pipeline resource having a control input for receiving an enable signal wherein said pipeline resource goes into a low-power mode when said enable signal is inactive; and

a logic circuit having an input for receiving said at least one history bit, and an output for providing said enable signal,

said logic circuit providing said enable signal in an inactive state when said at least one history bit encodes said strongly not taken state,

said logic circuit providing said enable signal in an active state when said at least one history bit encodes said weakly not taken state or said taken state

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5,740,418

PIPELINED PROCESSOR CARRYING OUT BRANCH PREDICTION BY BTB

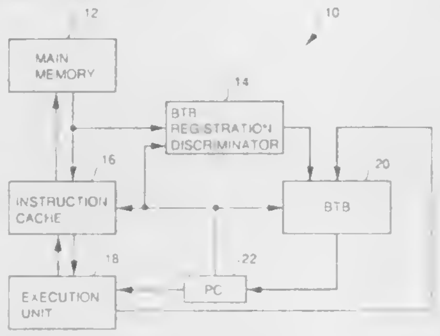
Tetsuya Hara, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 29, 1996, Ser. No. 625,180

Claims priority, application Japan, May 24, 1995, 7-125029

Int. Cl.⁶ G06F *9/00*

U.S. Cl. 395—586 **8 Claims**



1. A pipelined processor, comprising:

a main memory;

a program counter specifying an address of an instruction to be executed in said main memory;

instruction executing means for reading out an instruction of the address specified by said program counter from said main memory for execution;

a high speed accessible instruction cache memory for reading out, when it has not stored the instruction requested by said instruction executing means, a group of instructions including the relevant instruction from said main memory for storage, and for applying the relevant instruction to said instruction executing means without accessing said main memory when reading from the same address is next requested.

a BTB for storing branch information on a branch instruction to be executed by said instruction executing means for carrying out branch prediction based on said branch information to set an address of an instruction to be read out next to the branch instruction in said program counter; and

BTB registration discriminating means for decoding the instruction read out from said main memory to said instruction cache memory to register, when the instruction is a branch instruction, branch information on the relevant branch instruction in said BTB.

5,740,419

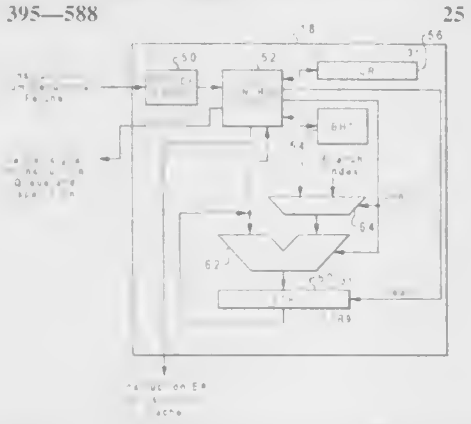
PROCESSOR AND METHOD FOR SPECULATIVELY EXECUTING AN INSTRUCTION LOOP

Terence Matthew Potter, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 22, 1996, Ser. No. 685,060

Int. Cl.⁶ G06F *15/82,9/32*

U.S. Cl. 395—588 **25 Claims**



1. A method within a processor of speculatively executing an instruction loop, comprising:

initiating execution of said instruction loop and counting each executed iteration of said instruction loop;

thereafter, determining an actual number of iterations that said instruction loop should be executed;

in response to said determination, determining a difference between said actual number of iterations and a number of executed iterations of said instruction loop; and

in response to a determination that said difference is greater than zero, executing said instruction loop an additional number of iterations equal to said difference

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5,740,420

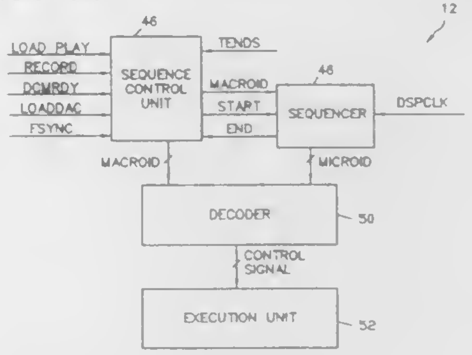
SYSTEM AND METHOD FOR COMPILING AND EXECUTING SEQUENCES OF MACRO AND MICRO INSTRUCTIONS

Krishnan Palaniswami, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 26, 1995, Ser. No. 548,661

Int. Cl.⁶ G06F *9/22*

U.S. Cl. 395—595 **26 Claims**



1. A digital signal controller, comprising:

a sequence control unit comprising a first set of series-connected shift registers wherein when operating, said sequence control unit produces responsive to a current state of said first set of series-connected shift registers, a signal indicating a current macro instruction within a sequence of macro instructions;

a sequencer coupled to receive initiation of said current macro instruction from said sequence control unit and, said sequencer, when operating, produces a signal indicating a current micro instruction within a sequence of micro instructions attributable to said current macro instruction;

a decoder coupled to said sequence control unit and said sequencer for operably producing a current control signal upon receipt of said current macro instruction and said current micro instruction; and

an execution unit coupled to said decoder for performing algorithmic manipulations of data according to said current control signal.

5,740,421

ASSOCIATIVE SEARCH METHOD FOR HETEROGENEOUS DATABASES WITH AN INTEGRATION MECHANISM CONFIGURED TO COMBINE SCHEMA-FREE DATA MODELS SUCH AS A HYPERBASE

Eran Palmon, Tel Aviv, Israel, assignor to DTL Data Technologies Ltd., Tel-Aviv, Israel

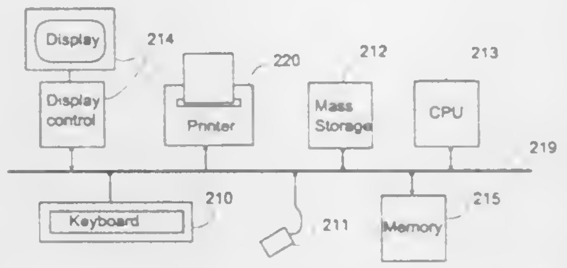
Filed Apr. 3, 1995, Ser. No. 415,601

Int. Cl.⁶ A06F *17/30*

U.S. Cl. 395—604 **88 Claims**

1. A method of searching a set of heterogeneous databases, each database in said set having a corresponding hyperbase, said method implemented on a computer and comprising:

(a) determining said corresponding hyperbase for at least one of said set of heterogeneous databases dependent on whether or not the corresponding hyperbase for said at least one of the set of heterogeneous databases is already determined.



(b) integrating the hyperbases corresponding to each database of said set of databases into a combined hyperbase dependent on whether or not all the corresponding hyperbases already have been integrated into the combined hyperbase;

(c) inputting a query into said computer, said query including a set of labels, and

(d) determining an answer to said query from said combined hyperbase.

5,740,422

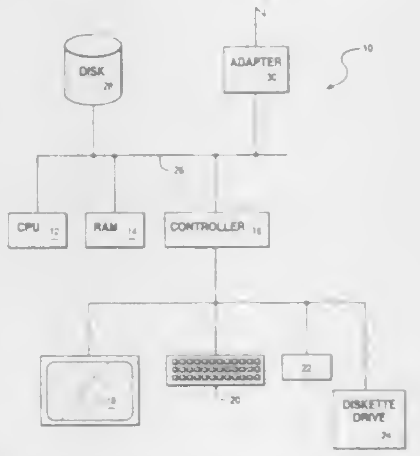
METHOD AND APPARATUS FOR RESOURCE MANAGEMENT FOR A LAN SERVER ENTERPRISE

Richard Campbell Foltz, Round Rock; William Harold Gengler, Austin; Joseph Christopher Lucas, Jr., Round Rock; John Vincent Meegan, Austin; Troy Gary Reish, Austin, and James Michael Rolette, Jr., Austin, all of Tex., assignors to International Business Machine Corporation, Armonk, N.Y.

Filed Sep. 27, 1995, Ser. No. 534,762

Int. Cl.⁶ G06F *12/00*

U.S. Cl. 395—609 **15 Claims**



1. A method implemented in a computer for organizing distributed computing environment name space for administration of network resources, comprising:

creating a cell directory service component in a workstation in said distributed computing environment name space having a fixed portion including a first root and a second root describing realm resources.

associating a subsystem and a first realm directory with said first root and resources and a second realm directory with said second root; and

creating a registry component associated with said cell directory service component having a security and group directory for specifying user identification of all administrators allowed to access said realm resources.

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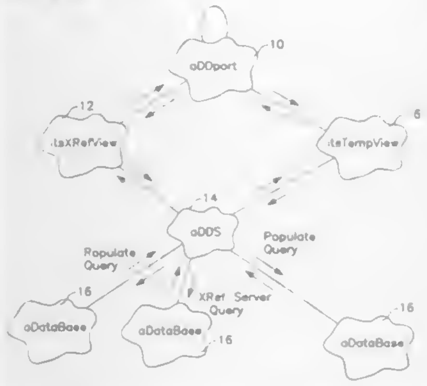
5,740,423
SYSTEM AND METHOD FOR ACCESSING DISTRIBUTED DATA ON A PLURALITY OF DATABASES

James Richard Logan, Parker, and Kurt Deshazer, Littleton, both of Colo., assignors to CSG Systems, Inc., Englewood, Colo.

Filed Dec. 28, 1995, Ser. No. 579,788
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—610 **8 Claims**

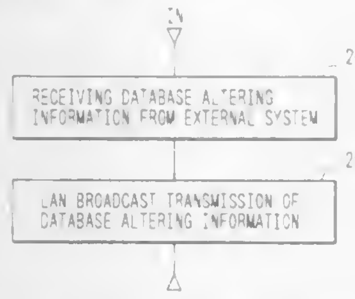


1. A method for accessing data distributed on a plurality of databases, comprising the steps of:
- initiating a cross-reference server query that retrieves at least one cross-reference data row;
- generating a virtual table having a first result set including said at least one cross-reference data row;
- initiating at least one populate query having each of said at least one cross-reference data rows as an argument;
- generating a temporary virtual table that populates each cross-reference data row of said result set with data responsive to said populate query; and
- updating said virtual table with said populated data row

5,740,424
INFORMATION PROCESSING SYSTEM AND METHOD USING TIME-VARYING DATABASE ALTERING INFORMATION

Hiroshi Wataya, Katsuta; Hiroaki Nakanishi; Keijiro Hayashi, both of Hitachi; Yoshiaki Adachi, Hitachioota; Hideki Tonooka, Hitachi; Kenji Matsuzaki, Hitachi; Tsutomu Onuki, Hitachi, and Isao Terakado, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Process Computer Engineering Inc., Hitachi, both of Japan

Continuation of Ser. No. 99,305, Jul. 29, 1993, abandoned.
This application Aug. 2, 1996, Ser. No. 691,472
Claims priority, application Japan, Aug. 7, 1992, 4-211227
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—610 **22 Claims**

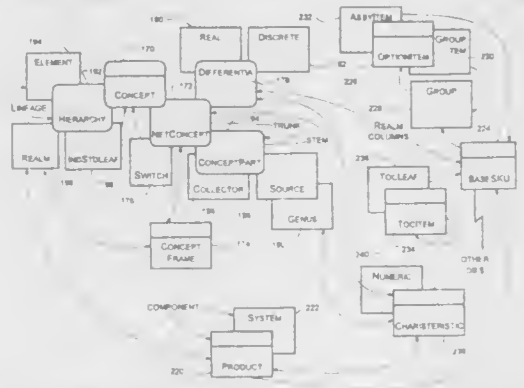

IN
201
RECEIVING DATABASE ALTERING INFORMATION FROM EXTERNAL SYSTEM
202
LAN BROADCAST TRANSMISSION OF DATABASE ALTERING INFORMATION

1. An information processing method, comprising the steps of:
- (a) broadcasting a database altering information received from an external system over a first transmission network,
- (b) altering a database managed by an information pooling server on the basis of said database altering information;
- (c) transmitting said database altering information received from said first transmission network to a plurality of terminal servers by broadcasting; and
- (d) transmitting said database altering information from each of said terminal servers to a plurality of terminals by broadcasting.

5,740,425
DATA STRUCTURE AND METHOD FOR PUBLISHING ELECTRONIC AND PRINTED PRODUCT CATALOGS

David S. Povilus, 1723 Johnston St. SE, Grand Rapids, Mich. 49506

Filed Sep. 26, 1995, Ser. No. 534,055
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—611 **41 Claims**



11. A data structure for use in publishing print and/or electronic catalog containing information on a plurality of products, comprising:
- means for creating a concept structure for at least one product realm wherein said concept structure includes at least one concept frame for defining classes of product groupings, said concept frames including a plurality of concept nodes having relationships based upon characteristics of the products within the product realm;
- means for creating a product database including an object representation of products, said object representation including for each product an identification of each concept node in which the associated product can be located, said means for creating a product database further includes means for creating a media base as part of said product database wherein said media base includes descriptive media content associated with at least one product and content tags linking a portion of the descriptive media content to characteristics of a product linked to characteristics identified for each product in said object representation of products; and
- means for creating a glossary to be used for searching for a particular product or group of products having desired characteristics, said glossary including a plurality of phrases, at least one of said phrases being a definer that links said at least one phrase to one of said concept nodes.

5,740,426

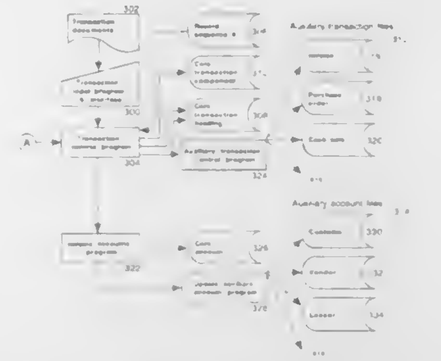
Patent Not Issued For This Number

5,740,427
MODULAR AUTOMATED ACCOUNT MAINTENANCE SYSTEM

Lincoln Stoller, 148 DuBois Rd., P.O. Box 339, Shokan, N.Y. 12481

Filed Dec. 29, 1994, Ser. No. 365,940
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—615 **15 Claims**

1. A method for enchancing a computer implemented accounting system for processing multiple transactions, the method comprising the computer implemented steps of:

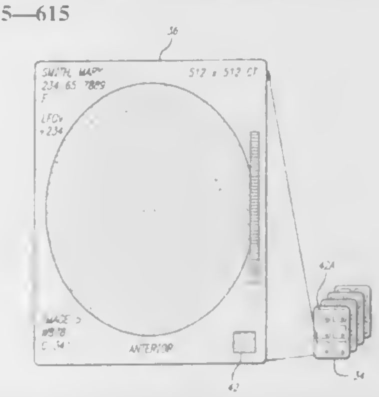


- (a) receiving a transaction comprising externally supplied data of which some is data that is specific to an accounting process;
- (b) identifying a first portion of said externally supplied data and a second portion of said externally supplied data in response to receiving said transaction, wherein said first portion contains data specific to accounting processes and said second portion contains transaction specific data;
- (c) associating said first portion of externally supplied data with said second portion of externally supplied data utilizing a unique transaction identifier, wherein said second portion manifests one data structure of a plurality of data structures, wherein said one data structure is identified as one transaction type of a plurality of transaction types, wherein said one transaction type corresponds to said one data structure, wherein said second portion is identified as corresponding to said one transaction type;
- (d) storing said first portion of externally supplied data in a first data collection and storing said second portion of externally supplied data in one second data collection of a plurality of possible second data collections, wherein said one second data collection stores said second portions of data associated with said multiple transactions, wherein said one second data collection stores only said second portions of data identified as corresponding to said one transaction type;
- (e) retrieving data from said plurality of data collections utilizing said unique transaction identifier and said transaction type, wherein data is more efficiently accessed, and programs for accessing data are more efficiently maintained within a computer implemented accounting system.

5,740,428
COMPUTER BASED MULTIMEDIA MEDICAL DATABASE MANAGEMENT SYSTEM AND USER INTERFACE

William C. Mortimore, Muskego; Dwight A. Simon, Dousman, both of Wis., and Michael J. Gray, Novato, Calif., assignors to Merge Technologies, Inc., Milwaukee, Wis.

Filed Feb. 7, 1995, Ser. No. 384,943
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—615 **29 Claims**

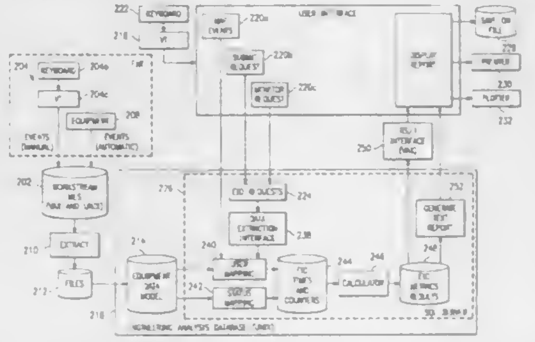


1. A database management system for a database of multimedia data objects visually presentable to a user in hard copy form, wherein each of the data objects includes pixel values and has an associated unique identifier, comprising
- an encoder responsive to signals corresponding to the unique identifier associated with a data object for generating an array of pixel values corresponding to a bit map of a machine readable identifying indicia representative of the unique identifier;
- an adder for adding the pixel values corresponding to a bit map of the machine readable identifying indicia to the pixel values of the data object to integrate the machine readable identifying indicia with the data object;
- a hard copy generator for generating a hard copy of the data object and the integrated machine readable identifying indicia.
- a detector device for generating signals indicative of the bit map of the integrated machine readable identifying indicia from the hard copy; and
- a decoder responsive to the signals indicative of the bit map of the integrated machine readable identifying indicia.

5,740,429
E10 REPORTING TOOL

Qingsu Wang; John Zvonar, and Mike Simpson, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jul. 7, 1995, Ser. No. 499,220
Int. Cl.^{6} G06F *17/30*
U.S. Cl. 395—615 **33 Claims**



15. An apparatus for automatically generating reports for determining reliability, availability and performance of a plurality of pieces of equipment in a manufacturing environment, the apparatus comprising:
- a database for accumulating events occurring in connection with said equipment.
- a server comprising
  - logic responsive to a data request having user selectable event restriction criteria, said event restriction criteria including a date range and a characteristic indicative of related ones of said pieces of equipment, said logic for mapping each event complying with said event restriction criteria to one of a plurality of E10 categories and accumulating time associated with said event in one of a plurality of time bins, each time bin associated with one of said E10 categories,
  - counters for accumulating numbers of failures, and
  - logic for calculating a plurality of E10 metrics using said numbers accumulated in said counters and said time accumulated in said time bins, and
- a display for presenting user-selected ones of said calculated E10 metrics in a user specified report format for pieces of equipment indicated by said event restriction criteria

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5,740,430

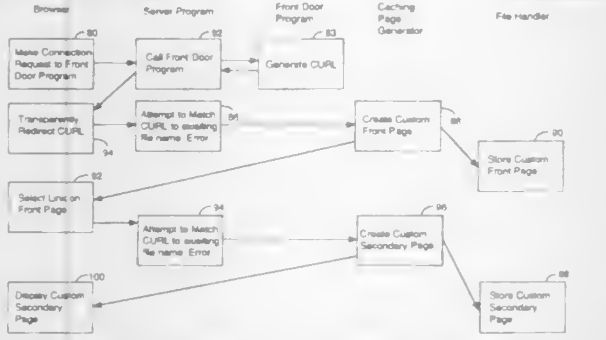
METHOD AND APPARATUS FOR SERVER-INDEPENDENT CACHING OF DYNAMICALLY-GENERATED CUSTOMIZED PAGES

Jonathan Rosenberg, Annandale, and Munish Gandhi, Bridgewater, both of N.J., assignors to C/Net, Inc., San Francisco, Calif.

Filed Nov. 6, 1995, Ser. No. 554,168

Int. Cl.^{6} G06F *17/00*

U.S. Cl. 395—616 20 Claims


Browser
Server Program
Front Door Program
Caching Page Generator
File Handler
80
Make Connection Request to Front Door Program
82
Call Front Door Program
83
Generate CURL
Transparently Redirect CURL
Attempt to Match CURL to existing file name: Error
Create Custom Front Page
90
Store Custom Front Page
92
Select Link on Front Page
94
Attempt to Match CURL to existing file name: Error
96
Create Custom Secondary Page
100
Display Custom Secondary Page
98
Store Custom Secondary Page

1. A method of operating a server computer, said method comprising the steps of:

storing a set of standard files and customized files on said server computer;

generating a Hypertext Transport Protocol (HTTP) path error indication when a requested file name cannot be matched to said standard files and said customized files; and in response to said error indication, automatically creating a customized page corresponding to said requested file name.

5,740,431

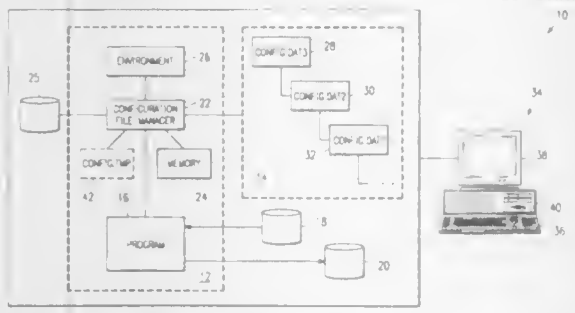
CONFIGURATION FILE MANAGEMENT

Peter D. Rail, Plano, Tex., assignor to Electronic Data Systems Corporation, Plano, Tex.

Filed Jan. 24, 1996, Ser. No. 590,858

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—616 23 Claims



1. A computing system, comprising:

a program operable to perform processing tasks, the program further operable to access configuration information for program execution;

a first configuration file having a plurality of first parameter expressions;

a second configuration file specified in the first configuration file, the second configuration file having a plurality of second parameter expressions; and

a configuration file manager coupled to the first configuration file and the second configuration file, the configuration file manager operable to generate configuration information for the program using the first parameter expressions and the second parameter expressions.

5,740,432

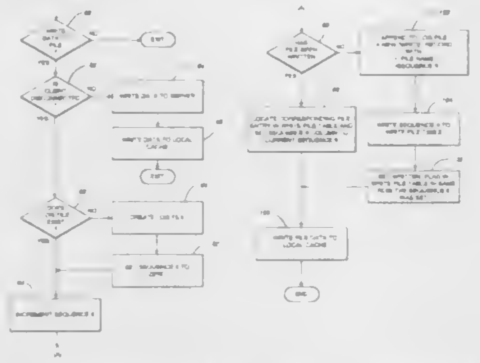
LOG FILE OPTIMIZATION IN A CLIENT/SERVER COMPUTING SYSTEM

Robert Mastors, Colorado Springs, Colo., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed May 28, 1996, Ser. No. 654,330

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—618 3 Claims



1. In a client computing station which communicates over a network with a server, a method for reducing the number of entries placed in a log file during disconnected client write operations, the method comprising the computer implemented steps of:

creating a write file table for tracking the file name and a sequence number of entries placed in the log file during disconnected operations;

maintaining a count of the sequence number of a present write operation;

encoding the log file with entries identifying the file name and the sequence number of the present write operation;

detecting a first condition wherein the present write operation operates on the same file as a prior write operation; and

upon detecting said first condition, updating the sequence number in the write file table corresponding to the present write operation, thereby encoding the write file table for subsequent decoding.

5,740,433

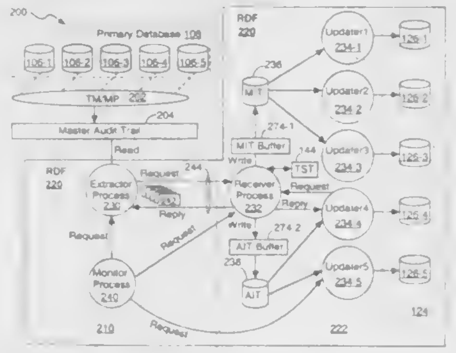
REMOTE DUPLICATE DATABASE FACILITY WITH IMPROVED THROUGHPUT AND FAULT TOLERANCE

Richard W. Carr, Palo Alto, Calif.; Brian Garrard, Speldhurst, England, and Malcolm Mosher, Jr., Los Gatos, Calif., assignors to Tandem Computers, Inc., Cupertino, Calif.

Continuation of Ser. No. 377,152, Jan. 24, 1995, abandoned.
This application Aug. 28, 1996, Ser. No. 704,111

Int. Cl.^{6} G06F *12/30*

U.S. Cl. 395—618 36 Claims



1. A distributed computer database system, comprising:

a local computer system having a local database stored on local memory media, application programs that modify the local database, and a transaction manager that stores audit records in a local audit trail reflecting those application program modifications to the local database; each audit record having an associated audit trail position in said local audit trail;

a remote computer system, remotely located from the local computer system, said remote computer system having a backup database stored on memory media associated with the remote computer system;

a communication channel for sending messages between said local computer system and said remote computer system; and

a remote data duplication facility, partially located in said local computer system and partially located in said remote computer, for maintaining virtual synchronization of said backup database with said local database, including:

an extractor process executed by said local computer system that extracts audit records from said local audit trail and transmits said extracted audit records to said remote computer system, said extractor process including a plurality of message buffers and instructions for buffering groups of said extracted audit records together in said message buffers and transmitting said message buffers to said remote computer system, each transmitted message buffer having an associated sequence number, wherein sequentially transmitted messages buffers have associated sequence numbers that follow a predefined sequence, said extractor process instructions including instructions for continuing, after transmitting a first one of said message buffers to said remote computer system, to buffer groups of said extracted audit records in other ones said message buffers and for transmitting said other message buffers to said remote computer system;

a receiver process executed by said remote computer system that

stores an expected message sequence number and a context record denoting a restart audit trail position,

receives said message buffers transmitted by said extractor process,

responds to each received message buffer whose associated message sequence number does not match said expected message sequence number by transmitting an error message to said extractor process, and

responds to each received message buffer whose associated message sequence number matches said expected message sequence number by sending a reply message to said extractor process to acknowledge receipt of each said message buffer, updating said expected message sequence number in accordance with said predefined sequence, distributing said audit records in said received message buffer to one or more image trail files in said remote computer system, and updating said restart audit trail position based on said audit trail positions associated with said audit records in said received message buffer; and

one or more updater processes executed by said remote computer system, wherein each updater process reads said audit records in an assigned one of said image trail files and initiates redo operations of database modifications denoted in at least a subset of said read audit records against said backup database;

said extractor process including reply message instructions for responding to said reply message acknowledging receipt of one of said message buffers by said receiver process by enabling reuse of said one message buffer, and error reply message instructions for responding to said error message transmitted by said receiver process by determining said restart audit trail position stored by said receiver process and then extracting audit records from said local audit trail starting at said restart audit trail position.

5,740,434

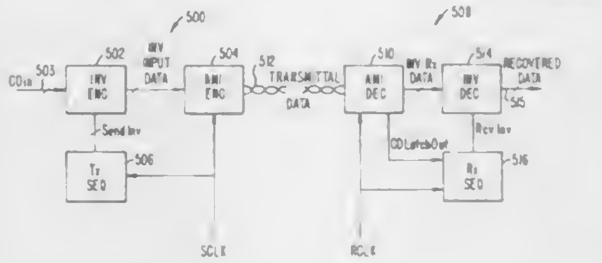
SYSTEM FOR MAINTENANCE OF DATABASE INTEGRITY

Thomas M. Eastep, Lynnwood, Wash., assignor to Tandem Computers Incorporated, Cupertino, Calif.

Continuation of Ser. No. 377,388, Jan. 23, 1995, abandoned.
This application Sep. 5, 1996, Ser. No. 716,653

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—618 4 Claims



1. An improved process for preserving a database in the event of a failure occurring during a transaction involving database records, said process comprising the steps of:

creating a log file, including a plurality of slots each identified by a unique slot index, for storing a LOG record corresponding to an transaction-in-progress, with each LOG record identified by a unique monotonically increasing log sequence number (LSN) and with each slot storing details of single transaction and with the number of slots in said plurality being less than or equal to the number of transactions active at any given time;

identifying a slot as an unavailable slot if any database records involved with a corresponding transaction recorded in the slot have been locked;

identifying a slot as an available slot after all database records involved with a corresponding transaction recorded in the slot have been unlocked;

making slots available to store LOG records of subsequently active transactions in the order that slots are identified as being available so that the slots are made available and reused on a first-in-first-out basis thereby assuring that if there is a LOG record in the LOG file involving a given database record then the LOG file contains a LOG record corresponding to the last transaction involving the given database record.

beginning a given current transaction involving a set of database records and requesting locking of all database records in said set;

suspending said given current transaction if any database records in said set are currently locked;

if none of the database in said set are currently locked, locking all database records in said set prior to writing a LOG record for the given current transaction in the log file so that transactions concurrently active cannot operate on same database records thereby assuring independence of concurrent transactions;

writing details of said given current transaction in an existing slot in said log file made available on a first-in-first-out basis, or, if no existing slot is available, adding a new slot to the log file and making said new slot available on a first-in-first-out basis so that the details of said current active transaction are written to said new slot; and

unlocking all database records in said set said given current transaction is completed

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5,740,435
DATA MANAGEMENT APPARATUS AND METHOD FOR MANAGING DATA OF VARIABLE LENGTHS RECORDED ON A RECORD MEDIUM

Tsutomu Yamamoto, and Hiroyuki Fujita, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 27, 1995, Ser. No. 548,982

Claims priority, application Japan, Oct. 31, 1994, 6-266419; Oct. 31, 1994, 6-266634; Oct. 31, 1994, 6-267680

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—621 3 Claims

SYSTEM AREA SA	MEDIUM IDENTIFIER USER INFORMATION FILE SYSTEM PARAMETERS
FILE ENTRIES FE	FILE ENTRIES
CONTINUOUS AREA CA	CA SUPERBLOCK RECORD ENTRIES EMPTY AREA INFORMATION CONTINUOUS DATA
RANDOM AREA RA	RA SUPERBLOCK I NODE BIT MAP BLOCK BIT MAP I NODE RANDOM DATA

1. A method of generating and recording recordal data on a randomly accessible recording medium and management data for managing that recordal data, comprising the steps of:

a) generating a file entry including name data showing the name of the recordal data,
b) acquiring record entry numbers,
c) writing the first record entry number in the file entry as the head record entry number,
d) securing an empty recording area in the data recording area on the recording medium,
e) writing the head position of the empty recording area in the record entry as head position data,
f) recording the recordal data in the empty recording area,
g) writing the size of the recorded recordal data in the record entry as the recording length data when the empty recording area becomes full and there is still recordal data remaining,
h) acquiring the next record entry number and writing the next record entry number in the previous record entry as link data when there is still recordal data remaining,
i) repeating steps d) to h) until there is no longer any recordal data to be recorded,
j) writing the size of the recordal data recorded in the recording area in the record entry as the recording length data, and
k) writing link data in the record entry indicating that said record entry is the final record entry when there is no longer any recordal data to be recorded.

5,740,436
SYSTEM ARCHITECTURE FOR CONFIGURING INPUT AND OUTPUT DEVICES OF A COMPUTER

Lisa Louise Davis, Seattle, Wash., and Gregory K. Mullins, Boulder Creek, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

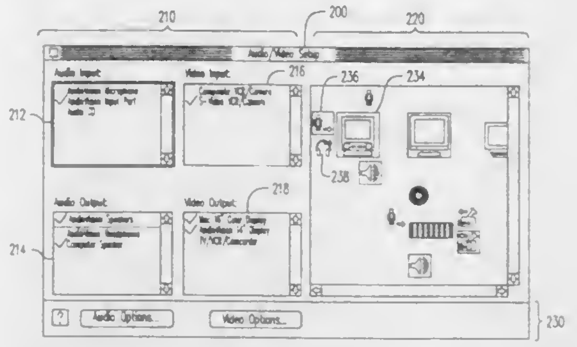
Filed Jun. 6, 1995, Ser. No. 471,656

Int. Cl.^{6} G06F *11/32, 13/00*

U.S. Cl. 395—651 19 Claims

1. A computer system having a plurality of audio and/or video components, comprising:

a plurality of component modules which are respectively associated with said audio and video components, each of said component modules being responsive to user-generated commands for configuring the associated components to operate in a specific manner; and



a configuration framework which communicates with each of said component modules to determine which audio components are contained in said computer system, and to provide an interface via which users generate said commands.

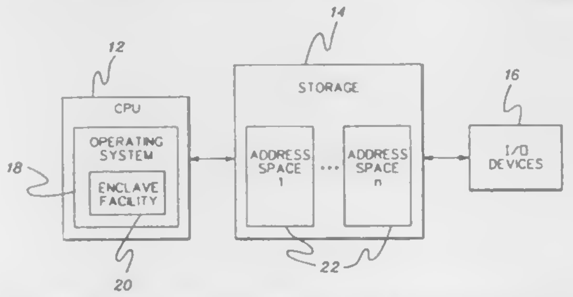
5,740,437
SEPARATING WORK UNIT PRIORITY AND ACCOUNTABILITY FROM ADDRESS SPACES

Steven Jay Greenspan, Hyde Park; Stephen Joseph Kinder, Poughkeepsie, both of N.Y.; Michael Gerard Mall, Morgan Hill, Calif., and Bernard Roy Pierce, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 304,995, Sep. 13, 1994, abandoned. This application Dec. 17, 1996, Ser. No. 768,038

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—674 15 Claims



1. A method for enabling requestor-based accounting of executions of program work units in a data processing system also supporting address-space-based accounting, a shared storage in the data processing system being addressed through one or more virtual storage address spaces assignable to any requestor, each virtual address space containing a set of contiguous numerical addresses which may be the same in different virtual address spaces, each virtual address space having a unique address space identifier and an associated address translation table, the virtual addresses in each virtual address space being dynamically translatable to real address locations in shared storage by processor hardware/software using the address translation table, each of said virtual address spaces having an assigned address space priority, and program work units being located in the one or more of said virtual address spaces of any user, said method comprising

executing by the data processing system program work units for a plurality of requestors,
assigning to each requestor a home virtual address space which need not be the virtual address space containing a program work unit to be executed for the the requestor for which the virtual address spaces have different address space priorities,
generating an enclave control block (the enclave) in system storage to coordinate system accounting for any requestor, assigning an enclave priority to the enclave for use by work units of the requestor independently of the address space priorities of the virtual address spaces containing program work units of the requestor,
referencing each program work unit (work unit) of the requestor on an enclave queue with the requestor's enclave priority to collect the work units of the requestor for execution by the data processing system independent of the address space priorities of the program work units,
scheduling for execution in an execution scheduling queue each work unit in each enclave queue with a scheduling priority equal to the enclave priority of the work unit in the enclave queue after execution is requested for the work unit to support the requestor-based accounting,
scheduling for execution any work unit of the requestor not in the enclave queue by putting the work unit into the execution scheduling queue with a scheduling priority equal to a home address space priority of the virtual address space containing the work unit after execution is requested for the work unit to support the address-space-based accounting, and
initiating execution of a work unit having a highest scheduling priority in the execution scheduling queue when a processor in the system is available to execute the work unit.

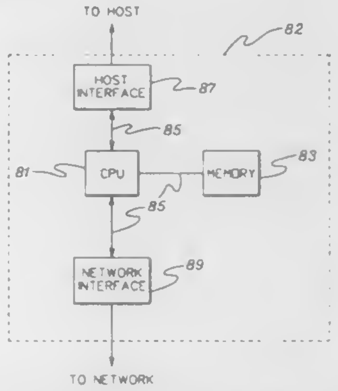
5,740,438
METHODS AND SYSTEM FOR NETWORK COMMUNICATIONS OF MULTIPLE PARTITIONS

Bruce Henry Ratcliff; Anthony Robert Sager, both of Red Hook, and Stephen Roger Valley, Valatie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1995, Ser. No. 414,851

Int. Cl.^{6} G06F *13/14*

U.S. Cl. 395—680 22 Claims



1. A method of network communications implemented within a host network interface for use in a mainframe class data processing system having multiple partitions and a port to a network, said method comprising the steps of:

(a) establishing a table defining communications paths between the port to the network and at least two partitions of the multiple partitions; and
(b) passing data frames between the network and the at least two partitions of the multiple partitions, said passing data frames being through the port to the network and along the communications paths defined in the table established in said step (a) such that said network communications is effected.

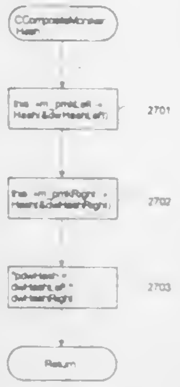
5,740,439
METHOD AND SYSTEM FOR REFERRING TO AND BINDING TO OBJECTS USING IDENTIFIER OBJECTS

Robert G. Atkinson, Woodinville; Antony S. Williams, Mercer Island, and Edward K. Jung, Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Division of Ser. No. 88,724, Jul. 6, 1993, Pat. No. 5,581,760, which is a continuation-in-part of Ser. No. 909,983, Jul. 6, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 467,917

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—701 7 Claims



1. A method in a computer system for storing references to moniker objects in a table, each moniker object having a moniker class identifier that identifies moniker code that, when executed, implements the moniker object, the method comprising the computer-implemented steps of:

for each moniker object,
  invoking a hashing function member of the moniker object code to determine a hash value for the moniker object, and
  storing a reference to the moniker object in the table in a location computed from the determined hash value,
wherein the implementation of the hashing function member of one of the moniker objects is different than the implementation of the hashing function member of another one of the moniker objects.

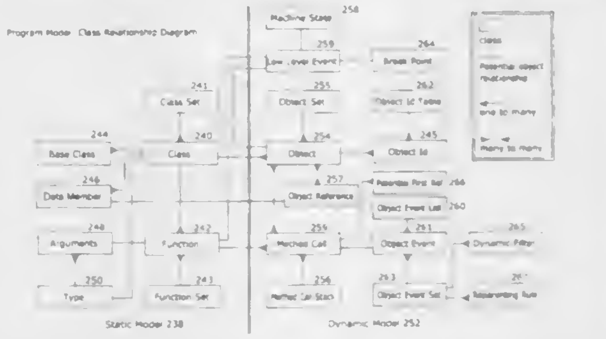
5,740,440
DYNAMIC OBJECT VISUALIZATION AND BROWSING SYSTEM

Alan A. West, Glasgow, Scotland, assignor to Objective Software Technology, Almondvale North Livingston, England

Filed Jan. 6, 1995, Ser. No. 369,489

Int. Cl.^{6} G06F *17/30*

U.S. Cl. 395—704 28 Claims



1. A method of monitoring execution of an object-oriented computer program on a digital data processor with a memory, said method comprising the steps of:

A. determining a state of said digital data processor when said monitored computer program reaches selected points during execution,
B. determining from the state of said digital data processor at each selected points a status of at least one object forming part of said monitored computer program,
C. generating a dynamic program model from the digital data processor states determined in step B, the model containing an element representative of each object existing in the memory, and relationships therebetween,
D. generating a display from the model, the display having elements representing at least some of the objects existing in memory and the relationships therebetween, and
E. updating the display substantially concurrently with execution of said monitored computer program so that an active picture of objects and their relationships is displayed as said monitored computer program executes.

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5,740,441

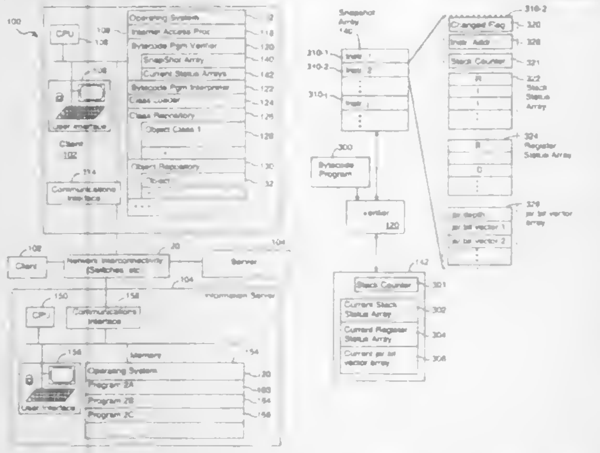
BYTECODE PROGRAM INTERPRETER APPARATUS AND METHOD WITH PRE-VERIFICATION OF DATA TYPE RESTRICTIONS AND OBJECT INITIALIZATION

Frank Yellin, Redwood City, and James A. Gosling, Woodside, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 360,202, Dec. 20, 1994. This application Dec. 20, 1995, Ser. No. 575,291

Int. Cl.⁶ G06F *9/45*

U.S. Cl. 395—704 18 Claims



1 A method of operating a computer system, the steps of the method comprising:

(A) storing a program in a memory, the program including a sequence of instructions, where each of a multiplicity of said instructions each represents an operation on data of a specific data type; said each instruction having associated data type restrictions on the data type of data to be manipulated by said each instruction,

(B) prior to execution of said program, preprocessing said program by determining whether execution of any instruction in said program would violate said data type restrictions for that instruction and generating a program fault signal when execution of any instruction in said program would violate the data type restrictions for that instruction:

said preprocessing step including.

(B1) storing, for each instruction in said program, a data type snapshot, said data type snapshot including data type information concerning data types associated with data stored in an operand stack and registers by said program immediately prior to execution of the corresponding instruction;

(B2) emulating operation of a selected instruction in the program by: (B2A) analyzing stack and register usage by said selected instruction so as to generate a current data type usage map for said operand stack and registers, (B2B) determining all successor instructions to said selected instruction, (B2C) merging the current data type usage map with the data type snapshot of said determined successor instructions, and (B2D) marking for further analysis each of said determined successor instructions whose data type snapshot is modified by said merging;

(B3) emulating operation of each of said instructions marked for further analysis by performing step B2 on each of those marked instructions and unmarking each said emulated instruction; and

(B4) repeating step B3 until there are no marked instructions.

said step B2A including determining when said stack and register usage by said instruction would violate said data type restrictions for that instruction and generating a program fault signal when execution of said instruction program would violate said data type restrictions

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5,740,442

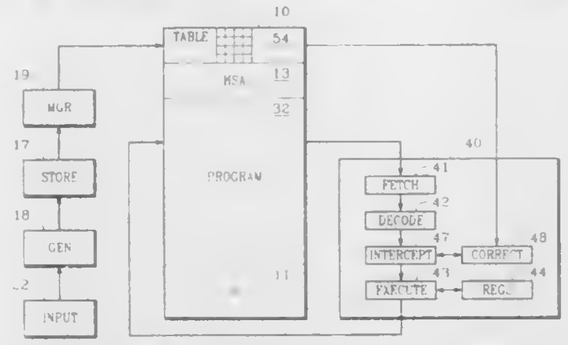
METHOD AND APPARATUS FOR IDENTIFYING AND CORRECTING DATE CALCULATION ERRORS CAUSED BY TRUNCATED YEAR VALUES

William Gary Cox, Mountain View, and Milton Wayne Demaray, Fremont, both of Calif., assignors to Hitachi Data Systems Corporation, Santa Clara, Calif.

Filed Aug. 27, 1996, Ser. No. 704,225

Int. Cl.⁶ G06F *9/44*

U.S. Cl. 395—704 24 Claims



1 A method for assisting in identification of calculation errors in a computer program caused by years in dates being expressed in truncated form and correcting said calculation errors, said method comprising the steps of:

performing a test-mode execution of said computer program in which diagnostic information pertaining to subtraction operations resulting in a negative difference is obtained and a report of said diagnostic information is generated;

receiving input prepared in response to said report, said input identifying one or more selected instances of said subtraction operations resulting in an erroneous difference caused by years of dates being expressed in truncated form, and constructing control information in response thereto; and

performing a production-mode execution of said computer program in which said production-mode execution is intercepted during processing of instruction fetch, instruction decode or instruction execution for an instruction at a location within said computer program specified by said control information and corresponding to a respective selected instance, and one or more values are modified so as to obtain a corrected difference

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5,740,443

CALL-SITE SPECIFIC SELECTIVE AUTOMATIC INLINING

Paul Robert Carini, Sherman, Conn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 14, 1995, Ser. No. 514,544

Int. Cl.⁶ G06F *9/45*

U.S. Cl. 395—705 27 Claims

1 In a computer processor executing a computer compiler, a compiler implemented method for performing selective automatic procedure integration over a program call graph (PCG), comprising the steps of:

constructing the PCG of a computer program, the PCG having a plurality of PCG nodes and PCG edges, each PCG node representing a procedure in the computer program and each PCG edge representing a call site connecting two nodes, each call site being a statement in a program that invokes a given procedure, a source node being a calling PCG node and a PCG edge having a direction from the calling node to a called node, so that an outgoing PCG edge represents a call site within said procedure and an incoming edge represents a call site invoking said procedure from within another procedure, wherein the PCG edge may further represent a back edge;

eliminating from processing any back edges of the PCG;

collecting a plurality of parameter values for use by a routine cost function which characterizes the suitability of each procedure for inlining, and by a call site cost function which characterizes the suitability of each PCG edge for inlining;

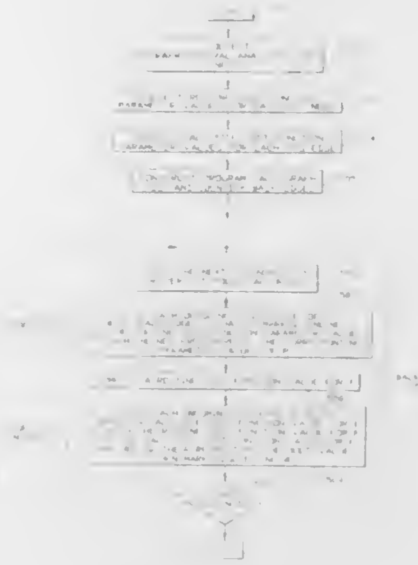
performing the following steps for each procedure P in a reverse topological traversal of the PCG:

inlining each outgoing PCG edge that has been marked to be inlined.

evaluating the routine cost function which utilizes a first portion of said plurality of parameter values associated with the procedure P;

evaluating the call site cost function which utilizes a second portion of said plurality of parameter values associated with each PCG edge; and

marking for inlining each incoming PCG edge for which the routine cost function is evaluated less than a first threshold value and the call site cost function is evaluated less than a second threshold value.



5,740,444

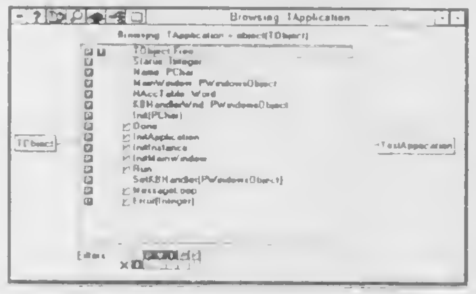
SYMBOL BROWSING IN AN OBJECT-ORIENTED DEVELOPMENT SYSTEM

Lars Kristian Frid-Nielsen, Santa Cruz, Calif., assignor to Borland International, Inc., Scotts Valley, Calif.

Division of Ser. No. 470,881, Jun. 6, 1995, Pat. No. 5,557,730, which is a continuation of Ser. No. 233,793, Apr. 26, 1994, Pat. No. 5,432,903, which is a division of Ser. No. 979,575, Nov. 19, 1992, Pat. No. 5,339,433. This application Sep. 16, 1996, Ser. No. 710,292

Int. Cl.⁶ G06F *3/00*

U.S. Cl. 395—705 15 Claims



1 In a development system for compiling source listings into application and system programs, each of the source listings comprising a plurality of symbols for instructing operation of a program, a method for browsing symbols comprising:

(a) compiling a source listing containing the symbols into a compiled program, said compiled program selectively storing symbol browsing information when browsing is desired by a user;

(b) selecting a symbol of interest from a device displaying the source listing, said symbol being located at a particular location in the source listing and having a particular scope at that location;

(c) receiving a request from the user for browsing the selected symbol of interest.

(d) determining from the stored symbol browsing information, browsing information specific for the symbol of interest, and

(e) displaying said browsing information to the user, so that browsing information with a scope appropriate for the selected symbol at the particular location is displayed

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5,740,445

INFORMATION PROCESSING APPARATUS FOR GENERATING DIRECTORY INFORMATION TO MANAGE A FILE USING DIRECTORIES

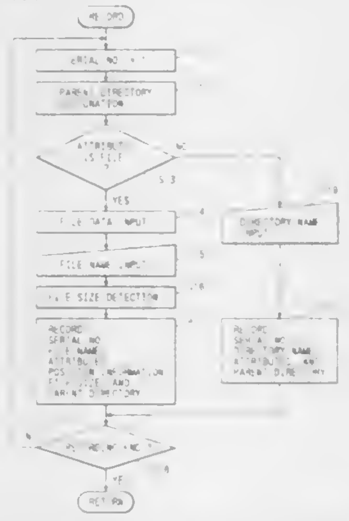
Osamu Okuda, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 795,398, Nov. 21, 1991, abandoned. This application Oct. 17, 1994, Ser. No. 327,812

Claims priority, application Japan, Nov. 21, 1990, 2-316480

Int. Cl.⁶ G06F *12/00*

U.S. Cl. 395—707 8 Claims



5 A method for managing a directory in an information processing apparatus, comprising the steps of

generating first directory information including first information to identify one of the directories and second information indicating a parent directory of the directory;

recording the generated first directory information on a non rewritable recording medium.

reading the first directory information recorded on the non rewritable recording medium, and

generating second directory information including the first and second information and third information indicating a child directory of the directory, on the basis of the first and second information of the read first directory information.

wherein the second directory information is stored in memory other than the non rewritable recording medium, and the directory is managed in accordance with the second directory information stored in the memory

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5,740,446
COMPILING DEVICE AND COMPILING METHOD

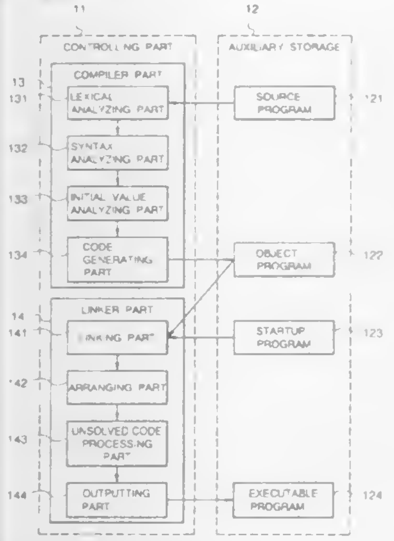
Yuji Fujiwara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 30, 1995, Ser. No. 521,449

Claims priority, application Japan, Aug. 30, 1994, 6-205781

Int. Cl.^{6} G06F *9/44*

U.S. Cl. 395—709 **15 Claims**



1. A compiling method comprising.

a step of generating an object program by entering a source program: and

a step of generating an executable program by entering the generated object program and a startup program for controlling the initial operation of the program at the start of execution,

said step for generating the object program including:

a step of performing lexical analysis with respect to the entered source program,

a step of performing syntax analysis of the program undergone said lexical analysis,

a step of performing analysis of the initial value of variables described in the program undergone the syntax analysis. and

a step of generating a code according to the result of the analysis of the initial value and outputting the object program: and

said step of analyzing the initial value including:

a step of dividing the variables into those without an initial value and those with an initial value according to a define statement of variables described in said source program, and further dividing the variables with an initial value into those of an array of structure and other variables,

a step of judging with respect to the variables recognized as the array of structure among the divided variables whether prescribed members of elements configuring said array of structure have one and the same initial value. and

a step of arranging said divided variables into different segments, and arranging the variables of the array of structure where said prescribed members have the same initial value into said segments with said same initial values omitted.

5,740,447
BRANCH INSTRUCTION OPTIMIZING PROCESS SYSTEM IN LINKAGE EDITOR

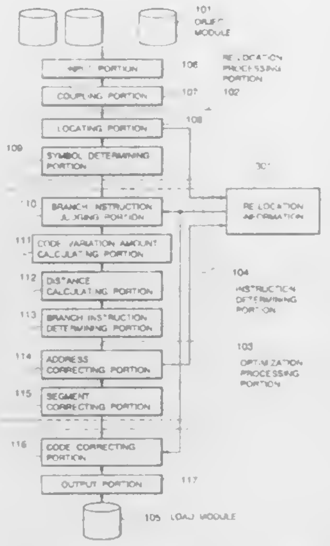
Keiichi Kurahashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 5, 1996, Ser. No. 611,493

Claims priority, application Japan, Mar. 5, 1995, 7-072345

Int. Cl.^{6} G06F *9/45*

U.S. Cl. 395—709 **13 Claims**


101 OBJECT MODULE
INPUT PORTION
106
COUPLING PORTION
107
102
LOCATING PORTION
108
109
SYMBOL DETERMINING PORTION
RE-LOCATION PROCESSING PORTION
10
BRANCH INSTRUCTION JUDGING PORTION
RE-LOCATION INFORMATION
111
CODE VARIATION AMOUNT CALCULATING PORTION
104
INSTRUCTION DETERMINING PORTION
112
DISTANCE CALCULATING PORTION
113
BRANCH INSTRUCTION DETERMINING PORTION
103
OPTIMIZATION PROCESSING PORTION
114
ADDRESS CORRECTING PORTION
115
SEGMENT CORRECTING PORTION
116
CODE CORRECTING PORTION
117
OUTPUT PORTION
105 LOAD MODULE

1 A branch instruction optimizing process system for performing optimization of code length of branch instruction for branching between modules in locating modules by a linkage editor for an information processing system, comprising:

locating means for locating a plurality of segments forming object modules within address space according to preferential order of location; and

optimization processing means for performing optimization of branch instruction per segment on the basis of a re-location information describing code variation information per instruction to be processed via address included in said object module;

said optimization processing means including:

instruction judging means for making judgement of branch instruction contained in said segment;

code variation amount calculating means for calculating the code variation amount between said branch instruction and a jumping label,

distance calculating means for calculating a relative address width between the address of said branch instruction and said jumping destination label,

instruction determining means for modifying and determining the code length of branch instruction on the basis of said code variation amount and relative address width;

address correction means for correcting address of instruction following said branch instruction and an address value of said jumping label depending upon variation of the code length of the determined branch instruction;

segment correction means for correcting said segment size depending upon variation of the code length of said branch instruction; and

said locating means re-locating all segments of said object module in said address space every time the optimization process of branch instruction with respect to one segment by said optimization means.

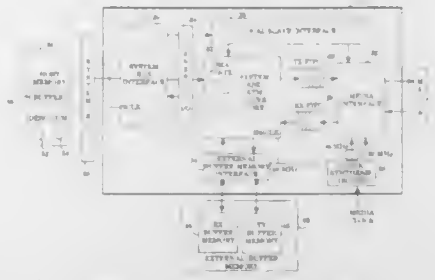
5,740,448
METHOD AND APPARATUS FOR EXCLUSIVE ACCESS TO SHARED DATA STRUCTURES THROUGH INDEX REFERENCED BUFFERS

Denton E. Gentry, Palo Alto, and Prakash Kashyap, Fremont, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 7, 1995, Ser. No. 499,483

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—726 **12 Claims**



1 A method for providing any one of a plurality of software applications exclusive access to a shared data structure in host memory, said method comprising the steps of.

saving an index value for each buffer in use in a corresponding descriptor pointing to each said buffer in use within said shared data structure. each said saved index value referencing an entry in a buffer table, said buffer table having the kernel address of each said buffer in use, and

retrieving said index value for one of said each buffer in use, said index value for use only by one of the any one of a plurality of software applications to exclusively access the kernel address of said one of said each buffer in use in said buffer table

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5,740,449
METHOD AND APPARATUS FOR MANAGING INTERRUPTS IN A DATA PROCESSING SYSTEM

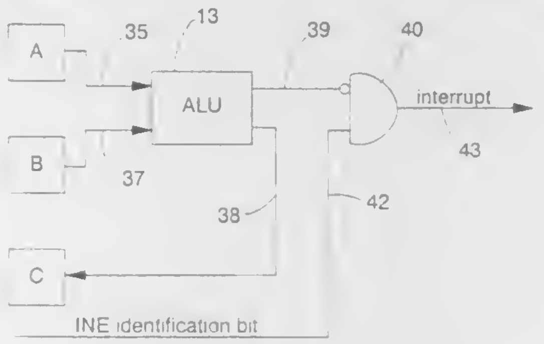
Rodney Hugh Densham, Charlbury; William Kentish, Chipping Norton; Peter Charles Eastty, Oxford, and Conrad Charles Cooke, Witney, all of United Kingdom, assignors to Sony Corporation, Tokyo, Japan, and Sony United Kingdom Limited, Weyb ridge, England

Filed Feb. 8, 1996, Ser. No. 598,537

Claims priority, application United Kingdom, Feb. 23, 1995, 9503668

Int. Cl.^{6} G06F *9/46;11/00*

U.S. Cl. 395—733 **26 Claims**



1. A method of generating an interrupt signal in a data processing system, the interrupt signal being supplied to a control processor of the system to indicate the occurrence of any of a plurality of predetermined events in the system, the method comprising

writing data to at least one memory location of a plurality of pairs of memory locations of the system in dependence upon the event to be indicated, the pairs of memory locations being predefined in the system for respective ones of the events;

reading data from the pairs of memory locations;

processing the data read from each pair of memory locations to generate interrupt data indicative of whether the associated event has occurred, and if so transmitting an interrupt signal to the control processor; and

writing the interrupt data corresponding to the events to respective third memory locations, the third memory locations being predefined in the control processor for said events;

wherein, on receipt of an interrupt signal, the control processor reads the interrupt data in the third memory locations to determine the event indicated by the interrupt signal

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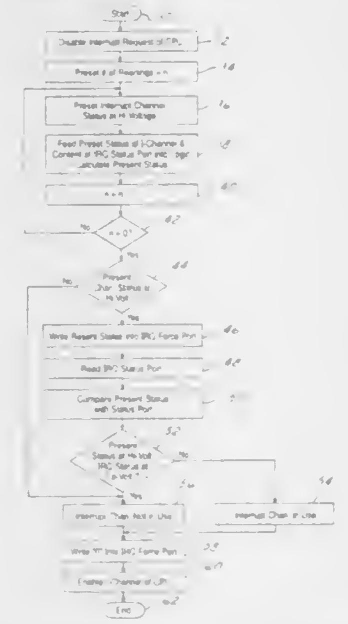
5,740,450
METHOD TO AUTOMATICALLY DETECT THE INTERRUPT CHANNEL STATUS OF AN ADD-ON CARD

Jeng-Fang Chiou, Pin-Chan, and Su-Chu Lin, Chu-Tong, both of Taiwan, assignors to United Microelectronics Corporation, Taipei, Taiwan

Continuation-in-part of Ser. No. 280,622, Jul. 26, 1994, abandoned. This application Jul. 26, 1996, Ser. No. 690,333

Int. Cl.^{6} G06F *9/22*

U.S. Cl. 395—733 **6 Claims**


Start
Disable Interrupt Request of CPU
Preset # of Readings = n
Preset Interrupt Channel Status at H Voltage
Interrupt Chan. Not in Use
Interrupt Chan. in Use
End

1 A method to automatically detect a use status of an interrupt channel on a personal computer add-on card equipped with an IRQ set port, an IRQ status port, and an IRQ force port, said method comprising the steps of:

(a) disabling an interrupt request on a central processing unit of said personal computer;

(b) presetting a number of data input into said IRQ status port, said data characterizing a use status of said interrupt channel to be detected.

(c) reading said preset number of data input into said IRQ status port;

(d) executing a logic "and" calculation of a result of said reading said preset number of data input and a data characterizing a current status of said interrupt channel, and repeating said reading and calculating for a predetermined number of times;

(e) writing a result from step (d) into said IRQ force port and reading data from said IRQ status port designating said interrupt channel as an unused interrupt channel if there is logic "1" in said IRQ force port and logic "0" in said IRQ status port;

(f) writing logic "0" into said IRQ force port, and

(g) activating an interrupt channel gate of said central processing unit.

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5,740,451
MICROCOMPUTER HAVING FUNCTION OF MEASURING MAXIMUM INTERRUPT-DISABLED TIME PERIOD

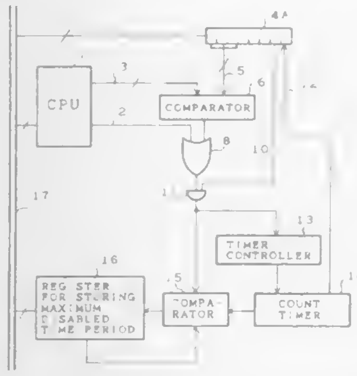
Hiroyuki Muraki, and Akiya Fukui, both of Hyogo, Japan, assignors to Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

Filed Oct. 28, 1996, Ser. No. 736,142

Claims priority, application Japan, May 16, 1996, 8-121737

Int. Cl.⁶ G06F *9/46; 13/14*

U.S. Cl. 395—733 6 Claims



1. A microcomputer having a function of measuring a maximum of periods of time during which interrupts are disabled, said microcomputer comprising:

a memory means for storing a value indicating a maximum interrupt-disabled time period in a program,

a disabled-state detecting means for detecting a time when a disabled state in which interrupts are disabled starts in the program and a time when the disabled state ends;

a counter means for starting a counting operation when said disabled-state detecting means detects a time when the disabled state starts; and

a comparing means for receiving a count value of said counter means when said disabled-state detecting means detects a time when the disabled state ends, and for updating contents of said memory means by replacing the value in said memory means with the count value when said comparing means determines that the count value is larger than the value in said memory means.

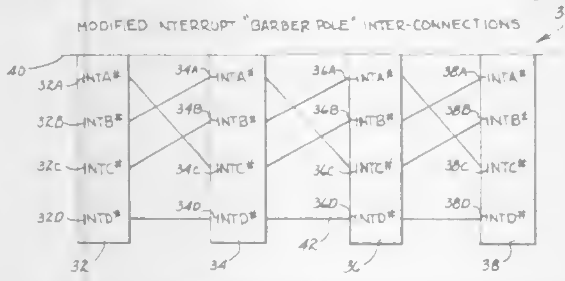
5,740,452
SYSTEM FOR PASSING INDUSTRY STANDARD ARCHITECTURE (ISA) LEGACY INTERRUPTS ACROSS PERIPHERAL COMPONENT INTERCONNECT (PCI) CONNECTORS AND METHODS THEREFOR

Franklyn H. Story, Chandler, and David R. Evoy, Tempe, both of Ariz., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Mar. 29, 1996, Ser. No. 624,169

Int. Cl.⁶ G06F *13/24*

U.S. Cl. 395—734 17 Claims



1. A system for passing Industry Standard Architecture (ISA) legacy interrupts across Peripheral Component Interconnect (PCI) connectors comprising, in combination:

a PCI bus,

a plurality of PCI connectors coupled to said PCI bus, each of said plurality of PCI connectors having a same number of interrupt pins connected to each of said PCI connectors, said interrupt pins of each of said plurality of PCI connectors being coupled together so a last interrupt pin of said interrupt pins of each of said plurality of PCI connectors are coupled together in a directly bussed manner to provide a serial interrupt signal line and a remainder of said interrupt pins of each of said plurality of PCI connectors being coupled together in a manner to support PCI Local Bus Specifications; and

configuration bit means for selecting between a native PCI mode of operation and a ISA legacy mode of operation for said system, said configuration bit means causing said interrupt pins of each of said plurality of PCI connectors to be open drain outputs which are driven low when an enable interrupt source is active when said configuration bit means are set to operate in said native PCI mode of operation and enabled interrupt sources causing generation of serial interrupt packets over said serial interrupt signal line when said configuration bit means are set for said ISA legacy mode of operation.

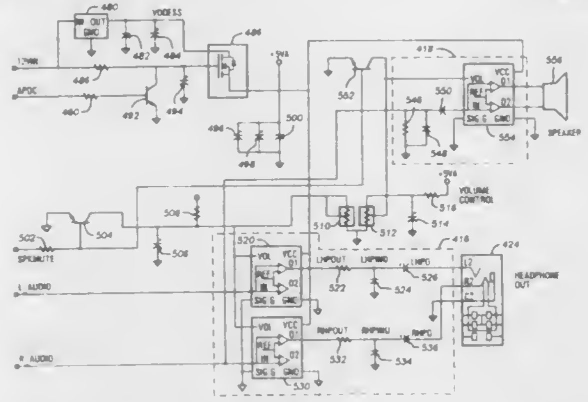
5,740,453
CIRCUIT FOR REDUCING AUDIO AMPLIFIER NOISE DURING POWERING ON AND OFF

Henry F. Lada, Jr., Cypress, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Mar. 3, 1995, Ser. No. 398,396

Int. Cl.⁶ G06F *1/28*

U.S. Cl. 395—750 11 Claims



1. An apparatus for controlling noise signals resulting from transients generated by the power-up or power-down of portions of a computer, said computer having a status signal indicative of the power state of the portions of the computer, said apparatus comprising:

a power indicator having a resistor connected in parallel with a diode, said power indicator having a capacitor connected to the anode end of said diode and to ground, said power indicator receiving said status signal at the cathode end of said diode;

a mute indicator having a resistor connected in parallel with a diode, said mute indicator having a capacitor connected to the cathode end of said diode and to ground, said mute indicator receiving said status signal at the anode end of said diode;

an amplifier with a volume control input and a power supply input, said volume control input coupled to the cathode end of said diode in said mute indicator, and

a power switch having a control input coupled to the anode end of said diode of said power indicator and an output coupled to said power supply input of said amplifier.

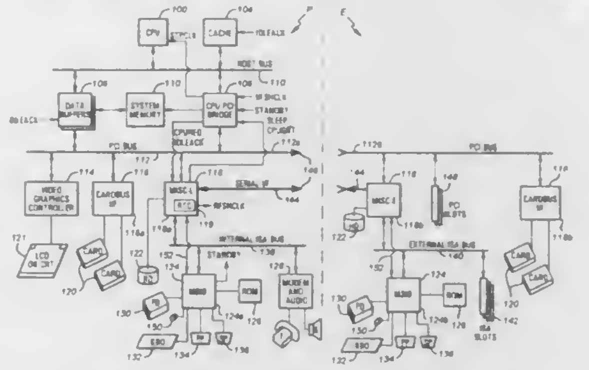
5,740,454
CIRCUIT FOR SETTING COMPUTER SYSTEM BUS SIGNALS TO PREDETERMINED STATES IN LOW POWER MODE

Philip C. Kelly, Cypress; Todd J. DeSchepper, and James R. Reif, both of Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 20, 1995, Ser. No. 576,193

Int. Cl.⁶ G06F *1/32*

U.S. Cl. 395—750.03 52 Claims



1. A circuit for managing power consumption in a computer system, the computer system having a bus and a first bus device and second bus device coupled to the bus, the bus having a plurality of bus signals, the first bus device operating off a first power supply voltage and the second bus device operating off a second power supply voltage, the second power supply voltage being greater than the first power supply voltage, wherein the computer system has at least one low power state, and wherein the first bus device has ownership of the bus in the low power state, the circuit comprising:

means for detecting if the computer system is in the low power state; and

means coupled to said detecting means for causing the first bus device to drive a portion of the bus signals to a zero state if the computer system is in the low power state.

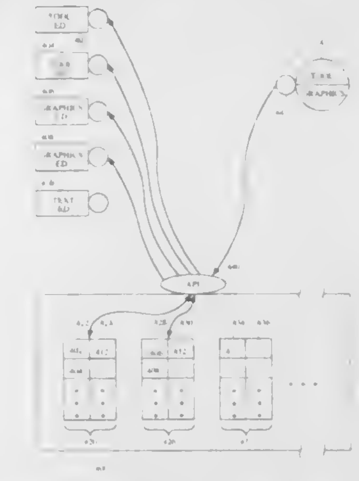
5,740,455
ENHANCED COMPOUND DOCUMENT PROCESSING ARCHITECTURES AND METHODS THEREFOR

John Franklin Pavley, Cupertino; John Benton Turner, II, and Gary Stephen Hanson, both of Mountain View, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 16, 1995, Ser. No. 441,883

Int. Cl.⁶ G06F *17/00, 15/163*

U.S. Cl. 395—777 37 Claims



20. A computer program product, comprising a computer usable medium having computer readable code embodied therein for processing data in a compound document, said compound document having a plurality of embedded object editors for respectively rendering data having different interest types in different compound document content areas, one of said object editors representing a provider for said compound document, and a plurality of editing controllers embedded in said compound document, the computer program product comprising:

computer readable program code configured to cause a computer to detect whether a selection is made in one of said data;

computer readable program code configured to cause said computer to effect the filling out of an auditor data structure with first attributes of said selection by one of said object editors, said one of said object editors being associated with said one of said data; and

computer readable program code configured to cause said computer to communicate said first attributes embodied in data fields of said auditor data structure from said one of said object editors to interested ones of said editing controllers, wherein said one of said object editors and said interested ones of said editing controllers both register with a data switching system to receive attribute data having an interest represented by said first attributes.

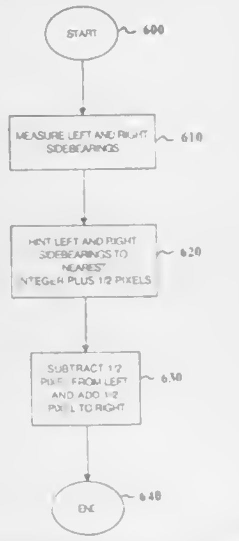
5,740,456
METHODS AND SYSTEM FOR CONTROLLING INTERCHARACTER SPACING AS FONT SIZE AND RESOLUTION OF OUTPUT DEVICE VARY

Dov Harel, Bellevue; Martin P. Tompa, Woodinville, and Eliyezer Kohen, Mercer Island, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Division of Ser. No. 311,962, Sep. 26, 1994, Pat. No. 5,598,520. This application Apr. 3, 1996, Ser. No. 626,826

Int. Cl.⁶ G06F *3/14*

U.S. Cl. 395—780 11 Claims


START
600
MEASURE LEFT AND RIGHT SIDEBEARINGS
610
HINT LEFT AND RIGHT SIDEBEARINGS TO NEAREST INTEGER PLUS 1/2 PIXELS
620
SUBTRACT 1/2 PIXEL FROM LEFT AND ADD 1/2 PIXEL TO RIGHT
630
END
640

1. In an automatic typography system, a method of controlling the intercharacter spacing between adjacent characters, each of said characters having a left sidebearing and a right sidebearing, said method comprising the steps of

hinting each of said left and right sidebearings of said each character to one of a plurality of numbers of pixels to produce a hinted left sidebearing and a hinted right sidebearing; and

subtracting a predetermined number of pixels from one of said hinted sidebearings and adding said predetermined number of pixels to the other of said hinted sidebearings to make said one of said hinted sidebearings a first integral number of pixels and said other of said hinted sidebearings a second integral number of pixels.

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5,740,457
ELECTRONIC DICTIONARY, ITS PRODUCTION METHOD, AND INDEX COMPRESSION AND DECOMPRESSION DEVICE

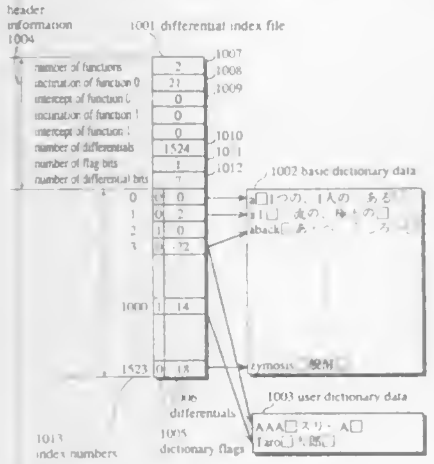
Takakazu Shiomi, Osaka, Japan, assignor to Matsushita Electric Ind., Osaka, Japan

Filed Mar. 1, 1996, Ser. No. 609,358

Claims priority, application Japan, Mar. 3, 1995, 7-044565

Int. Cl.^{6} G06F *12/00*

U.S. Cl. 395—795 **10 Claims**



1. An electronic dictionary comprising:

a dictionary medium;

dictionary data composed of a plurality of dictionary data elements and stored in the dictionary medium; and

an index file showing storage positions of all dictionary data elements and being stored in the dictionary medium,

wherein the index file is a differential index in which each item is expressed by a differential between a pointer showing a storage position of a dictionary data element and a given function value, with each item of the differential index being expressed by a bit length equal to or shorter than maximum bit length for showing a storage position of a dictionary data element.

5,740,458
PROTOCOL PROCESSOR INTENDED FOR THE EXECUTION OF A COLLECTION OF INSTRUCTIONS IN A REDUCED NUMBER OF OPERATIONS

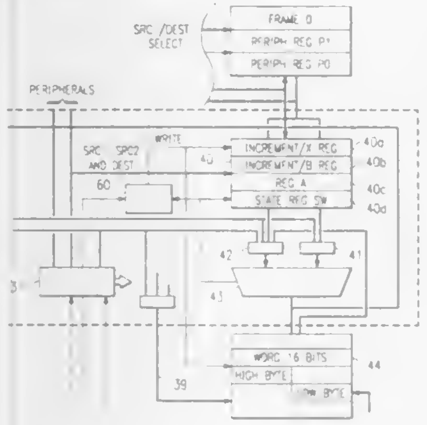
Gerard Chauvel, Antibes; Francis Aussedat, Nanterre, and Pierre Calippe, Levallois-Perret, all of France, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 22, 1992, Ser. No. 902,191

Claims priority, application France, Jun. 27, 1991, 91 07985

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—800 **1 Claim**



1. A protocol data processor for use with at least one main data processor in a data processing system, wherein the protocol data processor is employed for the execution of tasks unsuitable for execution by the main data processor, said protocol data processor comprising:

a program part including an incrementation register for containing addresses;

a program memory having instruction data stored therein connected to said incrementation register for receiving addresses therefrom to identify data to be accessed from said program memory;

a local random access memory;

a decoding part for receiving instruction data from said program memory for execution of a respective instruction in two cycles, said decoding part including a decoder for generating the address of a register used in the instruction and/or a random access memory address, said decoder being effective to receive interrupt signals, test, and set-up signals in a monitoring function to facilitate synchronization of the protocol data processor with the at least one main data processor included in the data processing system;

a data part comprising first and second multiplexers, an arithmetic and logic unit connected to the outputs of said first and second multiplexers, and a bank of registers connected to the inputs of said first and second multiplexers; a communication random access memory common to said protocol data processor and the at least one main data processor, said communication random access memory being connected to said first and second multiplexers and to said arithmetic and logic circuit; said first and second multiplexers respectively selecting registers from said bank of registers or the communication random access memory for providing data at the input of said arithmetic and logic unit, one operation defined in the field of an instruction being executed between two values at the input of said arithmetic and logic unit, the result of said one operation being carried within the same cycle to the intended address contained in said communication random access memory; for executing the instruction during the second of said two cycles;

said program memory providing first instruction data from the address designated by said incrementation register to said decoding part and the first instruction data being decoded during the first part of said two cycles, said program memory providing second instruction data from the address designated by said incrementation register to said decoding part and the second instruction data being decoded as the first part of a second two-cycle sequence coincident with the execution of the first instruction by said data part during the second part of the first two cycle sequence; and

further comprising a condition monitoring block connected between the decoder of said decoding part and said bank of registers, the condition monitoring block receiving information from a selected register of said bank of registers and from the condition field of an instruction to be executed.

5,740,459
METHOD AND CIRCUIT FOR SORTING DATA IN A FUZZY INFERENCE DATA PROCESSING SYSTEM

Ken Ota, Yokohama, Japan, and William C. Archibald, Gillette, Wyo., assignors to Motorola, Inc., Schaumburg, Ill.

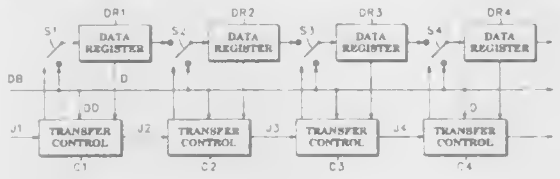
Continuation of Ser. No. 132,614, Oct. 6, 1993, abandoned.

This application Sep. 11, 1995, Ser. No. 526,331

Claims priority, application Japan, Oct. 7, 1992, 4-293697

Int. Cl.^{6} G06F *15/00*

U.S. Cl. 395—800 **11 Claims**



1. A data processing system, comprising:

a first data bus for transmitting a first plurality of data values to be sorted;

a second data bus for transmitting a second plurality of data values to be sorted;

a first plurality of cascaded data registers coupled to the first data bus for selectively storing a first one of the first plurality of data values, selectively shifting a corresponding one of a first plurality of stored data values to a subsequent one of the first plurality of data registers, and selectively not executing one of a storage and a shifting operation in response to a corresponding one of a plurality of selector control signals, wherein each of the first plurality of cascaded data registers comprises:

a first selector circuit coupled to the logic means for receiving a transfer control signal, coupled to the first data bus, and coupled to a third data bus; and

a first data register having an input coupled to the first selector circuit and an output coupled to a first subsequent selector circuit of the subsequent one of the first plurality of cascaded data registers;

a second plurality of cascaded data registers coupled to the second data bus for selectively storing a first one of the second plurality of data values, selectively shifting a corresponding one of a second plurality of stored data value to a subsequent one of the second plurality of data registers, and selectively not executing one of a storage and a shifting operation in response to the corresponding one of the plurality of selector control signals, wherein each of the second plurality of cascaded data registers comprises:

a second selector circuit coupled to the logic means for receiving a transfer control signal, coupled to the second data bus, and coupled to a fourth data bus; and

a second data register having an input coupled to the second selector circuit and an output coupled to a second subsequent selector circuit of the subsequent one of the second plurality of cascaded data registers; and

a plurality of selector controllers coupled to a corresponding one of the first plurality of cascaded data registers for receiving the corresponding one of the first plurality of stored data values, coupled to the first data bus for receiving the first plurality of data values, and each of the plurality of selector controllers coupled to a corresponding one of the second plurality of cascaded data registers for receiving the corresponding one of the plurality of selector control signals, a first one of the plurality of selector controllers comparing each of the corresponding ones of the first plurality of stored data values and the first plurality of data values to provide the plurality of selector control signals, wherein each of the plurality of selector controllers comprises:

a comparator for comparing a first value of the first plurality of data values and a first corresponding one of the first plurality of stored data values, the comparator providing a comparison signal;

a latch coupled to the comparator for storing the comparison signal, the latch providing a delayed signal; and

logic means coupled to the latch for receiving the delayed signal, a write enable signal, and a history signal, the logic means providing a corresponding one of the plurality of selector control signals;

wherein the second selector circuit selectively provides a first one of the second plurality of data values to the second data register when the corresponding one of the plurality of selector control signals indicates the first one of the first plurality of data values is less than the first corresponding one of the first plurality of stored data values; and

wherein the second data register shifts a value stored therein to the second subsequent selector circuit using the fourth data bus when the first one of the second plurality of data values is stored in the first one of the second plurality of data registers.

5,740,460
ARRANGEMENT FOR PROCESSING PACKETIZED DATA

Adrian P. Wise; Kevin D. Dewar; Anthony Mark Jones, all of Bristol; Martin William Sotheran, Gloucestershire; Colin Smith, Bristol; Helen Rosemary Finch, Gloucestershire; Anthony Peter John Claydon, Avon; Donald William Patterson, Bristol; Mark Barnes, Wiltshire; Andrew Peter Kuligowski, Bristol; William P. Robbins, Gloucestrshire; Nicholas Birch, Bristol, and David Andrew Barnes, Gloucestershire, all of United Kingdom, assignors to Discovision Associates, Irvine, Calif.

Division of Ser. No. 473,813, Jun. 7, 1995. This application Jun. 7, 1995, Ser. No. 481,772

Claims priority, application United Kingdom, Jul. 29, 1994, 9415413; Jun. 7, 1995, 9511569

Int. Cl.^{6} G06F *15/66*

U.S. Cl. 395—800 **5 Claims**

1. A pipelined video decoder system having an input, an output and a plurality of processing stages therebetween, and receiving an input stream of encoded data comprising:

a token generator, responsive to a picture start code and to extension start code identifiers and user data in the input stream for generating a universal adaptation unit in the form of an interactive interfacing token for control and/or data functions among said processing stages, wherein said interactive interfacing token is serially transmitted through said processing stages;

wherein a discard user configuration bit is included in a data packet of the input stream; and a discard extn bit is included in the data packet, wherein responsive to a first condition of said discard extn bit the token generator disregards the extension start code identifier, and responsive to a second condition of said discard extn bit the extension start code identifier is replaced with another extension data token;

whereby extension and user data are selectively specified for the user by the processing system.

5,740,461
DATA PROCESSING WITH MULTIPLE INSTRUCTION SETS

David Vivian Jaggar, Cherry Hinton, United Kingdom, assignor to Advanced RISC Machines Limited, Cambridge, United Kingdom

Continuation of Ser. No. 308,836, Sep. 19, 1994, abandoned.

This application Oct. 22, 1996, Ser. No. 735,046

Claims priority, application United Kingdom, May 3, 1994, 9408765

Int. Cl.^{6} G06F *9/30*

U.S. Cl. 395—800 **15 Claims**

1. Embedded apparatus for processing data, said embedded apparatus comprising:

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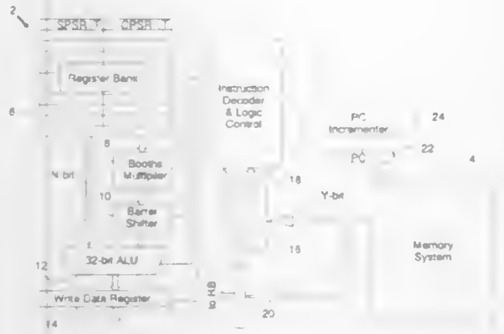


(i) a processor core having N-bit data path rays that receive a plurality of core control signals determined by either decoded X-bit program instruction words in a first permanent instruction set, or decoded Y-bit program instruction words in a second permanent instruction set, where Y is less than X, the second permanent instruction set corresponding to a subset of the first permanent instruction set and having subset elements of a type providing common functionality and higher code density with respect to said first permanent instruction set, the processor core adapted to perform N-bit data processing operations in response to the determined core control signals;

(ii) a first decoder that is coupled to the N-bit data pathways of the processor core, and that receives selected X-bit program instruction words of the first permanent instruction set including all fixed length X-bit program instruction words specifying N-bit data processing operations, and decodes the X-bit instruction words to generate said core control signals to cause the processor core to perform the specified N-bit data processing operations using said N-bit data pathways;

(iii) a second decoder that is coupled to the N-bit data pathways of the processor core, and that receives selected. Y-bit program instruction words of the second permanent instruction set including all fixed length Y-bit program instruction words specifying N-bit data processing operations, and decodes the Y-bit instruction words to generate said core control signals to cause the N-bit data processing operations using said N-bit data pathways; and

(iv) an instruction set switch coupled to said first decoder and to said second decoder for selecting either a first processing mode using said first decoder to decode received program instruction words or a second processing mode using said second decoder to decode said same received program instruction words, the instruction set switch being responsive to an instruction set flag, the instruction set flag being settable in real time under program control.

5,740,462
OUTPUT APPARATUS PERMITTING FONT SELECTION BASED ON RESOLUTIONS

Masaru Igarashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 116,543, Sep. 7, 1993, abandoned, which is a continuation of Ser. No. 598,154, Oct. 16, 1990, abandoned. This application Mar. 1, 1995, Ser. No. 396,903

Claims priority, application Japan, Oct. 23, 1989, 1-273838

Int. Cl.^{6} G06F *17/21*

U.S. Cl. 395—805 6 Claims

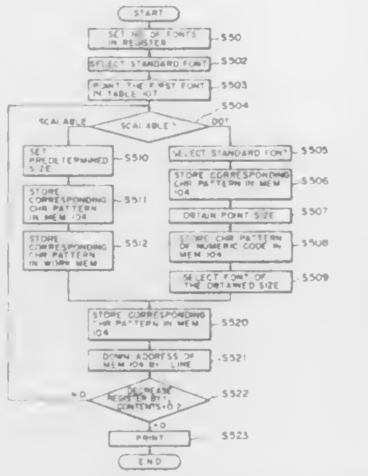
1 An output control apparatus comprising:

setting means for setting a resolution;

read means for sequentially reading font information stored in a font management table for a plurality of fonts;

discrimination means for discriminating whether a font is a scalable font or a dot font, in response to the font information read by said read means,

generation means for generating a character pattern of a predetermined size based on scalable font data if said discrimination means discriminates that the font is a scalable font;


START
SET NO. OF FONTS IN REGISTER
S501
SELECT STANDARD FONT
S502
PRINT THE FIRST FONT IN TABLE 107
S503
S504
SCALABLE?
SET PREDETERMINED SIZE
S510
STORE CORRESPONDING CHR PATTERN IN MEM 104
S511
S512
SELECT STANDARD FONT
S505
S506
OBTAIN POINT SIZE
S507
S508
SELECT FONT OF THE OBTAINED SIZE
S509
STORE CORRESPONDING CHR PATTERN IN MEM 104
S520
DOWN ADDRESS OF MEM 104 BY 1 LINE
S521
DECREASE REGISTER BY 1 CONTENTS=0?
S522
PRINT
S523
END

calculation means for calculating a point size in response to the resolution set by said setting means and the font information read by said read means if said discrimination means discriminates that the font is a dot font, and

development means for developing, in the resolution set by said setting means, a list of scalable fonts including a font name, information indicating that the font is a scalable font, and the character pattern generated by said generation means and a list of dot fonts including a font name, the point size calculated by said calculation means, and a character pattern corresponding to the font information read by said read means.

5,740,463
INFORMATION PROCESSING SYSTEM AND METHOD OF COMPUTATION PERFORMED WITH AN INFORMATION PROCESSING SYSTEM

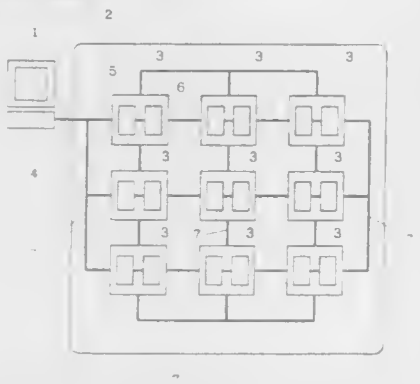
Takeharu Oshima; Toshiyuki Tamura; Satoru Kotoh; Hirono Tsubota; Shinji Komnri; Shinji Nakashima, all of Tokyo; Hiroaki Terada; Makoto Iwata, both of Osaka; Katsuhito Yamaguchi, Hyogo; Junji Onishi, Osaka, and Akira Kondo, Hyogo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 20, 1995, Ser. No. 504,583

Claims priority, application Japan, Jul. 22, 1994, 6-171385; Jul. 17, 1995, 7-180195

Int. Cl.^{6} G06F *13/38, 15/16*

U.S. Cl. 395—800.11 77 Claims



1 An information processing system, comprising:

plural buses and plural element processors which are networked by said plural buses, each of said plural element processors respectively including,

processing units for performing computing operations, and

data memories for storing data regarding said computing operations for performing computation by assigning, using at least one governing equation of a field which is described in at least one prescribed equation by using said plural element processors, plural lattice points obtained by spatially dividing said field to said plural element processors; and

plural data buses for providing mutual communications of said data between adjacent ones of said plural element processors,

wherein said computation is performed by operating said plural element processors asynchronously and independently by using said data transmitted through said plural data buses, and wherein each of said plural element processors directly writes to or reads from said data memories of adjacent element processors through one of said plural buses for communication therebetween.

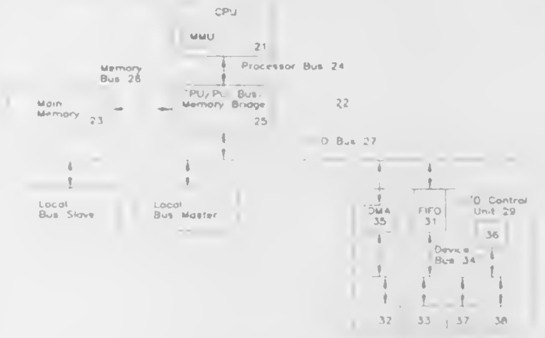
5,740,464
ARCHITECTURE FOR PROVIDING INPUT/OUTPUT OPERATIONS IN A COMPUTER SYSTEM

Curtis Priem, Fremont, and David S. H. Rosenthal, Palo Alto, both of Calif., assignors to NVidia Corporation, Sunnyvale, Calif.

Division of Ser. No. 441,399, May 15, 1995, Pat. No. 5,623,692. This application Nov. 19, 1996, Ser. No. 752,723

Int. Cl.^{6} G06F *12/06*

U.S. Cl. 395—823 15 Claims



1 An input/output control unit adapted to be joined to a system input/output bus in a multitasking computer system comprising,

a register having a system input/output physical bus address and holding a physical address of an input/output device, the register responding to commands from an unprivileged application program addressed to the system input/output physical bus address of the register to provide the physical address of the input/output device for the commands, and

a translating circuit responsive to commands from an unprivileged application program to the system input/output physical bus address of the register to furnish a physical address of an input/output device for storage in the register which physical address is safe for the application program to access.

5,740,465
ARRAY DISK CONTROLLER FOR GROUPING HOST COMMANDS INTO A SINGLE VIRTUAL HOST COMMAND

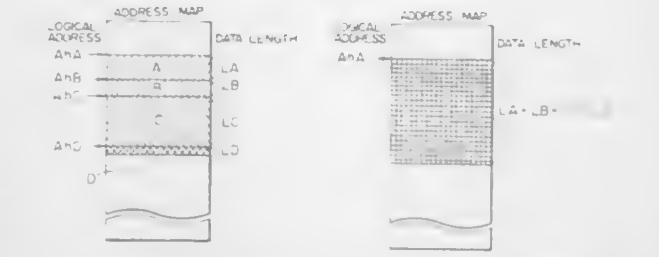
Naoto Matsunami, Yokohama; Minoru Yoshida, Odawara; Shoichi Miyazawa, Yokohama; Takashi Oeda, Yokohama; Kiyoshi Honda, Yokohama, and Shuji Ohno, Kawasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 7, 1993, Ser. No. 43,841

Claims priority, application Japan, Apr. 8, 1992, 4-087223; Aug. 26, 1992, 4-227320

Int. Cl.^{6} G06F *13/00*

U.S. Cl. 395—825 8 Claims



2. An array disk controller to which a plurality of disk units are connected, comprising:

means for receiving a host command from a host computer requesting access to data stored in j disk units (j: an integer; $j\geq 1$) connected to said array disk controller, and notifying an end of the host command to said host computer;

means for temporarily storing host commands successively issued by the host computer in a queue;

means for extracting and grouping, from among the host commands stored in said queue, m host commands (m: an integer, $m\geqq 2$) requesting access to a continuous data area, and producing k disk commands respectively corresponding to k disk units (k: an integer; $k\geqq j$) according to the extracted and grouped host commands as a single new virtual host command;

means for issuing said disk commands substantially concurrent to said k disk units so as to operate said k disk units in parallel and detecting whether data transfer due to read/write operation by said disk commands have ended; and

means for storing and managing information as to relationships between said single new virtual host command and said k disk commands,

wherein said m host commands accessing said continuous data area issued by said host computer are regarded as a single new virtual host command within said array disk controller, and thus time of disk latencies in said disk units is reduced substantially to 1/m compared to when said m host commands are executed individually,

the grouped m host commands accessing to a continuous data area are data read commands and are regarded as a single new virtual read command,

said extracting and grouping means produce k disk read commands to be distributed to said k disk units using said single new virtual read command,

said disk commands issuing means issues said k disk read commands to said k disk units, and

said continuous data area is read collectively by said disk units as a single data block, and thus read at a data transfer rate which is faster by a factor $f=k/j$ compared to when said m host commands are executed individually

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5,740,466
FLEXIBLE PROCESSOR-DRIVEN SCSI CONTROLLER WITH BUFFER MEMORY AND LOCAL PROCESSOR MEMORY COUPLED VIA SEPARATE BUSES

John S. Geldman, Los Gatos; Joe Y. Chen, and Tony J. Yoon, both of San José, all of Calif., assignors to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 904,807, Jun. 26, 1992, Pat. No. 5,524,268. This application Jan. 25, 1996, Ser. No. 590,387

Int. Cl.^{6} G06F *9/00, 13/00, 13/10, 13/12*

U.S. Cl. 395—825 9 Claims

1 A controller coupled to a local processor and a local processor memory via a first bus for providing an interface between a disk drive controller and a SCSI bus, the disk drive controller having a disk interface, said controller comprising

a SCSI-protocol processor having an instruction set which provides programmable control for the operation of said SCSI bus, wherein instructions are provided to said SCSI protocol processor from an external buffer memory said buffer memory coupled to said SCSI-protocol processor via a second bus for (i) providing temporary storage for data to be written to said disk drive, (ii) for data read from said disk drive and (iii) for storing program data and instructions for use by said SCSI protocol processor, wherein said SCSI protocol proces

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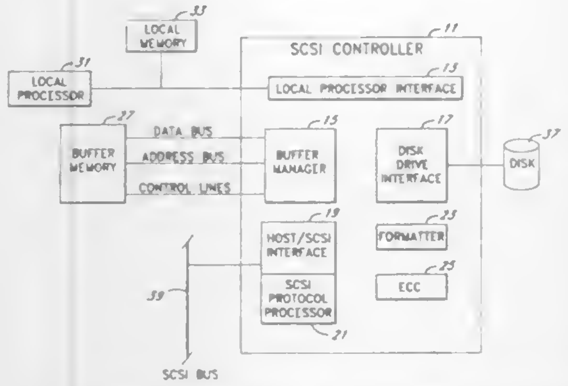


sor executes one instruction in said instruction set and requests a next instruction from the external buffer memory independently from said local processor and said local processor memory,

a buffer manager circuit coupled to said external buffer memory, to said SCSI-protocol processor, and to said disk interface, for controlling the flow of data to and from said buffer memory and allocating space within said buffer memory for the storage of program data and instructions for use by said SCSI protocol processor and disk interface, wherein control of said external buffer memory by said buffer manager circuit is independent of the local processor and the local processor memory.

5,740,467

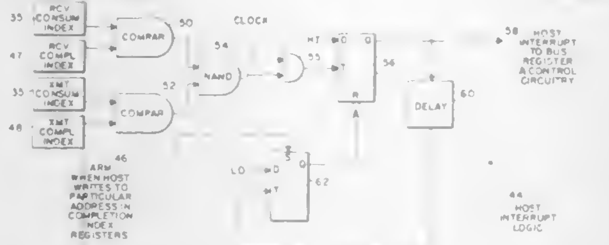
APPARATUS AND METHOD FOR CONTROLLING INTERRUPTS TO A HOST DURING DATA TRANSFER BETWEEN THE HOST AND AN ADAPTER

Stanley Chmielecki, Jr., Nashua, N.H.; Frank A. Itkowsky, Jr., Leominster, Mass.; G. Paul Koning, Brookline, N.H.; Douglas M. Washbaugh, Leominster, Mass., and Kadangode K. Ramakrishnan, Maynard, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 818,564, Jan. 9, 1992, abandoned. This application Sep. 21, 1994, Ser. No. 310,899

Int. Cl.⁶ G06F *13/00*

U.S. Cl. 395—876 **25 Claims**



1 A method of controlling interrupts by an adapter to a host system, said host system having a host memory, said host memory having buffers, and further said host system having a driver to operate said adapter, the method comprising the steps of

- consuming buffers in said host memory by said adapter using said driver in reading said buffers during adapter read operation, and in writing said buffers during adapter write operation;
- maintaining a consumer index in said adapter, said consumer index indicating a last buffer consumed, as consumed buffers are indicated by said adapter, said adapter updating said consumer index to a current value as new buffers are consumed;
- writing a completion index to said adapter by said driver after all buffers are consumed, said completion index indicating a last buffer consumed, as consumed buffers are indicated by said host system,
- setting an arm bit in said adapter, said arm bit indicating that said driver in said host system has completed servicing of an interrupt issued by said adapter; and,
- interrupting said host system by said adapter to activate said driver, in the event that said arm bit is set AND said completion index indicates a different buffer than said current value of said consumer index.

5,740,468

DATA TRANSFERRING BUFFER

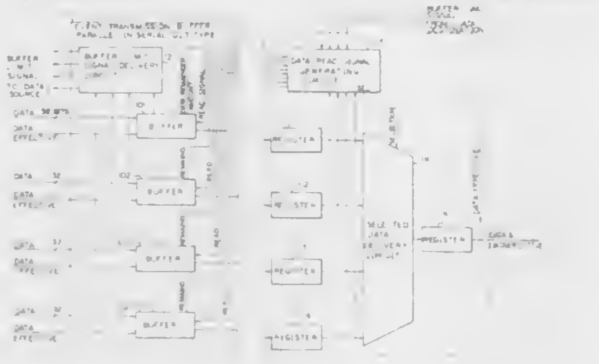
Fumiyasu Hirose, Machida, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 563,941, Aug. 6, 1990, abandoned, which is a continuation of Ser. No. 142,948, Jan. 12, 1988, abandoned. This application Dec. 1, 1993, Ser. No. 159,705

Claims priority, application Japan, Jan. 12, 1987, 62-004522; Jan. 12, 1987, 62-004523

Int. Cl.⁶ G06F *13/12*

U.S. Cl. 395—877 **10 Claims**



1 Data transferring buffer circuits for data exchange, said data transferring buffer circuits receiving data from a plurality of data sources, providing the data to a plurality of data destinations and receiving a destination buffer limit signal from at least one of the plurality of data destinations, said data transferring buffer circuits comprising

- a plurality of buffers connected to corresponding ones of the plurality of data sources to independently receive and store data in parallel the data sent from the plurality of data sources, each of said buffers providing a data remainder amount signal;
- a buffer limit signal generating circuit, connected to said plurality of buffers, for generating a source buffer limit signal when an amount of data stored in one of said plurality of buffers reaches a predetermined limit and outputting the source buffer limit signal to one of a plurality of the data sources,
- a data read signal generating circuit, connected to said plurality of buffers, for producing a selection signal to identify a selected buffer from among said plurality of buffers based on the data remainder amount signals from said plurality of buffers and the destination buffer limit signal from at least one of the plurality of data destinations indicating ability to receive the data from at least one of said buffers storing the data to be sent, and for supplying a data reading signal to the selected buffer; and
- a selected data delivery circuit, connected to said data read signal generating circuit and said buffers, for receiving the selection signal from said data read signal generating circuit and for delivering the data, output by the selected buffer in response to the data reading signal, to each of the at least one of the plurality of data destinations capable of receiving the data as indicated by the destination buffer limit signal received therefrom

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5,740,469

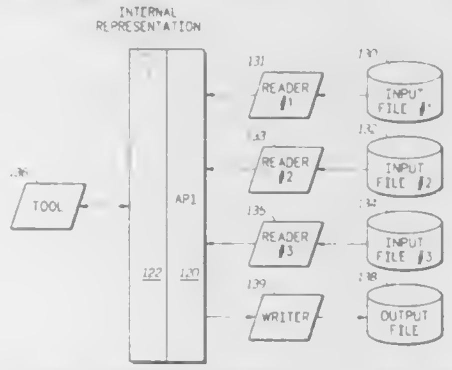
APPARATUS FOR DYNAMICALLY READING/WRITING MULTIPLE OBJECT FILE FORMATS THROUGH USE OF OBJECT CODE READERS/WRITERS INTERFACING WITH GENERALIZED OBJECT FILE FORMAT INTERFACE AND APPLICATIONS PROGRAMMERS' INTERFACE

Weiping Yin; Paul Hancock, and Alan Weiner, all of Austin, Tex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Apr. 24, 1995, Ser. No. 426,862

Int. Cl.⁶ G06F *5/00*

U.S. Cl. 395—885 **8 Claims**



1 An apparatus allowing a software Tool to read a plurality of Object File Formats comprising:

- a plurality of Object Code Readers, wherein:
  - each of the plurality of Object Code Readers reads data formatted in at least one of a plurality of Object File Formats, and
  - at least two of said plurality of Object Code Readers read data formatted in different ones of the plurality of Object File Formats;
- one or more Data Structures storable in a Memory, wherein:
  - said one or more Data Structures provide a Generalized Object File Format interface; and
- an Applications Programmers' Interface (API) providing selectable communications allowing data stored in the one or more Data Structures to be transferred between the Tool and one or more of said plurality of Object Code Readers.

5,740,470

VIBRATION REDUCING CAMERA

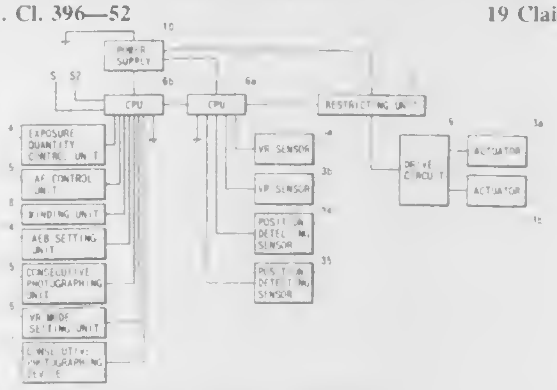
Yoshihisa Kitagawa, Kasukabe, and Masami Takemoto, Tokyo, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 708,227, Sep. 6, 1996, abandoned. This application Apr. 30, 1997, Ser. No. 841,336

Claims priority, application Japan, Sep. 12, 1995, 7-233950

Int. Cl.⁶ G03D *7/08*

U.S. Cl. 396—52 **19 Claims**



1 A vibration reducing camera comprising

- a vibration reducing optical system;
- a vibration reducing drive unit for reducing vibrations by changing a state of said vibration reducing optical system,
- a state detecting unit for detecting a state of said vibration reducing optical system;
- a fixing unit for fixing said vibration reduction optical system in a predetermined initial state.
- a photographic condition changing unit for performing a predetermined number of photographing operations while stepwise changing a part of photographic conditions;
- a photographic condition setting unit for setting at least a number of exposures in said photographic condition changing unit; and
- a control unit for controlling said vibration reducing drive unit, said state detecting unit, said fixing unit and said photographic condition changing unit.
- wherein said control unit defines the allowable range of variation quantity of said vibration reducing optical system on the basis of a number of exposures and an already-exposed number that are set in said photographic condition setting unit

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5,740,471

CAMERA SHAKE COMPENSATION DEVICE

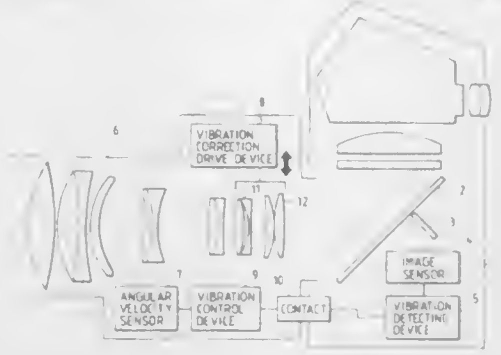
Nobuhiko Terui, Ichikawa, Japan, assignor to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 681,494, Jul. 23, 1996, abandoned, which is a continuation of Ser. No. 481,158, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 181,974, Jan. 18, 1994, abandoned, which is a continuation of Ser. No. 32,539, Mar. 17, 1993, abandoned, which is a continuation of Ser. No. 835,576, Feb. 14, 1992, abandoned. This application Apr. 29, 1997, Ser. No. 848,052

Claims priority, application Japan, Mar. 6, 1991, 3-039869

Int. Cl.⁶ G03B *5/00*

U.S. Cl. 396—53 **30 Claims**



1 A camera anti-shaking device comprising

- a mechanical sensor for detecting a shake velocity when a camera body is shaker.
- mechanical shake calculation means for calculating a shake amplitude of the camera body based on the detection output of said mechanical sensor:
- an optical sensor for detecting a relative positional displacement of an object due to shake:
- optical shake calculation means for calculating a shake amplitude of the camera body based on the detection output of said optical sensor:
- shake compensation means for relieving an effect by the shake to a photograph image in accordance with the calculation output of said mechanical shake calculation means or said optical shake calculation means, and
- shake calculation output selection means for switching the shake calculation output from the output of said optical shake calculation means to the output of said mechanical shake calculation means when the detection is not attainable by said optical sensor.

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5,740,472
VIBRATION REDUCTION DEVICE

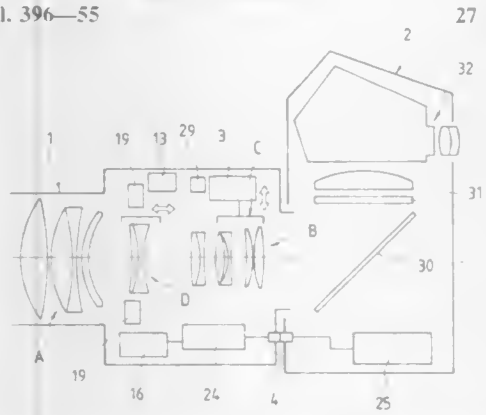
Shinichi Hirano, Utsunomiya, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Sep. 13, 1996, Ser. No. 713,533

Claims priority, application Japan, Sep. 14, 1995, 7-236972; Sep. 19, 1995, 7-236971

Int. Cl.^{6} G03B *17/00*

U.S. Cl. 396—55 **27 Claims**



1 A vibration reduction device applied to a system including a body apparatus which has an image taking function and a lens apparatus which is detachably mounted on said body apparatus and includes an image taking optical system, comprising:

- a vibration detector to detect a vibration generated in said body apparatus or said lens apparatus;
- an image vibration reduction optical system constituting a portion of said image taking optical system and adapted to reduce an image vibration generated by the vibration;
- a driving device to move some or all components of said image vibration reduction optical system relative to a surface on which the image is to be formed; and
- an image vibration reduction controller to generate an image vibration reduction signal to control said driving device on the basis of an output from said vibration detector,
- wherein said driving device starts image vibration reduction control a predetermined period of time after said driving device receives a signal synchronous with a start of an image taking sequence from said body apparatus.

5,740,473
CAMERA FOR PREVENTING CAMERA SHAKE

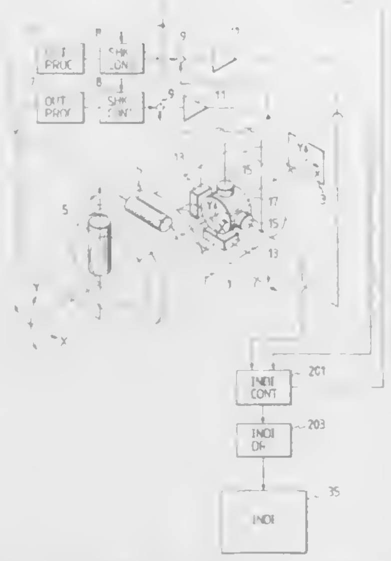
Etsuo Tanaka, Tokyo, and Tadao Kai, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 566,656, Dec. 4, 1995, abandoned, which is a continuation of Ser. No. 389,639, Feb. 16, 1995, abandoned, which is a division of Ser. No. 321,466, Oct. 11, 1994, Pat. No. 5,463,443, which is a continuation of Ser. No. 24,760, Mar. 2, 1993, abandoned. This application Dec. 5, 1996, Ser. No. 759,643

Claims priority, application Japan, Mar. 6, 1992, 4-084434; May 13, 1992, 4-146997; Jul. 3, 1992, 4-200704

Int. Cl.^{6} G03B *5/00*

U.S. Cl. 396—55 **9 Claims**



1 An anti-shake camera, comprising:

- a phototaking lens,
- a camera shake correction lens for correcting image blurring caused by a camera shake, said camera shake correction lens constituting a part of said phototaking lens and moving in a plane perpendicular to an axis of said phototaking lens to correct the image blurring,
- camera shake correction lens position detection means for detecting a moving position of said camera shake correction lens in said plane throughout a range of movement of said camera shake correction lens,
- position determination means for determining, based on a detection result from said camera shake correction lens position detection means, whether said camera shake correction lens reaches a specific position, and
- predetermined position moving means for, when said position determination means determines that said camera shake correction lens reaches the specific position, moving said camera shake correction lens to a predetermined position within the range of movement of said camera shake correction lens regardless of further camera shake

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5,740,474
APPARATUS FOR ELIMINATING BACKLASH IN A ZOOM FINDER

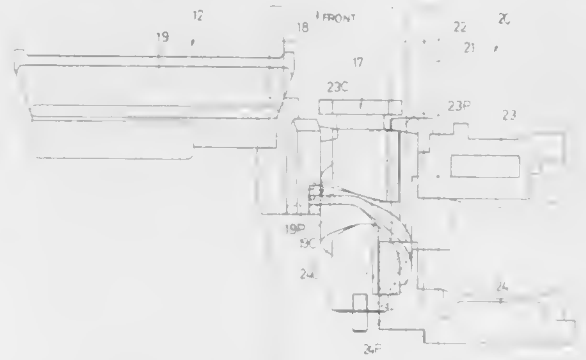
Yuji Ogawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 19, 1997, Ser. No. 803,152

Claims priority, application Japan, Feb. 20, 1996, 8-032367

Int. Cl.^{6} G03B *5/00;13/04;15/03;17/04*

U.S. Cl. 396—62 **5 Claims**



1. An apparatus for eliminating a backlash in a zoom finder, comprising:

- a zoom-photographing lens that is movable between a zoom photographing section and a transfer section defined between said zoom photographing section and an accommodation position;
- a zoom finder having at least one movable variable power lens that is supported to move in an optical axis direction;
- a cam member provided with a cam surface that is engaged with said movable variable power lens, said cam member being driven in association with said zoom-photographing lens, said cam surface being provided with a zoom section corresponding to said zoom photographing section of said zoom-photographing lens to vary an axial position of said movable variable power lens, and a transfer section corresponding to said transfer section of said zoom-photographing lens, in which no movement of said movable variable power lens occurs;
- a backlash eliminating cam surface, separate from said cam surface on said cam member, for said movable variable power lens;
- an oblique cam surface provided on said backlash eliminating cam surface, said oblique cam surface being inclined with respect to a plane perpendicular to said optical axis of said movable variable power lens, and formed in a section corresponding to said zoom section side of said transfer section of said cam surface; and
- a backlash eliminating member which is continuously biased and pressed against said oblique cam surface to exert a drive force on said cam member in a direction perpendicular to said optical axis of said movable variable power lens.

5,740,475
IMAGE MAGNIFICATION CONTROL DEVICE FOR A CAMERA

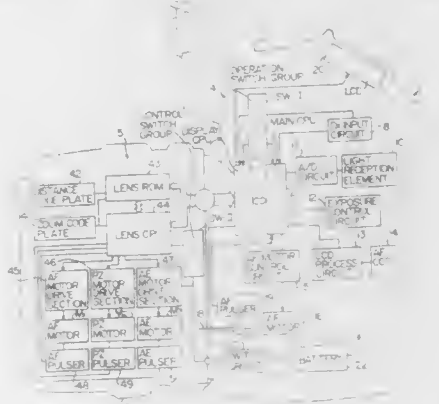
Noboru Suzuki; Shigeo Toji, both of Tokyo, and Masahiro Kawasaki, Saitama-ken, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 373,369, Jan. 17, 1995, Pat. No. 5,541,702, which is a division of Ser. No. 149,226, Nov. 2, 1993, Pat. No. 5,428,419, which is a continuation of Ser. No. 881,785, May 11, 1992, Pat. No. 5,283,607, which is a continuation of Ser. No. 652,038, Feb. 4, 1991, Pat. No. 5,159,377, which is a continuation of Ser. No. 410,880, Sep. 22, 1989, Pat. No. 5,093,680. This application May 17, 1996, Ser. No. 649,291

Claims priority, application Japan, Sep. 22, 1988, 63-237570; Sep. 22, 1988, 63-237571; Sep. 22, 1988, 63-237572; Sep. 22, 1988, 63-237573; Sep. 22, 1988, 63-237574; Sep. 22, 1988, 63-237575

Int. Cl.^{6} G03B *13/08*

U.S. Cl. 396—78 **22 Claims**



1. An image magnification control device for a camera having a photographic lens, comprising:

- means for detecting a defocus amount "dx" of an object by analyzing a light passing through said photographic lens;
- means for calculating a control focal length "f1" required to maintain an image magnification, based upon said defocus amount "dx" detected by said detecting means;
- means for determining whether said control focal length "f1" falls within a range between a tele terminus focal length "ft" and a wide terminus focal length "fw";
- first controlling means for controlling a focal length of said photographic lens to correspond to said control focal length "f1" when said determining means determines that said control focal length falls within said range; and
- second controlling means for controlling said focal length of said photographic lens to correspond to one of said tele terminus focal length "ft" and said wide terminus focal length "fw" when said determining means determines that said control focal length "f1" goes beyond said range

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5,740,476
ZOOM LENS DRIVE SYSTEM FOR LENS SHUTTER TYPE OF CAMERA

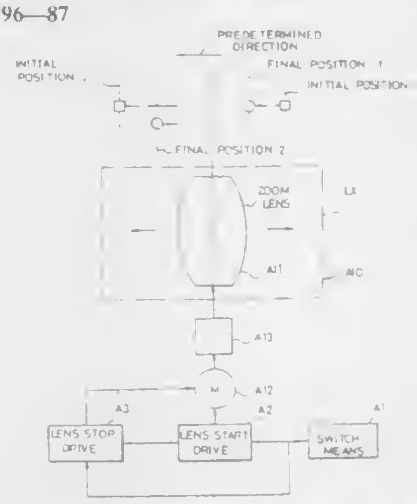
Keisuke Haraguchi; Shinsuke Kohmoto; Takeo Kobayashi; Shigeru Kondoh; Hideki Ohkubo, and Norio Numako, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 362,753, Dec. 22, 1994, Pat. No. 5,475,456, which is a continuation of Ser. No. 97,217, Jul. 27, 1993, abandoned, which is a continuation of Ser. No. 884,479, May 13, 1992, Pat. No. 5,280,317, which is a continuation of Ser. No. 633,023, Dec. 24, 1990, abandoned, which is a continuation of Ser. No. 510,676, Apr. 18, 1990, Pat. No. 5,162,831, which is a continuation of Ser. No. 143,946, Jan. 7, 1988, Pat. No. 4,936,664. This application Jun. 1, 1995, Ser. No. 456,407

Claims priority, application Japan, May 12, 1986, 61-108278; Sep. 19, 1986, 61-143964; Nov. 26, 1986, 61-181723; Feb. 5, 1987, 61-15853

Int. Cl.^{6} G03B *5/00*

U.S. Cl. 396—87 **24 Claims**



1 A lens shutter camera having a zoom lens, said camera comprising:

- a photographing zoom lens system;
- a system that drives said photographing zoom lens system for zooming, said driving system being operable to move at least one element of said photographing zoom lens system along an optical axis between spaced terminal positions, and to stop only at positions which are separated from each other by at least one discrete focal length step, each of said positions defining a respective focal length of said photographing zoom lens system;
- a detecting system that detects said discrete focal length positions of said photographing zoom lens system, and that outputs a different signal indicative of each of said discrete focal length positions,
- a system that generates a signal for controlling said driving system; and
- a system that controls said driving system in accordance with said signal output by said detecting system and said signal from said generating system, in order to enable an operator to selectively change the focal length of said photographing zoom lens system, only in accordance with said at least one discrete focal length step which changes in a predetermined manner between said spaced terminal positions

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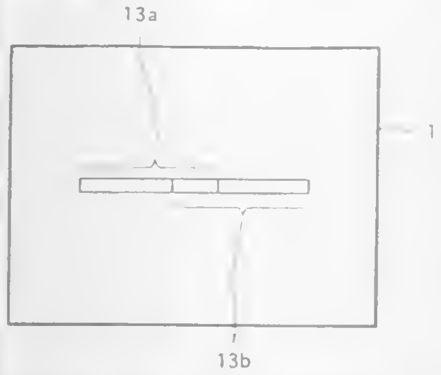
5,740,477
MULTI-POINT OBJECT DISTANCE MEASURING DEVICE

Kosei Kosako, and Takuma Sato, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 421,924, Apr. 14, 1995, abandoned. This application Feb. 10, 1997, Ser. No. 798,339
Claims priority, application Japan, Apr. 15, 1994, 6-077357
Int. Cl.^{6} G03B *13/34;13/00*
U.S. Cl. 396—101 **21 Claims**



1. A multi-point object distance measuring device having a plurality of image sensors, comprising:

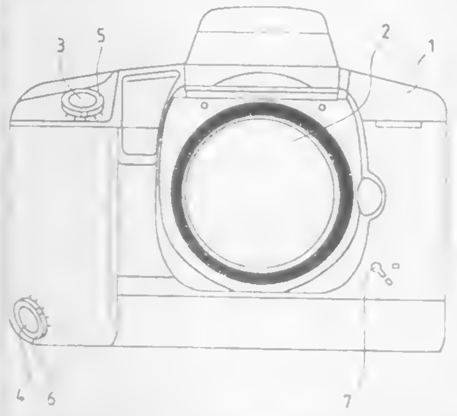
each of said plurality of image sensors including a plurality of photoelectric converting elements assigned to a plurality of sensor areas corresponding to a plurality of object distance measuring areas; and

detecting means for detecting one of amounts of defocus and distances of objects in said plurality of object distance measuring areas, based on output from said plurality of photoelectric converting elements,

wherein at least two of said plurality of sensor areas in each of said plurality of image sensors are arranged to be partially overlapping, respectively, such that at least one of said plurality of photo-electric converting elements is common to at least two of said plurality of object distance measuring areas.

5,740,478
CAMERA HAVING AUTOFOCUS APPARATUS

Ryuichi Kobayashi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 350,098, Nov. 29, 1994, abandoned. This application Nov. 14, 1996, Ser. No. 749,154
Claims priority, application Japan, Dec. 1, 1993, 5-301673
Int. Cl.^{6} G03B *3/10;7/099*
U.S. Cl. 396—121 **7 Claims**



1. A camera having (i) a processing circuit for determining a focus state or a distance to an object in at least one of a plurality of different areas of a scene, and (ii) a focusing circuit which performs focusing based on a processing result by said processing circuit for the at least one area, said camera comprising:

a first selection operation member disposed at a first position on the camera, for selecting any one of said plurality of different areas;

a second selection operation member for selecting any one of said plurality of different areas independently of said first selection operation member, said second selection operation member being disposed at a second position on the camera different from said first position;

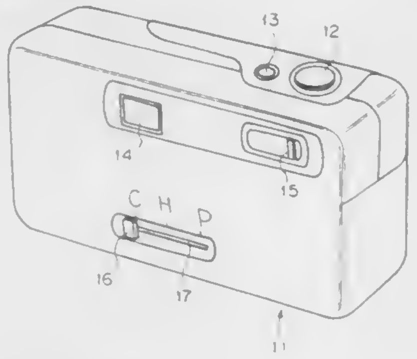
a selection circuit for selecting either one of said first and second selection operation members; and

a control circuit for invalidating an area selected by said second selection operation member and validating an area selected by said first selection operation member when said first selection circuit selects said first selection operation member, and for invalidating an area selected by said first selection operation member and validating an area selected by said selection operation member when said selection circuit selects said second selection operation member,

wherein said first selection operation member is disposed on a substantially horizontal surface of the camera, and wherein said second selection operation member is disposed on a substantially vertical surface of the camera.

5,740,479
PHOTOGRAPHIC CAMERA

Hiroshi Soma; Hiroshi Tsuchitani, and Yoji Naka, all of Saitama-ken , Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa-ken, Japan
Filed Feb. 14, 1997, Ser. No. 800,750
Claims priority, application Japan, Feb. 20, 1996, 8-031758
Int. Cl.^{6} G03B *15/05;17/24*
U.S. Cl. 396—176 **9 Claims**



1. A camera, comprising

a light emitting member which emits light toward photographic film loaded in the camera, the light emission taking place in accordance with release of a camera shutter;

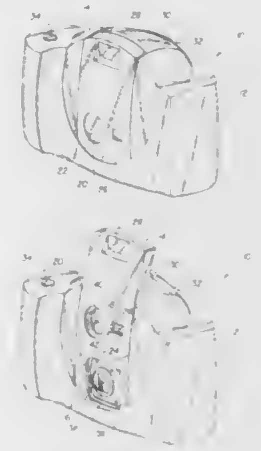
a mark recording mechanism to optically record marks on the film using light emitted by the light emitting member, the mark recording mechanism including a plate which is capable of selectively preventing light emitted by the light emitting member from reaching the film; and

an external switch operable by a user to control operation of the mark recording mechanism, wherein

the plate is generally sector-shaped with two radial edges and one arcuate edge, the plate being movably disposed within the camera to pivot about a point located near a vertex of the two radial edges.

5,740,480
CAMERA WITH MOVABLE FIRST LENS COVER WHICH SUPPORTS MOVABLE SECOND LENS COVER WHICH OPENS DURING MOVEMENT OF FIRST LENS COVER

Robert L. Kuhn, Jr., Rush; Anna C. Schelling, Geneva, and Robert D. Huot, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 20, 1997, Ser. No. 802,739
Int. Cl.^{6} G03B *29/00;15/03;17/00;17/04*
U.S. Cl. 396—177 **36 Claims**



1. A hybrid camera, comprising:

a camera housing,

a first taking lens supported by the housing for film photography,

a second taking lens supported by the housing for digital photography;

a first lens cover supported by the housing for movement between a first position in which one of the first and second lenses is covered by the first lens cover and a second position in which the one lens is uncovered by the first lens cover;

a first aperture in the first lens cover for revealing the other of the first and second lenses in the second position;

a second lens cover supported by the first lens cover for movement between a third position in which the first aperture is covered by the second lens cover and a fourth position in which the first aperture is uncovered by the second lens cover to reveal the other lens in the second position; and

a mechanism actuated by movement of the first lens cover to move the second lens cover between the third and fourth positions.

5,740,481
EXPOSURE CALCULATION DEVICE FOR CAMERA

Hiroyuki Iwasaki, Tokyo, and Tadao Takagi, Yokohama, both of Japan, assignors to Nikon Corporation, Tokyo, Japan
Continuation of Ser. No. 445,792, May 22, 1995, abandoned, which is a continuation of Ser. No. 309,970, Sep. 20, 1994, abandoned, which is a continuation of Ser. No. 813,525, Dec. 26, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 487,404
Claims priority, application Japan, Jan. 8, 1991, 3-18218; Apr. 12, 1991, 3-108751
Int. Cl.^{6} G03B *7/00*
U.S. Cl. 396—225 **5 Claims**

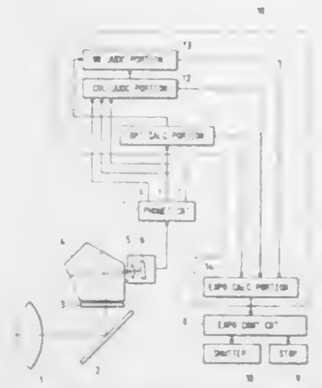
1. A camera comprising,

a photographing lens to image a light beam from a field onto an exposure medium;

a prism to receive the light beam and to provide the light beam at an output;

a color measuring sensor disposed at the output of said prism where the light beam passing through said photographing lens from the field can be received and providing an output;

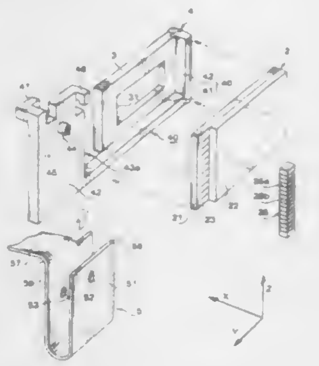
a color measuring circuit to measure a color of the field on the basis of the output from said color measuring sensor, and



an exposure calculator to calculate an exposure amount for the exposure medium based on the output from said color measuring sensor.

5,740,482
FINDER SYSTEM FOR CAMERA

Masahiro Inazuka, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 14, 1997, Ser. No. 783,541
Claims priority, application Japan, Jan. 16, 1996, 8-023087
Int. Cl.^{6} G03B *17/00*
U.S. Cl. 396—296 **24 Claims**



1. A display system in a finder, comprising

a display panel which displays information, said display panel having an input terminal;

a supporting member which supports said display panel,

a flexible printed circuit board having a connecting terminal,

a cushion, said cushion comprising insulating portions and conductive portions in a predetermined pattern; and

a finder casing having a slit in which said supporting member is mounted to said finder casing, said finder casing including a bottom positioning member which abuts an end of said supporting member received within said slit, and lateral positioning members which abut lateral sides of said supporting member,

wherein said display panel and said printed circuit board partially overlap each other so that said input terminal and said connecting terminal face each other with said cushion disposed between said input terminal and said connecting terminal and

wherein insertion of said supporting member into said slit positions said display panel at a predetermined position and electrically connects said input terminal and said connecting terminal by pressing, in said slit, said overlapping portions of said display panel and said flexible printed circuit board

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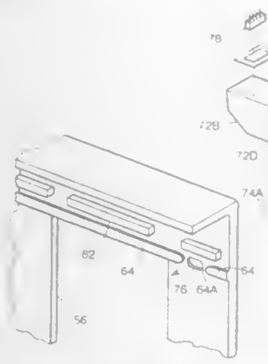
5,740,483
DATA RECORDING DEVICE FOR CAMERA

Humio Hashimoto, and Nobuhiro Aoki, both of Omiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Saitama, Japan
Filed Jun. 28, 1996, Ser. No. 671,964
Claims priority, application Japan, Jun. 30, 1995, 7-165151
Int. Cl.^{6} G03B *17/24*
U.S. Cl. 396—315 **9 Claims**



1. A data recording device for recording data on a film in a camera which is provided with upper and lower film guide rails extending in a direction of film movement on opposite sides of a film exposure aperture, said data recording device comprising

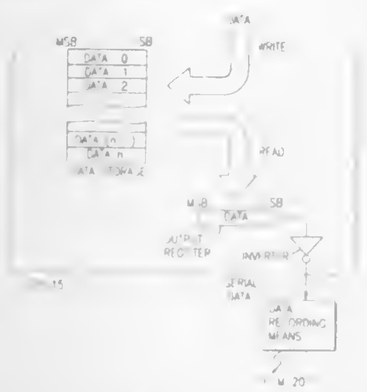
light image forming means for providing a light image of data to be recorded on a film at said film exposure aperture;

an optical system having a light exit end for directing said light image from said light exit end onto an emulsion coated surface of said film; and

a data exposure aperture in either one of said upper and lower film guide rails for permitting said light image directed to said film therethrough.

5,740,484
CAMERA CAPABLE OF RECORDING DATA ONTO FILM

Satoshi Miyazaki, Tokyo; Minoru Matsuzaki; Yasuo Asakura, both of Hachioji, and Akira Watanabe, Fuchu, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed May 22, 1996, Ser. No. 651,425
Claims priority, application Japan, Jun. 1, 1995, 7-134879
Int. Cl.^{6} G03B *17/24*
U.S. Cl. 396—319 **21 Claims**



1. A camera capable of using a film cartridge including a film having a plurality of magnetic recording tracks, the film being rolled on a spool shaft having a pair of end portions, each end portion of the spool shaft including an elastic flange, the film being propelled out of the cartridge by rotating the spool shaft in a predetermined direction, comprising

feed means for fully winding the film initially without causing exposure of the film on loading the cartridge into the camera and rewinding the film after shooting a frame of the film,

inverting means for inverting data after the film is exposed;

writing means for writing data onto at least one of the plurality of magnetic recording tracks of the film in a winding direction and a rewinding direction, wherein the writing means writes the inverted data into at least one of the plurality of magnetic tracks in the rewinding direction, and

control means for controlling the feed means, the inverting means, and the writing means.

5,740,485
REAL IMAGE VIEWFINDER WHICH SHIFTS PRISM RIDGE LINE AWAY FROM TARGET FRAME

Hidenori Miyamoto, Urayasu; Hiroshi Wakahayashi, Yokohama; Koichi Oshita, Tokyo, and Motohisa Mouri, Yokohama, all of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Dec. 16, 1996, Ser. No. 766,051
Claims priority, application Japan, Jan. 31, 1996, 8-016019
Int. Cl.^{6} G03B *13/02*
U.S. Cl. 396—384 **20 Claims**

1. A real image viewfinder comprising:

an objective lens having an optical axis;

an eye piece to receive the optical axis of said objective lens with respect to a viewed target frame; and

a prism including a ridge line, a first reflection plane, and a second reflection plane connected to the first reflection plane at the ridge line, said prism to reflect the optical axis of said objective lens with respect to the target frame of said eye piece, wherein the ridge line is offset from the optical axis by a predetermined distance as viewed through said eye piece such that an optical image transmitted through the ridge line is not transmitted to the target frame

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5,740,486
CAMERA HAVING EMERGENCY CARTRIDGE TAKING-OUT FUNCTION

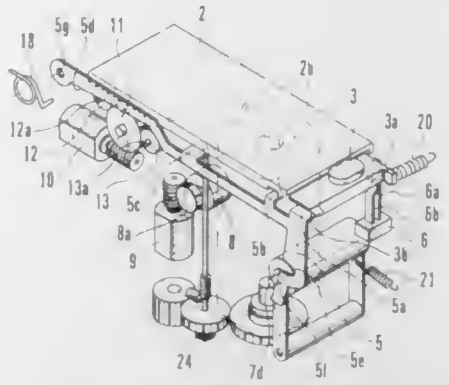
Masakazu Taku, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 410,745, Mar. 27, 1995, abandoned. This application Mar. 13, 1997, Ser. No. 818,243
Claims priority, application Japan, Mar. 31, 1994, 6-063524
Int. Cl. G03B *1/00;17/02*
U.S. Cl. 396—411 **61 Claims**

1. A camera adapted for use of an image recording medium cartridge, comprising

a) a cover for closing an opening part for removing said cartridge from the camera;

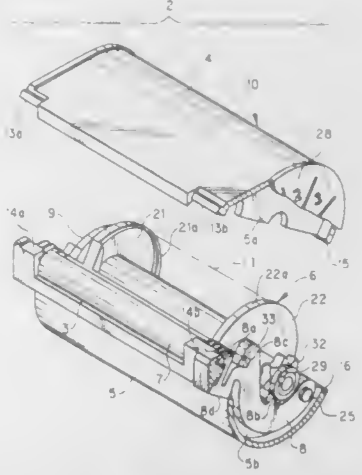
b) a returning device which automatically return an image recording medium to the cartridge which is loaded on the camera, and

c) a setting device which sets state in which the image recording medium can be returned to the cartridge without using said returning device, said setting device inhibiting opening of said cover when said setting device is not in said state



5,740,487
PHOTOGRAPHIC FILM CASSETTE

Tetsuya Takatori, and Akimasa Kaya, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Division of Ser. No. 114,616, Sep. 1, 1993, Pat. No. 5,602,611. This application Oct. 18, 1996, Ser. No. 734,447
Claims priority, application Japan, Sep. 1, 1992, 4-276495
Int. Cl.^{6} G03B *17/26*
U.S. Cl. 396—514 **9 Claims**



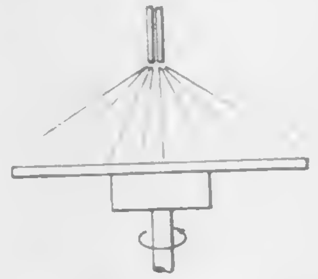
1. A photographic film cassette having a cassette shell provided with a roll chamber and a passage port for photographic film, and a spool on which said photographic film is wound and which is rotatably contained in a roll chamber, and in which a leader of said photographic film is advanced outward through a passage port by rotation of said spool in an unwinding direction, comprising:

a device arranged on a first end face of said cassette shell for indicating a status of exposure of said photographic film, said device including a pointer member; and a plurality of indicative areas for being pointed by said pointer member so as to indicate said status, said spool and said cassette shell being provided with said pointer member and said indicative areas; and

latching means for selectively latching said spool relative to said cassette shell, said latching means displaced with resilience between a first stable condition where said spool is latched and a second stable condition where said spool is unlatched, said latching means adapted to keeping said spool so that said pointer member points a selected one of said indicative areas, wherein said latching means is a swingable lever, and when said spool rotates, said spool is unlatched, and when said lever is externally operated, said spool is latched by said lever.

5,740,488
RESIST DEVELOPING APPARATUS WITH SELECTABLE SPRAY AND DRIP NOZZLES

Satoshi Fujimoto, Miyagi-ken, Japan, assignor to Frontec Incorporated, Tokyo, Japan
Division of Ser. No. 551,497, Nov. 1, 1995, abandoned. This application Feb. 27, 1996, Ser. No. 607,478
Claims priority, application Japan, Nov. 2, 1994, 6-269543
Int. Cl.^{6} G03D *3/02*
U.S. Cl. 396—604 **4 Claims**



1. A resist developing apparatus, comprising

a rotating substrate holder whose rotation speed is variable,

a nozzle for supplying developer onto a resist formed on a substrate; and

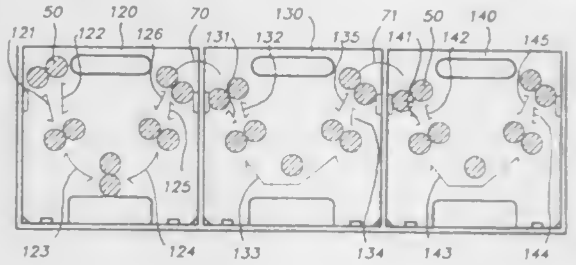
means for supplying the developer to said nozzle,

wherein said nozzle includes a spray nozzle and a drip nozzle located immediately adjacent to and parallel to said spray nozzle; and

wherein said spray nozzle and said drip nozzle are connected to said developer supply means through at least one selector valve.

5,740,489
APPARATUS AND METHOD FOR MAKING A LITHOGRAPHIC PRINTING PLATE ACCORDING TO SILVER SALT DIFFUSION TRANSFER PROCESSING

Luc Vanooteghem, Mechlin, and Alfons Bertels, Olen, both of Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium
Filed Jun. 13, 1996, Ser. No. 661,793
Claims priority, application European Pat. Off., Jun. 29, 1995, 95201778
Int. Cl.^{6} G03D *3/08*
U.S. Cl. 396—617 **5 Claims**



1. An apparatus for processing an imaging element, said apparatus comprising a developing unit comprising a tank for holding a processing liquid, and a plurality of guide rollers and guide plates for transporting and guiding said imaging element in a transport direction X through said processing liquid, at least one pair of said guide plates being situated at the entrance of the developing unit and each of said guide plates exhibiting a plurality of apertures, having an equivalent diameter D between 10 and 25 mm, to allow said processing fluid to pass evenly near the surface of the imaging element, said guide plates exhibiting a surface roughness R_a of 0.3 µm or less at the side of said guide plates making contact with said imaging element during transportation of said imaging element through said developing unit.

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5,740,490
COPIER MANAGEMENT SYSTEM

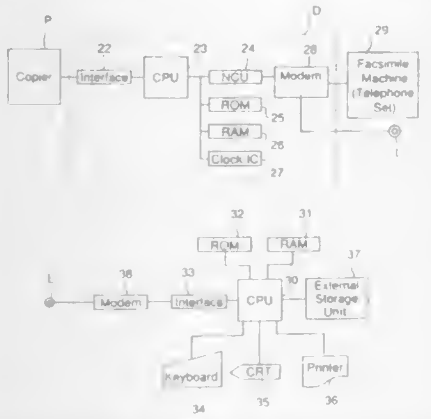
Yuji Yamashita; Jiro Nagira; Yasuhiro Hashimoto, and Hiroshige Utatsu, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Dec. 9, 1996, Ser. No. 762,443

Claims priority, application Japan, Dec. 14, 1995, 7-325812

Int. Cl.^{6} G03G *15/00*

U.S. Cl. 399—8 **6 Claims**



1 A copier management system comprising a communications control device that is attached to a copier so as to transmit copier management data needed for managing that copier and a host computer that is connected to said communications control device by way of a communication network so as to collectively manage data from that communications control device,

wherein said host computer comprises:

- a first calculation means that calculates, for each of copiers registered in a database for management, a frequency of troubles occurring after a trouble cause removal or a frequency of troubles in a predetermined period,
- a second calculation means that calculates an average total frequency of troubles for copiers of a same model as a targeted copier, and
- a warning means that compares a result of said first calculation means and a result of said second calculation means in order to issue a warning based on a comparison result.

5,740,491
DEVICE FOR MEASURING LIFE OF A COMPONENT UNIT FOR AN IMAGE FORMING DEVICE

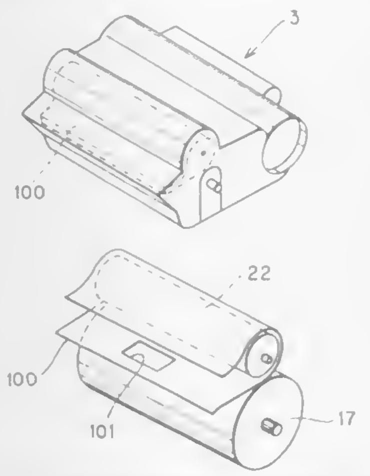
Masaaki Imai, Kasugai, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Mar. 7, 1997, Ser. No. 813,663

Claims priority, application Japan, Mar. 12, 1996, 8-054755

Int. Cl.^{6} G03G *21/00*

U.S. Cl. 399—25 **19 Claims**



1. A device for measuring life of a component unit used in a main unit for processing a sheet transported along a sheet transport pathway of the main unit, the device comprising:

- a component unit detachably mountable in the main unit so that a sheet transport of the component unit is aligned with the sheet transport pathway of the main unit;
- a counter provided in the main unit and for measuring life of the component unit;
- an unused indication sheet disposed in the sheet transport pathway of the component unit;
- a detection unit disposed in the sheet transport pathway of the main unit and for detecting when the unused indication sheet is discharged from the component unit and passes by the detection unit and when the sheet passes by the detection unit.

5,740,492
COLOR IMAGE FORMING APPARATUS

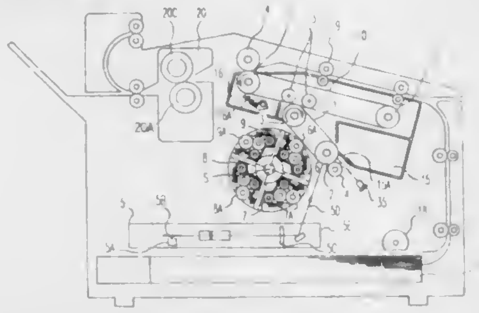
Tsuyoshi Deki, Koshigaya; Takahiro Tamiya, and Koichi Irie, both of Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 23, 1996, Ser. No. 652,159

Claims priority, application Japan, May 26, 1995, 7-152392; Jun. 9, 1995, 7-168227

Int. Cl.^{6} G03G *15/16*

U.S. Cl. 399—66 **21 Claims**



1 A color image forming apparatus comprising:

- a rotating image carrying element;
- a latent image forming means for sequentially forming a plurality of latent images for a corresponding plurality of colors on said image carrying element;
- a developing means for developing each of said plurality of latent images on said image carrying element into a respective plurality of visible images;
- an intermediate transfer element held movably to transfer thereupon said plurality of visible images from said image carrying element superposing one visible image on top of another;
- an indicator provided on said intermediate transfer element to indicate a position of said intermediate transfer element;
- a detector provided adjacent to a moving course of said intermediate transfer element for detecting said indicator on said intermediate transfer element;
- a latent image forming control means for determining if said indicator on said intermediate transfer element is recognized in accordance with a detect signal of said detector and to control said latent image forming means to start a latent image formation upon determining that said indicator is recognized;
- a control means to control said detector to start detection of said indicator on said intermediate transfer element when a predetermined length of time has elapsed after a start and a termination of an operation of one of a plurality of driving elements of the apparatus.

5,740,493
ELECTROPHOTOGRAPHIC RECORDING APPARATUS HAVING REVERSE-CHARGED TONER REMOVING MEANS

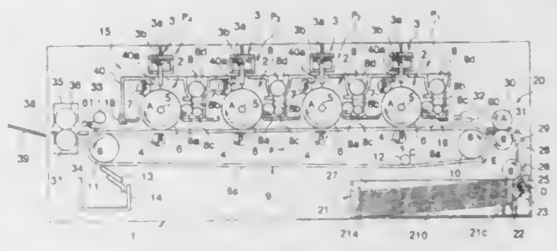
Noboru Otaki; Kazuyoshi Yoshida; Ynshitatsu Okiyama; Masato Sakai; Hiroyuki Inoue, and Syuichiro Ogata, all of Tokyo, Japan, assignors to Oki Data Corporatinn, Tokyo, Japan

Filed Nov. 13, 1995, Ser. No. 554,971

Claims priority, application Japan, Nov. 14, 1994, 6-278865; Jul. 28, 1995, 7-192984

Int. Cl.^{6} G03G *21/00;15/00*

U.S. Cl. 399—71 **34 Claims**



1 An electrophotographic recording apparatus which removes a reverse-charged toner that is mixed with a normal-charged toner, the reverse-charged toner having a polarity opposite to a polarity of the normal-charged toner, comprising:

- a photosensitive body;
- a charger for imparting a uniform charge to a surface of said photosensitive body;
- a first power supply coupled to said charger and applying a voltage to said charger for the application of the uniform charge;
- a writing unit located adjacent to said photosensitive body and forming an electrostatic latent image on the uniformly charged surface of said photosensitive body:
- a developing unit located adjacent to said photosensitive body and causing a mixture of the normal-charged toner and the reverse-charged toner to adhere to a portion of the surface of said photosensitive body bearing the electrostatic latent image;
- a carrier belt that transports a recording medium to and from said photosensitive body;
- a transfer unit located in a region of said carrier belt and causing the toner adhering to the surface of said photosensitive body to transfer toward said carrier belt,
- a second power supply coupled to said transfer unit and selectively applying to said transfer unit a first voltage, and a second voltage having a polarity opposite to a polarity of the first voltage;
- a controller coupled to said second power supply and controlling an operation of said second power supply so that said second power supply applies the first voltage to said transfer unit during an image-forming stage, thereby causing the normal-charged toner adhering to the surface of said photosensitive body to be transferred to a recording medium on said carrier belt, and applies the second voltage to said transfer unit during a reverse-charged toner removing stage, thereby causing the reverse-charged toner adhering to the surface of said photosensitive body to be, transferred to said carrier belt; and
- a carrier belt cleaner located adjacent to said carrier belt, and removing the reverse-charged toner located thereon.

5,740,494
CONFIGURED TO ENHANCE TONER COLLECTING EFFICIENCY AND TONER REDEPOSITING EFFICIENCY

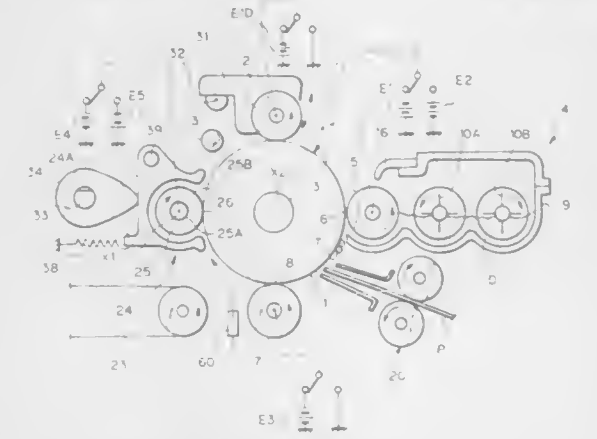
Hisashi Shoji; Osamu Endo, both of Kawasaki; Kei Yasutomi, Yokohama; Masako Yoshii, Kawasaki; Hidetoshi Yano, Yokohama; Yasushi Nakazato, Tokyo, and Takayuki Kimura, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 20, 1996, Ser. No. 699,922

Claims priority, application Japan, Aug. 20, 1995, 7-233382; Sep. 1, 1995, 7-248882; Oct. 2, 1995, 7-278437; Oct. 10, 1995, 7-287832; Oct. 17, 1995, 7-293271; Nov. 8, 1995, 7-314676; Nov. 15, 1995, 7-321006

Int. Cl.^{6} G03G *21/00*

U.S. Cl. 399—71 **40 Claims**



31 An image forming apparatus comprising

- a rotatable image carrier;
- latent image forming means for electrostatically forming a latent image on a surface of said image carrier:
- a developing unit for developing the latent image to thereby produce a corresponding toner image:
- an image transfer unit for transferring the toner image to a recording medium,
- a cleaning unit for collecting toner left on said image carrier after transfer of the toner image, and then redepositing the toner in an area of the surface of said image carrier which does not effect formation of a next latent image; and
- cleaning control means for controlling said cleaning unit such that when an intermediate between a leading and a trailing edge of an image forming area defined on said image carrier moves away from said cleaning member, a function of said cleaning member is switched from toner collection to toner redeposition.

5,740,495
APPARATUS AND METHOD FOR ADJUSTING CLEANING SYSTEM PERFORMANCE ON AN ELECTROSTATOGRAPHIC RECORDING APPARATUS

James C. Maher, North Rose, and James F. Paxon, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1996, Ser. No. 770,601

Int. Cl.^{6} G03G *15/00,21/00*

U.S. Cl. 399—71 **19 Claims**

1 An electrostatographic recording apparatus comprising

- a moving endless imaging member:
- an image recording device for recording electrostatic images and a patch area on the imaging member, the recording device being operative in accordance with a first adjustable for parameter for adjusting density of images and density of the patch area;
- a development station for developing the electrostatic images on the imaging member and toning the patch area, the develop-

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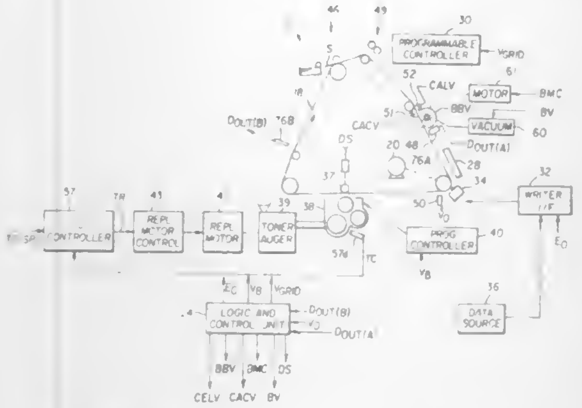


ment station being operative in accordance with a second adjustable parameter for adjusting density of the images and the patch area;

a sensor for sensing density of a toned patch area and generating a first signal representing density of the toned patch area;

a transfer station for transferring images on the image member to a transfer medium;

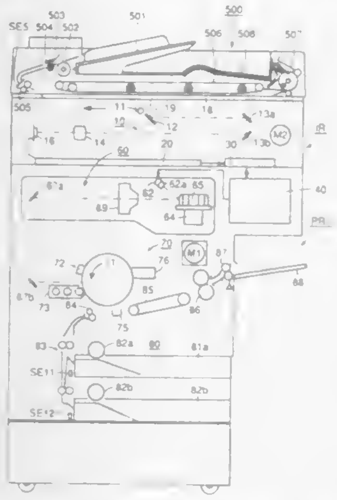
a cleaning station for cleaning remnant toner and the patch area on the imaging member, the cleaning station being adjustable to alter cleaning performance and the cleaning station being located downstream of the sensor and the transfer station relative to a direction of movement of the imaging member;

a process controller responsive to the first signal for adjusting density of a subsequently formed toned patch area; and

a controller responsive to a second signal related to density of a toned patch area and the patch area after cleaning for adjusting an adjustable parameter of the cleaning station to adjust cleaning performance of the cleaning station.

5,740,496
IMAGE FORMING APPARATUS

Yoichi Kawabuchi, and Takeshi Morikawa, both of Toyokawa, Japan, assignors to Minolta Co, Ltd., Osaka, Japan
Filed Dec. 2, 1996, Ser. No. 757,633
Claims priority, application Japan, Dec. 7, 1995, 7-319148
Int. Cl.^{6} G03G *15/00;* G06F *11/30*
U.S. Cl. 399—83 **7 Claims**



1 An image forming apparatus capable of processing a plurality of jobs in parallel, comprising:

image reading means for reading a document image;

storing means for storing image data for each job read by said image reading means;

image forming means for forming an image based on the image data stored in said storing means;

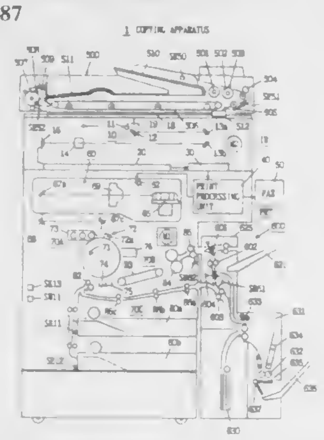
control means for operating said image reading means and said image forming means in parallel;

selecting means for selecting at least one of the image data of each job stored by said storing means; and

erasing means for erasing image data of the job selected by said selecting means.

5,740,497
IMAGE PROCESSING APPARATUS THAT CAN EXECUTE INTERRUPTION JOB EFFICIENTLY

Tatsutoshi Yamada; Takeshi Morikawa; Hiroharu Tanaka, all of Toyokawa; Tomoyuki Atsumi, Toyohashi, and Hidenobu Nakamura, Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka,, Japan
Filed Dec. 12, 1996, Ser. No. 766,183
Claims priority, application Japan, Dec. 14, 1995, 7-325979
Int. Cl.^{6} G03G *15/00;21/14*
U.S. Cl. 399—87 **16 Claims**



1. A copying apparatus that interrupts a first job during printing of the first job to allow printing by another interruption job, said copying apparatus comprising:

an input unit for optically reading out an original image and converting the same into image data of electrical signals,

a memory for storing said image data read out by said input unit,

a print unit for printing on a sheet according to the image data stored in said memory,

a detection unit for detecting a print wait state of said print unit when said interruption job is in progress,

a first control unit for restarting printing of the interrupted said first job when a print wait state is detected by said detection unit, and

a second control unit for interrupting printing of said restarted first job to initiate printing of the interruption job when cancel of a print wait state of the interruption job is detected by said detection unit.

5,740,498
PAPER DUST REMOVAL DEVICE FOR USE IN AN IMAGE FORMING APPARATUS

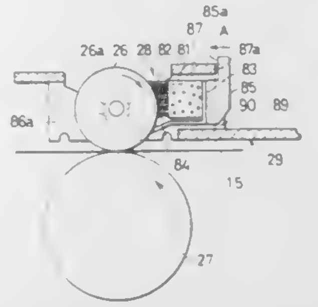
Hiroaki Tsuchiya, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka-fu, Japan
Filed Feb. 21, 1997, Ser. No. 804,706
Claims priority, application Japan, Mar. 12, 1996, 8-054785
Int. Cl.^{6} G03G *21/00*
U.S. Cl. 399—98 **6 Claims**

1. A paper dust removal device detachably mountable to a frame of an image forming apparatus through an opening formed on the frame to remove paper dust from an outer surface of a roller in the image forming apparatus, the opening of the frame being opposing to the outer surface of the roller, comprising:

a base member;

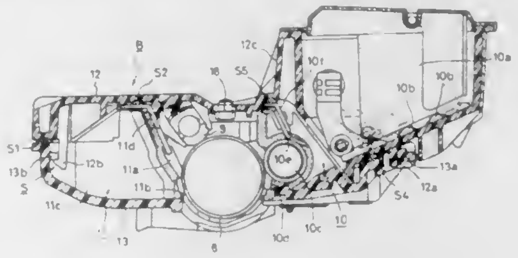
a paper dust holding member fixedly attached to the base member adapted to press contact with the outer surface of the roller; and

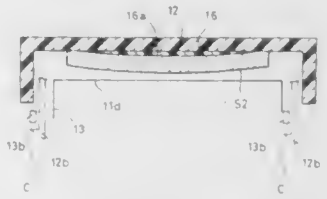
engaging means engageable with the frame when the paper dust removal device is rotated in an engaging direction due to a friction force generated on the outer surface of the roller by a contact of the paper dust holding member with the outer surface of the roller.



5,740,499
IMAGE FORMING APPARATUS INCLUDING PROCESS CARTRIDGE HAVING ELASTIC SEALING MEMBERS INTERPOSED BETWEEN FRAMES

Akira Higeta, Funabashi; Isao Ikemoto, Kawasaki, and Nobuharu Hoshi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 20, 1995, Ser. No. 492,528
Claims priority, application Japan, Jun. 24, 1994, 6-142909; May 30, 1995, 7-131804
Int. Cl.^{6} G03G *15/08,21/00*
U.S. Cl. 399—105 **39 Claims**





1. A process cartridge detachably mountable to a main body of an image forming apparatus, said process cartridge comprising:

an electrophotographic photosensitive member;

process means for acting on said electrophotographic photosensitive member;

a first frame;

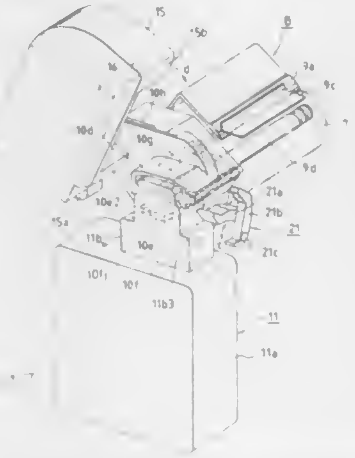
a second frame; and

an elastic sealing member, having a longitudinal center, interposed between said first frame and said second frame to prevent leakage of toner through a space therebetween when said first frame and said second frame are bonded by engagement between first and second engagement portions,

wherein a compression amount of said elastic sealing member interposed between said first frame and said second frame increases in directions away from said first and second engagement portions toward the longitudinal center of said elastic sealing member.

5,740,500
PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS

Kouji Hashimoto, Matsudo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 19, 1996, Ser. No. 634,986
Claims priority, application Japan, Apr. 21, 1995, 7-096785
Int. Cl.^{6} G03G *15/00*
U.S. Cl. 399—114 **5 Claims**



1. A process cartridge removably mountable with respect to a body of an image forming apparatus using electrophotographic art, said process cartridge comprising:

an electrophotographic photosensitive member having a shaft,

process means for acting on said electrophotographic photosensitive member,

a casing holding said electrophotographic photosensitive member and said process means,

a bearing rotatably holding said shaft of said electrophotographic photosensitive member; and

a cover member mounted on a lengthwise end portion of said casing, said cover member having a first positioning portion for positioning said bearing, and a second positioning portion for positioning said process cartridge at a predetermined position in a main body of the image forming apparatus

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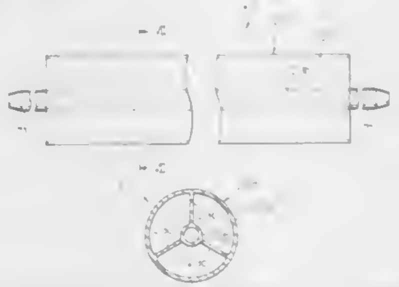
5,740,501
PHOTO-SENSITIVE DRUM FORMED FROM EXTRUDED OR DRAWN BLANK AND IMAGE RECORDING APPARATUS HAVING SAME

Yoshihiro Tonomoto, and Kenji Fuke, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed May 17, 1996, Ser. No. 649,483
Claims priority, application Japan, Jun. 1, 1995, 7-135131
Int. Cl.^{6} G03G *15/00*
U.S. Cl. 399—116 **4 Claims**



1 A photo-sensitive drum characterized by a blank tube comprising:

a hollow cylinder section;

a center axis section arranged within the hollow cylinder section concentrically therewith; and

a plurality of radially extending rib sections extending substantially parallel to said hollow cylinder section and said center

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axis section rigidly interconnecting the cylinder section and the center axis section;

at least said center axis section having a length which is not substantially less than the length of said cylinder section; and

wherein said cylinder section, said center axis section and said rib sections forming said blank tube are all integrally formed through extrusion or draw-forming.

5,740,502
IMAGE FORMING APPARATUS AND IMAGE FORMING METHOD FOR FORMING ADJACENT IMAGES

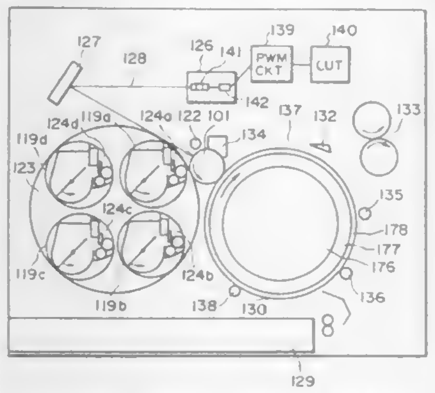
Tetsuya Kobayashi, Numazu, and Takashi Kawana, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 18, 1996, Ser. No. 588,422

Claims priority, application Japan, Jan. 19, 1995, 7-006413

Int. Cl.^{6} G03G *15/01*

U.S. Cl. 399—128 **10 Claims**



8. An image forming method, comprising the steps of:

charging a photosensitive member;

exposing a first image formation area of the photosensitive member charged by said charging step;

exposing an area around said first image formation area with light, which is not to be developed;

reverse developing a first electrostatic image with a first one component toner;

transferring the first toner image from the photosensitive member onto a recording material;

recharging the photosensitive member;

exposing to light a second image formation area of the photosensitive member adjacent to the first image formation area;

reverse developing a second electrostatic image with a second toner; and

transferring the second toner image from said photosensitive member onto the recording material having the first toner image.

5,740,503
IMAGE FORMING MACHINE INCLUDING APPARATUS FOR SELECTIVELY CONNECTING A ROTARY BRUSH TO A MOTOR

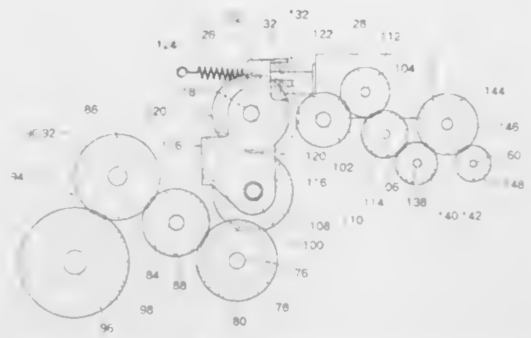
Toshiyuki Nakamura, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Mar. 20, 1997, Ser. No. 821,341

Claims priority, application Japan, Mar. 23, 1996, 8-093661

Int. Cl.^{6} G03G *15/00, 21/00*

U.S. Cl. 399—167 **5 Claims**



1. An image forming machine comprising a rotating drum having an electrostatic photoconductor on the peripheral surface thereof; a first electric motor for rotating said rotating drum, latent electrostatic image forming means for forming a latent electrostatic image on the electrostatic photoconductor; developing means for developing the latent electrostatic image on the electrostatic photoconductor to a toner image, transfer means for transferring the toner image on the electrostatic photoconductor onto a sheet member; cleaning means for removing a residual toner remaining on the electrostatic photoconductor after transfer, said cleaning means including rotary brush means in contact with the peripheral surface of said rotating drum; fixing means for fixing the toner image, transferred onto the sheet member, onto the sheet member; a second electric motor for driving said fixing means; and control means; wherein

selectively connecting means is disposed which can be selectively set in an operating state for drivingly connecting the rotary brush means to said second electric motor to transmit the rotation of said second electric motor to the rotary brush means, and in a nonoperating state for cutting off the rotary brush means from said second electric motor, and

said control means sets said selectively connecting means in the operating state only when said rotating drum is to be rotated.

5,740,504
ELECTROPHOTOGRAPHING METHOD USING CARONA CHARGING DEVICE HAVING AREAS WITH AND WITHOUT A GRID

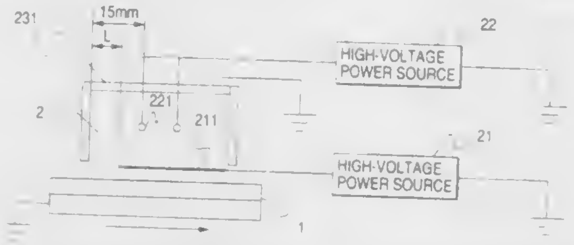
Katsuhiro Akinaga; Hirofumi Ouchi, and Kaoru Kataoka, all of Ibaraki, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed May 24, 1996, Ser. No. 653,299

Claims priority, application Japan, May 26, 1995, 7-127720

Int. Cl.^{6} G03G *15/02*

U.S. Cl. 399—171 **4 Claims**



1. An electrophotographing method, comprising the steps of charging a photosensitive body;

exposing a light on the photosensitive body;

developing an image on the photosensitive body;

repeating said charging step, said exposing step and said developing step plural times to form a plurality of toner images on the photosensitive body;

wherein said charging step is performed using a corona charging device having an area with no grid and another area with a grid, and prior to at least a second exposing step, said charging step is effected using both areas relative to the grid, and

wherein a voltage applied to the grid in the second charging is lower than a voltage applied in the first charging.

5,740,505
IMAGE FORMING APPARATUS

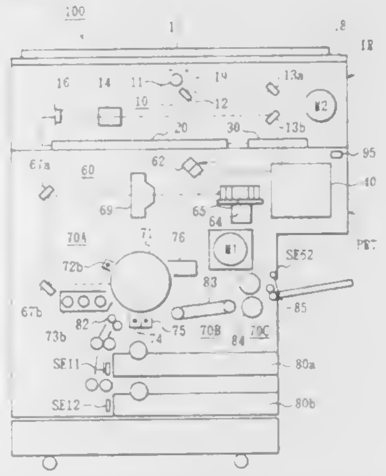
Keiji Kusumoto, and Katsuaki Tajima, both of Toyokawa, Japan, assignors to Minolta Co, Ltd., Osaka, Japan

Filed Nov. 5, 1996, Ser. No. 743,180

Claims priority, application Japan, Nov. 6, 1995, 7-287158; Nov. 6, 1995, 7-287162

Int. Cl.^{6} G06G *21/00*

U.S. Cl. 399—200 **18 Claims**



1. An image forming apparatus comprising:

(a) an image reader which scans an original document line by line in a sub-scanning direction at a predetermined scanning speed and produces an image data according to the original document;

(b) a memory device for storing the image data produced by the image reader;

(c) an image reproducer which reproduces an image on a recording medium corresponding to the image data stored in the memory device at a predetermined system speed;

(d) a magnification adjuster for compensating magnification in the sub-scanning direction of an image represented by the image data by varying the scanning speed of the image reader or the system speed of the image reproducer;

(e) an image rotator for processing the image data so that the image represented by the image data is rotated by 90 degrees or 270 degrees;

(f) a detector which detects an amount of magnification compensation effected by the adjuster; and

(g) a corrector which corrects magnifications in a lateral direction and a longitudinal direction of an image to be reproduced by the image reproducer corresponding to the amount of magnification compensation detected by the detector when the image rotator processes the image rotation.

5,740,506
TONER CARTRIDGE BREATHER CAP

John D. Sundquist, Clarksville, Va.; Paul M. Wegman, Pittsford, N.Y.; Rhonda L. Staudt, Webster, N.Y.; Timothy G. Struczewski, Rochester, N.Y., and Gene S. Serafine, Henrietta, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 11, 1996. Ser. No. 584,421

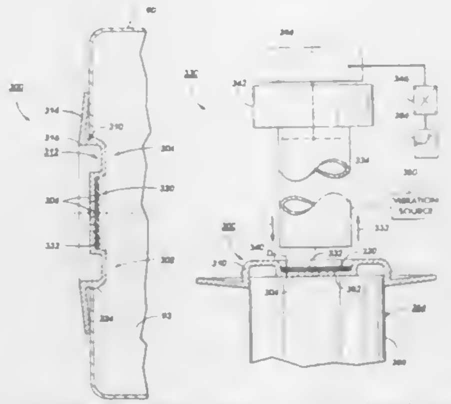
Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—262 **33 Claims**

1. A device for storing a supply of particles for use in a developer unit of an electrophotographic printing machine, comprising:

an open ended container defining a chamber in communication with the open end thereof with the particles being stored in the chamber of said container, said container defining an aperture therein spaced from the open end,

an air permeable cover closely conforming the aperture, for containing the particles within said container, and



a puncturable seal attached to the open end of said container for sealing the chamber, said container being installable into the developer unit without removal of said seal.

5,740,507
DENSELY PACKED TONER CONTAINER AND METHOD OF PRODUCING THE SAME

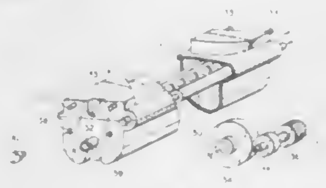
Hideo Ichikawa; Sunao Ikeda; Nobuhiro Makita, all of Numazu; Michiharu Narushima, Shimizu; Seiji Terazawa; Masakazu Nakada, both of Numazu, and Kazuhiko Umemura, Suntoh-gun, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 4, 1996, Ser. No. 630,900

Claims priority, application Japan, Apr. 7, 1995, 7-107969; Mar. 19, 1996, 8-090234

Int. Cl.^{6} G03G *15/08*

U.S. Cl. 399—262 **15 Claims**



1. A toner container for replenishing toner to an image forming apparatus, wherein said toner is packed in said toner container with a ratio of a packing density to a saturation bulk density greater than 1.0, a mean penetration greater than 5.0 mm inclusive, and a standard deviation of penetration not exceeding one-fifth of said mean penetration.

5,740,508
IMAGE FORMING APPARATUS INCLUDING TONER SCATTERING PREVENTION

Masahiko Matsuura, Suita, and Eiichi Sano, Takatsuki, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jan. 29, 1996, Ser. No. 593,432

Claims priority, application Japan, Jan. 31, 1995, 7-014246

Int. Cl.^{6} G03G *15/16*

U.S. Cl. 399—308 **13 Claims**

3. An image forming apparatus comprising:

an image bearing member:

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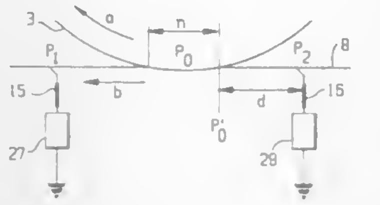
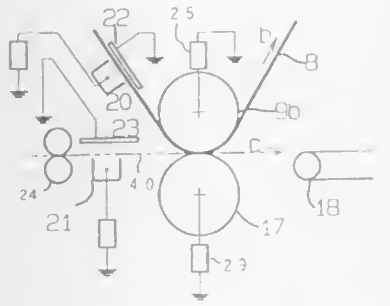




an image forming means for forming a toner image onto the image bearing member;

a transfer device for transferring the toner image formed on the image bearing member onto a transfer medium at a transfer portion;

a transporting path for transporting the transfer medium to the transfer portion; and

bias applying means provided on the transporting path at an upstream side of said transfer portion with respect to a direction of transportation of the transfer medium, said bias applying means applying to the transfer medium a voltage of the same polarity as the toner image as well as of higher potential than a surface potential of the image bearing member.

5,740,509
MAGNET ROLLER AND DEVELOPING DEVICE

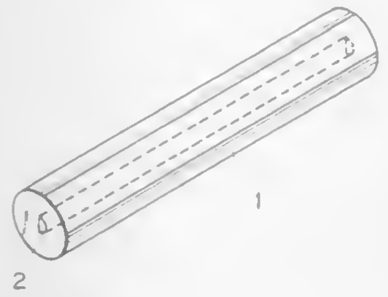
Takashi Hibi; Takeo Shoji, and Gaku Konishi, all of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 7, 1995, Ser. No. 499,124

Claims priority, application Japan, Jul. 8, 1994, 6-179784

Int. Cl.^{6} G03G *15/09*

U.S. Cl. 399—277 11 Claims



1 A magnet roller comprising

a columnar including a through bore extending longitudinally end to end within said columnar magnet having a cross-section defining a thickness of said columnar magnet which is uneven along a circumference thereof such that the thickness is at a maximum only at one position;

wherein said columnar magnet has a plurality of magnetic poles having different magnetic strengths arranged in the circumferential direction and

wherein the maximum thickness portion of said columnar magnet has a strongest magnetic pole of the plurality of magnetic poles.

5,740,510
ELECTROSTATOGRAPHIC MULTICOLOUR PRINTING APPARATUS FOR SINGLE PASS SEQUENTIAL DUPLEX PRINTING ON A WEB-TYPE TONER RECEPTOR MATERIAL

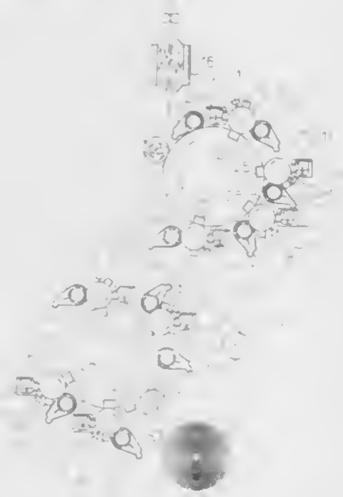
Jan Van den Bogaert, Schilde, and Leo Vackier, 's Gravenwezel, both of Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

Filed Apr. 29, 1996, Ser. No. 641,070

Claims priority, application European Pat. Off., May 9, 1995, 95201185

Int. Cl.^{6} G03G *15/01*

U.S. Cl. 399—298 16 Claims



1 An electrostatographic printing apparatus suited for single-pass sequential multi-colour duplex printing, wherein said printing proceeds by depositing and fixing toner particles on a final substrate in web form and said apparatus comprises:

1) first and second printing systems arranged in succession on opposite sides of said final substrate, each of said printing systems comprising an intermediate rotatable toner-receiving member,

2) means, in each of said printing systems, for rotationally driving said intermediate toner-receiving member,

3) means, in each of said printing systems, for superimposing colour separation images in registration on said intermediate toner receiving member, and

4) means, in each of said printing systems, for simultaneously transferring said superposed colour separation images from said intermediate toner-receiving member onto said final substrate, said transferring means being a drum or roller forming with said intermediate toner-receiving member a nip through which said final substrate is passed in synchronism with the peripheral movement of said intermediate toner-receiving member

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5,740,511
CONVEYOR BELT DEVICE AND IMAGE FORMING APPARATUS HAVING THE DEVICE

Tuyoshi Todome, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 28, 1996, Ser. No. 671,707

Claims priority, application Japan, Jun. 30, 1995, 7-166194

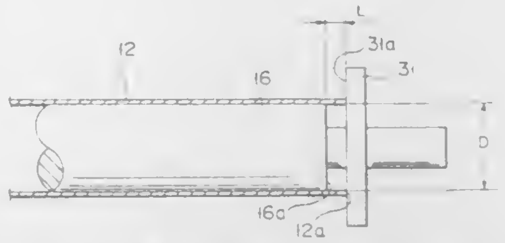
Int. Cl.^{6} G03G *15/01*

U.S. Cl. 399—303 13 Claims

1 A conveying apparatus comprising

a driving roller and a driven roller arranged to face each other with a predetermined distance;

a belt stretched between the driving roller and the driven roller, and running therebetween in accordance with rotation of the driving roller; and



(ROLLER DIAMETER D 22mm, DISTANCE L 2mm)

a regulation member arranged opposite to one end face of the driving roller in an axial direction thereof, and sliding in contact with one side edge of the belt, for regulating a snaking of the belt,

wherein if a thickness of the belt is t (mm), a width of the belt in the axial direction of the driving roller is Bw (mm), a vertical elasticity coefficient in a width direction of the belt is E (g/mm^2), a load applied to the belt to stretch the belt is W (g/mm), and a diameter of the driving roller is D (mm), a distance L (mm), between the regulation member and the one end face of the driving roller is set so as to satisfy a following relationship:

$$L<(42.3\times D\times E\times t\times 10^{-3})/(W\times Bw).$$

5,740,512
IMAGE FORMATION SYSTEM WITH SWELL CORRECTION

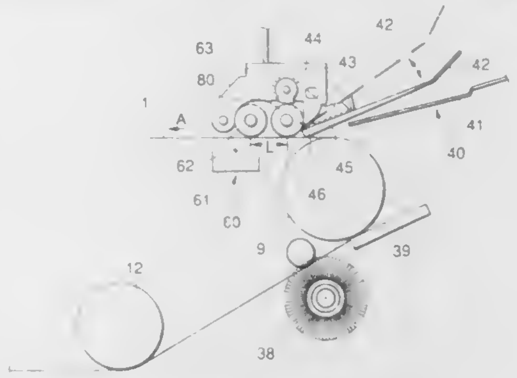
Yukio Hayashi; Norio Hokari; Shuji Iseki; Junichirou Sameshima; Mikio Kobayashi, and Ryoichi Tsuruoka, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 21, 1996, Ser. No. 734,545

Claims priority, application Japan, Oct. 27, 1995, 7-280384

Int. Cl.^{6} G03G *15/16*

U.S. Cl. 399—316 7 Claims



1 An image formation system comprising.

a conveyor belt for transporting a sheet:

means for attracting the sheet to a surface of said conveyor belt,

an image formation unit being disposed downstream from said attraction means on a transport passage of said conveyor belt for transferring a visible image to the sheet;

press means being disposed upstream from said attraction means on the transport passage for pressing the sheet fed to the surface of said conveyor belt against said conveyor belt;

means for feeding the sheet into a space between said press means and said conveyor belt; and

center reinforcement means for causing said press means to press a center stronger than both ends in a width direction orthogonal to a transport direction of said conveyor belt.

5,740,513
IMAGE FORMATION APPARATUS

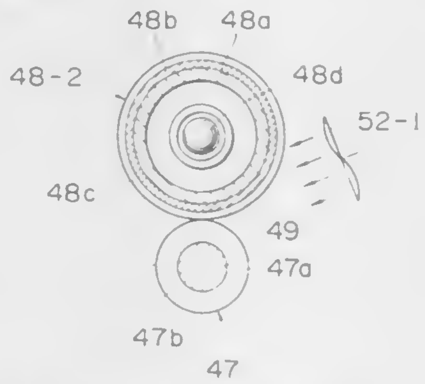
Minoru Matsuo, Sagamihara; Toshio Kobayashi, Atsugi, and Yuichi Jibiki, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 4, 1996, Ser. No. 725,713

Claims priority, application Japan, Oct. 4, 1995, 7-257846; Oct. 4, 1995, 7-257848; Oct. 4, 1995, 7-257853; Oct. 4, 1995, 7-257855; Oct. 4, 1995, 7-257857; Oct. 4, 1995, 7-257858

Int. Cl.^{6} G03G *15/20*

U.S. Cl. 399—333 9 Claims



1 An image formation apparatus comprising

an image fixing roller for thermally fixing images on an image receiving material at a predetermined image fixing temperature, said image fixing roller comprising (a) a core roller member; and (b) an exothermic phase transition layer provided on said core roller member, comprising an exothermic phase transition material which performs reversible phase transition from an amorphous state to a crystalline state and vice versa, and crystallizing at a crystallization temperature which is lower than said predetermined image fixing temperature, with liberation of crystallization heat therefrom, and said exothermic phase transition material having a melting point higher than said predetermined image fixing temperature, thereby additionally increasing the temperature elevation rate before the temperature of an exterior of said image fixing roller reaches said predetermined image fixing temperature:

a heater for setting said image fixing roller in an image fixing mode by heating said exterior of said image fixing roller to said predetermined image fixing temperature and maintaining the temperature of said exterior of said image fixing roller at said predetermined image fixing temperature, or for setting said image fixing roller in a preheating mode by heating said exterior of said image fixing roller to a predetermined preheating temperature which is below said predetermined image fixing temperature and maintaining the temperature of said exterior of said image fixing roller at said predetermined preheating temperature.

first phase transition means for performing the phase transition of said exothermic phase transition material from said amorphous state to said crystalline state by heating said exothermic phase transition layer for liberation of said crystallization heat therefrom;

second phase transition means for performing the phase transition of said exothermic phase transition material from said crystalline state to said amorphous state via a melted state by cooling said exothermic phase transition layer for successive phase transition of said exothermic phase transition material from said amorphous state to said crystalline state for utilizing said crystallization heat;

image formation operation detection means for detecting whether or not said image formation apparatus is in operation for a predetermined period of time; and

phase transition activation means for activating said second phase transition means for performing said phase transition when such detection is made by said operation detection means that said image formation apparatus is not in operation for said predetermined period of time

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5,740,514
INFORMATION CARRYING SHEET AND ILLEGAL COPYING PREVENTIVE IMAGE PATTERN

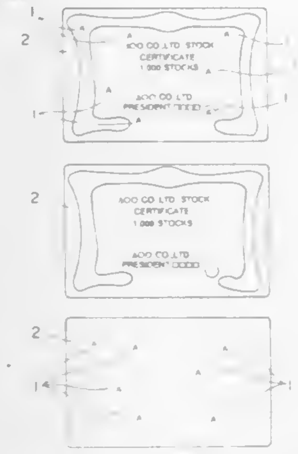
Nagahisa Natsudaira, Tokyo, Japan, assignor to Toppan Printing Co., Ltd., Tokyo, Japan

Division of Ser. No. 154,505, Nov. 19, 1993, Pat. No. 5,475,468. This application Aug. 24, 1995, Ser. No. 518,686

Claims priority, application Japan, Nov. 20, 1992, 4-312277

Int. Cl.^{6} G03G *21/00;21/04*

U.S. Cl. 399—366 **20 Claims**



1. An information carrying sheet characterized in that said sheet is provided with an illegal copying preventive image pattern formed of at least one IR absorption ink containing an IR absorption material having absorption in the IR region and no or little absorption in the visible region on an IR reflective base material.

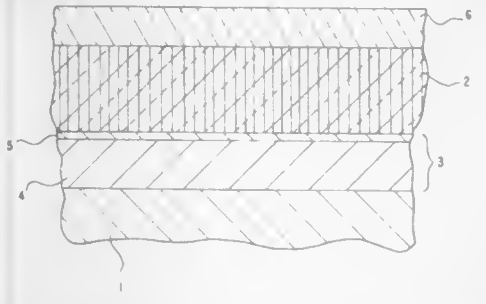
5,740,515
EROSION/CORROSION PROTECTIVE COATING FOR HIGH-TEMPERATURE COMPONENTS

Wolfram Beele, Aachen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Apr. 6, 1995, Ser. No. 417,945

Int. Cl.^{6} B22F *5/04*

U.S. Cl. 428—552 **19 Claims**



1. An article of manufacture being subject to erosive and corrosive attack, comprising:

a substrate, formed of a nickel or cobalt-based superalloy;

a thermal barrier layer disposed on said substrate and having a given ductility; and

a protective coating disposed on said thermal barrier layer and having a relatively higher ductility than the given ductility.

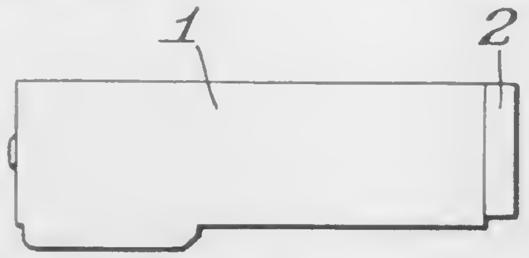
5,740,516
FIREARM BOLT

Marlin R. Jiranek, II, and Michael D. Keeney, both of Elizabethtown, Ky., assignors to Remington Arms Company, Inc., Madison, N.C.

Filed Dec. 31, 1996, Ser. No. 777,264

Int. Cl.^{6} C22C *1/04;27/04;* **F41A** *3/12;* **B22F** *5/00*

U.S. Cl. 428—553 **16 Claims**



5. A firearm bolt comprising tungsten, nickel, and iron in weight percentages to yield a density in a sintered form of about from 14.1 g/cc to 18.0 g/cc.

8. A process for manufacturing a firearm bolt comprising the steps of:

admixing about from 70 to 98% by weight tungsten, the balance comprising nickel and iron, wherein the ratio of nickel to iron is about from 1.5:1 to 5:1, to form a powder metal mixture;

pressing the powder metal mixture to form a green bolt blank compact;

sintering the green bolt blank compact to form a sintered bolt blank; and

finishing the sintered bolt blank to form a finished firearm bolt.

5,740,517
RADIO PAGER SYNC ACQUISITION TIMING ARRANGEMENT FOR BATTERY SAVING OPERATION

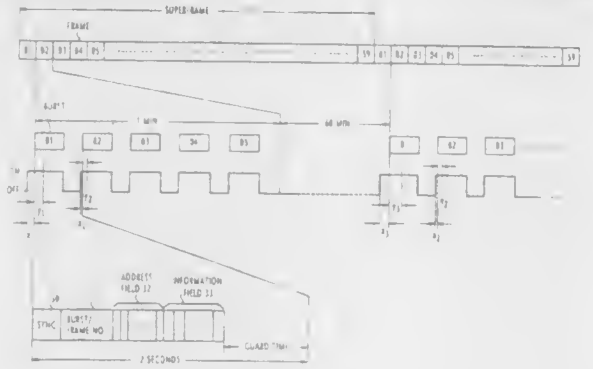
Takashi Aoshima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 24, 1995, Ser. No. 562,376

Claims priority, application Japan, Nov. 24, 1994, 6-314011

Int. Cl.^{6} H04B *7/08*

U.S. Cl. 455—38.3 **17 Claims**



1. A radio pager comprising:

a receiver arranged to be activated for receiving a paging signal;

a synchronizer for establishing synchronization to a bit sequence contained in each burst signal of said paging signal; and

power saving control means for periodically activating said receiver at short intervals during reception of closely spaced burst signals with a short warm-up period for each closely spaced burst signal to allow said receiver to be warmed up within the short warm-up period and with a short time-out period subsequent to the short warm-up period to allow said synchronizer to synchronize within said short time-out period, and for activating said receiver at long intervals during reception of a burst signal remotely spaced from said closely spaced burst signals with a long warm-up period to allow said receiver to be warmed-up within said long warm-up period, and with a long time-out period subsequent to the long warm-up period to allow said synchronizer to synchronize within said long time-out period.

5,740,518
FM CHARACTER DATA MULTIPLEX BROADCASTING SIGNAL RECEIVING APPARATUS

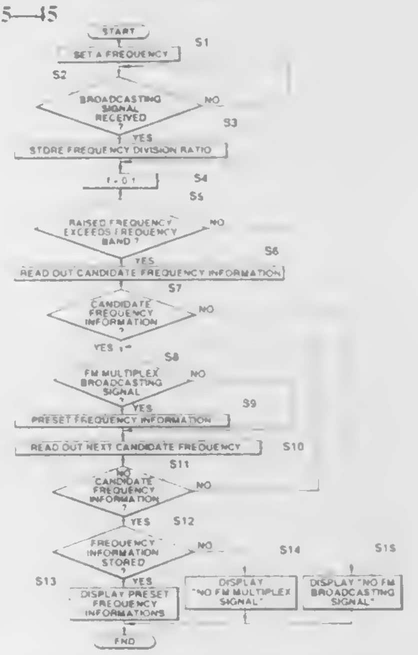
Susumu Takashima, Kokubunji, and Kazuya Kawano, Tachikawa, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Mar. 27, 1996, Ser. No. 624,003

Claims priority, application Japan, Apr. 3, 1995, 7-077894

Int. Cl.^{6} H04B *1/00*

U.S. Cl. 455—45 **6 Claims**


START
SET A FREQUENCY
S1
S2
BROADCASTING SIGNAL RECEIVED ?
NO
S3
YES
STORE FREQUENCY DIVISION RATIO
S4
S5
RAISED FREQUENCY EXCEEDS FREQUENCY BAND ?
NO
YES
S6
READ OUT CANDIDATE FREQUENCY INFORMATION
S7
CANDIDATE FREQUENCY INFORMATION
NO
YES
S8
FM MULTIPLEX BROADCASTING SIGNAL
NO
YES
S9
PRESET FREQUENCY INFORMATION
READ OUT NEXT CANDIDATE FREQUENCY
S10
S11
CANDIDATE FREQUENCY INFORMATION
NO
YES
S12
FREQUENCY INFORMATION STORED ?
NO
S14
S15
S13
YES
DISPLAY PRESET FREQUENCY INFORMATIONS
DISPLAY "NO FM MULTIPLEX SIGNAL"
DISPLAY "NO FM BROADCASTING SIGNAL"
END

1. An FM broadcasting signal receiving apparatus for receiving an FM broadcasting signal carrying multiplex character data, the multiplex character data including block identification codes and control codes, the receiving apparatus comprising:

receiving means adapted to be preset with a frequency information representing a frequency of an FM broadcasting signal, for receiving an FM broadcasting signal;

a memory for searching for an FM broadcasting signal which can be received by said receiving means, and for storing a frequency information representing a frequency of the searched FM broadcasting signal;

judging means for judging whether the FM broadcasting signal, the frequency information of which is stored in said memory, carries multiplex character data; and

presetting means for, when said judging means judges that said FM broadcasting signal carries multiplex character data, presetting to said receiving means the frequency information representing the frequency of said FM broadcasting signal judged by said judging means to be carrying the multiplex character data.

5,740,519
METHOD FOR THE TIME-CORRELATED TRANSMISSION OF A CONTROL SIGNAL AND A RADIO PROGRAM SIGNAL

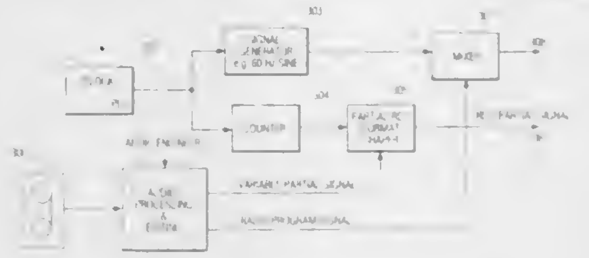
Robert Einsel; Klaus Göken, both of Celle, and Hans-Jörg Gessler, Villingen-Schwenningen, all of Germany, assignors to Telefunken, Hanover, Germany

Continuation of Ser. No. 474,628, Jun. 7, 1995, abandoned, which is a division of Ser. No. 311,293, Sep. 23, 1994, which is a continuation of Ser. No. 154,426, Nov. 19, 1993, abandoned. This application Feb. 20, 1997, Ser. No. 802,497

Claims priority, application Germany, May 31, 1991, 41 17 787.8

Int. Cl.^{6} H04B *1/04*

U.S. Cl. 455—45 **12 Claims**



1. A method of transmitting a control signal correlated in time with a first radio program signal, said control signal containing information concerning a dynamic range of said radio program signal, said control signal being utilized in a receiver for modifying a dynamic range of a second radio program signal produced by said receiver in response to said first radio program signal, said method comprising the steps of:

generating a first time reference signal and a second time reference signal synchronized with said first time reference signal;

forming a first supplemented signal by inserting said control signal and said first time-reference signal into a data stream of a radio data signal;

forming a second supplemented signal by adding said second time-reference signal to said first radio program signal; and

transmitting said first and second supplemented signals.

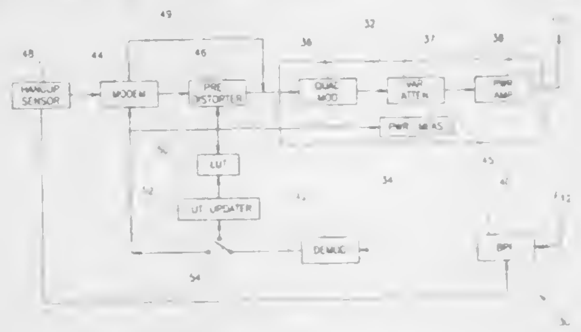
5,740,520
CHANNEL CORRECTION TRANSCEIVER

Baruch Cyze, Qiryat Motzkin; Haim Greenberger, Qiryat Tivon, and Gabriel E. Glassman, Qiryat Yam, all of Israel, assignors to State of Israel, Haifa, Israel

Filed Apr. 3, 1996, Ser. No. 630,425

Int. Cl.^{6} H04B *1/40*

U.S. Cl. 455—69 **11 Claims**



1. A transceiver comprising:

a. a transmitter for transmitting base band signals at a first operating frequency, said transmitter comprising

  i. a lookup table for storing correction coefficients for correcting said base band signals;

  ii. a pre-distorter for correcting said base band signals; and

b. a receiver for receiving base band signals transmitted by a remote transmitter in a first mode and by said transmitter in a second mode, said receiver comprising

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i. means for processing said received base band signals;
ii a lookup table updater, operative during said second mode for receiving said signals transmitted by said transmitter and for updating said lookup table; and
iii. a switching device which receives the base band signals and switches between said means for processing during said first mode and said lookup table updater during said second
iii. a lookup table updater, operative during said second mode for receiving said signals transmitted by said transmitter and for updating said lookup.

5,740,521

METHOD AND CIRCUIT FOR CREATING FREQUENCIES FOR A RADIO TELEPHONE

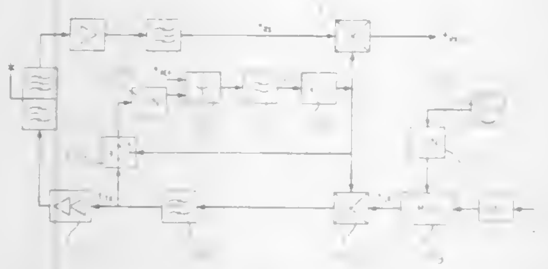
Jaakko Hulkko, Oulu, and Merja Vuolteenaho, Helsinki, both of Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Nov. 13, 1995, Ser. No. 555,012

Claims priority, application Finland, Nov. 14, 1994, 945343

Int. Cl.^{6} H04B *1/40*

U.S. Cl. 455—76 **11 Claims**



4 A circuit for producing frequencies for a dual-mode radio telephone that operates in a digital reception and a digital transmission modes and an analog reception and an analog transmission modes, comprising:

transmitter;
a receiver;
a first mixer disposed in said transmitter having a first input for receiving an intermediate frequency (f_{IF}), and a second input for receiving a local frequency (f_1), wherein said first mixer outputs a transmission frequency (f_{TX});
a second mixer disposed in said receiver having a first input for receiving a carrier frequency (f_{RX}), and a second input for receiving said local frequency (f_1), wherein said second mixer outputs a down-converted receiver frequency signal;
a free running oscillator for producing said intermediate frequency (F_{IF});
a phase-locked loop (PLL) circuit for producing said local frequency (f_1) the PLL having a feedback input;
control means having a first mode and a second mode, for controlling the effective feedback input of the PLL;
in said digital transmission operating mode, said control means is disposed in said first mode to connect said output of said first mixer and thus said transmission frequency (f_{TX}) into said feedback input of said PLL;
in said analog transmission operating mode, said control means is disposed in said second mode to effectively disconnect said output of said first mixer and thus said transmission frequency (f_{TX}) from said feedback input of said the PLL; and
in said digital and said analog reception operating modes, said control means is disposed in said second mode to effectively disconnect said output of said first mixer and thus said transmission frequency (f_{TX}) from said feedback input of said PLL.

5,740,522

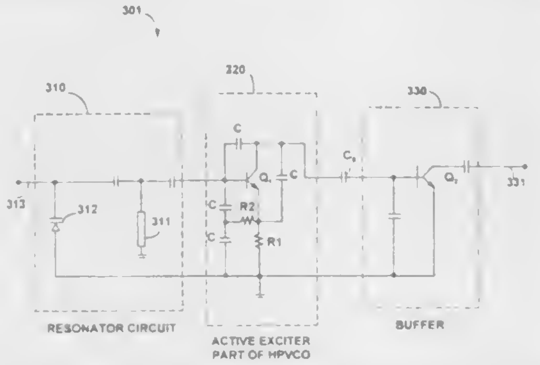
METHOD AND APPARATUS FOR REDUCING RECEIVE BAND TRANSMITTER-CHAIN NOISE FOR A PORTABLE DUPLEX TRANSCEIVER

Rodney A. Dolman, Cary; Ross W. Lampe, Raleigh, and Xue-Song Zhou, Chapel Hill, all of N.C., assignors to Ericsson Inc., Research Triangle Park, N.C.

Filed Jul. 17, 1995, Ser. No. 503,027

Int. Cl.^{6} H04B *1/04*

U.S. Cl. 455—113 **8 Claims**



1. A transmitter exciter chain arrangement in a portable duplex radio transceiver having reduced radio frequency noise generated in the transceiver radio frequency receive band, comprising.

a low-noise, high output power radio frequency (RF) oscillator connected directly to an RF power amplifier wherein said oscillator circuit includes an active exciter circuit and said exciter circuit comprises at least one transistor, said transistor having a capacitor coupled in parallel with a junction capacitance inherent to each semiconductive junction of said transistor to reduce transmitter sideband noise occurring at receive-band frequencies.

5,740,523

RADIO RECEIVER

Yukihiro Nakajima, and Masami Tsukuda, both of Yokohama, Japan, assignors to Shintom Co., Ltd., Kanagawa, Japan

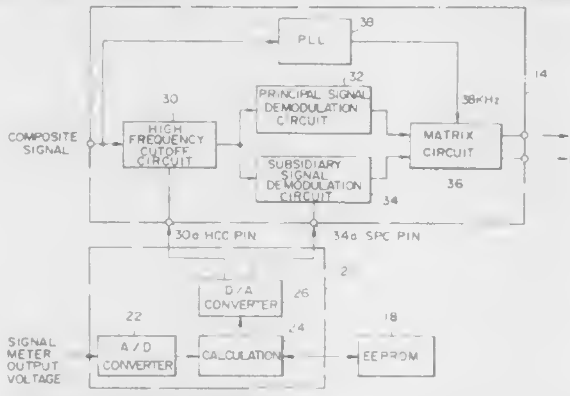
PCT No. PCT/JP94/01058, § 371 Date Feb. 27, 1995, § 102(e) Date Feb. 27, 1995, PCT Pub. No. WO95/01674, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 29, 1994, Ser. No. 392,881

Claims priority, application Japan, Jun. 30, 1993, 5-186775

Int. Cl.^{6} H04B *1/18*

U.S. Cl. 455—186.1 **19 Claims**


PLL
38
32
PRINCIPAL SIGNAL DEMODULATION CIRCUIT
30
38KHz
14
COMPOSITE SIGNAL
HIGH FREQUENCY CUTOFF CIRCUIT
MATRIX CIRCUIT
L
R
SUBSIDIARY SIGNAL DEMODULATION CIRCUIT
36
34
30a HCC PIN
34a SPC PIN
2
D/A CONVERTER
26
22
24
18
SIGNAL METER OUTPUT VOLTAGE
A/D CONVERTER
CALCULATION
EEPROM

1 A radio receiver comprising:
a radio frequency amplifier circuit which amplifies an antenna input signal;
a frequency conversion circuit which converts said amplified antenna input signal to an intermediate frequency signal;
an intermediate frequency amplifier circuit which amplifies and outputs the intermediate frequency signal, and is provided with a signal meter which detects the level of said amplified intermediate frequency signal;

a detector circuit which detects an AM signal or FM signal from said amplified intermediate frequency signal;
a nonvolatile memory which stores an output of said signal meter, which is subject to component variability from unit to unit, when a predetermined reference level of said antenna input signal is input in an adjustment stage of manufacture, as a reference voltage value; and
control means which, based on said signal meter output reference voltage value stored in said nonvolatile memory, sets and controls receiving conditions when different levels of said antenna input signal are input in such a way as to be appropriate to said different levels of said antenna input signal with low variability from unit to unit.

5,740,524

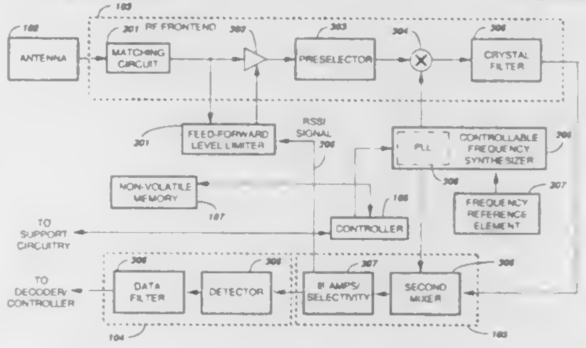
FEED-FORWARD RSSI ASSISTED RADIO FREQUENCY AMPLIFIER POWER CONTROL

Gary Lee Pace, Boca Raton, Fla.; Walter Grandfield, Chandler, Ariz., and Wei Len Tan, Leonie Condotel, Singapore, assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 334,092, Nov. 4, 1994, Pat. No. 5,564,092. This application Dec. 14, 1995, Ser. No. 572,140

Int. Cl.^{6} H04B *1/06*

U.S. Cl. 455—232.1 **19 Claims**



1 A selective call receiver including a radio frequency amplifier having an output power level that is controllable, the selective call receiver further including a received signal strength indicator that generates an RSSI signal having a magnitude proportional to an on-channel signal received at the radio frequency amplifier and recovered by the selective call receiver, the RSSI signal serving to indicate a relative strength of the received on-channel signal, the selective call receiver comprising:

a radio frequency level sensor that generates a sensor output signal in response to an input signal level received at the radio frequency amplifier, the input signal level including the on-channel signal; and
an amplifier output power level adjustment circuit responsive to the sensor output signal and the RSSI signal, the amplifier output power level adjustment circuit operating to adjust a power gain of the radio frequency amplifier in an unconditionally stable feed-forward manner responsive to the sensor output signal and further in response to the RSSI signal such that the output power level remains substantially constant when a received input signal level sensed by the radio frequency level sensor substantially reaches or exceeds a first predetermined signal overload level or the received on-channel signal substantially reaches or exceeds a second predetermined signal level.

5,740,525

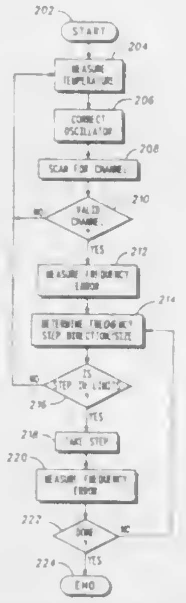
METHOD AND APPARATUS FOR TEMPERATURE COMPENSATION OF A REFERENCE OSCILLATOR IN A COMMUNICATION DEVICE

John H. Spears, McHenry, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 10, 1996, Ser. No. 644,320

Int. Cl.^{6} H04B *1/26*

U.S. Cl. 455—259 **12 Claims**



1. A method for controlling a reference oscillator in a communication device, the method comprising the steps of.
(a) determining an indication of temperature of the reference oscillator;
(b) in response to the indication of temperature, correcting an output frequency of the reference oscillator;
(c) selecting a valid channel for communication.
(d) determining an indication of frequency error between the output frequency of the reference oscillator and a received frequency;
(e) in response to the indication of frequency error, determining a frequency correction;
(f) when the frequency correction is less than a limit value, correcting the output frequency of the reference oscillator according to the frequency correction; and
(g) repeating steps (d)–(f) until the indication of frequency error is less than a predetermined maximum.

5,740,526

METHOD AND APPARATUS FOR SELECTING TWO ANTENNAS FROM WHICH TO RECEIVE A COMMUNICATION SIGNAL

Jeffrey D. Bonta, 1300 E. Mayfair, Arlington Heights, Ill. 60004, and Dennis Ray Schaeffer, 266 Mohawk Trail, Buffalo Grove, Ill. 60089

Filed Jun. 1, 1994, Ser. No. 252,481

Int. Cl.^{6} H04B *1/06*

U.S. Cl. 455—277.2 **17 Claims**

1. At a base site containing at least two signal receivers and a plurality of antennas, a method of receiving a communication signal comprising the steps of:

a) measuring a first signal quality metric for the communication signal received from a first antenna of the plurality of antennas and a second signal quality metric for the communication signal received from a second antenna of the plurality of antennas; and
b) coupling, when the first signal quality metric differs from the second signal quality metric by a threshold, a signal receiver of the at least two signal receivers to a third antenna of the plurality of antennas for a predetermined period of time based

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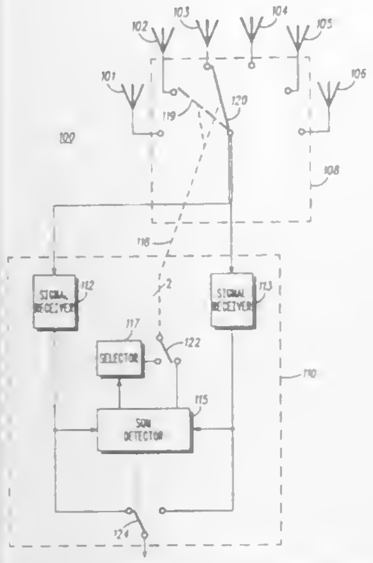


on the difference between the first signal quality metric and the second signal quality metric.

5,740,527

TRANSCEIVER

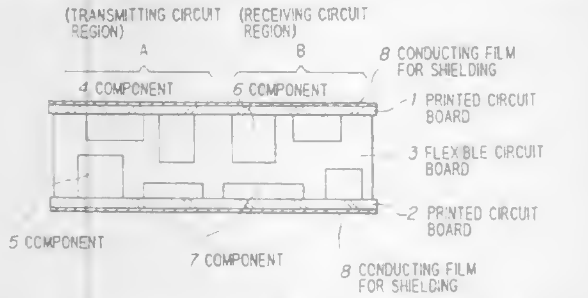
Masataka Mitama, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Nov. 22, 1995, Ser. No. 561,984

Claims priority, application Japan, Nov. 24, 1994, 6-314012

Int. Cl.^{6} H04B *1/10;* H05K *9/00*

U.S. Cl. 455—301 **11 Claims**


(TRANSMITTING CIRCUIT REGION)
A
(RECEIVING CIRCUIT REGION)
B
8 CONDUCTING FILM FOR SHIELDING
4 COMPONENT
6 COMPONENT
1 PRINTED CIRCUIT BOARD
3 FLEXIBLE CIRCUIT BOARD
2 PRINTED CIRCUIT BOARD
5 COMPONENT
7 COMPONENT
8 CONDUCTING FILM FOR SHIELDING

1 A transceiver having first and second circuit boards positioned face to face, and transmitting and receiving circuits composed by components mounted on front surfaces of said first and second circuit boards, comprising:

transmitting and receiving regions defined by dividing front surfaces of said first and second printed circuit boards, and respectively have transmitting and receiving circuits thereon, said transmitting and receiving regions on said first printed circuit board and those of said second printed circuit board positioned face to face, and

coupling means which electrically and mechanically couples said first and second printed circuit boards to each other

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5,740,528

PLANAR TRIPLY-BALANCED MICROSTRIP MIXER

William J. Drennen, Abington, Pa., assignor to Tracor Aerospace Elecronic Systems, Inc., Lansdale, Pa.

Filed May 24, 1995, Ser. No. 449,158

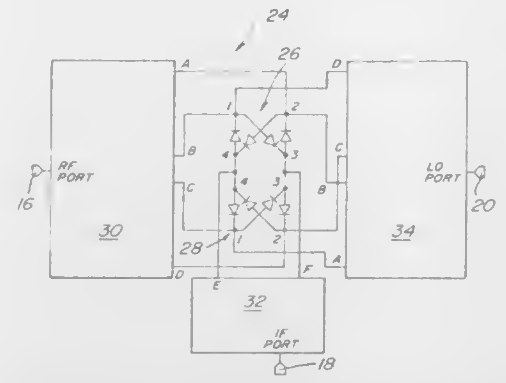
Int. Cl.^{6} H04B *1/26*

U.S. Cl. 455—327 **12 Claims**

1 A single plane triply-balanced microstrip mixer for frequencies from about 2 GHz and up, comprising

(a) an RF port, and IF port and an LO port,

(b) a two-sided substrate having in a single plane on a single side thereof an RF balun network connected to the RF port, an IF balun network connected to the IF port, and an LO balun network connected to the LO port,



(c) a pair of crossover diode ring quad circuits arranged in a planar back-to-back configuration on said single side of said substrate, and

(d) a planar microstrip feed network also on said single side of said substrate connecting the RF, IF, and LO ports to the diode ring quad circuits through the RF, IF and LO balun networks.

5,740,529

METHOD AND APPARATUS FOR CONTROLLING POWER SUPPLIED TO A RECEIVER BASED ON DETECTION OF ERRORS IN GROUPS OF DATA IN A SIGNAL BEING RECEIVED BY SAID RECEIVER

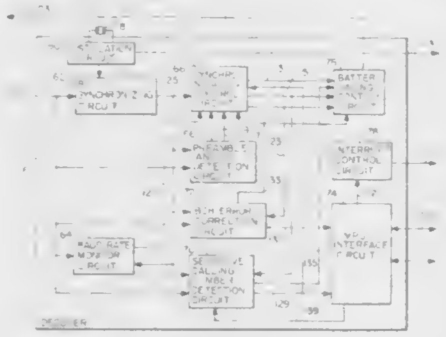
Motoki Ide, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 17, 1994, Ser. No. 325,921

Claims priority, application Japan, Oct. 15, 1993, 5-280656

Int. Cl.^{6} H04B *1/16*

U.S. Cl. 455—343 **9 Claims**


BATTERY SAVING CONTROL
BCH ERROR CORRECTION CIRCUIT
BAUD RATE MONITOR CIRCUIT
SELECTIVE CALLING NUMBER DETECTION CIRCUIT
MPU INTERFACE CIRCUIT
DECODER
25
23
64
75
129
135
139

1 A receiver with a power supply control feature for a radio section responsive to signals containing a preamble and multiple batches, each batch containing a synchronizing signal and multiple codeword groups, said receiver being assigned to at least one of said groups, comprising:

means for detecting a first synchronizing signal included in one batch;

means for detecting an error of the group assigned to said receiver after detecting said first synchronizing signal;

means for preventing power application to said radio section at timings of synchronizing signal receptions after a detection of said first synchronizing signal and when a number of said error is lower than a predetermined amount; and

means for turning on said radio section on detection of said first synchronizing signal, and at reception timings of the group assigned to said receiver when the number of said error is lower than a predetermined amount.

5,740,530

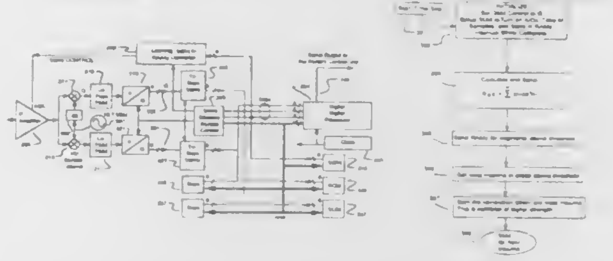
RAPID RECEIVED SIGNAL STRENGTH INDICATION

Gerald Paul Labedz, Chicago, and Duane C. Rabe, Rolling Meadows, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 644,423, Jan. 22, 1991, abandoned, which is a continuation of Ser. No. 358,325, May 26, 1989, abandoned. This application May 26, 1992, Ser. No. 890,320

Int. Cl.^{6} H04Q *7/20*

U.S. Cl. 455—403 **15 Claims**



13. A method of controlling a device, the method employing received signal strength indications (RSSI's) of time-dispersed signals, the method comprising the steps of:

obtaining from a time-dispersed signal a characteristic time-dispersal function of the communications channel upon which the signal is transmitted;

determining the energy present in the time-dispersed signal from the time-dispersal function obtained; and

controlling, based on the determined energy present, said device utilized in said cellular radiotelephone system,

whereby the determined energy present in the time-dispersed signal is related to a RSSI of the time-dispersed signal.

5,740,531

DIGITAL MOBILE TELEPHONE COMMUNICATION METHOD, COMMUNICATION CHANNEL SWITCHING METHOD, AND MOBILE STATION AND BASE STATION FOR IMPLEMENTING SAME METHODS

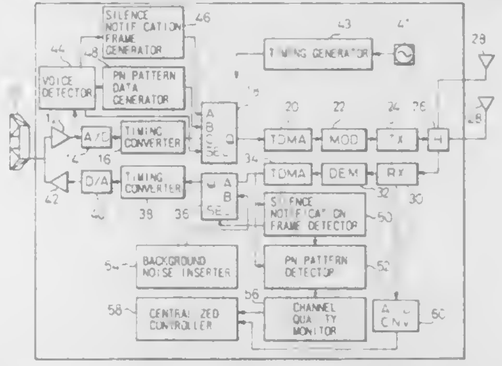
Yasushi Okada, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 7, 1995, Ser. No. 499,769

Claims priority, application Japan, Oct. 27, 1994, 6-263826

Int. Cl.^{6} H04Q *5/14*

U.S. Cl. 455—403 **22 Claims**



1 A digital mobile telephone communication method for transmission and reception of digitized voice signals between a mobile station and a base station, comprising the steps of:

a) at the transmitting end, detecting a silence interval in the voice signals to be transmitted to the receiving end;

b) at the transmitting end, inserting in said silence interval a data signal in place of a digitized voice signal;

c) at the receiving end, detecting said data signal; and

d) inserting in place of said data signal the digitized voice signal corresponding to said silence interval.

5,740,532

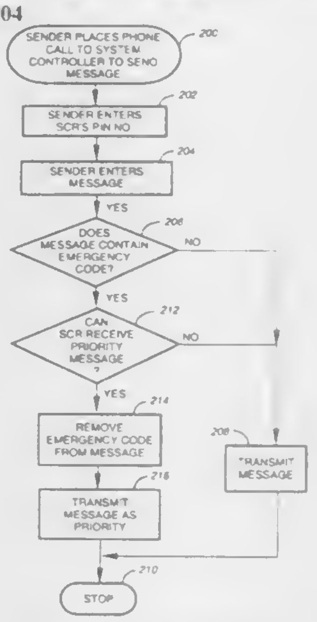
METHOD OF TRANSMITTING EMERGENCY MESSAGES IN A RF COMMUNICATION SYSTEM

Juan C. Fernandez, and Kenneth S. Lerner, both of Boca Raton, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 6, 1996, Ser. No. 643,688

Int. Cl.^{6} H04B *7/00*

U.S. Cl. 455—404 **7 Claims**


SENDER PLACES PHONE CALL TO SYSTEM CONTROLLER TO SEND MESSAGE
200
SENDER ENTERS SCR'S PIN NO
202
SENDER ENTERS MESSAGE
204
YES
DOES MESSAGE CONTAIN EMERGENCY CODE?
206
NO
YES
CAN SCR RECEIVE PRIORITY MESSAGE?
212
NO
YES
REMOVE EMERGENCY CODE FROM MESSAGE
214
208
TRANSMIT MESSAGE
TRANSMIT MESSAGE AS PRIORITY
216
210
STOP

1. In an RF communication system having a base station that receives incoming messages for transmission to selective call receivers, a method for transmitting emergency messages to the selective call receivers, comprising.

at the base station:

a) receiving incoming messages that are to be transmitted to selective call receivers, wherein some of the incoming messages are emergency messages that include an emergency code;

b) removing the emergency code from the emergency messages to provide shortened emergency messages; and

c) transmitting the shortened emergency messages along with alert instructions for activating a priority alert in selective call receivers that receive a shortened emergency message

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5,740,533

CONGESTION CONTROL SYSTEM AND METHOD FOR EFFICIENT MULTI-FREQUENCY MESSAGING

Jyh-Han Lin, Fort Worth, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 3, 1996, Ser. No. 657,115

Int. Cl.^{6} H04B *1/00*

U.S. Cl. 455—432 **20 Claims**

1. A congestion control method for a messaging system having a plurality of scanning selective call receivers with roaming capability, comprising the steps of:

storing a priority value assigned to at least one of the identifiers for at least one of the plurality of scanning selective call receivers in a subscriber database at a home input terminal;

matching the at least one identifier with at least one of the identifiers on the available communication resources found at the output controller terminal providing an identifier with a highest priority value;

transmitting the associated message on the available communication resource having the identifier with the highest priority value if no congestion is detected on the communication resource; and

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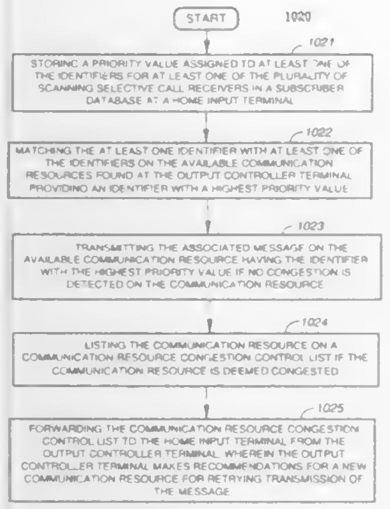

START
1020
1021
STORING A PRIORITY VALUE ASSIGNED TO AT LEAST ONE OF THE IDENTIFIERS FOR AT LEAST ONE OF THE PLURALITY OF SCANNING SELECTIVE CALL RECEIVERS IN A SUBSCRIBER DATABASE AT A HOME INPUT TERMINAL
1022
MATCHING THE AT LEAST ONE IDENTIFIER WITH AT LEAST ONE OF THE IDENTIFIERS ON THE AVAILABLE COMMUNICATION RESOURCES FOUND AT THE OUTPUT CONTROLLER TERMINAL PROVIDING AN IDENTIFIER WITH A HIGHEST PRIORITY VALUE
1023
TRANSMITTING THE ASSOCIATED MESSAGE ON THE AVAILABLE COMMUNICATION RESOURCE HAVING THE IDENTIFIER WITH THE HIGHEST PRIORITY VALUE IF NO CONGESTION IS DETECTED ON THE COMMUNICATION RESOURCE
1024
LISTING THE COMMUNICATION RESOURCE ON A COMMUNICATION RESOURCE CONGESTION CONTROL LIST IF THE COMMUNICATION RESOURCE IS DEEMED CONGESTED
1025
FORWARDING THE COMMUNICATION RESOURCE CONGESTION CONTROL LIST TO THE HOME INPUT TERMINAL FROM THE OUTPUT CONTROLLER TERMINAL, WHEREIN THE OUTPUT CONTROLLER TERMINAL MAKES RECOMMENDATIONS FOR A NEW COMMUNICATION RESOURCE FOR RETRYING TRANSMISSION OF THE MESSAGE

listing the communication resource on a communication resource congestion control list if the communication resource is deemed congested.

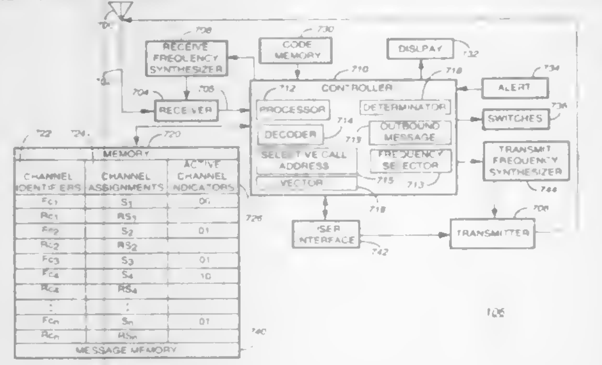
5,740,534
METHOD FOR DETERMINING AVAILABLE FREQUENCIES IN SELECTIVE CALL RECEIVERS

Douglas I. Ayerst, Delray Beach; Malik J. Khan, Lake Worth; Morris Moore, Wellington; Leonard E. Nelson, Boynton Beach, and Kwok K. Choi, Coral Springs, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 22, 1996, Ser. No. 605,560

Int. Cl.⁶ H04B *7/00*, **H04Q** *7/00*

U.S. Cl. 455—434 **16 Claims**



8. A selective call receiver, comprising:
- a frequency synthesizer for scanning a plurality of frequencies to determine an active channel in a current geographic region for use as a control channel for receiving a signal;
- a receiver for receiving the signal on the control channel representative of an available frequency associated with a geographic region, the signal, comprising:
  - a channel identifier;
  - a frequency assignment, and
  - an active channel indicator indicating the frequency assignment active in the current geographic region and an adjacent geographic region;
- a processor for associating the channel identifier with the frequency assignment in response to the active channel indicator indicating an available frequency of the current geographic region and the adjacent geographic region;
- a memory for storing channel identifiers associated with frequency assignments designating available frequencies in the current geographic region and the adjacent geographic region;
- the receiver receiving an address and the channel identifier on the control channel;
- a decoder for decoding the channel identifier associated with the frequency assignment for determining the available frequency assignment in the current geographic region where a message will be transmitted; and
- the frequency synthesizer for switching to the available frequency assignment indicated by the channel identifier received on the control channel for receiving the message.

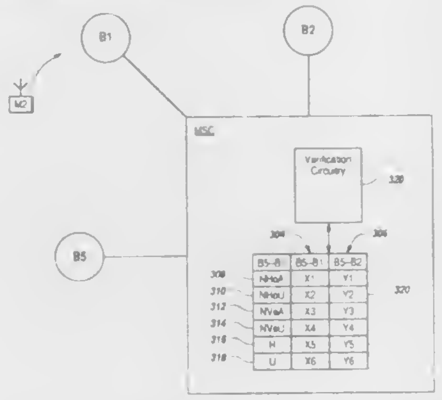
5,740,535
ADAPTIVE MOBILE STATION PRESENCE VERIFICATION

Göran Rune, Linköping, Sweden, assignor to Telefonaktiebolaget L M Ericsson (publ), Stockholm, Sweden

Filed Jan. 19, 1996, Ser. No. 587,737

Int. Cl.⁶ H04Q *7/00*

U.S. Cl. 455—437 **9 Claims**



1. In a mobile telecommunication system comprising at least one mobile station and, a fixed network comprising a plurality of base stations and at least one mobile switching center, each of said base stations having a coverage area and capable of communicating with said at least one mobile station while said at least one mobile station is located in said coverage area, an apparatus for adaptively verifying the presence of said at least one mobile station within the coverage area of a first base station during requested handoffs of communications from a second base station to the first base station, verification of the presence of the mobile station made responsive to a verification attempt, said apparatus comprising:
- a memory device for storing a database comprising a first data value, said first data value indicative of the rate of unsuccessful verification attempts per verification attempt from the second base station to the first base station; and
- verification circuitry for calculating a second data value, said second data value calculated as a function of said first data value, for recalculating said first data value subsequent to every at least one requested handoff, and for recalculating said second data value subsequent to selected requested handoffs, and for determining, based on said second data values, if the verification attempt is to be performed for a particular requested handoff from the second base station to the first base station.

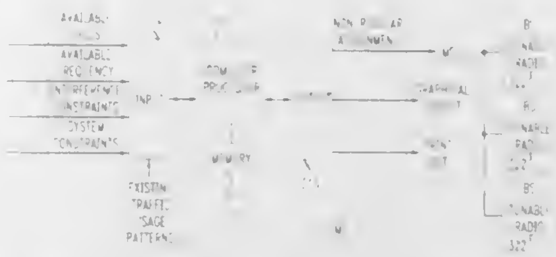
5,740,536
SYSTEM AND METHOD FOR MANAGING NEIGHBOR-CHANNEL INTERFERENCE IN CHANNELIZED CELLULAR SYSTEMS

Mathilde Benveniste, South Orange, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 29, 1995, Ser. No. 580,570

Int. Cl.⁶ H04Q *7/20*

U.S. Cl. 455—447 **4 Claims**



1. In a wireless communication network having service areas partitioned into a plurality of cells, wherein a second plurality of communication channels are available for allocation among cells and at least a portion of said channels are successively disposed along a frequency continuum, a method for avoiding use of any two of said channels having adjacent frequencies within a common cell, and reducing co-channel and neighbor channel interference, comprising the steps of:
- arranging channels into disjoint categories by the steps of assigning odd/even parity to each cell and assigning to cells channels with numbers of the assigned parity;
- arranging channels into a number of vertical columns equal to a reuse factor with a plurality of vertical groupings across all columns for identifying channels for sectors of cells.
- determining adjacent edges between adjacent cells in a system which define the existence of adjacent channels in adjacent cells and from vertical listings of available channels.

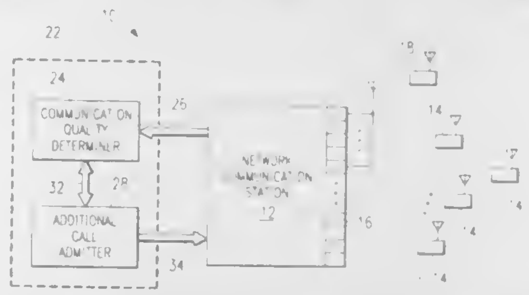
5,740,537
METHOD AND CIRCUITRY FOR SELECTIVELY PERMITTING COMMUNICATION IN A MULTI-USER COMMUNICATION SYSTEM

Per Johan Beming, Stockholm; Carl Magnus Frodigh, Kista, and Knut Magnus Almgren, Sollentuna, all of Sweden, assignors to Telefonaktiebolaget L M Ericsson (publ)

Filed Jan. 30, 1996, Ser. No. 594,348

Int. Cl.⁶ H04Q *7/20*

U.S. Cl. 455—450 **24 Claims**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COMMUNICATION QUALITY DETERMINER
ADDITIONAL CALL ADMITTER
NETWORK COMMUNICATION STATION
12
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18
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1. In a cellular communication system having radio base stations, the radio base stations defining cells and operable to communicate with subscriber units positioned within cells defined by the radio base stations, an improvement of circuitry for selectively admitting an additional subscriber unit positioned in a selected cell to communicate with a selected radio base station which defines the selected cell, the selected cell defining a portion of partially-overlapping interference areas, the interference areas each formed of a set of associated cells, said circuitry comprising:
- a plurality of communication quality determiners, each communication quality determiner coupled to the radio base stations defining the cells of the interference areas associated therewith to receive indications of ongoing communications of subscriber units in the cells of the interference area, each communication quality determiner for determining levels of communication quality of ongoing communications of subscriber units within the cells of the interference area associated therewith; and
- an additional-call admitter associated with the selected cell and coupled to each of said plurality of communication quality determiners associated with interference areas of which the selected cell forms a portion, said additional call admitter for admitting the additional subscriber unit to communicate with the selected radio base station when levels of communication quality determined by at least one of the communication quality determiners coupled thereto is better than a threshold level.

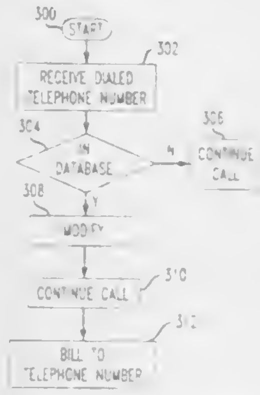
5,740,538
SYSTEM AND METHOD FOR IDENTIFYING THE LOCATION OF A WIRELESS TERMINAL

Michael Julian Joyce, Blackburn South, Australia; Ping-Wen Ong, Middletown, N.J.; Abbas Ourmazd, Frankfurt, Germany, and Colin Alan Warwick, Holmdel, N.J., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Jan. 5, 1996, Ser. No. 583,355

Int. Cl.⁶ H04Q *7/20*

U.S. Cl. 455—456 **9 Claims**



6. A method for identifying the location of a wireless terminal, the method comprising:
- receiving a dialed telephone number from a wireless terminal at a base station;
- determining if a called number corresponds to a location service and if said called number corresponds to the location service, said location circuit modifying the caller-identification signal for a call from a wireless terminal with a signal that identifies the geographic location of the base station such that the modified caller-identification signal identifies the proximate location of the wireless terminal.
- continuing the call with the modified caller-identification signal.

5,740,539
CALLING SYSTEM USING MOBILE TELEPHONE TERMINAL WITH LOCATION MONITORING

Katsuhiro Ishii, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 13, 1996, Ser. No. 647,691

Claims priority, application Japan, May 12, 1995, 7-138607

Int. Cl.⁶ H04Q *7/38*

U.S. Cl. 455—456 **6 Claims**

1. A calling system using a mobile telephone terminal such as a mobile phone, comprising:
- a plurality of radio zones, each including a control unit, a memory unit which cooperates with said control unit, a relay station, and a plurality of calling units, and belonging to a private area as a call range;
- a mobile telephone terminal for determining a response disabled state of a callee with respect to an incoming call by measuring a time from generation of a terminating request, and transmitting, via said relay station, information indicating the response disabled state to said control unit arranged in a radio zone in which the terminating request is received;
- a central control unit having a main memory unit to control each of said relay stations arranged in said plurality of radio zones via said control unit, and
- means for notifying information indicating an absence of a callee from said central control unit to said control unit, and/or from said control unit to said mobile telephone termi

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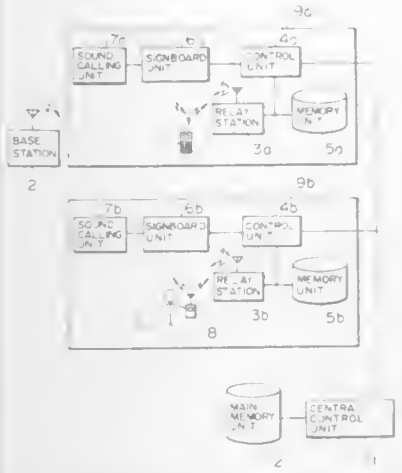


nal via said relay station, and further notifying the information from said mobile telephone terminal to the caller via a base station which has received a terminating request signal from said mobile telephone terminal,

wherein position information of said paging terminal unit is sequentially registered in said memory unit, said control unit or said central control unit searches for said paging terminal unit in cooperation with said memory unit or said main memory unit when the callee cannot respond to the incoming call, and when said paging terminal unit is detected, said paging terminal unit is called at a position where said paging terminal unit is detected, and the callee is called via at least one of said calling units which is arranged in the radio zone corresponding to the position where said paging terminal unit is detected.

5,740,540

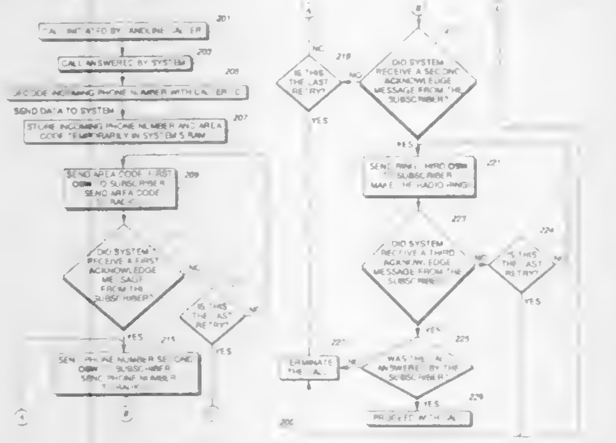
METHOD FOR TELEPHONE NUMBER NOTIFICATION AND STORAGE IN A PORTABLE RADIO

George A. Emmermann, Boca Raton, Fla., assignor to Mototola, Inc., Schaumburg, Ill.

Filed Nov. 6, 1995, Ser. No. 554,581

Int. Cl.^{6} H04M *11/00*

U.S. Cl. 455—458 2 Claims


CALL INITIATED BY LANDLINE CALLER
CALL ANSWERED BY SYSTEM
DECODE INCOMING PHONE NUMBER WITH CALLER ID
SEND DATA TO SYSTEM
STORE INCOMING PHONE NUMBER AND AREA CODE TEMPORARILY IN SYSTEM'S RAM
DID SYSTEM RECEIVE A FIRST ACKNOWLEDGE MESSAGE FROM THE SUBSCRIBER?
IS THIS THE LAST RETRY?
DID SYSTEM RECEIVE A SECOND ACKNOWLEDGE MESSAGE FROM THE SUBSCRIBER?
DID SYSTEM RECEIVE A THIRD ACKNOWLEDGE MESSAGE FROM THE SUBSCRIBER?
WAS THE CALL ANSWERED BY THE SUBSCRIBER?
ELIMINATE THE CALL
PROCEED WITH CALL
YES
NO
201
203
205
207
219
225
229

1. A method of notifying a radio subscriber unit using a two-way radio communications system that a telephone call has been received at a central station comprising the steps of:

at a central station,

receiving a telephone call from a caller for a radio subscriber unit;

decoding an incoming telephone number from the caller;

transmitting a first signaling word including a radio address and a first portion of the telephone number to a radio subscriber unit which has been identified by the caller,

listening for a first acknowledgment by the radio subscriber unit, and if the first acknowledgment is received at the central station;

transmitting a second signaling word including a radio address and a second portion of the telephone number to the radio subscriber unit which has been identified by the caller;

listening for a second acknowledgment by the radio subscriber unit, and if the second acknowledgment is received;

transmitting a third signaling word including a radio address and a ring signal for signaling the radio subscriber unit to enter a ring mode;

at the radio subscriber unit:

receiving a first signaling word including a first portion of a telephone number;

transmitting the first acknowledgment in response to the receipt of the first signaling word;

receiving a second signaling word including a second portion of a decoded telephone number;

transmitting a second acknowledgment of a receipt of the second signaling word;

receiving a third signaling word including a ring signal;

displaying the first portion and the second portion of the telephone number to the radio subscriber unit; and

wherein the radio subscriber unit must be active to receive the first portion and the second portion of the telephone number and further wherein the telephone number is discarded by the central station if the radio is not in an active state.

5,740,541

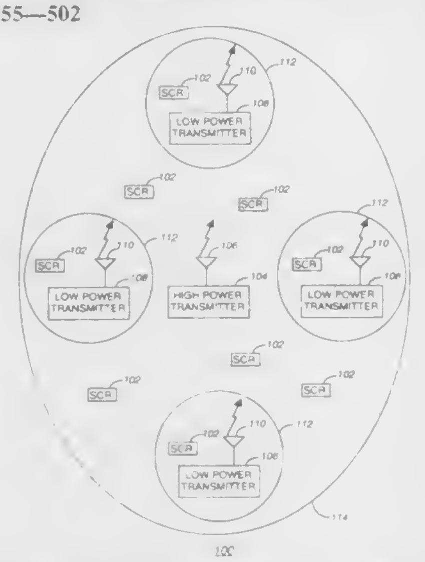
METHOD FOR TRANSMITTING LOCAL AREA/WIDE AREA MESSAGES AND SELECTIVE CALL RECEIVER FOR USE THEREWITH

Robert S. Flippo, Deerfield Beach; Enrique E. Calistro, Cooper City, and Troy A. Bailey, Lake Worth, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 26, 1996, Ser. No. 606,950

Int. Cl.^{6} H04B *7/005;7/01;7/015;15/00*

U.S. Cl. 455—502 4 Claims



1. In a communication system having a relatively high power transmitter for transmitting, on a given frequency, messages to selective call receivers located within a relatively wide coverage area, and having a plurality of relatively low power transmitters for transmitting, on the given frequency, messages to selective call receivers located within relatively smaller coverage areas that overlap the relatively wide coverage area, a method of controlling the transmissions, comprising:

causing the relatively high power transmitter to transmit, in sync with a time base, a message during at least a first predetermined time interval; and

causing each of the plurality of relatively low power transmitters to transmit, in sync with the time base, a message during its

own predetermined time interval that is different from the first predetermined time interval, and inhibiting all transmitters such that only one transmitter transmits during any one predetermined time interval.

5,740,542

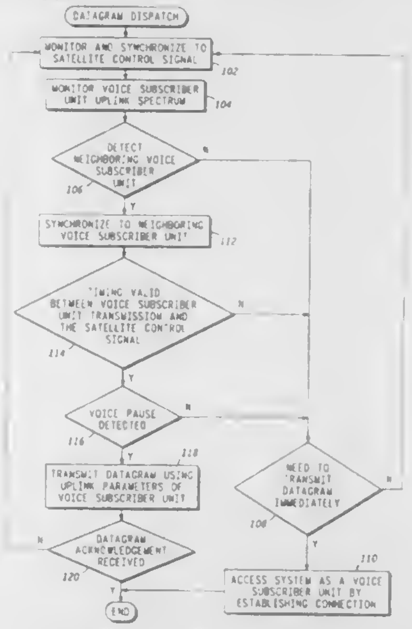
METHOD OF TRANSMITTING DATA DURING VOICE PAUSES IN A SYNCHRONOUS COMMUNICATION SYSTEM

David G. Leeper, Scottsdale; Ralph C. Gregg, Jr., Tempe, and Keith Andrew Olds, Mesa, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 2, 1995, Ser. No. 510,529

Int. Cl.^{6} H04B *7/26,7/212*

U.S. Cl. 455—516 17 Claims


DATAGRAM DISPATCH
MONITOR AND SYNCHRONIZE TO SATELLITE CONTROL SIGNAL
MONITOR VOICE SUBSCRIBER UNIT UPLINK SPECTRUM
DETECT NEIGHBORING VOICE SUBSCRIBER UNIT
SYNCHRONIZE TO NEIGHBORING VOICE SUBSCRIBER UNIT
TIMING VALID BETWEEN VOICE SUBSCRIBER UNIT TRANSMISSION AND THE SATELLITE CONTROL SIGNAL
VOICE PAUSE DETECTED
TRANSMIT DATAGRAM USING UPLINK PARAMETERS OF VOICE SUBSCRIBER UNIT
NEED TO TRANSMIT DATAGRAM IMMEDIATELY
DATAGRAM ACKNOWLEDGEMENT RECEIVED
ACCESS SYSTEM AS A VOICE SUBSCRIBER UNIT BY ESTABLISHING CONNECTION
END
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1. A method of operating a datagram service in a communication system wherein a data subscriber unit utilizes an established traffic channel for introducing a datagram into said communication system, said method comprising the steps of:

generating a datagram for delivery in said communication system;

deriving compatible communication parameters for use in utilizing said established traffic channels;

introducing said datagram into said communication system using said compatible communication parameters;

a base station receiving said datagram;

said base station evaluating routing information contained in said datagram; and

said base station routing said datagram according to said routing information.

5,740,543

PORTABLE TELEPHONE SET INCORPORATING A MESSAGE RECORDING FEATURE

Koji Maeda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 436,493, May 8, 1995, abandoned. This application Aug. 14, 1997, Ser. No. 911,172

Claims priority, application Japan, May 6, 1994, 6-094465

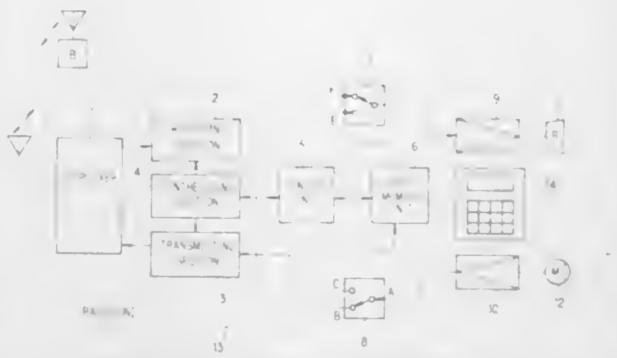
Int. Cl.^{6} H04Q *7/20;7/32*

U.S. Cl. 455—550 4 Claims

1. A portable telephone set comprising:

a receiving section for receiving a radio signal and sending out a demodulation output thereof to a receiver;

a transmitting unit for modulating a voice signal input from a transmitter and transmitting the voice signal as a radio signal,



a voice memory unit for recording the voice signal, and

a switch for temporarily inhibiting coupling of the output voice signal of the transmitter to the transmitting section while conversation is in progress and allowing coupling of the output voice signal to the voice memory unit for storing thereof

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5,740,544

Patent Not Issued For This Number

5,740,545

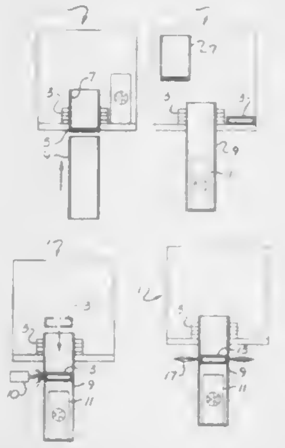
BAGLESS TRANSFER PROCESS AND APPARATUS FOR RADIOACTIVE WASTE CONFINEMENT

David N. Maxwell, Aiken, S.C.; Robert H. Hones, Evans, Ga., and M. Lane Rogers, Aiken, S.C., assignors to Westinghouse Savannah River Company, Aiken, S.C.

Filed Oct. 20, 1995, Ser. No. 546,566

Int. Cl.^{6} G21F *9/00*

U.S. Cl. 588—1 5 Claims



1. A process of handling radioactive material comprising:

providing a glovebox containing radioactive material within an interior of said glovebox;

positioning an apparatus beneath a bottom seal of said glovebox, said apparatus comprising:

a first vertical support carrying a vertical positioner along one side;

a first horizontal arm in communication at one end with said vertical positioner and providing a second free end defining a holder;

a second vertical support carrying a vertical positioner along one side;

a second horizontal arm in communication at one end with said vertical positioner of said second support, a free end of said second arm carrying a cutter defining at least one circular cutting blade in communication with a central cavity defined by said cutter.

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- a sliding bracket having a first end carried by and moveable along a mid-region length of said second arm and having a second end carrying a rotary welder defining at least one welding tip;
- inserting a circular canister within a seal of said glovebox, an interior of said canister being in communication with said glovebox interior;
- placing said radioactive material within said interior of said canister;
- providing a hollow plug for said canister;
- positioning said plug at a predetermined location within an interior of said canister;
- positioning said rotary welder around an exterior of said canister, said rotary welder tip positioned opposite of said predetermined location;
- welding an interior wall portion of said canister to an exterior wall portion of said plug,
- positioning said circular cutting blades opposite said weld;
- severing said weld with said cutter blades along a midpoint of said weld, thereby providing a detached and sealed canister housing said waste comprising a lower portion of said canister and having a welded top comprising a lower plug half; and
- maintaining an environmentally sealed condition of said glovebox by formation of a barrier provided by an upper plug half welded to an upper canister portion.

5,740,546
REPOSITORY FOR RADIOACTIVE WASTE-VAULT BACKFILL

Alan James Hooper, Gloucester, United Kingdom, assignor to United Kingdom Nirex Limited, Oxfordshire, United Kingdom

PCT No. PCT/GB94/01625, § 371 Date Feb. 14, 1996, § 102(e) Date Feb. 14, 1996, PCT Pub. No. WO95/05666, PCT Pub. Date Feb. 23, 1995

PCT Filed Jul. 28, 1994, Ser. No. 596,158

Claims priority, application United Kingdom, Aug. 16, 1993, 9316995

Int. Cl.^{6} G21F *9/00*

U.S. Cl. 588—16 38 Claims

1. A method forming a repository for radioactive waste comprising locating the waste in a subterranean vault and backfilling the vault with a filling material which is water permeable and provides a substantial reservoir of available alkalinity such that any ground water permeating through the filling material to the waste has a pH of at least 10.5, wherein the filling material is cementitious and is prepared as a slurry to backfill voids in the vault and then allowed to cure to form said filling material as a weakly bound material having a cube compressive strength at any age up to 50 years of not more than about 15 MPa, said slurry comprising 30 to 40% water, 20 to 30% portland cement, 7 to 15% lime and 20 to 40% filler all percentages being by weight

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5,740,547
RAIL NAVIGATION SYSTEM

Robert C. Kull, Olney, Md., and Roger P. Woodward, San Francisco, Calif., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

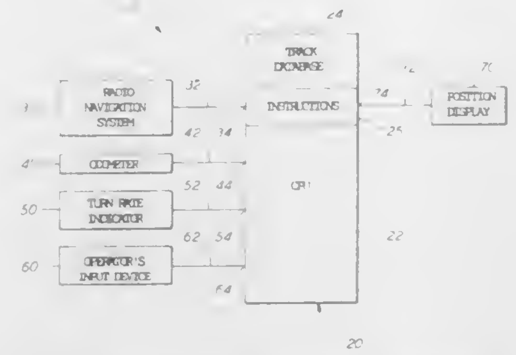
Filed Feb. 20, 1996, Ser. No. 604,032

Int. Cl.^{6} B61L *25/02*, **G06F** *17/00*

U.S. Cl. 701—19 22 Claims

1. A navigation system for a railway vehicle travelling on a track system, said navigation system comprising:

(a) a storage device for storing a database including data pertaining to locations of railway track routes and locations and orientations of switches and curves in such railway track routes of such track system;



(b) a rate of turn measuring apparatus for measuring a rate at which such railway vehicle turns on such railway track so as to generate a signal indicative of a turn rate of such railway vehicle;

(c) a speed sensing device for sensing rotation of a wheel of such railway vehicle so as to generate a signal indicative of at least one of speed of and distance traveled by such railway vehicle;

(d) a computing device

for deriving a signal indicative of curvature of such railway track on which such railway vehicle is travelling from said signal indicative of turn rate and said signal indicative of at least one of speed and distance and for comparing said signal indicative of curvature with said data pertaining to said locations and orientations of switches and curves in such track system to determine more accurately said position such railway vehicle occupies in relation to a particular one of such curves and such switches in said database and to generate a position signal indicative thereof; and

(e) a means for using said position signal for at least one of an operator display, an input to a control means of such railway vehicle, and as a signal for computations in said computing device.

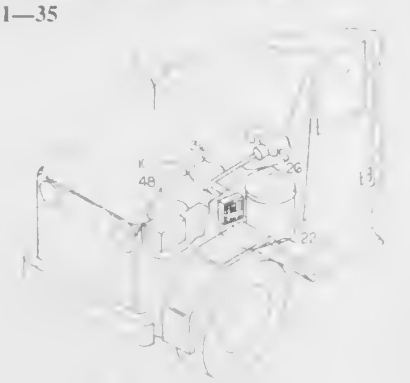
5,740,548
DRIVER SAFETY PARAMETER DISPLAY APPARATUS

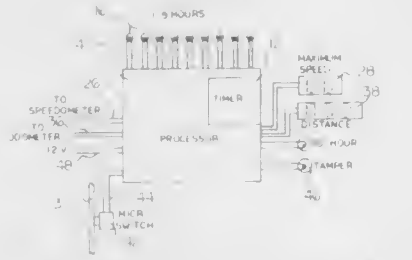
Larry Mahry Hudgens, P.O. Box 616, 8930 CR 198, Liverpool, Tex. 77577

Filed Nov. 3, 1995, Ser. No. 552,735

Int. Cl.^{6} B60Q *1/50;* **G06F** *17/40*

U.S. Cl. 701—35 6 Claims





1. A driver safety parameter display apparatus for a motor vehicle, comprising

- a housing assembly,

- a timer assembly, housed within said housing assembly, for recording time data for time of operation of the motor vehicle,
- a computer processor assembly, housed within said housing assembly and electrically connected to said timer assembly, for receiving time data signals from said timer assembly,
- an array of individual illumination assemblies, supported by said housing assembly and visible from outside said housing assembly, wherein said illumination assemblies are electrically connected to said computer processor assembly for indicating sequentially and cumulatively an accumulation of time of operation of the motor vehicle, and
- a connector assembly for mechanically connecting said housing assembly to an outside surface of the motor vehicle,
- wherein said array of illumination assemblies includes nine illumination assemblies arranged in a matrix of three rows and three columns.

5,740,549
INFORMATION AND ADVERTISING DISTRIBUTION SYSTEM AND METHOD

James P. Reilly, San Francisco, and Gregory P. Hassett, Cupertino, both of Calif., assignors to PointCast, Inc., Sunnyvale, Calif.

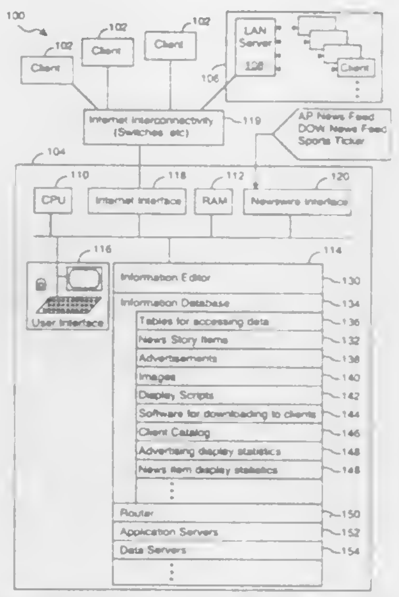
Filed Jun. 12, 1995, Ser. No. 489,591

Int. Cl.^{6} G06F *17/60*

U.S. Cl. 705—14 20 Claims

1. A computer-implemented method of displaying information on a computer having a local storage device and a display device, the computer being coupled to a network, the computer-implemented method comprising the steps of:

- storing advertising information and news information downloaded from the network in the local storage device of the computer, wherein each of the advertising information and the news information is associated with at least one category in a list of predefined categories, the list of predefined categories being based on user selected preferences,



- detecting a predefined idleness criteria for the computer wherein the predefined idleness criteria is met when the computer fails to receive user input for a predetermined amount of time;
- selecting a first set of advertising information and a corresponding first set of news information from a first category in the list of predefined categories; and
- displaying the first set of advertising information and the first set of news information in a screen saver on the display device of the computer after a predetermined period of time.

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For CLASS	See PATENT NO.
D04–104	D393,450

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DESIGNS

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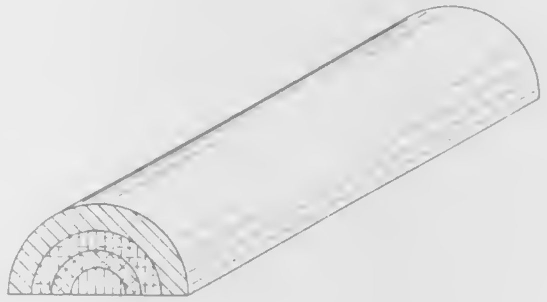
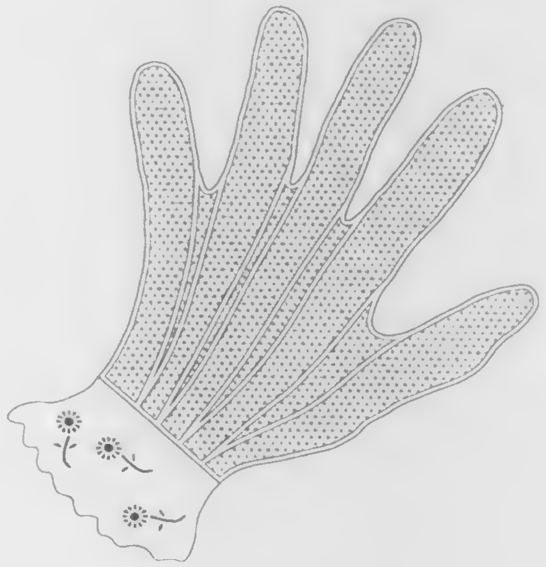
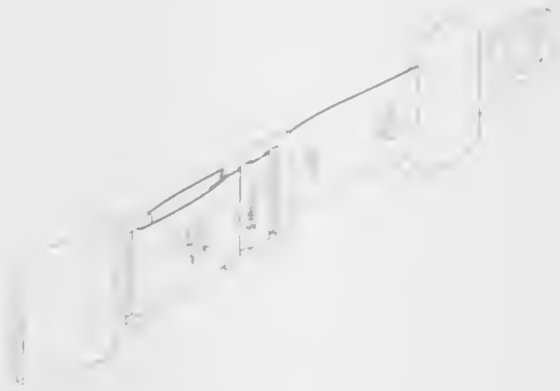
393,335
RAINBOW CHEESE
Neil Bailey, Melton Mowbray, England, assignor to Long Clawson Dairy Limited, Leicestershire, England
Filed Mar. 20, 1997, Ser. No. 68,713
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—199



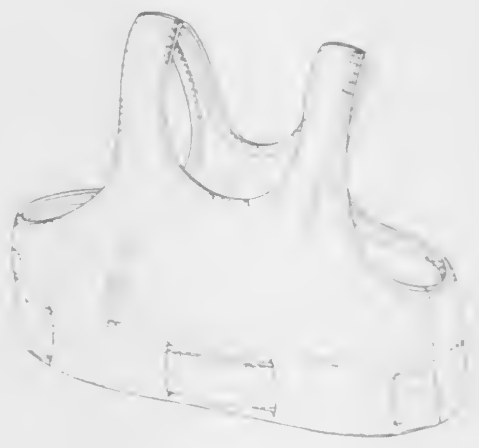
393,336
HOOK AND LOOP GLOVE
John Zadworny, Jr., and Peggy A. Zadworny, both of 20 Doyle Dr., Ansonia, Conn. 06401
Filed May 16, 1997, Ser. No. 70,816
Term of patent 14 years
LOC (6) Cl. 02 - *06*
U.S. Cl. D2—619



393,337
SEATBELT ACCESSORY ATTACHABLE TO EXISTING VEHICLE SEATBELT FOR LENGTHENING PURPOSES
Toshihiro Seki, 30696 Crest Forest, Farmington Hills, Mich. 48331
Filed Jun. 21, 1996, Ser. No. 56,088
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D2—624



393,338
WOMEN'S GARMENT WITH MONITOR ACCOMMODATION
Michael Rubin, Colts Neck, N.J., assignor to Attitudes In Dressing, Inc., Elizabeth, N.J.
Filed Sep. 18, 1996, Ser. No. 59,939
Term of patent 14 years
LOC (6) Cl. 02 - *01*
U.S. Cl. D2—706



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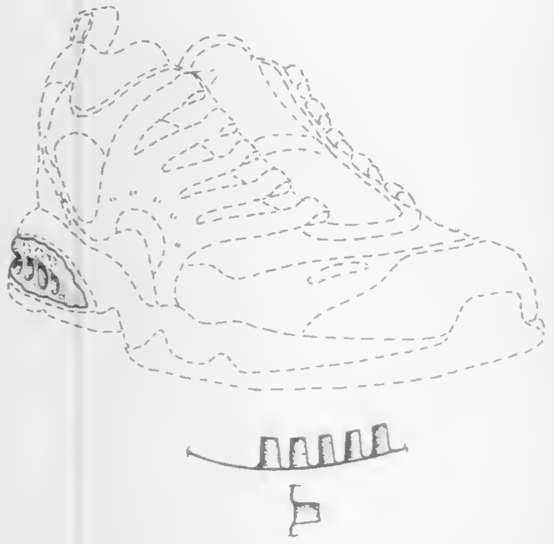
EXTERIOR SURFACE OF A PORTION OF A SHOE SOLE

Peter M. Fogg, Lake Oswego, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jul. 17, 1997, Ser. No. 73,795
Term of patent 14 years
LOC (6) Cl. 02 - *99*

U.S. Cl. D2—947



393,340

ELEMENT OF A SHOE SOLE

Andre Doxey, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jun. 24, 1997, Ser. No. 75,363
Term of patent 14 years
LOC (6) Cl. 02 - *99*

U.S. Cl. D2—947

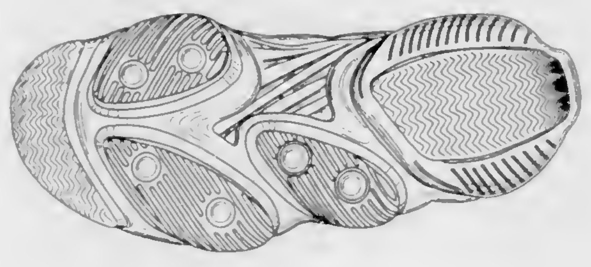
393,341

SHOE SOLE

Guy A. Marshall, 24 Mountain Ave., West Orange, N.J. 07052; Paul A. Gaudio, 610 Middlecrest Rd., Lake Oswego, Oreg. 97034, and Susan D. Cessor, 2722 NE. Skidmore, Portland, Oreg. 97211

Continuation-in-part of Ser. No. 46,391, Nov. 14, 1995. This application Feb. 27, 1996, Ser. No. 50,837
Term of patent 14 years
LOC (6) Cl. 02 - *04*

U.S. Cl. D2—951



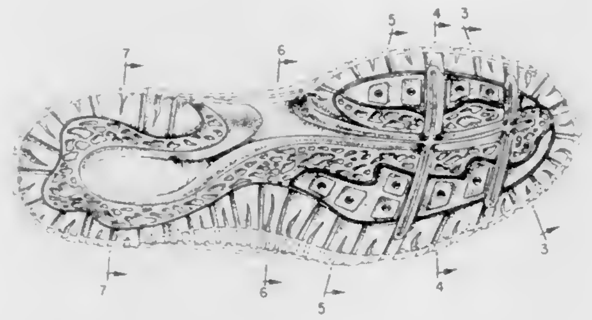
393,342

BOTTOM SURFACE OF A SHOE OUTSOLE

William J. Cass, Hillsboro, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Sep. 26, 1997, Ser. No. 76,887
Term of patent 14 years
LOC (6) Cl. 02 - *04*

U.S. Cl. D2—957



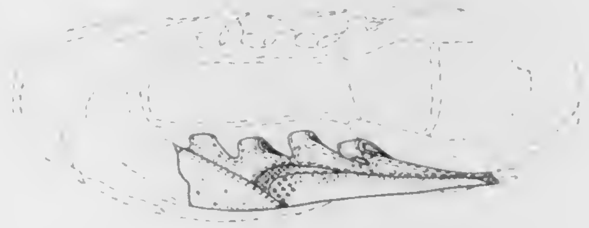
393,343

SIDE ELEMENT OF A SHOE UPPER

Wilson W. Smith, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Oct. 7, 1996, Ser. No. 60,750
Term of patent 14 years
LOC (6) Cl. 02 - *99*

U.S. Cl. D2—972



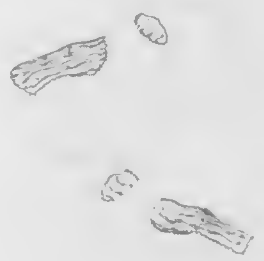
393,344

ELEMENT OF A SHOE UPPER

Tracy L. Teague, Aloha, and Ricardo Vestuti, Portland, both of Oreg., assignors to Nike, Inc., Beaverton, Oreg.

Filed Mar. 4, 1997, Ser. No. 66,588
Term of patent 14 years
LOC (6) Cl. 02 - *99*

U.S. Cl. D2—972



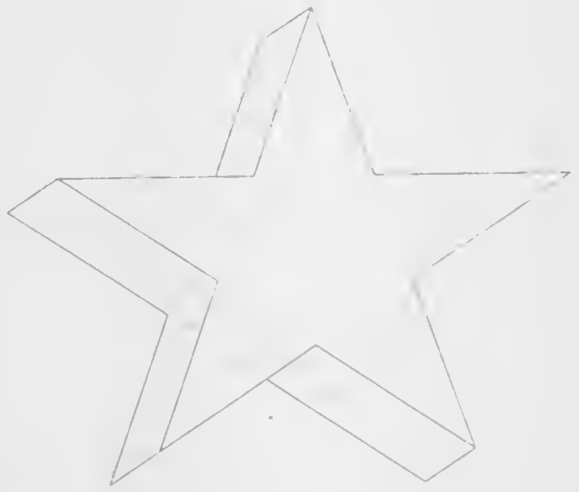
393,345

FIVE POINT STAR SHAPED HAT

Glenn Matthew Clegg, Garland, and Arie Nissan Sharon, Rowlett, both of Tex., assignors to Glenn M. Clegg, Garland, Tex.

Filed Apr. 7, 1997, Ser. No. 68,350
Term of patent 14 years
LOC (6) Cl. 02 - *03*

U.S. Cl. D2—869



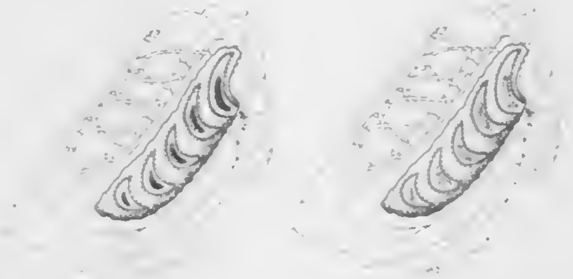
393,346

SIDE ELEMENT OF A SHOE UPPER

John Hlavacs, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Apr. 15, 1997, Ser. No. 69,630
Term of patent 14 years
LOC (6) Cl. 02 - *99*

U.S. Cl. D2—972



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393,347

SIDE PORTION OF A SHOE UPPER

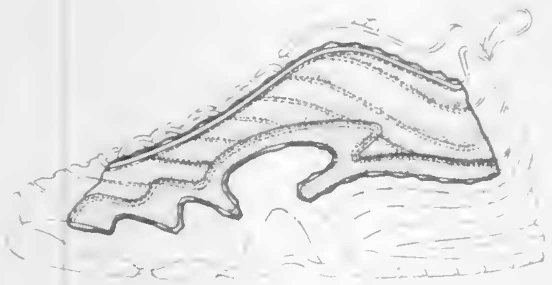
Tate E. Kuerbis, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 21, 1997, Ser. No. 71,056

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,348

PORTION OF A SHOE UPPER

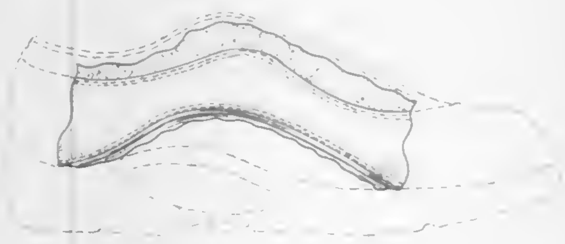
Peter P. Backus, Newberg, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 20, 1997, Ser. No. 71,080

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,349

PORTION OF A SHOE UPPER

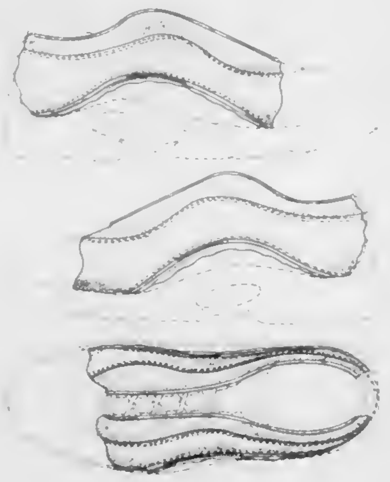
Peter P. Backus, Newberg, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 20, 1997, Ser. No. 71,081

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,350

SIDE PORTION OF A SHOE

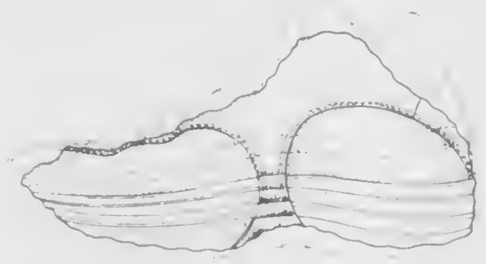
Michael A. Aveni, Lake Oswego, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 14, 1997, Ser. No. 71,148

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,351

ELEMENT OF A SHOE UPPER

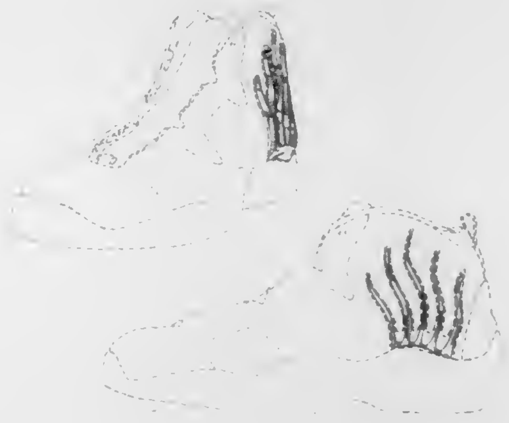
Eric P. Avar, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 30, 1997, Ser. No. 71,499

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,352

SIDE PORTION OF A SHOE UPPER

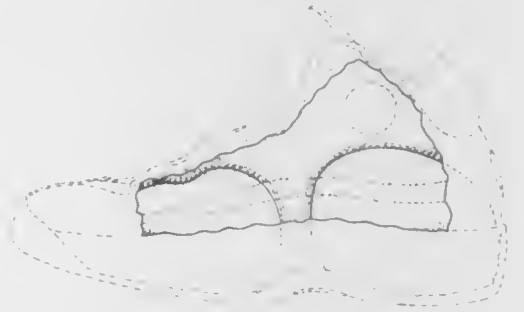
Michael A. Aveni, Lake Oswego, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 14, 1997, Ser. No. 71,897

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,353

PORTION OF A SHOE UPPER

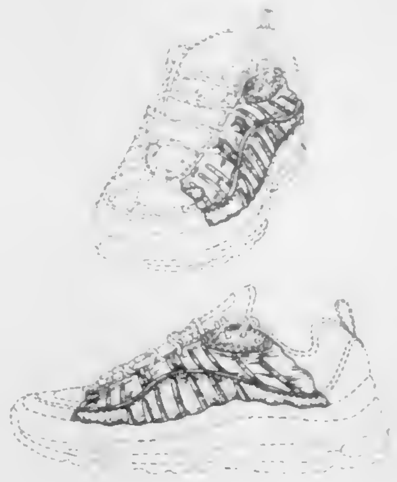
Sergio G. Lozano, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jun. 20, 1997, Ser. No. 72,639

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



393,354

PORTION OF A SHOE UPPER

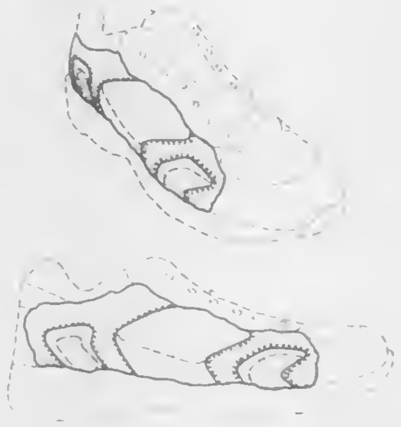
Andre Doxey, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jun. 30, 1997, Ser. No. 72,835

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



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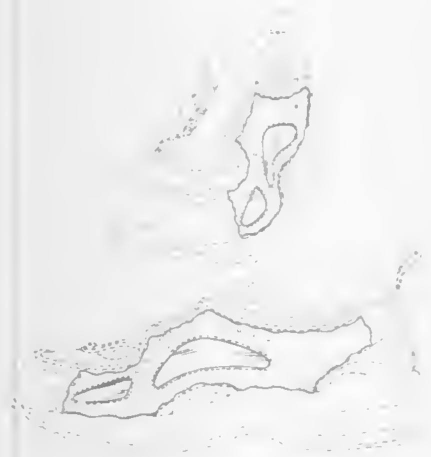
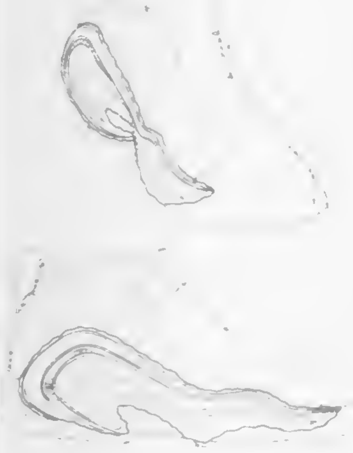
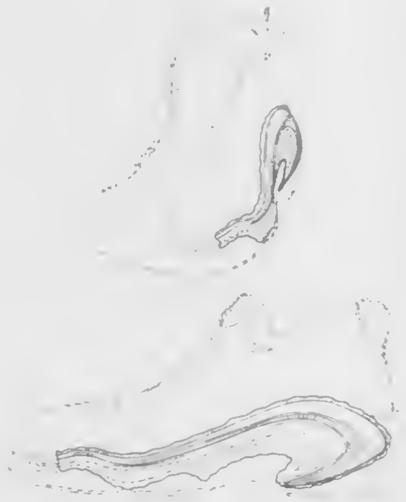
393,355
PORTION OF A SHOE UPPER
Andre Doxey, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jul. 9, 1997, Ser. No. 73,547
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



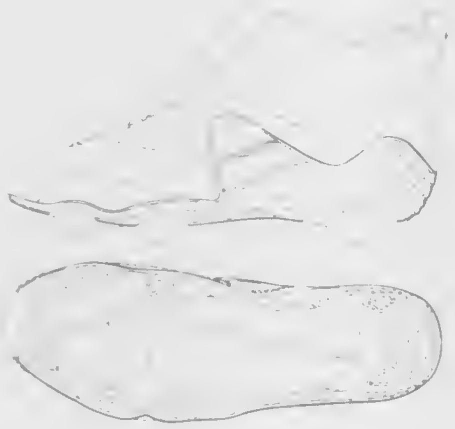
393,356
PORTION OF A SHOE
Aaron Alexander Carroll Cooper, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jul. 9, 1997, Ser. No. 73,562
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



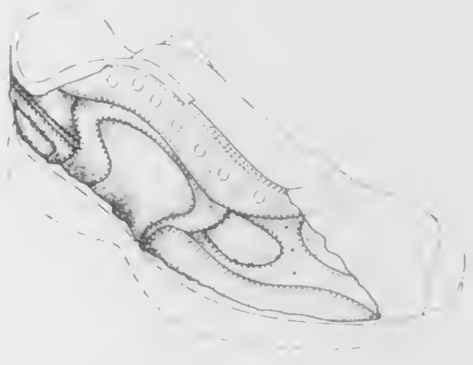
393,357
PORTION OF A SHOE
Aaron Alexander Carroll Cooper, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jul. 9, 1997, Ser. No. 73,563
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



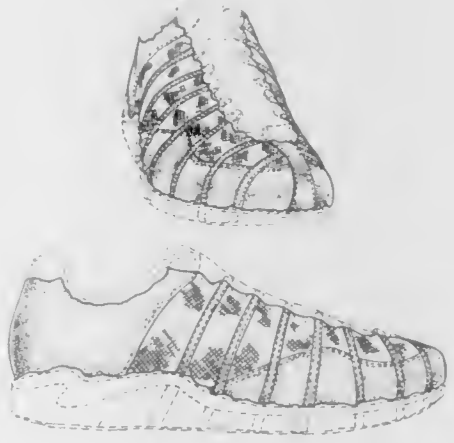
393,358
ELEMENT OF A SHOE
Tracy L. Teague, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jul. 11, 1997, Ser. No. 73,630
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—947



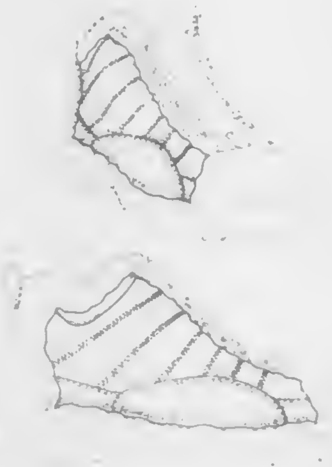
393,359
PORTION OF A SHOE UPPER
Andre Doxey, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Aug. 8, 1997, Ser. No. 74,653
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



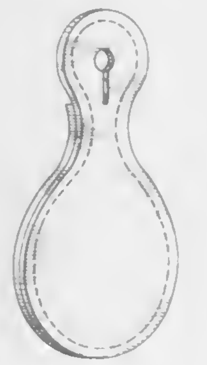
393,360
PORTION OF A SHOE UPPER
Michael A. Aveni, Lake Oswego, and Tinker L. Hatfield, Portland, both of Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed Aug. 14, 1997, Ser. No. 74,924
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



393,361
PORTION OF A SHOE UPPER
Matthew N. Rask, Boring, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Aug. 15, 1997, Ser. No. 75,032
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



393,362
PICK HOLDER
Michael A. Byers, Atlanta, Ga., assignor to Pick Pockets, Inc., Atlanta, Ga.
Filed Jan. 29, 1997, Ser. No. 65,570
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—204



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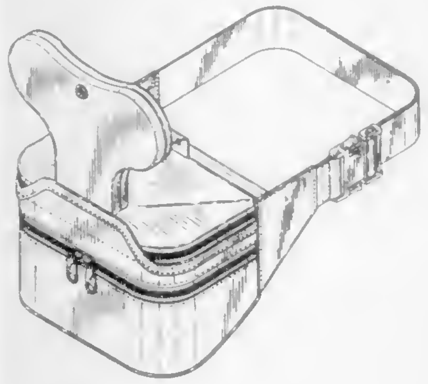
393,363

BABY HOLDER

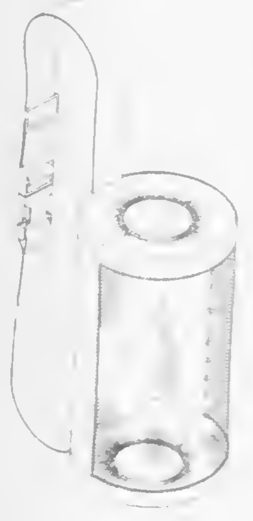
Sachiyo Kataoka, Osaka, Japan, assignor to Aprica Kassai Kabushikikaisha, Osaka, Japan
Filed Nov. 21, 1996, Ser. No. 62,656
Claims priority, application Japan, Jun. 26, 1996, 8-19062
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—215



393,364

TENNIS BALL CADDY

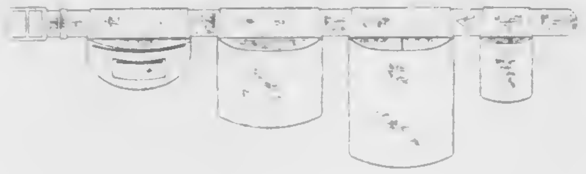
Nigel H. John, 115-46 209th St., New York, N.Y. 11411
Filed Oct. 21, 1996, Ser. No. 61,290
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—221



393,365

UTILITY WAISTBELT

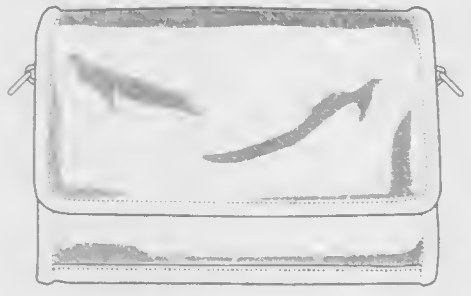
Lorinda M. Wheeler, 4634 W. Bluebell Way, and Wanda R. Wheeler, 3212 W. Calle Fresa, both of Tucson, Ariz. 85741
Filed Apr. 3, 1997, Ser. No. 68,327
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—226



393,366

COMBINED PURSE AND ORGANIZER

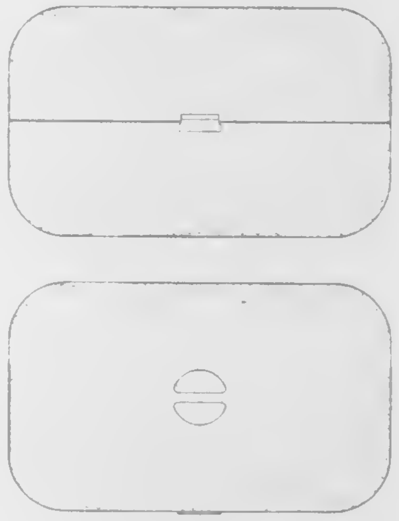
David Kopel, Agoura Hills, Calif., assignor to Koltov, Inc., Westlake Village, Calif.
Continuation-in-part of Ser. No. 11,560, Aug. 6, 1993, Pat. No. Des. 356,886. This application Jan. 27, 1995, Ser. No. 34,095
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—233



393,367

SLEEPING BAG CARRIER

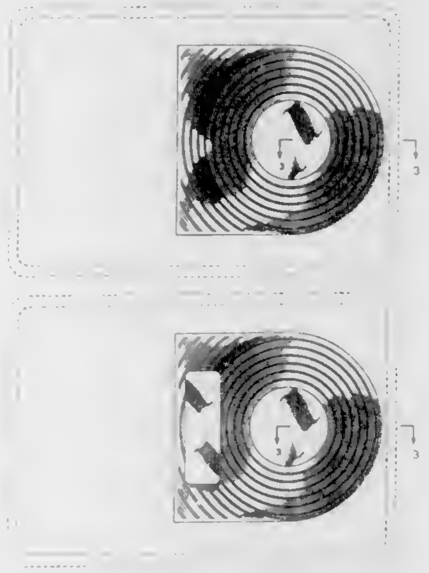
James Riddle, 552 S. 940 W., Cedar City, Utah 84720
Filed Mar. 20, 1997, Ser. No. 68,207
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—276



393,368

FACING FOR A BINDER OR PORTFOLIO

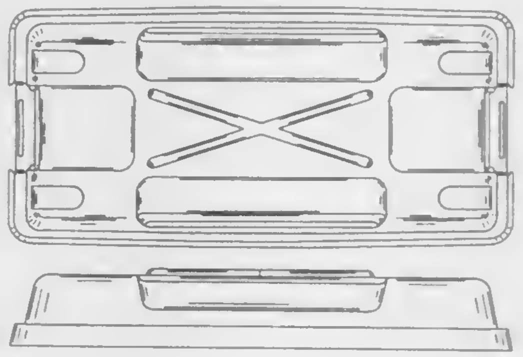
Jon R. Wyant, Spring Valley, Ohio, assignor to The Mead Corporation, Dayton, Ohio
Filed Nov. 13, 1996, Ser. No. 62,325
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—303



393,369

STORAGE CONTAINER LID

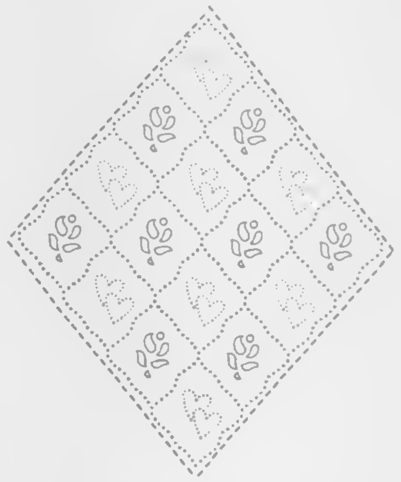
Hiroyuki Tanji, Kakuda, Japan, assignor to Iris U.S.A., Inc., Pleasant Prairie, Wis.
Filed Oct. 9, 1996, Ser. No. 60,875
Claims priority, application Japan, Apr. 9, 1996, 8-9914
Term of patent 14 years
LOC (6) Cl. 03 - *99*
U.S. Cl. D3—323



393,370

PATTERN FOR AN EMBOSSED PAPER PRODUCT

Galyn A. Schulz, Greenville; Pamela J. Wiese, Green Bay, and John H. Dwiggins, Neenah, all of Wis., assignors to Fort James Corporation, Richmond, Va.
Filed Jun. 5, 1996, Ser. No. 55,423
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—53



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393,371

HANGER SEPARATOR

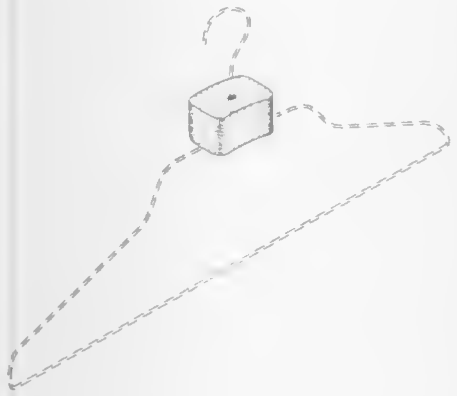
Steven M. Dunn, 4765 SW. Saum Way, Tualatin, Oreg. 97062, assignor to Steven M. Dunn, Tualatin, Oreg.

Filed Mar. 29, 1996, Ser. No. 52,416

Term of patent 14 years

LOC (6) Cl. 06 - *08*

U.S. Cl. D6—328



393,372

HIGH CHAIR

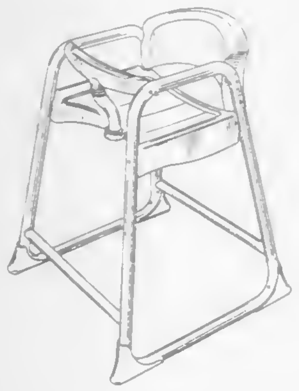
Dennis M. Turner, Mooresville, Ind., assignor to Cosco, Inc., Columbus, Ind.

Filed Dec. 20, 1996, Ser. No. 63,941

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—339



393,373

FOOT REST

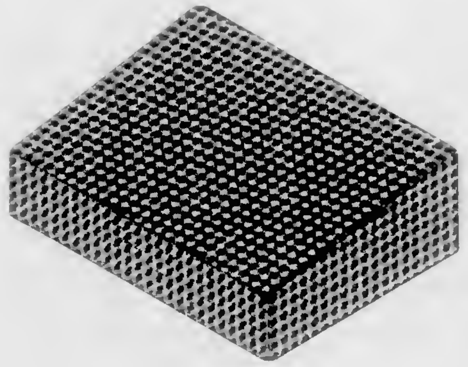
Raymond Acosta, 700 Olive Pl., Monterey Park, Calif. 91755

Filed Mar. 18, 1997, Ser. No. 68,194

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—349



393,374

BENCH

Gabriel E. Batki-Braun, Purley, and Bernard Heppenstall, Middle Woodford, both of England, assignors to Faversham Furniture Limited, Faversham, United Kingdom

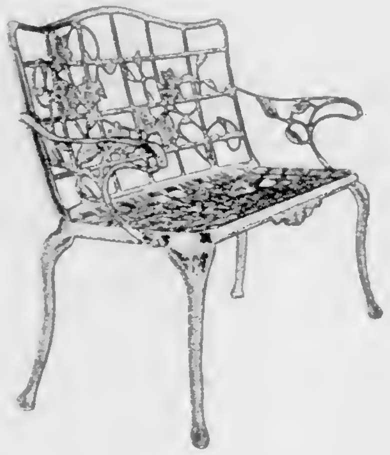
Filed Jan. 25, 1996, Ser. No. 49,460

Claims priority, application United Kingdom, Jul. 28, 1995, 2049118

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—358



393,375

CHAISE LOUNGE

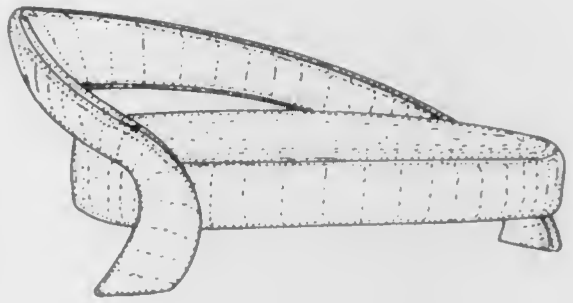
Rick C. Lee, 1562 35th Ave., San Francisco, Calif. 94122

Filed Apr. 9, 1997, Ser. No. 69,379

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—361



393,376

STADIUM SEAT

Raymond Grosfillex, Oyonnax, France, assignor to Grosfillex Sarl, Oyonnax, France

Filed Mar. 26, 1997, Ser. No. 68,802

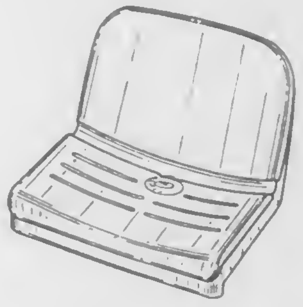
Claims priority, application WIPO, Sep. 30, 1996, DMA/003470

The portion of the term of this patent subsequent to Feb. 10, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—375



393,377

SOFA

Giuseppe Nicoletti, Matera, Italy, assignor to Nicoletti, SpA, Matera, Italy

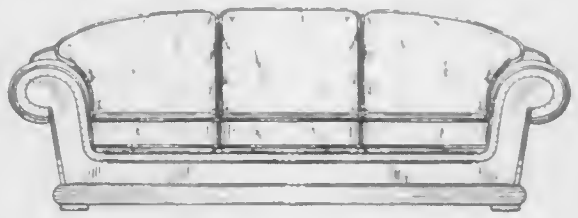
Filed Sep. 11, 1996, Ser. No. 59,467

Claims priority, application WIPO, Apr. 3, 1996, DM/036079

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—381



393,378

BED

John Hutton, New York, N.Y., assignor to Donghia Furniture Company, Ltd., New York, N.Y.

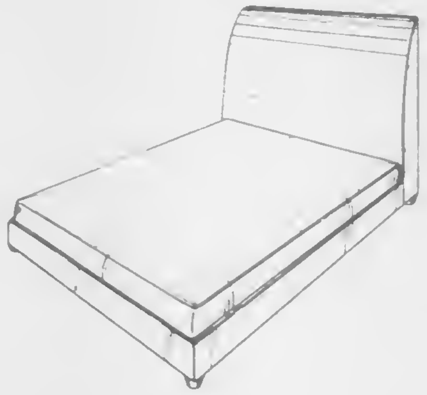
Filed May 17, 1996, Ser. No. 54,657

The portion of the term of this patent subsequent to Feb. 10, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—393



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DISPLAY STAND

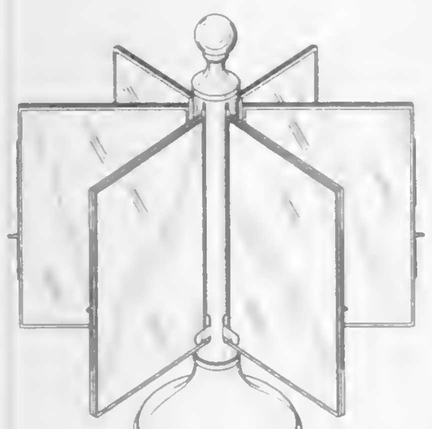
Laura J. Alber, Mill Valley, Calif., assignor to Williams-Sonoma, Inc., San Francisco, Calif.

Filed Jun. 18, 1996, Ser. No. 65,707

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—454



393,380

PORTABLE DART BOARD STAND

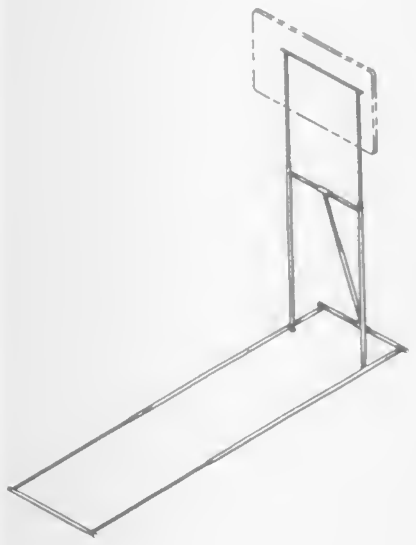
Michael S. White, Middletown, Pa., assignor to Charles Wilson, Philadelphia, Pa., and Bill A. Kraynik, Sicklerville, N.J.

Filed Jan. 28, 1997, Ser. No. 65,402

Term of patent 14 years

LOC (6) Cl. 21 - *02*

U.S. Cl. D6—462



393,381

MEDIA STORAGE UNIT

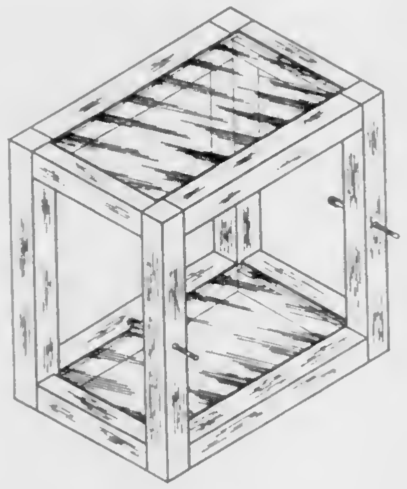
Charles R. Santoro, 3 Chip Dr., Wading River, N.Y. 11792-9541

Filed Dec. 4, 1995, Ser. No. 47,459

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—465



393,382

ADJUSTABLE HEIGHT COMPUTER WORKSTATION

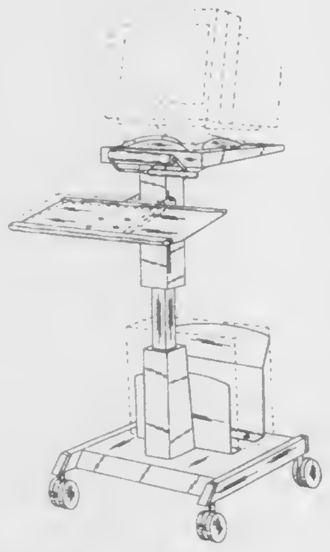
Bryce Rutter, St. Louis; Eric Justin Price, Webster Groves; Randall B. Kahn, St. Louis, all of Mo., and David Dickey, Conway, Ark., assignors to Tiffany Industries, Inc., St. Louis, Mo.

Filed Jun. 3, 1996, Ser. No. 55,241

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—474



393,383

TABLE BASE

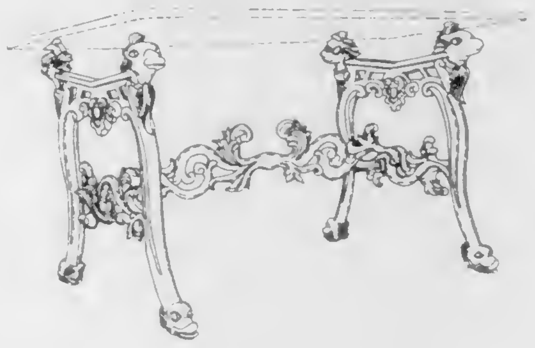
Olivier H. Rinaldi, Calle Cuello No. 9, La Campina, 105, Caracas, Venezuela

Filed Jan. 30, 1997, Ser. No. 65,576

Term of patent 14 years

LOC (6) Cl. 06 - *03*

U.S. Cl. D6—497



393,384

PAIR OF CHAIR ARMS

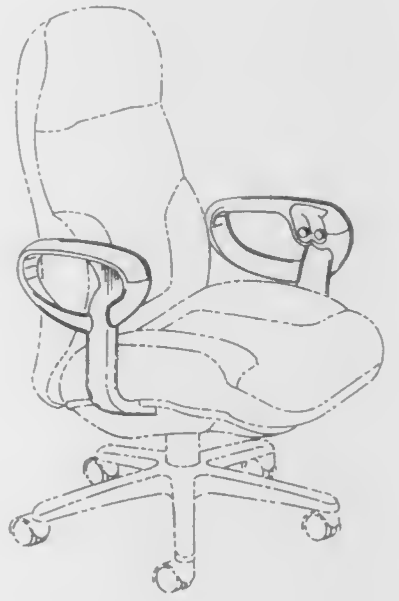
Romeo Tedesco, Weston, and Jocelyn Beaulieu, Newmarket, both of Canada, assignors to Global Upholstery Company, Downsview, Canada

Continuation-in-part of Ser. No. 518,344, Aug. 23, 1995. This application Feb. 29, 1996, Ser. No. 50,893

Term of patent 14 years

LOC (6) Cl. 06 - *06*

U.S. Cl. D6—501



393,385

HEADBOARD

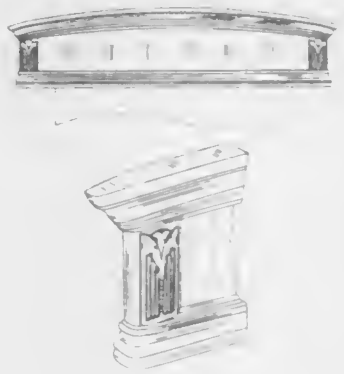
Carlo Bargagli-Stoffi, Union, N.J., assignor to San Giacomo, N.A., Ltd., Union, N.J.

Filed Jun. 19, 1997, Ser. No. 72,695

Term of patent 14 years

LOC (6) Cl. 06 - *01*

U.S. Cl. D6—505



393,386

SHELVING DEVICE

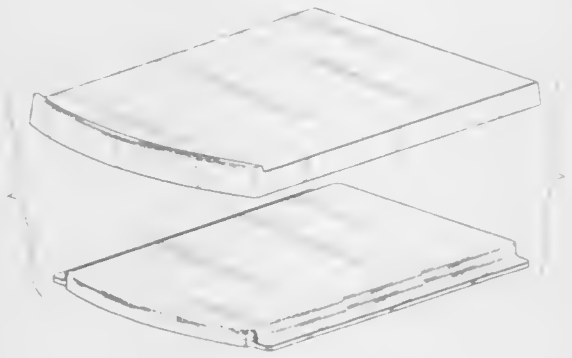
Ian Pasalich, 1740 Pass Dr., Reno, Nev. 89509

Filed Dec. 6, 1996, Ser. No. 63,413

Term of patent 14 years

LOC (6) Cl. 06 - *04*

U.S. Cl. D6—511



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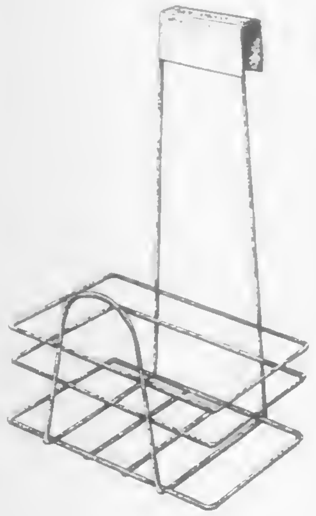
393,387
TOILET TANK MOUNTED MULTIPURPOSE CADDY

Joan C. Gregor, Woodland Hills, and Maureen A. Thurston-Chartraw, Sierra Madre, both of Calif., assignors to Practical Products, LLC, Pasadena, Calif.

Filed Apr. 9, 1997, Ser. No. 68,896
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D6—513

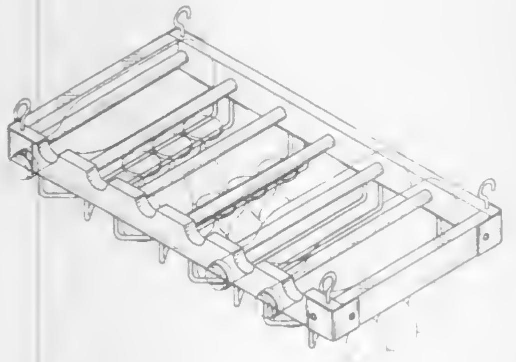


393,388
COMBINED WINE AND GLASS RACK

Chih-Hong Chen, No. 120, Tai Kang Tsun, Liu Ying Hsiang, Tainan Hsien, Taiwan

Filed Jun. 6, 1997, Ser. No. 71,811
Term of patent 14 years
LOC (6) Cl. 06 - *04*

U.S. Cl. D6—513

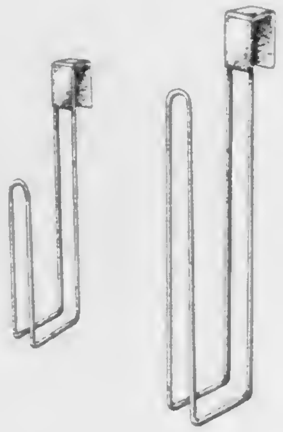


393,389
TOILET TANK MOUNTED STORAGE CADDY FOR TOILET PAPER

Maureen A. Thurston-Chartraw, Sierra Madre, and Joan C. Gregor, Woodland Hill, both of Calif., assignors to Practical Products, LLC, Pasadena, Calif.

Filed Apr. 9, 1997, Ser. No. 68,897
Term of patent 14 years
LOC (6) Cl. 07 - *07*

U.S. Cl. D6—523



393,390
BRACKET FOR A SHOWER ROD

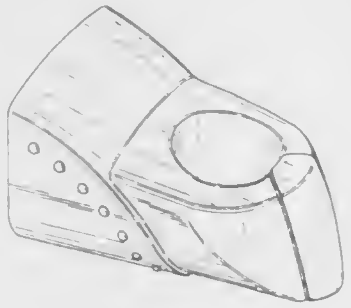
Adolf Gottwald, Iserlohn, Germany, assignor to Friedrich Grohe AG, Hemer, Germany

Filed Jun. 13, 1997, Ser. No. 72,278

Claims priority, application Germany, Jan. 29, 1997, M 97 00 838.9

Term of patent 14 years
LOC (6) Cl. 08 - *05*

U.S. Cl. D6—550

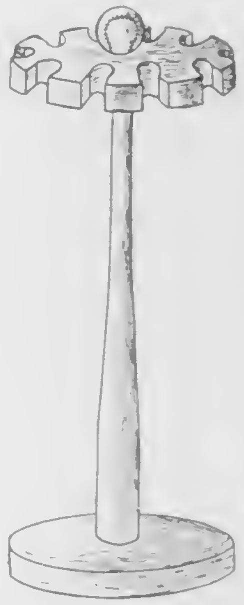


393,391
RACK

William Arthur Lorenz, and Jordan William Lorenz, both of 2806 E. Lee St., Tucson, Ariz. 85716

Filed Oct. 21, 1996, Ser. No. 61,423
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D6—552

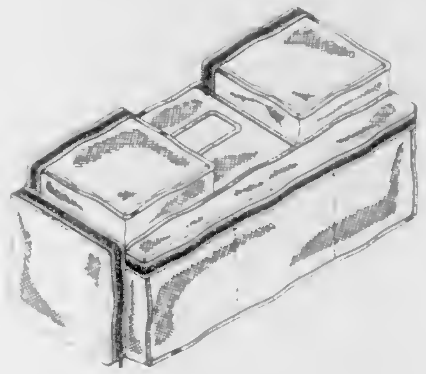


393,392
CARGO BAG FOR A JUVENILE PLAYYARD

Curtis Michael Hartenstine, Morgantown, Pa., assignor to Graco Children's Products Inc., Elverson, Pa.

Filed Aug. 7, 1996, Ser. No. 58,063
Term of patent 14 years
LOC (6) Cl. 08 - *08*

U.S. Cl. D6—553

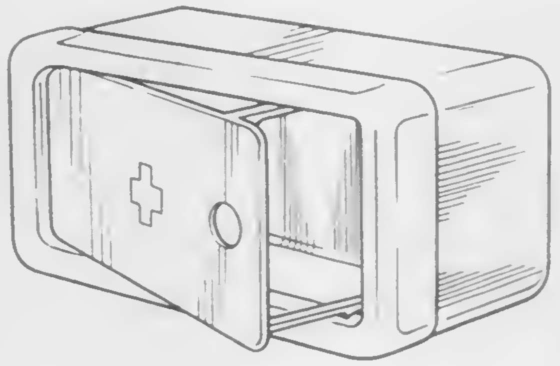


393,393
MEDICINE COMPARTMENT

Jeff G. Greger, Mechanicsburg, Pa., assignor to Zenith Products Corp., New Castle, Del.

Filed Sep. 11, 1995, Ser. No. 39,863
Term of patent 14 years
LOC (6) Cl. 06 - *04*

U.S. Cl. D6—559

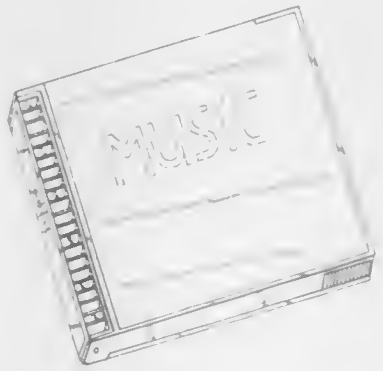


393,394
MEDIA DISK STORAGE PACKAGE

Richard Roth; Paul D. Miller, and William L. Plumb, all of New York, N.Y., assignors to Queens Group, Inc., Long Island City, N.Y.

Filed Oct. 11, 1994, Ser. No. 29,548
Term of patent 14 years
LOC (6) Cl. 06 - *04*

U.S. Cl. D6—632



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393,395
ELECTRIC FISH ROASTER

Hiroyuki Tanaka, Kyoto; Masanori Hamada, and Troy Sauve, both of Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

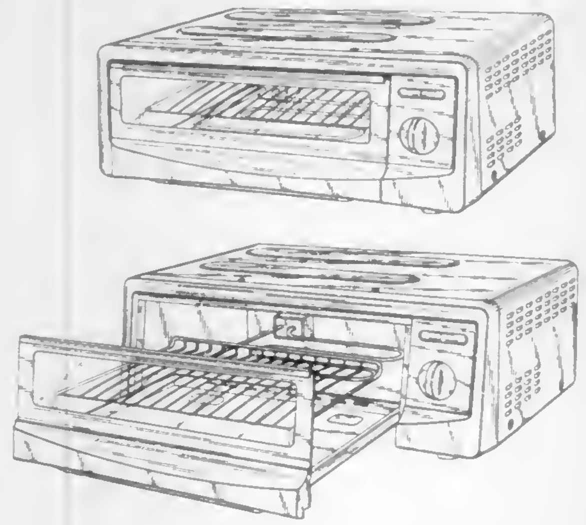
Filed Dec. 30, 1996, Ser. No. 64,344

Claims priority, application Japan, Jul. 3, 1996, 8-19932

Term of patent 14 years

LOC (6) Cl. 07 - *02*

U.S. Cl. D7—350



393,396
UTILITY LIGHTER

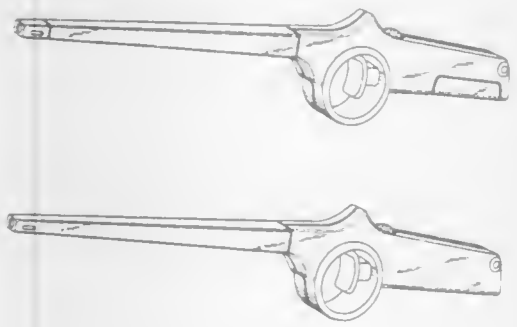
Daniel A. Ferrara, Jr., Bantam, Conn., assignor to BIC Corporation, Milford, Conn.

Filed Aug. 5, 1996, Ser. No. 57,940

Term of patent 14 years

LOC (6) Cl. 27 - *05*

U.S. Cl. D7—416



393,397
PARFAIT DISH

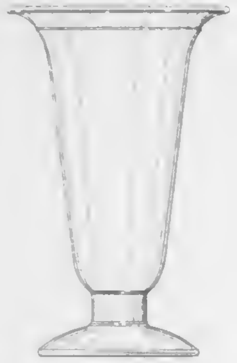
Stig Lillelund, Gentofte, and Eskil Højland Olsen, Klampenborg, both of Denmark, assignors to Dart Industries Inc., Orlando, Fla.

Filed Oct. 16, 1995, Ser. No. 44,771

Term of patent 14 years

LOC (6) Cl. 07 - *01*

U.S. Cl. D7—558



393,398
SALT SHAKER

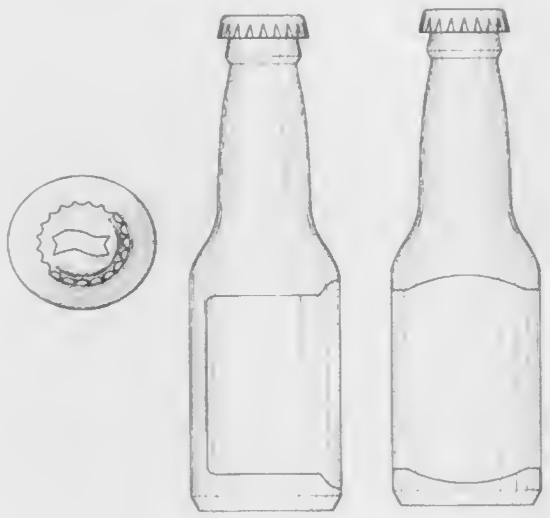
Roger Trevino, Sr., 800 Buena Vista, Bldg. 2, Ste. 200, San Antonio, Tex. 78207

Filed Nov. 20, 1996, Ser. No. 62,627

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—594



393,399
PICK-UP DEVICE

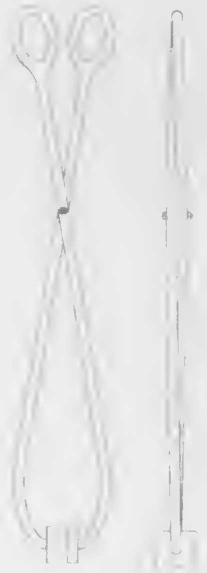
Leslie Turos, 263 Catharine Street, Woodstock, Ontario, Canada, N4S 2L1

Filed May 8, 1997, Ser. No. 70,471

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—687



393,400
GARLIC PEELER

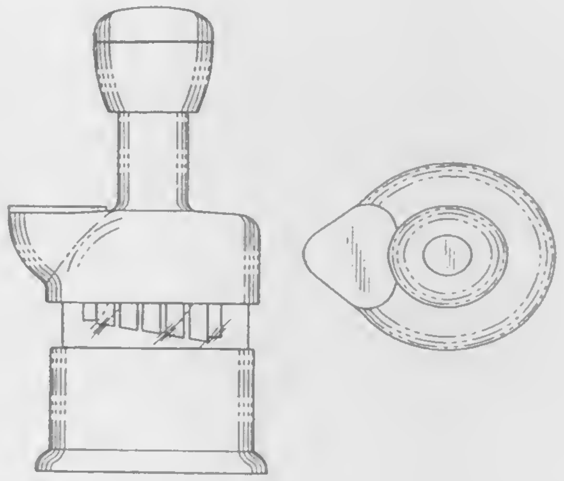
Terance Chi Ping Chiu, Hong Kong, Hong Kong, assignor to Forexim (H.K.) Limited, Kowloon, Hong Kong

Filed Aug. 23, 1996, Ser. No. 58,809

Term of patent 14 years

LOC (6) Cl. 07 - *06*

U.S. Cl. D7—693



393,401
HEDGE CLIPPER

Franco Clivio, Erlenbach, Switzerland, assignor to Gardena Kress + Kastner GmbH, Germany

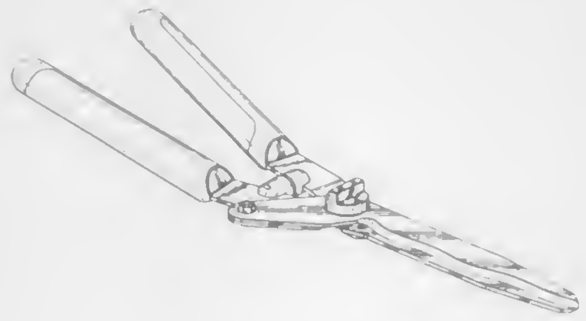
Filed Dec. 12, 1996, Ser. No. 63,648

Claims priority, application Germany, Dec. 7, 1996, M 96 05 986.9

Term of patent 14 years

LOC (6) Cl. 08 - *01*

U.S. Cl. D8—5



393,402
GRASS SHEAR

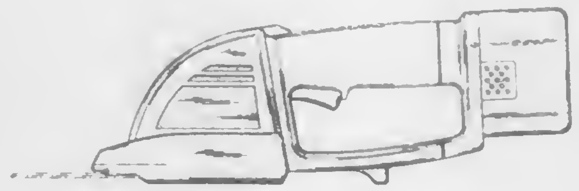
Naoki Kikuchi, Chandler, and Peter J. Shigo, Mesa, both of Ariz., assignors to Ryobi North America, Easley, S.C.

Filed Jul. 25, 1997, Ser. No. 74,841

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—8



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393,403

CAN OPENER

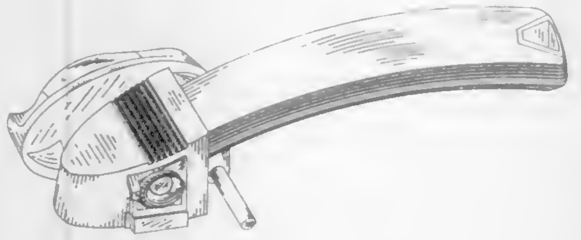
Robert W. Tse, 19417 E. Windrose Dr., Rowland Heights, Calif. 91748

Filed Mar. 26, 1997, Ser. No. 68,283

Term of patent 14 years

LOC (6) Cl. 07 - *99*

U.S. Cl. D8—40



393,404

SCISSORS

Emmanuel Jacquet, Annecy, France, assignor to Manufacture d'Articles de Precision et de Dessin, France

Filed Feb. 8, 1996, Ser. No. 50,075

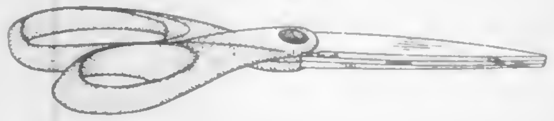
Claims priority, application Hague Agreement, Sep. 25, 1995, DM/034204

The portion of the term of this patent subsequent to Mar. 17, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—57



393,405

FOLDING KNIFE FOR LAW ENFORCEMENT

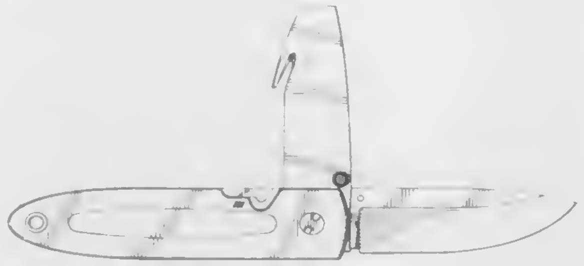
Brett P. Seber, Escondido, and Roy L. Helton, Jr., San Diego, both of Calif., assignors to Buck Knives, Inc., El Cajon, Calif.

Continuation-in-part of Ser. No. 138,703, Oct. 18, 1993, abandoned, Ser. No. 138,670, Oct. 18, 1993, abandoned, Ser. No. 26,042, Jul. 18, 1994, Pat. No. Des. 369,287, and Ser. No. 26,044, Jul. 18, 1994, Pat. No. Des. 375,242. This application Sep. 16, 1994, Ser. No. 28,527

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—99



393,406

DOOR HANDLE

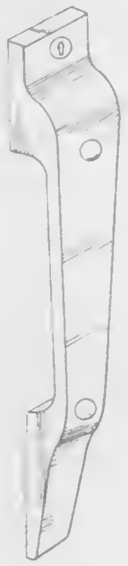
Burl Finkelstein, Newnan, Ga., assignor to Kason Industries, Inc., Shenandoah, Ga.

Filed Apr. 1, 1996, Ser. No. 52,304

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—320



393,407

HANDCUFF KEY

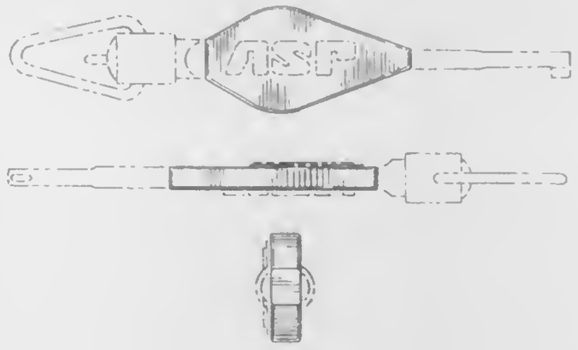
Kevin L. Parsons, Appleton, Wis., assignor to Armament Systems and Procedures, Inc., Appelton, Wis.

Filed Jul. 11, 1996, Ser. No. 56,905

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—347



393,408

FLOATING FLOOR INSTALLATION FIXTURE

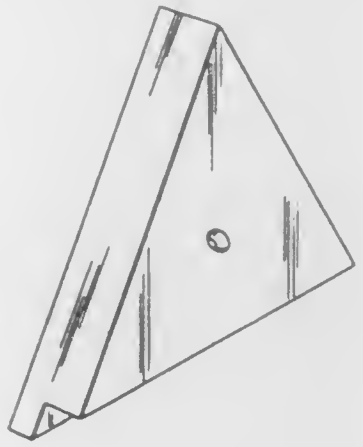
Alexander Xavier Mladineo, 22 Calle Vaqueta, Rancho Santa Margarita, Calif. 92688

Filed May 1, 1996, Ser. No. 53,904

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—354



393,409

ROPE HOLDER APPARATUS

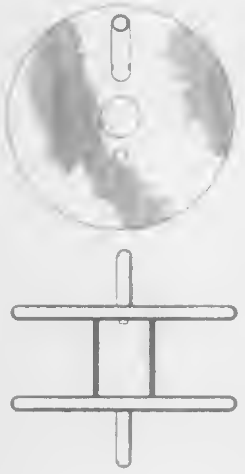
Charles G. Azzarello, 1106 Dean Ave., San Jose, Calif. 95125

Filed Jan. 17, 1997, Ser. No. 65,037

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—356



393,410

CORD REEL

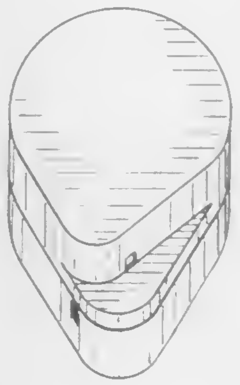
Paul C. Burke, 470 E. Heather La., Lake Forest, Ill. 60045, and Richard Skowronski, 142 Mill Rd., North Hampton, N.H. 03862

Filed Jan. 7, 1997, Ser. No. 64,597

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—358



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393,411
TWINE WINDER

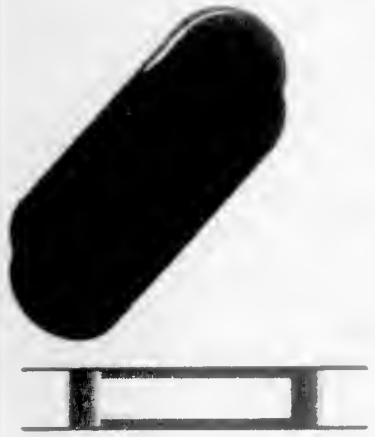
Andrew B. Crowe, 55 Resaca Shores South Dr., Los Fresnos, Tex. 78566

Filed Nov. 1, 1996, Ser. No. 61,848

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—360.1



393,412
SMALL HOOK

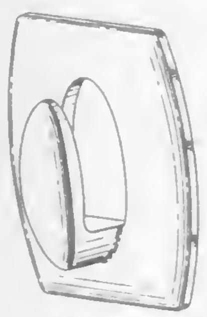
James L. Bries, Cottage Grove; Johannes N. Gaston; Douglas J. VanOrnum, both of Minnetonka; Paul E. Raber, North Saint Paul, and Pauline A. Pieper, Saint Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 10, 1997, Ser. No. 66,858

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—367



393,413
LADDER PAINT BUCKET HOOK

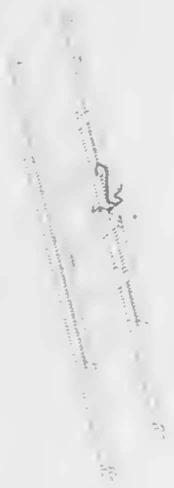
Robert A. Brown, 898 Cortland Rd., Groton, N.Y. 13073

Filed Mar. 24, 1997, Ser. No. 69,070

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—370



393,414
PICTURE HANGER

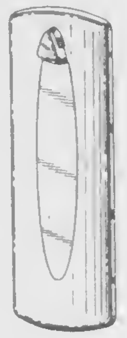
James L. Bries, Cottage Grove; Johannes N. Gaston; Douglas J. VanOrnum, both of Minnetonka; Paul E. Raber, North Saint Paul, and Pauline A. Pieper, Saint Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 10, 1997, Ser. No. 66,859

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—373



393,415
RECEIVER FOR A PIPE OR ROD

Hans Lindquist, Ronninge, Sweden, assignor to Alfa Laval Agri AB, Tumba, Sweden

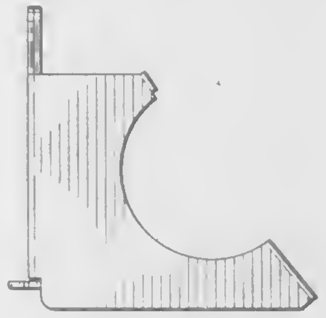
Filed Sep. 5, 1996, Ser. No. 64,261

Claims priority, application Sweden, Jul. 18, 1994, 94-1539

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—380



393,416
SHELF BRACKET

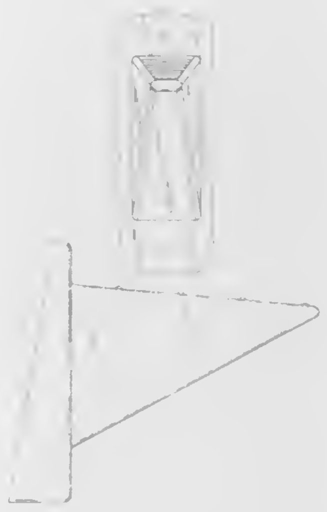
Thomas A. Tisbo, Barrington Hills, Ill., assignor to Suncast Corporation, Batavia, Ill.

Filed Aug. 11, 1995, Ser. No. 42,541

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—381



393,417
SWIVEL CONNECTOR WITH ROD AND BALL SOCKET

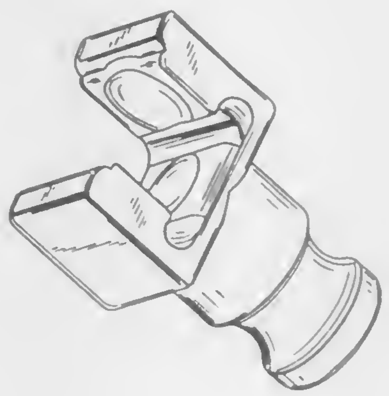
Joel I. Glickman, Huntingdon Valley; Matthew Dickinson, Hatfield; Robert Gleim, Royersford, and John Zimmer, Lansdale, all of Pa., assignors to Connector Set Limited Partnership, Hatfield, Pa.

Filed Jan. 3, 1997, Ser. No. 64,509

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D8—382



393,418
COMBINED STORAGE CONTAINER AND REMOVABLE BOTTLES WITH REVERSIBLE CAPS

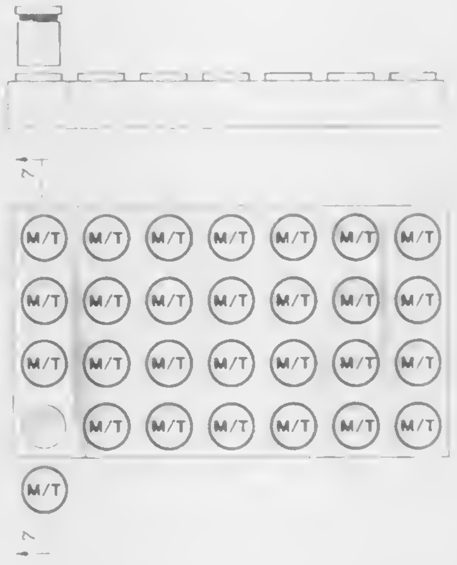
Gary Clark Doan, and Linda Diane Doan, both of 3395 Broadmoor Blvd., San Bernardino, Calif. 92404

Filed Jan. 21, 1997, Ser. No. 65,135

Term of patent 14 years

LOC (6) Cl. 09 - 03

U.S. Cl. D9—341



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393,419
COMBINED DUAL CONTAINERS WITH CAP FOR TWO COMPONENT HAIR DYE

Volker Hundertmark, Raddestorf; Peter Funke, and Dietholf Mehl, both of Duesseldorf, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

Filed Nov. 16, 1995, Ser. No. 46,499

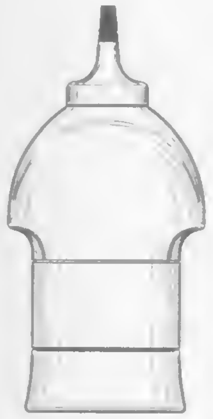
Claims priority, application Hague Agreement, May 17, 1995, DM/033033

The portion of the term of this patent subsequent to Aug. 5, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - *01*

U.S. Cl. D9—347



393,420
CONTAINER

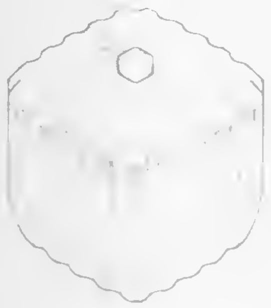
Jason Hsu, Taipei, Taiwan, assignor to Tai Mei Acrylic Co., Ltd., Taipei, Taiwan

Filed Nov. 5, 1996, Ser. No. 62,014

Term of patent 14 years

LOC (6) Cl. 09 - *03*

U.S. Cl. D9—424



393,421
HINGE FLAP CAPSULE

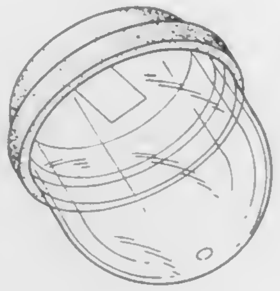
Edward B. Kovens, Reisterstown, Md., assignor to Parkway Machine Corp., Timonium, Md.

Filed Jul. 8, 1996, Ser. No. 56,736

Term of patent 14 years

LOC (6) Cl. 09 - *07*

U.S. Cl. D9—428



393,422
DOUGHNUT BOX BLANK

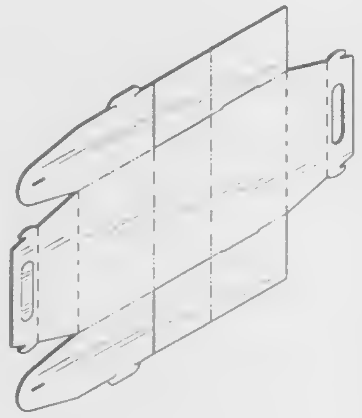
Charles G. Pecher, St. Louis, Mo., assignor to Skinner & Kennedy Company, St. Louis, Mo.

Filed Mar. 29, 1996, Ser. No. 53,020

Term of patent 14 years

LOC (6) Cl. 09 - *07*

U.S. Cl. D9—433



393,423
DRAWING DISC

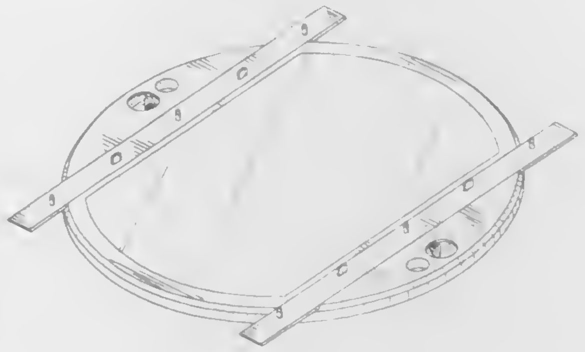
Grant Loucks, Pacific Palisades, Calif., assignor to Alan Gordon Enterprises, Hollywood, Calif.

Filed Oct. 31, 1996, Ser. No. 61,837

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—64



393,424
COMPASS

Christian Leibeck, Nürnberg, Germany, assignor to J.S. Staedtler GmbH & Co., Nürnberg, Germany

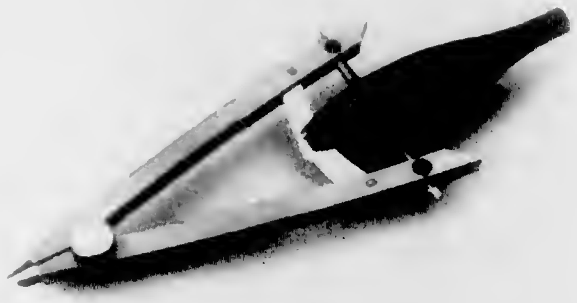
Filed Nov. 18, 1996, Ser. No. 62,501

Claims priority, application Germany, May 17, 1996, M 96 04 335.0

Term of patent 14 years

LOC (6) Cl. 10 - *04*

U.S. Cl. D10—68



393,425
SLOTTED GUARDRAIL REFLECTOR

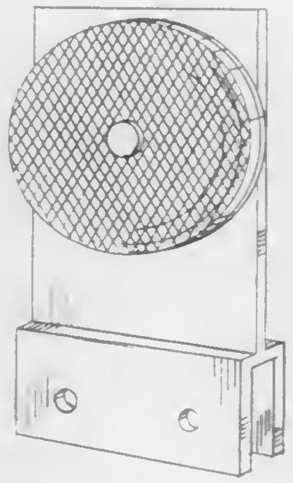
Karl Weid, 1276 Robinwood Dr., Elgin, Ill. 60123

Filed Apr. 23, 1997, Ser. No. 70,896

Term of patent 14 years

LOC (6) Cl. 10 - *05*

U.S. Cl. D10—111



393,426
WATCHBAND

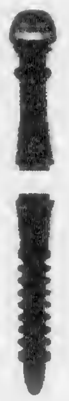
Hitoshi Okumura, Chiba, Japan, assignor to Seiko Instruments Inc., Japan

Filed Jan. 15, 1997, Ser. No. 65,002

Term of patent 14 years

LOC (6) Cl. 11 - *01*

U.S. Cl. D11—3



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WATCHBAND

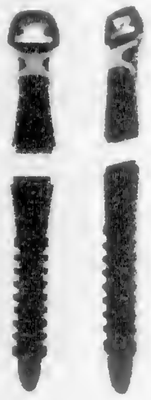
Hitoshi Okumura, Chiba, Japan, assignor to Seiko Instruments Inc., Japan

Filed Jan. 15, 1997, Ser. No. 65,003

Term of patent 14 years

LOC (6) Cl. 11 - *01*

U.S. Cl. D11—3



393,428

TENNIS BRACELET PENDANT

Jerry Morrison, Austin, Tex., assignor to Commemorative Brands, Inc., Austin, Tex.

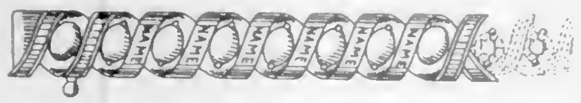
Filed Jul. 23, 1996, Ser. No. 57,369

The portion of the term of this patent subsequent to Jan. 27, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 11 - *01*

U.S. Cl. D11—6



393,429

WOMEN UNITED INTERNATIONAL FLAG

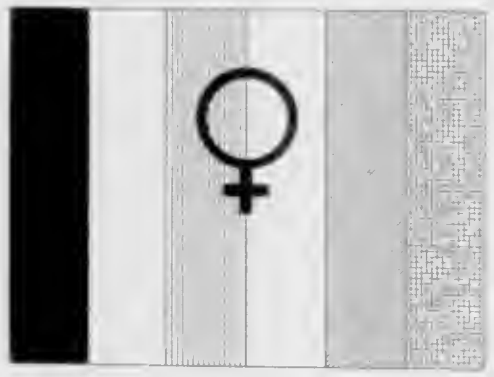
Lavern Mae Herron Creech, Queens Village, N.Y., assignor to Lavern M. Creech, Queens Village, N.Y.

Filed Dec. 11, 1995, Ser. No. 47,671

Term of patent 14 years

LOC (6) Cl. 11 - *05*

U.S. Cl. D11—165



393,430

REMOVING REUSEABLE STRAPPING BUCKLE

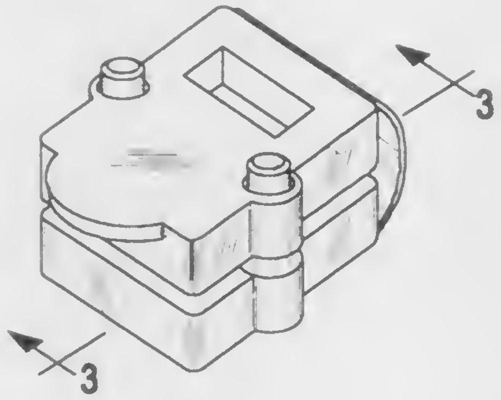
Philip C. Haines, 3400 Strand, Manhattan Beach, Calif. 90266, and Jerry Veron, 3312 Ocean Dr., Manhattan Beach, Calif. 90266

Filed May 20, 1996, Ser. No. 56,218

Term of patent 14 years

LOC (6) Cl. 02 - *07*

U.S. Cl. D11—216



393,431

SLIDER BODY FOR SLIDE FASTENERS

Ryoji Kawamura, Toyama, Japan, assignor to YKK Corporation, Tokyo, Japan

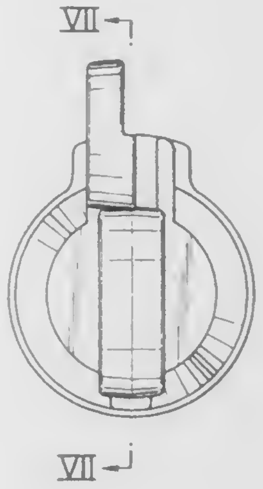
Filed Mar. 26, 1996, Ser. No. 52,461

Claims priority, application Japan, Sep. 26, 1995, 7-28574; Dec. 25, 1995, 7-38597

Term of patent 14 years

LOC (6) Cl. 02 - *07*

U.S. Cl. D11—221



393,432

BICYCLE FRAME

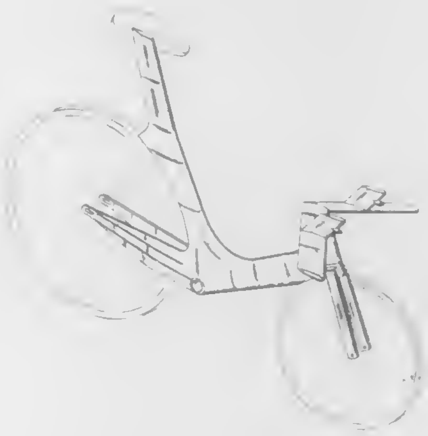
Forrest D. Yelverton, Longmont, Colo., assignor to GT Bicycles, Inc., Santa Ana, Calif.

Filed Sep. 3, 1996, Ser. No. 59,658

Term of patent 14 years

LOC (6) Cl. 12 - *11*

U.S. Cl. D12—111



393,433

FORK/HANDLE BAR UNIT FOR A BICYCLE

Lachlan Arthur Thompson, Bayswater, Australia, assignor to Australian Sports Commission, and Royal Melvourne Institute of Technology, both of Australia

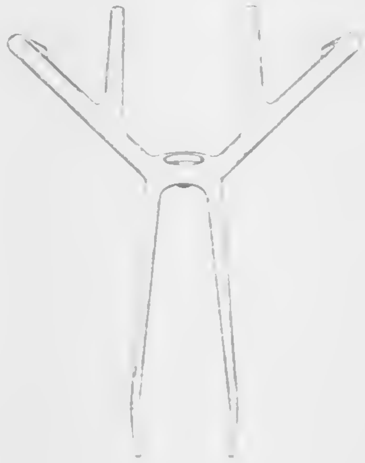
Filed Dec. 6, 1996, Ser. No. 63,343

Claims priority, application Australia, Jun. 7, 1996, 1801/96

Term of patent 14 years

LOC (6) Cl. 12 - *11*

U.S. Cl. D12—118



393,434

TIRE TREAD

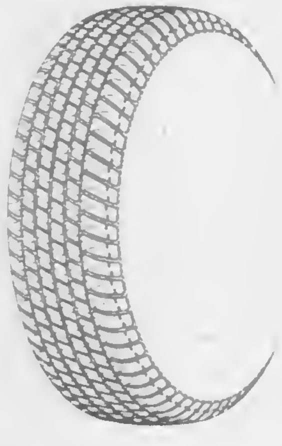
Michel Alfred Marie Oscar Breny, Holzthum, and William Urbano Villamizar, Mersch, both of Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 50,631, Feb. 20, 1996. This application May 28, 1997, Ser. No. 71,348

Term of patent 14 years

LOC (6) Cl. 12 - *15*

U.S. Cl. D12—147



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393,435

TIRE TREAD

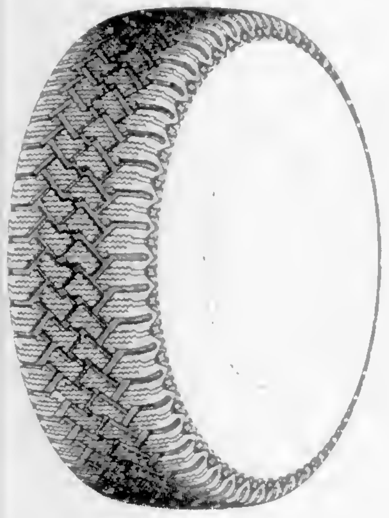
Maurice Graas, Reichlange, Luxembourg, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 21, 1997, Ser. No. 67,846

Term of patent 14 years

LOC (6) Cl. 12 - *15*

U.S. Cl. D12—149



393,436

HOOD/FENDER UNIT FOR TRUCK

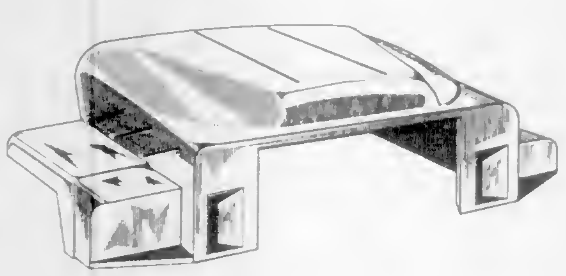
Ronald L. Williams, Pasco, Wash., assignor to WHECO Corporation, Pasco, Wash.

Filed Sep. 9, 1996, Ser. No. 59,385

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—173



393,437

STEERING WHEEL TRAY

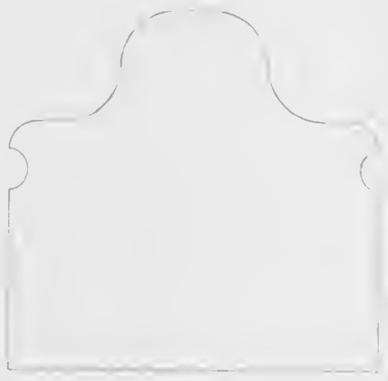
Walter T. Boehm, 7255 State Rd. YY, Washington, Mo. 63090

Filed Apr. 10, 1997, Ser. No. 69,154

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—177



393,438

BICYCLE HANDLE BAR

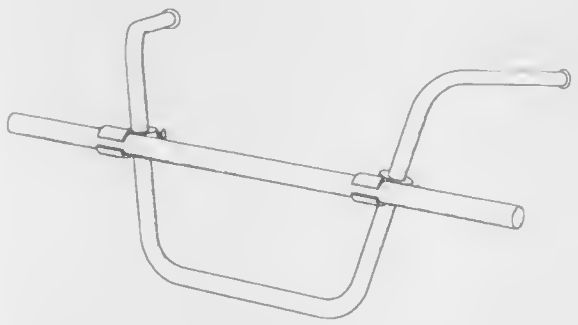
Ulysses Cartwright, 3933 Horizon Pl., Ft. Worth, Tex. 76133

Filed Oct. 25, 1996, Ser. No. 61,504

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—178



393,439

PAIR OF AUTOMOBILE FRONT QUARTER PANEL EXTERIOR SURFACES

Harm Lagaay, Marbach, and Grant Larson, Stuttgart, both of Germany, assignors to Dr. Ing., h.c.F. Porsche AG, Weissach, Germany

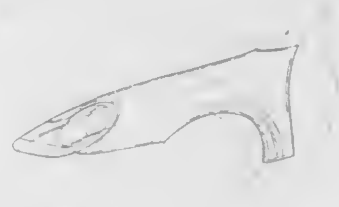
Filed Jan. 24, 1996, Ser. No. 49,377

Claims priority, application Germany, Jul. 27, 1995, M 95 05 871.0

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—196



393,440

REAR FACING SURFACE OF AN AUTOMOBILE BODY

Peter Pfeiffer, Boeblingen; Michael Mauer, Ettlingen; Michael Plessing, Magstadt, and Benedek Toth, Boeblingen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

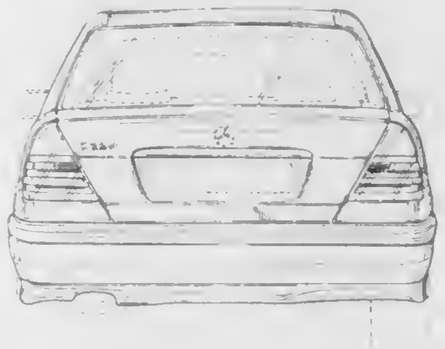
Filed Nov. 4, 1996, Ser. No. 64,268

Claims priority, application Germany, May 2, 1996, M96 03 921.3

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—196



393,441

VEHICLE HUB CAP

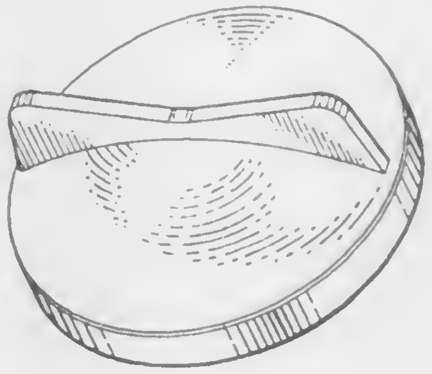
Charles Lombard, S. 515 Farr Rd., Spokane, Wash. 99206-3561

Filed Mar. 20, 1997, Ser. No. 68,709

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—204



393,442

WHEEL

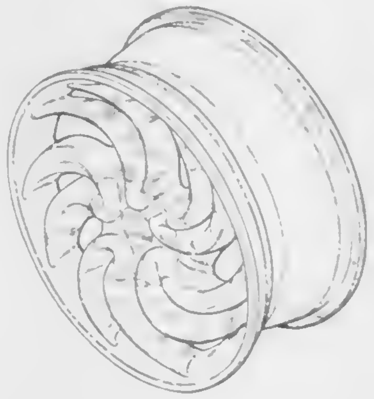
Frank Noriega, 9246 Claymore St., Pico Rivera, Calif. 90660

Filed Mar. 11, 1997, Ser. No. 67,575

Term of patent 14 years

LOC (6) Cl. 12 - *16*

U.S. Cl. D12—209



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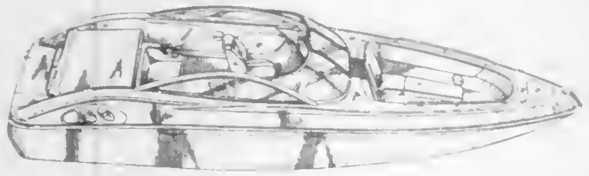
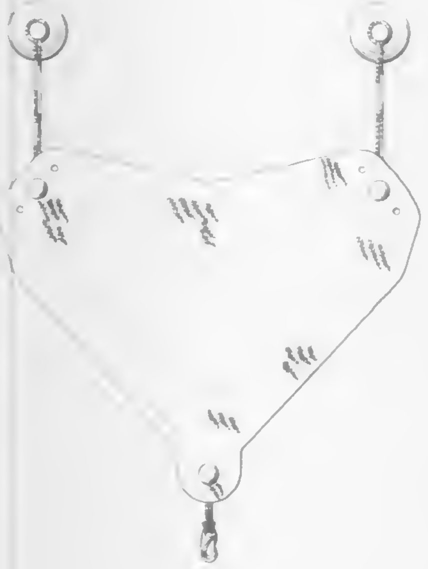
393,443
BOAT

Shannon Cassell, Palm Bay, Fla.; Pierre Rondeau, Bromont, and Denys Lapointe, Mont Shefford, both of Canada, assignors to Bombardier, Inc., Canada
Filed Aug. 2, 1996, Ser. No. 57,904
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—315



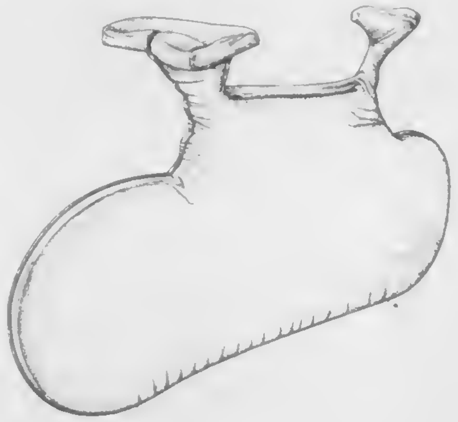
393,444
BRA FOR JET SKI

Alan Kinkead, 4650 W. Rte. K, Columbia, Mo. 65203
Filed Sep. 19, 1996, Ser. No. 60,011
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—317



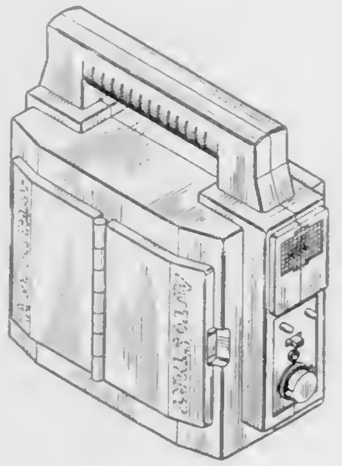
393,445
BICYCLE COVER

Winfred F. Nicholson, P.O. Box 329, Ashburn, Va. 20147
Filed Jul. 11, 1996, Ser. No. 56,920
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—402



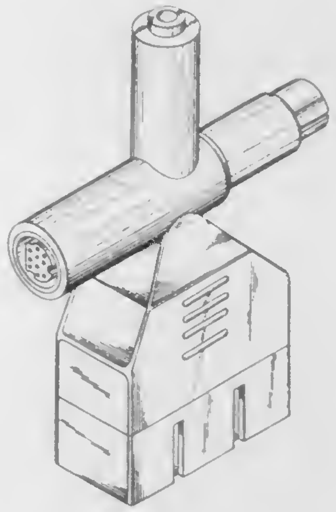
393,446
BATTERY PACK

Steven Bellofatto, Closter, N.J.; Matthew Froehlich, Kings Park, N.Y.; Arthur Gurtman, Great Neck, N.Y.; Bernard Gurtman, North Hills, N.Y., and Scott Salmon, Jersey City, N.J., assignors to Autostart Marketing Incorporated, Great Neck, N.Y.
Filed Nov. 14, 1996, Ser. No. 62,434
Term of patent 14 years
LOC (6) Cl. 13 - *02*
U.S. Cl. D13—106



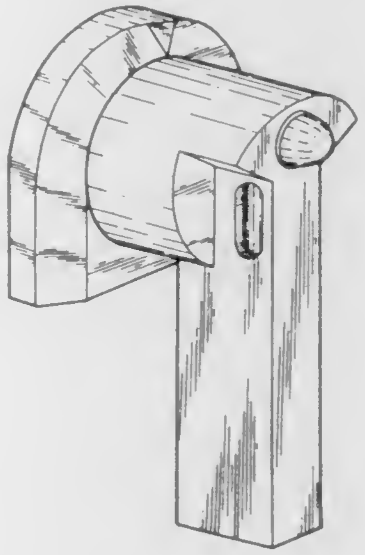
393,447
ADAPTER PLUG

Imraan Ahmed, Rancho Palos Verdes; Jeff Bluen, Studio City, and Paul Sauer, Los Angeles, all of Calif., assignors to Aura Systems, Inc., El Segundo, Calif.
Filed Nov. 3, 1995, Ser. No. 45,994
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—146



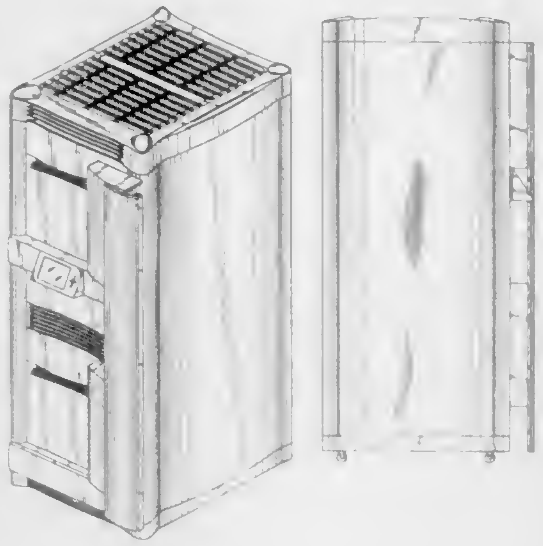
393,448
HANDLE

Benoit Siat, Benfeld, France, assignor to Socomec (Societe Anonyme), Benfeld, France
Filed Jan. 26, 1996, Ser. No. 49,493
Claims priority, application France, Jul. 27, 1995, 954244
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—173



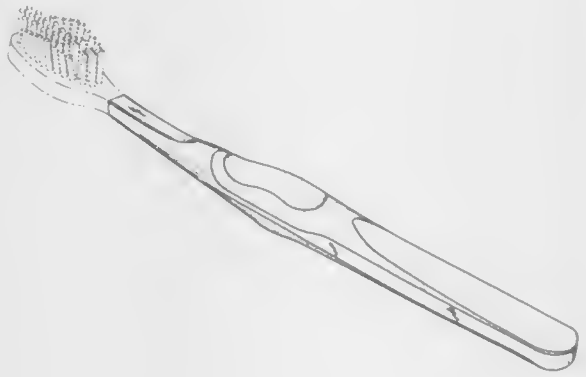
393,449
HOUSING FOR A COMPUTER

Richard Singer, Menlo Park; Robert Pandorf; Robin Chu, both of San Francisco; Mark Edwards, Livermore; James Gilbert Ammon, San Jose, and Daniel Farmer, Mountain View, all of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.
Filed Sep. 27, 1996, Ser. No. 60,425
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—102



393,450
TOOTHBRUSH HANDLE

Bert Heinzelman, Tenafly, N.J.; Donald Lamond, Lynbrook; John Moldauer, Brooklyn, both of N.Y., and Lois Josephine Slachowitz, Greenwich, Conn., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.
Filed Aug. 7, 1996, Ser. No. 56,331
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—104



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PORTABLE MULTIMEDIA DOCKING MODULE

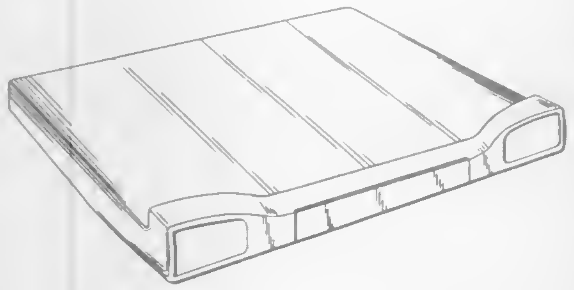
Robert T. Faranda, Acton; Allan Scott Baucom, Townsend, and Bradford G. Chapin, Ayer, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Mar. 13, 1996, Ser. No. 53,354

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—107



393,452

Patent Not Issued For This Number

393,453

TOP PORTION OF AN ELECTRONIC COMPUTER

Masaaki Iino, and Osamu Kondo, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

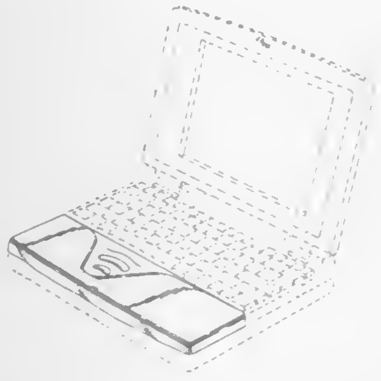
Continuation-in-part of Ser. No. 41,920, Jul. 12, 1995, Pat. No. Des. 369,591, which is a continuation of Ser. No. 26,824, Aug. 4, 1994, abandoned, and Ser. No. 38,603, May 9, 1995, Pat. No. Des. 372,020. This application Aug. 23, 1995, Ser. No. 43,042

The portion of the term of this patent subsequent to May 7, 2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114



393,454

TAPE CARTRIDGE

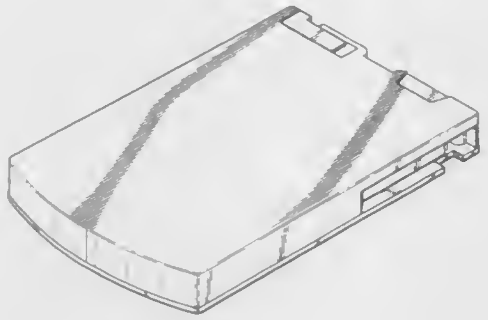
Kenyon R. Cruden, Huntersville, and Gregory Mark Saul, Charlotte, both of N.C., assignors to Verbatim Corporation, Charlotte, N.C.

Filed Nov. 10, 1995, Ser. No. 46,195

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114



393,455

COMBINED COMPUTER ORGANIZER AND READING DESK

Amos D'Agaro, Udine; Adriano Marino, Novara, and Andrea Venturini, Udine, all of Italy, assignors to Exponent Italia S.r.l., Udine, Italy

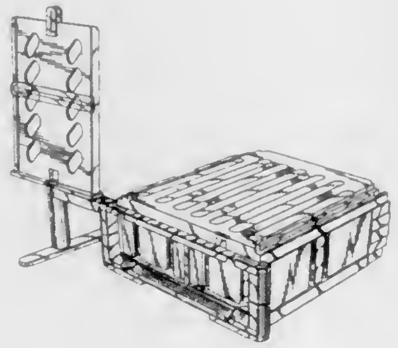
Filed May 14, 1996, Ser. No. 54,435

Claims priority, application Italy, Nov. 23, 1995, PN95O0020

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114



393,456

PALM SUPPORT PAD FOR A COMPUTER KEYBOARD

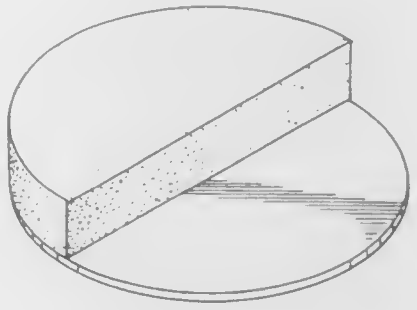
Clifford D. Goodman, 6511 119th Ave. E., Puyallup, Wash. 98372

Division of Ser. No. 50,317, Feb. 14, 1996. This application Jan. 29, 1997, Ser. No. 65,698

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114



393,457

SOFTWARE APPLICATION INTERFACE WINDOW FOR A DISPLAY SCREEN OF A COMPUTER

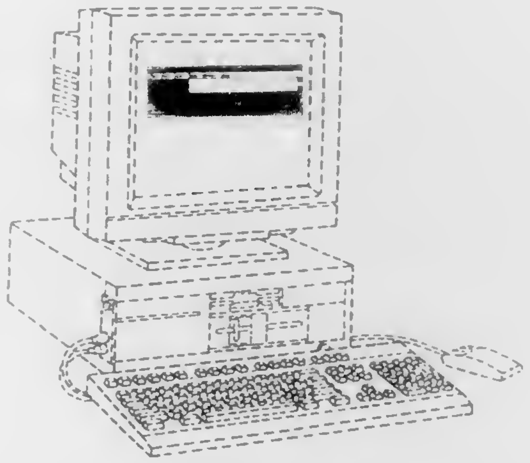
David Sterling Nay, Provo, Utah, assignor to Novell, Inc., Provo, Utah

Filed Oct. 13, 1992, Ser. No. 376

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—114.2



393,458

CONNECTING TERMINAL FOR CHIP CARDS

Pierre Merlin, La Ciotat; Didier Elbaz, and Stephane Ayala, both of Marseille, all of France, assignors to Gemplus, Gemenos, France

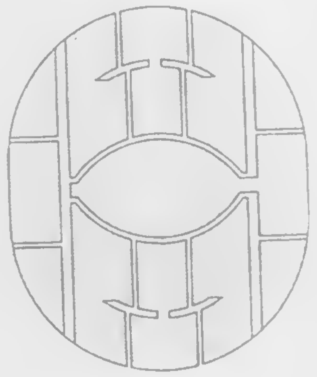
Filed Dec. 18, 1995, Ser. No. 47,994

Claims priority, application France, Jun. 19, 1995, 953394

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—117



393,459

COLLECTABLE SOUND CARD HAVING DIGITALLY PRERECORDED NATURAL AND/OR OTHER SOUNDS STORED THEREIN

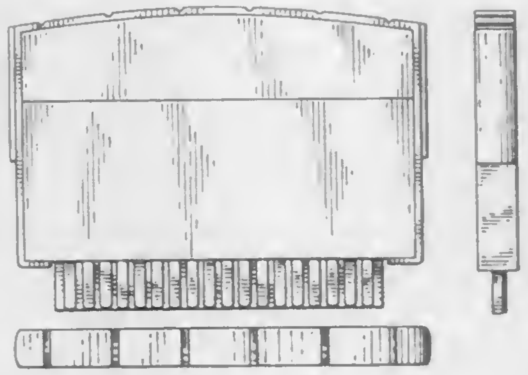
Stéfane Erhard Barbeau; Rudy Anthony Vandenbelt; Michael Georges Sirois, all of Ottawa, Canada, and Troy Gene Anderson, Marblehead, Mass., assignors to Headwaters Research & Development, Inc., Ottawa, Canada

Filed Aug. 30, 1996, Ser. No. 59,027

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D14—117



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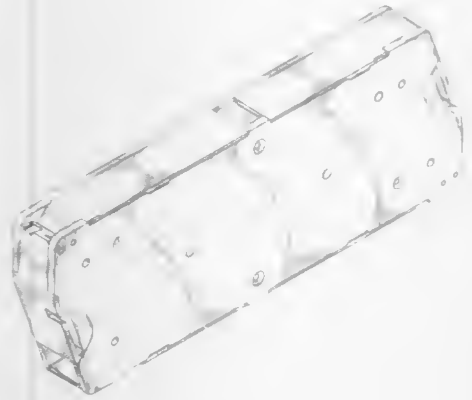
393,460

CARTRIDGE FOR DOUBLE SIDED MAGNETIC TAPE

Lee Ray Weaver, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1996, Ser. No. 61,003
Term of patent 14 years
LOC (6) Cl. 14 - *99*

U.S. Cl. D14—121



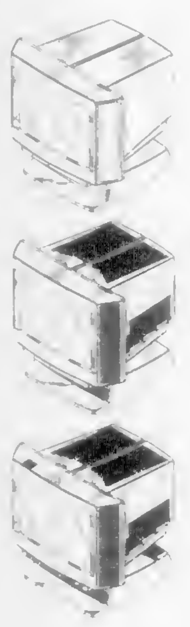
393,461

TELEVISION MONITOR

Teiyu Goto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sep. 16, 1996, Ser. No. 59,766
Claims priority, application Japan, Mar. 25, 1996, 8-8100
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—126



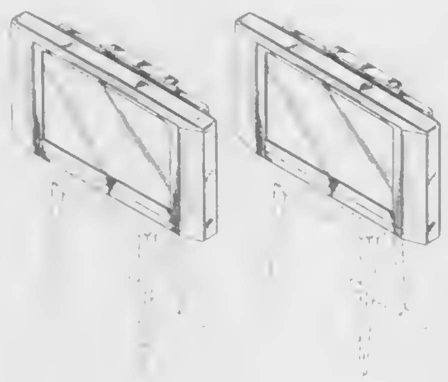
393,462

TELEVISION RECEIVER

Yuji Morimiya, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sep. 16, 1996, Ser. No. 59,803
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—126



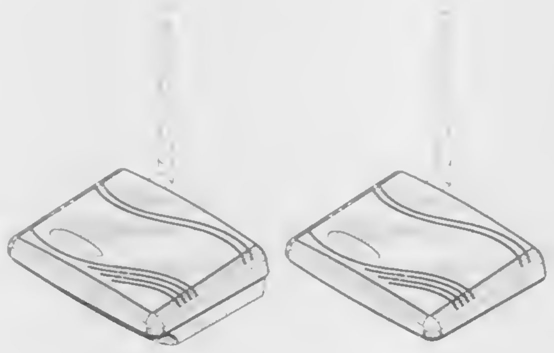
393,463

FIXED WIRELESS TERMINAL ENCLOSURE

Thomas Glenn Beaumont, Bedford; Paul Sylvester Stevens, Keller, and Mark Andrew Huslig, Haltom City, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 27, 1997, Ser. No. 65,523
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—149



393,464

INTERACTIVE TELEPHONE APPARATUS

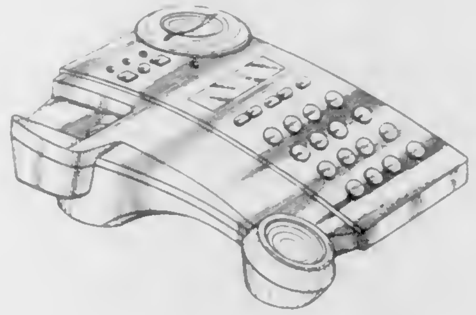
Huibrecht Groenendijk, Rotterdam, Netherlands, assignor to Koninklijke PTT Nederland N.V., The Hague, Netherlands

Filed Nov. 6, 1996, Ser. No. 62,059

Claims priority, application Benelux TM/Des. Off., May 6, 1996, 27180-00

Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—151



393,465

VOICE MEMO

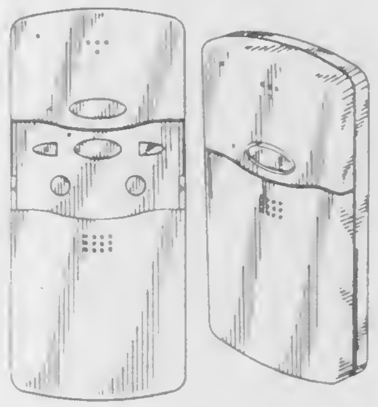
Raymond Chan, Kowloon, Hong Kong, assignor to IDT International, Hamilton, Bermuda

Filed May 17, 1996, Ser. No. 54,653

Claims priority, application United Kingdom, Nov. 17, 1995, 2052052

Term of patent 14 years
LOC (6) Cl. 14 - *01*

U.S. Cl. D14—154



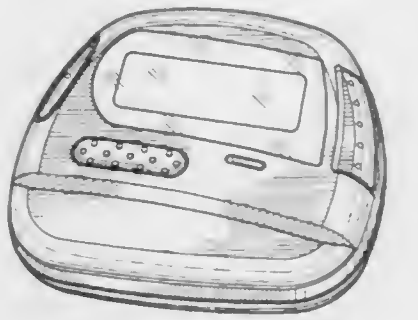
393,466

SELECTIVE CALL RECEIVER

William J. Scheid, Coral Springs; Henry Wandt, Boca Raton, and Lawrence Davis, West Palm Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 9, 1994, Ser. No. 28,206
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—191



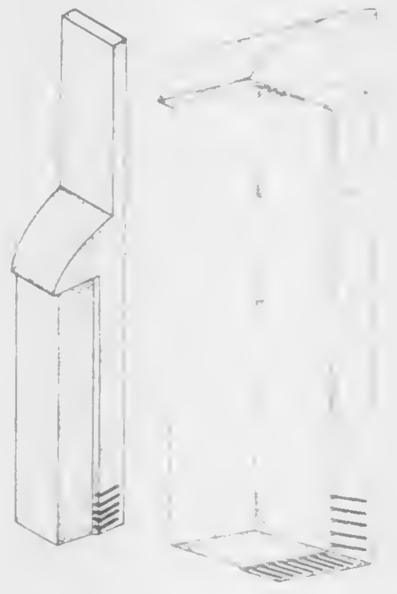
393,467

ANTENNA CASING

Jorgen Pudeck, Stockholm, Sweden, assignor to Comviq Gsm AB, Sweden

Filed Nov. 21, 1996, Ser. No. 63,012
Claims priority, application Sweden, Jun. 4, 1996, 46-1273
Term of patent 14 years
LOC (6) Cl. 14 - *03*

U.S. Cl. D14—230



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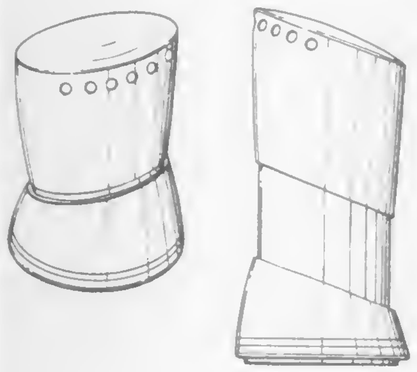
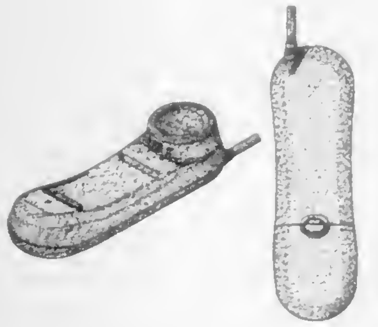
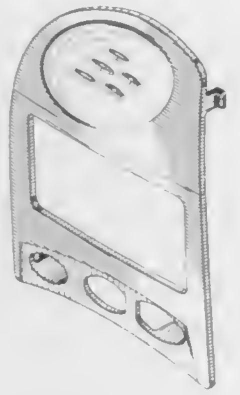
393,468
STREET CABINET FOR HOUSING TELECOMMUNICATIONS EQUIPMENT
Anthony Dalby, Crescent, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada
Filed May 30, 1996, Ser. No. 55,144
Claims priority, application United Kingdom, Nov. 30, 1995, 2052385
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—240



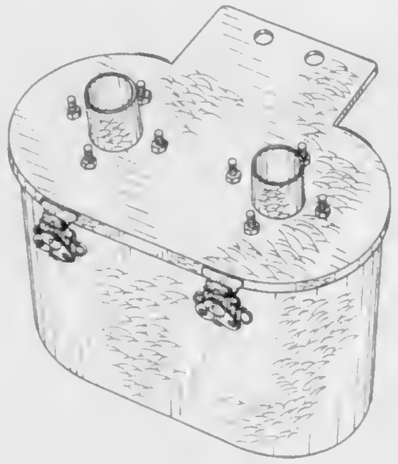
393,469
TELEPHONE HANDSET
Perry W. Diamantis, East Brunswick; Donovan M. Folkes, Somerset, both of N.J.; James Edward McCay, Fairfield, Conn., and Sebastian J. Messina, Jr., Fredon, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.
Filed Nov. 1, 1996, Ser. No. 61,858
The portion of the term of this patent subsequent to Oct. 28, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—248



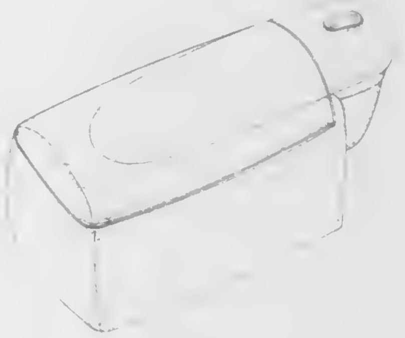
393,470
ESCUTCHEON
Albert L. Nagele, Wilmette, and Chris A. Murzanski, Cary, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Dec. 4, 1996, Ser. No. 63,280
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—249



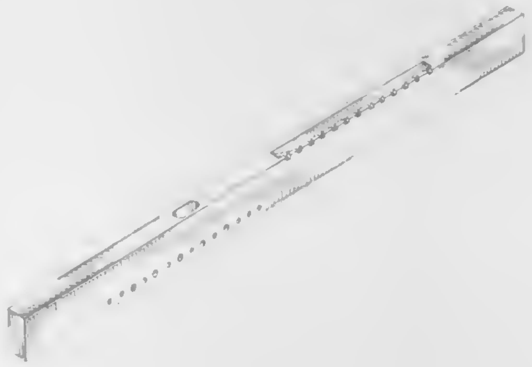
393,471
VAPOR SEPARATOR
Elmer W. Bush, 433 Bull River Rd., Noxon, Mont. 59853
Filed Jul. 2, 1996, Ser. No. 56,555
Term of patent 14 years
LOC (6) Cl. 15 - *01*
U.S. Cl. D15—5



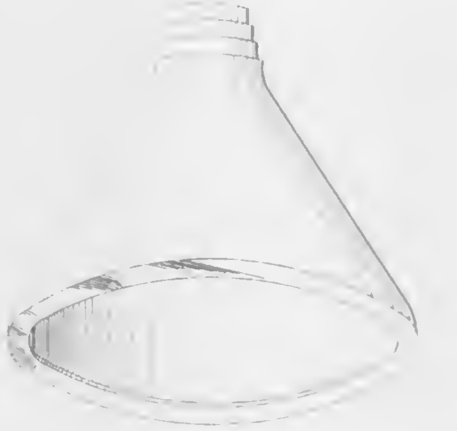
393,472
PORTABLE CHILLING DEVICE
Noriaki Takizawa, Kowloon, Hong Kong, assignor to Hiraoka & Co., (H.K.), Ltd., Hong Kong
Filed Nov. 20, 1995, Ser. No. 46,899
Term of patent 14 years
LOC (6) Cl. 15 - *07*
U.S. Cl. D15—79



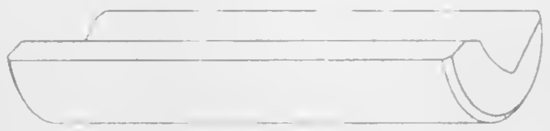
393,473
GUIDING FENCE FOR A TABLE SAW
Rudy R. Ramirez, 3756 E. 22nd St., Tucson, Ariz. 85713, assignor to Rudy R. Ramirez, Tucson, Ariz.
Filed Jan. 23, 1995, Ser. No. 33,857
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—133



393,474
FORMING FOR COLUMN FOUNDATION
Kirk Swinimer, R.R. #1, Marriotts Cove, Chester Basin, Nova Scotia, Canada, B0J 1K0
Filed Dec. 11, 1996, Ser. No. 63,625
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—136



393,475
DRIVE PIN FOR A BIT AND CHUCK COMBINATION IN A PERCUSSION DRILLING MACHINE
William Leslie Jones, Moneta, Va., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Jun. 7, 1996, Ser. No. 55,588
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D15—140



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393,476
INDUSTRIAL MIXING MACHINE

Gebrüder Lödige, Steinhagen, Germany, assignor to Gebruder Lodige Maschinenbau-Gesellschaft mit beschränkter Haftung, Paderborn, Germany

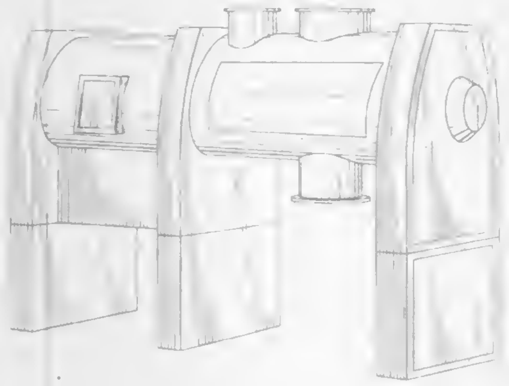
Filed Dec. 12, 1996, Ser. No. 63,674

Claims priority, application Hague Agreement, Jun. 24, 1996, DM036755

Term of patent 14 years

LOC (6) Cl. 15 - *08*

U.S. Cl. D15—147



393,477
SUNGLASSES

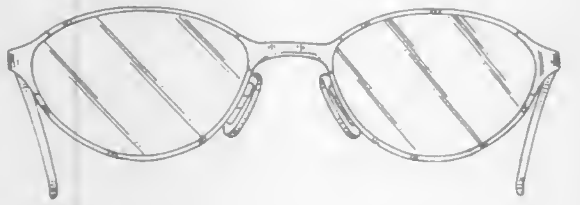
Gregory F. Arnette, South Laguna Beach, Calif., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Jan. 3, 1996, Ser. No. 48,549

Term of patent 14 years

LOC (6) Cl. 16 - *06*

U.S. Cl. D16—326



393,478
SUNGLASSES

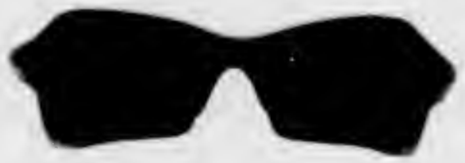
Soo An Park, Seoul, Rep. of Korea, assignor to Korea OGK Co. Ltd., Seoul, Rep. of Korea

Filed Mar. 25, 1996, Ser. No. 52,258

Term of patent 14 years

LOC (6) Cl. 16 - *06*

U.S. Cl. D16—326



393,479
POINT OF SALE TERMINAL

Harmut Droege, Stuttgart; Ludwig Fischer, Herrenberg; Wolfgang Fischer, Boeblingen; Walter Hinz, Garching; Tayssir Scheib, Schondorf, and Dieter Sonnentag, Schoenaich, all of Germany, assignors to IBM Corporation, Armonk, N.Y.

Filed May 18, 1995, Ser. No. 38,996

Claims priority, application Germany, Dec. 8, 1994, M 94 09 513.2

Term of patent 14 years

LOC (6) Cl. 18 - *01*

U.S. Cl. D18—4

393,480
ADAPTOR FOR A PERSONAL DIGITAL ASSISTANT

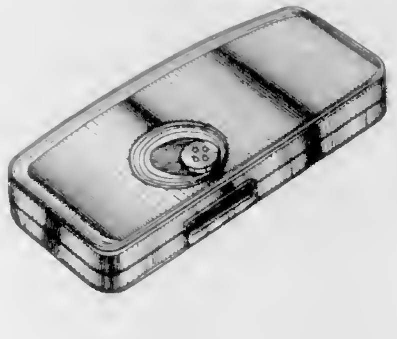
Yoshihiro Komuta, Zama, and Yukinori Ido, Tokyo, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1996, Ser. No. 61,630

Term of patent 14 years

LOC (6) Cl. 18 - *01*

U.S. Cl. D18—7



393,481
NAME STAMPER

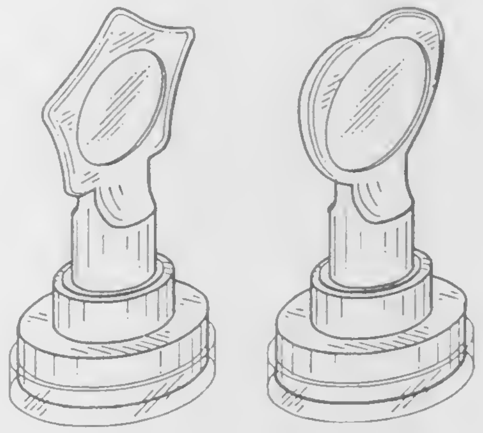
Neal L. Dem, Northridge, Calif., assignor to Stravina, Inc., Chatsworth, Calif.

Filed Sep. 17, 1996, Ser. No. 59,911

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D18—15



393,482
SCRIPT FONT

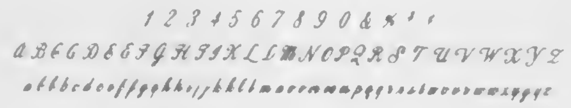
James E. Grannan, Atlanta; Steven Cook, and Lon C. Johnson, both of Marietta, all of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Aug. 7, 1996, Ser. No. 58,076

Term of patent 14 years

LOC (6) Cl. 18 - *03*

U.S. Cl. D18—28



393,483
PAGE FINDER WITH SINGLE INSERT POCKET

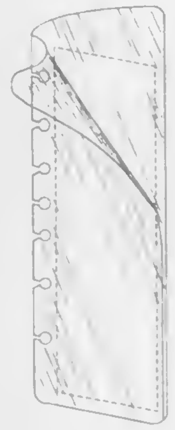
Michael Sean M. Covey, Orem, Utah, assignor to Franklin Covey Co., Salt Lake City, Utah

Filed Nov. 30, 1995, Ser. No. 47,310

Term of patent 14 years

LOC (6) Cl. 19 - *04*

U.S. Cl. D19—32



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PEN

Holger Schubert, Roonstrasse 19, 38102 Braunschweig, Germany

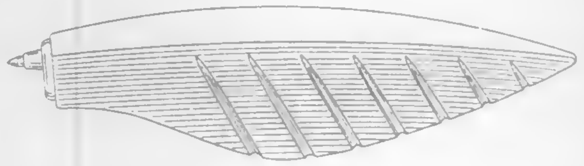
Filed Feb. 13, 1997, Ser. No. 66,395

Claims priority, application Hague Agreement, Aug. 28, 1996, DMA/003440

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—42



393,485
WRITING INSTRUMENT

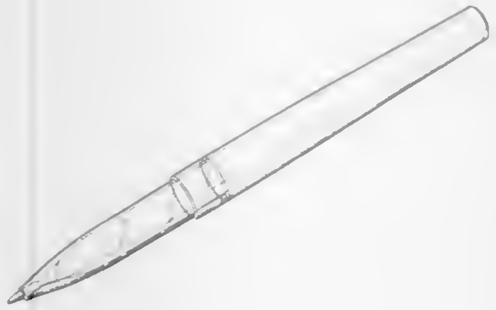
John R. Bussiere, Littleton, Mass., and Geoffrey A. Hollington, London, England, assignors to The Gillette Company, Boston, Mass.

Filed Dec. 13, 1996, Ser. No. 63,704

Term of patent 14 years

LOC (6) Cl. 19 - *06*

U.S. Cl. D19—51



393,486
MAGAZINE BINDER CLIP

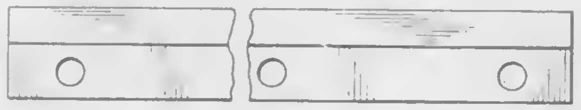
Rod Ernest Orr, 3908 49th Ave., Drayton Valley, Alberta, Canada, T7A 1E4

Filed Aug. 15, 1996, Ser. No. 58,481

Term of patent 14 years

LOC (6) Cl. 19 - *02*

U.S. Cl. D19—90



393,487
AIR CONDITIONER CORD WARNING LABEL

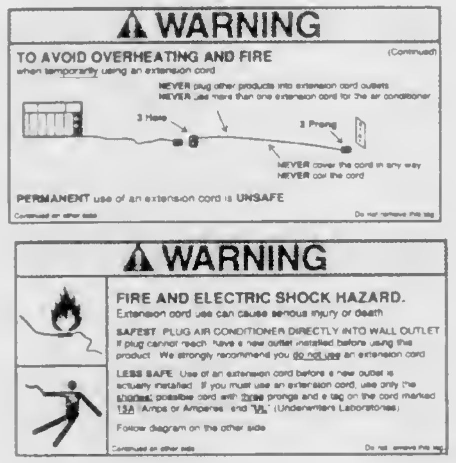
Robert J. Cunitz, 5205 Trailway Dr., Rockville, Md. 20853; Shelley Waters Deppa, 18417 Shady View La., Brookeville, Md. 20833; William P. Lightfoot, 2020 K St., N.W., Suite 500, Washington, D.C. 20006; Paulette E. Chapman, 2020 K St., N.W., Suite 500, Washington, D.C. 20006, and Victor E. Long, 2020 K St., N.W., Suite 500, Washington, D.C. 20006

Filed Apr. 15, 1997, Ser. No. 68,957

Term of patent 14 years

LOC (6) Cl. 19 - *08*

U.S. Cl. D20—25



⚠ WARNING

TO AVOID OVERHEATING AND FIRE (Continued)
when temporarily using an extension cord

NEVER plug other products into extension cord outlets
NEVER use more than one extension cord for the air conditioner

3 Hole
3 Prong

NEVER cover the cord in any way
NEVER coil the cord

PERMANENT use of an extension cord is UNSAFE

Continued on other side
Do not remove this tag

⚠ WARNING

FIRE AND ELECTRIC SHOCK HAZARD.
Extension cord use can cause serious injury or death

SAFEST PLUG AIR CONDITIONER DIRECTLY INTO WALL OUTLET
If plug cannot reach, have a new outlet installed before using this product. We strongly recommend you do not use an extension cord

LESS SAFE Use of an extension cord before a new outlet is actually installed. If you must use an extension cord, use only the shortest possible cord with three prongs and a tag on the cord marked 15A (Amps or Amperes) and "UL" (Underwriters Laboratories).

Follow diagram on the other side

Continued on other side
Do not remove this tag

393,488
UTILITY LOCATOR

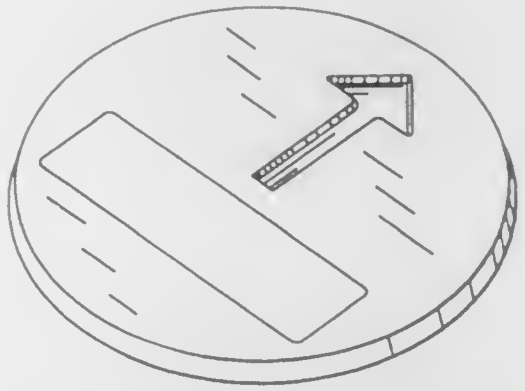
Michael W. Sakko, P.O. Box 2501, Winter Haven, Fla. 33883

Filed Oct. 25, 1996, Ser. No. 61,514

Term of patent 14 years

LOC (6) Cl. 19 - *08*

U.S. Cl. D20—28



393,489
ADVERTISING BANNER DISPLAY DEVICE

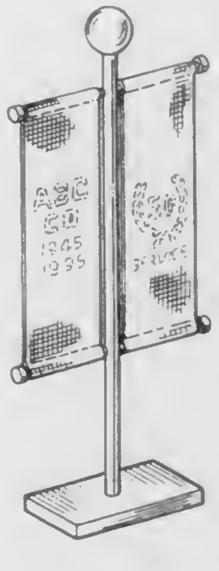
Mark S. Tobor, Morton Grove, Ill., assignor to E.I.T., Inc., Elmhurst, Ill.

Filed Dec. 18, 1995, Ser. No. 48,005

Term of patent 14 years

LOC (6) Cl. 20 - *02*

U.S. Cl. D20—41



393,490
SIGN HOLDER

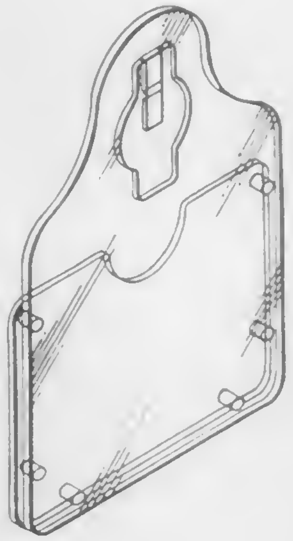
Brad J. Burch, 116 ½ Industrial Ct., Conroe, Tex. 77301

Filed Dec. 20, 1996, Ser. No. 63,990

Term of patent 14 years

LOC (6) Cl. 20 - *02*

U.S. Cl. D20—43



393,491
ELECTRONIC DART GAME

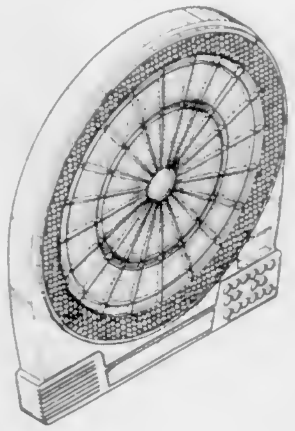
Chih-Hao Yiu, 7F-1, No. 30, Lin Sen Road, Taichung, Taiwan

Filed Mar. 4, 1996, Ser. No. 51,158

Term of patent 14 years

LOC (6) Cl. 21 - *01*

U.S. Cl. D21—6



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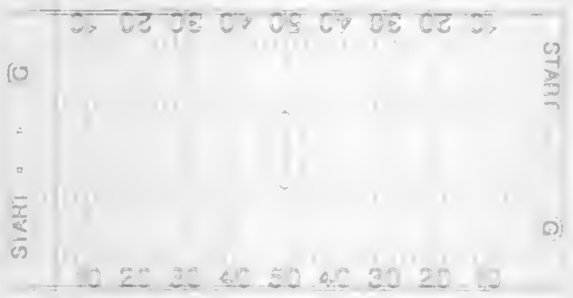
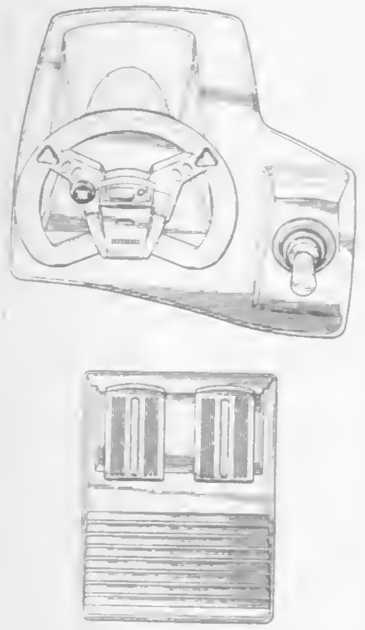
393,492
FOOTBALL BOARD GAME
Jackie Van Wormer, 120 N. 4th Ave., Wausau, Wis. 54401
Filed May 13, 1997, Ser. No. 70,671
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—29



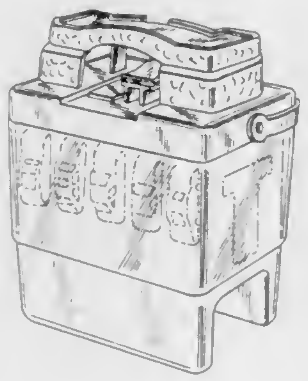
393,493
COMBINED STEERING WHEEL AND PADDLE FOR TV GAME
Lan-Yan Lee, Fanling, Hong Kong, assignor to Esel International Company Limited, Hong Kong
Filed Apr. 22, 1997, Ser. No. 69,758
Claims priority, application United Kingdom, Feb. 3, 1997, 2062908
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—48



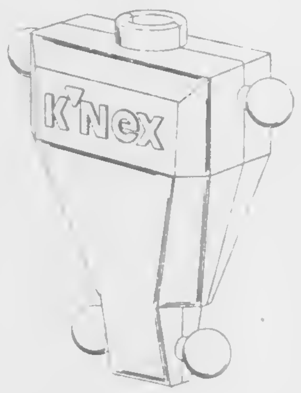
393,494

Patent Not Issued For This Number

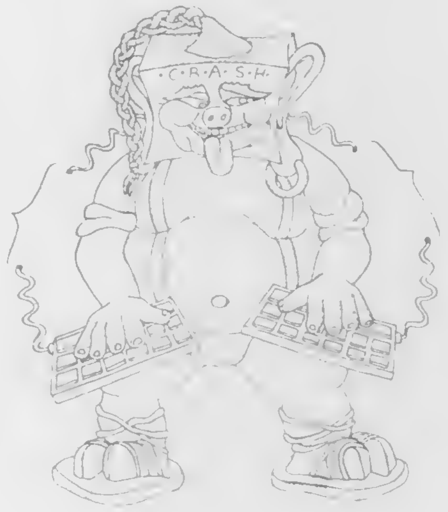
393,495
TOY STUNT TRACK
Martin Blumenthal, 99 Longview Ave., Chatham, N.J. 07928
Filed Feb. 20, 1997, Ser. No. 66,751
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—124



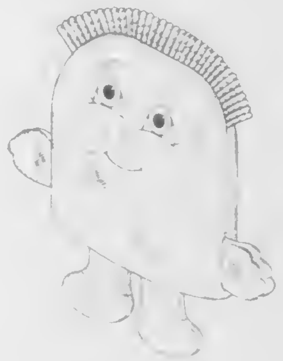
393,496
TORSO FOR ROBOTIC TOY FIGURE
Joel I. Glickman, Huntingdon Valley; Matthew Dickinson, Hatfield; Robert Gleim, Royersford, and John Zimmer, Lansdale, all of Pa., assignors to Connector Set Limited Partnership, Hatfield, Pa.
Filed Jan. 3, 1997, Ser. No. 64,497
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—150



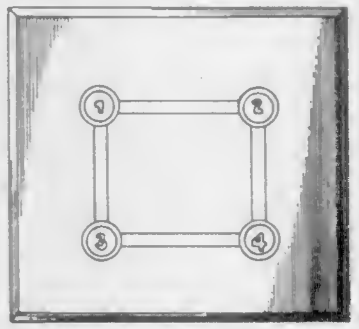
393,497
TOY FIGURE
Robert J. White, 2020-H Coldspring Dr., Charleston, S.C. 29418
Filed Feb. 21, 1996, Ser. No. 50,784
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—155



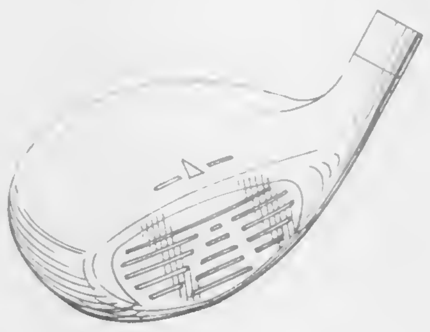
393,498
DOLL
Penny S. Ekstein Lieberman, 500 E. 85th St., New York, N.Y. 10028
Filed Mar. 22, 1996, Ser. No. 52,079
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—184



393,499
EXERCISE MAT
Suzanne Dawn Brown, 93 Heather Croft, Egg Harbor Township, Atlantic County, N.J. 08234
Filed Jun. 7, 1996, Ser. No. 55,561
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—191



393,500
GOLF CLUB DRIVER HEAD
Steve Mahaffey, Hampden, and Tom Greene, Monson, both of Mass., assignors to Lisco, Inc., Tampa, Fla.
Filed Jan. 25, 1996, Ser. No. 49,432
The portion of the term of this patent subsequent to Dec. 30, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—214



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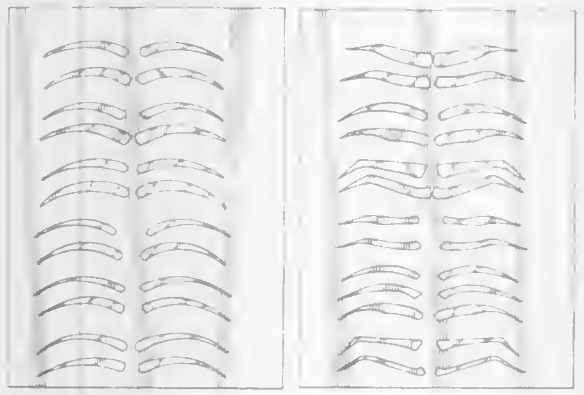
393,501

SHEET OF ADHESIVE EYEBROWS

Madona Galos, 2429 W. Greenleaf, Anaheim, Calif. 92801
Filed Apr. 22, 1996, Ser. No. 53,425
Term of patent 14 years
LOC (6) Cl. 28 - *04*

U.S. Cl. D28—92

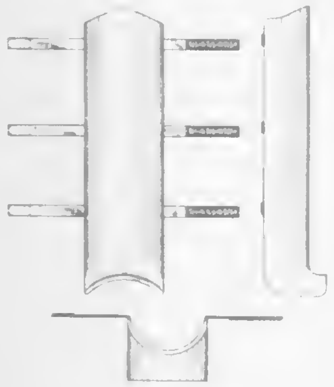


393,502

LEG PROTECTOR

Merle D. Peachey, 945 N. State St., Ephrata, Pa. 17522
Filed Jun. 14, 1996, Ser. No. 55,855
Term of patent 14 years
LOC (6) Cl. 29 - *02*

U.S. Cl. D29—120



393,503

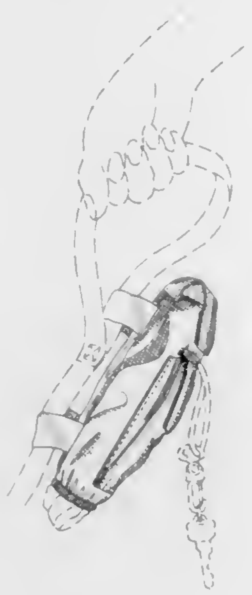
Patent Not Issued For This Number

393,504

POUCH FOR ATTACHMENT TO PET LEASH

Janice S. Eisman, 7 Whispering Wind, Irvine, Calif. 92614
Filed Oct. 23, 1996, Ser. No. 61,400
Term of patent 14 years
LOC (6) Cl. 30 - *99*

U.S. Cl. D30—162

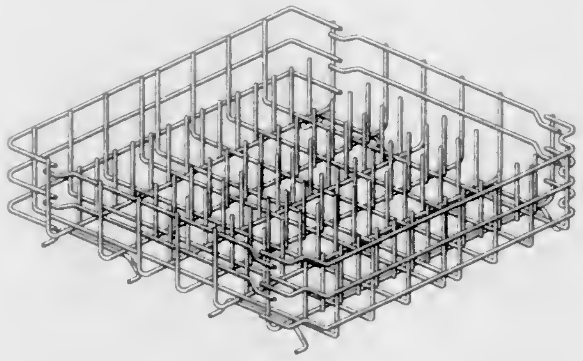


393,505

DISHWASHER RACK

Robert W. Good, Kinston, N.C., assignor to White Consolidated Industries, Inc., Cleveland, Ohio
Division of Ser. No. 50,878, Feb. 28, 1996. This application Sep. 3, 1996, Ser. No. 59,092
Term of patent 14 years
LOC (6) Cl. 15 - *05*

U.S. Cl. D32—3

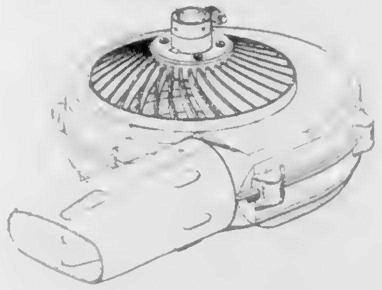


393,506

COMBINED BLOWER AND NOZZLE ATTACHMENT

Taku Ohi, Chandler; Kenneth M. Brazell, Phoenix, and Naoki Kikuchi, Chandler, all of Ariz., assignors to Ryobi North America, Easley, S.C.
Filed Jul. 26, 1996, Ser. No. 57,517
Term of patent 14 years
LOC (6) Cl. 15 - *05*

U.S. Cl. D32—15

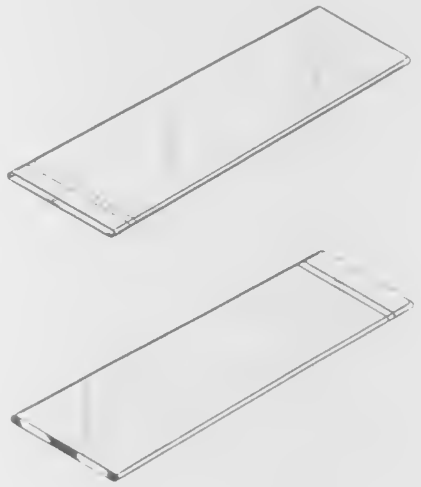


393,507

FRUIT CLEANER

James W. Jimison, 360 Fulton St., Palo Alto, Calif. 94301
Continuation-in-part of Ser. No. 37,144, Apr. 5, 1995, Pat. No. Des. 383,576, which is a continuation-in-part of Ser. No. 37,145, Apr. 5, 1995, Pat. No. Des. 381,145, which is a continuation-in-part of Ser. No. 80,660, Jun. 18, 1993, abandoned. This application Mar. 28, 1997, Ser. No. 68,818
Term of patent 14 years
LOC (6) Cl. 08 - *99*

U.S. Cl. D32—35

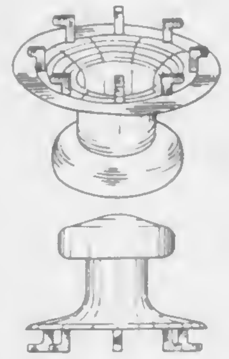


393,508

SCRUBBER HOLDER

George G. Rademacher, 313 River Ave., Point Pleasant Beach, N.J. 08742
Filed Aug. 28, 1996, Ser. No. 59,636
Term of patent 14 years
LOC (6) Cl. 04 - *01*

U.S. Cl. D32—52

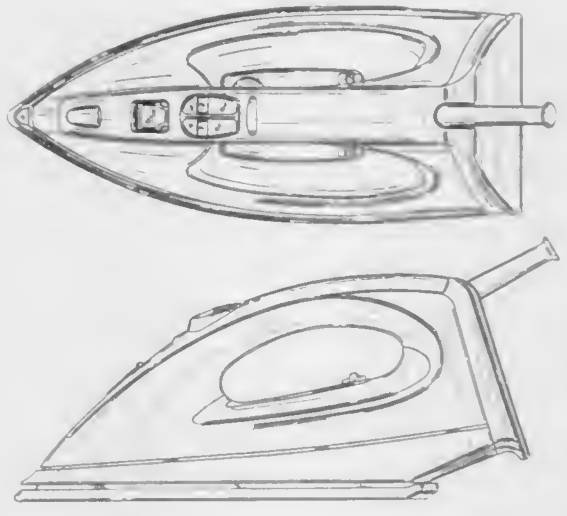


393,509

ELECTRIC IRON

Jacques Gudefin, Saint-Priest, France, assignor to Calor S.A., Lyons Cedex, France
Filed Oct. 30, 1995, Ser. No. 45,802
Claims priority, application France, May 4, 1995, 952603
Term of patent 14 years
LOC (6) Cl. 07 - *05*

U.S. Cl. D32—70



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393,510
COMBINED WINDOW WASH AND TRASH RECEPTACLE

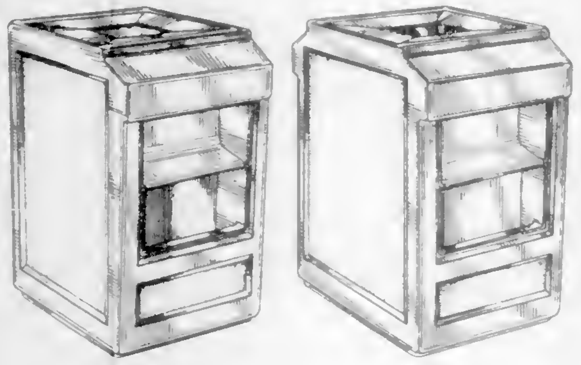
Edward J. Creske, Mossinee, Wis., assignor to Wausau Tile, Inc., Wausau, Wis.

Continuation-in-part of Ser. No. 58,615, Aug. 13, 1996, abandoned. This application Apr. 22, 1997, Ser. No. 69,759

Term of patent 14 years

LOC (6) Cl. 09 - *09*

U.S. Cl. D34—1



393,511
ELECTRIC GOLF CART

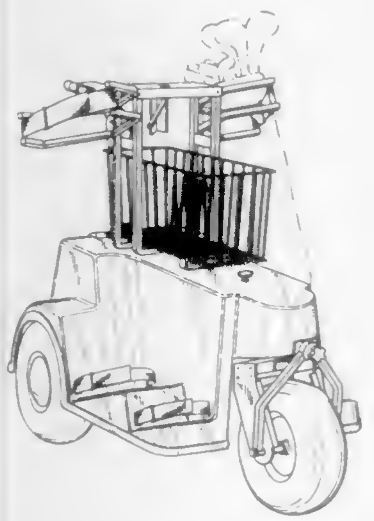
Stig L. Albertsson, P.O. Box 299, Manchester, Vt. 05254

Filed Mar. 14, 1997, Ser. No. 67,981

Term of patent 14 years

LOC (6) Cl. 12 - *02*

U.S. Cl. D34—15



393,512
RACK FOR SUSPENSION FILES

Frederik Jacob Van de Oudeweetering, Naarden, Netherlands, assignor to Cascade Handelmij, B.V., Lelystad, Netherlands

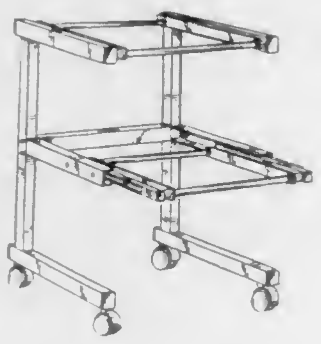
Filed Dec. 19, 1996, Ser. No. 63,951

Claims priority, application WIPO, Jun. 25, 1996, DM036769

Term of patent 14 years

LOC (6) Cl. 12 - *02*

U.S. Cl. D34—21



393,513
RACK FOR SUSPENSION FILES

Frederik Jacob van de Oudeweetering, Naarden, Netherlands, assignor to Cascade Handelmij, B.V., Lelstad, Netherlands

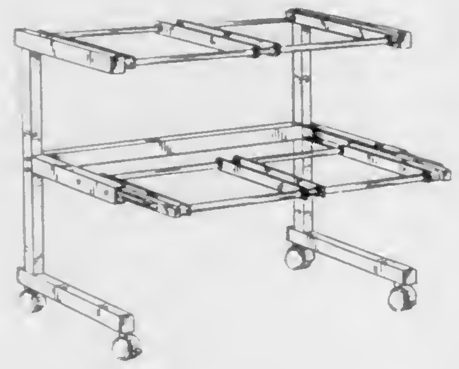
Filed Dec. 19, 1996, Ser. No. 63,952

Claims priority, application WIPO, Jun. 25, 1996, DM/036769

Term of patent 14 years

LOC (6) Cl. 12 - *02*

U.S. Cl. D34—21



393,514
WHEELBARROW HANDLE GRIP

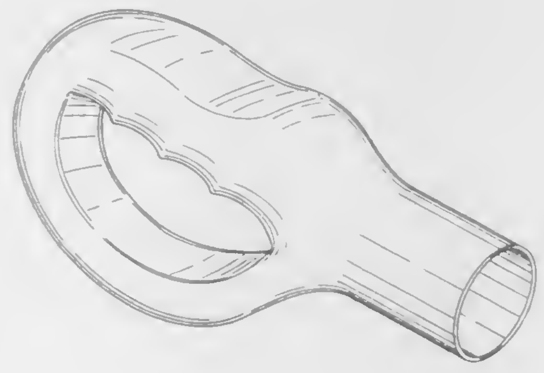
Jeffery R. Hadley, and Natalie R. Rabinowitz, both of 2570 Goldrush Dr., #7, Colorado Springs, Colo. 80906

Filed Dec. 24, 1996, Ser. No. 64,241

Term of patent 14 years

LOC (6) Cl. 09 - *09*

U.S. Cl. D34—27



393,515
PULLEY BLOCK

Tomas Pettersson, Anaset, Sweden, assignor to Robertsfors Forsaljnings AB, Anaset, Sweden

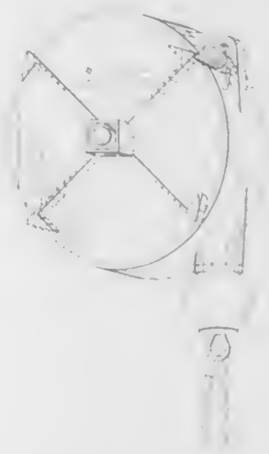
Filed May 6, 1996, Ser. No. 54,097

Claims priority, application Sweden, Nov. 13, 1995, 95-2132

Term of patent 14 years

LOC (6) Cl. 12 - *05*

U.S. Cl. D34—33



393,516
FORK LIFT

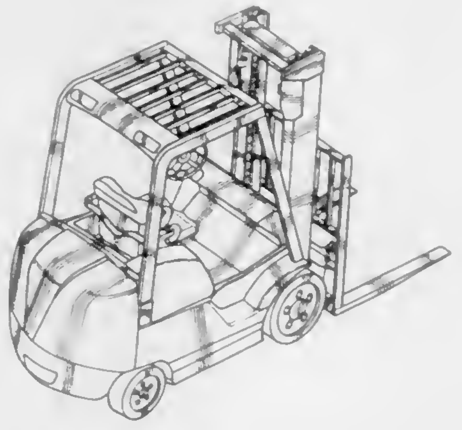
Chul Hwan Hahn; Jae Min Kim, and Taek Woo Lee, all of Changwon, Rep. of Korea, assignors to Samsung Hevy Industries Co., Ltd., Rep. of Korea

Filed Dec. 23, 1996, Ser. No. 64,650

Term of patent 14 years

LOC (6) Cl. 12 - *05*

U.S. Cl. D34—34



393,517
FORK LIFT

Jae Min Kim; Taek Woo Lee, both of Changwon, and Tae Woon Uhm, Jinhae, all of Rep. of Korea, assignors to Samsung Heavy Industries Co., Ltd., Rep. of Korea

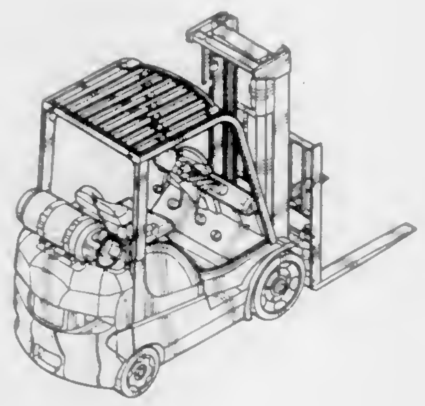
Filed Dec. 23, 1996, Ser. No. 64,651

Claims priority, application Rep. of Korea, Nov. 20, 1996, 9624486

Term of patent 14 years

LOC (6) Cl. 12 - *05*

U.S. Cl. D34—34



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393,518
PALLET

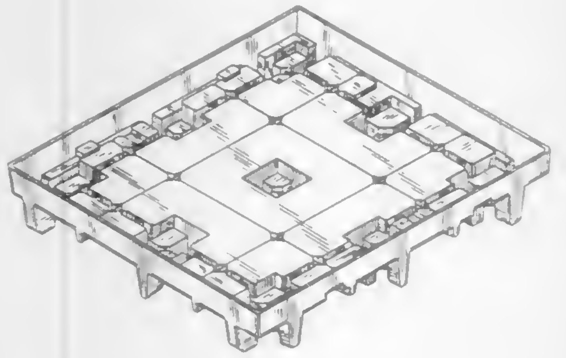
Lance T. Hampel, Germantown, Wis., assignor to L.T. Hampel Corp., Germantown, Wis.

Filed Jun. 17, 1996, Ser. No. 55,951

Term of patent 14 years

LOC (6) Cl. 09 - *08*

U.S. Cl. D34—38



393,519
PALLET

Morris Wail, Toorak, and Lazer Berelovich, Elsternwick, both of Australia, assignors to Viefam Plastics Recycling Pty. Ltd., Laverton North, Australia

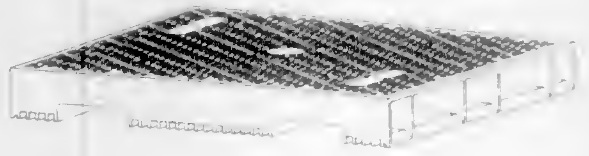
Filed Oct. 16, 1996, Ser. No. 61,154

Claims priority, application Australia, Apr. 16, 1996, 1089/96

Term of patent 14 years

LOC (6) Cl. 09 - *08*

U.S. Cl. D34—38



393,520
CONTAINER

Michael David Christy, Cambridgeshire, England, assignor to Rexam Industrial Containers Limited, England

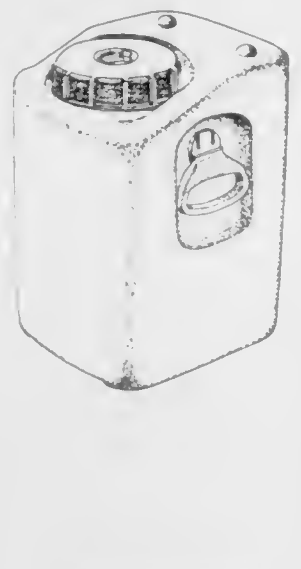
Filed May 14, 1996, Ser. No. 54,473

Claims priority, application United Kingdom, Nov. 15, 1995, 2051946

Term of patent 14 years

LOC (6) Cl. 09 - *02*

U.S. Cl. D34—39



393,521
BARREL

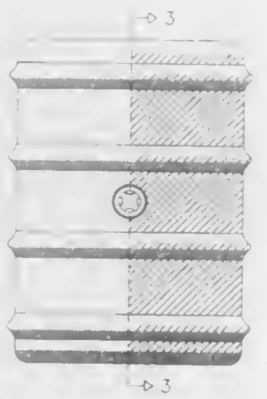
Gilles Morneau, 150 Vieux Chemin, St. Louis du Ha! Ha! Quebec, Canada, G0L 3S0

Filed May 28, 1996, Ser. No. 55,020

Term of patent 14 years

LOC (6) Cl. 09 - *02*

U.S. Cl. D34—39



393,522
PORTABLE MULTI-COMPONENT CHEMICAL STORAGE AND MIXING TANK

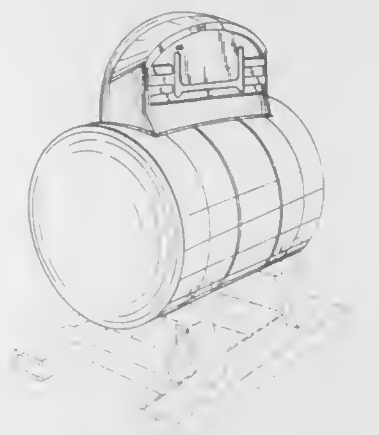
Billy R. Pettis, Durham; Randy L. Vaughn, Chapel Hill; Richard E. Dombkowski, and Brad S. Filson, both of Cary, all of N.C., assignors to BASF Corporation, Mt. Olive, N.J.

Filed Oct. 22, 1996, Ser. No. 61,355

Term of patent 14 years

LOC (6) Cl. 09 - *02*

U.S. Cl. D34—39



393,523
BURIAL CASKET

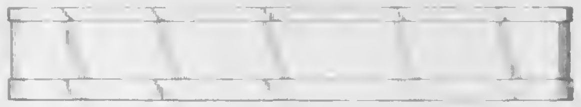
William C. Tambussi, 13 Greensward, Cherry Hill, N.J. 08002

Filed Jan. 22, 1997, Ser. No. 65,152

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—1



393,524
BURIAL CASKET LID

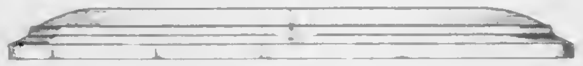
William C. Tambussi, 13 Greensward, Cherry Hill, N.J. 08002

Filed Jan. 22, 1997, Ser. No. 65,151

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—12



393,525
TALISMAN

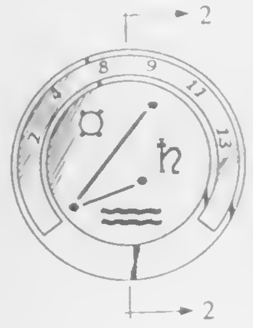
Susanna Monosov, 98 Glenmanor Way, Thornhill, Ontario, Canada, L4J 3E5

Filed Mar. 11, 1997, Ser. No. 67,604

Term of patent 14 years

LOC (6) Cl. 11 - *03*

U.S. Cl. D99—25



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393,526
BOX FOR MONEY OR VALUABLES

James Christopher Robey, Hyde, England; Victor Henry Lucas, Kildare, and Sean McNulty, Dublin, both of Ireland, assignors to Velos-Perforex Limited, United Kingdom

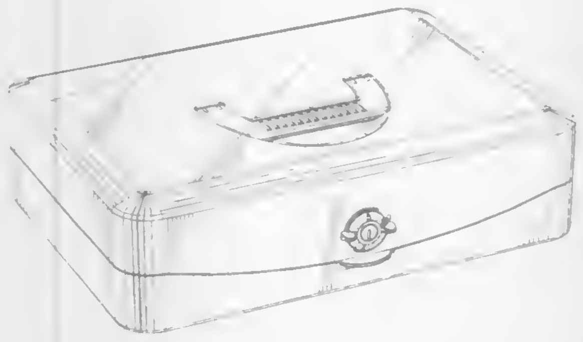
Filed Jul. 25, 1996, Ser. No. 57,429

Claims priority, application United Kingdom, Jan. 26, 1996, 2053689

Term of patent 14 years

LOC (6) Cl. 03 - *01*

U.S. Cl. D99—28



393,527
ELECTRONIC VALUE AUTOMATED TELLER MACHINE

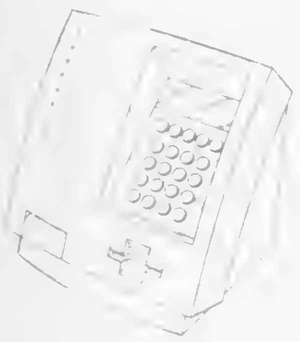
Masayuki Ohki, Kodaira; Toshiyuki Utsuki, Tachikawa; Atsuhiko Urushihara, Kokubunji, and Kotaro Yamashita, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 10, 1997, Ser. No. 67,713

Term of patent 14 years

LOC (6) Cl. 20 - *01*

U.S. Cl. D99—28



393,528
PERIPHERAL CABINET FOR NCR 587X TERMINALS

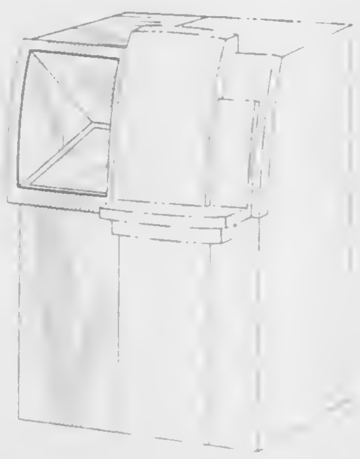
Timothy P. Johnson, Centerville, Ohio, assignor to NCR Corporation, Dayton, Ohio

Filed Apr. 21, 1997, Ser. No. 69,984

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D99—28



393,529
PERIPHERAL CABINET FOR NCR 587X TERMINALS

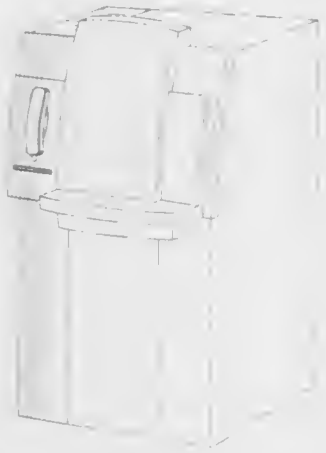
Timothy P. Johnson, Centerville, Ohio, assignor to NCR Corporation, Dayton, Ohio

Filed Apr. 21, 1997, Ser. No. 69,985

Term of patent 14 years

LOC (6) Cl. 14 - *02*

U.S. Cl. D99—28



393,530
COIN BANK

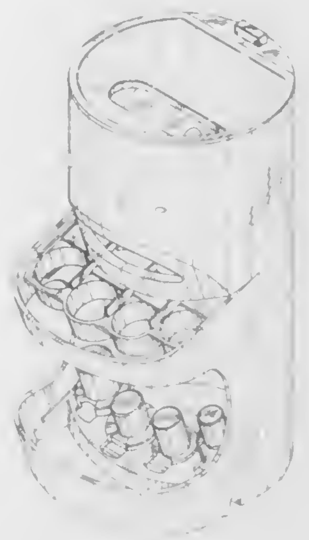
Jerzy Perkitny, Bay Village, Ohio, assignor to Mag-Nif Incorporated, Mentor, Ohio

Filed Feb. 12, 1997, Ser. No. 66,509

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—34



393,531
COIN BANK

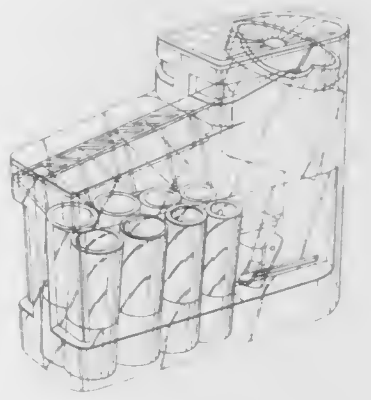
Jerzy Perkitny, Bay Village, Ohio, assignor to Mag-Nif Incorporated, Mentor, Ohio

Filed Mar. 27, 1996, Ser. No. 52,269

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—35



393,532
PIVOTABLE MAIL BOX POST

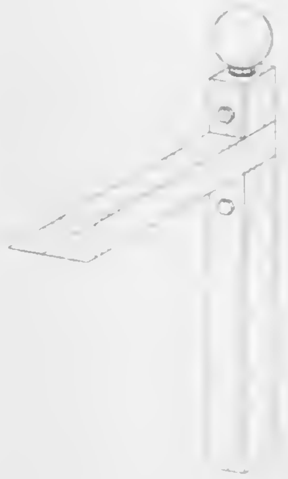
Roland L. Black, and Sara J. Black, both of 7645 Scarff Rd. S., New Carlisle, Ohio 45344

Filed Jun. 27, 1996, Ser. No. 56,383

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—432



393,533
TABLETOP SPIRITUAL OBSERVATORY

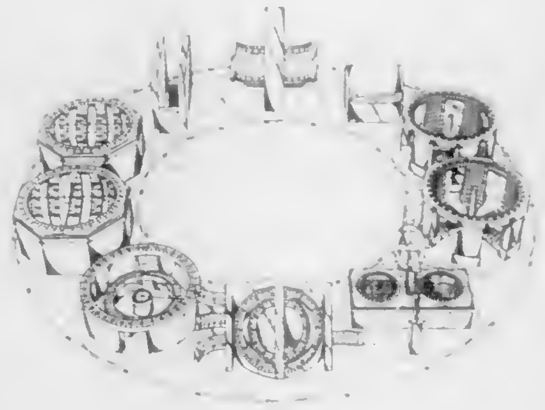
Carl V. Stone, 200 Highland, Fairfield, Iowa 52556

Continuation of Ser. No. 38,775, Mar. 31, 1995, abandoned. This application Sep. 15, 1995, Ser. No. 44,066

Term of patent 14 years

LOC (6) Cl. 99 - *00*

U.S. Cl. D99—99



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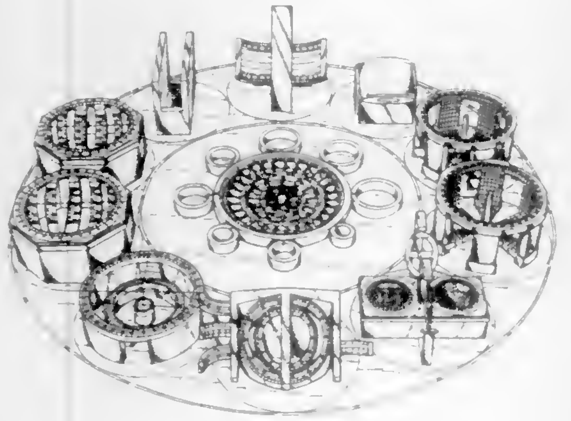
393,534
TABLETOP SPIRITUAL OBSERVATORY
Carl V. Stone, 200 Highland, Fairfield, Iowa 52556
Continuation of Ser. No. 38,776, Mar. 31, 1995, abandoned.
This application Sep. 15, 1995, Ser. No. 44,067
Term of patent 14 years
LOC (6) Cl. 99 - *00*
U.S. Cl. D99—99



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14th DAY OF APRIL, 1998

NOTE – Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A-Dec, Inc *See*—
  - Austin, George K., Jr., and Sturges, Paul D., 5,738,520, Cl 433-98.000.
- Aanonsen, Bobby. Heat resistant limb brace. 5,737,771, Cl. 2-16.000.
- Aanstad, Ivar *See*—
  - Habberstad, Bent, and Aanstad, Ivar, 5,737,889, Cl 52-396.020.
- Aaon, Inc.: *See*—
  - Asbjornson, Norman H.; and Bierwirth, Henry C , 5,738,167, Cl 165-122.000.
- ABB Air Preheater, Inc.. *See*—
  - Finnemore, Harlan E., 5,738,711, Cl. 95-268.000
- ABB Daimler Benz Transportation Signal AB. *See*—
  - Elestedt, Peter, 5,740,046, Cl. 364-436.000.
- ABB Fläkt AB *See*—
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Hanisch, Gustav, and Duell, Christoph, to Mercedes-Benz AG. Built-up camshaft having induction-hardened cams and method of inductively hardening the cams. 5,737,975. Cl. 74-567.000.

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- McCollum, Robert P.; Leipheimer, Jerry K.; and Telesz, Gregory T. Apparatus for initially positioning a weight lifting handle. 5,738,615, Cl. 482-101.000.
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Ota, Ken; and Archibald, William C., to Motorola, Inc. Method and circuit for sorting data in a fuzzy inference data processing system. 5,740,459. Cl. 395-800.000.

Ota, Noriyuki, to NEC Corporation. Non-volatile semiconductor memory cell array. 5,739,566. Cl. 257-315.000.

Otaki, Noboru; Yoshida, Kazuyoshi; Okiyama, Yoshitetsu; Sakai, Masato; Inoue, Hiroyuki; and Ogata, Syuichiro, to Oki Data Corporation. Electrophotographic recording apparatus having reverse-charged toner removing means. 5,740,493. Cl. 399-71.000.

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Clinton, William P.; McLoughlin, Jon L.; Otal, Anita E.; Parlow, John J.; Phillion, Dennis P.; and Shah, Ajit S. 5,739,140. Cl. 514-269.000.

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Ottesen, Hal Hjalmar; and Smith, Gordon J., to International Business Machines Corporation. Optionally banded disk for use with multiple frequency channel. 5,739,994. Cl. 360-135.000.

Ottesen, Hal Hjalmar: See—

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Ott, Josef; and Reichel-Langer, Karl Heinz, to Grafotec GmbH. Device for cleaning the working surfaces of a printing press in particular blanket washing plant. 5,740,030. Cl. 364-138.000.

Otto, Milton. Safety-device for locking firearms. 5,737,864. Cl. 42-70.110.

Oubrayrie, Jean-Jacques: See—

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Ouchi, Hirofumi: See—

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Ouchi, Koji; Sato, Masaru; and Tanaka, Shigeo, to Sony Corporation. Method for controlling electronic appliance capable of suppressing user's irritation. 5,739,768. Cl. 340-825.220.

Ouchi, Tetsuya, to Brother Kogyo Kabushiki Kaisha. Facsimile machine with a mailbox function. 5,739,918. Cl. 358-403.000.

Ouimette, Donald R., to University of Connecticut. Flat panel detector and image sensor with means for columating and focusing electron beams. 5,739,522. Cl. 250-214.0VT.

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Ozawa, Osamu; Kuroda, Noriaki; Watanabe, Jiro; Ikawa, Masahiro; and Kawazura, Tetsuji, to Yokohama Rubber Co., Ltd., The. Pneumatic tire with air permeation prevention layer. 5,738,158. Cl. 152-510.000.

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Pace, Gary Lee; Grandfield, Walter; and Tay, Wei Len, to Motorola, Inc. Feed-forward RSSI assisted radio frequency amplifier power control. 5,740,524. Cl. 455-232.100.

Pacesetter, Inc.: See—

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Park, Woo Hyun; Shin, Won Sup; Lee, Jae Seung; and Chai, Hee Sang, to Boryung Pharmaceutical Co., Ltd. Treatment of viral infections by administration of α-[1-(3-alkylthio-3-deoxy-2-O-acylglyceryl)]-ω-[5-(9-arabinosylpurinyl)] diphosphates or purine isosters thereof. 5,739,120. Cl. 514-47.000.

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Palmon, Eran, to DTL Data Technologies Ltd. Associative search method for heterogeneous databases with an integration mechanism configured to combine schema-free data models such as a hyperbase. 5,740,421. Cl. 395-604.000.

Pan, Jing-Jong, to E-Tek Dynamics, Inc. Variable polarization beam splitter, combiner and mixer. 5,740,288. Cl. 385-11.000.

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Panthel, Guenter: See—

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Papadas, Constantin; and Guillaumot, Bernard, to SGS-Thomson Microelectronics S.A. Electrically programmable memory cell. 5,740,103. Cl. 365-185.010.

Paradine, Christopher, to International Business Machines Corporation. Data processing system for surfacing a model. 5,739,822. Cl. 345-419.000.

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- Azadegan, Faramarz; Yogeshwar, Jay, Ng, Sheau Bao; Lehmann, David, Tsinberg, Mikhail, Unno, Hiroaki, Mimura, Hideki, Kitamura, Tetsuya, Cookson, Christopher J., Thagard, Greg B., and Rosen, Andrew Drusin, 5,740,311, Cl. 386-112.000.
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- Tsuchiya, Hiroaki, to Mita Industrial Co., Ltd. Paper dust removal device for use in an image forming apparatus. 5,740,498, Cl. 399-98.000.
- Tsuchiya, Keiji, to Canon Kabushiki Kaisha. Information recording method. 5,739,519, Cl. 235-456.000.
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- Wu, Mianxue; Corbin, Normand D.; Fox, Stephen E.; Ellingson, Thomas; and Carman, Lee A., to Norton Company. High permeability grinding wheels. 5,738,697, Cl. 51-296.000.
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- Yao, Jame; Houser, Clarence G.; and Low, William R. Aromatics and/or heavies removal from a methane based feed by condensation and stripping. 5,737,940, Cl. 62-620.000.
- Yao, Meng-Chao; Sweeney, Rosemary; and Fan, Qichang, to Fred Hutchinson Cancer Research Center. Ribosomes as vectors for RNA. 5,739,310, Cl. 536-24.500.
- Yarwood, Richard J.; Kearney, Patrick; and Thompson, Andrew R., to R P Scherer Corporation. Process for preparing solid pharmaceutical dosage forms. 5,738,875, Cl. 424-484.000.
- Yashiro, Haruki; Sasaki, Akira; and Maeda, Kazushige, to Nissan Motor Co., Ltd. Automobile exhaust noise suppressor. 5,739,483, Cl. 181-254.000.
- Yasnogorodskiy, Vladimir; and Hillstrom, David U., to Marketing Displays, Inc. Movable apparatus for installing flexible sign panels. 5,738,294, Cl. 242-396.100.
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- Yasue, Takuya; Yokoyama, Koichiro; Shimomura, Masaki; Kotaka, Toshikazu; Kashiwabara, Kazutoshi; and Kishida, Takeo, to Seiko Epson Corporation. Sheet feeder. 5,738,348, Cl. 271-118.000.
- Yasui, Juro: *See*—
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- Yasui, Ken K., to McDonnell Douglas Corporation. Superplastic forming with direct electrical heating. 5,737,954, Cl. 72-60.000.
- Yasutake, Kenji: *See*—
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- Yazaki Corporation: *See*—
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  - Hanazaki, Hisashi; and Totsuka, Mitsuhiko, 5,739,741, Cl. 337-290.000.
  - Kameyama, Isao, 5,739,465, Cl. 174-50.510.
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- Yazepian, Raymond V. Safety vehicle. 5,738,378, Cl. 280-784.000.
- Ydoate, Edward; and Okada, Goro, to Sandvik Sorting Systems, Inc. Methods and apparatus for establishing a desired positional relationship between random-length articles conveyed in single file. 5,738,202, Cl. 198-460.100.
- Ye, Zhixiong: *See*—
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- Yeap, Gary; Reyes, Alberto; and Tyler, Sean, to Motorola, Inc. Method of generating power vectors for circuit power dissipation simulation having both combinational and sequential logic circuits. 5,740,407, Cl. 395-500.000.
- Yee, Jung Kuan: *See*—
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- Yellin, Frank; and Gosling, James A., to Sun Microsystems, Inc. Bytecode program interpreter apparatus and method with pre-verification of data type restrictions and object initialization. 5,740,441, Cl. 395-704.000.
- Yemini, Evi, to Zag Ltd. Hingeable latch. 5,738,390, Cl. 292-87.000.
- Yen, Chih-Chan, to United Microelectronics Corporation. Expandable arbitration architecture for sharing system memory in a computer system. 5,740,381, Cl. 395-293.000.
- Yeomans, Michael Anthony, to Whitaker Corporation, The. Apparatus for terminating electrical wires. 5,737,830, Cl. 29-753.000.
- Yin, Weiping; Hancock, Paul; and Weiner, Alan, to Motorola Inc. Apparatus for dynamically reading/writing multiple object file formats through use of object code readers/writers interfacing with generalized object file format interface and applications programmers' interface. 5,740,469, Cl. 395-885.000.
- Yoda, Masumi: *See*—
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- Yoh, Aki; Kamon, Kouichi; Ito, Masaaki; Namizuka, Yoshiyuki; Kawamoto, Hiroyuki; and Tone, Takeharu, to Ricoh Company, Ltd. Image processing method and image processing apparatus for converting an inputted color image into a two-color image. 5,740,333, Cl. 395-109.000.
- Yokogawa, Fumihiko; and Hayashi, Hideki, to Pioneer Electronic Corporation. Spindle servo circuit in an apparatus for playing an optical disk having synchronous marks and data marks satisfying certain criteria. 5,740,152, Cl. 369-275.300.
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- Yokoyama, Koichiro: *See*—
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  Arbogast, James W., Deline, James E., Foland, Lafayette D., Kaaret, Thomas W., Klotter, Kevin A., Petrin, Michael J., Smith, William L., and Zielske, Alfred G., 5,739,327, Cl. 544-163.000.
Zierer, Thomas. *See*—
  Marling, Tino-Martin, Schulte Werning, Burkhard, and Zierer, Thomas, 5,738,509, Cl. 431-352.000.
Zimmer Aktiengesellschaft: *See*—
  Brueck, Matthias, and Reitz, Hans, 5,738,835, Cl. 423-210.000.
Zimmer, John, and DiLabio, Michael, to Connector Set Limited Partnership. Motor for toy construction system. 5,738,558, Cl. 446-90.000.
Zimmerman, Scott M., Beeson, Karl W., Hou, Janpu, and Schweyen, John C., to AlliedSignal Inc. Illumination system employing an array of microprisms. 5,739,931, Cl. 359-40.000.
Zimmermann, Hans. *See*—
  Kleinburger, Johann, and Zimmermann, Hans, 5,739,618, Cl. 310-232.000.
Zipp, Christopher: *See*—
  Walpita, Lak M., Chen, Paul N., Sr., Goldberg, Harris A., and Zipp, Christopher, 5,739,193, Cl. 524-413.000.
Zipser, Randall E., White, Dennis L., and Hines, Edward J., to New Holland North America, Inc. Fuel fill device for tractors. 5,738,380, Cl. 280-834.000.
Zittel, Steven A. *See*—
  Aidlin, Samuel S., Aidlin, Stephen A., Cordonnier, Kenneth J., and Zittel, Steven A., 5,738,467, Cl. 406-86.000.
Zitzmann, Alice D. *See*—
  Belke, Robert E., Jr., Todd, Michael G., Glovatsky, Andrew Z., and Zitzmann, Alice D., 5,738,797, Cl. 216-16.000.
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  Niedospial, John J., Jr., Fisher, Rebecca V., Callan, Lawrence, Ropiak, Irene K., Quirico, Charles R., Snyder, Fred L., Eakins, Michael N., and Zodda, Julius P., 5,738,671, Cl. 604-408.000.
Zomp, John M. *See*—
  Goutzoulis, Akis P., and Zomp, John M., 5,739,938, Cl. 359-187.000.
Zotter, Johann, Leichtfried, Friedrich, Hoelzl, Klaus, Freisinger, Henry, Himmetsberger, Alois, Wawra, Reinhold, and Wuerthner, Hubert, to HTM Sport- und Freizeitgeraete Aktiengesellschaft. Ski binding. 5,738,364, Cl. 280-633.000.
Zschiesche, Ruth. *See*
  Lutter, Heinz-Dieter, Zschiesche, Ruth, Gabbert, Hans Jurgen, Hasse, Volker; and Fimmel, Karl, 5,739,173, Cl. 521-99.000.
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  Pu, Bryan, Shan, Hongching; Ke, Kuang-Han, Welch, Michael, Sherstinsky, Semyon, Mak, Alfred, Chen, Ling, Zhang, Sue, Zuniga, Leonel Arturo, and Wilson, Samuel C., 5,740,009, Cl. 361-234.000.
Zurecki, Zbigniew, Kaiser, John Joseph, and Green, John Lewis, to Air Products and Chemicals, Inc. Process and apparatus for shrouding a turbulent gas jet. 5,738,281, Cl. 239-290.000.
Zvonar, John: *See*—
  Wang, Qingsu, Zvonar, John, and Simpson, Mike, 5,740,429, Cl. 395-615.000.
ZymoGenetics, Inc. *See*—
  Segerson, Thomas P., Kinzie, J. Mark, Mulvihill, Eileen R., Saugstad, Julie A., and Westbrook, Gary L., 5,738,999, Cl. 435-7.210.
3DFX Interactive, Incorporated. *See*—
  Tarolli, Gary, Sellers, Scott, and Margeson, James E., III, 5,740,343, Cl. 395-130.000.
3V Inc.: *See*—
  Raspanti, Giuseppe, and Malpede, Alverio, 5,738,842, Cl. 424-59.000.

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LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14th DAY OF APRIL, 1998

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Bayer Aktiengesellschaft: *See—*
Kaspar, Vaclav, Brandt, Horst, and Popp, Gottfried, RE. 35,768, Cl. 8-526.000.

Brandt, Horst: *See—*
Kaspar, Vaclav, Brandt, Horst, and Popp, Gottfried, RE. 35,768, Cl. 8-526.000.

Cedoz, Roger T.: *See—*
Grime, Thomas E., Cedoz, Roger T.; Wheeler, Roger D., and Schaupp, John F., RE. 35,769, Cl. 239-72.000

Choay, Jean, deceased (by Françoise Choay, Pauline Choay, Corinne Choay Verdet, heirs): *See—*
Lormeau, Jean Claude; Petitou, Maurice; Choay, Jean, deceased, RE. 35,770, Cl. 514-56.000.

Choay, S.A.: *See—*
Lormeau, Jean Claude; Petitou, Maurice; Choay, Jean, deceased, RE. 35,770, Cl. 514-56.000.

Giesen, Franz Joseph, to H. B. Fuller Licensing & Financing, Inc. Process for producing a fine pored silicone foam. RE. 35,771, Cl. 521-77.000.

Grime, Thomas E.; Cedoz, Roger T.; Wheeler, Roger D.; and Schaupp, John F., to Ransburg Corporation. Spray gun having trigger overtravel protection and maximum flow adjustment knob warning. RE. 35,769, Cl. 239-72.000

H. B. Fuller Licensing & Financing, Inc.: *See—*
Giesen, Franz Joseph, RE. 35,771, Cl. 521-77.000.

Kaspar, Vaclav, Brandt, Horst; and Popp, Gottfried, to Bayer Aktiengesellschaft. Process for the preparation of improved dyestuff granules from suspension containing a propylene oxide-ethylene oxide copolymer. RE. 35,768, Cl. 8-526.000

Lormeau, Jean Claude; Petitou, Maurice, Choay, Jean, deceased (by Françoise Choay, Pauline Choay, Corinne Choay-Verdet, heirs), to Choay, S.A. Oligosaccharides having anti-Xa activity and pharmaceutical compositions containing them. RE. 35,770, Cl. 514-56.000.

oise Choay, Franç, Pauline Choay, Corinne Choay-Verdet, heirs. *See—*
Lormeau, Jean Claude; Petitou, Maurice, Choay, Jean, deceased, RE. 35,770, Cl. 514-56.000

Petitou, Maurice: *See—*
Lormeau, Jean Claude, Petitou, Maurice; Choay, Jean, deceased, RE. 35,770, Cl. 514-56.000

Popp, Gottfried: *See—*
Kaspar, Vaclav; Brandt, Horst; and Popp, Gottfried, RE. 35,768, Cl. 8-526.000.

Ransburg Corporation: *See—*
Grime, Thomas E., Cedoz, Roger T.; Wheeler, Roger D.; and Schaupp, John F., RE. 35,769, Cl. 239-72.000.

Schaupp, John F.: *See—*
Grime, Thomas E., Cedoz, Roger T.; Wheeler, Roger D., and Schaupp, John F., RE. 35,769, Cl. 239-72.000

Wheeler, Roger D.: *See—*
Grime, Thomas E.; Cedoz, Roger T.; Wheeler, Roger D., and Schaupp, John F., RE. 35,769, Cl. 239-72.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Alston, Kevin G., to Precision Solar Controls Inc. Led lamp including refractive lens element. B1 174,649, Cl. 362-244.000.

Anthony, James R.: *See—*
Bougher, Jerry D., Anthony, James R., Williams, Jeffrey L., Homeier, Ronald F.; and Lortz, Allan R., B1 919,484, Cl. 297-474.000

Bayer Aktiengesellschaft: *See—*
Sommerfeld, Claus-Dieter, Lamberts, Wilhelm, Bielefeldt, Dietmar, Marhold, Albrecht, and Negele, Michael, B1 496,866, Cl. 521-131.000.

Bennett, Linda K., and Feldman, Joseph, to Mattel, Inc. Doll having conductive outer skin areas and internal battery supply. B1 466,181, Cl. 446-297.000.

Bezdon, Ronald J., Shackle, Peter W., Russell, Randy G., and Crouse, Kent E., to Energy Savings, Inc. Self-dimming electronic ballast. B1 396,155, Cl. 315-291.000.

Bielefeldt, Dietmar: *See—*
Sommerfeld, Claus-Dieter, Lamberts, Wilhelm; Bielefeldt, Dietmar; Marhold, Albrecht; and Negele, Michael, B1 496,866, Cl. 521-131.000.

Bougher, Jerry D., Anthony, James R.; Williams, Jeffrey L., Homeier, Ronald F., and Lortz, Allan R., to Indiana Mills & Manufacturing, Inc. Anti-cinch seat belt system. B1 919,484, Cl. 297-474.000

Bullock, Joseph J., III, to Portola Packaging, Inc. Neck finish for plastic containers. B1 496,066, Cl. 215-320.000.

Carl, Stewart R.: *See—*
Murray, William R., Jr., Carl, Stewart R., and Zarnowitz, Arthur H., B1 502,989, Cl. 70-58.000

Core-Vent Corporation: *See—*
Niznick, Gerald A., B1 960,381, Cl. 433-174.000.

Crossman, David D.: *See—*
Marshall, Jeremy; and Crossman, David D., B1 487,748, Cl. 606-182.000.

Crouse, Kent E.: *See—*
Bezdon, Ronald J., Shackle, Peter W., Russell, Randy G., and Crouse, Kent E., B1 396,155, Cl. 315-291.000

Danforth Biomedical, Inc.: *See—*
Kraus, Jeff, and Lashinski, Robert D., B1 209,728, Cl. 604-96.000

Edvardsson, Kurt O., to Saab Marine Electronics Aktiebolag. Method and apparatus for measuring the level of a fluent material in a container. B1 641,139, Cl. 342-124.000.

Energy Savings, Inc.: *See—*
Bezdon, Ronald J., Shackle, Peter W., Russell, Randy G., and Crouse, Kent E., B1 396,155, Cl. 315-291.000.

Exergen Corporation. *See—*
Pompei, Francesco, and Ternullo, Janus, B1 229,612, Cl. 250-349.000.

Feldman, Joseph: *See—*
Bennett, Linda K., and Feldman, Joseph, B1 466,181, Cl. 446-297.000.

Homeier, Ronald F.: *See—*
Bougher, Jerry D., Anthony, James R., Williams, Jeffrey L., Homeier, Ronald F.; and Lortz, Allan R., B1 919,484, Cl. 297-474.000

Indiana Mills & Manufacturing, Inc.: *See—*
Bougher, Jerry D., Anthony, James R.; Williams, Jeffrey L., Homeier, Ronald F., and Lortz, Allan R., B1 919,484, Cl. 297-474.000.

Kensington Microware Limited: *See—*
Murray, William R., Jr., Carl, Stewart R., and Zarnowitz, Arthur H., B1 502,989, Cl. 70-58.000

Kraus, Jeff, and Lashinski, Robert D., to Danforth Biomedical, Inc. Low profile, high performance interventional catheters. B1 209,728, Cl. 604-96.000

Lamberts, Wilhelm: *See—*
Sommerfeld, Claus-Dieter, Lamberts, Wilhelm, Bielefeldt, Dietmar; Marhold, Albrecht; and Negele, Michael, B1 496,866, Cl. 521-131.000.

Lashinski, Robert D.: *See—*
Kraus, Jeff; and Lashinski, Robert D., B1 209,728, Cl. 604-96.000

Lortz, Allan R.: *See—*
Bougher, Jerry D.; Anthony, James R., Williams, Jeffrey L., Homeier, Ronald F., and Lortz, Allan R., B1 919,484, Cl. 297-474.000.

Marhold, Albrecht: *See—*
Sommerfeld, Claus-Dieter, Lamberts, Wilhelm, Bielefeldt, Dietmar; Marhold, Albrecht, and Negele, Michael, B1 496,866, Cl. 521-131.000.

Marshall, Jeremy, and Crossman, David D., to Owen Mumford Limited. Blood sampling device. B1 487,748, Cl. 606-182.000

Masco VT, Inc.: *See—*
Pinkhasov, Eduard, B1 609,564, Cl. 427-580.000.

Matsen, Frederick A., III, to University of Washington, The. Method of bone preparation for prosthetic fixation. B1 037,437, Cl. 623-16.000.

Mattel, Inc.: *See—*
Bennett, Linda K., and Feldman, Joseph, B1 466,181, Cl. 446-297.000

Murray, William R., Jr., Carl, Stewart R.; and Zarnowitz, Arthur H., to Kensington Microware Limited. Computer physical security device. B1 502,989, Cl. 70-58.000.

Negele, Michael: *See—*
Sommerfeld, Claus-Dieter; Lamberts, Wilhelm, Bielefeldt, Dietmar, Marhold, Albrecht, and Negele, Michael, B1 496,866, Cl. 521-131.000

Niznick, Gerald A., to Core-Vent Corporation. Screw-type dental implant anchor. B1 960,381, Cl. 433-174.000

Owen Mumford Limited: *See—*
Marshall, Jeremy, and Crossman, David D., B1 487,748, Cl. 606-182.000.

Pinkhasov, Eduard, to Masco VT, Inc. Method of and apparatus for the coating of a substrate with material electrically transformed into a vapor phase. B1 609,564, Cl. 427-580.000

Pompei, Francesco; and Ternullo, Janus, to Exergen Corporation. Radiation detector with remote temperature reference. B1 229,612, Cl. 250-349.000

Portola Packaging, Inc.: *See—*
Bullock, Joseph J., III, B1 496,066, Cl. 215-320.000

Precision Solar Controls Inc.: *See—*
Alston, Kevin G., B1 174,649, Cl. 362-244.000.

Russell, Randy G.: *See—*
Bezdon, Ronald J.; Shackle, Peter W.; Russell, Randy G.; and Crouse, Kent E., B1 396,155, Cl. 315-291.000

Saab Marine Electronics Aktiebolag: *See—*
Edvardsson, Kurt O., B1 641,139, Cl. 342-124.000.

Shackle, Peter W.: *See—*
Bezdon, Ronald J.; Shackle, Peter W., Russell, Randy G., and Crouse, Kent E., B1 396,155, Cl. 315-291.000

Sommerfeld, Claus-Dieter; Lamberts, Wilhelm, Bielefeldt, Dietmar, Marhold, Albrecht, and Negele, Michael, to Bayer Aktiengesellschaft. C_3 to C_4 polyfluoroalkanes propellants. B1 496,866, Cl. 521-131.000

Sumitomo Electric Industries, Ltd.: *See—*
Yuto, Masao; and Suzuki, Yoichi, B1 547,328, Cl. 264-45.900.

Suzuki, Yoichi: *See—*
Yuto, Masao; and Suzuki, Yoichi, B1 547,328, Cl. 264-45.900

Ternullo, Janus. *See—*
Pompei, Francesco; and Ternullo, Janus, B1 229,612, Cl. 250-349.000.

University of Washington, The: *See—*
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Williams, Jeffrey L.: *See—*
Bougher, Jerry D., Anthony, James R., Williams, Jeffrey L.; Homeier, Ronald F.; and Lortz, Allan R., B1 919,484, Cl. 297-474.000.

Yuto, Masao; and Suzuki, Yoichi, to Sumitomo Electric Industries, Ltd. Method for producing foamed plastic insulator. B1 547,328, Cl. 264-45.900.

Zarnowitz, Arthur H.: *See—*
Murray, William R., Jr.; Carl, Stewart R., and Zarnowitz, Arthur H., B1 502,989, Cl. 70-58.000

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Albertsson, Stig L. Electric golf cart. 393,511, Cl. D34-15.000

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Aprica Kassai Kabushikikaisha: *See—*
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Arnette, Gregory F., to Bausch & Lomb Incorporated. Sunglasses. 393,477, Cl. D16-326.000

Attitudes In Dressing, Inc.: *See—*
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Aura Systems, Inc.: *See—*
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Avar, Eric P., to Nike, Inc. Element of a shoe upper. 393,351, Cl. D2-972.000

Avent, Michael A., to Nike, Inc. Side portion of a shoe. 393,350, Cl. D2-972.000

Avent, Michael A., to Nike, Inc. Side portion of a shoe upper. 393,352, Cl. D2-972.000.

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Backus, Peter P., to Nike, Inc. Portion of a shoe upper. 393,349, Cl. D2-972.000.

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Barbeau, Stefane Erhard; Vandenbelt, Rudy Anthony, Sirois, Michael Georges, and Anderson, Troy Gene, to Headwaters Research & Development, Inc. Collectable sound card having digitally prerecorded natural and/or other sounds stored therein. 393,459, Cl. D14-117.000.

Bargagli Stoffi, Carlo, to San Giacomo, N.A., Ltd. Headboard. 393,385, Cl. D6-505.000

BASF Corporation: *See—*
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Baucom, Allan Scott: *See—*
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Bries, James L., Gaston, Johannes N., VanOrnum, Douglas J., Raber, Paul E. and Pieper, Pauline A., to Minnesota Mining and Manufacturing Company. Picture hanger. 393,414, Cl. D8-373.000

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- Cessor, Susan D. *See*—
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- Chapman, Paulette E.. *See*—
  - Cunitz, Robert J.; Waters Deppa, Shelley; Lightfoot, William P., Chapman, Paulette E.; and Long, Victor E., 393,487, Cl. D20-25.000
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- Christy, Michael David, to Rexam Industrial Containers Limited. Container. 393,520, Cl. D34-39.000
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  - Singer, Richard; Pandorf, Robert. Chu, Robin, Edwards, Mark, Ammon, James Gilbert, and Farmer, Daniel, 393,449, Cl. D14-102.000.
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- Clegg, Glenn Matthew, and Sharon, Arie Nissan, to Clegg, Glenn M. Five point star shaped hat. 393,345, Cl. D2-869.000.
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- Connector Set Limited Partnership: *See*—
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- Cooper, Aaron Alexander Carroll, to Nike, Inc. Portion of a shoe. 393,356, Cl. D2-972.000.
- Cooper, Aaron Alexander Carroll, to Nike, Inc. Portion of a shoe. 393,357, Cl. D2-972.000.
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- Covey, Michael Sean M., to Franklin Covey Co. Page finder with single insert pocket. 393,483, Cl. D19-32.000.
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[illegible]	5,737,833
840	5,737,834
[illegible]	5,737,835
884	[illegible]
888.047	[illegible]

889.5	5,737,836
890	5,737,839
890.032	5,737,840

CLASS 30

161	5,737,841
280	5,737,842
391	5,737,843

CLASS 33

194	5,737,844
545	5,737,845

CLASS 34

71	5,737,846
97	5,737,847
114	5,737,848
136	5,737,849
380	5,737,850
420	5,737,851
528	5,737,852

CLASS 36

11.5	5,737,853
50.1	5,737,854
61	5,737,855
62	5,737,856
77 R	5,737,857
128	5,737,858

CLASS 37

389	5,737,859

CLASS 40

406	5,737,860
505	5,737,861
606	5,737,862

CLASS 42

51	5,737,863
70.11	5,737,864
75.02	5,737,865
90	5,737,866

CLASS 43

17.6	5,737,867
44.92	5,737,868
100	5,737,869
107	5,737,870

CLASS 44

321	5,738,692
328	5,737,871
429	5,738,693
553	5,738,694

CLASS 47

57.6	5,737,872
66.6	5,737,873

CLASS 49

67	5,737,874
360	5,737,875
	5,737,876
445	5,737,877
462	5,737,878

CLASS 51

295	5,738,695
296	5,738,696
	5,738,697
309	5,738,698

CLASS 52

12	5,737,879
79.1	5,737,880
90.1	5,737,881
93.2	5,737,882
169.9	5,737,883
187	5,737,884
202	5,737,885
282.2	5,737,887
[illegible]	5,737,888
396.02	5,737,889
455	5,737,890
469	5,737,891
	5,737,892
[illegible]	5,737,893
520	5,737,894
[illegible]	5,737,895
[illegible]	5,737,896
[illegible]	5,737,897

CLASS 53

48.1	5,737,898
155	5,737,899
295	5,737,900
446	5,737,901
475	5,737,902
	5,737,903
502	5,737,904
512	5,737,905
	5,737,906

CLASS 54

37.1	5,737,907

CLASS 55

242	5,738,699
385.3	5,738,700

CLASS 56

235	5,737,908

CLASS 57

218	5,737,909

CLASS 59

35.1	5,737,910

CLASS 60

39.02	5,737,911
39.04	5,737,912
39.31	5,737,913
226.1	5,737,914
251	5,737,915
276	5,737,916
	5,737,917
297	5,737,918
403	5,737,919
407	5,737,920
740	5,737,921
752	5,737,922

CLASS 62

[illegible]	5,737,923
6	5,737,924
	5,737,925
50.2	5,737,926
51.1	5,737,927
59	5,737,928
84	5,737,929
117	5,737,930
126	5,737,931
[illegible]	5,737,932
[illegible]	5,737,933
176.6	5,737,934
185	5,737,935
298	5,737,936
303	5,737,937
475	5,737,938
441	5,737,939
620	5,737,940
656	5,737,941

CLASS 65

29.12	5,738,701
[illegible]	5,738,702

CLASS 66

168	5,737,942
[illegible] R	5,737,943

CLASS 68

[illegible]	5,737,944
[illegible]	5,737,945

CLASS 70

54	5,737,946
58	B1 [illegible]
63	5,737,947
104	5,737,948
209	5,737,949
[illegible] R	5,737,950
456 R	5,737,951

CLASS 71

[illegible]	[illegible]

CLASS 72

55	5,737,952
58	5,737,953
60	5,737,954
[illegible]	5,737,955
[illegible]	5,737,956
[illegible]	5,737,957

356	5,737,958
362	5,737,959
405.16	5,737,960

CLASS 73

1 E	5,739,410
1.38	5,737,961
12.13	5,739,411
23.3	5,739,412
23.31	5,739,413
	5,739,414
29.01	5,739,416
35.03	5,739,417
35.11	5,739,418
37	5,739,419
40.5 R	5,739,420
49.7	5,739,421
61.55	5,739,422
64.54	5,739,423
86	5,739,424
105	5,739,425
117	5,739,427
146	5,739,428
149	5,739,426
167	5,737,962
196	5,739,429
290 V	5,737,963
335.05	5,739,430
509	5,739,431
579	5,739,432
660	5,739,433
730	5,739,434
784	5,739,435
841	5,739,436
861.05	5,739,437
862.391	5,739,438
864	5,739,439
864.63	5,739,440
866.5	5,739,441
	5,739,442
	5,739,443

CLASS 74

7 E	5,737,964
33	5,737,965
44	5,737,966
421 A	5,737,968
477	5,737,969
492	5,737,970
493	5,737,971
502.1	5,737,972
502.4	5,737,973
551.1	5,737,974
551.3	5,737,967
567	5,737,975
579 E	5,737,976
594.6	5,737,977
606 R	5,737,978
731.1	5,737,979

CLASS 75

304	5,738,704
337	5,738,705

CLASS 76

[illegible]	5,737,980

CLASS 81

[illegible]	5,737,981
58.3	5,737,982
479	5,737,983

CLASS 82

157	5,737,984
[illegible]	5,737,985

CLASS 83

13	5,737,986
53	5,737,987
367	5,737,988
675	5,737,989
707	5,737,990

CLASS 84

241	5,739,444
[illegible]	5,739,445
377	5,739,446
[illegible]	5,739,447
[illegible]	5,739,448
[illegible]	5,739,449
462	5,739,450
609	5,739,451
610	5,739,452

615	5,739,453
	5,739,454
	5,739,455
622	5,739,456
743	5,739,457

CLASS 87

9	5,737,991

CLASS 89

36.02	5,739,458

CLASS 91

59	5,737,992
361	5,737,993
	5,737,994
375 R	5,737,995

CLASS 92

12.2	5,737,996
71	5,737,997
85 B	5,737,998
158	5,737,999
165 R	5,738,000

CLASS 95

14	5,738,706
15	5,738,707
56	5,738,708
98	5,738,709
107	5,738,710
268	5,738,711
27[illegible]	5,738,712

CLASS 96

[illegible]	5,738,713

CLASS 99

283	5,738,001
293	5,738,002
513	5,738,003
533	5,738,004

CLASS 100

45	5,738,005
233	5,738,006
327	5,738,007

CLASS 101

35	5,738,008
129	5,738,009
232	5,738,010
368	5,738,011
415.1	5,738,012
463.1	5,738,013
477	5,738,014
	5,738,015

CLASS 102

[illegible]	5,739,459
324	5,739,460
338	5,739,461
342	5,739,462

CLASS 104

107	5,738,016
250	5,738,017

CLASS 106

31.26	5,738,715
[illegible]	5,738,716
[illegible]	5,738,714
456	5,738,717
481	5,738,718
498	5,738,719

CLASS 108

23	5,738,018
[illegible]	5,738,019

CLASS 109

51	5,738,020

CLASS 110

[illegible]	5,738,021
[illegible] R	5,738,022
[illegible]	5,738,023
345	5,738,024
346	5,738,025

CLASS 112

[illegible]	[illegible]
[illegible]	[illegible]

[illegible]	5,738,028
470.07	5,738,029
475.23	5,738,030

CLASS 114

102	5,738,031
103	5,738,032
219	5,738,033
243	5,738,034
255	5,738,035
	5,738,036

CLASS 117

94	5,738,720
104	5,738,721

CLASS 118

67	5,738,723
123	5,738,724
318	5,738,725
410	5,738,726
631	5,738,727
638	5,738,728
726	5,738,729

CLASS 119

72	5,738,037
73	5,738,038
77	5,738,039
165	5,738,040
464	5,738,042
497	5,738,043
[illegible]	5,738,044
751	5,738,045
[illegible]	5,738,046
869	5,738,047

CLASS 123

41.1	5,738,048
41.15	5,738,049
65 VD	5,738,050
80 BA	5,738,051
90.15	5,738,053
	5,738,054
[illegible]	5,738,055
	5,738,056
[illegible]	5,738,052
[illegible] B	5,738,058
[illegible]	5,738,059
[illegible]	5,738,060
193.1	5,738,061
193.5	5,738,057
195 R	5,738,062
198 D	5,738,063
198 E	5,738,064
242	5,738,065
254	5,738,066
[illegible]	5,738,068
342	5,738,069
352	5,738,070
357	5,738,071
399	5,738,072
[illegible]	5,738,073
425	5,738,074
446	5,738,075
527	5,738,076
569	[illegible]
585	5,738,077
587	5,738,078

CLASS 124

66	[illegible]
86	[illegible]

CLASS 126

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

CLASS 128

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

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UMI

661.09	5,738,097
662.03	5,738,098
	5,738,099
662.06	5,738,100
665	5,738,101
671	5,738,102
672	5,738,103
706	5,738,104
708	5,738,105
719	5,738,106
734	5,738,107
743	5,738,108
756	5,738,109
769	5,738,110
849	5,738,111
869	5,738,112
898	5,738,113
	5,738,114

CLASS 131

88	5,738,115
173	5,738,116
249	5,738,117
328	5,738,118
331	5,738,119
335	5,738,120

CLASS 132

113	5,738,121
290	5,738,122
318	5,738,123
320	5,738,067
323	5,738,124
	5,738,125

CLASS 134

2	5,738,127
34	5,738,730
95.2	5,738,128

CLASS 135

19.5	5,738,129
88.13	5,738,130

CLASS 136

249	5,738,731
255	5,738,732

CLASS 137

12	5,738,136
15	5,738,131
43	5,738,132
115.26	5,738,133
118.07	5,738,134
119.06	5,738,135
132	5,738,137
245	5,738,138
312	5,738,139
369	5,738,140
414	5,738,141
596.17	5,738,142
614.03	5,738,143
	5,738,144
878	5,738,145

CLASS 138

97	5,738,146
112	5,738,147
120	5,738,148
134	5,738,149

CLASS 139

1 C	5,738,150
383 AA	5,738,151

CLASS 140

93.4	5,738,152

CLASS 141

83	5,738,153
86	5,738,154

CLASS 144

24.12	5,738,155
373	5,738,156

CLASS 148

304	5,738,733
324	5,738,734
417	5,738,735
421	5,738,736
564	5,738,737
603	5,738,738
641	5,738,739

CLASS 150

160	5,738,157

CLASS 152

510	5,738,158
527	5,738,740

CLASS 156

71	5,738,741
149	5,738,742
153	5,738,743
159	5,738,744
167	5,738,745
239	5,738,746
245	5,738,747
253	5,738,748
312	5,738,749
325	5,738,750
345	5,738,751
	5,738,752
379.8	5,738,753
555	5,738,754
566	5,738,755
627.1	5,738,756
644.1	5,738,757

CLASS 160

84.01	5,738,159
84.06	5,738,160
201	5,738,161

CLASS 162

30.11	5,738,758
135	5,738,759
193	5,738,760

CLASS 164

5	5,738,162
493	5,738,163

CLASS 165

45	5,738,164
80.2	5,738,165
104.21	5,738,166
122	5,738,167
151	5,738,168
152	5,738,169

CLASS 166

228	5,738,170
289	5,738,171
344	5,738,172
385	5,738,173

CLASS 169

46	5,738,174
	5,738,175

CLASS 172

274	5,738,176

CLASS 173

178	5,738,177

CLASS 174

35 R	5,739,463
50	5,739,464
50.51	5,739,465
50.61	5,739,466
60	5,739,467
65 G	5,739,468
72 A	5,739,469
97	5,739,470
102 R	5,739,471
107	5,739,472
121 A	5,739,473
135	5,739,474
153 G	5,739,475
255	5,739,476

CLASS 175

61	5,738,178
104	5,738,722

CLASS 177

126	5,739,477
130	5,739,478

CLASS 178

19	5,739,479

CLASS 180

69.21	5,738,179
291	5,738,180
400	5,738,181
422	5,738,182
444	5,738,183

CLASS 181

144	5,739,480
148	5,739,481
210	5,739,482
254	5,739,483
262	5,738,184
264	5,739,484
282	5,739,485

CLASS 182

102	5,738,185
195	5,738,186

CLASS 187

222	5,738,187

CLASS 188

24.19	5,738,188
196 BA	5,738,189
280	5,738,190
318	5,738,191

CLASS 192

43.1	5,738,192
45	5,738,193
48.4	5,738,194
53.31	5,738,195
53.331	5,738,196
64	5,738,197
113.36	5,738,198

CLASS 193

35 R	5,738,199

CLASS 194

348	5,738,200

CLASS 198

333	5,738,201
460.1	5,738,202
463.3	5,738,203
732	5,738,204
852	5,738,205

CLASS 200

5 A	5,739,486
5 E	5,739,487
17 R	5,739,488
	5,739,489
38 B	5,739,490
43.16	5,738,206
61.54	5,739,491
	5,739,492
61.58 R	5,739,493
61.86	5,739,494

CLASS 203

10	5,738,761
11	5,738,762
57	5,738,763
	5,738,764

CLASS 204

155	5,738,766
192.12	5,738,767
192.23	5,738,765
192.38	5,738,768
285	5,738,769
298.12	5,738,770
298.24	5,738,771
406	5,738,772
411	5,738,773
418	5,738,774
632	5,738,775

CLASS 205

118	5,738,776
665	5,738,777
701	5,738,778

CLASS 206

268	5,738,207
315.4	5,738,208
316.2	5,738,211
362	5,738,212
364	5,738,213
373	5,738,214
397	5,738,209
416	5,738,210
423	5,738,215
523	5,738,216
549	5,738,217
583	5,738,218
706	5,738,219
726	5,738,220
768	5,738,221

CLASS 208

143	5,738,779

CLASS 209

7	5,738,222
307	5,738,223
588	5,738,224

CLASS 210

143	5,738,780
170	5,738,781
171	5,738,782
198.2	5,738,783
206	5,738,784
232	5,738,785
474	5,738,786
498	5,738,787
507	5,738,788
610	5,738,789
635	5,738,790
638	5,738,791
651	5,738,792
671	5,738,793
728	5,738,794
730	5,738,795
806	5,738,796

CLASS 211

1.57	5,738,225
41.17	5,738,226
60.1	5,738,227
69.1	5,738,228
70.2	5,738,229
149	5,738,230

CLASS 215

44	5,738,231
228	5,738,232
247	5,738,233
320	B1 496,066
386	5,738,234

CLASS 216

16	5,738,797
24	5,738,798
27	5,738,799
99	5,738,800

CLASS 218

62	5,739,495

CLASS 219

56.22	5,739,496
69.14	5,739,497
78.15	5,739,498
90	5,739,499
117.1	5,739,500
	5,739,501
121.71	5,739,502
137 WM	5,739,503
494	5,739,504
	5,739,505
645	5,739,506

CLASS 220

4.12	5,738,235
253	5,738,236
269	5,738,237
337	5,738,238
407	5,738,239
410	5,738,240
532	5,738,241
735	5,738,242

CLASS 221

2	5,738,243
26	5,738,244
207	5,738,245
222	5,738,246

CLASS 222

77	5,738,247
129.2	5,738,248
148	5,738,249
153.13	5,738,250
153.14	5,738,251
376	5,738,252
389	5,738,253
400.8	5,738,254

CLASS 223

92	5,738,255

CLASS 224

185	5,738,256
200	5,738,257
324	5,738,258
493	5,738,259
515	5,738,260
533	5,738,261
572	5,738,262
627	5,738,263

CLASS 226

177	5,738,264

CLASS 227

67	5,738,265
128	5,738,266

CLASS 228

13	5,738,267
103	5,738,268
193	5,738,270
248.1	5,738,269

CLASS 229

67.4	5,738,271
109	5,738,272
117.13	5,738,273
301	5,738,274

CLASS 235

145 R	5,739,507
375	5,739,508
379	5,739,509
380	5,739,510
	5,739,511
	5,739,512
383	5,739,513
435	5,739,514
441	5,739,515
	5,739,516
449	5,739,517
454	5,739,518
456	5,739,519
483	5,739,520

CLASS 236

12.21	5,738,275
92 C	5,738,276

CLASS 237

66	5,738,277

CLASS 238

377	5,738,278
382	5,738,279

CLASS 239

17	5,738,280
72	RE 35,769
290	5,738,281
492	5,738,282
533.3	5,738,283
585.4	5,738,284
654	5,738,285

CLASS 241

24.14	5,738,286
101.76	5,738,287
207	5,738,288
266	5,738,289

CLASS 242

18 PW	5,738,290
47.01	5,738,291
247	5,738,292
374	5,738,293
396.1	5,738,294
419.1	5,738,295
566	5,738,296
594.3	5,738,297

CLASS 244

1 N	5,738,298
1 R	5,738,299
17.13	5,738,300
17.19	5,738,301
23 R	5,738,302
82	5,738,331
129.1	5,738,303
135 B	5,738,304
137.2	5,738,305
	5,738,306
152	5,738,307
169	5,738,308
171	5,738,309
195	5,738,310

CLASS 246

168	5,738,311

CLASS 248

68.1	5,738,312
74.2	5,738,313
97	5,738,314
	5,738,315
123.11	5,738,316
176.1	5,738,317
188.5	5,738,318
215	5,738,319
242	5,738,320
274.1	5,738,321
278.1	5,738,322
288.11	5,738,323
317	5,738,324
346.01	5,738,325
405	5,738,326
419	5,738,327
500	5,738,328
523	5,738,329
632	5,738,330

CLASS 250

205	5,739,521
214 VT	5,739,522
221	5,739,523
227.11	5,739,524
	5,739,525
227.14	5,739,526
234	5,739,527
251	5,739,528
287	5,739,529
298	5,739,530
334	5,739,531
338.2	5,739,532
338.3	5,739,533
339.11	5,739,534
339.13	5,739,535
341.2	5,739,536
341.8	5,739,537
345	5,739,538
349	B1 229,612
363.04	5,739,539
	5,739,540
370.07	5,739,541
483.1	5,739,542

CLASS 251

45	5,738,332
61.2	5,738,333
149.1	5,738,334
149.4	5,738,335
304	5,738,336
333	5,738,337

CLASS 252

62	5,738,801
62.56	5,738,802
299.01	5,738,804
299.1	5,738,803
311	5,738,805
582	5,738,806

CLASS 254

134.4	5,738,338
267	5,738,339
337	5,738,340

CLASS 256

10	5,738,341
65	5,738,342

CLASS 257

14	5,739,543
25	5,739,544
40	5,739,545
48	5,739,546
59	5,739,547
	5,739,548
	5,739,549
89	5,739,552
94	5,739,553
103	5,739,554
157	5,739,555
182	5,739,556
192	5,739,557
	5,739,558
	5,739,559
211	5,739,560
257	5,739,561
291	5,739,562
295	5,739,563
298	5,739,564
301	5,739,565
315	5,739,566
316	5,739,567
	5,739,568
321	5,739,569
355	5,739,570
360	5,739,571
371	5,739,572
384	5,739,573
401	5,739,574
513	5,739,575
532	5,739,576
536	5,739,577
578	5,739,578
635	5,739,579
647	5,739,580
668	5,739,581
676	5,739,582
697	5,739,584
698	5,739,585
712	5,739,586
758	5,739,587
763	5,739,589
775	5,739,590
780	5,739,591
782	5,739,588

CLASS 261

28	5,738,807
104	5,738,808

CLASS 264

40.5	5,738,809
45.9	B1 547,328
46.7	5,738,810
82	5,738,811
102	5,738,812
130	5,738,813
171.26	5,738,814
323	5,738,815
553	5,738,816
603	5,738,817
624	5,738,818

635	5,738,819
665	5,738,820

CLASS 266

44	5,738,821
199	5,738,822
242	5,738,823

CLASS 267

219	5,738,343

CLASS 269

75	5,738,344
266	5,738,345

CLASS 270

58.07	5,738,346

CLASS 271

106	5,738,347
118	5,738,348
242	5,738,349

CLASS 273

139	5,738,350
	5,738,351
148 B	5,738,352
244	5,738,353
249	5,738,354
457	5,738,355

CLASS 277

27	5,738,356
208	5,738,357
544	5,738,358
606	5,738,359

CLASS 280

11.22	5,738,360
12.14	5,738,361
166	5,738,362
491.1	5,738,363
633	5,738,364
651	5,738,365
728.2	5,738,366
728.3	5,738,367
730.1	5,738,368
731	5,738,369
	5,738,370
736	5,738,371
	5,738,372
740	5,738,373
741	5,738,374
761	5,738,376
777	5,738,377
784	5,738,378
789	5,738,379
834	5,738,380

CLASS 283

67	5,737,886
81	5,738,381
	5,738,382
	5,738,383

CLASS 285

114	5,738,384
226	5,738,385
284.1	5,738,386
322	5,738,387
382	5,738,388

CLASS 292

63	5,738,389
87	5,738,390
198	5,738,391
201	5,738,392
216	5,738,393
	5,738,394
230	5,738,395
256.5	5,738,396
258	5,738,397

CLASS 294

1.1	5,738,398
1.3	5,738,399
19.1	5,738,400
171	5,738,401

CLASS 296

118	5,738,402
136	5,738,403
180.1	5,738,404
196	5,738,405

CLASS 297

200	5,738,406
216.12	5,738,407
239	5,738,408
265.1	5,738,409
354.12	5,738,410
378.12	5,738,411
408	5,738,412
410	5,738,413
440.1	5,738,414
474	B1 919,484

CLASS 299

104	5,738,415

CLASS 303

7	5,738,416
	5,738,417
15	5,738,418
115.4	5,738,419
146	5,738,420

CLASS 305

144	5,738,421

CLASS 307

9.1	5,739,592
43	5,739,593
64	5,739,594
	5,739,595
66	5,739,596
85	5,739,597
652	5,739,598

CLASS 310

14	5,739,599
26	5,739,600
	5,739,601
51	5,739,602
71	5,739,603
73	5,739,604
78	5,739,605
90.5	5,739,606
	5,739,607
	5,739,608
	5,739,609
93	5,739,610
103	5,739,611
113	5,739,612
166	5,739,613
180	5,739,614
186	5,739,615
194	5,739,616
214	5,739,617
232	5,739,618
248	5,739,619
254	5,739,620
316	5,739,621
	5,739,622
323	5,739,623
328	5,739,624
	5,739,625
360	5,739,626
750	5,739,627

CLASS 312

198	5,738,422
290	5,738,423
293.3	5,738,424
348.3	5,738,425

CLASS 313

309	5,739,628
412	5,739,629
414	5,739,630
	5,739,631
467	5,739,632
490	5,739,633
496	5,739,634
504	5,739,635
570	5,739,636
589	5,739,637

CLASS 315

8	5,739,638
86	5,739,639
119	5,739,640
169.1	5,739,641
169.3	5,739,642
241 S	5,739,643
289	5,739,644
291	B1 396,155
307	5,739,645
502	5,739,646

CLASS 318

34	5,739,647
112	5,739,648
139	5,739,649
254	5,739,650
439	5,739,651
	5,739,652
560	5,739,653
561	5,739,654
568.12	5,739,655
573	5,739,656
587	5,739,657
599	5,739,658
605	5,739,659
626	5,739,660
685	5,739,661
701	5,739,662
	5,739,663
808	5,739,664

CLASS 320

2	5,739,665
	5,739,666
5	5,739,667
	5,739,668
6	5,739,669
14	5,739,670
15	5,739,671
21	5,739,672
31	5,739,673
48	5,739,674

CLASS 322

1	5,739,675
22	5,739,676
25	5,739,677

CLASS 323

268	5,739,678
299	5,739,679
313	5,739,680
314	5,739,681
315	5,739,682

CLASS 324

173	5,739,684
232	5,739,685
259	5,739,686
303	5,739,687
309	5,739,688
320	5,739,689
321	5,739,690
322	5,739,691
444	5,739,692
465	5,739,699
509	5,739,693
556	5,739,694
637	5,739,695
754	5,739,696
755	5,739,697
772	5,739,698

CLASS 326

62	5,739,704
80	5,739,700
82	5,739,701
86	5,739,702
110	5,739,703

CLASS 327

74	5,739,705
110	5,739,706
112	5,739,707
143	5,739,708
156	5,739,709
173	5,739,710
175	5,739,711
323	5,739,712
379	5,739,713
384	5,739,714
387	5,739,715
427	5,739,716
514	5,739,717
530	5,739,718
543	5,739,719

CLASS 330

9	5,739,720
253	5,739,721
	5,739,722
295	5,739,723

CLASS 331

1 R	5,739,724
11	5,739,727
57	5,739,725
	5,739,726
111	5,739,728
117 R	5,739,729
177 V	5,739,730

CLASS 333

17.1	5,739,731
172	5,739,732
202	5,739,733
210	5,739,734
219	5,739,735

CLASS 336

65	5,739,736
229	5,739,738

CLASS 337

206	5,739,737
234	5,739,739
248	5,739,740
290	5,739,741

CLASS 338

21	5,739,742
313	5,739,743

CLASS 340

20	5,739,744
146.2	5,739,745
425.5	5,739,746
426	5,739,747
	5,739,748
	5,739,749
432	5,739,750
475	5,739,751
551	5,739,752
555	5,739,753
572	5,739,754
627	5,739,755
632	5,739,756
667	5,739,757
692	5,739,758
825.15	5,739,760
825.16	5,739,761
825.21	5,739,762
825.22	5,739,763
825.44	5,739,759
	5,739,764
825.49	5,739,765
825.54	5,739,766
902	5,739,767
933	5,739,768
945	5,739,769
976	5,739,770
978	5,739,771
990	5,739,772
	5,739,773
994	5,739,774

CLASS 341

10	5,739,775
22	5,739,776
50	5,739,777
55	5,739,778
59	5,739,779
	5,739,783
135	5,739,780
154	5,739,782
155	5,739,781

CLASS 342

124	B1 641,139
354	5,739,784
357	5,739,785
	5,739,786
	5,739,787
359	5,739,788
465	5,739,789

CLASS 343

702	5,739,790
	5,739,791
	5,739,792
	5,739,793
713	5,739,794
795	5,739,795
895	5,739,796

CLASS 345

8	5,739,797
67	5,739,798
68	5,739,799
82	5,739,800
84	5,739,801
89	5,739,802
98	5,739,803
99	5,739,804
100	5,739,805
115	5,739,806
134	5,739,807
147	5,739,808
150	5,739,809
156	5,739,810
161	5,739,811
163	5,739,812
167	5,739,813
173	5,739,814
199	5,739,815
204	5,739,816
340	5,739,821
341	5,739,817
419	5,739,822
425	5,739,818
426	5,739,819
	5,739,820
440	5,739,823
	5,739,824
441	5,739,825
443	5,739,826
473	5,739,827
558	5,740,411

CLASS 347

9	5,739,828
17	5,739,829
49	5,739,830
51	5,739,831
68	5,739,832
100	5,739,833
111	5,739,834
176	5,739,835
200	5,739,836
	5,739,837
211	5,739,838
214	5,739,839
232	5,739,840
237	5,739,841
252	5,739,842
260	5,739,843

CLASS 348

43	5,739,844
83	5,739,845
87	5,739,846
119	5,739,848
143	5,739,847
207	5,739,849
231	5,739,850
311	5,739,851
315	5,739,852
335	5,739,853
	5,739,854
342	5,739,855
349	5,739,856
	5,739,857
355	5,739,858
375	5,739,859
384	5,739,860
391	5,739,861
402	5,739,862
405	5,739,863
441	5,739,865
473	5,739,864
	5,739,866
581	5,739,867
584	5,739,868
589	5,739,869
628	5,739,870
674	5,739,871
699	5,739,872
720	5,739,873
731	5,739,874
744	5,739,875

CLASS 349

1	5,739,876
42	5,739,877
	5,739,878
62	5,739,879
110	5,739,880
118	5,739,881
123	5,739,882
124	5,739,883
133	5,739,884
135	5,739,885
139	5,739,886
149	5,739,887
153	5,739,888
156	5,739,889
	5,739,890

CLASS 351

25	5,740,254
113	5,739,891
153	5,739,892
158	5,739,893

CLASS 352

46	5,739,894
79	5,739,895

CLASS 353

31	5,738,426
57	5,738,427
97	5,738,428
122	5,738,429
	5,738,430

CLASS 355

27	5,739,896
40	5,739,897
53	5,739,898
	5,739,899
109	5,739,900

CLASS 356

5.01	5,739,901
73	5,739,902
216	5,739,903
238	5,739,904
319	5,739,905
357	5,739,906
358	5,739,907
367	5,739,908
369	5,739,909
	5,739,910
375	5,739,911
376	5,739,912
401	5,739,913
405	5,739,914
406	5,739,915
414	5,739,916

CLASS 358

298	5,739,917
403	5,739,918
407	5,739,919
426	5,739,920
442	5,739,921
447	5,739,922
473	5,739,923
487	5,739,924
498	5,739,925
5.8	5,739,927
520	5,739,928
529	5,739,926

CLASS 359

3	5,739,929
23	5,739,930
40	5,739,931
110	5,739,932
117	5,739,933
124	5,739,934
128	5,739,935
154	5,739,936
161	5,739,937
187	5,739,938
204	5,739,939
	5,739,940
224	5,739,941
230	5,739,942
281	5,739,943
287	5,739,944
291	5,739,945
296	5,739,946
299	5,739,947
321	5,739,948
332	5,739,949
359	5,739,950
494	5,739,951
495	5,739,952
557	5,739,953
631	5,739,955
643	5,739,956
659	5,739,957
660	5,739,958
666	5,739,959
683	5,739,960
687	5,739,961
700	5,739,962
704	5,739,963
727	5,739,964
753	5,739,965
779	5,739,966
826	5,739,967

CLASS 360

48	5,739,968
51	5,739,969
75	5,739,970
77.03	5,739,972
77.06	5,739,971
77.15	5,739,973
78.02	5,739,974
81	5,739,975
85	5,739,976
	5,739,977
92	5,739,978
94	5,739,979
99.08	5,739,980
103	5,739,981
104	5,739,982
106	5,739,983
	5,739,984
107	5,739,985
108	5,739,986
113	5,739,987
	5,739,988
	5,739,990
	5,739,991
133	5,739,992
	5,739,993
135	5,739,994
137	5,739,995
	5,739,996

CLASS 361

19	5,739,997
56	5,739,998
	5,739,999
	5,740,000
91	5,740,001
93	5,740,002
94.7	5,740,256
115	5,740,003
124	5,740,004
160	5,740,005
213	5,740,006
220	5,740,007
225	5,740,008

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UMI

234	5,740,009
321 1	5,740,010
685	5,740,011
686	5,740,012
697	5,740,013
	5,740,014
699	5,740,015
704	5,740,016
	5,740,017
720	5,740,018
759	5,740,019
796	5,740,020

CLASS 362

103	5,738,432
106	5,738,431
109	5,738,433
199	5,738,434
244	B1 174,649
249	5,738,435
294	5,738,436
363	5,738,437
374	5,738,438

CLASS 363

37	5,740,021
39	5,740,022
44	5,740,024
65	5,740,023
	5,740,025
86	5,740,026
97	5,740,027

CLASS 364

130	5,740,028
132	5,740,029
138	5,740,030
145	5,740,031
149	5,740,033
167 01	5,740,034
321	5,740,036
400	5,740,037
401 R	5,740,035
420	5,740,038
424 046	5,740,039
424 051	5,740,040
424 055	5,740,041
426 015	5,740,042
	5,740,043
426 033	5,740,044
431 03	5,740,045
436	5,740,046
439	5,740,047
443	5,740,048
450	5,740,049
464 28	5,740,050
468 26	5,740,051
468 28	5,740,052
	5,740,053
469 01	5,740,054
470	5,740,055
470 09	5,740,056
	5,740,057
474 27	5,740,058
478 01	5,740,059
478 02	5,740,060
	5,740,061
478 06	5,740,062
481	5,740,063
487	5,740,064
488	5,740,065
489	5,740,066
	5,740,067
	5,740,068
	5,740,069
490	5,740,070
	5,740,071
499	5,740,072
	5,740,073
500	5,740,074
514 C	5,740,075
514 R	5,740,076
526	5,740,078
	5,740,079
557	5,740,080
559	5,740,081
	5,740,082
56	5,740,077
565	5,740,083
578	5,740,084
	5,740,085
580	5,740,086
707	5,740,087
717	5,740,088
723	5,740,089
724 07	5,740,090
724 17	5,740,091
736 16	5,740,092
748 9	5,740,093
754	5,740,094
760	5,740,095
825	5,740,096

CLASS 365

49	5,740,097
	5,740,098
51	5,740,099
145	5,740,100
151	5,740,101
154	5,740,102
185 01	5,740,103
185 03	5,740,104
185 05	5,740,105
185 1	5,740,106
185 11	5,740,107
185 17	5,740,108
185 18	5,740,109
185 25	5,740,110
189 01	5,740,112
189 09	5,740,111
189 11	5,740,113
200	5,740,114
203	5,740,115
205	5,740,116
215	5,740,117
222	5,740,118
	5,740,119
230 03	5,740,120
233	5,740,121
	5,740,122
	5,740,123

CLASS 366

325.92	5,738,439

CLASS 367

73	5,740,124
75	5,740,125
84	5,740,126
85	5,740,127
138	5,740,128

CLASS 368

10	5,740,129
82	5,740,130
148	5,740,131
204	5,740,132

CLASS 369

13	5,740,133
30	5,740,134
34	5,740,135
44 25	5,740,136
44 28	5,740,137
44 29	5,740,138
44 32	5,740,139
53	5,740,140
59	5,740,142
60	5,740,143
	5,740,144
100	5,740,145
107	5,740,146
110	5,740,147
112	5,740,148
116	5,740,149
119	5,740,150
275 2	5,740,153
275 3	5,740,151
	5,740,152
	5,740,154
291	5,740,155
859	5,740,141

CLASS 370

60	5,740,156
229	5,740,157
224	5,740,158
249	5,740,159
255	5,740,160
260	5,740,161
264	5,740,162
271	5,740,163
316	5,740,164
330	5,740,165
331	5,740,166
337	5,740,167
347	5,740,168
362	5,740,169
390	5,740,170
392	5,740,171
	5,740,172
394	5,740,173
402	5,740,174
422	5,740,175
440	5,740,176

CLASS 371

[illegible]	5,740,177
21 2	5,740,179
21 5	5,740,178
22 [illegible]	5,740,180
22 [illegible]	5,740,181
	5,740,182
25	5,740,183
30	5,740,184
37	5,740,185
	5,740,186
[illegible]	5,740,187
40 11	5,740,188
53	5,740,189

CLASS 372

23	5,740,190
34	5,740,191
45	5,740,192
	5,740,193
75	5,740,194
87	5,740,195

CLASS 373

71	5,740,196

CLASS 374

9	5,738,440
102	5,738,441
148	5,740,197
162	5,738,442

CLASS 375

219	5,740,199
224	5,740,200
257	5,740,198
286	5,740,201
326	5,740,202
341	5,740,203
	5,740,204
344	5,740,205
346	5,740,206
	5,740,207
	5,740,208
	5,740,209
362	5,740,210
371	5,740,211
372	5,740,212
374	5,740,213
377	5,740,214

CLASS 376

272	5,740,215
285	5,740,216
301	5,740,217
442	5,740,218

CLASS 377

29	5,740,219
72	5,740,220

CLASS 378

4	5,740,222
11	5,740,224
58	5,740,221
65	5,740,225
70	5,740,226
91	5,740,227
161	5,740,223
	5,740,228

CLASS 379

67	5,740,229
88	5,740,230
89	5,740,231
93 07	5,740,232
113	5,740,233
115	5,740,234
170	5,740,235
201	5,740,236
211	5,740,237
221	5,740,238
243	5,740,239
265	5,740,240
399	5,740,241
[illegible]	5,740,242

CLASS 380

1	5,740,243
4	5,740,244
9	5,740,245
21	5,740,246
24	5,740,247
25	5,740,248
28	5,740,249
	5,740,250
49	5,740,251
	5,740,252

CLASS 381

	5,740,253
58	5,740,255
[illegible]	5,740,257
72	5,740,258
90	5,740,259
119	5,740,260
168	5,740,261
169	5,740,262
187	5,740,263
[illegible]	5,740,264
199	5,740,265

CLASS 382

128	5,740,266
132	5,740,267
	5,740,268
133	5,740,269
	5,740,270
137	5,740,271
149	5,740,272
187	5,740,273
190	5,740,274
197	5,740,275
210	5,740,276
232	5,740,277
	5,740,278
237	5,740,279
240	5,740,280
243	5,740,281
248	5,740,282
	5,740,283
250	5,740,284
299	5,740,285
312	5,740,286

CLASS 383

67	5,738,443
68	5,738,444

CLASS 384

99	5,738,445
112	5,738,446
117	5,738,447

CLASS 385

6	5,740,287
11	5,740,288
14 7	5,740,301
24	5,740,289
27	5,740,290
31	5,740,291
37	5,740,292
92	5,740,293
93	5,740,294
109	5,740,295
116	5,740,296
127	5,740,297
135	5,740,298
	5,740,299
	5,740,300

CLASS 386

33	5,740,302
38	5,740,303
46	5,740,304
52	5,740,305
67	5,740,306
68	5,740,307
93	5,740,309
95	5,740,310
112	5,740,311
129	5,740,312

CLASS 392

419	5,740,313
420	5,740,314
489	5,740,315

CLASS 395

2 25	5,740,316
2 36	5,740,317
2 62	5,740,318
2 75	5,740,319
2 76	5,740,320
10	5,740,321
	5,740,322
13	5,740,323
20 12	5,740,366
22	5,740,324
	5,740,325
27	5,740,326
89	5,740,327
93	5,740,328
97	5,740,329
102	5,740,330
108	5,740,331
	5,740,332
109	5,740,333
	5,740,334
	5,740,335
113	5,740,336
116	5,740,338
117	5,740,339
118	5,740,340
119	5,740,337
120	5,740,341
	5,740,342
130	5,740,343
	5,740,344
[illegible]	5,740,345
182 [illegible]	5,740,346
182 04	5,740,348
182 06	5,740,349
182 08	5,740,350
183 09	5,740,347
183 11	5,740,351
183 16	5,740,352
183 18	5,740,353
183 21	5,740,354
	5,740,355
183 22	5,740,356
184 01	5,740,358
	5,740,359
185 03	5,740,360
185 1	5,740,357
187 01	5,740,361
200.03	5,740,362
200 09	5,740,364
200 11	5,740,365
200 3	5,740,363
200 31	5,740,367
200 32	5,740,368
200 47	5,740,369
200 49	5,740,370
200.59	5,740,371
200.61	5,740,372
200 67	5,740,373
200 68	5,740,374
	5,740,375
281	5,740,376
282	5,740,377
283	5,740,378
284	5,740,379
287	5,740,380
293	5,740,381
	5,740,382
296	5,740,383
306	5,740,384
308	5,740,385
	5,740,386
309	5,740,387
328	5,740,388
346	5,740,389
348	5,740,390
376	5,740,391
386	5,740,392
391	5,740,393
411	5,740,394
430	5,740,395
	5,740,396
[illegible]	5,740,397
444	5,740,398
464	5,740,399
471	5,740,400
[illegible]	5,740,401
484	5,740,402
[illegible]	5,740,403
[illegible]	5,740,404
508	5,740,405
	5,740,406
	5,740,407
	5,740,408
[illegible]	5,740,409
[illegible]	5,740,410
[illegible]	5,740,412
[illegible]	5,740,413
[illegible]	[illegible]
585	5,740,415
	[illegible]
586	[illegible]
	[illegible]
588	5,740,419
[illegible]	5,740,420
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	5,740,423
	5,740,424
[illegible]	5,740,425
[illegible]	5,740,427
	5,740,428
	5,740,429
[illegible]	5,740,430
	[illegible]
[illegible]	5,740,432
	[illegible]
	5,740,434
67	5,740,435
65	5,740,436
671	5,740,437
680	5,740,438
[illegible]	5,740,439
[illegible]	5,740,440
	[illegible]
	5,740,442
[illegible]	5,740,443
	5,740,444
	5,740,445
[illegible]	5,740,446
[illegible]	5,740,447
	5,740,448
[illegible]	5,740,449
	[illegible]
	[illegible]
	[illegible]
	5,740,454
	5,740,455
[illegible]	5,740,456
95	5,740,457
800	5,740,458
	5,740,459
	5,740,460
	5,740,461
800 [illegible]	5,740,463
805	5,740,462
823	5,740,464
825	5,740,465
	5,740,466
876	5,740,467
877	5,740,468
885	5,740,469

CLASS 396

52	5,740,470
53	5,740,471
55	5,740,472
	5,740,473
62	5,740,474
78	5,740,475
87	5,740,476
101	5,740,477
121	5,740,478
176	5,740,479
177	5,740,480
225	5,740,481
296	5,740,482
315	5,740,483
319	5,740,484
384	5,740,485
411	5,740,486
514	5,740,487
604	5,740,488
617	5,740,489

CLASS 399

8	5,740,490
25	5,740,491
66	5,740,492
71	5,740,493
	5,740,494
	5,740,495
83	5,740,496
87	5,740,497
98	5,740,498
105	5,740,499
114	5,740,500
116	5,740,501
128	5,740,502
167	5,740,503
171	5,740,504
200	5,740,505
262	5,740,506
	5,740,507
277	5,740,509
298	5,740,510
303	5,740,511
308	5,740,508
316	5,740,512
333	5,740,513
366	5,740,514

CLASS 400

231	5,738,448
234	5,738,449
495	5,738,450
624	5,738,452
	5,738,453
625	5,738,454
636	5,738,455
642	5,738,456
706	5,738,457

CLASS 401

151	5,738,458
190	5,738,459

CLASS 402

73	5,738,460

CLASS 403

294	5,738,461
353	5,738,462

CLASS 405

154	5,738,463
202	5,738,464
266	5,738,465
302 2	5,738,466

CLASS 406

86	5,738,467

CLASS 407

103	5,738,468

CLASS 408

[illegible]	5,738,469

CLASS 409

178	5,738,470

CLASS 410

110	5,738,471

CLASS 411

309	5,738,472
460	5,738,473
473	5,738,474
501	5,738,475
508	5,738,476
509	5,738,477

CLASS 414

27	5,738,478
373	5,738,479
490	5,738,480
744 6	5,738,481
752	5,738,482
758	5,738,483
788 1	5,738,484
795 4	5,738,485
796	5,738,486
799	5,738,487

CLASS 415

112	5,738,488
139	5,738,490
177	5,738,489
	5,738,491
211 1	5,738,492

CLASS 416

97 R	5,738,493
134 A	5,738,494

CLASS 417

44 1	5,738,495
	5,738,496
53	5,738,497
	5,738,498
148	5,738,499
204	5,738,500
310	5,738,501
423 7	5,738,503
569	5,738,502

CLASS 418

55 3	5,738,504
102	5,738,505

CLASS 422

3	5,738,824
82 11	5,738,825
102	5,738,826
104	5,738,827
105	5,738,828
107	5,738,829
111	5,738,830
120	5,738,831
171	5,738,832
177	5,738,833
	5,738,834

CLASS 423

210	5,738,835

CLASS 424

[illegible] 41	5,738,836
9 341	5,738,838
9 36	5,738,837
43	5,738,839
53	5,738,840
59	5,738,841
	5,738,842
61	5,738,843
70 8	5,738,879
85 1	5,738,844
85 4	5,738,845
85 7	5,738,846
141 1	5,738,847
185 1	5,738,848
192 1	5,738,849
195 1	5,738,850
	5,738,851
199 1	5,738,852
204 1	5,738,853
205 1	5,738,854
258 1	5,738,855
401	5,738,856
	5,738,857
	5,738,858
	5,738,859
402	5,738,860
403	5,738,861
	5,738,862
405	5,738,863
426	5,738,864
440	5,738,865
442	5,738,866
450	5,738,867
	5,738,868
	5,738,869
	5,738,870
451	5,738,871
452	5,738,872
464	5,738,873
472	5,738,874
484	5,738,875
486	5,738,876
558	5,738,878

CLASS 425

116	5,738,880
133 1	5,738,881
174 4	5,738,882
190	5,738,883
197	5,738,884
556	5,738,886
577	5,738,885

CLASS 426

51	5,738,887
52	5,738,888
66	5,738,889
106	5,738,890
113	5,738,891
242	5,738,892
413	5,738,893
483	5,738,894
515	5,738,895
557	5,738,896
573	5,738,897
614	5,738,898
658	5,738,900

CLASS 427

2 12	5,738,902
2 3	5,738,901
8	5,738,903
96	5,738,904
115	5,738,905
131	5,738,906
172	5,738,907
249	5,738,908
255 4	5,738,909
288	5,738,910
387	5,738,911
389	5,738,912
419 8	5,738,913
437	5,738,914
487	5,738,915
511	5,738,916
576	5,738,917
580	B1 609,564

CLASS 428

1	5,738,918
35 9	5,738,920
36 4	5,738,921
36 5	5,738,922
36 91	5,738,923
68	5,738,924
101	5,738,925
141	5,738,926
	5,738,927
	5,738,928
	5,738,929
156	5,738,930
195	5,738,932
209	5,738,931
214	5,738,933
220	5,738,934
304 4	5,738,935
313 5	5,738,936
316 6	5,738,937
332	5,738,938
343	5,738,939
372	5,738,940
407	5,738,941
409	5,738,944
428	5,738,942
469	5,738,943
552	5,740,515
553	5,740,516
611	5,738,945
	5,738,946
629	5,738,947
663	5,738,948
694 ML	5,738,950
697	5,738,949
698	5,738,951

CLASS 429

3	5,738,919
56	5,738,952
59	5,738,953
97	5,738,954
140	5,738,955
198	5,738,956
223	5,738,957
	5,738,958

CLASS 430

5	5,738,959
21	5,738,960
22	5,738,961
45	5,738,962
57	5,738,963
67	5,739,037
109	5,738,964
	5,738,965
110	5,738,966
119	5,738,967
191	5,738,968
204	5,738,969
259	5,738,970
263	5,738,971
270 1	5,738,972
270 11	5,738,973
278 1	5,738,974
280 1	5,738,975
285 1	5,738,976
313	5,738,977
372	5,738,978
399	5,738,979
414	5,738,980
509	5,738,981
522	5,738,982
536	5,738,983

CLASS 431

90	5,738,506
344	5,738,507
350	5,738,508
352	5,738,509

CLASS 432

80	5,738,510
95	5,738,511

CLASS 433

3	5,738,512
13	5,738,513
19	5,738,514
55	5,738,515
60	5,738,516
73	5,738,517
74	5,738,518
92	5,738,519
98	5,738,520
173	5,738,521
174	B1 960,381
216	5,738,575

CLASS 434

22	5,738,522
170	5,738,523
210	5,738,524
219	5,738,525
304	5,738,526
322	5,738,527

CLASS 435

4	5,738,984
5	5,738,985
	5,738,986
6	5,738,987
	5,738,988
	5,738,989
	5,738,990
	5,738,991
	5,738,992
	5,738,993
	5,738,995
7 1	5,738,996
7 21	5,738,998
	5,738,999
7 24	5,739,000
7 4	5,738,997
7 93	5,739,001
23	5,739,002
29	5,739,003
31	5,739,004
40 5	5,739,005
67	5,739,006
69 1	5,739,007
	5,739,008
	5,739,009
	5,739,010
69 6	5,739,011
	5,739,012
91 1	5,739,013
101	5,739,014
	5,739,015
117	5,739,016
146	5,739,017
172 3	5,739,018
174	5,739,019
176	5,739,020
180	5,739,021
184	5,739,022
188	5,739,023
201	5,739,024
219	5,739,025
240 2	5,739,026
	5,739,027
252 1	5,739,028
254 21	5,739,029
256 5	5,739,030
262	5,739,031
320 1	5,739,032
325	5,739,033

CLASS 436

23	5,739,034
28	5,739,035
53	5,739,036
113	5,739,038
149	5,739,039
172	5,739,040
518	5,739,041
523	5,739,042

CLASS 437

21	5,739,043
40	5,739,044
60	5,739,045
190	5,739,046
192	5,739,047
226	5,739,048

CLASS 438

3	5,739,049
15	5,739,050
16	5,739,051
17	5,739,052
108	5,739,053
124	5,739,054
125	5,739,055
172	5,739,057
217	5,739,058
238	5,739,056
	5,739,059
253	5,739,060
275	5,739,061
320	5,739,062
452	5,739,063
528	5,739,064
592	5,739,065
595	5,739,066
618	5,739,067
637	5,739,068
710	5,739,069

CLASS 439

41	5,738,528
63	5,738,529
66	5,738,530
71	5,738,531
79	5,738,532
	5,738,533
83	5,738,534
138	5,738,535
142	5,738,536
159	5,738,537
160	5,738,538
535	5,738,539
536	5,738,540
567	5,738,541
595	5,738,542
	5,738,543
607	5,738,544
	5,738,545
620	5,738,546
	5,738,547
652	5,738,548
724	5,738,549
751	5,738,550
752	5,738,551
762	5,738,552
763	5,738,553
874	5,738,554

CLASS 441

65	5,738,555
75	5,738,556
92	5,738,557

CLASS 446

90	5,738,558
100	5,738,559
220	5,738,560
297	5,738,561
	B1 466,181

CLASS 451

5	5,738,562
	5,738,563
11	5,738,564
28	5,738,565
	5,738,566
41	5,738,567
	5,738,568
56	5,738,569
119	5,738,570
188	5,738,571
221	5,738,572
287	5,738,573
288	5,738,574
539	5,738,576

CLASS 452

127	5,738,577
142	5,738,578

CLASS 454

160	5,738,579
285	5,738,580
365	5,738,581

CLASS 455

38 3	5,740,517
45	5,740,518
	5,740,519
69	5,740,520
76	5,740,521
113	5,740,522
186 1	5,740,523
232 1	5,740,524
259	5,740,525
277 2	5,740,526
301	5,740,527
327	5,740,528
343	5,740,529
403	5,740,530
	5,740,531
404	5,740,532
432	5,740,533
434	5,740,534
437	5,740,535
447	5,740,536
450	5,740,537
456	5,740,538
	5,740,539
458	5,740,540
502	5,740,541
516	5,740,542
550	5,740,543

CLASS 463

40	5,738,583
52	5,738,584

CLASS 464

88	5,738,585
106	5,738,586

CLASS 472

61	5,738,587
92	5,738,588
103	5,738,589
117	5,738,590

CLASS 473

4	5,738,591
130	5,738,592
135	5,738,593
171	5,738,594
209	5,738,595
350	5,738,596
377	5,738,597
392	5,738,598
423	5,738,599
448	5,738,600
484	5,738,601

CLASS 474

158	5,738,603

CLASS 475

127	5,738,602
206	5,738,604

CLASS 477

108	5,738,605
111	5,738,606
125	5,738,607
170	5,738,608
175	5,738,609
209	5,738,610

CLASS 482

6	5,738,611
8	5,738,612
47	5,738,613
51	5,738,614
101	5,738,615
102	5,738,616
104	5,738,617

CLASS 493

208	5,738,618
226	5,738,619
445	5,738,620
464	5,738,621

CLASS 494

7	5,738,622

CLASS 502

37	5,739,070
53	5,739,071
72	5,739,072
117	5,739,073
227	5,739,074
302	5,739,075

CLASS 503

200	5,739,077
217	5,739,078

CLASS 504

103	5,739,079
110	5,739,080
116	5,739,081
206	5,739,082
282	5,739,083
344	5,739,085

CLASS 505

330	5,739,084
473	5,739,086

CLASS 508

144	5,739,087
156	5,739,088
368	5,739,089

CLASS 510

224	5,739,091
235	5,739,092
276	5,739,093
327	5,739,094
367	5,739,095
376	5,739,096
446	5,739,097
511	5,739,098
514	5,739,099

CLASS 512

25	5,739,100

CLASS 514

2	5,739,101
	5,739,102
8	5,739,103
9	5,739,104
11	5,739,105
12	5,739,106
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15	5,739,109
18	5,739,110
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19	5,739,112
21	5,739,113
22	5,739,114
24	5,739,115
25	5,739,116
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44	5,739,118
	5,739,119
47	5,739,120
56	RE 35,770
58	5,739,121
59	5,739,122
119	5,739,123
176	5,739,124
179	5,739,125
218	5,739,127
220	5,739,128
221	5,739,129
224 5	5,739,130
237 5	5,739,131
247	5,739,132
248	5,739,133
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252	5,739,135
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256	5,739,137
263	5,739,138
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269	5,739,140
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275	5,739,142
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277	5,739,144
282	5,739,145
288	5,739,146
303	5,739,147
314	5,739,148
317	5,739,149
326	5,739,150
327	5,739,151
356	5,739,152
406	5,739,153
423	5,739,155
428	5,739,157
429	5,739,158
458	5,739,156
475	5,739,159
510	5,739,160
530	5,739,161
534	5,739,162
539	5,739,163
567	5,739,164
570	5,739,165
602	5,739,166
616	5,739,167
643	5,739,168

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685	5,739,170
716	5,739,171
881	5,739,172
CLASS 521	
77	RE 35,771
99	5,739,173
131	B1 496,866
CLASS 522	
25	5,739,174
34	5,739,175
CLASS 523	
113	5,739,176
118	5,739,177
122	5,739,178
201	5,739,179
203	5,739,180
213	5,739,181
403	5,739,184
415	5,739,185
443	5,739,186
451	5,739,187
CLASS 524	
47	5,739,244
100	5,739,182
140	5,739,188
239	5,739,183
300	5,739,189
310	5,739,190
377	5,739,191
379	5,739,192
413	5,739,193
457	5,739,194
459	5,739,195
460	5,739,196
492	5,739,197
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527	5,739,203
539	5,739,204
555	5,739,205
591	5,739,206
728	5,739,207
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54.1	5,739,208
113	5,739,209
279	5,739,210
375	5,739,211
411	5,739,212
438	5,739,213
	5,739,214
	5,739,215
476	5,739,217
487	5,739,218
CLASS 526	
64	5,739,219
79	5,739,220
81	5,739,221
87	5,739,222
89	5,739,223
124.5	5,739,224
127	5,739,225
130	5,739,226
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245	5,739,233
255	5,739,234
257	5,739,235
274	5,739,231
277	5,739,236
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279	5,739,238
283	5,739,239
301	5,739,240
318.2	5,739,241
318.6	5,739,242
325	5,739,243
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28	5,739,245
32	5,739,246
38	5,739,248
44	5,739,249
45	5,739,250
49	5,739,251
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438	5,739,216
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485	5,739,267
492	5,739,268
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501	5,739,270
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300	5,739,271
307	5,739,272
324	5,739,273
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356	5,739,286
367	5,739,287
382	5,739,288
388.1	5,739,289
388.2	5,739,290
388.22	5,739,291
395	5,739,292
416	5,739,293
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557	5,739,295
577	5,739,296
689	5,739,298
734	5,739,299
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4.1	5,739,300
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5	5,739,302
18.5	5,739,303
18.7	5,739,304
23.1	5,739,305
23.5	5,739,306
23.51	5,739,307
24.5	5,739,308
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25.3	5,739,311
26.44	5,739,313
55.3	5,739,314
56	5,739,316
CLASS 540	
128	5,739,318
140	5,739,319
200	5,739,321
469	5,739,322
474	5,739,323
539	5,739,324
554	5,739,325
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224	5,739,329
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277	5,739,332
296	5,739,333
384	5,739,334
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20	5,739,336
72	5,739,337
153	5,739,338
158	5,739,339
183	5,739,340
217	5,739,341
318	5,739,342
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131	5,739,343
178	5,739,344
183	5,739,345
194	5,739,346
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264.6	5,739,349
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537	5,739,354
CLASS 549	
255	5,739,355
285	5,739,356
320	5,739,358
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494	5,739,361
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625	5,739,363
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92	5,739,365
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147	5,739,367
187	5,739,368
418	5,739,371
425	5,739,369
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51	5,739,376
75	5,739,377
181	5,739,378
212	5,739,379
220	5,739,380
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418	5,739,385
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565	5,739,395
586	5,739,394
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15	5,739,396
58	5,739,398
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410	5,738,632
559	5,738,633
572	5,738,634
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5	5,738,636
41	5,738,637
148	5,738,638
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6	5,738,639
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43	5,738,641
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54	5,738,684
61	5,738,685
182	B1 487,748
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20	5,738,686
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19	5,740,547
35	5,740,548
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265	5,739,409

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	947	393,339
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		393,358
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	957	393,342
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		393,360
		393,361
D3—	204	393,362
	215	393,363
	221	393,364
	226	393,365
	233	393,366
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	303	393,368
	323	393,369
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	339	393,372
	349	393,373
	358	393,374
	361	393,375
	375	393,376
	381	393,377
	393	393,378
	454	393,379
	462	393,380
	465	393,381
	474	393,382
	497	393,383
	501	393,384
	505	393,385
	511	393,386
	513	393,387
		393,388
	523	393,389
	550	393,390
	552	393,391
	553	393,392
	559	393,393
	632	393,394
D7—	350	393,395
	416	393,396
	558	393,397
	594	393,398
	687	393,399
	693	393,400
D8—	5	393,401
	8	393,402
	40	393,403
	57	393,404
	99	393,405
	320	393,406
	347	393,407
	354	393,408
	356	393,409
	358	393,410
	360.1	393,411
	367	393,412
	370	393,413
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	380	393,415
	381	393,416
	382	393,417
D9—	341	393,418
	347	393,419
	424	393,420
	428	393,421
	433	393,422
D10—	64	393,423
	68	393,424
	111	393,425
D11—	3	393,426
		393,427
	6	393,428
	165	393,429
	216	393,430
	221	393,431
D12—	111	393,432
	118	393,433
	147	393,434
	149	393,435
	173	393,436
	177	393,437
	178	393,438
	196	393,439
		393,440
	204	393,441
	209	393,442
	315	393,443
	317	393,444
	402	393,445
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	146	393,447
	173	393,448
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	107	393,451
	114	393,453
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	117	393,458
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	121	393,460
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		393,462
	149	393,463
	151	393,464
	154	393,465
	191	393,466
	230	393,467
	240	393,468
	248	393,469
	249	393,470
D15—	5	393,471
	79	393,472
	133	393,473
	136	393,474
	140	393,475
	147	393,476
D16—	326	393,477
		393,478
D18—	4	393,479
	7	393,480
	15	393,481
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D19—	32	393,483
	42	393,484
	51	393,485
	90	393,486
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	43	393,490
D21—	6	393,491
	29	393,492
	48	393,493
	124	393,495
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	184	393,498
	191	393,499
	214	393,500
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D32—	3	393,505
	15	393,506
	35	393,507
	52	393,508
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D34—	1	393,510
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D99—	59	393,523
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5,739,096
5,739,184
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DESIGN PATENTS

04 393,365
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393,460
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393,375
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393,387
393,389
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